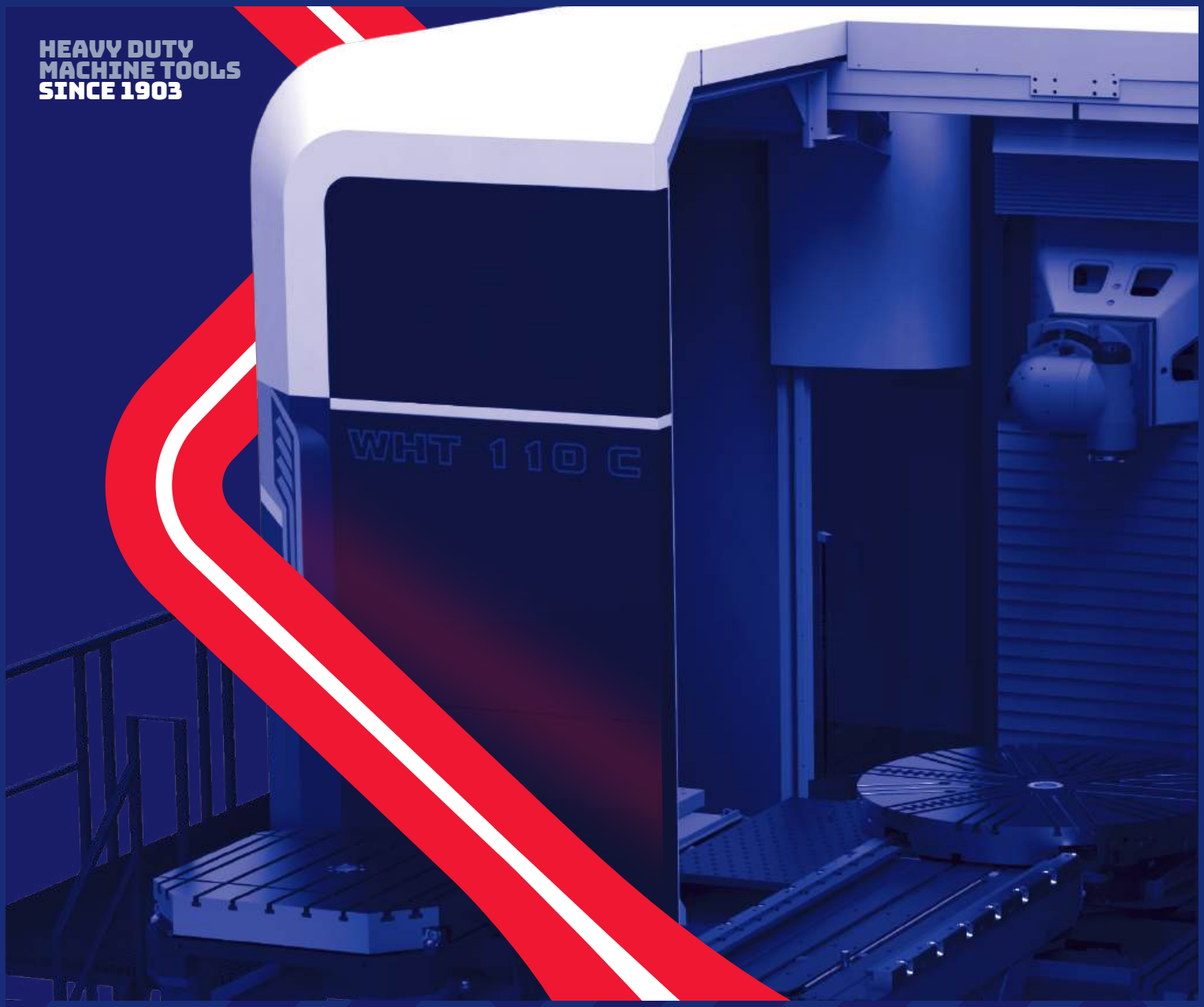
HEAVY DUTY
MACHINE TOOLS
SINCE 1903



PRODUCTION PROGRAMME

Certifikovaný systém řízení
VARNSDORF TOS
SKQS
ISO 9001:2015

HORIZONTAL MACHINING CENTERS

HORIZONTAL BORING MILLS

PORTAL MILLING MACHINES

VARNSDORF
TOS

1903

The company
was established

53,7

Milion EUR was the annual
turnover of the company
for the year 2022

418

Is the number
of employees

30

Football pitches
would fit on the land
of TOS VARNSDORF a.s.

19 951

Machines sold
between 1941 and 2022

7

Subsidiaries
companies around
the world

0,01

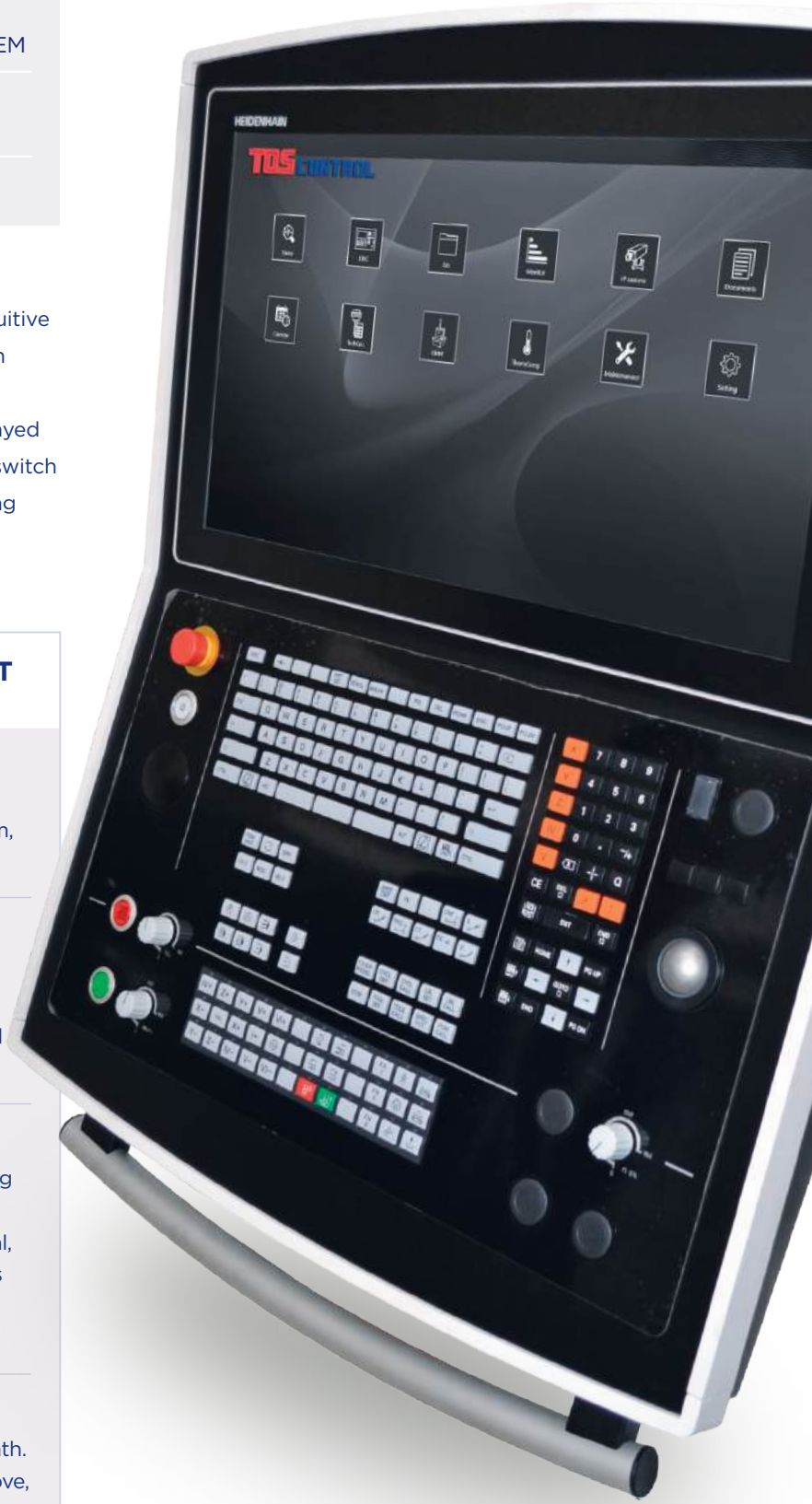
Machine accuracy
in the order of hundreds
of a millimeter

TOScontrol

MAIN ADVANTAGES OF THE SYSTEM

- ON-LINE DATA EXCHANGE WITH ERP SYSTEM
- SPECIALIZED APPS FOR EXTENSITON OF FUNCTIONALITIES
- USER-FRIENDLY CONTROLS

TOScontrol is a set of applications and functions for advanced machine management. For easy and intuitive operation, the system consists of a default screen with icons for each application (similar to mobile device operating systems). The applications are clearly displayed on the machine's control panel and the operator can switch between them easily. The solution also includes, among other things, user account management. **TOScontrol** is part of the standard equipment of all machines.



