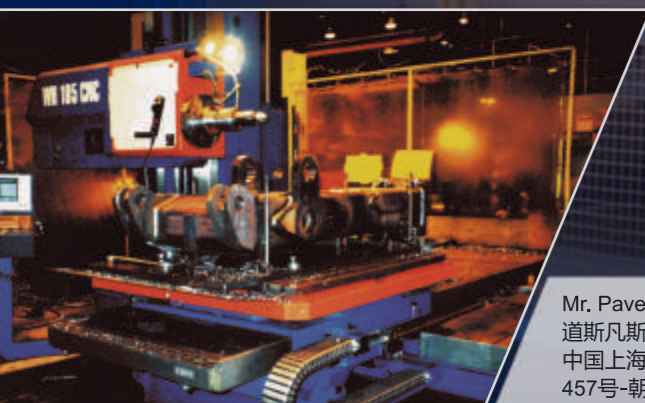
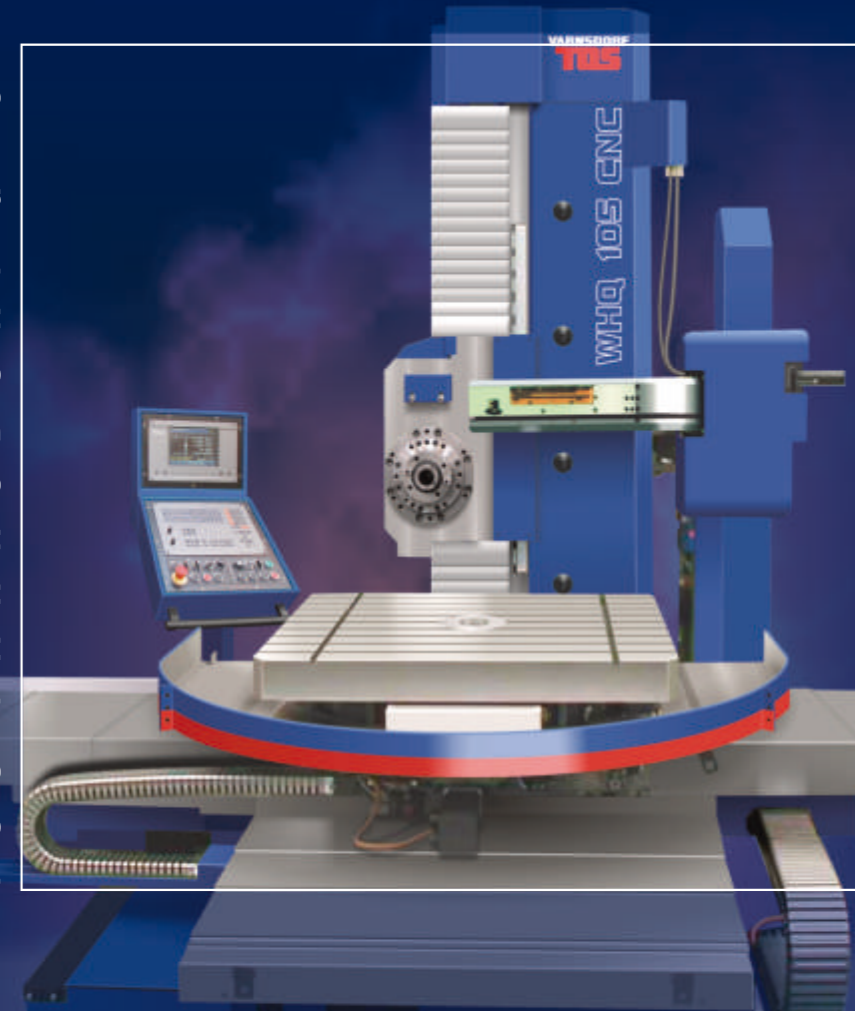


WH 105 CNC WHQ 105 CNC

T O S V A R N S D O R F a . s .



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Czech Republic

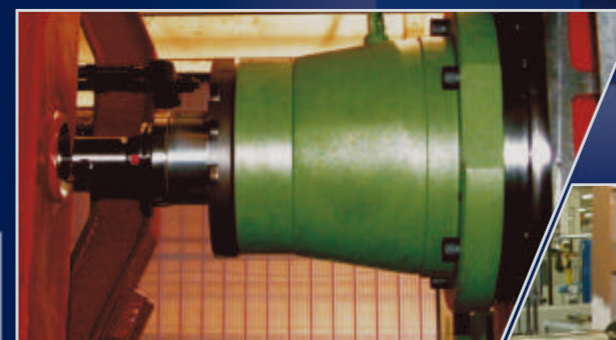
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**卧式镗铣床
HORIZONTAL MILLING
AND BORING MACHINES**





WH(Q) 105 CNC

WH (Q) 105 CNC计算机数控卧式镗床是先进高效率连续控制加工机床。其优良切削参数和技术功能广泛选择性注定此型号机床应用在复杂工艺加工。连续控制X, Y, Z, W的坐标和回转分度工作台是万能使用的基本条件。尤其适用于箱体零件的高效多面加工，也适合于模具和其它复杂形状工件的优质加工。此型号机床配有自动换刀装置，Q“选型显著增加其工艺功能的多可能性。

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. For companies requiring continuous production the versatility of the machine can be increased by fitting an Automatic Toolchanger, this is designated the model "Q".

