VERTICAL MACHINING CENTRES

VMC | VARIO | X-5

Fabryka Obrabiarek Precyzyjnych

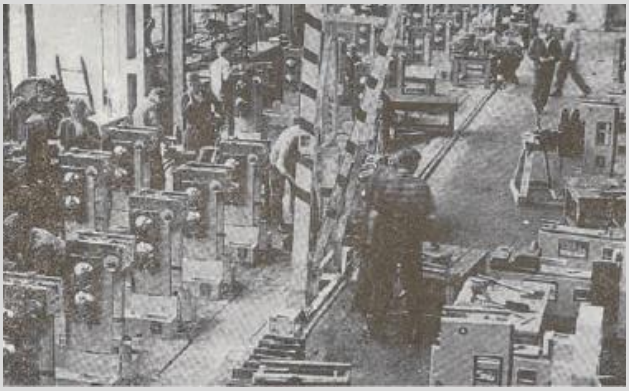
AVIA S. A.

ABOUT US...

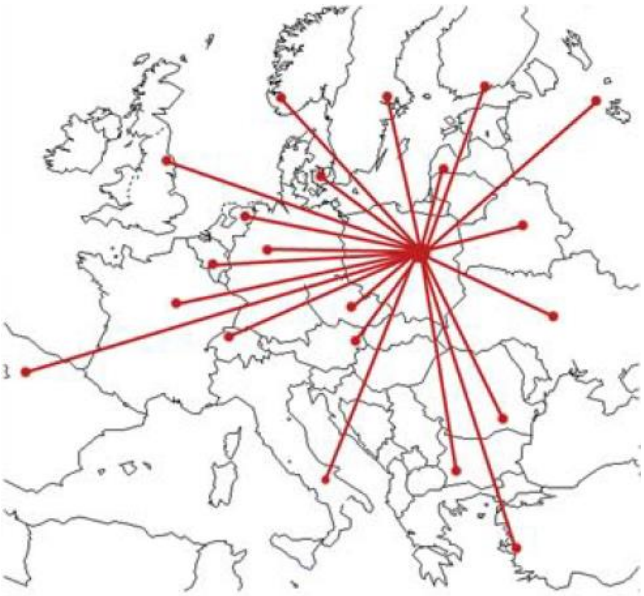
Fabryka Obrabiarek Precyzyjnych AVIA S.A. Warsaw, Poland (Machine Tool Factory AVIA S.A.) was founded in 1902 and is one from the oldest Polish industrial plants. For the past 70 years, AVIA has been one of the leading Polish manufacturers of high-quality, precision machine tools. Today, our brand is widely recognized in Europe, especially in Germany, where we have over 4,500 installations.

The presence of machine tools manufactured by us in demanding and industrialized markets ensures constant and continuous growth of production and increases the competitiveness of our customers. Proven AVIA machine solutions, depending on favourable prices, are also successfully featured in emerging markets in Eastern Europe.

At present, AVIA offers in its product line Vertical machining centres 3, 4 and 5-axis, CNC and Manual universal milling machines and CNC inclined bed lathes. AVIA is also a manufacturer of key components for machine tools such as: spindles or precision ball screws. We supply ball screws to some of the world's leading machine tool manufacturers.



Assembly line AVIA – Manual Universal Milling Machines - 1970



New machine designs are based on our own development and research department. The unique combination of very talented young engineers and very experienced designers who have worked at AVIA for many years ensures an ideal environment for development and research processes. Design proposals are created by computer systems such as:

- Solid Modelling Design (CAD-3D),
- Finite Element Method optimization,
- Computer Aided Manufacturing (CAM).

Our goal is not only to develop the latest technologies and deliver them to customers, but also to provide adequate training, service and maintenance of machines, as well as the availability of spare parts for many years after the machine has been handed over.

Company management and production:

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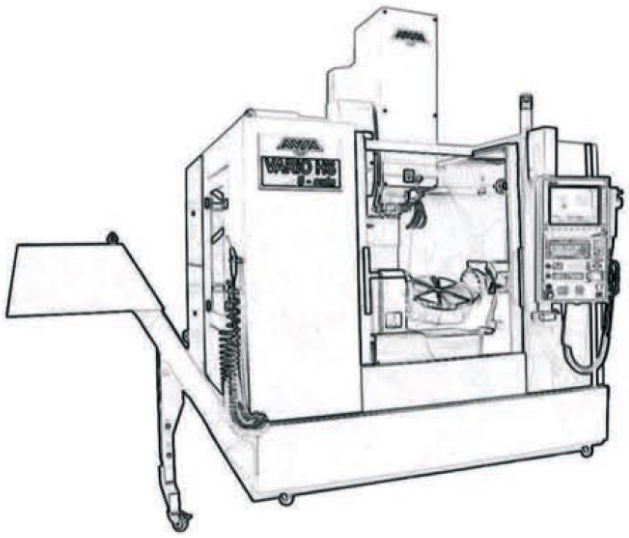
DISCOVER WIDE RANGE OF PRECISION VERTICAL MACHINING CENTRES OF AVIA

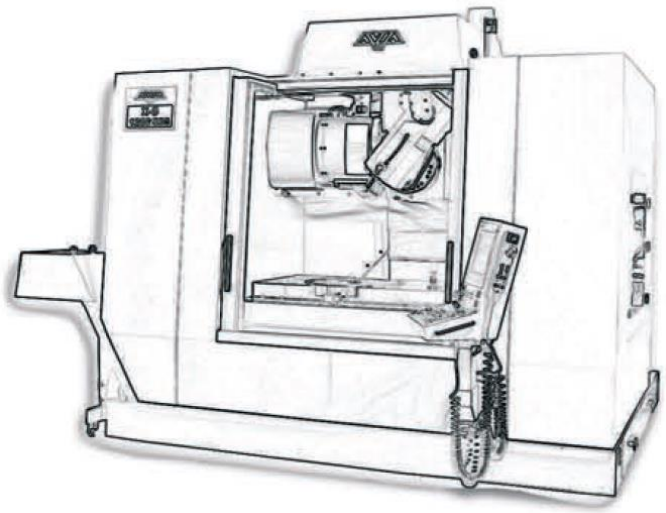


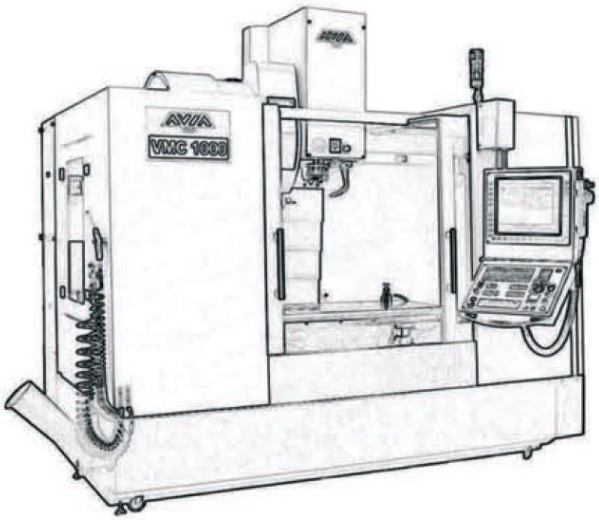
5-AXIS MACHINING CENTRES VARIO & VARIO HS SERIES

- continuous 5-axis machining solution
- rotary tilting table with a diameter of 450 mm
- table load 400 kg (incl. clamping) for large workpieces
- Directly driven rotary (A) and rotary (C) axes by a torque motor for peak dynamics
- wide selection of spindles from 10,000 to 24,000 rpm.
- acceleration in X / Y / Z axes up to 1G
- rapid traverse 42 m / min
- processing time of one block 0.5 ms, for CAM

