

VERTICAL MACHINING CENTRES VMC | VARIO | X-5





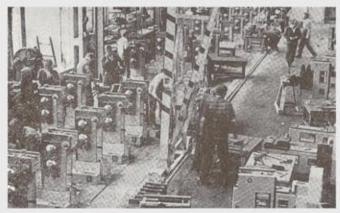
Fabryka Obrabiarek Precyzyjnych AVIA S.A.

ABOUT US...

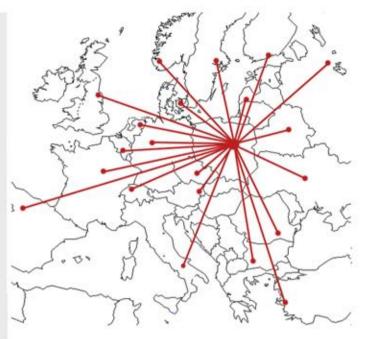
Fabryka Obrabiarek Precyzyjnych AVIA S.A. Warsaw, Poland (Precision Machine Tools Factory AVIA S.A.) was established in 1902 and is one of the oldest Polish industrial plants. For the last 70 years AVIA has been one of the leading Polish manufacturers of high quality machine tools. Nowadays our brand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

Presence of our machine tools on highly industrialized markets stimulates constant growth and competitiveness of our Customers. Proven solutions from AVIA brand also support development of emerging markets in eastern part of Europe.

At present AVIA offers in its product range series of Vertical Machining Centres 3, 4 and 5 axis (continuous), CNC and Manual Universal Milling Machines and Slant Bed CNC Lathes. AVIA is also the manufacturer of machine tools key components i.e. spindles and precision ground ballscrews. We are supplier of ballscrews to some world leading machine tools producers.



Assembly line of AVIA Manual Universal Milling Machines - 1970's



New machine tool designs are made by our own R&D Department. The unique combination of highly skilled young engineers and very experienced designers, being with AVIA for many years, ensures that special "environment" of Research and Development process. Designs are made using computer systems for:

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

Our aim is not only to develop state-of-the-art machines and deliver them to the Customers, but also to provide training, service and maintenance support as well as the spare parts availability for many years after sale of the machine.

Company Headquartes and Factory:

FABRYKA OBRABIAREK PRECYZYJNYCH AVIA S.A. ul. Siedlecka 47 03-768 Warsaw POLAND Contact data:

 Headquarters:
 +48 22 818 62 11

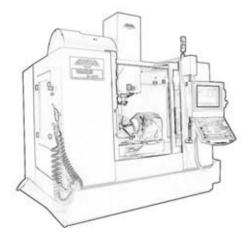
 Sales dept.:
 +48 22 619 90 81

 Fax:
 +48 22 818 29 54

 market@avia.com.pl

 www.avia.com.pl

DISCOVER WIDE RANGE OF PRECISION VERTICAL MACHINING CENTRES OF AVIA |

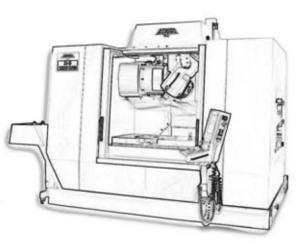


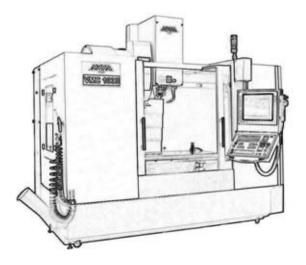
5-AXIS MACHINING CENTRES VARIO & VARIO HS SERIES

- continuous 5-axis machining solution,
 450 mm diameter rotary-tilting table,
- 450 mm diameter rotary-titting table,
- 400 kg max. table load (with fixture) for large workpieces,
- direct drive of tilting (A) and rotary (C) axes, by torque motors for top dynamics,
- wide choice of spindles from 10 000 do 24 000 rpm, for different machining requirements,
- acceleration in X/Y/Z axes up to 1 G,
- rapid traverse 42 m/min, for maximum productivity,
- program single block processing time 0,5 ms, for CAM generated 5-axis programs.

5-AXIS MACHINIG CENTRES X-5 SERIES |

- the most versatile 5-axis machining centre for your job-shop,
- continuously controlled swivel head with powerful motorspindles,
- large diameter built-in 500 or 630 mm rotary table,
- precision Heidenhain encoders +/- 5 arc. sec. built-in rotary axes centres for highest accuracy,
- spacious working area allows machining of large cubic work pieces,
- 5-axis simultaneous or 5-side machining of medium size workpieces or 4-axis machining of large size workpieces,
- heavy duty work table maximum loads,
- program single block processing time 0,5 ms, for CAM generated 5-axis programs.