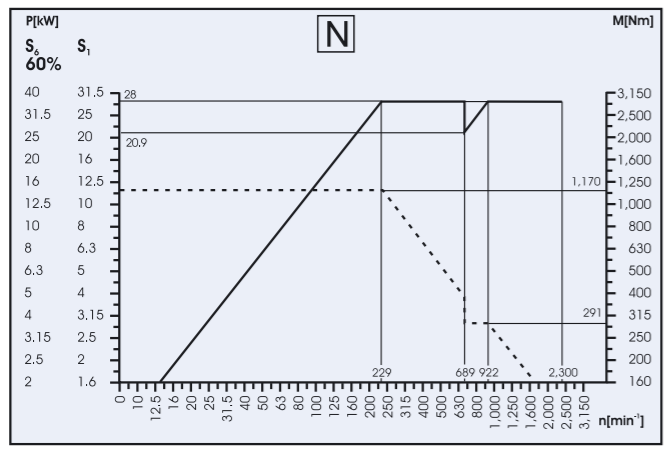
基本技术参数 BASIC SPECIFICATIONS

主轴直径 Spindle diameter	mm	105
主轴锥孔规格 Spindle taper		ISO 50
主轴转速范围 - N / R / R4型主轴箱 Spindle speed range N / R / R4	RPM	10 - 2,300 / 10 - 3,300 / 10 - 4,000
主电机功率 Main motor rated output	kW	28
工作台横向行程(X) Table cross travel X	mm	1,800
主轴箱垂直行程(Y) Headstock vertical travel Y	mm	1,250, 1,600
立柱纵向行程(Z) Table longitudinal travel Z	mm	1,250
镗轴行程(W轴) Spindle stroke W	mm	630
工作行程范围 - X轴、Y轴、Z轴、W轴 Feed range X, Y, Z, W	mm.min ⁻¹	2 - 5,000
快速进给速度 Rapid traverse		
- X轴、Y轴、Z轴 X, Y, Z	mm.min ⁻¹	10,000
- W轴	mm.min ⁻¹	8,000
- B轴	RPM	2
主轴中心线至工作台台面的最小距离		
Minimum height of spindle axis above table	mm	0
工件最大重量 Maximum table load	kg	5,000
回转工作台台面尺寸 Table clamping surface size	mm	1,400 x 1,400, 1,400 x 1,600
工作台T型槽 Table clamping "T"-slots		
- 尺寸 size	mm	22H8
- 间距 pitch	mm	160
- 数量 number		9

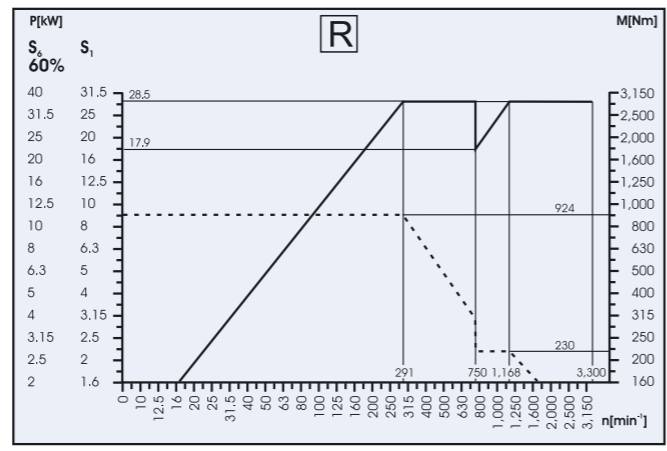
其他参数 FURTHER SPECIFICATION

液压回路工作压力 Hydraulic circuit operating pressure	MPa	8.1 - 8.8
压缩空气至机床输入 Compressed air network requirements		
- 压力 pressure	MPa	0.6
- 流量 volume	l.sec ⁻¹	18
电压/电网频率 Main voltage/frequency	V/Hz	3 x 400 / 50.3 x 400 / 60
操作和控制电压 Control and operating voltage	V=	24
机床总输入功率 Total machine power consumption	kVA	52
操作地点最大A噪声量 Noise level "A" at the workplace max.	dB(A)	80

