

WH(Q) 105 CNC

**HORIZONTAL MILLING
AND BORING
MACHINES**



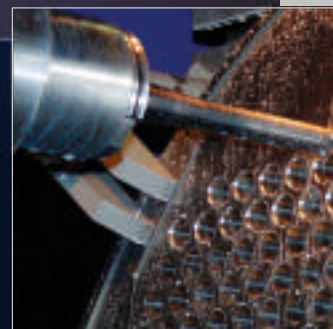
WH 105 CNC

WHQ 105 CNC

New goals need new solutions



TOS VARNSDORF a.s.



ABOUT COMPANY

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).

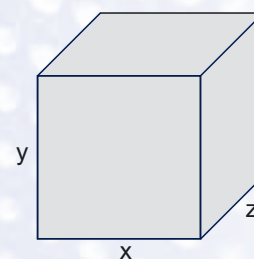
High engineering standards of TOS VARNSDORF a. s. products were recognized in 1996 when the company was awarded the ISO 9001 certificate.



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



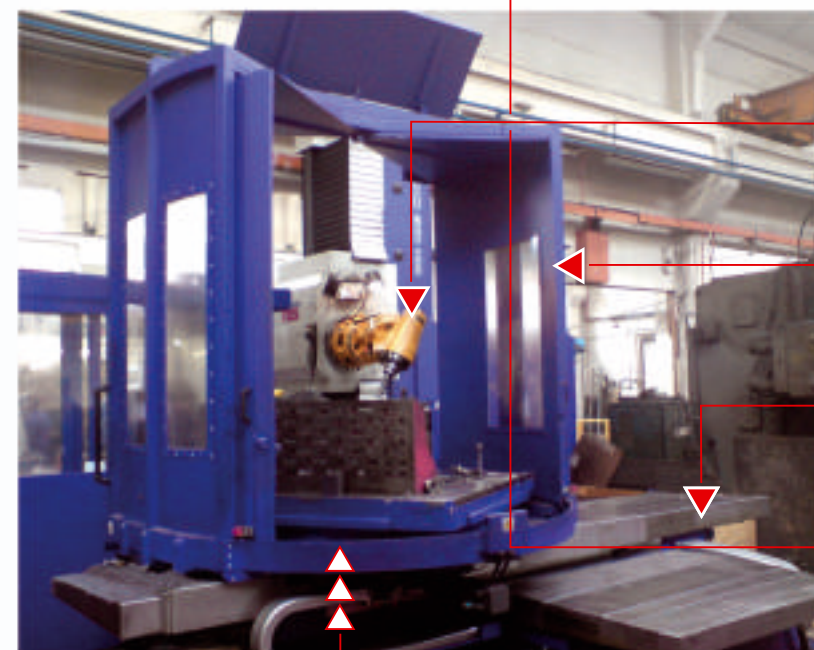
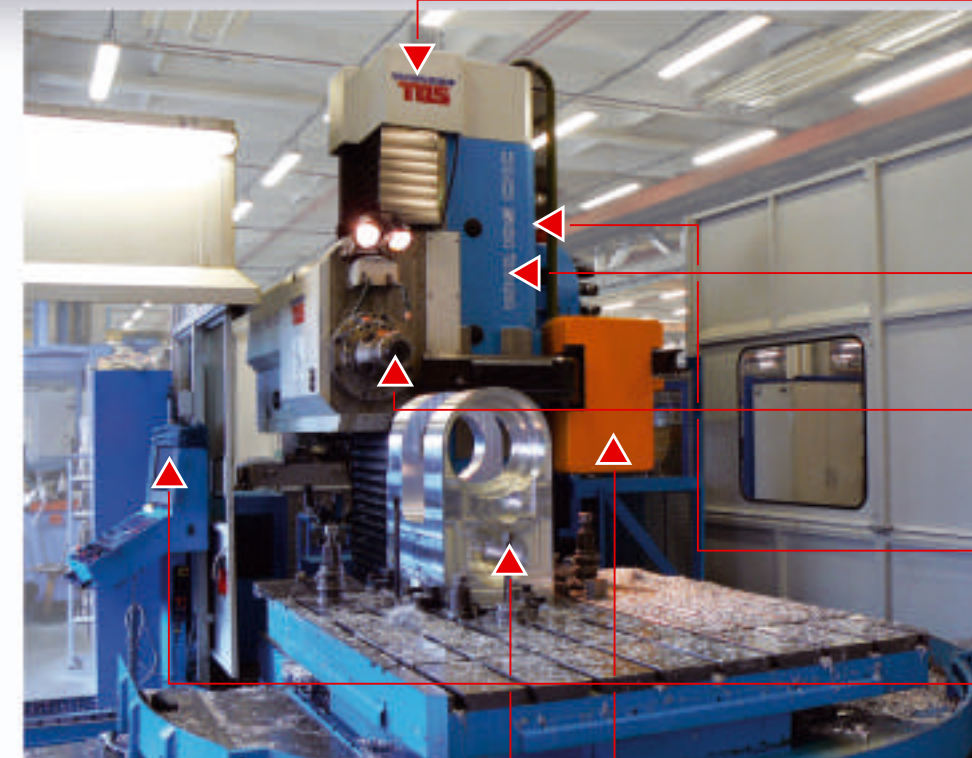
$> 1 \text{ m}^3 (0.01\text{mm})$

$x > 1 \text{ m}$
 $y > 1 \text{ m}$
 $z > 1 \text{ m}$

SERVICES

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

CONTENT



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AND BORING MACHINE
WH(Q) 105 CNC

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ABOUT COMPANY

CONTENT

HORIZONTAL MILLING AND BORING MACHINE WH(Q) 105 CNC

www.tosvarnsdorf.com

The WH(Q) 105 CNC horizontal boring machine has been designed using the latest technology to ensure that it is suitable for the most demanding applications. The high cutting performance and outstanding product reliability make this machine ideal for One-off Applications or Volume Production in the most difficult operations. The continuous control of X, Y, Z and W axes and rotary positioning of the table allow for the machining of both simple and complex components.

