

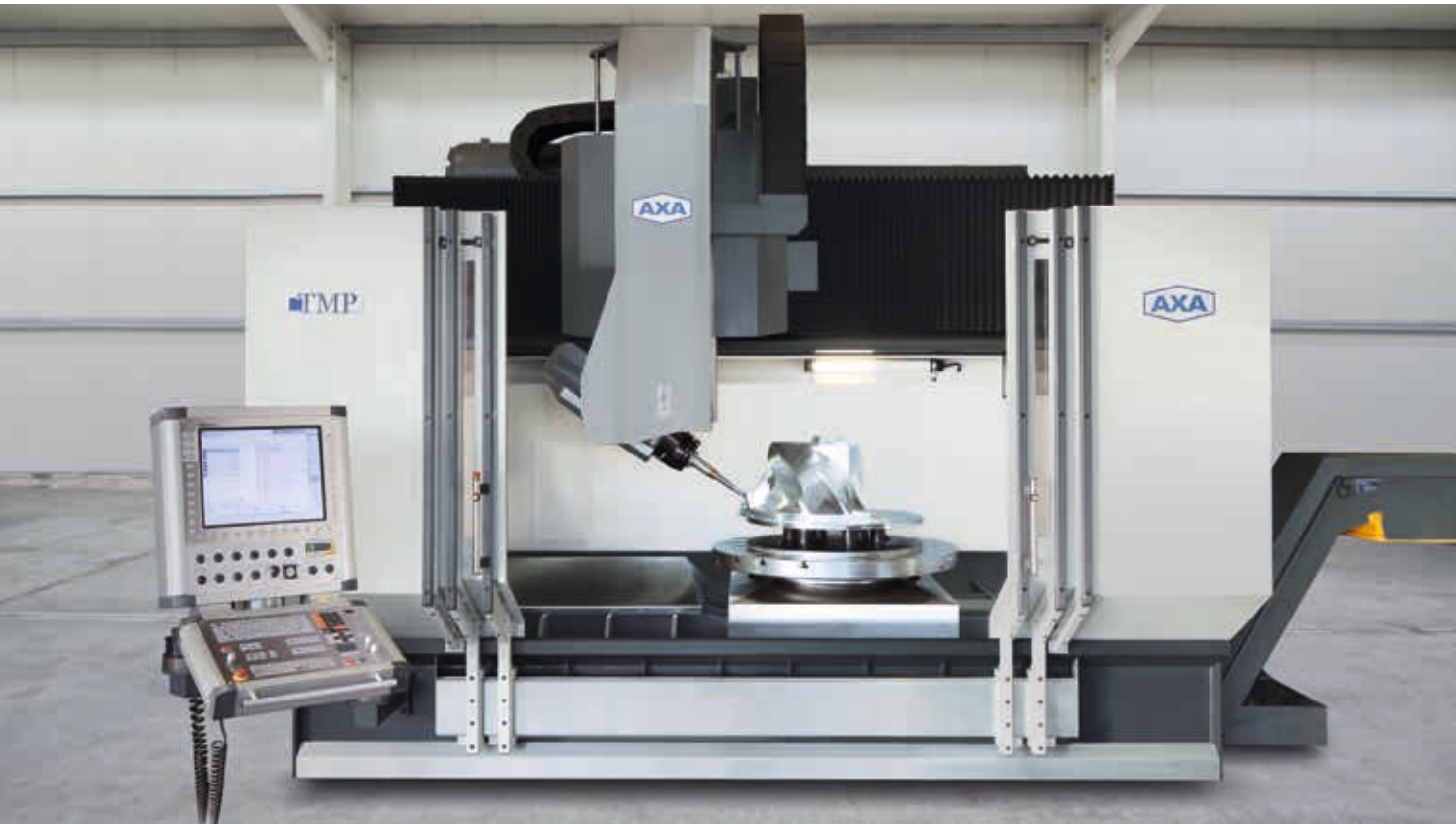
# TMP



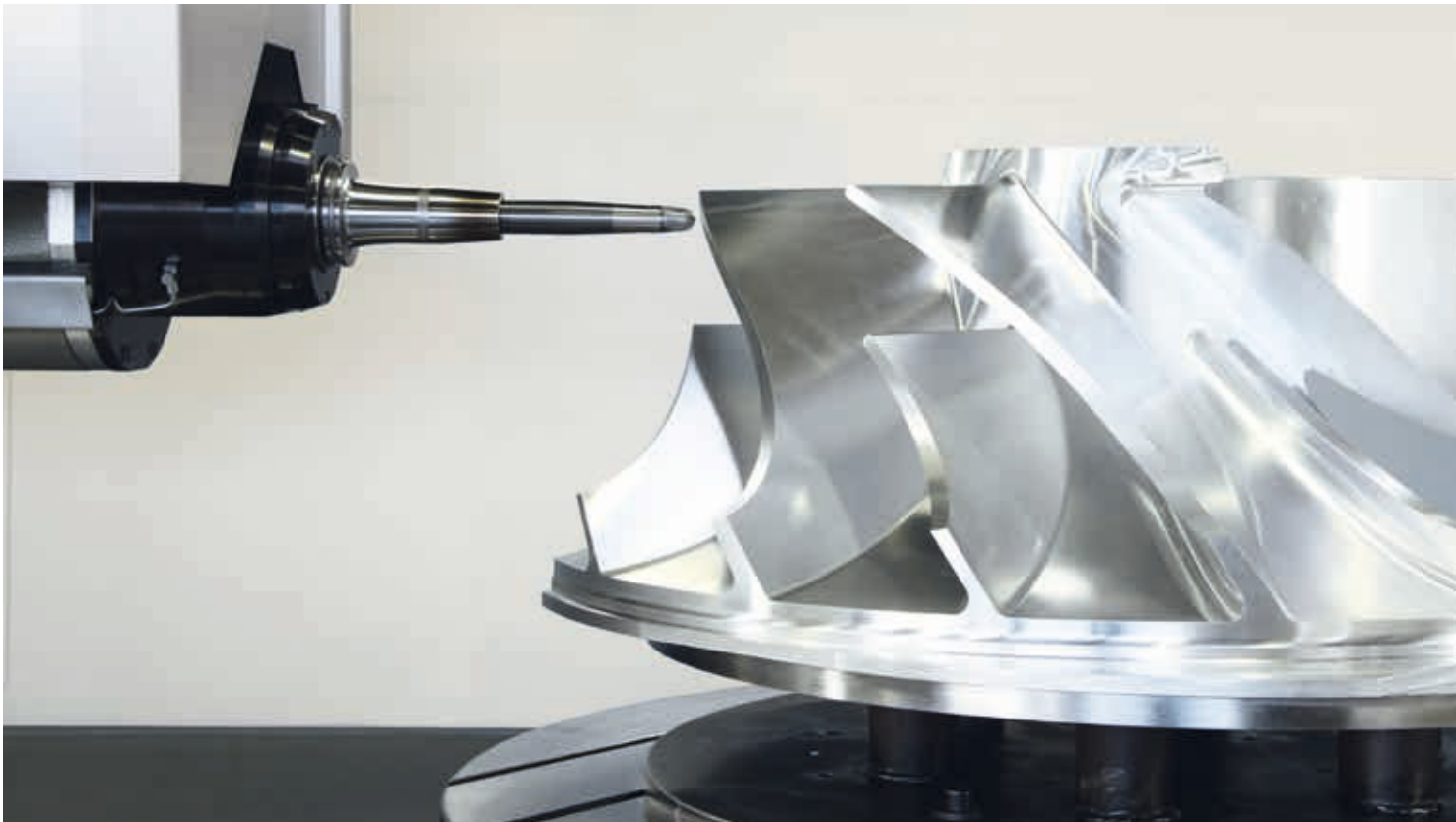
**Pure technology!**



Entwicklungs- und  
Maschinenbau GmbH



Impeller processing on AXA 5-axis portal 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 portal 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.**

Large-scale, bulky workpieces can also be processed with utmost precision on the TMP. The combination of powerful swivelling spindle and a fast turning NC rotary table with a clamping surface of up to 1600 mm enables the 5-axis simultaneous processing of large-scale workpieces with a load of up to 5 t and a swivel range of up to 2100 mm. The spindle swivels continuously, interpolating around the Y-axis while

the NC rotary table positions the workpiece. 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

**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°

**Rotary table:**

- Highly dynamic, fast-moving NC rotary table RTA 5D, 1250 mm face plate
- Opt. RTA 6D, 1600 mm face plate
- Directly driven with Torque motor
- Direct measuring system

Furthermore, we offer an extensive package of equipment and options in relation to the moulding form and precision to fit your individual needs.