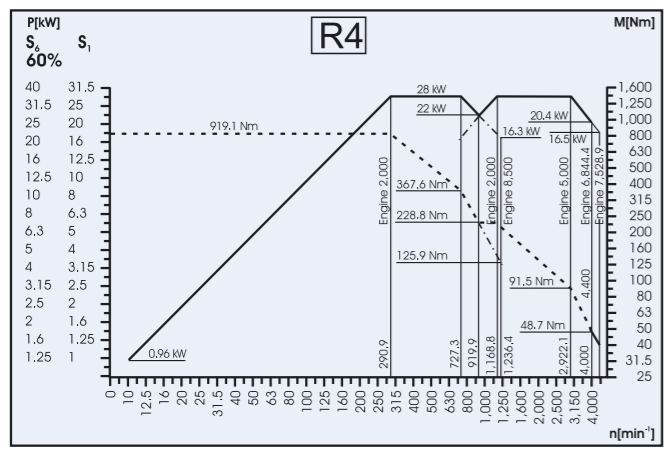




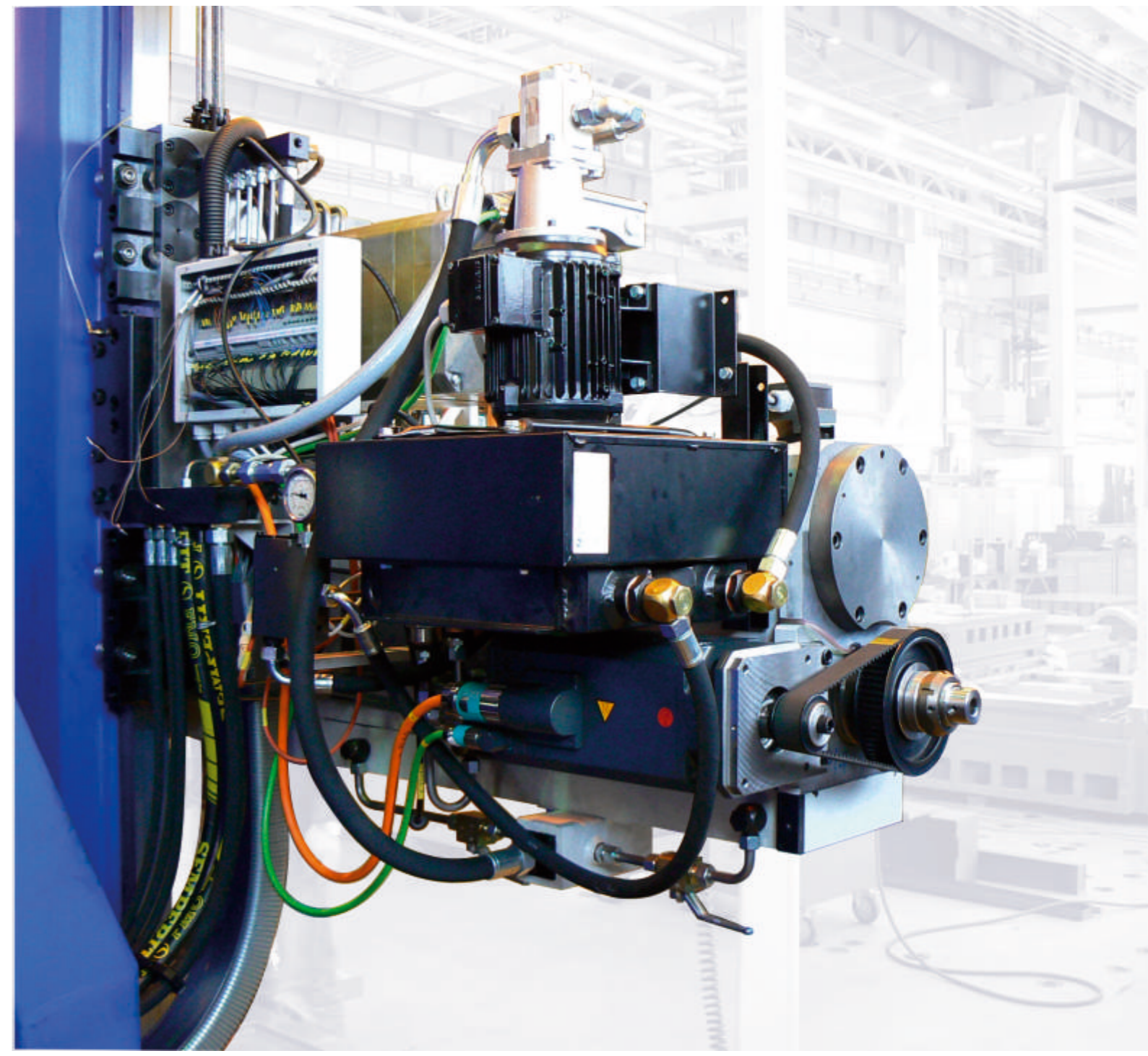
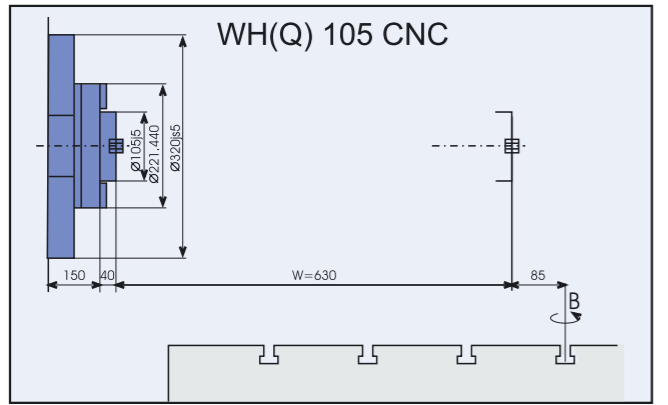
„N”型主轴箱
 适用于尤其高效动力加工。其最大主轴转速允许进行精加工工艺操作。扭矩曲线的特征注定选配„N”型主轴箱的机床，为适用于采用大型铣头和平衡盘的加工工艺。
HEADSTOCK "N"
 is suitable especially for power machining. The maximum speed is suitable for finishing operations. The torque characteristic of the spindle predetermines the machines equipped with the "N" headstock to use of roughing cutters and faceplates.



„R”型主轴箱
 此高速„R”型主轴箱选型尤其适用于采用极高切削速度的高效精加工。同时也可以利用其最大功率。
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.



„R4”型主轴箱
 WH(Q) 105 CNC计算机数控卧式镗床配置可以以装备达到最高4000转/分钟主轴转速的R4型主轴箱增加其选择性。这种配置选型要求机床永久装有OLAER型或SCHIMPKE型的压缩空气冷却装置。
HEADSTOCK "R4"
 WH(Q) 105 CNC machine specification is being extended for possibility with headstock R4, max. 4.000 RPM – this execution is necessary to be equipped compressor cooling system OLAER or SCHIMPKE.



主轴箱标准配置是压缩空气冷却，客户也可选择主轴箱另外油冷却的方式。
 As standard the headstock oil is Air cooled. An Oil refrigeration unit can be supplied as an option.

