



RET10P

HORIZONTAL BORING MILL

FLOOR TYPE

RETOS
VARNSDORF

www.retos.cz

GENERAL INFORMATION

FEATURES

- contouring floor type of horizontal boring machine
- transversal travelling column
- 3/4 linear axes
- sliding ram / workspindle or a combination of them
- machine suitable for machining of large workpieces
- suitable for roughing as well as for finishing
- travel ranges, number of axes, and clamping surfaces and the level of coverage can be customized according to your specific needs
- workpiece is clamped to a clamping plate or a rotary table (it is not a part of the machine)
- according to your needs, option of fitting with a broad spectrum of accessories, such as automatic tool changing systems (ATC), various milling heads and milling head changing systems (AHC), a facing head, tool cooling kit (CHZ), cooling through spindle axis (CHOV), oil-mist cooling (CHM) or swarf conveyor
- ready for "Industry 4.0"

CONTROLLING OF THE MACHINE

- all functions of the machine are controlled via the control panel, which consists of a keyboard, a switch panel and an LCD monitor
- the control panel is supplemented by a portable control panel (handwheel), which duplicates some of the basic functions of the machine control
- the control panel is situated on the operator platform, which is an integral part of the group column/headstock
- the control system allows manual, semiautomatic and fully automatic modes
- the standard operator's site is on the operator platform
- an alternate operator's site is outside the operator platform and is usable only in the fully automatic mode
- the standard communication interface allows a connection with the Ethernet for easy administration and distribution of technological programs as well as diagnostics or servicing of the control system

STANDARD VERSION ►

CONTROL SYSTEM

- HEIDENHAIN TNC 640 + handwheel
- HEIDENHAIN drives
- SIEMENS motors

POWERED AXES

- X – transversal travel of column slide on bed
- Y – vertical headstock travel on column
- Z – ram travel
- S – workspindle rotation

MACHINE CAPABILITIES

- X, Y, Z axes powered in interpolation
- linear interpolation
- circular interpolation
- spiral interpolation
- spacial interpolation – spline in space
- interpolation of S and Z axes - spindle turning depending on the Z axis position – enables thread cutting without using a compensating bushing
- potential limitations regarding the machine capabilities due to territorial differences in the control system's NC program

V1 HEADSTOCK

- sliding ram
- non-sliding workspindle
- spindle cavity blown with air during tool-changing cycle
- spindle driven by two speed ranges – speed reduction gear
- hydraulic shifting of each speed range
- set-up for tool cooling kit on ram front side



KINEMATICS OF THE X AXIS

- 2 brushless digital servomotors with servo-drives (master/slave)
- 2 planetary gearboxes with minimum clearance
- rack inserted into the bed

KINEMATICS OF THE Y AXIS

- brushless digital servomotor with servo-drive
- clearance-free gearing by timing belt
- ball screw

KINEMATICS OF THE Z AXIS

- brushless digital servomotor with servo-drive
- planetary gearbox with minimum clearance
- ball screw

GROUP GUIDANCE

- X, Y, Z axes – rolling guideways

LUBRICATION

- central, axial lubrication
- frequency of lubrication cycles correlates with travelled track of the particular group

CLAMPING

- X, Y, Z axes – not clamped – positional feedback

HYDRAULIC POWER PACKS

- HYTOS lubrication set – lubrication of all axes
- HYTOS pressure set – unclamping of the tool

STANDARD VERSION ◀

POSITION MEASUREMENT

- X, Y axes – HEIDENHAIN absolute digital optical linear encoders
- Z axis – absolute rotary encoder in motor
- S axis – HEIDENHAIN incremental rotary encoder

ENERGY DISTRIBUTION

- IGUS chain energy carriers

COVERAGE OF MACHINE

- X axis – bed guideways protected by telescopic way cover
- Y axis – complete coverage of the group column/headstock

CE – VALID ONLY FOR THE EUROPEAN UNION

- comprehensive safety elements according to the applicable legislation and technical standards
- covered operator platform
- working area of the machine is fenced off
- further elements arising from the risk analysis

MACHINE PARAMETERS

Tool Standard		
Clamping taper	50	ISO
Tool shank	69871	DIN
Clamping adapter – screw	4100793	TOS
Headstock – V1, V2, V3		
Ram cross section – width x height	315 x 380	mm x mm
Workspindle diameter	100 / 105	mm
Spindle speed range	10 - 3500	rpm
Main motor power (S1/S6-40%)	22 / 34	kW
Maximum spindle torque (S1/S6-40%)	567 / 851	Nm
Z... ram stroke	650	mm
W... spindle stroke	610	mm
Feeds... Z, W – manual mode	4 - 500	mm / min
Feeds... Z, W – automatic mode	4 - 10000	mm / min
Rapid traverse... Z, W	13000	mm / min

