

# WHN 110/130 (Q, MC)

**HORIZONTAL  
MILLING  
AND BORING  
MACHINES**

**WHN 110 MC**

**WHN 110 Q**

**WHN 110**

**WHN 130 MC**

**WHN 130 Q**

**WHN 130**



10/2011



**TOS VARNSDORF a.s.**

# ABOUT COMPANY

[www.tosvarnsdorf.com](http://www.tosvarnsdorf.com)

Company TOS VARNSDORF a.s. situated in Varnsdorf, Czech Republic has a years-lasting tradition in machine tool production. The company was founded, under the name of Arno Plauert Machine Works, as early as 1903 and up to now it grew up into a big engineering company, known with its products all around the world.

The company's manufacturing program is based on the development, manufacture and sale of machine tools, integrated with a wide offer of services, such as:

- training for operators and maintenance workers
- technological studies
- installations of new machines
- warranty and after-warranty (extended) servicing
- spare parts sales
- overhauls and modernizations

In addition, the company provides for the services in the form of outwork offers (Metalworking, Measuring services, Chemical and Heat Treatment of Metals).

High engineering standards of TOS VARNSDORF a. s. products were recognized in 1996 when the company was awarded the ISO 9001 certificate.



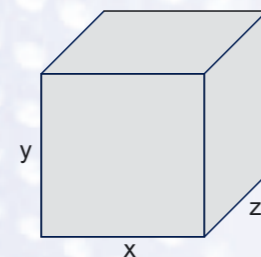
## PRODUCTION PROGRAM

### PRODUCTION OF MACHINE TOOLS

- HORIZONTAL MILLING AND BORING MACHINES
- FLOOR TYPE HORIZONTAL BORING MILLS
- MACHINING CENTRES
- PORTAL TYPE MACHINING CENTRES
- SPECIAL MACHINES
- ACCESSORIES

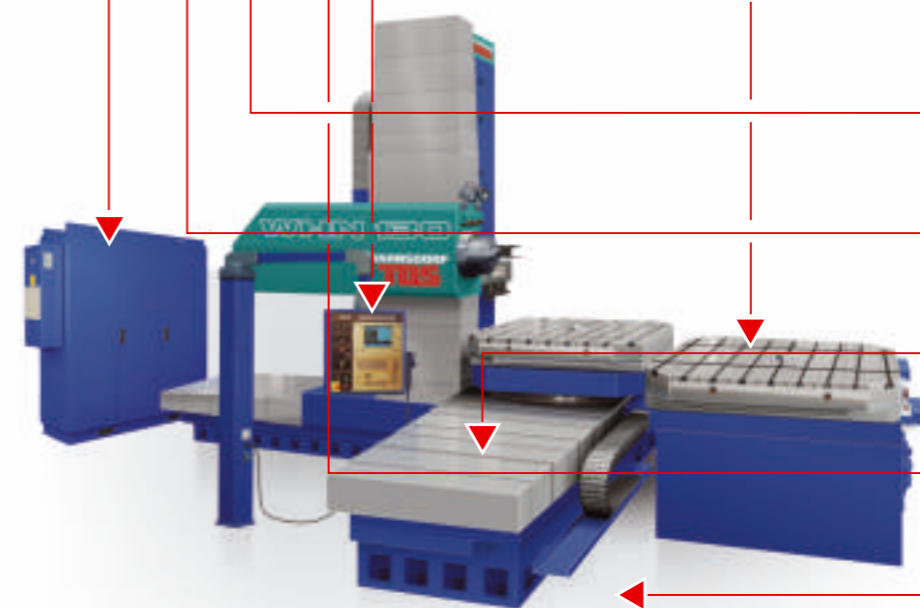
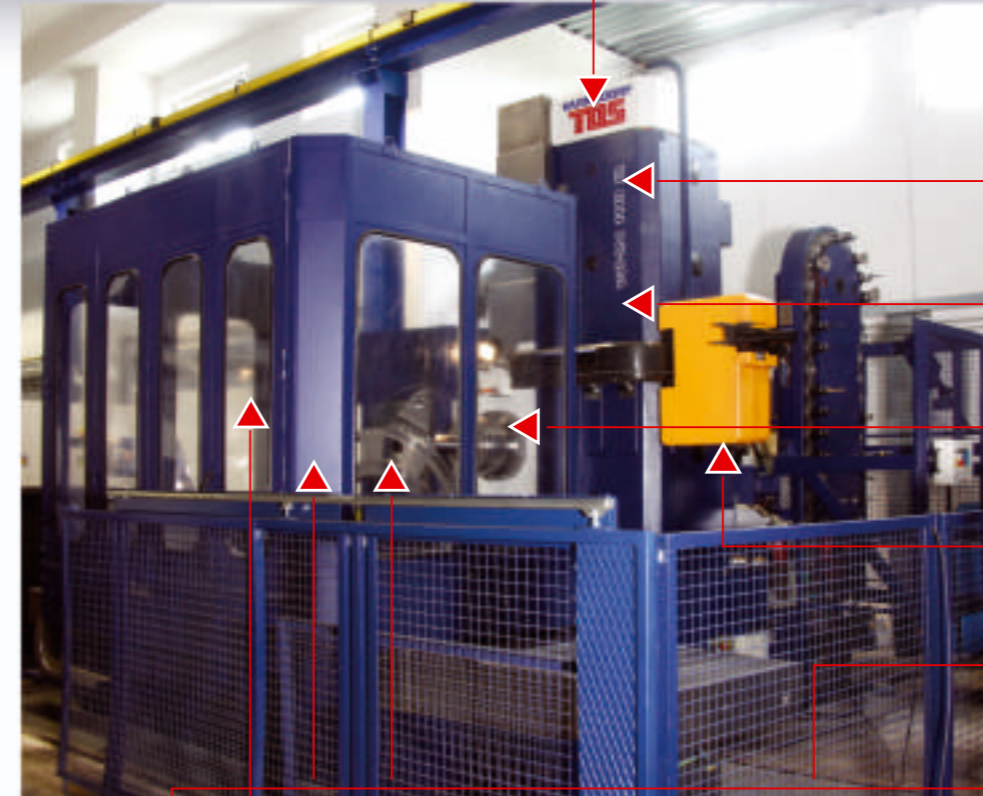
### SERVICES

