

VCC / DBZ



Pure Technology!



Entwicklungs- und
Maschinenbau GmbH



Precise and productive, yet compact in form: the travelling column machines of the VCC and DBZ series

Pure Technology!

True greatness comes from within – The compact travelling column machines VCC and DBZ

Learnt from the large machines, implemented into the smaller ones. Although of a smaller scale, the two machining centres VCC and DBZ are completely flexible in their functionality. Their advantages are put to work in particular when machining small and medium-sized workpieces – in individual machining mode for small batches or in pendulum mode for series production. The machines' small footprint certainly makes the VCC and DBZ series from AXA very interesting for smaller and medium-sized companies.

Although smaller in size, you definitely do not need to forego the proven advantages of the AXA machines' range. The VCC and DBZ unite a clear structure with flexible design. A very rigidly constructed workspace is enhanced through fixed machine tables and a stationary positioned tool magazine pool. That gives the

machines immense stability and rigidity and at the same time an extremely dynamic travelling column due to the powerful drive sets in the main axes. From workshop production up to fully automatic series production. The field of applications of these machines is so dynamic just as its design and layout. Reliable quality for demanding tasks.

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
- Machining of glass, ceramics, wood or graphite



Conception and construction from a single source: overview of the VCC main assembly

VCC – Great impact, yet small in size

Robust, flexible and consequent: The space-saving construction offers everything that a reliable precision tool must have in your production site.

Main design:

- Cross slides, travelling columns and spindle head stock are made from high-quality cast iron
- Extremely rigid, static and dynamically well balanced ground frame construction
- Casing according to current machinery directives, totally closed working area with no interfering contours
- Total access to working area when doors are fully open

- Excellent accessibility for maintenance and service tasks
- Machine transport in one piece

Guideways and drives:

- Hardened precision steel slideways mounted on manually scraped or grinded surfaces
- Optimal guiding by extremely large guidance ratio and Turcite coatings
- High rigidity, outstanding long-term precision performance and excellent vibration absorbing capabilities of the guideways
- Excellent resetting and adjustability of the guideways
- Drives and guideways are protected set outside of working area
- Ball screws in all linear axes

Tool changing system:

- Fixed location coded tool management enables better monitoring for the operator
- Support of various tool holding systems such as SK, BT, HSK
- Tool magazine is protected outside of working area
- Placement of the magazine during machining possible
- Tool change takes place behind working area cladding: no disturbing contours in the working area during tool change by the gripper or parts

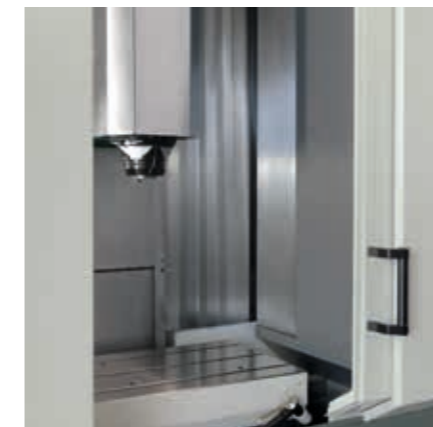
Ingenuity and great ideas

Great ideas are often hidden in small workpieces. The experts from AXA help you to implement these – for example with the flexible VCC assembly:

- 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.

Flexibility in every detail: Your ideas become our mission!



Compact and uncluttered workspace with direct spindle access to the tool magazine

Technical data VCC

Technical data	VCC / VCC 1200	VCC 2
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Working area

X-traverse range	[mm]	750 / 1200	1200
Y-traverse range	[mm]	500	600
Z-traverse range	[mm]	600	700
Distance table - spindle nozzle	[mm]	180 - 780	180 - 880

Machine table

Clamping surface, grinded, approx.	[mm]	1000 x 500 / 1350 x 500	1350 x 600
T-slots, reference slot H7	[mm]	14 H9	14 H9
T-slots indexing	[mm]	160	160
Number of T-slots		3	4
Max. table load	[kg/m ²]	800	800

Feed drive

Max. rapid traverse	[m/min]	25/25/20	25/25/20
Max. feed force	[N]	9000	9000

Main spindle drive

Standard drive no. ¹		110	110
Optional drive no. ¹		100 / 111	100 / 111

Tool holding fixture

DIN 69871 A / DIN 69872 A		SK 40	SK 40
Optional		BT 40, HSK A63	BT 40, HSK A63

Tool changer

No. of tool pockets standard		22	22
Optional expandable up to		30	30
Max. tool diameter	[mm]	85	85
By free adjacent pockets	[mm]	135	135
Max. tool length	[mm]	400	400
Tool change time approx.	[s]	4	4

