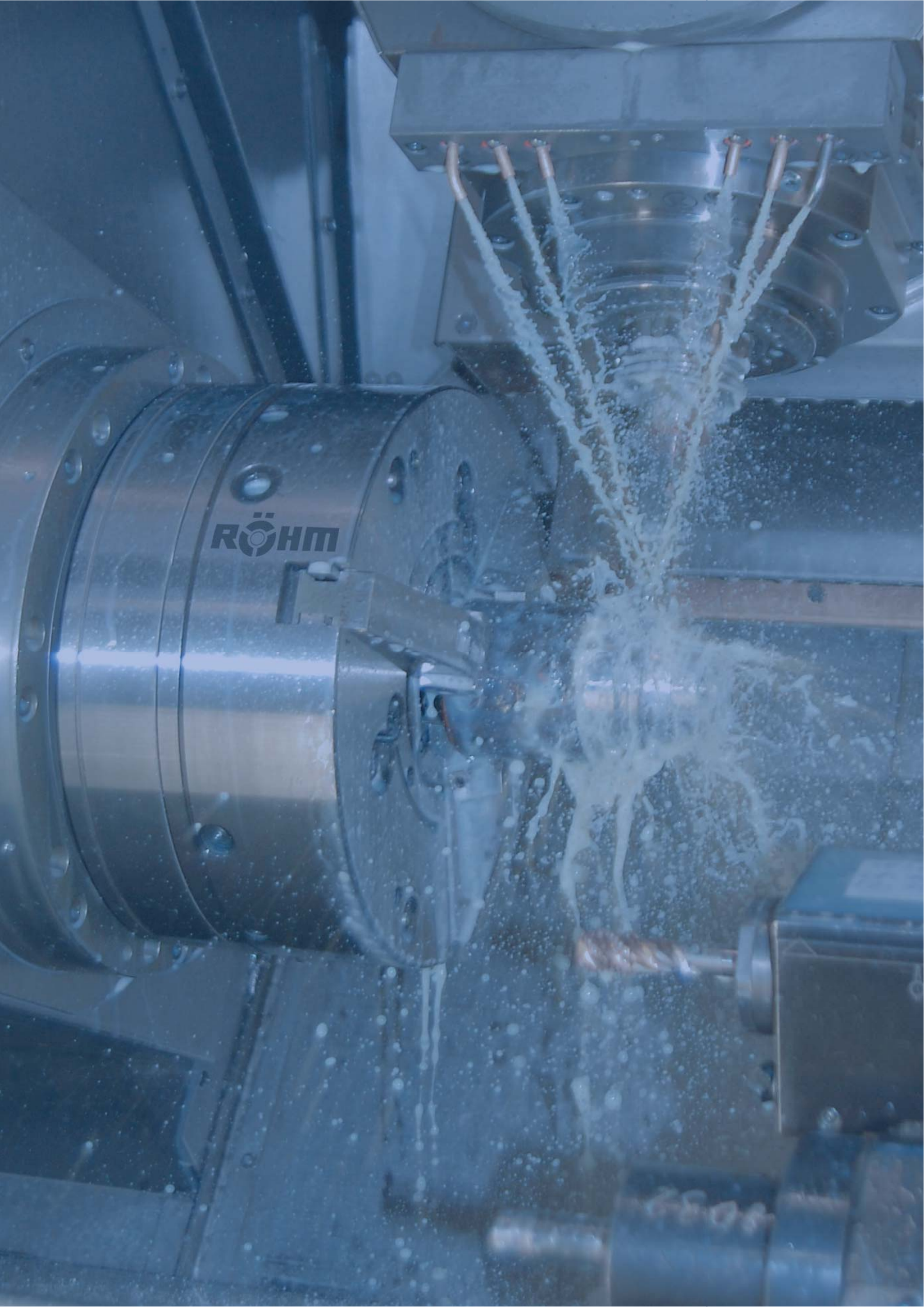




# POWER CHUCKS CYLINDERS / STEADY RESTS

EDITION 8

**RÖHM**  
driven by technology



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## POWER CHUCKS | CYLINDERS | STEADY RESTS

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|                          |      |
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|                                          |      |
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|               |      |
|---------------|------|
| F-senso chuck | 6198 |
|---------------|------|

### Zero point clamping system

|          |      |
|----------|------|
| EASYLOCK | 6199 |
|----------|------|



# Operation guide



| TYPE                           | KFD-HS                                                                                  | KFD-HE                              | KFG                                  | PKF                                               |
|--------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------------------|
| Power chucks with through-hole |                                                                                         |                                     |                                      |                                                   |
| Feature                        | larger than average through-hole, high clamping precision, low centrifugal force losses | large through-hole, proven standard | large through-hole, large jaw stroke | maximum concentricity and axial run-out precision |
| Size                           | 110 - 400                                                                               | 170 - 315                           | 160 - 350                            | 100 - 200                                         |
| Chucking capacities            | 6 - 478 mm                                                                              | 20 - 393 mm                         | 5 - 472 mm                           | -                                                 |
| Power transmission             | wedge                                                                                   | wedge                               | angle lever                          | wedge                                             |
| Clamping force                 |                                                                                         |                                     |                                      |                                                   |
| Speeds                         |                                                                                         |                                     |                                      |                                                   |
| Number of jaws                 |                                                                                         |                                     |                                      |                                                   |
| Type of jaws                   |                                                                                         |                                     |                                      | pin mounting                                      |
| Workpiece                      |                                                                                         |                                     |                                      |                                                   |
| Machining                      |                                                                                         |                                     |                                      |                                                   |
| Mount                          | <br>DIN 6353    ISO 702-1<br>(DIN 55026)<br>DIN 55021                                   | <br>DIN 6353                        |                                      |                                                   |
| Page                           | 6015                                                                                    | 6026                                | 6036                                 | 6040                                              |



2-jaw chuck



3-jaw chuck



serration 60°



serration 90°



tongue and groove



pipe



bar



disc



flange



asymmetrical workpiece

# Operation guide



| TYPE                | KFD-EC                            | KFD                                             | KFD-G                                           |
|---------------------|-----------------------------------|-------------------------------------------------|-------------------------------------------------|
|                     | Power chucks without through-hole |                                                 |                                                 |
| Feature             | low-maintenance and -wear         | proven standard chuck for numerous applications | large jaw stroke, reduced interference contours |
| Size                | 200 - 400                         | 85 - 630                                        | 125 - 315                                       |
| Chucking capacities | 16 - 490 mm                       | 4 - 720 mm                                      | -                                               |
| Power transmission  | wedge                             | wedge                                           | wedge                                           |
| Clamping force      |                                   |                                                 |                                                 |
| Speeds              |                                   |                                                 |                                                 |
| Number of jaws      |                                   |                                                 |                                                 |
| Type of jaws        |                                   |                                                 |                                                 |
| Workpiece           |                                   |                                                 |                                                 |
| Machining           |                                   |                                                 |                                                 |
| Mount               | <br>DIN 6353                      | <br>DIN 6353<br>similar DIN 6353                |                                                 |
| Page                | 6046                              | 6051                                            | 6062                                            |

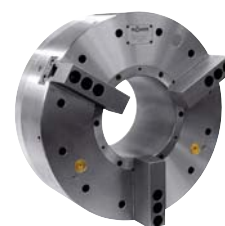

side  
machining

length  
machining

short taper  
mount

cylindrical centre  
mount

# Operation guide



| TYPE                | DURO-A RC                                 | DURO-NCSE                                                 | DURO-NC               | LVE                                | LVE<br>large<br>through-hole                        |
|---------------------|-------------------------------------------|-----------------------------------------------------------|-----------------------|------------------------------------|-----------------------------------------------------|
|                     | Power chucks with quick jaw change system |                                                           |                       | Air-operated self-contained chucks |                                                     |
| Feature             | individual jaw unlocking                  | individual jaw unlocking                                  | central jaw unlocking | incorporated actuating cylinder    | incorporated actuating cylinder, large through-hole |
| Size                | 180 - 400                                 | 180 - 630                                                 | 140 - 630             | 125 - 315                          | 400 - 1000                                          |
| Chucking capacities | 11 - 351 mm                               | 11 - 667 mm                                               | 5 - 780 mm            | 12 - 400 mm                        | 85 - 1135 mm                                        |
| Power transmission  | wedge bar                                 | wedge bar                                                 | wedge                 | wedge                              | wedge                                               |
| Clamping force      |                                           |                                                           |                       |                                    |                                                     |
| Speeds              |                                           |                                                           |                       |                                    |                                                     |
| Number of jaws      |                                           |                                                           |                       |                                    |                                                     |
| Type of jaws        |                                           |                                                           |                       |                                    |                                                     |
| Workpiece           |                                           |                                                           |                       |                                    |                                                     |
| Machining           |                                           |                                                           |                       |                                    |                                                     |
| Mount               | <br>ISO 702-4<br><br>ISO 702-1            | <br>DIN 6353<br><br>ISO 702-1<br>(DIN 55026)<br>DIN 55021 | <br>DIN 6353          |                                    |                                                     |
| Page                | 6068                                      | 6078                                                      | 6088                  | 6102                               | 6108                                                |



2-jaw chuck



3-jaw chuck



serration 60°



serration 90°


tongue and  
groove


pipe



bar



disc



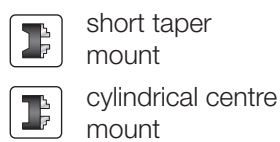
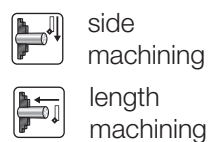
flange


asymmetrical  
workpiece

# Operation guide



| TYPE                | KBF-N<br>draw-down chuck                                                                            | ZFM<br>draw-down chuck                   | KFD-AF<br>compensating chuck                         | GF<br>gripper chuck                          |
|---------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------|----------------------------------------------|
| Application chucks  |                                                                                                     |                                          |                                                      |                                              |
| Feature             | for internal and external clamping, active pull down, hermetically sealed with oil bath lubrication | active pull down, only external clamping | compensating jaws, interchangeable centering inserts | automatic jaw resetting                      |
| Size                | 170 - 400                                                                                           | 160 - 315                                | 160 - 315                                            | 80 - 125                                     |
| Chucking capacities | -                                                                                                   | -                                        | 5 - 393 mm                                           | -                                            |
| Power transmission  | wedge                                                                                               | draw rod studs system                    | wedge                                                | spring system                                |
| Clamping force      |                                                                                                     |                                          |                                                      |                                              |
| Speeds              |                                                                                                     |                                          |                                                      | stationary                                   |
| Number of jaws      |                                                                                                     |                                          |                                                      |                                              |
| Type of jaws        |                                                                                                     | -                                        |                                                      |                                              |
| Workpiece           |                                                                                                     |                                          |                                                      |                                              |
| Machining           |                                                                                                     |                                          |                                                      | no machining (only gripping and positioning) |
| Mount               | <br>DIN 6353<br><br>ISO 702-1<br>(DIN 55026)<br>DIN 55021                                           |                                          | <br>with option for radial fine adjustment           | cylindrical shank<br>DIN 69880               |
| Page                | 6120                                                                                                | 6124                                     | 6126                                                 | 6130                                         |



# Operation guide



| TYPE                  | SZS                                                                    | LHS-L                                                                     |
|-----------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                       | Cylinder with through-hole                                             |                                                                           |
| Feature               | hydraulic cylinder with through-hole for operating pressure 8 - 45 bar | pneumatical cylinder with through-hole for operating pressure 1,5 - 8 bar |
| Through-hole          | 46 - 127 mm                                                            | 26 - 42 mm                                                                |
| Stroke max.           | 25 - 40 mm                                                             | 20 - 32 mm                                                                |
| Pull force            | 46 - 145 kN<br>(45 bar operating pressure)                             | 10 - 16 kN<br>(6 bar operating pressure)                                  |
| Actuation             |                                                                        |                                                                           |
| Max. Speeds           | 7000 - 3200 m <sup>-1</sup>                                            | 6500 - 4000 m <sup>-1</sup>                                               |
| Installation position | horizontal                                                             | horizontal, vertical                                                      |
| Feature               | short design                                                           | short design                                                              |
| Workpiece             |                                                                        |                                                                           |
| Page                  | 6138                                                                   | 6140                                                                      |



2-jaw chuck



3-jaw chuck



serration 60°



serration 90°



tongue and groove



pipe



bar



disc



flange



asymmetrical workpiece

# Operation guide



| TYPE                  | OVS                                                                       | LVS                                                                       |
|-----------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                       | Cylinder without through-hole                                             |                                                                           |
| Feature               | hydraulic cylinder without through-hole for operating pressure 8 - 80 bar | pneumatic cylinder without through-hole for operating pressure 2 - 10 bar |
| Through-hole          | -                                                                         | -                                                                         |
| Stroke max.           | 32 - 50 mm                                                                | 32 - 45 mm                                                                |
| Pull force            | 30 - 166 kN<br>(60 bar operation pressure)                                | 3 - 57 kN<br>(6 operating pressure)                                       |
| Actuation             |                                                                           |                                                                           |
| Max. Speeds           | 8000 - 4500 m <sup>-1</sup>                                               | 5000 - 3200 m <sup>-1</sup>                                               |
| Installation position | horizontal, vertical                                                      | horizontal, vertical                                                      |
| Feature               | prepared for media feed-through                                           | media feed-through on request                                             |
| Workpiece             |                                                                           |                                                                           |
| Page                  | 6146                                                                      | 6150                                                                      |



side machining



length machining



short taper mount



cylindrical centre mount



hydraulic actuated



pneumatically actuated

# Operation guide



| TYPE                                              | SLZN                                           | SLZNB                      | SLZ                         | SLZC                                       | SLZK               |
|---------------------------------------------------|------------------------------------------------|----------------------------|-----------------------------|--------------------------------------------|--------------------|
|                                                   | Self-centering steady rests                    |                            |                             |                                            |                    |
| Feature                                           | standard version with cylinder mounted at rear | with side mounted cylinder | heavy design for high loads | compact design, extra large clamping range | slim clamping arms |
| Chucking capacities                               | 4 - 350                                        | 8 - 350                    | 40 - 800                    | 60 - 520                                   | 8 - 250            |
| Max. clamping force per roller                    | 1040 - 16000 N                                 | 3500 - 16000 N             | 35000 - 80000 N             | 14500 - 25000 N                            | 2700 - 7500 N      |
| Centering accuracy over the entire clamping range | 0,02 - 0,06*                                   | 0,02 - 0,06*               | 0,04 - 0,06*                | 0,05 - 0,06*                               | 0,03 - 0,06*       |
| Repeatability at same clamping-Ø                  | 0,005 - 0,01*                                  | 0,005 - 0,01*              | 0,01*                       | 0,007 - 0,01*                              | 0,007 - 0,01*      |
| Rollers                                           | cylindrical or convex                          | cylindrical or convex      | cylindrical or convex       | cylindrical or convex                      | cylindrical        |
| Chip protection                                   | with and without                               | with and without           | with and without            | with and without                           | with and without   |
| Page                                              | 6160                                           | 6164                       | 6168                        | 6170                                       | 6172               |

\* At constant pressure



2-jaw chuck



3-jaw chuck



serration 60°



serration 90°



tongue and groove



pipe



bar



disc



flange



asymmetrical workpiece

# Operation guide



| TYPE               | KZS-P / KZS-PG                                                | KZS-H / KZS-HG                                                | SSP                                                               | F-senso chuck                                |
|--------------------|---------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------|
|                    | Stationary power chucks                                       |                                                               |                                                                   | Clamping force measurement device            |
| Feature            | pneumatically, centering vices, KZS-PG with long jaw movement | hydraulically, centering vices, KZS-HG with long jaw movement | pneumatically, without through-hole                               | measurement device incl. tablet and software |
| Size               | 64 - 250                                                      | 64 - 250                                                      | 160 - 315                                                         | -                                            |
| Chuck capacities   | -                                                             | -                                                             | 28 - 400                                                          | 75 - 175                                     |
| Power transmission | wedge                                                         | wedge                                                         | wedge                                                             | -                                            |
| Clamping force     |                                                               |                                                               |                                                                   | max. 300 kN                                  |
| Speeds             | stationary                                                    | stationary                                                    | -                                                                 | max. 8250 min <sup>-1</sup>                  |
| Number of jaws     |                                                               |                                                               |                                                                   | 2-jaw (stationary)<br>3-jaw (rotating)       |
| Type of jaws       |                                                               |                                                               |                                                                   | -                                            |
| Workpiece          |                                                               |                                                               |                                                                   | -                                            |
| Machining          |                                                               |                                                               |                                                                   | -                                            |
| Mount              | clamping sleeve DIN 7346                                      | clamping sleeve DIN 7346                                      | flange                                                            | -                                            |
| Speciality         | optimally suited for automated work sequences                 | optimally suited for automated work sequences                 | serration 60°, tongue and groove and / or through-hole on request | delivered in the practical hard-shell case   |
| Page               | 6180                                                          | 6186                                                          | 6192                                                              | 6198                                         |



side machining



short taper mount



length machining



cylindrical centre mount

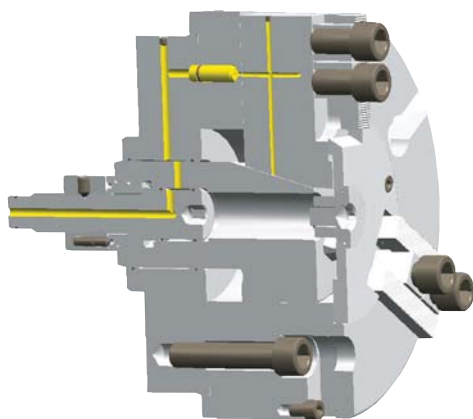
# Flexibility of the media feed-through

For power chucks with and without through-hole

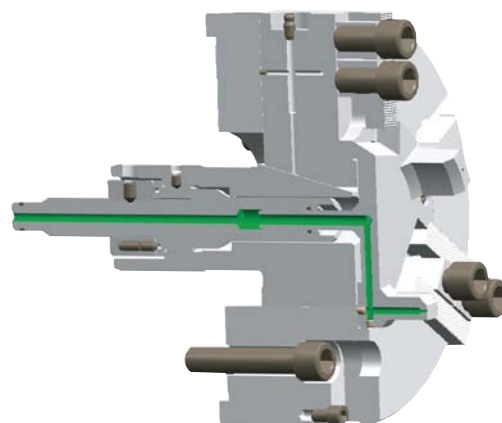
## Available on request:

- ⌚ With air feed-through for air sensing, purge or blast air
- ⌚ Central lubrication
- ⌚ With guided and sealed piston neck
- ⌚ With water drain groove or water drain bore as well as cover or inserts for the through-hole bore

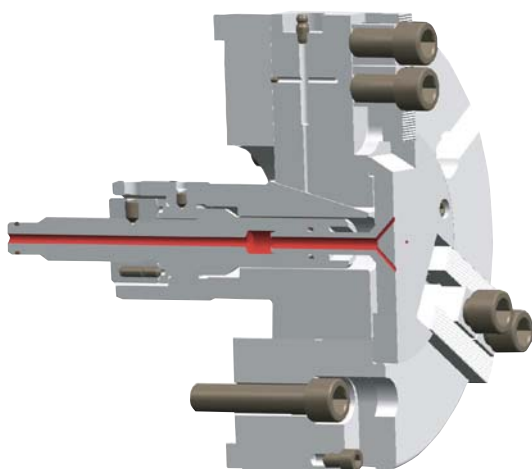
Examples of modified power chucks with feed-through for:



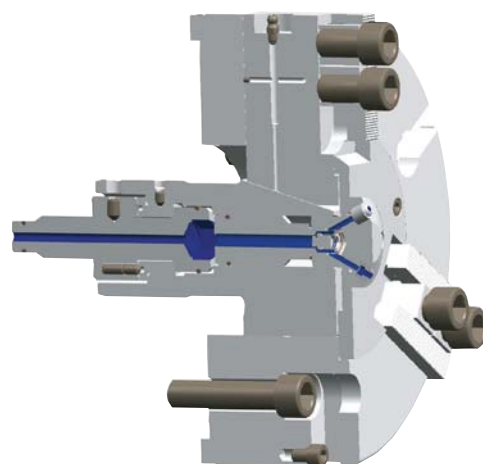
Central lubrication via distributor flange  
with dosing units



Air sensing



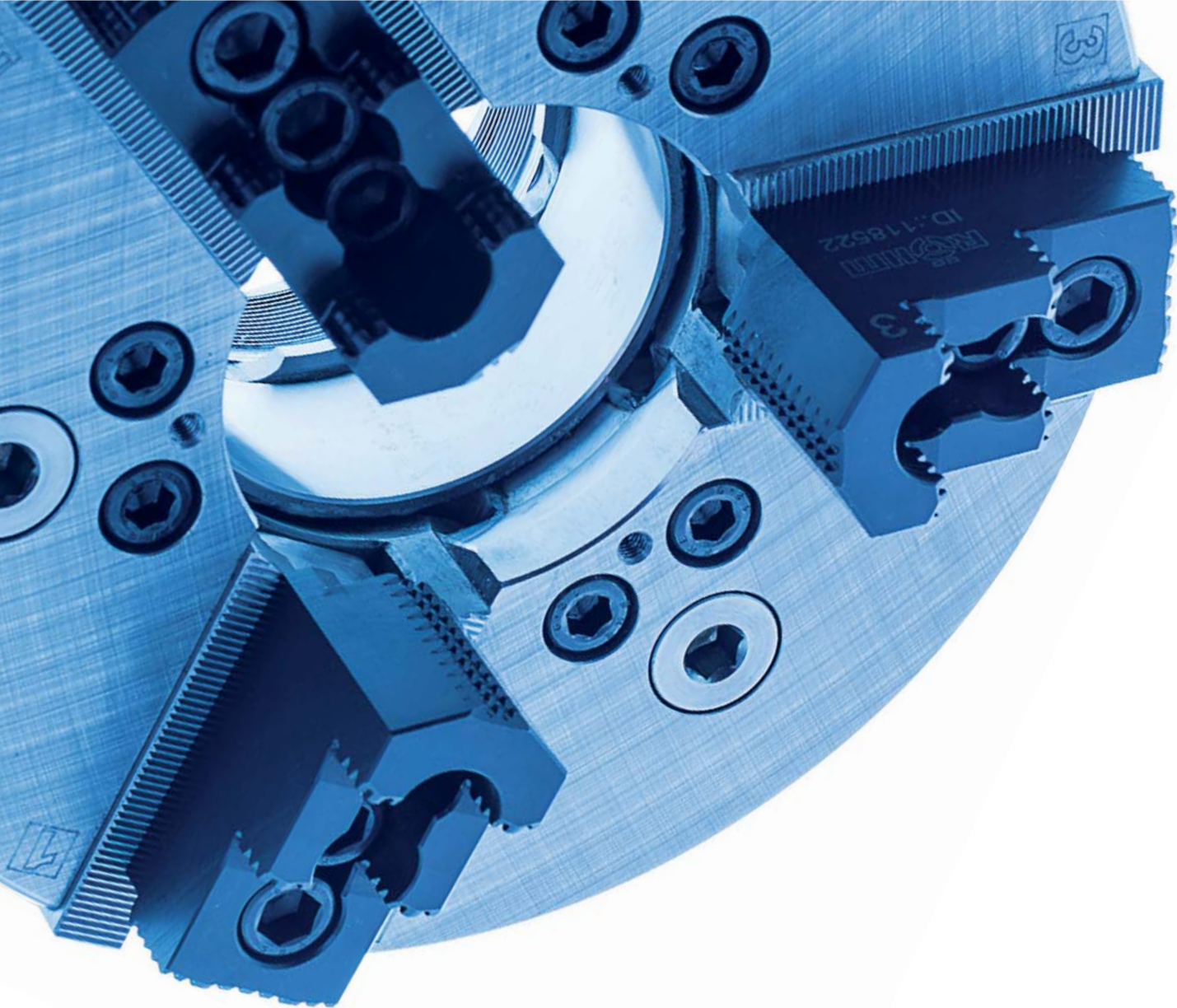
Blast air



Coolant

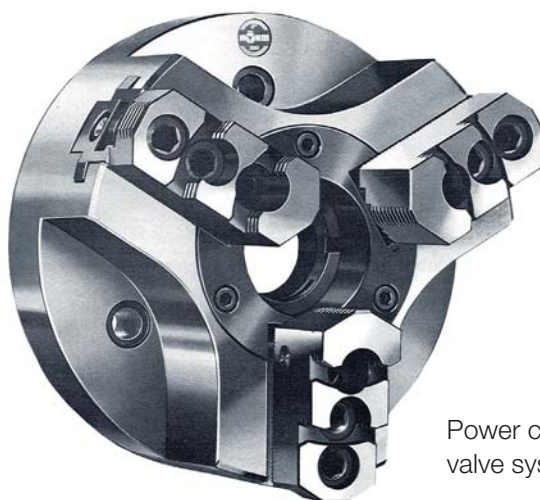
Double feed-throughs, e.g. for central lubrication and air sensing, are possible.





## USED UNIVERSALLY FOR DECADES

Founded in 1909, RÖHM began successively expanding their product range by the area of power chuck technology starting in 1950. Decades of experience and knowledge about power chucks make today's RÖHM power chucks so successful. Especially for the machining of bar material, these are not only characterized by the high flexibility due to the large through-hole, but also by the long service life, top precision and reliability.



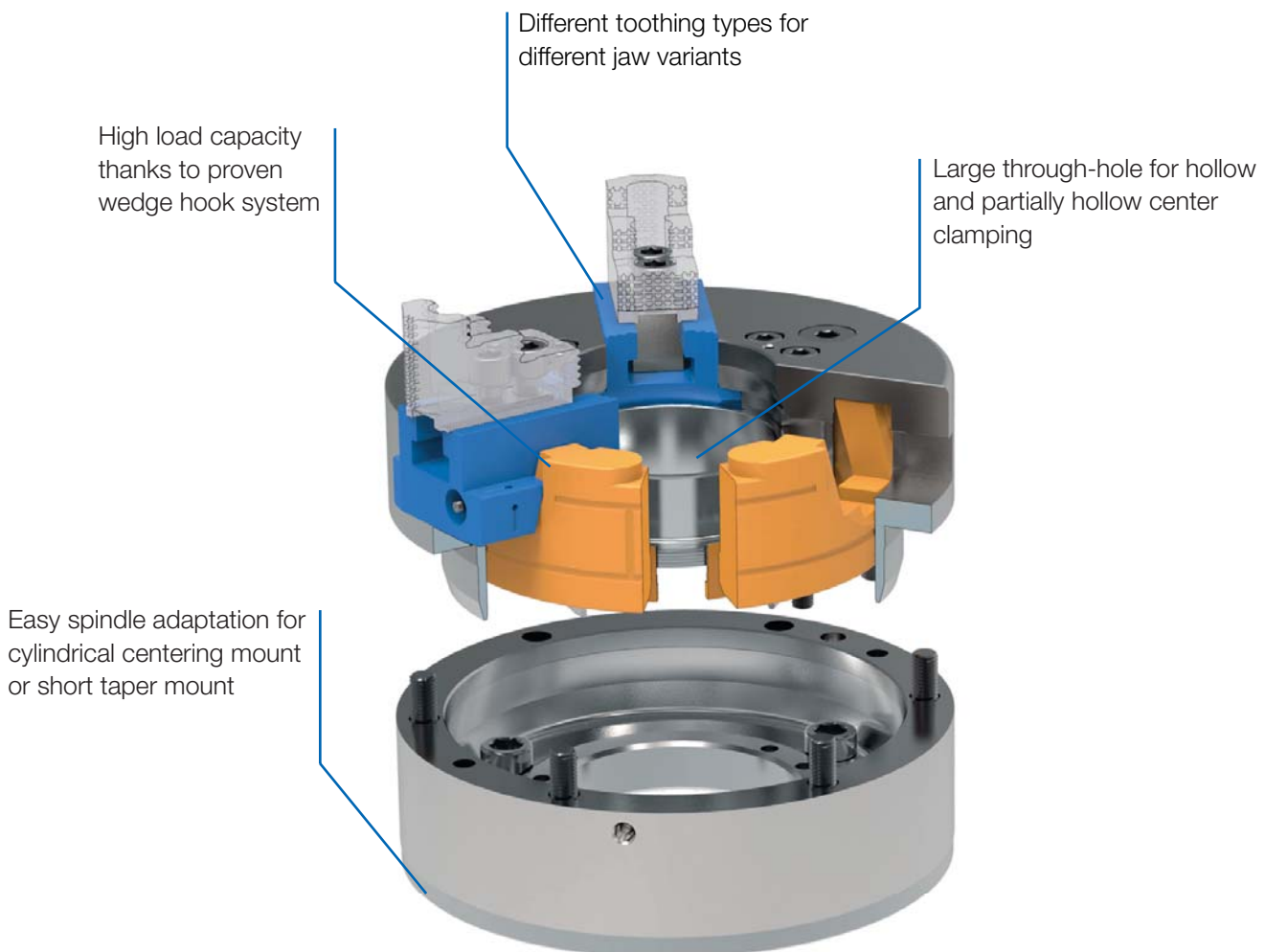
Power chucks with single wedge gate valve system and through-hole

# POWER CHUCKS WITH THROUGH-HOLE

RÖHM power chucks with through-hole are successfully used both in bar and pipe machining, as well as in the machining of flange-type workpieces. The proven wedge system allows maximum clamping forces with maximum clamping precision at the same time. The rigidity of the power chucks which contributes to this is achieved with a sturdy chuck construction.

## ADVANTAGES AT A GLANCE

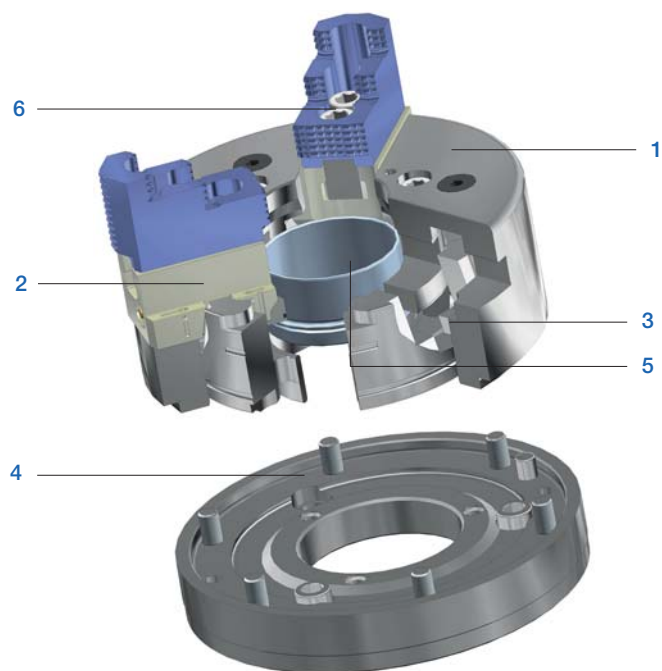
- ⌚ Large through-hole optimal for bar machining
- ⌚ Proven power chucks with long service life
- ⌚ Wedge hook system for high load capacity and clamping precision



# KFD-HS - low centrifugal force losses

## 2- and 3-jaw chuck, with large through-hole, for very high speeds

The construction principle of the power chuck KFD-HS consists of absorbing the centrifugal forces which occur during machining to the degree that the clamping force is hardly influenced. This occurs thanks to a special type of wedge hook connection. Even for extremely high speeds, the clamping force drop is very low. The high rigidity is achieved through the screw connection between the chuck body and chuck flange. Thus, this chuck type offers the optimal precondition for exactly machining shaft-type and flange-type workpieces.

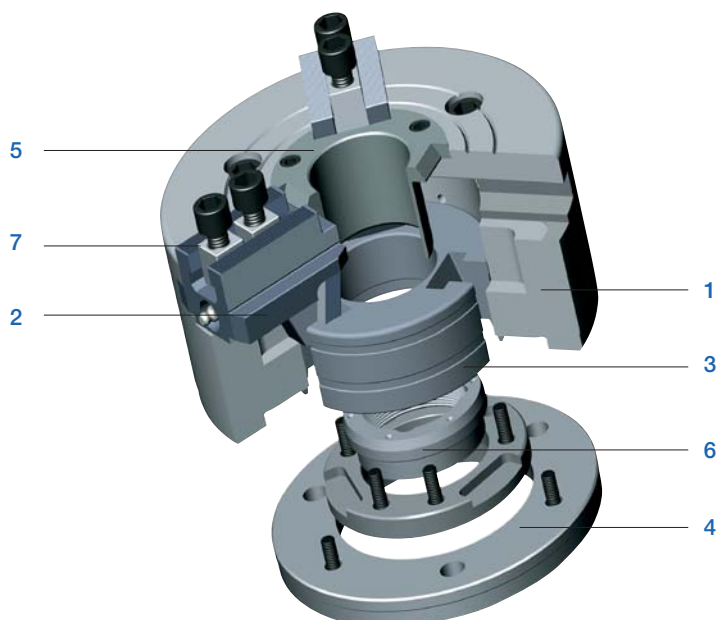


### KFD-HS components

1. Body
2. Base jaw
3. Clamping piston
4. Chuck flange
5. Protective bushing
6. Slot nut

## KFD-HE

Standard chuck for use on modern turning machines. A large through-hole allows both bar and pipe machining as well as the machining of flange-type workpieces. The power is transmitted via the proven wedge hook system.



### KFD-HE components

1. Body
2. Base jaw
3. Piston
4. Chuck flange
5. Protective bushing
6. Ring nut
7. Slot nut

# KFD-HS - optimized centrifugal forces



## APPLICATION

Premium power chucks with through-hole for maximum speeds and optimized centrifugal forces.

## TYPE

Power chuck available with cylindrical centre mount or short taper mount.  
3-jaw version with serration (90°) or tongue and groove.  
2-jaw version with serration (90°).

## CUSTOMER BENEFITS

- Low centrifugal force losses and high speeds thanks to special wedge hook system with annular piston
- Larger than average through-hole for wide range of workpieces
- Maximum precision thanks to rigid chuck construction
- If necessary quick conversion to a different spindle nose by simply exchanging the centering adapter

## TECHNICAL FEATURES

- Universal construction of the piston connection (piston does not project into the spindle bore area, even with the piston position moved back)
- Long jaw guide
- Clamping inserts can be used for bar machining (special version)

### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, mounting wrench, slot nuts (without top jaws)



## Gripping force/speed diagram (3-jaw chucks only)

The loss of gripping force was determined experimentally on a chuck with matched UB top jaws. It is largely independent of the initial gripping force at zero speed.

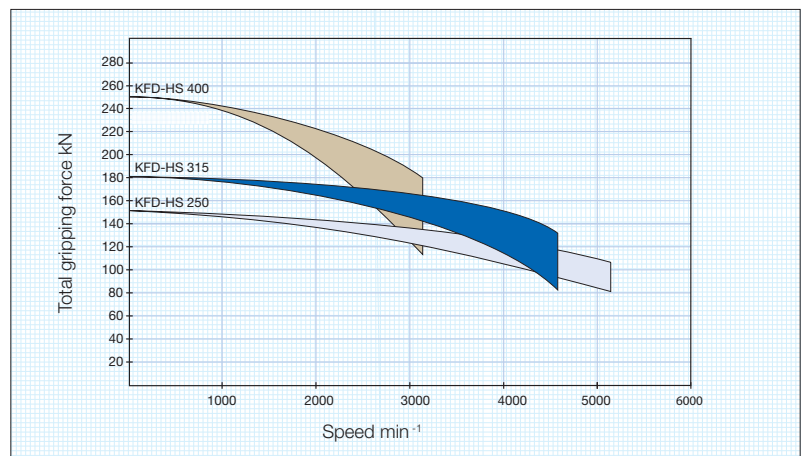
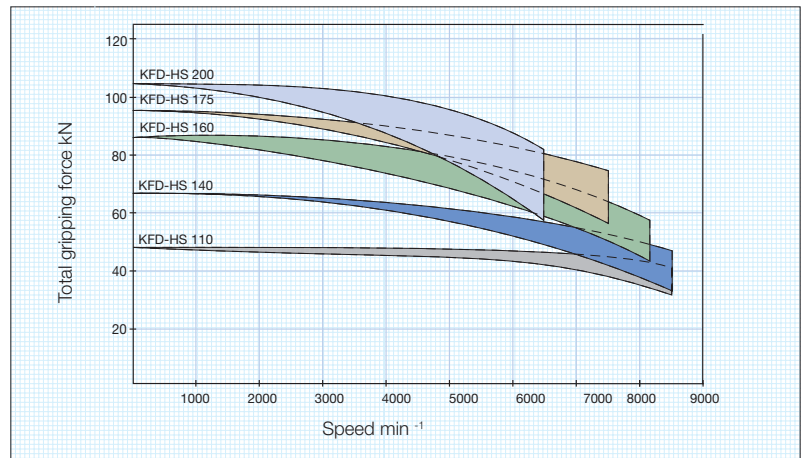
Upper curve:  
min. centrifugal  
force of top jaw



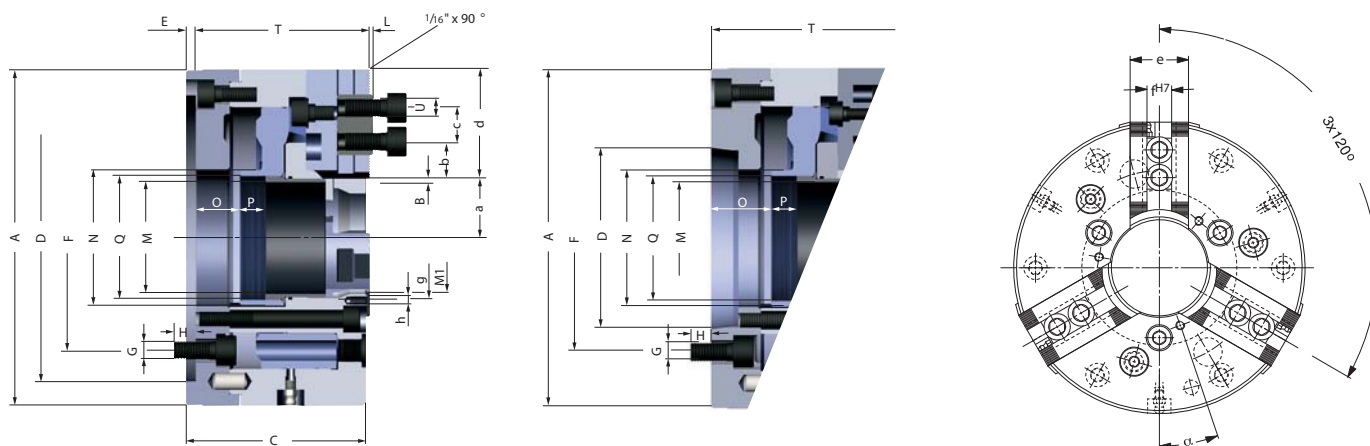
Lower curve:  
max. centrifugal  
force of top jaw



To obtain the specified gripping forces, the chuck must be in a perfect condition and lubricated with F 80 lubricant recommended by RÖHM. Measuring point near chuck face.



# KFD-HS 3-jaw, serration 90°



C 15

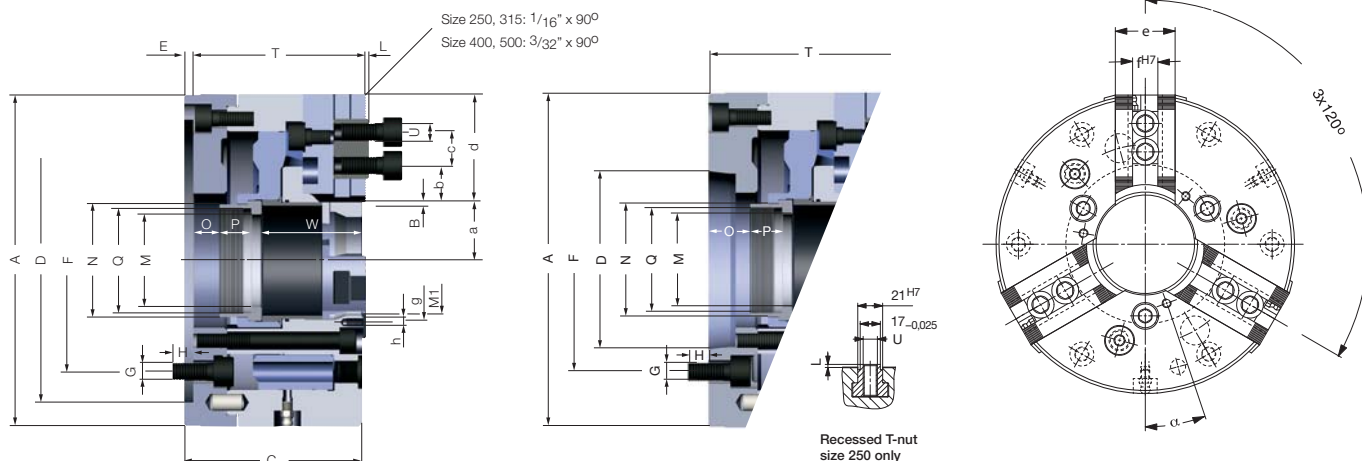
**3-jaw power chuck KFD-HS, with tightening thread, serration 90°**

Cylindrical centre mount, connection dimensions in acc. with **DIN 6353** / short taper mount (KK) for **ISO 702-1** (DIN 55026/55021)

| Item No.                                | 149406             | 149405             | 144258              | 142690              | 143692               | 142478               | 144259 ▲             | 143893               | 143888               | 142479               |
|-----------------------------------------|--------------------|--------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Size                                    | 110                | 110                | 140                 | 140                 | 160                  | 160                  | 175                  | 175                  | 200                  | 200                  |
| Number of jaws                          | 3                  | 3                  | 3                   | 3                   | 3                    | 3                    | 3                    | 3                    | 3                    | 3                    |
| A mm                                    | 110                | 110                | 140                 | 140                 | 160                  | 160                  | 175                  | 175                  | 200                  | 200                  |
| Jaw travel B mm                         | 3,2                | 3,2                | 3,2                 | 3,2                 | 4                    | 4                    | 4                    | 4                    | 5                    | 5                    |
| C mm                                    | 78                 | 86                 | 88                  | 92                  | 102                  | 108                  | 102                  | 108                  | 107                  | 112                  |
| Mount D                                 | ZA 60              | KK 4 <sup>1)</sup> | ZA 120              | KK 5                | ZA 140               | KK 5                 | ZA 140               | KK 5                 | ZA 170               | KK 6                 |
| E mm                                    | 6                  | 13                 | 6                   | 15                  | 6                    | 16                   | 6                    | 16                   | 6                    | 16                   |
| F mm                                    | 82,6               | 82,6               | 104,8               | 104,8               | 104,8                | 104,8                | 104,8                | 104,8                | 133,4                | 133,4                |
| G                                       | 3xM10              | 3xM10              | 3xM10               | 3xM10               | 3xM10                | 3xM10                | 3xM10                | 3xM10                | 3xM12                | 3xM12                |
| H mm                                    | 14                 | 14                 | 15                  | 17                  | 15                   | 14                   | 15                   | 14                   | 18                   | 17                   |
| Wedge stroke K mm                       | 12                 | 12                 | 12                  | 12                  | 15                   | 15                   | 15                   | 15                   | 18,5                 | 18,5                 |
| L mm                                    | 2,5                | 2,5                | 2,5                 | 2,5                 | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  |
| M max. mm                               | 26                 | 26                 | 37                  | 37                  | 46                   | 46                   | 56                   | 56                   | 66                   | 66                   |
| M <sub>1</sub> <sup>H7</sup> mm         | 32                 | 32                 | 37                  | 37                  | 46                   | 46                   | 56                   | 56                   | 66                   | 66                   |
| N mm                                    | 38                 | 38                 | 48                  | 48                  | 58                   | 58                   | 68                   | 68                   | 80                   | 80                   |
| O min.                                  | -1                 | 11                 | 5                   | 13                  | 6                    | 16                   | 6                    | 16                   | 7,5                  | 16,5                 |
| O max.                                  | 11                 | 23                 | 17                  | 25                  | 21                   | 31                   | 21                   | 31                   | 26                   | 35                   |
| P mm                                    | 12                 | 12                 | 14                  | 14                  | 16                   | 16                   | 16                   | 16                   | 15                   | 15                   |
| Q mm                                    | M34x1,5            | M34x1,5            | M44x1,5             | M44x1,5             | M54x1,5              | M54x1,5              | M65x1,5              | M65x1,5              | M74x1,5              | M74x1,5              |
| T mm                                    | 80                 | 84                 | 84                  | 90                  | 98                   | 106                  | 98                   | 106                  | 103                  | 110                  |
| U mm                                    | M8                 | M8                 | M6                  | M6                  | M8                   | M8                   | M8                   | M8                   | M12                  | M12                  |
| a min.                                  | 10,8               | 10,8               | 16,8                | 16,8                | 24                   | 24                   | 29                   | 29                   | 35                   | 35                   |
| a max.                                  | 14                 | 14                 | 20                  | 20                  | 28                   | 28                   | 33                   | 33                   | 40                   | 40                   |
| b min.                                  | 3                  | 3                  | 0                   | 0                   | 0                    | 0                    | 0                    | 0                    | 8,5                  | 8,5                  |
| b max.                                  | 23                 | 23                 | 26                  | 26                  | 22                   | 22                   | 24,5                 | 24,5                 | 32,5                 | 32,5                 |
| c mm                                    | 15                 | 15                 | 2x12                | 2x12                | 2x15                 | 2x15                 | 2x15                 | 2x15                 | 19                   | 19                   |
| d mm                                    | 41                 | 41                 | 50                  | 50                  | 52                   | 52                   | 54,5                 | 54,5                 | 60                   | 60                   |
| e mm                                    | 24                 | 24                 | 25                  | 25                  | 32                   | 32                   | 32                   | 32                   | 40                   | 40                   |
| fH7-0,025 mm                            | 10                 | 10                 | 10                  | 10                  | 12                   | 12                   | 12                   | 12                   | 17                   | 17                   |
| g mm                                    | 50                 | 50                 | 68                  | 68                  | 76                   | 76                   | 76                   | 76                   | 84                   | 84                   |
| h                                       | M5x8               | M5x8               | M5x8                | M5x8                | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                |
| α                                       | 0°                 | 0°                 | 22° 30'             | 22° 30'             | 20°                  | 20°                  | 20°                  | 20°                  | 20°                  | 20°                  |
| Max. swing top jaws mm                  | 113                | 113                | 180                 | 180                 | 195                  | 195                  | 210                  | 210                  | 250                  | 250                  |
| Maximum draw bar pull kN                | 18                 | 18                 | 25                  | 25                  | 35                   | 35                   | 40                   | 40                   | 48                   | 48                   |
| Max. total clamping force kN            | 48                 | 48                 | 70                  | 70                  | 86                   | 86                   | 95                   | 95                   | 110                  | 110                  |
| Max. admissible speed min <sup>-1</sup> | 8500               | 8500               | 8000                | 8000                | 8000                 | 8000                 | 7000                 | 7000                 | 6500                 | 6500                 |
| Moment of inertia J kgm <sup>2</sup>    | 0,007              | 0,007              | 0,022               | 0,022               | 0,0415               | 0,0415               | 0,057                | 0,057                | 0,1                  | 0,1                  |
| Weight without jaws approx. kg          | 5                  | 5                  | 9                   | 9                   | 12                   | 12                   | 15                   | 15                   | 20                   | 20                   |
| Actuating cylinders (recommended)       | OVS-85 / SZS-37/70 | OVS-85 / SZS-37/70 | OVS-105 / SZS-37/70 | OVS-105 / SZS-37/70 | OVS-105 / SZS-46/103 | OVS-105 / SZS-46/103 | OVS-105 / SZS-52/130 | OVS-105 / SZS-52/130 | OVS-130 / SZS-67/150 | OVS-130 / SZS-67/150 |

<sup>1)</sup> ISO 702-1 (DIN 55026) only (DIN 55021 on request)

# KFD-HS 3-jaw, serration 90°



C 15

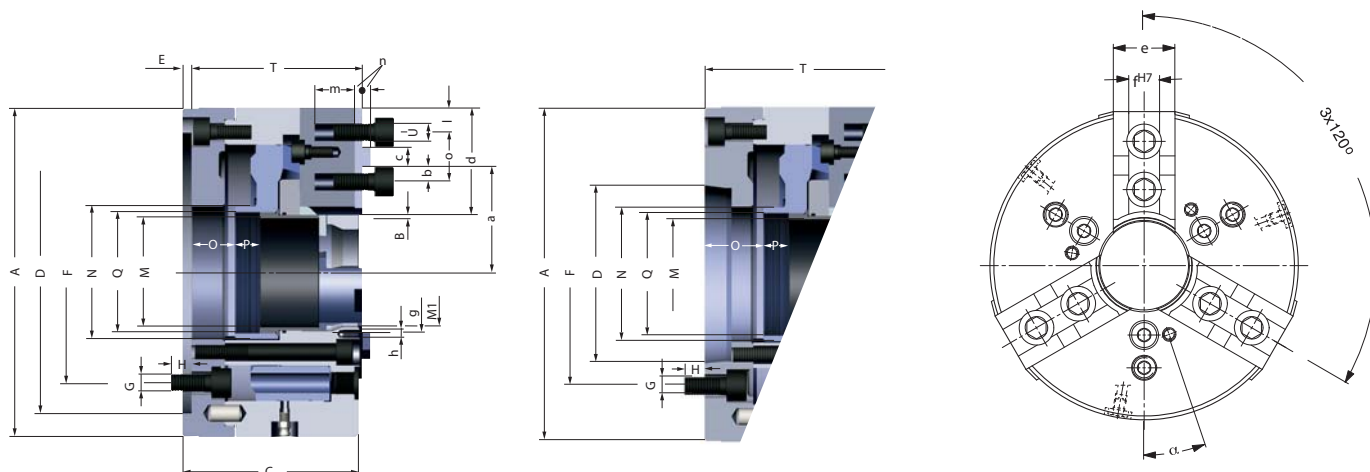
**3-jaw power chuck KFD-HS, with tightening thread, serration 90°**

Cylindrical centre mount, connection dimensions in acc. with DIN 6353 / short taper mount (KK) for ISO 702-1 (DIN 55026/55021)

| Item No.                                | 161725 ▲             | 144260               | 143726 ▲             | 142691               | 144261 ▲             | 143748 ▲             | 144262 ▲              | 143749 ▲              | 144263 ▲    | 143750                | 143751      |
|-----------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-------------|-----------------------|-------------|
| Size                                    | 250                  | 250                  | 250                  | 250                  | 315                  | 315                  | 315                   | 315                   | 400         | 400                   | 400         |
| Number of jaws                          | 3                    | 3                    | 3                    | 3                    | 3                    | 3                    | 3                     | 3                     | 3           | 3                     | 3           |
| A mm                                    | 250                  | 250                  | 250                  | 250                  | 315                  | 315                  | 315                   | 315                   | 400         | 400                   | 400         |
| Jaw travel B mm                         | 6,2                  | 6,2                  | 6,2                  | 6,2                  | 6,2                  | 6,2                  | 6,2                   | 6,2                   | 7,5         | 7,5                   | 7,5         |
| C mm                                    | 128                  | 128                  | 130                  | 130                  | 128                  | 130                  | 139                   | 143                   | 156         | 156                   | 156         |
| Mount D                                 | ZA 170               | ZA 220               | KK 6                 | KK 8                 | ZA 220               | KK 8                 | ZA 300                | KK 11                 | ZA 380      | KK 11                 | KK 15       |
| E mm                                    | 6                    | 6                    | 15                   | 19                   | 6                    | 19                   | 6                     | 21                    | 6           | 18                    | 21          |
| F mm                                    | 133,4                | 171,4                | 133,4                | 171,4                | 171,4                | 171,4                | 235                   | 235                   | 330,2       | 235                   | 330,2       |
| G                                       | 3xM12                | 3xM16                | 3xM12                | 3xM16                | 3xM16                | 3xM16                | 3xM20                 | 3xM20                 | 3xM24       | 3xM20                 | 3xM24       |
| H mm                                    | 16                   | 24                   | 18                   | 24                   | 24                   | 24                   | 30                    | 30                    | 30          | 30                    | 30          |
| Wedge stroke K mm                       | 23                   | 23                   | 23                   | 23                   | 23                   | 23                   | 23                    | 23                    | 28          | 28                    | 28          |
| L mm                                    | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                   | 2,5                   | 3,5         | 3,5                   | 3,5         |
| M max. mm                               | 66                   | 86                   | 66                   | 86                   | 86                   | 86                   | 108                   | 108                   | 165         | 126                   | 165         |
| M <sub>t</sub> <sup>H7</sup> mm         | 94                   | 94                   | 94                   | 94                   | 94                   | 94                   | 115                   | 115                   | 172         | 172                   | 172         |
| N mm                                    | 110                  | 99                   | 80                   | 99                   | 99                   | 99                   | 126                   | 126                   | 180         | 142                   | 180         |
| O min.                                  | 0                    | -6                   | 2                    | 2                    | -6                   | 2                    | -9                    | 1                     | -12         | 0                     | -6          |
| O max.                                  | 23                   | 17                   | 25                   | 25                   | 17                   | 25                   | 14                    | 24                    | 16          | 28                    | 22          |
| P mm                                    | 19                   | 25                   | 25                   | 25                   | 25                   | 25                   | 25                    | 25                    | 35          | 35                    | 35          |
| Q mm                                    | M74x1,5              | M94x1,5              | M74x1,5              | M94x1,5              | M94x1,5              | M94x1,5              | M120x1,5              | M120x1,5              | M172x3      | M132x1,5              | M172x3      |
| T mm                                    | 124                  | 124                  | 132                  | 132                  | 124                  | 132                  | 135                   | 145                   | 153         | 159                   | 159         |
| U mm                                    | M12                  | M12                  | M12                  | M12                  | M16                  | M16                  | M16                   | M16                   | M20         | M20                   | M20         |
| W mm                                    | 74                   | 74                   | 74                   | 74                   | 74                   | 74                   | 85                    | 85                    | 88          | 88                    | 88          |
| a min.                                  | 43,8                 | 43,8                 | 43,8                 | 43,8                 | 43,8                 | 43,8                 | 54,8                  | 54,8                  | 80,5        | 80,5                  | 80,5        |
| a max.                                  | 50                   | 50                   | 50                   | 50                   | 50                   | 50                   | 61                    | 61                    | 88          | 88                    | 88          |
| b min.                                  | 6                    | 6                    | 6                    | 6                    | 10,5                 | 10,5                 | 10,5                  | 10,5                  | 14,5        | 14,5                  | 14,5        |
| b max.                                  | 47,5                 | 47,5                 | 47,5                 | 47,5                 | 72                   | 72                   | 61                    | 61                    | 66,5        | 66,5                  | 66,5        |
| c mm                                    | 19                   | 19                   | 19                   | 19                   | 25                   | 25                   | 25                    | 25                    | 31          | 31                    | 31          |
| d mm                                    | 75                   | 75                   | 75                   | 75                   | 107,5                | 107,5                | 96,5                  | 96,5                  | 112         | 112                   | 112         |
| e mm                                    | 50                   | 50                   | 50                   | 50                   | 50                   | 50                   | 50                    | 50                    | 60          | 60                    | 60          |
| fH7-0,025 mm                            | 17                   | 17                   | 17                   | 17                   | 21                   | 21                   | 21                    | 21                    | 25,5        | 25,5                  | 25,5        |
| g mm                                    | 108                  | 108                  | 108                  | 108                  | 108                  | 108                  | 136                   | 136                   | 190         | 190                   | 190         |
| h                                       | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                | M8x12                 | M8x12                 | M8x12       | M8x12                 | M8x12       |
| α                                       | 15°                  | 0°                   | 15°                  | 0°                   | 0°                   | 0°                   | 0°                    | 0°                    | 15°         | 15°                   | 15°         |
| Max. swing top jaws mm                  | 305                  | 305                  | 305                  | 305                  | 380                  | 380                  | 380                   | 380                   | 520         | 520                   | 520         |
| Maximum draw bar pull kN                | 65                   | 65                   | 65                   | 65                   | 80                   | 80                   | 80                    | 80                    | 110         | 110                   | 110         |
| Max. total clamping force kN            | 150                  | 150                  | 150                  | 150                  | 180                  | 180                  | 180                   | 180                   | 250         | 250                   | 250         |
| Max. admissible speed min <sup>-1</sup> | 5000                 | 5000                 | 5000                 | 5000                 | 4200                 | 4200                 | 4200                  | 4200                  | 3150        | 3150                  | 3150        |
| Moment of inertia J kgm <sup>2</sup>    | 0,35                 | 0,35                 | 0,35                 | 0,35                 | 0,74                 | 0,74                 | 0,74                  | 0,74                  | 2,4         | 2,4                   | 2,4         |
| Weight without jaws approx. kg          | 40                   | 40                   | 40                   | 40                   | 56                   | 56                   | 56                    | 56                    | 120         | 120                   | 120         |
| Actuating cylinders (recommended)       | OVS-150 / SZS-67/150 | OVS-150 / SZS-86/200 | OVS-150 / SZS-67/150 | OVS-200 / SZS-86/200 | OVS-200 / SZS-86/200 | OVS-200 / SZS-86/200 | OVS-200 / SZS-110/250 | OVS-200 / SZS-110/250 | OVS 200 / - | OVS-200 / SZS-127/325 | OVS-200 / - |

<sup>1)</sup> ISO 702-1 (DIN 55026) only (DIN 55021 on request)

# KFD-HS 3-jaw, tongue and groove



C15

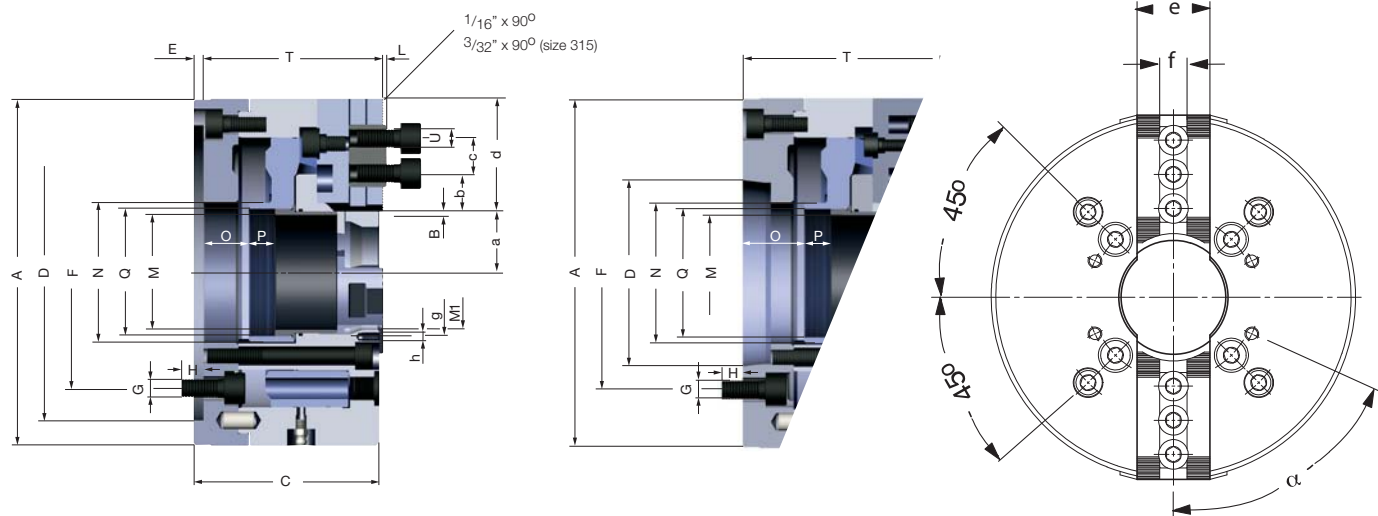
**3-jaw power chuck KFD-HS, with tightening thread, with tongue and groove**

Cylindrical centre mount, connection dimensions in acc. with **DIN 6353** / short taper mount (KK) for **ISO 702-1** (DIN 55026/55021)

| Item No.                                | 149846             | 149543             | 151532 ▲            | 156580 ▲            | 153182               | 157768               | 154239 ▲             | 155099               |
|-----------------------------------------|--------------------|--------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| Size                                    | 110                | 110                | 140                 | 140                 | 160                  | 160                  | 200                  | 200                  |
| Number of jaws                          | 3                  | 3                  | 3                   | 3                   | 3                    | 3                    | 3                    | 3                    |
| A mm                                    | 110                | 110                | 140                 | 140                 | 160                  | 160                  | 200                  | 200                  |
| Jaw travel B mm                         | 3,2                | 3,2                | 3,2                 | 3,2                 | 4                    | 4                    | 5                    | 5                    |
| C mm                                    | 80                 | 86                 | 88                  | 92                  | 102                  | 108                  | 107                  | 112                  |
| Mount D                                 | ZA 60              | KK 4 <sup>1)</sup> | ZA 120              | KK 5                | ZA 140               | KK 5                 | ZA 170               | KK 6                 |
| E mm                                    | 6                  | 13                 | 6                   | 16                  | 6                    | 15                   | 6                    | 16                   |
| F mm                                    | 82,6               | 82,6               | 104,8               | 104,8               | 104,8                | 104,8                | 133,4                | 133,4                |
| G                                       | 3xM10              | 3xM10              | 3xM10               | 3xM10               | 3xM10                | 3xM10                | 3xM12                | 3xM12                |
| H mm                                    | 14                 | 14                 | 15                  | 17                  | 15                   | 14                   | 18                   | 17                   |
| Wedge stroke K mm                       | 12                 | 12                 | 12                  | 12                  | 15                   | 15                   | 18,5                 | 18,5                 |
| M max. mm                               | 26                 | 26                 | 37                  | 37                  | 46                   | 46                   | 66                   | 66                   |
| M <sub>1</sub> <sup>H7</sup> mm         | 32                 | 32                 | 37                  | 37                  | 46                   | 46                   | 66                   | 66                   |
| N mm                                    | 38                 | 38                 | 48                  | 48                  | 58                   | 58                   | 80                   | 80                   |
| O min.                                  | -1                 | 11                 | 5                   | 13                  | 6                    | 16                   | 7,5                  | 16,5                 |
| O max.                                  | 11                 | 23                 | 17                  | 25                  | 21                   | 31                   | 26                   | 35                   |
| P mm                                    | 12                 | 12                 | 14                  | 14                  | 16                   | 16                   | 15                   | 15                   |
| Q mm                                    | M34x1,5            | M34x1,5            | M44x1,5             | M44x1,5             | M54x1,5              | M54x1,5              | M74x1,5              | M74x1,5              |
| T mm                                    | 78                 | 80                 | 84                  | 90                  | 98                   | 106                  | 103                  | 110                  |
| U mm                                    | M8                 | M8                 | M12                 | M12                 | M12                  | M12                  | M12                  | M12                  |
| a min.                                  | 31,8               | 31,8               | 45,3                | 45,3                | 43                   | 43                   | 59                   | 59                   |
| a max.                                  | 35                 | 35                 | 48,5                | 48,5                | 47                   | 47                   | 64                   | 64                   |
| c mm                                    | 10                 | 10                 | 13                  | 13                  | 10                   | 10                   | 12                   | 12                   |
| d mm                                    | 30                 | 30                 | 50                  | 50                  | 56                   | 56                   | 65                   | 65                   |
| e mm                                    | 24                 | 24                 | 25                  | 25                  | 32                   | 32                   | 40                   | 40                   |
| fH7-0,025 mm                            | 10                 | 10                 | 8                   | 8                   | 16                   | 16                   | 16                   | 16                   |
| g mm                                    | 50                 | 50                 | 68                  | 68                  | 76                   | 76                   | 84                   | 84                   |
| h                                       | M5x8               | M5x8               | M5x8                | M5x8                | M6x10                | M6x10                | M6x10                | M6x10                |
| I mm                                    | 6,5                | 6,5                | 29                  | 29                  | 15,5                 | 15,5                 | 15                   | 15                   |
| m mm                                    | 11                 | 11                 | 19                  | 19                  | 18                   | 18                   | 20                   | 20                   |
| n mm                                    | 3                  | 3                  | 3                   | 3                   | 5                    | 5                    | 5                    | 5                    |
| α                                       | 0°                 | 0°                 | 22° 30'             | 22° 30'             | 20°                  | 20°                  | 20°                  | 20°                  |
| Max. swing top jaws mm                  | 113                | 113                | 180                 | 180                 | 170                  | 170                  | 210                  | 210                  |
| Maximum draw bar pull kN                | 18                 | 18                 | 25                  | 25                  | 35                   | 35                   | 48                   | 48                   |
| Max. total clamping force kN            | 48                 | 48                 | 70                  | 70                  | 86                   | 86                   | 110                  | 110                  |
| Max. admissible speed min <sup>-1</sup> | 8500               | 8500               | 8000                | 8000                | 8000                 | 8000                 | 6500                 | 6500                 |
| Moment of inertia J kgm <sup>2</sup>    | 0,007              | 0,007              | 0,022               | 0,022               | 0,0415               | 0,0415               | 0,1                  | 0,1                  |
| Weight without jaws approx. kg          | 5                  | 5                  | 9                   | 9                   | 12                   | 12                   | 20                   | 20                   |
| Actuating cylinders (recommended)       | OVS-85 / SZS-37/70 | OVS-85 / SZS-37/70 | OVS-105 / SZS-37/70 | OVS-105 / SZS-37/70 | OVS-105 / SZS-46/103 | OVS-105 / SZS-46/103 | OVS-130 / SZS-67/150 | OVS-130 / SZS-67/150 |

<sup>\*</sup> ISO 702-1 (DIN 55026) only (DIN 55021 on request)

# KFD-HS 2-jaw, serration 90°



C15

**2-jaw power chuck KFD-HS, with tightening thread, serration 90°**

Cylindrical centre mount, connection dimensions in acc. with **DIN 6353** / short taper mount (KK) for **ISO 702-1** (DIN 55026/55021)

| Item No.                                | 147281 ▲             | 147282 ▲             | 147285               | 147286               | 148036               | 148023               | 148031               | 162995                |
|-----------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|
| Size                                    | 160                  | 160                  | 200                  | 200                  | 250                  | 250                  | 250                  | 315                   |
| Number of jaws                          | 2                    | 2                    | 2                    | 2                    | 2                    | 2                    | 2                    | 2                     |
| A mm                                    | 160                  | 160                  | 200                  | 200                  | 250                  | 250                  | 250                  | 315                   |
| Jaw travel B mm                         | 4                    | 4                    | 5                    | 5                    | 6,2                  | 6,2                  | 6,2                  | 6,25                  |
| C mm                                    | 102                  | 108                  | 107                  | 112                  | 128                  | 132                  | 132                  | 130                   |
| Mount D                                 | ZA 140               | KK 5                 | ZA 170               | KK 6                 | ZA 220               | KK 6                 | KK 8                 | ZA 300                |
| E mm                                    | 6                    | 15                   | 6                    | 16                   | 6                    | 15                   | 19                   | 6                     |
| F mm                                    | 104,8                | 104,8                | 133,4                | 133,4                | 171,4                | 133,4                | 171,4                | 235                   |
| G                                       | 4xM10                | 4xM10                | 4xM12                | 4xM12                | 4xM16                | 4xM12                | 4xM16                | 4xM20                 |
| H mm                                    | 15                   | 14                   | 18                   | 17                   | 24                   | 18                   | 24                   | 30                    |
| Wedge stroke K mm                       | 15                   | 15                   | 18,5                 | 18,5                 | 23                   | 23                   | 23                   | 23                    |
| L mm                                    | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 2,5                  | 3,5                   |
| M max. mm                               | 46                   | 46                   | 66                   | 66                   | 86                   | 66                   | 86                   | 108                   |
| M <sub>1</sub> <sup>1/2</sup> mm        | 46                   | 46                   | 66                   | 66                   | 94                   | 94                   | 94                   | 115                   |
| N mm                                    | 58                   | 58                   | 80                   | 80                   | 99                   | 80                   | 99                   | 126                   |
| O min.                                  | 6                    | 16                   | 7,5                  | 16,5                 | -6                   | 2                    | 2                    | -9                    |
| O max.                                  | 21                   | 31                   | 26                   | 35                   | 17                   | 25                   | 25                   | 14                    |
| P mm                                    | 16                   | 16                   | 15                   | 15                   | 25                   | 25                   | 25                   | 25                    |
| Q mm                                    | M54x1,5              | M54x1,5              | M74x1,5              | M74x1,5              | M94x1,5              | M74x1,5              | M94x1,5              | M120x1,5              |
| T mm                                    | 98                   | 106                  | 103                  | 110                  | 124                  | 130                  | 130                  | 135                   |
| U mm                                    | M8                   | M8                   | M 12                 | M12                  | M12                  | M12                  | M12                  | M16                   |
| W mm                                    | -                    | -                    | -                    | -                    | -                    | 74                   | 74                   | 85                    |
| a min.                                  | 24                   | 24                   | 35                   | 35                   | 43,8                 | 43,8                 | 43,8                 | 54,8                  |
| a max.                                  | 28                   | 28                   | 40                   | 40                   | 50                   | 50                   | 50                   | 61                    |
| b min.                                  | 0                    | 0                    | 8,5                  | 8,5                  | 6                    | 6                    | 6                    | 10,5                  |
| b max.                                  | 22                   | 22                   | 32,5                 | 32,5                 | 47,5                 | 47,5                 | 47,5                 | 61                    |
| c mm                                    | 2x15                 | 2x15                 | 19                   | 19                   | 19                   | 19                   | 19                   | 25                    |
| d mm                                    | 52                   | 52                   | 60                   | 60                   | 75                   | 75                   | 75                   | 96,5                  |
| e mm                                    | 32                   | 32                   | 40                   | 40                   | 50                   | 50                   | 50                   | 50                    |
| fH7-0,025 mm                            | 12                   | 12                   | 17                   | 17                   | 17                   | 17                   | 17                   | 21                    |
| g mm                                    | 76                   | 76                   | 84                   | 84                   | 108                  | 108                  | 108                  | 136                   |
| h                                       | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                | M6x10                | M8x12                 |
| α                                       | 40°                  | 40°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                   |
| Max. swing top jaws mm                  | 170                  | 170                  | 250                  | 250                  | 305                  | 305                  | 305                  | 380                   |
| Maximum draw bar pull kN                | 20                   | 20                   | 30                   | 30                   | 42                   | 42                   | 42                   | 55                    |
| Max. total clamping force kN            | 45                   | 45                   | 66                   | 66                   | 94                   | 94                   | 94                   | 120                   |
| Max. admissible speed min <sup>-1</sup> | 8000                 | 8000                 | 6500                 | 6500                 | 5000                 | 5000                 | 5000                 | 4200                  |
| Moment of inertia J kgm <sup>2</sup>    | 0,0415               | 0,0415               | 0,1                  | 0,1                  | 0,35                 | 0,35                 | 0,35                 | 0,62                  |
| Weight without jaws approx. kg          | 12                   | 12                   | 20                   | 20                   | 40                   | 40                   | 40                   | 60                    |
| Actuating cylinders (recommended)       | OVS-105 / SZS-46/103 | OVS-105 / SZS-46/103 | OVS-130 / SZS-67/150 | OVS-130 / SZS-67/150 | OVS-150 / SZS-67/150 | OVS-150 / SZS-67/150 | OVS-150 / SZS-86/200 | OVS-200 / SZS-110/250 |

Other sizes on request

# Jaws KFD-HS

C 21

Reversible top jaws, hardened serration 90° - material: 16MnCr5



| Chuck Size | 2-jaw set | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|------------|-----------|-----------|---------------|---------------|--------------|------------|
| 110        | -         | 149352    | 45            | 32            | 26           | 1/16"x 90° |
| 140        | 046545    | 046544    | 56            | 37,5          | 26           | 1/16"x 90° |
| 160/175    | 045796    | 046404    | 56            | 37,5          | 26           | 1/16"x 90° |
| 160/175    | -         | 351320    | 51,5          | 26            | 26           | 1/16"x 90° |
| 200/250    | 118521    | 118522    | 75            | 49            | 36           | 1/16"x 90° |
| 315        | 046435    | 046414    | 103,5         | 58            | 50           | 1/16"x 90° |
| 400        | 046447    | 037531    | 135           | 65            | 68           | 3/32"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck

C 21

Soft top jaws, can be hardened serration 90° - material: 16MnCr5



| Chuck Size | 2-jaw set | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|------------|-----------|-----------|---------------|---------------|--------------|------------|
| 110        | -         | 149353    | 45            | 38            | 26,5         | 1/16"x 90° |
| 140        | 045794    | 046402    | 53            | 30            | 22,5         | 1/16"x 90° |
| 160/175    | 045795    | 046403    | 55            | 38            | 26,5         | 1/16"x 90° |
| 200        | 133147    | 133152    | 66,7          | 53            | 36,5         | 1/16"x 90° |
| 250        | 133148    | 133153    | 75            | 53            | 36,5         | 1/16"x 90° |
| 315        | 133149    | 133154    | 95            | 54,5          | 45           | 1/16"x 90° |
| 400        | 133151    | 133156    | 130           | 80            | 50           | 3/32"x 90° |

C 21

Soft top jaws, 3-jaw set, can be hardened tongue and groove, 120° bevelled, material: 16MnCr5



| Chuck Size | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm |
|------------|-----------|---------------|---------------|--------------|
| 110        | 144082    | 53            | 30            | 22,5         |
| 140        | 123355    | 58            | 38            | 26,5         |
| 160        | 123358    | 72,7          | 53            | 36,5         |
| 200        | 123430    | 90,3          | 53            | 36,5         |

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 10



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 149920   | 110        | 42            | 27            | 37,1           | 1/16"x 90° |
| 149921   | 110        | 42            | 27            | 23,4           | 1/16"x 90° |
| 149922   | 110        | 47            | 27            | 17,7           | 1/16"x 90° |

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 10



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 147259   | 140        | 50            | 27            | 41             | 1/16"x 90° |
| 147261   | 140        | 44            | 27            | 22             | 1/16"x 90° |

# Jaws KFD-HS

C 21

**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 12**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 144320   | 160/175    | 66            | 38            | 52             | 1/16"x 90° |
| 144321   | 160/175    | 56            | 38            | 34             | 1/16"x 90° |
| 144322   | 160/175    | 66            | 38            | 25             | 1/16"x 90° |

C 21

**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 17**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137031   | 200/250    | 67            | 45            | 53             | 1/16"x 90° |
| 137032   | 200/250    | 65            | 45            | 46             | 1/16"x 90° |
| 137033   | 200/250    | 55            | 45            | 39             | 1/16"x 90° |
| 137034   | 200/250    | 50            | 45            | 31             | 1/16"x 90° |
| 137035   | 200/250    | 55            | 45            | 27             | 1/16"x 90° |
| 137036   | 200/250    | 65            | 45            | 19             | 1/16"x 90° |
| 137037   | 200/250    | 65            | 45            | 26             | 1/16"x 90° |
| 137038   | 200/250    | 55            | 45            | 24             | 1/16"x 90° |
| 137039   | 200/250    | 55            | 45            | 40             | 1/16"x 90° |

C 21

**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 21**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137041   | 250/315    | 95            | 50            | 80             | 1/16"x 90° |
| 137042   | 250/315    | 75            | 50            | 60             | 1/16"x 90° |
| 137043   | 250/315    | 60            | 50            | 43             | 1/16"x 90° |
| 137044   | 250/315    | 70            | 50            | 37             | 1/16"x 90° |
| 137045   | 250/315    | 95            | 50            | 25             | 1/16"x 90° |
| 137046   | 250/315    | 80            | 50            | 30             | 1/16"x 90° |

C 21

**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 25,5**

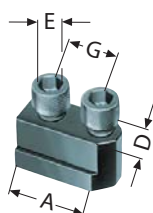


| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137051   | 400        | 130           | 65            | 113            | 3/32"x 90° |
| 137052   | 400        | 90            | 65            | 67             | 3/32"x 90° |
| 137053   | 400        | 100           | 65            | 45             | 3/32"x 90° |
| 137054   | 400        | 130           | 65            | 33             | 3/32"x 90° |

# Accessories KFD-HS

C 15 Extended T-nuts

With screw



| Item no. | Chuck Size | Contents of delivery | A mm | D mm | E      | G mm |
|----------|------------|----------------------|------|------|--------|------|
| 1305164▲ | 110        | piece                | 30   | 10   | M8x20  | 15   |
| 1305165  | 140        | piece                | 34   | 10   | M6x18  | 2x12 |
| 1305166  | 160/175    | piece                | 42   | 12   | M8x20  | 2x15 |
| 1305167  | 200        | piece                | 36   | 17   | M12x25 | 19   |
| 1305168  | 250        | piece                | 36   | 17   | M12x25 | 19   |
| 1305169  | 315        | piece                | 46   | 21   | M16x30 | 25   |
| 1305170  | 400        | piece                | 59   | 25,5 | M20x40 | 31   |

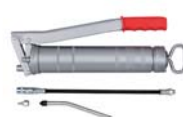
A09 Special grease F80 for lathe chucks

For lubrication and conservation of chucking power



| Item no. | Design                               | Contents |
|----------|--------------------------------------|----------|
| 308555   | Cartridge (DIN 1284)<br>Ø 53.5x235mm | 0,5 kg   |
| 028975   | Tin                                  | 1 kg     |

C15 Grease gun DIN1283



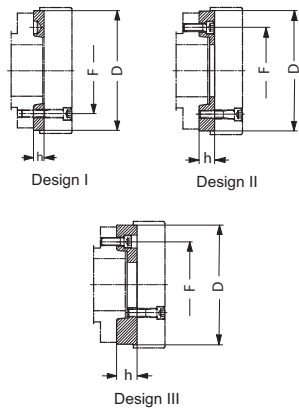
| Item no. | Connection | Contents of delivery                                                                                                              |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1      | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

# Accessories KFD-HS

C 15

**Intermediate adaptor plates** with cylindrical centre mount **DIN 6353** for **3-jaw chucks**

Mounting from front to ISO 702-1 (**DIN 55026/55021**) and **ASA B 5.9 A1/A2** with **metric mounting bolts**



| Item no.             | Spindle nose size | Size        | Design | h mm | F mm  | D mm |
|----------------------|-------------------|-------------|--------|------|-------|------|
| 145125 <sup>1)</sup> | 4                 | 160         | II     | 18   | 82,6  | 140  |
| 145153               | 5                 | 175         | I      | 15   | 104,8 | 140  |
| 145127               | 5                 | 200         | II     | 21   | 104,8 | 170  |
| 145129               | 6                 | 160         | III    | 35   | 133,4 | 140  |
| 145297               | 6                 | 175         | III    | 35   | 133,4 | 140  |
| 145155               | 6                 | 200         | I      | 16   | 133,4 | 170  |
| 145131               | 6                 | 250         | II     | 27   | 133,4 | 220  |
| 145135               | 8                 | 200         | III    | 39   | 171,4 | 170  |
| 145157               | 8                 | 250         | I      | 18   | 171,4 | 220  |
| 145139▲              | 8                 | 315         | II     | 38   | 171,4 | 300  |
| 145143▲              | 11                | 250         | III    | 48   | 235   | 220  |
| 145159               | 11                | 315         | I      | 19   | 235   | 300  |
| 145147               | 11                | 400         | II     | 40   | 235   | 380  |
| 145161               | 15                | 400/500/630 | I      | 21   | 330,2 | 380  |

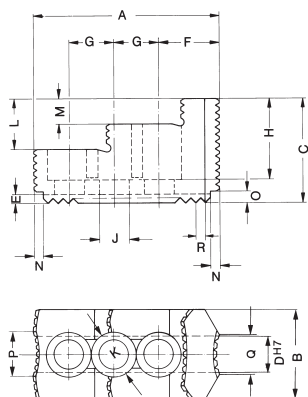
<sup>1)</sup> DIN 55021 on request

All fastening parts are included

Intermediate adaptor plate for 2-jaw version on request

# Jaw dimensions KFD-HS

**Reversible top jaws UB,**  
hardened, serration 90°,  
material 16MnCr5



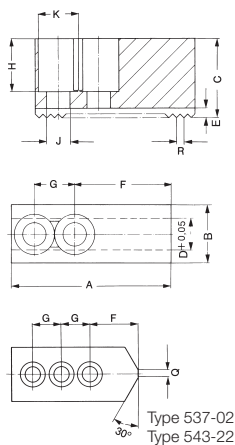
| Chuck size     | 110       | 140       | 160/175   | 160       | 200/250   | 315       | 400/500   |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Type           | 543-21    | 537-02    | 538-02    | 543 1)    | 538-04    | 538-05    | 538-07    |
| Item no. 2-jaw | -         | 046545    | 045796    | -         | 118521    | 046435    | 046447    |
| Item no. 3-jaw | 149352    | 046544    | 046404    | 351320    | 118522    | 046414    | 037531    |
| A              | 45        | 56        | 56        | 51,5      | 75        | 103,5     | 135       |
| B              | 26        | 26        | 26        | 26        | 36        | 50        | 68        |
| C              | 32        | 37,5      | 37,5      | 26        | 49        | 58        | 65        |
| DH7            | 10        | 10        | 12        | 12        | 17        | 21        | 25,5      |
| E              | 3,5       | 3,5       | 3,5       | 3,5       | 5         | 5         | 5         |
| F              | 15        | 10        | 14        | 23        | 21,5      | 33,5      | 48        |
| G              | 15        | 12 2)     | 15        | 15 3)     | 19        | 25        | 31        |
| H              | 23        | 29        | 29        | 17        | 37,5      | 45        | 48        |
| J              | 8,4       | 6,4       | 8,4       | 9         | 13        | 17        | 21        |
| K              | 13,5      | 10,4      | 13,5      | 14        | 19        | 25        | 31        |
| L              | 14        | 20        | 20        | -         | 24        | 28        | -         |
| M              | 7         | 10        | 10        | 8         | 12        | 14        | 26        |
| N              | 4         | 4         | 4         | 3         | 6         | 6         | 6,5       |
| O              | 4         | 4         | 4         | 4         | 7,5       | 6,5       | 5,5       |
| P              | 8         | 5         | 5         | 20        | 18        | 24,5      | 34        |
| Q              | 5         | 5         | 5         | 3         | 7         | 22,5      | 40        |
| R              | 1/16"x90° | 1/16"x90° | 1/16"x90° | 1/16"x90° | 1/16"x90° | 1/16"x90° | 3/32"x90° |
| Weight/jaw kg  | 0,155     | 0,130     | 0,170     | 0,150     | 0,460     | 1,130     | 2,000     |

1) One step only, for 8000 min<sup>-1</sup>

3) 2 mounting holes

2) 4 mounting holes

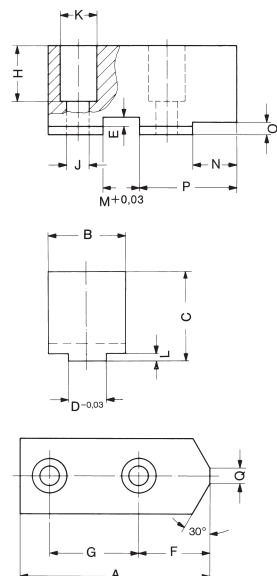
**Soft top jaws AB,**  
serration 90°,  
material 16MnCr5



| Chuck size     | 110       | 140       | 160/175   | 200       | 250       | 315       | 400/500   |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Type           | 543-22    | 537-02    | 538-02    | 538-03    | 538-04    | 538-05    | 538-07    |
| Item no. 2-jaw | -         | 045794    | 045795    | 133147    | 133148    | 133149    | 133151    |
| Item no. 3-jaw | 149353    | 046402    | 046403    | 133152    | 133153    | 133154    | 133156    |
| A              | 45        | 53        | 55        | 66,7      | 75        | 95        | 130       |
| B              | 26,5      | 22,5      | 26,5      | 36,5      | 36,5      | 45        | 50        |
| C              | 38        | 30        | 38        | 53        | 53        | 54,5      | 80        |
| D              | 10        | 10        | 12        | 17        | 17        | 21        | 25,5      |
| E              | 3,5       | 3,5       | 3,5       | 5         | 5         | 5         | 5         |
| F              | 15        | 20        | 31        | 36        | 44        | 55        | 79        |
| G              | 15        | 12 1)     | 15        | 19        | 19        | 25        | 31        |
| H              | 23        | 20        | 28        | 43        | 43        | 42,5      | 60        |
| J              | 8,4       | 6,4       | 8,4       | 13        | 13        | 17        | 21        |
| K              | 13,5      | 10,4      | 13,5      | 19        | 19        | 25        | 31        |
| Q              | 5         | 3         | -         | -         | -         | -         | -         |
| R              | 1/16"x90° | 1/16"x90° | 1/16"x90° | 1/16"x90° | 1/16"x90° | 1/16"x90° | 3/32"x90° |
| Weight/jaw kg  | 0,210     | 0,223     | 0,320     | 0,700     | 0,880     | 1,400     | 3,100     |

1) 3 mounting holes

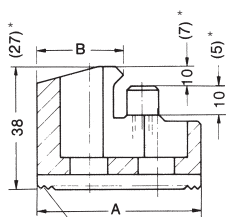
**Soft top jaws AB,**  
with tongue and groove,  
material 16MnCr5



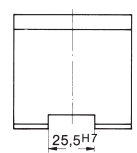
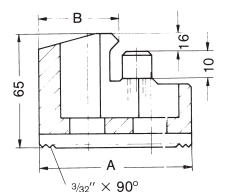
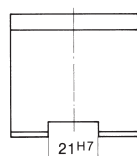
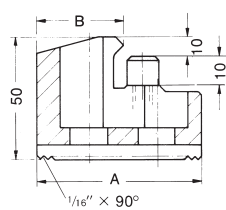
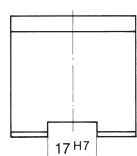
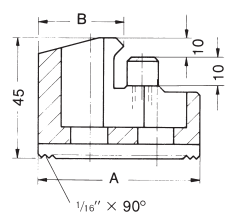
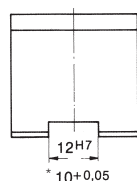
| Chuck size     | 110    | 140    | 160    | 200    |
|----------------|--------|--------|--------|--------|
| Type           | 549-10 | 538-22 | 538-13 | 538-14 |
| Item no. 3-jaw | 144082 | 123355 | 123358 | 123430 |
| A              | 53     | 58     | 72,7   | 90,3   |
| B              | 22,5   | 26,5   | 36,5   | 36,5   |
| C              | 30     | 38     | 53     | 53     |
| D-0,03         | 10     | 8      | 16     | 16     |
| E              | 3,5    | 3,5    | 5,5    | 5,5    |
| F              | 26,5   | 31,5   | 32,2   | 45,3   |
| G              | 17     | -      | 25     | 30     |
| H              | 20     | 25     | 38     | 38     |
| J              | 9      | 13     | 13     | 13     |
| K              | 15     | 19     | 19     | 19     |
| L              | 2,5    | 2,5    | 4,5    | 4,5    |
| M+0,03         | 10     | 13     | 10     | 12     |
| N              | 20     | 23     | 24,7   | 35,3   |
| O              | 4      | 3      | 5      | 5      |
| P              | 30     | 39,5   | 39,7   | 54,3   |
| Q              | 3      | 3      | 3      | 6      |
| Weight/jaw kg  | 0,21   | 0,46   | 0,720  | 1,0    |

# Jaw dimensions KFD-HS

Claw type jaws KB  
serration 90°



$\frac{1}{16}'' \times 90^\circ$   
\* KFD-HS 110+130+140



| Piece    | A  | B    | H  | KFD-HS 110<br>External chucking | Piece    | A  | B  | KFD-HS 140<br>External chucking |
|----------|----|------|----|---------------------------------|----------|----|----|---------------------------------|
| Item no. |    |      |    |                                 | Item no. |    |    |                                 |
| 149920   | 42 | 37,1 | 27 | 20-49                           | 147259   | 50 | 41 | 27-67/35-72                     |
| 149921   | 42 | 23,4 | 27 | 47-70                           | 147261   | 44 | 22 | 58-108/61-114                   |
| 149922   | 47 | 17,7 | 27 | 68-100                          |          |    |    |                                 |
| Piece    | A  | B    | H  | KFD-HS 110<br>Internal chucking | Piece    | A  | B  | KFD-HS 140<br>Internal chucking |
| Item no. |    |      |    |                                 | Item no. |    |    |                                 |
| 149922   | 47 | 17,7 | 27 | 45-75                           | 147261   | 44 | 22 | 58-108/61-114                   |
| 149921   | 42 | 23,4 | 27 | 56-102                          | 147259   | 50 | 41 | 100-130/106-140                 |
| 149920   | 42 | 37,1 | 27 | 84-130                          |          |    |    |                                 |

| Piece    | A  | B  | KFD-HS 160<br>External chucking | KFD-HS 175<br>External chucking |
|----------|----|----|---------------------------------|---------------------------------|
| Item no. |    |    |                                 |                                 |
| 144320   | 66 | 52 | 38-84                           | 48-100                          |
| 144321   | 56 | 34 | 78-122                          | 88-140                          |
| 144322   | 66 | 25 | 120-146                         | 130-160                         |
| Piece    | A  | B  | KFD-HS 160<br>Internal chucking | KFD-HS 175<br>Internal chucking |
| Item no. |    |    |                                 |                                 |
| 144322   | 66 | 25 | 70-100                          | 70-115                          |
| 144321   | 56 | 34 | 92-140                          | 102-155                         |
| 144320   | 66 | 52 | 122-180                         | 132-195                         |

| Piece    | A  | B  | KFD-HS 200<br>External chucking | KFD-HS 250<br>External chucking |
|----------|----|----|---------------------------------|---------------------------------|
| Item no. |    |    |                                 |                                 |
| 137031   | 67 | 53 | 55-110                          | 68-162                          |
| 137032   | 65 | 46 | 68-124                          | 80-173                          |
| 137039   | 55 | 40 | 95-150                          | 108-200                         |
| 137034   | 50 | 31 | 102-158                         | 115-206                         |
| 137035   | 55 | 27 | 110-168                         | 125-220                         |
| Piece    | A  | B  | KFD-HS 200<br>Internal chucking | KFD-HS 250<br>Internal chucking |
| Item no. |    |    |                                 |                                 |
| 137036   | 65 | 19 | 65-125                          | 80-172                          |
| 137037   | 65 | 26 | 86-142                          | 100-192                         |
| 137038   | 55 | 24 | 100-156                         | 112-206                         |
| 137035   | 55 | 27 | 120-178                         | 135-228                         |
| 137034   | 50 | 31 | 132-188                         | 145-236                         |
| 137039   | 55 | 40 | 136-195                         | 150-245                         |
| 137033   | 55 | 39 | 150-207                         | 165-257                         |
| 137032   | 65 | 46 | 164-222                         | 179-270                         |

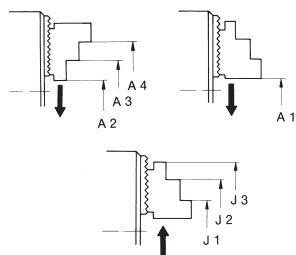
| Piece    | A  | B  | KFD-HS 315 (86) <sup>1)</sup><br>External chucking | KFD-HS 315 (108) <sup>1)</sup><br>External chucking |
|----------|----|----|----------------------------------------------------|-----------------------------------------------------|
| Item no. |    |    |                                                    |                                                     |
| 137041   | 95 | 80 | 46-175                                             | 65-175                                              |
| 137042   | 75 | 60 | 92-220                                             | 104-220                                             |
| 137043   | 60 | 43 | 114-250                                            | 135-250                                             |
| 137044   | 70 | 37 | 142-275                                            | 166-275                                             |
| Piece    | A  | B  | KFD-HS 315 (86) <sup>1)</sup><br>Internal chucking | KFD-HS 315 (108) <sup>1)</sup><br>Internal chucking |
| Item no. |    |    |                                                    |                                                     |
| 137045   | 95 | 25 | 65-200                                             | 82-200                                              |
| 137046   | 80 | 30 | 108-242                                            | 130-242                                             |
| 137044   | 70 | 37 | 142-275                                            | 164-275                                             |
| 137043   | 60 | 43 | 170-305                                            | 195-305                                             |
| 137042   | 75 | 60 | 202-340                                            | 224-340                                             |

| Piece    | A   | B   | KFD-HS 400<br>External chucking | KFD-HS 400 (165) <sup>1)</sup><br>External chucking |
|----------|-----|-----|---------------------------------|-----------------------------------------------------|
| Item no. |     |     |                                 |                                                     |
| 137051   | 130 | 113 | 70-270                          | 94-270                                              |
| 137052   | 90  | 67  | 150-304                         | 183-304                                             |
| 137053   | 100 | 45  | 175-390                         | 210-390                                             |
| Piece    | A   | B   | KFD-HS 400<br>Internal chucking | KFD-HS 400 (165) <sup>1)</sup><br>Internal chucking |
| Item no. |     |     |                                 |                                                     |
| 137054   | 130 | 33  | 96-290                          | 110-290                                             |
| 137053   | 100 | 45  | 160-305                         | 195-305                                             |
| 137051   | 130 | 113 | 280-490                         | 302-490                                             |

<sup>1)</sup> Chuck through-hole M

# Chucking capacities KFD-HS

Chucking capacities with reversible top jaws UB, for 3-jaw chucks



| Chuck size           |              | 110    | 140     | 160     | 160*    | 175     | 200     | 200**   | 250     | 315     | 400     |
|----------------------|--------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| with reversible jaws | Type         | 543-21 | 527-02  | 538-02  | 543     | 538-02  | 538-04  | 543-09  | 538-04  | 538-05  | 538-07  |
|                      | Jaw position |        |         |         |         |         |         |         |         |         |         |
| External chucking    | A1           | 6-46   | 5-68    | 6-67    | 4-52    | 6-82    | 12-98   | 4-70    | 22-144  | 25-169  | 30-203  |
|                      | A2           | -      | -       | -       | 21-73   | -       | 26-112  | -       | 40-156  | 45-196  | 47-250  |
|                      | A3           | 41-76  | 52-115  | 53-118  | -       | 54-133  | 82-165  | -       | 94-210  | 127-280 | -       |
|                      | A4           | 68-106 | 87-150  | 88-165  | 94-146  | 90-180  | 132-218 | 112-170 | 146-262 | 209-360 | 245-453 |
| Internal chucking    | J1           | 42-80  | 35-100  | 36-99   | 32-84   | 36-114  | 61-144  | 60-126  | 76-192  | 76-216  | 96-280  |
|                      | J2           | 70-108 | 70-135  | 71-134  | -       | 71-149  | 110-198 | -       | 128-244 | 150-348 | -       |
|                      | J3           | 96-135 | 117-182 | 118-181 | 102-157 | 118-196 | 162-248 | -       | 182-298 | 230-380 | 277-478 |

\* One step only

\*\* One step only, extended

# KFD-HE



## APPLICATION

Standard power chuck with through-hole for bar and tube machining, as well as for flange-type workpieces.

## TYPE

Standard version with cylindrical centre mount.

3-jaw version with serration 90° and 60°.

Universal draw tube adapter at serration 60°.

## CUSTOMER BENEFITS

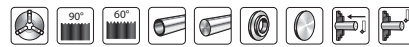
- ⊕ Large through-hole for hollow or partially hollow clamping
- ⊕ Long-tested chuck principle for maximum service life

## TECHNICAL FEATURES

- Power transmission by means of wedge hook principle
- Direct lubrication of all wear surfaces
- Sturdy chuck construction

### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, mounting wrench, slot nuts (without top jaws)



## Gripping force/speed diagram

The loss of gripping force was determined experimentally on a chuck with matched UB top jaws. It is largely independent of the initial gripping force at zero speed.

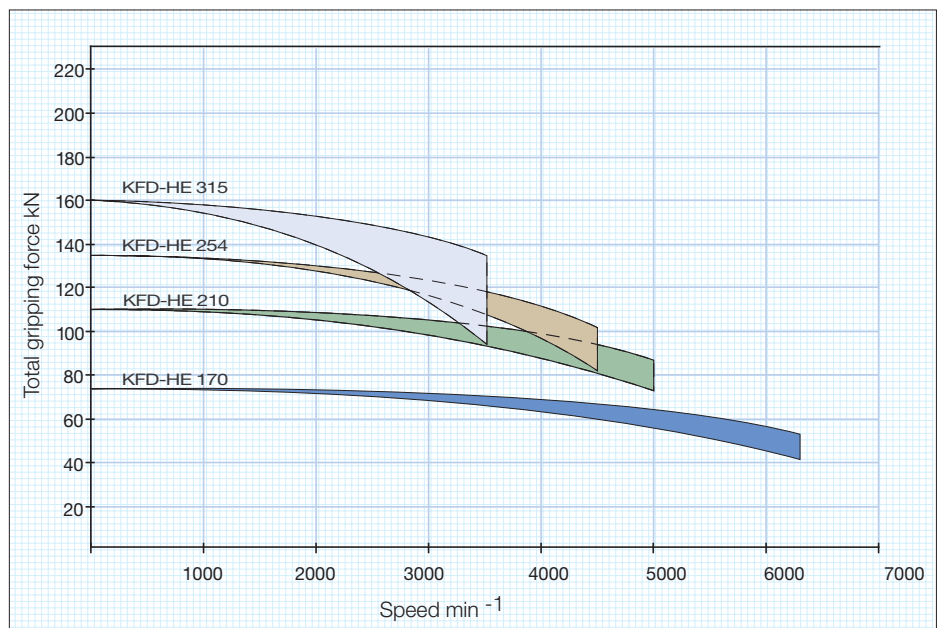
Upper curve:  
min. centrifugal  
force of top jaw



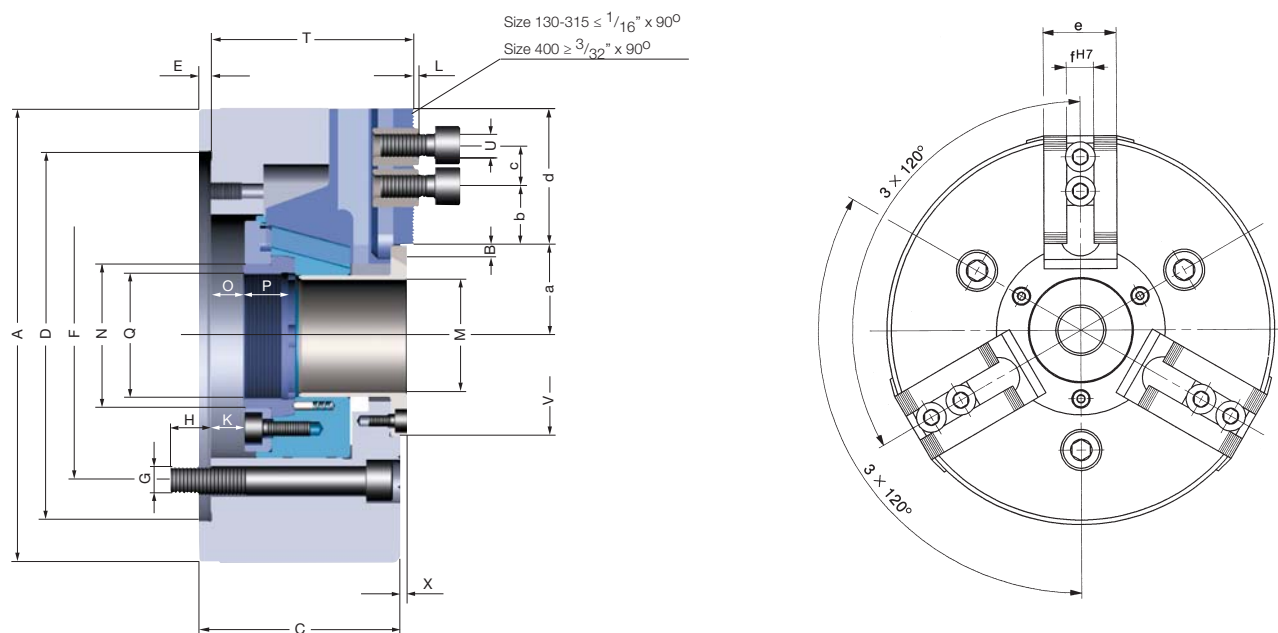
Lower curve:  
max. centrifugal  
force of top jaw



To obtain the specified gripping forces, the chuck must be in a perfect condition and lubricated with F 80 lubricant recommended by RÖHM. Measuring point near chuck face.



