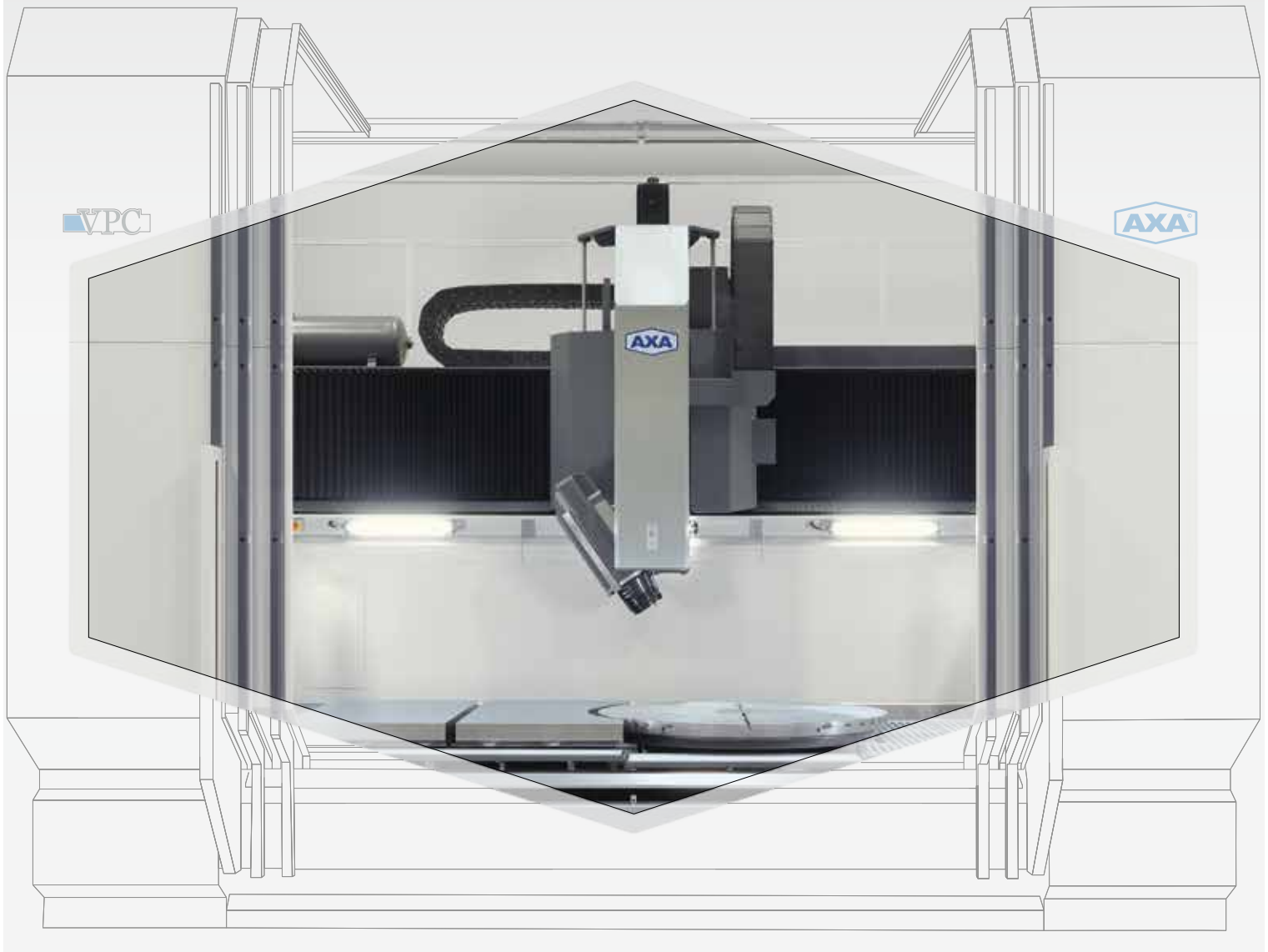


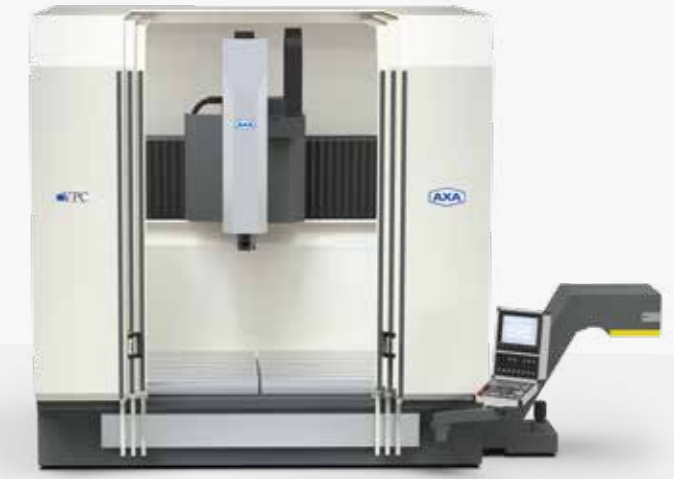
VPC / VPC U / VPC 2800 U



Producing success.
With AXA uniqueness.



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

Uniqueness

made by AXA

The gantry machining centres of VPC series

You can't tell by looking at them! The special feature of the VPC series is the very large working area combined with a compact design. The gantry machining centres – with and without swivel head – need surprisingly little floor space. This is because all components, such as the control cabinet and tool changer, are integrated as far as possible in the machine column to make optimum use of the space.

The tool magazine is housed in a protected location at the rear of the machine and can also be loaded during machining. This saves time, as do the short changeover times thanks

to the double tool gripper. The portal moves the spindle via a real gantry drive, which ensures high dynamics and accuracy. Our machines are used in all industries and application areas, from heavy machining to mould making.

We develop and manufacture all machining centres individually to meet customer requirements. A wide variety of optional equipment features makes us so flexible – simply „unique“

Talk to us!



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



Workspaces with up to 3400 mm in X and 2200 mm in Y offer much room for large tools and their clamping devices

VPC – The gantry machining centre with vertical spindle

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.