- TECHNOLOGICAL SUPPORT: TRAINING, TECHNOLOGICAL STUDIES, ETC.
- SPARE PARTS, OVERHAULS AND MODERNIZATIONS
- COOPERATION (METALWORKING, MEASURING SERVICES, CHEMICAL AND HEAT TREATMENT OF METALS)



$> 1 \text{ m}^3$  (0,01mm)  
 $x > 1 \text{ m}$   
 $y > 1 \text{ m}$   
 $z > 1 \text{ m}$

# CONTENT



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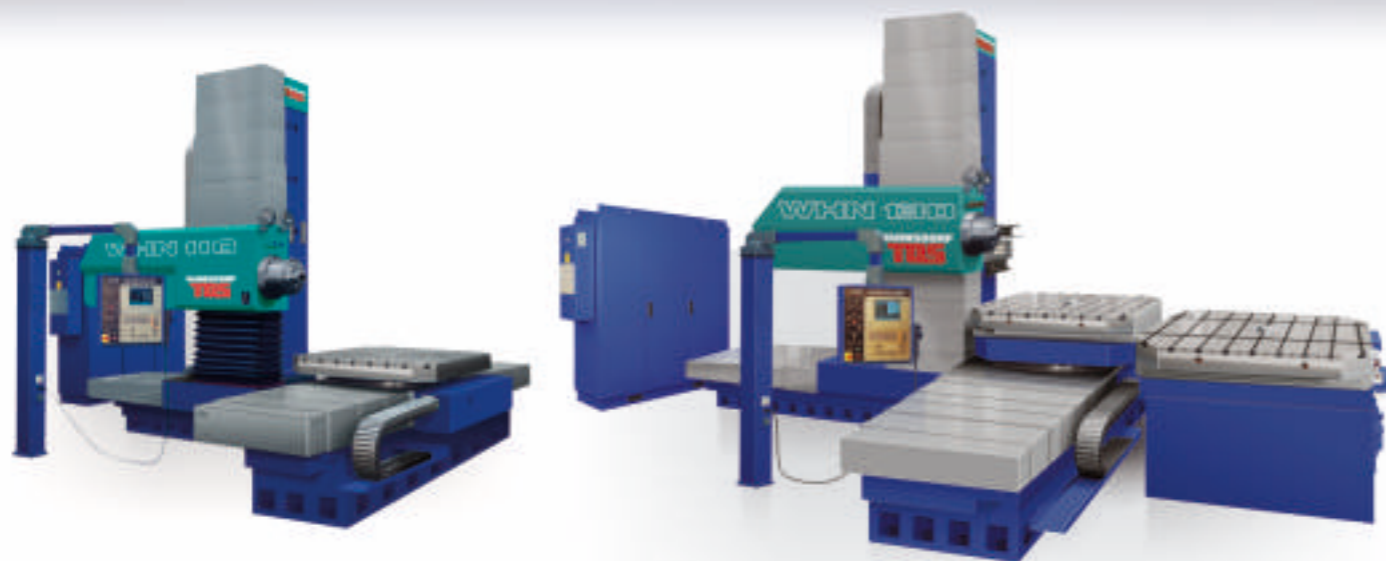
ABOUT COMPANY

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# HORIZONTAL MILLING AND BORING MACHINE WHN 110/130 (Q, MC)

www.tosvarnsdorf.com



## The WHN 110 (Q, MC)

horizontal milling and boring machine belongs to the machine range of advanced generation launched by TOS VARNSDORF a.s. in 1993. The most significant features of this machine are high engineering level, outstanding parameters and wide range of executions.

<b>X</b>	<b>max.</b>	<b>2,500 mm</b>
<b>Y</b>	<b>max.</b>	<b>1,600 mm</b>
<b>Z</b>	<b>max.</b>	<b>1,250 mm</b>
<b>W</b>	<b>max.</b>	<b>710 mm</b>

## The WHN 130 (Q, MC)

horizontal milling and boring machine is another leading edge technology machine corresponding with the needs of the up-to-date progressive machining. As well as the WHN 110 machine it is a modern cross bed type, multi-axis machine with movable column, transversally traveling table and live spindle.

<b>X</b>	<b>max.</b>	<b>4,000 mm</b>
<b>Y</b>	<b>max.</b>	<b>2,500 mm</b>
<b>Z</b>	<b>max.</b>	<b>2,000 mm</b>
<b>W</b>	<b>max.</b>	<b>800 mm</b>

The basic optional models of the machine according to the level of automation employed and their relevant type denominations:

**WHN 110/130** - the basic model

**WHN 110/130 Q** - the Automatic Tool Changer (ATC) equipped model

**WHN 110/130 MC** - the full-fledged machining center equipped with both, ATC and APC (automatic pallet changer).

## POSITIONING ACCURACY ACCORDING TO VDI/DGQ 3441

X, Y, Z Axes		guaranteed values	achieved values (average)
Positioning uncertainty	P	0.015 mm	0.008 mm
Positional scatter	P <sub>max</sub>	0.010 mm	0.007 mm
Reversal error	U <sub>max</sub>	0.010 mm	0.003 mm
Positional deviation	Pa	0.010 mm	0.004 mm

