

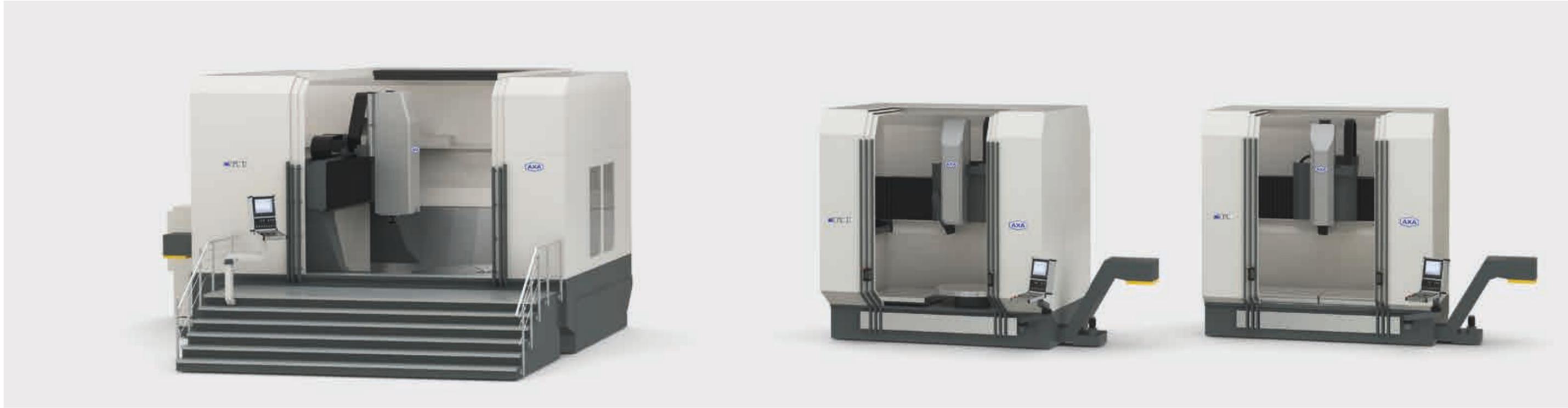
# VPC / VPC U / VPC 2800 U



**Pure technology!**



Entwicklungs- und  
Maschinenbau GmbH



The AXA gantry machining centres VPC 2800 U, VPC U and VPC in compact form, when compared with travelling column machines, achieve much higher cross travels (Y-axis) without any limitations on exactness and stiffness

# Pure technology!

## The gantry machining centres of VPC series – Compact, yet still perfect performers

Compact and clearly set up on the outside, the high-performance gantry machining centres from AXA make use of each single centimetre. Thus, the machine makes entire use of the machining space available within its limited space. The versions VPC (Vertical Portal Centre), VPC U and VPC 2800 U (Universal Vertical Portal Centre, each with tilting head) achieve high cross travels with total precision and stiffness.

The clever construction means that the machine needs less room for a large machining area. All the components such as the control cabinet and tool changer are preferably integrated into the machine stand. The tool magazine is housed well protected in the back machining area. A tool double gripping system provides for short tool changing times while the stationary layout allows for loading the magazine chain at the same time.

The optimal design is also reflected in the machine cutting performance: The ingenious combination of sliding

and roller guideways improves absorption. At the same time, the gantry drive provides for utmost dynamics and accuracy.

Place your trust in the specialist with plenty of tradition: AXA

Ready for use in many industries and many applications:

- Plant and equipment manufactories
- Precision tool making including

- fixtures, mould and press tools
- Automotive industry
- Aerospace industry
- Subcontract machining
- Jobbing shop for large and small manufacturing series
- Rail track and rolling stock equipment
- Medical industry
- Automation technology
- Packaging machines
- Hydraulic components
- Valve manufacture
- Profile machining
- Plastics and aluminium machining



Easily accessible work area due to low load height and spacious door opening

## VPC – Vertical machining in its entirety

The VPC with its vertical spindle is particularly designed for machining large plate-shaped workpieces. The implementation of angular heads also simply enables lateral machining. The clever layout provides for excellent workspace use. The portal drives the spindle above a real gantry drive in the Y-axis. The machine footprint is thus hardly larger than the optimally arranged working area.

### Main design:

- Extremely rigid, static and dynamically well-balanced ground frame construction
- Spacious and easily accessible machine tables
- Direct measuring systems for the X/Y/Z-axes
- Cover according to current machinery directives
- Ideal for crane loading by the open covering over the work area
- Machine transport in one single piece

- Optimal accessibility for all maintenance and service requirements

### Guideways and drives:

- Clever combination of sliding and roller guideways for high dynamics, stiffness and absorption
- Guiding built upon manually scraped or grinded surface
- Optimal guiding by extremely large guidance ratio
- Real gantry drive in the Y-axis with corresponding individual drive, guideway and direct measuring system for both portal sides
- Drives and guideways are protected
- Ball screws in all linear axes

### Tool changing system:

- Simple and very robust stationary placed tool changer
- Magazine protected in rear part of machine
- Stationary tool changer layout allows for long tool chains without any negative effect on machine

- dynamics and precision
- Fixed location coded tool management for better operator monitoring
- Simultaneous tool pre-selection by double gripping system
- Support of various tool holding systems such as SK, BT, HSK, CAPTO
- Magazine placement possible during machining



Protected tool changer layout in machine rear



Workspaces with up to 2940 mm in X and 1600 mm in Y offer much room for large tools and their clamping devices

## Ingenuity and great ideas

Its strength is its flexible structure: Your ideas and all your requirements can be achieved thanks to the VPC. The AXA experts develop and design solutions – also by integrating other technologies.

- Through spindle coolant with filter system
- Chip conveyor in slat-band belt, scraper belt or magnetic belt versions
- Controllers either from Heidenhain or Siemens
- Rotary tables horizontally or vertically integrated, in 1 or 2 axes, combined with tailstocks, counter-bearings or a further rotary table in gantry mode for clamping bridges
- Automatic doors
- Clamping systems – hydraulic, pneumatic, magnetic or manual
- Touch probes and tool touch probe systems
- Active power monitoring, collision monitoring and complete process monitoring
- Tool identification systems
- Laser breakage control with tool measurement

- Remote maintenance

We can develop and manufacture special solutions for you upon request – from the standard solution up to made-to-measure customer manufacture.

Flexibility in every detail: Your ideas become our mission!