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:

- Combination of sliding and roller guideways for high dynamics, stiffness and absorption
- Guiding built upon manually scraped or grinded surface
- 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:

- 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



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



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



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 50 power	VPC 55
Working area						
X-traverse range	[mm]	2360 (2940, 3400) ²	2360 (2940, 3400) ²	2360 (2940, 3400) ²	2300	2360 (2940, 3400) ²
Y-traverse range	[mm]	1200 (1400, 1600) ²	1400 (1600, 1800, 2200) ²	1200 (1400, 1600) ²	1200 (1400, 1600) ²	1400 (1600, 1800, 2200) ²
Z-traverse range	[mm]	500 (600) ²	800	500 (600) ²	500 (600) ²	800 ²
Machine table						
Table width (dependent on Y-stroke)	[mm]	1100 (1350, 1500) ²	1100 (1350, 1500, 1800, 2200) ²	1100 (1350, 1500) ²	1100 (1350, 1500) ²	1100 (1350, 1500, 1800, 2200) ²
Table length	[mm]	approx. X-traverse	approx. X-traverse	approx. X-traverse	approx. X-traverse	approx. X-traverse
T-slots, reference slot H7	[mm]	14 H9 (18 H9) ²	14 H9 (18 H9) ²	14 H9 (18 H9) ²	18 H9 (22 H9) ²	14 H9 (18 H9) ²
T-slots indexing	[mm]	160	160	160	160	160
Max. table load per table	[kg]	1500 (2000) ²	2000	1500 (2000) ²	2000	2000
Min. distance table - spindle nozzle	[mm]	230	230	230	135	230
Feed drive						
Max. rapid traverse in X/Y/Z	[m/min]	20/20/20 (30/30/25) ²	20/20/20 (30/30/25) ²	20/20/20 (30/30/25) ²	20/20/20	20/20/20 (30/30/25) ²
Max. feed force	[N]	9000	9000	9000	12000	9000
Main spindle drive						
Standard drive no. ¹		110	110	131	163	131
Optional drive no. ¹		100, 111, 113	100, 111, 113	133	-	133
Tool holding fixture						
DIN 69871 A / DIN 69872 A		SK 40	SK 40	SK 50	SK 50	SK 50
Optional		BT 40, HSK A63, C6	BT 40, HSK A63, C6	BT 50, HSK A100, C8	HSK A100	BT 50, HSK A100, C8
Tool changer						
Number of tool pockets standard		22	22	20	20	20
Optional expandable up to		90	90	90	60	90
Max. tool diameter	[mm]	85	85	110	110	110
By free adjacent pockets	[mm]	135	135	180	180	180
Max. tool length	[mm]	400	400	400	400	400
Tool change time approx.	[s]	6	6	7	7	7
Accuracy						
Positioning accuracy ³	[mm]	± 0,015 (± 0,008) ²	± 0,015 (± 0,008) ²	± 0,015 (± 0,008) ²	± 0,015	± 0,015 (± 0,008) ²
Repeating accuracy	[mm]	± 0,01 (± 0,006) ²	± 0,01 (± 0,006) ²	± 0,01 (± 0,006) ²	± 0,01	± 0,01 (± 0,006) ²

¹ Main spindle drives

		100	110	111	113	131	133	163 ⁴
Speed range	[rpm]	6000	6000	6000	6000	4000	4000	4000
Optional up to	[rpm]	15000	12000	12000	10000	9000	9000	7500
Max. torque (40% DC)	[Nm]	95	143	191	255	286	355	540
Max. power (40% DC)	[kW]	20	30	40	40	45	56	56

² Optional features

³ Per 1000 mm per axis X/Y/Z

⁴ in combination with VPC 50 power

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 – The universal gantry machining centre with tilting spindle and rotary table

The gantry 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.

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:

- 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

Rotary table:

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

Tilting spindle:

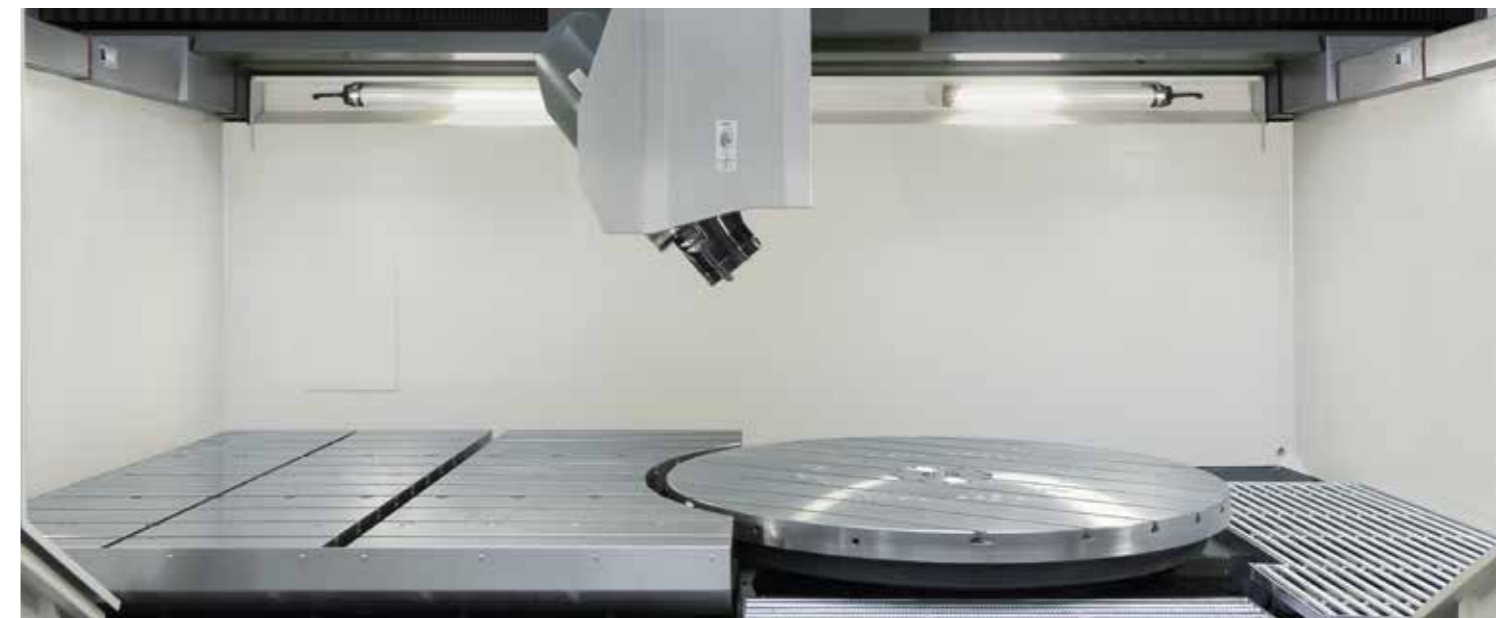
- 1-axis tilting spindle swivelling around the Y-axis (B-axis)
- Hirth-coupled construction, stepless positioning or interpolating
- Tilting range 0° to -100°

