FORMING THE FUTURE

STAMPING AND FORMING SYSTEMS

1,000 – 35,000 kN

SCHULER

Member of the ANDRITZ GROUP

STAMPING AND FORMING SYSTEMS

STAMPING SYSTEMS WITH FLYWHEEL DRIVE.
MC SERIES.

MC 3000 stamping press with transfer.

WIDE RANGE OF PARTS – HIGH OUTPUT

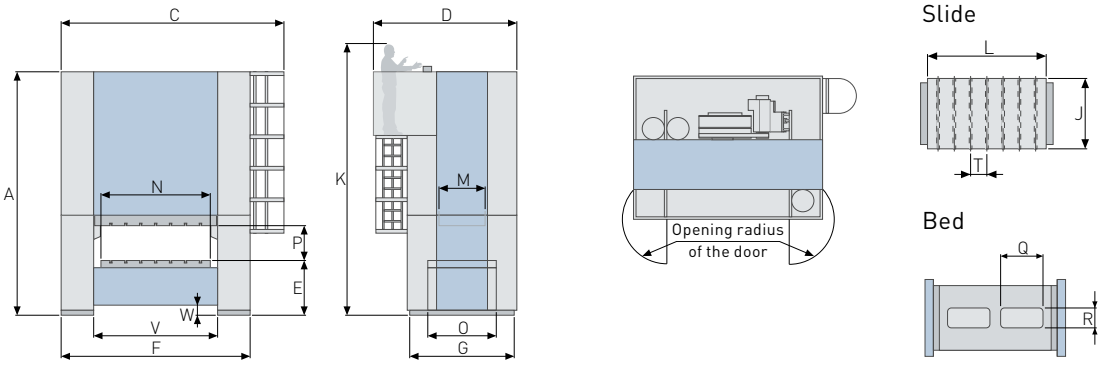
The stamping presses MC are standard modular machines with comprehensive basic equipment for stamping classic sheet metal parts from coil.

In the range from 1,250 to 5,000 kN, they are the solution for the economical manufacturing of high-quality parts with high production capacity.

THE ADVANTAGES

- The welded and stress-relief annealed frames of the presses in monoblock design are rigid and have a low degree of bed deflection. This enables a higher part quality and increases the die life.
- The transversal shafts moving against each other compensate for lateral rotation forces
- The 8-fold slide guiding optimally absorbs eccentric forces
- Machine and die are safeguarded by an infinitely variable adjustable hydraulic overload protection device
- The control with standard 12" touchscreen is user-friendly, web-based and with interfaces for PLC connections
- Peripheral devices can be integrated into the press control system and operated using the press display

FACTS AND FIGURES



Stamping presses with flywheel drive.

TECHNICAL DATA

MODEL	MC 125	MC 200	MC 300	MC 400	MC 500
Press force [kN]	**1,250**	**2,000**	**3,000**	**4,000**	**5,000**
Working capacity [J]	12,000	16,000	25,000	60,000	90,000
Drive power [kW]	22	30	43	75	90
Slide dimensions, L × J [mm]	1,400 × 1,000	1,800 × 1,100	2,200 × 1,300	3,000 × 1,300	3,000 × 1,400
Opening in the press frame (lateral), M [mm]	670	720	870	970	1,100
Clamping plate, N × O [mm]	1,400 × 1,000	1,800 × 1,100	2,200 × 1,300	3,000 × 1,300	3,000 × 1,400
Opening in the bed, Q × R [mm]	600 × 300	800 × 350	(2×) 850 × 400	(3×) 850 × 400	(3×) 800 × 400
Slide adjustment [mm]	150	150	150	200	250
Stroke rate [1 / min]	30 – 150	30 – 130	25 – 100	20 – 80	20 – 70
Stroke adjustment [mm]	20 – 180	20 – 220	40 – 315	40 – 315	40 – 315
Shut height, P* [mm]	450	550	650	750	800
Weight with standard equipment [kg]	18,000	27,500	43,000	72,000	85,000

DIMENSIONS

	MC 125	MC 200	MC 300	MC 400	MC 500
Height of the press, A[mm]**	–	4,240	5,100	6,050	6,600
Height of the press, B[mm]**	3,900	4,205	–	–	–
Width of the press, C [mm]	3,380	3,900	4,480	5,400	5,500
Depth of the press, D [mm]	2,510	2,640	2,880	3,300	3,450
Height of the bed (incl. clamping plate), E [mm]**	950	1,050	1,100	1,400	1,445
Width of the press frame, F [mm]	2,600	3,100	3,700	4,600	4,660
Depth of the press frame, G [mm]	1,600	1,740	2,100	2,100	2,300
Required min. height for maintenance, K [approx. mm]	4,550	4,900	5,500	5,800	6,050
Slot distance, T [mm]	200	200	250	250	250
Opening in the press frame (frontal), V [mm]	1,620	2,050	2,450	3,250	3,250
Height of the press over the floor, W [mm]**	200	250	145	85	165
T-slots / DIN 650 [mm]	a = 22	a = 22	a = 28	a = 28	a = 28

* Largest stroke bottom, slide adjustment on top, without clamping plate. ** Without dampening elements. Subject to technical modifications.

