

WHP10CNC is a contouring floor type of horizontal boring machine of original design of the company ReTOS Varnsdorf s.r.o. It is an option to the manually operated machine HP100, which was being produced during the 60's and 70's of the last century. The machine has been designed according to the frequent customer's requests for redesign of the mentioned machine HP100 to CNC model.

Features

- contouring floor type of horizontal boring machine WHP10CNC
- transversal travelling column with headstock
- 3 linear axes
- sliding workspindle
- machine designed for machining of large workpieces
- machine designed for serial and low-volume engineering production
- suitable for roughing as well as for finishing
- optionally can be fitted by tool cooling kit (CHZ), cooling through spindle axis (CHOV), oil-mist cooling or swarf conveyor
- workpiece is clamped to a clamping plate or a rotary table (it is not a part of the machine)

Controlling of the machine

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

Low-end version

Control system

- HEIDENHAIN iTNC 530 + handwheel
- SIEMENS SIN 840D + handwheel

Powered Axes

- X – travel of column slide on bed
- Y – vertical headstock travel on column
- W – spindle travel
- S – rotation of sliding workspindle incl. its oriented stopping

Machine capabilities

- X, Y, W axes powered in interpolation
 - linear interpolation of three axes
 - circular interpolation of two of three axes powered in interpolation
 - spiral interpolation
 - spacial interpolation - spline in space
- ### Kinematics of the W axis
- brushless digital servomotor with servo-drive
 - clearance-free gearing of the timing belt
 - ball screw

Kinematics of the Y axis

- brushless digital servomotor with servo-drive
- ball screw - directly driven from motor

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

Group guidance

- X, Y axes – rolling guideways
- W axis – sliding guideway, cast-iron / steel

Lubrication

- central, axial lubrication
- frequency of lubrication cycles correlates to travelled track of a particular group

Clamping

- X, Y, W axes - positional feedback

Headstock

- sliding workspindle
- spindle driven by four mechanical lines – gears
- hydraulic shifting of each line
- setup of tool cooling by jets on headstock front side

Hydraulic power packs

- HYTOS lubrication set - lubrication of all groups
- HYTOS pressure set - unclamping of the tool

Admeasurement of position

- X, Y, W axes – read out from motor – EnDat

- S axis – HEIDENHAIN ROD 486

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

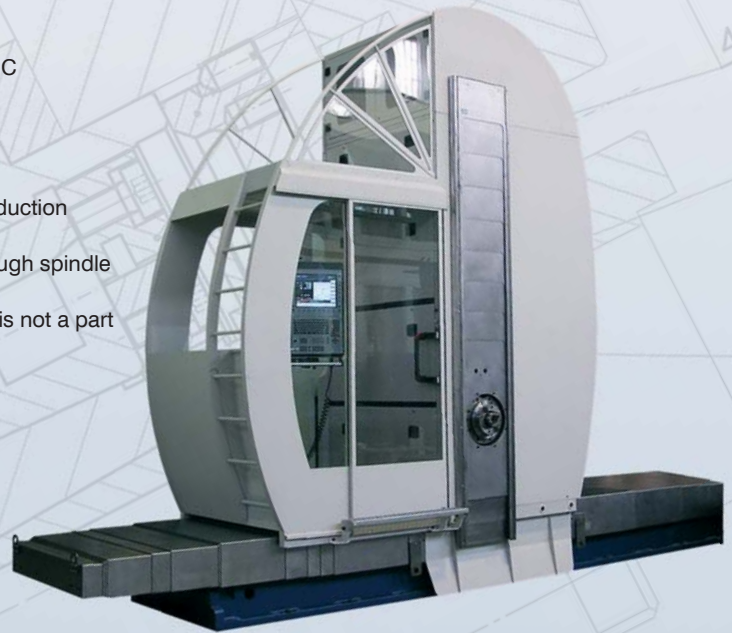
CE

- 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

Optionally + peripheries

CHZ

- 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
- maximal pressure 4 bars / 32 l/min
- setup for tool cooling always included – distribution pipes, jets