CE conform entire covering with optional complete covering and device to extract oil mist fumes



Excellent accessibility and optional possibility of crane loading by spacious opening doors during simultaneously above opening covering



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- Magazine placement possible during machining



Protected tool changer layout in machine rear



The machine has a complete encasement as standard that opens from above



Internal doors provide for necessary tightness

## Technical data VPC

	VPC 40	VPC 45	VPC 50	VPC 55
<b>Working area</b>				
X-traverse range	[mm] 2360 (2940) <sup>2</sup>	2360 (2940) <sup>2</sup>	2360 (2940) <sup>2</sup>	2360 (2940) <sup>2</sup>
Y-traverse range	[mm] 1200 (1400, 1600) <sup>2</sup>	1400 (1600) <sup>2</sup>	1200 (1400, 1600) <sup>2</sup>	1400 (1600) <sup>2</sup>
Z-traverse range	[mm] 500 (600) <sup>2</sup>	800	500 (600) <sup>2</sup>	800 <sup>2</sup>
<b>Machine table</b>				
Table width (dependent on Y-stroke)	[mm] 1100 (1350, 1500) <sup>2</sup>	1100 (1350, 1500) <sup>2</sup>	1100 (1350, 1500) <sup>2</sup>	1100 (1350, 1500) <sup>2</sup>
Table length approx.	[mm] 2750	2750	2750	2750
T-slots, reference slot H7	[mm] 14 H9	14 H9	14 H9	14 H9
T-slots indexing	[mm] 160	160	160	160
Number of T-slots	7	7	7	7
Max. table load per table	[kg] 1500 (2000) <sup>2</sup>	2000	1500 (2000) <sup>2</sup>	2000 <sup>2</sup>
Min. distance table - spindle nozzle	[mm] 230	230	230	230
<b>Feed drive</b>				
Max. rapid traverse in X/Y/Z	[m/min] 20/20/20 (30/30/25) <sup>2</sup>	20/20/20 (30/30/25) <sup>2</sup>	20/20/20 (30/30/25) <sup>2</sup>	20/20/20 (30/30/25) <sup>2</sup>
Max. feed force	[N] 9000	9000	9000	9000
<b>Main spindle drive</b>				
Standard drive no. <sup>1</sup>	110	110	131	131
Optional drive no. <sup>1</sup>	100, 111, 113	100, 111, 113	133	133
<b>Tool holding fixture</b>				
DIN 69871 A / DIN 69872 A	SK 40	SK 40	SK 50	SK 50
Optional	BT 40, HSK A63, C6	BT 40, HSK A63, C6	BT 50, HSK A100, C8	BT 50, HSK A100, C8
<b>Tool changer</b>				
Number of tool pockets standard	22	22	20	20
Optional expandable up to	90	90	90	90
Max. tool diameter	[mm] 85	85	110	110
By free adjacent pockets	[mm] 135	135	180	180
Max. tool length	[mm] 400	400	400	400
Tool change time approx.	[s] 6	6	7	7
<b>Accuracy</b>				
Positioning accuracy <sup>3</sup>	[mm] ± 0,015 (± 0,008) <sup>2</sup>	± 0,015 (± 0,008) <sup>2</sup>	± 0,015 (± 0,008) <sup>2</sup>	± 0,015 (± 0,008) <sup>2</sup>
Repeating accuracy	[mm] ± 0,01 (± 0,006) <sup>2</sup>	± 0,01 (± 0,006) <sup>2</sup>	± 0,01 (± 0,006) <sup>2</sup>	± 0,01 (± 0,006) <sup>2</sup>

### <sup>1</sup> Main spindle drives

	100	110	111	113	131	133
Speed range	[rpm] 6000	6000	6000	6000	4000	4000
Optional up to	[rpm] 15000	12000	12000	10000	9000	9000
Max. torque (40% DC)	[Nm] 95	143	191	255	286	355
Max. power (40% DC)	[kW] 20	30	40	40	45	56

<sup>2</sup> Optional features

<sup>3</sup> Per 1000 mm per axis X/Y/Z

Technical specifications refer to the standard version. Extensions and modifications upon request and depending on overall configuration and application.



The VPC U with 1-axis tilting head and rotary table for full machining of workpieces in one single clamping

## VPC U – performance in any angle

The portal machining centre VPC U displays its entire strength in 5-side machining of workpieces with its tilting spindle and the rotary table integrated into machine bed. The spindle swivels continuously, interpolating around the Y-axis while the NC rotary table positions the workpiece.

The complete machine table consists of a combination of fixed tables and rotary table that is set higher than the fixed tables for the horizontal machining. The table level can optionally be levelled out by elevated fixed tables or attached tables.

### Main design:

- Extremely rigid, static and dynamically well-balanced ground frame construction
- Spacious work area and easily accessible machine tables
- Direct measuring systems for the main X/Y/Z-axes
- Cover according to current machinery directives

- Open above the work area, ideal for crane loading
- Machine transport in one single piece
- Optimal accessibility for all maintenance and service requirements

### Guideways and drives:

- Clever combination of sliding and roller guideways for high dynamics, stiffness and absorption
- Guiding built upon manually scraped or grinded surface
- Optimal guiding by extremely large guidance ratio
- Real gantry drive in the Y-axis with corresponding individual drive, guideway and direct measuring system for both portal sides
- Drives and guideways are protected
- Ball screws in all linear axes