5-AXIS MACHINING CENTRES X-5 SERIES

- the most versatile 5-axis machining centre for you
- continuously tilting head with a powerful motor spindle
- large diameter of the built-in rotary table 500/630 mm
- Heidenhain precision encoders ± 5 arc. sec. built-in rotary axes centres for highest accuracy
- large machining space allows machining of larger dimensions
- 5-axis continuous machining of medium-sized workpieces or 4-axis machining of large workpieces
- maximum load of the heavy workbench
- processing time of one block 0.5 ms

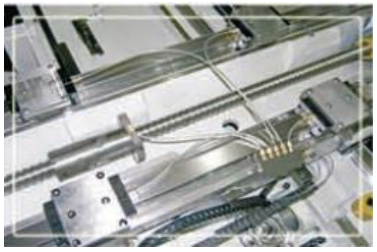




VERTICAL MACHINING CENTRES VMC & VMC HS SERIES

- world class CNC control HEIDENHAIN TNC 640HSCI standard, SIEMENS SINUMERIK 840D, FANUC 0i-TF - option
- processing time of one block 0.5 ms
- wide selection of spindles from 10,000 to 24,000 rpm.
- acceleration in X / Y / Z axes up to 1G
- rapid traverse 42 m / min
- positioning accuracy +/- 0.005 mm
- very rigid construction thanks to components that exceed the required standards from reliable suppliers
- the maximum permissible table load on the market
- rich standard equipment with useful accessories
- high accuracy and dynamics
- the best solution for HMS machining (HS series)

High-performance machining of hardened



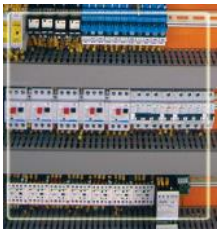
Central lubrication of roller guide and precision ball screws

Unlimited possibilities of continuous 5-axis machining on AVIA machines

Stainless steel protective covers

45 mm wide linear roller guide

FESTO central air for easy maintenance

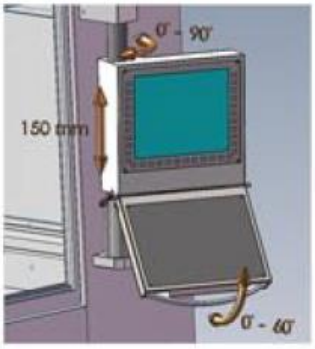


Electrical components from well-known European manufacturers are easily available

DISCOVER VERTICAL MACHINING CENTRES DESIGNER TO YOUR NEEDS

HEIDENHAIN TNC 640 HSCI

- most modern and reliable CNC control
- 21 GB SSDR space for all CNC programs
- processing time of one block 0.5 ms
- 19 "display for convenient control and programming
- High resolution 3D representation of the workpiece
    - control panel settings
    - height adjustment 150 mm
    - keyboard angle setting 0 - 60 st.
    - panel rotation setting 0 - 90 st.



AUTOMATIC TOOL CHANGER

- 30 tool positions in standard design,
- a reliable solution tested on hundreds of machines
- Quick change time 2.0 with tool - tool

IMPROVED ACCURACY AND DYNAMICS

- rapid traverse up to 42 m / min. shortens the time delay
- positioning accuracy up to +/- 0.005 mm
- repeatable accuracy up to 0.005 mm
- VMC series equipped with a spindle of 10,000 or 15,000 rpm
- VMC HS, VARIO and X-5 series equipped with electric spindle up to 24,000 rpm

Class C3 precision ball screws from AVIA. Double pre-tensioned nuts anchored at both ends for maximum accuracy and rigidity

RELIABLE KEY COMPONENTS

Precisely balanced (G0,4) spindle bearings made by AVIA are used for a long time, without failures at very high speeds and torques. Spindles from well-known suppliers.

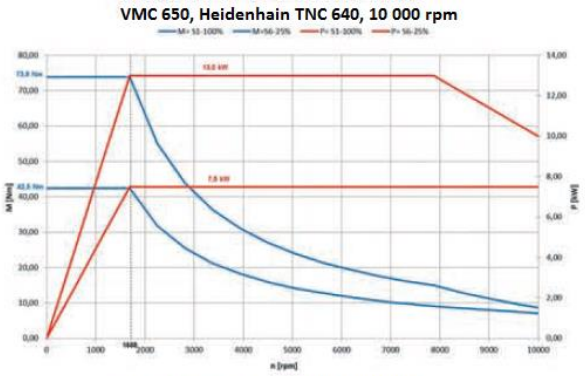
Available versions:
- 10,000 rpm belt drive
- 15,000 rpm direct drive
- 10,000 rpm electric spindle
- 18,000 rpm electric spindle
- 24,000 rpm electric spindle

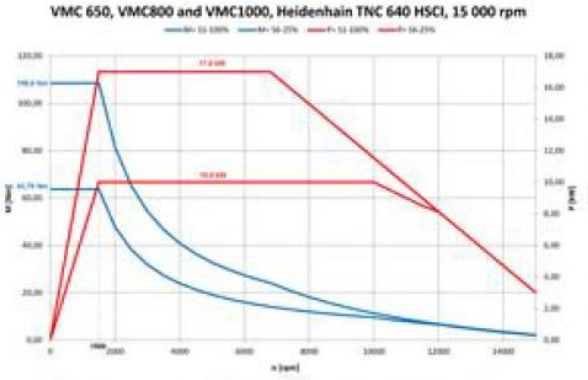
VMC SERIES

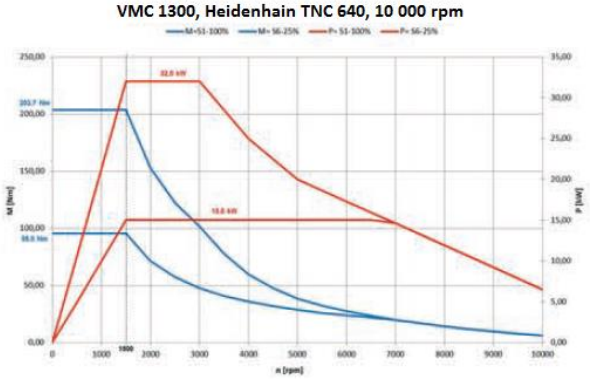
for demanding applications

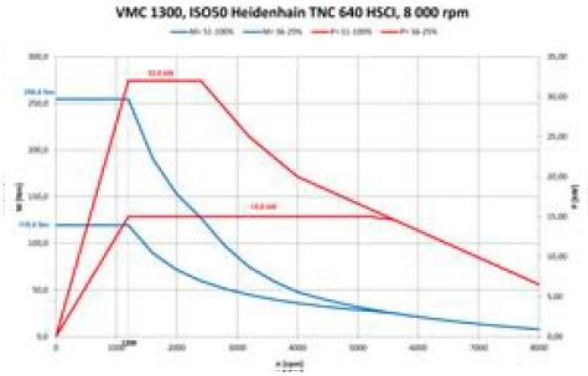
VMC SERIES

- very rigid construction, thanks to components from reliable suppliers that exceed the required standards
- large workspace with the largest table load capacity on the market
- reliable CNC systems from world-class suppliers: HEIDENHAIN TNC 640, SIEMENS SINUMERIK 840D, FANUC 0i-MF
- extremely rich basic standard equipment with very useful equipment
- high accuracy and dynamics
- the widest range of uses, according to the requirements of a modern workshop