Machines can be extended with a wide selection of technological accessories that significantly widen the machine technological utility value.

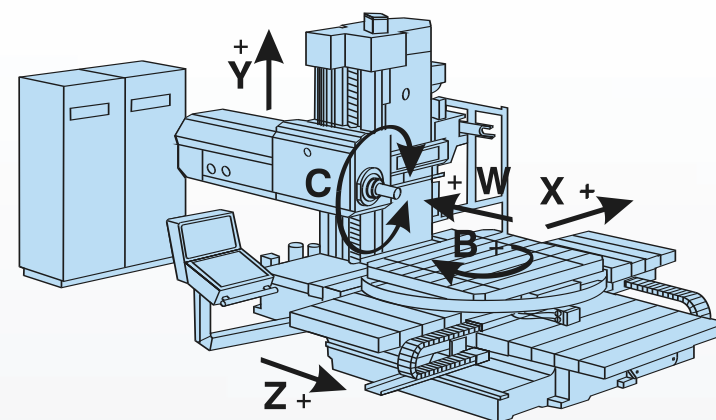
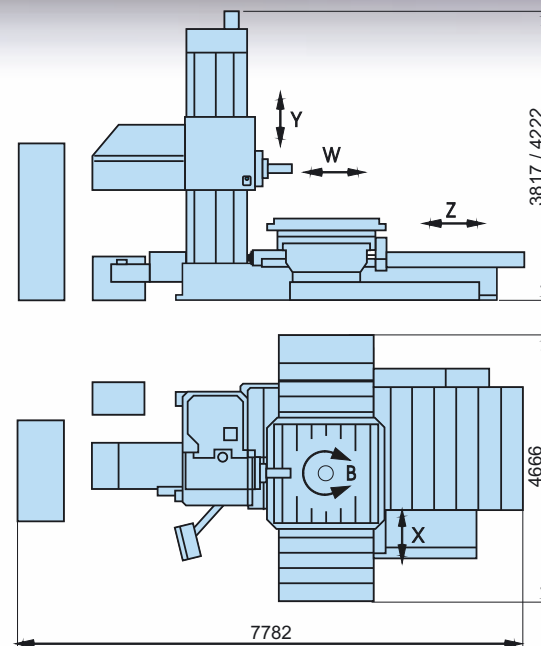
Basic design options of these machines are defined by the work cycle automation level:

WH 105 CNC - the basic design

WHQ 105 CNC - the Automatic Tool Changer (ATC) equipped design

MAX. TRAVELS

X	1,800 mm
Y	1,600 mm
Z	1,250 mm
W	630 mm



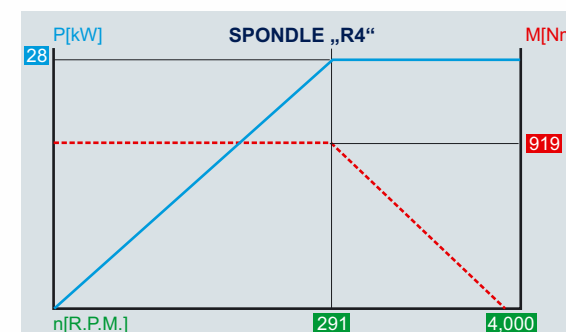
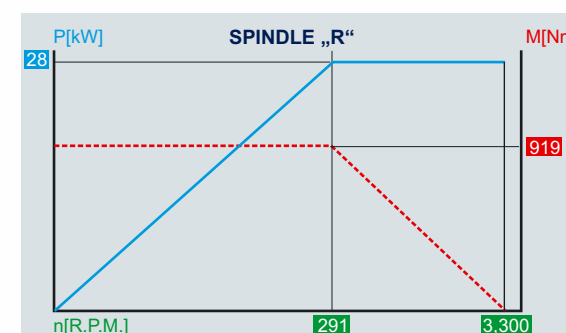
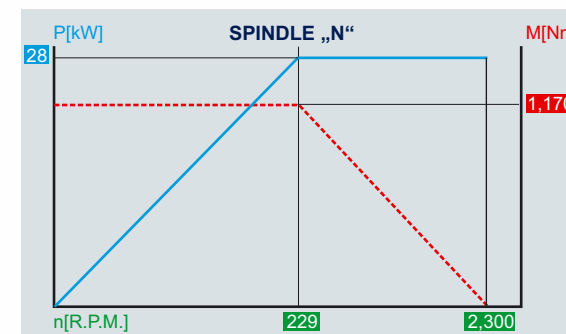
NEW DESIGN FOR 2012

DESIGN OF MACHINE GROUPS

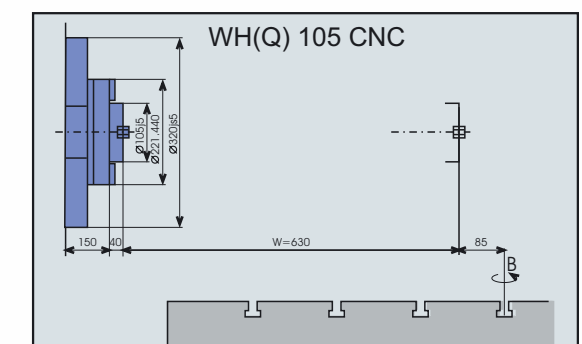
HEADSTOCK

The headstock contains all the spindle bearings and the spindle driving mechanisms (C-axis) as well as the ones for the longitudinal travel of the live spindle (W-axis). The tool clamping system is also there. Various items of standard or optional equipment such as spindle leading support, facing or milling heads etc., may be mounted on the headstock face. Precise spindle type, preloaded, multiple setup ball bearings have been used for the spindle. The spindle is driven via two sets of gears changed over with hydraulic actuated shifters. The headstock weight is compensated for by a counterweight moving inside the hollow of the column.