## TECHNICAL PARAMETERS

### BASIC SPECIFICATIONS

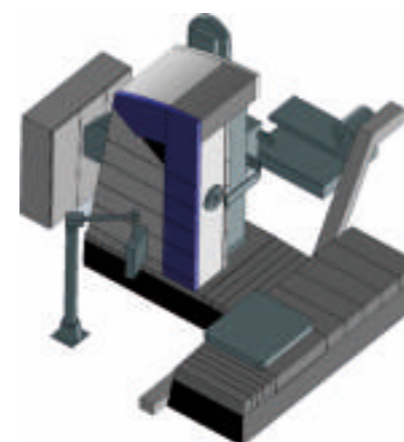
		WHN 110 (Q, MC)		WHN 130 (Q, MC)	
Headstock version		"N"	"R"	"N"	"R"
Spindle diameter	mm	112	125	130	140
Spindle taper		ISO 50		ISO 50	
Spindle speed range	R.P.M.	10 - 2,800	10 - 3,300	10 - 2,500	10 - 3,000
Main motor power (S1 / S6-60)	kW	37/46		37/46	
Spindle torque max. (S1 / S6-60)	Nm	2,110; 2,623	1,457; 1,811	2,480; 3,083	1,622; 2,017
Spindle stroke <b>W</b>	mm	710	500	800	560
Column					
Headstock vertical travel <b>Y</b>					
- machine with standard table	mm	1,250; 1,400; 1,600		1,600; 2,000; 2,500	
- machine with pallet	mm	1,120; 1,250; 1,400		1,400; 1,800; 2,240	
Column longitudinal travel <b>Z</b>	mm	800; 1,000; 1,250		1,000; 1,250; 1,600; 2,000	
Table or pallet					
Workpiece weight max.					
- machine with standard table	kg	8,000		12,000	
- machine with pallet	kg	5,000		8,000	
Table clamping surface	mm	1,250 x 1,400; 1,400 x 1,600		1,600 x 1,800; 1,800 x 2,240	
Pallet clamping surface	mm	1,250 x 1,400; 1,250 x 1,600		1,600 x 1,800	
Table transverse travel <b>X</b>	mm	1,600; 2,000; 2,500		2,000; 2,500; 3,000; 3,500; 4,000	
Feeds					
Feed range					
- <b>X, Y, Z, W</b>	mm.min <sup>-1</sup>	1 - 6,000		1 - 6,000	
- <b>B</b>	R.P.M.	0.003 - 1.5		0.003 - 1.5	
Rapid traverse					
- <b>X, Y, Z, W</b>	mm.min <sup>-1</sup>	10,000		10,000 (8,000*)	
- <b>B</b>	R.P.M.	2.5		2	

(\*)X = 4,000 mm

### Design „BASIC“

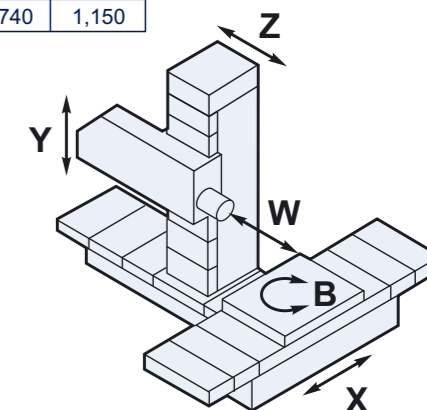
On the customer's wish the machine can be supplied also in design „BASIC“ with modified technical parameters.

		WHN 110 - BASIC		WHN 130 - BASIC	
Headstock version		"N"	"R"	"N"	"R"
Main motor power, rated (continuous load operation S1)	kW	28	28	28	28
Main motor power max. (operation S6 - 60% of the load time)	kW	35	35	335	35
Spindle revs, rated	R.P.M.	223	323	201	291
Spindle torque, rated (S1)	Nm	1,200	830	1,390	920
Spindle torque max. (S6-60%)	Nm	1,500	1,035	1,740	1,150



**NEW DESIGN  
FOR 2012**

**WHN 110 (Q, MC)**



# HEADSTOCK

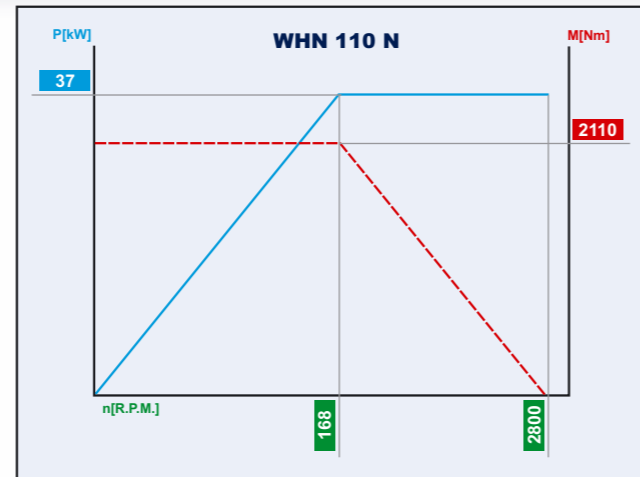
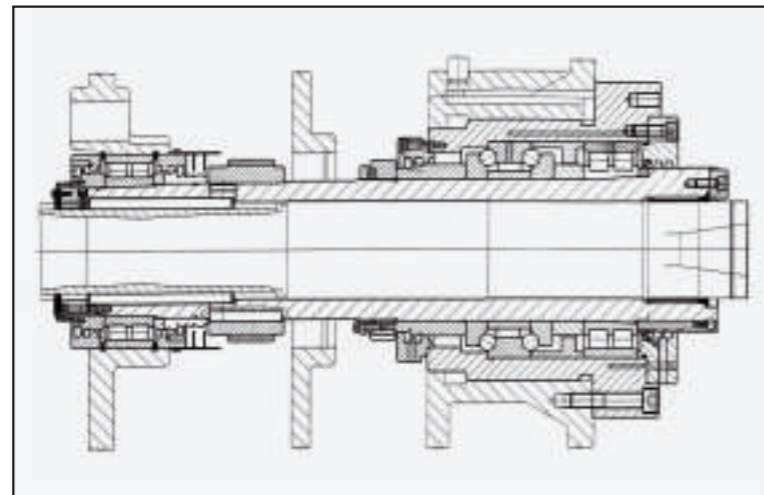
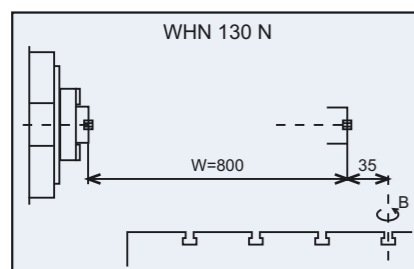
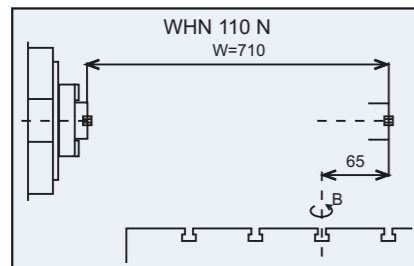
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## HEADSTOCK "N"