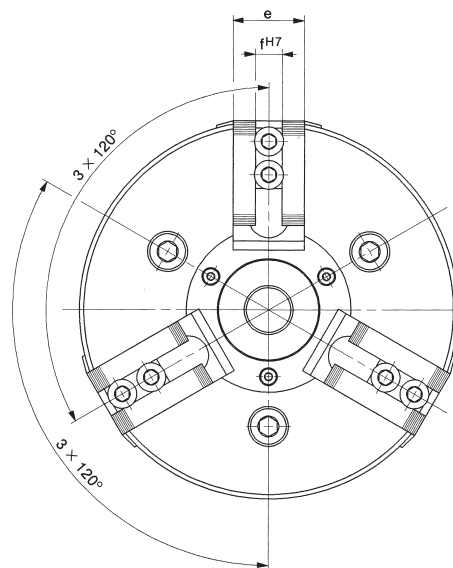
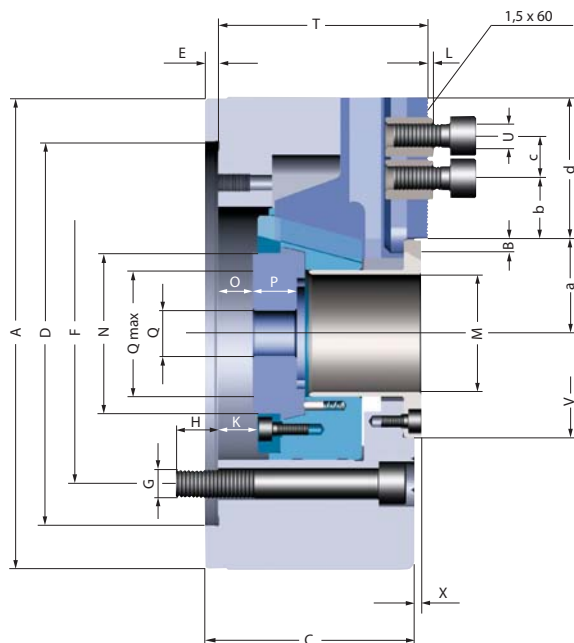
# KFD-HE 3-jaw, standard design, serration 90°



C 15  
3-jaw power chuck **KFD-HE**, serration 90°, cylindrical centre mount, mounting dimensions to **DIN 6353**

| Item No.                                | 154384               | 154031               | 154032               | 154829                |
|-----------------------------------------|----------------------|----------------------|----------------------|-----------------------|
| Size                                    | 170                  | 210                  | 254                  | 315                   |
| Number of jaws                          | 3                    | 3                    | 3                    | 3                     |
| A mm                                    | 170                  | 210                  | 254                  | 315                   |
| Jaw travel B mm                         | 3,2                  | 4,3                  | 5,1                  | 5,3                   |
| C mm                                    | 82                   | 93                   | 101                  | 114                   |
| D <sup>±6</sup> mm                      | 140                  | 170                  | 220                  | 300                   |
| E mm                                    | 6                    | 6                    | 6                    | 6                     |
| F mm                                    | 104,8                | 133,4                | 171,4                | 235                   |
| G mm                                    | 3 x M 10             | 3 x M 12             | 3 x M 16             | 3 x M 20              |
| H mm                                    | 15                   | 19                   | 23                   | 28                    |
| Wedge stroke K mm                       | 14                   | 16                   | 19                   | 23                    |
| L mm                                    | 2,5                  | 2,5                  | 2,5                  | 2,5                   |
| Through-hole M mm                       | 43                   | 52                   | 75                   | 121                   |
| N mm                                    | 57                   | 66                   | 94                   | 143                   |
| O min.                                  | -2,6                 | -0,7                 | -10,3                | -9,4                  |
| O max.                                  | 11,4                 | 15,3                 | 8,7                  | 13,6                  |
| P mm                                    | 19                   | 20,5                 | 28                   | 26                    |
| Q mm                                    | M 52 x 1,5           | M 58 x 1,5           | M 82 x 1,5           | M 126 x 1,5           |
| T mm                                    | 82                   | 93                   | 101                  | 114                   |
| U mm                                    | M 8                  | M 12                 | M 16                 | M 16                  |
| V <sup>H7</sup> <sub>-0,05</sub> mm     | 74                   | 92                   | 125                  | 170                   |
| X mm                                    | 3                    | 3                    | 3                    | 3                     |
| a min.                                  | 34,8                 | 37,7                 | 50,9                 | 72,2                  |
| a max.                                  | 38                   | 42                   | 56                   | 77,5                  |
| b min.                                  | 7,5                  | 9                    | 10                   | 12                    |
| c min.                                  | 2 x 15               | 19                   | 25                   | 25                    |
| c max.                                  | -                    | 47                   | 59                   | 69                    |
| d mm                                    | 47                   | 63                   | 71                   | 80                    |
| e mm                                    | 32                   | 40                   | 50                   | 50                    |
| fH7-0,025 mm                            | 12                   | 17                   | 21                   | 21                    |
| Max. swing top jaws mm                  | 230                  | 290                  | 345                  | 410                   |
| Maximum draw bar pull kN                | 25                   | 40                   | 60                   | 60                    |
| Max. total clamping force approx. kN    | 75                   | 110                  | 135                  | 160                   |
| Max. admissible speed min <sup>-1</sup> | 6300                 | 5000                 | 4500                 | 3500                  |
| Moment of inertia J kgm <sup>2</sup>    | 0,038                | 0,09                 | 0,22                 | 0,8                   |
| Weight without jaws approx. kg          | 12                   | 18                   | 29                   | 50                    |
| Actuating cylinders (recommended)       | OVS-105 / SZS-46/103 | OVS-130 / SZS-52/130 | OVS-150 / SZS-77/170 | OVS-200 / SZS-127/325 |

# KFD-HE 3-jaw, universal draw tube connector, serration 60°



C 15

3-jaw power chuck KFD-HE, serration 60°, with pre-machined draw tube-connector, adaptor recess, cylindrical centre mount, mounting dimensions to DIN 6353

| Item No.                                | 154390               | 154391               | 154392 ▲             | 154830                |
|-----------------------------------------|----------------------|----------------------|----------------------|-----------------------|
| Size                                    | 170                  | 210                  | 254                  | 315                   |
| Number of jaws                          | 3                    | 3                    | 3                    | 3                     |
| A mm                                    | 170                  | 210                  | 254                  | 315                   |
| Jaw travel B mm                         | 3,4                  | 4,3                  | 5,1                  | 5,3                   |
| C mm                                    | 82                   | 93                   | 101                  | 114                   |
| D <sup>16</sup> mm                      | 140                  | 170                  | 220                  | 300                   |
| E mm                                    | 6                    | 6                    | 6                    | 6                     |
| F mm                                    | 104,8                | 133,4                | 171,4                | 235                   |
| G mm                                    | 3 x M 10             | 3 x M 12             | 3 x M 16             | 3 x M 20              |
| H mm                                    | 15                   | 19                   | 23                   | 28                    |
| Wedge stroke K mm                       | 14                   | 16                   | 19                   | 23                    |
| L mm                                    | 3,2                  | 3,2                  | 3,2                  | 3,2                   |
| Through-hole M mm                       | 43                   | 52                   | 75                   | 121                   |
| N mm                                    | 57                   | 66                   | 94                   | 143                   |
| O min.                                  | -2,6                 | -0,7                 | -10,3                | -9,4                  |
| O max.                                  | 11,4                 | 15,3                 | 8,7                  | 13,6                  |
| P mm                                    | 19                   | 20,5                 | 28                   | 26                    |
| Q mm                                    | Ø 20                 | Ø 30                 | Ø 45                 | Ø 60                  |
| Q max.                                  | M 53 x 1,5           | M 60 x 2             | M 85 x 2             | M 130 x 2             |
| T mm                                    | 82                   | 93                   | 101                  | 114                   |
| U mm                                    | M 10                 | M 12                 | M 12                 | M 16                  |
| V <sup>17</sup> <sub>-0,05</sub> mm     | 74                   | 92                   | 125                  | 170                   |
| X mm                                    | 3                    | 3                    | 3                    | 3                     |
| a min.                                  | 34,8                 | 37,7                 | 50,9                 | 72,7                  |
| a max.                                  | 38                   | 42                   | 56                   | 77,5                  |
| b min.                                  | 4,5                  | 9                    | 8                    | 12                    |
| c min.                                  | 20                   | 25                   | 30                   | 30                    |
| d mm                                    | 47                   | 63                   | 71                   | 80                    |
| e mm                                    | 32                   | 40                   | 50                   | 50                    |
| fH7-0,025 mm                            | 12                   | 14                   | 16                   | 21                    |
| Max. swing top jaws mm                  | 230                  | 290                  | 345                  | 410                   |
| Maximum draw bar pull kN                | 25                   | 40                   | 60                   | 60                    |
| Max. total clamping force approx. kN    | 75                   | 110                  | 135                  | 160                   |
| Max. admissible speed min <sup>-1</sup> | 6300                 | 5000                 | 4500                 | 3500                  |
| Moment of inertia J kgm <sup>2</sup>    | 0,038                | 0,9                  | 0,22                 | 0,8                   |
| Weight without jaws approx. kg          | 12                   | 18                   | 29                   | 50                    |
| Actuating cylinders (recommended)       | OVS-105 / SZS-46/103 | OVS-130 / SZS-52/130 | OVS-150 / SZS-77/170 | OVS-200 / SZS-127/325 |

Interchangeable with Kitagawa B-200A

# Jaws KFD-HE

C 21

Reversible top jaws, 3-jaw set, hardened serration 90° - material: 16MnCr5



| Chuck Size | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|------------|-----------|---------------|---------------|--------------|------------|
| 170        | 046404    | 56            | 37,5          | 26           | 1/16"x 90° |
| 210        | 118522    | 75            | 49            | 36           | 1/16"x 90° |
| 254/315    | 046414    | 103,5         | 58            | 50           | 1/16"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Reversible top jaws, 3-jaw set, hardened serration 60° - material: 16MnCr5



| Chuck Size | 3-jaw set            | Jaw length mm | Jaw height mm | Jaw width mm | Serration |
|------------|----------------------|---------------|---------------|--------------|-----------|
| 170        | 154674 <sup>1)</sup> | 66            | 36            | 34,7         | 1,5 x 60° |
| 210        | 154676               | 81            | 49            | 36           | 1,5 x 60° |
| 254        | 154678               | 99,5          | 54            | 44,5         | 1,5 x 60° |
| 315        | 154816 <sup>1)</sup> | 103           | 55,5          | 50           | 1,5 x 60° |

<sup>1)</sup> One step only

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, 3-jaw set, can be hardened serration 90° - material: 16MnCr5



| Chuck Size | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|------------|-----------|---------------|---------------|--------------|------------|
| 170        | 046403    | 55            | 38            | 26,5         | 1/16"x 90° |
| 210        | 133153    | 75            | 53            | 36,5         | 1/16"x 90° |
| 254/315    | 133154    | 95            | 54,5          | 45           | 1/16"x 90° |

C 21

Soft top jaws, 3-jaw set, can be hardened serration 60° - material: 16MnCr5



| Chuck Size | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration |
|------------|-----------|---------------|---------------|--------------|-----------|
| 170        | 154865    | 72            | 43            | 30,5         | 1,5 x 60° |
| 210        | 154867    | 95            | 45,5          | 35           | 1,5 x 60° |
| 254        | 154869    | 110           | 45            | 50           | 1,5 x 60° |
| 315        | 154871    | 130           | 55,5          | 50           | 1,5 x 60° |

# Jaws KFD-HE

C 21

**Claw-type jaws, 1 piece, hardened serration 60° - width of the groove 12**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration |
|----------|------------|---------------|---------------|----------------|-----------|
| 156025   | 170        | 67            | 45            | 53             | 1,5 x 60° |
| 156027   | 170        | 65            | 45            | 46             | 1,5 x 60° |
| 156029   | 170        | 55            | 45            | 40             | 1,5 x 60° |
| 161189   | 170        | 55            | 45            | 24             | 1,5 x 60° |

C 21

**Claw-type jaws, 1 piece, hardened serration 60° - width of the groove 16**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration |
|----------|------------|---------------|---------------|----------------|-----------|
| 156099   | 254        | 95            | 50            | 80             | 1,5 x 60° |
| 156101   | 254        | 75            | 50            | 60             | 1,5 x 60° |
| 156103   | 254        | 60            | 50            | 43             | 1,5 x 60° |
| 156105   | 254        | 70            | 50            | 37             | 1,5 x 60° |

C 21

**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 17**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137031   | 210        | 67            | 45            | 53             | 1/16"x 90° |
| 137032   | 210        | 65            | 45            | 46             | 1/16"x 90° |
| 137039   | 210        | 55            | 45            | 40             | 1/16"x 90° |
| 137034   | 210        | 50            | 45            | 31             | 1/16"x 90° |
| 137035   | 210        | 55            | 45            | 27             | 1/16"x 90° |
| 137036   | 210        | 65            | 45            | 19             | 1/16"x 90° |
| 137037   | 210        | 65            | 45            | 26             | 1/16"x 90° |
| 137038   | 210        | 55            | 45            | 24             | 1/16"x 90° |
| 137033   | 210        | 55            | 45            | 39             | 1/16"x 90° |

C 21

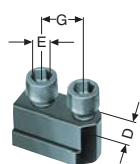
**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 21**



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137041   | 254/315    | 95            | 50            | 80             | 1/16"x 90° |
| 137042   | 254/315    | 75            | 50            | 60             | 1/16"x 90° |
| 137043   | 254/315    | 60            | 50            | 43             | 1/16"x 90° |
| 137044   | 254/315    | 70            | 50            | 37             | 1/16"x 90° |
| 137045   | 254/315    | 95            | 50            | 25             | 1/16"x 90° |
| 137046   | 254/315    | 80            | 50            | 30             | 1/16"x 90° |

# Accessories KFD-HE

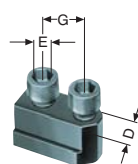
C 15 **T-nuts**  
with screw, for SV 1/16" x 90°



| Item no.              | Chuck Size | Con-<br>tents of<br>delivery | D mm | E      | G mm |
|-----------------------|------------|------------------------------|------|--------|------|
| 1305166               | 170        | piece                        | 12   | M8x20  | 2x15 |
| 1305172 <sup>1)</sup> | 210        | Piece                        | 17   | M12x25 | -    |
| 1356253               | 254/315    | piece                        | 21   | M16x30 | -    |

<sup>1)</sup> Simple slot nut

C 15 **T-nuts**  
with screw, for SV 1,5" x 60°



| Item no.  | Chuck Size | Con-<br>tents of<br>delivery | D mm | E      | G mm |
|-----------|------------|------------------------------|------|--------|------|
| 1028192 ▲ | 170        | piece                        | 12   | M10x25 | 20   |
| 1028193   | 210        | piece                        | 14   | M12x30 | 25   |
| 1028194   | 254        | piece                        | 16   | M12x30 | 30   |
| 1028196   | 315        | piece                        | 21   | M16x40 | 30   |

C 15 **Special grease F80 for lathe chucks**  
for lubrication and conservation of clamping force



| Item no. | Design    | Contents |
|----------|-----------|----------|
| 308555   | Cartridge | 0,5 kg   |
| 028975   | Tin       | 1 kg     |

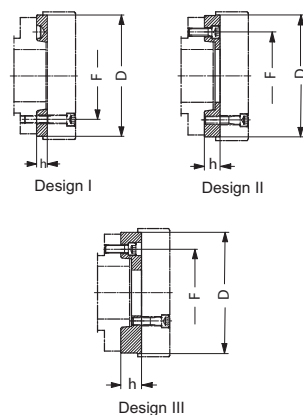
C15 **Grease gun DIN1283**



| Item no. | Conne-<br>ction | Contents of delivery                                                                                                              |
|----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1           | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

# Accessories KFD-HE

C 15  
**Intermediate adaptor plates** with cylindrical centre mount **DIN 6353** for 3-jaw chucks  
Mounting from front to **ISO 702-1 (DIN 55026/55021)** and **ASA B 5.9 A1/A2** with **metric mounting bolts**

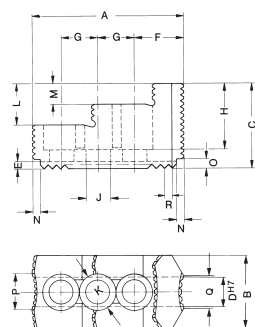


| Item no.             | Spindle nose size | Size | Design | h mm | F mm  | D mm |
|----------------------|-------------------|------|--------|------|-------|------|
| 145125 <sup>1)</sup> | 4                 | 170  | II     | 18   | 82,6  | 140  |
| 145153               | 5                 | 170  | I      | 15   | 104,8 | 140  |
| 145127               | 5                 | 210  | II     | 21   | 104,8 | 170  |
| 145129               | 6                 | 170  | III    | 35   | 133,4 | 140  |
| 145155               | 6                 | 210  | I      | 16   | 133,4 | 170  |
| 145131               | 6                 | 254  | II     | 27   | 133,4 | 220  |
| 145135               | 8                 | 210  | III    | 39   | 171,4 | 170  |
| 145157               | 8                 | 254  | I      | 18   | 171,4 | 220  |
| 145139 ▲             | 8                 | 315  | II     | 38   | 171,4 | 300  |
| 145143 ▲             | 11                | 254  | III    | 48   | 235   | 220  |
| 145159               | 11                | 315  | I      | 19   | 235   | 300  |

All fastening parts are included  
<sup>1)</sup> DIN 55021 auf Anfrage

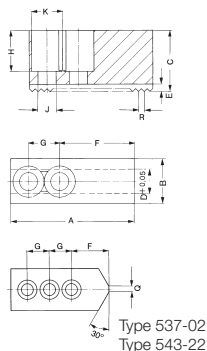
# Jaw dimensions KFD-HE

**Reversible top jaws UB,**  
hardened, serration 90°,  
material 16MnCr5



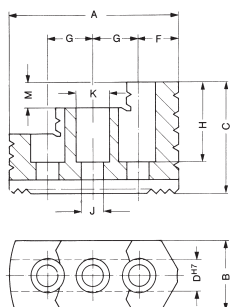
| Chuck size     | 170           | 210           | 254/315       |
|----------------|---------------|---------------|---------------|
| Type           | 537-02        | 538-04        | 538-05        |
| Item no. 3-jaw | <b>046404</b> | <b>118522</b> | <b>046414</b> |
| A              | 56            | 75            | 103,5         |
| B              | 26            | 36            | 50            |
| C              | 37,5          | 49            | 58            |
| DH7            | 12            | 17            | 21            |
| E              | 3,5           | 5             | 5             |
| F              | 14            | 21,5          | 33,5          |
| G              | 15            | 19            | 25            |
| H              | 29            | 37,5          | 45            |
| J              | 8,4           | 13            | 17            |
| K              | 13,5          | 19            | 25            |
| L              | 20            | 24            | 28            |
| M              | 10            | 12            | 14            |
| N              | 4             | 6             | 6             |
| O              | 4             | 7,5           | 6,5           |
| P              | 5             | 18            | 24,5          |
| Q              | 5             | 7             | 22,5          |
| R              | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     |
| Weight/jaw kg  | 0,130         | 0,460         | 1,130         |

**Soft top jaws AB,**  
serration 90°,  
material 16MnCr5



| Chuck size     | 170           | 210           | 254/315       |
|----------------|---------------|---------------|---------------|
| Type           | 538-02        | 538-04        | 538-05        |
| Item no. 3-jaw | <b>046403</b> | <b>133153</b> | <b>133154</b> |
| A              | 55            | 75            | 95            |
| B              | 26,5          | 36,5          | 45            |
| C              | 38            | 53            | 54,5          |
| D              | 12            | 17            | 21            |
| E              | 3,5           | 5             | 5             |
| F              | 31            | 44            | 55            |
| G              | 15            | 19            | 25            |
| H              | 28            | 43            | 42,5          |
| J              | 8,4           | 13            | 17            |
| K              | 13,5          | 19            | 25            |
| Q              | -             | -             | -             |
| R              | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     |
| Weight/jaw kg  | 0,320         | 0,880         | 1,400         |

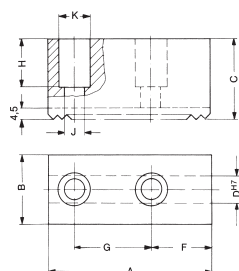
**Reversible top jaws UB,**  
serration 60°,  
material 16MnCr5



| Chuck size     | 170              | 210           | 254           | 315              |
|----------------|------------------|---------------|---------------|------------------|
| Type           | 543-31           | 543-31        | 543-31        | 543-31           |
| Item no. 3-jaw | <b>154674 1)</b> | <b>154676</b> | <b>154678</b> | <b>154816 1)</b> |
| A              | 66               | 81            | 99,5          | 103              |
| B              | 34,7             | 36            | 44,5          | 50               |
| C              | 36               | 49            | 54            | 55,5             |
| D              | 12               | 14            | 16            | 21               |
| F              | 12,5             | 17,5          | 25,5          | 22,5             |
| G              | 20               | 25            | 30            | 30               |
| H              | 23               | 36,5          | 38,5          | 34               |
| J              | 11               | 13            | 13            | 17               |
| K              | 17               | 19            | 19            | 25               |
| Serration      | 1,5 x 60°        | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°        |
| Weight/jaw kg  | 0,3              | 0,6           | 1,2           | 1,5              |

1) One step only

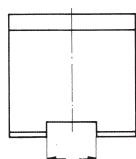
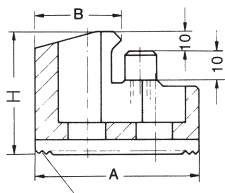
**Soft top jaws AB,**  
can be hardened, serration 60°,  
material 16MnCr5



| Chuck size     | 170           | 210           | 254           | 315           |
|----------------|---------------|---------------|---------------|---------------|
| Type           | 543-32        | 543-32        | 543-32        | 543-32        |
| Item no. 3-jaw | <b>154865</b> | <b>154867</b> | <b>154869</b> | <b>154871</b> |
| A              | 72            | 95            | 110           | 130           |
| B              | 32,5          | 35            | 50            | 50            |
| C              | 40            | 45,5          | 45            | 55,5          |
| D              | 12            | 14            | 16            | 21            |
| F              | 37            | 46            | 50            | 52            |
| G              | 20            | 25            | 30            | 30            |
| H              | 27            | 33            | 29            | 34            |
| J              | 11            | 13            | 13            | 17            |
| K              | 17            | 19            | 19            | 25            |
| Serration      | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°     |
| Weight/jaw kg  | 0,5           | 0,9           | 1,7           | 1,9           |

# Chuckling capacities KFD-HE

Claw-type jaws KB  
serration 90°



| Piece    | A  | B  | KFD-HE 170 1,5 x 60°<br>External chucking |
|----------|----|----|-------------------------------------------|
| Item no. |    |    |                                           |
| 156025   | 67 | 53 | 39-83                                     |
| 156027   | 65 | 46 | 52-98                                     |
| 156029   | 55 | 40 | 78-124                                    |
| 161189   | 55 | 24 | 110-155                                   |
| Piece    | A  | B  | KFD-HE 170 1,5 x 60°<br>Internal chucking |
| Item no. |    |    |                                           |
| 161189   | 55 | 24 | 92-135                                    |
| 156029   | 55 | 40 | 125-168                                   |
| 159027   | 65 | 46 | 150-190                                   |

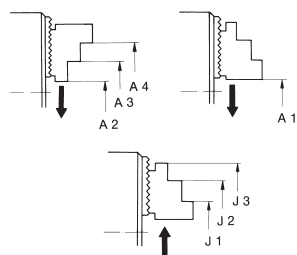
| Piece    | A  | B  | KFD-HE 210 1/16x90°<br>External chucking |
|----------|----|----|------------------------------------------|
| Item no. |    |    |                                          |
| 137031   | 67 | 53 | 60-96                                    |
| 137032   | 65 | 46 | 73-111                                   |
| 137039   | 55 | 40 | 88-127                                   |
| 137034   | 50 | 31 | 105-142                                  |
| 137035   | 55 | 27 | 119-157                                  |
| Piece    | A  | B  | KFD-HE 210 1/16x90°<br>Internal chucking |
| Item no. |    |    |                                          |
| 137036   | 65 | 19 | 72-110                                   |
| 137037   | 65 | 26 | 90-125                                   |
| 137038   | 55 | 24 | 104-144                                  |
| 137035   | 55 | 27 | 124-156                                  |
| 137034   | 50 | 31 | 136-163                                  |
| 137039   | 55 | 40 | 144-175                                  |
| 137033   | 55 | 39 | 154-205                                  |
| 137032   | 65 | 46 | 168-218                                  |

| Piece    | A  | B  | KFD-HE 254 1,5 x 60°<br>External chucking |
|----------|----|----|-------------------------------------------|
| Item no. |    |    |                                           |
| 156099   | 95 | 80 | 60-102                                    |
| 156101   | 75 | 60 | 99-140                                    |
| 156103   | 60 | 43 | 132-174                                   |
| 156105   | 70 | 37 | 163-205                                   |
| Piece    | A  | B  | KFD-HE 254 1,5 x 60°<br>Internal chucking |
| Item no. |    |    |                                           |
| 156101   | 75 | 60 | 222-275                                   |
| 156103   | 60 | 43 | 188-250                                   |
| 156105   | 70 | 37 | 158-198                                   |

| Piece    | A  | B  | KFD-HE 254 1/16x90°<br>External chucking | KFD-HE 315 1/16x90°<br>External chucking |
|----------|----|----|------------------------------------------|------------------------------------------|
| Item no. |    |    |                                          |                                          |
| 137041   | 95 | 80 | 53-95                                    | 66-160                                   |
| 137042   | 75 | 60 | 92-133                                   | 105-198                                  |
| 137043   | 60 | 43 | 125-167                                  | 138-232                                  |
| 137044   | 70 | 37 | 156-198                                  | 169-263                                  |
| Piece    | A  | B  | KFD-HE 254 1/16x90°<br>Internal chucking | KFD-HE 315 1/16x90°<br>Internal chucking |
| Item no. |    |    |                                          |                                          |
| 137045   | 95 | 25 | 68-112                                   | 81-177                                   |
| 137046   | 80 | 30 | 108-154                                  | 121-219                                  |
| 137044   | 70 | 37 | 146-186                                  | 159-240                                  |
| 137043   | 60 | 43 | 178-240                                  | 191-305                                  |
| 137042   | 75 | 60 | 212-265                                  | 225-330                                  |

# Chucking capacities KFD-HE

Chucking capacities with reversible top jaws UB



| Chuck size                       |              | 170     | 210     | 254     | 315     |
|----------------------------------|--------------|---------|---------|---------|---------|
| with reversible jaws 1/16" x 90° | Type         | 538-02  | 538-04  | 538-05  | 538-05  |
|                                  | Jaw position |         |         |         |         |
| External chucking                | A1           | 20-83   | 19-108  | 25-134  | 57-189  |
|                                  | A2           | -       | 36-128  | 48-162  | 50-217  |
|                                  | A3           | 80-150  | 94-182  | 130-226 | 134-297 |
|                                  | A4           | 120-192 | 145-234 | 210-272 | 212-332 |
| Internal chucking                | J1           | 63-130  | 78-156  | 80-190  | 70-233  |
|                                  | J2           | 102-173 | 128-209 | 156-261 | 146-313 |
|                                  | J3           | 154-210 | 181-263 | 246-338 | 236-393 |

| Chuck size                     |              | 170    | 210     | 254     | 315     |
|--------------------------------|--------------|--------|---------|---------|---------|
| with reversible jaws 1,5 x 60° | Type         | 543-31 | 543-31  | 543-31  | 543-31  |
|                                | Jaw position |        |         |         |         |
| External chucking              | A1           | 17-100 | 19-111  | 25-130  | 28-190  |
|                                | A2           | -      | -       | -       | -       |
|                                | A3           | 97-174 | 82-170  | 124-219 | -       |
|                                | A4           | -      | 133-224 | 170-265 | 170-317 |
| Internal chucking              | J1           | 74-154 | 63-160  | 84-197  | 116-271 |
|                                | J2           | -      | 112-213 | 129-244 | -       |
|                                | J3           | -      | 170-273 | 211-328 | -       |



# KFG - power operated angle lever chuck



## APPLICATION

Optimally suited for clamping tasks demanding through-hole, flexibility, large strokes and low frictional losses.

## TYPE

Angle lever power chuck with cylindrical centre mount.  
3-jaw version with serration 60°.

## CUSTOMER BENEFITS

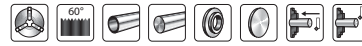
- ⊕ Large through-hole
- ⊕ Large jaw strokes and flexible use can be realized with angle lever system
- ⊕ High efficiency thanks to low frictional losses (low-hysteresis chuck)
- ⊕ Long service life - all moving parts are hardened and ground

## TECHNICAL FEATURES

- Wide guidance of base jaws
- T-slots in the chuck body
- Lubrication of the jaw guide via easily accessible grease nipples on the axes of the angle lever

## Included in the scope of delivery:

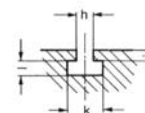
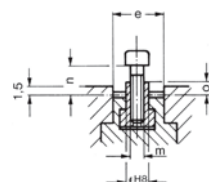
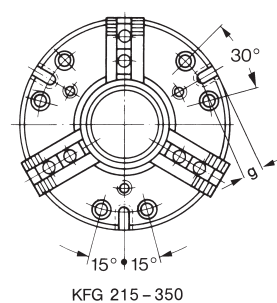
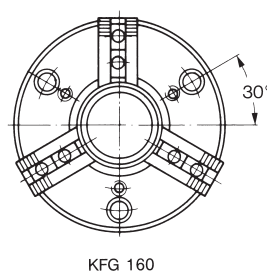
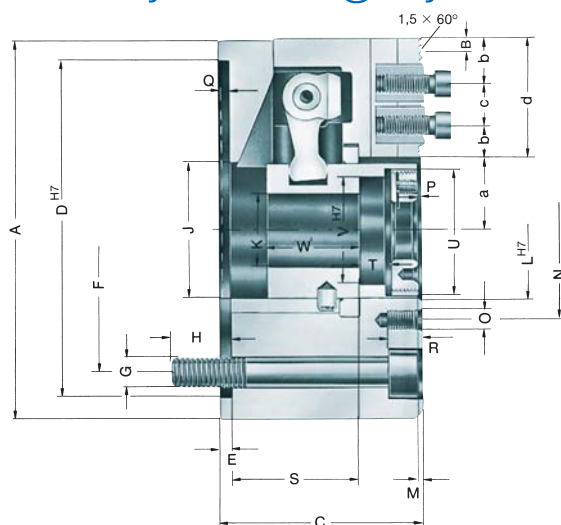
Chuck, chuck and jaw mounting screws, wrench, slot nuts, 2 wrenches for the sliding sleeve (without top jaws)



Big range of applications thanks to large through-hole. Suitable for bar machining and other different workpieces. The axial pull force is translated into the radial jaw movement supported by the angle lever.

**KFG** - Extra large jaw stroke

KFG 3-jaw, large jaw movement, serration 60°



Serration base jaw

Clamping groove  
from KFG 215

C 15

**3-jaw** angle lever power **chucks** KFG, large jaw movement, with **serration** 60°, cylindrical centre mount

| Item No.                                | 020666 ▲            | 020667 ▲             | 020668 ▲             | 020669 ▲             |
|-----------------------------------------|---------------------|----------------------|----------------------|----------------------|
| Size                                    | 160                 | 215                  | 280                  | 350                  |
| Number of jaws                          | 3                   | 3                    | 3                    | 3                    |
| A mm                                    | 160                 | 215                  | 280                  | 350                  |
| Jaw travel B mm                         | 16                  | 20                   | 25                   | 25                   |
| C mm                                    | 79                  | 92                   | 116,2                | 134,7                |
| DH7                                     | 140                 | 190                  | 255                  | 320                  |
| E mm                                    | 4,2                 | 4,2                  | 5,7                  | 5,7                  |
| F mm                                    | 104,8               | 133,4                | 133,4                | 171,4                |
| G                                       | 3xM10               | 6xM12                | 6xM12                | 6xM16                |
| H mm                                    | 20                  | 25                   | 25                   | 35                   |
| J mm                                    | 54                  | 74                   | 102                  | 135                  |
| K mm                                    | 26                  | 45,5                 | 66,5                 | 90,5                 |
| LH7 mm                                  | 66                  | 80                   | 105                  | 140                  |
| M mm                                    | 2,5                 | 2,5                  | 2,5                  | 2,5                  |
| N mm                                    | 76                  | 90                   | 120                  | 156                  |
| O                                       | M6                  | M 8                  | M 8                  | M 10                 |
| P mm                                    | 14                  | 16,5                 | 18,7                 | 13,1                 |
| Q mm                                    | 3,2                 | 3,7                  | 3,2                  | 4,1                  |
| R mm                                    | 13                  | 15                   | 15                   | 20                   |
| S min.                                  | 19,8                | 25,3                 | 28,8                 | 32,9                 |
| S max.                                  | 39,8                | 50,3                 | 63,8                 | 77,9                 |
| T mm                                    | 8                   | 12                   | 18                   | 22                   |
| U mm                                    | M46x1,25            | M65x1,25             | M90x1,25             | M112x1,5             |
| V <sup>47</sup> mm                      | 43                  | 62                   | 87                   | 109                  |
| W mm                                    | 23                  | 29                   | 32                   | 37                   |
| a min.                                  | 23                  | 31,5                 | 47,5                 | 69,5                 |
| a max.                                  | 39                  | 51,5                 | 72,5                 | 94,5                 |
| b mm                                    | 8                   | 10                   | 13                   | 14                   |
| c min.                                  | 16                  | 20                   | 26                   | 28                   |
| c max.                                  | 41                  | 46                   | 54                   | 65                   |
| d mm                                    | 57                  | 66                   | 80                   | 93                   |
| e mm                                    | 28                  | 35                   | 45                   | 50                   |
| fH8 mm                                  | 11                  | 14                   | 20                   | 21                   |
| g mm                                    | -                   | 35                   | 63                   | 73,5                 |
| h mm                                    | -                   | 16                   | 16                   | 22                   |
| i mm                                    | -                   | 10                   | 10                   | 15                   |
| k mm                                    | -                   | 24                   | 24                   | 35                   |
| l mm                                    | -                   | 10                   | 10                   | 17                   |
| m mm                                    | M8                  | M10                  | M12                  | M16                  |
| n mm                                    | 7,5                 | 8,5                  | 13                   | 15                   |
| o mm                                    | 1,5                 | 1,5                  | 2,5                  | 3                    |
| Max. swing top jaws mm                  | 242                 | 295                  | 380                  | 480                  |
| Maximum draw bar pull kN                | 24                  | 33,9                 | 43                   | 52                   |
| Max. total clamping force approx. kN    | 21                  | 30                   | 42                   | 66                   |
| Max. admissible speed min <sup>-1</sup> | 3400                | 2700                 | 1950                 | 1800                 |
| Moment of inertia J kgm <sup>2</sup>    | 0,031               | 0,11                 | 0,425                | 1,22                 |
| Weight without jaws approx. kg          | 9,3                 | 17                   | 41                   | 75                   |
| Actuating cylinders (recommended)       | OVS-105 / SZS-37/70 | OVS-130 / SZS-46/103 | OVS-150 / SZS-67/150 | OVS-150 / SZS-86/200 |

## Jaws KFG

C 21

Reversible top jaws, 3-jaw set, hardened serration 60° - material: 16MnCr5



| Item no.             | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration |
|----------------------|------------|---------------|---------------|--------------|-----------|
| 046410               | 160        | 62            | 37,5          | 26           | 1,5 x 60° |
| 046412 <sup>1)</sup> | 215        | 81            | 52,5          | 36           | 1,5 x 60° |
| 046416               | 280        | 96            | 54            | 44,5         | 1,5 x 60° |
| 046422               | 350        | 112           | 61            | 49,5         | 1,5 x 60° |

<sup>1)</sup> Lowered to 34 mm in the serration area

Reversible top jaws UB: Ground out on the associated chuck at extra charge

C 21

Soft top jaws, 3-jaw set, can be hardened serration 60° - material: 16MnCr5

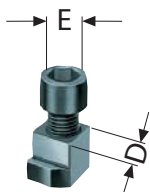


| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration |
|----------|------------|---------------|---------------|--------------|-----------|
| 046409   | 160        | 66,7          | 43            | 30,5         | 1,5 x 60° |
| 046411   | 215        | 88,9          | 53            | 36,5         | 1,5 x 60° |
| 046415   | 280        | 88,9          | 54,5          | 45           | 1,5 x 60° |
| 046421   | 350        | 120           | 80            | 50           | 1,5 x 60° |

## Accessories KFG

C 15 T-nuts

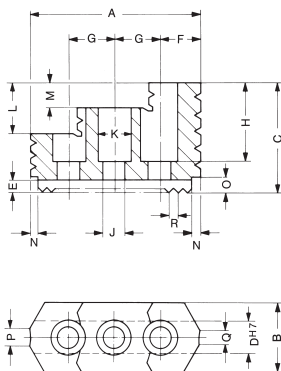
with screw, for SV 1,5" x 60°



| Item no.  | Chuck Size | Contents of delivery | D mm | E      |
|-----------|------------|----------------------|------|--------|
| 1305174 ▲ | 160        | piece                | 11   | M8x18  |
| 1305175 ▲ | 215        | piece                | 14   | M10x20 |
| 1305176 ▲ | 280        | piece                | 20   | M12x30 |
| 1305177 ▲ | 350        | piece                | 21   | M16x35 |

# Jaw dimensions und chucking capacities KFG

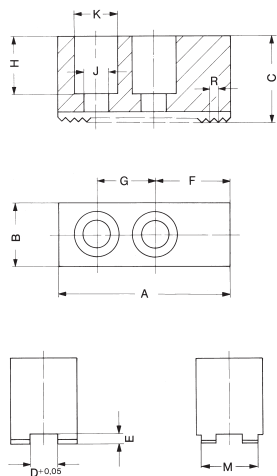
**Reversible top jaws UB,**  
hardened, serration 60°,  
material 16MnCr5



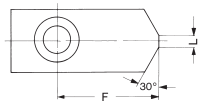
| Chuck size     | 160           | 215           | 280           | 350           |
|----------------|---------------|---------------|---------------|---------------|
| Type           | 530-05        | 530-07        | 530-09        | 530-12        |
| Item no. 3-jaw | <b>046410</b> | <b>046412</b> | <b>046416</b> | <b>046422</b> |
| A              | 62            | 81            | 96            | 112           |
| B              | 26            | 36 1)         | 44,5          | 49,5          |
| C              | 37,5          | 52,5          | 54            | 61            |
| D              | 11            | 14            | 20            | 21            |
| E              | 3,5           | 5             | 5             | 5,5           |
| F              | 17,5          | 25            | 30            | 27            |
| G              | 16,5          | 21            | 26            | 33            |
| H              | 29            | 41            | 41            | 47,5          |
| J              | 8,4           | 10,5          | 13            | 17            |
| K              | 13,5          | 16,5          | 19            | 25            |
| L              | 20            | 24            | 24            | 30            |
| M              | 10            | 12            | 12            | 15            |
| N              | 4             | 5             | 5             | 6,5           |
| O              | 4             | 7             | 7             | 7             |
| P              | 5             | 10            | 10            | 13            |
| Q              | 5             | 5             | 5             | 13            |
| R              | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°     |
| Weight/jaw kg  | 0,215         | 0,600         | 0,750         | 1,550         |

1) Near the serration reduced to 34 mm.  
Reversible top jaws: ground to finished size at surcharge

**Soft top jaws AB,**  
material 16MnCr5



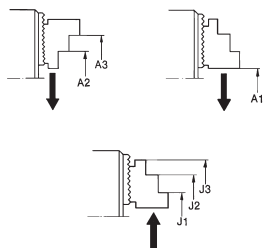
AB 530-04 und 530-07



AB 530-02

| Chuck size     | 160           | 215           | 280           | 350           |
|----------------|---------------|---------------|---------------|---------------|
| Type           | 530-05        | 530-07        | 530-09        | 530-12        |
| Item no. 3-jaw | <b>046409</b> | <b>046411</b> | <b>046415</b> | <b>046421</b> |
| A              | 66,7          | 88,9          | 88,9          | 120           |
| B              | 30,5          | 36,5          | 45            | 50            |
| C              | 43            | 53            | 54,5          | 80            |
| D              | 11            | 14            | 20            | 21            |
| E              | 3,5           | 5             | 5             | 5             |
| F              | 30            | 45            | 45            | 67            |
| G              | 20            | 26            | 26            | 28            |
| H              | 33            | 41            | 42,5          | 67            |
| J              | 8,4           | 10,5          | 13            | 17            |
| K              | 13,5          | 16,5          | 19            | 25            |
| L              | -             | -             | -             | -             |
| M              | 27            | 34            | -             | -             |
| R              | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°     | 1,5 x 60°     |
| Weight/jaw kg  | 0,550         | 1,125         | 1,400         | 3,125         |

Chuckling capacities with  
reversible top jaw UB



| Chuck size           |              | 160     | 215     | 280     | 350     |
|----------------------|--------------|---------|---------|---------|---------|
| with reversible jaws | Type         | 530-04  | 530-07  | 530-09  | 530-12  |
|                      | Jaw position |         |         |         |         |
| External chucking    | A1           | 5-115   | 5-136   | 11-185  | 50-248  |
|                      | A2           | 58-175  | 81-220  | 123-295 | 159-354 |
|                      | A3           | 92-208  | 132-272 | 190-363 | 242-438 |
| Internal chucking    | J1           | 52-159  | 61-186  | 70-238  | 108-301 |
|                      | J2           | 85-193  | 109-238 | 133-305 | 189-385 |
|                      | J3           | 129-240 | 167-298 | 202-378 | 274-472 |

# PKF - air-operated wedge hook chuck



## APPLICATION

Suitable for very high concentricity and clamping repeatability.

## TYPE

Air-operated high precision wedge hook clamping chuck.

## CUSTOMER BENEFITS

- ③ Concentricity and axial run-out precision within 0.003 mm
- ③ High amount of safety in event of pressure failure thanks to self-locking
- ③ Low-maintenance thanks to oil-mist lubrication
- ③ Optimal adaption of the clamping force for clamping deformation-sensitive parts thanks to large actuation range from 2-10 bar

## TECHNICAL FEATURES

- Clamping piston construction with power transmission on both sides according to the ROHM KFD-HS principle
- Integrated pneumatic operation
- Through-hole for coolant supply for sizes 100-200

### Note:

Please order air supply tube, maintenance unit, top jaws and actuation valves separately

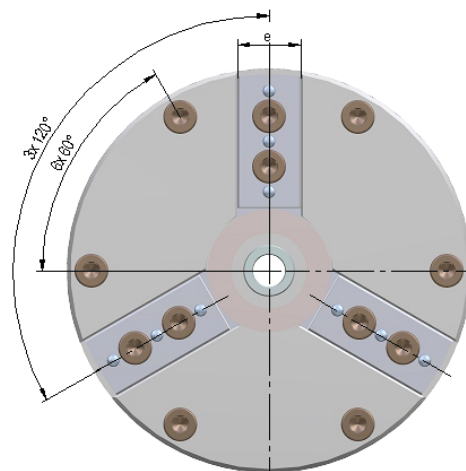
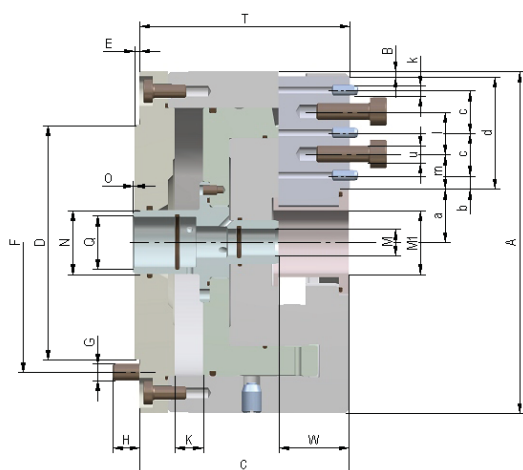
### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws (without top jaws)

**PKF** = precision, wedge hook, clamping chuck



# PKF air-operated wedge hook chuck



C 15

High-precision air-operated lathe chuck **PKF**, concentricity 0.003 mm, repetitive clamping accuracy 0.0015 mm with through-hole, pneumatically operated, with integrated **pneumatic piston**, clamping precision in the  $\mu$  range

| Item No.                                         | 153706 ▲ | 153707 ▲ | 153708 ▲ | 153709 ▲ | 153710 ▲  |
|--------------------------------------------------|----------|----------|----------|----------|-----------|
| Size                                             | 100      | 100      | 150      | 150      | 200       |
| A mm                                             | 102      | 102      | 151      | 151      | 202       |
| Jaw travel B mm                                  | 0,75     | 1,5      | 0,75     | 1,5      | 1,5       |
| C mm                                             | 52,5     | 62,5     | 52,5     | 62,5     | 85,5      |
| D-0,01                                           | 82,55    | 82,55    | 124,97   | 124,97   | 167,64    |
| E mm                                             | 1,5      | 1,5      | 1,5      | 1,5      | 3,2       |
| F mm                                             | 88,9     | 88,9     | 135,9    | 135,9    | 182,9     |
| G                                                | M5       | M5       | M6       | M6       | M10       |
| H mm                                             | 8        | 8        | 9        | 9        | 16        |
| Wedge stroke K mm                                | 4,25     | 8,5      | 4,25     | 8,5      | 8,5       |
| M mm                                             | 3,2      | 3,2      | 3,2      | 3,2      | 3,2       |
| M1 mm                                            | 19       | 19       | 25,4     | 25,4     | 25,4      |
| N mm                                             | 19       | 19       | 19       | 19       | 19        |
| O min.                                           | 0,5      | 0,5      | 0,5      | 0,5      | 0,5       |
| O max.                                           | 4,75     | 9        | 4,75     | 9        | 9         |
| Q mm                                             | 5/8"     | 5/8"     | 5/8"     | 5/8"     | 5/8"      |
| W mm                                             | 19       | 19       | 19       | 19       | 35        |
| T mm                                             | 52,8     | 62,8     | 52,8     | 62,3     | 85,9      |
| a min.                                           | 16,75    | 16       | 22,75    | 22       | 21,9      |
| a max.                                           | 17,5     | 17,5     | 23,5     | 23,5     | 23,4      |
| b mm                                             | 3,9      | 3,9      | 14,9     | 14,9     | 4,5       |
| c mm                                             | 2 x 12,7 | 2 x 12,7 | 2 x 12,7 | 2 x 12,7 | 2 x 31,75 |
| d mm                                             | 33,5     | 33,5     | 52       | 52       | 76,1      |
| e mm                                             | 16       | 16       | 24       | 24       | 32        |
| k mm                                             | 1/8"     | 1/8"     | 1/8"     | 1/8"     | 1/4"      |
| l mm                                             | 12,7     | 12,7     | 3 x 12,7 | 3 x 12,7 | 31,75     |
| m mm                                             | 10,25    | 10,25    | 8,55     | 8,55     | 20,375    |
| u                                                | 2 x M5   | 2 x M5   | 4 x M5   | 4 x M5   | M10       |
| Operating pressure bar                           | 2-10     | 2-10     | 2-10     | 2-10     | 2-10      |
| Area A1 clamping cm <sup>2</sup>                 | 47,4     | 47,4     | 100      | 100      | 185,0     |
| Area A2 releasing cm <sup>2</sup>                | 28,9     | 28,9     | 69       | 69       | 111,5     |
| Total clamping force at 8 bar kN                 | 13       | 13       | 27       | 27       | 31,5      |
| Max. admissible speed at 8 bar min <sup>-1</sup> | 5500     | 5500     | 4000     | 4000     | 3000      |
| Moment of inertia J kgm <sup>2</sup>             | 0,0029   | 0,0029   | 0,015    | 0,015    | 0,08      |
| Weight kg                                        | 3,0      | 3,5      | 6,8      | 7,9      | 19,8      |

Higher speeds available on request

# Jaws PKF

C 21  
Soft top jaws steel version, set of 3-jaws



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 153818 ▲ | 100        | 49            | 25            | 18,4         |
| 153819 ▲ | 150        | 74            | 30            | 26,5         |
| 153820 ▲ | 200        | 95            | 46            | 34,7         |

# Accessories PKF

C 15  
Air-operated control LSG R<sup>1/4</sup> up to 10 bar, for air-operated power chucks



| Item no. | Width mm | Height mm | Depth mm | Control voltage | Conn. thread    |
|----------|----------|-----------|----------|-----------------|-----------------|
| 437107 ▲ | 380      | 380       | 210      | 24V DC          | R 3/8" internal |

Other control voltage on request

C 15  
Service unit for air operated control  
This unit consists of: separator and filtre CKS-08/10 and lubricator CL-08/10



| Item no. | Width mm | Height mm | Depth mm |
|----------|----------|-----------|----------|
| 216084 ▲ | 130      | 240       | 102      |

Max. flow Qn 33m3/h at 6 bar

C 15  
Manually operated air control valve LHV with 2 switch settings and a safety switch lever



| Item no. | Width mm | Height mm | Depth mm | Conn. thread internal | Conn. thread external |
|----------|----------|-----------|----------|-----------------------|-----------------------|
| 418224 ▲ | 66,5     | 64        | 38       | R 1/4"                | M 16 x 1,5            |

A09 Special grease F80 for lathe chucks  
For lubrication and conservation of chucking power



| Item no. | Design                               | Contents |
|----------|--------------------------------------|----------|
| 308555   | Cartridge (DIN 1284)<br>Ø 53.5x235mm | 0,5 kg   |
| 028975   | Tin                                  | 1 kg     |

C15 Grease gun DIN1283



| Item no. | Connection | Contents of delivery                                                                                                              |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1      | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

# Accessories PKF

## Air supply tube

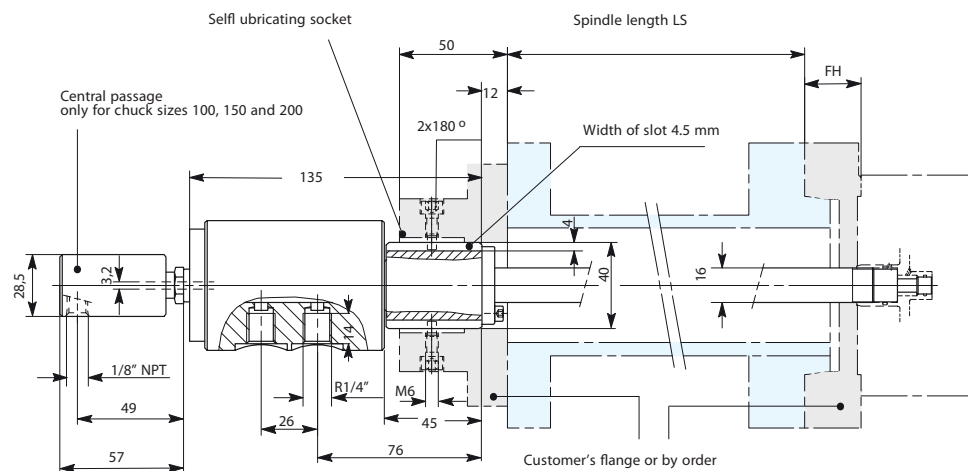
Air supply tube 3/8" and 5/8"

Type 586-80

Max. speeds = 10 000 min<sup>-1</sup>

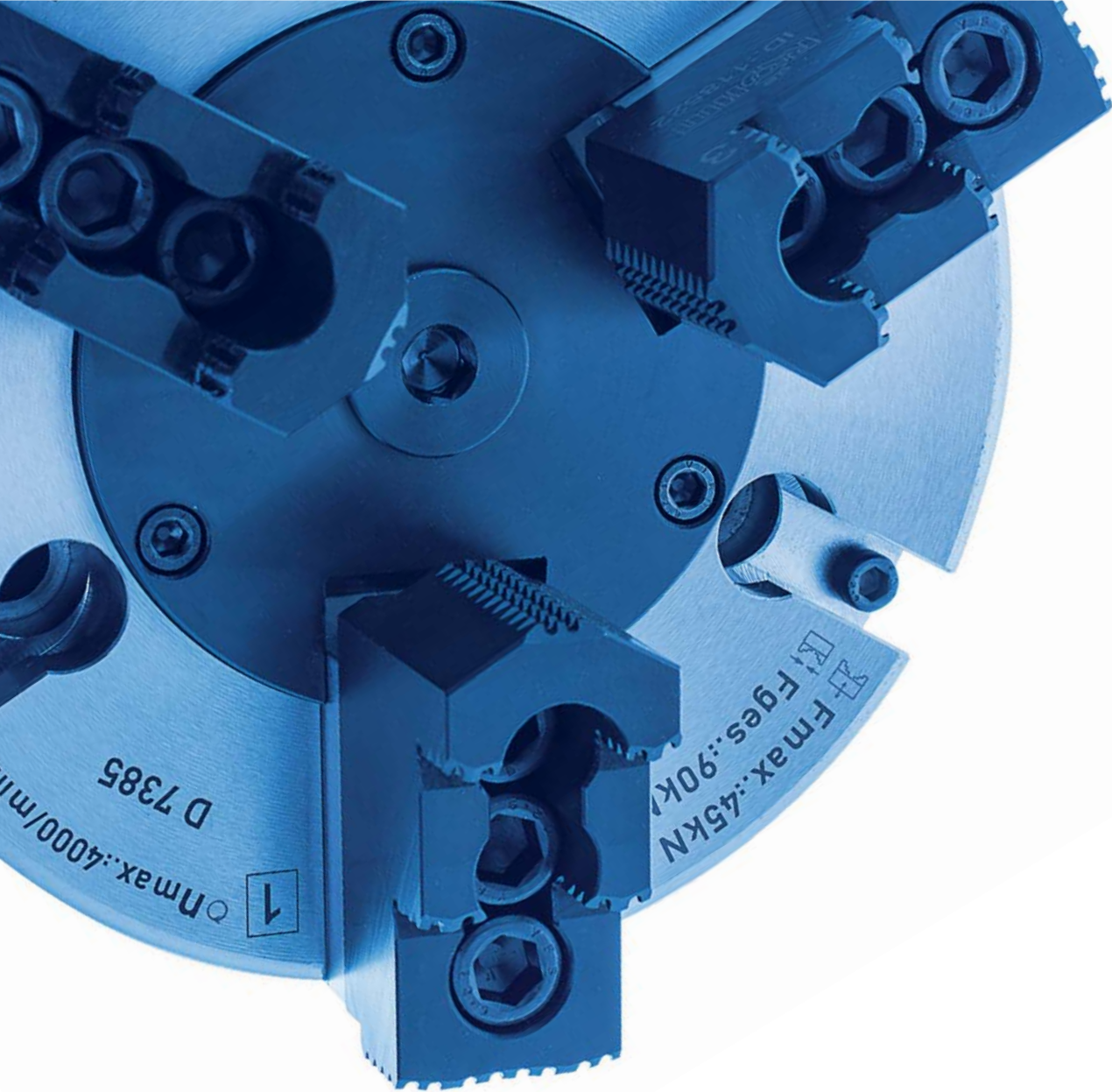
Central through-hole for air and coolant.

Max. air pressure = 10 bar



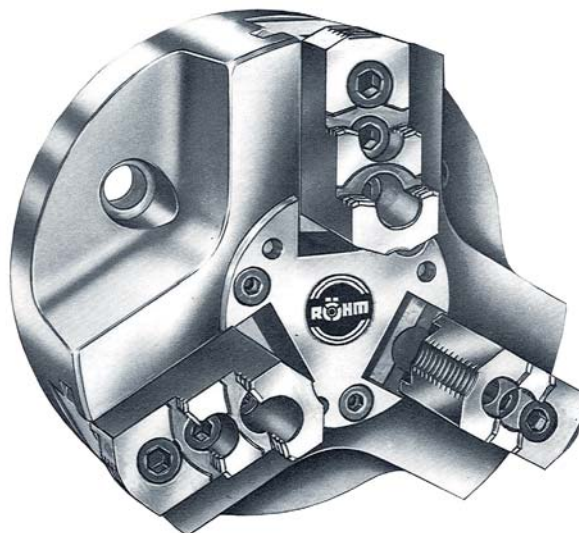
## Ordering indications for air supply tube:

Chuck size + spindle length LS + height of flange FH



## PROVEN WEDGE HOOK SYSTEM

Founded in 1909, RÖHM began successively expanding their product range by the area of power chuck technology starting in 1950. Decades of experience and knowledge about power chucks make today's RÖHM power chucks so successful. These are not only characterized by their long service life, but also by the top precision and reliability.



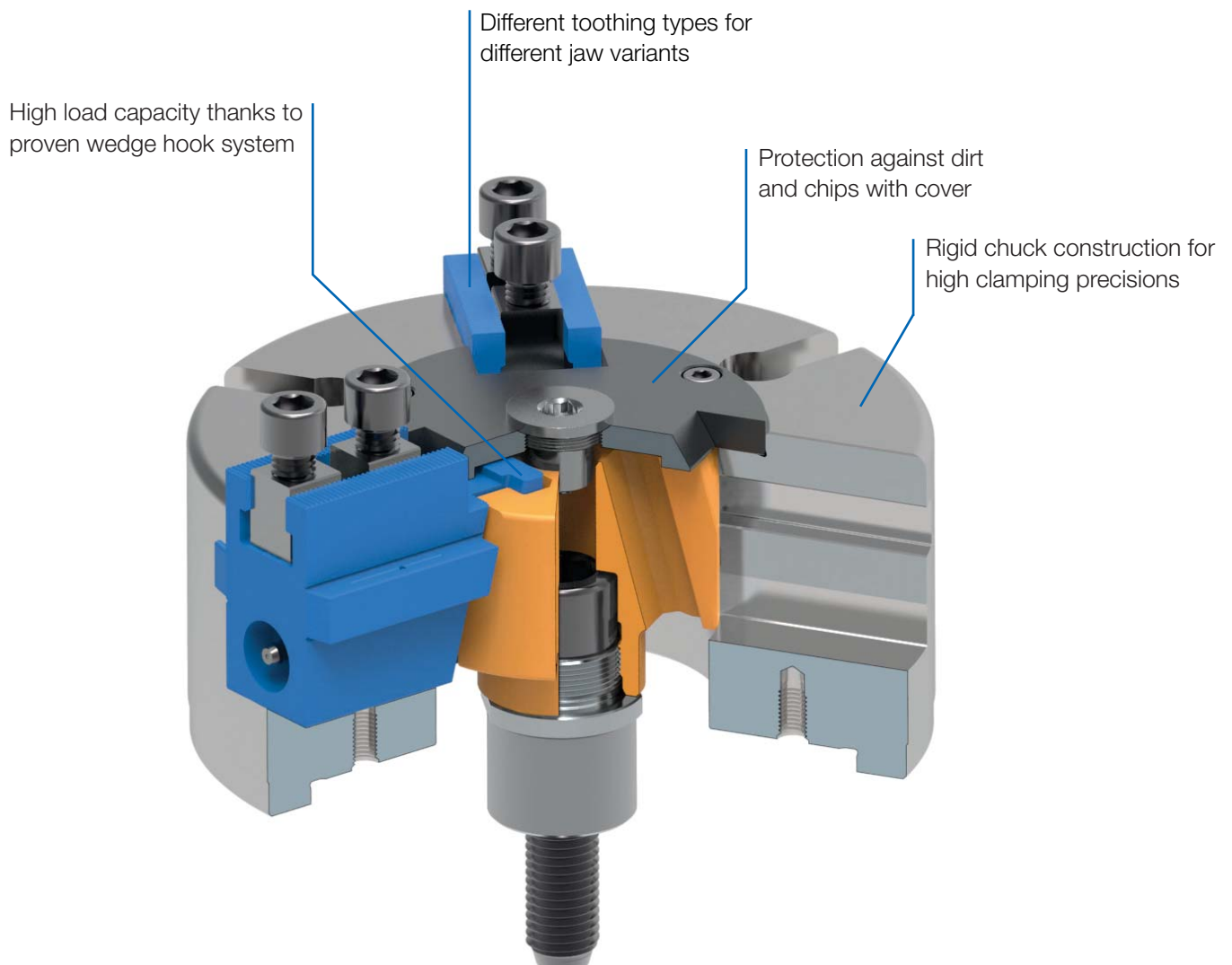
Power chuck KFD with wedge hook system without through-hole

# POWER CHUCKS WITHOUT THROUGH-HOLE

The RÖHM power chucks without through-hole have already been used for decades and have proven themselves many times over in various clamping tasks. Thanks to the wedge hook system as well as the rigid chuck construction, the power chucks achieve a high load capacity and clamping precision along with a long service life.

## ADVANTAGES AT A GLANCE

- ⊕ Proven power chucks with long service life
- ⊕ Wedge hook system for high load capacity and clamping precision
- ⊕ Simple setup as basis for a wide range of applications



# KFD-EC - low-maintenance and -wear



## APPLICATION

Especially for use under extreme operating conditions, e.g. dry or raw part machining and / or high coolant pressure.

## TYPE

Power chuck with cylindrical centre mount.  
3-jaw version with serration 90°.

## CUSTOMER BENEFITS

- ③ Easy Care: Low-maintenance and -wear
- ③ Lubrication interval, depending on operating conditions, up to approx. 600 operating hours
- ③ Optimized protection against the penetration of dirt thanks to seals built into the jaw guides

## TECHNICAL FEATURES

- Proven wedge hook system

### Note:

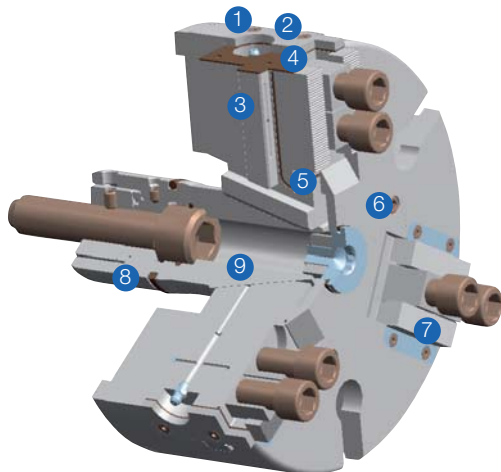
KFD-F-EC with centrifugal force compensation on request

### Included in the scope of delivery:

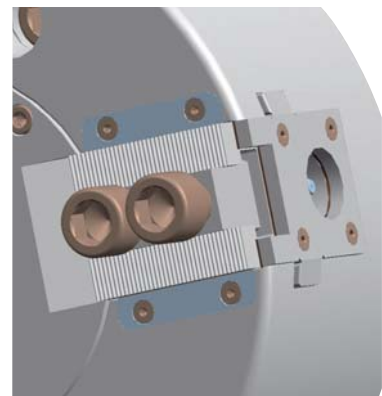
Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)



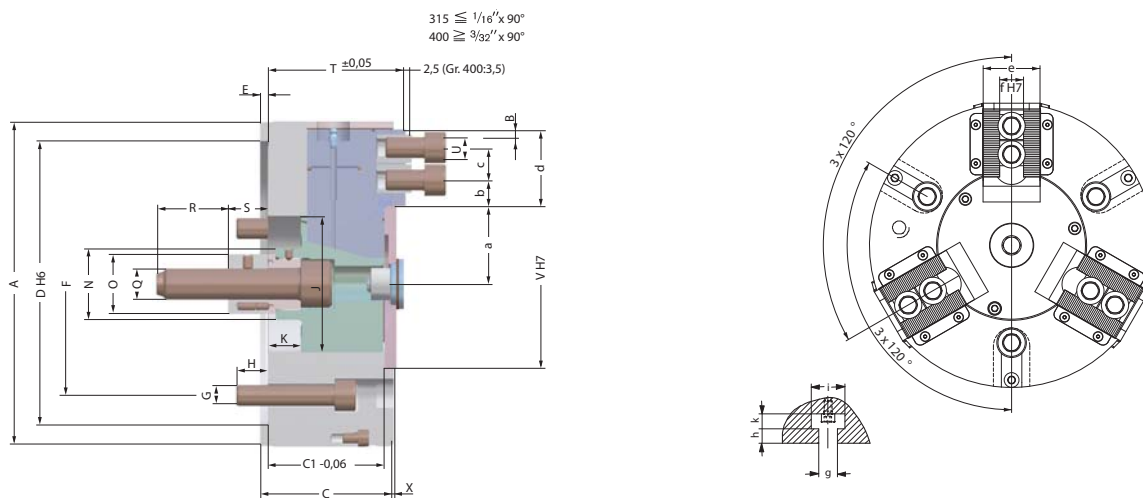
## Structure KFD-EC



- ① Body
- ② End cover
- ③ Base jaw
- ④ Flat seal
- ⑤ Square ring
- ⑥ Cover
- ⑦ Wiper plates
- ⑧ O-Ring
- ⑨ Piston



# KFD-EC 3-jaw, serration 90°



**Low maintenance 3-jaw power chuck KFD-EC, with short piston, without force compensation, centric clamping**  
cylindrical centre mount, mounting dimensions to DIN 6353

| Item No.                                | 166183  | 166184 ▲ | 166185 ▲ | 166186 ▲ |
|-----------------------------------------|---------|----------|----------|----------|
| Size                                    | 200     | 250      | 315      | 400      |
| A mm                                    | 200     | 250      | 315      | 400      |
| Jaw travel B mm                         | 6,7     | 6,7      | 8        | 9,3      |
| C mm                                    | 86      | 98       | 113      | 121      |
| C1 <sub>-0,06</sub> mm                  | 80      | 92       | 107      | 115      |
| Mount D <sup>H6</sup>                   | 170     | 220      | 300      | 300      |
| E mm                                    | 6       | 6        | 6        | 6        |
| F mm                                    | 133,4   | 171,4    | 235      | 235      |
| G mm                                    | 3xM12   | 3xM16    | 3xM20    | 3xM20    |
| H mm                                    | 18      | 23       | 31       | 30       |
| J mm                                    | 85      | 105      | 120      | 155      |
| Wedge stroke K mm                       | 25      | 25       | 30       | 35       |
| N mm                                    | 45      | 55       | 60       | 60       |
| O mm                                    | 40      | 46       | 46       | 55       |
| Q mm                                    | M20     | M24      | M24      | M24      |
| R mm                                    | 45      | 55       | 55       | 55       |
| S min.                                  | 30      | 30       | 30       | 30       |
| S max.                                  | 55      | 55       | 60       | 65       |
| T <sub>±0,05</sub> mm                   | 90      | 105      | 120      | 130      |
| U                                       | M12x25  | M16x30   | M16x30   | M20x40   |
| V <sup>H7</sup> mm                      | 110     | 130      | 160      | 190      |
| X mm                                    | 7       | 7        | 9        | 9        |
| a min.                                  | 43,3    | 53,3     | 59,5     | 77,7     |
| a max.                                  | 50      | 60       | 67,5     | 87       |
| b min.                                  | 8       | 10       | 10       | 14       |
| c min.                                  | 19      | 25       | 25       | 31       |
| c max.                                  | 34,5    | 47,5     | 70,5     | 87       |
| d mm                                    | 45      | 59       | 84       | 107      |
| e mm                                    | 35      | 50       | 55       | 60       |
| f <sup>H7</sup> mm                      | 17      | 21       | 21       | 25,5     |
| g mm                                    | 14      | 18       | 18       | 22       |
| h mm                                    | 11      | 13       | 13       | 22       |
| i mm                                    | 11      | 14       | 14       | 18       |
| k mm                                    | 25      | 32       | 32       | 40       |
| Maximum draw bar pull kN                | 45      | 65       | 80       | 95       |
| Max. total clamping force kN            | 90      | 140      | 190      | 250      |
| Max. admissible speed min <sup>-1</sup> | 4000    | 3200     | 2800     | 2000     |
| Moment of inertia J kgm <sup>2</sup>    | 0,1     | 0,28     | 0,89     | 2,02     |
| Weight without jaws approx. kg          | 19,3    | 34,8     | 63,6     | 88,4     |
| Actuating cylinders (recommended)       | OVS-130 | OVS-150  | OVS-150  | OVS-200  |

Intermediate adaptors for short taper mount on request

# Jaws KFD-EC

C 21

Reversible top jaws, 3-jaw set, hardened, serration 90° - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------------|---------------|---------------|--------------|------------|
| 118522   | 200        | 75            | 49            | 36           | 1/16"x 90° |
| 046414   | 250/315    | 103,5         | 58            | 50           | 1/16"x 90° |
| 037531   | 400        | 135           | 65            | 68           | 3/32"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, 3-jaw set, can be hardened, serration 90° - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------------|---------------|---------------|--------------|------------|
| 133153   | 200        | 75            | 53            | 36,5         | 1/16"x 90° |
| 133154   | 250        | 95            | 54,5          | 45           | 1/16"x 90° |
| 133155   | 315        | 103           | 80            | 50           | 1/16"x 90° |
| 133156   | 400        | 130           | 80            | 50           | 3/32"x 90° |

C 21

Claw-type jaws, 1 piece, hardened, serration 90° - width of the groove 17



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137031   | 200        | 67            | 45            | 53             | 1/16"x 90° |
| 137032   | 200        | 65            | 45            | 46             | 1/16"x 90° |
| 137033   | 200        | 55            | 45            | 39             | 1/16"x 90° |
| 137034   | 200        | 50            | 45            | 31             | 1/16"x 90° |
| 137035   | 200        | 55            | 45            | 27             | 1/16"x 90° |
| 137036   | 200        | 65            | 45            | 19             | 1/16"x 90° |
| 137037   | 200        | 65            | 45            | 26             | 1/16"x 90° |
| 137038   | 200        | 55            | 45            | 24             | 1/16"x 90° |
| 137039   | 200        | 55            | 45            | 40             | 1/16"x 90° |

C 21

Claw-type jaws, 1 piece, hardened, serration 90° - width of the groove 21



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137041   | 250/315    | 95            | 50            | 80             | 1/16"x 90° |
| 137042   | 250/315    | 75            | 50            | 60             | 1/16"x 90° |
| 137043   | 250/315    | 60            | 50            | 43             | 1/16"x 90° |
| 137044   | 250/315    | 70            | 50            | 37             | 1/16"x 90° |
| 137045   | 250/315    | 95            | 50            | 25             | 1/16"x 90° |
| 137046   | 250/315    | 80            | 50            | 30             | 1/16"x 90° |

C 21

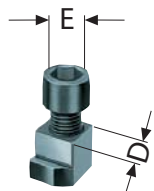
Claw-type jaws, 1 piece, hardened, serration 90° - width of the groove 25,5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137051   | 400        | 130           | 65            | 113            | 3/32"x 90° |
| 137052   | 400        | 90            | 65            | 67             | 3/32"x 90° |
| 137053   | 400        | 100           | 65            | 45             | 3/32"x 90° |
| 137054   | 400        | 130           | 65            | 33             | 3/32"x 90° |

# Accessories KFD-EC

## C 15 T-nuts With screw



| Item no.             | Contents of delivery | D mm | E      |
|----------------------|----------------------|------|--------|
| 241674               | piece                | 17   | M12x25 |
| 241675               | piece                | 21   | M16x30 |
| 241676 <sup>1)</sup> | piece                | 25,5 | M20x40 |

<sup>1)</sup> Metric dimensions

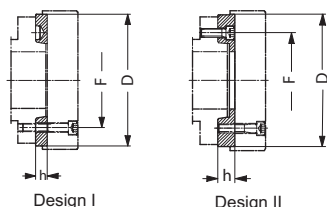
## C 15 Special grease F80 for lathe chucks for lubrication and conservation of clamping force



| Item no. | Design    | Contents |
|----------|-----------|----------|
| 028975   | Tin       | 1 kg     |
| 308555   | Cartridge | 0,5 kg   |

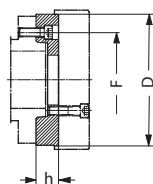
# Accessories KFD-EC

## C 15 Intermediate adaptor plates with cylindrical centre mount DIN 6353 for 3-jaw chucks Mounting from front to ISO 702-1 (DIN 55026/55021) and ASA B 5.9 A1/A2 with metric mounting bolts



Design I

Design II

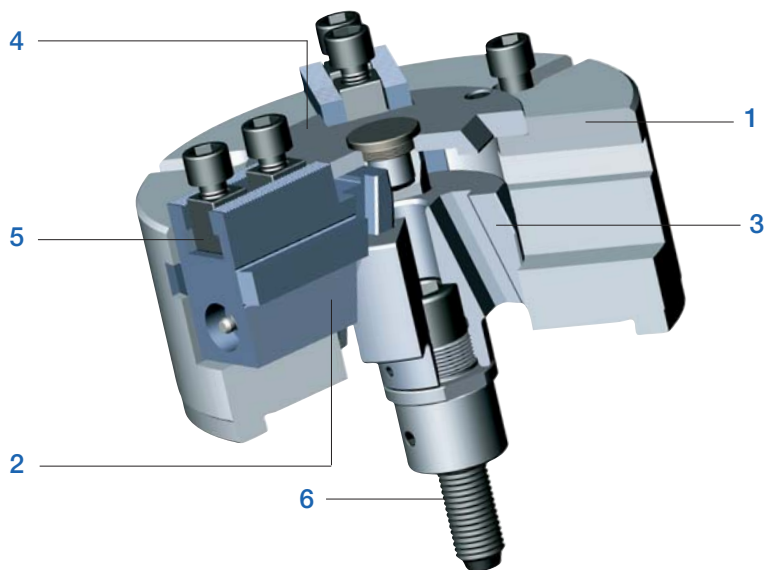


Design III

| Item no. | Spindle nose size | Size    | Design | h mm | F mm  | D mm |
|----------|-------------------|---------|--------|------|-------|------|
| 145127   | 5                 | 200     | II     | 21   | 104,8 | 170  |
| 145155   | 6                 | 200     | I      | 16   | 133,4 | 170  |
| 145131   | 6                 | 250     | II     | 27   | 133,4 | 220  |
| 145135   | 8                 | 200     | III    | 39   | 171,4 | 170  |
| 145157   | 8                 | 250     | I      | 18   | 171,4 | 220  |
| 145137 ▲ | 8                 | 315/400 | II     | 38   | 171,4 | 300  |
| 145143 ▲ | 11                | 250     | III    | 48   | 235   | 220  |
| 145159   | 11                | 315     | I      | 19   | 235   | 300  |
| 145149   | 15                | 400     | III    | 58   | 330,2 | 300  |

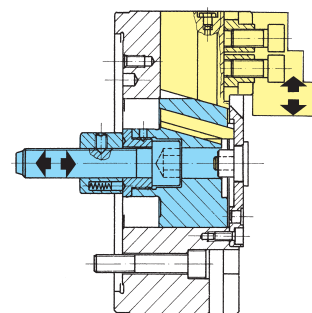
All fastening parts are included  
Intermediate adaptor plate for 2- and 4-jaw version on request

KFD



#### Components KFD

1. Body
2. Base jaw
3. Piston
4. Cover
5. T-nut
6. Draw bolt

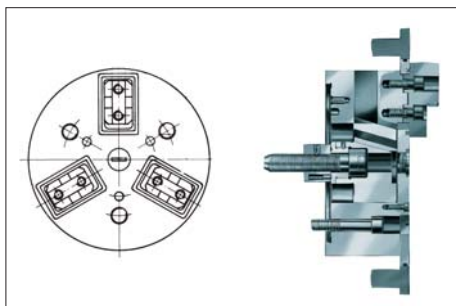


Design principle wedge system

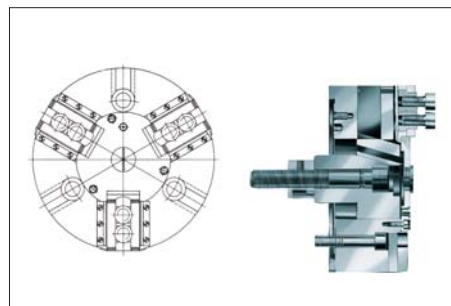
On request:

KFD in customized version (with additional seal)

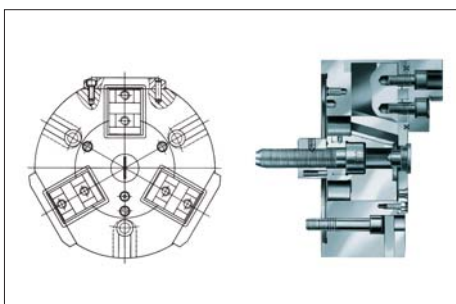
Power chuck without through-hole KFD



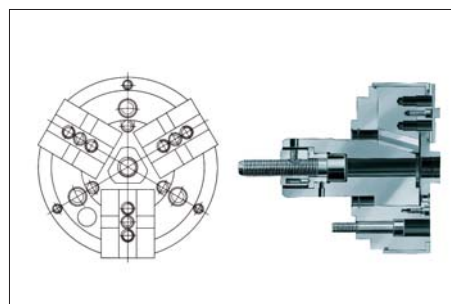
**Type 538-40**  
Hermetically sealed for stationary attachment. Installation in transfer lines and rotary table machines



**Type 538-42**  
Largely sealed with wiper blades. Mounting on lathes.



**Type 538-41**  
Hermetically sealed for stationary or rotary attachment. Installation in transfer lines and rotary table machines in minimum amount of space.



**Type 538-43**  
Hermetically sealed for especially high chip and coolant accumulation on automats or production machines, rotating or stationary.



## APPLICATION

Standard power chuck without through-hole for various clamping tasks.

## TYPE

Power chuck available with cylindrical centre mount.  
3-jaw version with serration 90° or tongue and groove.  
2-jaw and 3-jaw version with serration 90° and weight reduction.

## CUSTOMER BENEFITS

- Long service life - all moving parts are hardened and ground
- High clamping precision thanks to proven wedge hook system

## TECHNICAL FEATURES

- Power transmission by means of powerfully dimensioned wedge hook system
- Direct lubrication of the base jaws
- Starting from size 200 with roller for limiting the jaw movement
- The forward movement of the piston is stopped in the cylinder, movement toward the rear is stopped at the spindle or spindle flange

### Included in the scope of delivery: tongue and groove

Chuck, chuck and jaw mounting screws (without top jaws)

### Included in the scope of delivery: serration

Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)



## Gripping force/speed diagrams

The loss of gripping force was determined experimentally on a chuck with matched UB top jaws. It is largely independent of the initial gripping force at zero speed.

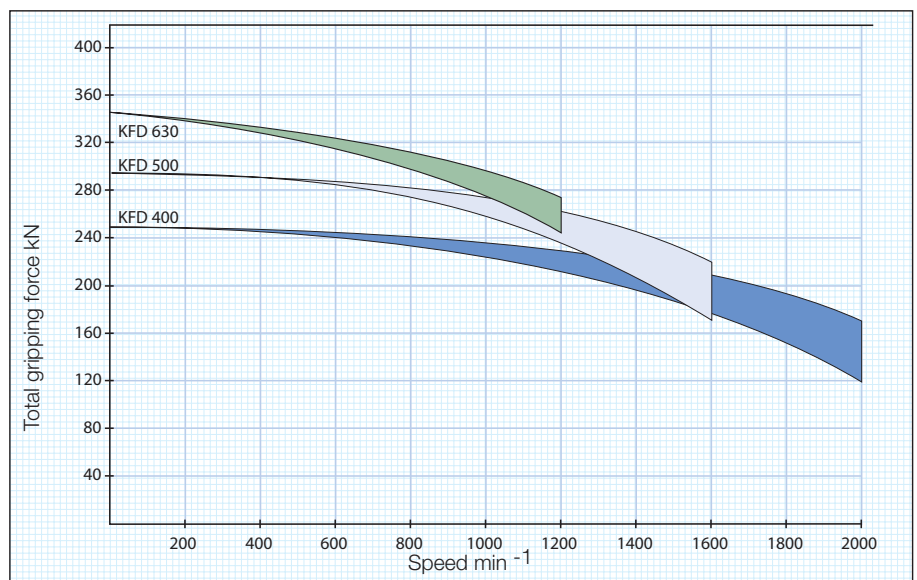
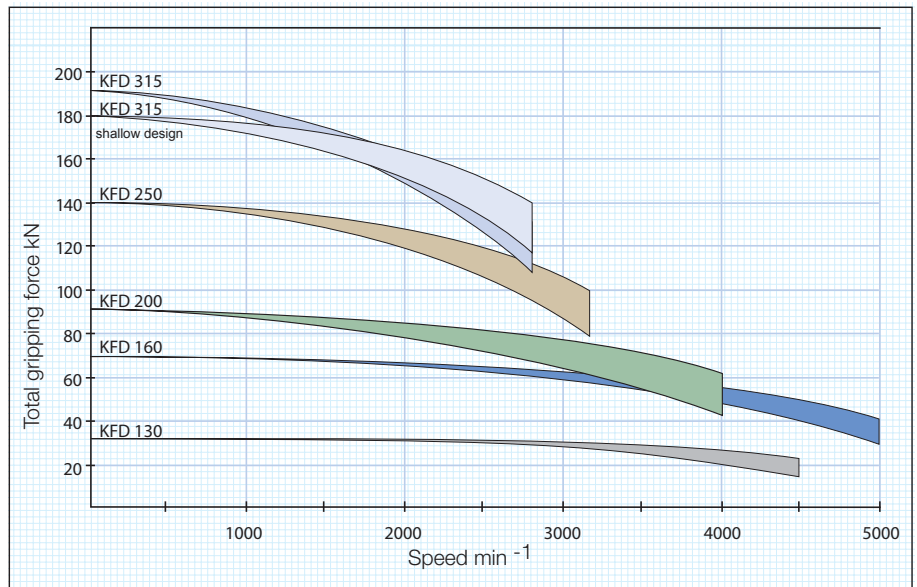
Upper curve:  
min. centrifugal  
force of top jaw



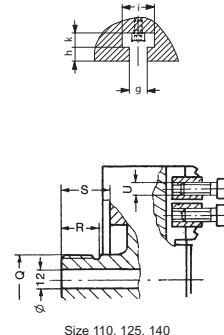
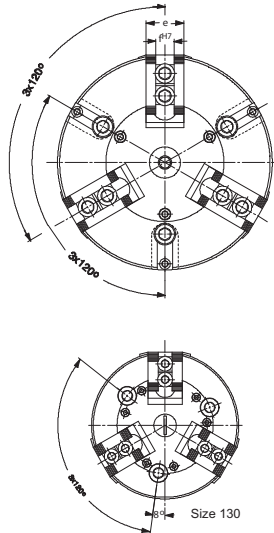
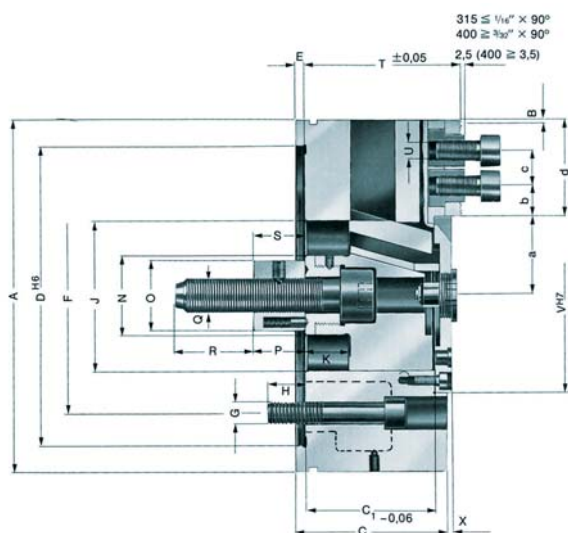
Lower curve:  
max. centrifugal  
force of top jaw



To obtain the specified gripping forces, the chuck must be in a perfect condition and lubricated with F 80 lubricant recommended by RÖHM. Measuring point near chuck face.



# KFD 3-jaw, standard design, serration 90°



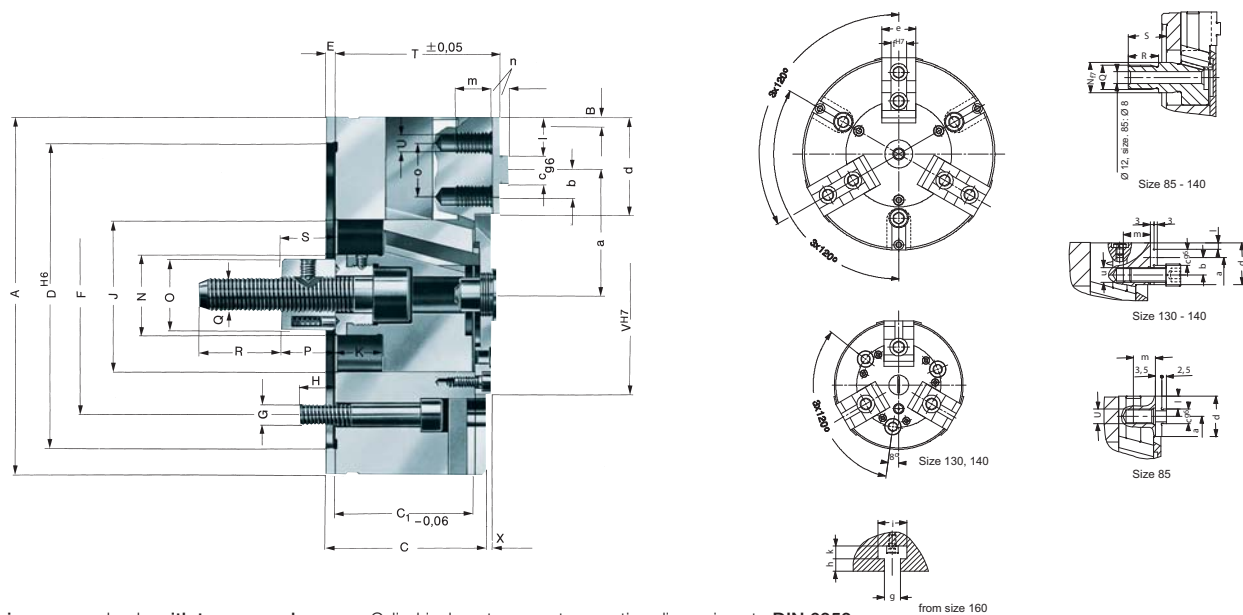
C15

3-jaw power chuck, **standard design, serration 90°**, Cylindrical centre mount, mounting dimensions to **DIN 6353**

| Item No.                                | 004250   | 128405 <sup>1)</sup> | 041240   | 023520    | 040630    | 144598    | 040653    | 040660 ▲  | 040669 ▲  | 040676 ▲  |
|-----------------------------------------|----------|----------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Size                                    | 110      | 125                  | 130      | 160       | 200       | 250       | 315       | 400       | 500       | 630       |
| A mm                                    | 110      | 125                  | 130      | 160       | 200       | 250       | 315       | 400       | 500       | 630       |
| Jaw travel B mm                         | 2,1      | 3,7                  | 5,3      | 5,3       | 6,7       | 6,7       | 8         | 9,3       | 9,3       | 10,5      |
| C mm                                    | 31,5     | 40                   | 69       | 79        | 87        | 102       | 117       | 127       | 127       | 140       |
| C1 <sub>±0,05</sub> mm                  | 28,55    | 37,05                | 58,05    | 66,05     | 74,05     | 89,05     | 104,05    | 111,05    | 111,05    | 125,05    |
| Mount D <sup>H6</sup>                   | 92       | 105                  | 115      | 140       | 170       | 220       | 300       | 300       | 380       | 380       |
| E mm                                    | 3        | 3                    | 6        | 6         | 6         | 6         | 6         | 6         | 6         | 8         |
| F mm                                    | 80       | 80                   | 85       | 104,8     | 133,4     | 171,4     | 235       | 235       | 330,2     | 330,2     |
| G mm                                    | 3 x M 8  | 3 x M 8              | 3 x M 10 | 3 x M 10  | 3 x M 12  | 3 x M 16  | 3 x M 20  | 3 x M 20  | 6 x M 24  | 6 x M 24  |
| H mm                                    | 12       | 14                   | 15       | 17        | 20        | 26        | 30        | 35        | 35        | 35        |
| J mm                                    | 45       | 50                   | 58       | 65        | 85        | 105       | 120       | 155       | 155       | 180       |
| Wedge stroke K mm                       | 8        | 14                   | 20       | 20        | 25        | 25        | 30        | 35        | 35        | 40        |
| N mm                                    | -        | -                    | 35       | 35        | 45        | 55        | 60        | 60        | 60        | 80        |
| O mm                                    | -        | -                    | 34       | 34        | 40        | 46        | 46        | 55        | 55        | 55        |
| P mm                                    | -        | -                    | 25       | 25        | 30        | 30        | 30        | 30        | 30        | 30        |
| Q mm                                    | M20x1,5  | M20x1,5              | M 16     | M 16      | M 20      | M 24      | M 24      | M 24      | M 30      | M 30      |
| R mm                                    | 20       | 20                   | 40       | 40        | 45        | 55        | 55        | 55        | 55        | 63        |
| S min.                                  | 25       | 25                   | 36       | 25        | 30        | 30        | 30        | 30        | 30        | 28        |
| S max.                                  | 33       | 39                   | 56       | 45        | 55        | 55        | 60        | 65        | 65        | 68        |
| T <sup>±0,05</sup> mm                   | 34       | 44                   | 73       | 80        | 90        | 105       | 120       | 130       | 130       | 148       |
| U                                       | M 6 x 18 | M 6 x 18             | M 8 x 20 | M 12 x 25 | M 12 x 25 | M 16 x 30 | M 16 x 30 | M 20 x 40 | M 20 x 40 | M 20 x 40 |
| V <sup>H7</sup> mm                      | -        | -                    | 85       | 85        | 110       | 130       | 160       | 190       | 190       | 220       |
| X mm                                    | 4        | 6                    | 5        | 3         | 3         | 3         | 3         | 3         | 3         | 6         |
| a min.                                  | 23,9     | 24,3                 | 25       | 26,7      | 38,3      | 48,3      | 54        | 72,7      | 72,7      | 85,2      |
| a max.                                  | 26       | 28                   | 30,3     | 32        | 45        | 55        | 62        | 82        | 82        | 95,7      |
| b min.                                  | 8,2      | 7                    | 6        | 9         | 8         | 10        | 10        | 14        | 14        | 18        |
| c min.                                  | 10       | 10                   | 14       | 19        | 19        | 25        | 25        | 31        | 31        | 31        |
| c max.                                  | 14,8     | 25                   | 26       | 36,5      | 44,5      | 58,5      | 81,5      | 98        | 148       | 197       |
| d mm                                    | 28       | 34,5                 | 34,5     | 48        | 55        | 70        | 95        | 118       | 164       | 219,3     |
| e mm                                    | 25       | 25                   | 30       | 35        | 35        | 50        | 55        | 60        | 60        | 70        |
| f <sup>H7</sup> mm                      | 10       | 10                   | 12       | 17        | 17        | 21        | 21        | 25,5      | 25,5      | 25,5      |
| g mm                                    | -        | -                    | -        | 14        | 14        | 18        | 18        | 22        | 22        | 22        |
| h mm                                    | -        | -                    | -        | 11        | 11        | 13        | 13        | 22        | 22        | 22        |
| i mm                                    | -        | -                    | -        | 25        | 25        | 32        | 32        | 40        | 40        | 40        |
| k mm                                    | -        | -                    | -        | 11        | 11        | 14        | 14        | 18        | 18        | 18        |
| Max. swing top jaws mm                  | 172      | 192                  | 184      | 215       | 290       | 345       | 410       | 560       | 660       | 790       |
| Maximum draw bar pull kN                | 7        | 9                    | 18       | 35        | 45        | 65        | 80        | 95        | 110       | 130       |
| Max. total clamping force kN            | 12       | 15                   | 35       | 70        | 90        | 140       | 190       | 250       | 300       | 360       |
| Max. admissible speed min <sup>-1</sup> | 4000     | 5000                 | 5000     | 4500      | 4000      | 3200      | 2800      | 2000      | 1600      | 1200      |
| Moment of inertia J kgm <sup>2</sup>    | 0,003    | 0,007                | 0,014    | 0,035     | 0,095     | 0,28      | 0,87      | 1,96      | 4,31      | 13,4      |
| Weight without jaws approx. kg          | 2,1      | 3,6                  | 6,8      | 10,9      | 19        | 35,5      | 70        | 98        | 138       | 270       |
| Actuating cylinders (recommended)       | OVS-85   | OVS-85               | OVS-85   | OVS-105   | OVS-130   | OVS-150   | OVS-150   | OVS-200   | OVS-200   | OVS-200   |

<sup>1)</sup> Shallow design

# KFD 3-jaw, standard design, tongue and groove

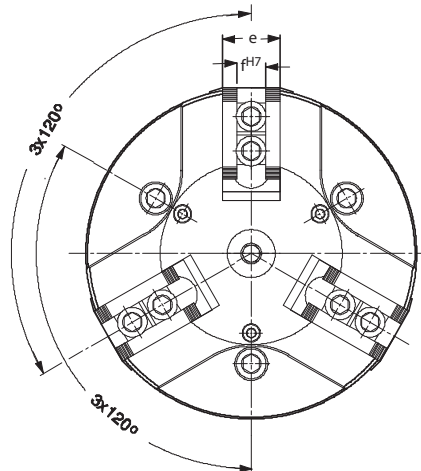
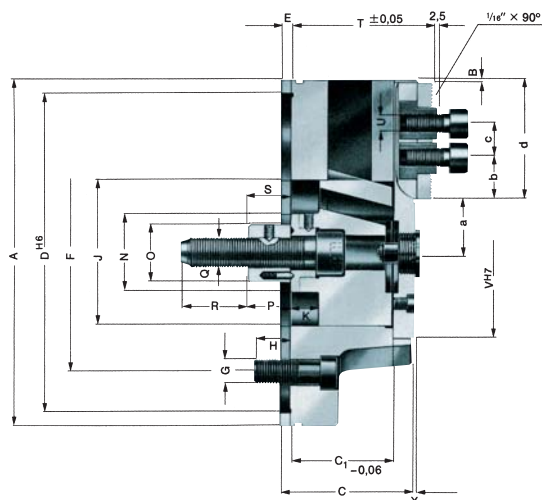


3-jaw power chuck, with tongue and groove, Cylindrical centre mount, mounting dimensions to DIN 6353

| Item No.                                | 123110    | 004266    | 128427 <sup>1)</sup> | 023529  | 040639 ▲ | 144604 ▲ | 144605 ▲ |
|-----------------------------------------|-----------|-----------|----------------------|---------|----------|----------|----------|
| Size                                    | 85        | 110       | 125                  | 160     | 200      | 250      | 315      |
| A mm                                    | 85        | 110       | 125                  | 160     | 200      | 250      | 315      |
| Jaw travel B mm                         | 2,6       | 2,1       | 3,7                  | 5,3     | 6,7      | 6,7      | 6,7      |
| C mm                                    | 31,5      | 31,5      | 40                   | 79      | 87       | 102      | 102      |
| C1 <sub>±0,06</sub> mm                  | 28,55     | 28,55     | 37,05                | 66,05   | 74,05    | 89,05    | 89,05    |
| Mount D <sup>H6</sup>                   | 70        | 92        | 105                  | 140     | 170      | 220      | 220      |
| E mm                                    | 3         | 3         | 3                    | 6       | 6        | 6        | 6        |
| F mm                                    | 54        | 80        | 80                   | 104,8   | 133,4    | 171,4    | 171,4    |
| G mm                                    | 3 x M8    | 3 x M8    | 3 x M8               | 3 x M10 | 3 x M12  | 3 x M16  | 3 x M16  |
| H mm                                    | 12        | 12        | 14                   | 17      | 20       | 26       | 26       |
| J mm                                    | 36        | 45        | 50                   | 65      | 85       | 105      | 105      |
| Wedge stroke K mm                       | 10        | 8         | 14                   | 20      | 25       | 25       | 25       |
| N mm                                    | 20        | -         | -                    | 35      | 45       | 55       | 55       |
| O mm                                    | -         | -         | -                    | 34      | 40       | 46       | 46       |
| P mm                                    | -         | -         | -                    | 25      | 30       | 30       | 30       |
| Q mm                                    | M16 x 1,5 | M20 x 1,5 | M20 x 1,5            | M16     | M20      | M24      | M24      |
| R mm                                    | 20        | 20        | 20                   | 40      | 45       | 55       | 55       |
| S min.                                  | 25        | 25        | 25                   | 25      | 30       | 30       | 30       |
| S max.                                  | 35        | 33        | 39                   | 45      | 55       | 55       | 55       |
| T <sub>±0,05</sub> mm                   | 33        | 33        | 44                   | 80      | 90       | 105      | 105      |
| U                                       | M8        | M6        | M6                   | M12     | M12      | M16      | M16      |
| V <sup>H7</sup> mm                      | -         | -         | -                    | 85      | 110      | 130      | 130      |
| X mm                                    | 4         | 4         | 6                    | 3       | 3        | 3        | 3        |
| a min.                                  | 29,4      | 37,9      | 40,3                 | 46,7    | 63,3     | 81,3     | 93,3     |
| a max.                                  | 32        | 40        | 44                   | 52      | 70       | 88       | 100      |
| b mm                                    | -         | 7,5       | 7,5                  | 12,5    | 15       | 20       | 25       |
| cg6 mm                                  | 8         | 8         | 8                    | 10      | 12       | 16       | 16       |
| d mm                                    | 22        | 28        | 34,5                 | 48      | 55       | 70       | 102      |
| e mm                                    | 20        | 25        | 25                   | 35      | 35       | 50       | 50       |
| f <sup>H7</sup> mm                      | 8         | 8         | 8                    | 16      | 16       | 20       | 20       |
| g mm                                    | -         | -         | -                    | 14      | 14       | 18       | 18       |
| h mm                                    | -         | -         | -                    | 11      | 11       | 13       | 13       |
| i mm                                    | -         | -         | -                    | 25      | 25       | 32       | 32       |
| k mm                                    | -         | -         | -                    | 11      | 11       | 14       | 14       |
| l mm                                    | 7         | 10        | 12,75                | 23      | 24       | 29       | 49       |
| m mm                                    | 14        | 12        | 12                   | 20      | 20       | 25       | 25       |
| n mm                                    | 2,5       | 2,5       | 3                    | 5       | 5        | 5        | 5        |
| o mm                                    | -         | 15        | 15                   | 25      | 30       | 40       | 50       |
| Maximum draw bar pull kN                | 7         | 7         | 9                    | 35      | 45       | 65       | 75       |
| Max. total clamping force kN            | 12        | 12        | 15                   | 70      | 90       | 140      | 180      |
| Max. admissible speed min <sup>-1</sup> | 5000      | 4000      | 5000                 | 4500    | 4000     | 3200     | 2800     |
| Moment of inertia J kgm <sup>2</sup>    | 0,001     | 0,003     | 0,007                | 0,035   | 0,096    | 0,28     | 0,73     |
| Weight without jaws approx. kg          | 1,3       | 2,1       | 3,7                  | 11      | 19,2     | 36       | 59       |
| Actuating cylinders (recommended)       | OVS-85    | OVS-85    | OVS-85               | OVS-105 | OVS-130  | OVS-150  | OVS-150  |