VERTICAL MACHINIG CENTRES VMC & VMC HS SERIES |

- high world-class HEIDENHAIN TNC 640 CNC control in std. SIEMENS SINUMERIK 840D, FANUC 0i-TF - option,
- program single block processing time 0,5 ms,
- wide choice of spindles 10 000 do 24 000 rpm,
- rapid traverse up to 42 m/min,
- acceleration in X/Y/Z axes up to 1 G,
- positioning accuracy reaches +/- 0,005 mm
- very rigid design thanks to mechanical components exceeding required standards, from reliable suppliers,
- large working area with heaviest allowable table loads on the market,
- exceptionally rich standard execution with useful equipment,
- highly accurate and dynamic,
- best solution for HSM machining (HS series).







High-performance machining in hardened material



Centralized lubrication for roller guideways and precision ground ballscrews



Limitless capabilities of continuous 5-axis machining on AVIA machine toolsa



Interior made of stainless steel



Wide linear roller guideways - 45 mm



Centralized FESTO pneumatic equipment for easy maintenance



Electric components from reliable suppliers, easily available on the market for maintenance

DISCOVER VERTICAL MACHINING CENTRES DESIGNED TO YOUR NEEDS |

HEIDENHAIN TNC640 |

- most modern and reliable CNC control,
- 21 GB SSDR space for all your CNC programs,
- single block processing time in standard 0,5 ms,
- 19-inch large display for comfortable operations and programming at the machine tool,
- control panel re-designed and thought for users : # height adjustment 150 mm,

IMPROVED ACCURACY AND DYNAMICS

- rapid traverse up to 42 m/min shortens idle times,

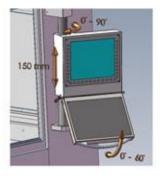
VMC series executed with 10 000 or 15 000 rpm spindles,
 VMC HS, VARIO and X-5 series executed with motorspindles

positioning accuracy up to +/- 0,005 mm,
repeatability of positioning up to 0,005 mm,

up to 24 000 rpm.

- # keyboard tilting range 0° 60°,
- # rotary display 0° 90°.





REGULATION IN 3 PLANES





AUTOMATIC TOOL CHANGER |

- 30 tools capacity swing arm ATC in standard execution,
- reliable solution tested in hundreds of machine tools,
- fast tool change time 2,0 s tool-to-tool.







Precision ground C3 class ballscrews made by AVIA. Double nut, preloaded design and anchored at both ends for maximum accuracy and rigidity.



RELIABLE KEY COMPONENTS |

Precisely balanced (G0,4) cartridge housed spindles made by AVIA are used for long time, breakage free operation with very high rpm and high torque. Motorspidles come from well-known suppliers. Availability of versions:

- 10 000 rpm belt drive,
- 15 000 rpm direct drive,
- 10 000 rpm motorspindle,
- 18 000 rpm motorspindle,
- 24 000 rpm motorspindle.





VMC SERIES for demanding applications



VMC SERIES |

- very rigid design thanks to mechanical components, exceeding required standards, from reliable suppliers,

- large working areas with heaviest allowable table load on the market,

- reliable CNC systems from world-class suppliers: HEIDENHAIN TNC640 19", SIEMENS 840D 19", FANUC 0i-15"

- exceptionally rich standard execution with very useful equipment,

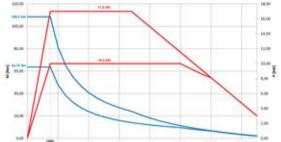
- highly accurate and dynamic,

- widest range of application in order to meet modern workshop requirements.

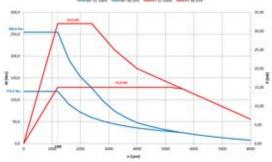
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AVIA | VERTICAL MACHINING CENTRES