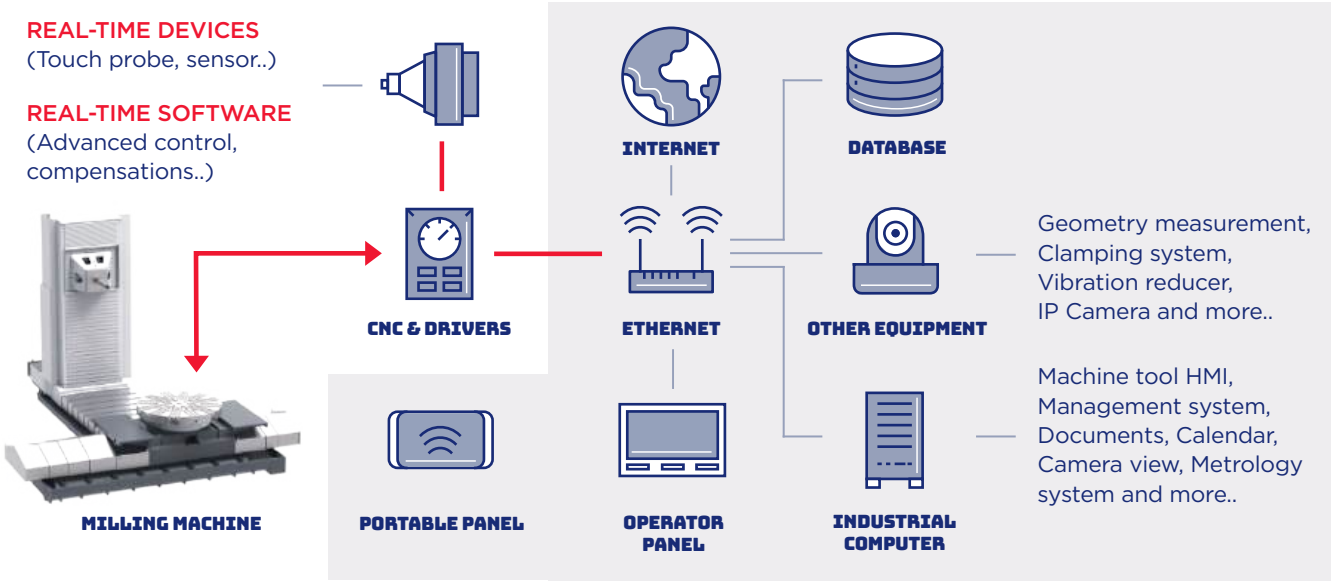
STANDARD MACHINE EQUIPMENT

STATUS SCREEN
Clearly displays basic information about the machine (coordinates, program, alarms, logged in user, etc.).

CNC CONTROL SYSTEM
Displays the standard control system screen supplemented by a sidebar with a button for returning to the TOS Control default screen.

DOCUMENTATION
This is an application enabling the reading and management of PDF documents (e.g. operating instructions, repair manual, etc.), including the creation of user rights and the creation of tabs and notes in documents.

CALENDAR
Standard calendar view - day, week, month. Event/ service event - add, change, remove, remind. All data stored in the local database.



OPTION APPLICATIONS

Not included in standard TOS equipment.

IP CAMERA

The application enables control of one or more motorised cameras located on any part of the machine. Data from the camera can also be used to facilitate machine operation.

INSPECTION AND COMPENSATION

This is metrological software integrated into the control system, which together with the touch probe allows the work-piece to be measured accurately and directly on the machine making it possible to perform the automatic compensation of errors and program debugging.

JOB – WORK ADMINISTRATOR

Displays the work order view and the overview of operations directly on the machine tool control panel, which is linked to the ERP system. It is also possible to add other documents into the application, e.g., operation description, photographs, tables of NC programs.

MACHINE MONITOR

An integrated system for monitoring the history of machine tool use. This system displays the time axis of basic machine states, e.g., ready, production, production slowdown, error, off, etc.

UPCOMING APPLICATIONS

Apps we are currently developing.

TECHNOLOGICAL CALCULATOR

A technology consultant for a selected tool that facilitates the selection and control of cutting conditions and provides optimal utilisation of the tool properties.

THERMAL COMPENSATION

This is an application that depicts a virtual model of the machine tool's thermal behaviour and comparison of previously measured thermal deformation with the current thermal conditions of the machine. Based on this comparison, the application compensates the actual thermal deformation of the machine.

PREDICTIVE MAINTENANCE

Expands the machine monitor application to enable service intervention prediction to decrease maintenance costs and prolong machine operation.

HORIZONTAL TABLE-TYPE MILLING MACHINES

WH 10

WH 105

WHN 110/130

WHN 13/15

WHR 13

MAXIMA I/II

- high value to price ratio
- universal and proven design
- simple operation, workshop programming
- option to finish all operations with a single clamping – when using a rotary table
- reduction of idle times – pallet arrangement

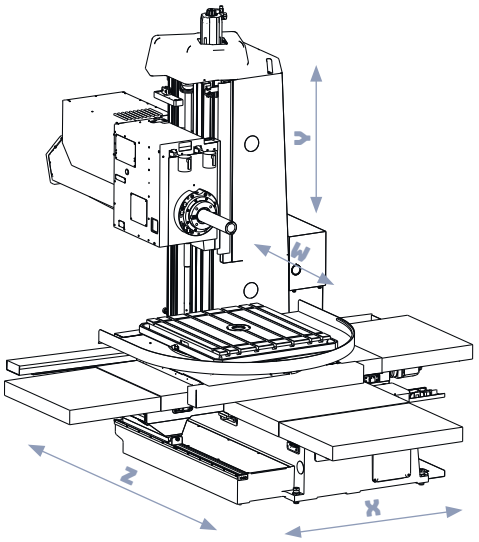
Horizontal table-type milling and boring machines with a cross-arrangement of the beds. The machines are on top-class technical level corresponding to the needs of modern progressive technology. The machines design offers a wide choice of versions in all parameters, thus allowing the customer to choose the optimum version. The horizontal table-type machines off er eff ective machining with a great cutting performance and high precision.

These machines have a proven design and are suitable for universal usage.

WH 10

MAIN ADVANTAGES OF THE MACHINE

- SUITABLE FOR SMALL WORKPIECES UP TO 3 TONS
- POSSIBLE ATC OPTION
- SUITABLE FOR PIECE OR SMALL BATCH PRODUCTION



WH 10 is a horizontal table-type boring machine with travelling work spindle 100 mm in diameter and maximum weight capacity of the table 3,000 kg. This is the smallest machine in the TOS VARNSDORF range.

The optimally dimensioned structure from grey cast-iron consists of a Fixed Column and a longitudinal bed with a cross moving Rotary Table. Thanks to a rigid structure excellently absorbing vibrations, suffi ciently dimensioned drives and accurate guides, the machine is designed for universal cutting operations of Prismatic parts, light workpieces from cast iron, cast steel and steel including technologically demanding operations. The machine can be extended by special equipment, peripheral devices and special technological equipment (e.g. spindle supports, facing head, milling heads, chucking equipment, etc.).