<sup>1)</sup> Shallow design

# KFD 3-jaw, weight reduced, serration 90°

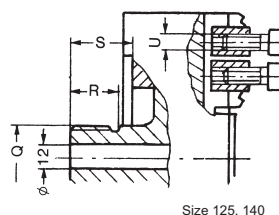
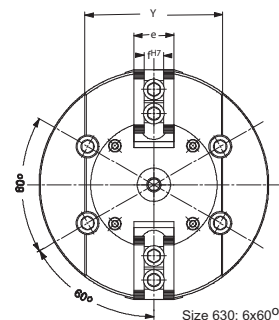
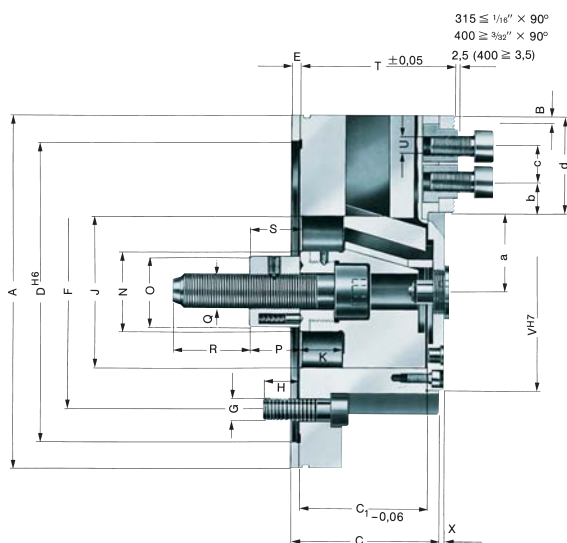


## 3-jaw power chuck, weight reduced, serration 90°

Cylindrical centre mount, mounting dimensions to DIN 6353

| Item No.                                | 046730    | 046744 ▲  | 144594 ▲  | 144596    |
|-----------------------------------------|-----------|-----------|-----------|-----------|
| Size                                    | 160       | 200       | 250       | 315       |
| A mm                                    | 160       | 200       | 250       | 315       |
| Jaw travel B mm                         | 5,3       | 6,7       | 6,7       | 6,7       |
| C mm                                    | 79        | 87        | 102       | 102       |
| C <sub>1</sub> -0,06 mm                 | 66,05     | 74,05     | 89,05     | 89,05     |
| Mount D <sup>H6</sup>                   | 140       | 170       | 220       | 220       |
| E mm                                    | 6         | 6         | 6         | 6         |
| F mm                                    | 104,8     | 133,4     | 171,4     | 171,4     |
| G mm                                    | 3 x M 10  | 3 x M 12  | 3 x M 16  | 3 x M 16  |
| H mm                                    | 17        | 20        | 26        | 26        |
| J mm                                    | 65        | 85        | 105       | 105       |
| Wedge stroke K mm                       | 20        | 25        | 25        | 25        |
| N mm                                    | 35        | 45        | 55        | 55        |
| O mm                                    | 34        | 40        | 46        | 46        |
| P mm                                    | 25        | 30        | 30        | 30        |
| Q mm                                    | M16       | M20       | M24       | M24       |
| R mm                                    | 40        | 45        | 55        | 55        |
| S min.                                  | 25        | 30        | 30        | 30        |
| S max.                                  | 45        | 55        | 55        | 55        |
| T ±0,05 mm                              | 80        | 90        | 105       | 105       |
| U                                       | M 12 x 25 | M 12 x 25 | M 16 x 30 | M 16 x 30 |
| V <sup>H7</sup> mm                      | 85        | 110       | 130       | 130       |
| X mm                                    | 3         | 3         | 3         | 3         |
| a min.                                  | 26,7      | 38,3      | 48,3      | 48,3      |
| a max.                                  | 32        | 45        | 55        | 55        |
| b min.                                  | 9         | 8         | 10        | 10        |
| c min.                                  | 19        | 19        | 25        | 25        |
| c max.                                  | 36,5      | 44,5      | 58,5      | 89,5      |
| d mm                                    | 48        | 55        | 70        | 102,5     |
| e mm                                    | 35        | 35        | 50        | 50        |
| f <sup>H7</sup> mm                      | 17        | 17        | 21        | 21        |
| Max. swing top jaws mm                  | 215       | 290       | 345       | 410       |
| Maximum draw bar pull kN                | 35        | 45        | 65        | 75        |
| Max. total clamping force kN            | 70        | 90        | 140       | 180       |
| Max. admissible speed min <sup>-1</sup> | 4500      | 4000      | 3200      | 2800      |
| Moment of inertia J kgm <sup>2</sup>    | 0,027     | 0,076     | 0,226     | 0,496     |
| Weight without jaws approx. kg          | 8,5       | 15,2      | 29        | 40        |
| Actuating cylinders (recommended)       | OVS-105   | OVS-130   | OVS-150   | OVS-150   |

# KFD 2-jaw, weight reduced, serration 90°



2-jaw power chuck, **weight reduced, serration 90°**  
Cylindrical centre mount, mounting dimensions to DIN 6353

| Item No.                                | 128409 <sup>1)</sup> | 046736 ▲ | 046750 ▲ | 144608   | 045566   | 128421   | 128422 ▲ | 128423 ▲ |
|-----------------------------------------|----------------------|----------|----------|----------|----------|----------|----------|----------|
| Size                                    | 125                  | 160      | 200      | 250      | 315      | 400      | 500      | 630      |
| A mm                                    | 125                  | 160      | 200      | 250      | 315      | 400      | 500      | 630      |
| Jaw travel B mm                         | 3,7                  | 5,3      | 6,7      | 6,7      | 8        | 9,3      | 9,3      | 10,5     |
| C mm                                    | 40                   | 79       | 87       | 102      | 117      | 127      | 127      | 140      |
| C1 <sub>-0,06</sub> mm                  | 37+0,07              | 66,05    | 74,05    | 89,05    | 104,05   | 111,05   | 111,05   | 125,05   |
| Mount D <sup>H6</sup>                   | 105                  | 140      | 170      | 220      | 300      | 300      | 380      | 380      |
| E mm                                    | 3                    | 6        | 6        | 6        | 6        | 6        | 6        | 8        |
| F mm                                    | 80                   | 104,8    | 133,4    | 171,4    | 235      | 235      | 330,2    | 330,2    |
| G mm                                    | 4xM8                 | 4 x M10  | 4 x M12  | 4 x M16  | 4 x M20  | 4 x M20  | 4 x M24  | 6 x M24  |
| H mm                                    | 14                   | 17       | 20       | 26       | 26       | 35       | 35       | 35       |
| J mm                                    | 50                   | 65       | 85       | 105      | 120      | 155      | 155      | 180      |
| Wedge stroke K mm                       | 14                   | 20       | 25       | 25       | 30       | 35       | 35       | 40       |
| N mm                                    | -                    | 35       | 45       | 55       | 60       | 60       | 60       | 80       |
| O mm                                    | -                    | 34       | 40       | 46       | 46       | 55       | 55       | 55       |
| P mm                                    | -                    | 25       | 30       | 30       | 30       | 30       | 30       | 30       |
| Q mm                                    | M20x1,5              | M16      | M20      | M24      | M24      | M24      | M30      | M30      |
| R mm                                    | 20                   | 40       | 45       | 55       | 55       | 55       | 55       | 63       |
| S min.                                  | 25                   | 25       | 30       | 30       | 30       | 30       | 30       | 28       |
| S max.                                  | 39                   | 45       | 55       | 55       | 60       | 65       | 65       | 68       |
| T <sub>±0,05</sub> mm                   | 44                   | 80       | 90       | 105      | 120      | 130      | 130      | 148      |
| U                                       | M6x8                 | M12 x 25 | M12 x 25 | M16 x 30 | M16 x 30 | M20 x 40 | M20 x 40 | M20 x 40 |
| V <sup>H7</sup> mm                      | -                    | 85       | 110      | 130      | 160      | 190      | 190      | 220      |
| X mm                                    | 6                    | 3        | 3        | 3        | 3        | 3        | 3        | 6        |
| a min.                                  | 24,3                 | 26,7     | 38,3     | 48,3     | 54       | 72,7     | 76,7     | 85,2     |
| a max.                                  | 28                   | 32       | 45       | 55       | 62       | 82       | 86       | 95,7     |
| b min.                                  | 7                    | 9        | 8        | 10       | 10       | 14       | 16       | 18       |
| c min.                                  | 10                   | 19       | 19       | 25       | 25       | 31       | 31       | 31       |
| c max.                                  | 25                   | 36,5     | 44,5     | 58,5     | 81,5     | 98       | 144      | 197      |
| d mm                                    | 34,5                 | 48       | 55       | 70       | 95       | 118      | 164      | 219,3    |
| e mm                                    | 25                   | 35       | 35       | 50       | 55       | 60       | 60       | 70       |
| f <sup>H7</sup> mm                      | 10                   | 17       | 17       | 21       | 21       | 25,5     | 25,5     | 25,5     |
| Y mm                                    | -                    | 95       | 120      | 140      | 170      | 220      | 240      | 265      |
| Max. swing top jaws mm                  | 192                  | 215      | 290      | 345      | 410      | 560      | 660      | 790      |
| Maximum draw bar pull kN                | 6                    | 23       | 30       | 43       | 55       | 65       | 75       | 90       |
| Clamping force/jaw kN                   | 6,5                  | 25       | 33       | 48       | 62       | 75       | 85       | 120      |
| Max. admissible speed min <sup>-1</sup> | 5000                 | 4500     | 4000     | 3200     | 2800     | 2000     | 1600     | 1200     |
| Moment of inertia J kgm <sup>2</sup>    | 0,007                | 0,027    | 0,075    | 0,222    | 0,62     | 1,92     | 5,31     | 12,9     |
| Weight without jaws approx. kg          | 3,6                  | 8,5      | 15       | 28,5     | 53       | 96       | 170      | 200      |
| Actuating cylinders (recommended)       | OVS-85               | OVS-85   | OVS-105  | OVS-130  | OVS-130  | OVS-150  | OVS-200  | OVS-200  |

<sup>1)</sup> Chuck without weight reduction

# Jaws KFD

C 21

Reversible top jaws, hardened, serration 90° - material: 16MnCr5



| Chuck Size  | 2-jaw set | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|-------------|-----------|-----------|---------------|---------------|--------------|------------|
| 110/125     | 046545    | 046544    | 56            | 37,5          | 26           | 1/16"x 90° |
| 130         | 045796    | 046404    | 56            | 37,5          | 26           | 1/16"x 90° |
| 160/200     | 046429    | 046408    | 68            | 45            | 34,7         | 1/16"x 90° |
| 160/200/250 | 118521    | 118522    | 75            | 49            | 36           | 1/16"x 90° |
| 250/315     | 046435    | 046414    | 103,5         | 58            | 50           | 1/16"x 90° |
| 400/500/630 | 046447    | 037531    | 135           | 65            | 68           | 3/32"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, can be hardened, serration 90° - material: 16MnCr5



| Chuck Size  | 2-jaw set | 3-jaw set            | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|-------------|-----------|----------------------|---------------|---------------|--------------|------------|
| 110/125     | 045794    | 046402               | 53            | 30            | 22,5         | 1/16"x 90° |
| 130         | 045795    | 046403               | 55            | 38            | 26,5         | 1/16"x 90° |
| 160         | 133147    | 133152               | 66,7          | 53            | 36,5         | 1/16"x 90° |
| 200         | 133148    | 133153               | 75            | 53            | 36,5         | 1/16"x 90° |
| 250         | 133149    | 133154               | 95            | 54,5          | 45           | 1/16"x 90° |
| 315         | 133150    | 133155               | 103           | 80            | 50           | 1/16"x 90° |
| 400/500/630 | 133151    | 133156               | 130           | 80            | 50           | 3/32"x 90° |
| 400/500/630 | 046446    | 046423 <sup>1)</sup> | 130           | 89            | 68           | 3/32"x 90° |

C 21

Soft top jaws, can be hardened, tongue and groove 120° bevelled - material: 16MnCr5



| Chuck Size | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm |
|------------|-----------|---------------|---------------|--------------|
| 85         | 119459    | 40            | 30            | 22,5         |
| 110/125    | 046859    | 51            | 30            | 22,5         |
| 160        | 123358    | 72,7          | 53            | 36,5         |
| 200        | 123430    | 90,3          | 53            | 36,5         |
| 250        | 123433    | 115,3         | 54,5          | 45           |
| 315        | 129849    | 146           | 80            | 50           |

C 21

Claw-type jaws, 1 piece, hardened, serration 90° - width of the groove 12



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 144320   | 130        | 66            | 38            | 52             | 1/16"x 90° |
| 144321   | 130        | 56            | 38            | 34             | 1/16"x 90° |
| 144322   | 130        | 66            | 38            | 25             | 1/16"x 90° |

C 21

Claw-type jaws, 1 piece, hardened, serration 90° - width of the groove 17



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137031   | 160/200    | 67            | 45            | 53             | 1/16"x 90° |
| 137032   | 160/200    | 65            | 45            | 46             | 1/16"x 90° |
| 137039   | 160/200    | 55            | 45            | 40             | 1/16"x 90° |
| 137034   | 160/200    | 50            | 45            | 31             | 1/16"x 90° |
| 137035   | 160/200    | 55            | 45            | 27             | 1/16"x 90° |
| 137036   | 160/200    | 65            | 45            | 19             | 1/16"x 90° |
| 137037   | 160/200    | 65            | 45            | 26             | 1/16"x 90° |
| 137038   | 160/200    | 55            | 45            | 24             | 1/16"x 90° |
| 137033   | 160/200    | 55            | 45            | 39             | 1/16"x 90° |

# Jaws KFD

C 21

**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 21**


| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------------|---------------|---------------|----------------|------------|
| 137041   | 250/315    | 95            | 50            | 80             | 1/16"x 90° |
| 137042   | 250/315    | 75            | 50            | 60             | 1/16"x 90° |
| 137043   | 250/315    | 60            | 50            | 43             | 1/16"x 90° |
| 137044   | 250/315    | 70            | 50            | 37             | 1/16"x 90° |
| 137045   | 250/315    | 95            | 50            | 25             | 1/16"x 90° |
| 137046   | 250/315    | 80            | 50            | 30             | 1/16"x 90° |

C 21

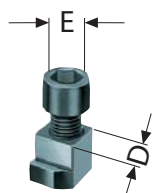
**Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 25,5**


| Item no. | Chuck Size  | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|-------------|---------------|---------------|----------------|------------|
| 137051   | 400/500/630 | 130           | 65            | 113            | 3/32"x 90° |
| 137052   | 400/500/630 | 90            | 65            | 67             | 3/32"x 90° |
| 137053   | 400/500/630 | 100           | 65            | 45             | 3/32"x 90° |
| 137054   | 400/500/630 | 130           | 65            | 33             | 3/32"x 90° |

# Accessories KFD

C 15 T-nuts

With screw



| Item no.             | Chuck Size  | Contents of delivery | D mm | E      |
|----------------------|-------------|----------------------|------|--------|
| 1305163              | 110/125     | piece                | 10   | M6x18  |
| 241673 <sup>1)</sup> | 130         | piece                | 12   | M8x20  |
| 241674               | 160/200     | piece                | 17   | M12x25 |
| 241675               | 250         | piece                | 21   | M16x30 |
| 241676 <sup>1)</sup> | 400/500/630 | piece                | 25,5 | M20x40 |

<sup>1)</sup> Metric dimensions

C 15 Special grease F80 for lathe chucks

for lubrication and conservation of clamping force



| Item no. | Design    | Contents |
|----------|-----------|----------|
| 308555   | Cartridge | 0,5 kg   |
| 028975   | Tin       | 1 kg     |

C15 Grease gun DIN1283



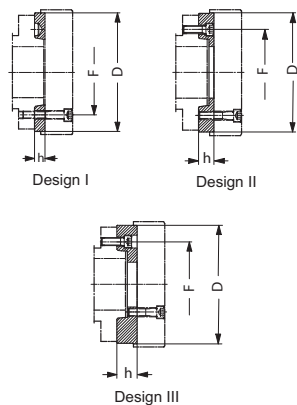
| Item no. | Connec-<br>tion | Contents of delivery                                                                                                              |
|----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1           | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

# Accessories KFD

C 15

**Intermediate adaptor plates with cylindrical centre mount DIN 6353 for 3-jaw chucks**

Mounting from front to ISO 702-1 (DIN 55026/55021) and ASA B 5.9 A1/A2 with metric mounting bolts



| Item no.             | Spindle nose size | Size        | Design | h mm | F mm  | D mm |
|----------------------|-------------------|-------------|--------|------|-------|------|
| 145125 <sup>1)</sup> | 4                 | 160         | II     | 18   | 82,6  | 140  |
| 145153               | 5                 | 175         | I      | 15   | 104,8 | 140  |
| 145127               | 5                 | 200         | II     | 21   | 104,8 | 170  |
| 145129               | 6                 | 160         | III    | 35   | 133,4 | 140  |
| 145155               | 6                 | 200         | I      | 16   | 133,4 | 170  |
| 145131               | 6                 | 250         | II     | 27   | 133,4 | 220  |
| 145135               | 8                 | 200         | III    | 39   | 171,4 | 170  |
| 145157               | 8                 | 250         | I      | 18   | 171,4 | 220  |
| 145137▲              | 8                 | 315/400     | II     | 38   | 171,4 | 300  |
| 145141               | 8                 | 500/630     | II     | 38   | 171,4 | 380  |
| 145143▲              | 11                | 250         | III    | 48   | 235   | 220  |
| 145159               | 11                | 315/400     | I      | 19   | 235   | 300  |
| 145145▲              | 11                | 500/630     | II     | 40   | 235   | 380  |
| 145149               | 15                | 400         | III    | 58   | 330,2 | 300  |
| 145161               | 15                | 400/500/630 | I      | 21   | 330,2 | 380  |

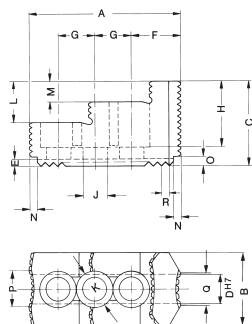
<sup>1)</sup> DIN 55021 on request

All fastening parts are included

Intermediate adaptor plate for 2-jaw version on request

# Jaw dimensions KFD / KFD-EC

Reversible top jaw UB,  
hardened, serration 90°



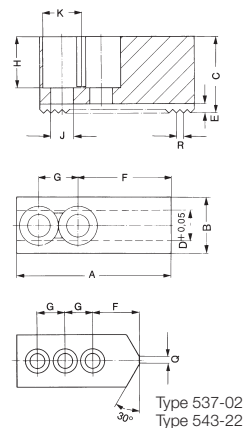
| Chuck size         | 110/125/140      | 130       | 160       | 200/250 <sup>1)</sup> | 250/315   | 400-800              |
|--------------------|------------------|-----------|-----------|-----------------------|-----------|----------------------|
| Type               | 537-02           | 538-02    | 538-03    | 538-04                | 538-05    | 538-07 <sup>2)</sup> |
| Item no. 2-jaw set | 046545           | 045796    | 046429    | 118521                | 046435    | 046447               |
| Item no. 3-jaw set | 046544           | 046404    | 046408    | 118522                | 046414    | 037531               |
| A                  | 56               | 56        | 68        | 75                    | 103,5     | 135                  |
| B                  | 26               | 26        | 34,7      | 36                    | 50        | 68                   |
| C                  | 37,5             | 37,5      | 45        | 49                    | 58        | 65                   |
| DH7                | 10               | 12        | 17        | 17                    | 21        | 25,5                 |
| E                  | 3,5              | 3,5       | 5         | 5                     | 5         | 5                    |
| F                  | 10               | 14        | 17        | 21,5                  | 33,5      | 48                   |
| G                  | 12 <sup>3)</sup> | 15        | 19        | 19                    | 25        | 31                   |
| H                  | 29               | 29        | 33,5      | 37,5                  | 45        | 48                   |
| J                  | 6,4              | 8,4       | 13        | 13                    | 17        | 21                   |
| K                  | 10,4             | 13,5      | 19        | 19                    | 25        | 31                   |
| L                  | 20               | 20        | 20        | 24                    | 28        | -                    |
| M                  | 10               | 10        | 10        | 12                    | 14        | 26                   |
| N                  | 4                | 4         | 5         | 6                     | 6         | 6,5                  |
| O                  | 4                | 4         | 7         | 7,5                   | 6,5       | 5,5                  |
| P                  | 5                | 5         | 10        | 18                    | 24,5      | 34                   |
| Q                  | 5                | 5         | 5         | 7                     | 22,5      | 40                   |
| R                  | 1/16"x90°        | 1/16"x90° | 1/16"x90° | 1/16"x90°             | 1/16"x90° | 3/32"x90°            |
| Weight/jaw kg      | 0,130            | 0,170     | 0,350     | 0,460                 | 1,130     | 2,000                |

1) Size 250: chuck in shallow design

2) One step only

3) 4 mounting holes

Soft top jaws AB,  
serration 90°, module toothing  
(size 1000-1600)



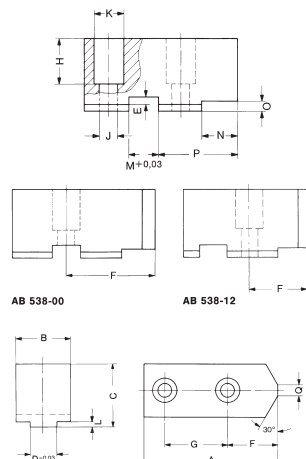
| Chuck size         | 110/125/140      | 130       | 160       | 200/250 <sup>1)</sup> | 250       | 315       | 400-800   | 400-800              |
|--------------------|------------------|-----------|-----------|-----------------------|-----------|-----------|-----------|----------------------|
| Type               | 537-02           | 538-02    | 538-03    | 538-04                | 538-05    | 538-06    | 538-07    | 538-07 <sup>2)</sup> |
| Item no. 2-jaw set | 045794           | 045795    | 133147    | 133148                | 133149    | 133150    | 133151    | 046446               |
| Item no. 3-jaw set | 046402           | 046403    | 133152    | 133153                | 133154    | 133155    | 133156    | 046423               |
| A                  | 53               | 55        | 66,7      | 75                    | 95        | 103       | 130       | 130                  |
| B                  | 22,5             | 26,5      | 36,5      | 36,5                  | 45        | 50        | 50        | 68                   |
| C                  | 30               | 38        | 53        | 53                    | 54,5      | 80        | 80        | 89                   |
| D                  | 10               | 12        | 17        | 17                    | 21        | 21        | 25,5      | 25,5                 |
| E                  | 3,5              | 3,5       | 5         | 5                     | 5         | 5         | 5         | 5                    |
| F                  | 20               | 31        | 36        | 44                    | 55        | 62        | 79        | 75                   |
| G                  | 12 <sup>3)</sup> | 15        | 19        | 19                    | 25        | 25        | 31        | 35                   |
| H                  | 20               | 28        | 43        | 43                    | 42,5      | 67        | 60        | 69                   |
| J                  | 6,4              | 8,4       | 13        | 13                    | 17        | 17        | 21        | 21                   |
| K                  | 10,4             | 13,5      | 19        | 19                    | 25        | 25        | 31        | 31                   |
| Q                  | 3                | -         | -         | -                     | -         | -         | -         | -                    |
| R                  | 1/16"x90°        | 1/16"x90° | 1/16"x90° | 1/16"x90°             | 1/16"x90° | 1/16"x90° | 3/32"x90° | 3/32"x90°            |
| Weight/jaw kg      | 0,223            | 0,320     | 0,700     | 0,880                 | 1,400     | 2,580     | 3,1       | 5,120                |

1) Size 250: chuck in shallow design

2) Heavy design

3) 3 mounting holes

Soft top jaws AB,  
tongue and groove

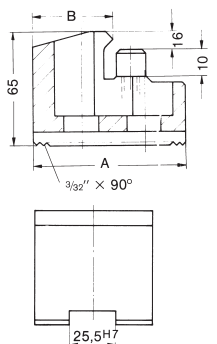
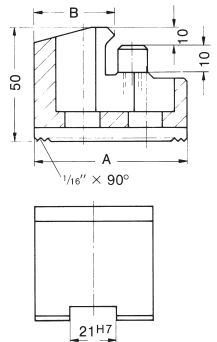
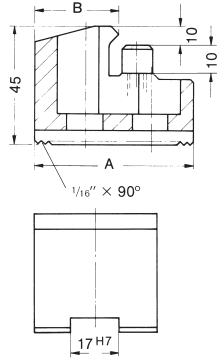
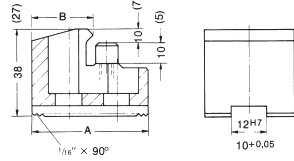


| Chuck size         | 85     | 110/125 <sup>1)</sup> | 160    | 200    | 250    | 315    |
|--------------------|--------|-----------------------|--------|--------|--------|--------|
| Type               | 538-00 | 537-03                | 538-13 | 538-14 | 538-15 | 538-66 |
| Item no. 3-jaw set | 119459 | 046859                | 123358 | 123430 | 123433 | 129849 |
| A                  | 40     | 51                    | 72,7   | 90,3   | 115,3  | 146    |
| B                  | 22,5   | 22,5                  | 36,5   | 36,5   | 45     | 50     |
| C                  | 30     | 30                    | 53     | 53     | 54,5   | 80     |
| D <sub>0,03</sub>  | 8      | 8                     | 16     | 16     | 20     | 20     |
| E                  | 3      | 3,5                   | 5,5    | 5,5    | 5,5    | 5,5    |
| F                  | 29     | 29,5                  | 32,5   | 45,3   | 58,3   | 63,5   |
| G                  | -      | 15                    | 25     | 30     | 40     | 50     |
| H                  | 20     | 20                    | 38     | 38     | 38     | 60     |
| J                  | 9      | 6,4                   | 13     | 13     | 17     | 17     |
| K                  | 15     | 10,4                  | 19     | 19     | 25     | 25     |
| L                  | 2,5    | 2,5                   | 4,5    | 4,5    | 4,5    | 4,5    |
| M <sub>0,03</sub>  | 8      | 8                     | 10     | 12     | 16     | 16     |
| N                  | 18     | 23                    | 24,7   | 35,3   | 45,3   | 43     |
| O                  | 4      | 4                     | 5      | 5      | 5      | 5      |
| P                  | 25     | 33                    | 39,7   | 54,3   | 70,3   | 80,5   |
| Q                  | 3      | 3                     | 3      | 6      | 6      | 6      |
| Weight/jaw kg      | 0,146  | 0,200                 | 0,720  | 1,000  | 1,550  | 3,600  |

1) Chuck in shallow design

# Jaw dimensions KFD / KFD-EC

Claw type jaws KB,  
Serration 90°



| Size           | A  | B  | 130<br>External chucking |
|----------------|----|----|--------------------------|
| Item no. piece |    |    |                          |
| 144320         | 66 | 52 | 38-82                    |
| 144321         | 56 | 34 | 78-122                   |
| 144322         | 66 | 25 | 120-144                  |
|                |    |    | Internal chucking        |
| 144322         | 66 | 25 | 70-98                    |
| 144321         | 56 | 34 | 92-138                   |
| 144320         | 66 | 52 | 122-178                  |

| Size           | A  | B  | 160<br>External chucking | 200<br>External chucking |
|----------------|----|----|--------------------------|--------------------------|
| Item no. piece |    |    |                          |                          |
| 137031         | 67 | 53 | 38-56                    | 60-96                    |
| 137032         | 65 | 46 | 51-71                    | 73-111                   |
| 137039         | 55 | 40 | 66-87                    | 88-127                   |
| 137034         | 50 | 31 | 83-102                   | 105-142                  |
| 137035         | 55 | 27 | 97-117                   | 119-157                  |
|                |    |    | Internal chucking        |                          |
| 137036         | 65 | 19 | 50-70                    | 72-110                   |
| 137037         | 65 | 26 | 68-85                    | 90-125                   |
| 137038         | 55 | 24 | 82-104                   | 104-144                  |
| 137035         | 55 | 27 | 102-116                  | 124-156                  |
| 137034         | 50 | 31 | 114-123                  | 136-163                  |
| 137039         | 55 | 40 | 120-135                  | 144-175                  |
| 137033         | 55 | 39 | 132-165                  | 154-205                  |
| 137032         | 65 | 46 | 146-178                  | 168-218                  |

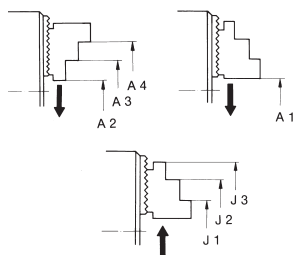
| Size           | A  | B  | 250<br>External chucking | 315 1)<br>External chucking | 315<br>External chucking |
|----------------|----|----|--------------------------|-----------------------------|--------------------------|
| Item no. piece |    |    |                          |                             |                          |
| 137041         | 95 | 80 | 53-95                    | 53-160                      | 66-160                   |
| 137042         | 75 | 60 | 92-133                   | 92-198                      | 105-198                  |
| 137043         | 60 | 43 | 125-167                  | 125-232                     | 138-232                  |
| 137044         | 70 | 37 | 156-198                  | 156-263                     | 169-263                  |
|                |    |    | Internal chucking        |                             |                          |
| 137045         | 95 | 25 | 68-112                   | 68-117                      | 81-177                   |
| 137046         | 80 | 30 | 108-154                  | 108-219                     | 121-219                  |
| 137044         | 70 | 37 | 146-186                  | 146-240                     | 159-240                  |
| 137043         | 60 | 43 | 178-240                  | 178-305                     | 191-305                  |
| 137042         | 75 | 60 | 212-265                  | 212-330                     | 225-330                  |

1) Chuck in shallow design

| Size           | A   | B   | 400<br>External chucking | 500<br>External chucking | 630<br>External chucking |
|----------------|-----|-----|--------------------------|--------------------------|--------------------------|
| Item no. piece |     |     |                          |                          |                          |
| 137051         | 130 | 113 | 80-180                   | 80-280                   | 114-410                  |
| 137052         | 90  | 67  | 170-270                  | 170-370                  | 204-500                  |
| 137053         | 100 | 45  | 256-390                  | 270-495                  | 290-625                  |
|                |     |     | Internal chucking        |                          |                          |
| 137054         | 130 | 33  | 100-215                  | 100-315                  | 134-445                  |
| 137053         | 100 | 45  | 260-395                  | 275-500                  | 295-625                  |
| 137051         | 130 | 113 | 300-460                  | 300-560                  | 334-690                  |

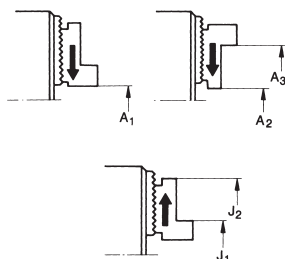
# Chucking capacities KFD

Chucking capacities with reversible top jaw UB/AB for 2- and 3-jaw chucks



| Chuck size           |              | 110     | 125     | 130     | 140     | 160     | 200     | 250 <sup>1)</sup> | 250     | 315 <sup>1)</sup> | 315     | 400     | 500     | 630     |
|----------------------|--------------|---------|---------|---------|---------|---------|---------|-------------------|---------|-------------------|---------|---------|---------|---------|
| with reversible jaws | Type         | 537-02  | 537-02  | 538-02  | 537-02  | 538-03  | 538-04  | 538-04            | 538-05  | 538-05            | 538-05  | 538-07  | 538-07  | 538-07  |
|                      | Jaw position |         |         |         |         |         |         |                   |         |                   |         |         |         |         |
| External chucking    | A1           | 4-62    | 4-78    | 6-66    | 4-93    | 5-73    | 16-108  | 16-159            | 20-124  | 20-189            | 34-189  | 40-225  | 40-325  | 60-450  |
|                      | A2           | -       | -       | -       | -       | -       | 28-118  | 28-169            | 38-152  | 38-217            | 52-217  | 70-280  | 70-380  | 108-510 |
|                      | A3           | 47-105  | 75-126  | 60-119  | 75-140  | 70-140  | 86-173  | 86-223            | 120-232 | 120-297           | 134-297 | -       | -       | -       |
|                      | A4           | 82-140  | 110-161 | 94-151  | 110-176 | 110-182 | 137-224 | 137-274           | 200-314 | 200-379           | 214-379 | 275-480 | 275-580 | 310-700 |
| Internal chucking    | J1           | 40-95   | 40-110  | 42-96   | 40-125  | 53-120  | 70-156  | 70-208            | 70-170  | 70-233            | 84-233  | 102-305 | 102-405 | 136-530 |
|                      | J2           | 74-130  | 72-145  | 74-130  | 72-160  | 92-163  | 120-208 | 120-258           | 146-251 | 146-313           | 160-313 | -       | -       | -       |
|                      | J3           | 112-168 | 116-190 | 118-175 | 116-205 | 144-200 | 173-261 | 173-311           | 236-328 | 236-393           | 250-393 | 295-490 | 295-590 | 328-720 |

1) Chuck in shallow design



# KFD-G - large jaw stroke



## APPLICATION

Power chuck without through-hole for clamping workpieces with collars or shoulders (e.g. fittings), without having to give up high clamping force.

## TYPE

Power chuck is available with cylindrical centre mount.  
2-jaw version with serration 90° (sizes 125 + 160 with tongue and groove).

## CUSTOMER BENEFITS

- ③ Minimization of the interference contours of the chuck by means of bevels on the chuck body
- ③ Excessively high jaw stroke for flexible chuck use
- ③ Long service life - sealed against dirt and water
- ③ High clamping precision thanks to proven wedge hook system

## TECHNICAL FEATURES

- Power transmission by means of wedge hook system
- Direct lubrication of base jaws and pistons (4 lubrication points)
- Full steel design

### Included in the scope of delivery: tongue and groove

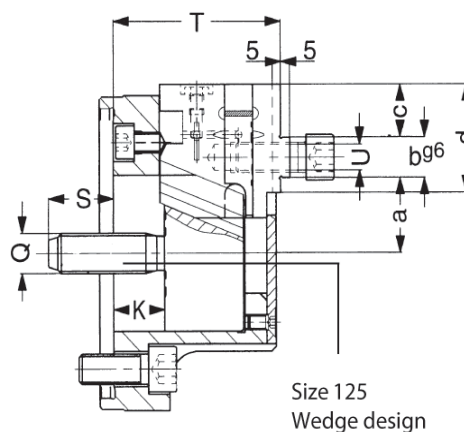
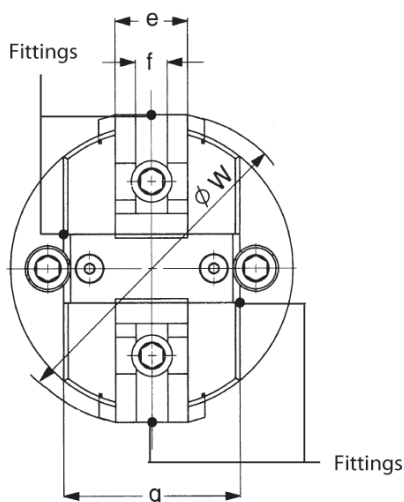
Chuck, chuck and jaw mounting screws (without top jaws)

### Included in the scope of delivery: serration

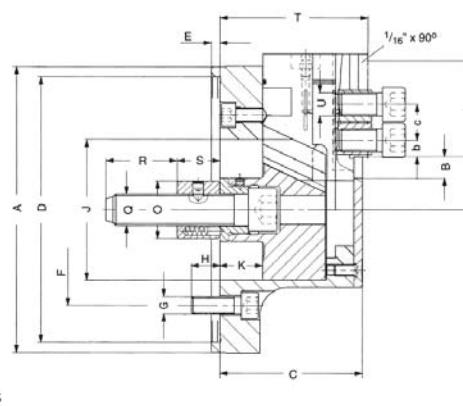
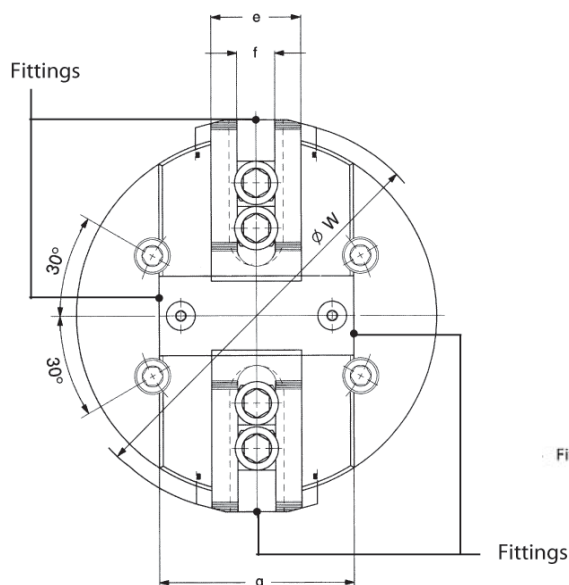
Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)



Size 125 + 160  
Tongue and groove



Size 125  
Wedge design



Fittings

# KFD-G 2-jaw, large jaw movement, serration 90°

C15

**2-jaw** power chuck **KFD-G, with large jaw movement,**
**Cylindrical centre mount** for clamping workpieces with collars or shoulders (e.g. fittings), without having to give up high clamping force. Full steel design, weight reduction, direct lubricated, special sealing against dirt and water.

| Item No.                                | 154025 ▲ | 154026 ▲ | 154027 ▲ | 154028   | 154029   |
|-----------------------------------------|----------|----------|----------|----------|----------|
| Size                                    | 125      | 160      | 200      | 250      | 315      |
| A mm                                    | 125      | 160      | 200      | 250      | 315      |
| Jaw travel B mm                         | 8,5      | 11       | 14       | 14,4     | 14,4     |
| C mm                                    | 70       | 81       | 100      | 102      | 102      |
| Mount D <sup>16</sup>                   | 115      | 140      | 185      | 220      | 220      |
| E mm                                    | 6        | 6        | 6        | 6        | 6        |
| F mm                                    | 92       | 104,8    | 133,4    | 171,4    | 171,4    |
| G mm                                    | 2 x M 12 | 4 x M 10 | 4 x M 12 | 4 x M 16 | 4 x M 16 |
| H mm                                    | 15       | 16       | 20       | 25       | 25       |
| J mm                                    | 62       | 75       | 98       | 98       | 98       |
| Wedge stroke K mm                       | 22       | 27       | 30       | 31       | 31       |
| O mm                                    | -        | 35       | 44       | 44       | 44       |
| Q mm                                    | M 16     | M 16     | M 22     | M 22     | M 22     |
| R mm                                    | -        | 40       | 50       | 50       | 50       |
| S min.                                  | 28       | 33       | 30       | 29       | 29       |
| S max.                                  | 50       | 60       | 60       | 60       | 60       |
| T <sup>+0,05</sup> mm                   | 72       | 84       | 103,7    | 105,7    | 105,7    |
| U                                       | M 12     | M 16     | M 16     | M 20     | M 20     |
| WMax.                                   | 140      | 180      | 220      | 270      | 334      |
| a min.                                  | 21,5     | 32,5     | 23       | 22,6     | 22,6     |
| a max.                                  | 30       | 43,5     | 37       | 37       | 37       |
| b min.                                  | 16g6     | 18g6     | 14       | 14       | 14       |
| c min.                                  | 21       | 26       | 25       | 31       | 31       |
| c max.                                  | 21       | 26       | 55,5     | 77       | 103      |
| d mm                                    | 43       | 57,5     | 71,5     | 96       | 128,5    |
| e mm                                    | 32       | 35       | 50       | 55       | 55       |
| f <sup>+7</sup> mm                      | 14       | 18       | 21       | 25,5     | 25,5     |
| g mm                                    | 78       | 91       | 108      | 120      | 120      |
| Maximum draw bar pull kN                | 13       | 16       | 35       | 45       | 45       |
| Max. total clamping force kN            | 10       | 12       | 25       | 29       | 29       |
| Max. admissible speed min <sup>-1</sup> | 3500     | 3000     | 3000     | 2500     | 2200     |
| Moment of inertia J kgm <sup>2</sup>    | 0,01     | 0,04     | 0,09     | 0,2      | 0,4      |
| Weight without jaws approx. kg          | 5        | 9        | 17       | 25       | 36,5     |
| Actuating cylinders (recommended)       | OVS-85   | OVS-85   | OVS-105  | OVS-130  | OVS-130  |

C 21

**Soft top jaws, 2-jaw set, can be hardened tongue and groove** for 2-jaw chucks, material: 16MnCr5


| Chuck Size | 2-jaw set | Jaw length mm | Jaw height mm | Jaw width mm |
|------------|-----------|---------------|---------------|--------------|
| 125        | 120321    | 56,5          | 53            | 36,5         |
| 160        | 120320    | 74,5          | 53            | 36,5         |

C 21

**Soft top jaws, 2-jaw set, can be hardened serration 90°** - material: 16MnCr5


| Chuck Size | 2-jaw set | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|------------|-----------|---------------|---------------|--------------|------------|
| 200        | 120318    | 94            | 89            | 68           | 1/16"x 90° |
| 200        | 133149    | 95            | 54,5          | 45           | 1/16"x 90° |
| 250        | 120316    | 110           | 89            | 68           | 1/16"x 90° |
| 315        | 120073    | 130           | 89            | 68           | 1/16"x 90° |

# Special solutions - for power chucks without through-hole



## KFD-HS oil - Power chuck with oil bath lubrication

### APPLICATION

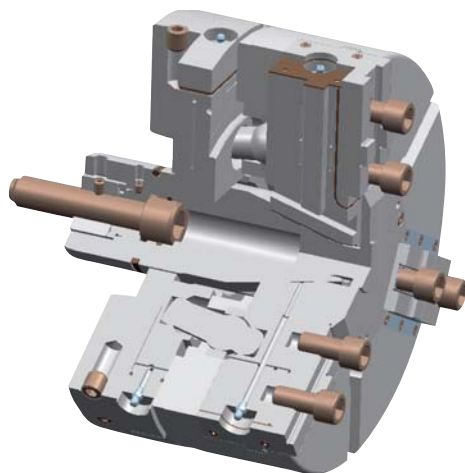
Ideal for use under extreme operating conditions thanks to hermetic seal against dirt and cooling water as well as no required maintenance, for the most time.

### TYPE

2-, 3- or 4-jaw version with serration 90° or tongue and groove. With short taper or cylindrical centrer mount.

### CUSTOMER BENEFITS

- Largely maintenance-free thanks to constant lifetime lubrication of all moving parts through oil filling
- Hermetically sealed against dirt and cooling water
- Ideal for high speeds thanks to KFD-HS principle with simultaneously high concentricity and axial run-out



## KFD-F-EC - Power chuck with centrifugal force compensation

### APPLICATION

Especially for use under extreme operating conditions, e.g. dry or raw part machining and/or high coolant pressure with simultaneous centrifugal force-sensitive clamping.

### TYPE

With centrifugal force compensation.

### CUSTOMER BENEFITS

- Low-maintenance and -wear thanks to Easy Care
- Centrifugal force compensation for extremely high speeds



## MSF - Diaphragm clamping chuck

### APPLICATION

Optimally suited for grinding and hard turning with high precision.

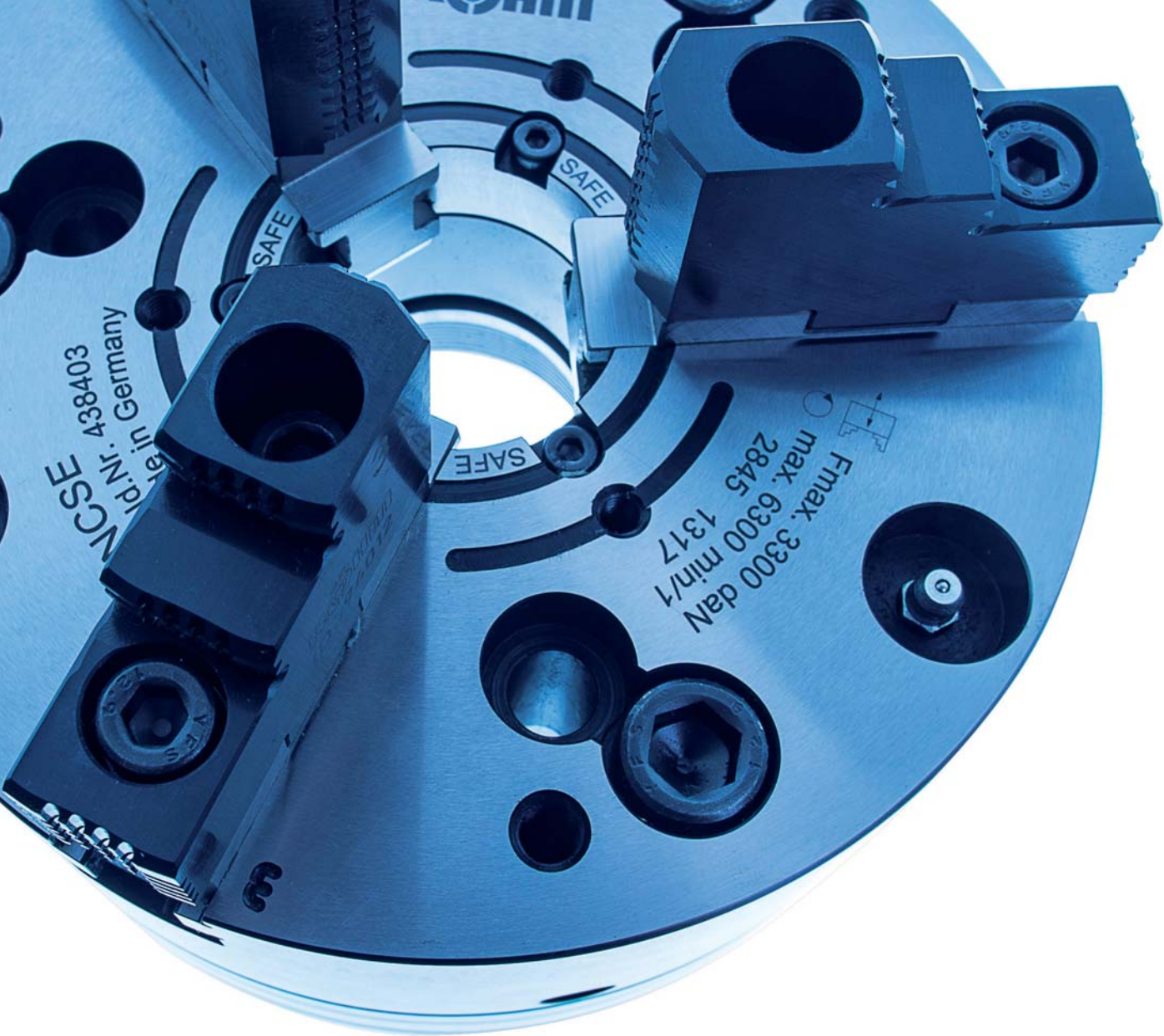
### TYPE

With quick jaw change system via HSK interface and standard medium feed-through.

### CUSTOMER BENEFITS

- Constant, uniform quality and clamping force thanks to diaphragm technology
- Contamination-resistant
- Quick jaw change system via HSK interface for quick jaw change, maximum precision and change accuracy
- Nearly wear-free





## QUICK JAW CHANGE SYSTEM WITH INDIVIDUAL JAW UNLOCKING



The quick jaw change system allows flexible use of the power chuck and drastically reduces set-up times. The jaws can be flexibly offset, turned or changed.

Thanks to the individual jaw unlocking on the DURO-NCSE power chuck, handling with large, workpiece-specific customized top jaws is especially easy: Push the key till stop, then turn in the direction of the arrow.



Video DURO-NCSE



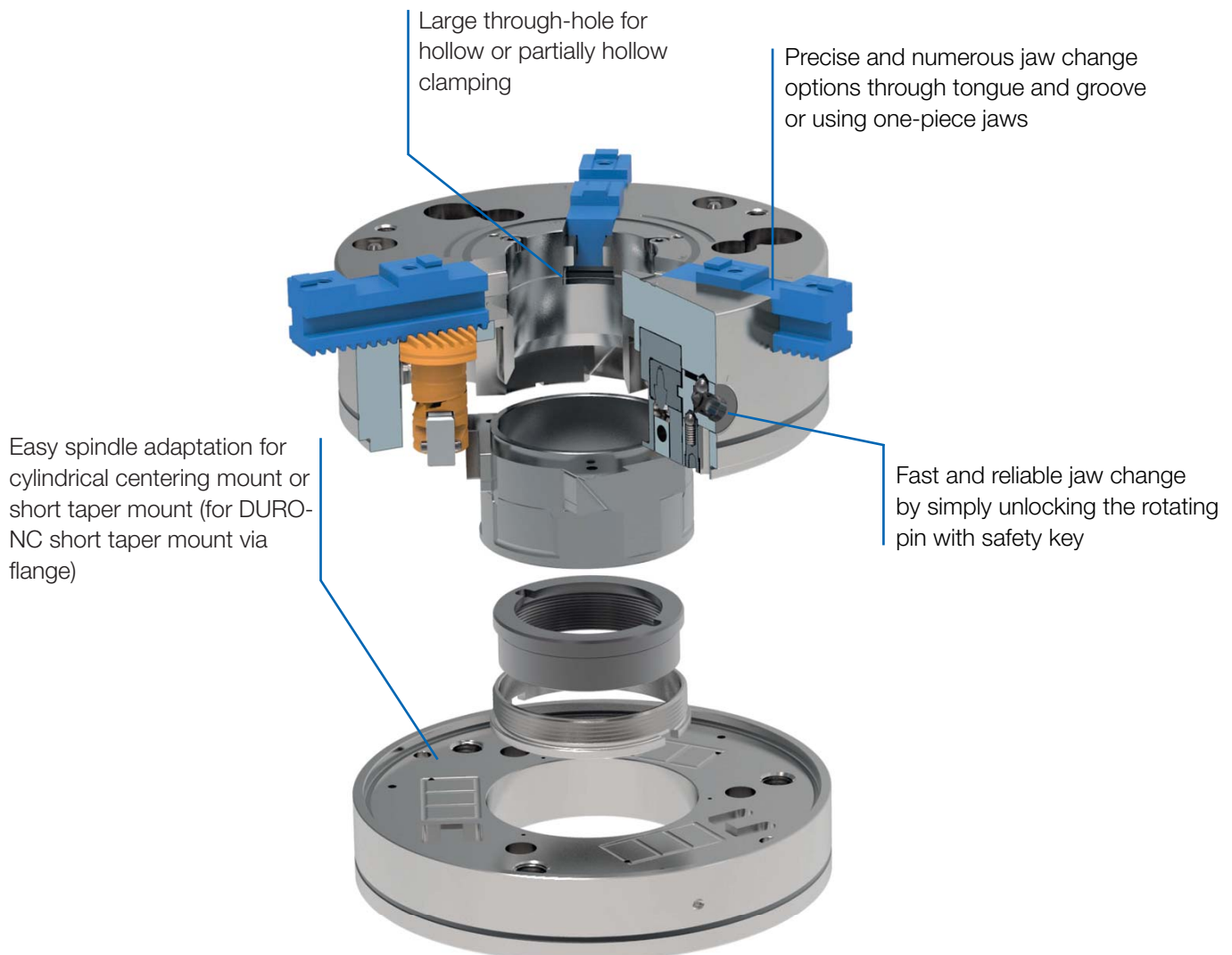
Video DURO-NC

# POWER CHUCKS WITH QUICK JAW CHANGE

Fast jaw change, high clamping precision and high clamping force characterize the power chucks DURO-NCSE and DURO-NC. Thanks to the quick jaw change system, the jaws can be flexibly offset, turned or changed. The clamping precision of the chuck is always retained.

## ADVANTAGES AT A GLANCE

- ⌚ Flexible use thanks to quick jaw change reducing set-up times
- 🔒 Secure jaw lock via the safety key
- 🔧 Large through-hole optimal for bar machining



# DURO-A RC - jaw change in 50 seconds



## APPLICATION

Premium power chuck with through-hole for the machining of bar, pipes and discs. Maximum speeds and flexible use thanks to quick jaw change system with individual jaw unlocking.

## TYPE

3-jaw chuck with cylindrical centre mount. Short taper mounting adapter (DIN ISO 704-1) as option.

## CUSTOMER BENEFITS

- ⌚ Quick jaw change in 50 seconds
- 🛡️ 3-year warranty (pursuant to DURO-A RC warranty)
- 💰 Excellent price/performance ratio
- 📏 Overall height reduced by up to 14% and up to 17% weight reduction
- 🔒 High clamping accuracy and clamping force through very stable construction

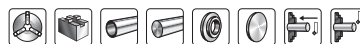
## TECHNICAL FEATURES

- High speeds and optimum centrifugal force behaviour due to low jaw weight and key bar design
- Large through-hole for hollow and partly-hollow clamping
- Base jaws with straight teeth

### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, base jaws, safety wrench, mounting wrench

**A RC** = Automatic, Rapid, Change



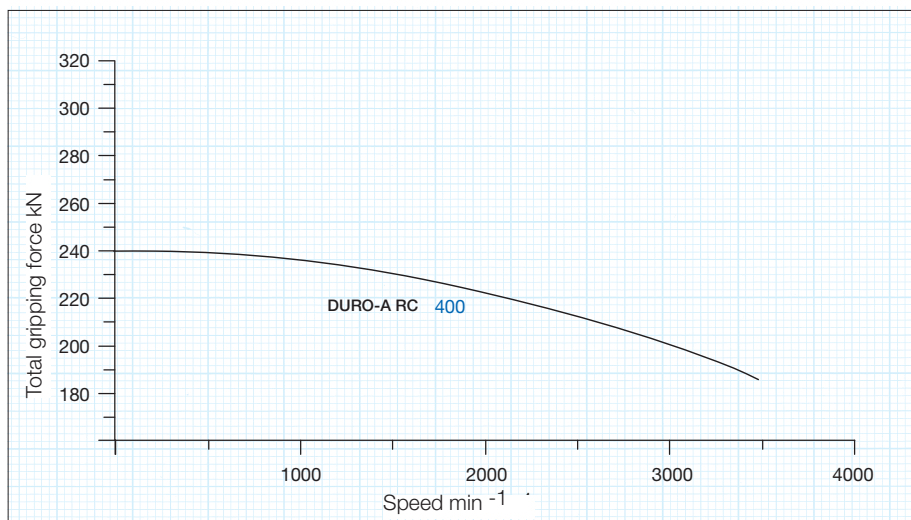
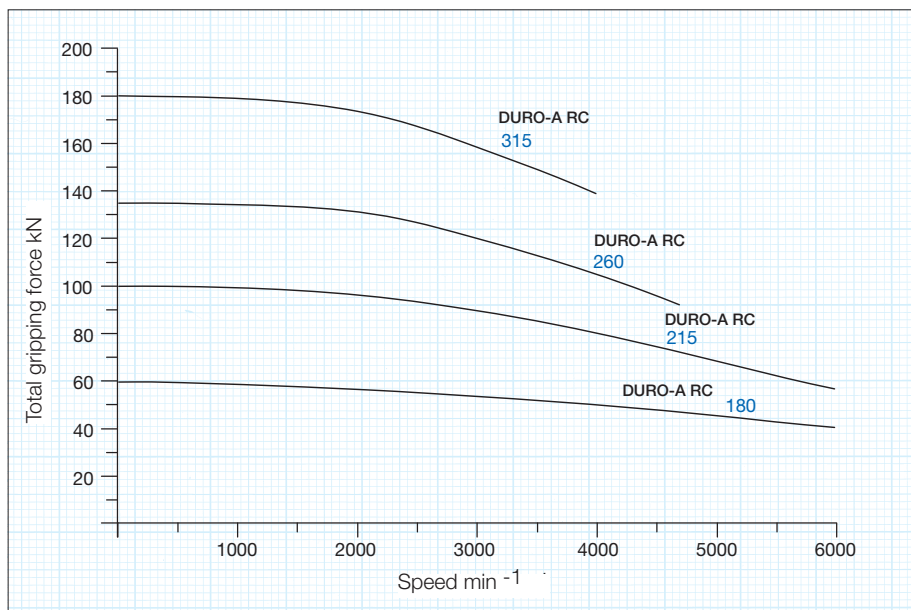
## Gripping force / speed diagram

The loss of gripping force was determined experimentally on a chuck with matched UB top jaws. It is largely independent of the initial gripping force at zero speed.

Curve:  
max. centrifugal  
force of top jaw



To obtain the specified gripping forces, the chuck must be in a perfect condition and lubricated with F 80 lubricant recommended by RÖHM. Measuring point near chuck face.

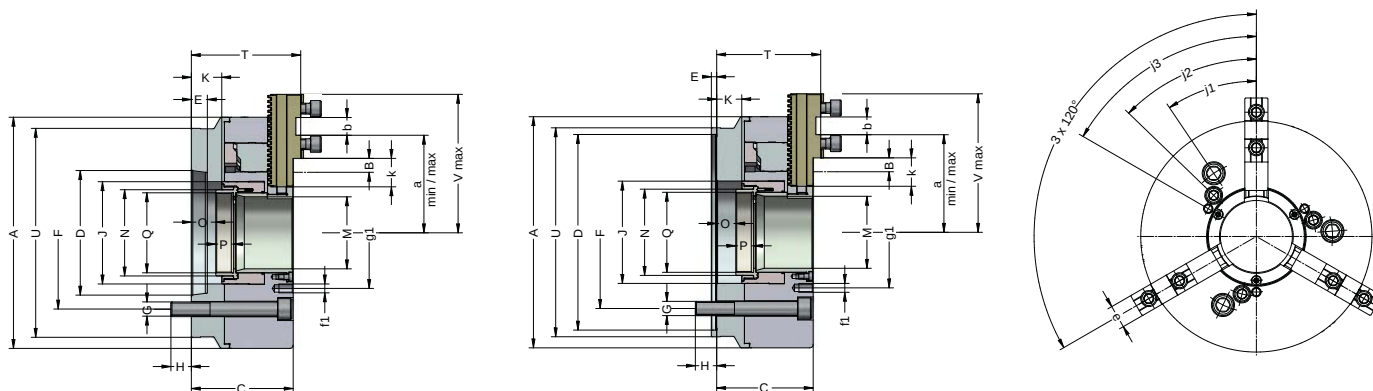


## Quick jaw change system with individual jaw unlocking

The individual locking arrangement means that handling is particularly easy with special large jaw pads when the workpiece requires them: push key till stop, then turn in arrow direction.



# DURO-A RC 3-jaw, individual jaw unlocking, straight teeth



C 15

3-jaw power chucks DURO-A RC with quick jaw change system, with individual jaw unlocking, with straight teeth, Cylindrical centre mount DIN ISO 702-4

| Item No.                                    | 183100               | 183101               | 183104               | 183106               | 183107               | 183108               | 183111               | 183112               | 183114               | 183115               |
|---------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Size A mm                                   | 180                  | 180                  | 215                  | 215                  | 260                  | 260                  | 315                  | 315                  | 400                  | 400                  |
| Jaw travel B mm                             | 6,8                  | 6,8                  | 7,4                  | 7,4                  | 8,2                  | 8,2                  | 8,8                  | 8,8                  | 9,4                  | 9,4                  |
| C mm                                        | 83,9                 | 83,9                 | 95,9                 | 113,9                | 108,5                | 108,5                | 117,7                | 117,7                | 125,7                | 125,7                |
| D mm                                        | ZA 140               | ZA 170               | ZA 170               | KK8                  | ZA 170               | ZA 220               | ZA 220               | ZA 300               | ZA 300               | ZA 380               |
| E mm                                        | 6                    | 6                    | 6                    | 18                   | 6                    | 6                    | 6                    | 6                    | 6                    | 6                    |
| F mm                                        | 104,8                | 133,4                | 133,4                | 171,4                | 133,4                | 171,4                | 171,4                | 235                  | 235                  | 330,2                |
| G mm                                        | M10                  | M12                  | M12                  | M16                  | M12                  | M16                  | M16                  | M20                  | M20                  | M24                  |
| H mm                                        | 18                   | 19,1                 | 24                   | 26                   | 21,5                 | 21                   | 29,8                 | 38,8                 | 39,8                 | 31,6                 |
| J mm                                        | 78                   | 78                   | 93                   | 93                   | 115                  | 115                  | 140                  | 140                  | 175                  | 175                  |
| Wedge stroke K mm                           | 20                   | 20                   | 25                   | 25                   | 28                   | 28                   | 28                   | 28                   | 30                   | 30                   |
| M mm                                        | 53                   | 53                   | 66                   | 66                   | 81                   | 81                   | 104                  | 104                  | 128                  | 128                  |
| N mm                                        | 64,9                 | 64,9                 | 80,9                 | 80,9                 | 96,9                 | 96,9                 | 119,9                | 119,9                | 149,9                | 149,9                |
| O max.                                      | 11,8                 | 11,8                 | 16,8                 | 34,8                 | 19,5                 | 19,5                 | 18                   | 18                   | 17                   | 17                   |
| O min.                                      | -8,2                 | -8,2                 | -8,2                 | 9,8                  | -8,5                 | -8,5                 | -10,2                | -10,2                | -13,2                | -13,2                |
| P mm                                        | 19                   | 19                   | 19                   | 19                   | 20                   | 20                   | 22                   | 22                   | 25                   | 25                   |
| Q mm                                        | M60x1,5              | M60x1,5              | M75x1,5              | M75x1,5              | M90x1,5              | M90x1,5              | M110x2               | M110x2               | M138x2               | M138x2               |
| T mm                                        | 90,3                 | 90,3                 | 100,8                | 118,8                | 117                  | 117                  | 129                  | 129                  | 137                  | 137                  |
| U mm                                        | 155                  | 180                  | 195                  | 205                  | 218                  | 235                  | 285                  | 315                  | 365                  | 400                  |
| V max. mm                                   | 103                  | 103                  | 134                  | 134                  | 155,5                | 155,5                | 181                  | 181                  | 214                  | 214                  |
| a max.                                      | 66                   | 66                   | 90,2                 | 90,2                 | 109,7                | 109,7                | 135,2                | 135,2                | 158,4                | 158,4                |
| a min.                                      | 37,7                 | 37,7                 | 57,9                 | 57,9                 | 76,7                 | 76,7                 | 85,7                 | 85,7                 | 92,9                 | 92,9                 |
| Index adjustment                            | 6(x4,712=28,3)       | 6(x4,712=28,3)       | 7(x4,712=32,98)      | 7(x4,712=32,98)      | 6(x5,5=33)           | 6(x5,5=33)           | 9(x5,5=49,5)         | 9(x5,5=49,5)         | 12(x5,5=66)          | 12(x5,5=66)          |
| b mm                                        | 18                   | 18                   | 20                   | 20                   | 20                   | 20                   | 20                   | 20                   | 26                   | 26                   |
| e mm                                        | 20                   | 20                   | 22                   | 22                   | 26                   | 26                   | 32                   | 32                   | 32                   | 32                   |
| f1                                          | M8/14                | M8/14                | M8/14                | M8/14                | M10/16               | M10/16               | M10/16               | M10/16               | M10/16               | M10/16               |
| g1 mm                                       | 96                   | 96                   | 108                  | 108                  | 125                  | 125                  | 156                  | 156                  | 190                  | 190                  |
| j3                                          | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  |
| j1                                          | 29°                  | 29°                  | 31°                  | 31°                  | 46°                  | 46°                  | 29°                  | 29°                  | 29°                  | 29°                  |
| j2                                          | 36°                  | 36°                  | 39°                  | 39°                  | 34°                  | 34°                  | 40°                  | 40°                  | 40°                  | 40°                  |
| k mm                                        | 9                    | 9                    | 19                   | 19                   | 32                   | 32                   | 43                   | 43                   | 39                   | 39                   |
| Maximum draw bar pull kN                    | 32                   | 32                   | 47                   | 47                   | 63                   | 63                   | 90                   | 90                   | 120                  | 120                  |
| Max. total clamping force approx. kN        | 64                   | 64                   | 100                  | 100                  | 135                  | 135                  | 180                  | 180                  | 240                  | 240                  |
| Max. admissible speed min <sup>-1</sup>     | 6300                 | 6300                 | 6000                 | 6000                 | 4700                 | 4700                 | 4000                 | 4000                 | 3500                 | 3500                 |
| Moment of inertia J kgm <sup>2</sup>        | 0,056                | 0,056                | 0,14                 | 0,15                 | 0,32                 | 0,33                 | 0,8                  | 0,84                 | 2,3                  | 2,4                  |
| Weight without top jaws ca. kg              | 12,7                 | 13,5                 | 21,2                 | 24                   | 34,7                 | 34,8                 | 57,5                 | 60                   | 104                  | 108                  |
| Universal draw tube adapter                 | optionally available | optionally available | optionally available | optionally available | optionally available | optionally available | optionally available | optionally available | optionally available | optionally available |
| Adaption to short taper mount DIN ISO 702-1 | optionally available | optionally available | optionally available | -                    | optionally available | optionally available | optionally available | optionally available | optionally available | optionally available |

# Jaws DURO-A RC

C 21

Base jaws, 3-jaw-set, hardened, straight toothing, incl. cylinder screws, DIN 912-12.9



| Item no. | Chuck Size | Jaw length mm | Jaw width mm |
|----------|------------|---------------|--------------|
| 463548   | 180        | 65            | 20           |
| 463549   | 215        | 85            | 22           |
| 463550   | 260        | 104           | 26           |
| 463551   | 315        | 115           | 32           |
| 463552   | 400        | 125           | 32           |

A 36

Reversible top jaws, 3-jaw set, hardened tongue and groove for external and internal clamping - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 094012   | 180        | 61,5          | 32,5          | 20,4         |
| 094013   | 215        | 70,5          | 38            | 24,4         |
| 094014   | 260/315    | 92            | 50            | 34,4         |
| 094015   | 400        | 107           | 56            | 35,7         |

Additionally or later applied, hardened stepped jaws must be ground out in the chuck.

A28

Unstepped top jaw AB, 3-jaw set standard design, soft - material 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 094008   | 180        | 85            | 36,5          | 20,3         |
| 094009   | 215        | 105           | 40            | 22           |
| 094010   | 260/315    | 125           | 50            | 30,4         |
| 094011   | 400        | 145           | 50            | 34,3         |

C 21

One-piece reversible jaws, 3-jaw set, hardened straight toothing - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 463555   | 180        | 58            | 44            | 20           |
| 463556   | 215        | 75            | 51            | 22           |
| 463557   | 260        | 90            | 60            | 26           |
| 463558   | 315        | 117           | 66            | 32           |
| 463559   | 400        | 137           | 70            | 32           |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft one-piece jaws, 3-jaw set, can be hardened straight toothing, guidance hardened and ground - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 463562 ▲ | 180        | 65            | 55            | 20           |
| 463563 ▲ | 215        | 84            | 65            | 22           |
| 463564   | 260        | 99            | 84            | 26           |
| 463565   | 315        | 121           | 90            | 32           |
| 463566 ▲ | 400        | 148           | 100           | 32           |

# Jaws DURO-A RC

C 21

Reversible claw-type top jaws, standard design tongue and groove, large clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137060   | 180        | 66            | 37,5          | 24           |

C 21

Reversible claw-type top jaws, standard design tongue and groove, small clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137061   | 180        | 66            | 37,5          | 20           |
| 137064   | 215        | 81            | 43            | 24           |
| 137108   | 260/315    | 90            | 55            | 34           |
| 137114   | 400        | 100           | 62            | 34           |

C 21

Reversible claw-type top jaws, standard design tongue and groove, medium clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137062   | 180        | 56            | 37,5          | 20           |
| 137065   | 215        | 66            | 43            | 24           |
| 137109   | 260/315    | 72            | 55            | 34           |
| 137115   | 400        | 86            | 62            | 34           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, small clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137066   | 215        | 79            | 43            | 34           |
| 137110   | 260/315    | 80            | 55            | 50           |
| 137116   | 400        | 93            | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, large clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137067   | 215        | 81            | 43            | 34           |
| 137111   | 260/315    | 90            | 55            | 50           |
| 137117   | 400        | 106           | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, medium clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137068   | 215        | 66            | 43            | 34           |
| 137112   | 260/315    | 72            | 55            | 50           |
| 137118   | 400        | 86            | 62            | 50           |

# Jaws DURO-A RC

C 21

Draw-down jaws, for interchangeable clamping inserts straight toothing, 1 piece, without clamping inserts



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 485522 ▲ | 180        | 65            | 43            | 20           |
| 485524 ▲ | 215        | 85            | 47            | 22           |
| 485526   | 260        | 104           | 58            | 26           |
| 485528 ▲ | 315        | 115           | 63            | 32           |
| 485530 ▲ | 400        | 125           | 63            | 32           |

C 21

Draw-down jaws, additional clamping range, for interchangeable clamping inserts straight toothing, 1 piece, without clamping inserts



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 485523 ▲ | 180        | 72            | 43            | 20           |
| 485525 ▲ | 215        | 95            | 47            | 22           |
| 485527 ▲ | 260        | 104           | 58            | 26           |
| 485529 ▲ | 315        | 123           | 63            | 32           |
| 485531 ▲ | 400        | 134           | 63            | 32           |

C 15

Interchangeable clamping inserts, 1 piece with claws



| Item no. | Chuck Size  |
|----------|-------------|
| 141049   | 180/215     |
| 141052   | 260/315/400 |

C 15

Interchangeable clamping inserts, 1 piece with serrated toothing



| Item no. | Chuck Size  |
|----------|-------------|
| 141050   | 180/215     |
| 141053   | 260/315/400 |

C 15

Interchangeable clamping inserts, 1 piece with heat treatable surface



| Item no. | Chuck Size  |
|----------|-------------|
| 141051   | 180/215     |
| 141054   | 260/315/400 |

# Accessories DURO-A RC

## C 15 Mounting screws



| Item no. | Size        | Contents of delivery | Thread |
|----------|-------------|----------------------|--------|
| 233058   | 180/215     | piece                | M8x20  |
| 233030   | 260/315/400 | piece                | M12x30 |

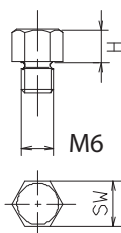
Socket head cap screw to DIN 912, 12.9

## C 15 Special grease F80 for lathe chucks for lubrication and conservation of clamping force



| Item no. | Design    | Contents |
|----------|-----------|----------|
| 308555   | Cartridge | 0,5 kg   |
| 028975   | Tin       | 1 kg     |

## C 15 Changeable workpiece rests (in different lengths)



| Item no. | H mm | M  | Key-width SW |
|----------|------|----|--------------|
| 289188   | 5    | M6 | 9            |
| 138950   | 10   | M6 | 9            |
| 725581   | 15   | M6 | 9            |

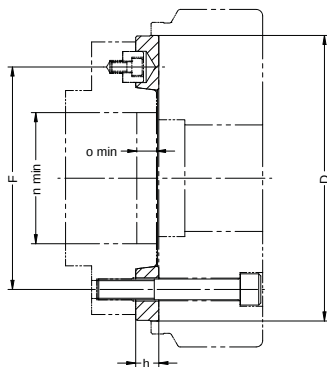
## C15 Grease gun DIN1283



| Item no. | Connection | Contents of delivery                                                                                                              |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1      | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

## C 15

**Intermediate adaptor plate** with cylindrical centre mount DIN ISO 702-4 for DURO-A RC  
Mounting from front to DIN ISO 702-1

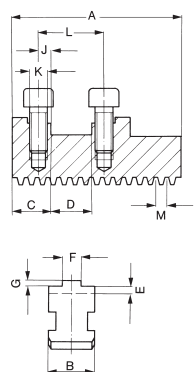


| Item No. | Chuck size | D mm | Spindle nose size | h mm | F mm  | n min. | o min. |
|----------|------------|------|-------------------|------|-------|--------|--------|
| 183131   | 180        | 140  | 5                 | 15   | 104,8 | 65     | 8,5    |
| 183132   | 180        | 170  | 6                 | 16   | 133,4 | 65     | 8,5    |
| 183133   | 215        | 170  | 6                 | 16   | 133,4 | 81     | 8,5    |
| 183134   | 260        | 170  | 6                 | 16   | 133,4 | 97     | 9      |
| 183135   | 260        | 220  | 8                 | 18   | 171,4 | 97     | 9      |
| 183136   | 315        | 220  | 8                 | 18   | 171,4 | 120    | 10     |
| 183137   | 315        | 300  | 11                | 19   | 235   | 120    | 10     |
| 183138   | 400        | 300  | 11                | 19   | 235   | 150    | 14     |
| 183139   | 400        | 380  | 15                | 21   | 330,2 | 150    | 14     |

All fastening parts are included

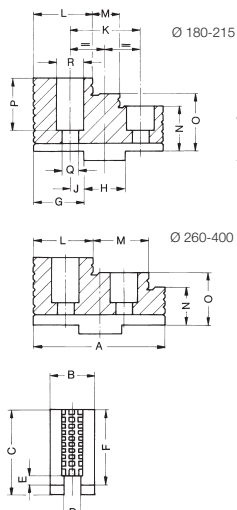
# Jaw dimensions DURO-A RC

## Base jaw GB, with screws



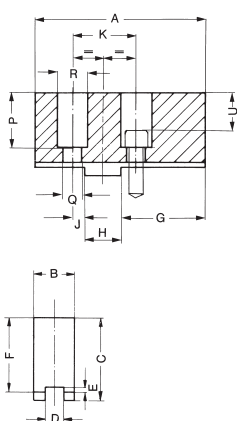
| Chuck size         | 180    | 215    | 260    | 315    | 400    |
|--------------------|--------|--------|--------|--------|--------|
| Type               | 574-11 | 574-11 | 574-11 | 574-11 | 574-11 |
| Item no. 3-jaw set | 463548 | 463549 | 463550 | 463551 | 463552 |
| A                  | 65     | 85     | 104    | 115    | 125    |
| B                  | 20     | 22     | 26     | 32     | 32     |
| C                  | 19     | 23     | 26     | 26     | 30     |
| DH7                | 18     | 20     | 20     | 20     | 26     |
| E                  | 5      | 4,5    | 5,5    | 6      | 6      |
| F                  | 8      | 10     | 12     | 12     | 12     |
| G                  | 2,5    | 2,5    | 3      | 3      | 3      |
| J                  | 7      | 10     | 10     | 10     | 14     |
| K                  | M8     | M8     | M12    | M12    | M12    |
| L                  | 32     | 40     | 40     | 40     | 54     |
| M                  | 4,712  | 4,712  | 5,498  | 5,498  | 5,498  |
| Weight/set kg      | 0,7    | 1,0    | 1,8    | 2,7    | 3,0    |

## Reversible top jaws UB, hardened



| Chuck size         | 180    | 215    | 260    | 315    | 400    |
|--------------------|--------|--------|--------|--------|--------|
| Type               | 003-20 | 003-25 | 003-30 | 003-30 | 003-35 |
| Item no. 3-jaw set | 094012 | 094013 | 094014 | 094014 | 094015 |
| A                  | 61,5   | 70,35  | 92     | 92     | 107    |
| B                  | 20,4   | 24,4   | 34,4   | 34,4   | 37,5   |
| C                  | 37     | 43     | 55     | 55     | 62     |
| D                  | 8      | 10     | 12     | 12     | 12     |
| E                  | 3      | 3,5    | 3,5    | 3,5    | 3,5    |
| F                  | 32,5   | 38     | 50     | 50     | 56     |
| G                  | 22,5   | 25,5   | 30     | 30     | 35,5   |
| H                  | 18     | 20     | 20     | 20     | 26     |
| J                  | 7      | 10     | 10     | 10     | 14     |
| K                  | 32     | 40     | 40     | 40     | 54     |
| L                  | 26,5   | 28,5   | 41     | 41     | 40     |
| M                  | 13     | 14     | 40,5   | 40,5   | 54     |
| N                  | 17,5   | 18     | 22     | 22     | 26     |
| O                  | 25     | 28     | 36     | 36     | 41     |
| P                  | 23,5   | 29     | 39     | 39     | 40     |
| Q                  | 9      | 9      | 14     | 14     | 14     |
| R                  | 15     | 15     | 20     | 20     | 20     |
| Weight/set kg      | 0,6    | 1,0    | 2,4    | 2,4    | 3,4    |

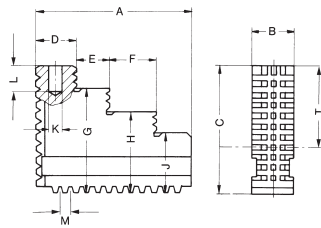
## Soft top jaws AB, material 16MnCr5



| Chuck size         | 180    | 215    | 260    | 315    | 400    |
|--------------------|--------|--------|--------|--------|--------|
| Type               | 002-20 | 002-25 | 002-30 | 002-30 | 002-35 |
| Item no. 3-jaw set | 094008 | 094009 | 094010 | 094010 | 094011 |
| A                  | 85     | 105    | 125    | 125    | 145    |
| B                  | 20,3   | 22     | 30,4   | 30,4   | 34,3   |
| C                  | 41     | 45     | 55     | 55     | 56     |
| D                  | 8      | 10     | 12     | 12     | 12     |
| E                  | 3      | 3,5    | 3,5    | 3,5    | 3,5    |
| F                  | 36,5   | 40     | 50     | 50     | 50     |
| G                  | 42     | 50     | 70     | 70     | 74     |
| H                  | 18     | 20     | 20     | 20     | 26     |
| J                  | 7      | 10     | 10     | 10     | 14     |
| K                  | 32     | 40     | 40     | 40     | 54     |
| P                  | 27,5   | 31     | 39     | 39     | 34     |
| Q                  | 9      | 9      | 14     | 14     | 14     |
| R                  | 15     | 15     | 20     | 20     | 20     |
| U                  | 19,5   | 23     | 27     | 27     | 22     |
| Weight/set kg      | 1,3    | 2,2    | 4,5    | 4,5    | 6,8    |

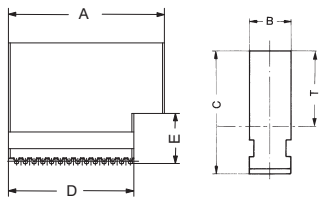
# Jaw dimensions and chucking capacities DURO-A RC

## Reversible one-piece jaws EB



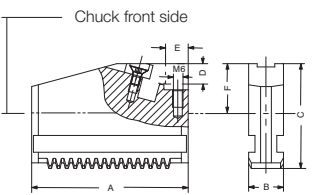
| Chuck size         | 180    | 215    | 260    | 315    | 400    |
|--------------------|--------|--------|--------|--------|--------|
| Type               | 574-27 | 574-27 | 574-27 | 574-27 | 574-27 |
| Item no. 3-jaw set | 463555 | 463556 | 463557 | 463558 | 463559 |
| A                  | 58     | 75     | 90     | 117    | 137    |
| B                  | 20     | 22     | 26     | 32     | 32     |
| C                  | 44     | 51     | 60     | 66     | 70     |
| G                  | 37     | 43     | 50     | 56     | 59     |
| H                  | 30     | 35     | 40     | 46     | 48     |
| J                  | 23     | 27     | 30     | 36     | 37     |
| M                  | 4,712  | 4,712  | 5,498  | 5,498  | 5,498  |
| T                  | 23     | 26     | 31     | 32     | 36     |
| Weight/set kg      | 0,6    | 1,3    | 2,0    | 3,4    | 4,4    |

## Soft one-piece jaws BL, material 16MnCr5



| Chuck size         | 180    | 215    | 260    | 315    | 400    |
|--------------------|--------|--------|--------|--------|--------|
| Type               | 574-37 | 574-37 | 574-37 | 574-37 | 574-37 |
| Item no. 3-jaw set | 463562 | 463563 | 463564 | 463565 | 463566 |
| A                  | 65     | 84     | 99     | 121    | 148    |
| B                  | 20     | 22     | 26     | 32     | 32     |
| C                  | 55     | 65     | 84     | 90     | 100    |
| D                  | 56     | 67,5   | 77     | 93     | 120    |
| E                  | 25     | 27     | 36     | 41     | 41     |
| T                  | 33     | 38     | 53     | 54     | 64     |
| Weight/set kg      | 1,3    | 2,2    | 4,3    | 6,7    | 9,2    |

## Draw-down jaws NBG, Straight toothing, for interchangeable clamping inserts (jaw without insert)

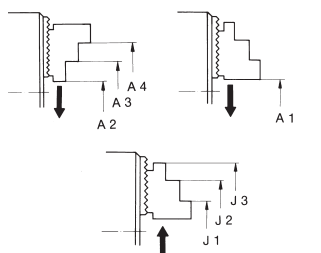


| Chuck size          | 180         | 215     | 260     | 315     | 400     |
|---------------------|-------------|---------|---------|---------|---------|
| Jaw design          | Type 545-30 |         |         |         |         |
| Item no. piece      | 485522      | 485524  | 485526  | 485528  | 485530  |
| A                   | 65          | 85      | 104     | 115     | 125     |
| B                   | 20          | 22      | 26      | 32      | 32      |
| C                   | 43          | 47      | 58      | 63      | 63      |
| D                   | 15          | 15      | 20      | 20      | 20      |
| E                   | 11          | 12      | 12      | 12      | 12      |
| F                   | 22,5        | 22,5    | 29,5    | 29,5    | 29,5    |
| Capacities external | 38-71       | 38-102  | 45-124  | 42-164  | 50-190  |
| Capacities internal | 125-160     | 170-223 | 207-289 | 234-344 | 252-397 |
| Max. swing          | 197         | 251     | 306     | 374     | 425     |

## Draw-down jaws NBG, for interchangeable clamping inserts (jaw without insert), jaws for further clamping ranges

| Chuck size          | 180         | 215     | 260     | 315     | 400     |
|---------------------|-------------|---------|---------|---------|---------|
| Jaw design          | Type 549-30 |         |         |         |         |
| Item no. piece      | 485523      | 485525  | 485527  | 485529  | 485531  |
| A                   | 72          | 95      | 104     | 123     | 134     |
| E                   | 30          | 45      | 50,5    | 61,5    | 67      |
| Capacities external | 78-110      | 113-168 | 123-202 | 146-262 | 160-305 |
| Capacities internal | 98-122      | 114-166 | 131-214 | 136-245 | 140-285 |
| Max. swing          | 197         | 271     | 306     | 390     | 443     |

## Chucking capacities with reversible top jaws UB

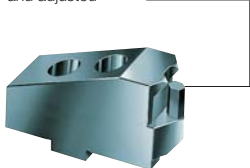


| Chuck size        |              | 180     | 215     | 260     | 315     | 400     |
|-------------------|--------------|---------|---------|---------|---------|---------|
| External chucking | Jaw position |         |         |         |         |         |
|                   | A1           | 11-68   | 18-84   | 27-104  | 25-163  | 28-240  |
|                   | A2           | 33-90   | 59-125  | -       | -       | -       |
|                   | A3           | 77-134  | 115-181 | 83-149  | 111-213 | 98-243  |
|                   | A4           | 103-160 | 143-209 | 165-230 | 193-295 | 206-351 |
| Internal chucking | J1           | 65-122  | 75-141  | 108-185 | 143-245 | 85-230  |
|                   | J2           | 91-148  | 103-169 | 189-266 | 225-327 | 192-337 |
|                   | J3           | 135-192 | 159-225 | -       | -       | -       |

# Jaw dimensions DURO-A RC

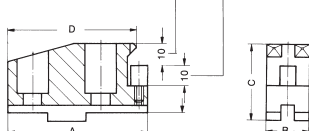
## Reversible claw-type top jaws KB, standard design

Workpiece stop can be changed and adjusted

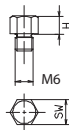


### Jaws for further clamping ranges

-8 mm - size 175



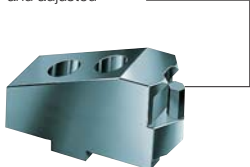
Accessories: interchangeable workpiece stop (different lengths)



| Item no. | 289188 | 138950 | 725581 |
|----------|--------|--------|--------|
| M        | M6     | M6     |        |
| H        | 5      | 10     | 15     |
| SW       |        | 9      |        |

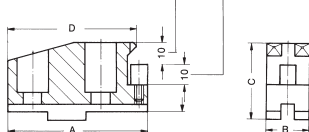
## Reversible claw-type top jaws KB, large design

Workpiece stop can be changed and adjusted



### Jaws for further clamping ranges

8 mm - Size175



| Chuck size          | 180                         |
|---------------------|-----------------------------|
| Jaw design          | Type 544-00 Standard design |
| Item no. piece      | 137060                      |
| A                   | 66                          |
| B                   | 24                          |
| C                   | 37,5                        |
| D                   | 17                          |
| Capacities external | 130-159                     |
| Capacities internal | 53-84                       |

| Chuck size          | 180                         | 215     | 260    | 315     | 400     |
|---------------------|-----------------------------|---------|--------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |        |         |         |
| Item no. piece      | 137061                      | 137064  | 137108 | 137108  | 137114  |
| A                   | 66                          | 81      | 90     | 90      | 100     |
| B                   | 20                          | 24      | 34     | 34      | 34      |
| C                   | 37,5                        | 43      | 55     | 55      | 62      |
| D                   | 61                          | 71      | 78     | 78      | 90      |
| Capacities external | 25-56                       | 41-103  | 48-150 | 48-210  | 53-237  |
| Capacities internal | 136-188                     | 181-255 | 85-238 | 136-300 | 240-435 |

| Chuck size          | 180                         | 215     | 260    | 315     | 400     |
|---------------------|-----------------------------|---------|--------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |        |         |         |
| Item no. piece      | 137062                      | 137065  | 137109 | 137109  | 137115  |
| A                   | 56                          | 66      | 72     | 72      | 86      |
| B                   | 20                          | 24      | 34     | 34      | 34      |
| C                   | 37,5                        | 43      | 55     | 55      | 62      |
| D                   | 29                          | 38,5    | 38     | 38      | 42      |
| Capacities external | 68-120                      | 94-168  | 77-230 | 127-292 | 172-333 |
| Capacities internal | 93-126                      | 116-200 | 85-238 | 136-300 | 168-329 |

| Chuck size          | 215                      | 260    | 315    | 400     |
|---------------------|--------------------------|--------|--------|---------|
| Jaw design          | Type 544-05 Large design |        |        |         |
| Item no. piece      | 137066                   | 137110 | 137110 | 137116  |
| A                   | 79                       | 80     | 80     | 93      |
| B                   | 34                       | 50     | 50     | 50      |
| C                   | 43                       | 55     | 55     | 62      |
| D                   | 29,5                     | 29     | 29     | 30      |
| Capacities external | 121-226                  | -      | -      | -       |
| Capacities internal | 74-172                   | 73-203 | 80-264 | 130-291 |

| Chuck size          | 215                      | 260     | 315     | 400     |
|---------------------|--------------------------|---------|---------|---------|
| Jaw design          | Type 544-05 Large design |         |         |         |
| Item no. piece      | 137067                   | 137111  | 137111  | 137117  |
| A                   | 81                       | 90      | 90      | 106     |
| B                   | 34                       | 50      | 50      | 50      |
| C                   | 43                       | 55      | 55      | 62      |
| D                   | 71                       | 78      | 78      | 90      |
| Capacities external | 44-124                   | 53-152  | 70-214  | 76-237  |
| Capacities internal | 160-274                  | 163-322 | 222-384 | 168-425 |

| Chuck size          | 215                      | 260    | 315     | 400     |
|---------------------|--------------------------|--------|---------|---------|
| Jaw design          | Type 544-05 Large design |        |         |         |
| Item no. piece      | 137068                   | 137112 | 137112  | 137118  |
| A                   | 66                       | 72     | 72      | 86      |
| B                   | 34                       | 50     | 50      | 50      |
| C                   | 43                       | 55     | 55      | 62      |
| D                   | 38,5                     | 38     | 38      | 42      |
| Capacities external | 79-188                   | 77-230 | 127-292 | 172-333 |
| Capacities internal | 105-210                  | 85-238 | 136-300 | 168-329 |



# DURO-NCSE - individual jaw unlocking



## APPLICATION

Premium power chuck with through-hole for flexible use thanks to quick jaw change system for maximum speeds.

## TYPE

Power chuck available with cylindrical centre mount or short taper mount. 3-jaw version.

## CUSTOMER BENEFITS

- Easy handling of the jaw change thanks to individual jaw unlocking
- Universal: jaws can be offset, exchanged or turned
- For very high speeds - low centrifugal force losses thanks to low jaw weights and wedge bar construction
- High clamping precision and clamping force thanks to rigid chuck construction
- Large through-hole for hollow or partially hollow clamping

## TECHNICAL FEATURES

- Power transmission by means of wedge bar system
- The toothing of the wedge bar always engages completely in the jaw
- Base jaws with straight teeth

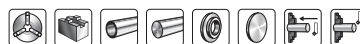
### Note:

The safety key can only be pulled out once the jaws are locked. This setup in combination with the key switch integrated in the machine also prevents the machine spindle from starting up unintentionally when the jaws are unlocked.

### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, base jaws, safety wrench, mounting wrench

**NCSE = NC** machine, quick, individual jaw unlocking



## Gripping force / speed diagram

The loss of gripping force was determined experimentally on a chuck with matched UB top jaws. It is largely independent of the initial gripping force at zero speed.

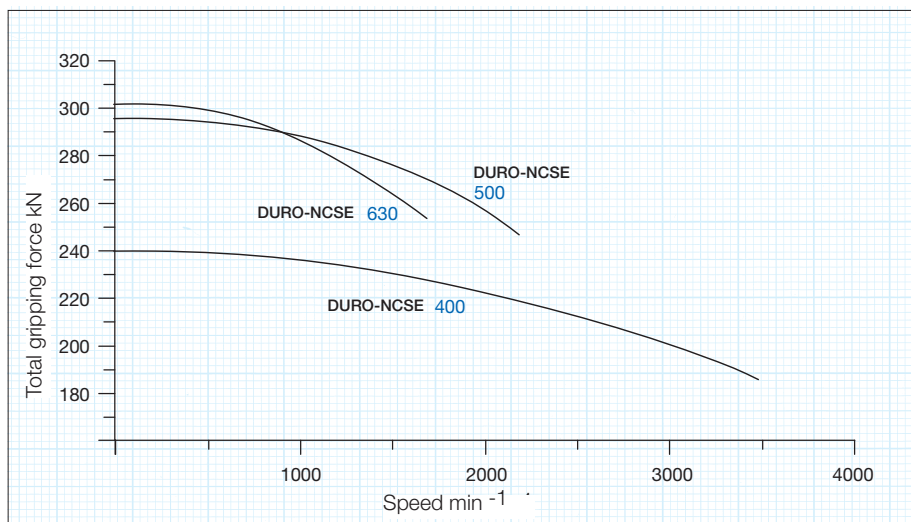
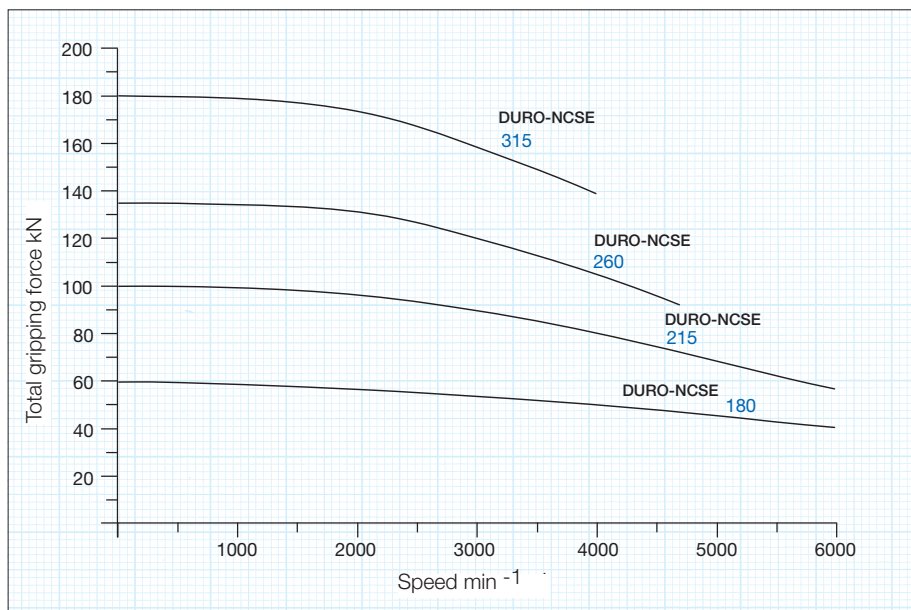
Curve:  
max. centrifugal  
force of top jaw



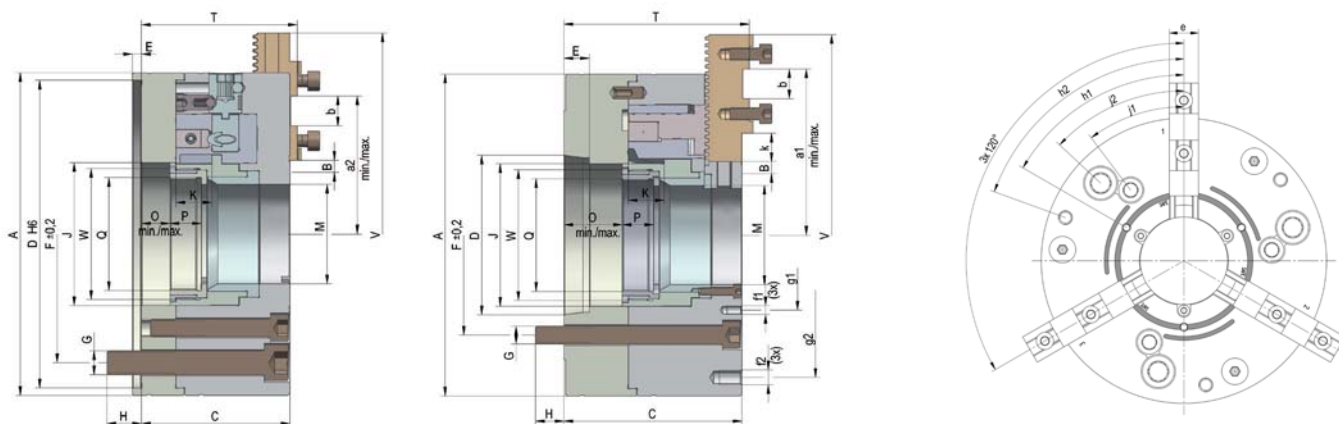
To obtain the specified gripping forces, the chuck must be in a perfect condition and lubricated with F 80 lubricant recommended by RÖHM. Measuring point near chuck face.

## Quick jaw change system with individual jaw unlocking

The individual locking arrangement means that handling is particularly easy with special large jaw pads when the workpiece requires them: push key till stop, then turn in arrow direction.