Tool changing system:

- Version and equipment according to VPC series



Short tool changing times by double gripping system



Workspaces with up to 3400 mm in X and 2200 mm in Y cater for plenty of room to swing through bulky workpieces



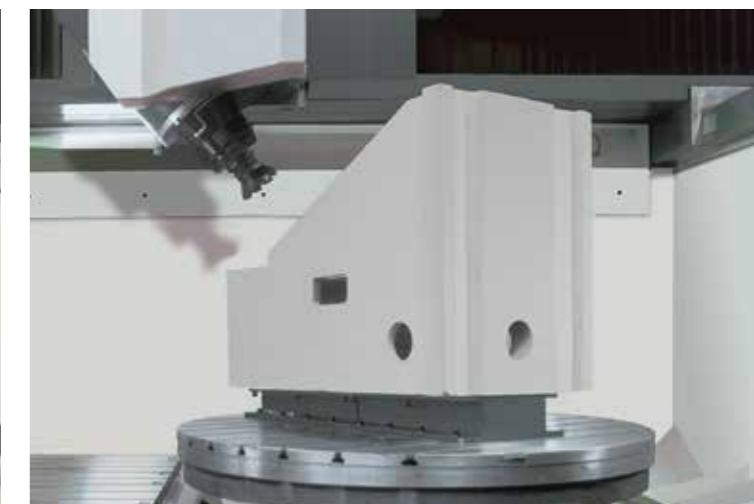
Excellent accessibility and optional possibility of crane loading by spaciouly opening doors during simultaneously above opening covering



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



High precision manufacturing by work-and-turn processed workpieces



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

Technical data VPC U

		VPC 40 U	VPC 45 U	VPC 50 U	VPC 55 U
Working area					
X-traverse range vertical	[mm]	2300 (2940, 3400) ²	2300 (2940, 3400) ²	2300 (2940, 3400) ²	2300 (2940, 3400) ²
X-traverse range horizontal	[mm]	2000 (2640, 3100) ²	2000 (2640, 3100) ²	2000 (2640, 3100) ²	2000 (2640, 3100) ²
Y-traverse range	[mm]	1200 (1400, 1600) ²	1400 (1600, 1800, 2200) ²	1200 (1400, 1600) ²	1400 (1600, 1800, 2200) ²
Z-traverse range	[mm]	600 (700) ²	900 (1100) ²	600 (700) ²	900 (1100) ²
Machine table					
Table width (dependent on Y-stroke)	[mm]	1100 (1350, 1500) ²	1100 (1350, 1500, 1800, 2200) ²	1100 (1350, 1500) ²	1100 (1350, 1500, 1800, 2200) ²
Table length	[mm]	approx. X-traverse	approx. X-traverse	approx. X-traverse	approx. X-traverse
T-slots, reference slot H7	[mm]	14 H9 (18 H9) ²	14 H9 (18 H9) ²	14 H9 (18 H9) ²	14 H9 (18 H9) ²
T-slots indexing	[mm]	160	160	160	160
Max. table load per table	[kg]	1500 (2000) ²	2000 (3500) ²	1500 (2000) ²	2000 (3500) ²
Min. distance table - spindle nozzle vert.	[mm]	260 (110) ²	260 (110) ²	210 (60) ²	210 (60) ²
Min. distance table - spindle nozzle hor.	[mm]	310 (160) ²	310 (160) ²	310 (160) ²	310 (160) ²
CNC-rotary table					
Clamping surface	[mm]	1100 x 1100 bis ø 1600 ²	1100 x 1100 bis ø 2300 ²	1100 x 1100 bis ø 1600 ²	1100 x 1100 bis ø 2300 ²
Max. transport weight	[kg]	1500 (2000) ²	2000 (3500) ²	1500 (2000) ²	2000 (3500) ²
Max. tangential moment	[Nm]	10000	10000 (18000) ²	10000	10000 (18000) ²
Max. tilting moment	[Nm]	26000	26000 (60000) ²	26000	26000 (60000) ²
Accuracy measuring system	[arcsec]	± 5" (±1") ²	± 5" (±1") ²	± 5" (±1") ²	± 5" (±1") ²
Min. distance table - spindle nozzle vert.	[mm]	110	110	60	60
Min. distance table - spindle nozzle hor.	[mm]	160	160	160	160
Feed drive					
Max. rapid traverse in X/Y/Z	[m/min]	20/20/20 (30/30/25) ²	20/20/20 (30/30/25) ²	20/20/20 (30/30/25) ²	20/20/20 (30/30/25) ²
Max. feed force	[N]	9000	9000	9000	9000
Main spindle drive					
Standard drive no. ¹		110	110	131	131
Optional drive no. ¹		100, 111, 113	100, 111, 113	133	133, 173
Tool holding fixture					
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
Tilting spindle head					
Swivelling range B-axis		90°	90° (100°)	90°	90° (100°)
Indexing		2,5° (0,001) ²	2,5° (0,001° , fully interpolating) ²	2,5° (0,001) ²	2,5° (0,001° , fully interpolating) ²
Tool changer					
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
Accuracy					
Positioning accuracy ³	[mm]	± 0,015 (± 0,008) ²	± 0,015 (± 0,008) ²	± 0,015 (± 0,008) ²	± 0,015 (± 0,008) ²
Repeating accuracy	[mm]	± 0,01 (± 0,006) ²	± 0,01 (± 0,006) ²	± 0,01 (± 0,006) ²	± 0,01 (± 0,006) ²

¹ Main spindle drives

		100	110	111	113	131	133	173 ⁴
Speed range	[rpm]	6000	6000	6000	6000	4000	4000	6000
Optional up to	[rpm]	15000	12000	12000	10000	9000	9000	7500
Max. torque (40% DC)	[Nm]	95	143	191	255	286	355	445
Max. power (40% DC)	[kW]	20	30	40	40	45	56	70

² Optional features ³ Per 1000 mm per axis X/Y/Z with vertical spindle ⁴ exclusively for VPC 55 U with interpolating tilting head

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



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

VPC 2800 U – The universal gantry machining centre with large workspace

The VPC 2800 U unites the advantages of the compact built VPC range with the working area proportions of the spacious gantry machining centres PFZ/UPFZ. Despite very large traverse ranges, you do not have to do without the advantages of the VPC series – large working space with a small footprint. In addition, transport is also carried out in one piece, considerably reducing the time needed for the installation of the machine.