### Tool changing system:

- Version and equipment according to VPC series

### Tilting spindle:

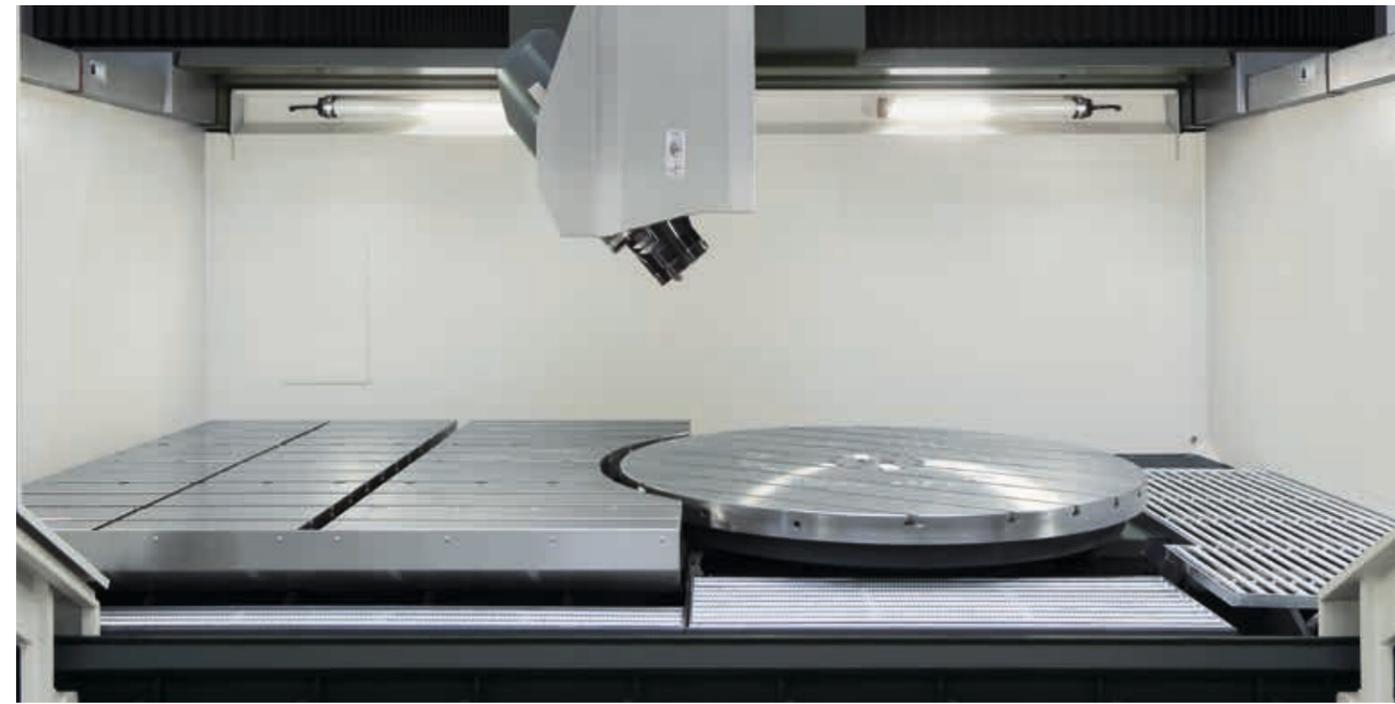
- 1-axis tilting spindle swivelling around the Y-axis (B-axis)
- Hirth-coupled construction, stepless positioning or interpolating
- Tilting range 0° to -90°

### Rotary table:

- Continuous turning NC-rotary table around the Z-axis
- Integrated in machine bed
- Hydraulic clamping



Short tool changing times by double gripping system



Workspaces with up to 2940 mm in X and 1600 mm in Y cater for plenty of room to swing through bulky workpieces

## Ingenuity and great ideas

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- Through spindle coolant with filter system
- Chip conveyor in slat-band belt, scraper belt or magnetic belt versions
- Controllers either from Heidenhain or Siemens
- Construction possible with additional rotary tables with horizontal rotation axis on fixed machine table
- Automatic doors
- Clamping systems – hydraulic, pneumatic, magnetic or manual
- Touch probes and tool touch probe systems
- Active power monitoring, collision monitoring and complete process monitoring
- Tool identification systems

- Laser breakage control with tool measurement
- Remote maintenance

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- Tilting range 0° to -90°

### Rotary table:

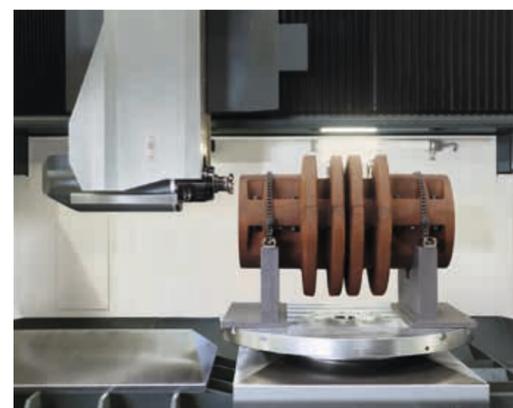
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- Integrated in machine bed
- Hydraulic clamping



Short tool changing times by double gripping system



5-sides machining of large cubic workpieces by the VPC U tilting head and rotary table