Technical Data		VMC 650	VMC 800	VMC 1000	VMC 1300	
TABLE:						
Table size	mm	800 x 540	1000 x 540	1200 x 540	1500 x 710	
T-slots: number / size / height	mm	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100	5 / 18 / 125	
Load capacity of the table	kg	700	850	1000	1500	
TRAVELS:						
Longitudinal X	mm	650	800	1000	1300	
Transverse Y	mm	540	540	540	700	
Vertical Z	mm	620	620	620	670	
SPINDLE 10 000 rpm –belt drive						
Spindle speed	rpm	10 000	10 000	10 000	10 000	
Spindle taper		ISO 40	ISO 40	ISO 40	ISO 40	
Power S1 / S6 (25%) *	kW	7,5 / 13	10 / 17	10 / 17	15 /32	
Torque S1 / S6 (25%) *	Nm	42 / 73	56 / 96	56 / 96	95 / 204	
Distance spindle table	mm	150 - 770	150 - 770	150 – 770	100 – 770	
SPINDLE 15 000 rpm – direct drive						
Spindle speed	rpm	15 000	15 000	15 000	15 000	
Spindle taper		ISO 40	ISO 40	ISO 40	ISO 40	
Power S1 / S6 (25%) *	kW	10 / 17	10 / 17	10 / 17	10 / 17	
Torque S1 / S6 (25%) *	Nm	64 / 108	64 / 108	64 / 108	64 / 108	
Distance spindle table	mm	120 – 740	120 – 740	120 – 740	100 – 720	
SPINDLE ISO 50					belt	ZF trans.
Spindle speed	rpm	-	-	-	8 000	6 000
Spindle taper		-	-	-	ISO 50	ISO 50
Power S1 / S6 (25%) *	kW	-	-	-	15/32	15/32
Torque S1 / S6 (25%) *	Nm	-	-	-	119/254	382/815
Distance spindle table	mm	-	-	-	100-770	100-770
TOOL CHANGER:						
Tool changer type		Swing arm ATC (cam)	Swing arm ATC (cam)	Swing arm ATC (cam)	Swing arm ATC (chain)	
Number of tool positions	pcs	30	30	30	40	
Tool change time - tool	sec	2,0	2,0	2,0	2,0	
Max. tool diameter	mm	85 / 130**	85 / 130**	85 / 130**	75 / 130**	
Max. tool weight	kg	7	7	7	8	
Max. tool length	mm	300	300	300	300	
FEEDS:						
Feed X / Y / Z	m / min.	0 - 35 / 35 / 35	0 - 35 / 35 / 35	0 - 35 / 35 / 35	0 - 24 / 24 / 24	
Rapid feed	m / min.	35 / 35 /35	35 / 35 /35	35 / 35 /35	24 / 24 / 24	
CNC SYSTEM:						
Standard		HEIDENHAIN TNC 640 HSCI 19				
Optional		SIEMENS SINUMERIK 840D / HEIDENHAIN TNC 620 HSCI / FANUC 0i-MF Manual Guide I				
GENERAL INFORMATION:						
Positioning accuracy ***	mm	± 0,005	± 0,005	±0,005	± 0,005	
Repeatable accuracy ***	mm	0,005	0,005	0,005	0,005	
Total power consumption	kVA	25	27	27	45	
Dimensions: L x W x H	mm	2785 x 2650 x 2750	3065 x 2650 x 2750	3450 x 2600 x 2750	3550 x 3900 x 3000	
Weight approx.	kg	4400	4950	5300	9300	

* for HEIDENHAIN TNC640 / ** second pocket empty / *** acc. to PN-ISO 230-2

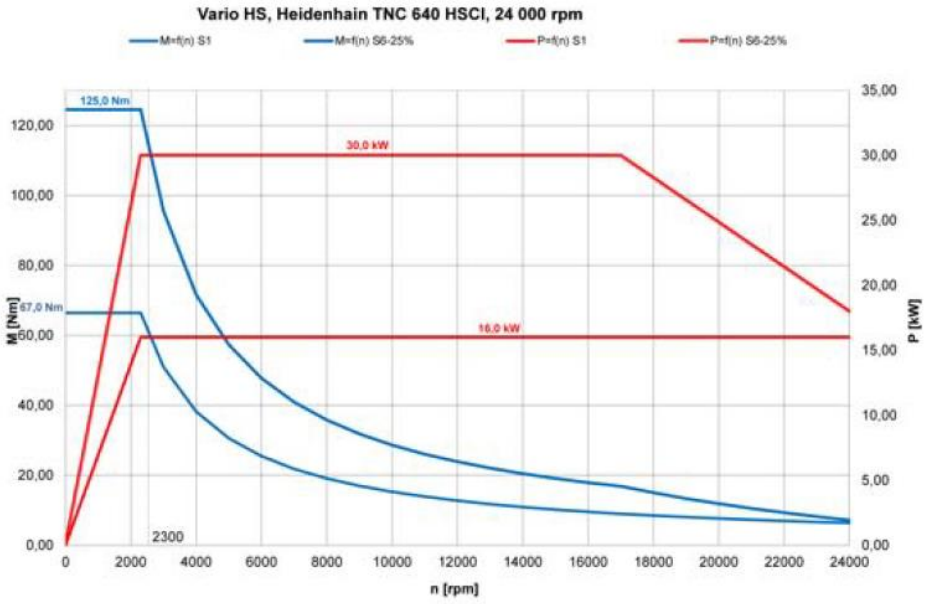
STANDARD:	
Linear roller guide for all axes	Coolant gun and air gun
Directly controlled ball screws on all three axes	Chip flushing system
Automatic tool changer	Electronic hand wheel HR510
Fully enclosed workspace	Worm chip conveyor
Ethernet, USB	Telescopic covers for all lines
Complete cooling system	Pulling pins 6 pieces
OPTIONAL:	
Heidenhain linear rulers for all three axes	Spindle thermal stabilization
Workpiece and tool probe	Hinge or scraper type chip conveyor
CTS spindle cooling (20 - 70 bar)	CAD / CAM software
ATS spindle cooling (5 bar)	Pallet exchange system
Air cooling of the tool (5bar)	Oil separator, Oil mist collection, paper, magnetic filtration
CNC rotary table (4th and 5th axis)	Teleservice, monitoring (industry 4.0)

VMC HS SERIES

your HSM solution

VMC HS SERIES

The best solution for high-speed machining thanks to:
- reliable electric spindle 24,000 rpm.
- rapid traverse 42 m / min.
- acceleration in X / Y / Z axes - 0.5 G
- acceleration in interpolation - 1 G
- fastest processing of one block - 0.5 ms