Other Axes

X... transversal travel of column	1800 - 12000	mm
X... transversal travel of column – standard	6000	mm
Y... vertical travel of headstock	2000	mm
Feeds... X, Y – manual mode	4 - 500	mm / min
Feeds... X, Y – automatic mode	4 - 10000	mm / min
Rapid traverse... X	28000	mm / min
Rapid traverse... Y	24000	mm / min
Total power consumption – without RT05/08 table	75	kVA
Total power consumption – with RT05/08 table	92	kVA
Machine weight	8500	kg
Total area including CE – approximate		
X = 6000mm + UD4C + UD4D	12000 x 6500	mm x mm
X = 6000mm + UD4 + RT05CNC	12000 x 7300	mm x mm

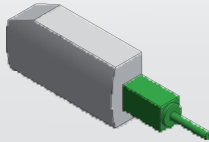
OPTIONALLY + PERIPHERIES ►

CONTROL SYSTEM

- SIEMENS SIN 840D SL + handwheel
- SIEMENS drives and motors

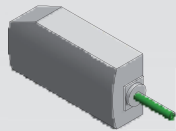
V2 HEADSTOCK

- sliding ram – Z axis
- sliding workspindle – W axis
- W drive – servomotor, planetary gearbox, ball screw
- W guidance – Caged Roller LM Guides
- W clamping – not clamped – positional feedback
- W admeasurement – absolute rotary encoder in motor
- for further details see V1 Headstock



V3 HEADSTOCK

- non-sliding, fixed ram
- sliding workspindle – W axis
- W drive – servomotor, planetary gearbox, ball screw
- W guidance – Caged Roller LM Guides
- W clamping – not clamped – positional feedback
- W admeasurement – absolute rotary encoder in motor
- for further details see V1 Headstock



ATC R04-10 – AUTOMATIC TOOL CHANGER

- rack system on the clamping plate
- application of more racks on different places possible
- for the manipulation with tools the machine workspindle is used
- including TS460 workpiece touch probe

ATC R03-30/40 – AUTOMATIC TOOL CHANGER

- system mounted on the machine column
- magazine with servodrive for tool pocket positioning
- changer driven electrically / pneumatically

ATC R04-10 Parameters

Tool changing time	20	s
Number of tools in one rack	10	pcs
Maximum number of racks	6	pcs
Tool pocket pitch	130	mm
Maximum tool diameter	125	mm
Maximum tool length	500	mm
Maximum tool weight	15	kg
Weight without tools	110	kg

ATC Parameters

	R03-30	R03-40	
Tool changing time	15	15	s
Number of tools	30	40	pcs
Tool pocket pitch	130	130	mm
Maximum tool diameter – unrestricted	125	125	mm
Maximum tool diameter – with free pockets	200	200	mm
Maximum tool length	500	300	mm
Maximum tool weight	15	15	kg
Maximum weight of tools in magazine – total	250	300	kg
Maximum tool unbalance in magazine-wheel	50	70	kg
Maximum wheel speed	8	5	rpm
Operating air pressure	5	5	bar
Required air purity	40	40	µm
Weight without tools	1240	1380	kg

OPTIONALLY + PERIPHERIES ►

RT05CNC / RT08CNC ROTARY TABLE

- CNC rotary table as option or complement of the clamping plate
- complements the machine's travels by V and B axes
- controlling is fully integrated into the control system of the machine
- enlarges the operational capabilities of the machine
- X, Y, Z, W, V, B axes powered in interpolation
- cylindrical interpolation by using the rotary table



RT05CNC Table Parameters

Table loading capacity – rotation	5000	kg
Table loading capacity – static	8000	kg
Table clamping surface	1250 x 1250	mm x mm
	1500 x 1500	mm x mm
Width of T-slots	22 H8	mm
Centering hole diameter	100 H7	mm
V... longitudinal travel of table	1000 / 1500	mm
Feeds... V – manual mode	4 - 500	mm / min
Feeds... V – automatic mode	4 - 10000	mm / min
Rapid traverse... V	20000	mm / min
Feeds of table rotation... B	0 - 5	rpm
Rapid traverse of table rotation... B	10	rpm
Table weight	4000 - 5500	kg
Basic dimensions – length	2600 / 3200	mm
Basic dimensions – width	1250 / 1500	mm
Basic dimensions – height	850	mm