# DURO-NCSE 3-jaw, individual jaw unlocking, straight teeth



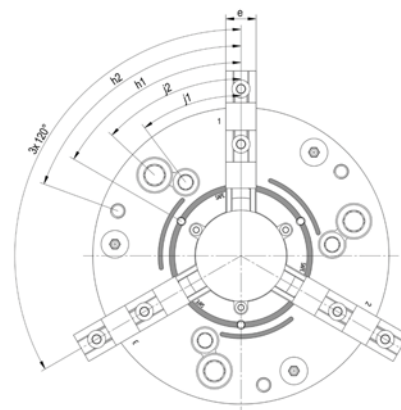
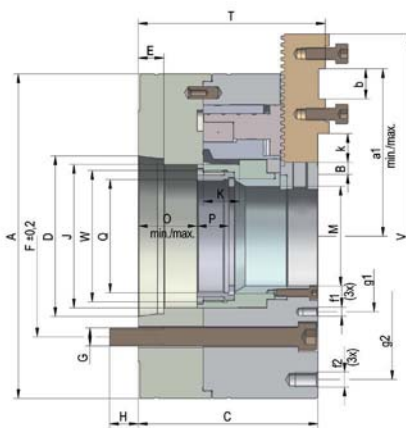
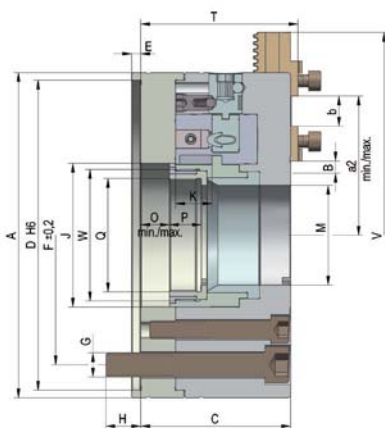
C 15

**3-jaw power chucks DURO-NCSE with quick jaw change system, with individual jaw unlocking, with straight teeth**

Cylindrical centre mount DIN 6353 / short taper mount ISO 702-1 (DIN 55026/55021)

| Item No.                                | 438355 ▲             | 438356 ▲             | 438357 ▲             | 438358 ▲             | 438359 ▲             | 438360 ▲             | 438361 ▲             | 438362 ▲             | 438363 ▲             | 438364 ▲             | 438365 ▲             |
|-----------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Size                                    | 180                  | 180                  | 180                  | 180                  | 215                  | 215                  | 215                  | 260                  | 260                  | 260                  | 260                  |
| Toothing                                | 4,712                | 4,712                | 4,712                | 4,712                | 4,712                | 4,712                | 4,712                | 5,498                | 5,498                | 5,498                | 5,498                |
| A mm                                    | 180                  | 180                  | 180                  | 180                  | 215                  | 215                  | 215                  | 260                  | 260                  | 260                  | 260                  |
| Jaw travel B mm                         | 6,9                  | 6,9                  | 6,9                  | 6,9                  | 7,8                  | 7,8                  | 7,8                  | 8,8                  | 8,8                  | 8,8                  | 8,8                  |
| C mm                                    | 91,8                 | 91,8                 | 104,8                | 105,8                | 105                  | 119                  | 121                  | 121                  | 121                  | 136                  | 138                  |
| D mm                                    | ZA 140               | ZA 170               | KK 5                 | KK 6                 | ZA 170               | KK 6                 | KK 8                 | ZA 170               | ZA 220               | KK 6                 | KK 8                 |
| E mm                                    | 6                    | 6                    | 16                   | 17                   | 6                    | 17                   | 19                   | 6                    | 6                    | 17                   | 19                   |
| F mm                                    | 104,8                | 133,4                | 104,8                | 133,4                | 133,4                | 133,4                | 171,4                | 133,4                | 171,4                | 133,4                | 171,4                |
| G mm                                    | M10                  | M12                  | M10                  | M12                  | M12                  | M12                  | M16                  | M12                  | M16                  | M12                  | M16                  |
| H mm                                    | 14                   | 16                   | 16                   | 17                   | 17                   | 18                   | 24                   | 17                   | 26                   | 17                   | 24                   |
| J mm                                    | 78                   | 78                   | 78                   | 78                   | 95                   | 95                   | 95                   | 115                  | 115                  | 110                  | 110                  |
| Wedge stroke K mm                       | 21                   | 21                   | 21                   | 21                   | 24                   | 24                   | 24                   | 28                   | 28                   | 28                   | 28                   |
| M mm                                    | 53                   | 53                   | 53                   | 53                   | 66                   | 66                   | 66                   | 81                   | 81                   | 81                   | 81                   |
| O min.                                  | 1                    | 1                    | 14                   | 15                   | 1                    | 15                   | 17                   | 1                    | 1                    | 15                   | 17                   |
| O max.                                  | 22                   | 22                   | 35                   | 36                   | 25                   | 39                   | 51                   | 29                   | 29                   | 43                   | 45                   |
| P mm                                    | 17                   | 17                   | 17                   | 17                   | 21                   | 21                   | 21                   | 22                   | 22                   | 22                   | 22                   |
| Q mm                                    | M60x1,5              | M60x1,5              | M60x1,5              | M60x1,5              | M75x1,5              | M75x1,5              | M75x1,5              | M90x1,5              | M90x1,5              | M90x1,5              | M90x1,5              |
| T mm                                    | 98,2                 | 98,2                 | 111,2                | 112,2                | 109,9                | 123,9                | 125,9                | 129,5                | 129,5                | 144,5                | 146,5                |
| V max. mm                               | 213                  | 213                  | 213                  | 213                  | 269                  | 269                  | 269                  | 313                  | 313                  | 313                  | 313                  |
| W mm                                    | M72x1,5              | M72x1,5              | M72x1,5              | M72x1,5              | M87x2                | M87x2                | M87x2                | M105x1,5             | M105x1,5             | M105x1,5             | M105x1,5             |
| a min.                                  | 59,1                 | 59,1                 | 59,1                 | 59,1                 | 77,9                 | 77,9                 | 77,9                 | 96,8                 | 96,8                 | 96,8                 | 96,8                 |
| a max.                                  | 87,4                 | 87,4                 | 87,4                 | 87,4                 | 110,9                | 110,9                | 110,9                | 129,8                | 129,8                | 129,8                | 129,8                |
| a 2 min.                                | 50,1                 | 50,1                 | 50,1                 | 50,1                 | 58,9                 | 58,9                 | 58,9                 | 64,8                 | 64,8                 | 64,8                 | 64,8                 |
| a 2 max.                                | 78,4                 | 78,4                 | 78,4                 | 78,4                 | 91,9                 | 91,9                 | 91,9                 | 97,8                 | 97,8                 | 97,8                 | 97,8                 |
| Index adjustment                        | 6 (x4,712 =28,3)     | 6 (x4,712 =28,3)     | 6 (x4,712 =28,3)     | 6 (x4,712 =28,3)     | 7 (x4,712 =32,98)    | 7 (x4,712 =32,98)    | 7 (x4,712 =32,98)    | 6 (x5,5 =33)         | 6 (x5,5 =33)         | 6 (x5,5 =33)         | 6 (x5,5 =33)         |
| b mm                                    | 18                   | 18                   | 18                   | 18                   | 20                   | 20                   | 20                   | 20                   | 20                   | 20                   | 20                   |
| e mm                                    | 20                   | 20                   | 20                   | 20                   | 22                   | 22                   | 22                   | 26                   | 26                   | 26                   | 26                   |
| f1                                      | M6/10                | M6/10                | M6/10                | M6/10                | M6/10                | M6/10                | M6/10                | M8/15                | M8/15                | M8/15                | M8/15                |
| f2                                      | M8/15                | M8/15                | M8/15                | M8/15                | M10/15               | M10/15               | M10/15               | M10/15               | M10/15               | M10/15               | M10/15               |
| g1 mm                                   | 83                   | 83                   | 83                   | 83                   | 94                   | 100                  | 100                  | 124                  | 124                  | 124                  | 124                  |
| g2 mm                                   | 155                  | 155                  | 155                  | 155                  | 190                  | 190                  | 190                  | 220                  | 220                  | 220                  | 220                  |
| h1                                      | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  | 60°                  |
| h2                                      | 60°                  | 60°                  | 60°                  | 60°                  | 70°                  | 70°                  | 70°                  | 77°                  | 77°                  | 77°                  | 77°                  |
| j1                                      | 35°                  | 35°                  | 35°                  | 35°                  | 37°                  | 37°                  | 37°                  | 30°                  | 30°                  | 30°                  | 30°                  |
| j2                                      | 45°                  | 45°                  | 45°                  | 45°                  | 47°                  | 47°                  | 47°                  | 40°                  | 40°                  | 40°                  | 40°                  |
| k mm                                    | 9                    | 9                    | 9                    | 9                    | 19                   | 19                   | 19                   | 32                   | 32                   | 32                   | 32                   |
| Maximum draw bar pull kN                | 33                   | 33                   | 33                   | 33                   | 52                   | 53                   | 53                   | 73                   | 73                   | 73                   | 73                   |
| Max. total clamping force approx. kN    | 60                   | 60                   | 60                   | 60                   | 95                   | 100                  | 100                  | 135                  | 135                  | 135                  | 135                  |
| Max. admissible speed min <sup>-1</sup> | 6300                 | 6300                 | 6300                 | 6300                 | 6000                 | 6000                 | 6000                 | 4700                 | 4700                 | 4700                 | 4700                 |
| Weight without jaws approx. kg          | 18                   | 18                   | 18                   | 18                   | 24                   | 26                   | 26                   | 44                   | 44                   | 47                   | 49                   |
| Actuating cylinders (recommended)       | OVS-105 / SZS-52/130 | OVS-105 / SZS-52/130 | OVS-105 / SZS-52/130 | OVS-105 / SZS-52/130 | OVS-130 / SZS-67/130 | OVS-130 / SZS-67/130 | OVS-130 / SZS-67/130 | OVS-150 / SZS-86/200 | OVS-150 / SZS-86/200 | OVS-150 / SZS-85/200 | OVS-150 / SZS-85/200 |

# DURO-NCSE 3-jaw, individual jaw unlocking, straight teeth



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**3-jaw power chucks DURO-NCSE with quick jaw change system, with individual jaw unlocking, with straight teeth**

Cylindrical centre mount DIN 6353 / short taper mount ISO 702-1 (DIN 55026/55021)

| Item No.                                | 438366                | 438367 ▲              | 438368                | 438369                | 438370 ▲              | 438371 ▲              | 438372                | 438373                | 438374 ▲   | 438375 ▲   | 438376 ▲   | 438377 ▲   | 438378 ▲   |
|-----------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|------------|------------|------------|------------|
| Size                                    | 315                   | 315                   | 315                   | 315                   | 400                   | 400                   | 400                   | 400                   | 500        | 500        | 500        | 630        | 630        |
| Toothings                               | 5,498                 | 5,498                 | 5,498                 | 5,498                 | 5,498                 | 5,498                 | 5,498                 | 5,498                 | 7          | 7          | 7          | 7          | 7          |
| A mm                                    | 315                   | 315                   | 315                   | 315                   | 400                   | 400                   | 400                   | 400                   | 500        | 500        | 500        | 630        | 630        |
| Jaw travel B mm                         | 9,1                   | 9,1                   | 9,1                   | 9,1                   | 9,8                   | 9,8                   | 9,8                   | 9,8                   | 11,4       | 11,4       | 11,4       | 12,6       | 12,6       |
| C mm                                    | 130                   | 130                   | 146                   | 148                   | 138                   | 138                   | 156                   | 157                   | 162        | 180        | 181        | 179,5      | 198,5      |
| D mm                                    | ZA 220                | ZA 300                | KK 8                  | KK 11                 | ZA 300                | ZA 380                | KK 11                 | KK 15                 | ZA 380     | KK 11      | KK 15      | ZA 520     | KK 15      |
| E mm                                    | 6                     | 6                     | 19                    | 21                    | 8                     | 8                     | 21                    | 23                    | 8          | 21         | 23         | 8          | 23         |
| F mm                                    | 171,4                 | 235                   | 171,4                 | 235                   | 235                   | 330,2                 | 235                   | 330,2                 | 330,2      | 235        | 330,2      | 463,6      | 330,2      |
| G mm                                    | M16                   | M20                   | M16                   | M20                   | M20                   | M24                   | M20                   | M24                   | M24        | M20        | M24        | M24        | M24        |
| H mm                                    | 27                    | 27                    | 26                    | 24                    | 26                    | 36,5                  | 28                    | 37,5                  | 36         | 30         | 37         | 36         | 37         |
| J mm                                    | 140                   | 140                   | 140                   | 140                   | 175,5                 | 175,5                 | 175,5                 | 175,5                 | 207        | 207        | 207        | 235        | 235        |
| Wedge stroke K mm                       | 28                    | 28                    | 28                    | 28                    | 30                    | 30                    | 30                    | 30                    | 35         | 35         | 35         | 40         | 40         |
| M mm                                    | 104                   | 104                   | 104                   | 104                   | 128                   | 128                   | 128                   | 128                   | 155        | 155        | 155        | 167        | 167        |
| O min.                                  | 1,5                   | 1,5                   | 17,5                  | 19,5                  | 1,5                   | 1,5                   | 19,5                  | 20,5                  | 1,5        | 19,5       | 20,5       | 1,5        | 20,5       |
| O max.                                  | 29,5                  | 29,5                  | 45,5                  | 47,5                  | 31,5                  | 31,5                  | 49,5                  | 50,5                  | 36,5       | 54,5       | 55,5       | 41,5       | 60,5       |
| P mm                                    | 25                    | 25                    | 25                    | 25                    | 29                    | 29                    | 29                    | 29                    | 29         | 29         | 29         | 35         | 35         |
| Q mm                                    | M110x2                | M110x2                | M110x2                | M110x2                | M138x2                | M138x2                | M138x2                | M138x2                | M165x2     | M165x2     | M165x2     | M180x2     | M180x2     |
| T mm                                    | 139                   | 139                   | 155                   | 157                   | 147                   | 147                   | 165                   | 166                   | 172        | 190        | 191        | 189,5      | 208,5      |
| V max. mm                               | 351                   | 351                   | 351                   | 351                   | 424                   | 424                   | 424                   | 424                   | 524        | 524        | 524        | 643        | 643        |
| W mm                                    | M130x1,5              | M130x1,5              | M130x1,5              | M130x1,5              | M160x2                | M160x2                | M160x2                | M160x2                | M188x2     | M188x2     | M188x2     | M215x2     | M215x2     |
| a min.                                  | 110,4                 | 110,4                 | 110,4                 | 110,4                 | 115,5                 | 115,5                 | 115,5                 | 115,5                 | 155,9      | 155,9      | 155,9      | 194,4      | 194,4      |
| a max.                                  | 159,9                 | 159,9                 | 159,9                 | 159,9                 | 181,5                 | 181,5                 | 181,5                 | 181,5                 | 225,9      | 225,9      | 225,9      | 285,4      | 285,4      |
| a 2 min.                                | 66,4                  | 66,4                  | 66,4                  | 66,4                  | 76,5                  | 76,5                  | 76,5                  | 76,5                  | 94,9       | 94,9       | 94,9       | 94,4       | 94,4       |
| a 2 max.                                | 115,9                 | 115,9                 | 115,9                 | 115,9                 | 142,5                 | 142,5                 | 142,5                 | 142,5                 | 164,9      | 164,9      | 164,9      | 185,4      | 185,4      |
| Index adjustment                        | 9<br>(x5,5=49,5)      | 9<br>(x5,5=49,5)      | 9<br>(x5,5=49,5)      | 9<br>(x5,5=49,5)      | 12<br>(x5,5=66)       | 12<br>(x5,5=66)       | 12<br>(x5,5=66)       | 12<br>(x5,5=66)       | 10 (x7=70) | 10 (x7=70) | 10 (x7=70) | 13 (x7=91) | 13 (x7=91) |
| b mm                                    | 20                    | 20                    | 20                    | 20                    | 26                    | 26                    | 26                    | 26                    | 30         | 30         | 30         | 30         | 30         |
| e mm                                    | 32                    | 32                    | 32                    | 32                    | 32                    | 32                    | 32                    | 32                    | 45         | 45         | 45         | 45         | 45         |
| f1                                      | M8/15                 | M8/15                 | M8/15                 | M8/15                 | M8/15                 | M8/15                 | M8/15                 | M8/15                 | M8/16      | M8/16      | M8/16      | M8/16      | M8/16      |
| f2                                      | M12/20                | M12/20                | M12/20                | M12/20                | M16/20                | M16/20                | M16/20                | M16/20                | M20/37     | M20/37     | M20/37     | M16/30     | M16/30     |
| g1 mm                                   | 140                   | 140                   | 140                   | 140                   | 170                   | 170                   | 170                   | 170                   | 200        | 200        | 200        | 245        | 245        |
| g2 mm                                   | 268                   | 238                   | 268                   | 268                   | 330,2                 | 330,2                 | 330,2                 | 330,2                 | 420        | 420        | 420        | 520        | 520        |
| h1                                      | 60°                   | 60°                   | 60°                   | 60°                   | 60°                   | 60°                   | 60°                   | 60°                   | 60°        | 60°        | 60°        | 60°        | 60°        |
| h2                                      | 77°                   | 77°                   | 77°                   | 77°                   | 70°                   | 70°                   | 70°                   | 70°                   | 77°        | 77°        | 77°        | 47°        | 47°        |
| j1                                      | 40°                   | 40°                   | 40°                   | 40°                   | 42,5°                 | 42,5°                 | 42,5°                 | 42,5°                 | 30°        | 30°        | 30°        | 45°        | 45°        |
| j2                                      | 45°                   | 45°                   | 45°                   | 45°                   | 45°                   | 45°                   | 45°                   | 45°                   | 45°        | 45°        | 45°        | 60°        | 60°        |
| k mm                                    | 43                    | 43                    | 43                    | 43                    | 39                    | 39                    | 39                    | 39                    | 57         | 57         | 57         | 97         | 97         |
| Maximum draw bar pull kN                | 100                   | 100                   | 100                   | 100                   | 133                   | 133                   | 133                   | 133                   | 173        | 173        | 173        | 173        | 173        |
| Max. total clamping force approx. kN    | 180                   | 180                   | 180                   | 180                   | 240                   | 240                   | 240                   | 240                   | 305        | 305        | 305        | 312        | 312        |
| Max. admissible speed min <sup>-1</sup> | 4000                  | 4000                  | 4000                  | 4000                  | 3500                  | 3500                  | 3500                  | 3500                  | 2200       | 2200       | 2200       | 1700       | 1700       |
| Moment of inertia J kgm <sup>2</sup>    | 0,96                  | 0,96                  | 0,96                  | 0,96                  | 2,67                  | 2,67                  | 2,67                  | 2,67                  | 16,1       | 16,1       | 16,1       | 22,8       | 22,8       |
| Weight without jaws approx. kg          | 66                    | 66                    | 69                    | 70                    | 110                   | 110                   | 118                   | 121                   | 216        | 233        | 235        | 393        | 430        |
| Actuating cylinders (recommended)       | OVS-200 / SZS-110/230 | OVS-200 / SZS-110/230 | OVS-200 / SZS-110/250 | OVS-200 / SZS-110/250 | OVS-200 / SZS-127/325 | OVS-200 / SZS-127/325 | OVS-200 / SZS-127/325 | OVS-200 / SZS-127/325 | OVS-200    | OVS-200    | OVS-200    | OVS-200    | OVS-200    |

Balancing quality G 6.3 in acc. with DIN 1940

# Jaws DURO-NCSE

C 21

Base jaws, 3-jaw-set, hardened straight toothing, incl. cylinder screws, DIN 912-12.9



| Item no. | Chuck Size | Jaw length mm | Jaw width mm |
|----------|------------|---------------|--------------|
| 463548   | 180        | 65            | 20           |
| 463549   | 215        | 85            | 22           |
| 463550   | 260        | 104           | 26           |
| 463551   | 315        | 115           | 32           |
| 463552   | 400        | 125           | 32           |
| 463553   | 500        | 160           | 45           |
| 463554 ▲ | 630        | 200           | 45           |

A 36

Reversible top jaws, 3-jaw set, hardened tongue and groove for external and internal clamping - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 094012   | 180        | 61,5          | 32,5          | 20,4         |
| 094013   | 215        | 70,5          | 38            | 24,4         |
| 094014   | 260/315    | 92            | 50            | 34,4         |
| 094015   | 400        | 107           | 56            | 35,7         |
| 094045   | 500/630    | 130           | 72            | 50,4         |

Additionally or later applied, hardened stepped jaws must be ground out in the chuck.

A28

Unstepped top jaw AB, 3-jaw set standard design, soft, material 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 094008   | 180        | 85            | 36,5          | 20,3         |
| 094009   | 215        | 105           | 40            | 22           |
| 094010   | 260/315    | 125           | 50            | 30,4         |
| 094011   | 400        | 145           | 50            | 34,3         |
| 094046   | 500/630    | 180           | 73            | 50,5         |

C 21

One-piece reversible jaws, 3-jaw set, hardened, straight toothing - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 463555   | 180        | 58            | 44            | 20           |
| 463556   | 215        | 75            | 51            | 22           |
| 463557   | 260        | 90            | 60            | 26           |
| 463558   | 315        | 117           | 66            | 32           |
| 463559   | 400        | 137           | 70            | 32           |
| 463560 ▲ | 500        | 176           | 93            | 45           |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft one-piece jaws, 3-jaw set, can be hardened, straight toothing, guidance hardened and ground - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 463562 ▲ | 180        | 65            | 55            | 20           |
| 463563 ▲ | 215        | 84            | 65            | 22           |
| 463564   | 260        | 99            | 84            | 26           |
| 463565   | 315        | 121           | 90            | 32           |
| 463566 ▲ | 400        | 148           | 100           | 32           |
| 463567 ▲ | 500        | 175           | 124           | 45           |
| 463568 ▲ | 630        | 230           | 134           | 45           |

# Jaws DURO-NCSE

C 21

Reversible claw-type top jaws, standard design tongue and groove, large clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137060   | 180        | 66            | 37,5          | 24           |
| 137119   | 500/630    | 124           | 62            | 50           |

C 21

Reversible claw-type top jaws, standard design tongue and groove, small clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137061   | 180        | 66            | 37,5          | 20           |
| 137064   | 215        | 81            | 43            | 24           |
| 137108   | 260/315    | 90            | 55            | 34           |
| 137114   | 400        | 100           | 62            | 34           |
| 137120   | 500/630    | 124           | 62            | 50           |

C 21

Reversible claw-type top jaws, standard design tongue and groove, medium clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137062   | 180        | 56            | 37,5          | 20           |
| 137065   | 215        | 66            | 43            | 24           |
| 137109   | 260/315    | 72            | 55            | 34           |
| 137115   | 400        | 86            | 62            | 34           |
| 137121   | 500/630    | 100           | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, small clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137066   | 215        | 79            | 43            | 34           |
| 137110   | 260/315    | 80            | 55            | 50           |
| 137116   | 400        | 93            | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, large clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137067   | 215        | 81            | 43            | 34           |
| 137111   | 260/315    | 90            | 55            | 50           |
| 137117   | 400        | 106           | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, medium clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137068   | 215        | 66            | 43            | 34           |
| 137112   | 260/315    | 72            | 55            | 50           |
| 137118   | 400        | 86            | 62            | 50           |

# Jaws DURO-NCSE

C 21

Draw-down jaws, for interchangeable clamping inserts straight toothing, 1 piece, without clamping inserts



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 485522 ▲ | 180        | 65            | 43            | 20           |
| 485524 ▲ | 215        | 85            | 47            | 22           |
| 485526   | 260        | 104           | 58            | 26           |
| 485528 ▲ | 315        | 115           | 63            | 32           |
| 485530 ▲ | 400        | 125           | 63            | 32           |
| 485532 ▲ | 500        | 160           | 81            | 45           |

C 21

Draw-down jaws, additional clamping range, for interchangeable clamping inserts straight toothing, 1 piece, without clamping inserts



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 485523 ▲ | 180        | 72            | 43            | 20           |
| 485525 ▲ | 215        | 95            | 47            | 22           |
| 485527 ▲ | 260        | 104           | 58            | 26           |
| 485529 ▲ | 315        | 123           | 63            | 32           |
| 485531 ▲ | 400        | 134           | 63            | 32           |
| 485533 ▲ | 500        | 160           | 81            | 45           |

C 15

Interchangeable clamping inserts, 1 piece with claws



| Item no. | Chuck Size  |
|----------|-------------|
| 141049   | 180/215     |
| 141052   | 260/315/400 |
| 141055 ▲ | 500         |

C 15

Interchangeable clamping inserts, 1 piece with serrated toothing



| Item no. | Chuck Size  |
|----------|-------------|
| 141050   | 180/215     |
| 141053   | 260/315/400 |
| 141056 ▲ | 500         |

C 15

Interchangeable clamping inserts, 1 piece with heat treatable surface



| Item no. | Chuck Size  |
|----------|-------------|
| 141051   | 180/215     |
| 141054   | 260/315/400 |
| 141057 ▲ | 500         |

# Accessories DURO-NCSE

## C 15 Mounting screws



| Item no. | Size        | Contents of delivery | Thread |
|----------|-------------|----------------------|--------|
| 233058   | 180/215     | piece                | M8x20  |
| 233030   | 260/315/400 | piece                | M12x30 |
| 216569   | 500/630     | piece                | M16x40 |

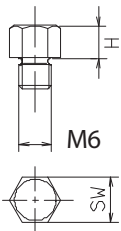
Socket head cap screw to DIN 912, 12.9

## C 15 Special grease F80 for lathe chucks for lubrication and conservation of clamping force



| Item no. | Design    | Contents |
|----------|-----------|----------|
| 308555   | Cartridge | 0,5 kg   |
| 028975   | Tin       | 1 kg     |

## C 15 Changeable workpiece rests (in different lengths)



| Item no. | H mm | M  | Key-width SW |
|----------|------|----|--------------|
| 289188   | 5    | M6 | 9            |
| 138950   | 10   | M6 | 9            |
| 725581   | 15   | M6 | 9            |

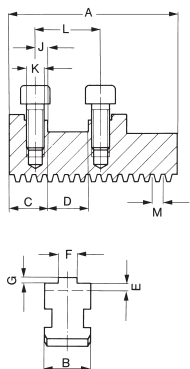
## C15 Grease gun DIN1283



| Item no. | Con-<br>nection | Contents of delivery                                                                                                              |
|----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1           | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

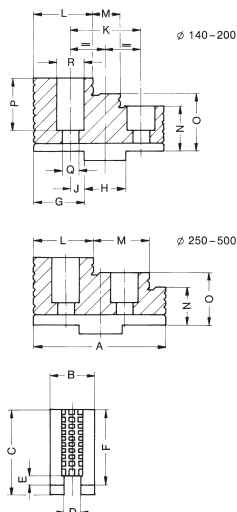
# Jaw dimensions DURO-NCSE

Base jaw GB, with screws



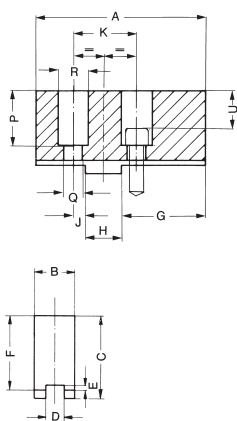
| Chuck size         | 180    | 215    | 260    | 315    | 400    | 500    | 630    |
|--------------------|--------|--------|--------|--------|--------|--------|--------|
| Type               | 574-11 | 574-11 | 574-11 | 574-11 | 574-11 | 574-11 | 574-11 |
| Item no. 3-jaw set | 463548 | 463549 | 463550 | 463551 | 463552 | 463553 | 463554 |
| A                  | 65     | 85     | 104    | 115    | 125    | 160    | 200    |
| B                  | 20     | 22     | 26     | 32     | 32     | 45     | 45     |
| C                  | 19     | 23     | 26     | 26     | 30     | 35     | 35     |
| DH7                | 18     | 20     | 20     | 20     | 26     | 30     | 30     |
| E                  | 5      | 4,5    | 5,5    | 6      | 6      | 9      | 9      |
| F                  | 8      | 10     | 12     | 12     | 12     | 16     | 18     |
| G                  | 2,5    | 2,5    | 3      | 3      | 3      | 4      | 4      |
| J                  | 7      | 10     | 10     | 10     | 14     | 15     | 15     |
| K                  | M8     | M8     | M12    | M12    | M12    | M16    | M16    |
| L                  | 32     | 40     | 40     | 40     | 54     | 60     | 60     |
| M                  | 4,712  | 4,712  | 5,498  | 5,498  | 5,498  | 7      | 7      |
| Weight/set kg      | 0,7    | 1,0    | 1,8    | 2,7    | 3,0    | 7,1    | 9      |

Reversible top jaws UB, hardened



| Chuck size         | 180    | 215    | 260    | 315    | 400    | 500    | 630    |
|--------------------|--------|--------|--------|--------|--------|--------|--------|
| Type               | 003-20 | 003-25 | 003-30 | 003-30 | 003-35 | 003-40 | 003-40 |
| Item no. 3-jaw set | 094012 | 094013 | 094014 | 094014 | 094015 | 094045 | 094045 |
| A                  | 61,5   | 70,35  | 92     | 92     | 107    | 130    | 130    |
| B                  | 20,4   | 24,4   | 34,4   | 34,4   | 37,5   | 50,4   | 50,4   |
| C                  | 37     | 43     | 55     | 55     | 62     | 79     | 79     |
| D                  | 8      | 10     | 12     | 12     | 12     | 18     | 18     |
| E                  | 3      | 3,5    | 3,5    | 3,5    | 3,5    | 4,5    | 4,5    |
| F                  | 32,5   | 38     | 50     | 50     | 56     | 72     | 72     |
| G                  | 22,5   | 25,5   | 30     | 30     | 35,5   | 41,4   | 41,4   |
| H                  | 18     | 20     | 20     | 20     | 26     | 30     | 30     |
| J                  | 7      | 10     | 10     | 10     | 14     | 15     | 15     |
| K                  | 32     | 40     | 40     | 40     | 54     | 60     | 60     |
| L                  | 26,5   | 28,5   | 41     | 41     | 40     | 51     | 51     |
| M                  | 13     | 14     | 40,5   | 40,5   | 54     | 71     | 71     |
| N                  | 17,5   | 18     | 22     | 22     | 26     | 32     | 32     |
| O                  | 25     | 28     | 36     | 36     | 41     | 52     | 52     |
| P                  | 23,5   | 29     | 39     | 39     | 40     | 57     | 57     |
| Q                  | 9      | 9      | 14     | 14     | 14     | 18     | 18     |
| R                  | 15     | 15     | 20     | 20     | 20     | 26     | 26     |
| Weight/set kg      | 0,6    | 1,0    | 2,4    | 2,4    | 3,4    | 7,6    | 7,6    |

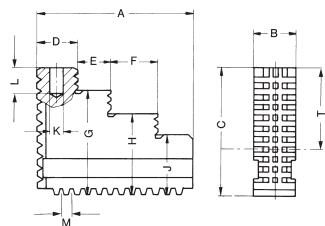
Soft top jaws AB, material 16MnCr5



| Chuck size         | 180    | 215    | 260    | 315    | 400    | 500    | 630    |
|--------------------|--------|--------|--------|--------|--------|--------|--------|
| Type               | 002-20 | 002-25 | 002-30 | 002-30 | 002-35 | 002-40 | 002-40 |
| Item no. 3-jaw set | 094008 | 094009 | 094010 | 094010 | 094011 | 094046 | 094046 |
| A                  | 85     | 105    | 125    | 125    | 145    | 180    | 180    |
| B                  | 20,3   | 22     | 30,4   | 30,4   | 34,3   | 50,5   | 50,5   |
| C                  | 41     | 45     | 55     | 55     | 56     | 80     | 80     |
| D                  | 8      | 10     | 12     | 12     | 12     | 18     | 18     |
| E                  | 3      | 3,5    | 3,5    | 3,5    | 3,5    | 4,5    | 4,5    |
| F                  | 36,5   | 40     | 50     | 50     | 50     | 73     | 73     |
| G                  | 42     | 50     | 70     | 70     | 74     | 100    | 100    |
| H                  | 18     | 20     | 20     | 20     | 26     | 30     | 30     |
| J                  | 7      | 10     | 10     | 10     | 14     | 15     | 15     |
| K                  | 32     | 40     | 40     | 40     | 54     | 60     | 60     |
| P                  | 27,5   | 31     | 39     | 39     | 34     | 58     | 58     |
| Q                  | 9      | 9      | 14     | 14     | 14     | 18     | 18     |
| R                  | 15     | 15     | 20     | 20     | 20     | 26     | 26     |
| U                  | 19,5   | 23     | 27     | 27     | 22     | 42     | 42     |
| Weight/set kg      | 1,3    | 2,2    | 4,5    | 4,5    | 6,8    | 13,2   | 13,2   |

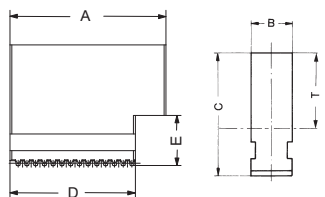
# Jaw dimensions and chucking capacities DURO-NCSE

## Reversible one-piece jaws EB



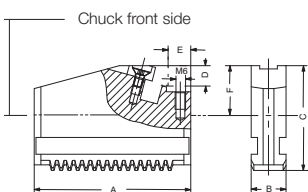
| Chuck size         | 180    | 215    | 260    | 315    | 400    | 500/630 |
|--------------------|--------|--------|--------|--------|--------|---------|
| Type               | 574-27 | 574-27 | 574-27 | 574-27 | 574-27 | 574-27  |
| Item no. 3-jaw set | 463555 | 463556 | 463557 | 463558 | 463559 | 463560  |
| A                  | 58     | 75     | 90     | 117    | 137    | 176     |
| B                  | 20     | 22     | 26     | 32     | 32     | 45      |
| C                  | 44     | 51     | 60     | 66     | 70     | 93      |
| G                  | 37     | 43     | 50     | 56     | 59     | 73      |
| H                  | 30     | 35     | 40     | 46     | 48     | -       |
| J                  | 23     | 27     | 30     | 36     | 37     | 53      |
| M                  | 4,712  | 4,712  | 5,498  | 5,498  | 5,498  | 7       |
| T                  | 23     | 26     | 31     | 32     | 36     | 46      |
| Weight/set kg      | 0,6    | 1,3    | 2,0    | 3,4    | 4,4    | 11,7    |

## Soft one-piece jaws BL, material 16MnCr5



| Chuck size         | 180    | 215    | 260    | 315    | 400    | 500    | 630    |
|--------------------|--------|--------|--------|--------|--------|--------|--------|
| Type               | 574-37 | 574-37 | 574-37 | 574-37 | 574-37 | 574-37 | 574-37 |
| Item no. 3-jaw set | 463562 | 463563 | 463564 | 463565 | 463566 | 463567 | 463568 |
| A                  | 65     | 84     | 99     | 121    | 148    | 175    | 230    |
| B                  | 20     | 22     | 26     | 32     | 32     | 45     | 45     |
| C                  | 55     | 65     | 84     | 90     | 100    | 124    | 134    |
| D                  | 56     | 67,5   | 77     | 93     | 120    | 154    | 200    |
| E                  | 25     | 27     | 36     | 41     | 41     | 54     | 54     |
| T                  | 33     | 38     | 53     | 54     | 64     | 77     | 87     |
| Weight/set kg      | 1,3    | 2,2    | 4,3    | 6,7    | 9,2    | 20,5   | 29,2   |

## Draw-down jaws NBG, Straight toothing, for interchangeable clamping inserts (jaw without insert)

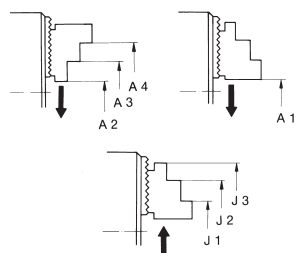


| Chuck size          | 180         | 215     | 260     | 315     | 400     | 500     |
|---------------------|-------------|---------|---------|---------|---------|---------|
| Jaw design          | Type 545-30 |         |         |         |         |         |
| Item no. piece      | 485522      | 485524  | 485526  | 485528  | 485530  | 485532  |
| A                   | 65          | 85      | 104     | 115     | 125     | 160     |
| B                   | 20          | 22      | 26      | 32      | 32      | 45      |
| C                   | 43          | 47      | 58      | 63      | 63      | 81      |
| D                   | 15          | 15      | 20      | 20      | 20      | 20      |
| E                   | 11          | 12      | 12      | 12      | 12      | 12      |
| F                   | 22,5        | 22,5    | 29,5    | 29,5    | 29,5    | 34      |
| Capacities external | 38-71       | 38-102  | 45-124  | 42-164  | 50-190  | 67-217  |
| Capacities internal | 125-160     | 170-223 | 207-289 | 234-344 | 252-397 | 346-500 |
| Max. swing          | 197         | 251     | 306     | 374     | 425     | 524     |

## Draw-down jaws NBG, for interchangeable clamping inserts (jaw without insert), jaws for further clamping ranges

| Chuck size          | 180         | 215     | 260     | 315     | 400     | 500     |
|---------------------|-------------|---------|---------|---------|---------|---------|
| Jaw design          | Type 549-30 |         |         |         |         |         |
| Item no. piece      | 485523      | 485525  | 485527  | 485529  | 485531  | 485533  |
| A                   | 72          | 95      | 104     | 123     | 134     | 160     |
| E                   | 30          | 45      | 50,5    | 61,5    | 67      | 96      |
| Capacities external | 78-110      | 113-168 | 123-202 | 146-262 | 160-305 | 230-384 |
| Capacities internal | 98-122      | 114-166 | 131-214 | 136-245 | 140-285 | 180-332 |
| Max. swing          | 197         | 271     | 306     | 390     | 443     | 524     |

## Chucking capacities with reversible top jaws UB

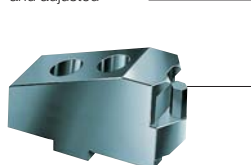


| Chuck size        |              | 180     | 215     | 260     | 315     | 400     | 500     | 630     |
|-------------------|--------------|---------|---------|---------|---------|---------|---------|---------|
| External chucking | Jaw position |         |         |         |         |         |         |         |
|                   | A1           | 11-68   | 18-84   | 27-104  | 25-163  | 28-240  | 30-304  | 30-425  |
|                   | A2           | 33-90   | 59-125  | -       | -       | -       | -       | -       |
|                   | A3           | 77-134  | 115-181 | 83-149  | 111-213 | 98-243  | 54-290  | 55-407  |
| Internal chucking | A4           | 103-160 | 143-209 | 165-230 | 193-295 | 206-351 | 195-430 | 195-549 |
|                   | J1           | 65-122  | 75-141  | 108-185 | 143-245 | 85-230  | 133-408 | 133-525 |
|                   | J2           | 91-148  | 103-169 | 189-266 | 225-327 | 192-337 | 233-548 | 272-667 |
|                   | J3           | 135-192 | 159-225 | -       | -       | -       | -       | -       |

# Jaw dimensions DURO-NCSE

## Reversible claw-type top jaws KB, standard design

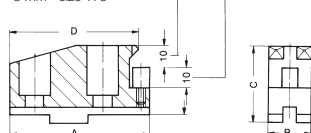
Workpiece stop can be changed  
and adjusted



| Chuck size          | 180                         | 500     | 630     |
|---------------------|-----------------------------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |         |
| Item no. piece      | 137060                      | 137119  | 137119  |
| A                   | 66                          | 124     | 124     |
| B                   | 24                          | 50      | 50      |
| C                   | 37,5                        | 62      | 62      |
| D                   | 17                          | 39      | 39      |
| Capacities external | 130-159                     | 314-477 | 390-584 |
| Capacities internal | 53-84                       | 101-249 | 101-290 |

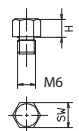
## Jaws for further clamping ranges

8 mm - size 175



| Chuck size          | 180                         | 215     | 260    | 315     | 400     | 500     | 630     |
|---------------------|-----------------------------|---------|--------|---------|---------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |        |         |         |         |         |
| Item no. piece      | 137061                      | 137064  | 137108 | 137108  | 137114  | 137120  | 137120  |
| A                   | 66                          | 81      | 90     | 90      | 100     | 124     | 124     |
| B                   | 20                          | 24      | 34     | 34      | 34      | 50      | 50      |
| C                   | 37,5                        | 43      | 55     | 55      | 62      | 62      | 62      |
| D                   | 61                          | 71      | 78     | 78      | 90      | 112     | 112     |
| Capacities external | 25-56                       | 41-103  | 48-150 | 48-210  | 53-237  | 143-294 | 216-411 |
| Capacities internal | 136-188                     | 181-255 | 85-238 | 136-300 | 240-435 | 268-420 | 265-460 |

## Accessories: interchangeable workpiece stop (different lengths)

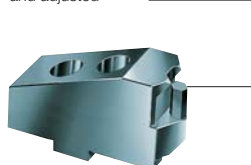


| Item no. | 289188 | 138950 | 725581 |
|----------|--------|--------|--------|
| M        | M6     | M6     | M6     |
| H        | 5      | 10     | 15     |
| SW       |        | 9      |        |

| Chuck size          | 180                         | 215     | 260    | 315     | 400     | 500     | 630     |
|---------------------|-----------------------------|---------|--------|---------|---------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |        |         |         |         |         |
| Item no. piece      | 137062                      | 137065  | 137109 | 137109  | 137115  | 137121  | 137121  |
| A                   | 56                          | 66      | 72     | 72      | 86      | 100     | 100     |
| B                   | 20                          | 24      | 34     | 34      | 34      | 50      | 50      |
| C                   | 37,5                        | 43      | 55     | 55      | 62      | 62      | 62      |
| D                   | 29                          | 38,5    | 38     | 38      | 42      | 48      | 48      |
| Capacities external | 68-120                      | 94-168  | 77-230 | 127-292 | 172-333 | 270-422 | 345-540 |
| Capacities internal | 93-126                      | 116-200 | 85-238 | 136-300 | 168-329 | 142-293 | 139-333 |

## Reversible claw-type top jaws KB, large design

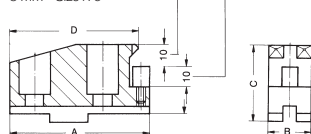
Workpiece stop can be changed  
and adjusted



| Chuck size          | 215                      | 260    | 315    | 400     |
|---------------------|--------------------------|--------|--------|---------|
| Jaw design          | Type 544-05 Large design |        |        |         |
| Item no. piece      | 137066                   | 137110 | 137110 | 137116  |
| A                   | 79                       | 80     | 80     | 93      |
| B                   | 34                       | 50     | 50     | 50      |
| C                   | 43                       | 55     | 55     | 62      |
| D                   | 29,5                     | 29     | 29     | 30      |
| Capacities external | 121-226                  | -      | -      | -       |
| Capacities internal | 74-172                   | 73-203 | 80-264 | 130-291 |

## Jaws for further clamping ranges

8 mm - Size175



| Chuck size          | 215                      | 260     | 315     | 400     |
|---------------------|--------------------------|---------|---------|---------|
| Jaw design          | Type 544-05 Large design |         |         |         |
| Item no. piece      | 137067                   | 137111  | 137111  | 137117  |
| A                   | 81                       | 90      | 90      | 106     |
| B                   | 34                       | 50      | 50      | 50      |
| C                   | 43                       | 55      | 55      | 62      |
| D                   | 71                       | 78      | 78      | 90      |
| Capacities external | 44-124                   | 53-152  | 70-214  | 76-237  |
| Capacities internal | 160-274                  | 163-322 | 222-384 | 168-425 |

| Chuck size          | 215                      | 260    | 315     | 400     |
|---------------------|--------------------------|--------|---------|---------|
| Jaw design          | Type 544-05 Large design |        |         |         |
| Item no. piece      | 137068                   | 137112 | 137112  | 137118  |
| A                   | 66                       | 72     | 72      | 86      |
| B                   | 34                       | 50     | 50      | 50      |
| C                   | 43                       | 55     | 55      | 62      |
| D                   | 38,5                     | 38     | 38      | 42      |
| Capacities external | 79-188                   | 77-230 | 127-292 | 172-333 |
| Capacities internal | 105-210                  | 85-238 | 136-300 | 168-329 |

# DURO-NC - central jaw unlocking



## APPLICATION

Standard power chuck with through-hole for flexible use thanks to quick jaw change system.

## TYPE

Power chuck available with cylindrical centre mount.  
3-jaw version.

## CUSTOMER BENEFITS

- ④ Universal: Jaws can be offset, exchanged or turned
- ④ For high speeds thanks to lightweight jaws
- ④ High clamping precision and clamping force thanks to proven wedge hook system
- ④ Possible to use jaw units of the DURO manual clamping chuck

## TECHNICAL FEATURES

- Central locking of the quick jaw change system
- Power transmission by means of wedge hook system
- Base jaws angle-serrated

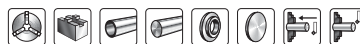
### Note:

The safety key can only be pulled out once the jaws are locked. This setup in combination with the key switch integrated in the machine also prevents the machine spindle from starting up unintentionally when the jaws are unlocked.

### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, base jaws, safety wrench, mounting wrench

NC = NC machine



## Gripping force / speed diagrams

The loss of gripping force was determined experimentally on a chuck with matched UB top jaws. It is largely independent of the initial gripping force at zero speed.

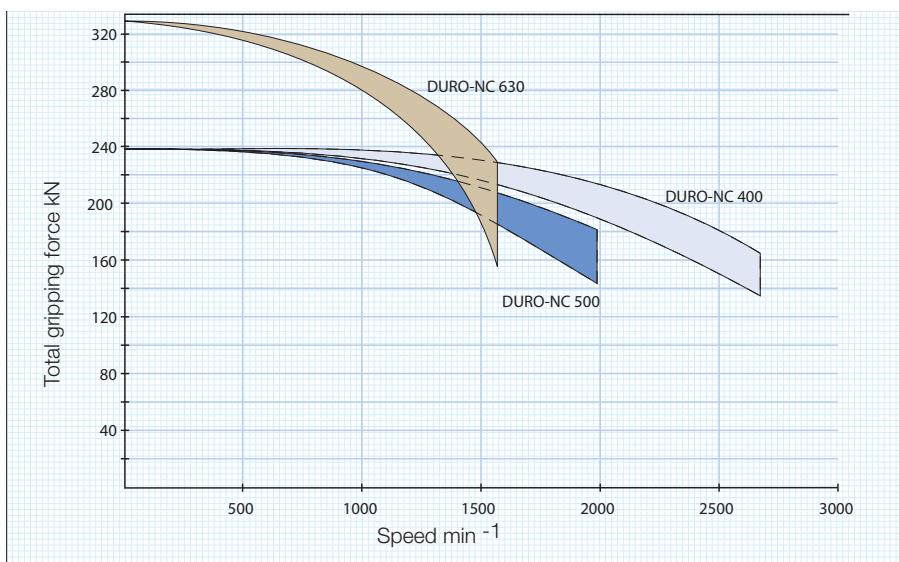
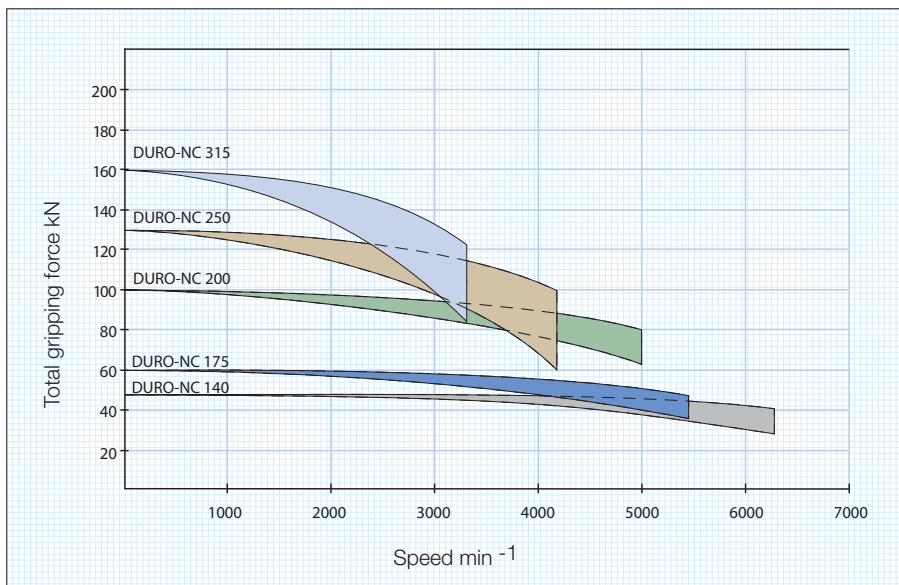
Upper curve:  
min. centrifugal  
force of top jaw



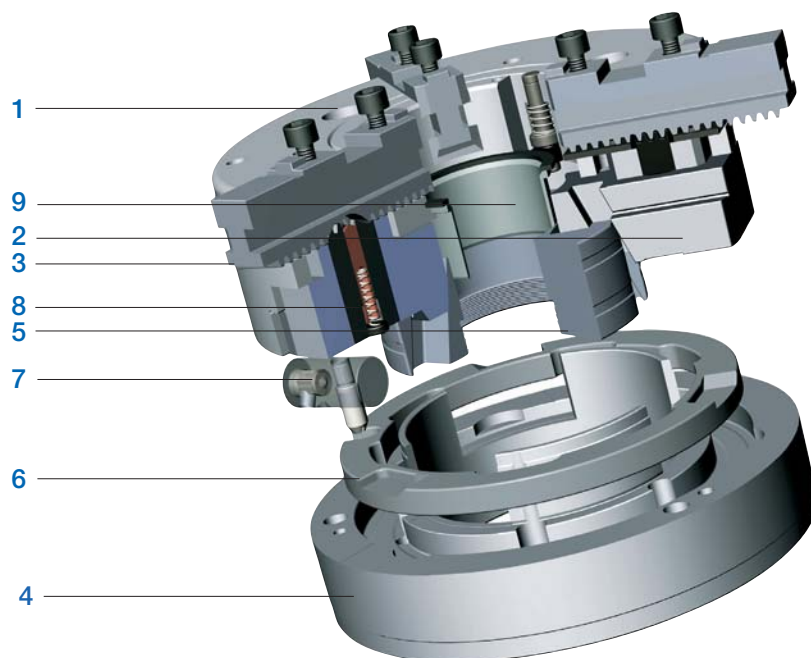
Lower curve:  
max. centrifugal  
force of top jaw



To obtain the specified gripping forces, the chuck must be in a perfect condition and lubricated with F 80 lubricant recommended by RÖHM. Measuring point near chuck face.



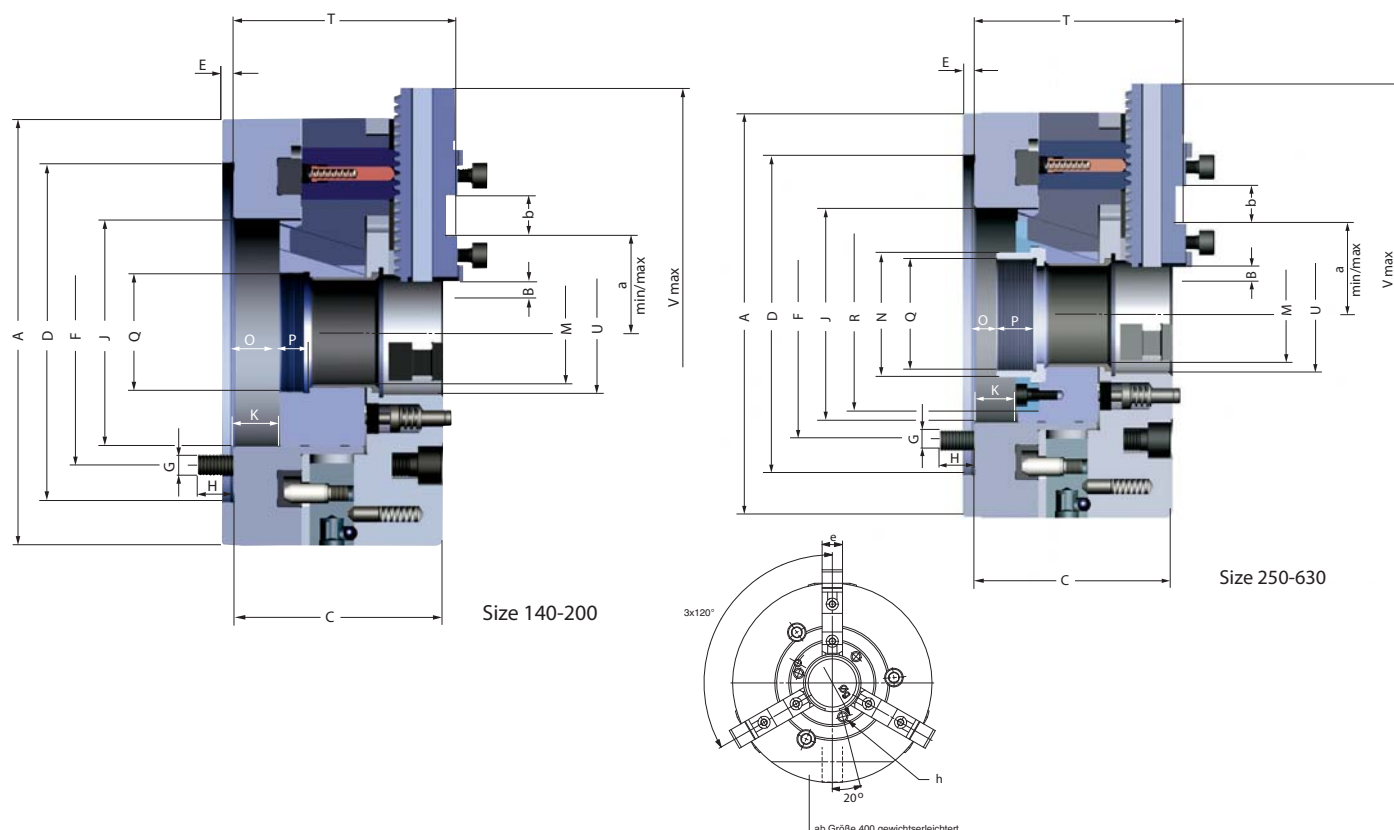
# Structure DURO-NC - central jaw unlocking



## Components:

1. Body
2. Guide jaw
3. Base jaw
4. Adaptor plate
5. Piston
6. Adjusting ring
7. Turnable bolt
8. Rack
9. Protective bush

# DURO-NC 3-jaw, central jaw unlocking, angle-serrated



C 15

**3-jaws power chuck DURO-NC, with quick jaw change systems, central jaw unlocking, angle-serrated**

Cylindrical centre mount, mounting dimensions to DIN 6353

| Item No.                                | 159455 ▲            | 159456               | 159457               | 159458               | 159459               | 159460 ▲              | 159461 ▲              | 159462 ▲              |
|-----------------------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Size                                    | 140                 | 175                  | 200                  | 250                  | 315                  | 400                   | 500                   | 630                   |
| A mm                                    | 145                 | 175                  | 215                  | 260                  | 320                  | 400                   | 500                   | 630                   |
| Jaw travel B mm                         | 4,9                 | 6,7                  | 7                    | 8,25                 | 10,1                 | 11,5                  | 11,5                  | 11,5                  |
| C mm                                    | 83                  | 99                   | 105                  | 126                  | 152                  | 149                   | 149                   | 169                   |
| Mount D <sup>H6</sup>                   | 120                 | 140                  | 170                  | 220                  | 300                  | 380                   | 380                   | 380                   |
| E mm                                    | 6                   | 6                    | 6                    | 6                    | 6                    | 6                     | 6                     | 6                     |
| F mm                                    | 104,8               | 104,8                | 133,4                | 171,4                | 235                  | 330,2                 | 330,2                 | 330,2                 |
| G mm                                    | 3 x M 10            | 3 x M 10             | 3 x M 12             | 3 x M 16             | 3 x M 20             | 3 x M 24              | 3 x M 24              | 6 x M 24              |
| H mm                                    | 18                  | 15                   | 18                   | 21                   | 29                   | 35                    | 35                    | 36                    |
| J mm                                    | 80                  | 88                   | 114                  | 147                  | 173                  | 210                   | 210                   | 286                   |
| Wedge stroke K mm                       | 16                  | 22                   | 23                   | 27                   | 33                   | 46                    | 46                    | 46                    |
| M mm                                    | 35                  | 43                   | 52                   | 72                   | 91                   | 108                   | 108                   | 140                   |
| N mm                                    | -                   | -                    | -                    | -                    | -                    | 124                   | 124                   | 160                   |
| O min.                                  | 0,5                 | 0                    | 0                    | 0                    | 0                    | -61                   | -61                   | -41                   |
| O max.                                  | 16,5                | 22                   | 23                   | 27                   | 33                   | -15                   | -15                   | 5                     |
| P mm                                    | 9                   | 10                   | 15                   | 15                   | 19                   | 35                    | 35                    | 25                    |
| Q mm                                    | M 45 x 1,5          | M 50 x 1,5           | M 60 x 1,5           | M 80 x 1,5           | M 100 x 2            | M 115 x 2             | M 115 x 2             | M 148 x 2             |
| R mm                                    | -                   | -                    | -                    | 130                  | 160                  | 169                   | 169                   | 219                   |
| T mm                                    | 89                  | 105                  | 112                  | 134                  | 160,6                | 158,6                 | 158,6                 | 185                   |
| U mm                                    | 40                  | 50                   | 62                   | 81                   | 103                  | 120                   | 120                   | 192                   |
| V max. mm                               | 181                 | 236                  | 294                  | 351                  | 423                  | 523                   | 570                   | 771                   |
| a min.                                  | 31,4                | 33,2                 | 35,5                 | 42,8                 | 52,3                 | 67,1                  | 73,5                  | 86,8                  |
| a max.                                  | 53,2                | 62,3                 | 79,5                 | 91,1                 | 115,7                | 135,5                 | 159                   | 206,1                 |
| b mm                                    | 18                  | 18                   | 20                   | 20                   | 26                   | 30                    | 30                    | 40                    |
| e mm                                    | 18                  | 20                   | 22                   | 26                   | 32                   | 45                    | 45                    | 65                    |
| Ø g                                     | 54                  | 64                   | 76                   | 93                   | 120                  | 140                   | 140                   | 210                   |
| h                                       | M 5 x 8             | M 6 x 10             | M 6 x 10             | M 6 x 10             | M 6 x 10             | M 8 x 12              | M 8 x 12              | M 8 x 12              |
| Maximum draw bar pull kN                | 25                  | 30                   | 50                   | 65                   | 80                   | 110                   | 110                   | 150                   |
| Max. total clamping force approx. kN    | 49                  | 60                   | 100                  | 130                  | 160                  | 240                   | 240                   | 330                   |
| Max. admissible speed min <sup>-1</sup> | 6300                | 5300                 | 5000                 | 4300                 | 3200                 | 2700                  | 2000                  | 1500                  |
| Moment of inertia J kgm <sup>2</sup>    | 0,029               | 0,068                | 0,162                | 0,39                 | 1,08                 | 2,5                   | 5                     | 15,4                  |
| Weight without jaws approx. kg          | 11                  | 18                   | 28                   | 46                   | 85                   | 126                   | 185                   | 310                   |
| Actuating cylinders (recommended)       | OVS-105 / SZS-37/70 | OVS-105 / SZS-46/103 | OVS-130 / SZS-52/130 | OVS-150 / SZS-67/150 | OVS-150 / SZS-92/225 | OVS-200 / SZS-110/230 | OVS-200 / SZS-110/250 | OVS-200 / SZS-127/325 |

# Jaws DURO-NC

A28

Base jaw GB, 3-jaw set diagonally toothing, with mounting bolts



| Item no. | Chuck Size | Number of jaws | Contents of delivery | Jaw length mm | Jaw width mm |
|----------|------------|----------------|----------------------|---------------|--------------|
| 140636   | 140        | 3              | set                  | 56            | 18           |
| 094004   | 175        | 3              | set                  | 74            | 20           |
| 094005   | 200        | 3              | set                  | 90            | 22           |
| 094006   | 250        | 3              | set                  | 110           | 26           |
| 094007   | 315        | 3              | set                  | 125           | 32           |
| 094044   | 400/500    | 3              | set                  | 160           | 45           |
| 140194   | 630        | 3              | set                  | 230           | 65           |

A28

Unstepped top jaw AB, 3-jaw set standard design, soft, material 16MnCr5



| Item no. | Chuck Size | Number of jaws | Contents of delivery | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|----------------|----------------------|---------------|---------------|--------------|
| 094008   | 140/175    | 3              | set                  | 85            | 36,5          | 20,3         |
| 094009   | 200        | 3              | set                  | 105           | 40            | 22           |
| 094010   | 250        | 3              | set                  | 125           | 50            | 30,4         |
| 094011   | 315        | 3              | set                  | 145           | 50            | 34,3         |
| 094046   | 400/500    | 3              | set                  | 180           | 73            | 50,5         |
| 140716   | 630        | 3              | set                  | 260           | 102           | 68           |

A28

Reversible top jaw UB, 3-jaw set hardened



| Item no. | Chuck Size | Number of jaws | Contents of delivery | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|----------------|----------------------|---------------|---------------|--------------|
| 094012   | 140/175    | 3              | set                  | 61,5          | 32,5          | 20,4         |
| 094013   | 200        | 3              | set                  | 70,5          | 38            | 24,4         |
| 094014   | 250        | 3              | set                  | 92            | 50            | 34,4         |
| 094015   | 315        | 3              | set                  | 107           | 56            | 35,7         |
| 094045   | 400/500    | 3              | set                  | 130           | 72            | 50,4         |
| 140715   | 630        | 3              | set                  | 185           | 102           | 68           |

Additionally or later applied, hardened jaws must be ground out in the chuck.  
For jaws which are applied later, send in the chuck.

A28

Unstepped Jaw BL, 3-jaw set diagonally toothing, unstepped, soft, material 16MnCr5



| Item no. | Chuck Size | Number of jaws | Contents of delivery | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|----------------|----------------------|---------------|---------------|--------------|
| 626158   | 140        | 3              | set                  | 70,5          | 41,5          | 18           |
| 241699   | 175        | 3              | set                  | 84,4          | 45            | 20           |
| 249678   | 200        | 3              | set                  | 98,4          | 60            | 22           |
| 249679   | 250        | 3              | set                  | 118,7         | 70            | 26           |
| 249680   | 315        | 3              | set                  | 136,6         | 79            | 32           |
| 249681   | 400/500    | 3              | set                  | 173,6         | 93            | 45           |

A28

One-piece jaw EB, 3-jaw set diagonally toothing, hardened



| Item no. | Chuck Size | Number of jaws | Contents of delivery | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|----------------|----------------------|---------------|---------------|--------------|
| 140764   | 140        | 3              | set                  | 62            | 49,5          | 18           |
| 094000   | 175        | 3              | set                  | 77,7          | 45            | 20           |
| 094001   | 200        | 3              | set                  | 94,7          | 60            | 22           |
| 094002   | 250        | 3              | set                  | 114           | 70            | 26           |
| 094003   | 315        | 3              | set                  | 130           | 79            | 32           |
| 094043   | 400/500    | 3              | set                  | 167           | 93            | 45           |

Additionally or later applied, hardened stepped jaws must be ground out in the chuck.  
For jaws which are applied later, send in the chuck.

# Jaws DURO-NC

C 21

Reversible claw-type top jaws, standard design tongue and groove, large clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137060   | 140/175    | 66            | 37,5          | 24           |
| 137119   | 400/500    | 124           | 62            | 50           |
| 151288   | 630        | 144           | 78            | 70           |

C 21

Reversible claw-type top jaws, standard design tongue and groove, small clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137061   | 140/175    | 66            | 37,5          | 20           |
| 137064   | 200        | 81            | 43            | 24           |
| 137108   | 250        | 90            | 55            | 34           |
| 137114   | 315        | 100           | 62            | 34           |
| 137120   | 400/500    | 124           | 62            | 50           |

C 21

Reversible claw-type top jaws, standard design tongue and groove, medium clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137062   | 140/175    | 56            | 37,5          | 20           |
| 137065   | 200        | 66            | 43            | 24           |
| 137109   | 250        | 72            | 55            | 34           |
| 137115   | 315        | 86            | 62            | 34           |
| 137121   | 400/500    | 100           | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, small clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137066   | 200        | 79            | 43            | 34           |
| 137110   | 250        | 80            | 55            | 50           |
| 137116   | 315        | 93            | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, large clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137067   | 200        | 81            | 43            | 34           |
| 137111   | 250        | 90            | 55            | 50           |
| 137117   | 315        | 106           | 62            | 50           |

C 21

Reversible claw-type top jaws, wide version tongue and groove, medium clamping range, 1 piece, hardened



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 137068   | 200        | 66            | 43            | 34           |
| 137112   | 250        | 72            | 55            | 50           |
| 137118   | 315        | 86            | 62            | 50           |

# Jaws DURO-NC

C 21

Draw-down jaws, for interchangeable clamping inserts diagonally toothing, 1 piece, without clamping inserts



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 151030 ▲ | 140        | 63            | 41,5          | 18           |
| 141037   | 175        | 84,4          | 43,5          | 20           |
| 141039   | 200        | 98,4          | 47,5          | 22           |
| 141041   | 250        | 118,7         | 58,5          | 26           |
| 141043   | 315        | 136,4         | 63,9          | 32           |
| 141045   | 400/500    | 173,6         | 73,4          | 45           |

C 21

Draw-down jaws, additional clamping range, for interchangeable clamping inserts diagonally toothing, 1 piece, without clamping inserts



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 151031 ▲ | 140        | 63            | 41,5          | 18           |
| 141038   | 175        | 84,4          | 43,5          | 20           |
| 141040   | 200        | 98,4          | 47,5          | 22           |
| 141042   | 250        | 118,7         | 58,5          | 26           |
| 141044   | 315        | 136,4         | 63,9          | 32           |
| 141046   | 400        | 173,6         | 73,4          | 45           |
| 141048   | 500        | 173,6         | 73,4          | 45           |

C 15

Interchangeable clamping inserts, 1 piece with claws



| Item no. | Chuck Size |
|----------|------------|
| 151029 ▲ | 140        |
| 141049   | 200        |
| 141052   | 250/315    |
| 141055 ▲ | 400/500    |

C 15

Interchangeable clamping inserts, 1 piece with serrated toothing



| Item no. | Chuck Size |
|----------|------------|
| 151039 ▲ | 140        |
| 141050   | 175/200    |
| 141053   | 250/315    |
| 141056 ▲ | 400/500    |

C 15

Interchangeable clamping inserts, 1 piece with heat treatable surface



| Item no. | Chuck Size |
|----------|------------|
| 151040 ▲ | 140        |
| 141051   | 200        |
| 141054   | 250/315    |
| 141057 ▲ | 400/500    |

# Accessories DURO-NC

## C 15 Mounting screws



| Item no. | Size        | Contents of delivery | Thread     |
|----------|-------------|----------------------|------------|
| 200182   | 140/175/200 | piece                | M8x1x22    |
| 200183   | 250         | piece                | M12x1,5x30 |
| 202402   | 315         | piece                | M12x1,5x35 |
| 227618   | 400/500     | piece                | M16x1,5x40 |
| 249388   | 630         | piece                | M20x50     |

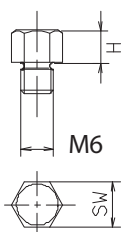
Socket head cap screw to DIN 912, 12.9

## C 15 Special grease F80 for lathe chucks for lubrication and conservation of clamping force



| Item no. | Design    | Contents |
|----------|-----------|----------|
| 308555   | Cartridge | 0,5 kg   |
| 028975   | Tin       | 1 kg     |

## C 15 Changeable workpiece rests (in different lengths)



| Item no. | H mm | M  | Key-width SW |
|----------|------|----|--------------|
| 289188   | 5    | M6 | 9            |
| 138950   | 10   | M6 | 9            |
| 725581   | 15   | M6 | 9            |

## C15 Grease gun DIN1283

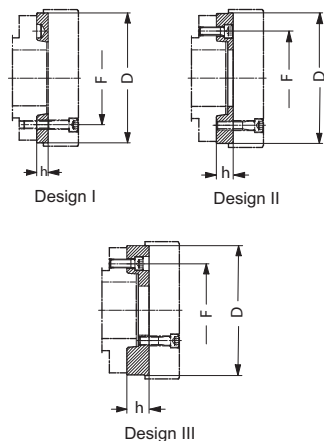


| Item no. | Connection | Contents of delivery                                                                                                              |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1      | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |

## C 15

### Intermediate adaptor plates with cylindrical centre mount DIN 6353 for 3-jaw chucks

Mounting from front to ISO 702-1 (DIN 55026/55021) and ASA B 5.9 A1/A2 with metric mounting bolts

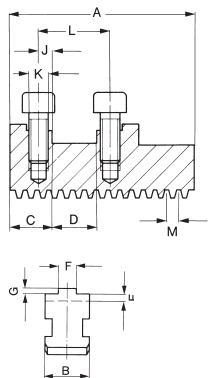


| Item no. | Spindle nose size | Size        | Design | h mm | F mm  | D mm |
|----------|-------------------|-------------|--------|------|-------|------|
| 159878 ▲ | 5                 | 140         | I      | 15   | 104,8 | 120  |
| 145153   | 5                 | 175         | I      | 15   | 104,8 | 140  |
| 145297   | 6                 | 175         | III    | 35   | 133,4 | 140  |
| 182667   | 6                 | 200         | I      | 16   | 133,4 | 170  |
| 145131   | 6                 | 250         | II     | 27   | 133,4 | 220  |
| 145135   | 8                 | 200         | III    | 39   | 171,4 | 170  |
| 145157   | 8                 | 250         | I      | 18   | 171,4 | 220  |
| 145139 ▲ | 8                 | 315         | II     | 38   | 171,4 | 300  |
| 145143 ▲ | 11                | 250         | III    | 48   | 235   | 220  |
| 145159   | 11                | 315         | I      | 19   | 235   | 300  |
| 145147   | 11                | 400         | II     | 40   | 235   | 380  |
| 145161   | 15                | 400/500/630 | I      | 21   | 330,2 | 380  |

All fastening parts are included

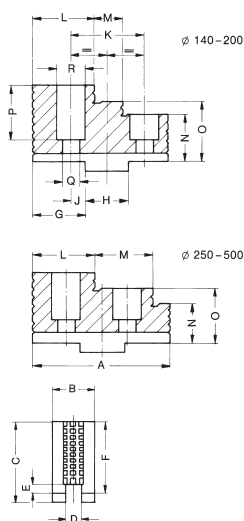
# Jaw dimensions DURO-NC

Base jaw GB with screws



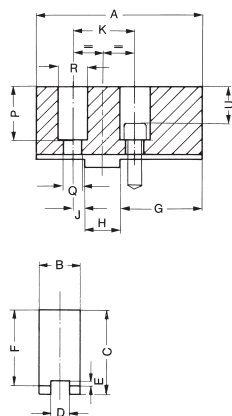
| Chuck size         | 140    | 175    | 200    | 250     | 315     | 400/500 | 630    |
|--------------------|--------|--------|--------|---------|---------|---------|--------|
| Type               | 503-80 | 002-20 | 002-25 | 002-30  | 002-35  | 002-40  | 002-50 |
| Item no. 3-jaw set | 140636 | 094004 | 094005 | 094006  | 094007  | 094044  | 140194 |
| A                  | 56     | 74     | 90     | 110     | 125     | 160     | 230    |
| B                  | 18     | 20     | 22     | 26      | 32      | 45      | 65     |
| C                  | 19     | 19     | 23     | 26      | 30      | 35      | 52     |
| D <sup>1/16</sup>  | 18     | 18     | 20     | 20      | 26      | 30      | 40     |
| E                  | 5      | 5      | 5,5    | 5,5     | 6,5     | 7,5     | 9      |
| F                  | 8      | 8      | 10     | 12      | 12      | 18      | 24     |
| G                  | 2,5    | 2,5    | 3      | 3       | 3       | 4       | 4      |
| J                  | 7      | 7      | 10     | 10      | 14      | 15      | 21     |
| K                  | M8x1   | M8x1   | M8x1   | M12x1,5 | M12x1,5 | M16x1,5 | M20    |
| L                  | 32     | 32     | 40     | 40      | 54      | 60      | 82     |
| M                  | 3,63   | 4,84   | 4,89   | 6,03    | 7,05    | 8,55    | 8,53   |
| Weight/set kg      | 0,43   | 0,8    | 1,1    | 2,1     | 3,2     | 7       | 17     |

Reversible top jaws UB, hardened



| Chuck size         | 140/175 | 200    | 250    | 315    | 400/500 | 630    |
|--------------------|---------|--------|--------|--------|---------|--------|
| Type               | 003-20  | 003-25 | 003-30 | 003-35 | 003-40  | 003-50 |
| Item no. 3-jaw set | 094012  | 094013 | 094014 | 094015 | 094045  | 140715 |
| A                  | 61,5    | 70,35  | 92     | 107    | 130     | 185    |
| B                  | 20,4    | 24,4   | 34,4   | 37,5   | 50,4    | 68     |
| C                  | 37      | 43     | 55     | 62     | 79      | 110    |
| D                  | 8       | 10     | 12     | 12     | 18      | 24     |
| E                  | 3       | 3,5    | 3,5    | 3,5    | 4,5     | 4,5    |
| F                  | 32,5    | 38     | 50     | 56     | 72      | 102    |
| G                  | 22,5    | 25,5   | 30     | 35,5   | 41,4    | 59     |
| H                  | 18      | 20     | 20     | 26     | 30      | 40     |
| J                  | 7       | 10     | 10     | 14     | 15      | 21     |
| K                  | 32      | 40     | 40     | 54     | 60      | 82     |
| L                  | 26,5    | 28,5   | 41     | 40     | 51      | 80     |
| M                  | 13      | 14     | 40,5   | 54     | 71      | 80     |
| N                  | 17,5    | 18     | 22     | 26     | 32      | 42     |
| O                  | 25      | 28     | 36     | 41     | 52      | 72     |
| P                  | 23,5    | 29     | 39     | 40     | 57      | 82     |
| Q                  | 9       | 9      | 14     | 14     | 18      | 22     |
| R                  | 15      | 15     | 20     | 20     | 26      | 33     |
| Weight/set kg      | 0,6     | 1,0    | 2,4    | 3,4    | 7,6     | 19     |

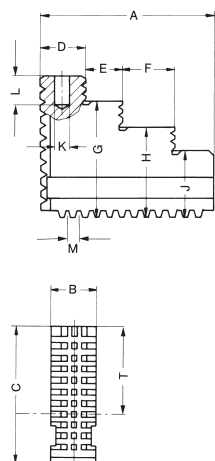
Soft top jaws AB, material 16MnCr5



| Chuck size         | 140/175 | 200    | 250    | 315    | 400/500 | 630    |
|--------------------|---------|--------|--------|--------|---------|--------|
| Type               | 002-20  | 002-25 | 002-30 | 002-35 | 002-40  | 002-50 |
| Item no. 3-jaw set | 094008  | 094009 | 094010 | 094011 | 094046  | 140716 |
| A                  | 85      | 105    | 125    | 145    | 180     | 260    |
| B                  | 20,3    | 22     | 30,4   | 34,3   | 50,5    | 68     |
| C                  | 41      | 45     | 55     | 56     | 80      | 110    |
| D                  | 8       | 10     | 12     | 12     | 18      | 24     |
| E                  | 3       | 3,5    | 3,5    | 3,5    | 4,5     | 4,5    |
| F                  | 36,5    | 40     | 50     | 50     | 73      | 102    |
| G                  | 42      | 50     | 70     | 74     | 100     | 150    |
| H                  | 18      | 20     | 20     | 26     | 30      | 40     |
| J                  | 7       | 10     | 10     | 14     | 15      | 21     |
| K                  | 32      | 40     | 40     | 54     | 60      | 82     |
| P                  | 27,5    | 31     | 39     | 34     | 58      | 83     |
| Q                  | 9       | 9      | 14     | 14     | 18      | 22     |
| R                  | 15      | 15     | 20     | 20     | 26      | 33     |
| U                  | 19,5    | 23     | 27     | 22     | 42      | 63     |
| Weight/set kg      | 1,3     | 2,2    | 4,5    | 6,8    | 13,5    | 40     |

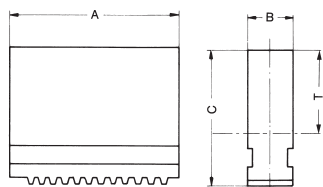
# Jaw dimensions DURO-NC

## One-piece reversible jaws EB



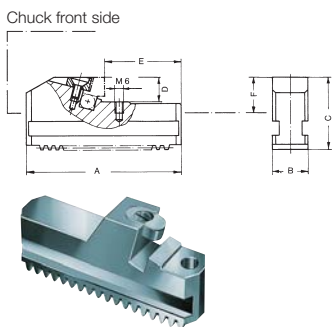
| Chuck size     | 140           | 175           | 200           | 250           | 315           | 400/500        |
|----------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Type           | 503-80        | 000-20        | 000-25        | 000-30        | 000-35        | 000-40         |
| Item no. 3-jaw | <b>140764</b> | <b>094000</b> | <b>094001</b> | <b>094002</b> | <b>094003</b> | <b>0940043</b> |
| A              | 62            | 77,7          | 94,7          | 114           | 130           | 167            |
| B              | 18            | 20            | 22            | 26            | 32            | 45             |
| C              | 49,5          | 45            | 60            | 70            | 79            | 93             |
| D              | 16,6          | 20,6          | 23            | 41,5          | 40,2          | 50,6           |
| E              | 15,9          | 18,9          | 19,5          | 40,3          | 54            | 71             |
| F              | 18            | 22            | 28            | -             | -             | -              |
| G              | 42            | 37,5          | 50            | 56            | 64            | 73             |
| H              | 34,5          | 30            | 40            | -             | -             | -              |
| J              | 27            | 22,5          | 30            | 42            | 49            | 53             |
| K              | 7             | 8             | 10            | 13            | 13            | 20             |
| L              | 16            | 16            | 15            | 19,5          | 19,5          | 30             |
| M              | 3,63          | 4,84          | 4,89          | 6,03          | 7,05          | 8,55           |
| T              | 29            | 24            | 35            | 41            | 44,5          | 54             |
| Weight/set kg  | 1,2           | 1,5           | 1,9           | 3,4           | 5,5           | 11             |

## Soft one-piece jaws BL, material 16MnCr5



| Chuck size     | 140           | 175           | 200           | 250           | 315           | 400/500       |
|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Type           | 503-80        | 000-20        | 000-25        | 000-30        | 000-35        | 000-40        |
| Item no. 3-jaw | <b>626158</b> | <b>241699</b> | <b>249678</b> | <b>249679</b> | <b>249680</b> | <b>249681</b> |
| A              | 70,5          | 84,5          | 98,4          | 118,7         | 136,6         | 173,6         |
| B              | 18            | 20            | 22            | 26            | 32            | 45            |
| C              | 41,5          | 45            | 60            | 70            | 79            | 93            |
| T              | 21            | 24            | 35            | 41            | 44,5          | 54            |
| Weight/set kg  | 1,3           | 1,5           | 2,7           | 4,4           | 7,2           | 15            |

## Draw-down jaws NB for interchangeable clamping inserts (jaw without insert)



| Chuck size          | 140           | 175           | 200           | 250           | 315           | 400           | 500           |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Type                | 545-00        | 545-00        | 545-00        | 545-00        | 545-00        | 545-00        | 545-00        |
| Item no. Piece      | <b>151030</b> | <b>141037</b> | <b>141039</b> | <b>141041</b> | <b>141043</b> | <b>141045</b> | <b>141045</b> |
| A                   | 63            | 84,4          | 98,4          | 118,7         | 136,4         | 173,6         | 173,6         |
| B                   | 18            | 20            | 22            | 26            | 32            | 45            | 45            |
| C                   | 41,5          | 43,5          | 47,5          | 58,5          | 63,9          | 73,4          | 73,4          |
| D                   | 15            | 15            | 15            | 20            | 20            | 25            | 25            |
| E                   | 10,5          | 11            | 12            | 12            | 12            | 12            | 12            |
| F                   | 22,5          | 22,5          | 22,5          | 29,5          | 29,5          | 34,3          | 34,3          |
| Capacities external | 40-85         | 29-80         | 34-112        | 38-133        | 43-170        | 48-185        | 48-250        |
| Capacities internal | 124-168       | 162-205       | 190-263       | 235-325       | 275-398       | 360-490       | 354-556       |

## Draw-down jaws NB for interchangeable clamping inserts (jaw without insert), jaws for further clamping ranges

Accessories: changeable workpiece rests (in different lengths)

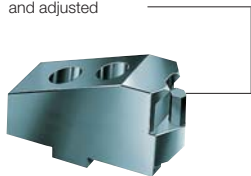
| Item no. | 289188 | 138950 | 725581 |
|----------|--------|--------|--------|
| M        | M6     | M6     | M6     |
| H        | 5      | 10     | 15     |
| SW       |        | 9      |        |

| Chuck size          | 140           | 175           | 200           | 250           | 315           | 400           | 500           |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Type                | 545-00        | 545-00        | 545-00        | 545-00        | 545-00        | 545-00        | 545-00        |
| Item no. Piece      | <b>151031</b> | <b>141038</b> | <b>141040</b> | <b>141042</b> | <b>141044</b> | <b>141046</b> | <b>141048</b> |
| E                   | 31,5          | 32            | 48            | 58            | 72            | 77            | 110           |
| Capacities external | 80-125        | 70-120        | 104-185       | 128-225       | 160-290       | 175-316       | 240-450       |
| Capacities internal | 85-126        | 120-164       | 120-192       | 145-236       | 158-278       | 230-362       | 162-360       |

# Jaw dimensions DURO-NC

## Reversible claw-type top jaws KB, Standard design

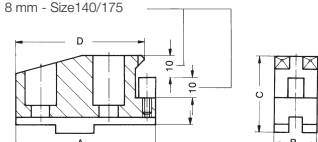
Workpiece stop can be changed  
and adjusted



| Chuck size          | 140                         | 175     | 400     | 500     | 630     |
|---------------------|-----------------------------|---------|---------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |         |         |         |
| Item no. piece      | 137060                      |         | 137119  |         | 151289  |
| A                   | 66                          |         | 124     |         | 144     |
| B                   | 24                          |         | 50      |         | 70      |
| C                   | 37,5                        |         | 62      |         | 78      |
| D                   | 17                          |         | 39      |         | 61      |
| Capacities external | 115-158                     | 115-209 | -       | -       | 230-655 |
| Capacities internal | 50-84                       | 50-136  | 100-350 | 100-410 | 185-610 |

## Jaws for further clamping ranges

8 mm - Size140/175



| Chuck size          | 140                         | 175     | 200     | 250     | 315     | 400     | 500     |
|---------------------|-----------------------------|---------|---------|---------|---------|---------|---------|
| Jaw design          | Type 544-00 Standard design |         |         |         |         |         |         |
| Item no. piece      | 137061                      |         | 137064  | 137108  | 137114  | 137120  |         |
| A                   | 66                          |         | 81      | 90      | 100     | 124     |         |
| B                   | 20                          |         | 24      | 34      | 34      | 50      |         |
| C                   | 37,5                        |         | 43      | 55      | 62      | 62      |         |
| D                   | 61                          |         | 71      | 78      | 90      | 112     |         |
| Capacities external | 24-60                       | 24-110  | 40-130  | 50-185  | 50-222  | 50-270  | 50-335  |
| Capacities internal | 142-182                     | 142-236 | 166-288 | 180-350 | 212-410 | 280-515 | 280-580 |

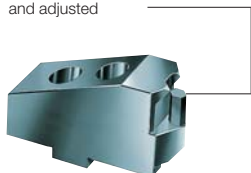
Accessories: changeable workpiece  
rests (in different lengths)

| Item no. | 289188 | 138950 | 725581 |
|----------|--------|--------|--------|
| M        | M6     |        |        |
| H        | 5      | 10     | 15     |
| SW       | 9      |        |        |

| Chuck size          | 140                         | 175    | 200    | 250     | 315     | 400     | 500     |
|---------------------|-----------------------------|--------|--------|---------|---------|---------|---------|
| Jaw design          | Type 544-00 Standard design |        |        |         |         |         |         |
| Item no. piece      | 137062                      |        | 137065 | 137109  | 137115  | 137121  |         |
| A                   | 56                          |        | 66     | 72      | 86      | 100     |         |
| B                   | 20                          |        | 24     | 34      | 34      | 50      |         |
| C                   | 37,5                        |        | 43     | 55      | 62      | 62      |         |
| D                   | 29                          |        | 38,5   | 38      | 42      | 48      |         |
| Capacities external | 74-118                      | 47-170 | 76-200 | 94-260  | 120-320 | 165-400 | 165-465 |
| Capacities internal | 80-130                      | 80-176 | 98-224 | 104-272 | 116-315 | 155-395 | 155-455 |

## Reversible claw-type top jaws KB, large design

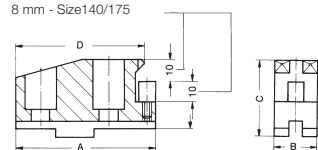
Workpiece stop can be changed  
and adjusted



| Chuck size          | 200                      | 250    | 315    |
|---------------------|--------------------------|--------|--------|
| Jaw design          | Type 544-05 Large design |        |        |
| Item no. piece      | 137066                   | 137110 | 137116 |
| A                   | 79                       | 80     | 93     |
| B                   | 34                       | 50     | 50     |
| C                   | 43                       | 55     | 62     |
| D                   | 29,5                     | 29     | 30     |
| Capacities external | 121-226                  | -      | -      |
| Capacities internal | 74-172                   | 70-235 | 80-275 |

## Jaws for further clamping ranges

8 mm - Size140/175

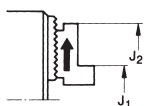
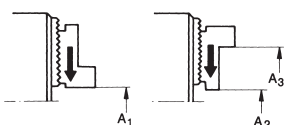
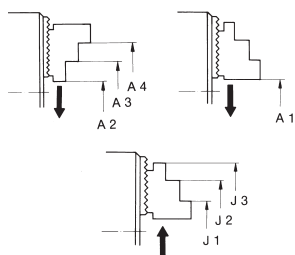


| Chuck size          | 200                      | 250     | 315     |
|---------------------|--------------------------|---------|---------|
| Jaw design          | Type 544-05 Large design |         |         |
| Item no. piece      | 137067                   | 137111  | 137117  |
| A                   | 81                       | 90      | 100     |
| B                   | 34                       | 50      | 50      |
| C                   | 43                       | 55      | 62      |
| D                   | 71                       | 78      | 90      |
| Capacities external | 44-124                   | 50-185  | 50-222  |
| Capacities internal | 160-274                  | 180-350 | 212-410 |

| Chuck size          | 200                      | 250     | 315     |
|---------------------|--------------------------|---------|---------|
| Jaw design          | Type 544-05 Large design |         |         |
| Item no. piece      | 137068                   | 137112  | 137118  |
| A                   | 66                       | 72      | 86      |
| B                   | 34                       | 50      | 50      |
| C                   | 43                       | 55      | 62      |
| D                   | 38,5                     | 38      | 42      |
| Capacities external | 79-188                   | 94-260  | 120-320 |
| Capacities internal | 105-210                  | 104-272 | 116-315 |

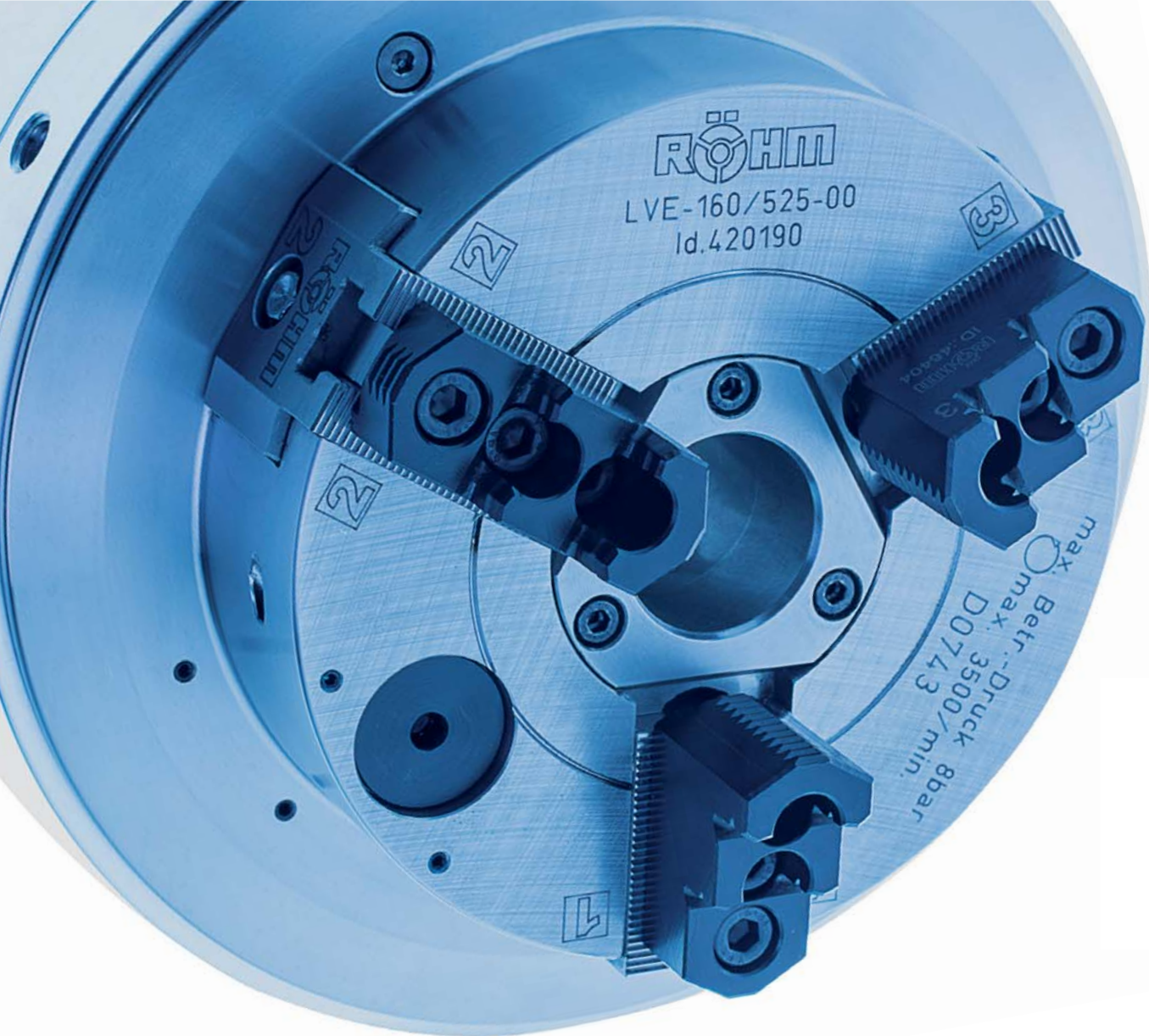
# Chucking capacities DURO-NC

Chucking capacities with reversible top jaws UB



| Chuck size           |              | 140     | 160     | 175     | 200     | 250     | 315     | 400     | 500     | 630     |
|----------------------|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| with reversible jaws | Type         | 003-20  | 003-20  | 003-20  | 003-25  | 003-30  | 003-35  | 003-40  | 003-40  | 003-50  |
|                      | Jaw position |         |         |         |         |         |         |         |         |         |
| External chucking    | A1           | 10-58   | 5-51    | 5-60    | 5-65    | 8-93    | 30-125  | 55-156  | 45-230  | 42-468  |
|                      | A2           | 14-62   | 45-94   | 45-103  | 58-118  | -       | -       | -       | -       | -       |
|                      | A3           | 57-105  | 89-138  | 89-147  | 114-174 | 82-168  | 93-210  | 119-260 | 122-326 | 112-487 |
|                      | A4           | 89-131  | 115-164 | 115-173 | 142-202 | 163-249 | 201-317 | 260-401 | 264-470 | 275-650 |
| Internal chucking    | J1           | 65-112  | 67-108  | 67-117  | 71-126  | 99-178  | 120-207 | 155-260 | 155-460 | 195-615 |
|                      | J2           | 91-138  | 93-135  | 93-144  | 99-154  | 178-257 | 207-313 | 260-400 | 265-600 | 355-780 |
|                      | J3           | 133-182 | 135-177 | 135-186 | 154-209 | -       | -       | -       | -       | -       |





## CLAMPING TECHNOLOGY FOR THE ENERGY SECTOR

The crude oil and natural gas industries are still the center of the worldwide energy production today. The extraction and further processing of these two raw materials require top precision and maximum safety. Technically advanced products, such as the air-operated self-contained chucks with through-hole from RÖHM, allow reliable machining of a wide range of workpieces at the top safety standard.



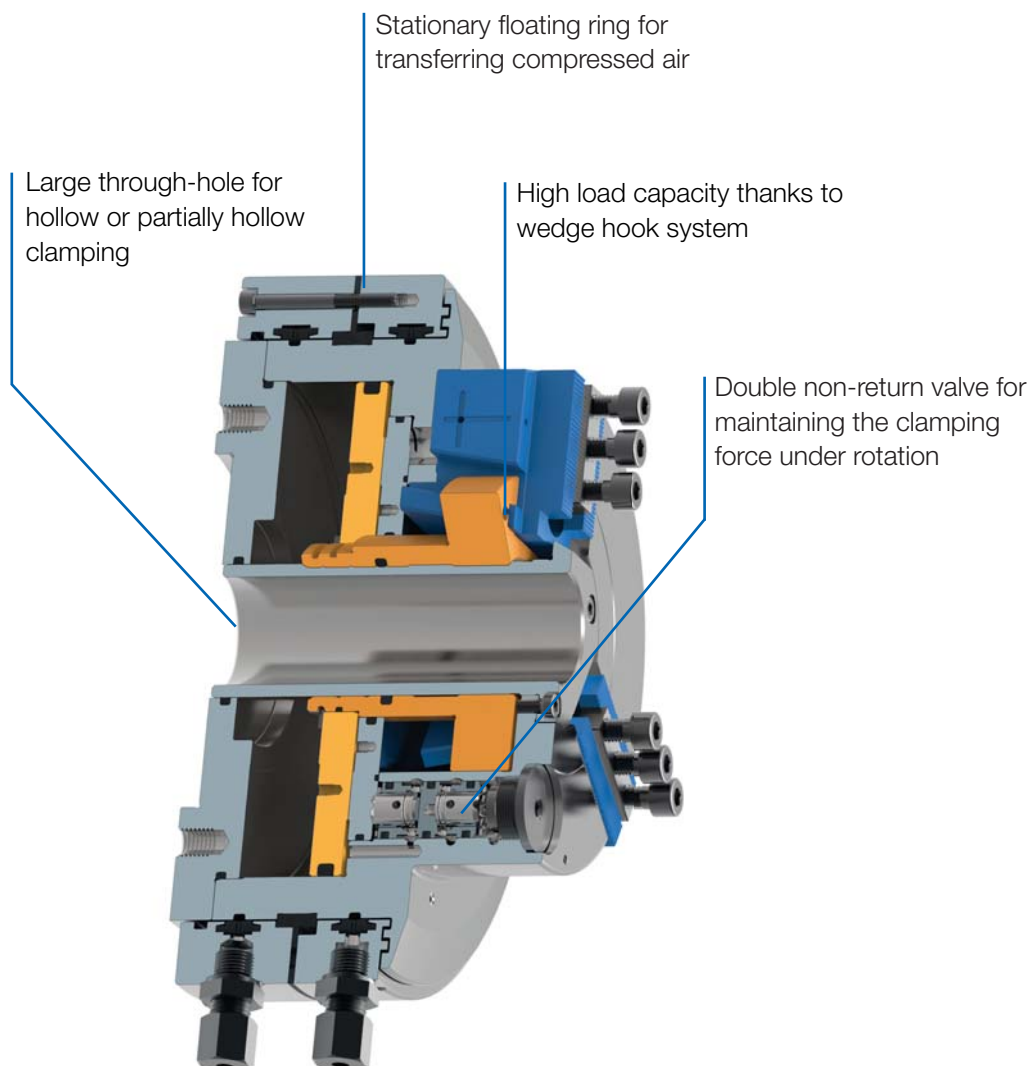
Video LVE

# AIR-OPERATED SELF-CONTAINED CHUCKS

Air-operated self-contained chucks LVE are optimally suited for machining the ends of pipes, especially large and long pipes like the ones used for extracting crude oil or natural gas. For this, a chuck is mounted to the front and rear sides of the machine spindle. This combination allows large chip-cutting performance with high workpiece precision.

## ADVANTAGES AT A GLANCE

- Large through-hole optimal for machining pipes and bars
- Cylinders integrated in the power chuck for flexible range of applications
- Wedge hook system for high load capacity and clamping precision



# LVE - with integrated pneumatic cylinder



## APPLICATION

Optimally suited for flange, bar and tube machining, especially for machines without a clamping cylinder.

## TYPE

Power chuck with integrated pneumatic cylinder and cylindrical centre mount. 3-jaw version with serration 90°.

## CUSTOMER BENEFITS

- ③ Large through-hole
- ③ Can be easily exchanged with manual clamping chuck
- ③ Compact system dimensions because it is self-contained
- ③ Unobstructed bore through spindle thanks to omission of the draw tube
- ③ High clamping force already at 6 bar

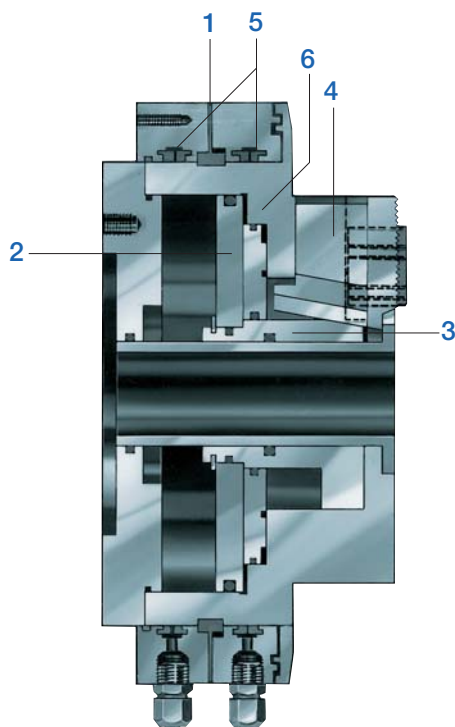
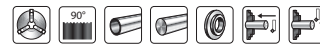
## TECHNICAL FEATURES

- Clamping and unclamping only when spindle at standstill
- Wedge hook system with integrated clamping cylinder

## Included in scope of delivery:

Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)

**LVE** = air-operated, self-contained chuck



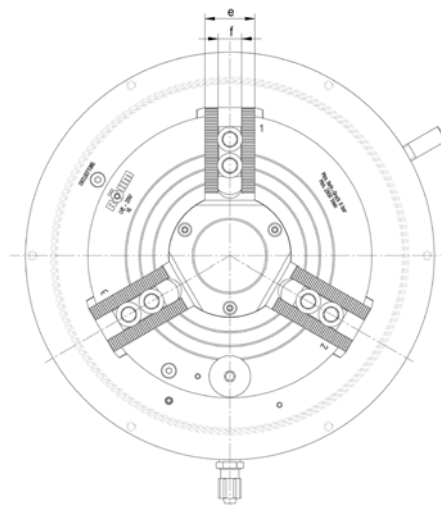
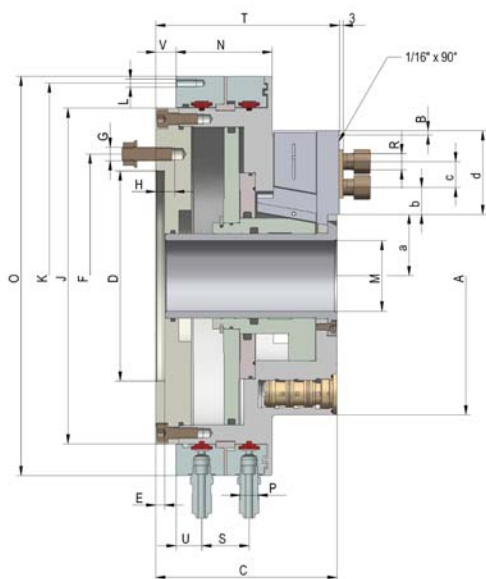
## Mode of operation:

The compressed air is conducted through the stationary floating ring **1** via a double non-return valve into one of the two pressure chambers. The force acting on the pressure piston **2** is transferred through the clamping piston to the base jaws **4** via the proven wedge hook system **3**. During the clamping and unclamping operation, profile seals **5** seal off the floating ring **1** from the body **6**. After the clamping operation is finished, the pressure in the chuck body is maintained by the valve, whereby the supply lines are depressurized. The profile seals lift up due to their elasticity and are not damaged by the rotating chuck body.