Technical Data		VMC 650 HS	VMC 800 HS	VMC 1000 HS
TABLE:				
Table size	mm	800 x 540	1000 x 540	1200 x 540
T-slots: number / size / height	mm	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100
Load capacity of the table	kg	700	850	1000
TRAVELS:				
Longitudinal X	mm	650	800	1000
Transverse Y	mm	540	540	540
Vertical Z	mm	620	620	620
ELECTROSPINDLE:				
Spindle speed	rpm	24 000	24 000	24 000
Spindle taper		HSK63A	HSK63A	HSK63A
Power S1 / S6 (25%) *	kW	16 / 30	16 / 30	16 / 30
Torque S1 / S6 (25%) *	Nm	67 / 125	67 / 125	67 / 125
Distance spindle table	mm	150 – 770	150 – 770	150 – 770
TOOL CHANGER:				
Tool changer type		Swing arm ATC (cam)	Swing arm ATC (cam)	Swing arm ATC (cam)
Number of tool positions	pcs	30	30	30
Tool change time - tool	sec.	2,0	2,0	2,0
Max. tool diameter	mm	85 / 130**	85 / 130**	85 / 130**
Max. tool weight	kg	7	7	7
Max. tool length	mm	300	300	300
FEEDS:				
Feeds X / Y / Z	m / min.	0 – 42 / 42 / 42	0 – 42 / 42 / 42	0 – 42 / 42 / 42
Rapid feeds X / Y / Z	m / min.	42 / 42 / 42	42 / 42 / 42	42 / 42 / 42
Acceleration X / Y / Z		till 1G	till 1G	till 1G
CNC SYSTEM:				
Standard	HEIDENHAIN	TNC 640 HSCI	TNC 640 HSCI	TNC 640 HSCI
Option	SIEMENS	840D-SL	840D-SL	840D-SL
GENERAL INFORMATION:				
Positioning accuracy ***	mm	± 0,005	± 0,005	± 0,005
Repeatable accuracy ***	mm	0,005	0,005	0,005
Total power consumption	kVA	40	40	40
Dimensions: L x W x H	mm	2785 x 2650 x 2750	3065 x 2650 x 2750	3450 x 2600 x 2750
Weight approx.	kg	4400	5300	5600

* for HEIDENHAIN TNC640 / ** second pocket empty / *** acc. to PN-ISO 230-2

STANDARD:

- Linear roller guide for all axes
- Directly controlled ball screws on all three axes
- Automatic tool changer
- Fully enclosed workspace
- Lighting system with lamp
- Ethernet, USB
- Spindle thermal stabilization
- Complete cooling system
- Coolant gun and air gun
- Chip flushing system
- Electronic handwheel
- Worm chip conveyor
- Telescopic covers for all lines
- Pulling pins 6 pieces
- Instructions for use and programming

OPTION:

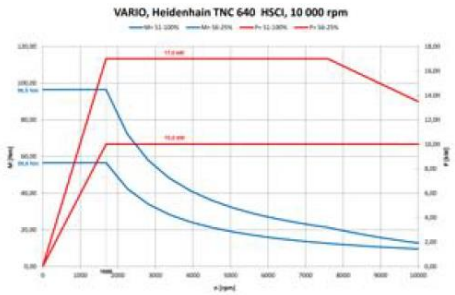
- Heidenhain linear scales for all three axes
- Workpiece and tool probe
- CTS spindle cooling (20 - 70 bar)
- ATS spindle cooling (5 bar)
- Air cooling of the tool (5bar)
- CNC rotary table (4th and 5th axis)
- Hinge or scraper type chip conveyor
- CAD / CAM software
- Pallet exchange system
- Paper or magnetic - paper filter
- Oil separator
- Oil mist collection
- others on request

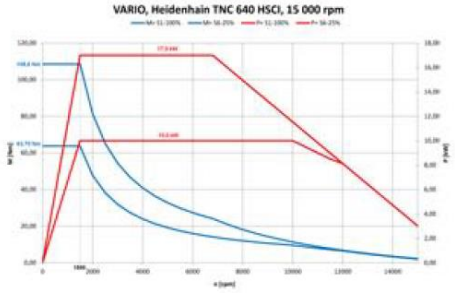
VARIO SERIE

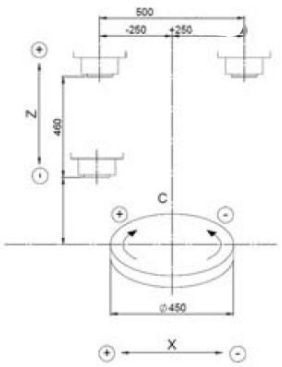
Continuous 5-axis Machining solution

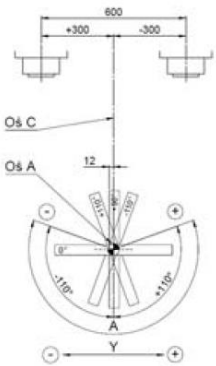
VARIO SERIES

The ideal solution for 5-axis continuous machining thanks to:
- rotary and tilting table diameter 450 mm with a load capacity of 400 kg
- directly driven tilted (A) and rotary (C) axes by a torque motor for peak dynamics
- precise Heidenhain encoders ± 5 arc. sec. built-in centres of rotary axes for the highest accuracy
- wide selection of spindles from 10,000 to 24,000 rpm. for different machining requirements
- acceleration in X / Y / Z axes up to 0.5 G, rapid traverse 42 m / min for maximum productivity
- processing time of one block 0.5 ms,









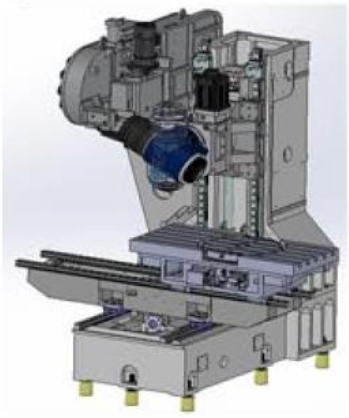
Technical Data		VARIO 5-axis	VARIO 5 HS 5-axis
TABLE:			
Table size	mm	Ø 450	Ø 450
T-slots: number / size / height	mm	6 / 14 / 60°	6 / 14 / 60°
Load capacity of the table	kg	400	400
Distance spindle table	mm	288	288
POJEZDY:			
Longitudinal X	mm	500 (580)	500 (580)
Transverse Y	mm	600	600
Vertical Z	mm	460	460
Tilt (A)	deg.	+110° / -110°	+110° / -110°
Rotation (C)	deg.	360°	360°
STANDARD SPINDLE:		**Belt drive**	**Electro spindle**
Spindle speed	rpm	10 000	24 000
Spindle taper		ISO 40	HSK63A
Power S1 / S6 (25%) *	kW	10 / 17	16/30
Torque S1 / S6 (25%) *	Nm	56 / 96	67/125
Distance spindle table	mm	115 – 575	110-570
Distance spindle table to tilting axis	mm	127 – 587	122-582
OPTION SPINDLE:		**Belt drive**	**Electro spindle**
Spindle speed	rpm	15 000	18 000
Spindle taper		ISO 40	HSK63A
Power S1 / S6 (25%) *	kW	10 / 17	25/43
Torque S1 / S6 (25%) *	Nm	64 / 108	86/120
Distance spindle table	mm	115 – 575	110-570
Distance spindle table to tilting axis	mm	127 – 587	122-582
TOOL CHANGER:			
Tool changer type		Swing arm ATC (cam)	
Number of tool positions	pcs	30	30
Tool change time - tool	sec	2,0	2,0
Max. tool diameter	mm	85 / 130**	85 / 130**
Max. tool weight	kg	7	7
Max. tool length	mm	300	300
FEEDS:			
Feeds X / Y / Z	m / min.	0 – 42 / 42 / 42	0 – 42 / 42 / 42
Rapid feeds X / Y / Z	m / min.	42 / 42 / 42	42 / 42 / 42
Speed of tilting and rotary (A/C) axes	rpm.	60 / 120	60 / 120
Continuous torque for tilting and rotary (A/C) axes	Nm	685/231	685/231
Clamping torque for tilting and rotary (A/C) axes	Nm	2500/1250	2500/1250
CNC SYSTEM:			
Standard	HEIDENHAIN	TNC 640 HSCI; 19" TFT	TNC 640 HSCI; 19" TFT
GENERAL INFORMATION:			
Positioning accuracy ***	mm	± 0,005	± 0,005
Repeatable accuracy ***	mm	0,005	0,005
Positioning accuracy of rotary axes***	sec.	±5“	±5“
Repeatable accuracy of rotary axes ***	sec.	2“	2“
Total power consumption	kVA	35	45
Dimensions: L x W x H	mm	3065 x 2650 x 2750	3065 x 2650 x 2750
Weight approx.	kg	5300	5300