STAMPING PRESSES WITH FLYWHEEL DRIVE. TMK SERIES.

The TMK knuckle-joint presses are all-rounders with press forces from 3,000 to 15,000 kN and bed lengths from 3,000 to 3,660 mm. With their modular design, they can be optimally adapted to suit current manufacturing tasks with various automation components and die change systems.

The versatile knuckle-joint presses are easy to operate and changeover– for high availability and cost effectiveness.

Embossing, calibrating, bending, piercing, drawing, stamping: The TMK series is universally suitable for a range of components.

Efficient and modular – for optimum results across the entire life cycle. When the focus is on an expanded range of forming applications, knuckle-joint presses from the TMK series are suitable for the job. Each system enables economical blanking, drawing, embossing, punching and calibrating in one operation sequence, whereby the different stages can also be combined with one another.

Progressive or transfer dies are used on the TMK knuckle-joint presses. Matching coil feeding systems consist of decoiler, straightener and roll feed. Mechanical or electronic transfer devices ensure safe material and parts transport.

Die change systems. From suspension consoles, mechanical or automatical die change brackets, automatic die change frames to die change cars with tandem design. The various die change concepts individually adapt to suit every requirement.

TECHNICAL DATA

Model	TMK 300	TMK 500	TMK 700	TMK 900	TMK 1150	TMK 1500
Press force [kN]	**3,000**	**5,000**	**7,000**	**9,000**	**11,500**	**15,000**
Bed length [mm]	**Bed width [mm]**					
3,000	1,200					
3,500						1,500
3,660		1,600	1,600	1,600	1,600	
Shut height [mm]	700	1,000	1,000	1,000	1,000	1,100
Slide adjustment [mm]	150	200	200	200	200	200
Slide stroke [mm]	250	300	300	300	300	300
Stroke rate [rpm]	20 – 80	15 – 60	15 – 60	15 – 60	15 – 60	20 – 50

Subject to technical changes. Special sizes available on request.

THE ADVANTAGES

- The characteristic slide motion of the knuckle-joint drive ensures accurate components and long die lives thanks to optimized impact velocities
- A high tilt resistance is ensured by the pressure points which are situated far outside
- The extreme rigidity of the overall system enables a high degree of repeatability, even with fluctuating material thicknesses and strengths
- The presses are ideal for machining high-strength steels
- Reduction of the cutting impact protects the die
- and reduces the noise level
- Long service life for all drive components and bearing points thanks to pneumatic compensating system
- Low stress on the slide guide due to compensation of the lateral forces in two counter-rotating drives
- The pre-stressed 8-fold roller guide for the slide ensures a narrow die clearance
- Die space is free from lubricating oil thanks to dry-running roller guides with lifetime lubrication
- Optimized slide bearing design due to specific material selection, special surface finish and dosed lubrication oil supply

STAMPING PRESSES WITH SERVODIRECT TECHNOLOGY. CSC/MSC SERIES.

Stamping press CSC 100 with one connecting rod.

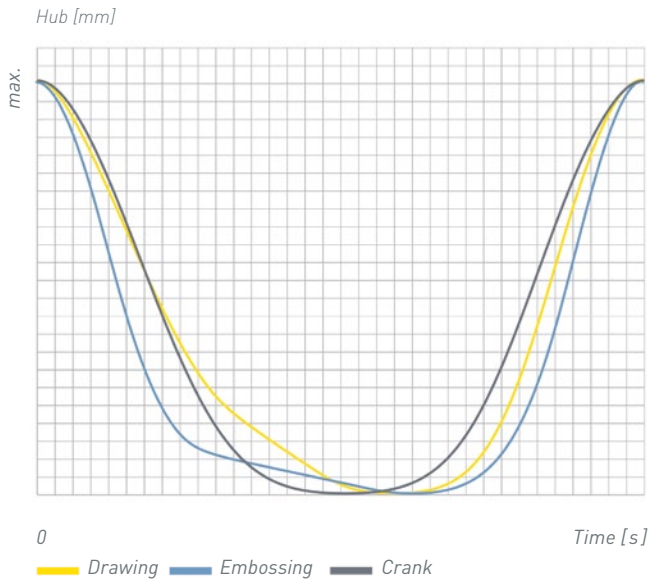
Stamping press MSC 200 with two connecting rods.

STAMPING PRESSES WITH SERVODIRECT TECHNOLOGY.

The new generation of ServoDirect Technology is a big plus in cost-effectiveness for stamping presses. The individual adaptation of the height of the stroke in combination with an oscillating movement of the torque motor (pendulum stroke) leads to a clear increase in output. In addition, the optimal adaptation of the slide kinematics to the process parameters achieves a higher part quality and an increased die life.

The oil- and play-free drive concept passes the test time and again. It increases process safety considerably, because the mixing of press lubricants is no longer possible. Therefore, this press generation is also ideal for the packaging and food industries.