### HEADSTOCK VERSION „N“

- designed as universal of two headstock models, good especially for power machining as well as for finishing operations. Torque characteristics predetermines the machine with this type of headstock for application of larger milling heads and facing heads.

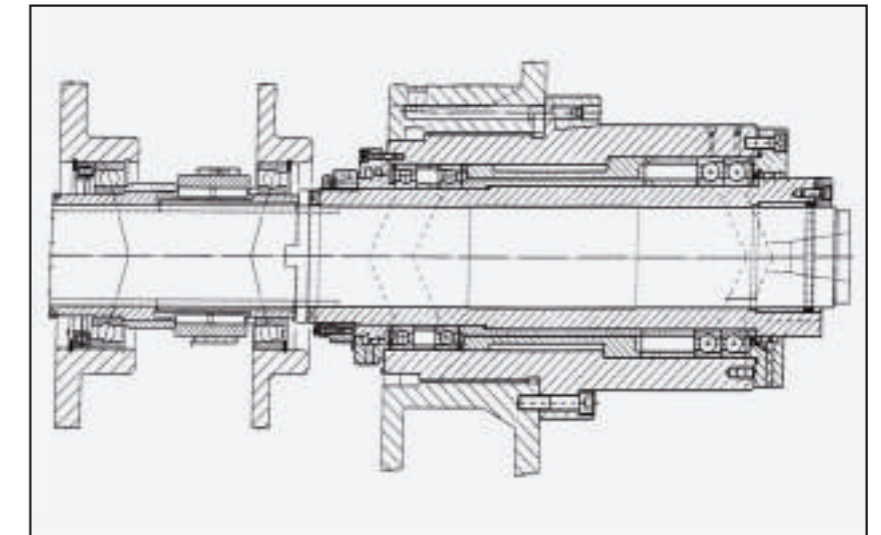
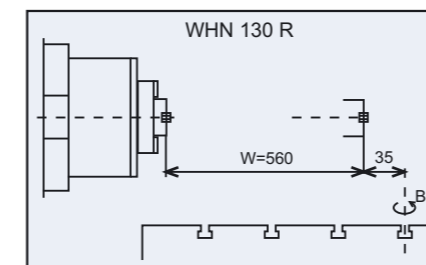
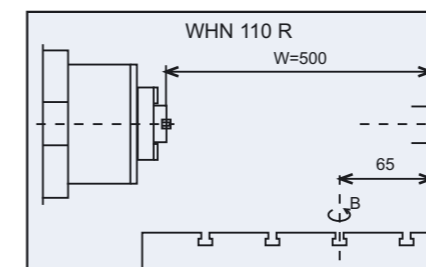
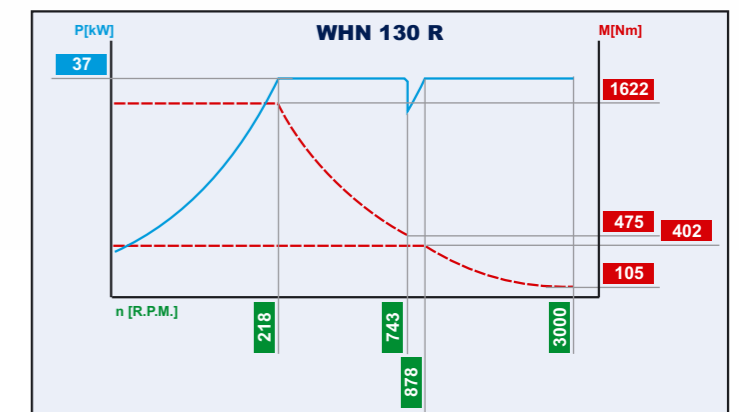
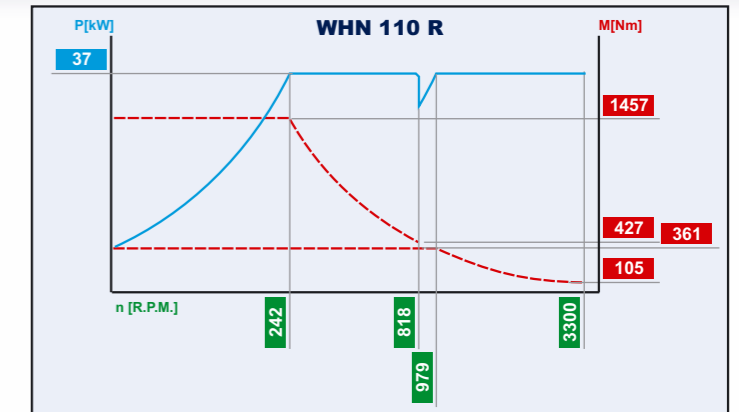


## HEADSTOCK "R"



### HEADSTOCK VERSION „R“

- high speed model, good for precision machining using wide range of high cutting speed with full power available.