## Components:

1. Floating ring
2. Pressure piston
3. Wedge system
4. Base jaws
5. Special seals
6. Body

# LVE up to 10 bar, cylindrical centre Mount, serration 90°



C 15

3-jaw self-contained chucks LVE, with through-hole, max. operating pressure 8 bar, with serration, cylindrical centre mount

| Item No.                                | 420189            | 420190 | 420191 ▲ | 420192 ▲ | 420193 ▲ |
|-----------------------------------------|-------------------|--------|----------|----------|----------|
| Size                                    | 125               | 160    | 200      | 250      | 315      |
| A mm                                    | 136               | 168    | 205      | 255      | 320      |
| Jaw travel B mm                         | 3                 | 4,2    | 4,2      | 5        | 5        |
| C mm                                    | 101,5             | 130,5  | 134      | 146      | 156,5    |
| D <sup>h</sup> mm                       | 120               | 125    | 155      | 185      | 225      |
| E mm                                    | 6                 | 6,5    | 6,5      | 6,5      | 6,5      |
| F mm                                    | 137               | 150    | 180      | 210      | 250      |
| G                                       | M 8               | M 10   | M 10     | M 10     | M 10     |
| H mm                                    | 8                 | 13     | 14       | 14       | 14       |
| J mm                                    | 164               | 205    | 248      | 315      | 350      |
| K mm                                    | 190               | 235    | 285      | 358      | 388      |
| L                                       | M 6               | M 6    | M 6      | M 6      | M 16     |
| M mm                                    | 26                | 38     | 52       | 68       | 90       |
| N mm                                    | 66,5              | 80,5   | 71       | 78,5     | 79,5     |
| O mm                                    | 204               | 250    | 295      | 370      | 400      |
| P mm                                    | R 1/4"            | R 1/4" | R 1/4"   | R 1/4"   | R 1/4"   |
| R                                       | M 8               | M 8    | M 12     | M 16     | M 6      |
| S mm                                    | 32                | 41     | 35       | 37       | 36       |
| T mm                                    | 103               | 131,5  | 134      | 147,5    | 158      |
| U mm                                    | 20                | 20,7   | 19       | 19       | 18       |
| V mm                                    | -                 | 4      | 15       | 15,5     | 25       |
| a min.                                  | 24                | 31,8   | 41,2     | 50       | 61,5     |
| a max.                                  | 27                | 36     | 45,4     | 55       | 66,5     |
| b min.                                  | 10                | 10     | 13       | 15       | 14,5     |
| b max.                                  | 21                | 19,5   | 35       | 43       | 64       |
| c mm                                    | min. 14 / max. 25 | 2 x 15 | 19       | 25       | 25       |
| d mm                                    | 41                | 49,5   | 62       | 78       | 99       |
| e mm                                    | 25                | 32     | 36       | 44       | 44       |
| f <sup>h</sup> mm                       | 12                | 12     | 17       | 21       | 21       |
| Max. operating pressure bar             | 8                 | 8      | 8        | 8        | 8        |
| Min. operating pressure bar             | 2                 | 2,5    | 2,5      | 2,5      | 2,5      |
| Total clamping force at 6 bar kN        | 20                | 35     | 60       | 95       | 120      |
| Max. admissible speed min <sup>-1</sup> | 4000              | 3500   | 2800     | 2200     | 1800     |
| Moment of inertia J kgm <sup>2</sup>    | 0,028             | 0,125  | 0,262    | 0,675    | 1,35     |
| Air consumption/jaw travel at 6 bar NL  | 1,5               | 2,4    | 3,9      | 6,6      | 8,2      |
| Weight without jaws approx. kg          | 13                | 25     | 36       | 57       | 85       |

Higher speeds by fastening the stationary floating ring

LVE chuck with short taper mount ISO 702-3 (DIN 55027, studs and locknuts) on request

LVE chuck with short taper mount ISO 702-2 (DIN55029, studs for Camlock) on request

## Jaws LVE

C 21

Reversible top jaws, 3-jaw set, hardened serration 90° - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------------|---------------|---------------|--------------|------------|
| 046404   | 125/160    | 56            | 37,5          | 26           | 1/16"x 90° |
| 118522   | 200        | 75            | 49            | 36           | 1/16"x 90° |
| 046414   | 250/315    | 103,5         | 58            | 50           | 1/16"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, 3-jaw set, can be hardened serration 90° - material: 16MnCr5

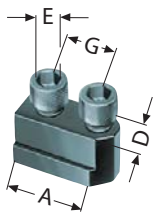


| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------------|---------------|---------------|--------------|------------|
| 046403   | 125/160    | 55            | 38            | 26,5         | 1/16"x 90° |
| 133153   | 200        | 75            | 53            | 36,5         | 1/16"x 90° |
| 133154   | 250/315    | 95            | 54,5          | 45           | 1/16"x 90° |

## Accessories LVE

C 15 Extended T-nuts

With screw



| Item no.             | Chuck Size | Contents of delivery | D mm | E      | G mm |
|----------------------|------------|----------------------|------|--------|------|
| 241673 <sup>1)</sup> | 125        | piece                | 12   | M8x20  | -    |
| 1305178 ▲            | 160        | piece                | 12   | M8x25  | 2x15 |
| 1305179              | 200        | piece                | 17   | M12x30 | 19   |
| 1305180 ▲            | 250/315    | piece                | 21   | M16x35 | 25   |

<sup>1)</sup> Metric dimensions

# Accessories LVE

C 15

**Electro-pneumatic safety control block for LVE 125-315**


| Item no. | Voltage     |
|----------|-------------|
| 437747   | 220 V 50 Hz |
| 437748   | 24 V Dc     |

Please order accessories and connection hoses separately

C 15

**Manual pulse generator, without cable**


| Item no. | Contents of delivery |
|----------|----------------------|
| 220629 ▲ | piece                |

C 15

**Double foot-control switch**


| Item no. | Contents of delivery |
|----------|----------------------|
| 249325 ▲ | piece                |

C 15

**Service unit**


| Item no.               | Contents of delivery |
|------------------------|----------------------|
| 367444 <sup>1)</sup> ▲ | piece                |

<sup>1)</sup> Consisting of filter, water separator and oiler, R 3/8"

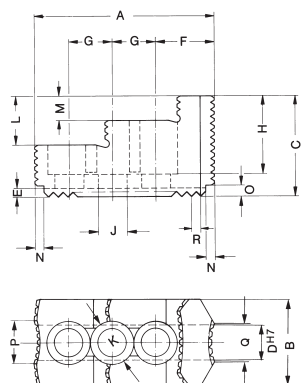
C 15

**Connector**


| Item no. | Chuck Size | Design                                 | Contents of delivery |
|----------|------------|----------------------------------------|----------------------|
| 720233   | 125-200    | snap-on connector CX-R 1/4"-PX-6       | piece                |
| 720235   | 125-200    | swivel connector LCX-R 1/4"-PX-6       | piece                |
| 720260   | 250-315    | straight screw-in unions Ø 12/9 R 1/4" | piece                |
| 720261   | 250-315    | swivel connector Ø 12/9 R 1/4"         | piece                |

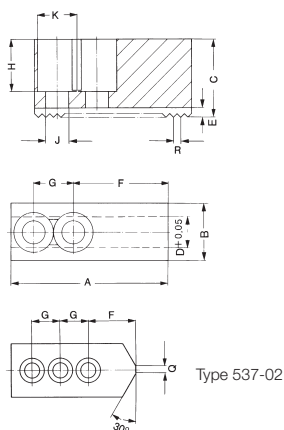
# Jaw dimensions und chucking capacities LVE

**Reversible top jaws UB,**  
hardened, serration 90°,  
material 16MnCr5



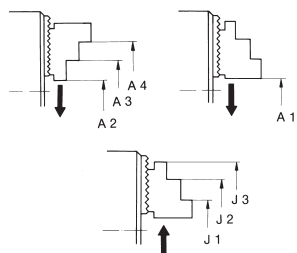
| Chuck size         | 125           | 160           | 200           | 250           | 315           |
|--------------------|---------------|---------------|---------------|---------------|---------------|
| Type               | 538-02        | 538-02        | 538-04        | 538-05        | 538-05        |
| Item no. 3-jaw set | <b>046404</b> | <b>046404</b> | <b>118522</b> | <b>046414</b> | <b>046414</b> |
| A                  | 56            | 56            | 75            | 103,5         | 103,5         |
| B                  | 26            | 26            | 36            | 50            | 50            |
| C                  | 37,5          | 37,5          | 49            | 58            | 58            |
| DH7                | 12            | 12            | 17            | 21            | 21            |
| E                  | 3,5           | 3,5           | 5             | 5             | 5             |
| F                  | 14            | 14            | 21,5          | 33,5          | 33,5          |
| G                  | 15            | 15            | 19            | 25            | 25            |
| H                  | 29            | 29            | 37,5          | 45            | 45            |
| J                  | 8,4           | 8,4           | 13            | 17            | 17            |
| K                  | 13,5          | 13,5          | 19            | 25            | 25            |
| L                  | 20            | 20            | 24            | 28            | 28            |
| M                  | 10            | 10            | 12            | 14            | 14            |
| N                  | 4             | 4             | 6             | 6             | 6             |
| O                  | 4             | 4             | 7,5           | 6,5           | 6,5           |
| P                  | 5             | 5             | 18            | 24,5          | 24,5          |
| Q                  | 5             | 5             | 7             | 22,5          | 22,5          |
| R                  | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     |
| Weight/jaw kg      | 0,170         | 0,170         | 0,460         | 1,130         | 1,130         |

**Soft top jaws AB,**  
material 16MnCr5



| Chuck size         | 125           | 160           | 200           | 250           | 250           |
|--------------------|---------------|---------------|---------------|---------------|---------------|
| Type               | 538-02        | 538-02        | 538-04        | 538-05        | 538-05        |
| Item no. 3-jaw set | <b>046403</b> | <b>046403</b> | <b>133153</b> | <b>133154</b> | <b>133154</b> |
| A                  | 55            | 55            | 75            | 95            | 95            |
| B                  | 26,5          | 26,5          | 36,5          | 45            | 45            |
| C                  | 38            | 38            | 53            | 54,5          | 54,5          |
| DH7                | 12            | 12            | 17            | 21            | 21            |
| E                  | 3,5           | 3,5           | 5             | 5             | 5             |
| F                  | 31            | 31            | 44            | 55            | 55            |
| G                  | 15            | 15            | 19            | 25            | 25            |
| H                  | 28            | 28            | 43            | 42,5          | 42,5          |
| J                  | 8,4           | 8,4           | 13            | 17            | 17            |
| K                  | 13,5          | 13,5          | 19            | 25            | 25            |
| R                  | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     |
| Weight/jaw kg      | 0,320         | 0,320         | 0,880         | 1,400         | 1,400         |

Chucking capacities with reversible  
top jaws UB



| Chuck size           |              | 125     | 160     | 200     | 250     | 315     |
|----------------------|--------------|---------|---------|---------|---------|---------|
| with reversible jaws | Type         | 538-02  | 538-02  | 538-04  | 538-05  | 538-05  |
|                      | Jaw position |         |         |         |         |         |
| External chucking    | A1           | 12-63   | 28-80   | 30-115  | 20-128  | 41-194  |
|                      | A2           | 17-69   | 32-84   | 44-128  | 46-154  | 67-220  |
|                      | A3           | 67-119  | 82-132  | 101-185 | 128-238 | 150-303 |
|                      | A4           | 101-153 | 118-168 | 152-236 | 210-318 | 231-384 |
| Internal chucking    | J1           | 49-99   | 64-116  | 80-165  | 70-188  | 91-244  |
|                      | J2           | 81-131  | 96-148  | 130-214 | 146-255 | 168-320 |
|                      | J3           | 125-175 | 140-192 | 182-266 | 225-334 | 246-400 |



# LVE - large through-hole



## APPLICATION

Optimal for the end machining of large and long pipes, e.g. for the oil and gas industry (especially as front and rear chuck).

## TYPE

Power chuck with integrated pneumatic cylinder and cylindrical centre mount. 3-jaw version with serration 90°.

## CUSTOMER BENEFITS

- ⊕ Extra-large through-hole
- ⊕ Can be easily exchanged with manual clamping chuck
- ⊕ Compact system dimensions because it is self-contained
- ⊕ Unobstructed bore through spindle thanks to omission of the draw tube
- ⊕ Flange and bar machining possible without retrofitting

## TECHNICAL FEATURES

- Clamping and unclamping only when spindle at standstill
- Wedge hook system with integrated clamping cylinder
- Control valves maintain the clamping pressure during machining
- Short clamping cycle thanks to rapid and clamping stroke (optionally)
- Permanent monitoring of the clamping pressure while machining (optionally)

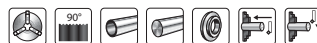
### Note:

Other versions on request: e.g. front-end chucks for compensating clamping, compensating self-contained chucks and chucks that can be converted from self-centering to compensating.

### Included in scope of delivery:

Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)

**LVE** = air-operated, self-contained chuck



## Possible application

Two chucks are mounted on the front and rear sides of the machine spindle. Via a selection switch on our electronic control unit DF type 525-90 combined with one pneumatic control unit LSV type 525-91 each, the two chucks can be used together or separately and also with different clamping pressures. This combinations make a high cutting capacity and high turning precision possible for the end machining of long pipes.

## Distributor ring

The distributor ring has the function of transferring compressed air from the outside into the chuck. This means that the distributor ring is always stationary, while the chuck rotates during workpiece machining. It is therefore mounted to the spindle box, and is therefore secured against rotating along. Special seals seal the gap between the distributor ring and chuck during the clamping operation so that the pressure can be transferred with no problems.

**Important:** To prevent the sealing ring from being destroyed, the pressure may only be transferred when the chuck is at a standstill.

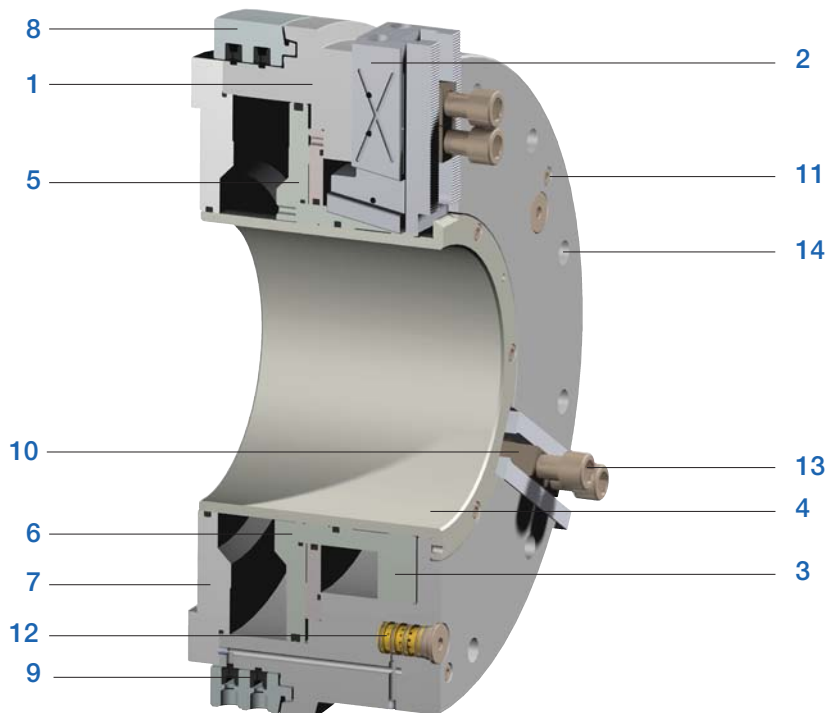
## Control valve

The control valve has the job of securing the compressed air required for clamping in a closed system throughout machining. It automatically secures that piston side which is pressurized, whereby the compressed air of the opposite-lying piston side is unclamped automatically. The valve can be dismantled as a complete unit and is available as replacement unit.

## Air-operated self-contained chucks, sizes 400-1000

Characteristic for this chuck is a pneumatic piston integrated in the chuck body for generating the clamping force. To clamp or unclamp the workpiece, the compressed air is conducted to the pneumatic piston while the chuck is stationary via the distributor ring and non-return valve. The pneumatic piston is screwed to the clamping piston, with which, in turn, the base jaws are connected via a wedge hook system. An axial movement of the pneumatic piston therefore causes a radial movement of the base jaws.

# LVE - large through-hole



## Components LVE

1. Body
2. Base jaw
3. Piston
4. Protective bush
5. Intermediate washer
6. Piston plate
7. Flange
8. Distributor ring
9. Seal
10. T-nut
11. Air-vent screw
12. Control valve
13. Jaw fixing screws
14. Chuck fixing screws

## Control system

The clamping safety mainly depends on the leak-tightness of the closed pneumatic chamber. A pressure drop during machining causes a reduction in the clamping force.

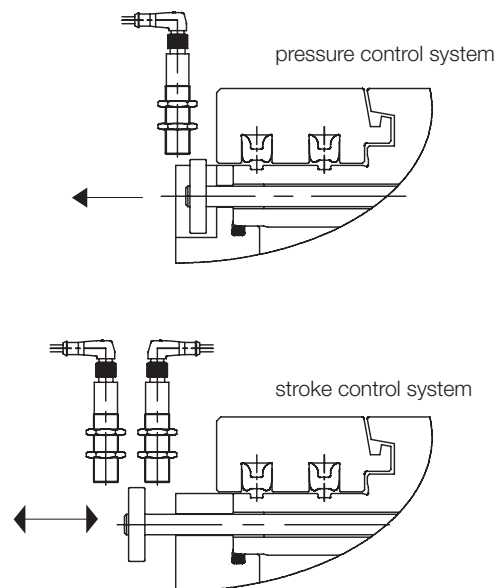
The „**RÖHM control system**“ is used to control the pressure of the closed pneumatic chamber. If the pressure falls below a defined minimum level, a spring-loaded pin attached to the rear side of the chuck moves out to the rear.

At the same height as the pin, a contactless inductive probe is fastened at a certain radial distance. If the extended pin moves through the magnetic field of the probe, an electrical pulse is triggered, which can be used to shut the machine down.

## Wedge hook system

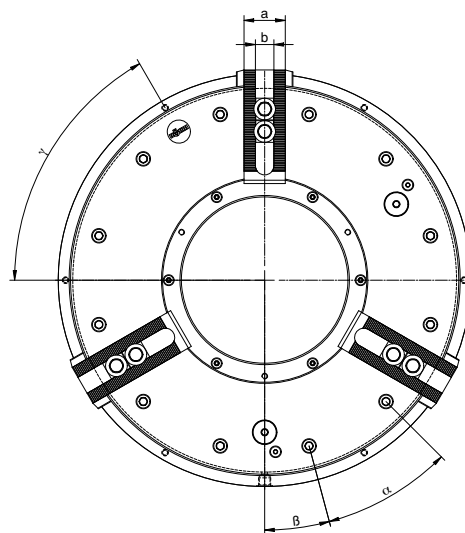
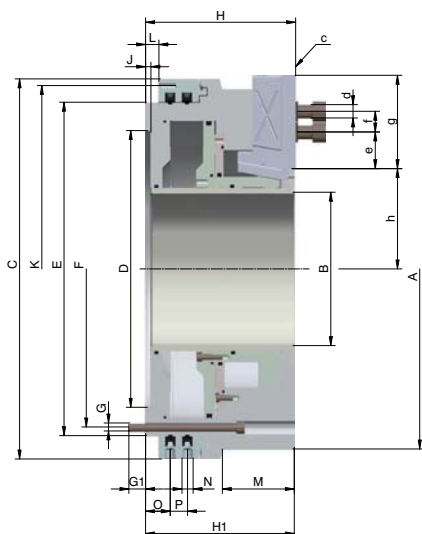
The axial piston force is transferred and transmitted into the radial jaw force via the proven wedge hooks. The large force transfer surfaces guarantee a long service life and a sustainably high clamping precision. These features apply both to the chuck with normal jaw stroke as well as to chucks with rapid and gripping jaw movements.

## RÖHM control system



The control unit is designed for LVE chucks with rapid and clamping strokes only for external clamping. For LVE chucks with a normal stroke only pressure control device for the external clamping is provided (on customer demand for internal clamping).

# LVE - large through-hole, standard design

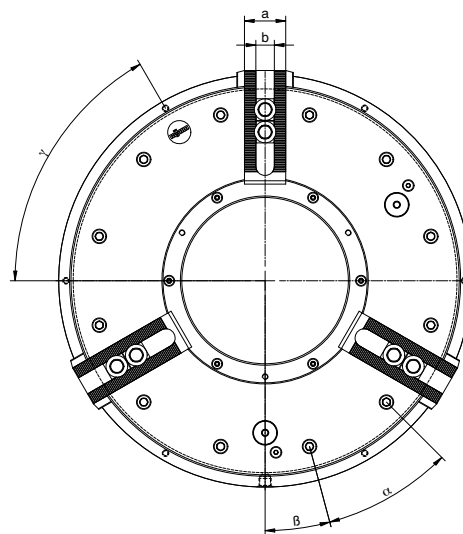
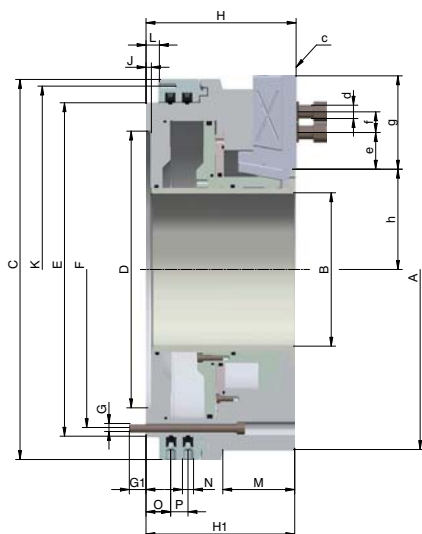


C 15

3-jaw self-contained chucks **LVE**, with large through-hole, max. operating pressure 8 bar, with serration  
Cylindrical centre mount (standard version)

| Item No.                                | 169400 ▲    | 169401      | 169402 ▲    | 169403 ▲    | 169404 ▲    | 169405 ▲    | 169406 ▲    | 169407 ▲    | 169409 ▲    |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Size                                    | 400         | 400         | 500         | 500         | 600         | 600         | 600         | 700         | 800         |
| LVE                                     | LVE 420-140 | LVE 480-185 | LVE 540-205 | LVE 570-230 | LVE 600-275 | LVE 640-275 | LVE 680-325 | LVE 730-375 | LVE 830-410 |
| Jaw travel mm                           | 7           | 8,5         | 8,5         | 8,5         | 8,5         | 10          | 10          | 10          | 12          |
| A mm                                    | 425         | 480         | 540         | 570         | 605         | 640         | 685         | 735         | 835         |
| B mm                                    | 140         | 185         | 205         | 230         | 275         | 275         | 325         | 375         | 410         |
| C mm                                    | 470         | 530         | 570         | 570         | 605         | 685         | 685         | 735         | 850         |
| D <sup>16</sup> mm                      | 310         | 365         | 415         | 415         | 450         | 510         | 510         | 560         | 700         |
| E mm                                    | 400         | 460         | 500         | 500         | 535         | 610         | 610         | 660         | 775         |
| F mm                                    | 374         | 434         | 474         | 474         | 508         | 580         | 580         | 630         | 745         |
| G                                       | M12         | M12         | M12         | M12         | M12         | M16         | M16         | M16         | M16         |
| G1 mm                                   | 25          | 25          | 25          | 25          | 25          | 30          | 30          | 30          | 30          |
| H mm                                    | 196         | 225         | 225         | 225         | 225         | 263         | 263         | 263         | 305         |
| H1 mm                                   | 194         | 223         | 223         | 223         | 223         | 261         | 261         | 261         | 303         |
| J mm                                    | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           |
| K mm (6xM8)                             | 448         | 510         | 550         | 550         | 585         | 666         | 666         | 716         | 830         |
| L mm                                    | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 25          |
| M mm                                    | 70          | 90          | 100         | -           | -           | 110         | -           | -           | 155         |
| N                                       | G 3/8       | G 3/8       | G 3/8       | G 3/8       | G 3/8       | G 1/2       | G 1/2       | G 1/2       | G 1/2       |
| O mm                                    | 37          | 37          | 37          | 37          | 37          | 39,5        | 39,5        | 39,5        | 44,5        |
| P mm                                    | 26          | 26          | 26          | 26          | 26          | 33          | 33          | 33          | 33          |
| a mm                                    | 57          | 57          | 57          | 57          | 57          | 75          | 75          | 75          | 75          |
| bH7 mm                                  | 25,5        | 25,5        | 25,5        | 25,5        | 25,5        | 30          | 30          | 30          | 30          |
| c inch                                  | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   |
| d                                       | M20x50      | M20x50      | M20x50      | M20x50      | M20x50      | M24x60      | M24x60      | M24x60      | M24x60      |
| e mm                                    | 20          | 20          | 20          | 20          | 20          | 28          | 28          | 28          | 28          |
| f min.                                  | 32          | 32          | 32          | 32          | 32          | 42          | 42          | 42          | 42          |
| f max.                                  | 85          | 85          | 105         | 105         | 100         | 100         | 100         | 100         | 125         |
| g mm                                    | 120         | 120         | 140         | 140         | 135         | 145         | 145         | 145         | 173         |
| h min.                                  | 94          | 118,5       | 129         | 141,5       | 164         | 175         | 195         | 220         | 242,5       |
| h max.                                  | 101         | 127         | 137,5       | 150         | 172,5       | 185         | 205         | 230         | 254,5       |
| α degree                                | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         |
| β degree                                | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         |
| γ degree                                | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         |
| Min. operating pressure bar             | 2           | 2           | 2           | 2           | 2           | 2           | 2           | 2           | 3           |
| Max. operating pressure bar             | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           |
| Total clamping force at 6 bar kN        | 140         | 155         | 210         | 190         | 200         | 240         | 180         | 205         | 325         |
| Cylinder surface area cm²               | 710         | 899         | 1045        | 940         | 1010        | 1414        | 1181        | 1341        | 2121        |
| Air consumption (total stroke) l        | 20          | 31          | 36          | 32          | 35          | 58          | 49          | 55          | 104         |
| Max. admissible speed min <sup>-1</sup> | 1700        | 1500        | 1300        | 1300        | 1200        | 1000        | 900         | 800         | 750         |
| Moment of inertia kgm²                  | 3.50        | 7.00        | 10.50       | 12.50       | 15.50       | 24.75       | 29.50       | 38.50       | 76.25       |
| Weight kg                               | 150         | 215         | 263         | 272         | 289         | 423         | 426         | 470         | 723         |

# LVE - large through-hole, with pressure control device

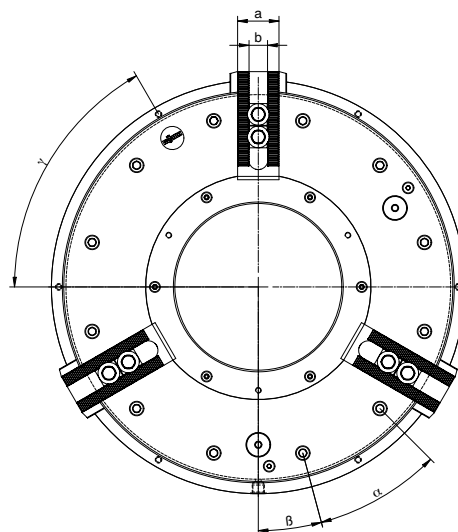
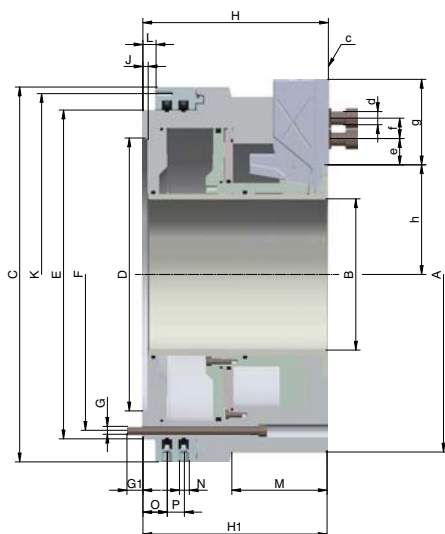


C 15

**3-jaw self-contained chucks LVE, with large through-hole, max. operating pressure 8 bar, with serration**  
**Cylindrical centre mount with pressure control device for external clamping**

| Item No.                                | 169411 ▲    | 169412 ▲    | 169413 ▲    | 169414 ▲    | 169415 ▲    | 169416 ▲    | 169417 ▲    | 169418 ▲    | 169420 ▲    |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Size                                    | 400         | 400         | 500         | 500         | 600         | 600         | 600         | 700         | 800         |
| LVE                                     | LVE 420-140 | LVE 480-185 | LVE 540-205 | LVE 570-230 | LVE 600-275 | LVE 640-275 | LVE 680-325 | LVE 730-375 | LVE 830-410 |
| Jaw travel mm                           | 7           | 8,5         | 8,5         | 8,5         | 8,5         | 10          | 10          | 10          | 12          |
| A mm                                    | 425         | 480         | 540         | 570         | 605         | 640         | 685         | 735         | 835         |
| B mm                                    | 140         | 185         | 205         | 230         | 275         | 275         | 325         | 375         | 410         |
| C mm                                    | 470         | 530         | 570         | 570         | 605         | 685         | 685         | 735         | 850         |
| D <sup>6</sup> mm                       | 310         | 365         | 415         | 415         | 450         | 510         | 510         | 560         | 700         |
| E mm                                    | 400         | 460         | 500         | 500         | 535         | 610         | 610         | 660         | 775         |
| F mm                                    | 374         | 434         | 474         | 474         | 508         | 580         | 580         | 630         | 745         |
| G                                       | M12         | M12         | M12         | M12         | M12         | M16         | M16         | M16         | M16         |
| G1 mm                                   | 25          | 25          | 25          | 25          | 25          | 30          | 30          | 30          | 30          |
| H mm                                    | 196         | 225         | 225         | 225         | 225         | 263         | 263         | 263         | 305         |
| H1 mm                                   | 194         | 223         | 223         | 223         | 223         | 261         | 261         | 261         | 303         |
| J mm                                    | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           |
| K mm (6xM8)                             | 448         | 510         | 550         | 550         | 585         | 666         | 666         | 716         | 830         |
| L mm                                    | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 25          |
| M mm                                    | 70          | 90          | 100         | -           | -           | 110         | -           | -           | 155         |
| N                                       | G 3/8       | G 3/8       | G 3/8       | G 3/8       | G 3/8       | G 1/2       | G 1/2       | G 1/2       | G 1/2       |
| O mm                                    | 37          | 37          | 37          | 37          | 37          | 39,5        | 39,5        | 39,5        | 44,5        |
| P mm                                    | 26          | 26          | 26          | 26          | 26          | 33          | 33          | 33          | 33          |
| a mm                                    | 57          | 57          | 57          | 57          | 57          | 75          | 75          | 75          | 75          |
| bH7 mm                                  | 25,5        | 25,5        | 25,5        | 25,5        | 25,5        | 30          | 30          | 30          | 30          |
| c inch                                  | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   | 3/32"x90°   |
| d                                       | M20x50      | M20x50      | M20x50      | M20x50      | M20x50      | M24x60      | M24x60      | M24x60      | M24x60      |
| e mm                                    | 20          | 20          | 20          | 20          | 20          | 28          | 28          | 28          | 28          |
| f min.                                  | 32          | 32          | 32          | 32          | 32          | 42          | 42          | 42          | 42          |
| f max.                                  | 85          | 85          | 105         | 105         | 100         | 100         | 100         | 100         | 125         |
| g mm                                    | 120         | 120         | 140         | 140         | 135         | 145         | 145         | 145         | 173         |
| h min.                                  | 94          | 118,5       | 129         | 141,5       | 164         | 175         | 195         | 220         | 242,5       |
| h max.                                  | 101         | 127         | 137,5       | 150         | 172,5       | 185         | 205         | 230         | 254,5       |
| α degree                                | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         | 30°         |
| β degree                                | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         | 15°         |
| γ degree                                | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         | 60°         |
| Min. operating pressure bar             | 2           | 2           | 2           | 2           | 2           | 2           | 2           | 2           | 3           |
| Max. operating pressure bar             | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           | 8           |
| Total clamping force at 6 bar kN        | 140         | 155         | 210         | 190         | 200         | 240         | 180         | 205         | 325         |
| Cylinder surface area cm <sup>2</sup>   | 710         | 899         | 1045        | 939         | 1010        | 1414        | 1181        | 1341        | 2121        |
| Air consumption (total stroke) l        | 20          | 31          | 36          | 32          | 35          | 58          | 49          | 55          | 104         |
| Max. admissible speed min <sup>-1</sup> | 1700        | 1500        | 1300        | 1300        | 1200        | 1000        | 900         | 800         | 750         |
| Moment of inertia kgm <sup>2</sup>      | 3.50        | 7.00        | 10.50       | 12.50       | 15.5        | 24.75       | 29.50       | 38.50       | 76.25       |
| Weight kg                               | 150         | 215         | 263         | 272         | 289         | 423         | 426         | 470         | 723         |

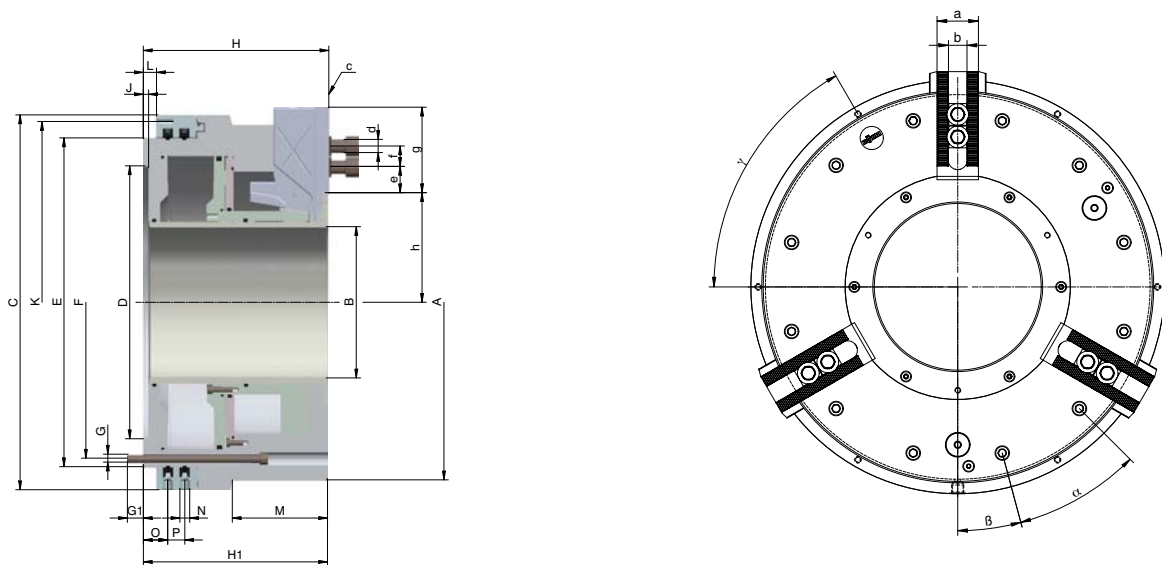
# LVE - large through-hole, standard design, with rapid and clamping jaw movement



C 15  
3-jaw self-contained chucks LVE, with rapid and clamping jaw movements, with large through-hole, external chucking, max. operating pressure 8 bar, with serration  
Cylindrical centre mount (standard version)

| Item No.                                | 169422 ▲       | 169423         | 169424 ▲       | 169425 ▲       | 169426 ▲       | 169427 ▲       | 169428 ▲       | 169429 ▲       | 169431 ▲       |
|-----------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Size                                    | 400            | 400            | 500            | 500            | 600            | 600            | 600            | 700            | 800            |
| LVE                                     | LVE 470-140 ES | LVE 490-185 ES | LVE 570-205 ES | LVE 570-230 ES | LVE 600-275 ES | LVE 640-275 ES | LVE 680-325 ES | LVE 730-375 ES | LVE 850-410 ES |
| Jaw travel mm                           | 19             | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           |
| Rapid movement mm                       | 12             | 16,9           | 16,9           | 16,9           | 16,9           | 16,9           | 16,9           | 16,9           | 14,9           |
| clamping movement mm                    | 7              | 8,5            | 8,5            | 8,5            | 8,5            | 8,5            | 8,5            | 8,5            | 10,5           |
| A mm                                    | 470            | 490            | 570            | 570            | 605            | 645            | 685            | 735            | 850            |
| B mm                                    | 140            | 185            | 205            | 230            | 275            | 275            | 325            | 375            | 410            |
| C mm                                    | 470            | 530            | 570            | 570            | 605            | 685            | 685            | 735            | 850            |
| D <sup>16</sup> mm                      | 310            | 365            | 415            | 415            | 450            | 510            | 510            | 560            | 700            |
| E mm                                    | 400            | 460            | 500            | 500            | 535            | 610            | 610            | 660            | 775            |
| F mm                                    | 374            | 434            | 474            | 474            | 508            | 580            | 580            | 630            | 745            |
| G                                       | M12            | M12            | M12            | M12            | M12            | M16            | M16            | M16            | M16            |
| G1 mm                                   | 25             | 25             | 25             | 25             | 25             | 30             | 30             | 30             | 30             |
| H mm                                    | 240            | 282            | 282            | 282            | 282            | 308            | 308            | 308            | 322            |
| H1 mm                                   | 238            | 280            | 280            | 280            | 280            | 306            | 306            | 306            | 320            |
| J mm                                    | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              |
| K mm (6xM8)                             | 448            | 510            | 550            | 550            | 585            | 666            | 666            | 716            | 830            |
| L mm                                    | 20             | 20             | 20             | 20             | 20             | 20             | 20             | 20             | 25             |
| M mm                                    | -              | 140            | -              | -              | -              | 150            | -              | -              | -              |
| N                                       | G 3/8          | G 3/8          | G 3/8          | G 3/8          | G 3/8          | G 1/2          | G 1/2          | G 1/2          | G 1/2          |
| O mm                                    | 37             | 37             | 37             | 37             | 37             | 39,5           | 39,5           | 39,5           | 44,5           |
| P mm                                    | 26             | 26             | 26             | 26             | 26             | 33             | 33             | 33             | 33             |
| a mm                                    | 57             | 57             | 57             | 57             | 57             | 75             | 75             | 75             | 75             |
| bH7 mm                                  | 25,5           | 25,5           | 25,5           | 25,5           | 25,5           | 30             | 30             | 30             | 30             |
| c inch                                  | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      |
| d                                       | M20x50         | M20x50         | M20x50         | M20x50         | M20x50         | M24x60         | M24x60         | M24x60         | M24x60         |
| e mm                                    | 20             | 20             | 20             | 20             | 20             | 28             | 28             | 28             | 28             |
| f min.                                  | 32             | 32             | 32             | 32             | 32             | 42             | 42             | 42             | 42             |
| f max.                                  | 80             | 80             | 95             | 95             | 90             | 95             | 95             | 95             | 120            |
| g mm                                    | 112            | 112            | 130            | 130            | 125            | 140            | 140            | 140            | 170            |
| h min.                                  | 126            | 132,6          | 142,1          | 154,6          | 177,1          | 182,6          | 202,6          | 227,6          | 234,6          |
| h max.                                  | 145            | 158            | 167,5          | 180            | 202,5          | 208            | 228            | 253            | 260            |
| α degree                                | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            |
| β degree                                | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            |
| γ degree                                | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            |
| Min. operating pressure bar             | 2              | 2              | 2              | 2              | 2              | 2              | 2              | 2              | 3              |
| Max. operating pressure bar             | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              |
| Total clamping force at 6 bar kN        | 120            | 150            | 190            | 170            | 180            | 185            | 180            | 200            | 325            |
| Cylinder surface area cm <sup>2</sup>   | 700            | 862            | 1003           | 895            | 958            | 1203           | 1181           | 1307           | 2121           |
| Air consumption (total stroke) l        | 32             | 42             | 48             | 45             | 46             | 58             | 57             | 63             | 113            |
| Max. admissible speed min <sup>-1</sup> | 1500           | 1300           | 1200           | 1200           | 1100           | 900            | 800            | 750            | 750            |
| Moment of inertia kgm <sup>2</sup>      | 6.50           | 8.75           | 15.50          | 15.00          | 19.00          | 30.50          | 35.25          | 45.75          | 84.50          |
| Weight kg                               | 200            | 267            | 348            | 334            | 356            | 515            | 505            | 554            | 785            |

# LVE - large through-hole, with pressure control device, rapid and clamping jaw movement



C 15

**3-jaw self-contained chucks LVE, with rapid and gripping jaw movements, with large through-hole, external chucking, max. operating pressure 8 bar, with serration**  
Cylindrical centre mount with pressure control device for external clamping

| Item No.                                | 169433 ▲       | 169434 ▲       | 169435 ▲       | 169436 ▲       | 169437 ▲       | 169438 ▲       | 169439 ▲       | 169440 ▲       | 169442 ▲       |
|-----------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Size                                    | 400            | 400            | 500            | 500            | 600            | 600            | 600            | 700            | 800            |
| LVE                                     | LVE 470-140 ES | LVE 490-185 ES | LVE 570-205 ES | LVE 570-230 ES | LVE 600-275 ES | LVE 640-275 ES | LVE 680-325 ES | LVE 730-375 ES | LVE 850-410 ES |
| Jaw travel mm                           | 19             | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           | 25,4           |
| Rapid movement mm                       | 12             | 16,9           | 16,9           | 16,9           | 16,9           | 16,9           | 16,9           | 16,9           | 14,9           |
| Gripping movement mm                    | 7              | 8,5            | 8,5            | 8,5            | 8,5            | 8,5            | 8,5            | 8,5            | 10,5           |
| A mm                                    | 470            | 490            | 570            | 570            | 605            | 645            | 685            | 735            | 850            |
| B mm                                    | 140            | 185            | 205            | 230            | 275            | 275            | 325            | 375            | 410            |
| C mm                                    | 470            | 530            | 570            | 570            | 605            | 685            | 685            | 735            | 850            |
| D <sup>6</sup> mm                       | 310            | 365            | 415            | 415            | 450            | 510            | 510            | 560            | 700            |
| E mm                                    | 400            | 460            | 500            | 500            | 535            | 610            | 610            | 660            | 775            |
| F mm                                    | 374            | 434            | 474            | 474            | 508            | 580            | 580            | 630            | 745            |
| G                                       | M12            | M12            | M12            | M12            | M12            | M16            | M16            | M16            | M16            |
| G1 mm                                   | 25             | 25             | 25             | 25             | 25             | 30             | 30             | 30             | 30             |
| H mm                                    | 240            | 282            | 282            | 282            | 282            | 308            | 308            | 308            | 322            |
| H1 mm                                   | 238            | 280            | 280            | 280            | 280            | 306            | 306            | 306            | 320            |
| J mm                                    | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              |
| K mm (6xM8)                             | 448            | 510            | 550            | 550            | 585            | 666            | 666            | 716            | 830            |
| L mm                                    | 20             | 20             | 20             | 20             | 20             | 20             | 20             | 20             | 25             |
| M mm                                    | -              | 140            | -              | -              | -              | 150            | -              | -              | -              |
| N                                       | G 3/8          | G 3/8          | G 3/8          | G 3/8          | G 3/8          | G 1/2          | G 1/2          | G 1/2          | G 1/2          |
| O mm                                    | 37             | 37             | 37             | 37             | 37             | 39,5           | 39,5           | 39,5           | 44,5           |
| P mm                                    | 26             | 26             | 26             | 26             | 26             | 33             | 33             | 33             | 33             |
| a mm                                    | 57             | 57             | 57             | 57             | 57             | 75             | 75             | 75             | 75             |
| bH7 mm                                  | 25,5           | 25,5           | 25,5           | 25,5           | 25,5           | 30             | 30             | 30             | 30             |
| c inch                                  | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      | 3/32"x90°      |
| d                                       | M20x50         | M20x50         | M20x50         | M20x50         | M20x50         | M24x60         | M24x60         | M24x60         | M24x60         |
| e mm                                    | 20             | 20             | 20             | 20             | 20             | 28             | 28             | 28             | 28             |
| f min.                                  | 32             | 32             | 32             | 32             | 32             | 42             | 42             | 42             | 42             |
| f max.                                  | 80             | 80             | 95             | 95             | 90             | 95             | 95             | 95             | 120            |
| g mm                                    | 112            | 112            | 130            | 130            | 125            | 140            | 140            | 140            | 170            |
| h min.                                  | 126            | 132,6          | 142,1          | 154,6          | 177,1          | 182,6          | 202,6          | 227,6          | 234,6          |
| h max.                                  | 145            | 158            | 167,5          | 180            | 202,5          | 208            | 228            | 253            | 260            |
| α degree                                | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            | 30°            |
| β degree                                | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            | 15°            |
| γ degree                                | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            | 60°            |
| Min. operating pressure bar             | 2              | 2              | 2              | 2              | 2              | 2              | 2              | 2              | 3              |
| Max. operating pressure bar             | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              | 8              |
| Total clamping force at 6 bar kN        | 120            | 150            | 210            | 170            | 180            | 185            | 180            | 200            | 325            |
| Cylinder surface area cm <sup>2</sup>   | 700            | 862            | 1024           | 895            | 958            | 1203           | 1181           | 1307           | 2121           |
| Air consumption (total stroke) l        | 32             | 42             | 50             | 45             | 46             | 58             | 57             | 63             | 113            |
| Max. admissible speed min <sup>-1</sup> | 1500           | 1300           | 1200           | 1200           | 1100           | 900            | 800            | 750            | 750            |
| Moment of inertia kgm <sup>2</sup>      | 6,50           | 8,75           | 15,50          | 15,00          | 19,00          | 30,50          | 35,25          | 45,75          | 84,50          |
| Weight kg                               | 200            | 267            | 348            | 334            | 356            | 515            | 505            | 554            | 785            |

# Jaws LVE

C 21

Reversible top jaws, 3-jaw set, hardened serration 90° - material: 16MnCr5



| Chuck Size  | 3-jaw set     | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|-------------|---------------|---------------|---------------|--------------|------------|
| 400/500/600 | <b>037531</b> | 135           | 65            | 68           | 3/32"x 90° |
| 600/700     | <b>169464</b> | 170           | 75            | 80           | 3/32"x90°  |
| 800         | <b>169466</b> | 195           | 85            | 80           | 3/32"x90°  |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

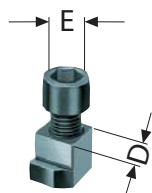
Extended soft top jaws, 3-jaw set serration 90° - material: 16MnCr5



| Chuck Size | 3-jaw set     | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|------------|---------------|---------------|---------------|--------------|------------|
| 400        | <b>137028</b> | 180           | 80            | 50           | 3/32"x 90° |
| 500/600    | <b>169449</b> | 205           | 80            | 50           | 3/32"x90°  |
| 600/700    | <b>169452</b> | 245           | 89            | 68           | 3/32"x90°  |
| 800        | <b>169456</b> | 285           | 89            | 68           | 3/32"x90°  |

# Accessories LVE

## C 15 T-nuts With screw



| Item no.  | Chuck Size       | Contents of delivery | D mm | E      |
|-----------|------------------|----------------------|------|--------|
| 1305181 ▲ | 400/500/600      | piece                | 25,5 | M20x50 |
| 1305182 ▲ | 600/700/800/1000 | piece                | 30   | M24x60 |

## C 15 Pneumatic control unit for LVE 400-1000



| Item no. | Width mm | Height mm | Depth mm | Control voltage | Connection        | Weight approx. kg |
|----------|----------|-----------|----------|-----------------|-------------------|-------------------|
| 426560   | 280      | 250       | 100      | 24 V            | R ½ inside thread | 3                 |

When double chucks are used, two pneumatic control devices are required

## C 15 Control units for single chucks with dual foot switch, wired, cable length 6 meters, for LVE 400-1000



| Item no. | Design                      | Width mm | Height with plug mm | Height mm | Depth mm | Control voltage | Cable length |
|----------|-----------------------------|----------|---------------------|-----------|----------|-----------------|--------------|
| 426481   | without pressure monitoring | 300      | 340                 | 300       | 125      | 24 V            | 6 m          |
| 426263   | with pressure monitoring    | 300      | 340                 | 300       | 125      | 24 V            | 6 m          |

Power supplies on request: primary 35-264 V ~, 47-63 Hz - secondary 24V/1.5 A

## C 15 Control units for dual chucks with dual foot switch, wired, cable length 6 meters, for LVE 400-1000



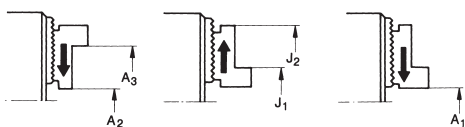
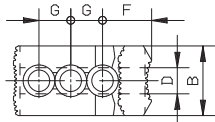
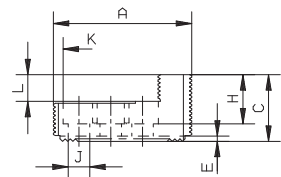
| Item no. | Design                      | Width mm | Height with plug mm | Height mm | Depth mm | Control voltage | Cable length |
|----------|-----------------------------|----------|---------------------|-----------|----------|-----------------|--------------|
| 426482 ▲ | without pressure monitoring | 300      | 340                 | 300       | 125      | 24 V            | 6 m          |
| 426264 ▲ | with pressure monitoring    | 300      | 340                 | 300       | 125      | 24 V            | 6 m          |

Power supplies on request: primary 35-264 V ~, 47-63 Hz - secondary 24V/1.5 A

# Jaw dimensions und chucking capacities LVE

## Reversible top jawsUB

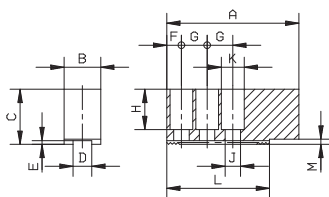
serration 90°,  
material 16MnCr5



| Chuck size                  | 400       |           | 500       |           | 600       |           |           | 700       | 800       |           |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| LVE                         | 420-140   | 480-185   | 540-205   | 570-230   | 600-275   | 630-275   | 680-325   | 730-375   | 800-375   | 830-410   |
| Type                        | 538-07    |           | 538-07    |           | 538-07    | 543-21    |           | 543-21    | 543-21    |           |
| Item no. 3-jaw set          | 037531    |           | 037531    |           | 037531    | 169464    |           | 169464    | 169466    |           |
| A                           | 135       | 135       | 135       | 135       | 135       | 170       | 170       | 170       | 195       | 195       |
| B                           | 68        | 68        | 68        | 68        | 68        | 80        | 80        | 80        | 80        | 80        |
| C                           | 65        | 65        | 65        | 65        | 65        | 75        | 75        | 75        | 85        | 85        |
| D+0,05                      | 25,5      | 25,5      | 25,5      | 25,5      | 25,5      | 30,0      | 30,0      | 30,0      | 30,0      | 30,0      |
| E                           | 5         | 5         | 5         | 5         | 5         | 6         | 6         | 6         | 6         | 6         |
| F                           | 48        | 48        | 48        | 48        | 48        | 57        | 57        | 57        | 78,5      | 78,5      |
| G                           | 31+31     | 31+31     | 31+31     | 31+31     | 31+31     | 42+42     | 42+42     | 42+42     | 42+42     | 42+42     |
| H                           | 48        | 48        | 48        | 48        | 48        | 58        | 57        | 57        | 62        | 62        |
| J                           | 21        | 21        | 21        | 21        | 21        | 25        | 25        | 25        | 26        | 26        |
| K                           | 31        | 31        | 31        | 31        | 31        | 38        | 38        | 38        | 40        | 40        |
| L                           | 26        | 26        | 26        | 26        | 26        | 32        | 32        | 32        | 35        | 35        |
| M                           | --        | --        | --        | --        | --        | --        | --        | --        | --        | --        |
| Serration                   | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° |
| Weight/jaw kg               | 2,4       | 2,4       | 2,4       | 2,4       | 2,4       | 3,9       | 3,9       | 3,9       | 5,6       | 5,6       |
| External chucking           | A1        | 85 - 255  | 135 - 305 | 160 - 370 | 180 - 390 | 220 - 430 | 225 - 420 | 265 - 460 | 315 - 510 | 280 - 530 |
|                             | A2        | 125 - 295 | 175 - 345 | 200 - 410 | 220 - 430 | 260 - 470 | 275 - 470 | 315 - 510 | 365 - 560 | 370 - 620 |
|                             | A3        | 330 - 500 | 380 - 550 | 405 - 615 | 425 - 635 | 465 - 675 | 540 - 735 | 580 - 775 | 630 - 825 | 640 - 890 |
| Internal chucking           | J1        | 155 - 325 | 205 - 375 | 230 - 440 | 250 - 460 | 290 - 500 | 305 - 500 | 345 - 540 | 395 - 590 | 405 - 655 |
|                             | J2        | 350 - 520 | 405 - 570 | 430 - 640 | 450 - 660 | 490 - 700 | 565 - 770 | 605 - 800 | 655 - 850 | 670 - 920 |
| max. interferences diameter | S         | 570       | 625       | 690       | 710       | 750       | 800       | 840       | 890       | 1000      |

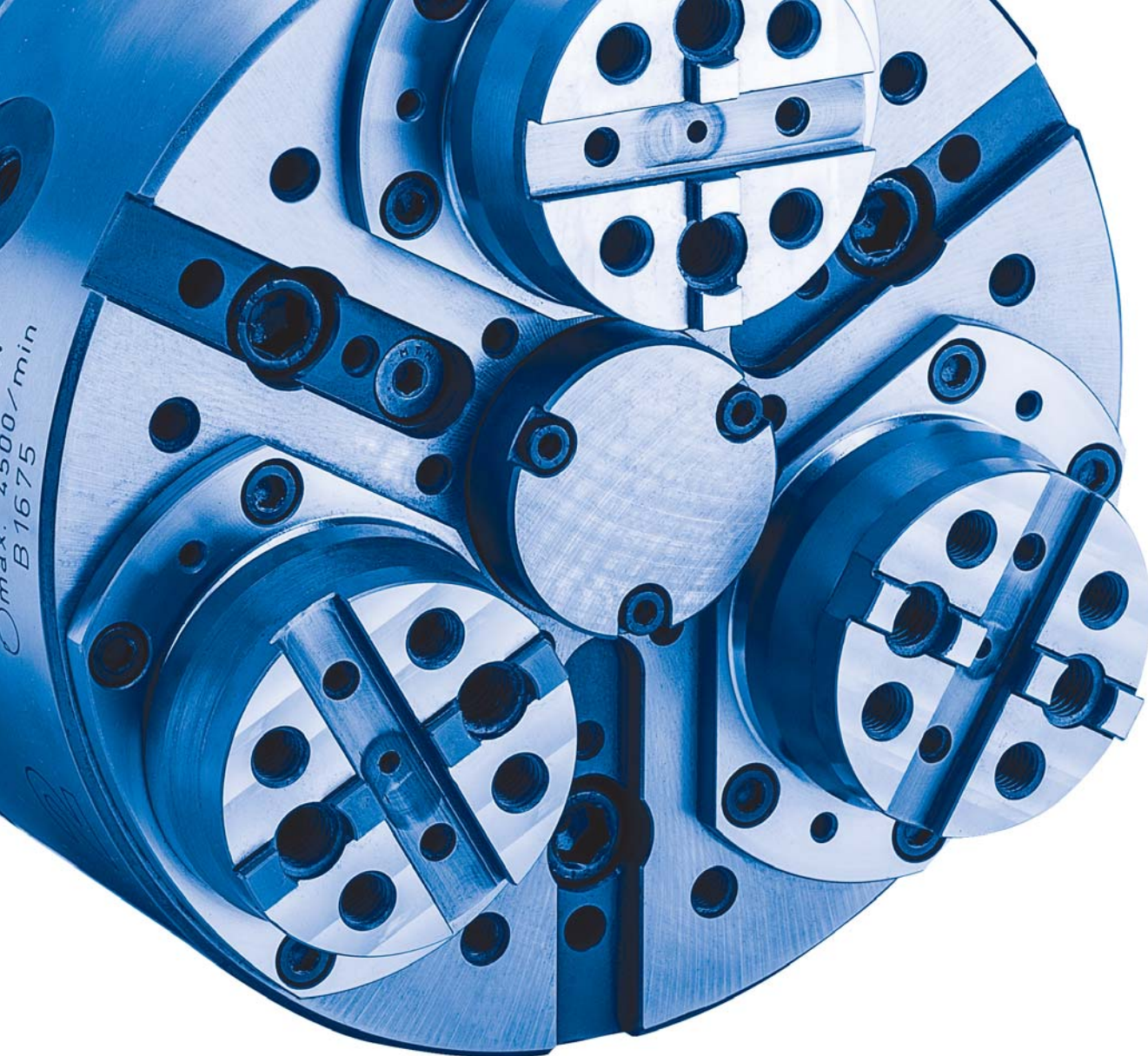
## Extended soft top jaws AB

serration 90°,  
material 16MnCr5



| Chuck size                     | 400       |           | 500       |           | 600       |           |           | 700       | 800       |           |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| LVE                            | 420-140   | 480-185   | 540-205   | 570-230   | 600-275   | 640-275   | 680-325   | 730-375   | 800-375   | 830-410   |
| Type                           | 518-07    |           | 543-22    |           | 543-22    | 543-22    |           | 543-22    | 543-22    |           |
| Item no. 3-jaw                 | 137028    |           | 169449    |           | 169449    | 169452    |           | 169452    | 169456    |           |
| A                              | 180       | 180       | 205       | 205       | 205       | 245       | 245       | 245       | 285       | 285       |
| B                              | 50        | 50        | 50        | 50        | 50        | 68        | 68        | 68        | 68        | 68        |
| C                              | 80        | 80        | 80        | 80        | 80        | 89        | 89        | 89        | 89        | 89        |
| D+0,05                         | 25,5      | 25,5      | 25,5      | 25,5      | 25,5      | 30,0      | 30,0      | 30,0      | 30,0      | 30,0      |
| E                              | 5         | 5         | 5         | 5         | 5         | 6         | 6         | 6         | 6         | 6         |
| F                              | 20        | 20        | 20        | 20        | 20        | 25        | 25        | 25        | 25        | 25        |
| G                              | 35+35     | 35+35     | 35+35     | 35+35     | 35+35     | 45+45     | 45+45     | 45+45     | 55+55     | 55+55     |
| H                              | 60        | 60        | 60        | 60        | 60        | 69        | 69        | 69        | 69        | 69        |
| J                              | 21        | 21        | 21        | 21        | 21        | 25        | 25        | 25        | 25        | 25        |
| K                              | 31        | 31        | 31        | 31        | 31        | 37        | 37        | 37        | 37        | 37        |
| L                              | 180       | 180       | 190       | 190       | 190       | 140       | 140       | 140       | 160       | 160       |
| M                              | --        | --        | 6         | 6         | 6         | 7         | 7         | 7         | 7         | 7         |
| Toothing                       | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° | 3/32"x90° |
| Weight/jaw kg                  | 4,2       | 4,2       | 5,0       | 5,0       | 5,0       | 9,1       | 9,1       | 9,1       | 10,9      | 10,9      |
| A1 Ø External chucking         | 20 - 155  | 30 - 200  | 10 - 220  | 30 - 240  | 75 - 285  | 60 - 255  | 100 - 295 | 150 - 345 | 105 - 355 | 140 - 390 |
| S Ø max. interference diameter | 330       | 575       | 640       | 660       | 710       | 760       | 800       | 850       | 945       | 980       |





## THE RIGHT CHUCK FOR EVERY APPLICATION



KBF-N draw-down  
power chuck



ZFM draw-down  
power chuck



KFD-AF compensating  
chuck



GF gripper chuck

The RÖHM application chucks are as versatile as the sectors where they are used. RÖHM application chucks are used successfully in the sectors of mechanical engineering, the automobile industry, for aerospace, as well as the energy sector to Micro Technology sector.



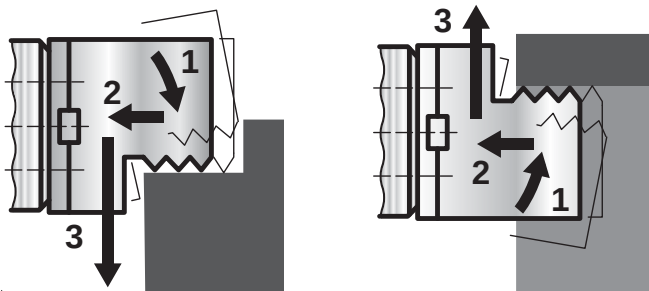
Video KBF-N draw-  
down power chuck

# APPLICATION CHUCKS

RÖHM application chucks are specially developed for the requirements of the respective sector and their applications in order to ensure top quality, reliability and safety. The application chucks are used successfully in the sectors of mechanical engineering, the automobile industry, for aerospace, as well as the energy sector to Micro Technology sector.

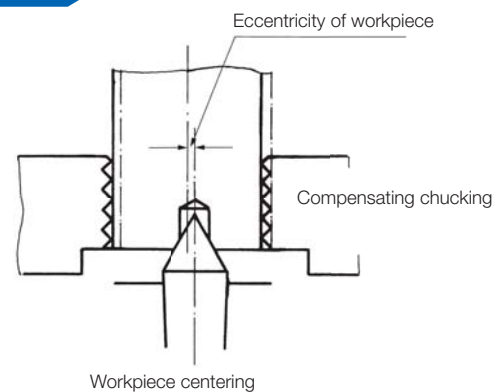
## ADVANTAGES AT A GLANCE

- Safe and precise clamping of complex and individual workpieces
- Adaptation of the clamping solution to the individual application
- Proven RÖHM quality for maximum reliability



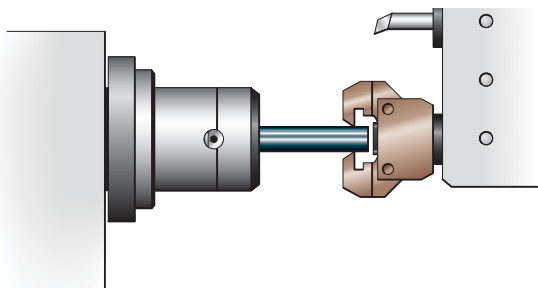
### Functionality of the draw-down power chucks (KBF-N and ZFM):

The workpiece is automatically drawn down onto a rigid plane face when it is clamped. In the process, the workpiece is moved and fixed by clamping jaws during the clamping-operation, before the clamping force is built up again in this axially defined position. Depending on the functional principle of the clamping chuck, internal and external clamping or external clamping only can be realized.



### Functionality of the compensating chuck (KFD-AF):

The workpiece is taken up in the center point which is mounted in an insert, and clamped by centrally compensating jaws. Compensation is realized by the radially floating, chucking piston. By simply exchanging the center insert, the chuck can be very quickly retrofit to centric clamping.



### Functionality of gripper chucks (GF):

To clamp, the gripper chuck is usually moved against the clamped-in material with the tool holder of the machine. In the process, the jaws are forced outward via their approach angle until the workpiece diameter is reached and they grab the workpiece in the cylindrical area. The clamping force is generated by a floating disc spring package acting on the jaws. The round material is now released in the clamping chuck and pulled into the intended position by the gripper chuck. Now the workpiece is clamped again and the gripper chuck simply pulled off by the workpiece. The jaws are automatically pressed inward into their original position by the disc spring package. The interchangeable take-up shaft meets DIN 69880.

For clamping tasks for internal and external clamping where the axial run-out errors of the workpiece have to be minimized.

Power chuck with draw-down and ball lock principle available with cylindrical centre mount or short taper mount.

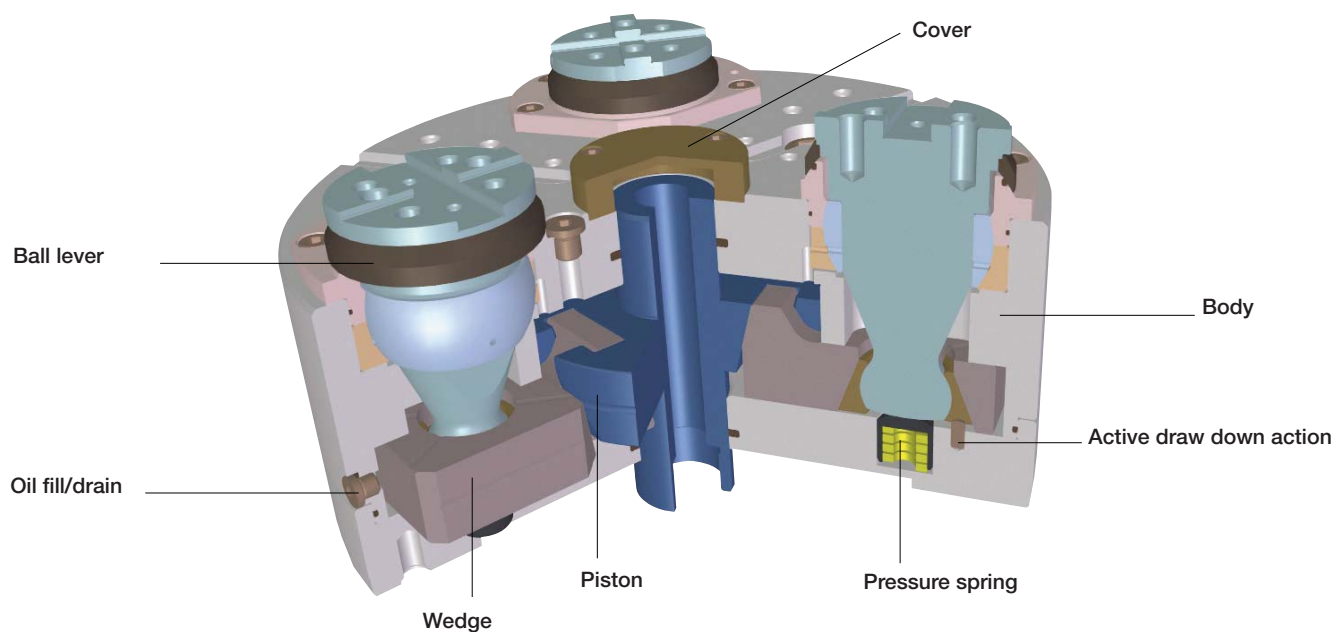
- Maximum plane-parallelism thanks to active draw-down by the jaws
- Maximum productivity thanks to long maintenance intervals - hermetically sealed against dirt and cooling water
- Consistent workpiece quality thanks to constant clamping force due to oil filling
- Suitable for high speeds (speed-dependent centrifugal influences are minimized by similar mass distribution to the right and left of the ball lock)

- Ball lock principle with wedge hook system
- With fixed jaws (pendulum jaws on request)

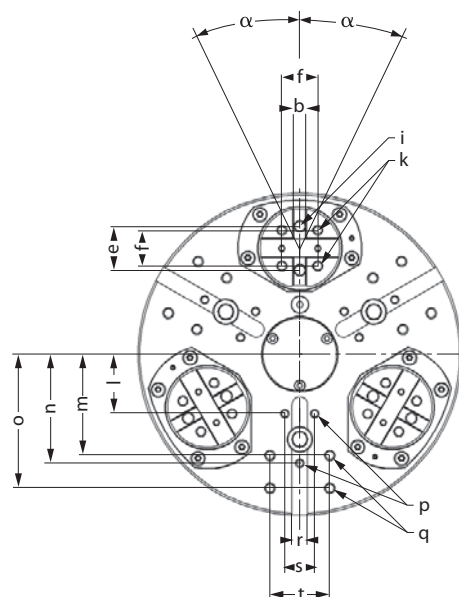
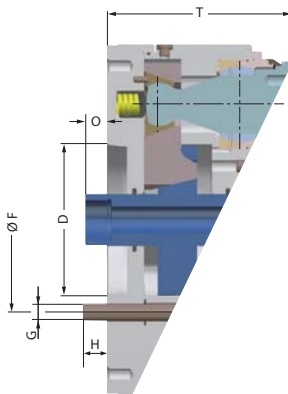
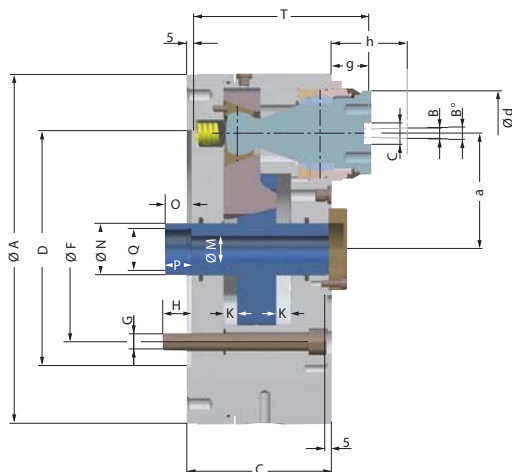
**Note.**  
Alternatively with swinging ball lock for clamping rough, easily deformable workpieces at six clamping points on request

Chuck, chuck mounting screws (without top jaws)

**KBF-N** = ball lock, chuck, draw-down



# KBF-N - maximum plane-parallelism

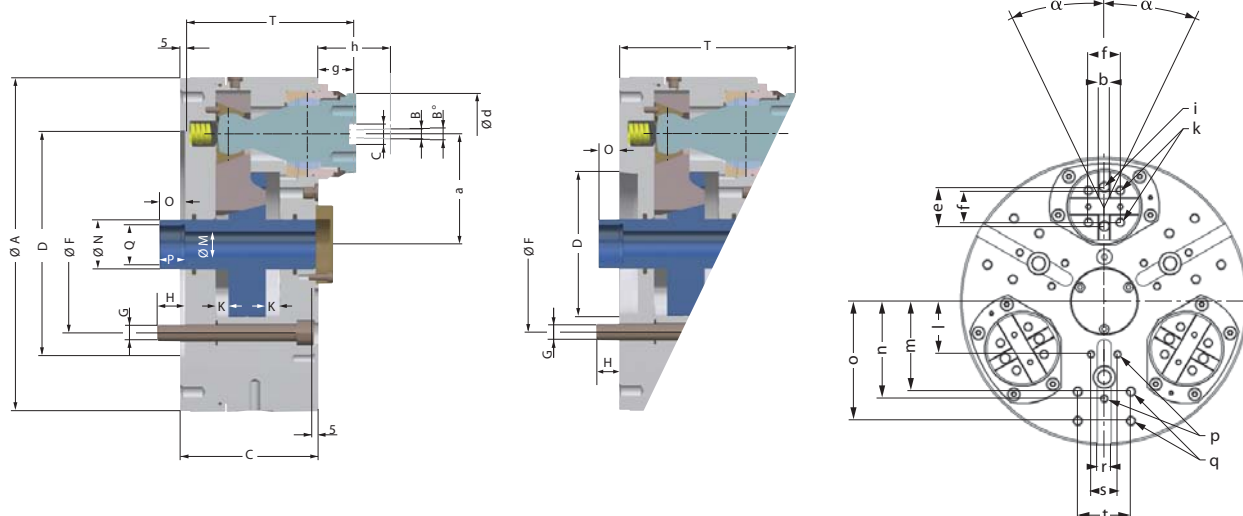


C 15

Power-operated ball lock draw-down chuck **KBF-N** with **fixed jaws** for **internal and external clamping**, with pull down effect, **hermetically sealed**, **oil filled**, **central clamping**  
Cylindrical centre mount **DIN 6353**

| Item No.                                | 168355 ▲   | 165635 ▲   | 165637 ▲   | 165639 ▲   | 168056 ▲   |
|-----------------------------------------|------------|------------|------------|------------|------------|
| Size                                    | 170        | 200        | 250        | 315        | 400        |
| Jaw design                              | Fixed jaws | Fixed jaws | Fixed jaws | Fixed jaws | Fixed jaws |
| A mm                                    | 178        | 210        | 260        | 325        | 400        |
| Jaw travel B mm                         | 5,4        | 5,9        | 6,3        | 6,4        | 7,5        |
| B°                                      | 5,2°       | 4,9°       | 4,4°       | 4,5°       | 4,7°       |
| C mm                                    | 94         | 111        | 135        | 135        | 148        |
| D                                       | ZA 140     | ZA 170     | ZA 220     | ZA 220     | ZA 300     |
| F mm                                    | 104,8      | 133,4      | 171,4      | 171,4      | 235        |
| G                                       | 3 x M10    | 3xM12      | 3xM16      | 3xM16      | 3 x M20    |
| H mm                                    | 15         | 17         | 22         | 22         | 30         |
| Total wedge stroke K+K mm               | 21         | 25         | 25         | 25         | 30         |
| M mm                                    | 14         | 14         | 18         | 25         | 52         |
| N <sup>ø</sup> mm                       | 30         | 36         | 38         | 48         | 75         |
| O min.                                  | 12,5       | 12,5       | 12,5       | 12,5       | 10         |
| O max.                                  | 33,5       | 37,5       | 37,5       | 37,5       | 40         |
| P mm                                    | 20         | 18         | 20         | 25         | 25         |
| Q mm                                    | M22 x 1,5  | M28x1,5    | M32x1,5    | M38x1,5    | M60 x 1,5  |
| T mm                                    | 116        | 139        | 163        | 163        | 180        |
| a mm                                    | 55         | 64         | 82         | 107        | 130        |
| bh8 mm                                  | 7,94       | 7,94       | 12,7       | 12,7       | 12,7       |
| ch7 mm                                  | 12,68      | 12,68      | 19,03      | 19,03      | 19,03      |
| d mm                                    | 60         | 65         | 75         | 80         | 105        |
| e mm                                    | 32         | 38         | 44,4       | 44,4       | 63,5       |
| f mm                                    | 24         | 32         | 36         | 36         | 48         |
| g mm                                    | 27         | 33         | 33         | 33         | 37         |
| Reference height h mm                   | 50         | 60         | 70         | 70         | 80         |
| i                                       | M10        | M12        | M12        | M12        | M16        |
| k                                       | M8         | M10        | M10        | M10        | M12        |
| l mm                                    | -          | 30         | 50         | 60         | 80         |
| m mm                                    | 65         | 80         | 102        | 102        | 140        |
| n mm                                    | 68         | 50         | 65         | 110        | 144        |
| o mm                                    | -          | -          | -          | 135        | 170        |
| p                                       | M6         | M6         | M8         | M8         | M10        |
| q                                       | M8         | M8         | M10        | M10        | M12        |
| r mm                                    | 16         | 16         | 16         | 16         | 20         |
| s mm                                    | -          | 25         | 30         | 30         | 36         |
| t mm                                    | 36         | 45         | 60         | 60         | 80         |
| Pull-down travel mm                     | 0,3        | 0,3        | 0,3        | 0,3        | 0,3        |
| Max. admissible speed min <sup>-1</sup> | 5000       | 4500       | 3800       | 3000       | 2200       |
| Maximum draw bar pull kN                | 18         | 30         | 40         | 45         | 50         |
| Max. total clamping force kN            | 44         | 73         | 93         | 105        | 120        |
| Weight approx. kg                       | 18         | 30         | 55         | 80         | 130        |
| Actuating cylinders (recommended)       | OVS-85     | OVS-105    | OVS-130    | OVS-130    | OVS-150    |

# KBF-N - maximum plane-parallelism



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Power-operated ball lock draw-down chuck **KBF-N** with **fixed jaws** for internal and external clamping, hermetically sealed, oil filled, central clamping  
Short taper mount for **ISO 702-1** (DIN 55026/55021)

| Item No.                                | 168356 ▲   | 165636 ▲   | 165638 ▲   | 165640 ▲   | 168057 ▲   |
|-----------------------------------------|------------|------------|------------|------------|------------|
| Size                                    | 170        | 200        | 250        | 315        | 400        |
| Jaw design                              | Fixed jaws | Fixed jaws | Fixed jaws | Fixed jaws | Fixed jaws |
| A mm                                    | 178        | 210        | 260        | 325        | 400        |
| Jaw travel B mm                         | 5,4        | 5,9        | 6,3        | 6,4        | 7,5        |
| B°                                      | 5,2°       | 4,9°       | 4,4°       | 4,5°       | 4,7°       |
| C mm                                    | 94         | 111        | 135        | 135        | 148        |
| D                                       | KK 5       | KK 6       | KK 8       | KK 8       | KK 11      |
| F mm                                    | 104,8      | 133,4      | 171,4      | 171,4      | 235        |
| G                                       | 3 x M10    | 3xM12      | 3xM16      | 3xM16      | 3 x M20    |
| H mm                                    | 15         | 17         | 22         | 22         | 30         |
| Total wedge stroke K+K mm               | 21         | 25         | 25         | 25         | 30         |
| M mm                                    | 14         | 14         | 18         | 25         | 52         |
| N <sup>ø</sup> mm                       | 30         | 36         | 38         | 48         | 75         |
| O min.                                  | 7,5        | 7,5        | 7,5        | 7,5        | 5          |
| O max.                                  | 28,5       | 32,5       | 32,5       | 32,5       | 35         |
| P mm                                    | 20         | 18         | 20         | 25         | 25         |
| Q mm                                    | M22 x 1,5  | M28x1,5    | M32x1,5    | M38x1,5    | M60 x 1,5  |
| T mm                                    | 121        | 144        | 168        | 168        | 185        |
| a mm                                    | 55         | 64         | 82         | 107        | 130        |
| bh8 mm                                  | 7,94       | 7,94       | 12,7       | 12,7       | 12,7       |
| ch7 mm                                  | 12,68      | 12,68      | 19,03      | 19,03      | 19,03      |
| d mm                                    | 60         | 65         | 75         | 80         | 105        |
| e mm                                    | 32         | 38         | 44,4       | 44,4       | 63,5       |
| f mm                                    | 24         | 32         | 36         | 36         | 48         |
| g mm                                    | 27         | 33         | 33         | 33         | 37         |
| Reference height h mm                   | 50         | 60         | 70         | 70         | 80         |
| i                                       | M10        | M12        | M12        | M12        | M16        |
| k                                       | M8         | M10        | M10        | M10        | M12        |
| l mm                                    | -          | 30         | 50         | 60         | 80         |
| m mm                                    | 65         | 80         | 102        | 102        | 140        |
| n mm                                    | 68         | 50         | 65         | 110        | 144        |
| o mm                                    | -          | -          | -          | 135        | 170        |
| p                                       | M6         | M6         | M8         | M8         | M10        |
| q                                       | M8         | M8         | M10        | M10        | M12        |
| r mm                                    | 16         | 16         | 16         | 16         | 20         |
| s mm                                    | -          | 25         | 30         | 30         | 36         |
| t mm                                    | 36         | 45         | 60         | 60         | 80         |
| Pull-down travel mm                     | 0,3        | 0,3        | 0,3        | 0,3        | 0,3        |
| Max. admissible speed min <sup>-1</sup> | 5000       | 4500       | 3800       | 3000       | 2200       |
| Maximum draw bar pull kN                | 18         | 30         | 40         | 45         | 50         |
| Max. total clamping force kN            | 44         | 73         | 93         | 105        | 120        |
| Weight approx. kg                       | 18         | 30         | 55         | 80         | 130        |
| Actuating cylinders (recommended)       | OVS-85     | OVS-105    | OVS-130    | OVS-130    | OVS-150    |

# Jaws KBF-N

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**Soft top jaws, 3-jaw set** tongue and groove, material: 16MnCr5


| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 168383 ▲ | 170        | 70            | 26,5          | 60           |
| 165694   | 200        | 80            | 31,5          | 65           |
| 165696 ▲ | 250/315    | 90            | 41,5          | 75           |
| 168385 ▲ | 400        | 125           | 46,5          | 105          |

Workpiece-specific top jaws can be placed on the tongue and groove interface of the ball bolts.

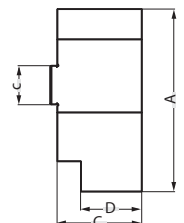
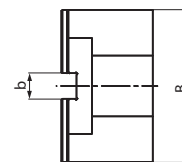
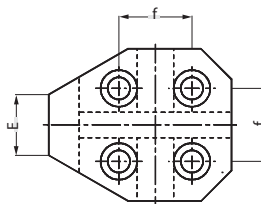
For exact clamping, soft top jaws are preferably used. They are to be turned out to the desired clamping diameter under clamping force. If these top jaws are still to be hardened, the chuck must be ground out afterward.

For raw-part clamping, hardened clamping inserts can be worked into the soft top jaws at the corresponding clamping diameter.

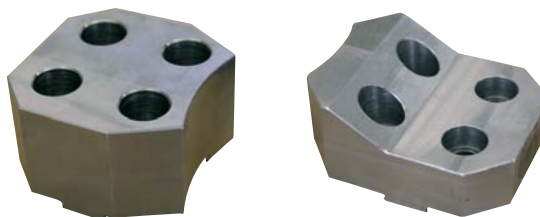
On request, special top jaws specific to the workpiece can also be delivered.

## Soft top jaws for KBF-N

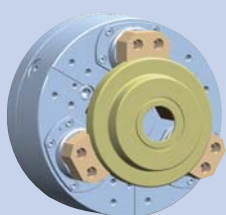
| Chuck size | 170   | 200   | 250   | 315   | 400   |
|------------|-------|-------|-------|-------|-------|
| A          | 70    | 80    | 90    | 90    | 125   |
| B          | 60    | 65    | 75    | 75    | 105   |
| C          | 26,5  | 31,5  | 41,5  | 41,5  | 46,5  |
| D          | 20    | 20    | 30    | 30    | 30    |
| E          | 25    | 30    | 30    | 30    | 40    |
| b H7       | 7,94  | 7,94  | 12,7  | 12,7  | 12,7  |
| c h6       | 12,68 | 12,68 | 19,03 | 19,03 | 19,03 |
| f          | 24    | 32    | 36    | 36    | 48    |



## Examples for machined clamping jaws

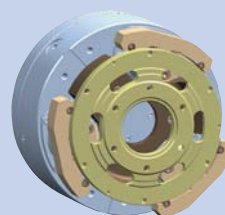


## Examples for applications:



### Fixed jaws:

For exact clamping of flange-like workpieces, e.g. wheel hubs, spur gears, etc.



### Optionally with pendulum jaws:

For clamping deformation-sensitive raw parts, e.g. coupling pressure plates or sprockets

## ZFM - with pull-down



### APPLICATION

Simple clamping principle for external clamping of bars, pipes and shafts, as well as flange-type workpieces where the axial run-out errors of the workpiece have to be minimized.

### TYPE

Collet pin system with cylindrical centre mount.

### CUSTOMER BENEFITS

- ⊕ Maximum plane-parallelism thanks to active draw-down using axially movable draw rod studs
- ⊕ Easy adaptation to various workpiece diameters thanks to interchangeable clamping inserts
- ⊕ Insensitive clamping system thanks to simple setup, allows machining at maximum speeds

### TECHNICAL FEATURES

- Power transmission directly from the piston to the draw rod studs
- Clamping inserts hardened, adapted to the workpiece diameter

### Included in the scope of delivery:

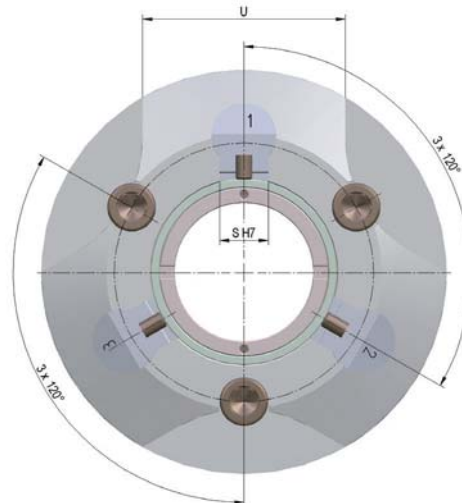
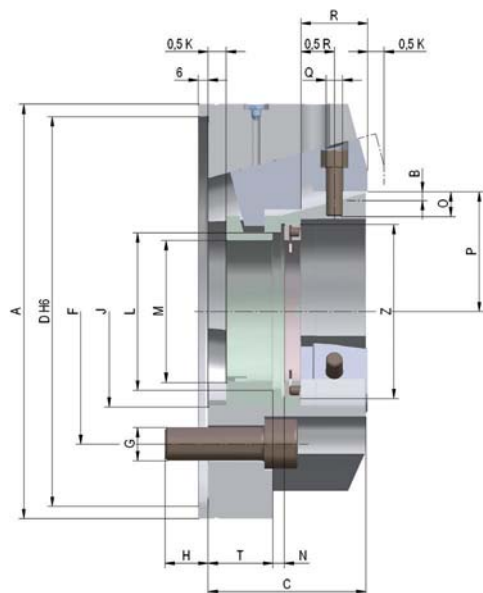
Chuck, chuck and jaw mounting screws, mounting wrench (without top jaws)



### Special designs:

E.g. power operated draw bar chuck ZFM, diameter 220 mm, with clamping inserts with chip flow grooves and threads, for work stops for clamping of aluminum flanges.

# ZFM - with pull-down



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Power-operated draw bar chuck **ZFM**, with gripping inserts, cylindrical centre mount

| Item No.                                | 201980 ▲    | 201981 ▲    | 201982 ▲     | 201983 ▲     |
|-----------------------------------------|-------------|-------------|--------------|--------------|
| Size                                    | 160         | 200         | 250          | 315          |
| A mm                                    | 160         | 200         | 250          | 315          |
| Jaw travel B mm                         | 5,3         | 5,3         | 5,3          | 5,3          |
| C mm                                    | 75          | 82          | 95           | 105          |
| D <sup>6</sup> mm                       | 145         | 185         | 235          | 235          |
| F mm                                    | 100         | 140         | 160          | 200          |
| G                                       | 3 x M 12    | 3 x M 16    | 3 x M 20     | 3 x M 20     |
| H mm                                    | 18          | 20          | 26           | 26           |
| J mm                                    | 71          | 95          | 115          | 160          |
| Wedge stroke K mm                       | 20          | 20          | 20           | 20           |
| L mm                                    | 52          | 72          | 95           | 136          |
| M mm                                    | 45,5        | 65,5        | 85,5         | 125,5        |
| N mm                                    | 7           | 7           | 7            | 7            |
| O mm                                    | 12          | 15          | 15           | 15           |
| P max.                                  | 48,15       | 64,65       | 74,65        | 101,65       |
| P min.                                  | 42,85       | 59,35       | 69,35        | 96,35        |
| Q mm                                    | M 8         | M 10        | M 10         | M 12         |
| R mm                                    | 30          | 35          | 40           | 45           |
| SH7 mm                                  | 24          | 30          | 30           | 35           |
| T max.                                  | 40          | 40          | 48           | 53           |
| T min.                                  | 20          | 20          | 28           | 33           |
| U mm                                    | 60          | 85          | 125          | 125          |
| Z                                       | M 62 x 1,25 | M 85 x 1,25 | M 105 x 1,25 | M 150 x 1,25 |
| Maximum draw bar pull kN                | 25          | 35          | 45           | 50           |
| Max. total clamping force approx. kN    | 46          | 66          | 84           | 90           |
| Max. admissible speed min <sup>-1</sup> | 8000        | 6300        | 5500         | 4200         |
| Moment of inertia J kgm <sup>2</sup>    | 0,026       | 0,072       | 0,183        | 0,508        |
| Weight without jaw inserts approx. kg   | 7,5         | 13          | 21           | 35           |
| Chucking capacity mm                    | 0-40        | 4-70        | 24-80        | 30-130       |
| Actuating cylinders (recommended)       | OVS-85/105  | OVS-105     | OVS-130      | OVS-150      |

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Clamping Jaws, 3-jaw-set, prefabricated, can be hardened material: 16MnCr5



| Chuck Size | 3-jaw set | Jaw length mm | Jaw height mm | Jaw width mm |
|------------|-----------|---------------|---------------|--------------|
| 160        | 210007 ▲  | 42,7          | 30            | 24           |
| 200        | 210008 ▲  | 51,7          | 35            | 30           |
| 250        | 210009 ▲  | 61,7          | 45            | 30           |
| 315        | 210010 ▲  | 85,7          | 45            | 35           |

# KFD-AF - compensating jaws



## APPLICATION

Centric or compensating clamping chuck with which the workpiece is centered either via a center or via the jaws.

## TYPE

Compensating clamping power chuck with cylindrical centre mount or short taper mount.  
3-jaw version with serration 90°.

## CUSTOMER BENEFITS

- ③ Flexible use thanks to retrofitting to centric clamping using center inserts
- ③ Low-maintenance thanks to special sealing against dirt and cooling water

## TECHNICAL FEATURES

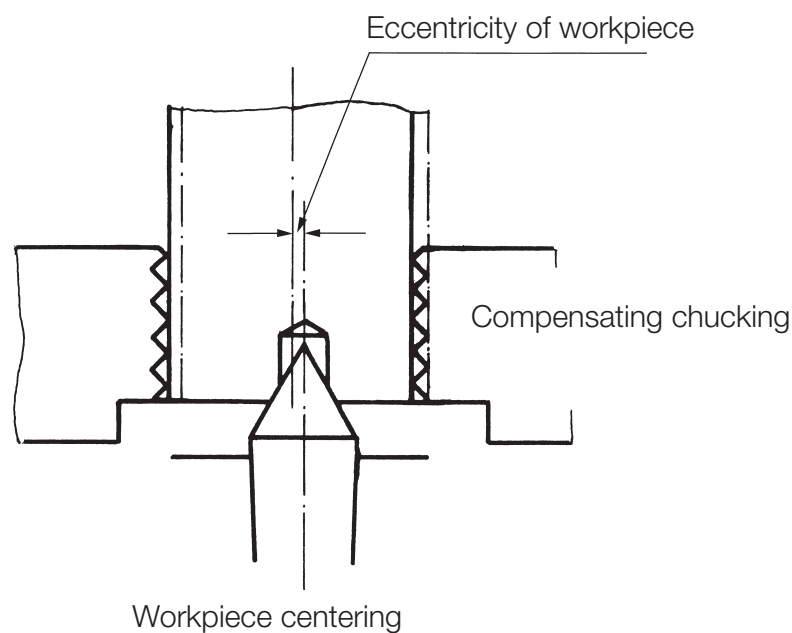
- Proven wedge hook system
- Compensation is realized by the radially floating chucking piston
- Piston lubrication at centric clamping
- Base jaw lubrication

### Note:

When ordering, please specify power chuck, center insert and mounting flange

### Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)



## Functionality of the compensating chuck (KFD-AF):

The workpiece is taken up in the center point which is mounted in an insert, and clamped by centrally compensating jaws. Compensation is realized by the radially floating chucking piston. By simply exchanging the center insert, the chuck can be very quickly retrofit to centric clamping.

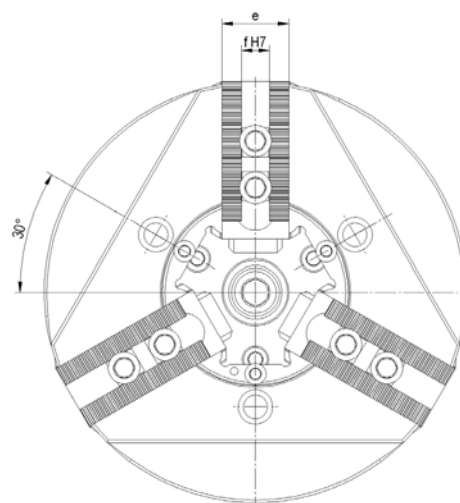
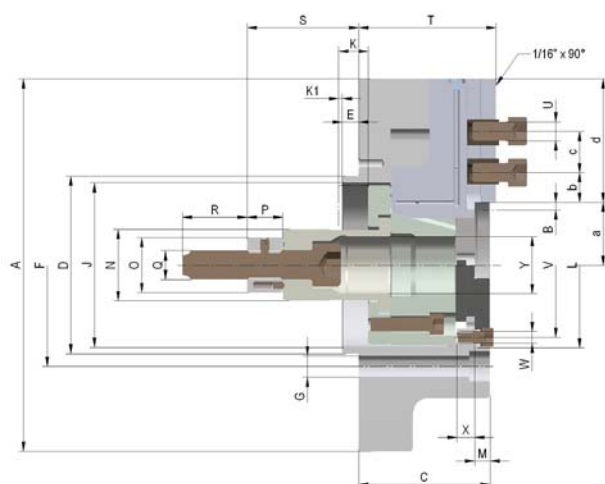
## Interchangeable centering inserts:

- with spring-loaded center
- with solid center
- for self-centering chucking (no compensation)

## Interchangeable mounting adapters:

- with cylindrical mount
- with short taper recess
- with option for radial fine adjustment, upon request

# KFD-AF - compensating jaws



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**3-jaw** compensation chucks **KFD-AF**, with **serration 90°**, center insert and chuck mount interchangeable

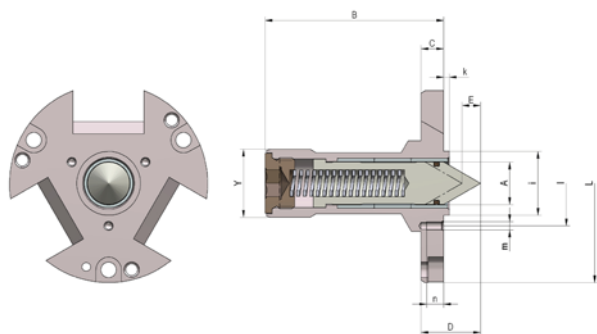
| Item No.                                | 144620     | 144621   | 144622   | 144623   |
|-----------------------------------------|------------|----------|----------|----------|
| Size                                    | 160        | 200      | 250      | 315      |
| A mm                                    | 160        | 200      | 250      | 315      |
| Jaw travel B mm                         | 4,8        | 5,6      | 6,7      | 6,7      |
| C mm                                    | 78         | 85       | 93       | 111      |
| D <sup>H6</sup> mm                      | 90         | 115      | 135      | 150      |
| E mm                                    | 14         | 14       | 14       | 14       |
| F mm                                    | 104,8      | 133,4    | 171,4    | 171,4    |
| G mm                                    | 3 x Ø 12   | 3 x Ø 14 | 3 x Ø 18 | 3 x Ø 18 |
| J mm                                    | 82         | 103      | 122      | 139      |
| Wedge stroke K mm                       | 18         | 21       | 25       | 25       |
| K <sub>1</sub> mm                       | 2          | 2        | 3        | 3        |
| L <sup>H6</sup> mm                      | 90         | 95       | 120      | 140      |
| M mm                                    | 10         | 11       | 13       | 13       |
| N <sup>H6</sup> mm                      | 38         | 42       | 50       | 60       |
| O mm                                    | 34         | 40       | 46       | 46       |
| P mm                                    | 25         | 30       | 30       | 30       |
| Q mm                                    | M16        | M20      | M24      | M24      |
| R mm                                    | 40         | 45       | 55       | 55       |
| S min.                                  | 56         | 75       | 94       | 94       |
| S max.                                  | 74         | 96       | 119      | 119      |
| T mm                                    | 82         | 90       | 98       | 116      |
| U                                       | M12        | M12      | M16      | M16      |
| V mm                                    | 72         | 80       | 102      | 102      |
| W mm                                    | 3 x M8     | 3 x M8   | 3 x M10  | 3 x M10  |
| X mm                                    | 12         | 15       | 15       | 15       |
| Y <sup>H6</sup> mm                      | 32         | 32       | 38       | 48       |
| a min.                                  | 27,2       | 34,4     | 40,3     | 46,3     |
| a max.                                  | 32         | 40       | 47       | 53       |
| b min.                                  | 8          | 8        | 10       | 10       |
| c min.                                  | 19         | 19       | 25       | 25       |
| c max.                                  | 37         | 49       | 64       | 90       |
| d mm                                    | 48         | 60       | 78       | 104,5    |
| e mm                                    | 35         | 40       | 50       | 50       |
| f <sup>H7</sup> mm                      | 17         | 17       | 21       | 21       |
| Maximum draw bar pull kN                | 25         | 36       | 50       | 65       |
| Max. total clamping force approx. kN    | 50         | 72       | 110      | 150      |
| Max. admissible speed min <sup>-1</sup> | 3500       | 3200     | 3000     | 2300     |
| Compensation on Ø mm                    | 3          | 3        | 4        | 4        |
| Moment of inertia J kgm <sup>2</sup>    | 0,04       | 0,1      | 0,218    | 0,744    |
| Weight without jaws approx. kg          | 13         | 20       | 28       | 60       |
| Actuating cylinders (recommended)       | OVS-85/105 | OVS-105  | OVS-130  | OVS-150  |

Note: When ordering, specify power chuck, center insert and mounting flange  
The diameter N<sup>H6</sup> must be guided in the spindle

# Accessories KFD-AF

C 15

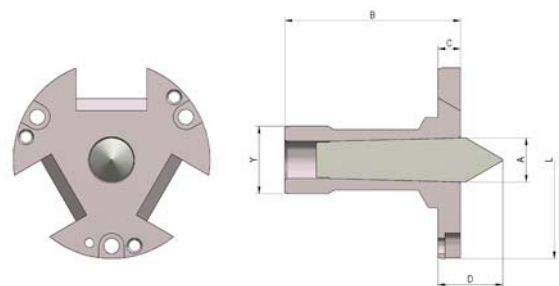
Centering insert with spring-loaded centre



| Item no. | Size | A mm | B mm | C mm | D mm | E mm | Lj6 mm | i-0,05 mm | k mm | Yg6 mm | l mm | m   | n mm |
|----------|------|------|------|------|------|------|--------|-----------|------|--------|------|-----|------|
| 144624 ▲ | 160  | 17,5 | 90   | 13   | ~30  | 6    | 90     | 30        | 4    | 32     | 40   | M 5 | 8    |
| 144625 ▲ | 200  | 20,5 | 91   | 14   | ~33  | 8    | 95     | 30        | 4    | 32     | 40   | M 5 | 10   |
| 144626 ▲ | 250  | 25,5 | 109  | 16   | ~38  | 10   | 120    | 40        | 4    | 38     | 50   | M 5 | 10   |
| 144627 ▲ | 315  | 30,5 | 125  | 16   | ~42  | 13   | 140    | 45        | 4    | 48     | 60   | M 6 | 12   |

C 15

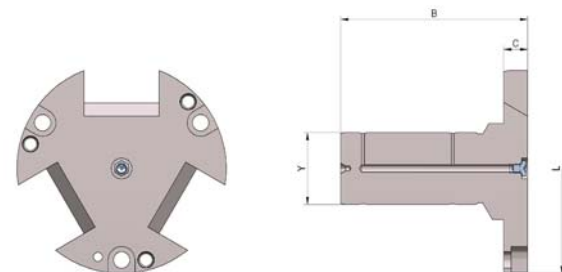
Centering insert with fixed centre



| Item no. | Size | A mm | B mm | C mm | D mm | Lj6 mm | Yg6 mm |
|----------|------|------|------|------|------|--------|--------|
| 144628 ▲ | 160  | ~18  | 90   | 13   | ~33  | 90     | 32     |
| 144629 ▲ | 200  | ~18  | 91   | 14   | ~33  | 95     | 32     |
| 144630 ▲ | 250  | ~24  | 109  | 16   | ~38  | 120    | 38     |
| 144631 ▲ | 315  | ~32  | 125  | 16   | ~46  | 140    | 48     |

C 15

Centering insert for centric clamping



| Item no. | Size | B mm | C mm | Lj6 mm | Yg6 mm |
|----------|------|------|------|--------|--------|
| 144632 ▲ | 160  | 90   | 13   | 90     | 32     |
| 144633 ▲ | 200  | 91   | 14   | 95     | 32     |
| 144634   | 250  | 109  | 16   | 120    | 38     |
| 144635 ▲ | 315  | 125  | 16   | 140    | 48     |

C 21

Reversible top jaws, 3-jaw set, hardened serration 90° - material: 16MnCr5



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------------|---------------|---------------|--------------|------------|
| 046408   | 160/200    | 68            | 45            | 34,7         | 1/16"x 90° |
| 118522   | 160/200    | 75            | 49            | 36           | 1/16"x 90° |
| 046414   | 250/315    | 103,5         | 58            | 50           | 1/16"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, 3-jaw set, can be hardened serration 90° - material: 16MnCr5

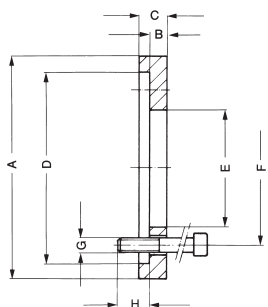


| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------------|---------------|---------------|--------------|------------|
| 133152   | 160        | 66,7          | 53            | 36,5         | 1/16"x 90° |
| 133153   | 200        | 75            | 53            | 36,5         | 1/16"x 90° |
| 133154   | 250        | 95            | 54,5          | 45           | 1/16"x 90° |
| 133155   | 315        | 103           | 80            | 50           | 1/16"x 90° |

Further suitable jaws you can find at the KFD power chuck.

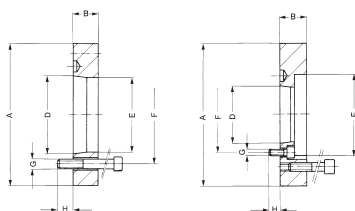
# Accessories KFD-AF

C 15

**Adaptor plates** with cylindrical centre mount to **DIN 6353 complete** with mounting screws


| Item no. | Size | A mm | B mm | C mm | D <sup>16</sup> mm | EH6 mm | F mm  | G       | H mm |
|----------|------|------|------|------|--------------------|--------|-------|---------|------|
| 144636 ▲ | 160  | 160  | 16   | 22   | 140                | 90     | 104,8 | 3 x M10 | 14   |
| 144637 ▲ | 200  | 200  | 16   | 22   | 170                | 115    | 133,4 | 3 x M12 | 16   |
| 144638 ▲ | 250  | 250  | 17   | 23   | 220                | 135    | 171,4 | 3 x M16 | 24   |
| 144639 ▲ | 315  | 280  | 17   | 23   | 220                | 150    | 171,4 | 3 x M16 | 24   |

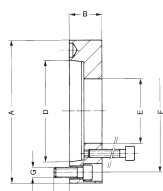
C 15

**Adaptor plates** with short taper mount **ISO 702-1 (DIN 55026/55021) complete** with mounting studs


Design I

Design II

| Item no. | Size   | Design | A mm | B mm | D mm  | EH6 mm | F mm  | G       | H mm |
|----------|--------|--------|------|------|-------|--------|-------|---------|------|
| 144643   | 160/5  | I      | 135  | 29   | KK 5  | 90     | 104,8 | 3 x M10 | 15   |
| 144646 ▲ | 160/6  | III    | 165  | 30   | KK 6  | 90     | 133,4 | 3 x M12 | 18   |
| 144649   | 200/5  | II     | 165  | 33   | KK 5  | 115    | 104,8 | 3 x M10 | 14   |
| 144652   | 200/6  | I      | 165  | 30   | KK 6  | 115    | 133,4 | 3 x M12 | 18   |
| 144655   | 250/6  | II     | 210  | 36   | KK 6  | 135    | 133,4 | 3 x M12 | 18   |
| 144658   | 250/8  | I      | 210  | 33   | KK 8  | 135    | 171,4 | 3 x M16 | 24   |
| 144661   | 315/8  | I      | 210  | 34   | KK 8  | 150    | 171,4 | 3 x M16 | 25   |
| 144664 ▲ | 315/11 | III    | 280  | 46   | KK 11 | 150    | 235   | 3 x M20 | 30   |



Design III

# GF - for cylindrical shank DIN 69880



## APPLICATION

Optimal for moving and positioning bar material and pipes in automatic production sequence.

## TYPE

2-jaw gripper chuck GF for cylinder shaft DIN69880.

## CUSTOMER BENEFITS

- Simple, operationally safe system thanks to spring pretensioning with automatic jaw resetting
- High efficiency thanks to direct placement on the tool turret without additional actuation device
- Simple retrofitting
- Clamping jaws can be adapted for special profiles

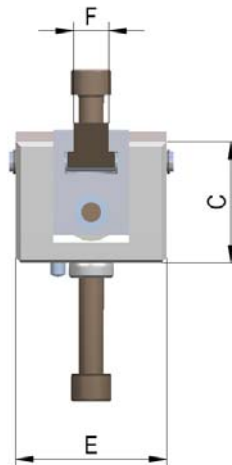
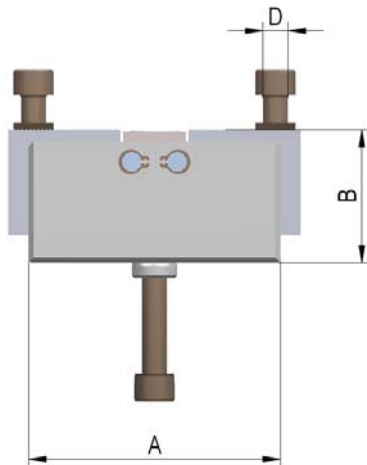
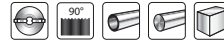
## TECHNICAL FEATURES

- Clamping force by means of disc spring package
- With exchangeable take-up shaft

## Included in the scope of delivery:

Chuck, chuck and jaw mounting screws, slot nuts (without top jaws)

GF = gripper, chuck



C 15  
2-jaw gripper chucks GF for cylindrical shank DIN 69880, chucks without shank, without jaws

| Item No.               | 141077 | 141078 ▲ | 141079 ▲ |
|------------------------|--------|----------|----------|
| Size                   | 80     | 100      | 125      |
| A mm                   | 80     | 100      | 125      |
| B mm                   | 50,8   | 52,8     | 72,8     |
| C mm                   | 46     | 48       | 67       |
| D                      | M8     | M 10     | M 10     |
| E mm                   | 50     | 60       | 65       |
| f <sup>17</sup> mm     | 12     | 14       | 14       |
| Stroke H mm            | 3      | 4        | 4        |
| U                      | M8     | M 10     | M 10     |
| Clamping force min. kN | 1,3    | 2        | 5,3      |
| Clamping force max. kN | 1,7    | 2,7      | 6        |

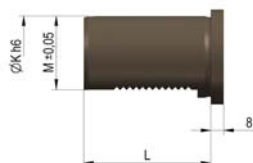
# GF - for cylindrical shank DIN 69880

C 15

Cylindrical shank DIN 69880



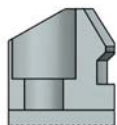
| Item no. | Initial size | Kh6 mm | L mm | M±0,05 mm |
|----------|--------------|--------|------|-----------|
| 156806   | 25           | 25     | 48   | 23,5      |
| 141080 ▲ | 30           | 30     | 55   | 27        |
| 141081   | 40           | 40     | 63   | 36        |
| 141082 ▲ | 50           | 50     | 78   | 45        |



## Jaws GF

C 21

Clamping jaws



| Item no. | Chuck Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------------|---------------|---------------|--------------|
| 141084   | 80         | 28            | 26            | 28           |
| 141085   | 100/125    | 30            | 34            | 30           |

# Special applications - rational clamping solutions



## KFD-N draw-down chuck

### APPLICATION

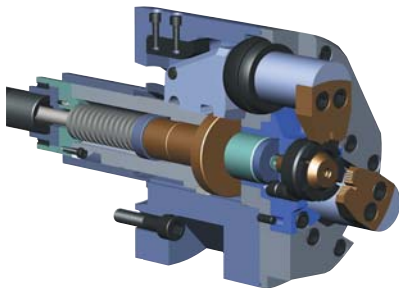
Power chucks based on KFD principle with draw-down for clamping tasks for external clamping where workpiece axial run-out errors have to be minimized.