RT08CNC Table Parameters

Table loading capacity	8000	kg
Table clamping surface	1250 x 1250	mm x mm
	1500 x 1500	mm x mm
	diameter 1300	mm
Width of T-slots	22 H8	mm
Centering hole diameter	100 H7	mm
V... longitudinal travel of table	1000, 1250, 1500, 1750, 2000	mm
Feeds... V – manual mode	4 - 500	mm / min
Feeds... V – automatic mode	4 - 10000	mm / min
Rapid traverse... V	20000	mm / min
Feeds of table rotation... B	** 0 - 16	rpm
Rapid traverse of table rotation... B	21	rpm
Table weight	3600 - 4200	kg
Basic dimensions – length	2670, 2920, 3170, 3420, 3670	mm
Basic dimensions – width	1250 / 1500	mm
Basic dimensions – height	900	mm

** increase in speed possible if torque is reduced

OPTIONALLY + PERIPHERIES ◀

CLAMPING PLATE

- UD4C clamping plate – 4020 x 1885
- UD4D clamping plate – 2420 x 1885

CHZ – TOOL COOLING KIT – FLUID

- tool cooling set with jets on headstock front side
- cooling unit integrated into the foundation of the machine
- unit with pump, level gauge, pressure test
- tank volume approx. 1000 l
- maximum pressure 4 bar / 32 l/min
- setup for tool cooling always included – distribution pipes, jets

CHZ-V - TOOL COOLING - AIR

- cold air gun
- cooling without a thermal shock
- positive impact on the accuracy and the surface quality
- high reliability
- environmentally friendly
- low-noise operation
- almost zero operating costs

CHOV-K – COOLING THROUGH SPINDLE AXIS – FLUID

- not possible to add into configuration, once the production has started
- separate cooling unit with filter and magnetic swarf separator required
- maximum pressure 40 bar – fluid – tank volume 1000 l
- partly covered working space of the machine is necessary

UD4C Clamping Plate Parameters

Clamping plate surface	1875 x 4020	mm x mm
Width of T-slots	36 H12	mm
Clamping plate loading capacity	80000	kg
Clamping plate weight	8200	kg
Basic dimensions – width x length x height	1885 x 4020 x 400	mm

UD4D Clamping Plate Parameters

Clamping plate surface	1875 x 2420	mm x mm
Width of T-slots	36 H12	mm
Clamping plate loading capacity	45000	kg
Clamping plate weight	5000	kg
Basic dimensions – width x length x height	1885 x 2420 x 400	mm

CHOV-V – COOLING THROUGH SPINDLE AXIS – AIR

- not possible to add into configuration, once the production has started
- maximum pressure 5 bar

CHOV-M – COOLING THROUGH SPINDLE AXIS – OIL-MIST

- not possible to add into configuration, once the production has started
- separate programmable cooling unit
- maximum pressure 5 bar

CHM – OIL-MIST COOLING

- can be added to machine at any time
- easy to install
- easy to use

SWARF CONVEYOR

- placed in the foundation of the machine (along the bed)
- machine design can be customized

ACCESSORIES



STANDARDLY DELIVERED ACCESSORIES

- spindle guiding support VP170 – for sliding spindle only
- VK-ISO50 cleaning brush
- clamping adapters - 15 pieces
- KM anchoring kit
- basic tool kit for operation and maintenance of the machine
- basic spares kit
- accompanying technical documentation

OPTIONAL ACCESSORIES

- spindle guiding support VP320 – for sliding spindle only
- spindle guiding support VP470 – for sliding spindle only
- manual vertical milling heads HPR50, FP40
- manual universal milling heads HUR50, UFP40
- one/two axis positioning milling heads SEMPUCO
- NC (stepless) two axes milling head SEMPUCO
- COGSDILL facing head – with V2, V3 headstocks only (spindle feed necessary)
- SHC – semiautomatic head changer
- AHC – automatic head changer
- UK500, UK1000, UK2000, UK2500 clamping cube
- UU800, UU950, UU1120, UU1450, UU1620, UU2000, UU2500, UU3000 clamping angle plates
- spares kit for 3-year operation
- HEIDENHAIN DA400 compressed-air filter system
- HEIDENHAIN TS460 3D touch probe with radio/infrared signal transmission
- HEIDENHAIN HR550 FS wireless handwheel
- HEIDENHAIN control system with options like DFX converter, collision monitoring etc.
- CE security mode 3 (for German market only)

MILLING HEAD CHANGER

SEMI-AUTOMATIC MILLING HEAD CHANGING (FOR MANUAL HEADS)

- first step – crane puts head onto the table
- second step – headstock and ram put head onto the ram front
- head clamping – manually / automatically according to the head
- max. 3 milling heads

AUTOMATIC MILLING HEAD CHANGING (FOR AUTOMATIC HEADS)