* for HEIDENHAIN TNC640 / ** second pocket empty / *** acc. to PN-ISO 230-2

STANDARD:	
Linear roller guide for all three axes	Complete cooling system
Directly controlled ball screws on all three axes	Chip flushing system
Automatic tool changer	Chip conveyor
Fully enclosed workspace	Coolant gun and air gun
Lighting system with lamps	Software option 1 + 2 TNC 640 HSCI
Ethernet, USB	Telescopic covers for all lines
Electronic handwheel	Pull-out pins 6 pieces for ISO 40 spindle
Thermal stabilization of the spindle and the rotary and tilting table	Instructions for use and programming
OPTION:	
Heidenhain linear rulers for all three axes	Air cooling of the tool (5bar)
Workpiece and tool probe	Hinge or scraper type chip conveyor
CTS spindle cooling (20 - 70 bar)	CAD / CAM software
ATS spindle cooling (5 bar)	More on request

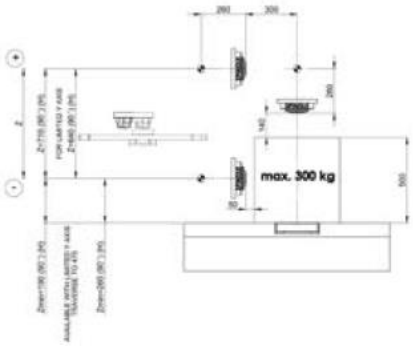
X-5 SERIES

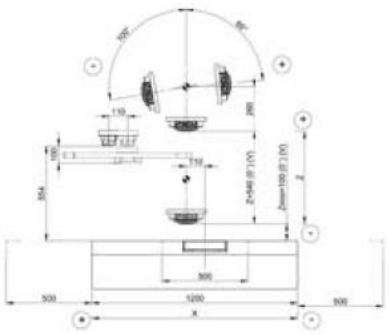
universal 5-axis machining centres with swivel head and rotary table

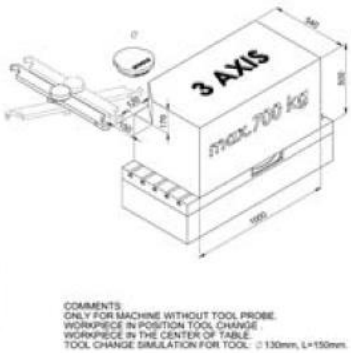


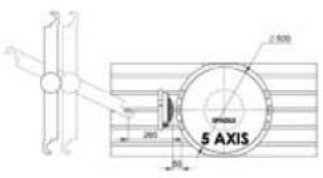
X-5 SERIES

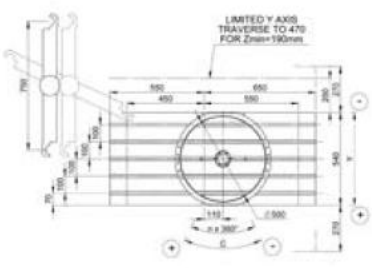
The most versatile 5-axis machining centre for your operation
- continuously controlled rotating head with a powerful electric spindle
- large diameter of the built-in rotary table 500 mm
- precise Heidenhain encoders +/- 5 arc.sec. built into rotary axes for the highest accuracy
- spacious work surface allows machining of large workpieces
- 5-axis machining of medium-sized workpieces or 4-axis machining of large workpieces
- heavy duty workbench
- processing time of one block 0.5 ms, for CAM created by 5-axis programming

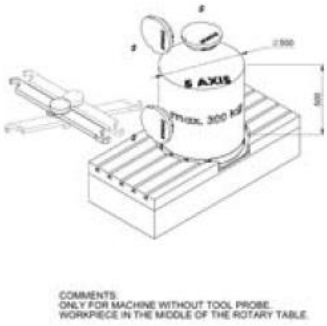








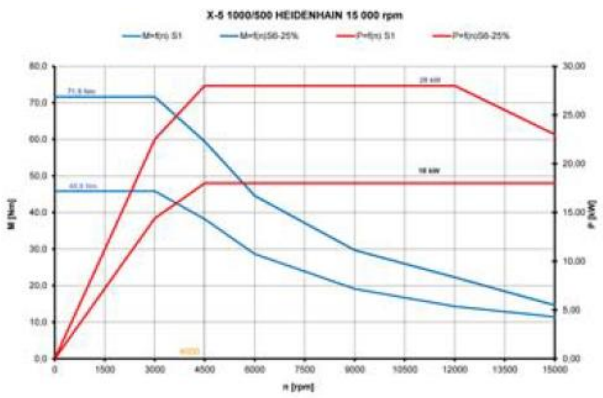




Technická Data		X-5 1000/500
TABLE:		
Table size	mm	1200 x 540 / Ø 500
T-slots: number / size / height	mm	5 / 18 / 100
Load capacity of the table / rotary	kg	700 / 300
TRAVELS:		
Longitudinal X	mm	1000
Transverse Y	mm	540
Vertical Z	mm	540 (V) / 640 (H)
Swivel head (B)	deg.	+110 / -85°
Rotary table (C, or A)	deg.	360° vertical axis (C)
Distance spindle table	mm	100 – 640
Distance spindle table to tilting 90 deg	mm	260 – 900
ELECTRO SPINDLE 15 000 RPM		
Spindle speed	rpm	15 000
Spindle taper		ISO 40
Power S1 / S6 (25%) *	kW	18/28
Torque S1 / S6 (25%) *	Nm	45/71
TOOL CHANGER:		
Tool changer type		Swing arm ATC (chain)
Number of tool positions	pcs	40
Max. tool diameter	mm	76 / 127 **
Max. tool length	mm	300
Max. tool weight	kg	7
FEEDS:		
Feeds X / Y / Z	m / min.	0 – 35 / 35 / 35
Rapid feeds X / Y/ Z	m / min.	35 / 35 / 35
Speed of B and C (A)	rpm.	30 / 100
Continuous torque for tilting and rotary (A/C) axes	Nm	520 / 231
Clamping torque for tilting and rotary (A/C) axes	Nm	1500 / 1250
CNC SYSTEM:		
Standard	HEIDENHAIN	TNC 640 HSCI; 19"TFT
GENERAL INFORMATION:		
Positioning accuracy ***	mm	± 0,005
Repeatable accuracy ***	mm	0,005
Positioning accuracy of rotary axes***	sec.	± 5"
Total power consumption	kVA	50
Dimensions: L x W x H	mm	3065 x 2650 x 2750
Weight approx.	kg	5 500

* for HEIDENHAIN TNC640 / ** second pocket empty / *** acc. to PN-ISO 230-2

STANDARD:	
Heidenhain rulers for all 3 axes and encoders for rotary axes	Thermal stabilization of the spindle and rotary table
Roller linear guide for all three axes	Complete cooling system
Directly controlled ball screws on all three axes	Chip flushing system
Automatic tool changer	Conveyor system for chip evacuation
Fully enclosed workspace	Coolant gun and air gun
Lighting system with lamps	Option 1 + 2 software for TNC 640
Ethernet, USB and RS 232 port	Telescopic covers for all lines
Electronic handwheel	Instructions for use and programming
OPTION:	
CTS spindle centre cooling (20 - 70 bar)	Tool probe
Air cooling of the tool (5bar)	Workpiece probe
Cooling of the tool with oil mist	CAD / CAM software
Dynamic Collision Control (DCM)	More on request