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 or gear rack drives 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



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 1300 mm



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

Technical data VPC 2800 U

VPC 2800 U

Working area

X-traverse range vertical	[mm]	3900 (5000) ²
X-traverse range horizontal	[mm]	3900 (5000) ²
Y-traverse range	[mm]	2940
Z-traverse range	[mm]	1100 (1300) ²

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" (1") ²
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. ¹		140 (173) ²
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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) ⁴

Accuracy

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

¹ Main spindle drives

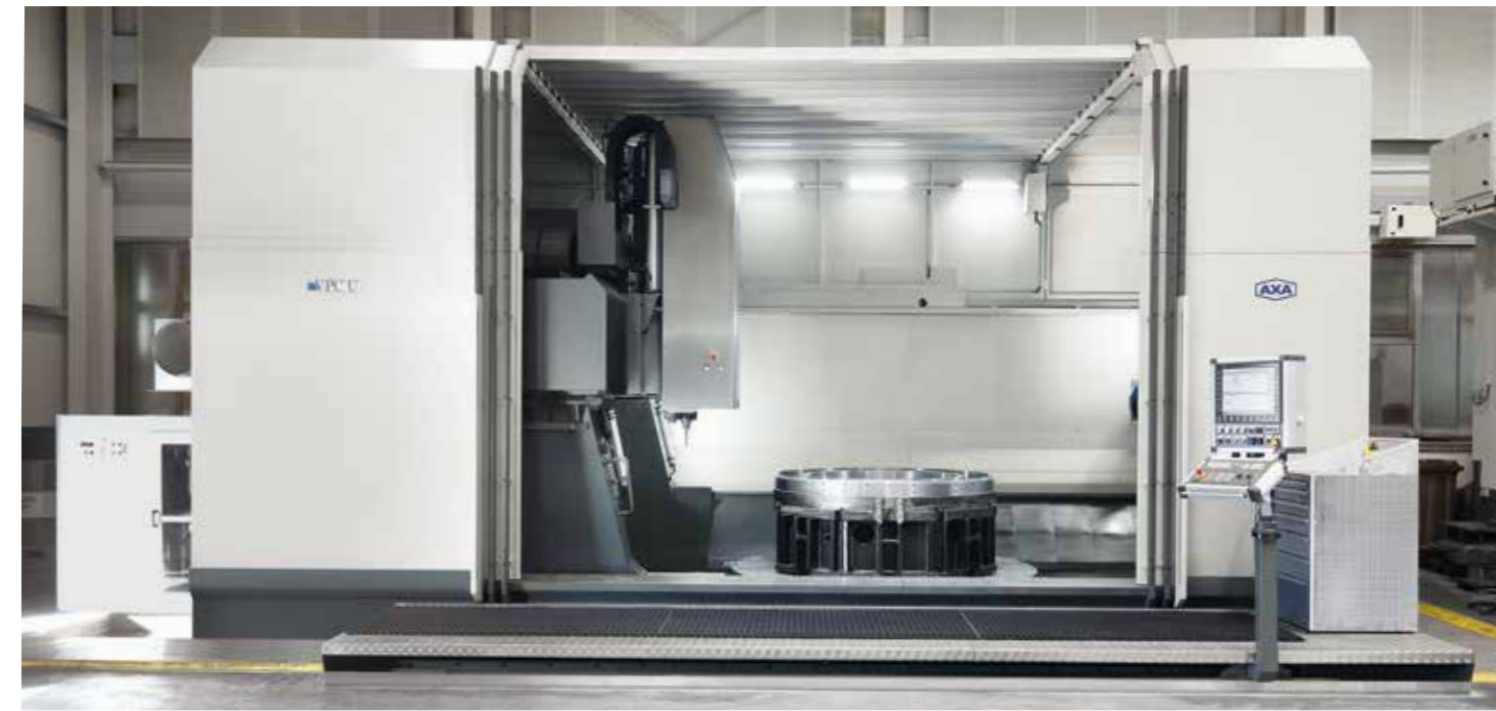
		140	173
Speed range	[rpm]	6000	6000
Optional up to	[rpm]	9000	7500
Max. torque	[Nm]	200 (100% DC)	445 (40% DC)
Max. power	[kW]	63 (100% DC)	70 (40% DC)

² Optional features

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

⁴ Max. tool length 2 magazine

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



VPC 2800 U with optional full enclosure – when the bellows roof is open, the working area is accessible for loading from above

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

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.



Turning – the separate clamping unit for turning tools ensures high stability and avoids stress on the main spindle bearing



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

VPC 55 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.



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

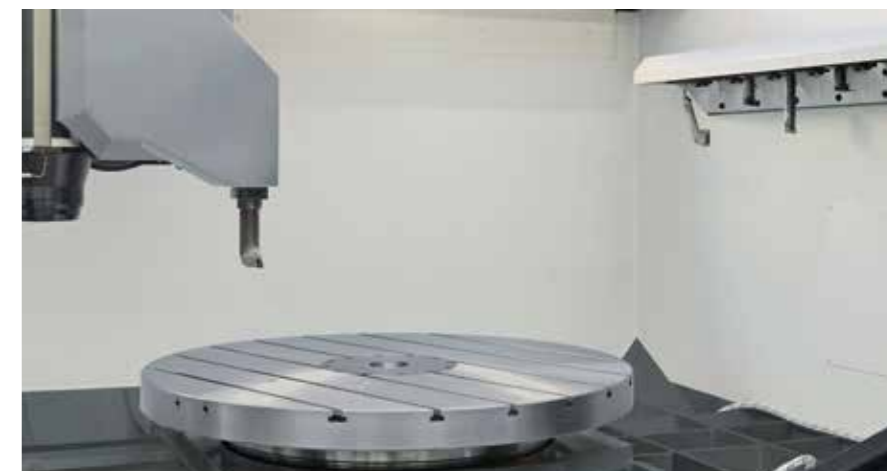


The VPC U is ideal for 5-side processing of large workpieces thanks to its big swivel range and high table load

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 hanger for the tools.