Technical parameters		Headstock N	Headstock R	Headstock R4
Spindle diameter	mm	105		
Spindle taper		ISO 50		
Spindle speed range	R.P.M. ⁻¹	10 - 2,300	10 - 3,300	10 - 4,000
Main motor power (S1 / S6-60)	kW	28 / 35		
Max. spindle torque (S1 / S6-60)	Nm	1,170 / 1,462	919 / 1,148	919 / 1,148
Spindle stroke W	mm	630		



BEARINGS
of world-famous
manufacturer



HEADSTOCK „N“

is suitable especially for power machining. The maximum speed is suitable for finishing operations. The torque characteristic of the spindle predetermines the machines equipped with the „N“ headstock to use of roughing cutters and faceplates

HEADSTOCK „R“

Option with higher spindle speed is suitable especially for the precision power machining of high cutting speed and using the maximum machine capacity at the same time.

HEADSTOCK „R4“

Option with max. spindle speed of 4,000 R.P.M. – this execution is suitable to be equipped with compressor cooling system OLAER KRO 30D or SCHIMPKE DK 28-V.

DESIGN OF MACHINE GROUPS

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THE MACHINE FRAME

is designed in the sense with a fixed column, traveling spindle and cross traveling spindle and cross traveling rotary table. The basic slideways are fitted with hardened and ground steel plates, counter ways are coated with a layer of low friction material. The guideways of the longitudinal slides are through anti-friction unit.

COLUMN

The column body is made of optimally dimensioned castings of gray iron. In the hollow of the column there is a counterweight for compensation of the headstock weight.

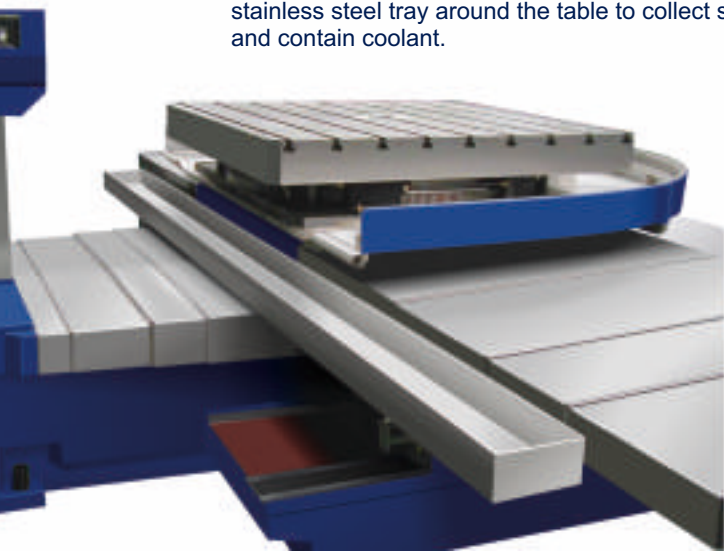
Technical parameters

Headstock vertical travel Y	mm	1,250; 1,600
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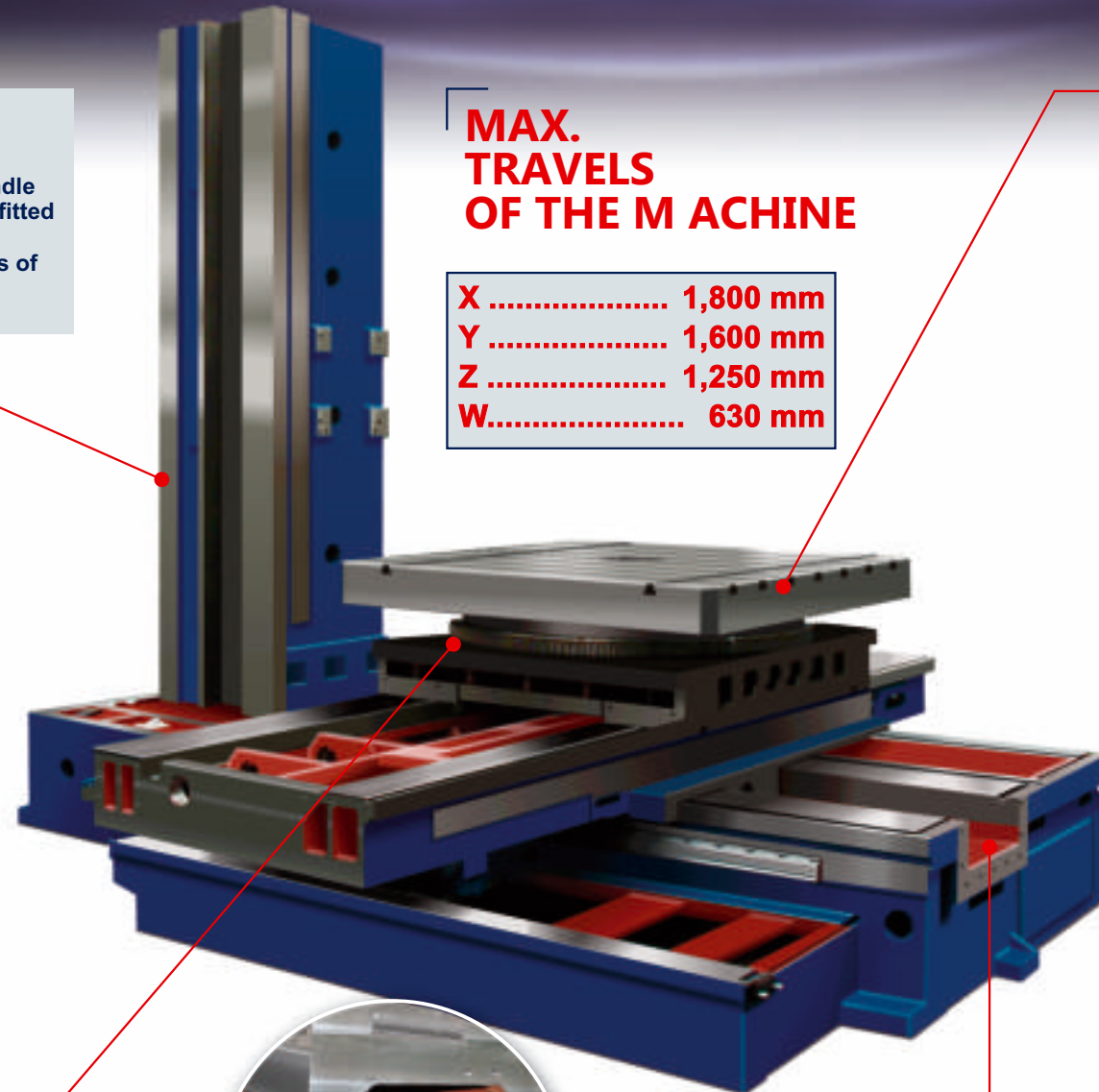
STAINLESS STEEL TRAY