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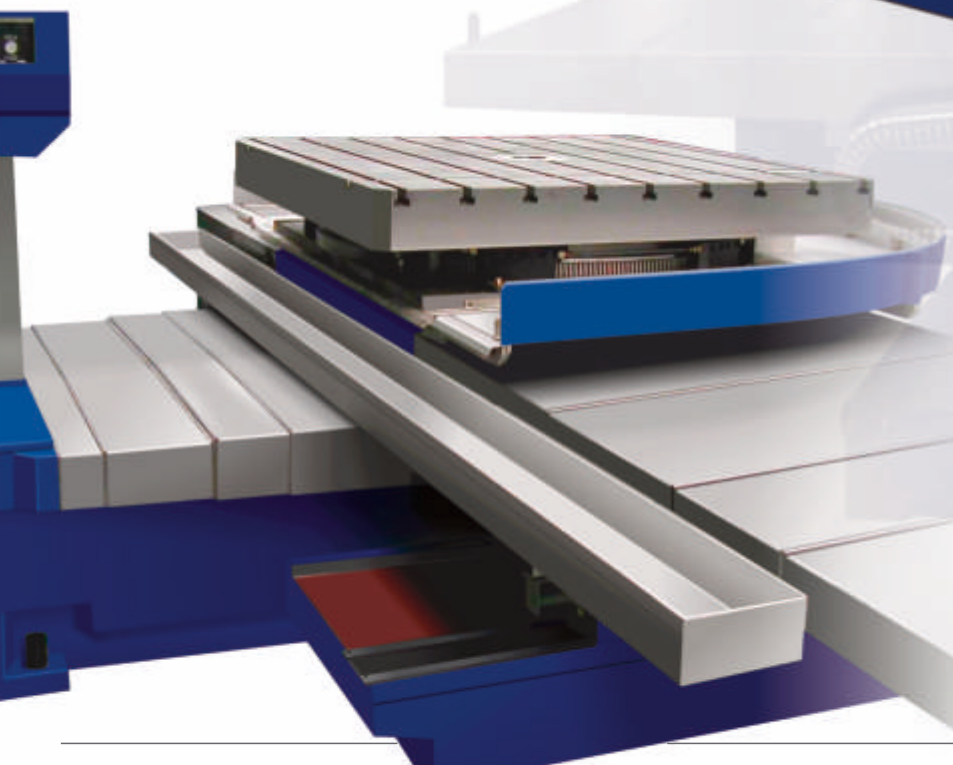
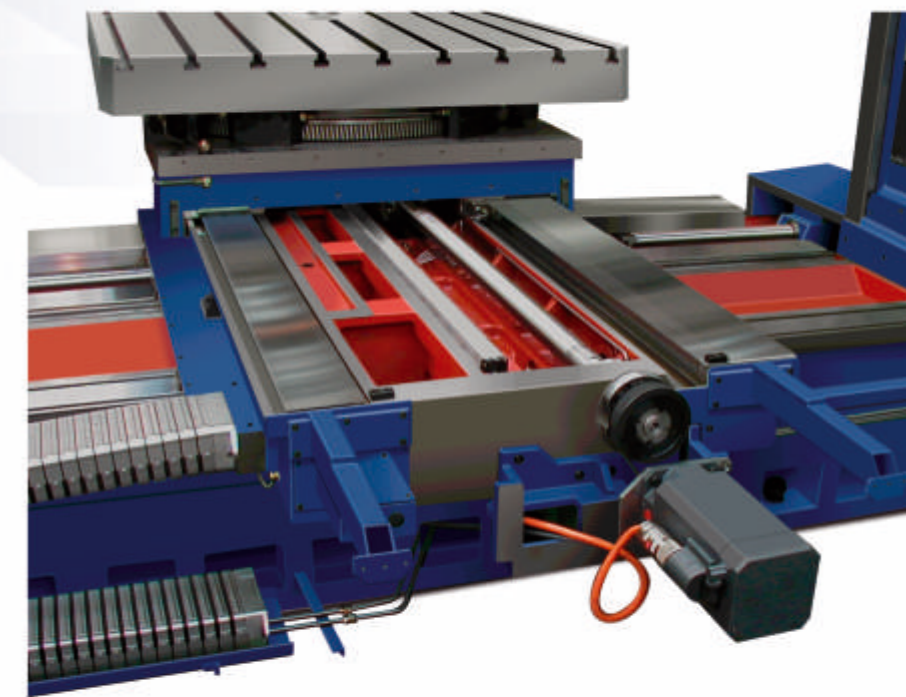
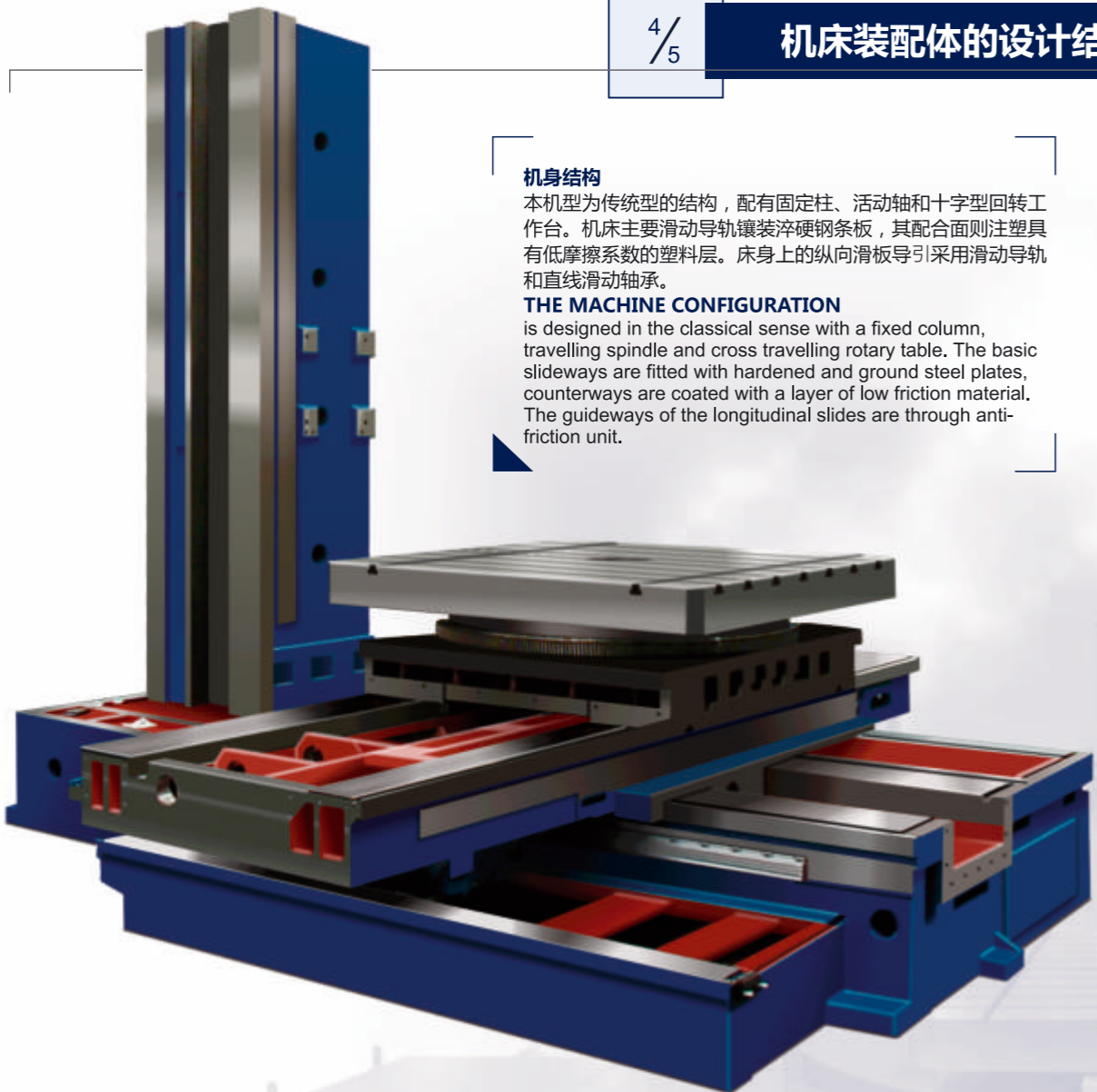
机身结构
 本机型为传统型的结构，配有固定柱、活动轴和十字型回转工作台。机床主要滑动导轨镶装淬硬钢条板，其配合面则注塑具有低摩擦系数的塑料层。床身上的纵向滑板导引采用滑动导轨和直线滑动轴承。
THE MACHINE CONFIGURATION
 is designed in the classical sense with a fixed column, travelling spindle and cross travelling rotary table. The basic slideways are fitted with hardened and ground steel plates, counterways are coated with a layer of low friction material. The guideways of the longitudinal slides are through anti-friction unit.