# AUTOMATIC TOOL CHANGE (ATC)

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## TOOL MANIPULATOR



## CHAIN MAGAZINE



### WHN 110/130 Q (MC)

Quantity of pockets in magazine - on the column		40, 60
Quantity of pockets in magazine - next to the machine		80, 120
Pitch of pockets in magazine	mm	130
Tool dia max		
- with fully planted magazine	mm	125
- with adjacent pockets	mm	320
Dia max. of special flat tool	mm	390 (600)
Tool length max.	mm	500
Tool weight max.	kg	25
Total tool change time	sec	15

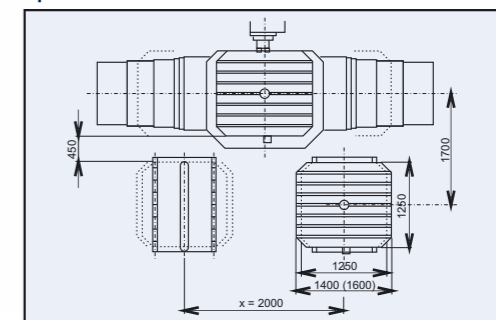
ATC consists of a chain type tool magazine and horizontally traversing manipulator with swiveling mechanical two-armed hand fitted to the back of the column.  
The ATC equipment adapted with respect to the tool standard can be as follows:  
CSN 22 0432  
CSN 22 0434  
DIN 69871A/D  
BT 50 MAS 403-1982  
CAT ANSI/ASME B5.50-1985

# AUTOMATIC PALLET CHANGE (APC)

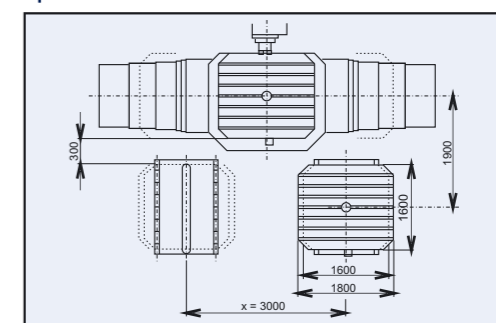
		WHN 110 MC	WHN 130 MC
Quantity of pallets (including pallet stations) in the system		2	2
Maximum workpiece weight	kg	5,000	8,000
Pallet clamping surface	mm	1,250 x 1,400; 1,250 x 1,600	1,600 x 1,800
Pallet T-slots			
- dimension	mm	22H8	22H8
- pitch	mm	160	160
- quantity		9	9
Total pallet change time	sec	85	85



### APC FOR WHN 110 MC



### APC FOR WHN 130 MC



Machine with the MC execution consists of 2 pallets, which are in an automatic cycle shuttled between two stationary pallet stations and clamping rotary table on the machine. As to the quantity of pallets the system can be equipped with more pallets after discussion with manufacturer.

# DESIGN OF MACHINE GROUPS

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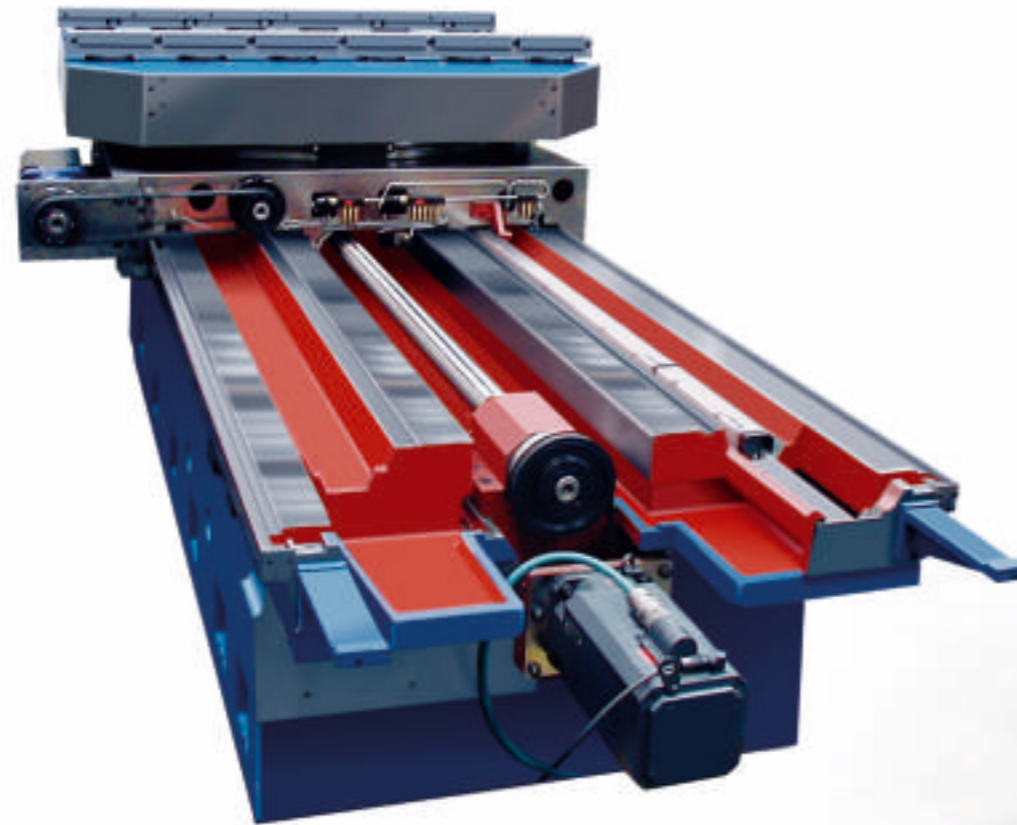
## ELECTRIC OUTFIT

Power supply units, switchgear, safety and protective elements and other electrical devices are housed within a separate compact electric cabinet. Component selection for each machine is individual, subject to the national regulations relevant to the destination country.



## FEED DRIVES

Feeds for each axes are driven by an independent SIEMENS AC servo-drive. The add-on rotary table is clamped hydraulically while the other movable machine axes are held in their target position by power of their relevant servo-motor working in the closed positional loop.



## OPERATOR PLATFORM

The WHN130 (Q, MC) machine in standard execution is equipped with operator lift upon which the central control panel is placed. The operator lift is autonomously convertible-vertically and parallel with spindle axis as well.