VPC U with additional turning unit and correspondingly adapted protective covering



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



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



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

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 workpiece form and contour precision and thus sets new standards for the surface finish itself.

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:

- Sliding guideways for high dynamics, stiffness and absorption
- Real gantry drive in the x-axis with corresponding individual drive, guideway and direct measuring system for both portal sides
- Ball screws in all linear axes

Tool changing system:

- Version and equipment according to VPC series

Tilting spindle:

- 2-axes tilting spindle swivelling around the Z-axis (C-axis), tilting range -360° to $+360^\circ$
- Spindle swivelling around the X-axis (A-axis), tilting range -110° to $+110^\circ$
- Steppless interpolating
- Hydraulic clamping for heavy machining



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 $\pm 110^\circ$

VPC 45 DASK with double axis tilting head



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



The torque drive provides the fork head with utmost acceleration

Technical data VPC 45 DASK

VPC 45 DASK

Working area

X-traverse range vertical	[mm]	2200 (2800) ²
Y-traverse range	[mm]	1500
Z-traverse range	[mm]	800

Machine table

Table width (dependent on Y-stroke)	[mm]	1500
Table length	[mm]	approx. X-traverse
T-slots, reference slot H7	[mm]	14 H9 (18 H9) ²
T-slots indexing	[mm]	160
Max. table load per table	[kg]	1500 (2000) ²
Min. distance table - spindle nozzle vert.	[mm]	50
Min. distance table - spindle nozzle hor.	[mm]	360

Feed drive

Max. rapid traverse in X/Y/Z	[m/min]	20/20/20 (30/30/25) ²
Max. feed force	[N]	3000

Main spindle drive

Standard drive no. ¹		DASK
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Tool holding fixture

DIN 69893-1		HSK A63
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Tilting spindle head

Swivelling range A-axis		-110° to +110°
Swivelling range C-axis		-360° to +360°
Indexing		0,001°

Tool changer

Number of tool pockets standard		22
Optional expandable up to		90
Max. tool diameter	[mm]	60
Max. tool length	[mm]	250
Tool change time approx.	[s]	7

Accuracy

Positioning accuracy ³	[mm]	± 0,015
Repeating accuracy	[mm]	± 0,01

¹ Main spindle drives

Speed range	[rpm]	DASK	18000
Max. torque (S6)	[Nm]		130
Max. power (S6)	[kW]		27

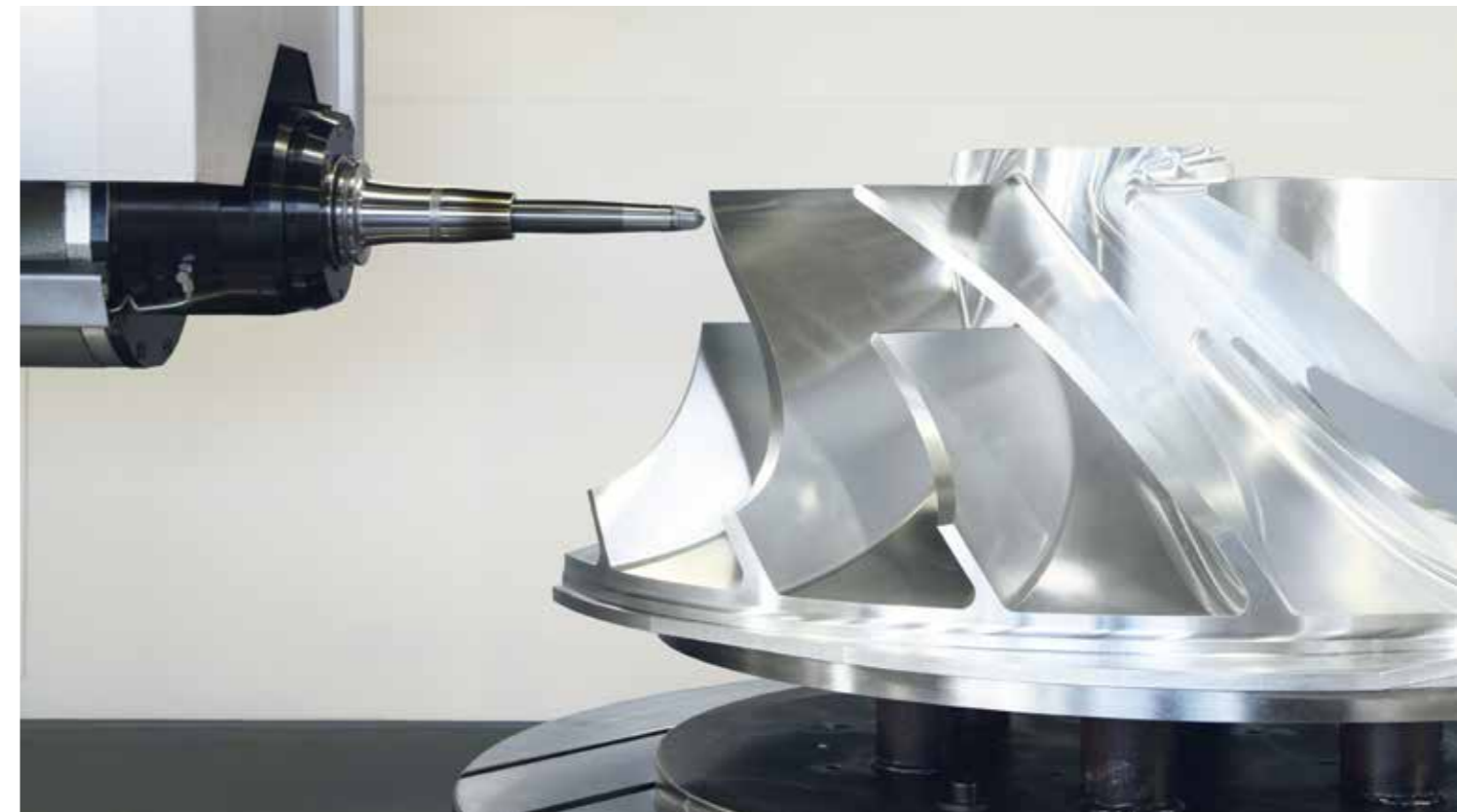
² Optional features

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

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



Impeller processing on AXA 5-axis gantry machining centre TMP



The TMP can process large workpieces with extremely precision with a swivel range of up to 2100 mm and a transport load of up to 5 t

TMP – for high-end mould making

This 5-axis gantry machining centre stems from our compact series and has been designed for users in the realms of high-end mould making for large-scale workpieces. The main application focus for the TMP is processing turbines, impellers, gear wheels and Pelton runners. It can be used for diverse mould making applications as well. A 3D touch probe with calibration sphere for measurement and calibration of the rotary axes also belongs to the standard version.