High precision manufacturing by work-and-turn processed workpieces



3D forms can be machined by optional interpolating tilting head

## Technical data VPC U

		VPC 40 U	VPC 45 U	VPC 50 U	VPC 55 U
<b>Working area</b>					
X-traverse range vertical	[mm]	2300 (2940) <sup>2</sup>	2300 (2940) <sup>2</sup>	2300 (2940) <sup>2</sup>	2300 (2940) <sup>2</sup>
X-traverse range horizontal	[mm]	2000 (2640) <sup>2</sup>	2000 (2640) <sup>2</sup>	2000 (2640) <sup>2</sup>	2000 (2640) <sup>2</sup>
Y-traverse range	[mm]	1200 (1400, 1600) <sup>2</sup>	1400 (1600) <sup>2</sup>	1200 (1400, 1600) <sup>2</sup>	1400 (1600) <sup>2</sup>
Z-traverse range	[mm]	600 (700) <sup>2</sup>	900	600 (700) <sup>2</sup>	900
<b>Machine table</b>					
Table width (dependent on Y-stroke)	[mm]	1100 (1350, 1500) <sup>2</sup>	1100 (1350, 1500) <sup>2</sup>	1100 (1350, 1500) <sup>2</sup>	1100 (1350, 1500) <sup>2</sup>
Table length approx.	[mm]	1100	1100	1100	1100
T-slots, reference slot H7	[mm]	14 H9	14 H9	14 H9	14 H9
T-slots indexing	[mm]	160	160	160	160
Number of T-slots		7	7	7	7
Max. table load per table	[kg]	1500 (2000) <sup>2</sup>	2000 (3500) <sup>2</sup>	1500 (2000) <sup>2</sup>	2000 (3500) <sup>2</sup>
Min. distance table - spindle nozzle vert.	[mm]	260	260	210	210
Min. distance table - spindle nozzle hor.	[mm]	310	310	310	310
<b>CNC-rotary table</b>					
Clamping surface	[mm]	1100 x 1100	1100 x 1100 (ø 1500) <sup>2</sup>	1100 x 1100	1100 x 1100 (ø 1500) <sup>2</sup>
Max. transport weight	[kg]	1500 (2000) <sup>2</sup>	2000 (3500) <sup>2</sup>	1500 (2000) <sup>2</sup>	2000 (3500) <sup>2</sup>
Max. tangential moment	[Nm]	10000	10000 (18000) <sup>2</sup>	10000	10000 (18000) <sup>2</sup>
Max. tilting moment	[Nm]	26000	26000 (60000) <sup>2</sup>	26000	26000 (60000) <sup>2</sup>
Accuracy measuring system	[arcsec]	± 5"	± 5"	± 5"	± 5"
Min. distance table - spindle nozzle vert.	[mm]	110	110	60	60
Min. distance table - spindle nozzle hor.	[mm]	160	160	160	160
<b>Feed drive</b>					
Max. rapid traverse in X/Y/Z	[m/min]	20/20/20 (30/30/25) <sup>2</sup>	20/20/20 (30/30/25) <sup>2</sup>	20/20/20 (30/30/25) <sup>2</sup>	20/20/20 (30/30/25) <sup>2</sup>
Max. feed force	[N]	9000	9000	9000	9000
<b>Main spindle drive</b>					
Standard drive no. <sup>1</sup>		110	110	131	131
Optional drive no. <sup>1</sup>		100, 111, 113	100, 111, 113	133	133
<b>Tool holding fixture</b>					
DIN 69871 A / DIN 69872 A		SK 40	SK 40	SK 50	SK 50
Optional		BT 40, HSK A63, C6	BT 40, HSK A63, C6	BT 50, HSK A100, C8	BT 50, HSK A100, C8
<b>Tilting spindle head</b>					
Swivelling range B-axis		90°	90°	90°	90°
Indexing		2,5° (0,001) <sup>2</sup>	2,5° ( 0,001° , fully interpolating) <sup>2</sup>	2,5° (0,001) <sup>2</sup>	2,5° ( 0,001° , fully interpolating) <sup>2</sup>
<b>Tool changer</b>					
Number of tool pockets standard		22	22	20	20
Optional expandable up to		90	90	90	90
Max. tool diameter	[mm]	85	85	110	110
By free adjacent pockets	[mm]	135	135	180	180
Max. tool length	[mm]	400	400	400	400
Tool change time approx.	[s]	6	6	7	7
<b>Accuracy</b>					
Positioning accuracy <sup>3</sup>	[mm]	± 0,015 (± 0,008) <sup>2</sup>	± 0,015 (± 0,008) <sup>2</sup>	± 0,015 (± 0,008) <sup>2</sup>	± 0,015 (± 0,008) <sup>2</sup>
Repeating accuracy	[mm]	± 0,01 (± 0,006) <sup>2</sup>	± 0,01 (± 0,006) <sup>2</sup>	± 0,01 (± 0,006) <sup>2</sup>	± 0,01 (± 0,006) <sup>2</sup>
<b><sup>1</sup> Main spindle drives</b>					
Speed range	[rpm]	6000	6000	6000	6000
Optional up to	[rpm]	15000	12000	12000	10000
Max. torque (40% DC)	[Nm]	95	143	191	255
Max. power (40% DC)	[kW]	20	30	40	45

<sup>2</sup> Optional features <sup>3</sup> Per 1000 mm per axis X/Y/Z with vertical spindle



VPC 2800 U: a portal support on columns travels in the X-direction in gantry mode

## VPC 2800 U – More than increased performance

Enough is just not enough. The VPC 2800 U unites the advantages of the compact built VPC range with the working area proportions of the spacious portal machining centres PFZ/UPFZ from AXA. Its travel of 2940 x 1100 mm makes this multi-talented stand out above the competition for large gantry machines. The compact construction integrates all the essential components in very confined space.

5-sides and 5-axes machining of large cubic workpieces is a simple task for the VPC 2800 U: The combination of a stepless interpolating 1-axis tilting head with a rotary table integrated into the frame makes this task simplicity itself.

### Main design:

- Extremely rigid, static and dynamically well-balanced ground frame construction
- Spacious work area and easily accessible machine tables
- Direct measuring systems for the

### main X/Y/Z-axes

- Cover according to current machinery directives
- Open above the work area, ideal for crane loading
- Machine transport in one single piece
- Optimal accessibility for all maintenance and service requirements

### Guideways and drives:

- Large-scale dimensioned roller guideways for high dynamics and stiffness
- Optimal guiding by extremely large guidance ratio
- Real gantry drive in the X-axis with corresponding individual drive, guideway and direct measuring system for both portal columns
- Drives and guideways are protected
- Ball screws in all linear axes

### Tool changing system:

- Version and equipment according to VPC series

### Tilting spindle:

- 1-axis tilting spindle swivelling around the Y-axis (B-axis)
- Stepless, interpolating construction
- Tilting range 0° to -90°
- Hydraulic clamping for heavy machining

### Rotary table:

- Continuous turning NC-rotary table around the Z-axis
- Integrated in machine bed
- Hydraulic clamping



Tool changer systems are set in a protected housing at the rear under the portal



The VPC 2800 U workspace with 1-axis tilting head and rotary table is optimally accessible and visible due to its low construction



Excellent machine accessibility with crane loading possibility by the optional complete covering with automatic doors and automatically opening bellows in the roof section



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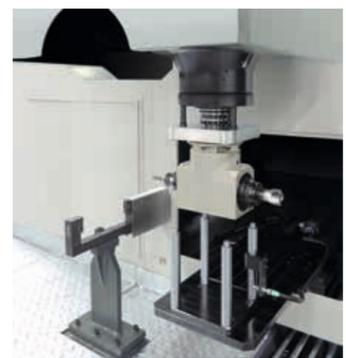
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- Controllers either from Heidenhain or Siemens
- Automatic doors
- Clamping systems – hydraulic, pneumatic, magnetic or manual
- Touch probes and tool touch probe systems
- Active power monitoring, collision monitoring and complete process monitoring
- Tool identification systems
- Laser breakage control with tool measurement
- Remote maintenance

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Flexibility in every detail: Your ideas become our mission!