电气装置
 电气装置设备装在2300 x 600毫米和2200毫米高的配电柜里。其内装的电气和保护元件为世界知名企业的产品，尤其是西门子公司。
THE ELECTRIC OUTFIT
 One electric control cabinet is provided and this is to the following dimensions 2,200 x 600 x 2,300 mm (height, depth, length). All electrical equipment fitted is supplied mainly by Siemens or similar prestigious companies and complies with all current C. E. regulations.

液压站
 X轴、Y轴、Z轴和B轴导轨面采用与液压站一般装在立柱滑板上的润滑站进行自动润滑。
HYDRAULIC-AGGREGATE
 Guideways of X, Y, Z and B axes are lubricated automatically by means of oil metering unit placed together with hydraulic-aggregate on the column saddle.

进给驱动
 机床所有直线轴的驱动装置配有西门子数字控制AC交流伺服驱动器。经滚珠丝杠进行扭矩传输。达到要求位置时X, Y, Z和W轴夹紧在其定位组合，B轴则是通过自动液压夹紧。
THE FEED DRIVES
 of all linear axes are equipped with digitally controlled AC servo-drives manufactured by Siemens. Ballscrews are fitted to all X-, Y-, Z- and W - axes ensuring smooth continuous operation. The linear axes are held in position by the servo-drives. The B-axis is automatically hydraulically clamped.

切削液及切屑收集箱和输送槽
 机床标准配置包括工作台周边装有不锈铁板材的收集箱和输送槽。
STAINLESS STEEL TRAY
 The standard machine execution is fitted with stainless steel tray around the table to collect swarf and contain coolant.



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海德汉iTNC 530控制面板
CONTROL PANEL
OF HEIDENHAIN iTNC 530
CONTROL SYSTEM



西门子Sinumerik 840 D控制面板
CONTROL PANEL
OF SINUMERIK 840 D
CONTROL SYSTEM

所有控制系统的标准配置包括:

- 基本模块(控制主机)
- 15 / 10.4英寸LCD液晶显示屏的显示模块
- 带键盘的操作面板
- 安装在便携式操作面板的电子手轮

控制系统功能和设备可增设如:

- 接触式测头
- 允许远程诊断的界面

按照机床特性、采用功能和周边装置所选用最符合CNC计算机数控系统选型(海德汉 iTNC 530, 西门子SINUMERIK 840D, 发那科)进行机床的制。所有控制系统连续控制机床的4个座标(X, Y, Z, W)加主轴(B)。此外回转分度工作台是自动控制的。

独立数字控制的AC交流伺服驱动器在所有可调节的行程组允许同时插补:

- 可多达4轴直线插补
- 圆弧插补
- 螺旋插补

All types of control systems in basic configuration consists of:

- Basic module (control office)
- Visual module with the 15" / 10.4" LCD display
- Control panel with a keyboard
- Portable control panel with an electronic hand wheel

The machine control system can be equipped with:

- Measuring touch probes for the Component and Tooling
- Interface to allow remote diagnostics via a telephone line

The machine standard version is equipped with the HEIDENHAIN iTNC 530 control. The SINUMERIK 840 D control can be also added to the machine optional version.

The CNC control provides fully continuous control of four linear coordinates (X-, Y-, Z- and W-) and the rotary table positioning (B- axis).

The system enables present interpolation:

- Linear - up to 4 axes
- Circular
- Helical



西门子便携式控制面板
PORTABLE CONTROL
PANEL SIEMENS



海德汉便携式控制面板
PORTABLE CONTROL
PANEL HEIDENHAIN

测量

直线轴(X, Z, Y)的测量采用海德汉光电式的直线光栅尺。

SYSTEM OF MEASURING

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



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接触式测量测头
MEASURING TOUCH PROBE

海德汉TT 130刀具测量测头

允许在机床上任何类型刀具的测量。不但可测量刀具长度和直径, 同时也可分别测量刀具各刃尺寸。CNC计算机数控系统将测量数据自动保存在刀具文件中, 使其用于NC数控程序接下的处理。

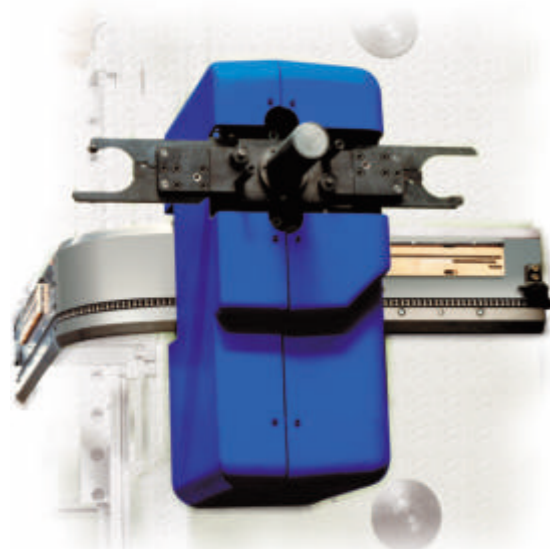
TOOL TOUCH PROBE

This touch probe gives the possibility to measure different types of tools. It is possible to measure distances and diameters of tools, during this is also possible to measure each edge of these tools. The resulting values are saved by CNC control system in to the tool table for further operating in NC programs.



8 **自动换刀装置 AUTOMATIC TOOL CHANGE (ATC)**

刀库容量 Quantity of pockets in magazine	把	40, 60, 80, 120
刀位距离 Pitch of pockets in magazine	mm	130
刀具最大直径 Tool dia max		
- 刀库满刀 with fully planted magazine	mm	125 - 150
- 相邻刀位空缺 with adjacent pockets	mm	320
最大特殊端面刀具直径 Dia max. of special flat tool	mm	390 (600)
刀具最大长度 Tool length max.	mm	500
刀具最大重量 Tool weight max.	kg	25
刀具总重量 Total weight of tools in magazine	kg	750
刀库内最大不平衡量 Imbalance of tools in magazine	kg	150
换刀总时间 Total tool change time	sec	20