Main design:

- Extremely rigid, static and dynamically well-balanced ground frame construction
- Spacious and easily accessible machine table
- Direct measuring systems for the X/Y/Z-axes and swivelling axes B/C

Rotary table:

- Highly dynamic, fast-moving NC rotary table
- Directly driven with Torque motor
- Direct measuring system

Guideways and drives:

- Solid roller guides, generously dimensioned for high dynamics, stiffness and accuracy
- Guiding built upon manually scraped or grinded surface
- 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
- Fully temperature-controlled machine including water-cooled and high performance ball screw

Tool changing system:

- Tool shop with double gripping system
- Magazine protected in rear part of machine
- 20 to 90 tool places
- Fixed location coded tool management for better operator monitoring
- Simultaneous tool pre-selection support of various tool holding systems

Tilting spindle:

- Powerful SK 50 tilting spindle, max. 9000 rpm, optional HSK A63 with 18.000 rpm
- Stepless, interpolating construction
- Tilting range 0° to -100°



Finishing by a ball-end cutter



Milling processing of a coupling on the TMP

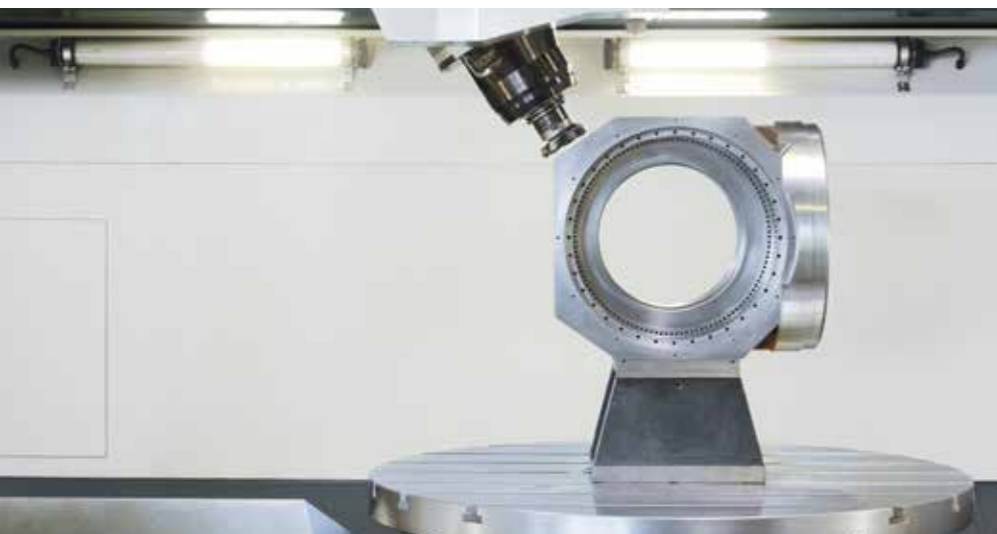
The focus of the TMP lies not only in mould making. The traditional drilling and milling work of huge workpieces belongs to the field of application for the 5-axis gantry machining centre as well.

The strength of the TMP lies in its high-precision work-and-turn machining of processed, centrally as well as eccentrically clamped workpieces. The 5-axis processing in one setting enables time and cost savings thanks to fewer set-up times.

The machining centre TMP is the solution of the conflict of objectives between roughing and high-end finishing.



Processing of a rotary table housing in a tilted plane



Supreme precision: 5 sides drilling and milling processing of an AXA tilting spindle head body that is ideal for processing parts in one setting

Technical data TMP

TMP

Working area

X-traverse range vertical	[mm]	2300 (2940) ²
X-traverse range horizontal	[mm]	2000 (2640) ²
Y-traverse range	[mm]	1400 (1600,1800) ²
Z-traverse range	[mm]	900

Machine table

Table width (dependent on Y-stroke)	[mm]	1100 (1350, 1500) ²
Table length	[mm]	approx. X-traverse
T-slots, reference slot H7	[mm]	18 H9
T-slots indexing	[mm]	160
Max. table load per table	[kg]	1500
Min. distance table - spindle nozzle vert.	[mm]	210
Min. distance table - spindle nozzle hor.	[mm]	310

CNC-rotary table

Rotary table		RTA 5TF (RTA 6TF)
Clamping surface	[mm]	∅ 1250 (1600)
Max. transport weight	[kg]	3000 (5000)
Accuracy measuring system	[arcsec]	± 3" (± 1")
Min. distance table - spindle nozzle vert.	[mm]	60
Min. distance table - spindle nozzle hor.	[mm]	160

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. ¹		133 (DASK) ²
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Tool holding fixture

DIN 69871 A / DIN 69872 A		SK 50 (HSK A63) ²
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Tilting spindle head

Swivelling range B-axis		0 to -100°
Indexing		0,001° (interpolating)

Tool changer

Number of tool pockets standard		20
Optional expandable up to		90
Max. tool diameter	[mm]	110 (60) ²
By free adjacent pockets	[mm]	180
Max. tool length	[mm]	400 (250) ²
Tool change time approx.	[s]	6

Accuracy

Positioning accuracy ³	[mm]	± 0,008
Repeating accuracy	[mm]	± 0,006

¹ Main spindle drives

		133	DASK
Speed range	[rpm]	4000	18000
Optional up to	[rpm]	9000	-
Max. torque	[Nm]	355 (40% DC)	130 (S6)
Max. power	[kW]	56 (40% DC)	27 (S6)

² Optional features

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

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

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 loads of over 1000 kg makes them multi-faceted and universally deployable and so, they often replace more complex and rigid pallet systems.