The standard machine execution is fitted with stainless steel tray around the table to collect swarf and contain coolant.



MAX. TRAVELS OF THE MACHINE

X	1,800 mm
Y	1,600 mm
Z	1,250 mm
W.....	630 mm



High-quality Czech CASTINGS



TABLE

Technical parameters		
Table longitudinal travel Z	mm	1,250
Workpiece weight max.	kg	5,000
Table clamping surface	mm	1,400 x 1,400, 1,400 x 1,600
Table transverse travel X	mm	1,800

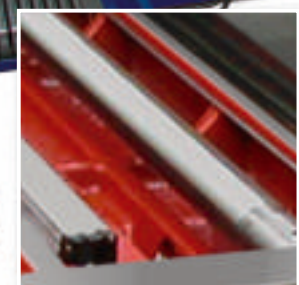
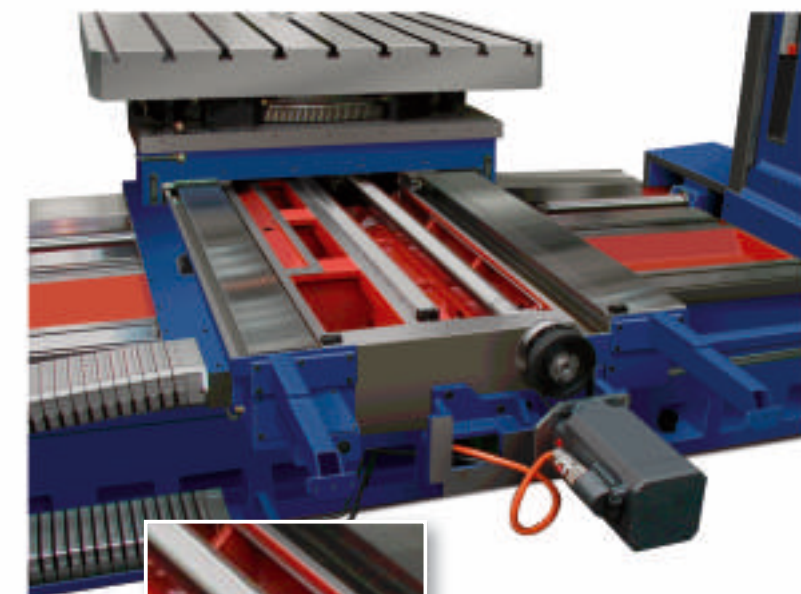


THE FEED DRIVES

of all linear axes are equipped with digitally controlled AC servo-drives manufactured by SIEMENS. The X, Y, Z, W axes are locked by an AC digital servo-drive in a closed position bond after reaching its final position. The B axis is automatically hydraulically clamped.

FEEDS

Technical parameters		
Feed range - X, Y, Z, W	mm.min ⁻¹	2 - 5,000
Rapid traverse - X, Y, Z	mm.min ⁻¹	10,000
Rapid traverse - W	mm.min ⁻¹	8,000
Rapid traverse - B	min ⁻¹	2