TECHNICAL PARAMETERS

HEADSTOCK		
Work spindle diameter	mm (in)	100 (3.9370)
Spindle taper		ISO 50
Spindle speed range	RPM	10–2,500
Main motor power (S1 / S6 – 60%)	kW (HP)	22.5 (30.6) / 34 (46.2)
Torque on spindle (S1 / S6 – 60%)	Nm (ft lb)	812 (598.9) / 1,218 (898.4)
Spindle stroke W	mm (in)	710 (27.9527)
COLUMN		
Headstock vertical travel Y	mm (in)	1,100 (43.3070)
Table longitudinal travel Z	mm (in)	940 (37.0078)
ROTARY TABLE		
Transverse table travel X	mm (in)	1,250 (49.2125)
Max. workpiece weight	kg (lbs)	3,000 (6613)
Table clamping area	mm (in)	1,000 x 1,120 (39.3700 x 44.0944)
FEEDS		
Range of feeds (working and rapid traverse) – X, Y, Z, W	mm/min (ipm)	4–8,000 (0.1574–314.9606)
– B	RPM	0.003–2

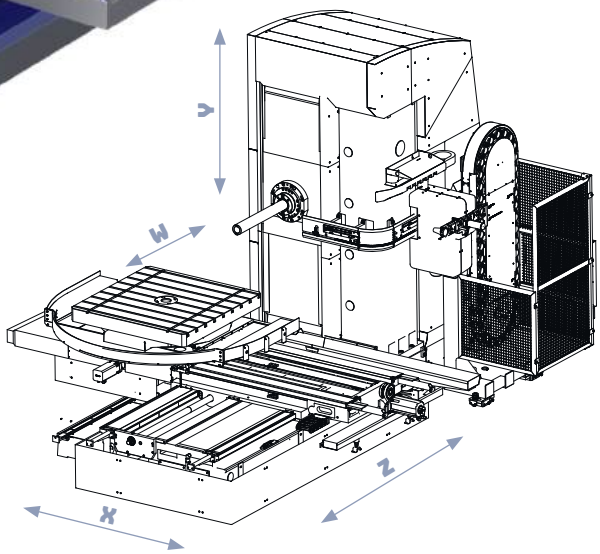
MACHINE CONFIGURATION

- basic version with work spindle diameter 100 mm
- version with an automatic tool change

WH 105

MAIN ADVANTAGES OF THE MACHINE

- COMPACT AND MODERN STRUCTURAL DESIGN
- WORKPIECE UP TO 4 TONS
- OPTION TO USE MILLING HEADS



The horizontal milling and boring machine **WH 105** is a modern, efficient, continuously controlled milling machine. The high cutting parameters and broad comfort of technological features predestine this machine for application in very demanding technological operations. The continuous control of the X, Y, Z and W coordinates and the rotating positioning table create conditions for universal application. It can be used for efficient milling of box-type components from multiple sizes as well as milling of moulds and other complicated workpieces.

The machine can be supplemented with a series of technological devices, which greatly extend technological possibilities.

TECHNICAL PARAMETERS

HEADSTOCK		N	R	R4
Work spindle diameter	mm (in)	105 (4.1338)		
Spindle taper		ISO 50		
Spindle speed range	RPM	10–2,300	10–3,300	10–4,000
Main motor power (S1 / S6 – 60%)	kW (HP)	29 (39.4) / 35 (47.6)		
Torque on spindle (S1 / S6 – 60%)	Nm (ft lb)	1,170/1,462 (862.9/1,078.3)	921/1,148 (679.3/846.7)	
Spindle stroke W	mm (in)	630 (24.8)		
COLUMN				
Headstock vertical travel Y	mm (in)	1,250 (49.2125), 1,600 (62.9921)		
Minimum height of spindle axis above work table	mm (in)	0		
ROTARY TABLE				
Max. workpiece weight	kg (lbs)	5,000 (11,023) / 3,000 (6,613)		
Table clamping area	mm (in)	1,400 x 1,400, 1,400 x 1,600 (55.1181 x 55.1181, 55.1181 x 62.9921)		
Table longitudinal travel Z	mm (in)	1,250 (49.2125)		
Transverse table travel X	mm (in)	1,800 (70.8661) / 2,000 (78.7401)*		
FEEDS				
Range of feeds (working and rapid traverse) – X, Y, Z	mm/min (ipm)	5–10,000 (0.1968–393.7007)		
Range of feeds (working and rapid traverse) – W	mm/min (ipm)	5–8,000 (0.1968–314.9606)		
Range of feeds (working and rapid traverse) – B	RPM	0.003–2		

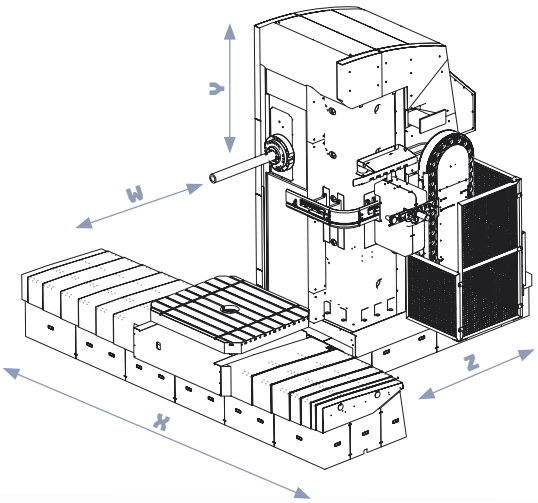
*Max. workpiece weight 3,000 kg (6,613 lbs).

MACHINE CONFIGURATION

- basic version with work spindle diameter 105 mm
- version with an automatic tool change
- headstock N suitable for power machining
- headstock R suitable especially for high-performance milling operations
- R4 headstock high-speed version of headstock up to 4,000 RPM
- work table with maximum load 3 tonnes or 5 tonnes

Customised solution for special products and series production.

WHN 110/130



MAIN ADVANTAGES OF THE MACHINE

- UNIVERSAL USAGE
- POSITIONING MILLING HEADS APPLICATION
- INCLINED SURFACE MACHINING
- INTERPOLATION TURNING APPLICATION

The horizontal boring and milling machines **WHN 110/130** are powerful, efficient representatives of the TOS VARNSDORF advanced generation, which responds to the needs of modern progressive technology.

The machines are produced in a cross arrangement of the beds, with a longitudinally adjustable column, a traveling spindle and cross-wise moveable rotary table.

MACHINE CONFIGURATION

- **WHN 110** – basic version with work spindle diameter 112 mm
- **WHN 130** basic version with work spindle diameter 130 mm
- version with an automatic tool change
- version with an automatic pallet change
- variable work table clamping area size

TECHNICAL PARAMETERS

MACHINE TYPE		WHN 110	WHN 130
HEADSTOCK		**N/R**	**N/R**
Work spindle diameter	mm (in)	112 (4.4094)	130 (5.1181)
Spindle taper		ISO 50 / ISO 50 BIG+	
Spindle speed range	RPM	10–3,300	10–3,000
Main motor power (S1 / S6 – 60%)	kW (HP)	41 (55.7) / 46 (62.5)	
Torque on spindle (S1 / S6 – 60 %)	Nm (ft lb)	1,463 (1,079.1) / 1,811 (1,335.7)	1,624 (1,197.8) / 2,017 (1,487.7)
Spindle stroke W	mm (in)	710 (27.9527)	800 (31.4960)
COLUMN			
Headstock vertical travel Y – version with normal rotary table	mm (in)	1,250, 1,400, 1,600 (49.2125, 55.1181, 62.9921)	1,600, 2,000, 2,500 (62.9921, 78.7401, 98.4251)
– version with technological pallete	mm (in)	1,120, 1,250, 1,400 (44.0944, 49.2125, 55.1181)	1,400, 1,800, 2,240 (55.1181, 70.8661, 88.1889)
Minimum height of spindle axis above work table / pallete	mm (in)	50 (1.9685)/0	
Longitudinal column adjustment Z	mm (in)	800, 1,000, 1,250 (31.4960, 39.3700, 49.2125)	1,000, 1,250, 1,600, 2,000 (39.3700, 49.2125, 62.9921, 78.7401)
ROTARY TABLE			
Max. workpiece weight	kg (lbs)	8,000 (17637)	12,000 (26455.5)
Table clamping area	mm (in)	1,250 x 1,400, 1,400 x 1,600, 1,400 x 1,800* (49.2125 x 55.1181, 55.1181 x 62.9921, 55.1181 x 70.8661*)	1,600 x 1,800, 1,800 x 2,240 (62.9921 x 70.8661, 70.8661 x 88.1889)
Transverse table travel X	mm (in)	1,600, 2,000, 2,500, 3,000 62.9921, 78.7401, 98.4251, 118.1102	2,000, 2,500, 3,000, 3,500, 4,000 78.7401, 98.4251, 118.1102, 137.7952, 157.4803
AUTOMATIC PALETTE CHANGE			
Max. workpiece weight	kg (lbs)	5,000 (11,023.1)	8,000 (17,636.9)
Pallete clamping area	mm (in)	1,250 x 1,400, 1,250 x 1,600 (49.2125 x 55.1181, 49.2125 x 62.9921)	1,600 x 1,800 (62.9921 x 70.8661)
Number of Pallets in the system		2	2
Total period of automatic pallete change	s	85	85
FEEDS			
Range of feeds (working and rapid traverse) – X, Y, Z, W	mm/min (ipm)	1–10,000 (0.0393–393.7007)	
B	RPM	0.003–2.5	0.003–2

