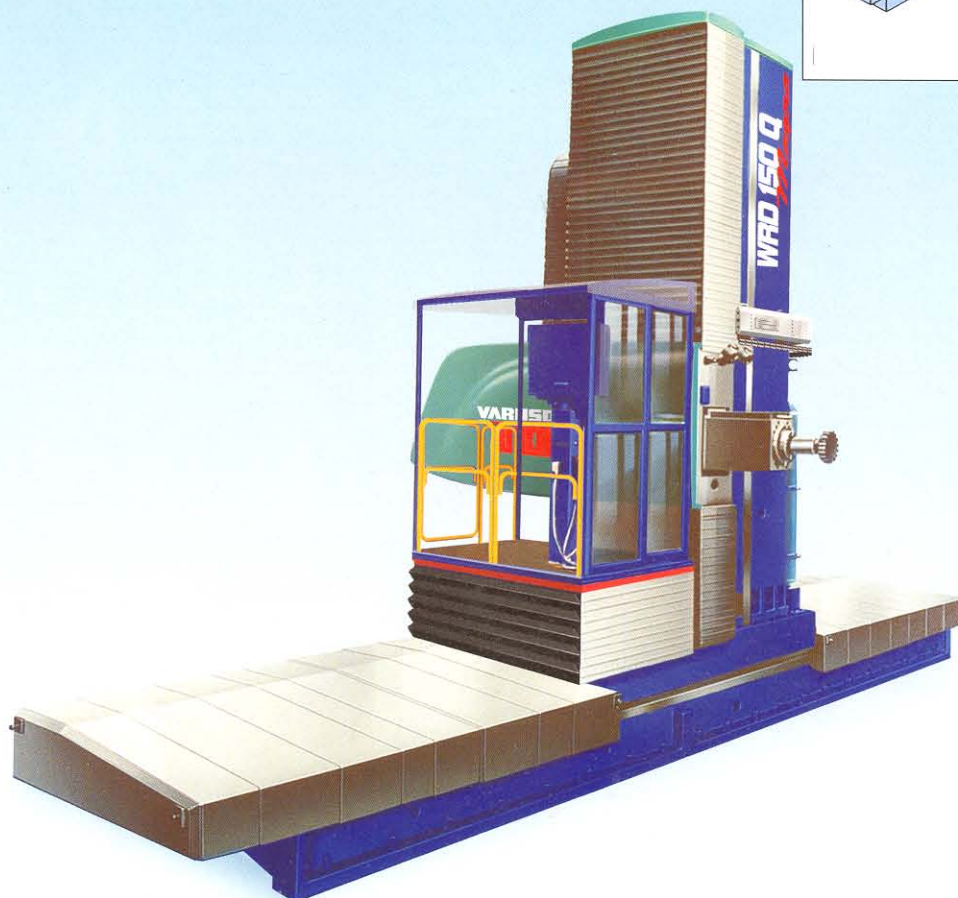


The WRD 150 (Q) floor type horizontal boring machine is the biggest representative of the new program of boring machines produced by TOS VARNSDORF a. s. The machine provides high cutting performance within the entire operating area and high comfort of user functions. The combination of the progressive and traditional features of its construction and cutting-edge technology provides the user with excellent conditions for the efficient machining of large size and heavy weight workpieces while using the most demanding technological processes.



The TOS VARNSDORF a. s. company based in Varnsdorf, the Czech Republic, ranks among the leading manufacturers of horizontal boring machines. It was established in 1903 and its products, in use all over the world, reflect the vast experience and skills of several generations of technicians and workers and the high technological level of the company.

In 1996, TOS VARNSDORF a. s. acquired the ISO 9001 (rev.1994) certificate confirming the quality of the design, production and sales of its products.

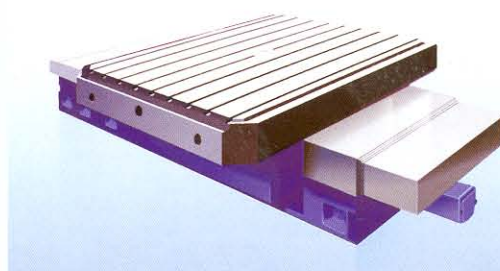
The WRD 150 (Q) machine is a progressive floor type boring machine with a ram and live workspindle. It is continuously controlled in four axes (X,Y,Z,W) by the Heidenhein TNC 430 M or Sinumerik 840 D control system or by a system fitted according to the customer's requirements. If the machine is fitted with an additional rotary table, another two axes (w and B) are fully controlled.

The main drive as well as all others drives for the machine axes are digital AC types of Siemens. The modular conception of the machine allows the user to choose the optimum design meeting the user's technological requirements from many variants of the machine. Depending on the travel of the X and Y coordinates, the user selects the operating area arrangement consisting of UD 4 clamping plates and the configuration of one or more rotary tables. The technological performance of the machine may be considerably expanded by the use of special technological accessories.