Accuracy

Positioning accuracy ²	[mm]	± 0,02	± 0,02
		± 0,015	± 0,015
Repeating accuracy	[mm]	± 0,005	± 0,005

Weight

Standard version approx.	[kg]	7000 / 7500	9000
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¹ Main spindle drives

		100	110	111
Speed range	[rpm]	6000	6000	6000
Optional up to	[rpm]	15000	12000	12000
Max. torque (40% DC)	[Nm]	95	143	191
Max. power (40% DC)	[kW]	20	30	40

² Per 1000 mm per axis X/Y/Z



Conception and construction from a single source: overview of the DBZ main assembly

DBZ – Performance on both sides

High unit numbers in a small space are the order of the day for the DBZ: The set-up times can be optimally reduced in pendulum mode, making the DBZ the true top performer in your production site.

Main design:

- Double place machining centre
- Cross slides, travelling columns and spindle head stock are made from high-quality cast iron
- Extremely rigid, static and dynamically well balanced ground frame construction
- Casing according to current machinery directives, totally closed working area with no interfering contours
- Total access to working area when doors are fully open
- Excellent accessibility for

maintenance and service tasks

- Machine transport in one piece

Guideways and drives:

- Hardened precision steel slideways mounted on manually scraped or grinded surfaces
- Optimal guiding by extremely large guidance ratio and Turcite coatings
- High rigidity, outstanding long-term precision performance and excellent vibration absorbing capabilities of the guideways
- Excellent resetting and adjustability of the guideways
- Drives and guideways are protected set outside of working area
- Ball screws in all linear axes

Tool changing system:

- Fixed location coded tool management enables better monitoring for

the operator

- Support of various tool holding systems such as SK, BT, HSK
- Tool magazine is protected outside of working area
- Placement of the magazine during machining possible
- Tool change takes place behind working area cladding: no disturbing contours in the working area during tool change by the gripper or parts

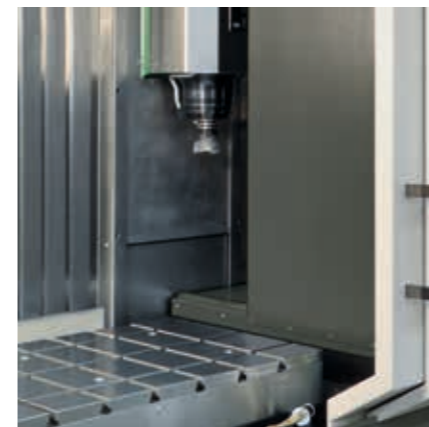
Ingenuity and great ideas

Great ideas are often hidden in small workpieces. The experts from AXA help you to implement these – for example with the flexible DBZ assembly:

- 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.

Flexibility in every detail: Your ideas become our mission!



Compact and uncluttered workspace with direct spindle access to the tool magazine

Technical data DBZ

Technical data		DBZ	DBZ 2
Working area			
X-traverse range	[mm]	2 x 750	2 x 900
Y-traverse range	[mm]	500	600
Z-traverse range	[mm]	600	700
Distance table - spindle nozzle	[mm]	180 - 780	180 - 880
Machine table			
Clamping surface, grinded, approx.	[mm]	2 x (1000 x 500)	2 x (1000 x 600)
T-slots, reference slot H7	[mm]	14 H9	14 H9
T-slots indexing	[mm]	160	160
Number of T-slots		3	4
Max. table load	[kg/m ²]	800	800
Feed drive			
Max. rapid traverse	[m/min]	25/25/20	25/25/20
Max. feed force	[N]	9000	9000
Main spindle drive			
Standard drive no. ¹		110	110
Optional drive no. ¹		100 / 111	100 / 111
Tool holding fixture			
DIN 69871 A / DIN 69872 A		SK 40	SK 40
Optional		BT 40, HSK A63	BT 40, HSK A63
Tool changer			
No. of tool pockets standard		22	22
Optional expandable up to		30	30
Max. tool diameter	[mm]	85	85
By free adjacent pockets	[mm]	135	135
Max. tool length	[mm]	400	400
Tool change time approx.	[s]	4	7
Accuracy			
Positioning accuracy ²	[mm]	± 0,015	± 0,015
Repeating accuracy	[mm]	± 0,005	± 0,005
Weight			
Standard version approx.	[kg]	8500	13000

¹ Main spindle drives

		100	110	111
Speed range	[rpm]	6000	6000	6000
Optional up to	[rpm]	15000	12000	12000
Max. torque (40% DC)	[Nm]	95	143	191
Max. power (40% DC)	[kW]	20	30	40

² Per 1000 mm per axis X/Y/Z

Tension in every detail

A firm and secure hold is the key to a faultless result. The requirements are just as different as the forms of the workpieces. Alongside fixing, other factors play an essential role when choosing the right clamping technology: cost effectiveness, operator convenience and machine reliability.