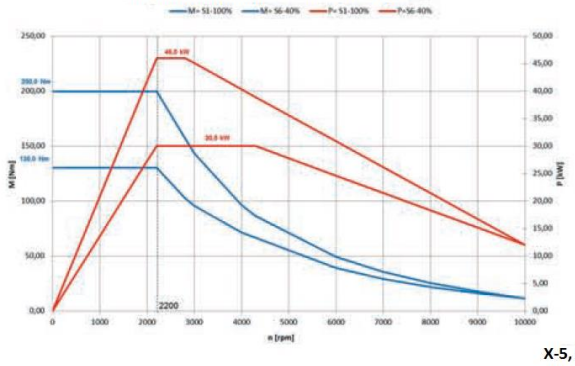
X-5 SERIES

universal 5-axis machining centres with swivel head and rotary table

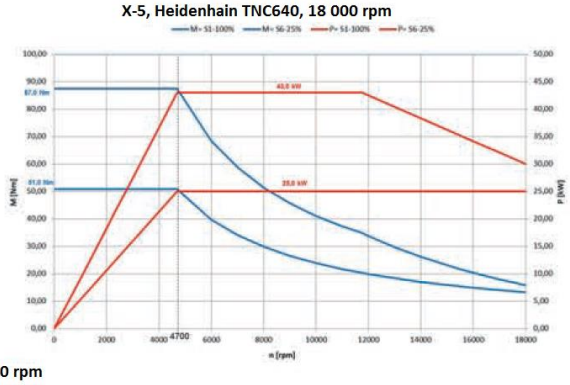
X-5 SERIES

The most versatile 5-axis machining centre for your operation
- continuously controlled rotating head with powerful motor spindles
- large diameter of the built-in rotary table 630 mm, or 400 mm with a horizontal axis
- precise Heidenhain encoders +/- 5 arc. sec. built-in centres of rotary axes for the highest accuracy
- spacious work surface allows machining of large workpieces
- 5-axis machining of medium-sized workpieces or 4-axis machining of large workpieces
- heavy duty worktable, maximum load
- processing time of one block 0.5 ms, for CAM created by 5-axis programming
- possibility of turning - machining for the most versatile X-5 MILLturn

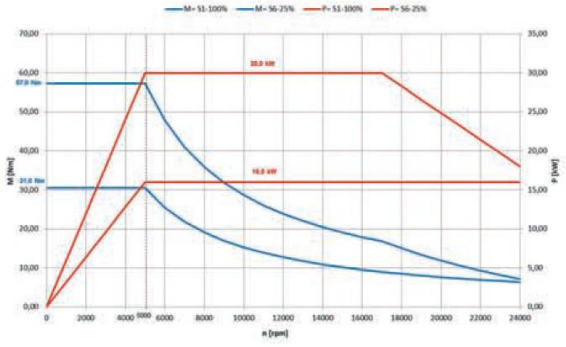
X-5, Heidenhain TNC640, 18 000 rpm



X-5, Heidenhain TNC640, 18 000 rpm



X-5, Heidenhain TNC640, 24 000 rpm

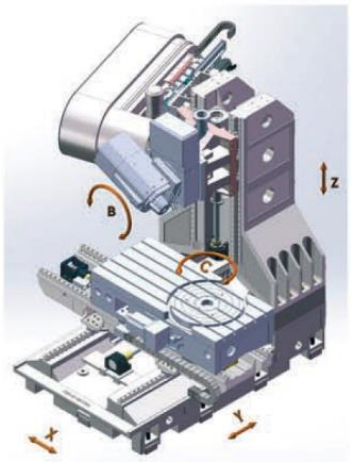


Technical Data		X-5 1300/630	X-5 1300/400 Blademaker	X-5 MILLturn
TABLE:				
Table size	mm	1500 x 710 / Ø 630	1500 x 710 / Ø 400	1500 x 710 / Ø 630
T-slots: number / size / height	mm	5 / 18 / 125	5 / 18 / 125	5 / 18 / 125
Load capacity of the table / rotary	kg	1000 / 700	1000 / 400	1000 / 500
TRAVELS:				
Longitudinal X	mm	1300	1300	1300
Transverse Y	mm	700	700	700
Vertical Z	mm	710	810	710
Swivel head (B)	deg.	+115 / -85°	+115 / -85°	+115 / -85°
Rotary table (C, or A)	deg.	360°	360°	360°
Distance spindle table	mm	90 – 800	219 – 929	90 – 800
Distance spindle table to tilting 90 deg	mm	260 – 970	389 – 1099	260 – 970
ELECTROSPINDLE 18 000 rpm				
Spindle speed	rpm.	18 000	18 000	18 000
Spindle taper		HSK63A	HSK63A	HSK63A
Power S1 / S6 (25%) *	kW	25 / 43	25 / 43	25 / 43
Torque S1 / S6 (25%) *	Nm	86 / 146	86 / 146	86 / 146
ELECTROSPINDLE 10 000 rpm – Option				
Spindle speed	rpm.	10 000	10 000	10 000
Spindle taper		HSK63A	HSK63A	HSK63A
Power S1 / S6 (25%) *	kW	30 / 46	30 / 46	30 / 46
Torque S1 / S6 (25%) *	Nm	130 / 200	130 / 200	130 / 200
ELECTROSPINDLE 24 000 rpm – Option				
Spindle speed	rpm.	24 000	24 000	24 000
Spindle taper		HSK63A	HSK63A	HSK63A
Power S1 / S6 (25%) *	kW	16 / 30	16 / 30	16 / 30
Torque S1 / S6 (25%) *	Nm	67 / 125	67 / 125	67 / 125
TOOL CHANGER:				
Tool changer type			swing arm ATC (chain)	
Number of tool positions	pcs	40	40	40
Max. tool diameter	mm	75 / 150**	75 / 150**	75 / 150**
Max. tool length	kg	8	8	8
Max. tool weight	mm	300	300	300
FEEDS:				
Feeds X / Y / Z	m / min.	0 – 24 / 24 / 24	0 – 24 / 24 / 24	0 – 24 / 24 / 24
Rapid feeds X / Y/ Z	m / min.	24 / 24 / 24	24 / 24 / 24	24 / 24 / 24
Speed of B and C (A)	rpm.	33,3 / 25	33,3 / 16,7 (A)	33,3 / 500
Continuous torque for tilting and rotary (A/C) axes	Nm	1 500 / 1 800 (C)	1 500 / 800 (A)	1 500 / 1 800 (C)
Clamping torque for tilting and rotary (A/C) axes	Nm	3 000 / 4 500 (C)	3 000 / 2 000 (A)	3 000 / 4 500 (C)
CNC SYSTEM:				
Standard	HEIDENHAIN	TNC 640 HSCI; 19"TFT	TNC 640 HSCI; 19"TFT	TNC 640 HSCI; 19"TFT
Option	SIEMENS	840D SL 19"	840D SL 19"	-
GENERAL INFORMATION:				
Positioning accuracy ***	mm	± 0,005	± 0,005	± 0,005
Repeatable accuracy ***	mm	0,005	0,005	0,005
Positioning accuracy of rotary axes***	sec.	± 5"	± 5"	± 5"
Total power consumption	kVA	65	65	65
Dimensions: L x W x H	mm	3500 x 4100 x 3200	3500 x 4100 x 3200	3500 x 4100 x 3200
Weight approx.	kg	12 800	12 800	12 800