The preprogrammed slide movement curves are designed for different processes: Whether blanking, forming, cutting, embossing, bending or drawing – the presses can be adapted quickly and flexibly to any requirement. An optional curve generator is available for freely programming of the slide movement.



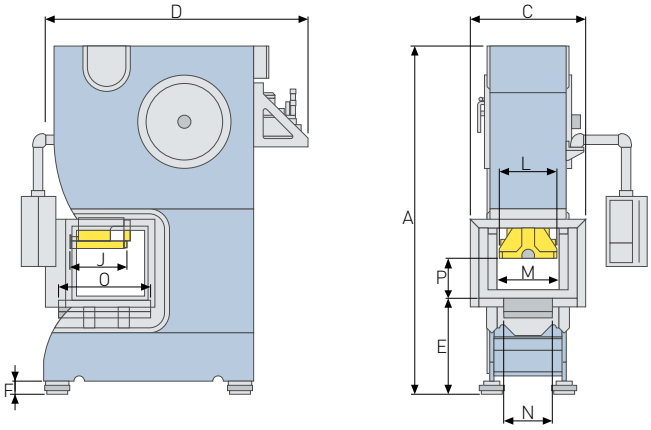
Preprogrammed slide movement curves.

Control panel with touchscreen.

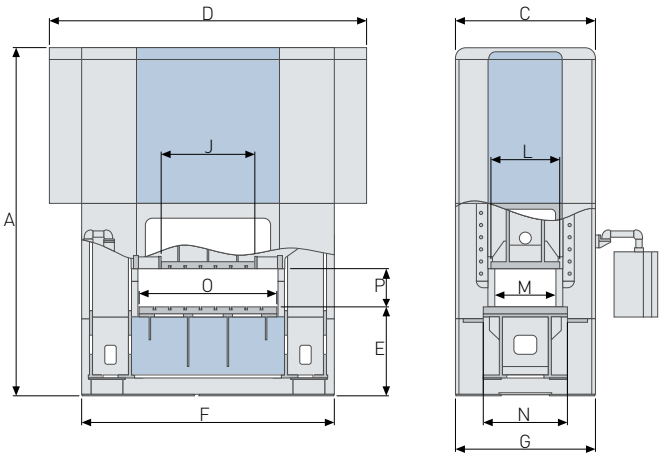
THE ADVANTAGES

- Clear increase in outputs in comparison to conventionally driven mechanical presses
- Preprogrammed slide movement curves and an optional curve generator ensure maximum flexibility in production
- Easy and intuitive operation using the touchscreen with individually configurable menu, shopping cart and favorites functions
- Higher precision parts due to the play-free drive train and pressure points far outside, which enables low die clearances
- Longer die life through the optimal adaptation of the slide movement to the process parameters
- High energy efficiency: electrical power consumption is minimized by up to 50 % by refraining from gear transmissions and anti-friction bearings
- Condition-based maintenance concept with integrated maintenance plan and innovative condition monitoring system per smart device
- Drive concept refrains from the use of lubrication oil, thus resulting in greater process safety

FACTS AND FIGURES



CSC 100 with one connecting rod



MSC 200 with two connecting rods

TECHNICAL DATA

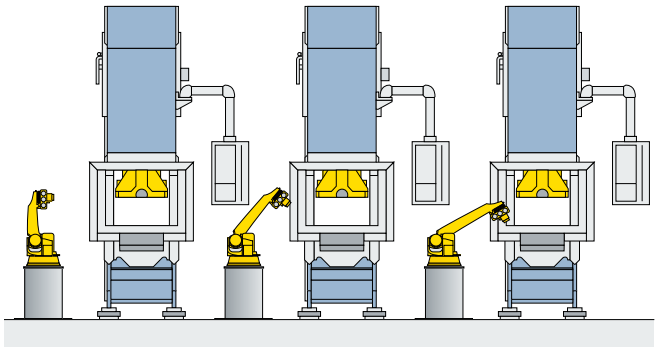
MODEL	CSC 100	MSC 200
Press force [kN]	**1,000**	**2,000**
Power input [kVA]	69	173
Drive power [kW]	30	2×47
Slide dimensions, L×J [mm]	460×550	900×1,797
Opening in the press frame (backwards), M [mm]	410	–
Clamping plate, N×O [mm]	660×950	1,100×1,800
Opening in the bed (downwards) [mm]	280×590	200×380/200×400/200×380
Slide adjustment [mm]	80	150
Stroke rate (continuous mode) [1/min]	70	60
Stroke rate (pendulum mode) [1/min]	130	130
Slide stroke [mm]	20–160	20–160
Shut height [mm]	290–370	350–500
Weight with standard equipment [kg]	7,500	26,000

