



10XP
SERIES

RETOS
VARNSDORF

RET10P

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 machine functions, except for clamping and unclamping, are controlled via the control panel, which consists of a keyboard, a switch panel and an LCD monitor
- the clamping and unclamping of tools is controlled by the key on the wall inside the operator platform
- 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, machine operation monitoring, diagnostics or servicing of the control system, etc.

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 – Caged Roller LM Guides

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

- chain energy carriers

COVERAGE OF MACHINE

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

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	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	2000 - 12000	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
Machine and accessories standard colour	white 9010 / green 6018	RAL
Fence standard colour	black 9011 / yellow 1018	RAL
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

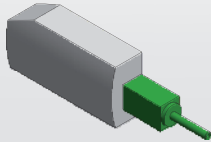
OPTIONALLY + PERIPHERIES ►

CONTROL SYSTEM

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

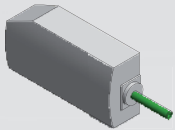
V2 HEADSTOCK

- 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



CE – COMPULSORY IN EU

- 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

ATC R04-10 – AUTOMATIC TOOL CHANGER

- rack system on the clamping plate
- application of more racks on different places possible
- tool changing by workspindle of the machine
- including TS460 workpiece touch probe

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 R03-30 – AUTOMATIC TOOL CHANGER

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

ATC Parameters

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

RET10P



OPTIONALLY + PERIPHERIES ►

RT05 / RT08 ROTARY TABLE

- V1 – positioning rotary table (RT08)
- V2 – interpolation rotary table (RT05 a RT08)
- 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
- B axis powered only positionally (V1)
- X, Y, Z, W, V, B axes powered in interpolation (V2)
- cylindrical interpolation by using the rotary table (V2)



RT05 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
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

RT08 Table Parameters – V1, V2

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
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	25000	mm / min
Feeds of table rotation... B ...V1/V2	0 - 8 / 0 - 16	rpm
Rapid traverse of table rotation... B ...V1/V2	14 / 21	rpm
Table weight	3600 - 4200	kg
Basic dimensions – length	2670, 2920, 3170, 3420, 3670	mm
Basic dimensions – width	1800 / 2106	mm
Basic dimensions – height	900	mm

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 and level gauge
- tank (pit) volume approx. 1000 l (usable)
- 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
- 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
- tank volume 1000 l
- maximum pressure 40 bar / 30 l/min
- other alterations to machine and CE features
- for pressure higher than 10 bar a workpiece or machine cover is necessary

UD4C Clamping Plate Parameters

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

UD4D Clamping Plate Parameters

Clamping plate surface	2420 x 1875	mm x mm
Width of T-slots	36 H12	mm
Clamping plate loading capacity	45000	kg
Clamping plate weight	5000	kg
Basic dimensions – length x width x height	2420 x 1885 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 VP10-170 – 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

- VP10-320 spindle guiding support – for sliding spindle only
- VP10-470 spindle guiding support – for sliding spindle only
- HPR50, FP40 vertical manual milling head
- HUR50, UFP40 universal manual milling head
- SEMPUCO vertical and universal indexing head
- SEMPUCO universal NC milling head
- COGSDILL facing head – with V2, V3 headstocks only (spindle feed necessary)
- SHC – semiautomatic head changer
- AHC – automatic head changer
- MT03/MT03X rotary table
- UK500, UK1000, UK1500, UK2000, UK2500, UK3000 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
- 3D touch probes with radio/infrared signal transmission (Heidenhain/Renishaw/Hexagon)
- HEIDENHAIN HR550 FS wireless handwheel
- CE security mode 3 (for German market only)

MILLING HEAD CHANGER

SEMIAUTOMATIC 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

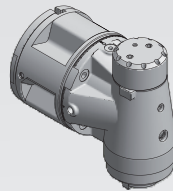
- universal, orthogonal positioning milling head
- two-axes, 90° / 90°, pitch 1° or 2,5°

KFU-D2/45 – SEMPUCO

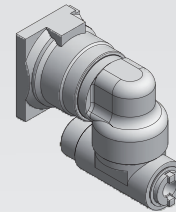
- universal positioning milling head
- two-axes, 90° / 45°, pitch 1° or 2,5°

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

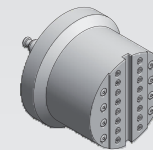
- Dmax = 500 mm; Mmax = 100 Nm; Nmax = 800 rpm; m = 107 kg
- slide stroke U axis = 38 mm

ZX 300-TC – COGSDILL

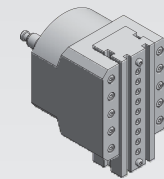
- Dmax = 800 mm; Mmax = 800 Nm; Nmax = 500 rpm; m = 168 kg
- slide stroke U axis = 75 mm

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
- Sale
- Consultation
- Modernisations
- Overhauls
- Second hand machines
- Service
- Spare parts

PRODUCTION OF NEW MACHINES

- RET10X – CNC T-type boring mill
- RET10P – CNC floor type boring mill
- RET100B – CNC table type boring mill
- customizable machine design with a wide range of technological accessories
- W100A – conventional table type boring mill
- HP100A – conventional floor type boring mill

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 cast iron parts of traditional Czech production
- ISO 9001 certified

CONTACTS AND ADDRESS

MANAGING DIRECTOR

Ing. Jan Müller
Tel.: +420 413 039 103
E-mail: info@retos.cz

SALES

Ing. Jaroslav Dvořák / Martin Boháč
Tel.: +420 413 039 105
E-mail: sales@retos.cz

SERVICE

Martin Boháč
Tel.: +420 731 608 198
E-mail: service@retos.cz

SPARE PARTS

Šárka Dinebierová
Tel.: +420 413 039 126
E-mail: spares@retos.cz



RETOS VARNSDORF s.r.o.

Žitavská 913, 407 47 Varnsdorf, Czech Republic
IČO: 62739204 | DIČ: CZ-62739204
www.retos.cz