VPC with two pallet positions ahead for machine loading



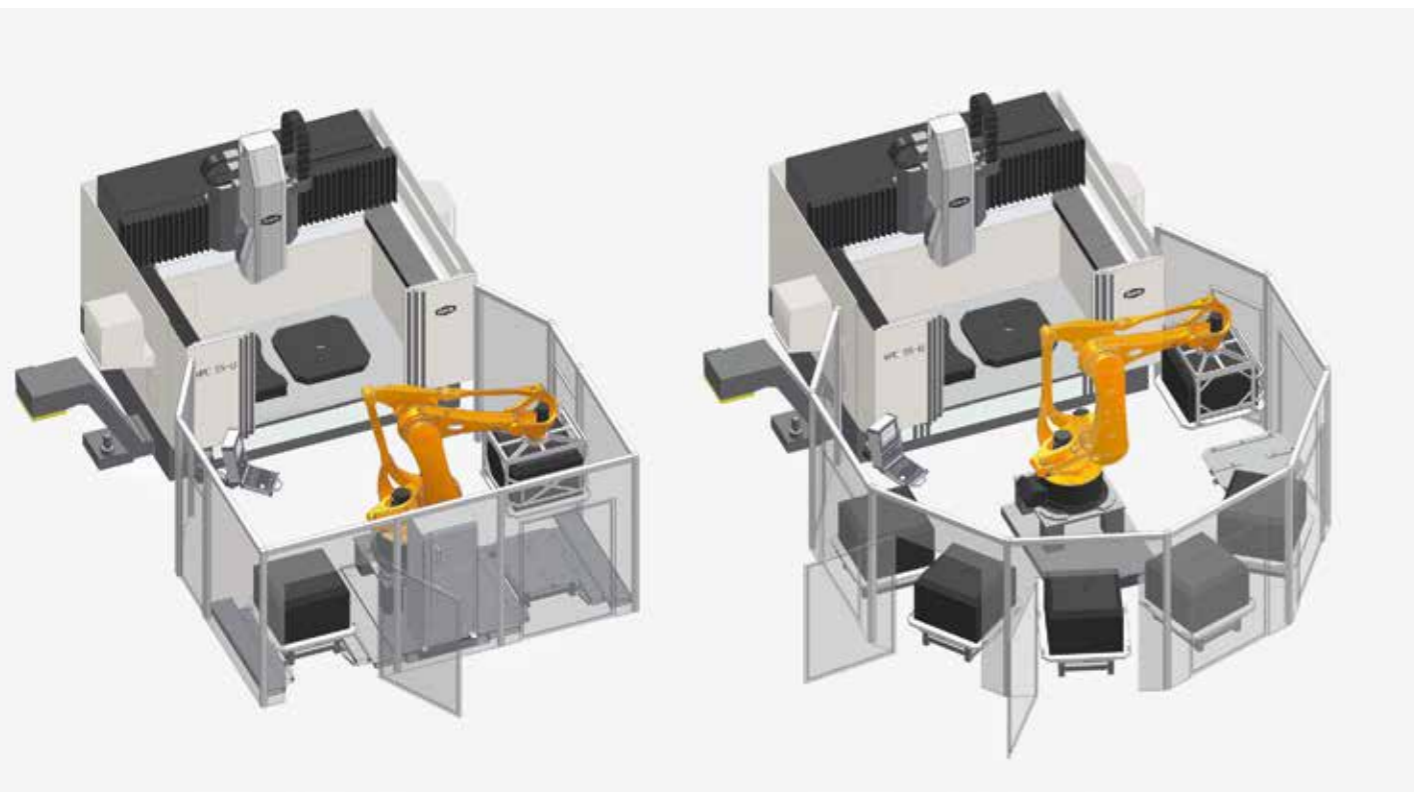
Pick up of workpiece pallet by a special gripping system



Robots can move heavy workpieces over a long range



Workpiece pallet implementation in machining by centre zero point clamping system



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



Workpiece machining on clamped pallet with the VPC

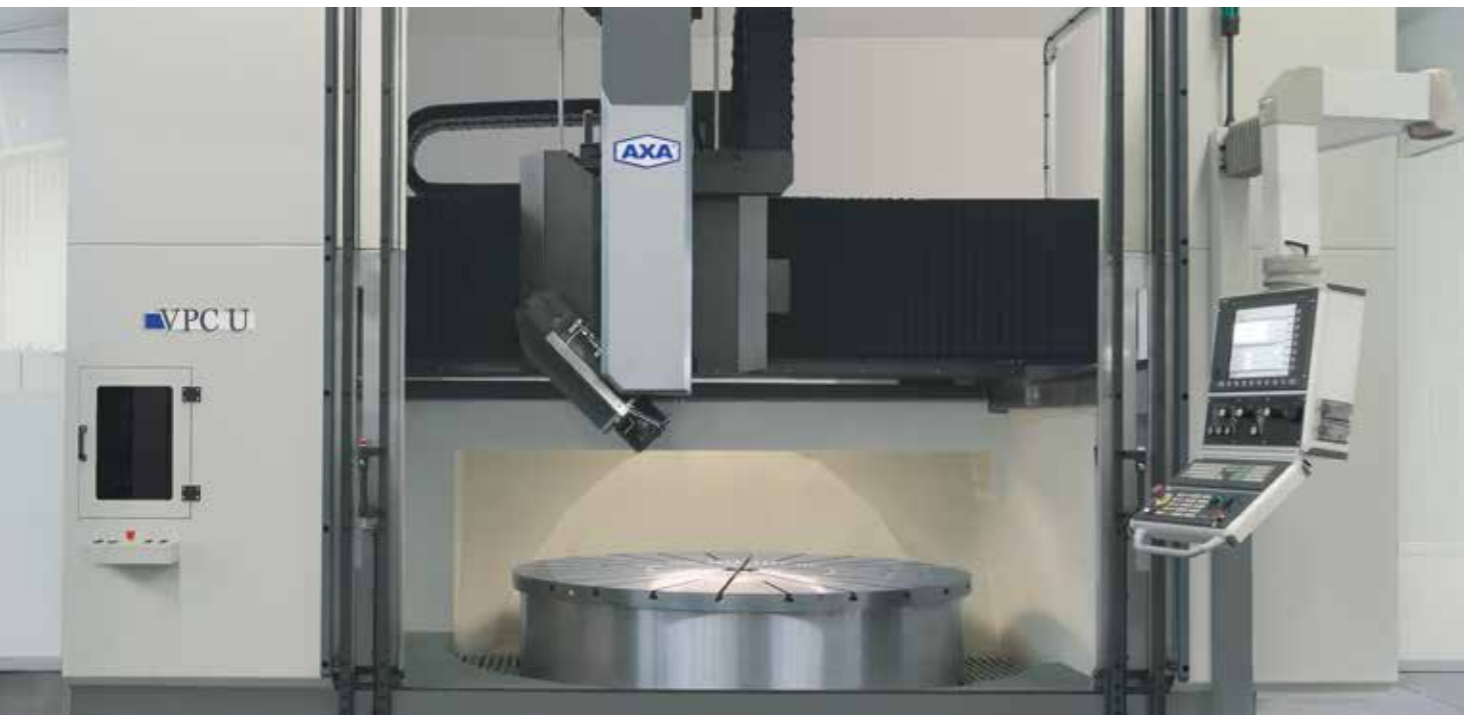
VPC U with increased swivelling range for ring workpieces