ABMESSUNGEN

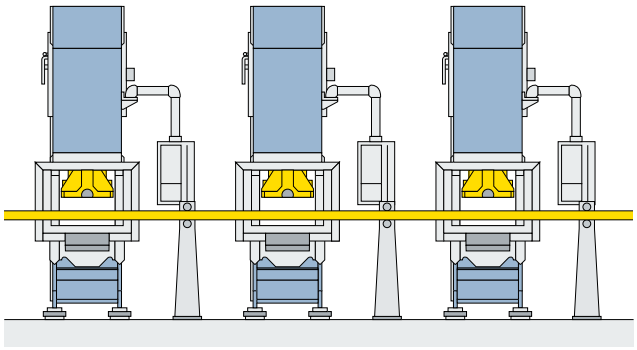
MODEL	CSC 100	MSC 200
Height of the press, A[mm]**	3,320	4,553
Width of the press, C [mm]	1,225	4,148
Depth of the press, D [mm]	2,520	1,841
Height of the bed (incl. clamping plate), E [mm]	925	1,163
Width of the press frame, F [mm]	85	4,148
Depth of the press frame, G [mm]	–	1,490

* Largest stroke bottom, slide adjustment on top, without clamping plate. ** Incl. dampening elements. Subject to technical modifications.

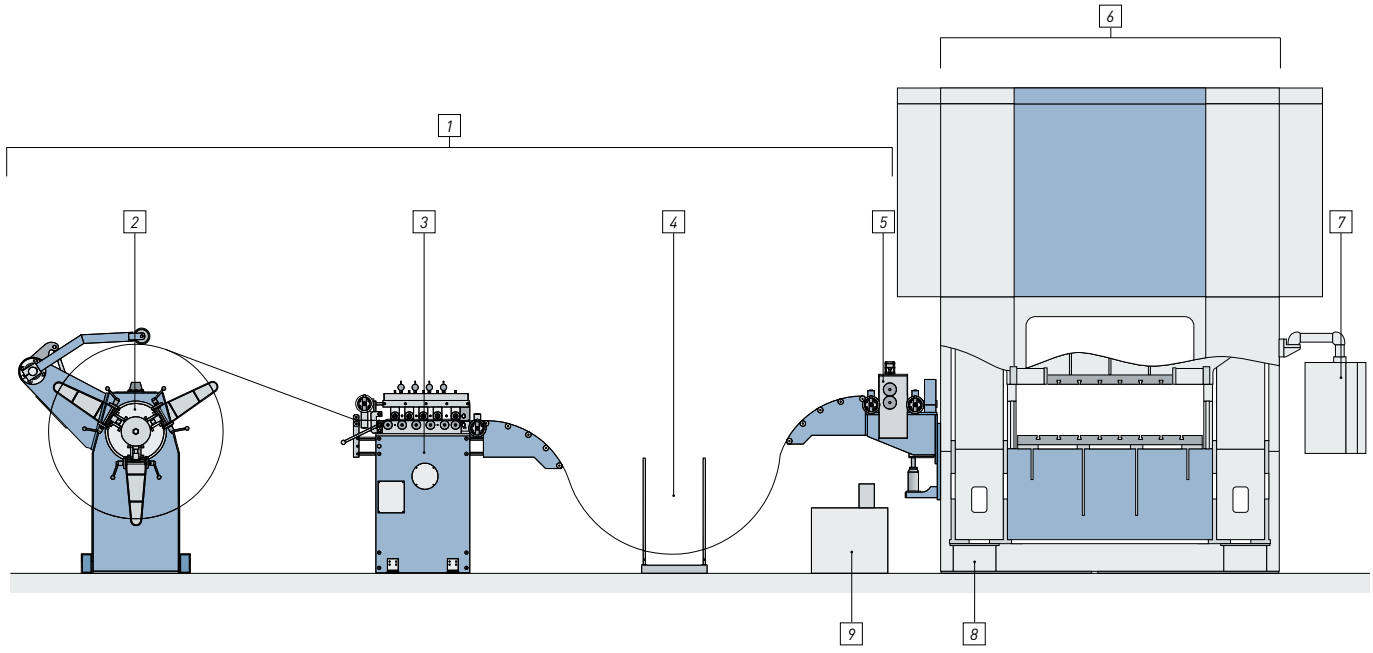
CSC 100 WITH ROBOT AUTOMATION



CSC 100 WITH TRANSFER AUTOMATION



MSC 200 WITH COIL FEEDING SYSTEM

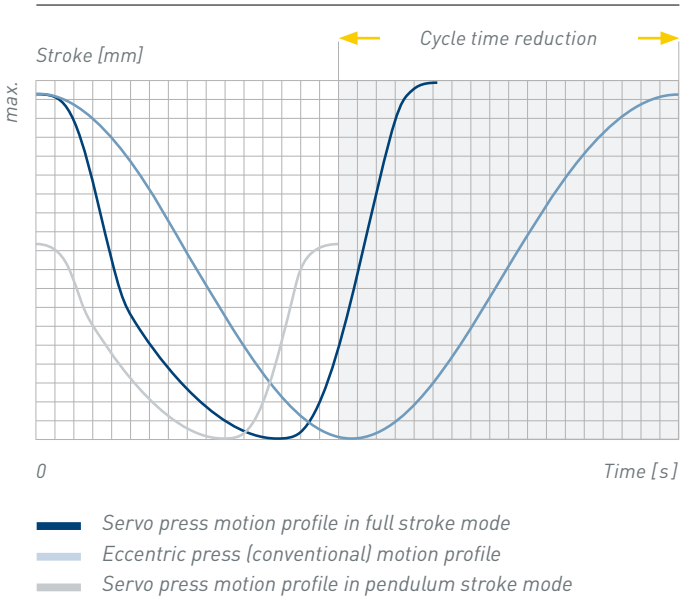


1 *Coil feeding system*
2 *Decoiler*
3 *Straightener*
4 *Loop control*
5 *Roll feed*
6 *Press*
7 *Control panel (Compact Control System)*
8 *Dampening element*
9 *Hydraulic unit*