### TYPE AND FUNCTION

Retractable chuck body for drawing down the workpiece onto a rigid plane face. Built-in pressure springs put the body back into its original position.

### CUSTOMER BENEFITS

- ③ High clamping precision and clamping force by means of the KFD principle
- ③ With active pull-down for maximum plane-parallelism



## KKHFR combination chuck

### APPLICATION

Optimally suited for the complete machining of workpieces, such as crankshafts and cam shafts.

### TYPE AND FUNCTION

With retractable clamping jaws and face driver. The clamping jaws are retracted for finish turning; the workpiece is moved by the face driver. This way, the outer diameter can be completely machined. For the force-actuated face driver with a rigid point, the chuck is actuated via the hydraulic double piston cylinder and, in the case of a face driver with spring-loaded point, via the hydraulic clamping cylinder with enlarged stroke.

### CUSTOMER BENEFITS

- ③ Efficient complete machining of shafts in one set-up



## KTF indexing chuck

### APPLICATION

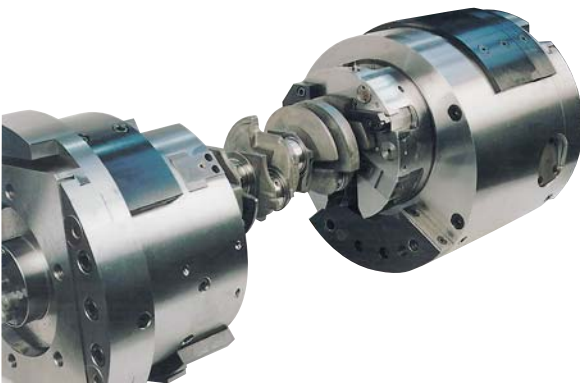
For rationally turning of workpieces with a centric and an eccentric center of rotation (or several eccentric centers of rotation), such as crankshafts, housings or pistons.

### TYPE AND FUNCTION

Force-actuated. Clamping and indexing via rotary piston cylinders with 4-way oil distributor in connection with Cardan linkage assembly. Indexing angle 180°. Eccentric dimension constant or adjustable.

### CUSTOMER BENEFITS

- ③ Efficient machining of workpieces by shifting the center to be machined without reclamping



## HTF indexing chuck

### APPLICATION

Optimally suited for rationally turning workpieces with a centric and an eccentric center of rotation (or several eccentric centers of rotation), such as crankshafts, housings or pistons.

### TYPE AND FUNCTION

Hydraulically operated. Indexing is done using 2 hydraulically actuated racks. Clamping by means of integrated hydraulic pistons. Indexing angles 180°, 4x90°, 5x72°, 6x60°.

### CUSTOMER BENEFITS

- ③ Efficient machining of workpieces by shifting the center to be machined without reclamping

# Special applications - rational clamping solutions



## HSF indexing chuck

### APPLICATION

For machining workpieces with crossing axes.

### TYPE AND FUNCTION

Hydraulically actuated indexing chuck. The swivel axes lie perpendicular to the rotational axis. Oil distributor or clamping cylinder required for actuation. Equipped with a moving clamping jaw and a swivelable console jaw. The console jaws define the height of the clamping position of the inserted workpiece.

### CUSTOMER BENEFITS

- Rational machining in one set-up
- Fully automated work sequence of swivel positions while the machine is running
- High workpiece precision with regard to the crossing axes, since there is no reclamping
- Long service life thanks to sturdy construction



## KSFZ indexing chuck

### APPLICATION

For workpieces, such as forgings and castings, where a large diameter tolerance is to be compensated during clamping.

### TYPE AND FUNCTION

Force-actuated indexing chuck.

### CUSTOMER BENEFITS

- Centrally clamping - raw part tolerances are compensated
- Maximum productivity thanks to rational machining option in one set-up
- High workpiece precision, since no reclamping



## HSFZ ring indexing chuck

### APPLICATION

Optimally suited for machining couplings from 2-3/8" to 20".

### TYPE AND FUNCTION

Hydraulically actuated ring indexing chuck. 3-jaws centrally and 3-jaws compensating clamping.

### CUSTOMER BENEFITS

- No deformation of the workpiece thanks to clamping inserts with several clamping points
- Maximum productivity thanks to rational machining option in one set-up
- High repeat positioning accuracy for maximum precision requirements

# Quick-action clamping device change system

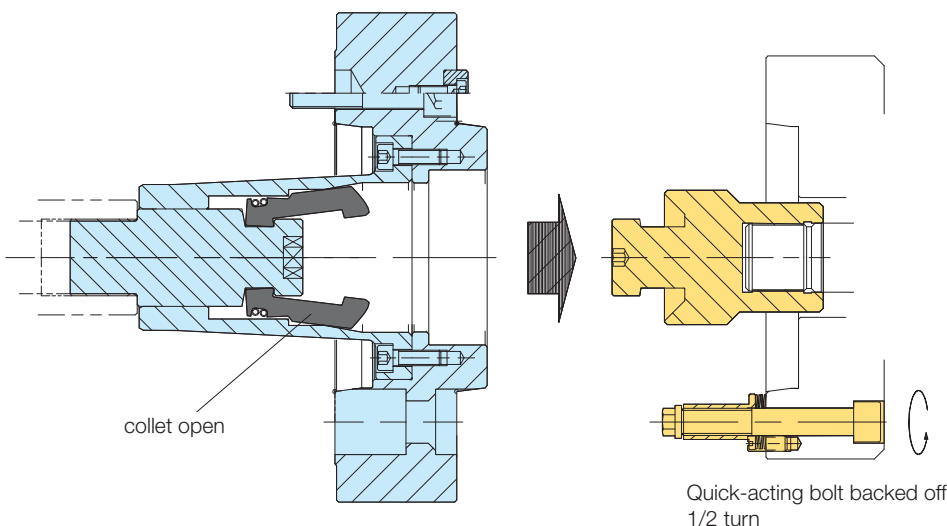
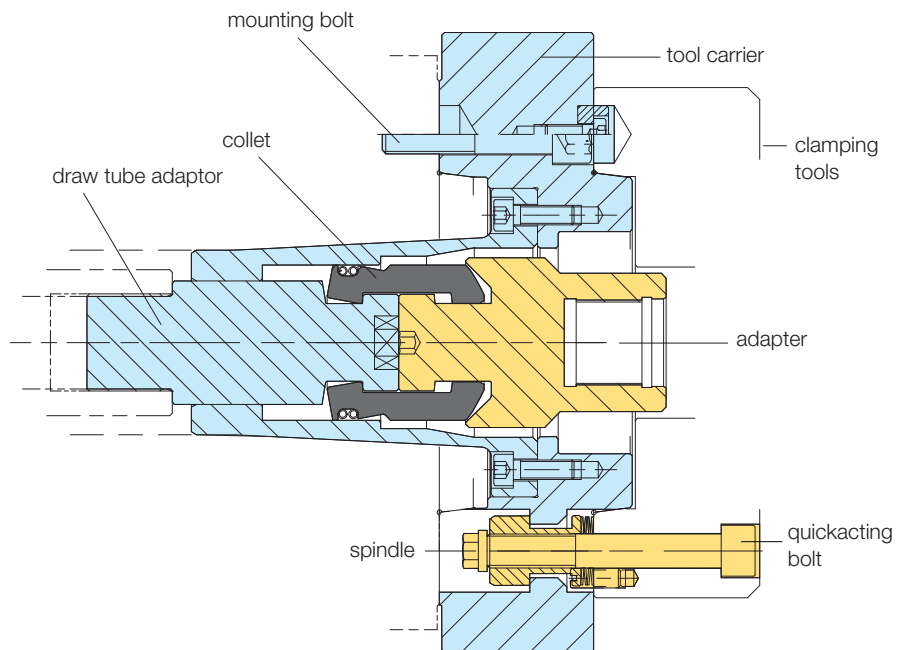
## For quickly changing the clamping device

- Easy clamping device change taking all the safety features of modern clamping technology into account
- Use of nearly any clamping mandrels, face drivers or power chucks - they must only have the same connections - on the basic adapter, with shortest time required

### Construction:

Similar to the automatic / semi-automatic clamping device change system, on the manual change system, too, an increasing number of variants can be produced in decreasing batch sizes more cost-effectively. A standard clamping cylinder without additional devices is sufficient for quickly changing the clamping device.

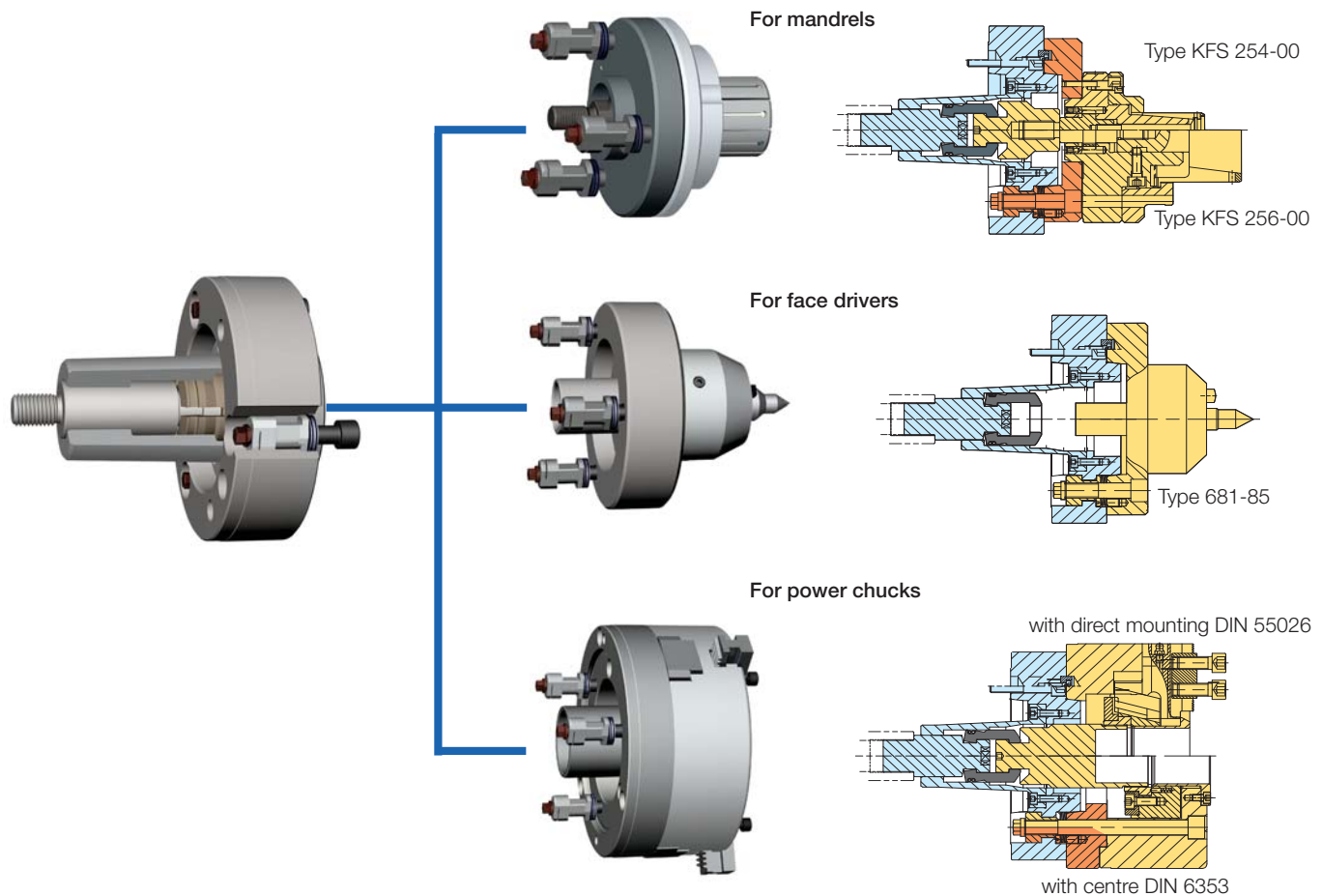
Particularly clamping mandrels, which often require a change in the clamping mandrel size due to its design, but also clamping systems such as face drivers or power chucks, can be quickly and safely interchanged among each other.



### Changing the clamping device:

- Move clamping cylinder to the front position
- Loosen the quick-action clamping screw by 1/2 turn
- Lift up the clamping device

# Quick-action clamping device change system



## Technical features:

- Exact take-up and positioning of the clamping device using short taper mount
- Change precision within 0.005 mm
- Change time approx. 30 seconds
- Easy handling of the change operation
- Locking the clamping device with 3 bayonet nuts and a collet chuck as intermediate piece for draw connection
- Rotary lock of bayonet nut
- High clamping precision
- Clamping cylinders without additional devices
- Stroke control on clamping cylinder
- Central lubrication and/or air sensing possible
- The manual quick-action clamping device change systems RMS, in combination with the RÖHM safety cylinders SZS, OVS, LHS-L, LVS, EHS and EVS, meet the guidelines of the Employer's Liability Insurance Association

## Function:

A basic adapter is fastened to a turning spindle, in which a collet chuck is integrated for force transfer. The actual clamping device is adjusted on this basic adapter with quick-action clamping screws by a half turn of the wrench and then tightened. The collet chuck and clamping device are actuated via a safety clamping cylinder mounted to the end of the spindle without additional devices.

## Function description:

The basic adapter with built-in collet chuck and draw piece with draw tube connection is screwed onto the spindle with 3 fastening screws. Through the positioning of the adapter of the respective clamping device (e.g. clamping mandrel, face driver, power chuck), the collet chuck is closed, thereby establishing the connection between the draw bar and actuating element (e.g. piston). The clamping device is fastened manually via 3 quick-action clamping screws by turning the wrench 1/2 turn each. The rotary lock of the bayonet nut is secured by a cylinder pin system. This guarantees equivalent fastening as compared to conventional fastening types. The clamping device is dismantled in the opposite order.



## FOR EVERY APPLICATION

In order to be able to satisfy every application, RÖHM has hydraulically as well as pneumatically actuated cylinders with through-hole in their product range.



hydraulic operated



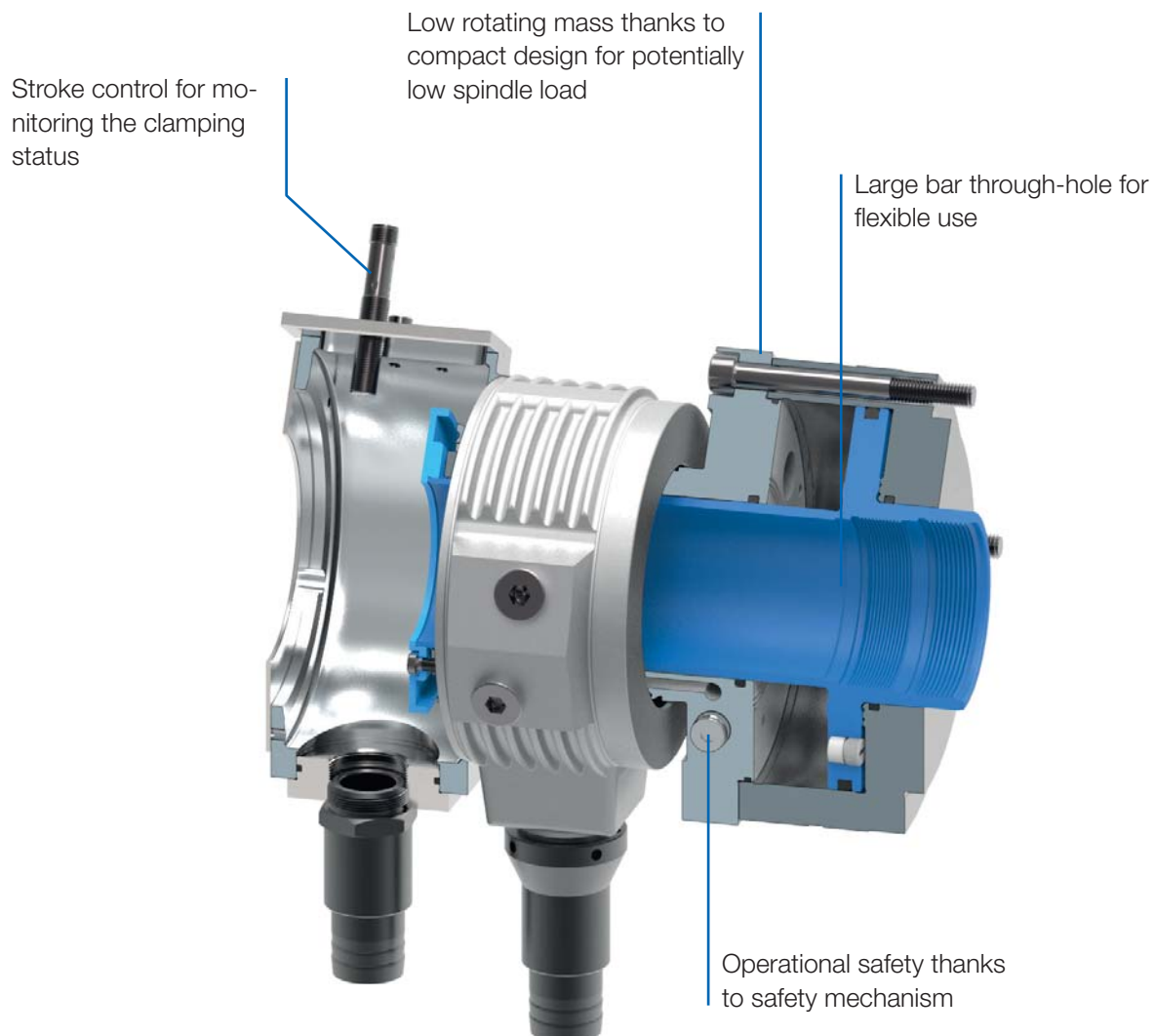
pneumatically operated

# CYLINDERS WITH THROUGH-HOLE

RÖHM clamping cylinders with through-hole are optimally suited for machining different bar material thanks to their large through-hole. The short design and low weight of the clamping cylinders protect the machine spindle and the safety device ensures operational safety, even if the power fails during spindle rotation.

## ADVANTAGES AT A GLANCE

- Safe actuation of power chucks and collet chucks for hollow clamping
- Versatile applications thanks to oil and air actuator media
- Flexible use thanks to large strokes and forces



# SZS



## APPLICATION

Hydraulic actuation of power chucks/collet chucks with through-hole.

## TYPE

Hollow clamping cylinders for actuation pressures of 8-45 bar.

## CUSTOMER BENEFITS

- ③ Short design and low weight ensure small machine spindle load and also allow high speeds
- ③ Thanks to the large through-hole, optimally suited for machining bar material
- ③ Operational safety thanks to safety mechanism, guaranteed even if there is a pressure drop during spindle rotation

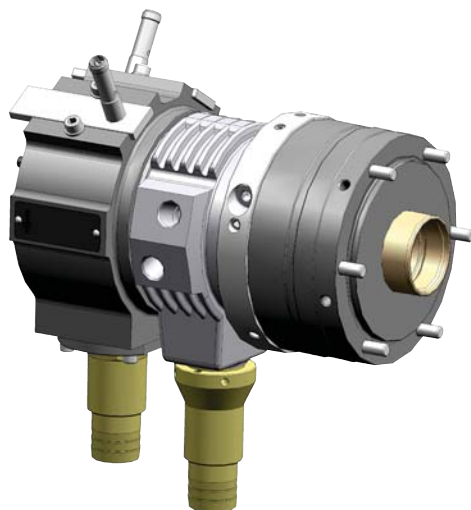
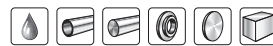
## TECHNICAL FEATURES

- Stroke control by means of inductive proximity system or linear path measuring system F90 (stroke control system not included in the scope of delivery)
- Overpressure safeguard
- Coolant collector
- Fastening from the rear with through bolts
- For its actuation, we recommend hydraulic oil H-LP 32, DIN 51525 (32 centistokes at 40° Celsius)
- Insert a filter unit (10 µm) between the pump and control valve
- Can also be actuated during rotation
- Hollow clamping cylinders can usually only be used for horizontal machining axes

### Note:

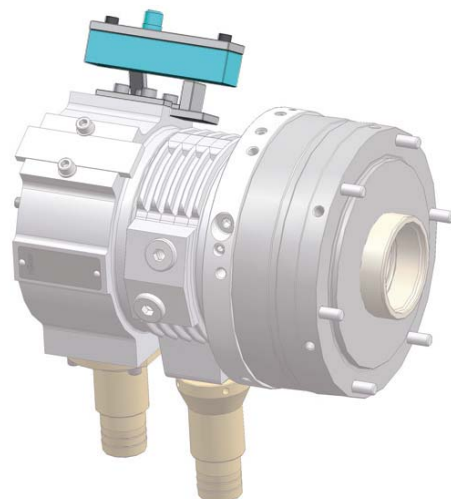
ROHM clamping cylinders meet the testing requirements of the Employer's Liability Insurance Association thanks to their safety system and stroke check.

**SZS** = clamping, cylinder, with safety mechanism



### Standard:

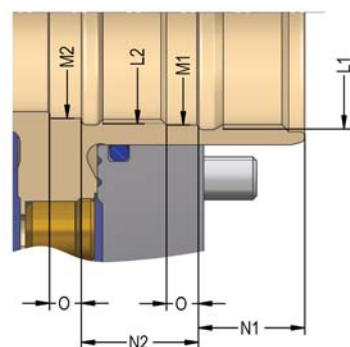
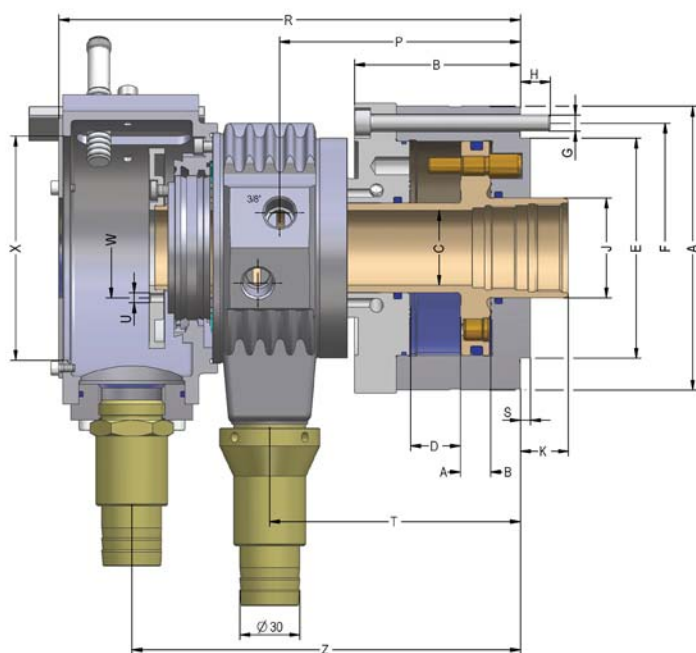
Prepared for inductive proximity system



### Optional stroke monitoring with F 90:

High resolution, minimal temperature drift, contactless, teachable, inductive effect principle

# SZS up to 45 bar, short design

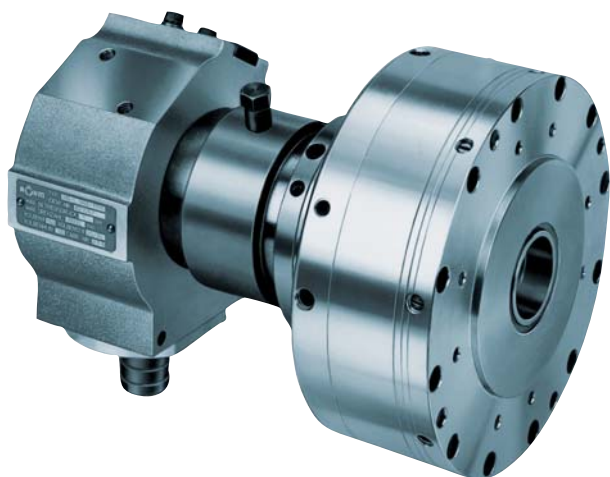


C 15

Oil operated cylinders **SZS**, basic model up to 45 bar, short design for high speeds

| Item No.                                       | 432765  | 432766  | 432767  | 432768 | 432769 ▲ | 432770 ▲ | 435766 ▲ | 433217 ▲ |
|------------------------------------------------|---------|---------|---------|--------|----------|----------|----------|----------|
| Size                                           | 46/103  | 52/130  | 67/150  | 77/170 | 86/200   | 95/225   | 110/250  | 127/325  |
| A mm                                           | 162     | 182     | 197     | 212    | 228      | 245      | 264      | 295      |
| B mm                                           | 83      | 83      | 94      | 94     | 104      | 104      | 104      | 127      |
| C mm                                           | 46,5    | 52,5    | 67,5    | 77     | 86,5     | 95,5     | 110,5    | 127,5    |
| Stroke D mm                                    | 25      | 25      | 30      | 30     | 35       | 35       | 35       | 40       |
| Eh6 mm                                         | 130     | 140     | 160     | 160    | 180      | 210      | 210      | 250      |
| F mm                                           | 147     | 165     | 180     | 185    | 210      | 227      | 240      | 270      |
| G                                              | 6xM8    | 6xM8    | 6xM10   | 6xM10  | 6xM10    | 6xM10    | 6xM10    | 6xM12    |
| H mm                                           | 15      | 15      | 15      | 15     | 15       | 15       | 16       | 20       |
| J mm                                           | 61      | 70      | 85      | 95     | 105      | 115      | 130      | 145      |
| K max.                                         | 22      | 22      | 25      | 25     | 31       | 31       | 31       | 44       |
| K min.                                         | -3      | -3      | -5      | -5     | -4       | -4       | -4       | 4        |
| L1                                             | M55x2   | M60x1,5 | M75x2   | M85x2  | M95x2    | M105x2   | M120x2   | M135x2   |
| L2                                             | M50x1,5 | M55x2   | M72x1,5 | M80x2  | M90x2    | M100x2   | M115x2   | -        |
| M1 mm                                          | 52,5    | 57,5    | 72,5    | 82     | 92       | 102,5    | 117,5    | 132      |
| M2 mm                                          | 47      | 52,5    | 69      | 77     | 87       | 97       | 112      | -        |
| N1 mm                                          | 25      | 25      | 25      | 25     | 32       | 32       | 32       | 30       |
| N2 mm                                          | 25      | 28      | 28      | 28     | 30       | 30       | 30       | -        |
| O mm                                           | 6       | 6       | 6       | 6      | 6        | 6        | 6        | 6        |
| P mm                                           | 120,5   | 120,5   | 138,5   | 138,5  | 155      | 159      | 166,3    | 196      |
| R mm                                           | 231     | 231     | 269     | 269    | 292      | 302      | 321      | 355      |
| S mm                                           | 5       | 5       | 8       | 8      | 8        | 8        | 8        | 5        |
| T mm                                           | 125,75  | 125,75  | 142,75  | 142,75 | 159,25   | 163,25   | 171,5    | 201,5    |
| U                                              | 2xM6    | 2xM6    | 2xM6    | 2xM6   | 2xM6     | 2xM6     | 4xM6     | 2xM6     |
| W mm                                           | 68      | 76      | 91      | 91     | 116      | 120      | 135      | 150      |
| X mm                                           | 122     | 122     | 135     | 145    | 167      | 177      | 116      | 131      |
| Z mm                                           | 195,5   | 195,5   | 225     | 226    | 249      | 259      | 275      | 307      |
| Piston area A cm <sup>2</sup>                  | 109,8   | 142,4   | 164,5   | 184    | 212,6    | 243,5    | 267      | 337      |
| Piston area B cm <sup>2</sup>                  | 103,5   | 131     | 152     | 170    | 197      | 226,2    | 247,4    | 325,7    |
| Eff. draw bar pull (F=45 bar) kN               | 46      | 58      | 68      | 76     | 88       | 100      | 110      | 145      |
| Max. admissible speed min <sup>-1</sup>        | 7000    | 6300    | 5500    | 5000   | 4500     | 4000     | 3500     | 3200     |
| Oil leakage rate (30 bar 50° C - n max.) l/min | 3       | 3,5     | 4       | 4,5    | 5        | 5        | 5        | 6        |
| Moment of inertia J kgm <sup>2</sup>           | 0,03    | 0,045   | 0,07    | 0,13   | 0,17     | 0,3      | 0,35     | 0,58     |
| Weight approx. kg                              | 16      | 18      | 22      | 30     | 35       | 38       | 48       | 66       |

## LHS-L



### APPLICATION

Pneumatic actuation of power chucks/collet chucks with through-hole.

### TYPE

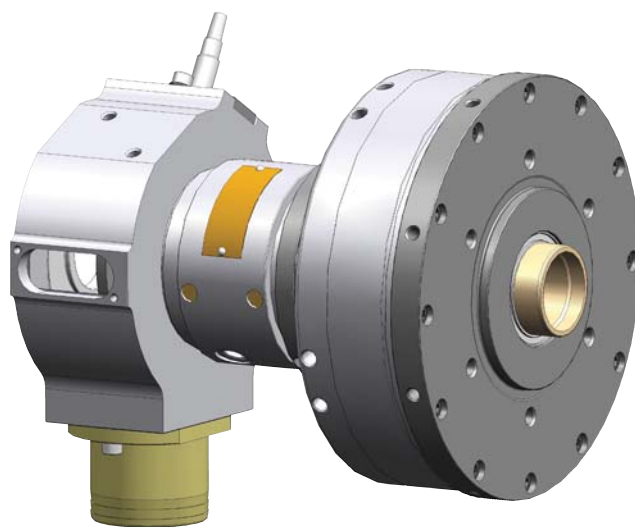
Hollow clamping cylinders for actuation pressures from 1.5-8 bar.

### CUSTOMER BENEFITS

- ⊕ Short design and low weight ensure small machine spindle load and also allow high speeds
- ⊕ Thanks to the large through-hole, optimally suited for machining bar material
- ⊕ Operational safety thanks to safety mechanism, guaranteed even if there is a pressure drop during spindle rotation

### TECHNICAL FEATURES

- Stroke control via inductive proximity switches (not included in the scope of delivery)
- Coolant collector
- Can also be actuated during rotation



### Accessories:

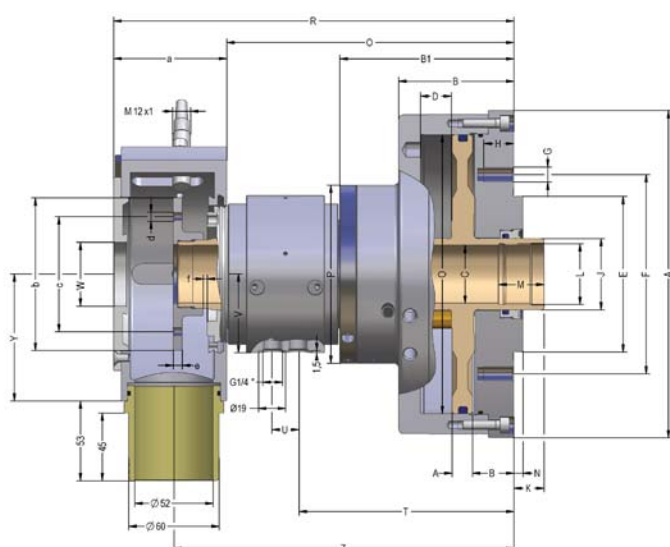
Connection for supply and drain hoses

### Special accessories:

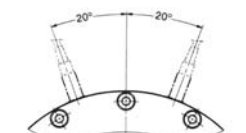
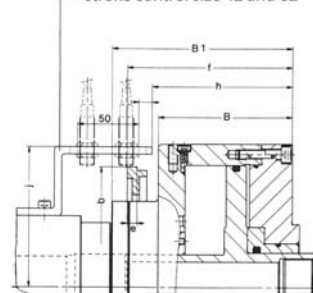
2 inductive proximity switches piece/item no. 381551 (opener)  
or 2 inductive proximity switches piece/item no. 202759 (closer)

**With tandem piston on request.**

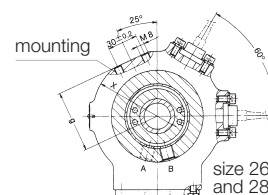
# LHS-L



stroke control size 42 and 62



with tandem piston on request



C 15

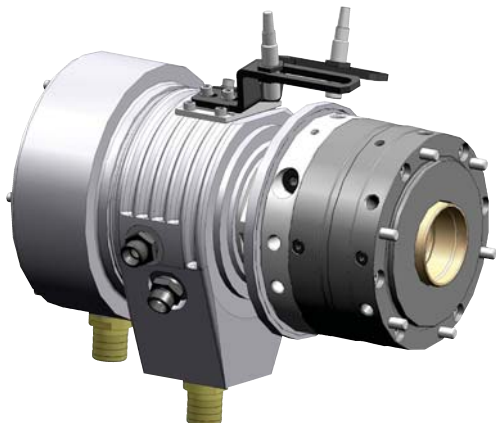
Air actuating cylinders with through-hole **LHS-L with safety valve**

The coolant collection shell (sizes 26 and 38) must be held centrally by a bracket on the machine

| Item No.                                | 417310 ▲    | 417311 ▲   | 417312 ▲   |
|-----------------------------------------|-------------|------------|------------|
| Size                                    | 26/190      | 38/251     | 42/289     |
| A mm                                    | 187         | 215        | 235        |
| B mm                                    | 76          | 78         | 109,7      |
| B1 mm                                   | 110         | 110        | 147,5      |
| C mm                                    | 26,2        | 38,2       | 42         |
| Stroke D mm                             | 20          | 20         | 32         |
| E-0,01 mm                               | 70          | 103        | 103        |
| F mm                                    | 105         | 132        | 145        |
| G                                       | 6 x M 8     | 6 x M 10   | 8 x M 8    |
| H mm                                    | 15          | 20         | 20         |
| J mm                                    | 38          | 50         | 57         |
| K max.                                  | 20          | 20         | 20         |
| K min.                                  | 0           | 0          | -12        |
| L                                       | M 32 x 1,25 | M 44 x 1,5 | M 52 x 1,5 |
| M mm                                    | 25          | 30         | 30         |
| N mm                                    | 5           | 6          | 6          |
| O mm                                    | 160         | 185        | 200        |
| P mm                                    | 106         | 118        | 140        |
| Q mm                                    | 197         | 198        | 263,7      |
| R mm                                    | 275         | 273        | 337,7      |
| S mm                                    | 210         | 211        | 283,5      |
| T mm                                    | 141         | 140        | 188        |
| U mm                                    | 23          | 23         | 28,5       |
| V mm                                    | 46          | 52         | 60         |
| W mm                                    | 42          | 42         | 51         |
| X mm                                    | 130         | 151        | 151        |
| Y mm                                    | 73,5        | 84         | 84         |
| Z mm                                    | 233,5       | 233        | 297,7      |
| a mm                                    | 78          | 75         | 74         |
| b mm                                    | 77          | 101        | 197        |
| c mm                                    | 61          | 76         | -          |
| d                                       | 4 x M 6     | 4 x M 6    | -          |
| e mm                                    | 7,5         | 7,5        | 8          |
| f max.                                  | 22,5        | 22,5       | 135        |
| f min.                                  | 2,5         | 2,5        | 167        |
| g mm                                    | 62          | 72         | -          |
| h mm                                    | -           | -          | 114,7      |
| j mm                                    | -           | -          | 115        |
| Piston area A cm <sup>2</sup>           | 189,7       | 249,1      | 288,6      |
| Piston area B cm <sup>2</sup>           | 190,9       | 251,4      | 291,3      |
| Eff. draw bar pull (F=6 bar) kN         | 10,47       | 13,75      | 15,90      |
| Max. admissible speed min <sup>-1</sup> | 6500        | 6500       | 4000       |
| Volume for full double stroke l         | 0,762       | 1          | 1,9        |
| Moment of inertia J kgm <sup>2</sup>    | 0,03        | 0,06       | 0,102      |
| Weight approx. kg                       | 11,8        | 16         | 25,5       |

When working with high and low pressure, the release of the safety valve is guaranteed for clamping pressure: unclamping pressure ≤ 2:1

# Special solutions - on request



## SZS (80 bar) Hollow clamping cylinder

### APPLICATION

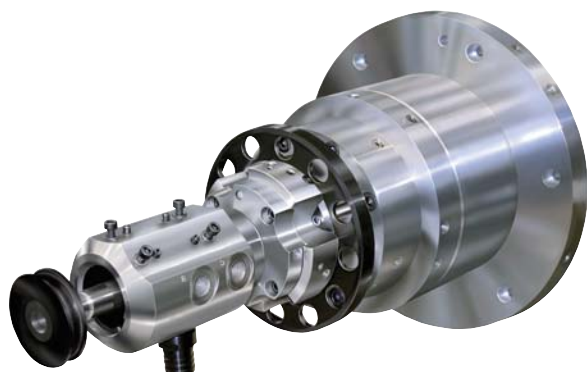
For the hydraulic actuation of power chucks/collet chucks with through-hole.

### TYPE

Hollow clamping cylinders for actuation pressures up to 80 bar.

### CUSTOMER BENEFITS

- Stroke control outside of the coolant collection bowl
- Operational safety thanks to safety valve, guaranteed even if there is a pressure drop during spindle rotation
- Low mass moment of inertia and required installation space thanks to reduced external diameter
- Flexible application: Low draw forces thanks to reduced piston surface, and nevertheless maximum draw forces thanks to high maximum actuation pressure



## OVUSHH Double piston cylinder

### APPLICATION

For hydraulic actuating of power chucks with additional functions (ejector, retractable center points, etc.).

### TYPE

With 4-way oil supply.

### CUSTOMER BENEFITS

- Different strokes, piston surfaces and arbitrary safety requirements can be realized thanks to modular system
- Feed-through of another medium (coolant, oil, air, etc.) through the cylinder axis by installing an additional rotary feed-through





## FOR EVERY APPLICATION

In order to be able to satisfy every application, RÖHM has hydraulically as well as pneumatically actuated cylinders without through-hole in their product range.



hydraulic operated



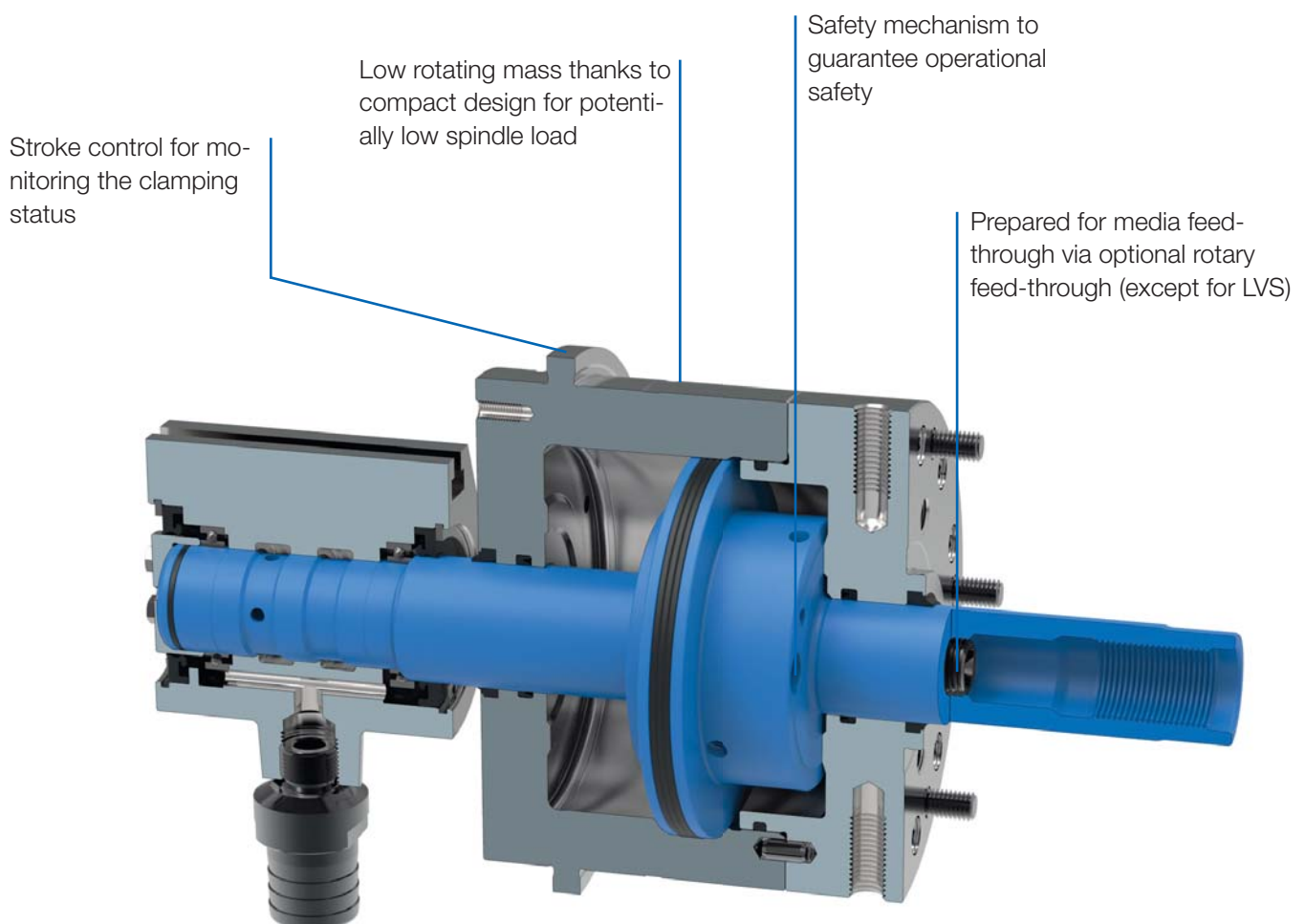
pneumatical operated

# CYLINDER WITHOUT THROUGH-HOLE

RÖHM clamping cylinders without through-hole are optimally suited for actuating power chucks or special clamping devices for full or partial hollow clamping. Thanks to the possibility of a horizontal or vertical installation position, the clamping cylinders can be used flexibly and the safety mechanism guarantees operational safety, even if the power fails during spindle rotation.

## ADVANTAGES AT A GLANCE

- ⊕ Safe actuation of power chucks or special clamping devices for full or partial hollow clamping
- ⊕ Versatile applications thanks to oil and air actuator media
- ⊕ Flexible use thanks to large strokes and forces





### APPLICATION

Hydraulic actuation of power chucks (full or partial hollow clamping).

### TYPE

Clamping cylinders without through-hole for actuation pressures from 8-80 bar.

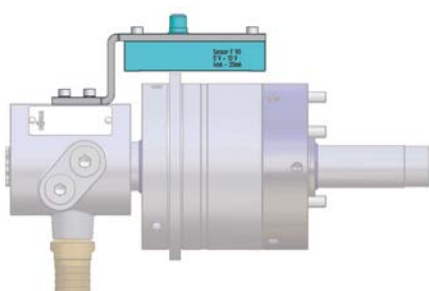
### CUSTOMER BENEFITS

- ④ Compact design and low mass moment of inertia for low machine spindle load
- ④ Operational safety thanks to safety mechanism, guaranteed even if there is a pressure drop during spindle rotation
- ④ Flexible use thanks to possible horizontal or vertical installation position

### TECHNICAL FEATURES

- Stroke control by means of inductive proximity system or linear path measuring system F90 (stroke control system not included in the scope of delivery)
- Through-hole for media feed-through
- For its actuation, we recommend hydraulic oil H-LP 32, DIN 51525 (32 centistokes at 40° Celsius)
- Insert a filter unit (10 µm) between the pump and control valve

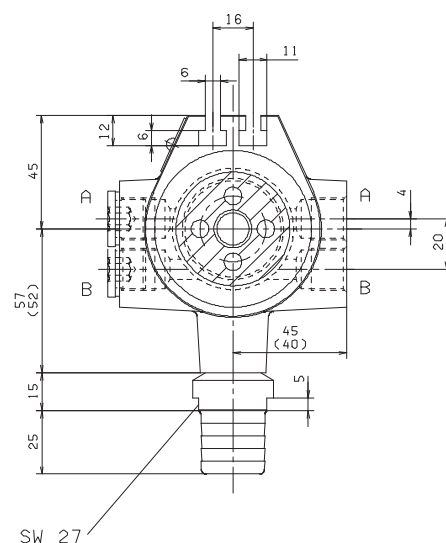
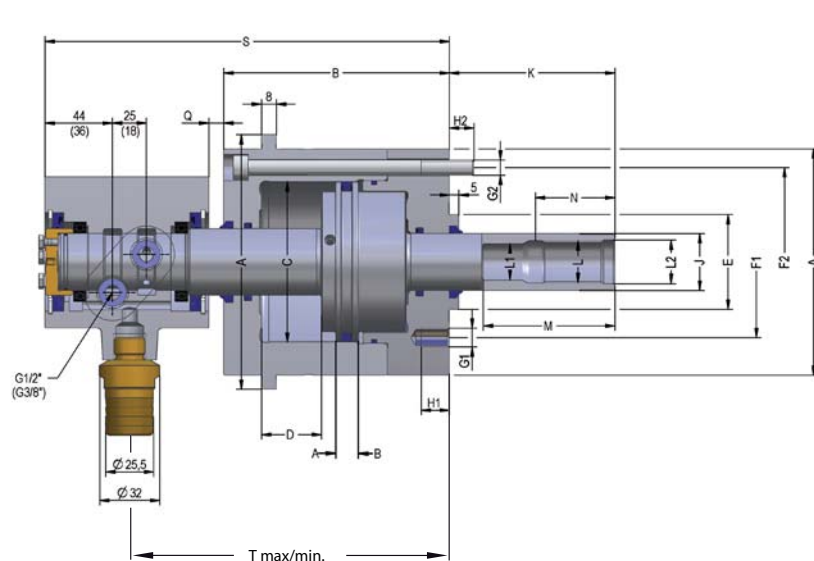
**OVS** = oil-operated, without through-hole, with safety mechanism



### Stroke control with monitoring system F 90:

- High resolution and accuracy
- Minimal temperature drift
- Contactless
- Teaching mode
- Inductive principle of operation

With high and low pressure chucking the change-over of the safety valve is guaranteed when:  
 chucking pressure : releasing pressure =< 5,5 : 1 (Size 85 - 130)  
 chucking pressure : releasing pressure =< 3,8 : 1 (Size 150 - 200)

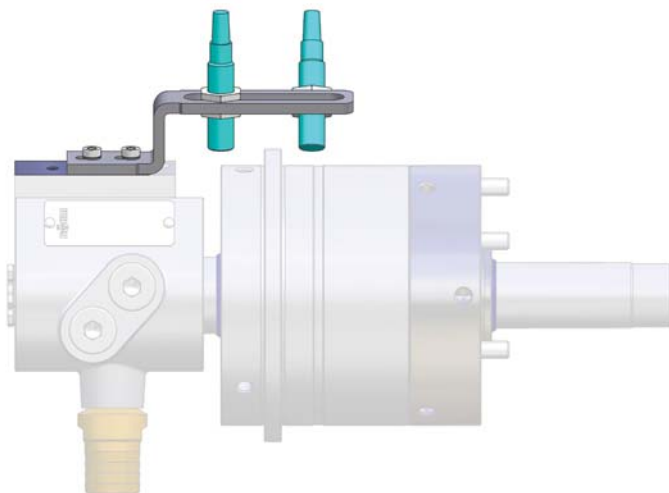


C 15

Oil-operated actuating cylinders without through-hole **OVS, basic model**, with **safety device**, up to 80 bar - **Steel design** for high speed, fastening from the rear, central through-hole

| Item No.                                                      | 438261         | 438262         | 438263         | 438264         | 438265         |
|---------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Size                                                          | 85             | 105            | 130            | 150            | 200            |
| Design                                                        | steel          | steel          | steel          | steel          | steel          |
| A mm                                                          | 120            | 140            | 165            | 193            | 245            |
| A1 mm                                                         | 135            | 155            | 180            | 208            | 260            |
| B mm                                                          | 120            | 120            | 120            | 147            | 164            |
| C mm                                                          | 85             | 105            | 130            | 150            | 200            |
| Stroke D mm                                                   | 32             | 32             | 32             | 45             | 50             |
| Eh6 mm                                                        | 50             | 50             | 80             | 95             | 125            |
| F1 mm                                                         | 80             | 80             | 105            | 145            | 170            |
| F2 mm                                                         | 100            | 120            | 145            | 170            | 220            |
| G1                                                            | M10 (3x120°)   | M10 (4x90°)    | M12 (4x90°)    | M16 (4x90°)    | M16 (6x60°)    |
| G2                                                            | M8 (6x60°)     | M8 (6x60°)     | M8 (8x45°)     | M10 (8x45°)    | M12 (8x45°)    |
| H1 mm                                                         | 15             | 15             | 18             | 24             | 29             |
| H2 mm                                                         | 13             | 13             | 13             | 14             | 19             |
| J mm                                                          | 30             | 32             | 42             | 50             | 70             |
| K max.                                                        | 88             | 88             | 82             | 98             | 108            |
| K min.                                                        | 56             | 56             | 50             | 53             | 58             |
| L mm                                                          | M 22 x 1,5     | M 22 x 1,5     | M 30 x 2       | M 36 x 2       | M 48 x 2       |
| L1 mm                                                         | 19             | 19             | 26             | 30             | 42             |
| L2 mm                                                         | 23             | 23             | 32             | 38             | 50             |
| M mm                                                          | 70             | 70             | 88             | 105            | 125            |
| Min. reach of draw bar N mm                                   | 43             | 43             | 65             | 78             | 90             |
| Q max.                                                        | 40             | 40             | 40             | 53             | 58             |
| Q min.                                                        | 8              | 8              | 8              | 8              | 8              |
| S max.                                                        | 252            | 247            | 247            | 307            | 329            |
| S min.                                                        | 220            | 215            | 215            | 262            | 279            |
| T max.                                                        | 202            | 202            | 202            | 250            | 272            |
| T min.                                                        | 170            | 170            | 170            | 205            | 222            |
| Piston area A cm <sup>2</sup>                                 | 47,1           | 77             | 116,8          | 160,8          | 298,2          |
| Piston area B cm <sup>2</sup>                                 | 49,7           | 78,6           | 118,9          | 157,1          | 275,7          |
| Eff. draw bar pull (F=60 bar) kN                              | 29,50          | 47             | 71,3           | 94             | 165,4          |
| Max. admissible speed min <sup>-1</sup>                       | 8000           | 8000           | 5000           | 5500           | 4500           |
| Volume for full double stroke l                               | 0,31           | 0,5            | 0,775          | 1,43           | 2,87           |
| Moment of inertia J kgm <sup>2</sup>                          | 0,018          | 0,03           | 0,066          | 0,142          | 0,36           |
| Weight approx. kg                                             | 10             | 12,7           | 17,7           | 31,4           | 49             |
| <b>Suitable connecting flange for Duoflow Rotating Unions</b> | <b>1022186</b> | <b>1022186</b> | <b>1022187</b> | <b>1022187</b> | <b>1022187</b> |

# Stroke Monitors OVS

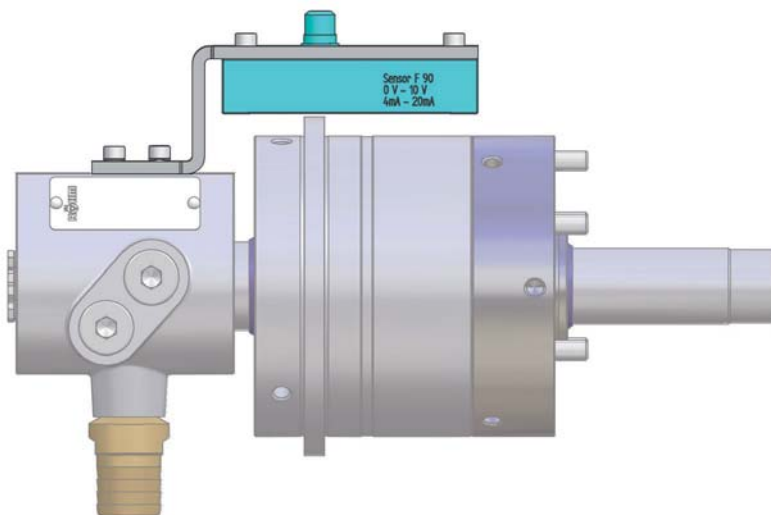


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**OVS-stroke monitoring by inductive proximity switches** (Limit switch not included in the scope of delivery)

| Item no. | Size    |
|----------|---------|
| 1159712  | OVS 85  |
| 1159713  | OVS 105 |
| 1159714  | OVS 130 |
| 1159715  | OVS 150 |
| 1159716  | OVS 200 |

Order cylinder separately  
External rotary feed-throughs fitting Deublin/Rotoflux



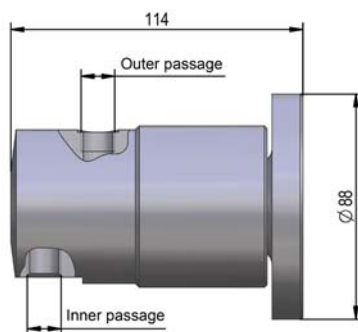
C 15

**OVS-stroke monitoring linear, inductive F90** (F90 system included)

| Item no. | Size    |
|----------|---------|
| 1159707  | OVS 85  |
| 1159708  | OVS 105 |
| 1159709  | OVS 130 |
| 1159710  | OVS 150 |
| 1159711  | OVS 200 |

Order cylinder separately  
External rotary feed-throughs fitting Deublin/Rotoflux  
Linear stroke monitoring sensors with IO-Link on request

# Accessories



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## 2-Through-hole rotating unions

| Item no. | Inner passage |         |               | Outer passage |         |               |
|----------|---------------|---------|---------------|---------------|---------|---------------|
|          | Connection    | Media   | Max. Pressure | Connection    | Media   | Max. Pressure |
| 1118078  | 1/4           | Oil     | 100           | 1/4           | Oil     | 30            |
| 1118079  | 1/4           | Oil     | 70            | 1/4           | Air     | 10            |
| 1118080  | 1/4           | Coolant | 70            | 1/4           | Air     | 10            |
| 1118081  | 3/8           | Air     | 10            | 1/8           | Air     | 10            |
| 1118082  | 1/4           | Air     | 10            | 1/4           | Oil     | 40            |
| 1118083  | 1/4           | Air     | 10            | 1/4           | Coolant | 40            |

Optional: 1-Through-hole Rotating Union for OVS Size 85-105 Item No.: 10003958

Optional: 1-Through-hole Rotating Union for OVS Size 130-150 Item No.: 10003959

Optional: 1-Through-hole Rotating Union for OVS Size 200 Item No.: 611172

Connecting flange complete for 2-passage rotating union size 85-105 Item no.: 1022186

Connecting flange complete for 2-passage rotating union size 130-200 Item No.: 1022187



### APPLICATION

Pneumatic actuation of power chucks or special clamping devices (full or partial hollow clamping).

### TYPE

Clamping cylinders without through-hole for actuation pressure 2-10 bar.

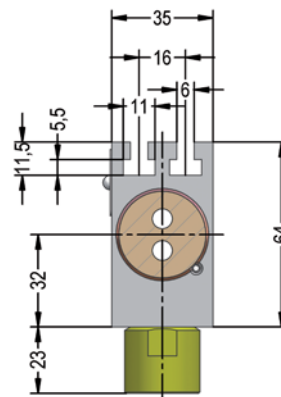
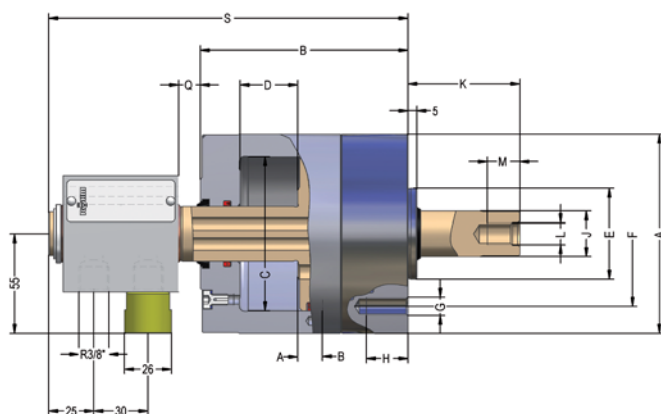
### CUSTOMER BENEFITS

- Operational safety thanks to standard safety mechanism, guaranteed even if there is a pressure drop during spindle rotation
- Flexible use thanks to possible horizontal or vertical installation position

### TECHNICAL FEATURES

- Stroke control by means of inductive proximity system or linear path measuring system F90, fastened on the machine side (stroke control system not included in the scope of delivery)
- The maximum permissible speed can be run in continuous operation (100% ED)
- Can also be actuated during rotation
- On request with central media feed-through

**LVS** = air-operated, without through-hole, with safety mechanism

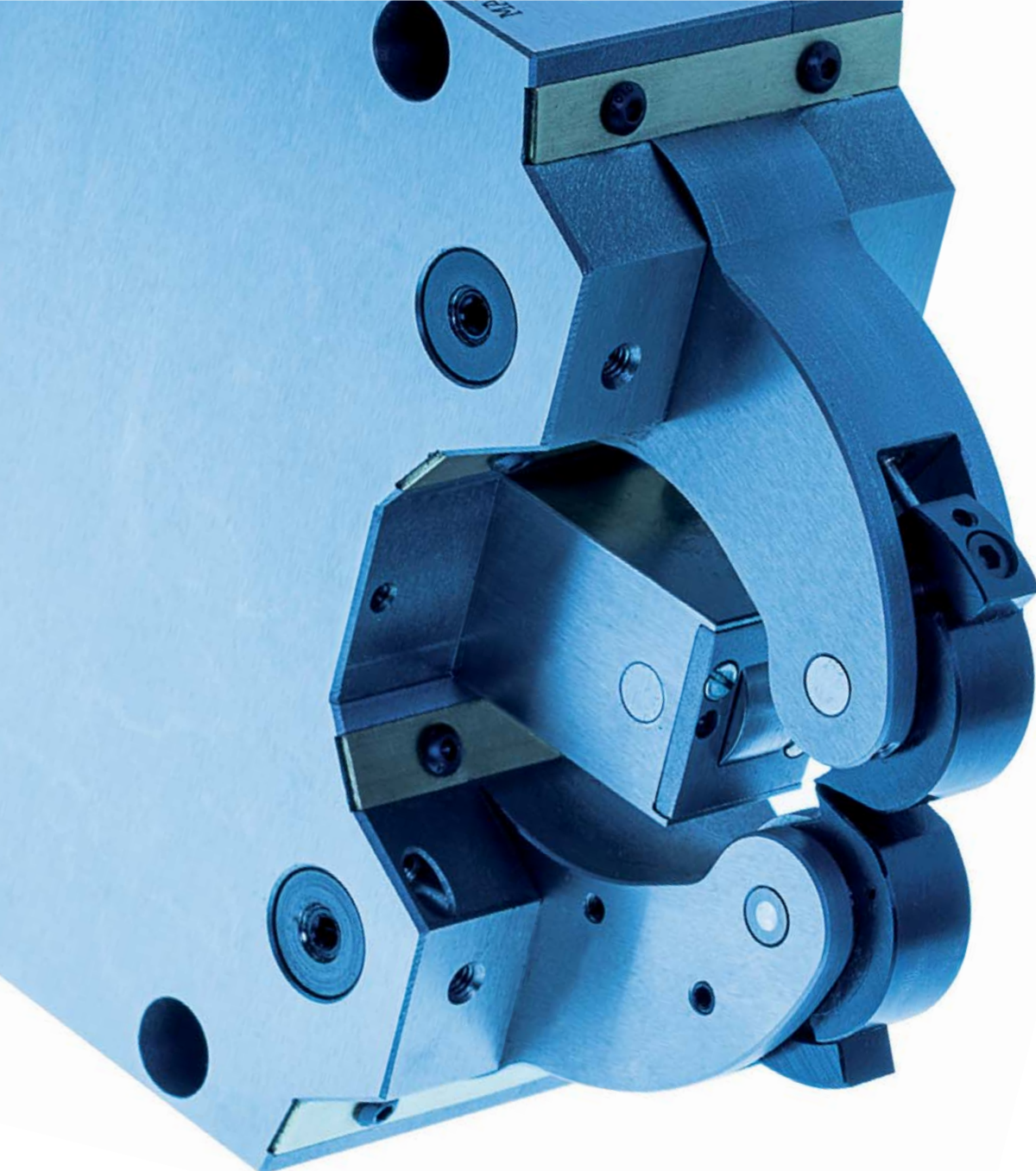


C 15

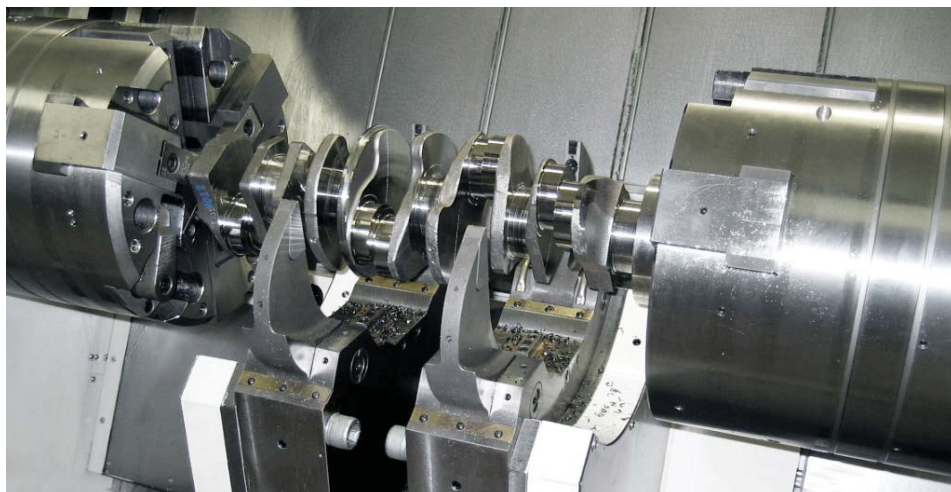
**LVS Air actuating cylinders without through-hole** with safety mechanism and stroke control

| Item No.                                           | 096553   | 096554   | 096555  | 096556   | 096557   | 096558   | 096560 ▲ |
|----------------------------------------------------|----------|----------|---------|----------|----------|----------|----------|
| Size                                               | 85       | 105      | 130     | 150      | 200      | 250      | 350      |
| A mm                                               | 110      | 130      | 155     | 180      | 240      | 287      | 387      |
| B mm                                               | 115      | 115      | 117     | 128      | 125      | 125      | 148      |
| C mm                                               | 85       | 105      | 130     | 150      | 200      | 250      | 350      |
| Stroke D mm                                        | 32       | 32       | 32      | 32       | 32       | 32       | 45       |
| Eh6 mm                                             | 50       | 50       | 80      | 95       | 95       | 125      | 125      |
| F mm                                               | 80       | 80       | 105     | 145      | 145      | 170      | 170      |
| G                                                  | 3 x M 10 | 3 x M 10 | 3x M 12 | 4 x M 16 | 4 x M 16 | 6 x M 16 | 6 x M 16 |
| H mm                                               | 23       | 23       | 27      | 35       | 35       | 35       | 35       |
| J mm                                               | 25       | 25       | 25      | 25       | 35       | 35       | 35       |
| K max.                                             | 62       | 88       | 79      | 74       | 87       | 87       | 82       |
| K min.                                             | 30       | 56       | 47      | 42       | 55       | 55       | 37       |
| L                                                  | M 12     | M 12     | M 16    | M 16     | M 24     | M 24     | M 24     |
| M mm                                               | 18       | 18       | 24      | 24       | 36       | 36       | 36       |
| Q max.                                             | 44       | 44       | 44      | 44       | 44       | 44       | 57       |
| Q min.                                             | 12       | 12       | 12      | 12       | 12       | 12       | 12       |
| S max.                                             | 231      | 231      | 233     | 244      | 241      | 241      | 277      |
| S min.                                             | 199      | 199      | 201     | 212      | 209      | 209      | 232      |
| Piston area A cm <sup>2</sup>                      | 49,7     | 79,5     | 125,7   | 169,6    | 307,1    | 483,8    | 955      |
| Piston area B cm <sup>2</sup>                      | 51,8     | 81,7     | 127,8   | 171,8    | 304,5    | 481,5    | 952,5    |
| Eff. draw bar pull (F=6 bar) kN                    | 3        | 4,80     | 7,50    | 10       | 18       | 28,50    | 56,50    |
| Max. admissible speed min <sup>-1</sup>            | 5000     | 5000     | 5000    | 5000     | 4500     | 4000     | 3200     |
| Air consumption for full double stroke at 6 bar NL | 2,8      | 4,6      | 6,5     | 7,5      | 12,5     | 18       | 50       |
| Moment of inertia J kgm <sup>2</sup>               | 0,007    | 0,009    | 0,03    | 0,06     | 0,09     | 0,10     | 0,45     |
| Weight approx. kg                                  | 5,3      | 6,5      | 9       | 12,5     | 19,5     | 23       | 32,5     |





## OPTIMAL COMPONENT SUPPORT



Optimal support of components for every application, e.g. crankshaft machining

# SELF-CENTERING STEADY RESTS

With self-centering steady rests, RÖHM makes an important contribution toward the support of slender turned parts on lathes and meets all requirements for a large clamping range without change elements, a short and sturdy design, high centering precision and repeatability, as well as precision stability for clamping pressure changes and central lubrication.

## ADVANTAGES AT A GLANCE

- ③ Support of components with extreme center precision and repeatability thanks to optimized cam lever system
- ③ Standardized equipped with central lubrication for use under difficult conditions and with high dirt accumulation
- ③ Large clamping range without change elements thanks to special curved geometry

Simple attachment of a safety valve and dosing valves for the central lubrication system to increase maintenance friendliness for SLZN or SLZN-B

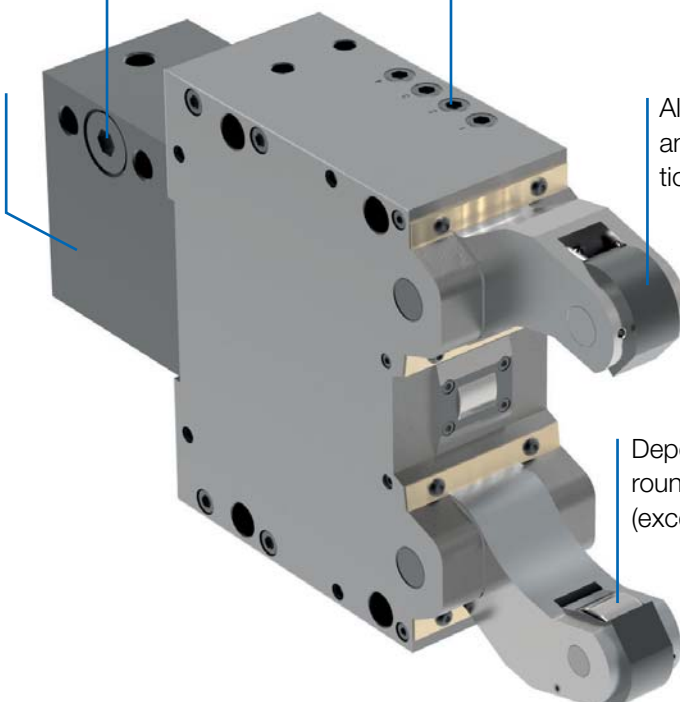
Safety valve for guaranteeing operational safety in the event of a pressure drop (optionally for SLZ-047)

Hydraulic or pneumatic actuation possible

Central lubrication or manual lubrication possible, depending on the application

All versions available with and without chip protection

Depending on the application, round or cylindrical rollers available (except for SLZK)



# Function description

Different attachment options allow possible use for turning, facing, centering, drilling, internal machining, copy turning, etc., both as a stationary as well as a rotating steady rest in any angular position relative to the lathe tool.

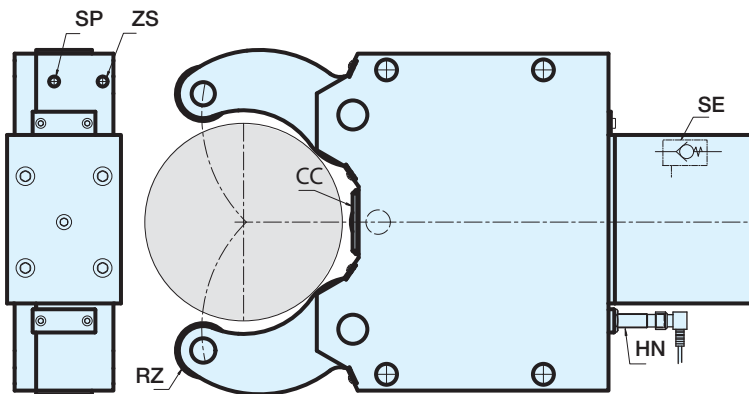
Also in the case of a stationary steady rest, the shaft can be machined along the entire length since, on the one hand, the opening between the rollers leaves room for tools and on the other hand, the rollers reclamp self-centering. Here, 2 supporting steady rests are to be provided so that one of these can support the workpiece over the entire width of the roller.

The cylinder installed to actuate the steady rest can be selected for hydraulic or pneumatic actuation. The only difference is the size of the piston surfaces.

## List of abbreviations

|           |   |                                                                                        |
|-----------|---|----------------------------------------------------------------------------------------|
| <b>SP</b> | = | Air purge connection                                                                   |
| <b>ZS</b> | = | Central lubrication of the steady rest                                                 |
| <b>HN</b> | = | Check via steady rest proximity switch (not included in delivery) in the open position |
| <b>HK</b> | = | Stroke control rod                                                                     |
| <b>RZ</b> | = | Rollers, cylindrical                                                                   |
| <b>RB</b> | = | Rollers, convex                                                                        |

## Standard configuration



### The standard steady rest is configured as follows:

- Cylindrical rollers
- Pressurization
- Central lubrication
- Axially extended cylinder with safety valve (except SLZ-047)
- Proximity switch component (open steady rest) for possible using of HN
- Device for manual lubrication via grease cup or oiler

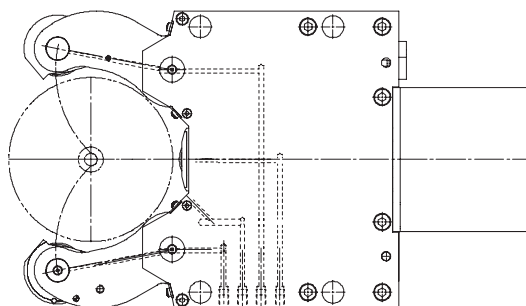
# Function description

## Lubrication

Only one connection is required for the central lubrication system. The dosing units for the rollers are integrated in the steady rest body and ensure sufficient lubrication in the corresponding time interval.

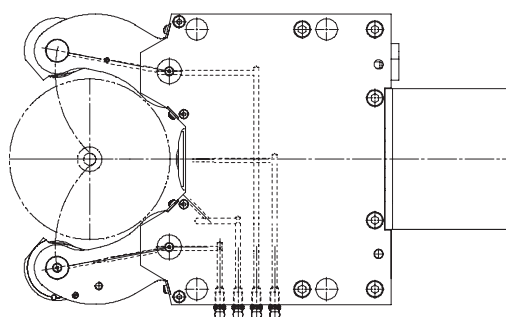
### Oil central lubrication (standard)

RÖHM steady rests are standard-equipped with a central lubrication system. The dosing valves required for lubrication are built into the steady rest body. Lubrication intervals (depending on load) 2-5 minutes at an operating pressure of 16-50 bar.



### Manual lubrication (option)

Steady rest for moderate load and low dirt accumulation. Lubrication points and rollers are supplied with grease via grease nipples and grease gun. Lubrication intervals every 4 to 8 operating hours, depending on application.

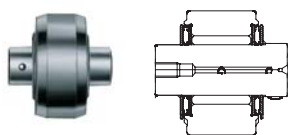


## Rollers

The rollers are supported by roller bearings radially and axially. In the standard version, these are cylindrical or convex. In the case of conical workpieces and for follower rests arrangement, convex rollers are to be used. Here, too, customized designs on request supplement the product range.

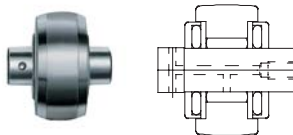
### Cylindrical rollers

roller version for standard inserts



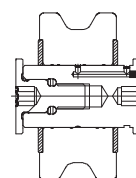
### Convex rollers

for conical workpieces and for following steady rest arrangement



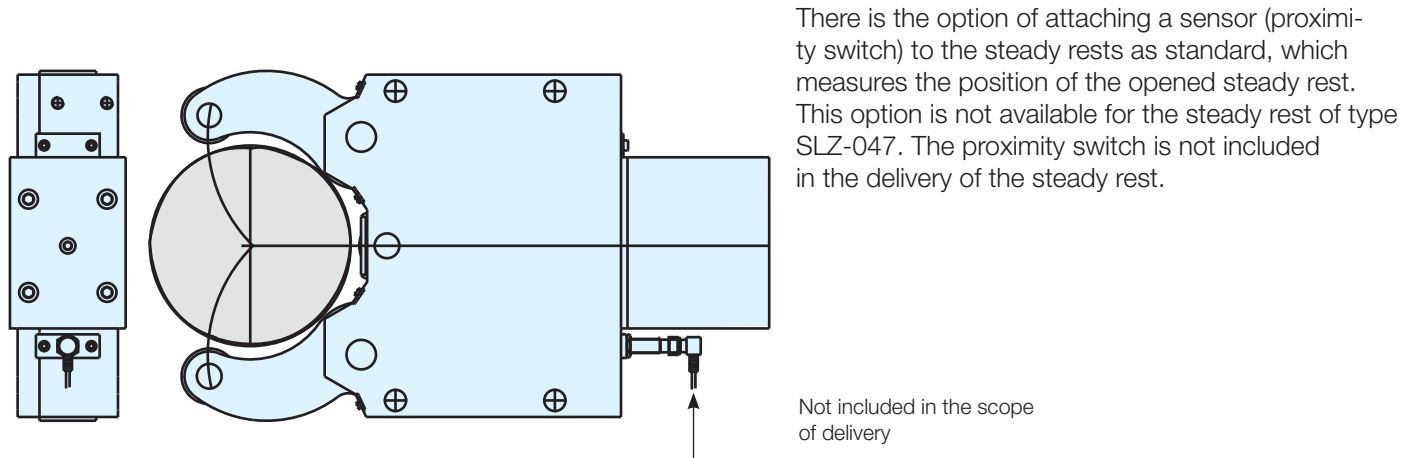
### Customized rollers

on request

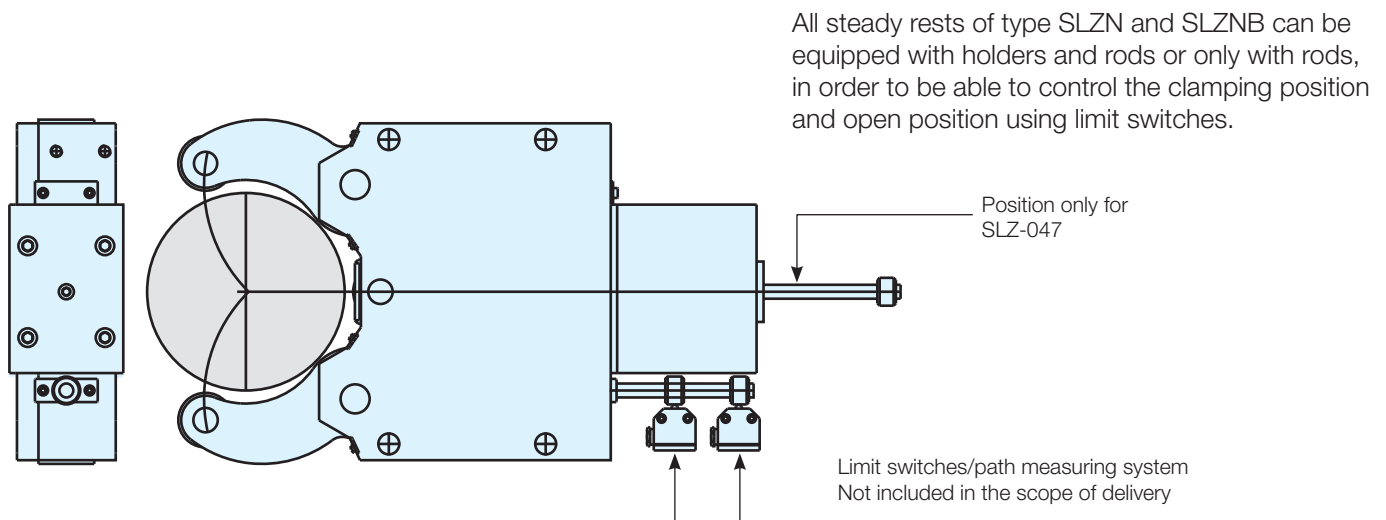


# Standard accessories of SLZN series

## Clamping arm control system SLZ-HN

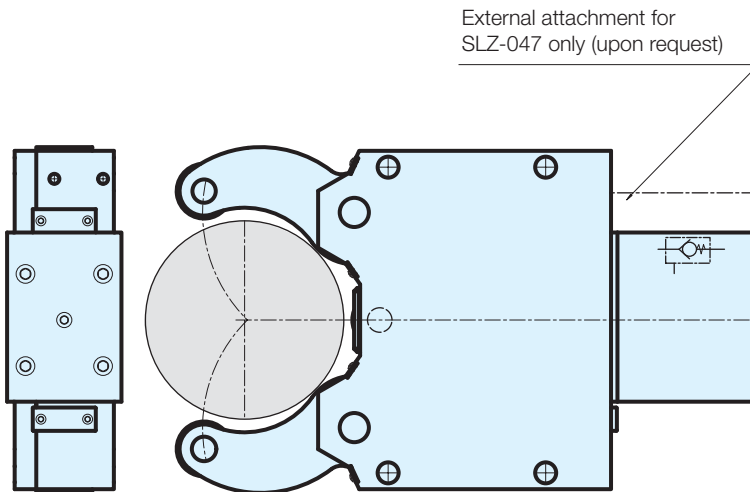


## Control system of the clamping arms SLZ-HK



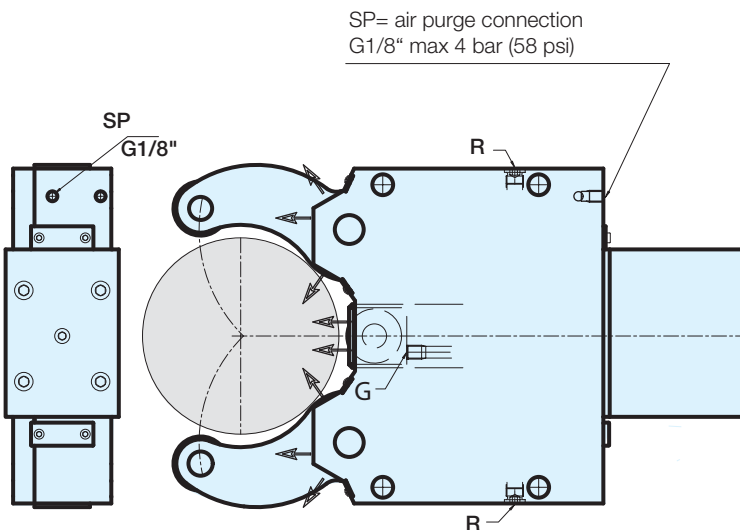
# Standard accessories of SLZN series

## Safety valve SE



All standard steady rests are equipped with a safety valve integrated in the cylinder. If the clamping pressure in the cylinder should be interrupted, the valve prevents the steady rest from opening. With moving applications, the safety valve isn't necessary. We would be happy to help you if need be. This device is available as an option for the SLZ-047 series.

## Pressurization



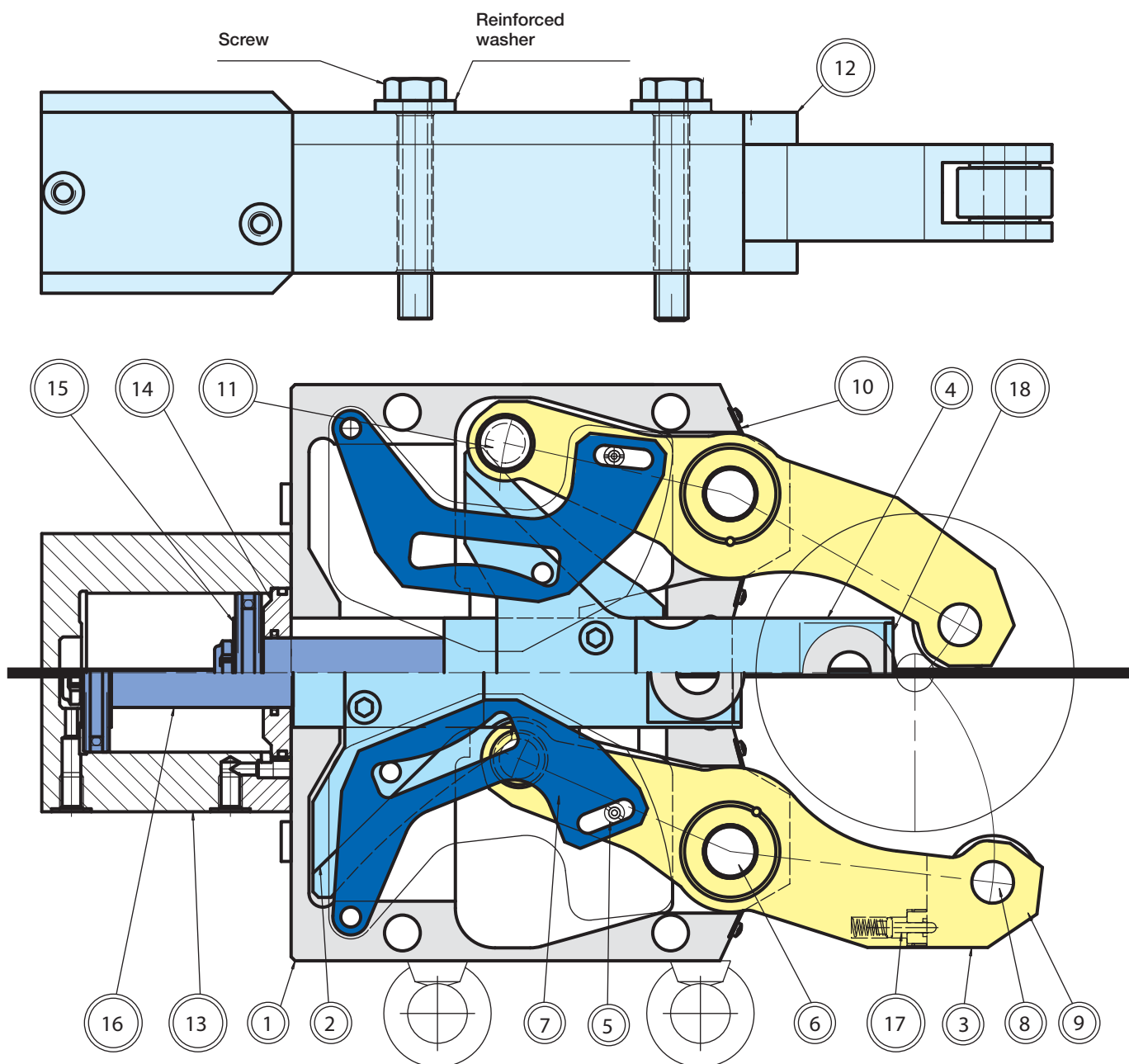
All RÖHM steady rests have a G 1/8" air purge connection; This system protects the body of the steady rest from chip and dust penetration. When the steady rest is completely open, the air consumption is automatically reduced, but not completely interrupted to prevent unnecessary air consumption. The system includes the cleaning of the middle roller bearings. To activate this option, the screw „G“, which is located in the housing floor, must be removed. The pressure can vary between a minimum of 2 bar and maximum of 4 bar (58 psi). The steady rest can also be used without the air purge. Drain holes are on the top and bottom part of the steady rest housing. It is recommended that the lower one of the two seals be loosened to allow the cooling water to drain and to prevent penetration of contaminants into the body of the steady rest.

# Set-up principle SLZN

All steady rests have an engraved identification number. This number must be provided when ordering replacement parts.

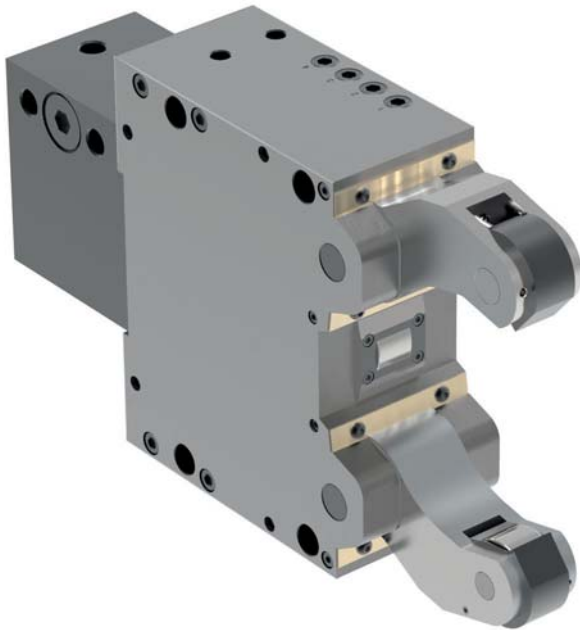
## Components SLZN/SLZNB

- |                         |                      |
|-------------------------|----------------------|
| 1. Body                 | 10. Scraper band     |
| 2. Arm segment          | 11. Axle and rollers |
| 3. Clamping arm outside | 12. Cover            |
| 4. Clamping arm center  | 13. Cylinder housing |
| 5. Bolt and roller      | 14. Cylinder flange  |
| 6. Clamping arm arbore  | 15. Piston           |
| 7. Return lever         | 16. Piston rod       |
| 8. Roller center        | 17. Pressure sleeve  |
| 9. Roller               | 18. Scraper center   |





# SLZN - standard design



## APPLICATION

Support of slender shafts for rational turning and end machining.

## TYPE

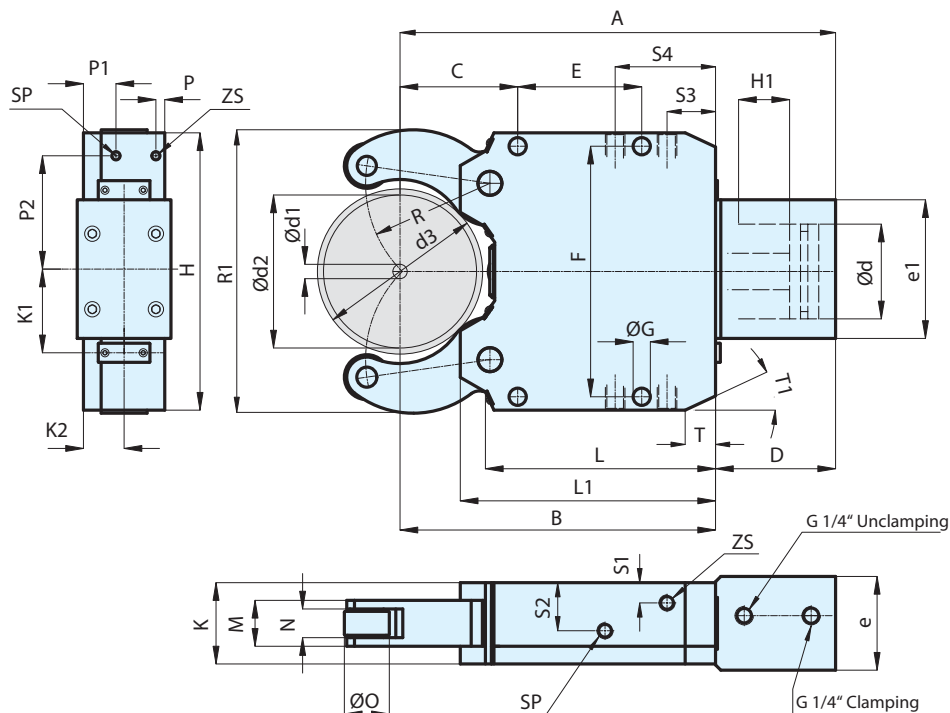
Standard version with cylinder mounted at rear.

## CUSTOMER BENEFITS

- ⊕ Large clamping range without change elements
- ⊕ Operational safety thanks to safety valve, even if pressure drops (SLZ-047 optional)
- ⊕ Compact and sturdy design for variable use
- ⊕ High centering precision and repeatability thanks to proven cam lever system
- ⊕ Resilient chip protection for optimal workpiece wiping (for version „with chip protection“)
- ⊕ Purge air connection to prevent penetration of dirt inside the steady rest

## TECHNICAL FEATURES

- Central lubrication or manual lubrication possible, depending on the operating conditions
- Standard version available with cylindrical or convex rollers
- Available with and without chip protection
- Prepared for end position check, except SLZ-047 (limit switch not included in the scope of delivery)



# SLZN - standard design

C 15

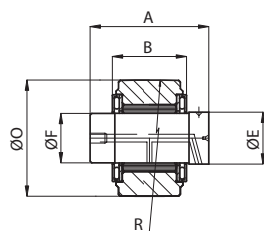
Self-centering steady rests **SLZN - oil or air operated with mounted cylinder**

| Spannbereiche Typ                                                                                                                 | SLZ 047 | SLZN 067 | SLZN 08105 | SLZN 1152 | SLZN 1517 | SLZN 40200 | SLZN 325  | SLZN 50315 | SLZN 85350 |
|-----------------------------------------------------------------------------------------------------------------------------------|---------|----------|------------|-----------|-----------|------------|-----------|------------|------------|
| Clamping range - with chip protection mm                                                                                          | 15-62   | 11-70    | 16-101     | 22-140    | 25-158    | 40-195     | 40-240    | 50-305     | 85-345     |
| Clamping range - without chip protection mm                                                                                       | 4-70    | 6-75     | 8-105      | 11-152    | 15-170    | 40-200     | 30-250    | 50-315     | 85-350     |
| Max. radial clamping range - $d_3$ mm                                                                                             | 70      | 79       | 105        | 161       | 170       | 200        | 250       | 320        | 350        |
| With chip protectors RZ                                                                                                           | 685751  | 1685567  | 1685571    | 1685575 ▲ | 1685579 ▲ | 1685583 ▲  | 1685587 ▲ | 1685591 ▲  | 1685595 ▲  |
| With chip protectors RB                                                                                                           | 685752  | 1685568  | 1685572    | 1685576 ▲ | 1685580 ▲ | 1685584 ▲  | 1685588 ▲ | 1685592 ▲  | 1685596 ▲  |
| Without chip protectors RZ                                                                                                        | 685753  | 1685569  | 1685573    | 1685577 ▲ | 1685581 ▲ | 1685585 ▲  | 1685589 ▲ | 1685593 ▲  | 1685597 ▲  |
| Without chip protectors RB                                                                                                        | 685754  | 1685570  | 1685574    | 1685578 ▲ | 1685582 ▲ | 1685586 ▲  | 1685590 ▲ | 1685594 ▲  | 1685598 ▲  |
| d1 mm                                                                                                                             | 4       | 6        | 8          | 11        | 15        | 40         | 30        | 50         | 85         |
| d2 mm                                                                                                                             | 70      | 75       | 105        | 152       | 170       | 200        | 250       | 315        | 350        |
| d3 mm                                                                                                                             | 70      | 79       | 105        | 161       | 170       | 200        | 250       | 315        | 350        |
| A mm                                                                                                                              | 206     | 214      | 279,5      | 432,5     | 440,5     | 459,5      | 617,5     | 699        | 716,5      |
| B mm                                                                                                                              | 137     | 149      | 197        | 306       | 314       | 333        | 448       | 510        | 530        |
| C mm                                                                                                                              | 51      | 52       | 70         | 115       | 123       | 138        | 146       | 203        | 198        |
| D mm                                                                                                                              | 69      | 65       | 82,5       | 126,5     | 126,5     | 126,5      | 162       | 186,5      | 186,5      |
| E mm                                                                                                                              | 64      | 66       | 85         | 135       | 135       | 135        | 240       | 270        | 270        |
| F mm                                                                                                                              | 118     | 140      | 170        | 262       | 262       | 262        | 365       | 400        | 400        |
| G mm                                                                                                                              | 11      | 11       | 14         | 18        | 18        | 18         | 23        | 23         | 23         |
| H mm                                                                                                                              | 132     | 160      | 190        | 290       | 290       | 290        | 400       | 440        | 440        |
| K mm                                                                                                                              | 54      | 63       | 75         | 85        | 85        | 85         | 110       | 145        | 145        |
| L mm                                                                                                                              | 102     | 108,5    | 146        | 223       | 223       | 223        | 328,5     | 353,5      | 353,5      |
| L1 mm                                                                                                                             | 115,5   | 125,5    | 164        | 251       | 251       | 251        | 361       | 394,5      | 394,5      |
| Clamping arm width M mm                                                                                                           | 20      | 28       | 35         | 48        | 48        | 48         | 60        | 75         | 75         |
| Roller width N mm                                                                                                                 | 11,5/9  | 17,5/14  | 20,5/18    | 30/25     | 30/25     | 30/25      | 40/35     | 45/40      | 45/40      |
| O mm                                                                                                                              | 19      | 24       | 35         | 47        | 47        | 52         | 52        | 60         | 60         |
| P mm                                                                                                                              | -       | 9,75     | -          | 9,5       | 9,5       | 9,5        | 12,5      | 21,5       | 21,5       |
| P1 mm                                                                                                                             | -       | 8,75     | -          | 34        | 34        | 34         | 12,5      | 68,5       | 68,5       |
| P2 mm                                                                                                                             | -       | 51,5     | -          | 117,5     | 117,5     | 117,5      | 160       | 183        | 183        |
| R mm                                                                                                                              | 48,5    | 55       | 74,5       | 122       | 130       | 143,5      | 178,5     | 209        | 229        |
| S1 mm                                                                                                                             | 8       | -        | 10         | -         | -         | -          | -         | -          | -          |
| S2 mm                                                                                                                             | 23      | -        | 40         | -         | -         | -          | -         | -          | -          |
| S3 mm                                                                                                                             | 10      | -        | 28         | -         | -         | -          | -         | -          | -          |
| S4 mm                                                                                                                             | 34,5    | -        | 28         | -         | -         | -          | -         | -          | -          |
| K <sub>r</sub> mm                                                                                                                 | -       | 51,5     | 59,5       | 85        | 85        | 85         | 110       | 140        | 140        |
| K2 mm                                                                                                                             | -       | 31       | 36,5       | 42,5      | 42,5      | 42,5       | 55        | 59,5       | 59,5       |
| d mm                                                                                                                              | 40      | 35       | 50         | 80        | 80        | 80         | 100       | 100        | 100        |
| e mm                                                                                                                              | 60      | 62       | 68         | 98        | 98        | 98         | 124       | 142        | 143        |
| e1 mm                                                                                                                             | 87      | 22       | 92         | 145       | 145       | 145        | 136       | 156        | 175        |
| T mm                                                                                                                              | -       | -        | -          | -         | -         | -          | 45        | 31,5       | 54,5/22    |
| T1                                                                                                                                | -       | -        | -          | -         | -         | -          | 30°       | 30°        | 18°/40°    |
| R1 mm                                                                                                                             | 121     | 144      | 190        | 291       | 303       | 326        | 394       | 483        | 512        |
| Weight kg                                                                                                                         | 7       | 10       | 14,5       | 47        | 47        | 48         | 115       | 185        | 188        |
| ZS                                                                                                                                | M 10x1  | G 1/8"   | G 1/8"     | G 1/8"    | G 1/8"    | G 1/8"     | G 1/8"    | G 1/8"     | G 1/8"     |
| SP                                                                                                                                | G 1/8"  | G 1/8"   | G 1/8"     | G 1/8"    | G 1/8"    | G 1/8"     | G 1/8"    | G 1/8"     | G 1/8"     |
| Cylinder-Ø                                                                                                                        | C40     | C 35     | C50        | C80       | C80       | C80        | C100      | C100       | C100       |
| Cylinder surface area cm <sup>2</sup>                                                                                             | 12,5    | 9,6      | 19,6       | 50        | 50        | 50         | 78,5      | 78,5       | 78,5       |
| Max. operating pressure bar                                                                                                       | 25      | 54       | 53         | 62        | 68        | 40         | 57        | 80         | 61         |
| Operating pressure bar                                                                                                            | 6-20    | 6-30     | 8-30       | 8-40      | 8-44      | 8-25       | 8-42      | 8-58       | 8-40       |
| Clamping force per roller at max. operating pressure N                                                                            | 830     | 960      | 1960       | 6500      | 6500      | 4160       | 11000     | 15000      | 10460      |
| Max. permissible clamping force per roller N                                                                                      | 1040    | 1700     | 3500       | 10000     | 10000     | 6670       | 15000     | 20000      | 16000      |
| Clamping force per roller at 20 bar N                                                                                             | 830     | 640      | 1300       | 3300      | 3300      | 3300       | 5200      | 5200       | 5200       |
| Centering accuracy over the entire clamping range mm                                                                              | 0,02*   | 0,02*    | 0,02*      | 0,04*     | 0,04*     | 0,04*      | 0,05*     | 0,06*      | 0,06*      |
| Repeat accuracy for the same clamping-Ø at the same operating pressure mm                                                         | 0,005   | 0,005    | 0,005      | 0,005     | 0,005     | 0,005      | 0,005     | 0,01       | 0,01       |
| Max. roller peripheral speed m/min                                                                                                | 800     | 800      | 800        | 725       | 725       | 725        | 715       | 700        | 700        |
| Max. roller peripheral speed at half the max. clamping force per roller m/min                                                     | 900     | 900      | 950        | 875       | 875       | 875        | 860       | 850        | 850        |
| Displacement of the geometrical workpiece center in the event of a 20-70% change in the operating pressure /at constant force) mm | 0,02    | 0,02     | 0,02       | 0,03      | 0,03      | 0,03       | 0,03      | 0,03       | 0,03       |

\*1 At constant pressure and clamping force

# Accessories SLZN

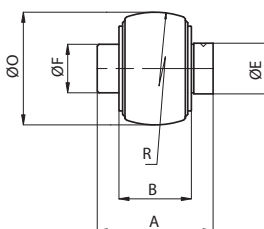
## C 15 Cylindrical rollers



| Item no.  | For                                                      | A mm | B mm | Ø F mm | Ø O mm | Ø E mm | R mm |
|-----------|----------------------------------------------------------|------|------|--------|--------|--------|------|
| 735120    | SLZ 047                                                  | 20   | 11,5 | 6      | 19     | 6      | 500  |
| 1835444 ▲ | SLZN 067                                                 | 28   | 17,5 | 8      | 24     | 8      | 500  |
| 1835388   | SLZN/SLZNB 08105                                         | 31   | 20,5 | 15     | 35     | 15     | 500  |
| 649513    | SLZN/SLZNB 1152,<br>SLZN/SLZNB 1517,<br>SLZN/SLZNB 40200 | 48   | 30   | 20     | 47     | 21     | 1000 |
| 649514    | SLZN/SLZNB 325                                           | 60   | 40   | 20     | 52     | 21     | 3000 |
| 381420    | SLZN/SLZNB 50315,<br>SLZN/SLZNB 85350                    | 75   | 45   | 20,1   | 60     | 21     | 3000 |

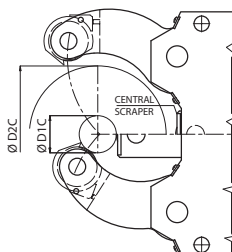
Rollers SLZ 047 and SLZNB 08105 without axle

## C 15 Convex rollers



| Item no.  | For                                                      | A mm | B mm | Ø F mm | Ø O mm | Ø E mm | R mm |
|-----------|----------------------------------------------------------|------|------|--------|--------|--------|------|
| 835542 ▲  | SLZ 047                                                  | 20   | 11,5 | 6      | 19     | 6      | 100  |
| 1835572 ▲ | SLZN 067                                                 | 28   | 17,5 | 8      | 24     | 8      | 100  |
| 1835513   | SLZN/SLZNB 08105                                         | 31   | 20,5 | 15     | 35     | 15     | 100  |
| 649515    | SLZN/SLZNB 1152,<br>SLZN/SLZNB 1517,<br>SLZN/SLZNB 40200 | 48   | 30   | 20     | 47     | 21     | 100  |
| 649516    | SLZN/SLZNB 325                                           | 60   | 40   | 20     | 52     | 21     | 100  |
| 381426    | SLZN/SLZNB 50315,<br>SLZN/SLZNB 85350                    | 75   | 45   | 20,1   | 60     | 21     | 500  |

## C 15 Central scraper RZ

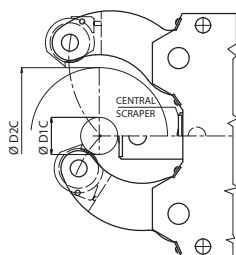


| Item no. | For                                | Clamping ranges D1C mm | Clamping ranges D2C mm |
|----------|------------------------------------|------------------------|------------------------|
| 836591   | SLZ 047                            | 15                     | 62                     |
| 1835423  | SLZN 067                           | 11                     | 70                     |
| 1835391  | SLZN/SLZNB 08105                   | 16                     | 101                    |
| 1831222  | SLZN/SLZNB 1152                    | 22                     | 140                    |
| 1831134  | SLZN/SLZNB 1517, SLZN/SLZNB 40200  | 25/40                  | 158/195                |
| 735005   | SLZN/SLZNB 325                     | 40                     | 240                    |
| 836584   | SLZN/SLZNB 50315, SLZN/SLZNB 85350 | 50/85                  | 305/345                |

# Accessories SLZN

C 15

## Central scraper RB



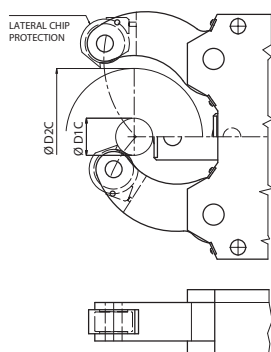
| Item no. | For                               | Clamping ranges D1C mm | Clamping ranges D2C mm |
|----------|-----------------------------------|------------------------|------------------------|
| 1836046  | SLZ 047                           | 15                     | 62                     |
| 1835573  | SLZN/SLZNB 067                    | 11                     | 70                     |
| 1835606  | SLZN/SLZNB 08105                  | 16                     | 101                    |
| 1831220  | SLZN/SLZNB 1152                   | 22                     | 140                    |
| 1831282  | SLZN/SLZNB 1517, SLZN/SLZNB 40200 | 25/40                  | 158/195                |
| 1831403  | SLZN/SLZNB 325                    | 40                     | 240                    |
| 836820   | SLZN 50315, SLZN 85360            | 50/85                  | 305/345                |

C 15

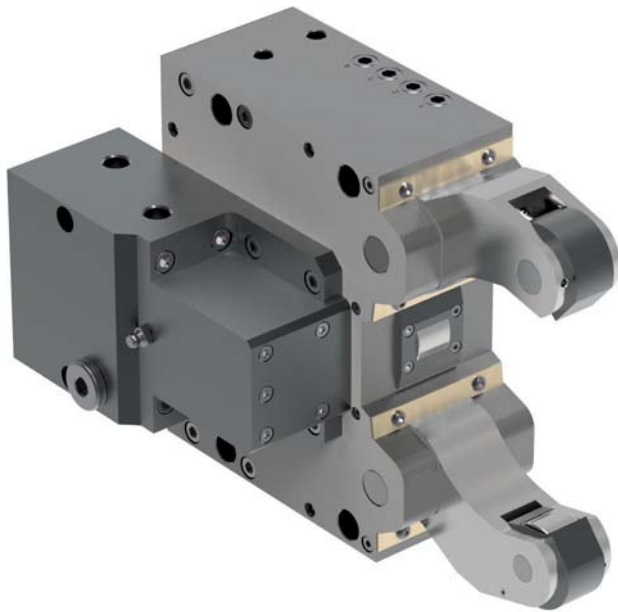
## Chip protector outer Set = 2 Pieces



| Item no.  | For                                                | Clamping ranges D1C mm | Clamping ranges D2C mm |
|-----------|----------------------------------------------------|------------------------|------------------------|
| 836609    | SLZ 047                                            | 15                     | 62                     |
| 1835435 ▲ | SLZN 067                                           | 11                     | 70                     |
| 836610    | SLZN/SLZNB 08105                                   | 16                     | 101                    |
| 836611    | SLZN/SLZNB 1152, SLZN/SLZNB 1517, SLZN/SLZNB 40200 | 22/25/40               | 140/158/195            |
| 836612    | SLZN/SLZNB 325                                     | 40                     | 240                    |
| 836613    | SLZN/SLZNB 50315, SLZN/SLZNB 85350                 | 50/85                  | 305/345                |



# SLZNB - with side mounted cylinder



## APPLICATION

Support of slender shafts for rational turning and end machining.