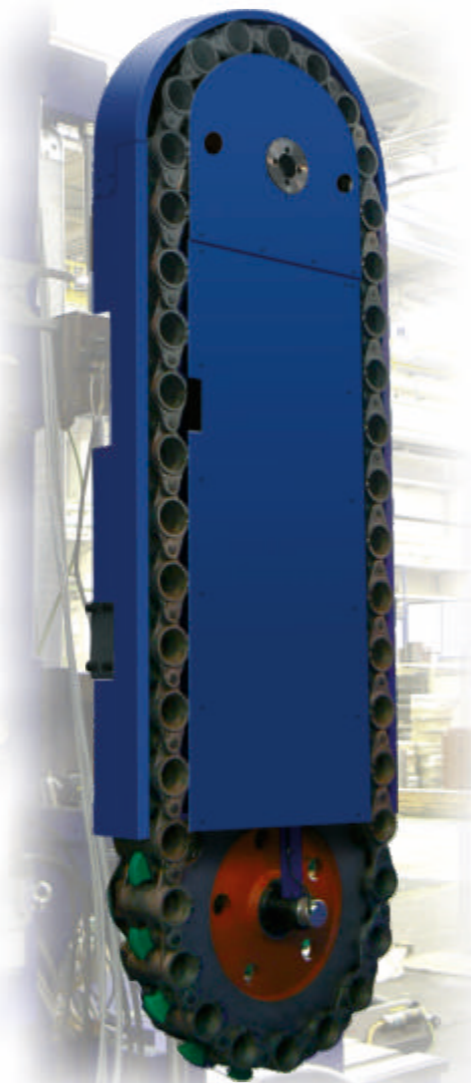


立柱上装卸装置的行程和装有双腕摇臂机械手的刀具装卸装置
TOOL MANIPULATOR WITH ITS SWIVELING MECHANICAL HAND



自动换刀装置控制面板
ATC AUXILIARY CONTROL PANEL

自动换刀装置由链式/链条式刀库、立柱上装卸装置的行程和装有双腕摇臂机械手的刀具装卸装置。
 客户可以选购根据标准为刀柄所改制的机床:
 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 69871
 BT 50 MAS 403-1982
 CAT ANSI/ASME B5.50-1985



9 **机床附件 ACCESSORIES**

选配件 OPTIONAL ACCESSORIES

- **LD 650型平旋盘** Facing head - **LD 650** (headstock "N" only)
- **HF 50 A型手动分度立铣头** Milling head (vertical) - **HF 50**
- **HUR 50型手动万能铣头** Hand universal milling head - **HUR 50**
- **CHZ 105型外接喷嘴输入切削液的刀具冷却装置** Tool cooling kit - **CHZ 105**
- **CHOV 105型外接输入切削液至切削点和主轴中心内冷却的两种方式刀具冷却装置** Tool cooling through spindle axis - **CHOV 105**
- 加工空间的防护罩 Workspace protective guards
- **UK 500型夹紧块** Clamping cube - **UK 500**
- 排屑输送装置 Chip conveyor
- 下文型号的夹紧角铁 **UU 800, UU 950, UU 1120, UU 1450** Clamping angle plates - **UU 800, UU 950, UU 1120, UU 1450**
- 其它刀具夹紧柄 Additional pullstud kits

机床标准件 STANDARD ACCESSORIES

- 型地脚 Anchoring hardware kit
- **PVK 105-250型短型主轴导向支架** Spindle leading support (short) - **PVK 105-250**
- 夹紧柄 Pullstuds for clamping the tool
 - WH 105 CNC型号 - 30 件 for WH 105 CNC - 30 pcs
 - WHQ 105 CNC 型号 - 按自动换刀刀库容量配合其量 for WHQ 105 CNC - according number of tools in magazine
- 主轴锥孔清洁棒 Spindle taper brush
- 操作和维修用成套工具 Set of tool for operation
- 消耗零件套 Set of consumable parts
- 包括机床操作手册的随机技术文件 Accompanying technical documentation including operating manual

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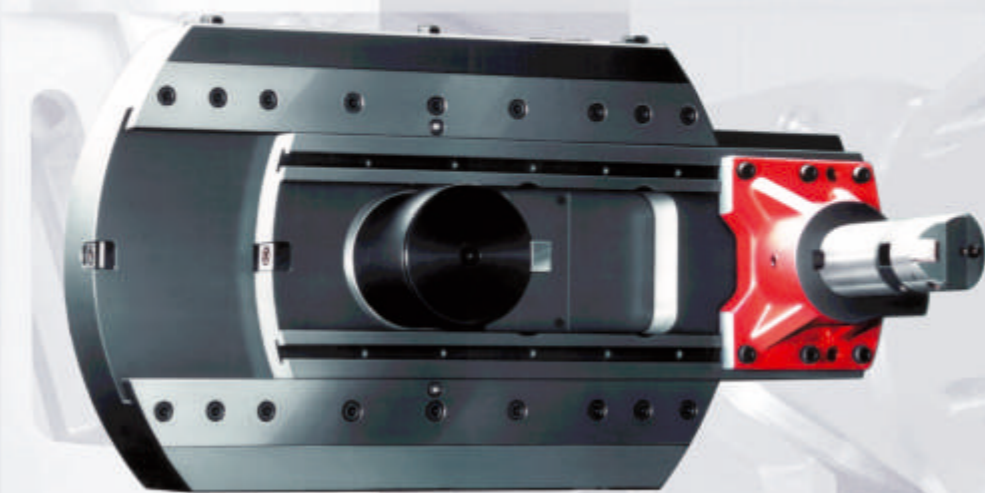