Ground BALLSCREWS



KSK KUŘIM
SKUPINA ALTA

DESIGN OF MACHINE GROUPS

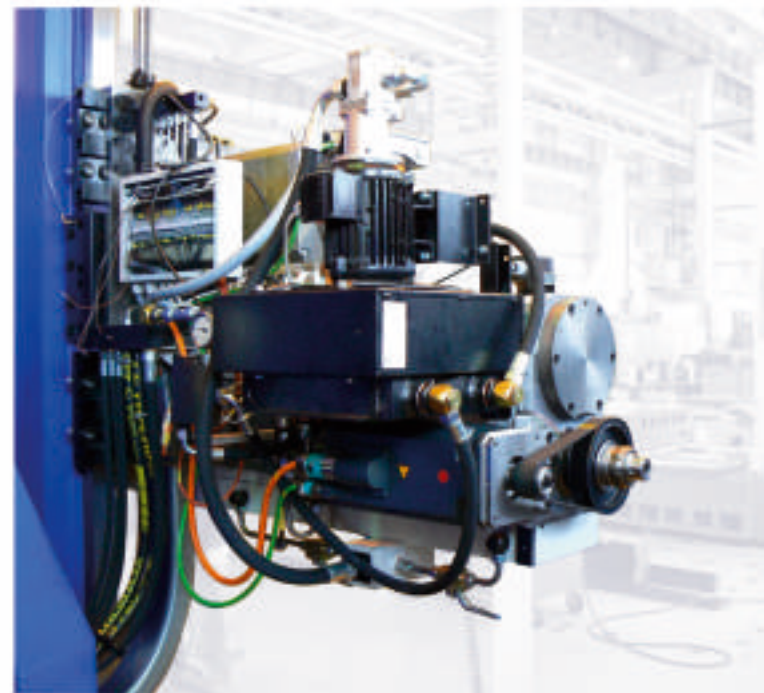
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MACHINE TESTING



THE ELECTRIC OUTFIT

The electrical installation is mostly wired into an independent electrical box. It contains a basic control system module, components controlling the servo- and spindle-drives plus other electrical elements supplied by leading specialized companies. The electrical box is cooled by a unit integrated into the box door.



AIR COOLING

As standard the headstock oil is air cooled. On the customer's request the machine can be equipped with an oil refrigeration unit.

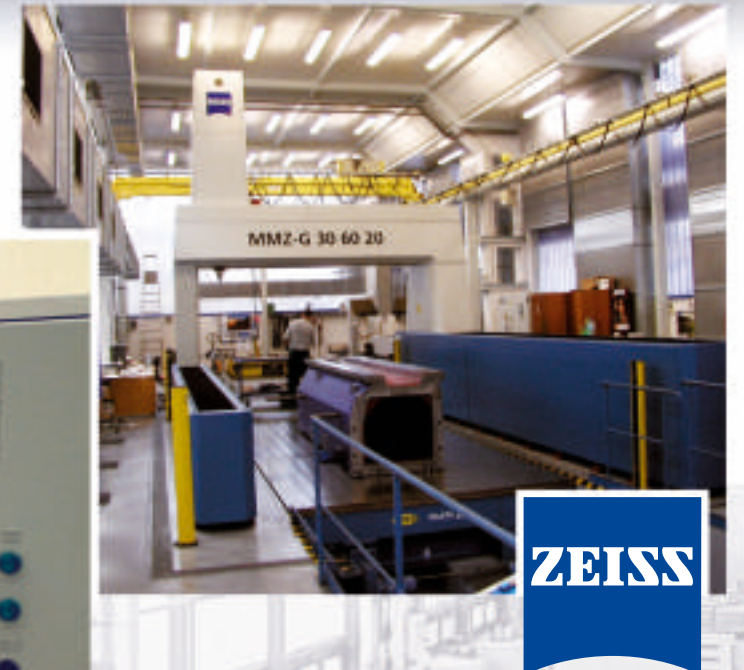
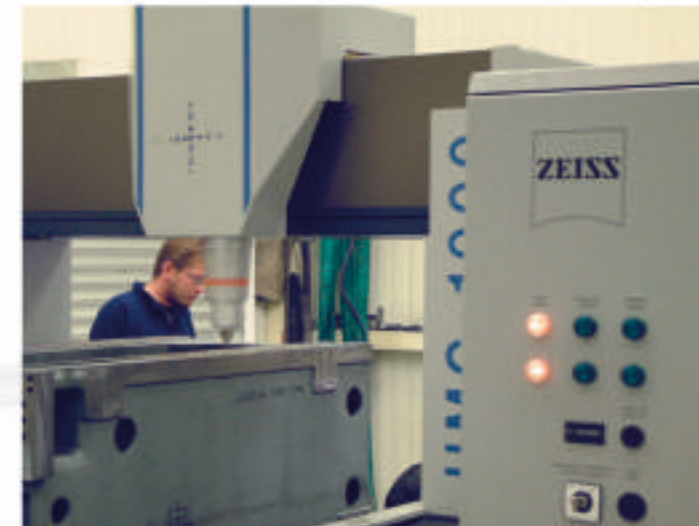


HYDRO-AGGREGATE

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.

QUALITY CONTROL

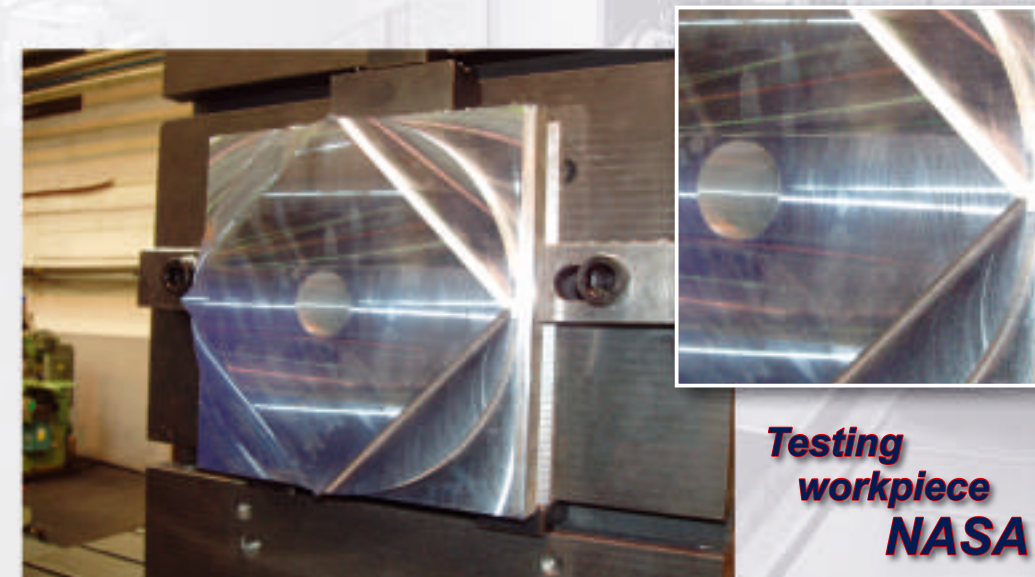
Thorough checking of manufactured parts is ensured with a modern, climate-controlled measuring centre equipped with cutting-edge coordinate measuring machines.