The AXA experts give the right advice on the choice of the right clamping technology: Regardless whether mechanical, hydraulic, magnetic or

vacuum technology – place your trust in our experience. Systems that already exist can also be integrated – just as much as individual solutions can be developed. Together with numerous partners, we find the correct clamping technology.

VCC and DBZ: Let's clamp together!

Clamping technology in its diversity:

- Chucks or clamping devices
- Machine vices
- Centering vices
- Box jaws
- Multiple clamping systems
- Clamping towers
- Simple table clamping systems
- Clamps of moulded parts with special clamping system

Automisation at every work cycle

Assured quality at optimal task repetition – the VCC and DBZ machining tool series fulfil such aspirations. Highly developed automisation technology plays an essential role in achieving this. Furthermore, it reduces production costs and protects staff from heavy and dangerous activities.

Automating the complex movements around loading and unloading workpieces as well as finding the

right choice of clamping technology belong just as much to an ideal automisation solution as workpiece machining and process control. AXA masters these requirements as well – individually created around customer requests. Here is where the decisive machine value added originates for production. Regardless whether this centres around a large production series or applications for the production of small series.

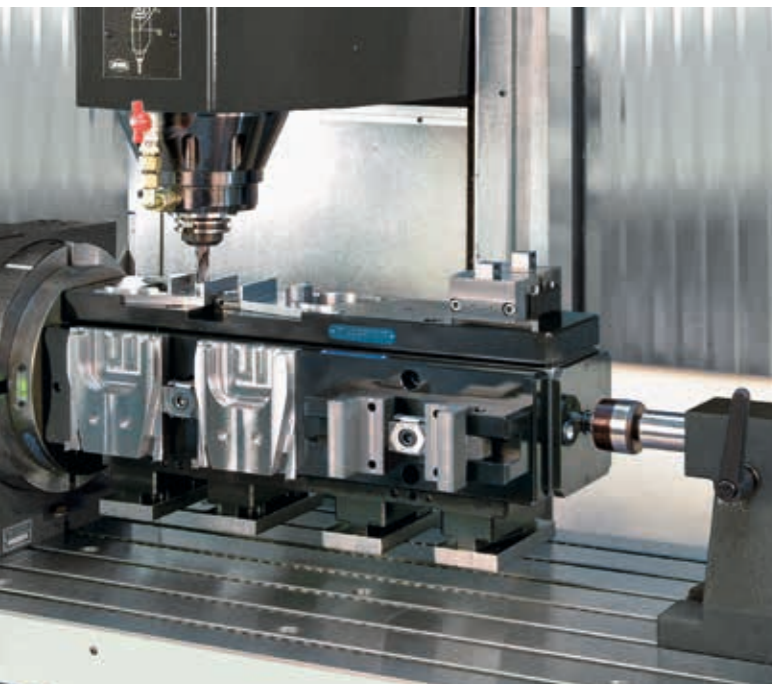
Engineering from AXA: Automatically finding a good solution!



Main body made of aluminium with integrated intake for handling systems, mounting pins for zero-point clamping and clamping devices for the workpiece



Quick and simple automisation by compact complete solution with workpiece storage, handling system and zero-point clamping