## HYDRO-AGGREGATE

Guideways of X, Y, Z, and B axes are lubricated automatically by means of oil metering unit placed together with hydro-aggregate on the column saddle.



## SYSTEM OF MEASURING

Linear moveable groups (X, Y, Z and W) are equipped with direct measuring with help of electro-optical rules HEIDENHAIN.



# MACHINE CONTROL

www.tosvarnsdorf.com

**CONTROL PANEL OF SINUMERIK 840 D CONTROL SYSTEM**



**CONTROL PANEL OF HEIDENHAIN iTNC 530 CONTROL SYSTEM**



**CONTROL PANEL OF FANUC 31i CONTROL SYSTEM**



**PORTABLE CONTROL PANEL SINUMERIK**



**PORTABLE CONTROL PANEL HEIDENHAIN (OPTION TYPE HR 520)**



CONTROL SYSTEM -  
MACHINE CONTROL

11/12

## WORKPIECE AND TOOL PROBES

**WE DELIVER THE FOLLOWING PROBES AS STANDARD:**

MEASURING TOOL PROBE for the system:		
iTNC 530	HEIDENHAIN TT 140	measuring touch probe with cable transport
iTNC or Sinumerik 840D	RENISHAW TS 27 R	measuring touch probe with cable transport
MEASURING WORKPIECE PROBE for the system:		
iTNC 530	HEIDENHAIN TS 220	measuring touch probe with cable transport
	HEID. TS 640 + SE 640	measuring touch probe with optical transport
TNC or Sinumerik 840D	RENISHAW OMP 60 - set	measuring touch probe with optical transport
	RENISHAW RMP 60 - set	measuring touch probe with wireless transport
	M+H 20.41 Multi	measuring touch probe with wireless transport

## TOOL CONTROL PROBE



## MEASURING TOUCH PROBE



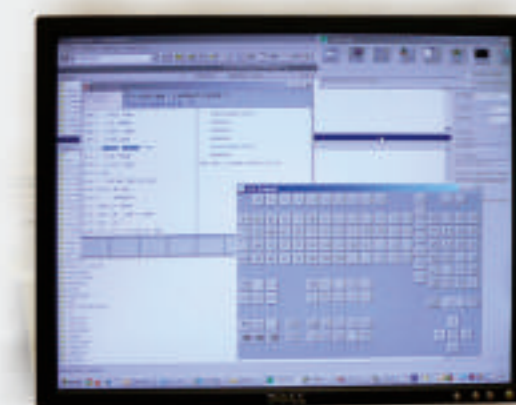
## WE ALSO OFFER A SYSTEM OF SERVICES FOR THE PERMANENT SUPPORT OF CUSTOMERS:

### TOSmessage

- ensures communication between the machine's control system and the customer's mobile phone. The customer is informed about the predefined statuses of the machine, e.g. the completion of an automatic cycle or possibly program interruption.

### TOSwide

- the remote diagnostic system allows our service engineer to obtain required data about the status of the machine necessary to specify possible diagnostic messages about the non-standard condition of the machine's control system.



# OPTIONAL ACCESSORIES / MACHINE COVERS

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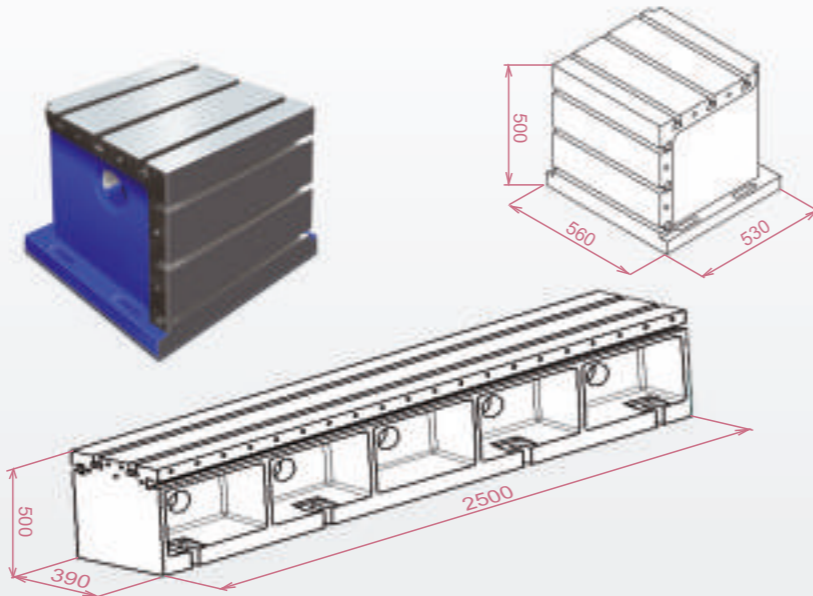
## CLAMPING ANGLE PLATE

This optional equipment is offered in dimension 800; 950; 1,120; 1,450; 1,620; 2,000; 2,500 mm.



## CLAMPING CUBE

UK 500, UK 1000, UK 2000, UK 2500



## CHIP CONVEYOR

The length of a chip conveyor and its discharge height can be accommodated to user's needs.



## TOOL COOLING UNIT

The customer may choose either CHZ 110/130 outer tool cooling kit or CHOV 110/130 through spindle tool cooling kit which brings coolant to the cutting edge through outside nozzles as well. As standard it is possible to choose 10, 20 or 30 bar.



## HPR 50



## HUR 50



## HUI 50



## FACING HEAD LD 650



### HPR 50

vertical milling head, manually adjustable.

### HUR 50

universal milling head, manually adjustable.

### HUI 50

universal milling head, automatically indexed - for WHN 130 (Q, MC) machines only

### FACING HEAD LD 650

is particularly useful for demanding technological operations where the full CNC control of the slide may be exploited. It is designed for the WHN 110/130 machines with the headstock version „N“.

