

ReTOS Varnsdorf s.r.o., The Czech Republic, followed up with 40 years tradition in the field of horizontal boring machines overhauls. We use the most modern technologies as our parent company TOS Varnsdorf a.s.

Features

- contouring horizontal boring machine
- cross-shaped beds
- 4 linear axes, rotary table
- sliding workspindle
- machine designed for universal application in engineering production
- suitable for roughing as well as for finishing
- optionally can be fitted by tool cooling kit (CHZ), oil-mist cooling or swarf conveyor
- also can be fitted by non-sliding workspindle up to 5000 rpm or by motorspindle as specified by client

Controlling of the machine

- all functions of the machine, except tool clamping and unclamping, are controlled via the control panel, which consists of a keyboard, a switch panel and a LCD monitor
- the tool clamping and unclamping is controlled by switches on the headstock
- the control panel is completed with a portable control panel (hand-wheel), which duplicates some basic functions of the control of the machine
- the control panel is situated on the rotary console in front of the headstock
- the control system allows manual, semiautomatic and fully automatic modes
- 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

Powered Axes

- X - travel of rotary table slide on transversal bed
- Z - travel of column slide on longitudinal bed
- Y - vertical headstock travel on column
- B - table rotation
- S - workspindle rotation

Manually driven axes

- W - spindle travel driven by handwheel

Machine capabilities

- X, Y, Z axes powered in interpolation
- B axis powered only positionally
- linear interpolation of three axes
- circular interpolation of two of three axes powered in 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 usage of a compensating bush

Kinematics of the X, Y, Z axes

- brushless servomotor

with servo-drive

- clearance-free gearing of the timing belt

- ball screw

Kinematics of the W axis

- handwheel on headstock
- gear set
- trapezoidal screw

Kinematics of the B axis

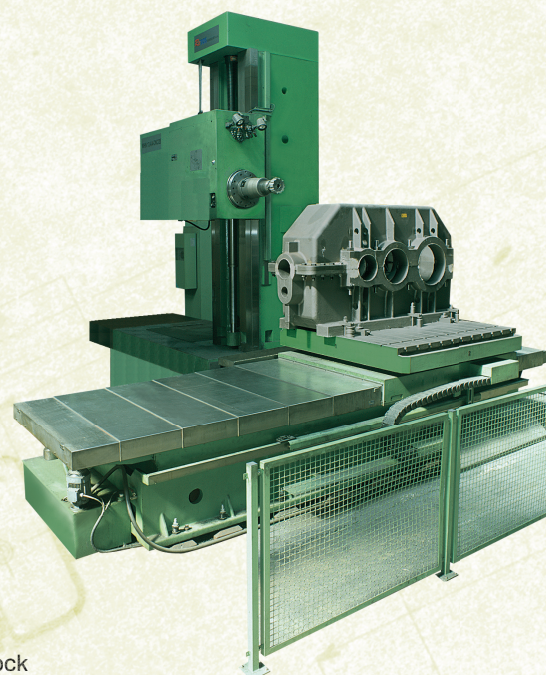
- brushless servomotor with servo-drive
- planetary gearbox with minimum clearance
- gear set + gear ring

Group guidance

- guideways on all linear axes are reinforced with hardened steel plates
- counterways casted by plastic or lined with TURCITE (up client request)
- counterways of headstock are lined with TURCITE including keys
- guideways of the rotary table are casted by plastic

Lubrication

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



Clamping

- X, Y, Z, B, W axes - hydraulically

Headstock

- sliding workspindle
- spindle driven by four mechanical lines - gears
- hydraulic shifting of each line
- headstock balancing - ropes and counterweight led in column
- setup of tool cooling by jets on headstock front side

Hydraulic power pack

- HYTOS hydraulic and lubrication set
- lubrication of all axes
- clamping X, Y, Z, B, W
- clamping of the tool

Admeasurement of position

- HEIDENHAIN digital optical admeasuring
- X, Y, Z axes - LS 187 rules
- W axis - LS 388 rule
- B axis - ROD 780
- S axis - ROD 486

Energy distribution

- IGUS chain energy carriers

Coverage of machine

- complete coverage of guideways of X, Z axes
- partial coverage of Y axis

- CE** - valid only for the European Union
- comprehensive safety elements according to the applicable legislation and technical standards
 - operator housing
 - working area of the machine is fenced off

Optionally

CHZ

- tool cooling set with jets on headstock front side
- separate cooling unit - tank with pump, level gauge, pressure test
- tank volume approx. 150 l
- maximal pressure 4 bars / 32 l/min
- setup for tool cooling always included - distribution pipes, jets

Oil-mist cooling

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

Non-sliding spindle

- non-sliding spindle up to 5000 rpm
- distance of spindle face from headstock face c. 350 mm
- spindle drive with four hydraulically switched mechanical lines remains principally the same

Motorspindle

- spindle parameters as specified by client

Swarf conveyor

- placed under longitudinal bed in hole in machine foundation (between table and column)

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

Machine parameters

Control system + motors / drives	Heidenhain iTNC 530 + Control Techniques	
Workspindle diameter	110	mm
Clamping taper	50	ISO
Tool shank	2080	DIN
Clamping adapter - screw	4100597	TOS
Spindle speed range	10 - 900	rpm
Main motor power	34	kW
Main motor nominal / maximal speed	2800	rpm
X...transversal travel of table	1600	mm
Z...longitudinal travel of column	1000	mm
Y...vertical travel of headstock	1250	mm
W...spindle stroke	630	mm
Table clamping surface	1250 x 1250	mm x mm
Width of T-slots	23 H8	mm
Table loading capacity	8000	kg
Feeds... X, Y, Z - manual mode	4 - 500	mm / min
Feeds... X, Y, Z - automatic mode	4 - 8000	mm / min
Rapid traverse...X, Y, Z	8000	mm / min
Rapid traverse of table rotation...B	2,4	rpm
Nominal torque of feed motors... X, Y	27	Nm
Nominal torque of feed motors... Z	34	Nm
Nominal torque of feed motors... B	20	Nm
Nominal speed of feed motors	2000	rpm
Total power consumption	80	kVA
Machine weight	27000	kg
Total area including CE - approximate	7400 x 6500	mm x mm