See for yourself. We will be happy to consult with you on systems design and demonstrate the efficiency of our presses in a live test.

STAMPING PRESSES WITH SERVODIRECT TECHNOLOGY.
MSD SERIES.

Servo presses in monoblock design in the Process and Technology Centre ProTec, Lennestadt. Press force: 6,300 kN.



The individual programming of the slide movement reduces the cycle time with the same forming speed.

Reliable components. The monoblock press frame is designed as a stress-relieved annealed welded construction. The eccentric gears are double helical gears for improved axial guidance and reduced noise. The slide roller guide is pretensioned in a play-free manner. This results in components which ensure a high level of system availability.

Tryout. Maximum flexibility is required when starting up new dies. The inching speed can be changed using the handwheel. The slide can be stopped in any position and the direction of motion can be reversed if necessary. The quick lift function enables the slide to travel to the maximum top dead centre at any point during inching.

Die change. Short setup times are achieved with various die change systems, such as tandem change cars or an extending bed plate.

TECHNICAL DATA

Model	MSD 250		MSD 400	MSD 630	MSD 800
Press force [kN]	**2,500**		**4,000**	**6,300**	**8,000**
Bed length [mm]	**Bed width [mm]**				
2,000	1,100				
2,500		1,100			
3,050			1,400		
4,000				1,800	1,800
Shut height [mm]	550	600	700	1,000	1,000
Slide stroke [mm]	32 – 160	40 – 200	60 – 300	80 – 400	80 – 400
Slide adjustment [mm]	150	200	250	300	300
Stroke rate [rpm]*	3 – 160	3 – 140	3 – 90	3 – 60	3 – 60

All details for systems with dual-rod design. Subject to technical changes.
* Stroke rate depends on programmed stroke height and kinematic properties.

THE ADVANTAGES

- Short delivery times and optimum spare part management thanks to standardised modules
- Maximum production flexibility thanks to freely programmable stroke heights and movement sequences
- Better part quality and die life spans thanks to optimal adjustment of the movement sequences
- Shorter die tryout times thanks to inching and tryout function via hand wheel
- Reduced energy costs thanks to efficient drive solution

VIDEO

Servo press in monoblock design with 2,500 kN press force, coil line and roll feed live in production with 137 strokes per minute.

STAMPING PRESSES WITH SERVODIRECT TECHNOLOGY.
TSC / TSD SERIES.

Servo press in tie rod design for a manufacturer of household appliances. Press force: 16,000 kN.

Flexible, reliable, efficient. Servo presses in tie rod design cover a wide range of components and materials: from simple stamped parts to highly complex structural parts, in materials ranging from aluminium to high-strength steels. The material is supplied from a coil or via destacker.

The operator interface developed by Schuler contains a curve generator, called the »Optimizer«, which ensures a high level of process reliability through optimal coordination of slide kinematics and automation parameters.

Short setup and die change times are achieved through both the tryout function by means of a hand wheel and through intelligent die change systems for semi or fully automatic die change.

THE ADVANTAGES

- Maximum production flexibility thanks to freely programmable stroke heights and movement sequences
- Clear increase in output in comparison to conventional mechanical presses
- Better part quality and die life spans thanks to movement sequences which are optimally adapted to the specific forming requirements
- Ideal for machining high-strength steels thanks to installation technology which is resistant to blanking impacts
- Maximum availability thanks to long service life and low maintenance requirements
- Shorter die tryout times thanks to inching and tryout functions

TECHNICAL DATA

Model	TSD 630 TSC 630	TSD 800 TSC 800		TSD 1000 TSC 1000	TSD 1100 TSC 1100	TSD 1250 TSC 1250		TSD 1600 TSC 1600		TSD 2000 TSC 2000	TSD 2500 TSC 2500	TSD 3200 TSC 3200
Press force [kN]	**6,300**	**8,000**		**10,000**	**11,000**	**12,500**		**16,000**		**20,000**	**25,000**	**32,000**
Bed length [mm]	**Bed width [mm]**											
4,000	1,600	1,800										
4,600		1,800	2,200*	1,800								
5,000					2,200*							
5,100					2,200*	1,800	2,200*	1,800				
6,000									2,500*			
6,100						1,800	2,200*	1,800	2,500*	2,500*	2,500*	2,500*
7,000										2,500*	2,500*	2,500*
Shut height [mm]	900	1,100	1,100	1,100	1,200	1,100	1,200	1,100	1,300	1,400	1,400	1,400
Slide stroke [mm]	100–350	120–450	120–500	120–450	150–600	120–450	150–600	150–450	200–600	200–700	230–700	230–700
Slide adjustment [mm]	300	300	300	300	300	300	300	300	300	300	300	300
Stroke rate [rpm] **TSD** **TSC**	3–70	3–60 3–50	3–50	3–50	3–45 3–36	3–45 3–38	3–40 3–34	3–40 3–32	3–36	3–34	3–30	3–30

All details for systems with dual-rod design. Subject to technical changes.