## MACHINE COVERS

On the customer's request we deliver following types of covers:

### COMPLETE COVERING

the top quality design without any residual risks



### KVR CABIN

protective covers for working space



### MOBILE/MOVABLE

protective partitions



### C-COVER

compact and technically advanced design



ANOTHER OPTIONAL ACCESSORIES  
YOU CAN FIND ON

[www.tosvarnsdorf.cz/en/products/accessories/](http://www.tosvarnsdorf.cz/en/products/accessories/)

# DIMENSIONS AND WEIGHTS OF WHN 110 (Q, MC)

www.tosvarnsdorf.com

## MACHINE DIMENSIONS (mm)

Coordinate travel (mm)				Dimension (mm)			
				WHN 110	WHN 110 Q*	WHN 110 MC*	
X	1,600			4,550	4,550	4,550	A
		2,000	2,000	4,950	4,950	4,950	
Y	1,250			3,850	4,650	4,650	B
		1,400		3,950	4,650	4,650	
Z			1,600	4,150	4,650	4,650	C
	800			5,000	5,000	6,600	
		1,000		5,200	5,200	6,800	
			1,250	5,450	5,450	7,050	

\* Machine size (dimension „B“) correspondents to the machine equipped with 60-pocket chain tool magazine.

## MACHINE WEIGHT (kg)

Coordinate travel (mm)			
X	1,600		
		2,000	2,000
Y	1,250		
		1,400	
Z			1,600
	800		
		1,000	
			1,250
WHN 110	19,450	21,320	21,820
WHN 110 Q	20,780	22,800	23,400
WHN 110 MC	24,690	26,350	27,100

\* Machine rotary table 1,400 x 1,600 mm.

## FURTHER SPECIFICATION

		WHN 110 (Q, MC)	WHN 130 (Q, MC)
Vertical/horizontal travel of operator lift.	mm	-	1,600 / 600
Hydraulic circuit operational pressure	Mpa	6.5 - 8	6.5 - 8
Compressed air source output requirements			
- pressure	Mpa	0.6	0.6
- volume	l.sec <sup>-1</sup>	18	18
Main voltage/frequency	V/Hz	3 x 400/50; 3 x 400/60	3 x 400/50; 3 x 400/60
Total power consumption	kVA	83	86
Noise level "A" at the operator side max.	dB(A)	80	80

# DIMENSIONS AND WEIGHTS OF WHN 130 (Q, MC)

## MACHINE DIMENSIONS (mm)

Coordinate travel (mm)						Dimension (mm)			
						WHN 130	WHN 130 Q*	WHN 130 MC*	
X	2,000					5,350	5,350	5,350	A
		2,500				5,850	5,850	5,850	
			3,000			6,350	6,350	6,350	
				3,500		6,850	6,850	6,850	
Y					4,000	7,350	7,350	7,350	B
	1,600					4,150	4,550	4,550	
		2,000				4,500	4,550	4,550	
			2,500	2,500	2,500	4,950	4,950	4,950	
Z	1,000					5,650	5,650	7,500	C
		1,250				5,900	5,900	7,750	
			1,600	1,600		6,300	6,300	8,150	
					2,000	6,700	6,700	8,550	

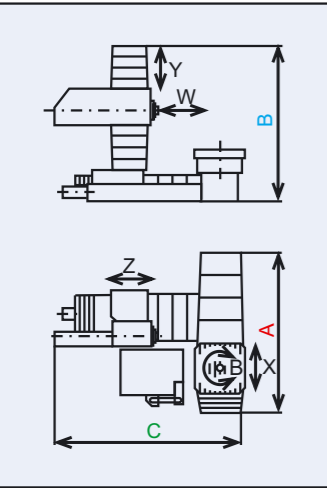
\* Machine size (dimension „B“) correspondents to the machine equipped with 60-pocket chain tool magazine.

## MACHINE WEIGHT (kg)

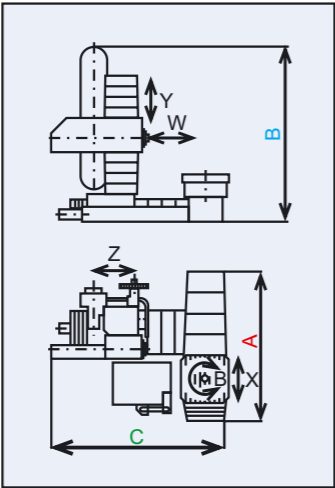
Coordinate travel (mm)					
X	2,000				
		2,500			
			3,000		
				3,500	
Y					4,000
	1,600				
		2,000			
			2,500	2,500	2,500
Z	1,000				
		1,250			
			1,600	1,600	
					2,000
WHN 130	22,000	25,000	29,000	31,000	33,500
WHN 130 Q	23,400	26,550	30,550	32,690	35,190
WHN 130 MC	30,400	33,550	37,550	39,690	42,190

\* Machine rotary table 1,400 x 1,600 mm.