MEASURING DEVICES
from world-famous manufacturer

The fault-free functioning of machine is checked by a demanding output test consisting of:

- checking of geometric accuracy of machine according to the international standard ISO 3070-1,2,3
- checking accuracy of machine position when running to a position pursuant to standard VDI/DGQ 3441
- checking of working accuracy of machine by machining the testing workpiece "NASA"
- maximum load machining test for machine



Testing
workpiece
NASA



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)



MACHINE CONTROL

9

10

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
	RENISHAW OMP 60 - set	measuring touch probe with optical transport
	RENISHAW RMP 60 - set	measuring touch probe with wireless transport
iTNC or Sinumerik 840D	M+H 20.41 Multi	measuring touch probe with wireless transport

TOOL CONTROL PROBE



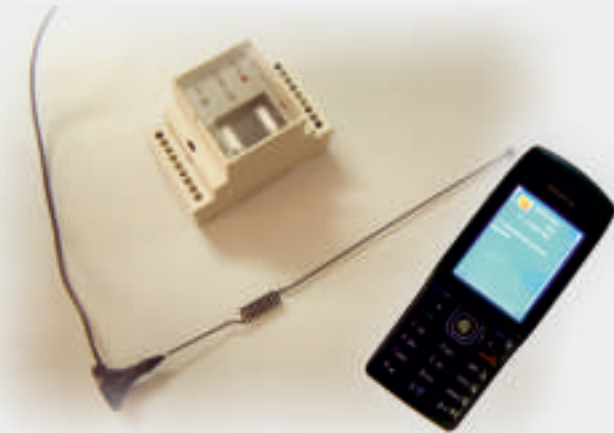
MEASURING TOUCH PROBE



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

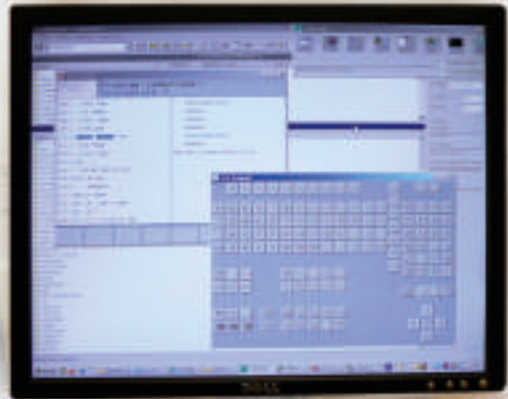
TOSmessage

- 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.



AUTOMATIC TOOL CHANGE (ATC)

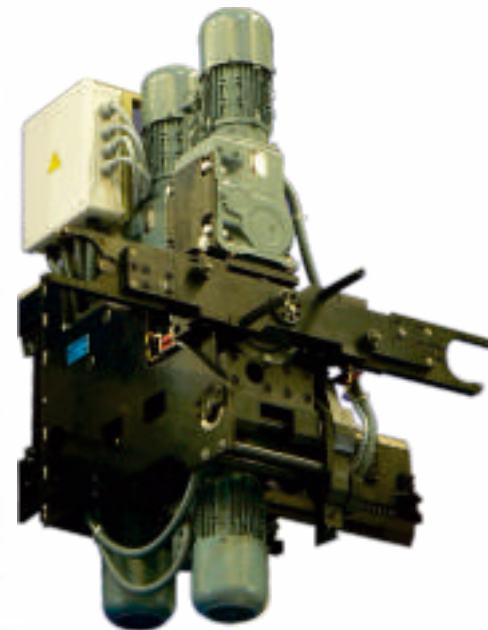
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ATC consists of a chain or loop type tool magazine and horizontally traversing manipulator with rotating two-arm hand, manipulator is fitted to the back of the column (basic design for 40 or 60 tools). The ATC equipment adapted with respect to the tool standard can be as follows:
CSN 22 0432
CSN 22 0434
DIN 69871
BT 50 MAS 403-1982
CAT ANSI/ASME B5.50-1985

CHAIN MAGAZINE

TOOL MANIPULATOR

ATC CONTROL PANEL



Quantity of pockets in magazine		40, 60
Pitch of pockets in magazine	mm	130
Tool dia max		
- with fully loaded magazine	mm	125
- with free neighbouring places	mm	320
Tool length max.	mm	500
Tool weight max.	kg	25
Total tool change time	sec	15

OPTIONAL ACCESSORIES

HPR 50



HUR 50



MILLING HEADS

The HPR 50 and HUR 50 heads are used for machining the surfaces that are oriented in the basic direction (also generally) with regard to the orthogonal coordinate system of the machine.



**Manufactured
in TOS VARNSDORF**

LD 650

Facing head are used for demanding technological operations with the possibility of continuous CNC control of the slide position.



SPINDLE SUPPORT

The spindle support ensures a significant increase in the rigidity of the work spindle in the case of larger pullouts.