*Reducing table load on 5,000 kg (11,023.1 lbs).

Minimisation of downtime when replacing a workpiece with a palette system that replaces a product in only 85 seconds.

WHN 110/130

EXAMPLES OF USAGE

Milling of special curved surfaces.

Deep drilling and reaming.

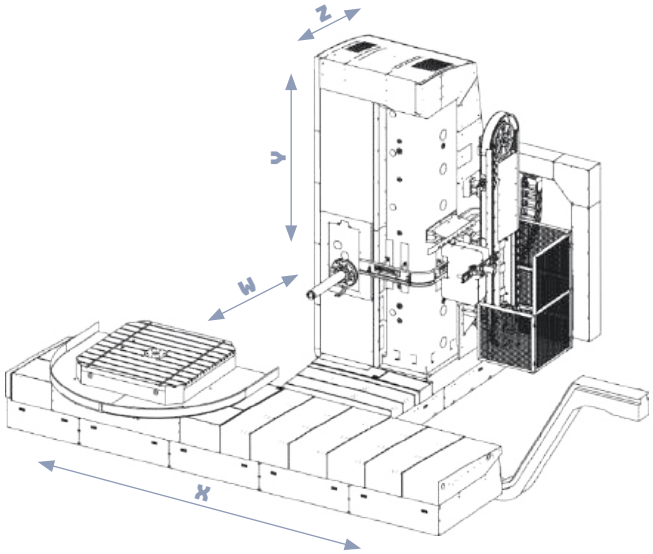
Interpolation turning of large diameter holes.

Drilling and milling at angles.

WHN 13/15

MAIN ADVANTAGES OF THE MACHINE

- VERIFIED AND RIGID STRUCTURAL DESIGN
- LONG SERVICE LIFE AND RELIABILITY
- SUITABLE FOR CUSTOMIZED PRODUCTION
- VARIABLE HEADSTOCK DESIGN
- OPTION TO USE ATC/APC



The horizontal milling and boring machine **WHN 13/15** is a universal machine designed for precise milling, line-coordinate drilling, boring and thread cutting of box- and board-type workpieces as well as complicated workpieces from cast-iron, steel cast-iron and steel with the weight of up to 25,000 kg. **WHN 13/15** is the most successful machine from the company production. The first model of the machine was produced in 1968. The success of this machine can be documented by the fact that almost 2,800 pieces of these machines have been sold up to now.

It particularly excels in the ratio between capacity and the purchasing costs. The users value the structure of the machine, which guarantees high rigidity and reliability as well as high technical parameters and a broad range and comfort of the technological features. They can be extended with a wide selection of technological accessories that significantly widen the machine technological utility value.

TECHNICAL PARAMETERS

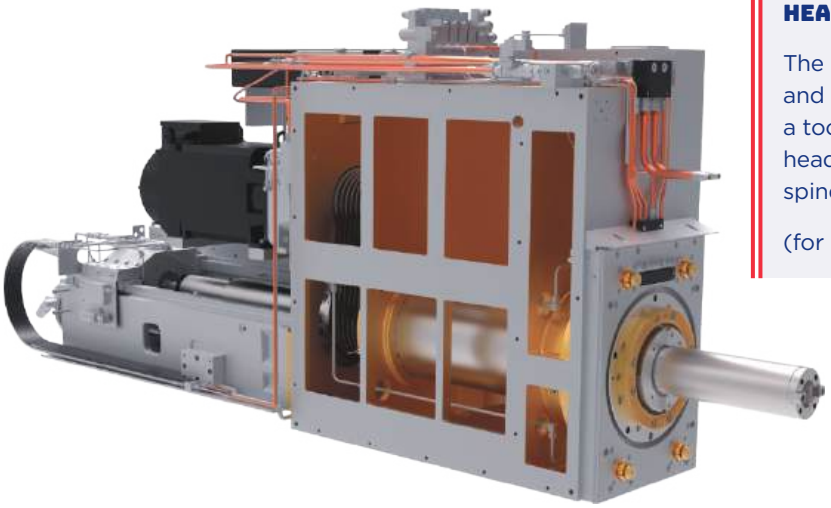
HEADSTOCK		R	R4	15
Work spindle diameter	mm (in)	130 (5.1181)	130 (5.1181)	150 (5.9055)
Spindle taper		ISO 50 / ISO 50 BIG+		
Spindle speed range	RPM	10–3,000	10–4,500	10–3,000
Main motor power (S1 / S6 – 60%)	kW (HP)	41 (55.7) / 49 (66.6)		53 (72.1) / 55 (74.8)
Torque on spindle (S1 / S6 – 60%)	Nm (ft lb)	2,508/3,111 (1,849.8/2,294.6)	1,518/1,800 (1,119.6/1,327.6)	3,114/3,720 (2,296.8/2,743.7)
Spindle stroke W	mm (in)	800 (31.4960)		900 (35.4330)
COLUMN				
Headstock vertical travel Y	mm (in)	2,000, 2,500, 3,000, 3,500 (78.7401, 98.4251, 118.1102, 137.7952)		
Longitudinal column adjustment Z	mm (in)	1,250, 1,600, 2,200, 3,200 (49.2125, 62.9921, 86.6141, 125.9842)		
ROTARY TABLE				
Transverse table travel X	mm (in)	3,500, 4,000, 5,000, 6,000 (137.7952, 157.4803, 196.8503, 236.2204)		
Max. workpiece weight	kg (lbs)	12,000 / 16,000 / 18,000 / 25,000 (26,455.5 / 35,273.9 / 39,683.2 / 55,115.6)		
Table clamping area	mm (in)	1,800 x 1,800 / 1,800 x 2,200 / 1,800 x 2,500 2,000 x 3,000 / 2,500 x 3,000 (70.8661 x 70.8661 / 70.8661 x 86.6141 / 70.8661 x 98.4251 / 78.7401 x 118.1102 / 98.4251 x 118.1102)		
FEEDS				
Range of feeds (working and rapid traverse) – Y, Z	mm/min (ipm)	4–10,000 (0.1574–393.7007)		
– W	mm/min (ipm)	4–10,000 (0.1574–393.7007)		
– X = 3,500 mm (137.7952 inch) / capacity 12,000 kg	mm/min (ipm)	4–10,000 (0.1574–393.7007) / 12,000 (472.4409)		
– X = 3,500 mm (137.7952 inch) / other tables	mm/min (ipm)	4–8,000 (0.1574 – 314.9606)		
– X = 4,000, 5,000, 6,000 mm (157.4803, 196.8503, 236.2204 inch)	mm/min (ipm)	4–8,000 (0.1574 – 314.9606)		
– B capacity 12,000 kg (26,455.5 lbs) / other tables	RPM	0.003–2/1.5		

The machine has been manufactured for more than 50 years with almost 2,800 pieces sold.