## TYPE

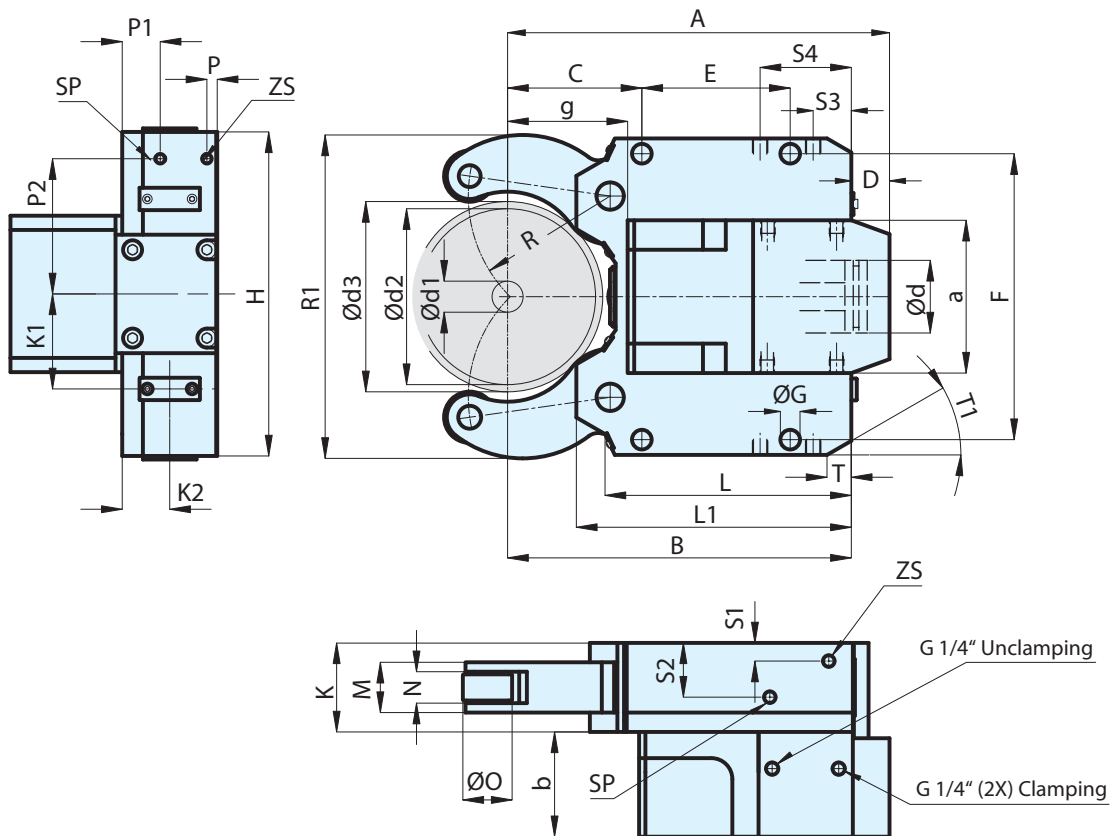
Standard version with side mounted cylinder.

## CUSTOMER BENEFITS

- ④ Flexible use when less back-space available
- ④ Large clamping range without change elements
- ④ Operational safety thanks to safety valve, even if pressure drops
- ④ High centering precision and repeatability thanks to proven cam lever system
- ④ Resilient chip protection for optimal workpiece wiping (for version „with chip protection“)
- ④ Purge air connection to prevent penetration of dirt inside the steady rest

## TECHNICAL FEATURES

- Central lubrication or manual lubrication possible, depending on the operating conditions
- Standard version available with cylindrical or convex rollers
- Available with and without chip protection
- Prepared for end position check (limit switch not included in the scope of delivery)



# SLZNB - with side mounted cylinder

C 15

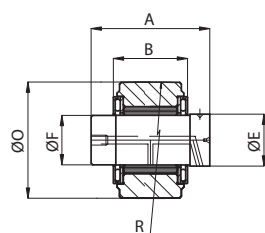
Self-centering steady rests **SLZNB** - oil or air operated, with **side mounted cylinder**

| Spannbereiche Typ                                                                                                                 | SLZNB 08105      | SLZNB 1152       | SLZNB 1517       | SLZNB 40200      | SLZNB 325        | SLZNB 50315      | SLZNB 85350      |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Clamping range - with chip protection mm                                                                                          | 16-101           | 22-140           | 25-158           | 40-195           | 40-240           | 50-305           | 85-345           |
| Clamping range - without chip protection mm                                                                                       | 8-105            | 11-152           | 15-170           | 40-200           | 30-250           | 50-315           | 85-350           |
| Max. radial clamping range - d <sub>3</sub> mm                                                                                    | 105              | 161              | 170              | 200              | 250              | 320              | 350              |
| <b>With chip protectors RZ</b>                                                                                                    | <b>1685539 ▲</b> | <b>1685543 ▲</b> | <b>1685547 ▲</b> | <b>1685551 ▲</b> | <b>1685555 ▲</b> | <b>1685559 ▲</b> | <b>1685563 ▲</b> |
| <b>With chip protectors RB</b>                                                                                                    | <b>1685540 ▲</b> | <b>1685544 ▲</b> | <b>1685548 ▲</b> | <b>1685552 ▲</b> | <b>1685556 ▲</b> | <b>1685560 ▲</b> | <b>1685564 ▲</b> |
| <b>Without chip protectors RZ</b>                                                                                                 | <b>1685541 ▲</b> | <b>1685545 ▲</b> | <b>1685549 ▲</b> | <b>1685553 ▲</b> | <b>1685557 ▲</b> | <b>1685561 ▲</b> | <b>1685565 ▲</b> |
| <b>Without chip protectors RB</b>                                                                                                 | <b>1685542 ▲</b> | <b>1685546 ▲</b> | <b>1685550 ▲</b> | <b>1685554 ▲</b> | <b>1685558 ▲</b> | <b>1685562 ▲</b> | <b>1685566 ▲</b> |
| d1 mm                                                                                                                             | 8                | 11               | 15               | 40               | 30               | 50               | 85               |
| d2 mm                                                                                                                             | 105              | 152              | 170              | 200              | 250              | 315              | 350              |
| d3 mm                                                                                                                             | 105              | 161              | 170              | 200              | 250              | 320              | 350              |
| A mm                                                                                                                              | 228              | 341              | 349              | 368              | 483,5            | 574              | 594              |
| B mm                                                                                                                              | 197              | 306              | 314              | 333              | 448              | 510              | 530              |
| C mm                                                                                                                              | 70               | 115              | 123              | 138              | 146              | 178              | 198              |
| D mm                                                                                                                              | 31               | 35               | 35               | 35               | 35,5             | 64               | 64               |
| E mm                                                                                                                              | 85               | 135              | 135              | 135              | 240              | 270              | 270              |
| F mm                                                                                                                              | 170              | 262              | 262              | 262              | 365              | 400              | 400              |
| G mm                                                                                                                              | 14               | 18               | 18               | 18               | 23               | 23               | 23               |
| H mm                                                                                                                              | 190              | 290              | 290              | 290              | 400              | 440              | 440              |
| K mm                                                                                                                              | 75               | 85               | 85               | 85               | 110              | 145              | 145              |
| L mm                                                                                                                              | 146              | 223              | 223              | 223              | 328,5            | 353,5            | 353,5            |
| L1 mm                                                                                                                             | 164              | 251              | 251              | 251              | 361              | 394,5            | 394,5            |
| Clamping arm width M mm                                                                                                           | 35               | 48               | 48               | 48               | 60               | 75               | 75               |
| Roller width N mm                                                                                                                 | 20,5/18          | 30/25            | 30/25            | 30/25            | 40/35            | 45/40            | 45/40            |
| O mm                                                                                                                              | 35               | 47               | 47               | 47               | 52               | 60               | 60               |
| P mm                                                                                                                              | -                | 9,5              | 9,5              | 9,5              | 12,5             | 21,5             | 21,5             |
| P1 mm                                                                                                                             | -                | 34               | 34               | 34               | 12,5             | 68,5             | 68,5             |
| P2 mm                                                                                                                             | -                | 117,5            | 117,5            | 117,5            | 160              | 183              | 183              |
| R mm                                                                                                                              | 74,5             | 122              | 130              | 143,5            | 178,5            | 209              | 229              |
| S1 mm                                                                                                                             | 10               | -                | -                | -                | -                | -                | -                |
| S2 mm                                                                                                                             | 40               | -                | -                | -                | -                | -                | -                |
| S3 mm                                                                                                                             | 28               | -                | -                | -                | -                | -                | -                |
| S4 mm                                                                                                                             | 28               | -                | -                | -                | -                | -                | -                |
| K <sub>1</sub> mm                                                                                                                 | 59,5             | 85               | 85               | 85               | 110              | 140              | 140              |
| K2 mm                                                                                                                             | 36,5             | 42,5             | 42,5             | 42,5             | 55               | 59,5             | 59,5             |
| a mm                                                                                                                              | 95               | 140              | 140              | 140              | 180              | 180              | 180              |
| b mm                                                                                                                              | 71               | 98               | 98               | 98               | 124              | 143              | 143              |
| d mm                                                                                                                              | 50               | 80               | 80               | 80               | 100              | 100              | 100              |
| g mm                                                                                                                              | 68               | 102              | 110              | 129              | 169              | 196              | 216              |
| T mm                                                                                                                              | -                | -                | -                | -                | 48               | 54,5/22          | 54,5/22          |
| T1                                                                                                                                | -                | -                | -                | -                | 30°              | 18°/40°          | 18°/40°          |
| R1 mm                                                                                                                             | 192              | 291              | 303              | 326              | 403              | 486              | 512              |
| Weight kg                                                                                                                         | 14,5             | 51               | 51               | 52               | 134              | 194              | 198              |
| ZS                                                                                                                                | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           |
| SP                                                                                                                                | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           | G 1/8"           |
| Cylinder-Ø                                                                                                                        | C50              | C80              | C80              | C80              | C100             | C100             | C100             |
| Cylinder surface area cm <sup>2</sup>                                                                                             | 19,6             | 50               | 50               | 50               | 78,5             | 78,5             | 78,5             |
| Max. operating pressure bar                                                                                                       | 53               | 62               | 68               | 40               | 57               | 80               | 61               |
| Operating pressure bar                                                                                                            | 8-30             | 8-40             | 8-44             | 8-25             | 8-42             | 8-58             | 8-40             |
| Clamping force per roller at max. operating pressure N                                                                            | 1960             | 6500             | 7000             | 4160             | 11000            | 15000            | 10460            |
| Max. permissible clamping force per roller N                                                                                      | 3500             | 10000            | 10000            | 6670             | 15000            | 20000            | 16000            |
| Clamping force per roller at 20 bar N                                                                                             | 1300             | 3300             | 3300             | 3300             | 5200             | 5200             | 5200             |
| Centering accuracy over the entire clamping range mm                                                                              | 0,02*            | 0,04*            | 0,04*            | 0,04*            | 0,05*            | 0,06*            | 0,06*            |
| Repeat accuracy for the same clamping-Ø at the same operating pressure mm                                                         | 0,005            | 0,005            | 0,005            | 0,005            | 0,01             | 0,01             | 0,01             |
| Max. roller peripheral speed m/min                                                                                                | 800              | 725              | 725              | 725              | 715              | 700              | 700              |
| Max. roller peripheral speed at half the max. clamping force per roller m/min                                                     | 950              | 875              | 875              | 875              | 860              | 850              | 850              |
| Displacement of the geometrical workpiece center in the event of a 20-70% change in the operating pressure /at constant force) mm | 0,02             | 0,03             | 0,03             | 0,03             | 0,03             | 0,03             | 0,03             |

\* At constant pressure and clamping force

# Accessories SLZNB

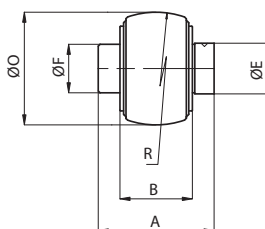
## C 15 Cylindrical rollers



| Item no. | For                                                      | A mm | B mm | Ø F mm | Ø O mm | Ø E mm | R mm |
|----------|----------------------------------------------------------|------|------|--------|--------|--------|------|
| 1835388  | SLZN/SLZNB 08105                                         | 31   | 20,5 | 15     | 35     | 15     | 500  |
| 649513   | SLZN/SLZNB 1152,<br>SLZN/SLZNB 1517,<br>SLZN/SLZNB 40200 | 48   | 30   | 20     | 47     | 21     | 1000 |
| 649514   | SLZN/SLZNB 325                                           | 60   | 40   | 20     | 52     | 21     | 3000 |
| 381420   | SLZN/SLZNB 50315,<br>SLZN/SLZNB 85350                    | 75   | 45   | 20,1   | 60     | 21     | 3000 |

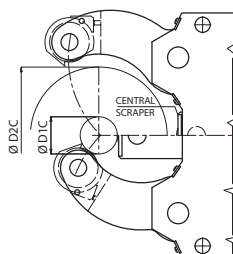
Rollers SLZNB 08105 without axle

## C 15 Convex rollers



| Item no. | For                                                      | A mm | B mm | Ø F mm | Ø O mm | Ø E mm | R mm |
|----------|----------------------------------------------------------|------|------|--------|--------|--------|------|
| 1835513  | SLZN/SLZNB 08105                                         | 31   | 20,5 | 15     | 35     | 15     | 100  |
| 649515   | SLZN/SLZNB 1152,<br>SLZN/SLZNB 1517,<br>SLZN/SLZNB 40200 | 48   | 30   | 20     | 47     | 21     | 100  |
| 649516   | SLZN/SLZNB 325                                           | 60   | 40   | 20     | 52     | 21     | 100  |
| 381426   | SLZN/SLZNB 50315,<br>SLZN/SLZNB 85350                    | 75   | 45   | 20,1   | 60     | 21     | 500  |

## C 15 Central scraper RZ

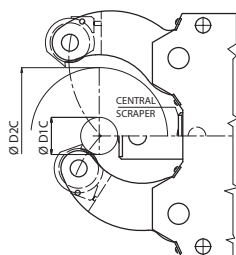


| Item no. | For                                | Clamping ranges D1C mm | Clamping ranges D2C mm |
|----------|------------------------------------|------------------------|------------------------|
| 1835391  | SLZN/SLZNB 08105                   | 16                     | 101                    |
| 1831222  | SLZN/SLZNB 1152                    | 22                     | 140                    |
| 1831134  | SLZN/SLZNB 1517, SLZN/SLZNB 40200  | 25/40                  | 158/195                |
| 735005   | SLZN/SLZNB 325                     | 40                     | 240                    |
| 836584   | SLZN/SLZNB 50315, SLZN/SLZNB 85350 | 50/85                  | 305/345                |

# Accessories SLZNB

C 15

## Central scraper RB



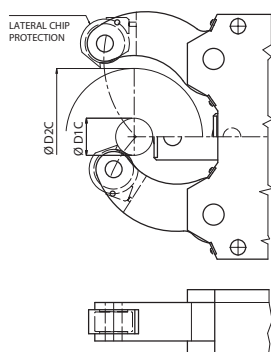
| Item no. | For                               | Clamping ranges D1C mm | Clamping ranges D2C mm |
|----------|-----------------------------------|------------------------|------------------------|
| 1835606  | SLZN/SLZNB 08105                  | 16                     | 101                    |
| 1831220  | SLZN/SLZNB 1152                   | 22                     | 140                    |
| 1831282  | SLZN/SLZNB 1517, SLZN/SLZNB 40200 | 25/40                  | 158/195                |
| 1831403  | SLZN/SLZNB 325                    | 40                     | 240                    |
| 836820   | SLZN 50315, SLZN 85360            | 50/85                  | 305/345                |

C 15

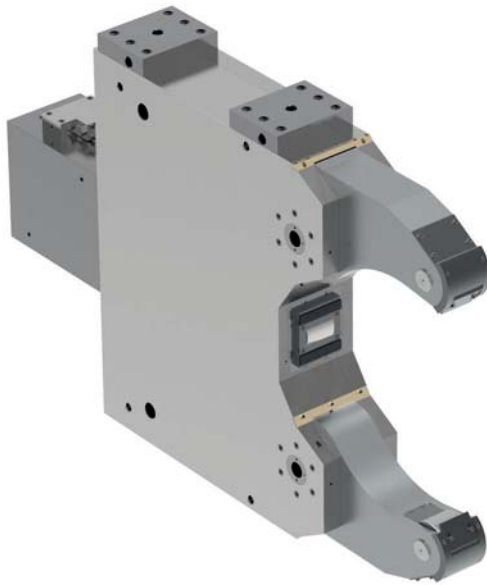
## Chip protector outer Set = 2 Pieces



| Item no. | For                                                | Clamping ranges D1C mm | Clamping ranges D2C mm |
|----------|----------------------------------------------------|------------------------|------------------------|
| 836610   | SLZN/SLZNB 08105                                   | 16                     | 101                    |
| 836611   | SLZN/SLZNB 1152, SLZN/SLZNB 1517, SLZN/SLZNB 40200 | 22/25/40               | 140/158/195            |
| 836612   | SLZN/SLZNB 325                                     | 40                     | 240                    |
| 836613   | SLZN/SLZNB 50315, SLZN/SLZNB 85350                 | 50/85                  | 305/345                |



# SLZ - heavy design



## APPLICATION

Support of shafts for rational turning and end machining preferential for heavy solid materials.

## TYPE

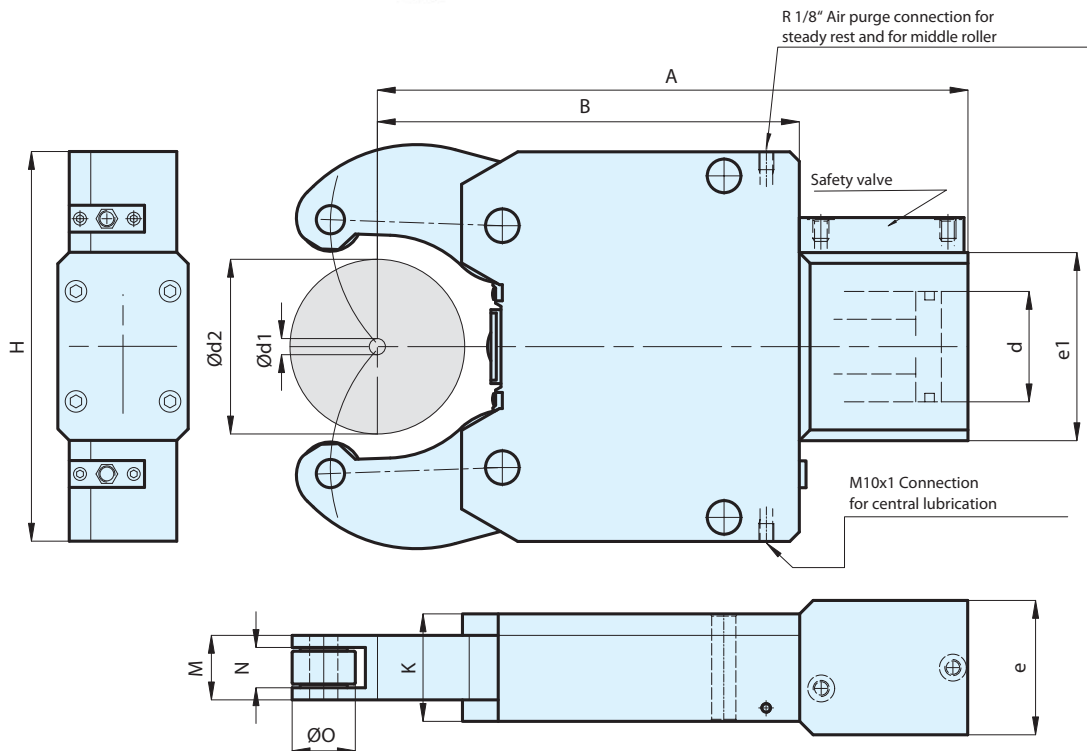
Heavy design for high loads.

## CUSTOMER BENEFITS

- ⊕ Large clamping range without change elements
- ⊕ Operational safety thanks to safety valve, even if pressure drops
- ⊕ Sturdy design for variable use - Increased stability thanks to steady rest fastened with clamping arm axis
- ⊕ High centering precision and repeatability thanks to proven cam lever system
- ⊕ Resilient chip protection for optimal workpiece wiping (for version „with chip protection“)
- ⊕ Purge air connection to prevent penetration of dirt inside the steady rest

## TECHNICAL FEATURES

- Central lubrication or manual lubrication possible, depending on the operating conditions
- Standard version available with cylindrical or convex rollers
- Available with and without chip protection
- Prepared for end position check (limit switch not included in the scope of delivery)
- Recommendation: Higher precision in case of vertical installation of the steady rest



# SLZ - heavy design

C 15

Self-centering steady rests **SLZ heavy design** - oil or air operated, heavy design for high loads

| Spannbereiche Typ                                                                                                                 | SLZ 437         | SLZ 5040         | SLZ 1546        | SLZ 1060        | SLZ 3580        |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|-----------------|-----------------|-----------------|
| Clamping range - with chip protection mm                                                                                          | 75-350          | 75-380           | 150-430         | 100-590         | 350-770         |
| Clamping range - without chip protection mm                                                                                       | 40-375          | 50-400           | 150-460         | 100-600         | 350-800         |
| <b>With chip protectors RZ</b>                                                                                                    | <b>685899 ▲</b> | <b>1685722 ▲</b> | <b>685897 ▲</b> | <b>685896 ▲</b> | <b>685895 ▲</b> |
| <b>With chip protectors RB</b>                                                                                                    | <b>685894 ▲</b> | <b>685893 ▲</b>  | <b>685892 ▲</b> | <b>685891 ▲</b> | <b>685890 ▲</b> |
| <b>Without chip protectors RZ</b>                                                                                                 | <b>685889 ▲</b> | <b>685888 ▲</b>  | <b>685887 ▲</b> | <b>685886 ▲</b> | <b>685885 ▲</b> |
| <b>Without chip protectors RB</b>                                                                                                 | <b>685884 ▲</b> | <b>685883 ▲</b>  | <b>685882 ▲</b> | <b>685881 ▲</b> | <b>685880 ▲</b> |
| d1 mm                                                                                                                             | 40              | 50               | 150             | 100             | 350             |
| d2 mm                                                                                                                             | 370             | 400              | 460             | 600             | 800             |
| A mm                                                                                                                              | 1086            | 1100             | 1110            | 1465            | 1810            |
| B mm                                                                                                                              | 762             | 800              | 800             | 1105            | 1340            |
| H mm                                                                                                                              | 730             | 730              | 730             | 1020            | 1270            |
| K mm                                                                                                                              | 170             | 170              | 170             | 270             | 440             |
| Clamping arm width M mm                                                                                                           | 90              | 90               | 90              | 170             | 240             |
| Roller width N mm                                                                                                                 | 60/50           | 60/50            | 60/50           | 104/95          | 150/138         |
| O mm                                                                                                                              | 80              | 80               | 80              | 160             | 220             |
| d mm                                                                                                                              | 120             | 120              | 120             | 150             | 180             |
| e mm                                                                                                                              | 150             | 150              | 150             | 260             | 370             |
| e1 mm                                                                                                                             | 240             | 240              | 240             | 280             | 320             |
| Weight kg                                                                                                                         | 490             | 500              | 570             | 2000            | 4000            |
| Cylinder-Ø                                                                                                                        | C120            | C120             | C120            | C150            | C180            |
| Cylinder surface area cm²                                                                                                         | 113             | 113              | 113             | 176             | 254             |
| Max. operating pressure bar                                                                                                       | 100             | 100              | 85              | 90              | 98              |
| Operating pressure bar                                                                                                            | 10-40           | 10-40            | 10-40           | 10-40           | 10-40           |
| Clamping force per roller at max. operating pressure N                                                                            | 15000           | 15000            | 15000           | 23000           | 32000           |
| Max. permissible clamping force per roller N                                                                                      | 35000           | 35000            | 40000           | 50000           | 80000           |
| Centering accuracy over the entire clamping range mm                                                                              | 0,04*           | 0,04*            | 0,04*           | 0,04*           | 0,06*           |
| Repeat accuracy for the same clamping-Ø at the same operating pressure mm                                                         | 0,01            | 0,01             | 0,01            | 0,01            | 0,01            |
| Max. roller peripheral speed m/min                                                                                                | 725             | 725              | 725             | 725             | 715             |
| Max. roller peripheral speed at half the max. clamping force per roller m/min                                                     | 875             | 875              | 875             | 875             | 860             |
| Displacement of the geometrical workpiece center in the event of a 20-70% change in the operating pressure /at constant force) mm | 0,06            | 0,06             | 0,06            | 0,06            | 0,06            |

<sup>1</sup> At constant pressure and clamping force

# SLZC - extremely compact design



## APPLICATION

Support of shafts for rational turning and end machining optimal for pipe materials.

## TYPE

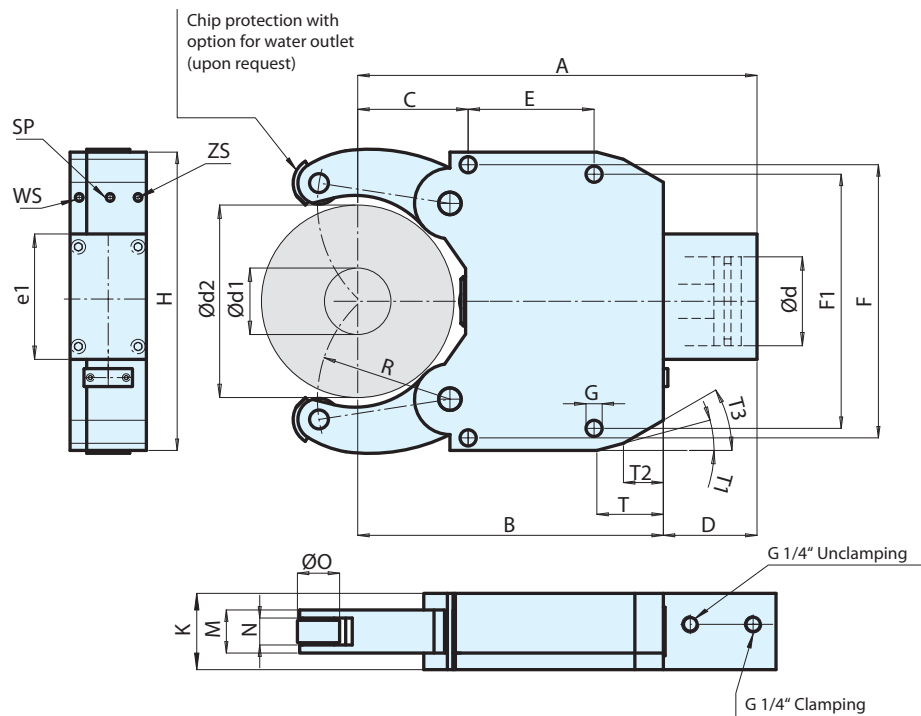
Compact series with extra large clamping ranges.

## CUSTOMER BENEFITS

- ③ Extra large clamping range without change elements
- ③ Integrated channels for rinsing the workpiece in the contact area with coolant connection on the rear side
- ③ Operational safety thanks to safety valve, even if pressure drops
- ③ Extremely compact and sturdy design for variable use
- ③ High centering precision and repeatability thanks to proven cam lever system
- ③ Resilient chip protection for optimal workpiece wiping (for version „with chip protection“)
- ③ Purge air connection to prevent penetration of dirt inside the steady rest

## TECHNICAL FEATURES

- Central lubrication or manual lubrication possible, depending on the operating conditions
- Standard version available with cylindrical or convex rollers
- Available with and without chip protection
- Prepared for end position check (limit switch not included in the scope of delivery)



# SLZC - extremely compact design

C 15

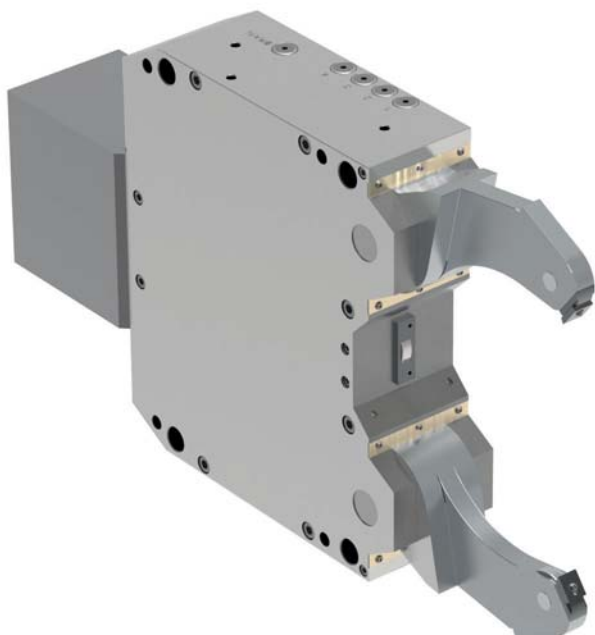
Self-centering steady rests **SLZC** - oil or air operated, extremely compact design, developed for minimum mounting dimensions

| Spannbereiche Typ                                    | SLZC 60280 | SLZC 80390 | SLZC 100410 | SLZC 135460 | SLZC 215510 |
|------------------------------------------------------|------------|------------|-------------|-------------|-------------|
| Clamping range - without chip protection mm          | 60-280     | 80-390     | 100-410     | 135-460     | 215-520     |
| With chip protectors RZ                              | 1685616 ▲  | 1685620 ▲  | 1685624 ▲   | 1685628 ▲   | 1685632 ▲   |
| With chip protectors RB                              | 1685617 ▲  | 1685621 ▲  | 1685625 ▲   | 1685629 ▲   | 1685633 ▲   |
| Without chip protectors RZ                           | 1685618 ▲  | 1685622 ▲  | 1685626 ▲   | 1685630 ▲   | 1685634 ▲   |
| Without chip protectors RB                           | 1685619 ▲  | 1685623 ▲  | 1685627 ▲   | 1685631 ▲   | 1685635 ▲   |
| d1 mm                                                | 60         | 80         | 100         | 135         | 215         |
| d2 mm                                                | 280        | 390        | 410         | 460         | 520         |
| A mm                                                 | 580        | 755        | 763         | 816         | 817         |
| B mm                                                 | 450        | 607        | 617         | 670         | 685         |
| C mm                                                 | 168        | 230        | 240         | 215         | 245         |
| D mm                                                 | 130        | 148        | 146         | 146         | 132         |
| E mm                                                 | 180        | 240        | 240         | 330         | 300         |
| F mm                                                 | 360        | 445        | 445         | 640         | 640         |
| F1 mm                                                | 360        | 445        | 445         | 610         | 610         |
| G mm                                                 | 23         | 23         | 23          | 27          | 27          |
| H mm                                                 | 400        | 485        | 485         | 680         | 680         |
| K mm                                                 | 125        | 150        | 150         | 150         | 150         |
| Clamping arm width M mm                              | 60         | 75         | 75          | 75          | 75          |
| Roller width N mm                                    | 40/35      | 45/40      | 45/40       | 29          | 29          |
| O mm                                                 | 52         | 60         | 60          | 80          | 80          |
| R mm                                                 | 200        | 265        | 275         | 290         | 310         |
| d mm                                                 | 90         | 100        | 100         | 120         | 120         |
| e1 mm                                                | 184        | 194        | 194         | 215         | 215         |
| T mm                                                 | 100        | 130        | 130         | 150         | 150         |
| T1                                                   | 15°        | 15°        | 15°         | 15°         | 20°         |
| T2 mm                                                | 61         | 50         | 50          | 77          | 85          |
| T3 mm                                                | 30°        | 30°        | 30°         | 30°         | 30°         |
| Weight kg                                            | 85         | 170        | 170         | 390         | 380         |
| ZS                                                   | G 1/8"     | G 1/8"     | G 1/8"      | G 1/8"      | G 1/8"      |
| SP                                                   | G 1/8"     | G 1/8"     | G 1/8"      | G 1/8"      | G 1/8"      |
| WS                                                   | G 1/4"     | G 1/4"     | G 1/4"      | G 1/4"      | G 1/4"      |
| Operating pressure bar                               | 8-70       | 8-80       | 8-80        | 8-80        | 8-80        |
| Max. permissible clamping force per roller N         | 14500      | 20000      | 20000       | 25000       | 25000       |
| Centering accuracy over the entire clamping range mm | 0,05*      | 0,06*      | 0,06*       | 0,06*       | 0,06*       |
| Repeat accuracy mm                                   | 0,007*     | 0,01*      | 0,01*       | 0,01*       | 0,01*       |
| Max. roller peripheral speed m/min                   | 715        | 700        | 700         | 700         | 700         |

\* At constant pressure and clamping force

Water connection (WS) on request

# SLZK - slim clamping arms



## APPLICATION

Support of slender shafts with narrow intermediate distances for rational turning and end machining optimal for crankshafts and cam shafts.

## TYPE

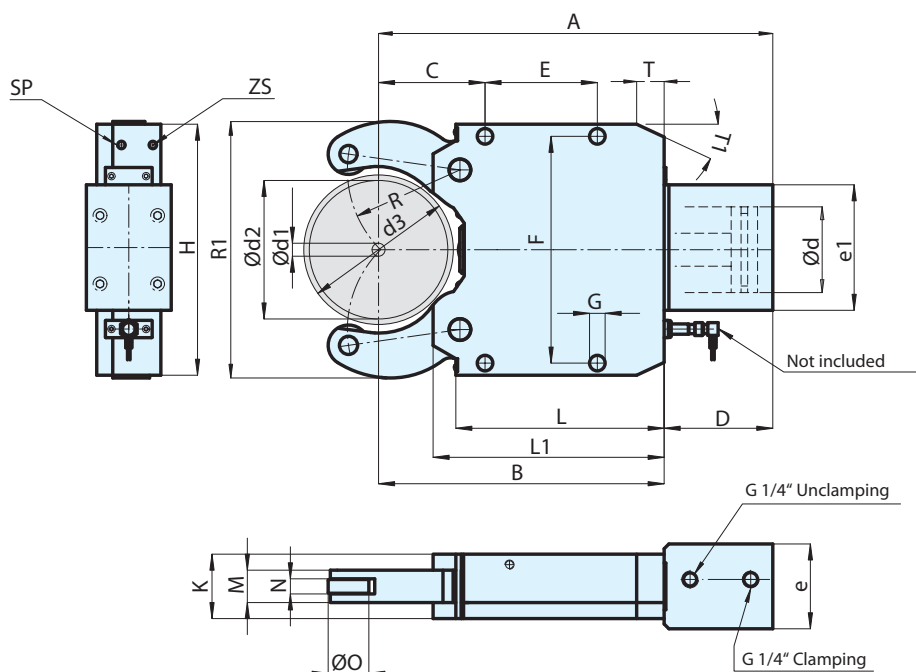
Version with extra slim clamping arms.

## CUSTOMER BENEFITS

- ⌚ Can be flexibly used thanks to support option in narrow in-between spaces
- ⌚ Large clamping range without change elements
- ⌚ Operational safety thanks to safety valve, even if pressure drops
- ⌚ Compact and sturdy design for variable use
- ⌚ High centering precision and repeatability thanks to proven cam lever system
- ⌚ Resilient chip protection for optimal workpiece wiping (for version „with chip protection“)
- ⌚ Purge air connection to prevent penetration of dirt inside the steady rest

## TECHNICAL FEATURES

- Central lubrication or manual lubrication possible, depending on the operating conditions
- Standard version available with cylindrical rollers
- Available with and without chip protection
- Prepared for end position check (limit switch not included in the scope of delivery)



# SLZK - slim clamping arms

C 15

Self-centering steady rests **SLZK** - oil or air operated, with slender clamping arms, for machining crankshafts

| Spannbereiche Typ                                    | SLZK 08101-15 | SLZK 08101-19 | SLZK 08101-22 | SLZK 40200-18 | SLZK 40200-22 | SLZK 325-19 | SLZK 325-22 | SLZK 325-29 |
|------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|-------------|-------------|-------------|
| Clamping range - with chip protection mm             | 16-101        | 16-101        | 16-101        | 30-185        | 30-185        | 35-248      | 35-248      | 35-248      |
| Clamping range - without chip protection mm          | 8-105         | 8-105         | 8-105         | 30-185        | 30-185        | 35-250      | 35-250      | 35-250      |
| With chip protectors RZ                              | 1685636 ▲     | 1685638 ▲     | 1685640 ▲     | 1685642 ▲     | 1685644 ▲     | 1685646 ▲   | 1685648 ▲   | 1685650 ▲   |
| Without chip protectors RZ                           | 1685637 ▲     | 1685639 ▲     | 1685641 ▲     | 1685643 ▲     | 1685645 ▲     | 1685647 ▲   | 1685649 ▲   | 1685651 ▲   |
| d1 mm                                                | 8             | 8             | 8             | 30            | 30            | 35          | 35          | 35          |
| d2 mm                                                | 105           | 105           | 105           | 185           | 185           | 250         | 250         | 250         |
| d3 mm                                                | 106           | 106           | 106           | 190           | 190           | 254         | 254         | 254         |
| Max. Ø opening range d4sw mm                         | 113           | 113           | 113           | 200           | 200           | 263         | 263         | 263         |
| A mm                                                 | 279,5         | 279,5         | 279,5         | 458,5         | 458,5         | 617,5       | 617,5       | 617,5       |
| B mm                                                 | 197           | 197           | 197           | 333           | 333           | 451         | 451         | 451         |
| C mm                                                 | 70            | 70            | 70            | 138           | 138           | 146         | 146         | 146         |
| D mm                                                 | 82,5          | 82,5          | 82,5          | 125,5         | 125,5         | 166,5       | 166,5       | 166,5       |
| E mm                                                 | 85            | 85            | 85            | 135           | 135           | 240         | 240         | 240         |
| F mm                                                 | 170           | 170           | 170           | 262           | 262           | 365         | 365         | 365         |
| G mm                                                 | 14            | 14            | 14            | 18            | 18            | 23          | 23          | 23          |
| H mm                                                 | 190           | 190           | 190           | 290           | 290           | 400         | 400         | 400         |
| K mm                                                 | 50            | 50            | 50            | 85            | 85            | 110         | 110         | 110         |
| L mm                                                 | 143           | 143           | 143           | 223           | 223           | 331,5       | 331,5       | 331,5       |
| L1 mm                                                | 164           | 164           | 164           | 251           | 251           | 364         | 364         | 364         |
| Clamping arm width M mm                              | 15            | 18            | 22            | 18            | 22            | 19          | 22          | 29          |
| Roller width N mm                                    | 8             | 10            | 13            | 11            | 13            | 11          | 13          | 16          |
| O mm                                                 | 35            | 35            | 35            | 47            | 47            | 52          | 52          | 52          |
| R mm                                                 | 74,5          | 74,5          | 74,5          | 143,5         | 143,5         | 183         | 183         | 183         |
| d mm                                                 | 50            | 50            | 50            | 60            | 60            | 60          | 60          | 60          |
| e mm                                                 | 68            | 68            | 68            | 98            | 98            | 124         | 124         | 124         |
| e1 mm                                                | 92            | 92            | 92            | 145           | 145           | 156         | 156         | 156         |
| T mm                                                 | -             | -             | -             | -             | -             | 45          | 45          | 45          |
| T1                                                   | -             | -             | -             | -             | -             | 30°         | 30°         | 30°         |
| R1 mm                                                | 190           | 190           | 190           | 320           | 320           | 394         | 394         | 394         |
| Weight kg                                            | 11,5          | 11,5          | 11,5          | 40            | 40            | 80          | 80          | 80          |
| ZS                                                   | G 1/8"        | G 1/8"        | G 1/8"        | G 1/8"        | G 1/8"        | G 1/8"      | G 1/8"      | G 1/8"      |
| SP                                                   | G 1/8"        | G 1/8"        | G 1/8"        | G 1/8"        | G 1/8"        | G 1/8"      | G 1/8"      | G 1/8"      |
| Operating pressure bar                               | 8-32          | 8-40          | 8-50          | 8-60          | 8-75          | 8-70        | 8-80        | 8-80        |
| Max. permissible clamping force per roller N         | 2100          | 2700          | 3350          | 5600          | 7000          | 6600        | 7500        | 7500        |
| Centering accuracy over the entire clamping range mm | 0,03*         | 0,03*         | 0,03*         | 0,05*         | 0,05*         | 0,06*       | 0,06*       | 0,06*       |
| Repeat accuracy mm                                   | 0,007*        | 0,007*        | 0,007*        | 0,007*        | 0,007*        | 0,01*       | 0,01*       | 0,01*       |
| Max. roller peripheral speed m/min                   | 750           | 750           | 750           | 715           | 715           | 700         | 700         | 700         |

\* At constant pressure and clamping force

# Grinding steady rest SLVZ



## Grinding steady rest SLVZ - with retractable arms

### APPLICATION

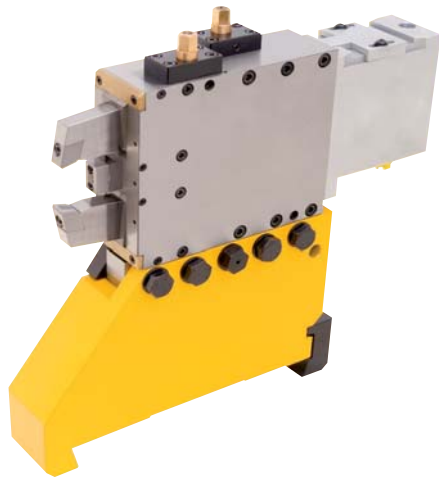
Grinding machining on CNC grinding machines. As support for long shafts, for internal machining or grinding directly on the seat of the steady rest.

### TYPE

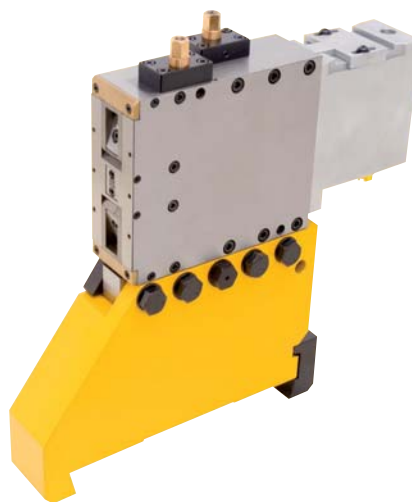
Equipped with fine adjustment in X and Y axes. Standard version with carbide jaws. With PKD (diamond) jaws on request.

### CUSTOMER BENEFITS

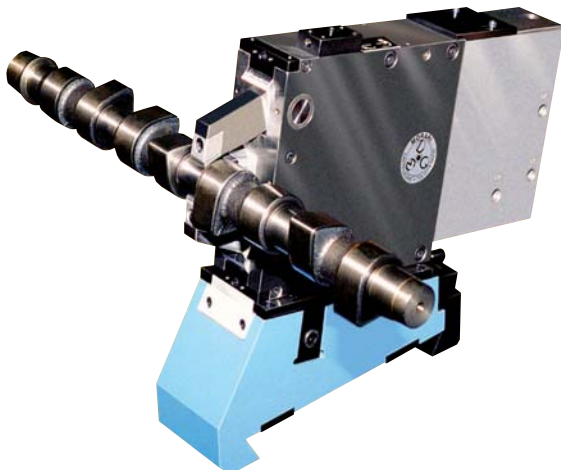
- ④ Free work area and automatic workpiece loading thanks to retractable arms in the steady rest body
- ④ Small dimensions and high positioning accuracy and repeatability by means of fine adjustment in the X and Y axes



Grinding steady rest SLVZ with extended arms

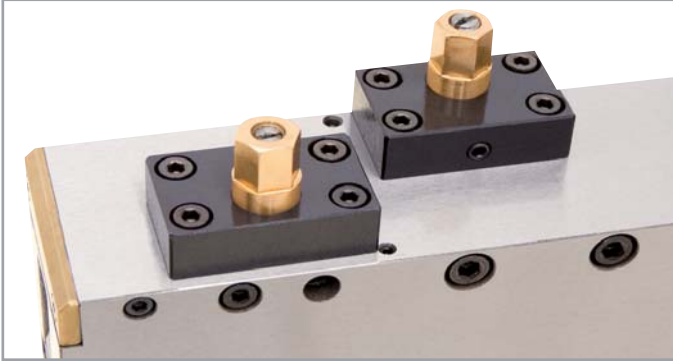


Grinding steady rest SLVZ with retracted arms



Steady rest SLVZ in use

# Grinding steady rest SLVZ



μ-exact fine adjustment for exactly setting up the steady rests. This system allows an easy and quick set-up, if several steady rests are used for the same workpiece. The control system for opening and closing is included in the standard version for all steady rests. The hydraulic or pneumatic connections can be attached according to customer requirements. It is recommended that no pressure changes occur during operation.

## Main features:

- Carbide jaws (CBN) or PKD on request (polycrystalline diamond)
- Hydraulic or pneumatic actuation
- High centering precision
- Allows grinding machining on the seat of the steady rest
- High repeatability
- Stroke control for clamping and open positions
- Compact, rigid structure
- Customized versions on request

# Steady rest solutions - on request



## SLZW - One extra opening clamping arm

### APPLICATION

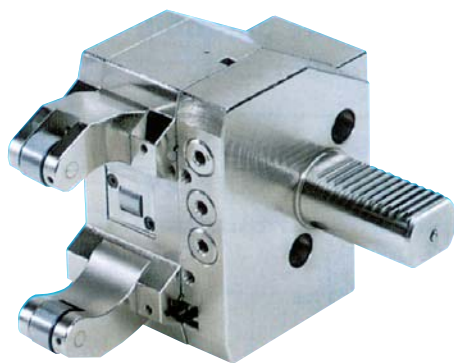
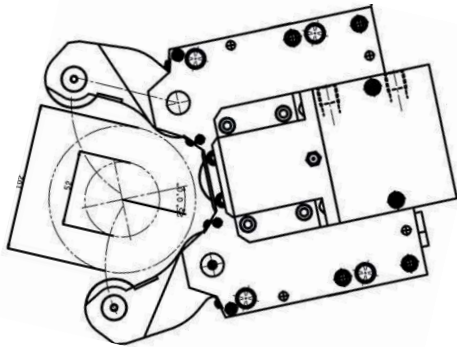
For applications where simple loading is decisive.

### TYPE

Hydraulically or pneumatically actuated one extra opening clamping arm.

### CUSTOMER BENEFITS

- ➔ Simple loading of the workpiece



## SLZR

### APPLICATION

For turret discs of CNC lathes with 4 axes.

### TYPE

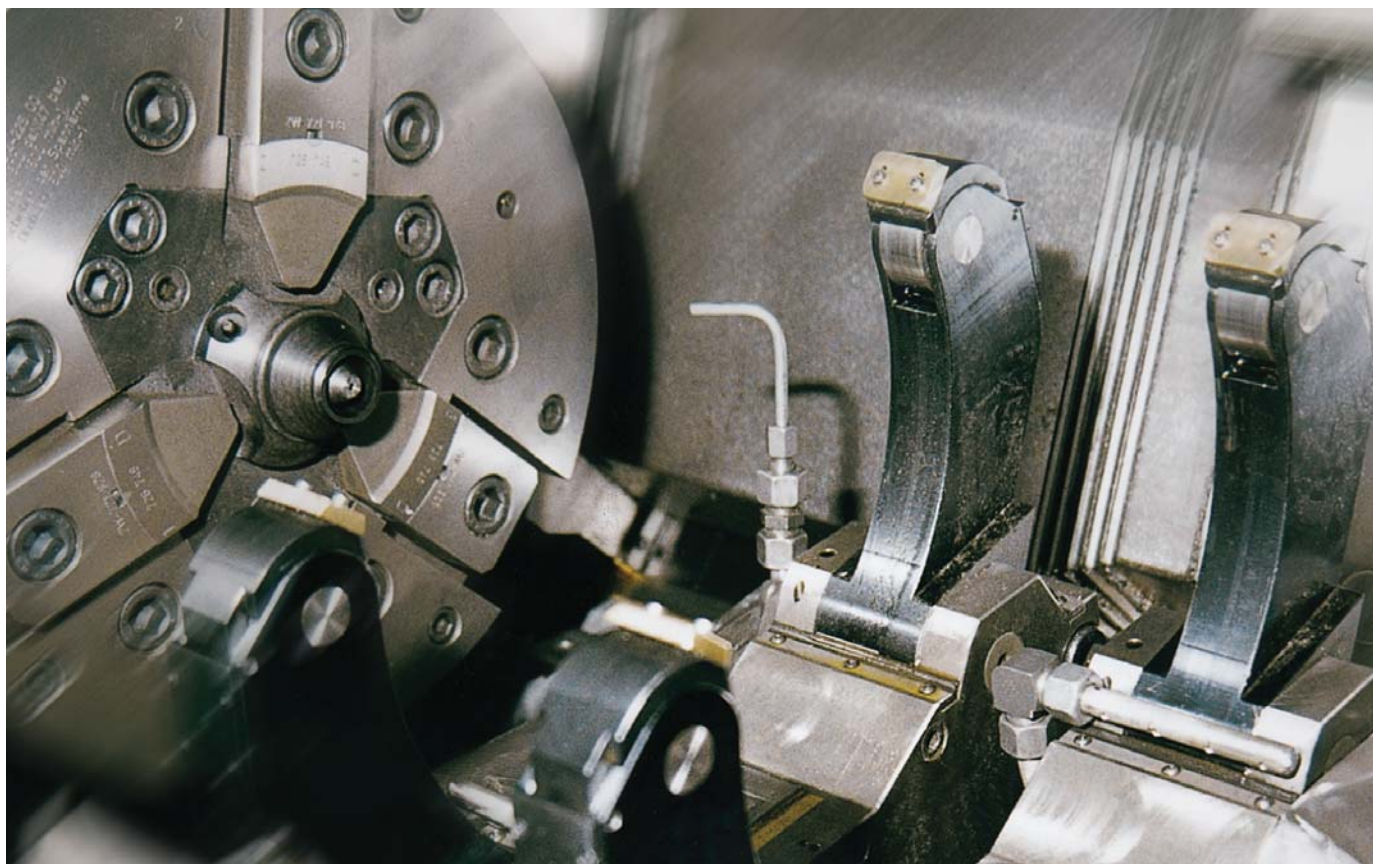
Hydraulically or pneumatically actuated. Take-up shaft in acc. with DIN 69880.

### CUSTOMER BENEFITS

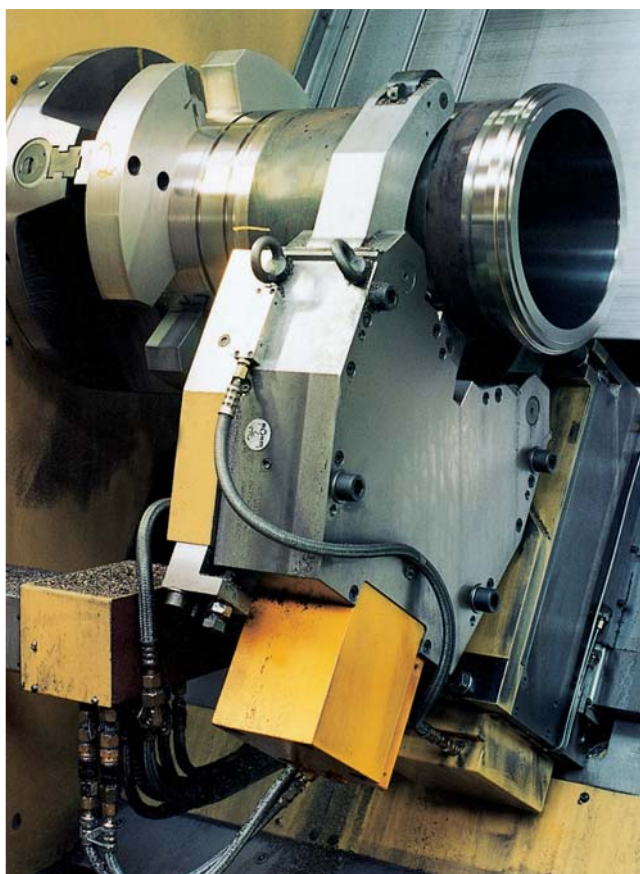
- ➔ Rational machining of shaft-type components in 4-axis CNC lathes

# Mounting examples

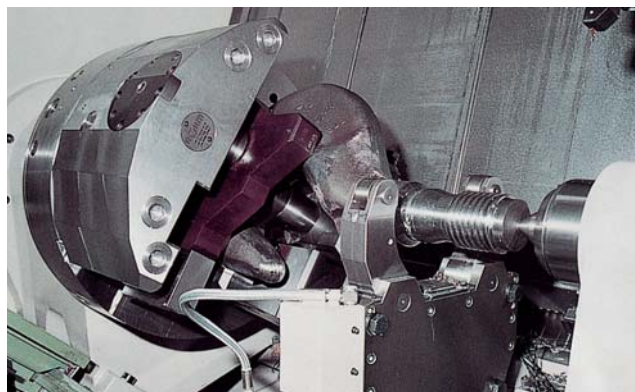
Reaming: crank shafts



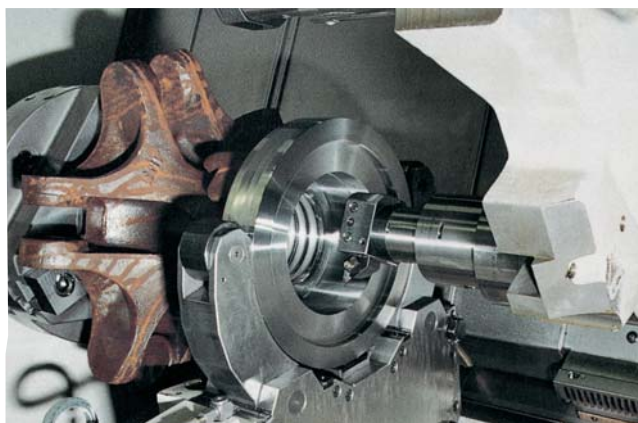
Turning: sleeves



Turning: load hooks



Turning: adaptor cages





## IDEAL FOR STATIONARY USE

The stationary power clamping devices from RÖHM are predestined for stationary, centric clamping of round and angular workpieces on milling machines or machining centers or for the rational clamping in automated work sequences.



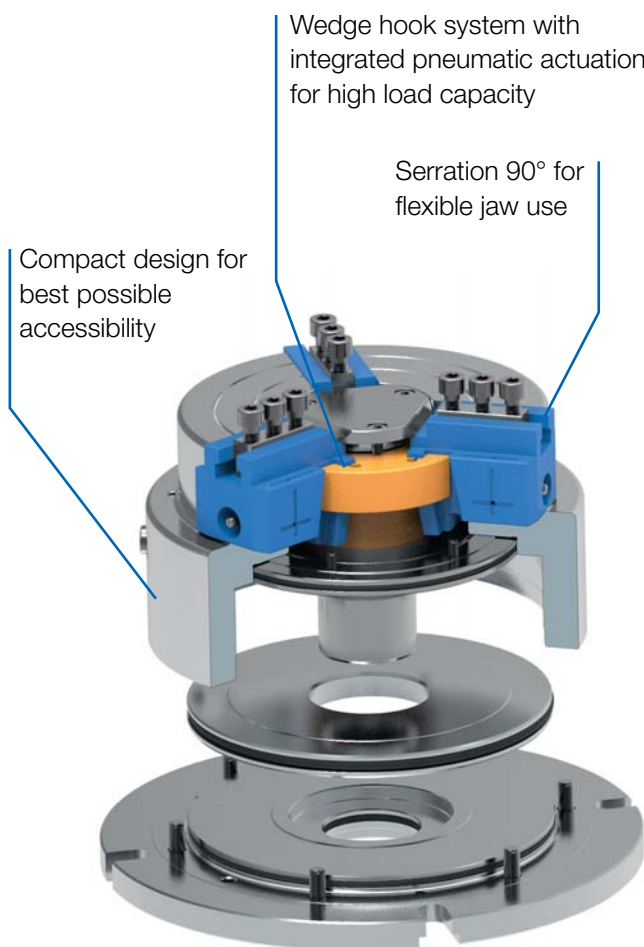
Stationary application

# STATIONARY POWER CLAMPING DEVICES

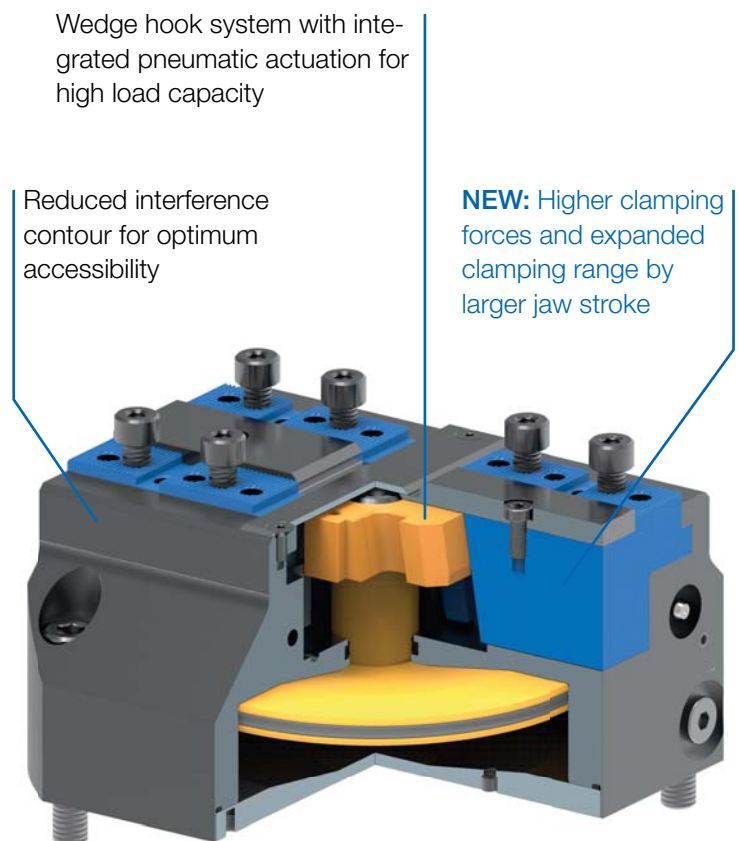
Stationary power clamping devices are characterized by many product advantages, which are essential for stationary, centric clamping on milling machines or machining centers or for the rational clamping in automated work sequences: Compact design for best possible work area utilization, high repeatability and constant clamping force at the same pressure, as well as maximum flexibility thanks to the centric clamping of round and angular workpieces.

## ADVANTAGES AT A GLANCE

- ⌚ High efficiency thanks to automated and fast clamping in stationary use
- ⌚ Wedge hook system for high load capacity and clamping precision
- ⌚ Flexible use thanks to centric clamping of angular and round components



Stationary power chuck SSP



Pneumatically-operated centering vice KZS-P

## KZS-P



### APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

### TYPE

Pneumatically actuated centering vice in standard design. Optionally with inductive sensors. 2-jaws version.

### CUSTOMER BENEFITS

- ⊕ Jaw stroke expanded by up to 20% for a larger clamping range
- ⊕ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ⊕ Optimized lubrication system for constantly high clamping forces
- ⊕ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ⊕ Sturdy and low-backlash jaw guides for high repeatability

### TECHNICAL FEATURES

- Jaws with cross tenon and serration

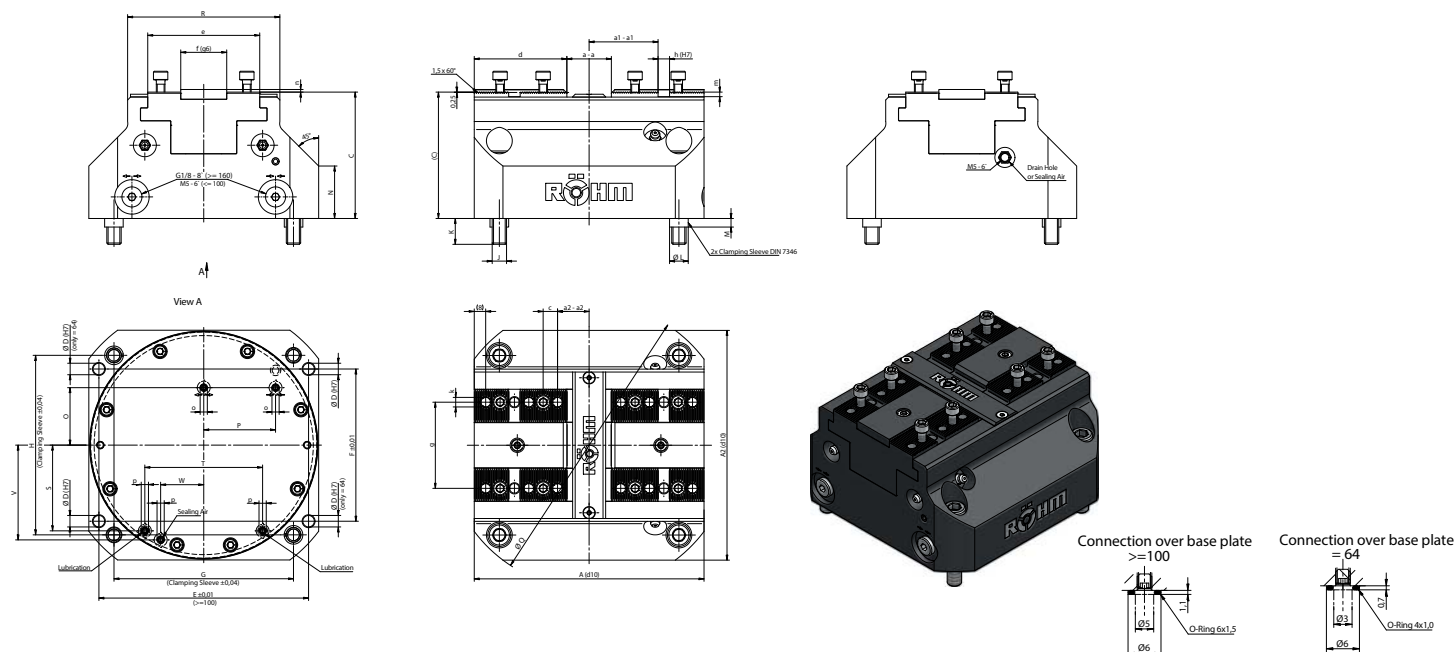
**KZS-P** = power-operated, centering, vice, pneumatically



The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



# KZS-P


Power-operated centering vice **KZS-P** (standard jaw stroke), basic jaws with serration 1.5 x 60° and cross-tenon interface

| Item No.                            | 181480      | 181482    | 181486    | 181490    | 181494    |
|-------------------------------------|-------------|-----------|-----------|-----------|-----------|
| Item No. with inductive sensors     | 181580 ▲    | 181582 ▲  | 181586 ▲  | 181590 ▲  | 181594 ▲  |
| Size                                | KZS-P 64    | KZS-P 100 | KZS-P 160 | KZS-P 200 | KZS-P 250 |
| A1 mm                               | 64          | 100       | 160       | 200       | 250       |
| Jaw stroke B mm                     | 2.3         | 2.3       | 3.5       | 4.8       | 6         |
| C mm                                | 50.7        | 69.2      | 82.2      | 90.2      | 98.2      |
| D H7 mm                             | 4 - 7.5T    | 6 - 12T   | 8 - 14T   | 8 - 14T   | 10 - 20T  |
| E±0.01 mm                           | 36          | 90        | 146       | 184       | 230       |
| F±0.01 mm                           | 56          | 64        | 106       | 146       | 154       |
| G±0.04 mm                           | 50          | 80        | 125       | 160       | 200       |
| H±0.04 mm                           | 50          | 80        | 125       | 160       | 200       |
| J mm                                | M6          | M8        | M10       | M10       | M12       |
| K mm                                | 12          | 15        | 18        | 18        | 20        |
| L mm                                | 8           | 11        | 13        | 13        | 16        |
| M mm                                | 4           | 4.5       | 6         | 6         | 6         |
| N mm                                | 31.5        | 34.8      | 31.5      | 34        | 30.5      |
| O mm                                | 17          | 32        | 40        | 50        | 64        |
| P mm                                | 17          | 29.5      | 50        | 65        | 75        |
| Q mm                                | 84          | 130       | 200       | 250       | 310       |
| R mm                                | 45          | 68        | 106       | 140       | 166       |
| S mm                                | 21          | 34.5      | 59.7      | 72.5      | 92.6      |
| T mm                                | 33.6        | 55        | 82        | 110       | 139.6     |
| V mm                                | -26.75      | 44        | 74        | 81.8      | 107       |
| W mm                                | 0           | 25.5      | 32        | 40        | 45        |
| a mm                                | 12.8 - 17.4 | 20.4 - 25 | 24 - 31   | 34.4 - 44 | 34 - 46   |
| a1 mm                               | 12.9 - 15.2 | 25.7 - 28 | 44.5 - 48 | 53.2 - 58 | 55 - 61   |
| a2 mm                               | 9.9 - 12.2  | 14.7 - 17 | 18.5 - 22 | 32 - 27.2 | 24 - 30   |
| b mm                                | 4.8         | 5         | 8         | 8         | 11        |
| c mm                                | 5           | 7         | 10        | 10        | 12        |
| d mm                                | 23.3        | 37.5      | 64.5      | 78        | 102       |
| e mm                                | 30          | 47        | 78        | 102       | 125       |
| f <sup>96</sup> mm                  | 14          | 20        | 32        | 40        | 50        |
| g mm                                | 24          | 35        | 60        | 80        | 90        |
| h <sup>17</sup> mm                  | 4           | 6         | 8         | 8         | 10        |
| k                                   | M4 - 7T     | M6 - 9T   | M8 - 12T  | M8 - 16T  | M10 - 19T |
| k1                                  | 4           | 5         | 6         | 7         | 8         |
| m mm                                | 2.7         | 2.7       | 3.2       | 3.2       | 4         |
| n mm                                | 1.8         | 1.8       | 1.8       | 2.3       | 2.3       |
| o mm                                | M3          | M4        | M5        | M6        | M6        |
| p mm                                | M3          | M3        | M5        | M5        | M5        |
| Max. operating pressure bar         | 9           | 9         | 9         | 9         | 6         |
| Max. total clamping force kN        | 4.5         | 18        | 45        | 52        | 55        |
| Weight kg                           | 1.25        | 3.9       | 11.2      | 20.4      | 32.5      |
| Cylinder volume (double stroke) cm³ | 38          | 180       | 600       | 900       | 1730      |
| Closing time s                      | 0.1         | 0.3       | 0.5       | 0.6       | 1.1       |
| Clamping repeatability mm           | 0.01        | 0.01      | 0.02      | 0.03      | 0.03      |

# KZS-PG - large jaw stroke



## APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

## TYPE

Pneumatically actuated centering vice with large jaw stroke.  
Optionally with inductive sensors. 2-jaws version.

## CUSTOMER BENEFITS

- ③ Jaw stroke expanded by up to 20% for a larger clamping range
- ③ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ③ Optimized lubrication system for constantly high clamping forces
- ③ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ③ Sturdy and low-backlash jaw guides for high repeatability

## TECHNICAL FEATURES

- Jaws with cross tenon and serration

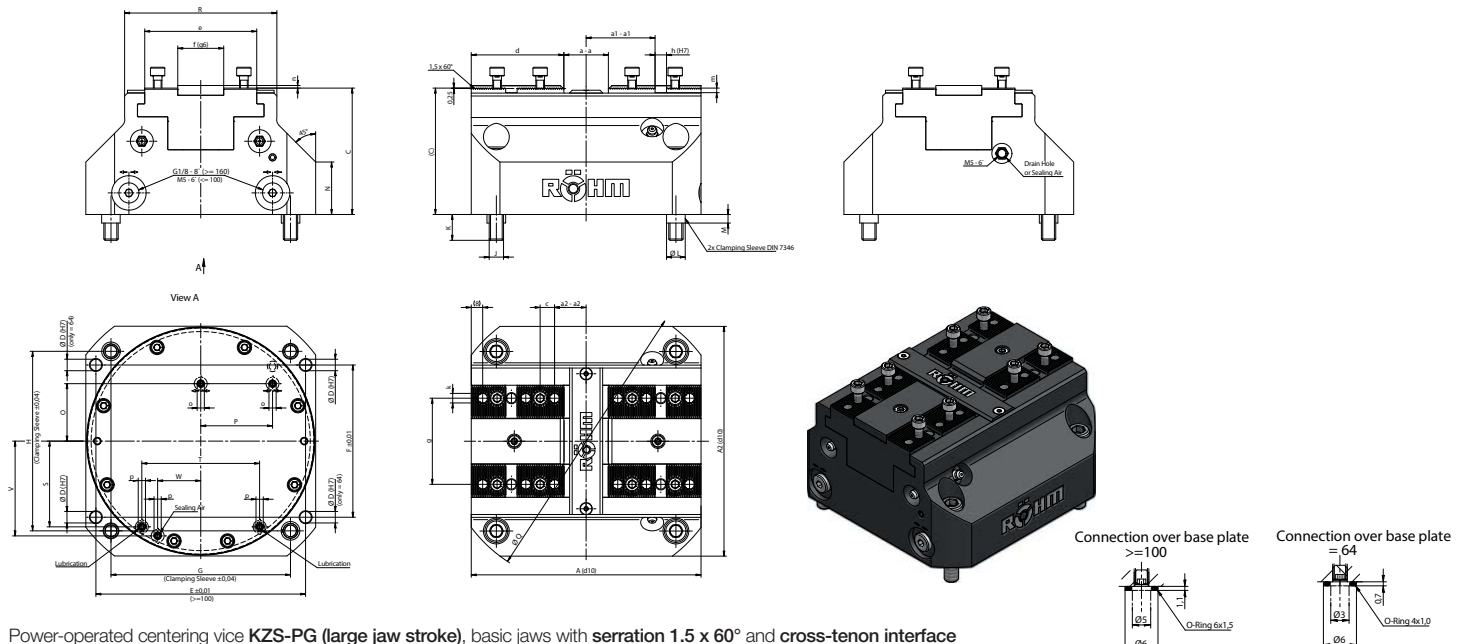
**KZS-PG** = power-operated, centering, vice, pneumatically, large jaw stroke



The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



# KZS-PG - large jaw stroke


Power-operated centering vice **KZS-PG (large jaw stroke)**, basic jaws with **serration 1.5 x 60°** and **cross-tenon interface**

| Item No.                            | 181483      | 181487      | 181491      | 181495      |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Item No. with inductive sensors     | 181583 ▲    | 181587 ▲    | 181591 ▲    | 181595 ▲    |
| Size                                | KZS-PG 100  | KZS-PG 160  | KZS-PG 200  | KZS-PG 250  |
| A1 mm                               | 100         | 160         | 200         | 250         |
| Jaw stroke B mm                     | 7           | 9.5         | 12          | 18.2        |
| C mm                                | 69.2        | 82.2        | 90.2        | 98.2        |
| D H7 mm                             | 6 - 12T     | 8 - 14T     | 8 - 14T     | 10 - 20T    |
| E±0.01 mm                           | 90          | 146         | 184         | 230         |
| F±0.01 mm                           | 64          | 106         | 146         | 154         |
| G±0.04 mm                           | 80          | 125         | 160         | 200         |
| H±0.04 mm                           | 80          | 125         | 160         | 200         |
| J mm                                | M8          | M10         | M10         | M12         |
| K mm                                | 15          | 18          | 18          | 20          |
| L mm                                | 11          | 13          | 13          | 16          |
| M mm                                | 4.5         | 6           | 6           | 6           |
| N mm                                | 34.8        | 31.5        | 34          | 30.5        |
| O mm                                | 32          | 40          | 50          | 64          |
| P mm                                | 29.5        | 50          | 65          | 75          |
| Q mm                                | 130         | 200         | 250         | 310         |
| R mm                                | 68          | 106         | 140         | 166         |
| S mm                                | 34.5        | 59.7        | 72.5        | 92.6        |
| T mm                                | 55          | 82          | 110         | 139.6       |
| V mm                                | 44          | 74          | 81.8        | 107         |
| W mm                                | 25.5        | 32          | 40          | 45          |
| a mm                                | 20.2 - 33   | 25 - 44     | 34 - 58     | 41 - 77.4   |
| a1 mm                               | 25.5 - 32.5 | 44.8 - 54.3 | 52.5 - 64.5 | 51.5 - 70   |
| a2 mm                               | 14.5 - 21.5 | 18.8 - 28.3 | 26.5 - 38.5 | 32.5 - 50.7 |
| b mm                                | 7.5         | 11.2        | 11.5        | 15          |
| c mm                                | 7           | 10          | 10          | 12          |
| d mm                                | 40.5        | 67.5        | 81          | 99          |
| e mm                                | 47          | 78          | 102         | 125         |
| f <sup>6</sup> mm                   | 20          | 32          | 40          | 50          |
| g mm                                | 35          | 60          | 80          | 90          |
| h <sup>H7</sup> mm                  | 6           | 8           | 8           | 10          |
| k                                   | M6 - 9T     | M8 - 12T    | M8 - 16T    | M10 - 19T   |
| k1                                  | 5           | 6           | 7           | 7           |
| m mm                                | 2.7         | 3.2         | 3.2         | 4           |
| n mm                                | 1.8         | 1.8         | 2.3         | 2.3         |
| o mm                                | M4          | M5          | M6          | M6          |
| p mm                                | M3          | M5          | M5          | M5          |
| Max. operating pressure bar         | 9           | 9           | 9           | 6           |
| Max. total clamping force kN        | 8           | 20          | 24          | 21          |
| Weight kg                           | 4           | 11.5        | 20.8        | 32.8        |
| Cylinder volume (double stroke) cm³ | 180         | 600         | 900         | 1730        |
| Closing time s                      | 0.3         | 0.5         | 0.6         | 1.1         |
| Clamping repeatability mm           | 0.01        | 0.02        | 0.03        | 0.03        |

# Jaws KZS-P / KZS-PG

C 21

Soft top jaws, 2-jaw set, can be hardened serration 60° - material: 16MnCr5



| Item no. | Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------|---------------|---------------|--------------|
| 166138   | 64   | 25            | 20            | 34           |
| 166140   | 100  | 42            | 25            | 55           |
| 166142   | 160  | 60            | 40            | 80           |
| 166144   | 200  | 75            | 45            | 100          |
| 166146   | 250  | 90            | 50            | 125          |

C 21

Soft top jaws, 2-jaw set tongue and groove, high design, material: 16MnCr5



| Item no. | Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------|---------------|---------------|--------------|
| 166126   | 64   | 28,5          | 35            | 34           |
| 166128   | 100  | 47            | 48            | 55           |
| 166130   | 160  | 76            | 77,5          | 80           |
| 166132   | 200  | 96            | 85            | 100          |
| 166134   | 250  | 120           | 100           | 125          |

# Accessories KZS-P / KZS-PG

A09 Special grease F80 for lathe chucks

For lubrication and conservation of chucking power



| Item no. | Design                               | Contents |
|----------|--------------------------------------|----------|
| 308555   | Cartridge (DIN 1284)<br>Ø 53.5x235mm | 0,5 kg   |
| 028975   | Tin                                  | 1 kg     |

C15 Grease gun DIN1283



| Item no. | Connection | Contents of delivery                                                                                                              |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1      | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |



## KZS-H



### APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

### TYPE

Hydraulically actuated centering vice in standard design.  
Optionally with inductive sensors. 2-jaws version.

### CUSTOMER BENEFITS

- ⊕ Jaw stroke expanded by up to 20% for a larger clamping range
- ⊕ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ⊕ Optimized lubrication system for constantly high clamping forces
- ⊕ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ⊕ Sturdy and low-backlash jaw guides for high repeatability

### TECHNICAL FEATURES

- Jaws with cross tenon and serration

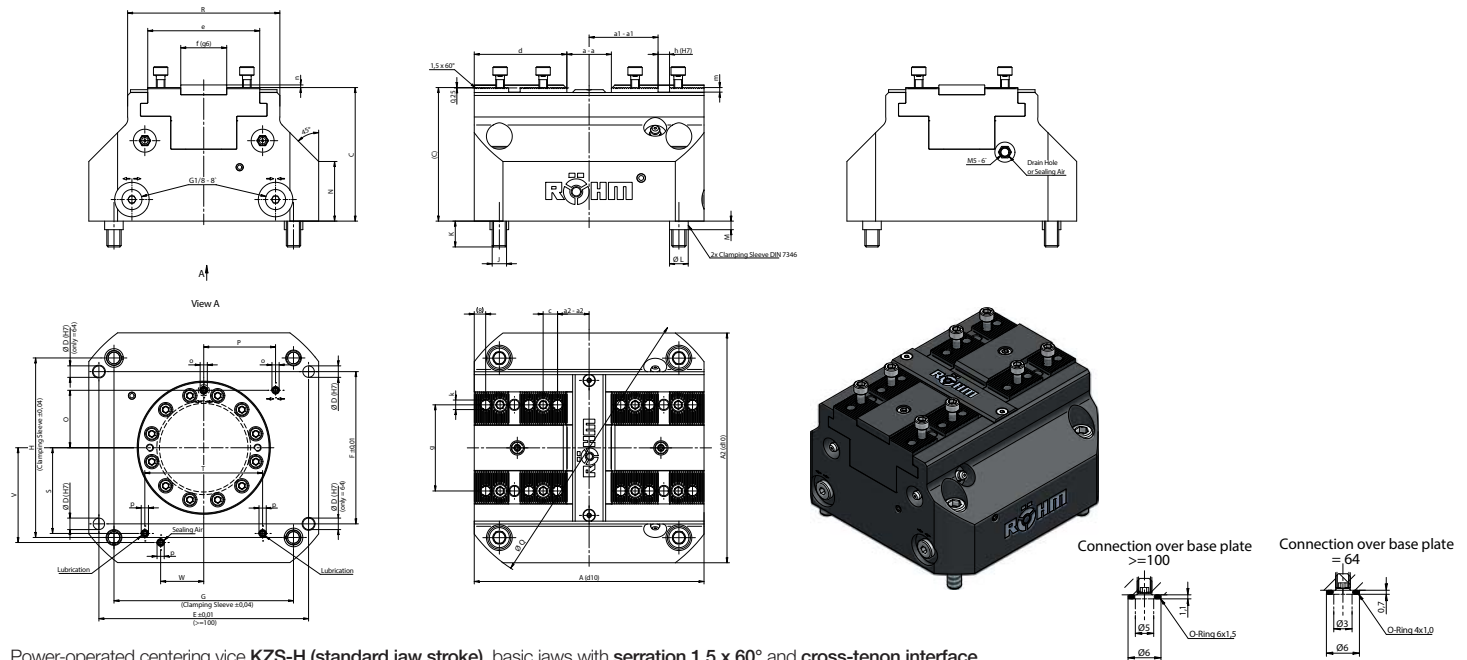
**KZS-H** = power-operated, centering, vice, hydraulically



The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



# KZS-H



Power-operated centering vice KZS-H (standard jaw stroke), basic jaws with serration 1.5 x 60° and cross-tenon interface

| Item No.                                        | 181481      | 181484    | 181488    |
|-------------------------------------------------|-------------|-----------|-----------|
| Item No. with inductive sensors                 | 181581 ▲    | 181584 ▲  | 181588 ▲  |
| Size                                            | KZS-H 64    | KZS-H 100 | KZS-H 160 |
| A1 mm                                           | 64          | 100       | 160       |
| Jaw stroke B mm                                 | 2.3         | 2.3       | 3.5       |
| C mm                                            | 55.7        | 74.2      | 87.2      |
| D H7 mm                                         | 4 - 7.5T    | 6 - 12T   | 8 - 14T   |
| E±0.01 mm                                       | 36          | 90        | 146       |
| F±0.01 mm                                       | 56          | 64        | 106       |
| G±0.04 mm                                       | 50          | 80        | 125       |
| H±0.04 mm                                       | 50          | 80        | 125       |
| J mm                                            | M6          | M8        | M10       |
| K mm                                            | 12          | 15        | 18        |
| L mm                                            | 8           | 11        | 13        |
| M mm                                            | 4           | 4.5       | 6         |
| N mm                                            | 36.5        | 39.8      | 36.5      |
| O mm                                            | 17          | 32        | 40        |
| P mm                                            | 17          | 29.5      | 50        |
| Q mm                                            | 84          | 130       | 200       |
| R mm                                            | 45          | 68        | 106       |
| S mm                                            | 21          | 34.5      | 59.7      |
| T mm                                            | 33.6        | 55        | 82        |
| V mm                                            | -26.75      | 44        | 74        |
| W mm                                            | 0           | 25.5      | 32        |
| a mm                                            | 12.8 - 17.4 | 20.4 - 25 | 24 - 31   |
| a1 mm                                           | 12.9 - 15.2 | 25.7 - 28 | 44.5 - 48 |
| a2 mm                                           | 9.9 - 12.2  | 14.7 - 17 | 18.5 - 22 |
| b mm                                            | 4.8         | 5         | 8         |
| c mm                                            | 5           | 7         | 10        |
| d mm                                            | 23.3        | 37.5      | 64.5      |
| e mm                                            | 30          | 47        | 78        |
| f <sup>95</sup> mm                              | 14          | 20        | 32        |
| g mm                                            | 24          | 35        | 60        |
| h <sup>17</sup> mm                              | 4           | 6         | 8         |
| k                                               | M4 - 7T     | M6 - 9T   | M8 - 12T  |
| k1                                              | 4           | 5         | 6         |
| m mm                                            | 2.7         | 2.7       | 3.2       |
| n mm                                            | 1.8         | 1.8       | 1.8       |
| o mm                                            | M3          | M4        | M5        |
| p mm                                            | M3          | M3        | M5        |
| Max. operating pressure bar                     | 60          | 60        | 60        |
| Max. total clamping force kN                    | 5           | 18        | 45        |
| Weight kg                                       | 1.5         | 5         | 14.2      |
| Cylinder volume (double stroke) cm <sup>3</sup> | 7           | 30        | 100       |
| Closing time s                                  | 0.5         | 1.2       | 1.7       |
| Clamping repeatability mm                       | 0.01        | 0.01      | 0.02      |

# KZS-HG - large jaw stroke



## APPLICATION

Optimally suited for use in 3-, 4- and 5-axis machining centers as well as on all common zero-point clamping systems

## TYPE

Hydraulically actuated centering vice with large jaw stroke.  
Optionally with inductive sensors. 2-jaws version.

## CUSTOMER BENEFITS

- ③ Jaw stroke expanded by up to 20% for a larger clamping range
- ③ Highest clamping forces of up to 55 kN, optimal results and process reliability through precision wedge hook system
- ③ Optimized lubrication system for constantly high clamping forces
- ③ Compact design with reduced interfering contours for optimum workpiece accessibility, ideal working space utilization and optimum chip flow
- ③ Sturdy and low-backlash jaw guides for high repeatability

## TECHNICAL FEATURES

- Jaws with cross tenon and serration

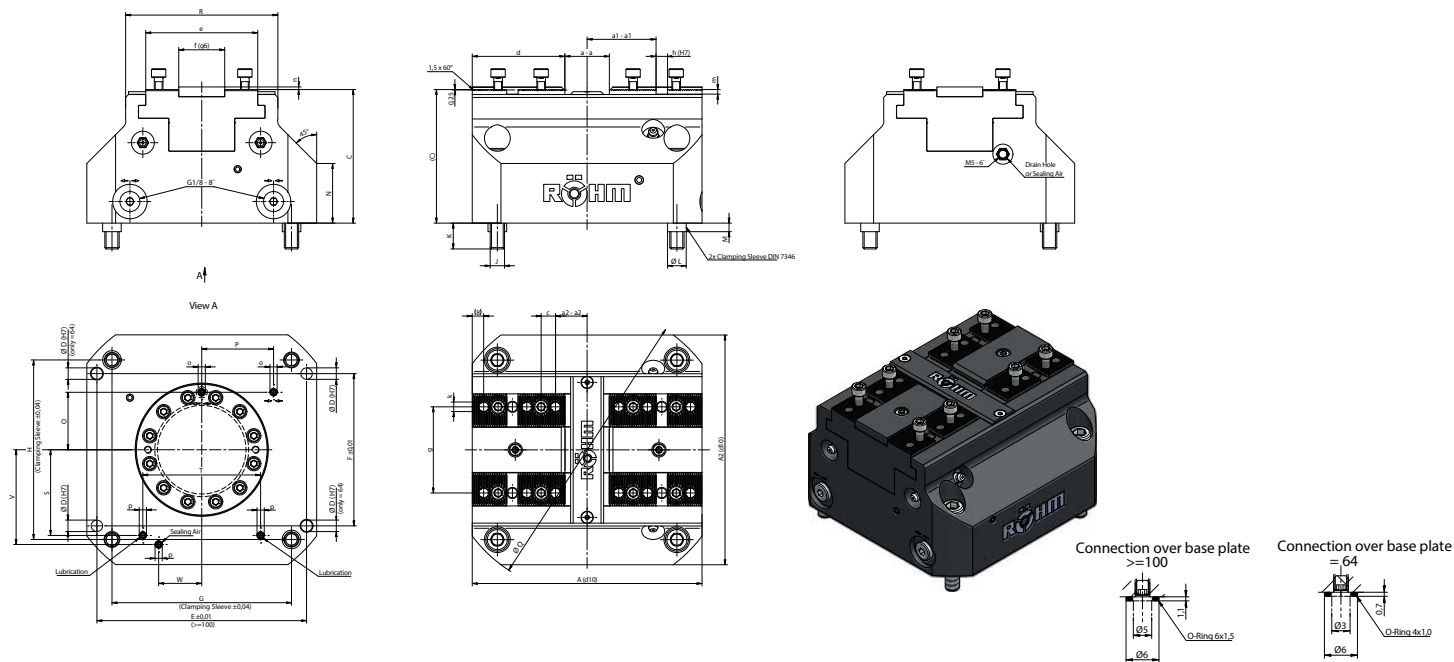
**KZS-HG** = power-operated, centering, vice, hydraulically, large jaw stroke



The power-operated centering vices are also available with integrated stroke sensor, which serves for clamping control and ensures optimum process monitoring and thus optimal process reliability.



## KZS-HG - large jaw stroke



Power-operated centering vice **KZS-HG (large jaw stroke)**, basic jaws with **serration 1.5 x 60°** and **cross-tenon interface**

| Item No.                            | 181485      | 181489      | 181493      | 181497      |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Item No.<br>with inductive sensors  | 181585 ▲    | 181589 ▲    | 181593 ▲    | 181597 ▲    |
| Size                                | KZS-HG 100  | KZS-HG 160  | KZS-HG 200  | KZS-HG 250  |
| A1 mm                               | 100         | 160         | 200         | 250         |
| Jaw stroke B mm                     | 7           | 9.5         | 12          | 18.2        |
| C mm                                | 74.2        | 87.2        | 95.2        | 103.2       |
| D H7 mm                             | 6 - 12T     | 8 - 14T     | 8 - 14T     | 10 - 20T    |
| E±0.01 mm                           | 90          | 146         | 184         | 180         |
| F±0.01 mm                           | 64          | 106         | 146         | 200         |
| G±0.04 mm                           | 80          | 125         | 160         | 180         |
| H±0.04 mm                           | 80          | 125         | 160         | 200         |
| J mm                                | M8          | M10         | M10         | M12         |
| K mm                                | 15          | 18          | 18          | 20          |
| L mm                                | 11          | 13          | 13          | 16          |
| M mm                                | 4.5         | 6           | 6           | 6           |
| N mm                                | 39.8        | 36.5        | 39          | 55.5        |
| O mm                                | 32          | 40          | 50          | 80          |
| P mm                                | 29.5        | 50          | 65          | 45          |
| Q mm                                | 130         | 200         | 250         | 310         |
| R mm                                | 68          | 106         | 140         | 166         |
| S mm                                | 34.5        | 59.7        | 72.5        | 50          |
| T mm                                | 55          | 82          | 110         | 140         |
| V mm                                | 44          | 74          | 81,8        | 73.3        |
| W mm                                | 25.5        | 32          | 40          | 45          |
| a mm                                | 20.2 - 33   | 25 - 44     | 34 - 58     | 41 - 77.4   |
| a1 mm                               | 25.5 - 32.5 | 44.8 - 54.3 | 52,5 - 64,5 | 51.5 - 70   |
| a2 mm                               | 14.5 - 21.5 | 18.8 - 28.3 | 26,5 - 38,5 | 32.5 - 50.7 |
| b mm                                | 7.5         | 11.2        | 11,5        | 15          |
| c mm                                | 7           | 10          | 10          | 12          |
| d mm                                | 40.5        | 67.5        | 81          | 99          |
| e mm                                | 47          | 78          | 102         | 125         |
| f <sup>Ø</sup> mm                   | 20          | 32          | 40          | 50          |
| g mm                                | 35          | 60          | 80          | 90          |
| h <sup>H7</sup> mm                  | 6           | 8           | 8           | 10          |
| k                                   | M6 - 9T     | M8 - 12T    | M8 - 16T    | M10 - 19T   |
| k1                                  | 5           | 6           | 7           | 7           |
| m mm                                | 2.7         | 3.2         | 3,2         | 4           |
| n mm                                | 1.8         | 1.8         | 2,3         | 2.3         |
| o mm                                | M4          | M5          | M6          | M6          |
| p mm                                | M3          | M5          | M5          | M5          |
| Max. operating pressure bar         | 120         | 120         | 60          | 60          |
| Max. total clamping force kN        | 16          | 40          | 50          | 50          |
| Weight kg                           | 5.1         | 14.5        | 24,8        | 37.9        |
| Cylinder volume (double stroke) cm³ | 30          | 100         | 300         | 420         |
| Closing time s                      | 1.2         | 1.7         | 2,1         | 3           |
| Clamping repeatability mm           | 0.01        | 0.02        | 0,03        | 0.03        |

# Jaws KZS-H / KZS-HG

C 21

Soft top jaws, 2-jaw set, can be hardened serration 60° - material: 16MnCr5



| Item no. | Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------|---------------|---------------|--------------|
| 166138   | 64   | 25            | 20            | 34           |
| 166140   | 100  | 42            | 25            | 55           |
| 166142   | 160  | 60            | 40            | 80           |
| 166144   | 200  | 75            | 45            | 100          |
| 166146   | 250  | 90            | 50            | 125          |

C 21

Soft top jaws, 2-jaw set tongue and groove, high design, material: 16MnCr5



| Item no. | Size | Jaw length mm | Jaw height mm | Jaw width mm |
|----------|------|---------------|---------------|--------------|
| 166126   | 64   | 28,5          | 35            | 34           |
| 166128   | 100  | 47            | 48            | 55           |
| 166130   | 160  | 76            | 77,5          | 80           |
| 166132   | 200  | 96            | 85            | 100          |
| 166134   | 250  | 120           | 100           | 125          |

# Accessories KZS-H / KZS-HG

A09 Special grease F80 for lathe chucks

For lubrication and conservation of chucking power



| Item no. | Design                               | Contents |
|----------|--------------------------------------|----------|
| 308555   | Cartridge (DIN 1284)<br>Ø 53.5x235mm | 0,5 kg   |
| 028975   | Tin                                  | 1 kg     |

C15 Grease gun DIN1283



| Item no. | Connection | Contents of delivery                                                                                                              |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 329093   | M10x1      | 150 mm nozzle tube bent, needlepoint mouthpiece, top mouthpiece, 300 mm high pressure hose with 4 jaw hydraulics cross mouthpiece |





### APPLICATION

For stationary centric clamping of workpieces on milling machines or machining centers.

### TYPE

Clamping system consisting of a 3-jaw chuck, including an integrated pneumatic cylinder.  
Serration 90°.