THE AVAILABLE MODELS OF THE MACHINE:

WRD 150 - horizontal boring mill with a ram and live spindle. As per the customer's requirements, the machine may be equipped with the S 25 additional rotary table or with a table of a higher load capacity controlled from the machine control system.

WRD 150 (Q) - the same model, equipped with the automatic tool changer (ATC). The ATC conception is of the chain tool magazine type with a traveling changer carrying the tools between the magazine and spindle.



S 25 add-on rotary table

BASIC SPECIFICATIONS

The axes' labeling as seen below applies to the TNC 430 control. The labelink with Sinumerik 840 D differs in some axes.

Workspindle diameter	mm	150
Workspindle diameter		ISO 50
Spindle speed range	RPM	10 - 2 500
Ram cross-section	mm	450 x 450
Main motor power	kW	55
Column transverse travel (X)	mm	4 000 - 20 000 (modules of) 2 000
Headstock transverse travel (Y)	mm	2 000 - 4 000 (modules of) 500
Ram travel (Z)	mm	1 000
Spindle stroke (W)	mm	800
Add-on table longitudinal travel (w)	mm	1 300, 1 800
Working feed in the coordinates X, Y, Z, W, w	mm.min ⁻¹	1 - 8 000
Rapid traverse in the coordinates X, Y	mm.min ⁻¹	16 000
Rapid traverse in the coordinates Z, W	mm.min ⁻¹	12 000
S 25 ADD-ON ROTARY TABLE		
Table clamping surface	mm	2 000 x 2 000, 2 000 x 2 500
Workpiece maximum load	kg	25 000
Turning of the table - working feed	RPM	0,003 - 1,5
- rapid traverse	RPM	2,5
AUTOMATIC TOOL CHANGE		
Number of tools in the magazine		40, 50, 60
Tool maximum diameter - fully loaded magazine	mm	125 - 150
- empty adjacent pockets	mm	320
Tool maximum length	mm	500
Tool maximum weight	kg	30
Average time - change period	s	20

The Spindle is driven via three automatically changeable gear trains. The spindle is nitrated and guided within a nitrated quill. The quill and spindle sub-assembly is housed within the ram body. The whole sub-assembly runs in a coupled pair of precision, pre-loaded, spindle type ball bearings.

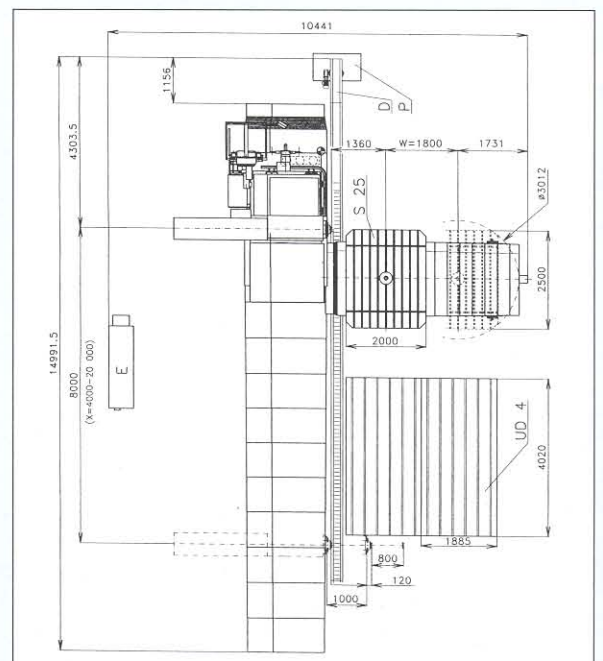
The skewing effect on the ram as it travels out and in (caused by alternations in mass distribution at the headstock section) is compensated for by a hydro-mechanical system.

There is an **Operator Lift**, mounted upon the column saddle. Vertically it can be positioned independently on the headstock travel. If need be, the cabin's motor driven floor may be extended to a closer proximity of the workpiece.

UD 4 FLOOR PLATES are delivered as optionals. The clamping surface of a floor plate is 1875x4000 mm. The plates are used to create a field for clamping of extremely large and heavy workpieces.

SPECIAL ACCESSORIES:

- HF 50 A - Vertical Milling Head
- HFU 50 A - Universal Milling Head
- HUI 50 - Universal Milling Head, automatically adjustable
- Device for the automatic change of the technological equipment
- CHZ 150 WRD - Tool Cooling Kit
- CHOV 150 WRD - Tool Cooling Kit - coolant through the spindle
- Chip conveyor
- Protecting devices - fencing, protecting covers etc.
- Operating area protecting guard



Dimensional outline of a workstation **WRD 150 Q**. An example setup with the X axis travel of 8000 mm, **S 25** add-on table and two **UD 4** floor-plates.

TOS AMERICA INC