MACHINE CONFIGURATION

- **WHN 13** – basic version with work spindle diameter 130 mm
- **WHN 15** – basic version with work spindle diameter 150 mm
- version with an automatic tool change
- machine with a character of a machining centre (automatic tool change and automatic pallet change)
- wide range of work table designs

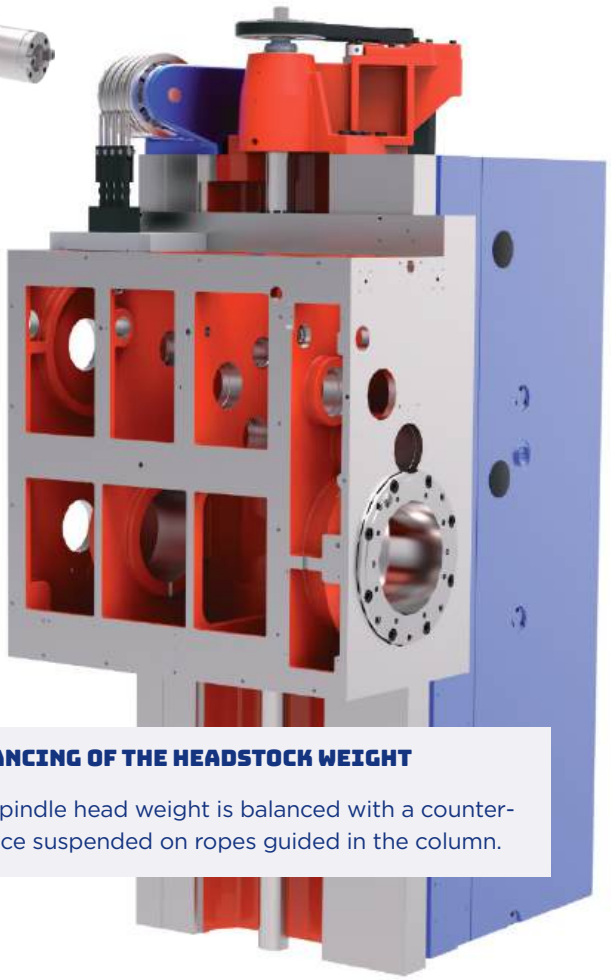
WHN 13/15



HEADSTOCK

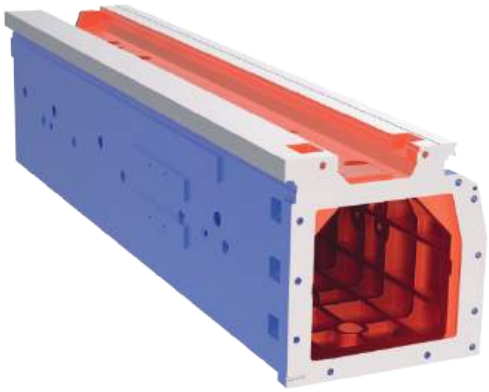
The headstock contains the spindle drive motor and gearbox together with the W axis drive system a tool clamping system. The main housing of spindle heads consists of an assembly of hollow and work spindles.

(for more information see page 85 - Headstocks)



BALANCING OF THE HEADSTOCK WEIGHT

The spindle head weight is balanced with a counter-balance suspended on ropes guided in the column.

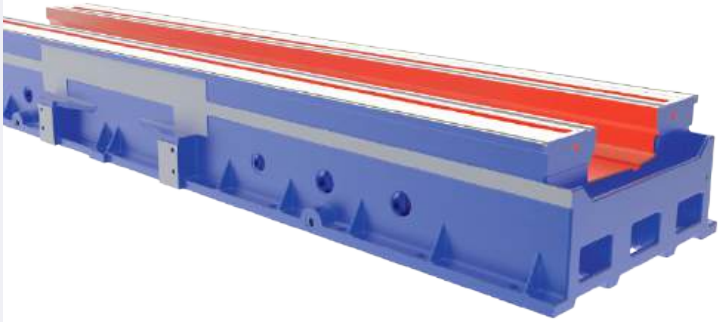


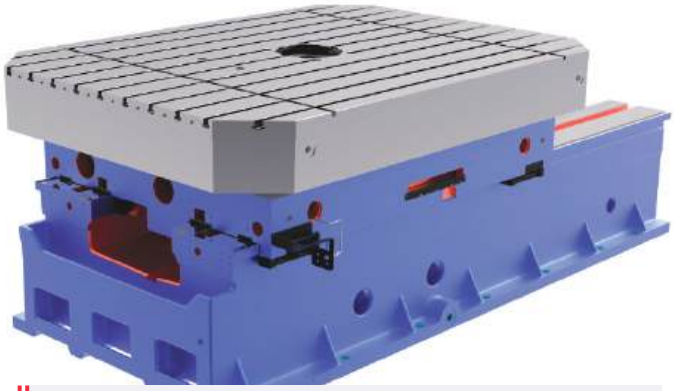
COLUMN

The basic part of the **WHN 13/15** machines are made of high-quality grey cast-iron made in the Czech Republic, which forms a cast-iron skeleton. The structure and the ribbing of the frame guarantee high rigidity.

GUIDES OF ADJUSTABLE GROUPS

Guides of all linear groups are sliding. The main guideways are laser-hardened. Hardened steel rails on guideways are placed under the bearings and on the other stressed places. The counter-surfaces are provided with artificial sliding low-friction materials. In addition, the table carriage slightly lifted by the use of four roller units. Guides on the beds are protected against dirt with telescopic covers, while the machine frame guiding surfaces are protected with bellows covered with steel slats. The table is laid on external circular sliding housing and near the centre on a circular bearing.



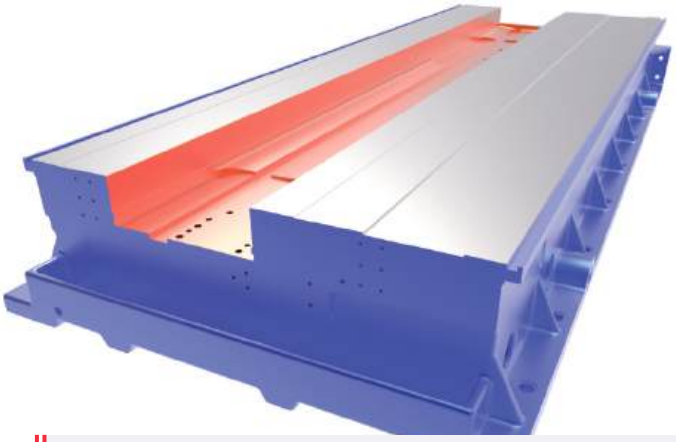


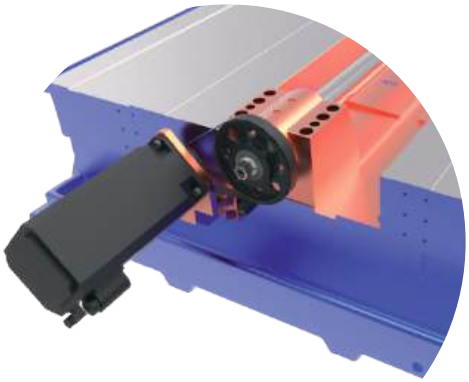
ROTARY TABLE

It is equipped with a rotation sensor, which allows automatic positioning of the table with an increment of 0.001°. After reaching the target position, the table is automatically fixed. Turning of the table is provided as a two-motor drive with two pinions that are engaged in the gear ring.

BED

We use the GG 25 cast iron for production of the support sections because of high demands for vibration absorption in the horizontal boring machines. High rigidity of an optimally dimensioned cast-iron frame guarantees high efficiency and productivity of the milling machine while securing top geometrical accuracy of the workpiece.