Back area offers room for pick-up station for further tools such as angular heads

## Technical data VPC 2800 U

### VPC 2800 U

#### Working area

X-traverse range vertical	[mm]	3900
X-traverse range horizontal	[mm]	3900
Y-traverse range	[mm]	2940
Z-traverse range	[mm]	1100

#### CNC-rotary table

Clamping surface	[mm]	∅ 2800
Max. transport weight	[kg]	15000
Max. tangential moment	[Nm]	40000
Max. tilting moment	[Nm]	90000
Accuracy measuring system	[arcsec]	± 2,5"
Min. distance table - spindle nozzle vert.	[mm]	90
Min. distance table - spindle nozzle hor.	[mm]	180

#### Feed drive

Max. rapid traverse in X/Y/Z	[m/min]	30/30/25
Max. feed force	[N]	9000

#### Main spindle drive

Standard drive no. <sup>1</sup>		140
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#### Tool holding fixture

DIN 69871 A / DIN 69872 A		SK 50
Optional		BT 50, HSK A100

#### Tilting spindle head

Swivelling range B-axis		90°
Indexing		fully interpolating

#### Tool changer

Number of tool pockets standard		20
Optional expandable up to		120
Max. tool diameter	[mm]	110
By free adjacent pockets	[mm]	180
Max. tool length	[mm]	400 (300) <sup>4</sup>

#### Accuracy

Positioning accuracy <sup>3</sup>	[mm]	± 0,015 (± 0,008) <sup>2</sup>
Repeating accuracy	[mm]	± 0,01 (± 0,006) <sup>2</sup>

#### <sup>1</sup> Main spindle drives

Speed range	[rpm]	6000
Optional up to	[rpm]	9000
Max. torque (100% DC)	[Nm]	200
Max. power (100% DC)	[kW]	63

<sup>2</sup> Optional features

<sup>3</sup> Per 1000 mm per axis X/Y/Z with vertical spindle

<sup>4</sup> Max. tool length 2<sup>nd</sup> magazine

Technical specifications refer to the standard version. Extensions and modifications upon request and depending on overall configuration and application.



5-sides and 5-axis machining of large cubic workpieces by VPC 2800 U tilting head and rotary table



Easily accessible workspace with plenty of room for rotary table clamping and loading



Vertical and horizontal machining of very high workpieces by the large Z travel of 1100 mm



Milling, drilling and turning in a single clamping by the optional additional turning equipment for the VPC 2800 U



Excellent accessibility and optional possibility of crane loading by complete covering with automatic doors and automatically opening bellows in the roof area

## Milling, drilling and turning

### VPC 2800 U/D with additional turning equipment

Upgrading with a fast turning rotary table expands the possibilities of the machining centre VPC 2800 U/D: Simple turning work is possible alongside milling and drilling.

The machine has been adapted in every detail to turning according to the stiff requirements: A further firmly fixed, hydraulic turning tool holder with automatic pull-in next to the working spindle serves to assimilate the corresponding required turning tools. The separate clamping unit in CAPTO C6 version for turning tools caters for utmost

stability, clear turning tools orientation and avoids further stress on the main spindle bearing during turning operation.

The enhancement of the turning functionality brings about one of the outstanding features of this machine – namely changing between two tool holder systems. Alongside the standard SK 50 magazine for drilling and milling tools, a further separate tool magazine is fitted for turning tools with CAPTO C6 tool holder. This is in a protected area underneath the gantry support. A double

gripping system for each magazine here enables short tool changing times. The stationary set magazine chains provide for the possibility of loading the magazine during machining.

The right turn for your production!



The chosen separate clamping unit for turning tools ensures utmost stability during the turning machining and avoids stresses on the main spindle bearing for the drilling and milling tool



Intermediate angles can be set for the position of the turning tool alongside the vertical and horizontal spindle setting

## VPC U/T with turning functionality

The milling and turning centre VPC U/T is ideal for the 5-side processing of large and complex workpieces in one setting. Changing between two tool holding systems is just one of the outstanding features of this

machine. The additional turning tool holder beside the working spindle enables the pick up of the turning tools whilst the tool holding system of the main spindle is reserved for the

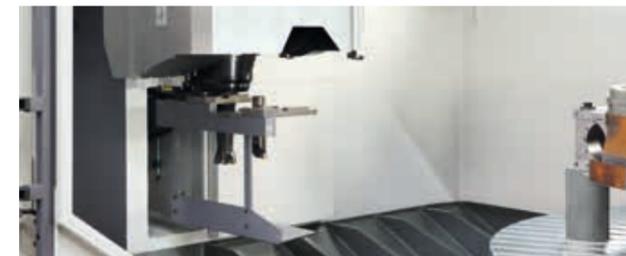
drilling and milling tools. The double gripping system for SK 50 as well as CAPTO C6 also guarantees short changing times.



VPC U with side-mounted tool magazine can be individually extended with various tool chains – a fixed, hydraulic turning tool holder next to the working spindle enables the pick up of the correspondingly required turning tools



Drilling, milling and turning processing can take place in one setting by the additional, separate tool holding system CAPTO C6



Double gripping arm for CAPTO C6 and SK 50 tools



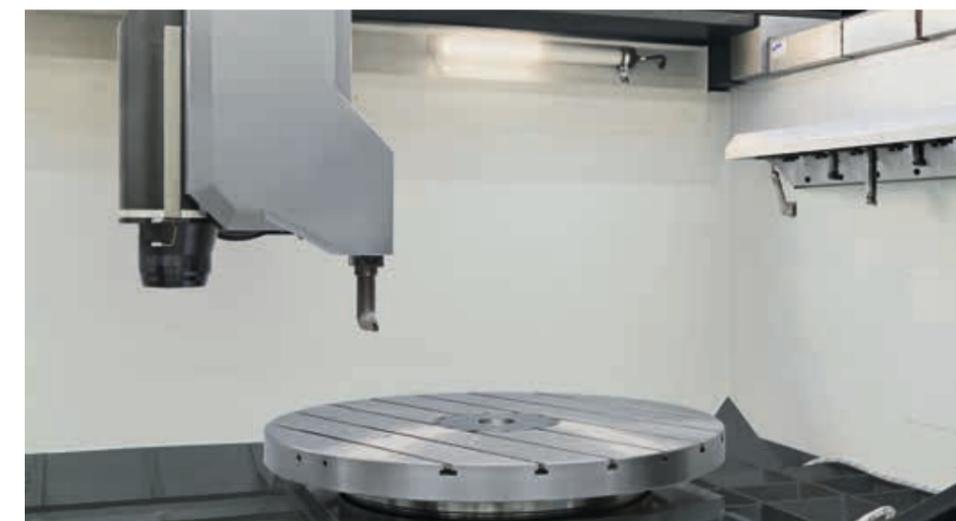
The separate clamping unit for turning tools provides for utmost stability and avoids further stress on the main spindle bearing

## VPC with additional turning equipment

Additional possibilities for the machining centre VPC U: As a fast turning rotary table is integrated, simple turning can be done alongside milling and drilling.