HF 50



HUR 50

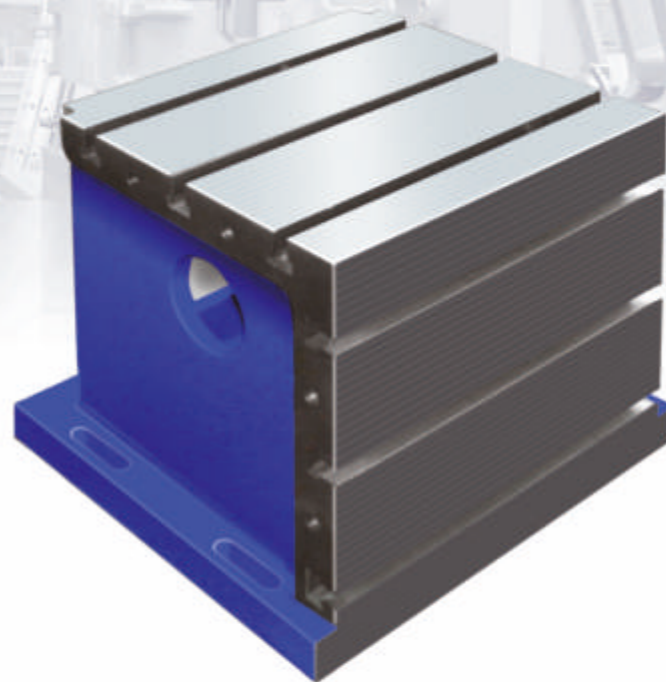
HF 50 (A) 型立铣头, HUR 50型手动万能铣头
 主轴箱端面可安装可以取下的特殊加工工艺附件, 如导向支架、平旋盘、铣头等等。
THE HF 50 (A) VERTICAL AND THE HUR 50 UNIVERSAL MILLING HEADS
 the mounting of the heads on the machine headstock is by manual operation. Toolchange into these heads is by manual operation of a Push Button, giving a semi-automatic operation.



LD 650型平旋盘
 适用于利用联动CNC计算机控制刀滑板位置的复杂加工工艺方案。
FACING HEAD LD 650
 is designed for complex applications with the possibility to use a continuously CNC controlled facing slide.



排屑输送装置
 - 标配提升式链板式排屑输送装置(客户也可以要求其他类型)
CHIP CONVEYOR
 The length of a chip conveyor and its discharge height can be accommodated to user's needs.



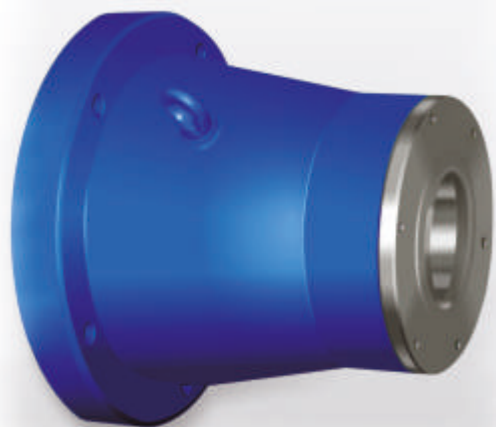
UK 500型夹紧块
 UK 500 CLAMPING CUBE



夹紧角铁
 CLAMPING ANGLE PLATE

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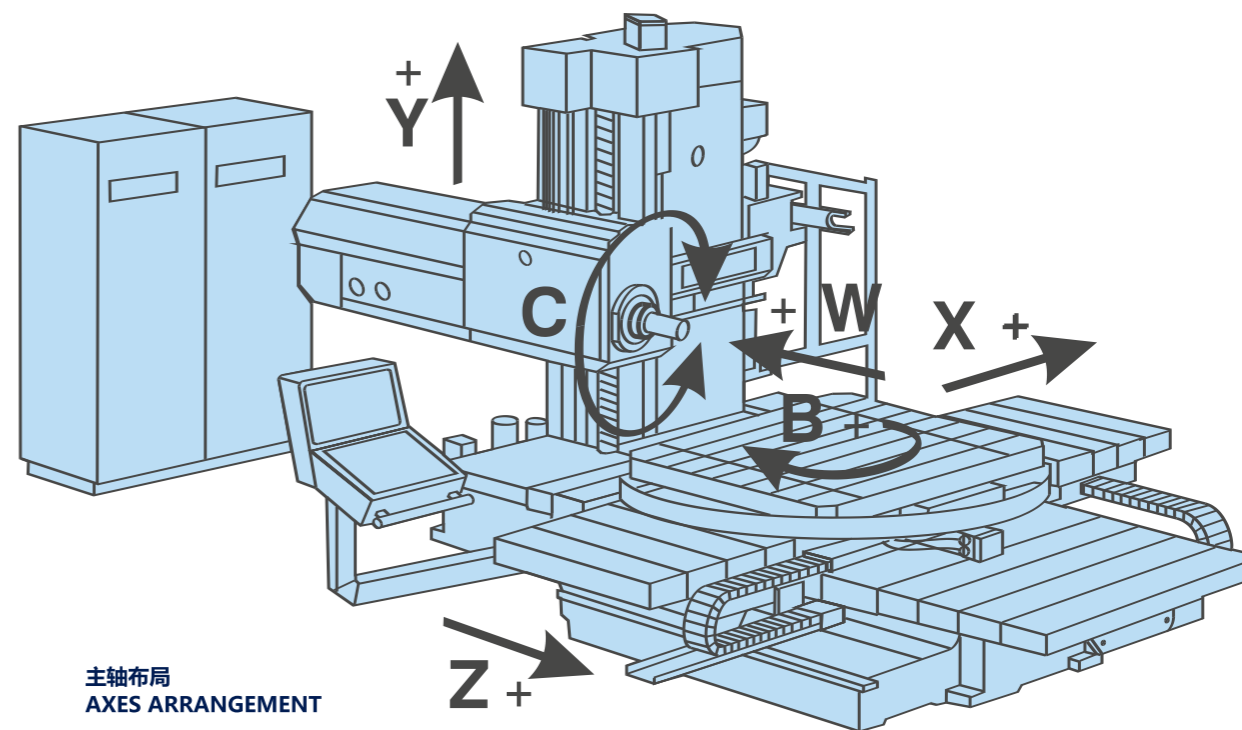




导向支架
 导向支架保证在镗轴最大行程时刚度显著增加。
SPINDLE SUPPORT
 The spindle support ensures a significant increase in the rigidity of the work spindle in the case of larger pullouts.