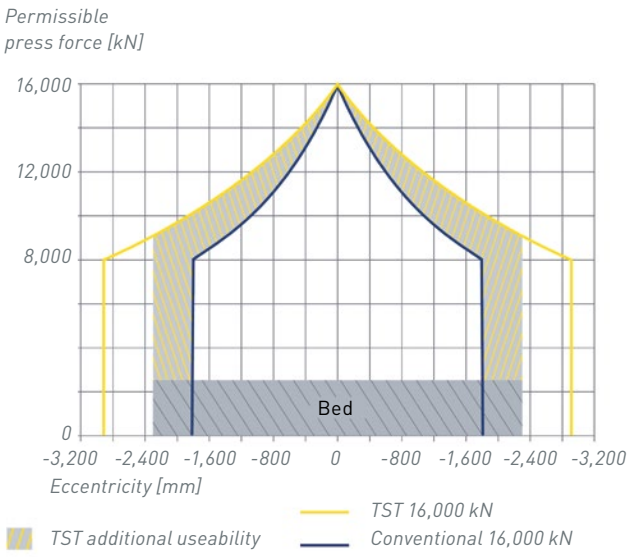
* Four rod design. ** Stroke rate depends on programmed stroke height and kinematic properties.

VIDEO

Servo press with 16,000 press force and cut-to-length shears for upstream blank cutting. Production of components from chromium steel and galvanised sheets in transfer and progressive mode.

STAMPING PRESSES WITH SERVODIRECT TECHNOLOGY.
TST SERIES.

Transfer press with TwinServo Technology at the Schuler Servo TechCenter Erfurt, Germany.



The higher eccentric load capacity of the TST series provides additional flexibility in regard to method planning.

The next level in servo technology. Presses with TwinServo Technology (TST) feature a drive concept consisting of two separate torque motors in the press bed. Synchronisation is carried out electronically and its arrangement leaves sufficient room for drawing cushions and scrap chutes.

The concept offers a high level of flexibility in terms of die design: the greater permissible single stage forces and the considerably stronger eccentric load capacity of the press open up new possibilities for method planning. The extremely high tilt resistance, combined with less deflection results in improved component part quality, helps to protect the die and shortens the die tryout times.

TwinServo presses are considerably shorter than conventional models with a construction height of approximately 6 m. The total area needed is reduced by around 30 %.

The first transfer press with TwinServo Technology at the Schuler Forming Center in Erfurt, Germany has a press force of 16,000 kN and is fully automated with components from Schuler.

TECHNICAL DATA

Model	TST 1000	TST 1600	TST 2000	TST 2500	TST 3000	TST 3500
Press force [kN]	**10,000**	**16,000**	**20,000**	**25,000**	**30,000**	**35,000**
Bed length [mm]	**Bed width [mm]**					
5,000	**2,200**	2,200*	2,500*	**3,000**		
			2,200*	2,500*		
6,000		**2,500**	**2,500**	**3,000**	3,000*	3,000*
			2,200*	2,500*	2,500*	
7,000				**3,000**	**3,000**	3,000*
				2,500*	2,500*	
8,000					**3,000**	**3,000**
					2,500*	
Slide stroke [mm]	600	600	600	750	750	750
Press force, millimeters before BDC [mm]	6	6	6	6	6	6
Number of pressure points	4	4	4	4	4	4
Stroke rate at max. stroke and constant speed [rpm]/ work capacity [kJ]**	40/400	35/500	40/900	30/1200	25/1500	25/1500
Pendulum stroke at 1/3 stroke [rpm]/work capacity [kJ]**	50/250	50/250	60/400	40/650	35/700	30/900

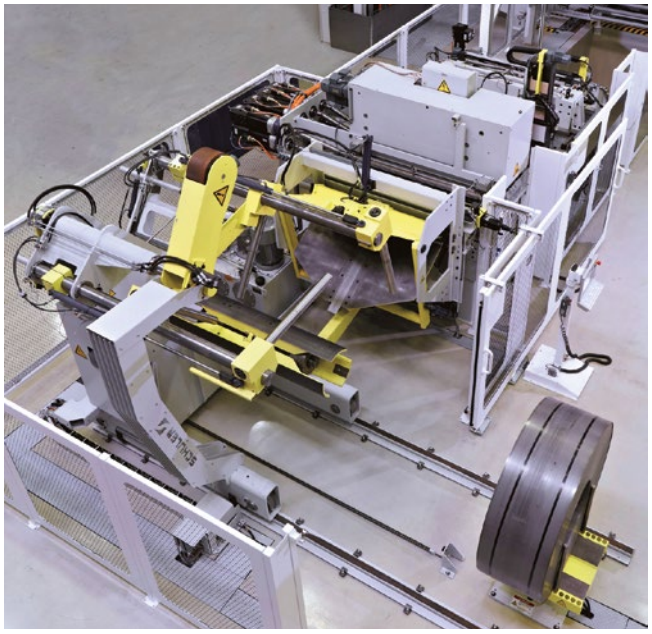
*Optional / ** Deviations may occur depending on the slide movement curve and force progression.
Subject to technical changes.