* for HEIDENHAIN TNC640 / ** second pocket empty / *** acc. to PN-ISO 230-2

STANDARD:	
Heidenhain rulers for all 3 axes and encoders for rotary axes	Thermal stabilization of the spindle and rotary table
Roller linear guide for all three axes	Complete cooling system
Directly controlled ball screws on all three axes	Chip flushing system
Automatic tool changer	Conveyor system for chip evacuation
Fully enclosed workspace	Coolant gun and air gun
Lighting system with lamps	Option 1 + 2 software for TNC 640
Ethernet, USB and RS 232 port	Telescopic covers for all lines
Electronic handwheel	Instructions for use and programming
OPTION:	
CTS spindle centre cooling (20 - 70 bar)	Tool probe
Air cooling of the tool (5bar)	Workpiece probe
Cooling of the tool with oil mist	CAD / CAM software

DISCOVER BASIC VERSIONS OF MACHINE SERIES X-5



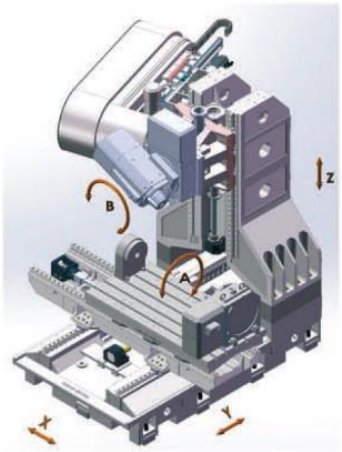
X-5 1300/630

4 axis solves the rotation of a large rotary table with a diameter of 630 mm built into a straight table 1500x710 mm

The 5th axis is provided by a continuously controlled tilting head with a built-in electric spindle. Tilt range +115 / -85st.

This solution increases the versatility of using this machining centre. 4-axis machining of large workpieces and 5-axis machining of medium-sized workpieces on one machine.

This machine is ideally suited for machining complicated workpieces as well as mold making.



X-5 1300/400 BLADEMAKER

4 axis solves the rotation of a large rotary table with a diameter of 400 mm (horizontal axis) mounted on a flat table 1500x710 mm

The 5th axis is provided by a continuously controlled tilting head with a built-in electric spindle. Tilt range +115 / -85st.

This model is made for processing blade-shaped workpieces for various types of turbines

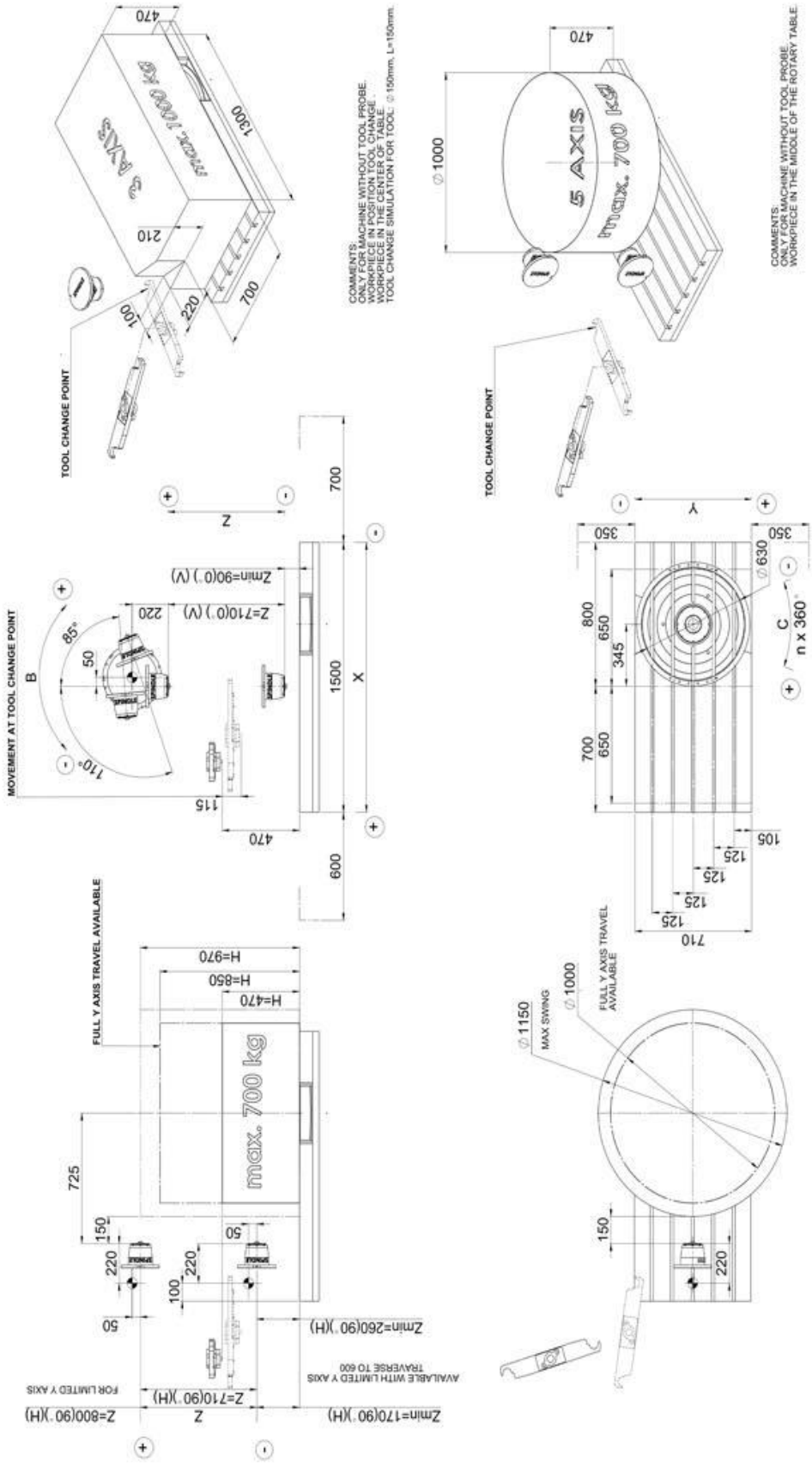
The machine can also be used for 4-axis machining of large molds as well as press tools if the rotary table is removed from a straight table.

X-5 MILLturn

FOR MILLING AND TURNING

CNC swivel head with electric spindle 18,000 rpm with built-in brakes and mechanical lock in three positions for the B axis as standard.
CNC rotary table (C axis) with a diameter of 630 mm driven by a torque motor with a maximum speed of 500 rpm.