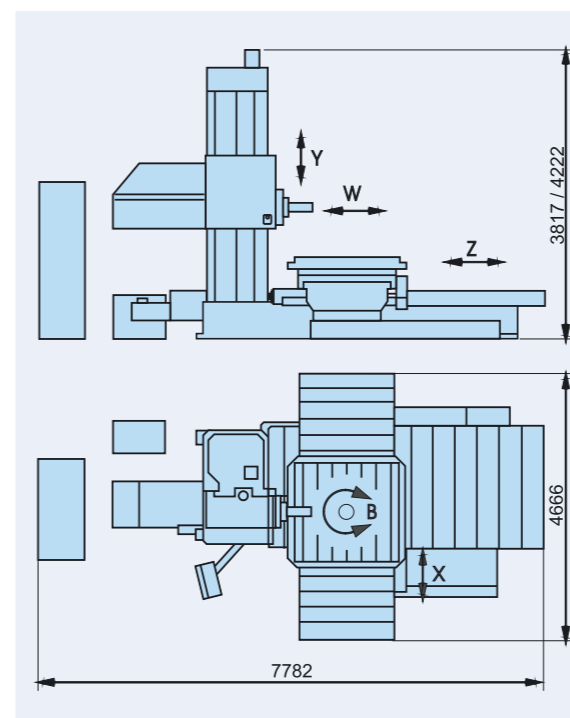
冷却装置
 客户可选配CHZ 105型外接输入切削液的刀具冷却装置或CHOV 105型允许切削液刀具内和外接输入切削液两种方式的冷却装置。
TOOL COOLING DEVICE
 the customer may choose either CHZ 105 outer tool cooling kit or CHOV 105 through spindle tool cooling kit which brings coolant to the cutting edge through outside nozzles as well.



主轴布局
 AXES ARRANGEMENT



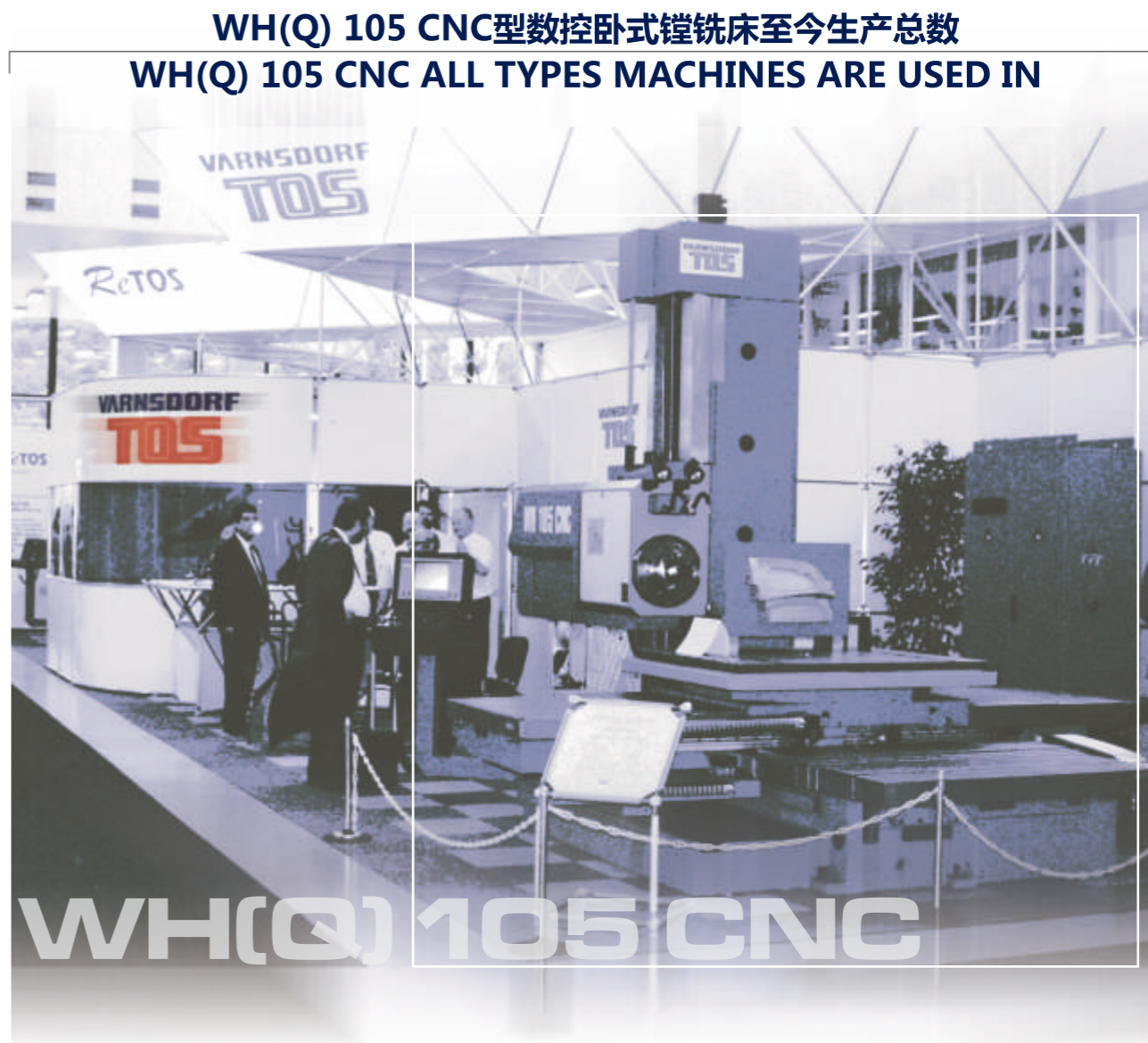
加工空间防护罩
 防护罩用于防止冷却液和切屑飞溅。我们推荐尤其用于装有主轴中心线内刀具冷却装置。
WORKSPACE PROTECTIVE ENCLOSURE Full guarding can be supplied and is desirable to prevent against coolant and chip splash. This is recommended particularly for the machines fitted with the Coolant through the spindle.



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



参考图片 REFERENCE PHOTOS



	德国 Germany	63		瑞士 Switzerland	7		白俄罗斯 Belarus	1
	捷克共和国 Czech Republic	24		法国 France	6		比利时 Belgium	1
	芬兰 Finland	23		荷兰 Netherlands	6		克罗地亚 Croatia	1
	奥地利 Austria	12		乌克兰 Ukraine	6		爱沙尼亚 Estonia	1
	斯洛文尼亚 Slovenia	12		斯洛伐克 Slovakia	4		匈牙利 Hungary	1
	加拿大 Canada	11		巴西 Brazil	3		科威特 Kuwait	1
	意大利 Italy	11		阿根廷 Argentina	2		卢森堡 Luxembourg	1
	美利坚合众国 U. S. A.	10		中国 China	2		墨西哥 Mexico	1
	波兰 Poland	9		哈萨克斯坦 Kazakhstan	2		新加坡 Singapore	1
	西班牙 Spain	8		瑞典 Sweden	2		土耳其	1
	俄国 Russia	7		澳大利亚 Australia	1		英国 United Kingdom	1
							总共	242

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