THE ADVANTAGES

- Innovative drive concept with two electronically synchronized torque motors in the press bed
- Larger eccentric load with same press force
- 30 % less deflection
- Active slide parallelism
- Better view of work area
- Sound enclosure, reduced noise for operating staff
- Oil-free in work area
- Less space needed

AUTOMATION BY SCHULER.
AUTOMATICALLY MORE FLEXIBILITY.

In addition to innovative servo press technology, you benefit from the latest developments from Schuler Automation. These components are specially designed for the highly dynamic requirements of servo press technology.



»Power Line« coil feeding system for dynamic production processes.

Highly dynamic roll feed »Power Feed«.

COIL FEEDING SYSTEMS

Precise material feed from coil to ProgDie and transfer presses consisting of decoiler, straightener and loop equipment. Power Line coil feeding systems are the ideal addition to highly dynamic servo presses and are particularly suitable for manufacturing structured parts and components made of materials with sensitive surfaces.

ROLL FEEDS

Shorten automation time, particularly on highly dynamic presses thanks to “Power Feed” roll feed. ServoDirect drives, along with play and maintenance-free planetary gears, provide more dynamics and system accuracy.

Tri-axis transfer with servo drive »Power Trans«.

Destacker.

TRI-AXIS TRANSFER SYSTEMS

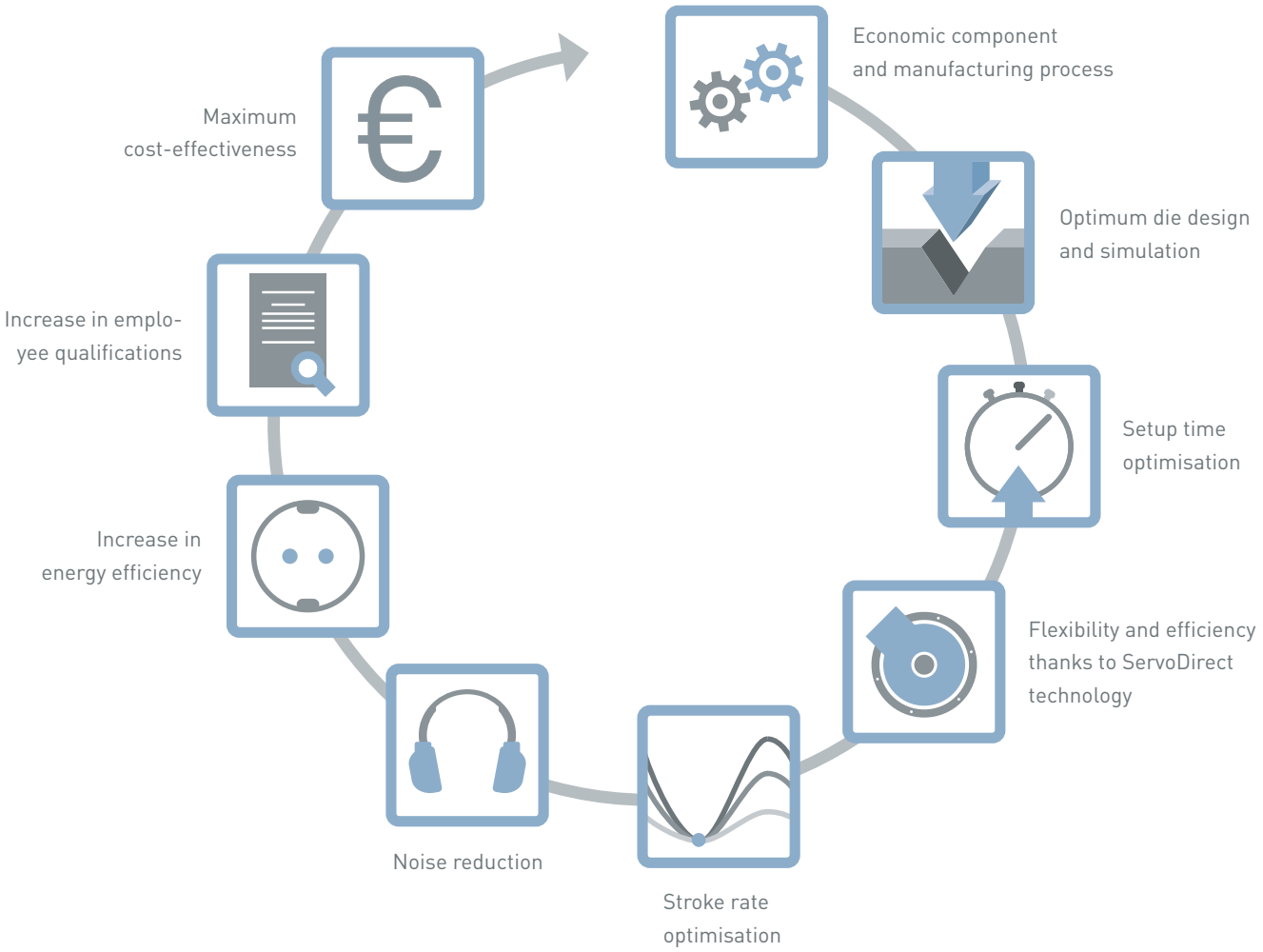
Powerful transfer generation in three sizes for a wide range of applications. Motorisation through servo drives, the low vibration tendency and short setup times ensure high output levels.