Finishing by a ball-end cutter

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

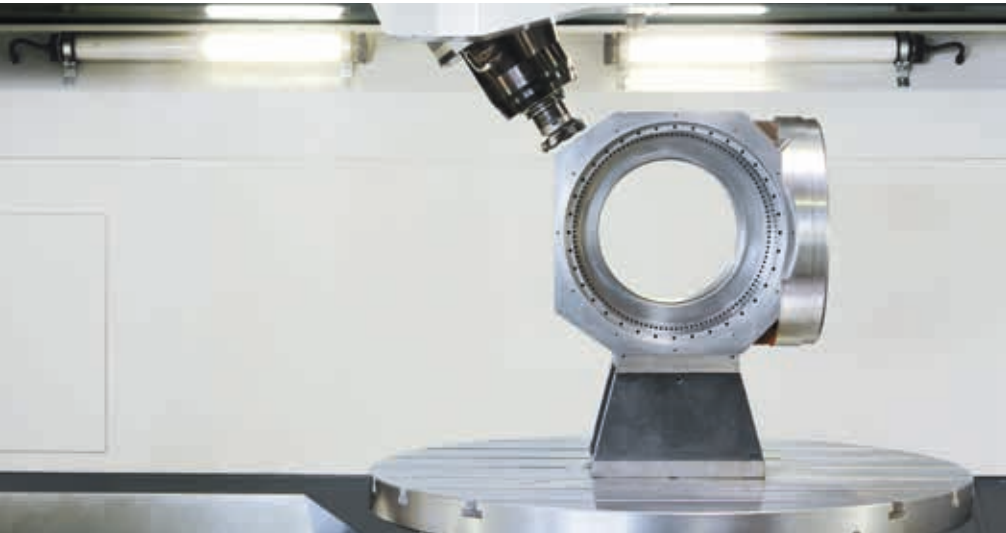
## Processing of large-scale workpieces

The focus of theTMP 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 portal machining centre as well.

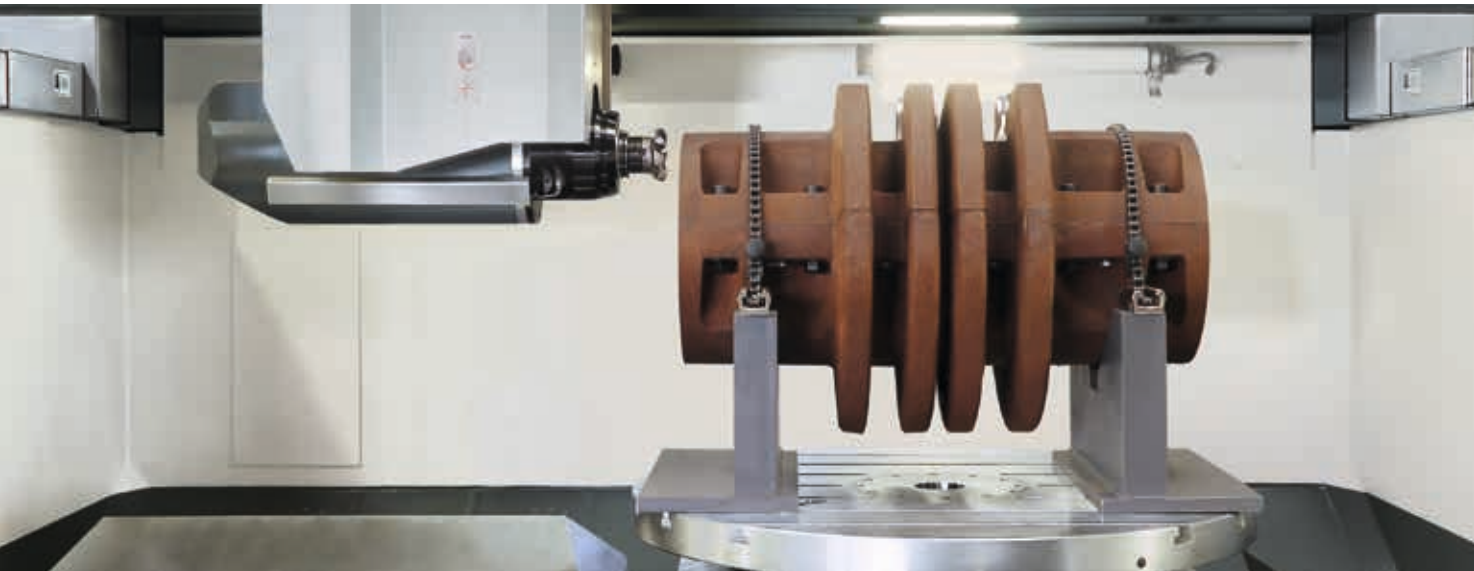
The strength of theTMP lies in its high-precision work-and-turn machining of processed, centrally as well as eccentrically clamped workpieces.The 5-axis processing in one setting enables time and cost savings thanks to fewer set-up times.