Machining large ring-formed workpieces is also a simple job for the VPC U: These requirements can be quickly met by adjusting the workspace 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 immersion into small diameters for inner machining.



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 multifaceted 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 mat-

ter 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

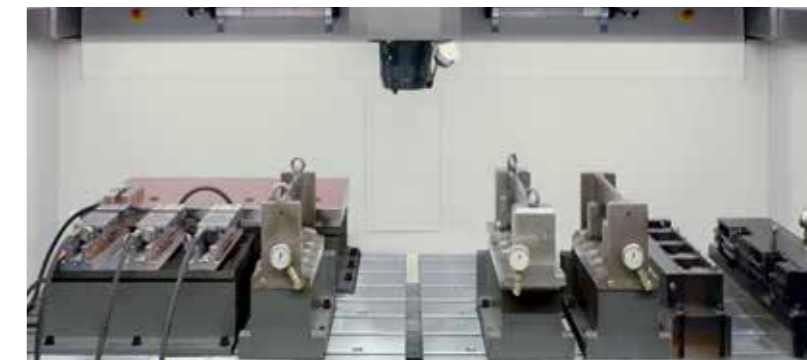
- Clamping towers
- Clamping jaws or lever clamps
- Magnetic clamping plates
- Clamps of moulded parts with special clamping systems



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

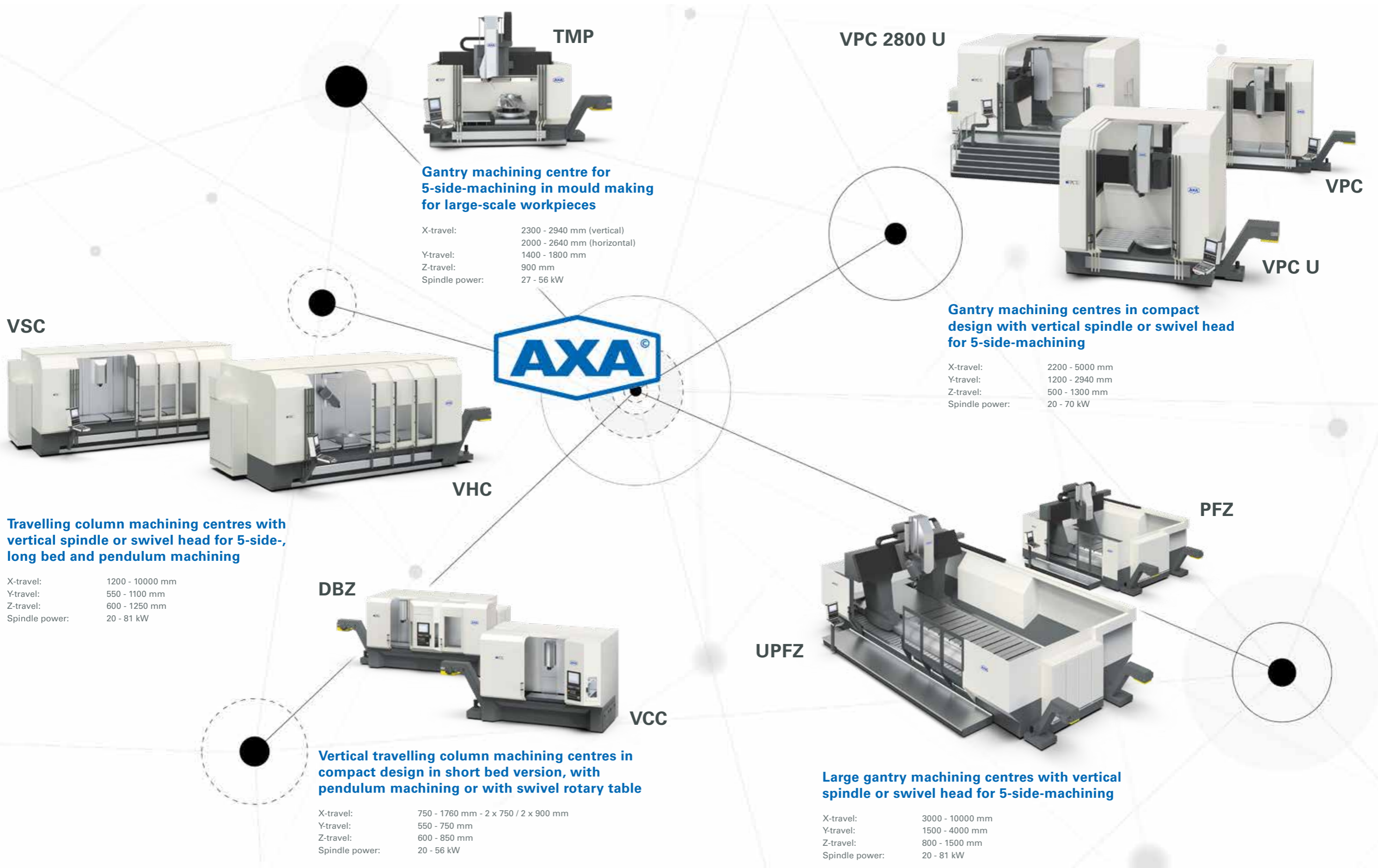


Side-mounted tool magazine towers for various tool clamping systems that can be extended as required



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

Product overview



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