DESTACKER

As an individual solution or used in combination with a coil feeding system, the destackers ensure maximum flexibility and efficiency.

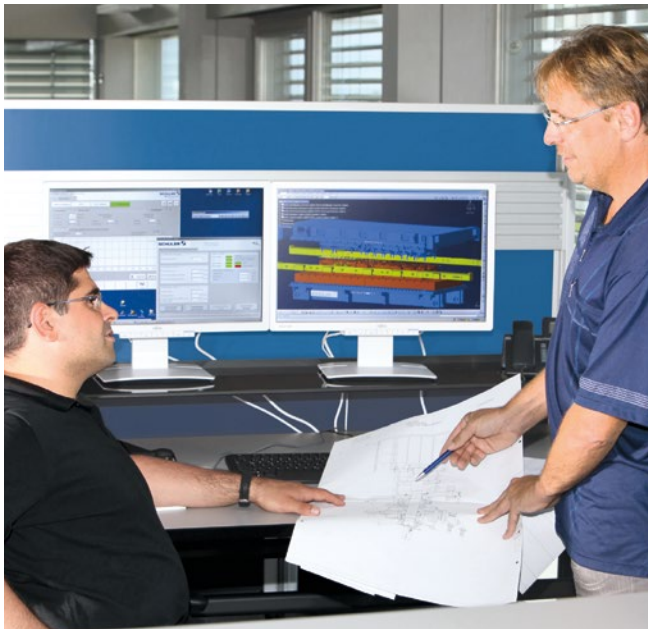
PROCESS MANAGEMENT.
EFFICIENCY ACROSS THE ENTIRE LINE.

From component calculations to individual training concepts – to ensure maximum efficiency over the long term, a production process must be considered in its entirety.



Individual process advice. When it comes to efficiency and economic strength in production, having the best system technology is simply not enough. To fully exploit all economic opportunities, the entire process must be analysed and optimally harmonised.

Schuler provides support as a professional partner who offers training, services and intelligent software solutions. The range covers the entire process chain and each measure is designed to boost your company's profits.



Digital simulation for optimum die design.

SCHULER ONLINE

Find out more about our range of services for increasing the efficiency of your system and benefit from individual and professional advice from Schuler.
www.schulergroup.com/process_support

SCHULER **SERVICE.**
STATE-OF-THE-ART SERVICE FOR MORE PERFORMANCE.

Schuler Service offers a tailored portfolio of services covering the entire life cycle of your equipment.

Schuler Service – Customer-oriented & efficient, worldwide.

Over 900 service employees worldwide provide expert support 24/7 in close cooperation with you – our partners. Our main priority is always to ensure the maximum productivity and safety of your production equipment in order to secure your company's continued success.

With over 175 years of experience and expertise, we can guarantee the best possible support for the operation of your machines – and not only those supplied by Schuler, but by all other manufacturers. Whatever the situation, Schuler Service has the right solution for your specific needs.

OUR SERVICES FOR YOU.

Technical Customer Support:

- Machine inspections
- Safety inspections
- Preventive maintenance
- Repair
- Repair welding
- Production support

Components and Accessories:

- Spare parts and spare part packages
- Maintenance kits
- Repair parts
- Replacement parts

Project Business:

- Modernization
- Retrofits
- Refurbishment
- Machine relocations

Special Services:

- Service contracts
- Hotline and remote service
- Training
- Tailored customer training
- Optimizing plant & processes
- Consulting

Used Machinery:

- Purchase and sale
- Evaluation

SCHULER SERVICE ONLINE

Want to know more about our full range of services?
Simply scan the QR code with the camera of your smartphone or tablet.
www.schulergroup.com/service_en

www.schulergroup.com/stamping_cutting
Find out more. Simply scan the QR code with the camera on your smartphone or tablet.

Schuler Pressen GmbH
Bahnhofstraße 41
73033 Göppingen
Germany
Phone sales +49 7161 66-1403
Phone service +49 7161 66-660
Fax +49 7161 66-729

info@schulergroup.com
www.schulergroup.com