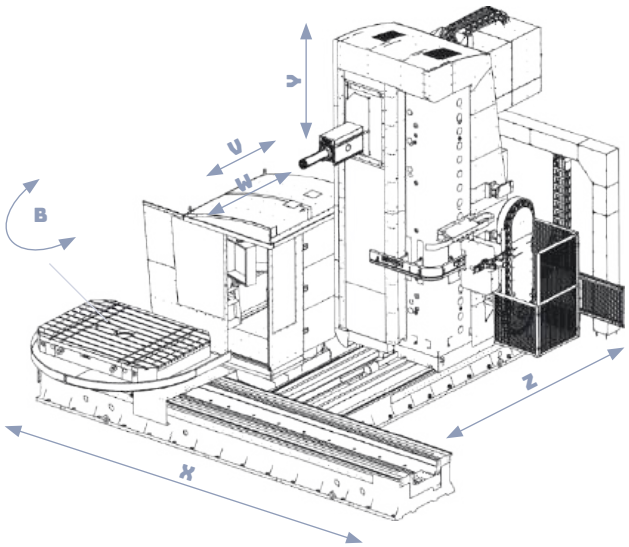




DRIVES OF FEEDS

The travel units are driven by digitally controlled AC servo drives Siemens. To reach higher travel forces, an allowance-free gear is inserted between the servo drive and the ball screw.

WHR 13



MAIN ADVANTAGES OF THE MACHINE

- MULTIPLE SIDE MACHINING
- SPINDLE REACH BEYOND TABLE CENTER
- COMFORTABLE USAGE OF MILLING HEADS

The latest representative of horizontal table-type boring machines **WHR 13** produce by TOS VARNSDORF.

The **WHR 13** has been developed from the most successful generation of table-type WHN 13 CNC machines, which have reached customers all around the world over the past few decades (more than 2,800 of all versions and types have been sold) and they are still popular and in high demand. The WHN 13 machines have become through their unique properties, reliability and power parameters a standard for all machines in this category. The horizontal boring machine **WHR 13** takes the best from its predecessor and, using the most modern technology, represents another step forward in its class.

MACHINE CONFIGURATION

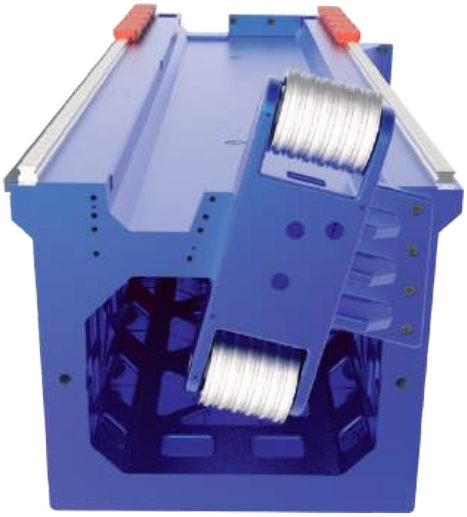
- basic version with work spindle diameter 130 mm
- version with an automatic tool change
- wide range of tables design

TECHNICAL PARAMETERS

HEADSTOCK		
Work spindle diameter	mm (in)	130 (5.1181)
RAM size	mm (in)	320 x 400 (12.5984 x 15.7480)
Spindle taper		ISO 50 / ISO 50 BIG+
Spindle speed range	RPM	10–3,000
Main motor power (S1 / S6 – 60%)	kW (HP)	41 (55.7) / 46 (62.5)
Torque on spindle (S1 / S6 – 60%)	Nm (ft lb)	2,542/3,111 (1,874.9/2,294.6)
Spindle stroke W	mm (in)	650 (25.5905)
RAM stroke V	mm (in)	700 (27.6)
COLUMN		
Headstock vertical travel Y	mm (in)	2,000, 2,500, 3,000 (78.7401, 98.4251, 118.1102)
Longitudinal column adjustment Z	mm (in)	1,250, 1,600, 2,200, 3,200 (49.2125, 62.9921, 86.6141, 125.9842)
ROTARY TABLE		
Transverse table travel X	mm (in)	3,500, 4,000, 5,000, 6,000 (137.7952, 157.4803, 196.8503, 236.2204)
Max. workpiece weight	kg (lbs)	12,000 / 16,000 / 18,000 / 25,000 (26455.5 / 35273.9 / 39683.2 / 55115.6)
Table clamping area	mm (in)	1,800 x 1,800 / 1,800 x 2,200 / 1,800 x 2,500 2,000 x 3,000 / 2,500 x 3,000 (70.8661 x 70.8661 / 70.8661 x 86.6141 / 70.8661 x 98.4251 / 78.7401 x 118.1102 / 98.4251 x 118.1102)
FEEDS		
Range of feeds (working and rapid traverse) – Y, Z, W, V	mm/min (ipm)	5–10,000 (0.1574–393.7007)
– X = 3,500 mm (137.7952 inch) / capacity 12,000 kg	mm/min (ipm)	4–10,000 (0.1574–393.7007) / 12,000 (472.4409)
– X = 3,500 mm (137.7952 inch) / other tables	mm/min (ipm)	4–8,000 (0.1574–314.9606)
– X = 4,000, 5,000, 6,000 mm (157.4803, 196.8503, 236.2204 inch)	mm/min (ipm)	4–8,000 (0.1574–314.9606)
– B capacity 12,000 kg (26,455.5 inch) / other tables	RPM	0.003–2/1.5

The robotic manipulator provides effective tool exchange in the main spindle and milling head.

WHR 13



COLUMN

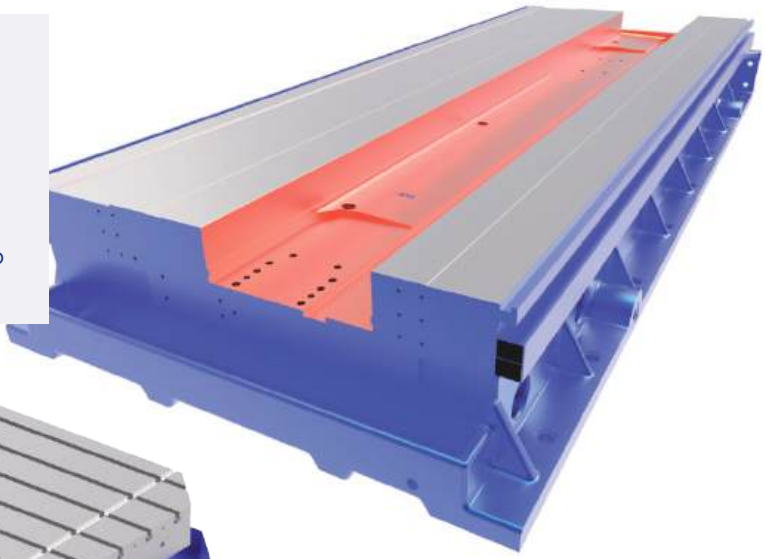
The basic part of the machine frames made by TOS VARNSDORF are of high-quality grey cast-iron made in the Czech Republic, which forms a cast-iron skeleton. The structure and the ribbing of the frame guarantee high rigidity.

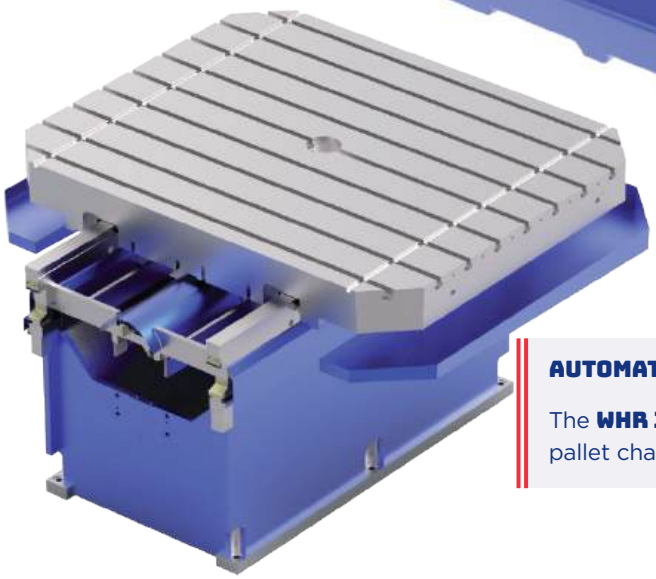
DRIVES OF FEEDS

The travel units are driven by digitally controlled AC servo drives Siemens.
To reach higher travel forces, an allowance-free gear is inserted between the servo drive and the ball screw.