- changing – headstock, ram, pick-up
- head clamping – automatically
- max. 3 milling heads
- option of combining it with the tool changer R04-10

MANUAL MILLING HEADS

HPR50 – TOS VARNSDORF

- vertical manual milling head
- hydraulic tool clamping / unclamping by means of tongues
- tool cooling through the spindle axis or by means of jets

HUR50 – TOS VARNSDORF

- universal manual milling head
- hydraulic tool clamping / unclamping by means of tongues
- tool cooling through the spindle axis or by means of jets

AUTOMATIC MILLING HEAD

KF-D2/90 – SEMPUCO

- vertical positioning milling head
- one-axis, 90°, pitch 1° or 2,5°

KFU-D2/90 – SEMPUCO

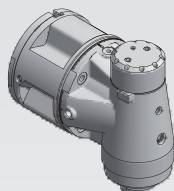
- universal, orthogonal positioning milling head
- two-axes, 90° / 90°, pitch 1° or 2,5°

KFU-D2/45 – SEMPUCO

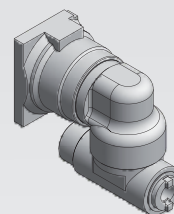
- universal positioning milling head
- two-axes, 90° / 45°, pitch 1° or 2,5°

KFU-NC2/45 – SEMPUCO

- V1 – universal milling head – dividing accuracy 5" (0,0014°)
- V2 – universal NC milling head, for NC mills
- two-axes, 90° / 45°, continuous



manual milling head
HPR50



automatic milling head
KFU-D2/90

FACING HEADS

RET10P

BASIC INFORMATION

- mechanical facing head driven by machine spindle
- slide stroke derives from work spindle stroke
- coolant supply for the tool through spindle axis
- surface quality up to Ra1,6; hole accuracy H7

ZX 200-TC – COGSDILL

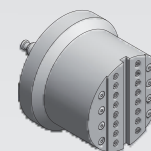
- Dmax = 500 mm; Mmax = 100 Nm; Nmax = 800 rpm; m = 107 kg
- slide stroke U axis = 38 mm

ZX 300-TC – COGSDILL

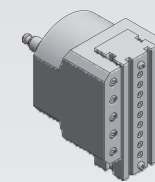
- Dmax = 800 mm; Mmax = 800 Nm; Nmax = 500 rpm; m = 168 kg
- slide stroke U axis = 75 mm

ZX 420-TC – COGSDILL

- Dmax = 980 mm; Mmax = 800 Nm; Nmax = 350 rpm; m = 175 kg
- slide stroke U axis = 102 mm



ZX 200-TC



ZX 420-TC

RETOS VARNSDORF s.r.o.

CZECH PRODUCER OF HORIZONTAL BORING MILLS WITH WORLDWIDE SALES NETWORK

The development of our new horizontal boring mills has benefitted from our long experience resulting from over 800 overhauls and modernisations. Therefore, we attach great importance to flexibility, easy maintenance, longevity and reliability of our products as well as to maximum environmental friendliness. We are a stable company founded in 1993 with about 100 motivated employees and a turnover of about 8 million €.

WE ARE YOUR PARTNER

- Production
- Service
- Sale
- Spare parts
- Consultation
- Overhauls and modernisations

PRODUCTION OF NEW MACHINES

- RET10X – CNC T-type boring mill
- RET100B – CNC table type boring mill
- RET10P – CNC floor type boring mill
- W100A – conventional table type boring mill
- customizable machine design with a wide range of technological accessories

SERVICE

- Customer service and machine maintenance during and after the warranty period with the option of a service contract
- Geometry measurement and accuracy and performance optimisation of your machine applying conventional methods as well as laser interferometers and ballbars
- Machine relocation (disassembly, transport, assembly, putting into operation)

OVERHAULS AND MODERNISATIONS

- Partial and general overhauls of RETOS VARNSDORF and TOS VARNSDORF boring mills
- CNC and conventional machine types
- Overhauled or modernised machines have technological capabilities comparable with new machines of the same category

MADE IN EUROPE

- Production and overhauls performed by experienced experts at our premises in the Czech Republic
- High-quality gray iron parts of traditional Czech production
- ISO 9001:2015 and ISO 14001:2015 certified

CONTACTS AND ADDRESS

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SALES

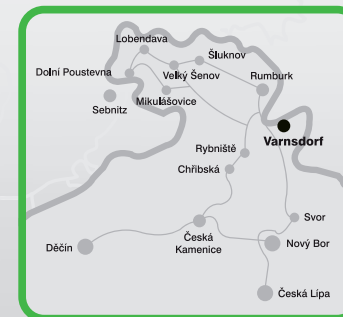
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