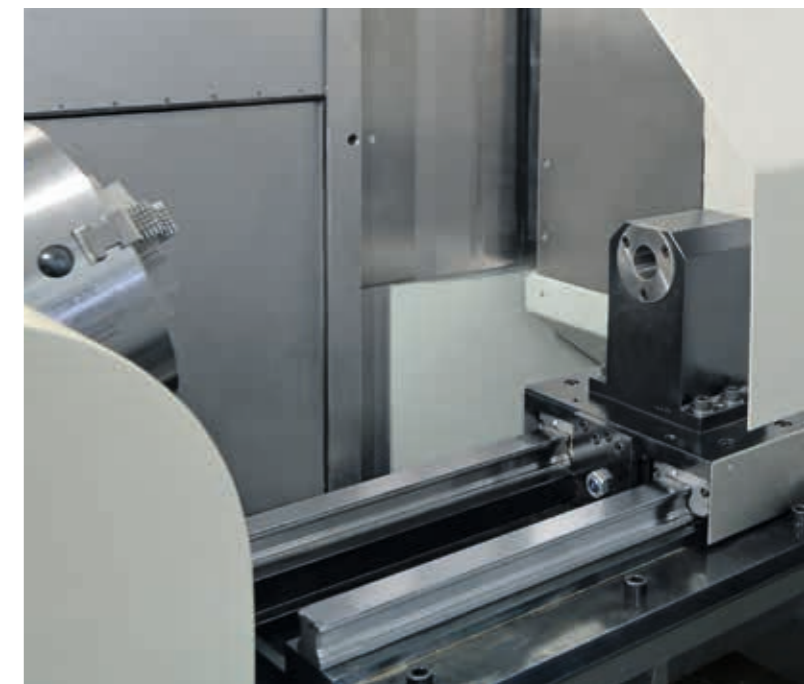
Rotary table with tailstock and swivel bridge for mechanical multiple clamping system



Installed industrial robot in front of the travelling column machine for direct machine loading and unloading with workpieces



2 axes NC-tilting rotary table from AXA with continuous 360° round axis and tilting axis from 0° to 90°



Tailstock can be manually adjusted for varying lengths of workpieces

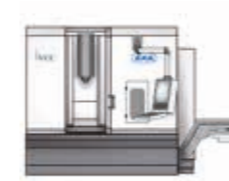
Product overview

VCC DBZ

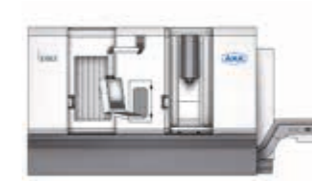
Vertical moving column machining centres in compact design in short bed version, with pendulum machining or with swivel rotary table

X-travel:	750 - 1200 mm 2 x 750 / 2 x 900 mm
Y-travel:	500 - 600 mm
Z-travel:	700 mm
Tool holder:	SK40 / 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:	SK40/50 / HSK A63/A100
Spindle power:	20 - 81 kW

VSC



VHC



VPC VPC-U

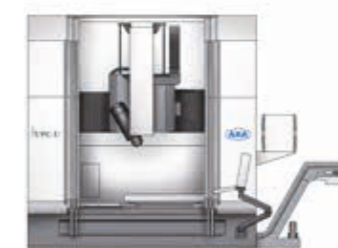
Gantry machining centres in compact design with vertical spindle or swivel head for 5-side-machining

X-travel:	2360 - 3000 mm
Y-travel:	1200 - 1600 mm
Z-travel:	500 - 900 mm
Tool holder:	SK40/50 / HSK A63/A100
Spindle power:	20 - 57 kW

VPC



VPC-U

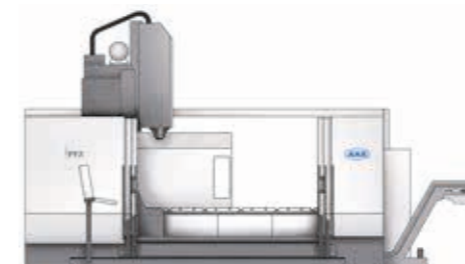


PFZ UPFZ

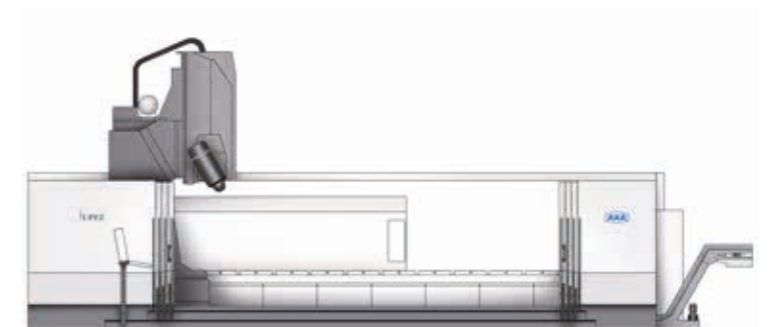
Large gantry machining centres with vertical spindle or swivel head for 5-side-machining

X-travel:	2000 - 12000 mm
Y-travel:	1500 - 4000 mm
Z-travel:	650 - 1200 mm
Tool holder:	SK40/50 / HSK A63/A100
Spindle power:	20 - 57 kW

PFZ



UPFZ



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