CHOV

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

Oil-mist cooling

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

Swarf conveyor

- placed in the foundation of the machine (along the bed)

Clamping plate

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

RT05CNC rotary table

- CNC rotary table as option or complement of the clamping plate
- complements the machine moveable groups of Z 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, B axes powered in interpolation
- linear interpolation of four axes
- circular interpolation of two of four axes powered in interpolation
- spiral interpolation
- spacial interpolation - spline in space
- cylindrical interpolation by using of the rotary table

Standardly delivered accessories

- spindle clamping support
- VK-ISO50 cleaning brush
- clamping adapters - 15 pcs
- KM anchoring kit
- basic tool kit for operation and maintenance of the machine
- basic spares kit
- technical documentation

Optional accessories

- CHZ tool cooling kit
- CHOV cooling through spindle axis kit
- Oil-mist cooling (basic configuration)
- FP40-10 rectangular milling head (usable only in combination with RT05CNC)
- UFP40-10 universal milling head (usable only in combination with RT05CNC)
- UK500 clamping cube

Machine parameters	
Control system + motors / drives	Heidenhain iTNC 530 + Heidenhain Siemens SIN 840 D + Siemens
Workspindle diameter	100 mm
Clamping taper	50 ISO
Tool shank	2080 DIN
Clamping adapter - screw	69872-A DIN
Spindle speed range	10 - 2500 rpm
Main motor power	20 kW
Main motor nominal speed	2000 rpm
Main motor maximal speed	8000 rpm
X...transversal travel of column	1800 - 12000 mm
X...transversal travel of column - standard	6000 mm
Y...vertical travel of headstock	2000 mm
Minimal spindle axis high above clamping plate surface	...up to the customer mm
W...spindle stroke	710 mm
Distance of spindle face from clamping plate edge - without spindle support	180 mm
Distance of spindle face from clamping plate edge - with spindle support	30 mm
Feeds...X, Y, W - manual mode	4 - 500 mm / min
Feeds...X...automatic mode	4 - 28000 mm / min
Feeds...Y...automatic mode	4 - 24000 mm / min
Feeds...W...automatic mode	4 - 6800 mm / min
Rapid traverse...X	28000 mm / min
Rapid traverse...Y	24000 mm / min
Rapid traverse...W	6800 mm / min
Total power consumption - without table RT05CNC	62 kVA
Total power consumption - with table RT05CNC	85 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

UD4C clamping plate parameters

Clamping plate surface	1875 x 4020 mm x mm
Width of T-slots	36 H12 mm
Clamping plate loading capacity - with accuracy guarantee	50000 kg
Clamping plate loading capacity - without accuracy guarantee	80000 kg
Clamping plate weight	8200 kg
Basic dimensions - width x length x high	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 - maximal	45000 kg
Clamping plate weight	5000 kg
Basic dimensions - width x length x high	1885 x 2420 x 400 mm

RT05CNC table parameters

Table loading capacity - rotation	5000 kg
Table loading capacity - static	8000 kg
Table clamping surface	1250 x 1250 mm x mm
Width of T-slots	28 H8 mm
Centring hole diameter	100 H7 mm
Z...longitudinal travel of table	1000 mm
Feeds...Z	1 - 20000 mm / min
Feeds...B	0 - 5 rpm
Rapid traverse...Z	20000 mm / min
Rapid traverse...B	10 rpm
Table weight	4000 kg
Basic dimensions - length	2600 mm
Basic dimensions - width	1250 mm
Basic dimensions - high	850 mm

- UU800, UU950, UU1120 clamping angle plates
- spares kit for 3-year operation
- 3-D touch probe TS 640 HEIDENHAIN with infrared signal transmission

- Machine design can be tailored to suit the needs of the client