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



Milling processing of a coupling on theTMP

## Technical Data TMP

		standard	optional
Working area			
X-traverse range	[mm]	2300 vert. / 2000 hori.	2940 vert. / 2640 hori.
Y-traverse range	[mm]	1400	1600
Z-traverse range	[mm]	900	
Machine table			
Table width	[mm]	1100	1350, 1500
Table length	[mm]	1100	
T-slots	[mm]	18 H9 / H7	
Rotary table			
Type		RTA 5D	RTA 6D
Clamping surface	[mm]	Ø 1250	Ø 1600
Max. transport weight	[kg]	3000	5000
Accuracy measuring system	[arcsec]	± 3"	± 1"
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.		133	
Max. speed range	[rpm]	9000	18000
Max. torque	[Nm]	355	130
Max. power	[kW]	56	27
Tool holding fixture			
DIN 69871 A / DIN 69872 A		SK 50	HSK A63
Tool changer			
Number of tool pockets		20	90
Tool change time approx.	[s]	6	
Tilting spindle head			
Swivelling range B-axis		stepless positioning or fully interpolating 0° to -100°	
Indexing		0,001°	
Accuracy per 1000 mm per axis X/Y/Z			
Positioning accuracy	[mm]	± 0,008	
Repeating accuracy	[mm]	± 0,006	

### Further features:

- External cooling and internal cooling alternatively by compressed air or emulsion
- Sealing air for linear encoders
- Full covering
- Remote maintenance



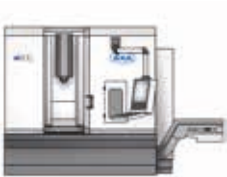
Product overview

VCC DBZ

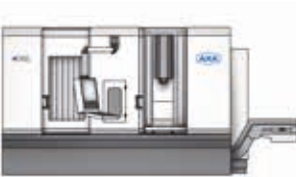
Vertical moving column machining centres in compact design in short bed version, with pendulum machining or with swivel rotary table

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

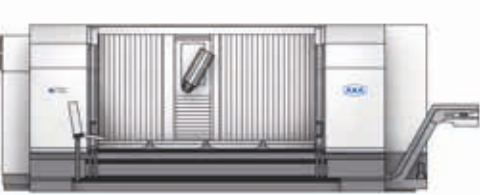
Moving column machining centres with vertical spindle or swivel head for 5-side-, long bed and pendulum machining

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

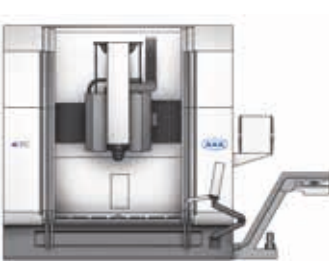


VPC VPC U

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

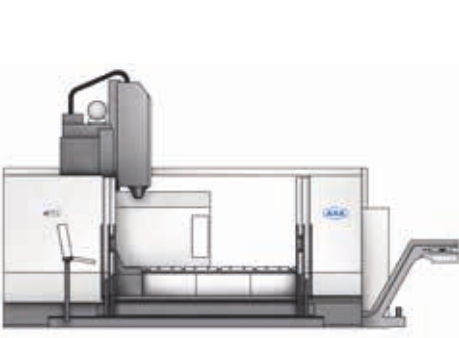


PFZ UPFZ

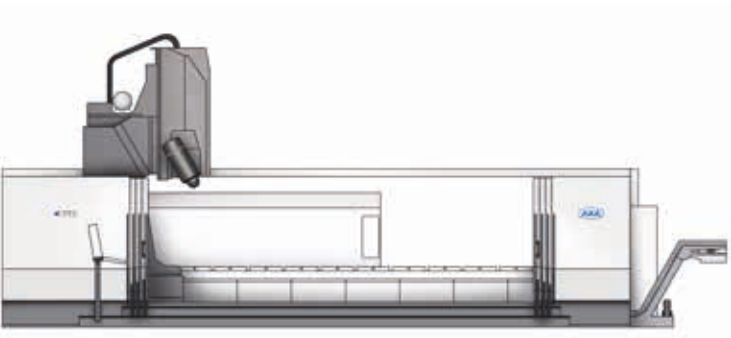
Large gantry machining centres with vertical spindle or swivel head for 5-side-machining

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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