CHIP CONVEYOR

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



OPTIONAL ACCESSORIES

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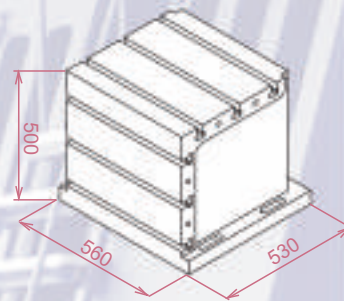
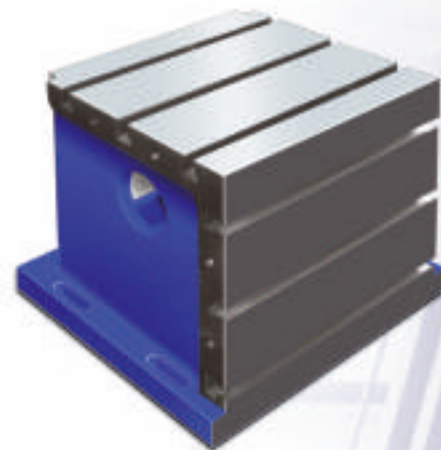
CLAMPING ANGLE PLATES

Clamping angle plates are supplied in the following sizes as standard: 800; 950; 1,120; 1,450.

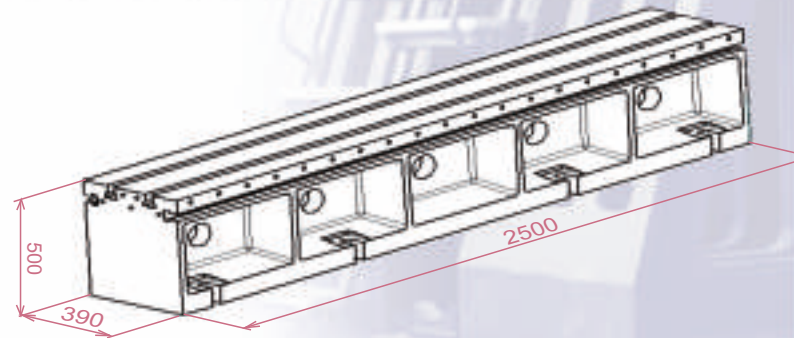


CLAMPING CUBES

UK 500, UK 1000, UK 2000, UK 2500



**Manufactured
in TOS VARNSDORF**



TOOL COOLING DEVICE

Customer may choose either CHZ 105 outer tool cooling kit or CHOV 105 through spindle tool cooling kit which brings coolant to the cutting edge through outsider nozzles as well. Possible choose is 10, 20, 30 or 40 bar.



MACHINE COVERS

MACHINE COVERS

It is desirable to prevent against coolant and chip splash. It is recommended particularly for the machines fitted with the cooling through the spindle. On the customer's request we deliver following types of covers:

KVR CABIN

protective covers for working space.