### CUSTOMER BENEFITS

- ⊕ Compact design
- ⊕ Large variety of applications is possible by using different clamping jaws
- ⊕ Centric clamping of round and angular workpieces
- ⊕ High repeatability thanks to sturdy chuck construction and constant clamping force at same pressure
- ⊕ Purge air connection possible to prevent contamination

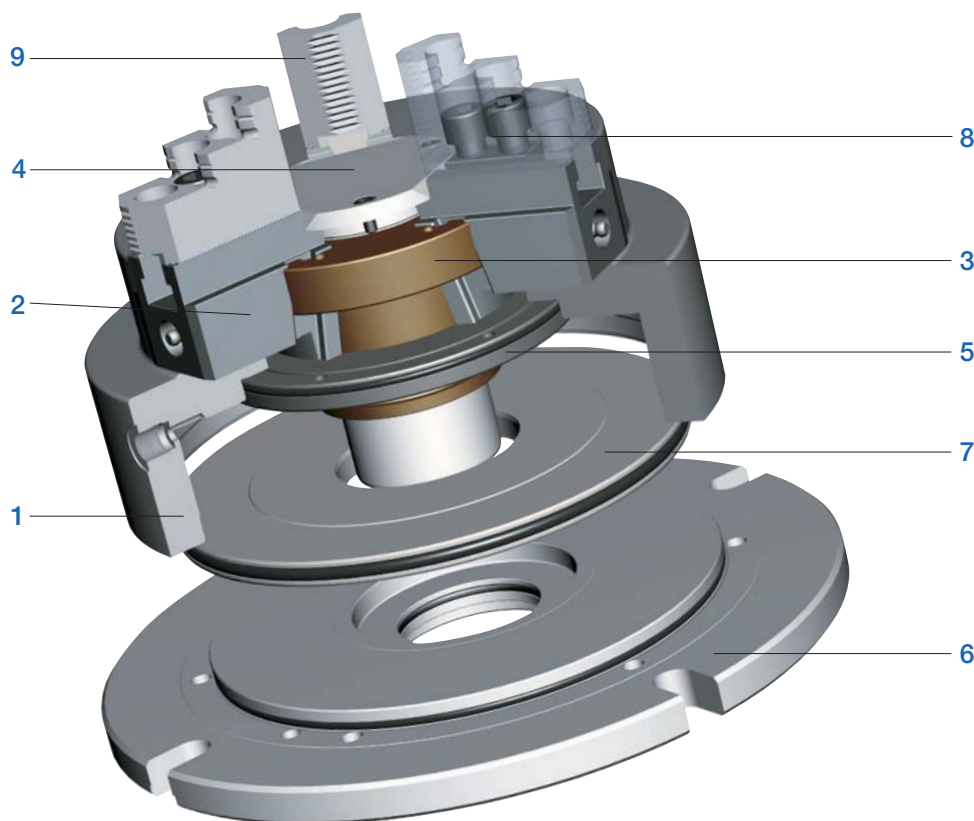
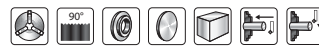
### TECHNICAL FEATURES

- Wedge hook system with pneumatic actuation
- Clamping force can be regulated by changing the pressure

#### Note:

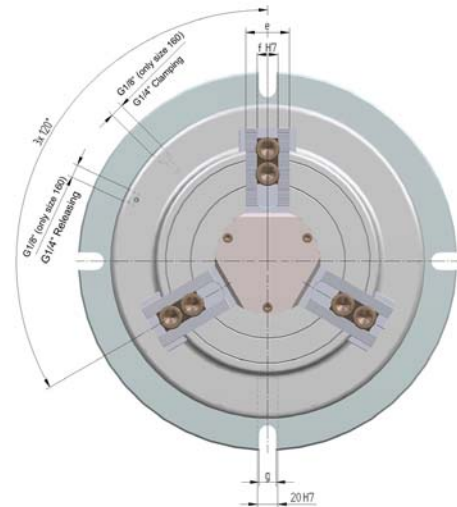
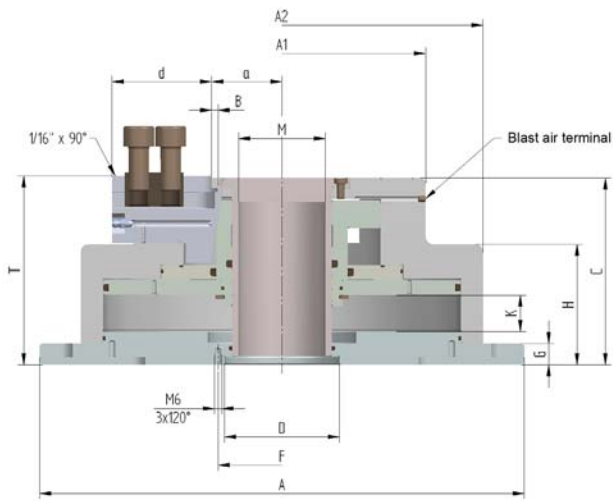
Hydraulic actuation on request

**SSP** = stationary, power chuck, pneumatically



### Components:

1. Body
2. Base jaw
3. Piston
4. Protective bushing
5. Intermediate disc
6. Mount
7. Piston disc
8. T-nut
9. Top jaws



C 15  
Stationary power chucks **SSP**, air operated 3-jaw chucks, without through-hole, serration 1/16" x 90°

| Item No.                                                             | 161505         | 161506 ▲       | 161507 ▲       | 161508          |
|----------------------------------------------------------------------|----------------|----------------|----------------|-----------------|
| Size                                                                 | 160            | 200            | 250            | 315             |
| Number of jaws                                                       | 3              | 3              | 3              | 3               |
| A mm                                                                 | 260            | 320            | 380            | 415             |
| A1 mm                                                                | 178            | 205            | 255            | 320             |
| A2 mm                                                                | 210            | 255            | 315            | 350             |
| Jaw travel B mm                                                      | 4,2            | 4,2            | 5              | 5               |
| C mm                                                                 | 130,5          | 134            | 146            | 156,5           |
| Mount D <sup>H6</sup>                                                | 55             | 70             | 90             | 110             |
| D                                                                    | M8             | M12            | M16            | M16             |
| F mm                                                                 | 65             | 80             | 100            | 120             |
| G mm                                                                 | 15             | 17             | 17             | 21,5            |
| H mm                                                                 | 84,5           | 86             | 94             | 104,5           |
| Wedge stroke K mm                                                    | 24             | 23,8           | 28,4           | 28,4            |
| Possible through-hole M mm                                           | 38             | 52             | 68             | 90              |
| T mm                                                                 | 131,5          | 135,5          | 147,5          | 158             |
| U                                                                    | M8             | M12            | M16            | M16             |
| a min.                                                               | 31,8           | 41,2           | 50             | 61,5            |
| a max.                                                               | 36             | 45,4           | 55             | 66,5            |
| c mm                                                                 | 15             | 19             | 25             | 25              |
| d mm                                                                 | 54,5           | 62             | 78             | 99              |
| e mm                                                                 | 32             | 36             | 44             | 44              |
| f <sup>H7</sup> mm                                                   | 12             | 17             | 21             | 21              |
| g mm                                                                 | 13             | 17             | 17             | 17              |
| Piston area cm <sup>2</sup>                                          | 209            | 323            | 532            | 654             |
| Min. operating pressure bar                                          | 2              | 2              | 2              | 2               |
| Max. operating pressure bar                                          | 8              | 8              | 8              | 8               |
| Max. total clamping force at working pressure - External clamping kN | 36 (bei 6 bar) | 55 (bei 6 bar) | 90 (bei 6 bar) | 111 (bei 6 bar) |
| Max. total clamping force at working pressure - Internal clamping kN | 38 (bei 6 bar) | 60 (bei 5 bar) | 96 (bei 6 bar) | 118 (bei 6 bar) |
| Weight without jaws approx. kg                                       | 25             | 34             | 54             | 65              |

# Jaws SSP

C 21

Reversible top jaws, 3-jaw set, hardened serration 90° - material: 16MnCr5



| Item no. | Size    | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|---------|---------------|---------------|--------------|------------|
| 046404   | 160     | 56            | 37,5          | 26           | 1/16"x 90° |
| 118522   | 200     | 75            | 49            | 36           | 1/16"x 90° |
| 046414   | 250/315 | 103,5         | 58            | 50           | 1/16"x 90° |

Additionally or later applied, hardened jaws must be ground out in the chuck.

C 21

Soft top jaws, 3-jaw set, can be hardened serration 90° - material: 16MnCr5



| Item no. | Size | Jaw length mm | Jaw height mm | Jaw width mm | Serration  |
|----------|------|---------------|---------------|--------------|------------|
| 046403   | 160  | 55            | 38            | 26,5         | 1/16"x 90° |
| 133153   | 200  | 75            | 53            | 36,5         | 1/16"x 90° |
| 133154   | 250  | 95            | 54,5          | 45           | 1/16"x 90° |

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 12



| Item no. | Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------|---------------|---------------|----------------|------------|
| 144320   | 160  | 66            | 38            | 52             | 1/16"x 90° |
| 144321   | 160  | 56            | 38            | 34             | 1/16"x 90° |
| 144322   | 160  | 66            | 38            | 25             | 1/16"x 90° |

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 17



| Item no. | Size | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|------|---------------|---------------|----------------|------------|
| 137031   | 200  | 67            | 45            | 53             | 1/16"x 90° |
| 137032   | 200  | 65            | 45            | 46             | 1/16"x 90° |
| 137039   | 200  | 55            | 45            | 40             | 1/16"x 90° |
| 137034   | 200  | 50            | 45            | 31             | 1/16"x 90° |
| 137035   | 200  | 55            | 45            | 27             | 1/16"x 90° |
| 137036   | 200  | 65            | 45            | 19             | 1/16"x 90° |
| 137037   | 200  | 65            | 45            | 26             | 1/16"x 90° |
| 137038   | 200  | 55            | 45            | 24             | 1/16"x 90° |
| 137033   | 200  | 55            | 45            | 39             | 1/16"x 90° |

C 21

Claw-type jaws, 1 piece, hardened serration 90° - width of the groove 21

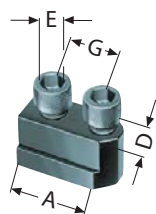


| Item no. | Size    | Jaw length mm | Jaw height mm | Claw length mm | Serration  |
|----------|---------|---------------|---------------|----------------|------------|
| 137041   | 250/315 | 95            | 50            | 80             | 1/16"x 90° |
| 137042   | 250/315 | 75            | 50            | 60             | 1/16"x 90° |
| 137043   | 250/315 | 60            | 50            | 43             | 1/16"x 90° |
| 137044   | 250/315 | 70            | 50            | 37             | 1/16"x 90° |
| 137045   | 250/315 | 95            | 50            | 25             | 1/16"x 90° |
| 137046   | 250/315 | 80            | 50            | 30             | 1/16"x 90° |

# Accessories SSP

C 15

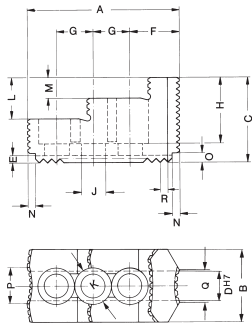
Extended T-nuts With screw



| Item no. | Chuck Size | Con-<br>tents of<br>delivery | D mm | E      | G mm |
|----------|------------|------------------------------|------|--------|------|
| 1305178▲ | 160        | piece                        | 12   | M8x25  | 2x15 |
| 1305179  | 200        | piece                        | 17   | M12x30 | 19   |
| 1305180▲ | 250/315    | piece                        | 21   | M16x35 | 25   |

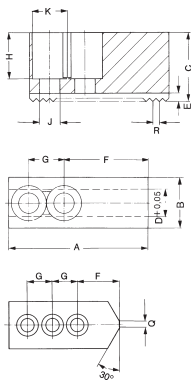
# Jaw dimensions SSP

Reversible top jaws UB,  
hardened, serration 90°



| Chuck size         | 160           | 200           | 250/315       |
|--------------------|---------------|---------------|---------------|
| Type               | 538-02        | 538-04        | 538-05        |
| Item no. 3-jaw set | <b>046404</b> | <b>118522</b> | <b>046414</b> |
| A                  | 56            | 75            | 103,5         |
| B                  | 26            | 36            | 50            |
| C                  | 37,5          | 49            | 58            |
| DH7                | 12            | 17            | 21            |
| E                  | 3,5           | 5             | 5             |
| F                  | 14            | 21,5          | 33,5          |
| G                  | 15            | 19            | 25            |
| H                  | 29            | 37,5          | 45            |
| J                  | 8,4           | 13            | 17            |
| K                  | 13,5          | 19            | 25            |
| L                  | 20            | 24            | 28            |
| M                  | 10            | 12            | 14            |
| N                  | 4             | 6             | 6             |
| O                  | 4             | 7,5           | 6,5           |
| P                  | 5             | 18            | 24,5          |
| Q                  | 5             | 7             | 22,5          |
| R                  | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     |
| Weight/jaw kg      | 0,170         | 0,460         | 1,130         |

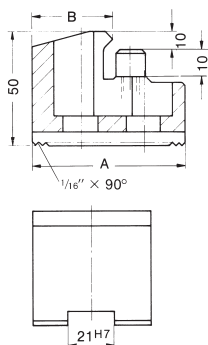
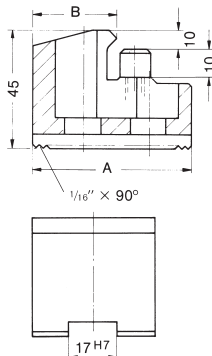
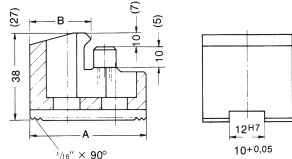
Soft top jaws AB,  
Serration 90°



| Chuck size         | 160           | 200           | 250/315       |
|--------------------|---------------|---------------|---------------|
| Type               | 538-02        | 538-03        | 538-05        |
| Item no. 3-jaw set | <b>046403</b> | <b>133152</b> | <b>133154</b> |
| A                  | 55            | 66,7          | 95            |
| B                  | 26,5          | 36,5          | 45            |
| C                  | 38            | 53            | 54,5          |
| D                  | 12            | 17            | 21            |
| E                  | 3,5           | 5             | 5             |
| F                  | 31            | 36            | 55            |
| G                  | 15            | 19            | 25            |
| H                  | 28            | 43            | 42,5          |
| J                  | 8,4           | 13            | 17            |
| K                  | 13,5          | 19            | 25            |
| Q                  | -             | -             | -             |
| R                  | 1/16"x90°     | 1/16"x90°     | 1/16"x90°     |
| Weight/jaw kg      | 0,330         | 0,700         | 1,400         |

# Jaw dimensions und chucking capacities SSP

## Claw type jaws KB, Serration 90°

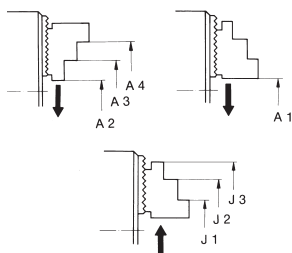


| Größe          | A  | B  | 160                           |
|----------------|----|----|-------------------------------|
| Item no. piece |    |    | Chuckling capacities external |
| 144320         | 66 | 52 | 56-102                        |
| 144321         | 56 | 34 | 96-152                        |
| 144322         | 66 | 25 | 138-184                       |
|                |    |    | Chuckling capacities internal |
| 144322         | 66 | 25 | 70-116                        |
| 144321         | 56 | 34 | 112-200                       |
| 144320         | 66 | 52 | 152-198                       |

| Größe          | A  | B  | 200                           |
|----------------|----|----|-------------------------------|
| Item no. piece |    |    | Chuckling capacities external |
| 137031         | 67 | 53 | 66-104                        |
| 137032         | 65 | 46 | 80-118                        |
| 137039         | 55 | 40 | 106-144                       |
| 137034         | 50 | 31 | 130-148                       |
| 137035         | 55 | 27 | 126-164                       |
|                |    |    | Chuckling capacities internal |
| 137036         | 65 | 19 | 82-120                        |
| 137037         | 65 | 26 | 92-130                        |
| 137038         | 55 | 24 | 110-148                       |
| 137035         | 55 | 27 | 132-170                       |
| 137034         | 50 | 31 | 148-184                       |
| 137039         | 55 | 40 | 134-190                       |
| 137033         | 55 | 39 | 164-202                       |
| 137032         | 65 | 46 | 178-216                       |

| Größe          | A  | B  | 250     | 315                           |
|----------------|----|----|---------|-------------------------------|
| Item no. piece |    |    |         | Chuckling capacities external |
| 137041         | 95 | 80 | 54-112  | 78-186                        |
| 137042         | 75 | 60 | 94-152  | 118-226                       |
| 137043         | 60 | 43 | 128-186 | 152-260                       |
| 137044         | 70 | 37 | 158-216 | 182-290                       |
| 137045         | 95 | 25 | 238-280 | 262-330                       |
|                |    |    |         | Chuckling capacities internal |
| 137045         | 95 | 25 | 72-130  | 96-204                        |
| 137046         | 80 | 30 | 110-168 | 134-242                       |
| 137044         | 70 | 37 | 152-210 | 176-284                       |
| 137043         | 60 | 43 | 182-240 | 206-314                       |
| 137042         | 75 | 60 | 216-274 | -                             |

## Chuckling capacities with reversible top jaws UB



| Chuck size           |              | 160     | 200     | 250     | 315     |
|----------------------|--------------|---------|---------|---------|---------|
| with reversible jaws | Type         | 538-02  | 538-04  | 538-05  | 538-05  |
|                      | Jaw position |         |         |         |         |
| External chucking    | A1           | 28-80   | 30-115  | 20-128  | 41-194  |
|                      | A2           | 32-84   | 44-128  | 46-154  | 67-220  |
|                      | A3           | 82-132  | 101-185 | 128-238 | 150-303 |
|                      | A4           | 118-168 | 152-236 | 210-318 | 231-384 |
| Internal chucking    | J1           | 64-116  | 80-165  | 70-188  | 91-244  |
|                      | J2           | 96-148  | 130-214 | 146-255 | 168-320 |
|                      | J3           | 140-192 | 182-266 | 225-334 | 246-400 |

# F-senso chuck clamping force measuring device

## APPLICATION

Suitable for 3 jaw chucks and vices.

**The F-senso clamping force measurement device enables you to check the clamping force as well as the rotational speed of your clamping tools.**  
The centrifugal behavior is thus directly related to the accompanying software evaluated.

## TYPE

- ④ Broad clamping range of 75 - 175 mm through interchangeable pressure pins
- ④ Broad measuring range from 0 - 100 kN per jaw
- ④ Dynamic clamping force measurement under rotation up to 8250 rpm
- ④ Real-time data transmission via Bluetooth to included tablet
- ④ Delivered in the practical hard-shell case

## TECHNICAL FEATURES

- No additional attachments necessary on the machine
- Easy positioning through positioning aid
- Automated switch-off



Video F-senso chuck

## ADVANTAGES AT A GLANCE

- ④ Direct output of the centrifugal force behavior through combined measurement of clamping force and speed
- ④ Flexibility through large clamping and measuring range
- ④ Easy handling without additional set-ups on the machine

F-senso chuck

### Included in the scope of delivery:

- Base with foam insert
- Clamping force measuring head, F-senso chuck
- Pressure bolts in lengths 5 mm, 15 mm, 25 mm and 30 mm
- Pressure bolt elongation in length 25 mm
- Practical insertion aid
- Tablet PC with pre-installed measuring and evaluation program



C 15

### Clamping force measurement device F-senso chuck

|                                        |                                                                          |
|----------------------------------------|--------------------------------------------------------------------------|
| Item No.                               | 179800                                                                   |
| Measuring range / Clamping force kN    | 2 jaws: 0 - 200; 3 jaws: 0 - 300                                         |
| Measuring range / Rotation speed min-1 | 0 - 8250                                                                 |
| Accuracy                               | Force <0.5% / Rotation speed ±10 rpm within the complete measuring range |
| Clamping Ø mm                          | 75 - 175                                                                 |
| Dimensions (base unit)                 | Ø 75/80 x 130                                                            |

# EASYLOCK zero point clamping system



Palletising systems such as the EASYLOCK zero point clamping system from RÖHM achieve a considerable productivity increase. This modular system meets the requirements of customer-specific solutions with the best-possible utilisation of machine capacity. Although the machine tool had to stop for the set-up time until now, the workpiece can now be clamped and positioned on the pallet outside the machine tool. The set-up time is now only limited to loading and unloading the pallet, which happens in seconds. If multiple manufacturing processes are necessary for machining, then the pallet including the workpiece can be used without zero point loss. Due to the robust and rust-resistant construction, EASYLOCK zero point clamping can be used throughout, starting with machining up to the measuring machines.

EASYLOCK zero point  
clamping system

## THE BENEFITS AT A GLANCE

### INCREASED PRODUCTIVITY

- ⌚ Free machine capacity through reduction of set-up time by up to 90%
- ⌚ Very rapid change of workpiece and clamping fixtures on tilt-free clamping and positioning with long insert

### HIGH PRECISION

- ⌚ Repeat accuracy of < 0.005 mm thanks to precision balls
- ⌚ Positive-locking self-inhibition unaffected by tensile and lateral forces

### HIGHEST MODULARITY

- ⌚ Modular base carrier design variants for maximum flexibility
- ⌚ Flexible extension options

Jaw dimensions and  
Chuckling capacity

# The pin system

## HOW IT WORKS

With the RÖHM EASYLOCK zero point clamping system, the clamping pin is the interface between the machine table and the workpiece or fixture. The exact positioning guarantees secure clamping. At the same time the resulting machining forces are transferred via the clamping pin to the pressure cup. The high-precision pressure cups of the EASYLOCK system ensure an absolutely secure hold of the workpiece or fixture. The high locking and holding forces make the system suitable for all kinds of use.



### Machining with EASYLOCK?

EASYLOCK is ideally suited to all machining processes like grinding, milling, drilling and measuring.

### What is meant by holding force?

Holding force is the force at which the pallet still rests securely on the clamping system. This force must not be exceeded during machining.

### What is meant by repeat accuracy?

The repeat accuracy gives the tolerance range for the recorded workpiece references when the workpiece is removed and subsequently reclamped. The repeat accuracy of the EASYLOCK system is around  $< 0.005 \text{ mm}$ .

## REDUCED SET-UP TIMES BY UP TO 90%

### Without palletising system

Machine run-time

Set-up of the workpiece

### With EASYLOCK zero point clamping system

Simultaneous set-up on the pallet

Machine run-time

Pallet exchange

Additional machine capacity

# Power-operated clamping devices

To ensure safe operation of power-operated clamping devices, particularly of chucks, on heavy-duty lathes with high speeds certain criteria must be observed:

1. When mounting the power chuck and the clamping cylinder on the lathe, the following safety requirements must be met:
  - 1.1 The machine spindle may only start when the clamping pressure has been built up in the actuating cylinder and the clamping has been carried out in the permissible working area.
  - 1.2 Unclamping may only be possible when the machine spindle has completely stopped.
  - 1.3 In case of a clamping energy failure, the workpiece must be firmly clamped until the spindle is completely stopped. (The Röhm safety cylinders meet this requirement.)
  - 1.4 In case of a current failure and upon return of the current supply the actual control position may not be changed.
  - 1.5 In case of a clamping energy failure the machine spindle must be stopped by a signal.
2. The safety instructions given in the respective operation manual must be precisely followed.
3. After having mounted the chuck and before starting the operation, the function of the chuck must be checked.

## Two important points are:

### 3.1 Clamping force

The clamping force ( $\pm 15\%$ ) stated for the clamping device must be reached at max. actuating force/pressure.

### 3.2 Stroke control

A safety range must be provided for the stroke of the clamping piston in the front and rear end position. The machine spindle may only start after the clamping piston has crossed the safety range.

Only limit switches meeting the requirements for safety limit switches in accordance with VDE 0113/12.73 section 7.1.3 may be used for monitoring the clamping path.

4. If the max. speed of the lathe exceeds the max. speed of the clamping device or clamping cylinder, the machine must be equipped with a speed limitation device.
5. When the clamping device has been changed, the stroke control must be adjusted to the new condition.
6. When calculating the required clamping force for machining a workpiece, the centrifugal force of the clamping jaws must be considered.
7. A reliable operation of the power chuck can only be guaranteed when the maintenance instructions contained in the instruction manual are precisely followed.

## In particular the following points must be observed:

- 7.1 For the lubrication only the lubricants recommended in the operation manual shall be used. (An unsuitable lubricant can reduce the clamping force by more than 50%).
- 7.2 The lubrication must reach all surfaces to be lubricated.  
(At the narrow fits of the mounting parts a high pressure is required for pressing-in the lubricant. For those purpose a pressure gun must be used).
- 7.3 In order to distribute the grease evenly, actuate the clamping piston several times to its end positions, repeat the lubrication and then check the clamping force.

# Power-operated clamping devices

8. Before restarting a serial machining operation and in between the maintenance intervals the clamping force should be checked by means of a load cell. "Only regular checks ensure optimum reliability".

9. It is recommended to move the clamping piston several times to its end positions after 500 clamping strokes at the latest. (In this way any lubricant pushed away will be returned to the pressure surfaces. The pressure force is thus maintained for a longer period of time.)

10. When using special clamping jaws the following instructions must be observed:

10.1 The clamping jaws should be designed in such a way that their weight and height is as low as possible. The clamping point should as possible be as close to the frontside of the chuck. (Clamping points at a larger distance may cause a higher surface pressure in the jaw guiding mechanism and may thus reduce the clamping force considerably.)

10.2 In case the special jaws are for constructional reasons wider and/or higher than the step jaws assigned to the clamping device, the resulting higher centrifugal forces must be considered when calculating the required clamping pressure and the rated speed.

**For calculating the rated speed for a certain machining task the following formula is to be applied:**

$$n_{\max.} = \sqrt{\frac{F_{spo} - F_{spz}}{m \cdot r_c \cdot a}} \cdot \frac{30}{\pi}$$

**F<sub>spo</sub>** = initial clamping force with the chuck at standstill (N)

**F<sub>spz</sub>** = required clamping force with the chuck at standstill for a certain machining task (N)

**n<sub>max.</sub>** = max. admissible speed (min 1)

**m** = mass of the entire jaw unit (kg) (base and top jaw)

**r<sub>c</sub>** = center of gravity radius of the entire jaw unit (m)

**a** = number of jaws

10.3 Welded jaws should not be used. If required, the welding seams must be checked as to their centrifugal and clamping force capacity.

10.4 The mounting screws must be arranged in such a way that the highest possible useful moment is reached.

11. The max. speed may only be used at max. applied actuating force and with properly functioning chucks.

12. In case of high speeds the chucks may only be used below a protective hood with sufficiently large dimensions.

13. For power chucks with a jaw quick-change feature internal to the chuck a safety device is required which reverts the machine spindle from rotating when the clamping jaws are released.

14. After a collision the clamping device must be checked for fissures before being used again.

15. Worn or damaged jaw fixing bolts must be replaced. Only use bolts of quality 12.9.

# Power-operated clamping devices

## Determining the required gripping force of a power chuck and the corresponding operating power

- I) Calculating the gripping force  $F_{spz}$  (without considering the effects of angular speed) required for the job (machining operation).
- II) Determining the chuck's initial gripping force  $F_{spo}$  with spindle stationary (taking into account the centrifugal forces of the jaws).
- III) Determining the operating power required to provide the initial gripping force  $F_{spo}$ .

### Definition of gripping force

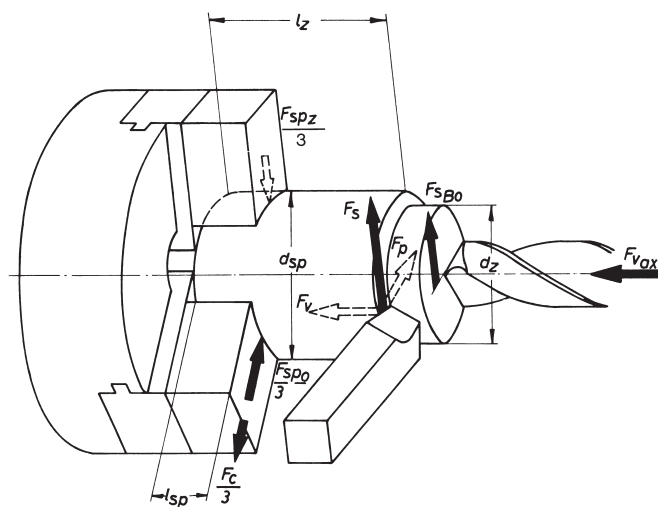
Progress in machining techniques has made it necessary for safety reasons not only to determine the **necessary gripping force** but also to know and consider its change with increasing angular speed.

The forces and moments generated by the machining operation must be properly absorbed and transmitted by the chuck. The chuck accomplishes this task mainly by **producing a gripping force**:

This gripping force is the arithmetic sum of the radial forces exerted on the workpiece by the jaws. The initial gripping force  $F_{spo}$  produced when the chuck is stationary can be measured at any time and is therefore control-lable. (Denoted by 'total gripping force' in the gripping force / operating power diagrams).

The figures given in the catalogue refer only to chucks that are fully and correctly lubricated and in a properly serviced condition. Many factors act on the clamping point during any machining operation. A precise specification of these factors in the form of universally applicable tables is not possible in this context.

In most cases it is sufficient in practice to use a simplified formula containing the fundamental determining factors (crude determination).



- $F_s$  = Main cutting force on radially applied tool
- $F_{sBo}$  = Cutting force on axially applied tool (drill)
- $F_{vax}$  = Feeding force on axially applied tool
- $F_{spz}$  = Required total gripping force (without considering the effects of angular speed)
- $F_c$  = Centrifugal force of the jaws
- $F_{po}$  = Loss of gripping force (see gripping force/speed diagram of each chuck Typee)
- $F_{spo}$  = (Total) initial gripping force with the chuck stationary
- $l_z$  = Distance between machining and clamping points
- $d_z$  = Machining diameter
- $d_{sp}$  = Chucking diameter
- $l_{sp}$  = Chucking length

# Power-operated clamping devices

## A Turning

l) Calculating the required gripping force  $F_{spz}$

The gripping force required depends on the Type of work to be performed.

**The cutting force on the turning tool has three basic components:**

Main cutting force  $F_s$  - feeding force  $F_v$  - passive force (static force)  $F_p$ .

During turning, the feeding force  $F_v$  and the passive force (static force)  $F_p$  are mainly absorbed by the jaw faces in contact with the seated workpiece. The remaining main cutting force produces a moment ( $F_s \times d_z/2$ ) which must be absorbed by the chuck and transmitted by friction at the clamping point.

**The moment produced by the main cutting force during turning determines the gripping force required:**

$$F_{spz} = \frac{F_s \cdot S_z}{\mu_{sp}} \cdot \frac{d_z}{d_{sp}} \quad (1)$$

where:

$F_{spz}$  = gripping force required for a specific job with the chuck stationary

$F_s$  = main cutting force

chucking ratio  $\frac{d_z}{d_{sp}} = \frac{\text{machining diameter}}{\text{chucking}}$   
 $\mu_{sp}$  = cucking coefficient (friction between jaw and workpiece)  
 $S_z$  = safety factor

The feeding force and passive components,  $F_v$  and  $F_p$ , are not included in this formula. If necessary for extreme conditions, they are included in the safety factor  $S_z$ .

The **main cutting force  $F_s$**  is calculated from feed, depth of cut and material.

where:

$s$  = feed, mm/rev.

$t$  = depth of cut, mm

$k_c$  = specific cutting force, kN/mm<sup>2</sup>

$$F_s = s \cdot t \cdot k_c \quad (2)$$

The product  $s \times t$  (feed.depth of cut) = chip cross-section (can be obtained from Table 1).

**Determining the chip cross section [mm<sup>2</sup>] Table 1**

| Feed (mm) | Depth of cut t (mm) |      |      |      |      |      |      |       |      |      |
|-----------|---------------------|------|------|------|------|------|------|-------|------|------|
|           | 2                   | 3    | 4    | 5    | 6    | 7    | 8    | 9     | 10   | 12   |
| 0,16      |                     |      |      | 0,8  | 0,96 | 1,12 | 1,28 | 1,44  | 1,6  | 1,92 |
| 0,20      |                     |      | 0,8  | 1,0  | 1,2  | 1,4  | 1,6  | 1,8   | 2,0  | 2,4  |
| 0,25      |                     | 0,75 | 1,0  | 1,25 | 1,5  | 1,75 | 2,0  | 2,25  | 2,5  | 3,0  |
| 0,32      | 0,64                | 0,96 | 1,28 | 1,6  | 1,96 | 2,24 | 2,56 | 2,88  | 3,2  | 3,84 |
| 0,40      | 0,8                 | 1,2  | 1,6  | 2,0  | 2,4  | 2,8  | 3,2  | 3,6   | 4,0  | 4,8  |
| 0,50      | 1,0                 | 1,5  | 2,0  | 2,5  | 3,0  | 3,5  | 4,0  | 4,5   | 5,0  | 6,0  |
| 0,63      | 1,26                | 1,89 | 2,52 | 3,15 | 3,78 | 4,41 | 5,04 | 5,67  | 6,3  | 7,56 |
| 0,80      | 1,6                 | 2,4  | 3,2  | 4,0  | 4,8  | 5,6  | 6,4  | 7,2   | 8,0  | 9,6  |
| 1,0       | 2,0                 | 3,0  | 4,0  | 5,0  | 6,0  | 7,0  | 8,0  | 9,0   | 10,0 | 12,0 |
| 1,25      | 2,5                 | 3,75 | 5,0  | 6,25 | 7,5  | 8,75 | 10,0 | 11,25 | 12,5 | 15,0 |
| 1,60      | 3,2                 | 4,8  | 6,4  | 8,0  | 9,6  | 11,2 | 12,8 | 14,4  | 16,0 | 19,2 |

The specific cutting force  $k_c$  as a function of feed can be obtained from Table 2.

# Power-operated clamping devices

**Specific cutting force  $k_c$  [kN/mm<sup>2</sup>] Table 2**

| Specific cutting force $k_c$ at feed $s$ and a setting angle of 45° |                   |                                     |               |      |      |      |      |      |
|---------------------------------------------------------------------|-------------------|-------------------------------------|---------------|------|------|------|------|------|
| Material                                                            |                   | Strength<br>B<br>kN/mm <sup>2</sup> | Feed $s$ [mm] |      |      |      |      |      |
|                                                                     |                   |                                     | 0,16          | 0,25 | 0,4  | 0,63 | 1,0  | 1,6  |
| Steels                                                              | St 42             | sino 0,50                           | 2,60          | 2,40 | 2,20 | 2,05 | 1,90 | 1,80 |
|                                                                     | St 50             | 0,52                                | 3,50          | 3,10 | 2,75 | 2,45 | 2,15 | 1,95 |
|                                                                     | St 60             | 0,62                                | 3,05          | 2,80 | 2,60 | 2,40 | 2,20 | 2,05 |
|                                                                     | C 45              | 0,67                                |               |      |      |      |      |      |
|                                                                     | C 60              | 0,77                                |               |      |      |      |      |      |
|                                                                     | St 70             | 0,72                                | 4,35          | 3,80 | 3,30 | 2,90 | 2,50 | 2,20 |
|                                                                     | 18 CrNi 6         | 0,63                                |               |      |      |      |      |      |
|                                                                     | 42 CrMo 4         | 0,73                                |               | 3,90 | 3,45 | 3,10 | 2,75 | 2,45 |
|                                                                     | 16MnCr5           | 0,77                                | 3,75          | 3,30 | 2,95 | 2,60 | 2,30 | 2,05 |
|                                                                     | Mn, CrNi          | 0,85-1,00                           | 3,70          | 3,40 | 3,10 | 2,80 | 2,55 | 2,35 |
| Cast iron materials                                                 | Mn-austenitic st. |                                     | 5,40          | 4,90 | 4,40 | 4,00 | 3,60 | 3,30 |
|                                                                     | St 42             | 0,30-0,50                           | 2,30          | 2,10 | 1,95 | 1,80 | 1,70 | 1,60 |
|                                                                     | St 42             | 0,50-0,70                           | 2,55          | 2,35 | 2,20 | 2,05 | 1,90 | 1,80 |
|                                                                     | St 42             | HB 2,00                             | 1,50          | 1,35 | 1,20 | 1,10 | 1,00 | 0,90 |
|                                                                     | St 42             | HB 2,00-2,50                        | 2,05          | 1,80 | 1,60 | 1,45 | 1,30 | 1,15 |
| NE-ferrous metals                                                   | Cast bronze       |                                     | 2,55          | 2,35 | 2,20 | 2,05 | 1,90 | 1,80 |
|                                                                     | Gunmetal          |                                     | 1,10          | 1,00 | 0,90 | 0,80 | 0,70 | 0,65 |
|                                                                     | Brass             | HB 0,80-1,20                        | 1,20          | 1,10 | 1,00 | 0,90 | 0,80 | 0,75 |
|                                                                     | Cast alumin.      | 0,30-0,422,60                       | 1,10          | 1,00 | 0,90 | 0,80 | 0,70 | 0,65 |

The chucking ratio  $\frac{d_z}{d_{sp}}$  can either be determined from the specified working conditions or obtained from Table 3.

**Chucking ratio Table 3**

| Depth of cut-Ø $d_z$ [mm] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Feed-Ø $d_{sp}$ (mm)      | 20   | 40   | 60   | 80   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 500  | 600  | 700  | 800 |
| 20                        | 1,0  | 2,0  | 3,0  | 4,0  |      |      |      |      |      |      |      |      |      |      |     |
| 40                        | 0,5  | 1,0  | 1,5  | 2,0  | 2,5  | 3,8  |      |      |      |      |      |      |      |      |     |
| 60                        | 0,33 | 0,67 | 1,0  | 1,3  | 1,7  | 2,5  | 3,3  | 4,2  |      |      |      |      |      |      |     |
| 80                        | 0,25 | 0,5  | 0,75 | 1,0  | 1,3  | 1,9  | 2,5  | 3,1  | 3,8  | 4,4  |      |      |      |      |     |
| 100                       | 0,2  | 0,4  | 0,6  | 0,8  | 1,0  | 1,5  | 2,0  | 2,5  | 3,0  | 3,5  | 4,0  |      |      |      |     |
| 150                       | 0,13 | 0,27 | 0,4  | 0,53 | 0,67 | 1,0  | 1,3  | 1,7  | 2,0  | 1,3  | 2,7  | 3,3  | 4,0  |      |     |
| 200                       |      | 0,2  | 0,3  | 0,4  | 0,5  | 0,75 | 1,0  | 1,3  | 1,5  | 1,8  | 2,0  | 2,5  | 3,0  | 3,5  | 4,0 |
| 250                       |      | 0,16 | 0,24 | 0,32 | 0,4  | 0,6  | 0,8  | 1,0  | 1,2  | 1,4  | 1,6  | 2,0  | 2,4  | 2,8  | 3,2 |
| 300                       |      |      | 0,2  | 0,27 | 0,33 | 0,5  | 0,67 | 0,83 | 1,0  | 1,2  | 1,3  | 1,7  | 2,0  | 2,3  | 2,7 |
| 350                       |      |      | 0,17 | 0,23 | 0,29 | 0,43 | 0,57 | 0,72 | 0,86 | 1,0  | 1,1  | 1,4  | 1,7  | 2,0  | 2,3 |
| 400                       |      |      |      | 0,2  | 0,25 | 0,38 | 0,5  | 0,62 | 0,75 | 0,87 | 1,0  | 1,3  | 1,5  | 1,8  | 2,0 |
| 500                       |      |      |      | 0,16 | 0,2  | 0,3  | 0,4  | 0,5  | 0,6  | 0,7  | 0,8  | 1,0  | 1,2  | 1,4  | 1,6 |
| 600                       |      |      |      |      | 0,17 | 0,25 | 0,33 | 0,42 | 0,5  | 0,58 | 0,67 | 0,83 | 1,0  | 1,2  | 1,3 |
| 700                       |      |      |      |      |      | 0,21 | 0,29 | 0,36 | 0,43 | 0,5  | 0,57 | 0,71 | 0,86 | 1,0  | 1,1 |
| 800                       |      |      |      |      |      | 0,19 | 0,25 | 0,31 | 0,37 | 0,44 | 0,5  | 0,62 | 0,75 | 0,87 | 1,0 |

The chucking coefficient  $\mu_{sp}$  accounts for the friction existing between the gripping surface of the jaws and the workpiece in the zone of contact. It is influenced by

- the pattern of the gripping surfaces of the jaws
- the surface quality of the workpiece
- the material.

The chucking coefficient can be obtained from Table 4.

Note:

Forces are more efficiently transmitted by a snug fit than by edge or saddle-Type seats.

**Chucking coefficient  $\mu_{sp}$  for steel parts Table 4**

| Surface workpiece              | Smooth                                                    | Gripping surface of jaws<br>Diamond style | Serrated |
|--------------------------------|-----------------------------------------------------------|-------------------------------------------|----------|
| smooth machine finish ground   | 0,07                                                      | 0,12                                      | 0,20     |
| rough to medium machine finish | 0,10                                                      | 0,20                                      | 0,35     |
| unmachined                     | 0,15                                                      | 0,30                                      | 0,45     |
| Corrections:                   | Al, alloy = 0,95<br>Brass = 0,90<br>Gray cast iron = 0,80 |                                           |          |

# Power-operated clamping devices

## Safety factor $S_z$

The magnitude of the safety factor  $S_z$  depends on the degree of accuracy with which the influencing parameters, such as load, chucking coefficient etc., can be determined and on the degree of safety required. It should be  $\geq 2$  wherever possible.

## Safety factor $S_z$ (approximate)

Table 5

| Influencing parameters                                                                                                                                                                                                                                                 | Safety factor $S_z$ |                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------|
|                                                                                                                                                                                                                                                                        | New chucks          | Older chucks serviced regularly |
| a) overhung chucking $l_z \leq d_{sp}$<br>b) no radial support from tailstock<br>c) tool applied radially<br>d) no axial seating of workpiece against jaws<br>e) ratio: chucking length to distance between cutting and clamping points<br>$\frac{l_z}{l_{sp}} \leq 3$ | $\geq 2.0$          | $\geq 2.4$                      |
| $\frac{l_z}{l_{sp}} \geq 3 \leq 6$                                                                                                                                                                                                                                     | $\geq 4.0^*$        | $\geq 4.8^*$                    |

\* Lower safety factors can be applied if the workpiece is supported in the tailstock or axially seated against the jaws.

Superimpositions of alternating forces are neglected because their influence is very small in comparison with the total gripping force required.

The safety factors so determined are applicable if the following requirements are met:  
Chuck in perfect condition, no damage, adequately lubricated (operating instructions followed to the letter).

No allowance has been made for the following loads acting on the chuck:  
a) Unbalanced forces and moments produced by unsymmetrical workpieces  
b) Weight of workpiece

For a precise calculation of the gripping force required for a given job, use VDI Recommendation 3106. Available from:  
Beuth-Verlag GmbH, Kamekestraße 8, D-50672 Köln, Germany.

## II)

At high speeds, the gripping force of the rotating lathe chuck is greatly influenced by the centrifugal forces of the jaws. These forces must be taken into account when determining the initial gripping force  $F_{spo}$

The applicable formula is:

$$F_{spo} = S_{sp} \times (F_{spz} \pm F_c)$$

The + sign applies to external gripping.  
The - sign applies to internal gripping.

# Power-operated clamping devices

## Where:

$F_c$  = experimentally determined total centrifugal force of the chuck jaws obtained from the gripping forcespeed diagram. The gripping force curves refer to the hard, stepped jaws of the chuck.

$S_{sp}$  = safety factor for the initial gripping force in accordance with VDI Recommendation 3106  $\geq 1,5$

If extremely heavy top jaws (special jaws) are used, the centrifugal forces  $F_c$  can be calculated using VDI Recommendation 3106.

## III)

The operating power bears a given relationship to the total gripping force, depending on the Type of chuck employed. The values for the operating power can be obtained from the gripping force/operating power diagram.

In special cases where the centrifugal forces of the jaws are very high in comparison with the initial gripping force and power chucks with standard top jaws cannot be used, certain operations can be done with aluminium top jaws of special strength.

## Calculation (example)

### Having:

#### 1. Workpiece and machining data:

|                                 |          |                          |
|---------------------------------|----------|--------------------------|
| Material                        |          | = C 45                   |
| Chuck diameter:                 | $d_{sp}$ | = 60 mm Ø                |
| (roughed)                       |          |                          |
| Machining diameter:             | $d_z$    | = 20 mm Ø                |
| Feed:                           | s        | = 0,5 mm                 |
| Depth of cut:                   | t        | = 5 mm                   |
| Distance cutting/clamp. points: | $l_z$    | = 50 mm                  |
| Speed:                          | n        | = 3000 min <sup>-1</sup> |

#### 2. Chuck data:

KFD 200 power chuck

Jaws with diamond style gripping surface Condition of chuck: new (no special influencing parameters)

External gripping with UB-538-04 top jaws at mid-position of gripping range.

### Find:

- 1) Required gripping force  $F_{spz}$  = total gripping force required (without the effect of angular speed)
- 2) Initial gripping force  $F_{spo}$  = (total) initial gripping force with the chuck stationary
- 3) Operating power

# Power-operated clamping devices

## Solution

### 1) Main cutting force (Formula 2)

$s \cdot t$  = from Table 1  
 $k_C$  = from Table 2

$$F_s = s \cdot t \cdot k_C = 0,5 \cdot 5 \cdot 2,50 = 6,25 \text{ kN}$$

### 2) Required gripping force (Formula 1)

$$F_{spz} = \frac{F_s \cdot S_z}{\mu_{sp}} \cdot \frac{d_z}{d_{sp}}$$

$$= \frac{6,25 \text{ kN} \cdot 2,0 \cdot 0,33}{0,20} \approx 21,00 \text{ kN}$$

**Safety factor**  $S_z$  = from Table 5  
**Chucking coeff.**  $\mu_{sp}$  = from Table 4

**Chucking ratio**  $\frac{d_z}{d_{sp}}$  = from Table 3

### 3) Obtain the loss of the gripping force from the gripping force speed diagram for KFD 200.

At a speed of 3000 rpm:  $F_c = 18 \text{ kN}$ . See diagram below.

### 4) Initial gripping force $F_{spo} = S_{sp} \cdot (F_{spz} + F_c)$ (Formula 3) = $1,5 \cdot (21 \text{ kN} + 18 \text{ kN}) = 58,50 \text{ kN}$

$S_{sp}$  determined in accordance with VDI Recommendation 3106  $F_c$  obtained from diagram below

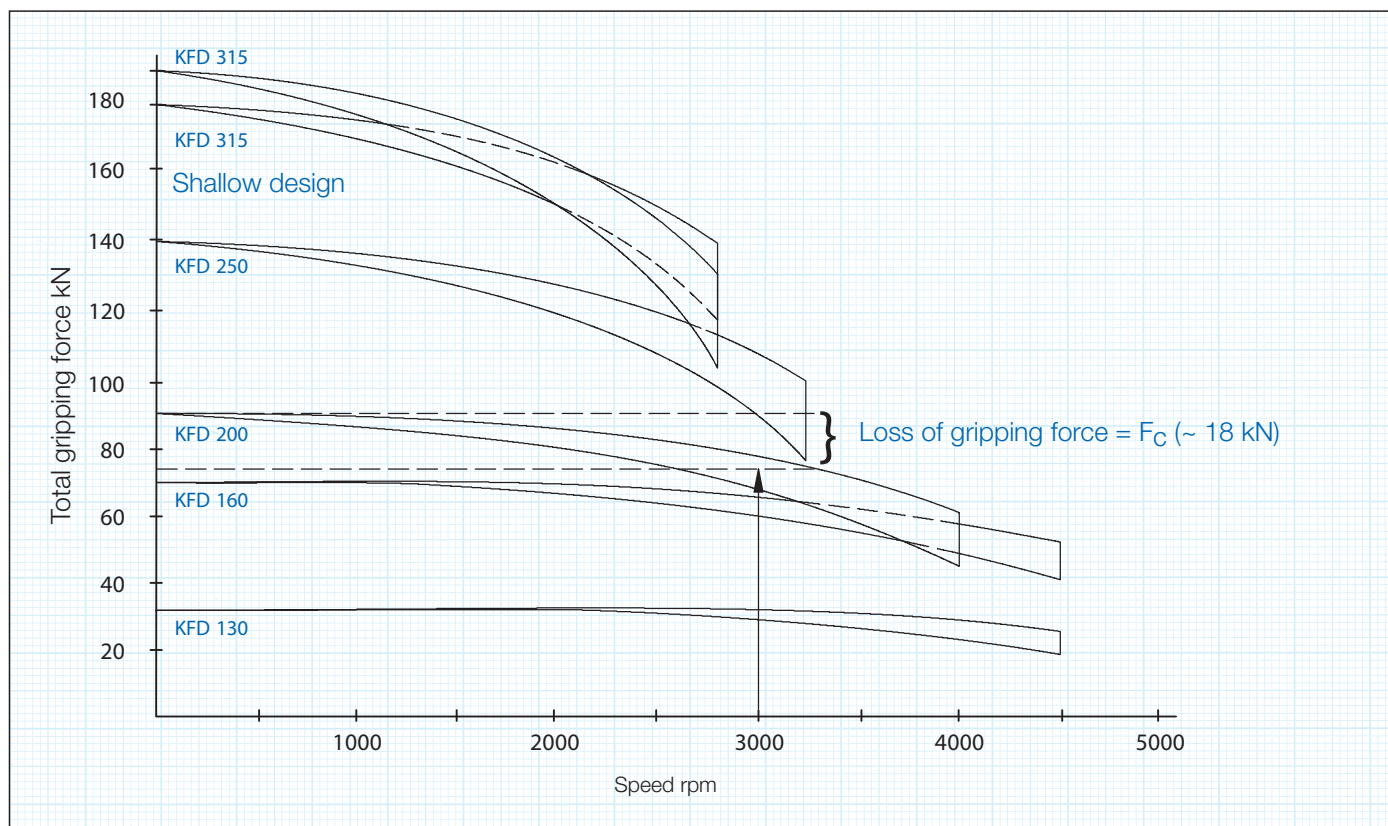
### 5) Obtain operating power from "gripping force/operating power" diagram for KFD 200. For a gripping force of 58,50 kN the operating power is ~ 29,00 kW (next page)

## Gripping force/speed diagram for KFD 3-jaw chucks

upper curve:  
min. centrifugal  
force of top jaw

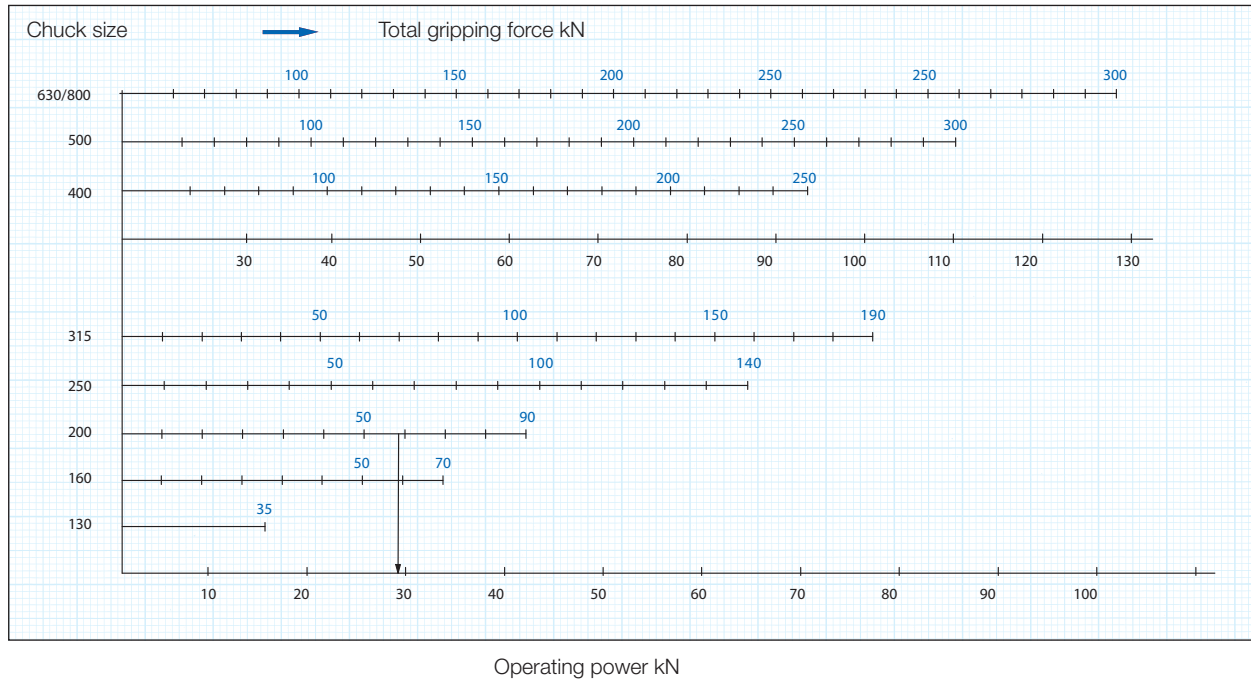


lower curve:  
max. centrifugal  
force of top jaw



# Power-operated clamping devices

## Gripping force/operating power diagram KFD 3-jaw chuck



### B. Drilling

1. Drilling in solid material (Top lip twist drill, point angle  $\geq 120^\circ$ )

#### I)

The gripping force required is determined by the Type of work to be performed. The calculation described below applies to freely chucked work, i. e. workpieces which are not axially seated against the jaws. In this situation the components  $F_{sBo}$  (cutting force) and  $F_{vax}$  (feeding force) acting on the workpiece give the resultant  $F_R$  to determine the gripping force.

The cutting force  $F_{sBo}$  can be calculated from

$$F_{sBo} = s \cdot t \cdot k_c \quad (4)$$

where:

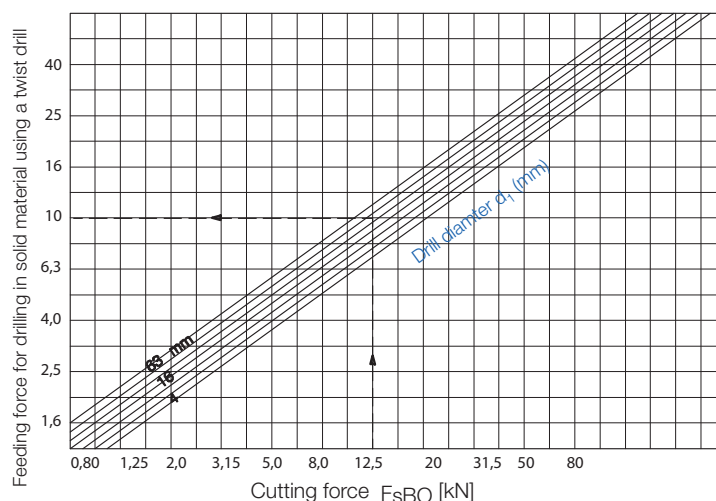
$s$  = feed, mm/rev.

$t$  = depth of cut, mm =  $\frac{\text{drill diameter}}{2}$

$k_c$  = specific cutting force kN/mm<sup>2</sup>

The feeding force  $F_{vax}$  bears a given relationship to the cutting force and can be directly obtained from Table 6.

### Feeding force $F_{vax}$ Table 6



# Power-operated clamping devices

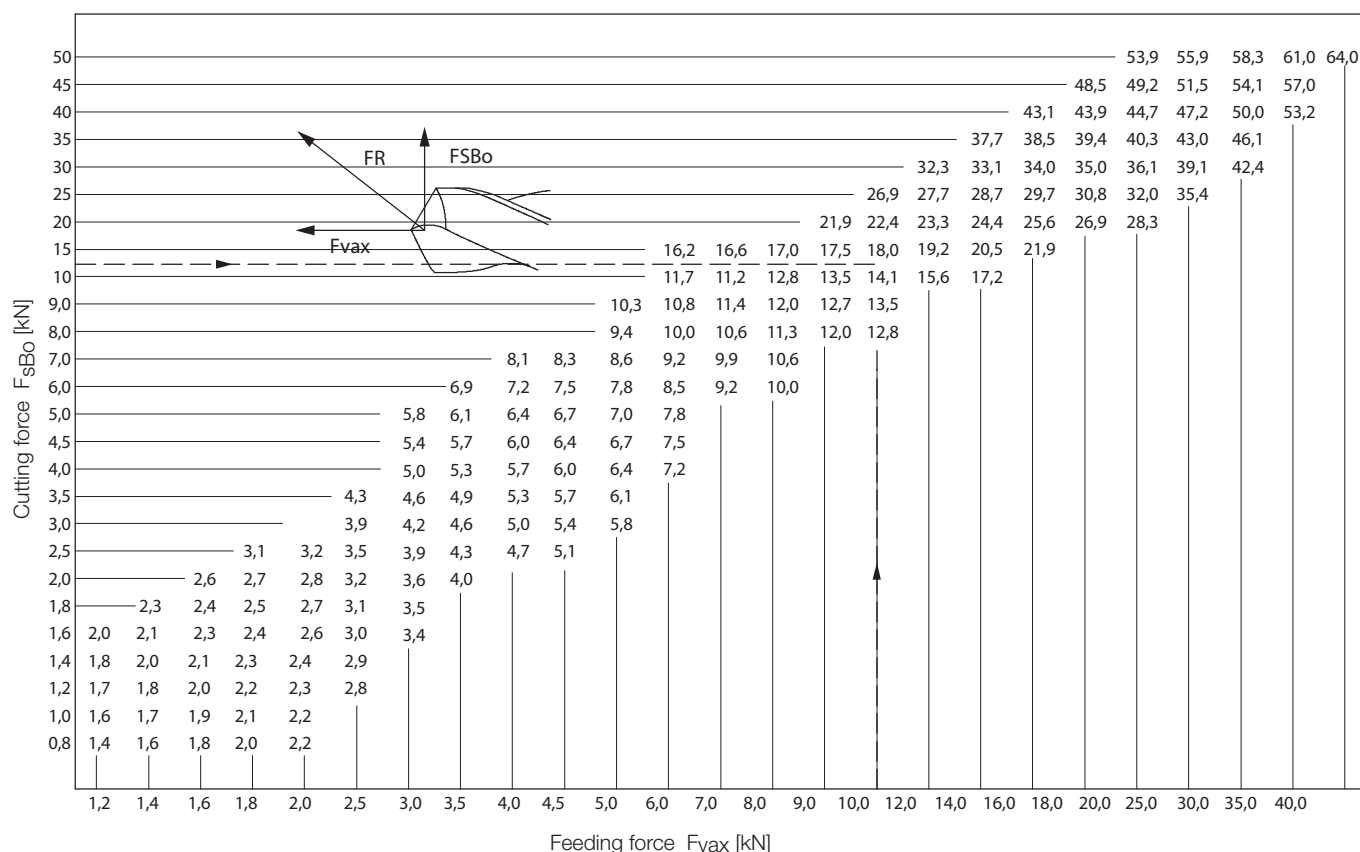
The two components  $F_{SBo}$  and  $F_{vax}$  give the resultant force  $F_R$

$$F_R = \sqrt{F_{SBo}^2 + F_{vax}^2}$$

The amount of the resultant force  $F_R$  can be obtained directly from Table 7. Intermediate values will have to be determined by interpolation.

## Resultant force $F_R$ KN

Table 7



Place resultant force  $F_R$  for drilling in solid material in the known formula for determining the required gripping force  $F_{spz}$ :

$$F_{spz} = \frac{F_R \cdot S_z}{\mu_{sp}} \cdot \frac{d_z}{d_{sp}}$$

where:

$F_{spz}$  = gripping force required for a given job with the chuck stationary.

$F_R$  = resultant force of cutting force and feeding force

Chucking ratio  $\frac{d_z}{d_{sp}} = \frac{\text{cutting dia.}}{\text{chucking dia.}}$  where  $d_z = \frac{\text{drill dia.}}{2}$

$\mu_{sp}$  = chucking coefficient (friction between jaw and workiece)

$S_z$  = safety factor

## II and III

Continue the calculation - from determination of the initial gripping force  $F_{spo}$  to determination of operating power and the pressure required - exactly as described in Section A) Turning, II) and III).

# Power-operated clamping devices

## Calculation (example):

### Having:

#### 1. Workpiece and machining data.

|                                  |   |                       |
|----------------------------------|---|-----------------------|
| Material                         | = | C 45                  |
| Chucking dia. $d_{sp}$ (roughed) | = | 60 mm                 |
| Drill dia. (in solid mat.)       | = | 30 mm                 |
| Feed $s$                         | = | 0,3 mm                |
| Depth of cut $t$                 | = | 15 mm                 |
| Speed $n$                        | = | 200 min <sup>-1</sup> |

#### 2. Chuck data

Power chuck KFD 200  
 Jaws with diamond style gripping surface  
 External gripping with UB 538-04 top jaws at mid position of gripping range  
 Chuck in new condition (no special influencing parameters)

### Find:

1. Required gripping force  $F_{spz}$
2. Initial gripping force  $F_{spo}$
3. Operating power

### Solution:

#### 1. Cutting force (Formula 4)

$F_{sBo} = s \cdot t \cdot k_c = 0,3 \cdot 15 \cdot 2,70 = 12,10 \text{ kN}$   
 $s \cdot t$  from Table 1 (or calculated)  
 $k_c$  from Table 2

#### 2. Required gripping force

$$F_{spz} = \frac{F_R \cdot S_z}{\mu_{sp}} \cdot \frac{d_z}{d_{sp}} = \frac{15,70 \cdot 2,0}{0,2} \cdot 0,25 = 39,25 \text{ kN}$$

Obtain resultant force  $F_R$  from Table 7 (after first obtaining  $F$ )

Chucking ratio  $\frac{d_z}{d_{sp}}$  from Table 3 (or calculated).

3. Check if any effective centrifugal forces act on the jaws at a speed of  $n = 200 \text{ min}^{-1}$ .  
 As this is not the case in this example, we have:
4. Initial gripping force  $F_{spo} = S_{sp} \cdot F_{spz} = 1,5 \cdot 39,25 \text{ kN}$   
 $S_{sp}$  from VDI recommendation 3106  $= 59,00 \text{ kN}$
5. Obtain operating power from the "gripping force/operating power" diagram for KFD 200.  
 For a gripping force of 59,00 kN the operating power is 29 kN
6. For boring (using a boring cutter) the calculation described under "A. Turning" applies analogously.

# The headquarters: our main plant in Sontheim/Brenz

The RÖHM main plant is located in Sontheim/Brenz. In this ultra-modern production facility comprising 41,000 m<sup>2</sup> optimum conditions have been achieved in order to solve the extensive range of discerning construction and production tasks making the company even better, faster and more efficient in the future.



Sontheim/Brenz

**Sontheim** | All national and international activities are planned and coordinated at the administrative headquarters in Sontheim. Thanks to the excellent infrastructure and transport routes, this location is ideal for a company relying on perfect product quality as well as maximum flexibility. Furthermore, the region around Sontheim offers another key basis for the success of our company: it is rich in quality awareness and motivated employees with the result that we are ideally prepared for the challenges of the future. The main plant uniquely unites mass production, serial production and customised individual production under a single roof.

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# Key locations for the company: Dillingen and St. Georgen

Such strong growth on the part of the RÖHM Group is also obviously associated with higher requirements on development and production capacities. The demands of today and tomorrow can be complied with the two facilities in Dillingen and St. Georgen.



Dillingen/Danube



St. Georgen

**Plant Dillingen/Danube** | This branch plant in Dillingen was put into operation by the RÖHM Group as early as 1953. Thanks to extremely positive development, the plant is subject to constant expansion and modernisation. For this reason, new modern production facilities were built in 1982 and 1991. In 2007 RÖHM built a new production hall for two portal turning and milling machines. This enables machining of workpieces up to 4 metres in length which will secure a leading market position for RÖHM in the future. More than 300 employees are primarily involved in engineering and manufacturing lathechucks, machine vices and special clamping equipment for turning and milling machinery as well as for machining centres.

**Engineering and sales department St. Georgen** | Apart from standard mandrels, tailor-made solutions for a wide variety of requirements are also manufactured here in this small but accomplished high-tech forge. RÖHM retains mechanical or power-operated mandrels, sliding jaw mandrels and hydraulic mandrels for its customers for tensioning workpieces in drill holes or interior contours.

# Always close to our customers. With locations all around the world.



Customer orientation at RÖHM has less to do with marketing than with attitude. We consider customer proximity as an intensive dialogue with our partners as well as direct presence on key international markets.



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# General Terms of Sale and Delivery

## § 1 Offer, conclusion of contract and contractual contents

1. Our Terms of Sale shall apply exclusively; we do not recognise contradictory terms and conditions or terms and conditions which deviate from our Terms of Sale unless we have explicitly approved their validity in writing. Our Terms of Sale shall also apply if we carry out the delivery to the buyer without reservation in the knowledge of contradictory terms and conditions of the buyer or terms and conditions which deviate from our Terms of Sale.
2. Our Terms of Sale shall only apply towards an entrepreneur within the meaning of Section 14 BGB [German Civil Code].
3. Our General Service Terms shall apply with precedence over these Terms of Sale in the respective valid version in cases, which comprise the service offer of RÖHM GmbH.
4. Our offers are always to be understood as invitatio ad offerendum and are therefore without obligation insofar as they have not explicitly been described as binding. The contract shall only be concluded with our written confirmation and in line with its contents and – if a written confirmation is missing – by the service/delivery. If a delivery/service is carried out immediately without a confirmation then the invoice shall at the same time be deemed as an order confirmation.
5. Costs for the production of drawings for special constructions are to be borne by the orderer insofar as the offer does not lead to an order for reasons, for which we are not responsible.
6. All details concerning weights, dimensions, services and technical data, which are contained in our printed material, catalogues, price lists or in other contractual documents, merely serve for purposes of information and are only binding insofar as they are explicitly described as binding.
7. We reserve the right to make construction and form changes to the object of contract insofar as no changes are made hereto, which are deemed unreasonable for the orderer.
8. The documentation consists of the compilation drawing, the BOM with marking of the parts subject to wear and tear and spare parts as well as assembly instructions upon request. Respectively in German and/or, upon request, in English. This free documentation will be supplied in a digital form. The PDF format shall apply to drawings, BOMs and texts. Any scope of documentation beyond this is liable to costs respectively requires a special agreement. The documents may not be reproduced in full or in part, not made accessible to third parties or used for any other purpose apart from that for which they were handed over to the customer without our prior written authorization.
9. The corresponding measurement methods for tests, with which certain temperatures, times and other measured or control values should apply, must be stipulated before start of delivery and recognised by both parties. If no stipulation is made the measurement methods usually applied by RÖHM shall apply, we shall provide the details thereof upon request.
10. Samples will only be supplied against payment and owing to a separately placed order.
11. Assurances, collateral agreements and amendments to the contract require a written form in order to be valid. This requirement cannot be waived orally.
12. Placed orders are irrevocable unless the supplier has approved the revocation in writing.
13. In case of export business the delivery is carried out at the conditions agreed on the order confirmation, the international regulations for the interpretation of customary contractual forms shall apply in addition (incoterms 2010 of the International Chamber of Commerce, respective valid status).
14. Our General Business Terms shall apply to the RÖHM online shop with the following supplementations:
  - a) The offer on the part of the customer is submitted binding as soon as the customer orders the products in the shopping basket by using the function „binding order“.
  - b) A purchase in the online shop is only possible if the customer actively agrees to our General Business Terms.
  - c) Mistakes and errors with regard to the goods availability, prices and other details and data excepted. Diagrams in the online shop are merely for the purpose of illustration respectively as visual aids; the description is binding.
  - d) We will inform the customer if the product ordered by the customer is temporarily or permanently not available.
15. Our „product information“, technical information leaflets as well as other product-specific publications shall apply in addition to the General Business Terms. These are always to be compiled with in their current version.

## § 2 Prices

1. In the absence of special written agreements the prices in the Federal Republic of Germany shall apply „carriage paid“ recipient plus the statutory value added tax. With export business the object of delivery shall be deemed as sold „ex works“ if nothing is determined in the contract concerning the type of sale. A processing fee of EUR 1.00 will be charged for individual orders with a goods value of less than EUR 150.00 net, a processing fee of EUR 30.00 for orders with a goods value of less than EUR 50.00 net respectively plus the applicable rate of value added tax. This shall apply to deliveries within the domestic country and overseas. At the customer's request the goods can be delivered to an alternative shipping address against a logistics fee in the amount of EUR 10.00.
2. We would like to point out that we will only carry out the shipment at the customer's request. This shall have no effect on the regulations according to Section 5.
3. We shall charge the prices valid upon conclusion of the contract, which are based on the cost factors which are valid at this time. Should these cost factors (in particular material, wages, energy, etc.) change between conclusion of the contract and the agreed delivery time then we are entitled to make a corresponding change to the prices. In case of export business the supplier is entitled to terminate the contract extraordinarily with regard to the part of the order that has not yet been completed or to adjust the prices for this accordingly in the event of a substantial devaluation in the currency, in which the order is concluded.
4. In case of conclusion ex works the goods will be conveyed at the costs and risk of the orderer. With all other consignments the provisions stipulated in the incoterms 2010, respective valid status, will apply with regard to insurance and the assumption of risks.
5. We will inform the buyer of our production quantity for parts/products, which are produced especially according to the buyer's requests. The buyer undertakes to purchase the quantities confirmed to him.
6. Excess and shortfalls in deliveries of up to 5 %, with special tools up to 10 %, at least however 2 pieces, are permitted and do not substantiate any quality defects. The respective delivery will be charged.

## § 3 Terms of payment

1. In the absence of a special agreement the payment is to be made without any deduction free paying agent within 10 days after the invoice date – also with partial deliveries.
2. In case of default of payment interest will be charged in the amount of the credit costs charged by banks, at least however interest in the amount of 9 % above the respective base lending rate of the ECB.
3. In case of export business the payments are to be made in line with the agreed terms of payment.
4. Costs of the payment transactions, in particular bank charges for overseas transfers to us, shall principally be for the expense of the customer.

## § 4 Delivery time

1. The start of the delivery deadline stated by us presumes the clarification of all technical questions. Delivery dates stated by us are – insofar as not explicitly agreed or described as binding – non-binding and shall merely represent an expected delivery date.
2. The compliance with our delivery obligation further presumes the timely and proper fulfilment of the buyer's obligations, in particular the compliance with the agreed terms of payment. The right is reserved to the plea of the unfulfilled contract. This right shall also consist of obligations from previous deliveries which have not been satisfied in full.
3. The delivery deadline shall begin with the sending of the order confirmation, however not before the provision of the documents, permit, releases, etc., which are to be procured by the orderer, as well as not before the receipt of the agreed down payment.
4. If a binding delivery date has been agreed then the supplier also has to deliver within the deadline. The delivery deadline shall have been adhered to if the object of delivery has left the plant by the time it expires or notification has been given that the object is ready for delivery, the right is reserved to the timely and correct self-delivery. If the orderer changes his order with regard to parts of the delivery then the delivery deadline shall only begin to apply new again with the confirmation of the change.
5. Force majeure, war, civil commotion, strike, lock-out or measures of authorities, no matter for what reason, which oppose a delivery, as well as deficiencies of raw materials, of transport means as well as theft – also at the sub-suppliers – shall release the supplier from the obligation to deliver within the agreed deadline. The orderer is to be notified immediately of the occurrence of the event and of the expected implications.
6. Deliveries before expiry of the delivery time and in reasonable parts are permitted.
7. The adherence to the delivery time presumes the fulfilment of the orderer's contractual obligations.
8. The regulations of Subclause 10 shall apply in the event of the delay in delivery or impossibility.

## § 5 Passing of risk and acceptance

1. The risk shall pass to the orderer by no later than with the despatch of the delivered parts also if partial deliveries are made or we have taken over other services e.g. the shipping costs or delivery to the location and installation.
2. At the orderer's request the shipment shall be insured by us against theft, damages caused by breakage, transport, fire and water and other insurable risks at his costs.
3. If the shipment is delayed as a result of circumstances, for which the orderer is responsible, then the risk shall pass to the orderer from the day upon which the goods are ready for shipment; however we are obliged to procure the insurances, which he requests, at the request and costs of the orderer.
4. Delivered objects are, even if they feature insignificant features, to be accepted by the orderer irrespective of the rights from Section 8.

## § 6 Delay in acceptance, order on call

1. If the orderer does not accept the object of contract within the deadline we are entitled to set him a reasonable final deadline, to dispose otherwise over the object after its expiry and to supply the orderer with a reasonably extended deadline. Our rights to cancel the contract under the pre-requisites of Section 326 BGB and to request damages owing to the non-fulfilment shall remain unaffected hereby. If we request damages owing to non-fulfilment we can request 40 % of the agreed price plus value added tax as compensation unless the orderer proves less damages. We reserve the right to assert higher actual damages.
2. Orders, which are confirmed by us on call, must – insofar as nothing special has been agreed – be accepted by no later than within one year from the order date. The same shall apply in case of date reservations or sustainable „on call position“. Subclause 6.1 shall apply accordingly in case the goods are not called within the stated deadline.

## § 7 Reservation of title

1. The objects of the deliveries (reserved goods) shall remain our property until the fulfilment of all claims to which we are entitled against the buyer from the business relationship. Insofar as the value of all security rights, to which we are entitled against the buyer, exceed the amount of all secured claims by more than 10 %, we will release a corresponding part of the security rights at the buyer's request.
2. During the existence of the reservation of title the buyer is prohibited from a pledge or assignment as collateral and the resale only permitted for resellers in the customary course of business and only under the condition that the reseller receives a payment from his customer or stipulates the reservation that the property shall only pass to the customer when he has satisfied his payment obligations.
3. In case of attachments, seizures or other disposals or interventions of third parties the buyer has to inform us immediately so that we can file an action according to Section 771 ZPO [German Code of Civil Procedure]. Insofar as the third party is not in the position to reimburse us the court and out-of-court costs of an action according to Section 771 ZPO, the buyer will be liable for the loss incurred to us.
4. The buyer undertakes to treat the object of purchase with due care and attention; he is in particular obliged to sufficiently insure these at the value as new at his own costs against damages caused by fire, water and theft. Insofar as maintenance and inspection work is necessary the buyer must carry this out in time at his own costs.

# General Terms of Sale and Delivery

5. In case of breaches of duty by the buyer, in particular with default of payment we are entitled to cancellation and to take the goods back; the buyer is obliged to hand the goods over. The taking back of goods respectively the assertion of the reservation of title does not require any cancellation of the supplier; these acts or an attachment of the reserved goods by us shall not represent a cancellation of the contract unless we had explicitly declared this.

6. If the buyer has resold the object of purchase in the ordinary course of business then he shall hereby now already assign all claims to us in the amount of the final invoice amount (including value added tax) of our claim, to which he is entitled from the resale against his buyers or third parties, irrespective of whether the object of purchase has been resold without or after processing. The buyer shall also remain authorized to collect this claim after the assignment. Our authorization to collect the claim ourselves shall remain unaffected hereby. However, we undertake not to collect the claim as long as the buyer satisfies his payment obligations from the collected proceedings, is not in default of payment and in particular no application has been filed for the opening of insolvency proceedings or payments have been suspended. If this is however the case we can request that the buyer announces the assigned claims and their debtors to us, provides us all details which are necessary for the collection, hands over the associated documents and informs the debtors (third parties) of the assignment.

7. The processing or conversion of the object of purchase by the buyer is always carried out on our behalf. If the object of purchase is processed with other objects, which do not belong to us, then we shall acquire the co-ownership to the new object in the ratio of the value of the object of purchase (end invoice amount, including value added tax) to the other processed objects at the time of the processing. Incidentally, the same shall apply to the object produced by processing as to the object of purchase delivered under reservation.

8. If the object of purchase is inseparably mixed with other objects that do not belong to us then we shall acquire the co-ownership to the new object in the ratio of the value of the object of purchase (end invoice amount, including value added tax) to the other mixed objects at the time of the mixing. If the mixing is carried out to the extent that the object of the buyer is to be seen as the main object then it shall be deemed as agreed that the buyer assigns us the pro rata co-ownership. The buyer shall store the thus produced sole ownership or co-ownership on our behalf.

## **§ 8 Quality defects**

We shall be liable for quality defects as follows:

1. All those parts or services are to be subsequently improved free of charge at our choice, delivered or provided new, which – irrespective of the operating duration – feature a quality defect if this cause existed already at the time when the risk was passed.
2. Claims for quality defects shall become statute-barred in 12 months. The deadline will begin with the passing of the risk (Subclause 6).
3. The buyer has to report quality defects to us immediately in writing.
4. In case of reports of defects payments of the buyer may be withheld in a scope, which is in reasonable relation to the occurred quality defects. If the defect is unjustifiably reported we are entitled to request reimbursement of the expenses incurred to us by the buyer.
5. We are first of all always to be granted the opportunity for the subsequent fulfilment within a reasonable period of time.
6. If the subsequent fulfilment fails the buyer can – irrespective of possible claims for damages – cancel the contract or reduce the remuneration. The buyer can only request reimbursement for fruitless expenses if we are responsible for the defect owing to wilful intent or gross negligence.
7. Defects shall not exist with an only insignificant deviation from the agreed conditions, with an only insignificant impairment to the usability, with natural wear and tear or damages, which are caused after the risk has passed as a result of faulty or negligent treatment, excessive use, unsuitable operating equipment or owing to special external influences, which are not presumed according to the contract, as well as with software faults that cannot be reproduced. If improper changes or repair work is carried out by the buyer or by third parties then this and the thus incurred consequences shall not substantiate any defects either. The same shall apply if our stipulations concerning the handling and other instructions are not complied with and a proper maintenance is not carried out.
8. Claims of the buyer owing to the expenses, which are necessary for the purpose of the subsequent fulfilment, in particular transport, route, labour and material costs, are excluded if the expenses increase, because the object of the delivery has subsequently been taken to another location than the buyer's branch unless the transportation corresponds with its use as intended.
9. Statutory claims for recourse of the buyer against us shall only exist to the extent that the buyer has not reached any agreements with its buyer that go beyond the statutory claims for defects.
10. Subclause 9 shall apply to claims for damages. Further or other than claims regulated in this Subclause or in Subclause 9 owing to a quality defect are excluded.

## **§ 9 Industrial property rights and copyrights, defects of title**

Insofar as not otherwise agreed, we are obliged to merely provide the delivery in the country of the place of delivery free of industrial property rights and copyrights of third parties (hereinafter property rights). Insofar as a third party asserts justified claims owing to the infringement of property rights due to deliveries provided by us and used as per contract against the buyer, we shall be liable towards the buyer as follows within the deadline determined in Subclause 8.2:

1. We will, at our choice and at our costs, either obtain a right of use for the deliveries concerned, change these so that the property right is not infringed, or exchange these. If this is not possible for us at reasonable conditions, the buyer shall be entitled to the statutory rights to cancellation or reduction. The buyer can only request reimbursement for fruitless expenses if we are responsible for wilful intent or gross negligence. Our obligation to pay compensation is oriented to Subclause 10.
2. The afore-mentioned obligations shall only exist if the buyer informs us immediately in writing about the claims asserted by third parties, does not recognise an infringement and we reserve the right to all defence measures and settlement negotiations. If the buyer discontinues the use of the delivery for reasons to minimise damages or for other important reasons he undertakes to inform the third party that the discontinuation of the use is not associated with a recognition of an infringement of a property right.
3. Claims of the buyer are excluded insofar as he is responsible for the infringement of property right.

4. Claims of the buyer are further excluded insofar as the infringement of property right is caused by special stipulations of the buyer, due to an application that is not foreseeable for us or by the fact that the delivery is changed by the buyer or is used together with products not delivered by us.

5. In the event of infringements of property rights the provisions of Subclauses 8.4, 8.5 and 8.9 shall apply accordingly to the claims of the buyer regulated in Subclause 13.

6. Further or other claims of the buyer against us or our vicarious agents owing to a defect of title than those regulated in this Subclause 9 are excluded.

## **§ 10 Joint and several liability**

1. Claims of the buyer for damages – irrespective of the legal nature of the asserted claim – are excluded.
2. Excluded from this are:
  - a) Damages owing to the breach of essential contractual obligations. Deemed as essential are such contractual obligations, the fulfilment of which makes the proper execution of the contract possible at all and on the compliance with which the contractual partner may as a rule rely and depend on.
  - b) Damages from the injury to life, the body or the health if we are responsible for the breach of obligation.
  - c) For other damages, which are due to a wilful or grossly negligent breach of duty, whereby our breach of duty is deemed equivalent to that of our legal representatives or vicarious agents.
  - d) Liability according to the ProdHaftG [German Product Liability Act]
3. A change to the burden of proof for the disadvantage of the buyer is not associated with the afore-mentioned regulations.
4. Insofar as the liability for damages is excluded or limited against us, this shall also apply with regard to the personal liability for damages of our employees, our commercial agents and our vicarious agents.

## **§ 11 Obligations of the buyer to provide assistance**

1. Assistance services of the buyer, which are explicitly or tacitly agreed within the framework of the contract, shall be carried out without a special remuneration unless explicitly otherwise agreed.
2. The buyer is obliged to inform us about all facts in time, from which it can be derived that goods and products in stock in our company, which we have made available with regard to the production capacities reported to us, cannot be used or not used in full. If residual stocks remain the buyer shall take over the stocks and the, if applicable incurred destruction costs in the event of a premature change to its material scheduling. This shall also apply to products, with which we had to order minimum quantities on the part of our suppliers if we have informed the customer hereof in advance.
3. The buyer guarantees that the products supplied by him for processing are suitable for this purpose. We are not obliged to examine the products supplied by the buyer for the condition and the suitability for the further processing. Within the framework of ongoing business relationships as well as if an object for processing has initially been inspected, tested and released, the buyer undertakes to inform us of each product change without request in writing. In the case of regular processing of objects the buyer is further obliged to examine the object that is to be processed by us for deviations and changes for each change to the production conditions and in his company, in particular with the exchange of tools, machines or with the introduction of new production processes and to notify us of such changes and modifications in writing.
4. We do not have to examine the instructions of our buyers, the material selection or other regulations, which are made by our buyer, for their accuracy.
5. Therefore, the buyer has to examine all instructions, which he issues as well as the quality of the materials stipulated or made available to us for the compliance with the statutory and technical regulations.
6. If the buyer is in default with regard to his obligation for provision or to provide assistance after a written warning we are entitled to the statutory rights.
7. Goods may in each case only be carried out with the explicit consent of the supplier. The return must be carried out carriage paid, by stating the order number and delivery date in the original packaging. The goods have to be in the original condition, thus in an undamaged condition. We will charge 20 % of the goods value, at least however EUR 50.00 plus the applicable rate of value added tax for the processing work relating to the return. The supplier reserves the right, against proof, to charge a higher volume of work to the orderer in an individual case; the orderer is at liberty to prove less damages.

## **§ 12 Place of performance and place of jurisdiction/miscellaneous**

1. The place of performance and place of payment is the registered seat of our company in Sontheim/Brenz.
2. The law of the Federal Republic of Germany is to be exclusively applied to the contractual relationship. The application of the Convention of the United Nations of 11 April 1980 concerning Contracts for the International Sale of Goods (CISG „Law governing the sale of goods of Vienna“) is excluded.
3. With all disputes ensuing from the contractual relationship, if the orderer is a merchant, a legal entity under public law or a special fund under public law, the action is to be filed at the court that has jurisdiction for our headquarters. We are also entitled to file action at the headquarters of the orderer.
4. We store your data according to Section23 Federal Data Protection Act.

**RÖHM GmbH**

**89565 Sontheim (Germany)**

**Status: October 2015**

# General Service Terms (ASB) of RÖHM GmbH, Sontheim

## 1. Validity

1.1 These ASB form the basis for all business transactions with our customers, which refer to the repair or maintenance of the products manufactured or delivered by us insofar as these customers concern entrepreneurs within the meaning of Section 14 BGB [German Civil Code].

1.2 Contradictory, supplementary contractual terms and conditions of the customer or those which deviate from these ASB will not be recognised.

1.3 Within the framework of a regular business relationship these ASB will also be valid after the effective inclusion for the first time if we do not explicitly refer hereto in follow-up transactions.

1.4 Insofar as the ASB do not include any regulations, the General Terms of Sale and Delivery of RÖHM GmbH shall apply.

## 2. Offer and conclusion of the contract

2.1 Our offers are – insofar as not explicitly marked as binding – without obligation and merely to be understood as invitatio ad offerendum. The right is reserved to an interim sale.

2.2 Contracts with us will only be concluded with our written acceptance declaration or – if such is not carried out – by our delivery and service. Changes and supplementations to the contracts concluded with us require a written form.

2.3 If the object of maintenance or repair was not delivered by us then the customer has to point out existing industrial property rights with regard to the object if we are not responsible for any fault the customer shall indemnify us from possible claims of third parties from industrial property rights.

2.4 Insofar as we are responsible for negligence Par. 2.3 shall apply accordingly.

## 3. Contractual parts

The offer and the product list respectively available to us and the customer are a part of the contract.

## 4. Technical documents and plans

4.1 All rights to our offer documents as well as documents, which have been handed over, shall remain reserved.

4.2 The customer shall recognise our rights and will not reproduce the documents in full or in part, not make these accessible to third parties or use these for any other purpose than that for which they were handed over to him without our prior written authorization.

## 5. Scope of services, maintenance, condition of device, repair

5.1 Decisive for the scope of our delivery and service is our binding offer or – if such is not available – our written declaration of acceptance. Both individual services can be agreed, which are principally to be remunerated according to Subclause 12.1, as well as the service packages described under Subclause 5.2, which are to be remunerated according to 12.2 respectively 12.3.

5.2 The following activities are a part of our service obligation with the processing of service packages:

### 5.2.1 Commissioning of service

- skilled execution of the necessary commissioning of the clamping device and control at the place of installation in line with the regulations of the manufacturer.
- assembly work over the course of the commissioning together with the machine manufacturer
- first instructions and operator training
- we will invoice separate requests for the training with regard to the maintenance and use as separate work.

### 5.2.2 Inspection service

Skilled execution of the necessary inspection of the clamping device and control at the place of installation in line with the regulations of the manufacturer. Insofar as additional maintenance or repairs become necessary at the customer's request or owing to special loads, these are to be remunerated separately by the customer.

### 5.2.3 Maintenance service

Skilled execution of the necessary maintenance of the clamping device and control at the place of installation in line with the regulations of the manufacturer. Insofar as additional repairs become necessary at the customer's request or owing to special loads, these are to be remunerated separately by the customer.

5.3 The service obligation shall begin with the purchase or conclusion of a service package. With the purchase or conclusion of a service package after the expiry of the warranty period the service obligation of RÖHM shall only refer to such products, which are capable of use and free of defects at the time of the conclusion or purchase of the service package. This is to be ensured by an inspection of the products; if defects are determined these are to be remedied before the start of validity of the service package by a necessary repair liable to costs; this repair is not part of the service package.

5.4 Our service obligation shall not include carrying out work on products and accessories, which was(were) not delivered by us.

5.5 Our service obligation shall lapse if the product was not subjected to the function and safety tests according to the details in the operating instructions or third parties have carried out work on the products concerned without our prior written consent unless this work has no disadvantageous influence on the provision of our service. The same shall apply if the products have been damaged due to causes for which we are not responsible, for example by water, fire, stroke of lightning or other implications of force majeure as well as with improper treatment by the customer or third parties.

5.6 Depending on the use and type of the product an overhaul may be necessary after longer use. This is the case if the costs of a repair exceed the current value of the product. Overhaul within this meaning is also the necessary new acquisition of a product in the absence of available spare parts. Overhauls are not part of the service obligation within the service packages. If we are of the opinion that a products that is to be maintained by us under a service package requires an overhaul, we will inform the customer hereof by stating the current value estimated by us and submit an offer for the overhaul to the customer with a remuneration calculated according to 12.1.

## 6. Repair/service that cannot be carried out

6.1 The services provided concerning the details of a cost estimate as well as the further incurred and to be proven work (fault search time equal to working hours) will be invoiced to the customer if the repair cannot be carried out due to reasons for which RÖHM GmbH is not responsible, in particular because the fault for which a complaint will be made did not occur during the inspection, spare parts cannot be procured, the customer culpably missed the agreed date or the contract was terminated during the execution.

6.2 The object of repair only needs to be restored to the original condition again at the explicit request of the customer against reimbursement of the costs unless the undertaken work was not necessary.

6.3 In case of a repair that cannot be carried out RÖHM GmbH shall not be liable subject to sentence 2 for damages to the object of repair, the breach of contractual secondary obligations and for damages, which were not suffered to the object of repair itself, no matter to which legal grounds the customer refers. RÖHM, on the other hand, will be liable in case of wilful intent, with gross negligence of the owner / the executive bodies or executives as well as with the culpable breach of essential contractual duties. Such contractual obligations are deemed essential, the fulfilment of which makes the proper execution of the contract possible at all and the compliance with which the contractual partner may as a rule rely and depend upon.

## 7. Duration of the service

7.1 The details with regard to the duration of repairs and services are based upon estimates and merely serve as information and a first estimate by the customer. They are therefore not binding if they have not been explicitly marked as binding.

7.2 In case of subsequently placed additional and extension orders or with necessary additional repair work the agreed repair deadline shall be extended accordingly.

## 8. Obligations to provide assistance of the customer

8.1 The customer has to draw our attention to the statutory, official and company safety and other regulations applicable at the place of destination of our delivery and service, which refer to the delivery, the assembly and the operation.

8.2 The customer will inform us with or immediately after his order about possible special features of the place of installation, which may have an implication on the proper function of the products, in particular about the structural condition and the concrete operating environment.

8.3 The customer shall ensure – also during the warranty period according to Subclause 17.5 – a regular and skilled maintenance of the products delivered by us insofar as this was not taken over by us as per contract.

8.4 The customer shall dispose of the goods delivered by us at his own responsibility and at his own costs according to the respective valid regulations. We are not obliged to create a possibility for the return unless this would have been stipulated by law.

8.5 The customer has to support the repair / maintenance personnel with the execution of the repair at his own costs.

8.6 The customer has to take the special measures, which are necessary for the protection of persons and objects at the workplace. He also has to inform the repair managers about existing special safety regulations insofar as these are of significance for the repair personnel. He shall inform us in case of breaches of the repair personnel of such safety regulations. In case of serious breaches he can refuse the infringing party access to the repair location by mutual agreement with the repair manager.

8.7 The customer shall bear a supervisory and assistance obligation for the compliance with the statutory working time limits. Breaches are to be reported to RÖHM GmbH.

8.8 The customer is obliged to provide the reasonable and necessary technical assistance at his costs, in particular to:

- a. Provision of the necessary, suitable assistants in the number that is necessary for the repair and for the necessary time; the assistants have to follow the instructions of the repair manager. We do not assume any liability for the assistants. If a defect or damages were caused by the assistants owing to instructions of the repair manager, then the regulations of Sections 17 and 18 shall apply accordingly.
- b. Undertaking of all construction, bedding and scaffolding work including the procurement of the necessary building materials.
- c. Provision of the necessary devices and heavy tools as well as the necessary commodities and required materials.
- d. Provision of heating, lighting, operating power, water, including the necessary connections.
- e. Provision of necessary, dry rooms, which can be locked for the storage of the tool for the repair personnel.
- f. Protection of the repair place and materials against harmful influences of all kinds, cleaning of the repair place.
- g. Provision of suitable, theft-proof recreation rooms and work rooms (with heating, lighting, washing possibility, sanitary facilities) and First Aid for the repair personnel.
- h. Provision of the materials and undertaking of all other acts, which are necessary for the adjustment of the object of repair and for carrying out a testing that is envisaged as per contract.

8.9 The technical assistance of the orderer must guarantee that the service can be started immediately after the arrival of our personnel and carried out without delay until the acceptance by the orderer. Insofar as special plans or instructions of RÖHM are necessary, RÖHM shall make these available to the orderer in time.

## 9. Obligations of the customer to provide assistance in case of maintenance

9.1 The products are to be used as intended and according to their protection type and in line with the operating instructions together with their annexes.

9.2 In case of an agreement of one of the service packages described in Subclause 5, the customer will place the products that are to be installed, maintained or repaired into a faultless condition, capable of use before conclusion of the contract at his own costs if the products are not already in such a condition. If the customer does not properly satisfy this obligation either after a warning on our part and within the deadline we are entitled to accordingly cancel the contract or the delivery. Further claims for damages on our part shall remain unaffected.

9.3 If the customer uses the maintenance service interferences are to be reported to us immediately in writing, in detail and in an understandable manner.

9.4 Our employees and vicarious agents are to be granted the unimpeded and safe access to the products. In case of delays for which the customer is responsible he is obliged to remunerate the waiting times of our employees and vicarious agents resulting from the delay separately.

9.5 The customer shall refrain from commission third parties with the services during the term of a service agreement, which we have to provide according to the agreement or from performing this work himself.

9.6 The customer has to draw our attention to the statutory, official and company safety regulations and other regulations applicable at the place of destination of our delivery and service, which refer to the delivery, the assembly and the operation.

## 10. Inspection and acceptance

10.1 Services will be provided by us according to the guidelines of our quality control and deliveries inspected accordingly. If the customer requests further inspections then these are to be agreed in writing and paid by the customer. This shall relate e.g. to special tests for the acceptance.



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10.2 The customer undertakes to accept our services under this contract immediately after the report that they have been completed. Upon request he has to declare their acceptance in writing towards our employees or vicarious agents insofar as there is no essential defect. This is carried out by the signing of the service report.

10.3 Our services shall be deemed as accepted free of defects with the re-commencement of the operational use of the maintained or repaired product, in particular for production purposes, if no defects have been previously reported by the customer.

## 11. Cost details and cost estimate

11.1 The creation of the cost estimates is liable to costs if the execution of the repair is not approved.

11.2 The costs for a cost estimate amount to the flat rates fixed in the current price list.

11.3 If the repair cannot be carried out at these costs or if our employees or vicarious agents consider the execution of additional work to be necessary during the repair the customer's consent is to be obtained if the stated costs are exceeded by more than 15%.

## 12. Remuneration, maturity and terms of payment

12.1 Insofar as not otherwise agreed and there is no warranty case our services are to be remunerated according to the actual work requirement pursuant to our respectively valid general price lists. The time required by our employees will be settled in time sections of 15 min. In addition to the time required for the work that is to be performed in these cases the customer will pay the travelling and waiting times, overtime surcharges, expenses, travelling and accommodation costs as well as the costs of spare parts, materials subject to wear and tear and consumables and replacement part sets according to our prices lists or in line with the offer.

12.2 Insofar as a flat rate remuneration was agreed for a service package, our work and travelling costs and expenses are thus covered, not however the costs for waiting times, overtime at the customer's request, spare parts, materials subject to wear and tear and consumables, replacement parts sets as well as other accessories. Our work for if applicable necessary repairs is to be remunerated separately by the customer according to Subclause 12.1.

12.3 The prices for our services can be derived from the respective price list valid upon conclusion of the contract and are deemed ex works plus value added tax. The calculation basis for the remuneration is the one-shift operation, i.e. a use of the products up to 160 hours in a calendar month. A surcharge to the list price of 50% is charged for the two-shift operation, a surcharge of 100% for the three-shift operation. The above two rates shall only apply to the service packages described under Subclause 5.. If the customer requests assignments outside of our normal working hours (Mo - Fr, 6:30 am - 6:30 pm, a max. of 7 h per day) surcharges will be calculated according to the respective valid price list.

12.4 If our personnel and material costs are increased then we are entitled to adjust the contractual prices after the expiry of the first year up to a maximum of 5% above the price of the previous year. Price changes will be announced to the customer at least one month before the new contractual prices come into force. The customer is entitled to terminate the contract effective as of the time at which the new price would become valid for him for the first time.

## 13. Transport and insurance with the repair in the plant of RÖHM GmbH

13.1 The object for repair will be delivered by the customer to us at his costs together with the repair and service form and after execution of the repair collected by the customer again or return to him at the customer's costs.

13.2 The customer shall bear the risk of transport.

13.3 At the customer's request a shipment carried out by us will be insured at the customer's costs against the insurable transport risks, e.g. theft, breakage and fire.

13.4 No insurance cover exists during the repair time in our plant. The customer has to ensure the maintenance of the existing insurance cover for the object of repair e.g. with regard to fire, pipe water, storm and machine breakage insurance. Insurance cover can only be procured for these risks at the explicit wish and costs of the customer.

13.5 In case of delay of the customer with the take-over we can charge a storage fee for the storage in our plant. The object of repair can also be stored otherwise at our discretion. The costs and risk of the storage during the delay shall be for the expense of the customer.

## 14. Repair deadline

14.1. The details concerning the repair deadlines are based on estimates and merely serve for the purpose of information and first orientation. They are therefore not binding unless this is explicitly agreed.

14.2. The agreement of a binding repair deadline, which must be described as binding, can only be requested by the customer if the scope of the work has been precisely determined.

14.3. The binding repair deadline will have been adhered to if by the time that it expires the object of repair is ready for take-over by the customer, in the event of a contractually envisaged testing ready for its execution.

14.4. In case of subsequently placed additional and extension orders or with necessary additional repair work the agreed repair deadline will be extended accordingly.

14.5. If the repair is delayed due to measures within the scope of industrial disputes, in particular strike and lock-out as well as the occurrence of circumstances, which were not caused by us, a reasonable extension to the repair deadline will occur insofar as such impediments have as proven a substantial influence on the completion of the repair; this shall also apply if such circumstances occur after we are in default.

## 15. Ban on offsetting and assignment; subcontractors

15.1 The customer is only entitled to offsetting in the event of undisputed claims or claims which have been declared final and binding. This shall not apply if the customer asserts claims in the reciprocal relationship, in particular claims for defects.

15.2 The assignment of rights of the customer from contractual relationships with us presumes our prior consent in order to be valid. This shall not apply insofar as Section 354 a HGB [German Commercial Code] applies.

15.3 We are entitled to use third parties in order to fulfil our contractual obligations.

## 16. Reservation of title

16.1 The goods delivered by us shall remain our property until the payment of all of our claims against the customer, no matter for what legal grounds, also future ones. In case of current account the afore-mentioned property shall be deemed as security for our balance claim.

16.2 The customer may only sell within the framework of his customary business transactions and neither pledge, nor assign the goods as collateral. The customer hereby

assigns us for security of our payment claims against him, in the amount of the value of our delivery and service, all claims with all secondary rights, which he acquires against his buyer owing to such a sale.

16.3 As long as the property has not yet been assigned, the customer has to inform us immediately in writing if the delivered object is attached or is exposed to other interventions of third parties. Insofar as the third party is not in the position to reimburse us the court and out-of-court costs of an action according to Section 771 ZPO [German Code of Civil Procedure] the customer shall be liable for the loss incurred to us.

16.4. We undertake to release the securities to which we are entitled at the customer's request insofar as their value exceeds the claims which are to be secured by more than 20 %."

## 17. Warranty

17.1 Insofar as the creation of a work has been agreed and thus the law governing contracts for work and services applies the following shall apply: If our services are faulty then we are first of all entitled and obliged to subsequent satisfaction according to Section 634 No. 1 BGB. If the subsequent satisfaction finally fails the customer can according to Section 634 No. 3 cancel the contract or reduce the remuneration and according to Section 634 No. 4 BGB request damages. Claims of the customer for reimbursement of expenses according to Section 634 No. 2 BGB (self-execution) are excluded. Subclause 18 shall apply to claims for damages.

17.2 Insofar as we provide planning services without executing these and thus the law governing service contracts applies (e.g. in the event of a breach of our duties under Subclauses 5.2.1, 5.2.2 and 5.2.3) the following applies: If our services are faulty then we are first of all entitled and obliged to subsequent improvement. If the subsequent improvement finally fails the customer is entitled to damages according to Subclause 18.

17.3 Excluded from the warranty are damages as a result of natural wear and tear, faulty maintenance – insofar as we have not carried out this maintenance as per contract, failure to comply with operating equipment regulations, excessive use, unsuitable operating equipment, chemical or electrolytic influences, faulty construction and assembly work of third parties as well as other causes, for which we are not responsible.

17.4 The warranty shall lapse if the customer or third party makes changes or repairs to our services /products without our prior written consent unless the defect is not a result thereof.

17.5 Claims of the customer owing to defects of quality and title shall become statute-barred with the expiry of 12 months after the acceptance of the work or the knowledge of defects with the provision of planning services.

## 18. Liability

18.1 We shall be liable to an unlimited extent in case of wilful intent and gross negligence as well as with the injury to life, the body and the health as well as with the culpable breach of essential contractual obligations. Deemed as essential are such contractual obligations, the fulfilment of which makes the proper execution of the contract possible at all and the compliance with which the contractual partner may as a rule rely and depend on.

18.3 Incidentally our liability is excluded.

18.4 A liability according to the Product Liability Act remains unaffected.

18.5 The personal liability of our legal representatives and vicarious agents is limited as our own liability according to the afore-mentioned provisions.

## 19. Term of the contract; termination

19.1 Service agreements according to Subclause 5. shall come into force when signed by both parties and shall initially apply until the end of the calendar year, that follows the year in which the contract was concluded. The contractual relationship will subsequently be extended respectively by one further year unless it is terminated by one of the parties with a period of notice of 3 months to the end of the second or a following year. Contractual relationships can be terminated on the whole or only with regard to individual products.

19.2 The right to the extraordinary termination for an important reason remains unaffected.

## 20. Place of jurisdiction; applicable law

20.1 With all disputes ensuing from the contractual relationship if the orderer is a merchant, a legal entity under public law or a special fund under public law, the action is to be filed at the court that has jurisdiction for our headquarters. We are also entitled to file an action at the headquarters of the orderer.

20.2 The legal relationship is subject to the law of the Federal Republic of Germany. German international private law and the Viennese Convention of the United Nations concerning Contracts for the International Sale of Goods (CISG) will not apply.

## RÖHM GmbH

89565 Sontheim (Germany)

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