Pick up of the turning tool takes place in a fixed CAPTO C6 turning tool holder at the side on vertical Z-slide. An installed pick-up magazine on the right-hand side functions as changer for the tools. The CE conform machine covering has also been adapted to the increased requirements.

Turn on top turning class!



VPC U with additional turning unit and correspondingly adapted protective covering



The VPC U is ideal for 5-side processing of large workpieces thanks to its big swivel range and high table load

## So many convincing features in just one machine VPC 45 DASK with double axis tilting head

Equipped with a 2-axis tilting head, the VPC especially fulfils the requirements for highly dynamic simultaneous 5-axis machining. Referring to finishing machining as for mould making workpieces: this concept stands out in particular in its finishing in its utmost work-piece form and contour precision and thus sets new standards for the surface finish itself. Furthermore, the tilting axes contain a hydraulic

clamp. Thus, the head can be used universally for various applications.

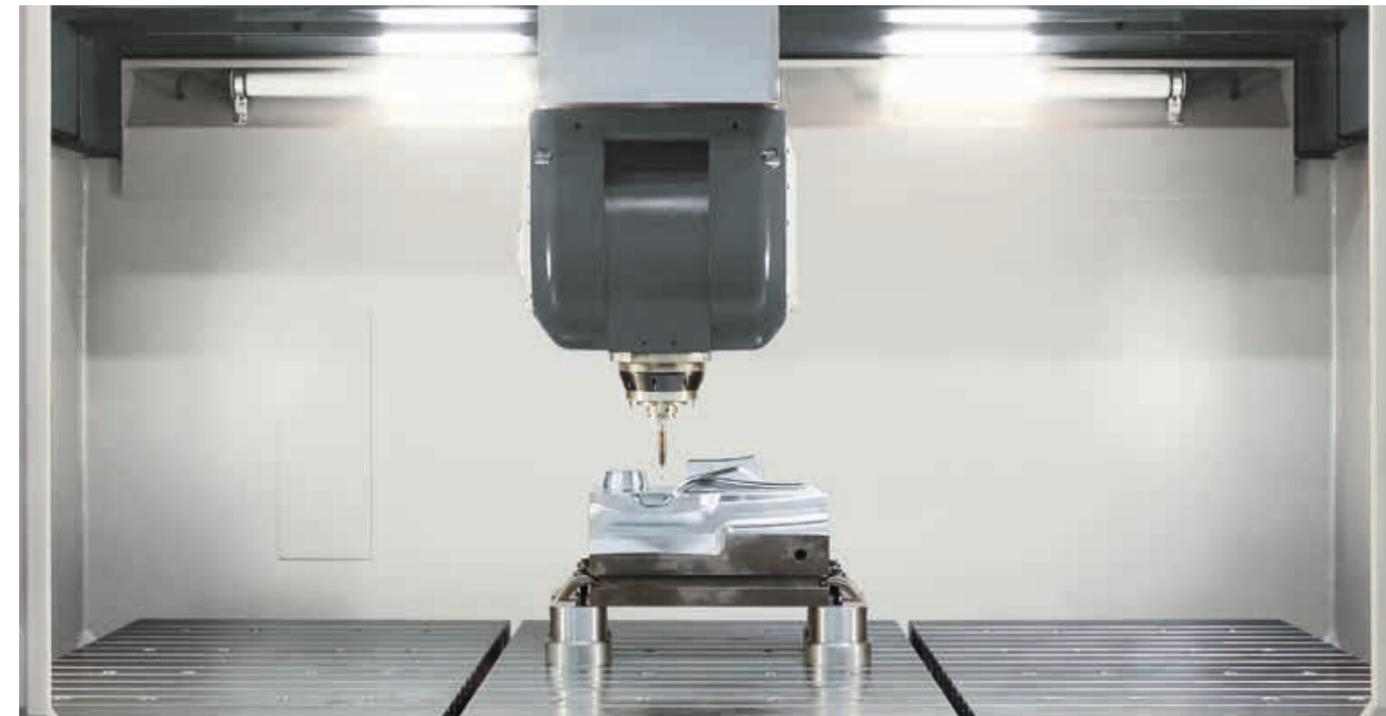
The tilting axes are stepless interpolating and can thus be tilted during the machining process. The whole head tilts here around the Z-axis while the spindle is tilted in the fork around the X-axis. A gantry elevation compensates possible construction height loss caused by the fork head design between the vertical and

horizontal spindle setting. Guideways and drives have been designed for the largest increased accelerations and travel speeds for this version. Speed range of up to 18,000 rpm and 24,000 rpm are possible.

The right result – no matter what position!



VPC with double-axis tilting head for highly dynamic 5-axis machining



An easily accessible machine table for high loads enables the processing of large and heavy mould parts



Swivelling around Z (C-axis) and X (A-axis)



The torque drive provides the fork head with utmost acceleration

Finishing and multipass milling of surfaces – highest form and contour accuracy due to high speed ranges



2-axis tilting head of the VPC 45 DASK: the entire head tilts around the Z-axis (C-axis) with a tilting range of  $\pm 360^\circ$  while the spindle can be tilted in the fork around the X-axis (A-axis) in the tilting range of  $\pm 110^\circ$