**MOBILE /
MOVABLE**
protective partitions



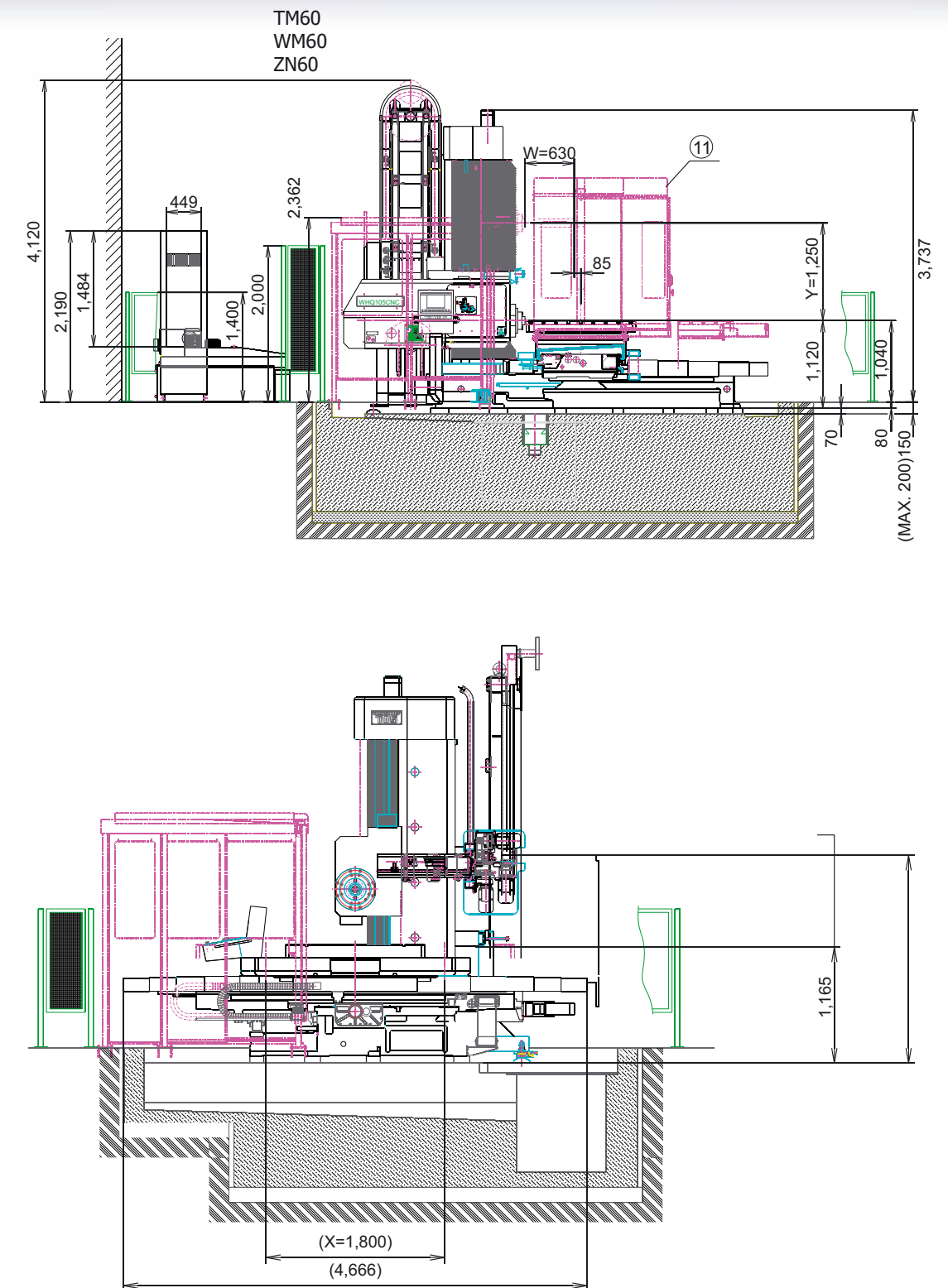
C-COVER

compact and technically advanced design.



**ANOTHER OPTIONAL ACCESSORIES
YOU CAN FIND ON**

www.tosvarnsdorf.cz/en/products/accessories/



TECHNOLOGIES

www.tosvarnsdorf.com

TECHNOLOGIES / REFERENCES

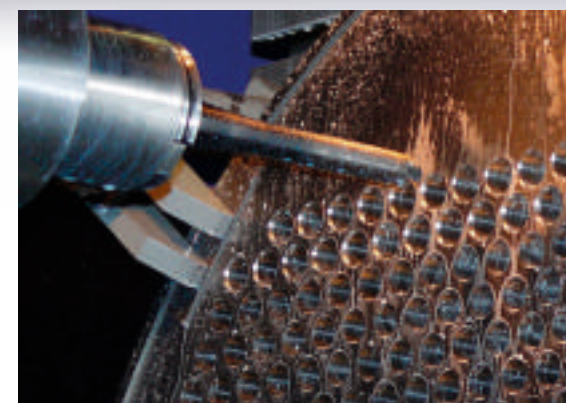
DEEP DRILLING



DEEP DRILLING



DRILLING OF A TUBE PLATE



DRILLING OF A TUBE PLATE



MILLING OF A MILLING HEAD ALUMINIUM BODY



MILLING OF A MACHINE TOOL PART



PRODUCTION OF A BUILDING MACHINE ARM



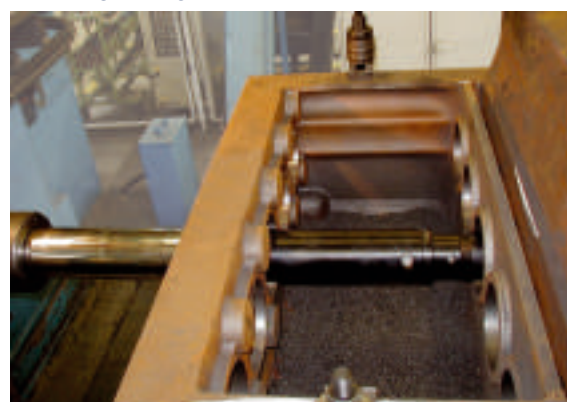
MILLING AND DRILLING OF CRANE PART



MILLING AND DEEP DRILLING INTO THE PUMP BODY



MILLING AND DEEP DRILLING INTO THE PUMP BODY



MORE TECHNOLOGIES YOU CAN FIND ON www.tosvarnsdorf.cz/en/technologies/ 

265 STATISTICS OF SOLD WH(Q) 105 CNC OF ALL TYPES: 1998 - SEPTEMBER 2011

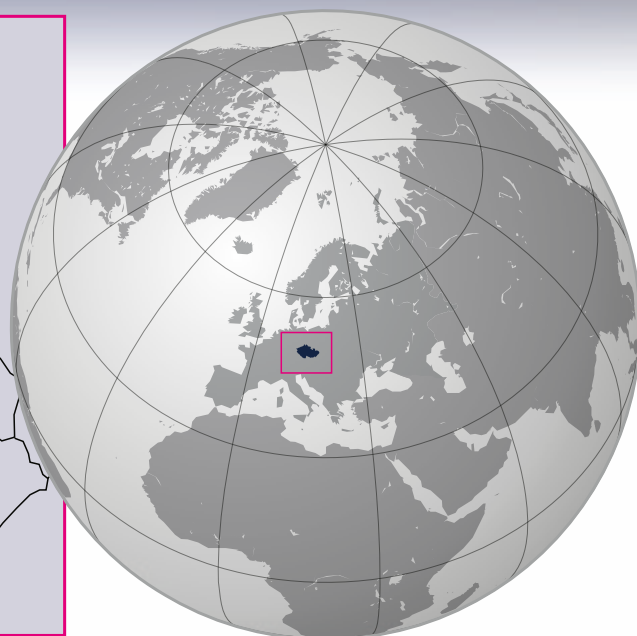
	Germany	68		Slovakia	7		Croatia	1
	Czech Republic	27		Switzerland	7		Egypt	1
	Finland	24		Netherlands	6		Estonia	1
	Slovenia	13		Ukraine	6		Hungary	1
	Austria	12		Brazil	3		India	1
	Canada	11		Argentina	2		Kuwait	1
	Italy	11		Belgium	2		Luxembourg	1
	Poland	11		China	2		Mexico	1
	Russia	11		Kazakhstan	2		Singapore	1
	U.S.A.	10		Sweden	2		Turkey	1
	Spain	8		Australia	1		United Kingdom	1
	France	7		Belarus	1	Total		265

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.

TOS VARNSDORF a.s.

VARNSDORF
TOS



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