BED

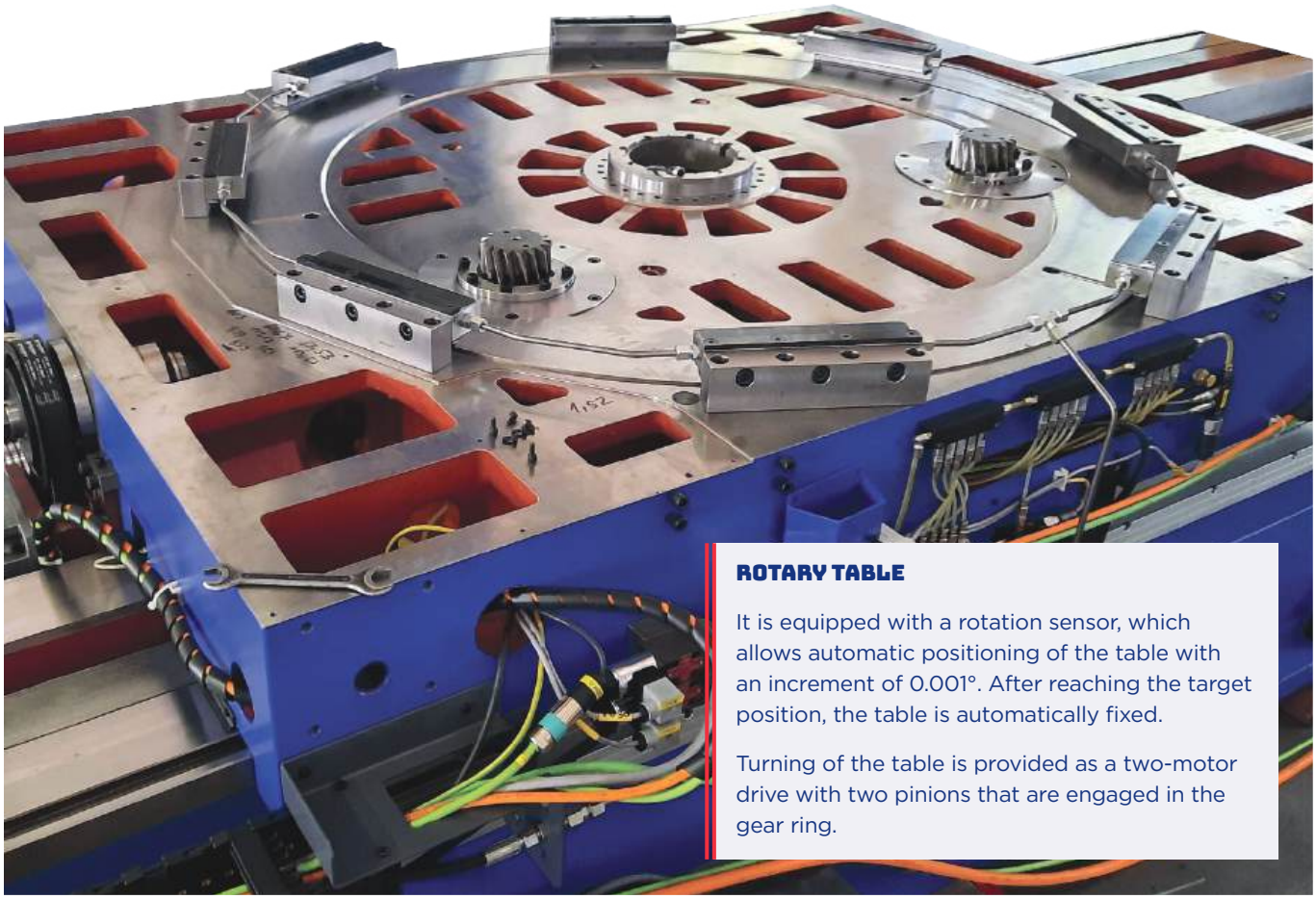
We use the GG 25 cast iron for production of the support sections because of high demands for vibration absorption in the horizontal boring machines. High rigidity of an optimally dimensioned cast-iron frame guarantees high efficiency and productivity of the milling machine while securing top geometrical accuracy of the workpiece.





AUTOMATIC PALLETE CHANGE

The **WHR 13** machine can be equipped with automatic pallet change; for more information see page 65.



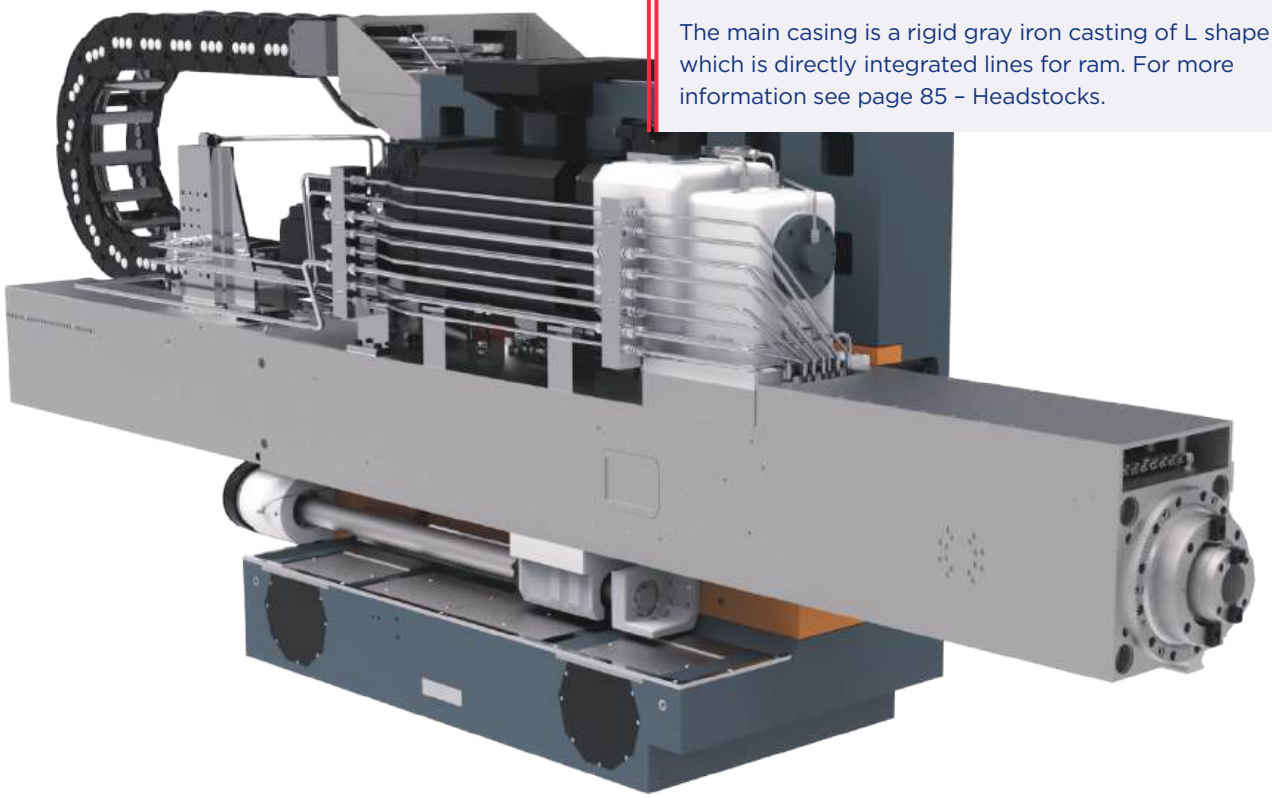
ROTARY TABLE

It is equipped with a rotation sensor, which allows automatic positioning of the table with an increment of 0.001°. After reaching the target position, the table is automatically fixed.

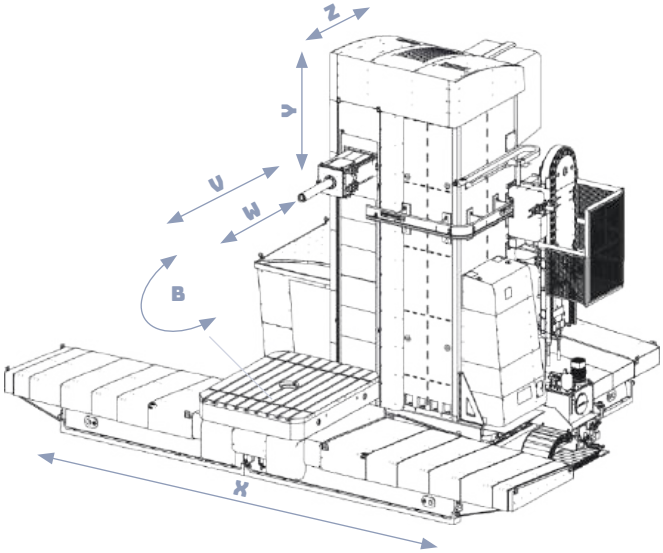
Turning of the table is provided as a two-motor drive with two pinions that are engaged in the gear ring.