## Automation at every single work step

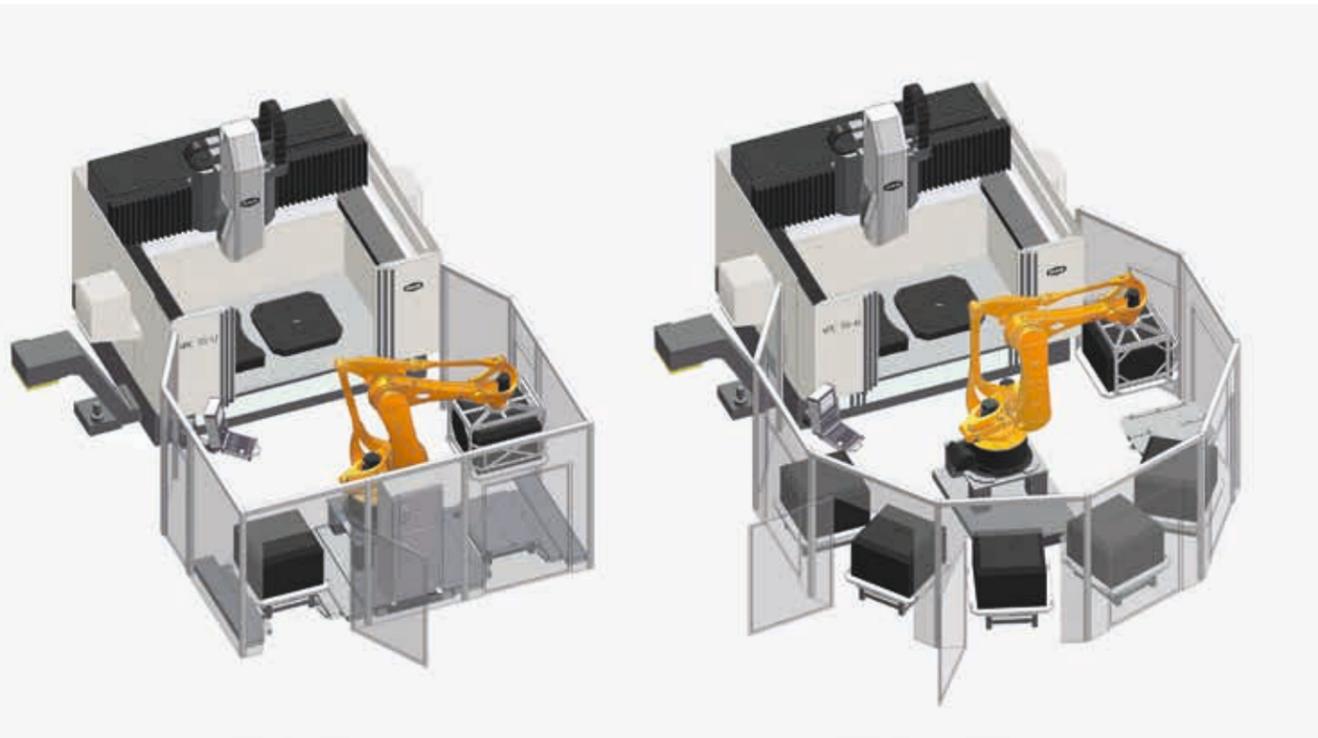
Advanced automation technology plays a major role in sinking production costs and protects employees from heavy and dangerous tasks. The complex movement sequences around workpiece loading and unloading and the right clamping technology choice are ideal candidates for automation as well as machining workpieces and process control. This is the only way for your production to benefit from the decisive machine added value. Minimal set-up times and flexible production shifts in unmanned operation create maximal flexibility. Thus, modern industry robots today are a major part of automation solutions. Their enormous range, their sheer unbelievable mobility and their capacity to move large



VPC with two pallet positions ahead for machine loading

loads of over 1000 kg makes them multi-faceted and universally deployable and so, they often replace more

complex and rigid pallet systems. Automatically a flexible solution!



The VPC can be upgraded for fully automatic operation with a robot system that consists of two pallet positions or a pallet pool



Pick up of workpiece pallet by a special gripping system



Robots can move heavy workpieces over a long range



Workpiece pallet implementation in machining by centre zero point clamping system



Workpiece machining on clamped pallet with the VPC

# Perfect adaptation: VPC-U with increased swivelling range for ring workpieces

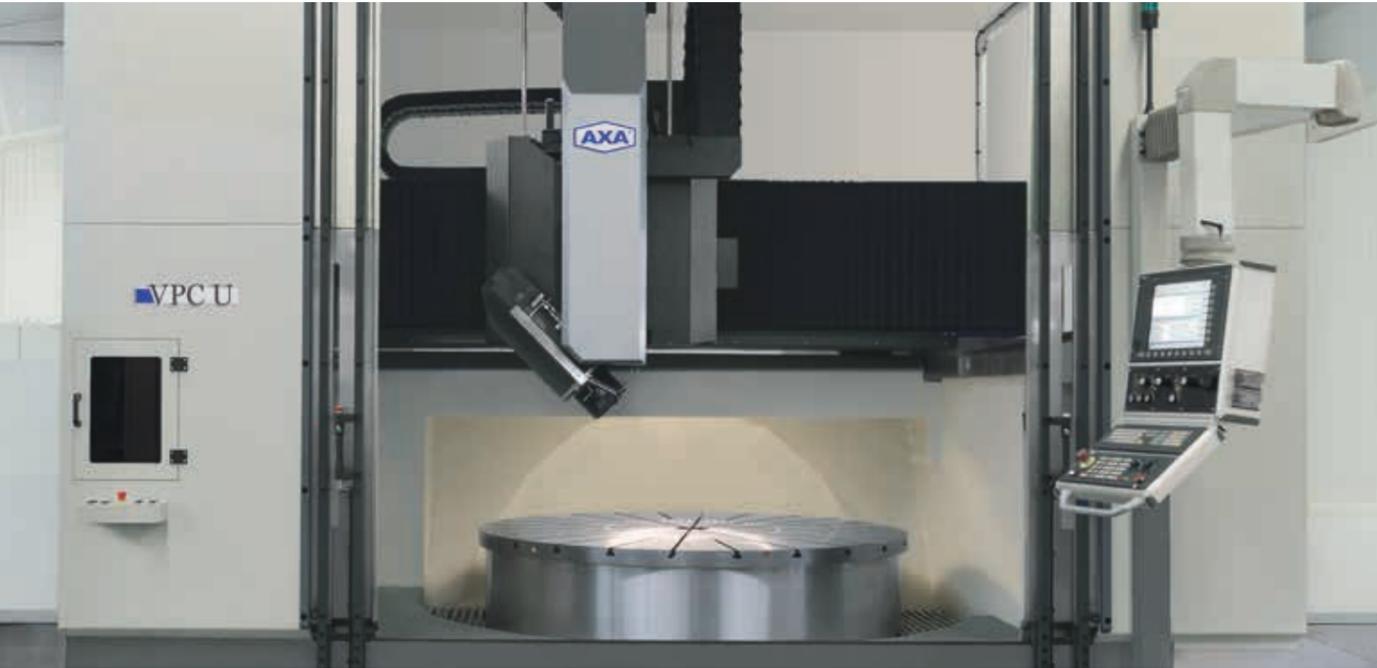
Machining large ring-formed workpieces is also a simple job for the VPC-U: These requirements can be quickly met by adjusting the work-space and rotary table.

The tilting spindle offers the advantage of vertical and horizontal machining as well with an inclined set spindle. Implementing an angular head furthermore enables the immergence into small diameters for inner machining.

The right turn for every angle!