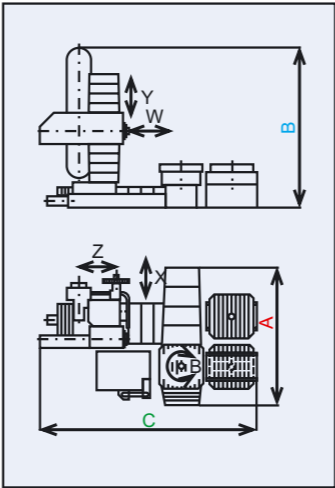
### WHN 110



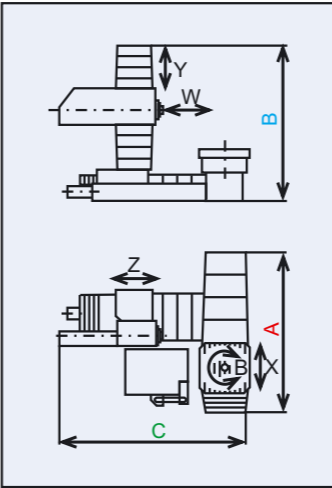
### WHN 110 Q



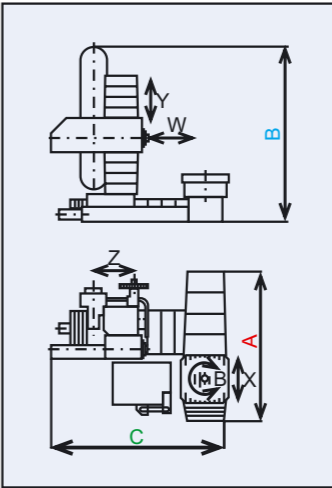
### WHN 110 MC



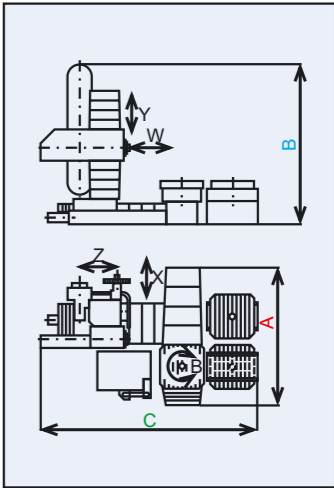
### WHN 130



### WHN 130 Q



### WHN 130 MC



# TECHNOLOGIES

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# REFERENCES

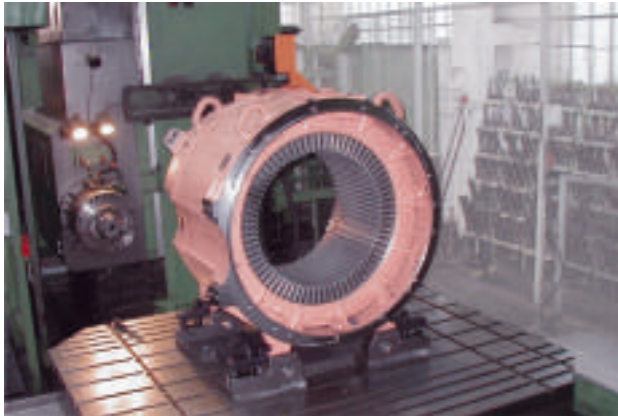
PRODUCTION OF A CARGO TRUCK UNDERCARRIAGE



MILLING OF A TURBINE BLADE WHEEL



MILLING AND DRILLING OF AN ELECTRIC MOTOR STATOR



MILLING OF AND BORING OF A BUILDING MACHINE SHOVEL



MILLING OF A VALVE



MILLING OF A VALVE



**UPON THE CUSTOMER'S REQUEST, IT IS POSSIBLE TO EQUIP THE MACHINE WITH ADDITIONAL DEVICE OR PROCES ACCESSORIES.**



Data and features in the present catalogue are not binding. The producer reserves the right to alter them without advance notice at any time.

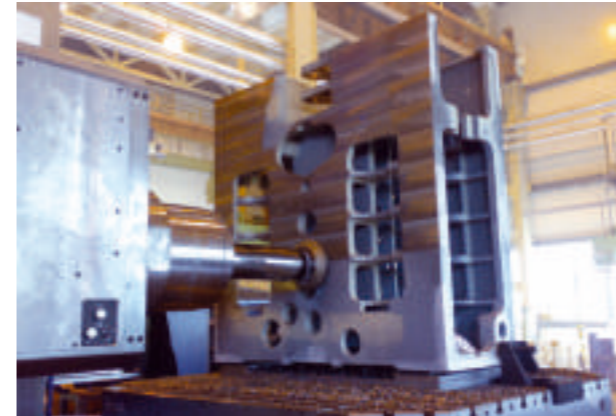
MILLING OF A BODY



MILLING OF A BODY



MACHINING OF A GEARBOX



MILLING AND DRILING OF A WORKPIECE FACE

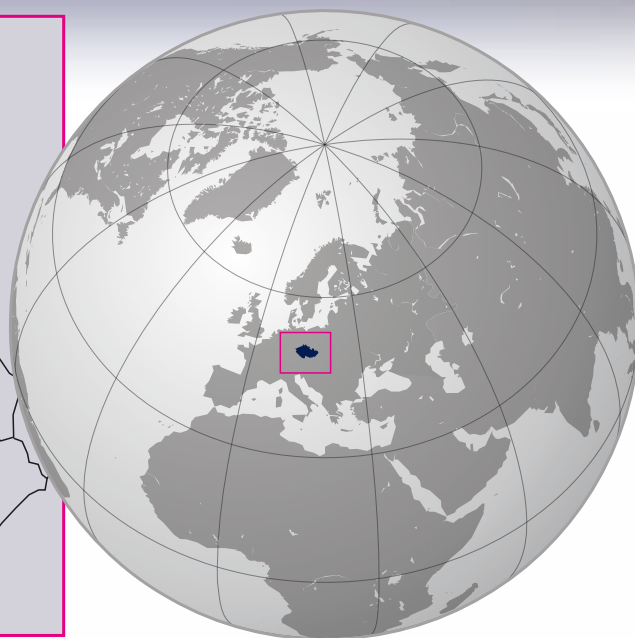


## 230 WHN 110/130 ALL TYPES MACHINES ARE USED IN (from 1993 to October 2011)

	Germany	53		Finland	4		Venezuela	2
	Czech Republic	27		Italy	4		Canada	1
	Poland	24		Sweden	4		Denmark	1
	Russia	22		Croatia	3		Egypt	1
	Belarus	15		Iran	3		Hungary	1
	Ukraine	14		Netherlands	3		Israel	1
	France	7		Norway	3		Latvia	1
	China	6		Slovenia	3		Mexico	1
	Slovakia	6		U.S.A.	3		Romania	1
	Belgium	5		Austria	2		R.S.A.	1
	India	5		United Kingdom	2		Spain	1
						<b>Total</b>		<b>230</b>



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