Application: Shooting without the need to remove details from the machine. Perform planning, internal and external turning, chamfering and grooving directly in the machining centre. All thanks to the best components and the TNC 640 control


5 AXIS
max. 700 kg
TOOL CHANGE POINT
COMMENTS:
ONLY FOR MACHINE WITHOUT TOOL PROBE
WORKPIECE IN POSITION TOOL CHANGE
WORKPIECE IN THE CENTER OF TABLE
TOOL CHANGE SIMULATION FOR TOOL: ⌀150mm, L=150mm
MOVEMENT AT TOOL CHANGE POINT
FULL Y AXIS TRAVEL AVAILABLE
FOR LIMITED Y AXIS
AVAILABLE WITH LIMITED Y AXIS
TRAVERSE TO 600
MAX SWING
FULL Y AXIS TRAVEL AVAILABLE
COMMENTS:
ONLY FOR MACHINE WITHOUT TOOL PROBE
WORKPIECE IN THE MIDDLE OF THE ROTARY TABLE

Discover more technological capabilities…

Automatic measuring solutions

A selection of tool and workpiece probes are available from reliable leading suppliers:
- tool touch probes (infrared and with cable)
- automatic workpiece probes
- laser tool probes
-separate measuring stations acc. to customer requirements

Efficient chip management

The effective chip removal system should be set according to the type of materials used and the type of chips.
The standard screw conveyor can be replaced by:
- scraper type chip conveyor
- hinge type chip conveyor

Hinge type

Scraper type

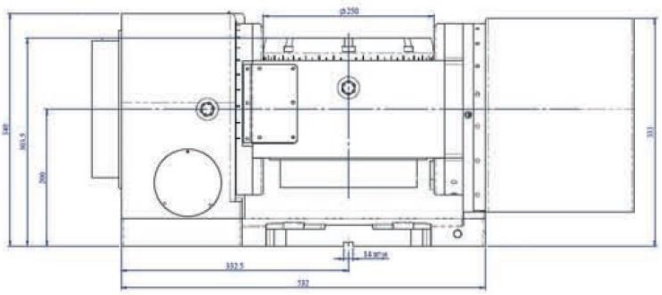
Selection of rotary tables -4th axis

Reliable solution for demanding applications.
- 4th axis with table diameter 150 to 400 mm
- worm gear / transmission for high torque
- torque motors for high-speed and special applications (including turbine blade drive)

dia 350 mm dia 250 mm dia 200 mm torque motor table

Rotary-tilting table 4th and 5th axis

Original equipment from AVIA expands the possibilities of Vertical Machining Centres with additional technologies and efficiency. A rotary tilting table (4th and 5th axis options) with a diameter of 200 mm can be installed along the Y axis to save working space.



…thanks to optional equipment available with your AVIA machine tools

Never ending options list

Spindle cooling (CTS) 20 bar or 70 bar with coolant tank.

Air-cooled spindle (ATS) and air-cooled tool (5bar)

Separation filter station with paper filter

Water curtain around the spindle for dusty material, eg graphite

Separation of oil mist from the working space with air filtration

The mechanical oil separator extends the life of the coolant

Thermal stabilization of the spindle with heatsink

Preparation of robotics and automation for serial production

CTS 20 bar or CTS 70 bar

water curtain around spindle

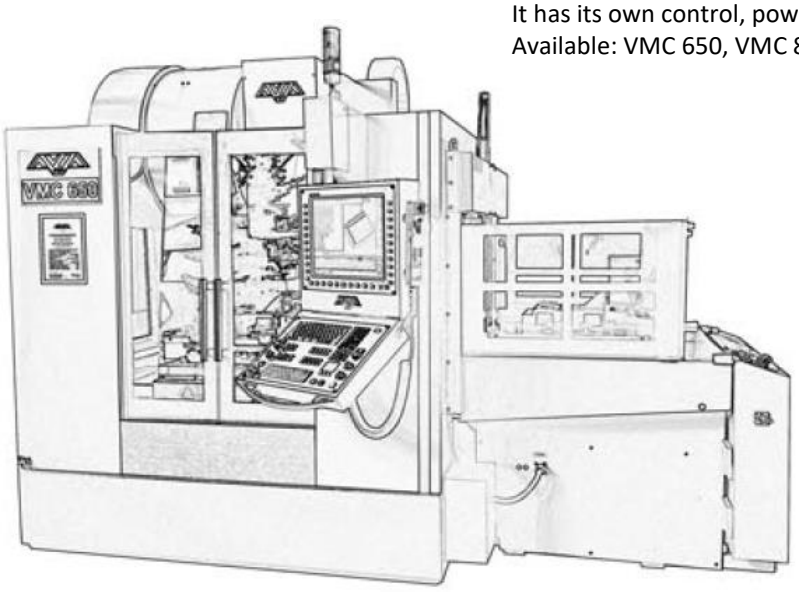
paper filter

oil mist separate

dedicated technological solutions

Pallet changer for simplest automation

Automate your production with a reliable and fast solution.
Pallet changer can be ordered with the machine or added to your existing solution.
It has its own control, power supply and air connection.
Available: VMC 650, VMC 8000, VMC 1000



Main technical data

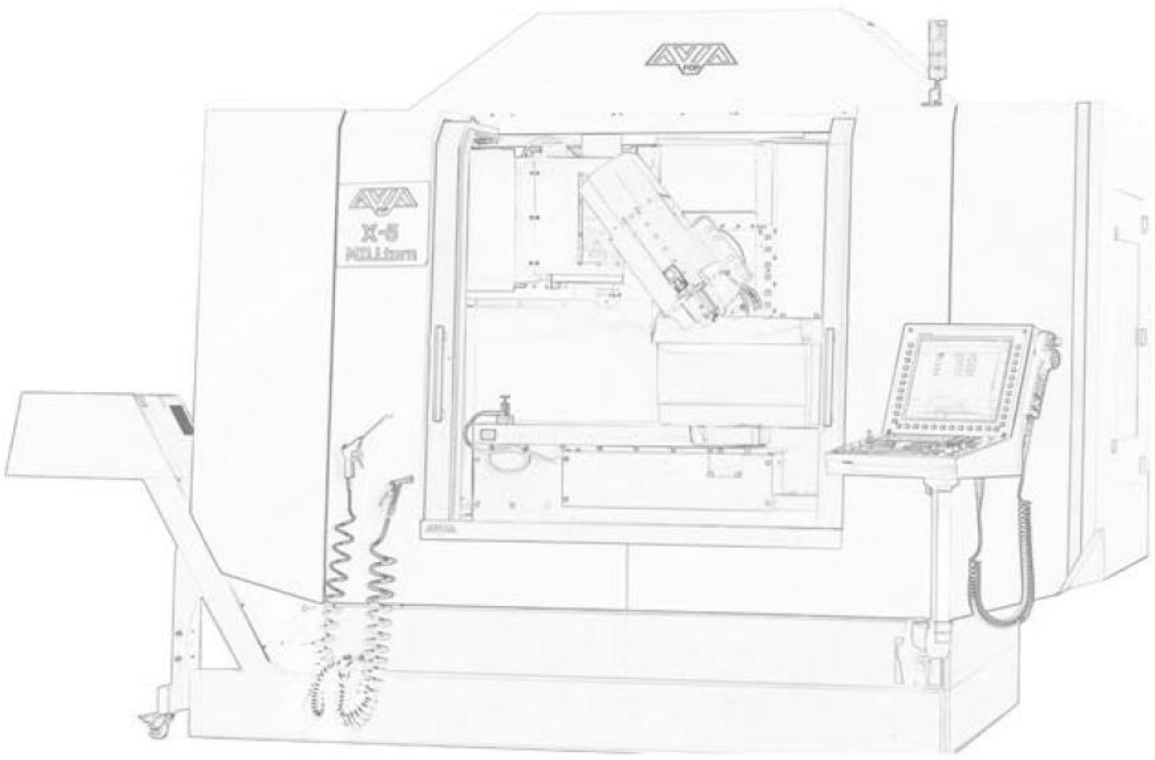
Pallet size: 800 x 490 mm

Number of pallets: 2 pieces

Pallet change time: 15 s

Load capacity: 450 kg / skin

Pallet top: tapped holes M12 - 35 pieces
optional T-slots available



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