For smaller ring diameters – additional angular heads for inside machining can be added



Machine base, covering and rotary table adjustment allow for larger swivelling ranges for the workpieces depending on requirements

# Small and large workpieces firmly under control

A fixed and secure hold is the key to gaining a faultless result. The requirements are so multi-faceted like the individual form of the workpieces. Besides the fixing, further factors are essential for choosing the right clamping technology: efficiency, user-friendliness and machine reliability.

AXA advises you on the choice of the right clamping technology – no

matter whether mechanical, hydraulic, magnetic or vacuum related. Place your trust in our experience.

Clamping technology in its variety:

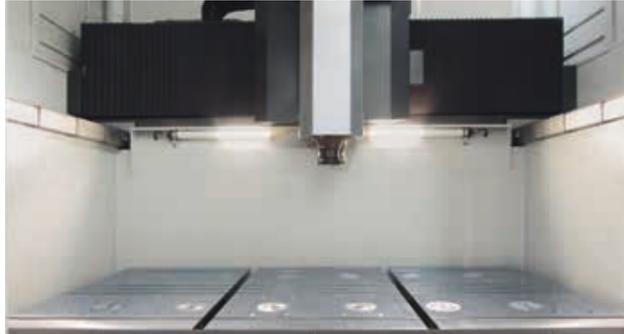
- Chucks or clamping devices
- Machine vices
- Centering vices
- Box jaws
- Multiple clamping systems

- Clamping towers
- Clamping jaws or lever clamps
- Magnetic clamping plates
- Clamps of moulded parts with special clamping systems

Machine series VPC: Let's clamp together!



Flexible zero point clamping systems, adapted according to requirement, guarantee the precise workpiece alignment and clamping



Zero point clamping system set in table for exact and quick loading of clamping equipment and tool pallets



The generously dimensioned machine table of the VPC series offers much room for setting up clamping equipment

# XTS changer – Tool magazine with unlimited capacity

Increasingly complex turning and milling jobs are demanded upon the metal processing industry. The AXA XTS changer offers the highest possible level of flexibility.

The tool magazine that is mounted on the side of the machine unites various tools and tool holding systems and can be individually expanded upon. For example, one magazine

chain can be set with CAPTO C6 uptake for turning tools and at the same time a second magazine can be carried out with SK 50 for drilling and milling tools.



The tool changing system is well protected, side-mounted at the back of the working area



The double gripping arm for short tool changing times

# Pick-up station – Tool magazine for special tools



Additional pick-up station at the edge of the working area for use of angular heads and oversized tools



Side-mounted tool magazine towers for various tool clamping systems that can be extended as required



Pick up of one or more angular heads by individually adapted pick-up station



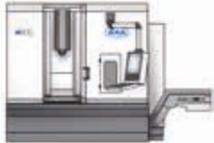
# Product overview

## VCC DBZ

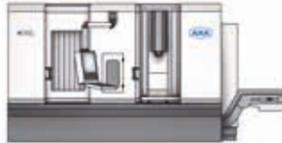
**Vertical moving column machining centres in compact design in short bed version, with pendulum machining or with swivel rotary table**

X-travel:	750 - 1200 mm 2 x 750 / 2 x 900 mm
Y-travel:	500 - 600 mm
Z-travel:	700 mm
Tool holder:	SK 40 / HSK A63
Spindle power:	20 - 40 kW

## VCC



## DBZ

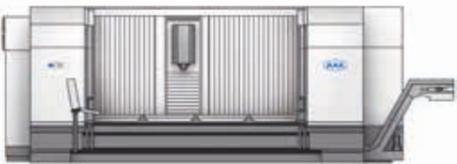


## VSC VHC

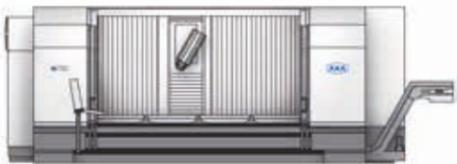
**Moving column machining centres with vertical spindle or swivel head for 5-side-, long bed and pendulum machining**

X-travel:	1200 - 12000 mm
Y-travel:	500 - 1000 mm
Z-travel:	600 - 1000 mm
Tool holder:	SK 40/50 / HSK A63/A100
Spindle power:	20 - 81 kW

## VSC



## VHC

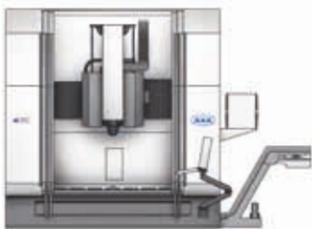


## VPC VPC U

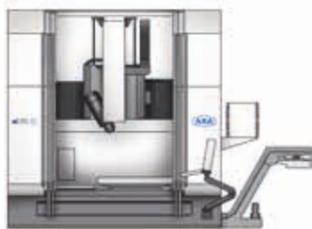
**Gantry machining centres in compact design with vertical spindle or swivel head for 5-side-machining**

X-travel:	2360 - 2940 mm
Y-travel:	1200 - 1600 mm
Z-travel:	500 - 900 mm
Tool holder:	SK 40/50 / HSK A63/A100
Spindle power:	20 - 57 kW

## VPC



## VPC U

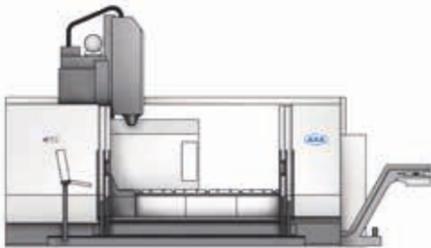


## PFZ UPFZ

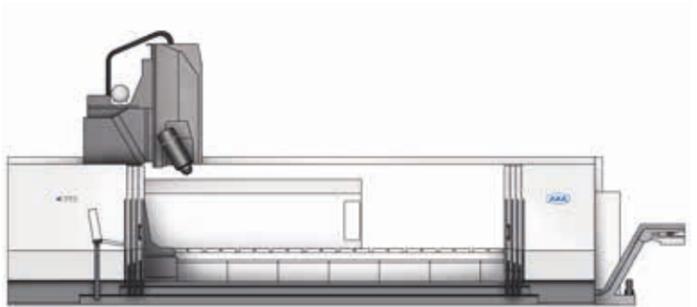
**Large gantry machining centres with vertical spindle or swivel head for 5-side-machining**

X-travel:	2000 - 12000 mm
Y-travel:	1500 - 4000 mm
Z-travel:	650 - 1200 mm
Tool holder:	SK 40/50 / HSK A63/A100
Spindle power:	20 - 57 kW

## PFZ



## UPFZ



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