HEADSTOCK

The main casing is a rigid gray iron casting of L shape which is directly integrated lines for ram. For more information see page 85 – Headstocks.



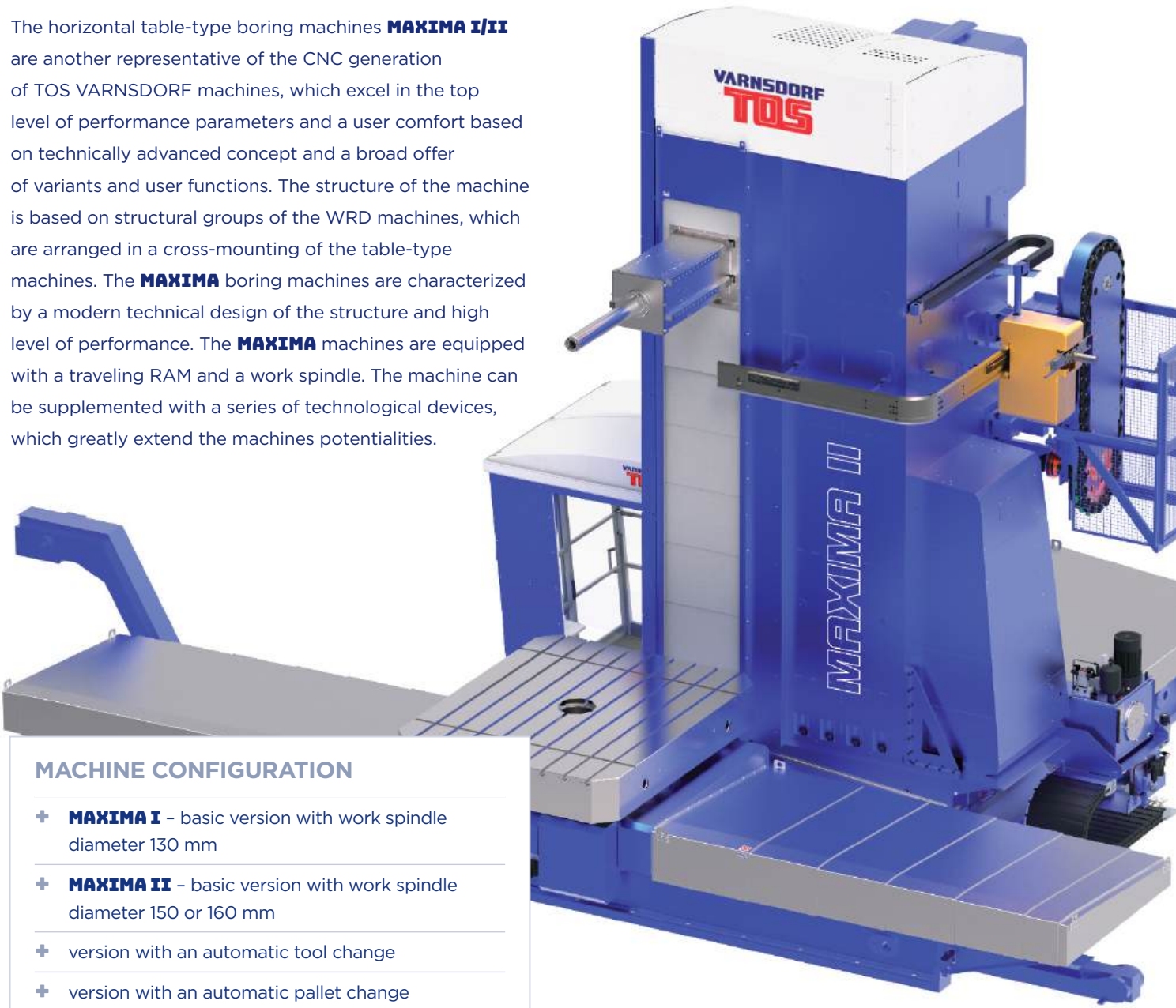
MAXIMA I/II



MAIN ADVANTAGES OF THE MACHINE

- STRONG, POWERFUL, VERTICAL TABLE BORING MACHINE
- EXTENDABLE RAM, A WIDE RANGE OF HEADS
- COMPLETE PROCESSING OF WORKPIECES UP TO 50 TONS
- HIGH RIGIDITY AND PRECISION

The horizontal table-type boring machines **MAXIMA I/II** are another representative of the CNC generation of TOS VARNSDORF machines, which excel in the top level of performance parameters and a user comfort based on technically advanced concept and a broad offer of variants and user functions. The structure of the machine is based on structural groups of the WRD machines, which are arranged in a cross-mounting of the table-type machines. The **MAXIMA** boring machines are characterized by a modern technical design of the structure and high level of performance. The **MAXIMA** machines are equipped with a traveling RAM and a work spindle. The machine can be supplemented with a series of technological devices, which greatly extend the machines potentialities.



MACHINE CONFIGURATION

- **MAXIMA I** – basic version with work spindle diameter 130 mm
- **MAXIMA II** – basic version with work spindle diameter 150 or 160 mm
- version with an automatic tool change
- version with an automatic pallet change
- work table with maximum load 30 tonnes or 50 tonnes

TECHNICAL PARAMETERS

MACHINE TYPE		MAXIMA I	MAXIMA II	
Work spindle diameter	mm (in)	130 (5.1181)	150 (5.9055)	160 (6.2992)
RAM size	mm (in)	450 x 450 (17.7165 x 17.7165)		
Spindle taper		ISO 50 / ISO 50 BIG+		
Spindle speed range	RPM	10–3,000	10–2,500 (2,800)	10–2,400
Main motor power (S1 / S6 – 60%)	kW (HP)	41 (55.7) / 46 (62.5)	58 (78.9) / 65 (88.4)	
Torque on spindle (S1 / S6 – 60%)	Nm (ft lb)	2,542/3,152 (1,874.9/2,324.8)	2,437/3,138 (1,797.4/2,314.5)	
RAM stroke V	mm (in)	1,200 (47.2440)		
Spindle stroke W	mm (in)	700 (27.6)	800 (31.4960)	
COLUMN				
Headstock vertical travel Y	mm (in)	2,500–6,000 (98.4251–236.2204) in steps of 500 mm		
Longitudinal column adjustment Z	mm (in)	1,500, 2,000, 2,500 (59.0551, 78.7401, 98.4251)		
ROTARY TABLE				
Table clamping area	mm (in)	2,000 x 2,000, 2,000 x 2,500, 2,500 x 3,000 / 3,000 x 3,000, 3,000 x 3,500, 3,000 x 4,000 (78.7401 x 78.7401, 78.7401 x 98.4251, 98.4251 x 118.1102 / 118.1102 x 118.1102, 118.1102 x 137.7952, 118.1102 x 157.4803)		
Max. workpiece weight	kg (lbs)	30,000 (66,138.7) / 50,000 (110,231.1)		
Transverse table travel X	mm (in)	3,000, 4,000, 5,000*, 6,000* (118.1102, 157.4803, 196.8503*, 236.2204*)		
FEEDS				
Range of feeds (working and rapid traverse) – X, Z	mm/min (ipm)	1–15,000 (0.0393–590,5511)		
– Y, V	mm/min (ipm)	1–24,000 (0.0393–944.8818)		
– W	mm/min (ipm)	1–12,000 (0.0393–472.4409)		
– B	RPM	0.003–3		

*Only for rotary tables with a load capacity of 30 tonnes (33.06 tons).

The machine concept delivers a large working space and enables the machine to apply efficient machining.