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Spindle targer ISO 40 ISO 40 ISO 40 ISO 40 ISO 40 Mar, power S1 / S6 (25%)* Nm 64/108 64/108 64/108 64/108 Mar, power S1 / S6 (25%)* Nm 64/108 64/108 64/108 64/108 Mar, power S1 / S6 (25%)* Nm 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 120 / 740 150 / 740 Spindle targer rpm n/a n/a n/a 170 a 170 / 740 120 /	Technical data		VMC 650	VMC 800	VMC 1000	VMC 1300	
Table surface mm 800 s 540 1000 s 540 1200 s 540 1500 s 710 Table surface kg 700 830 1000 5718 / 100 Max table load kg 700 830 1000 5718 / 100 Max table load kg 700 830 1000 5718 / 100 Max table load mm 650 830 1000 1000 Signific taper 100000 10000 10000 10000 10000 Max spinde taper 100000 10000 10000 10000 10000 Max spinde taper mm 150 / 770 <	TABLE:						
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Wertical (20)mm6.20 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
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Mare spinale torque \$1,56 (25%)* Nm 42,73 56/56 56/56 95/204 Min, Max. distance from spinale nose mm 150 / 770 150 / 770 150 / 770 150 / 770 100 / 770 SPINDE 15 000 pm - direct drive mm 15 000 15 000 15 000 15 000 15 000 Max. spinale toper SFINDE 15 000 15 000 15 000 15 000 15 000 15 000 15 000 15 000 15 000 15 000 10 00 / 720 100 / 720 <td></td> <td>12220</td> <td></td> <td></td> <td></td> <td>57,70,470</td>		12220				57,70,470	
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to table surface mm 150 / 7/0 <t< td=""><td>Max spindle torque S1 /S6 (25%)*</td><td>Nm</td><td>42/73</td><td>56/96</td><td>56/96</td><td>95/204</td></t<>	Max spindle torque S1 /S6 (25%)*	Nm	42/73	56/96	56/96	95/204	
SPINUE 15 000 pm - direct drive view Max, spindle speed rpm 15 000 10 07 720 100 770 <td></td> <td>mm</td> <td>150 / 770</td> <td>150 / 770</td> <td>150 / 770</td> <td>100 / 770</td>		mm	150 / 770	150 / 770	150 / 770	100 / 770	
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Spindle inser_ ISO 40 ISO 40 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
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Max spindle torque 51 / 56 (25%) * Nm 64/108 64/108 64/108 64/108 64/108 64/108 64/108 64/108 100 / 720 to table surface m/a 120 / 740 120 / 740 120 / 740 100 / 720 SPINDLE 300 rpm - belt drive m/a n/a n/a N/a 8000 Spindle toger n/a n/a n/a N/a 8000 Spindle togre 51 / 56 (25%)* Nm n/a n/a n/a 100 / 700 Max spindle torque 51 / 56 (25%)* Nm n/a n/a n/a 100 / 700 Not table surface mm n/a n/a n/a 100 / 700 100 / 700 Tool changer type swinging arm ATC (cam type) swinging arm ATC (cam type) (can type) (Spindle taper		ISO 40	ISO 40	ISO 40	ISO 40	
Min. / Max. distance from spindle nose Mm 120/740 120 / 740 120 / 740 100 / 720 SPINDLE 8000 rpm - bat drive N/a n/a n/a n/a N/a 150 / 740 150 / 720 Spindle taper rpm n/a n/a n/a n/a N/a 150 / 50 Spindle taper mn n/a n/a n/a n/a 119/254 Max. power 51 / 55 (25%)* Nm n/a n/a n/a 100 / 770 Nin / Max. distance from spindle nose mm n/a n/a n/a 100 / 770 to table surface mm n/a n/a n/a 100 / 770 to table surface Tool changer type	Max. power S1 / S6 (25%)*	kW	10/17	10/17	10/17	10/17	
bo table synface SPINDE 8 000 pmm - bolt drive Max. spindle speed rpm - bolt drive Max. spindle speed rpm - bolt drive Max. spindle speed rpm - bolt drive Max. spindle taper - bolt drive Max. spindle torque S1/S6 (25%)* kW n/a n/a n/a n/a 119/254 Min. / Max. distance from spindle nose mm n/a n/a n/a n/a n/a 119/254 Min. / Max. distance from spindle nose mm n/a n/a n/a n/a n/a 119/254 Min. / Max. distance from spindle nose mm n/a n/a n/a n/a n/a 100 / 770 to table surface TOOL CHANGER: TOOL CHANGER:	Max spindle torque S1 /S6 (25%)*	Nm	64/108	64/108	64/108	64/108	
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spindir appr n/a n/a n/a n/a n/a n/a n/a n/a 1/56 Max. power S1 / 56 (25%)* Nm n/a n/a n/a n/a n/a 119/254 Min. / Max. distance from spindle nose to table surface mm n/a n/a n/a n/a 119/254 Tool Changer type swinging arm ATC (cam type) stylicit are type) (cain type) (c	SPINDLE 8 000 rpm – belt drive						
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Max spindle torque \$1 /56 (25%)* Nm n/a n/a n/a n/a n/a 113/254 Min. / Max, distance from spindle nose mm n/a n/a n/a 100 / 770 Tool Changer type swinging arm ATC swinging arm ATC swinging arm ATC swinging arm ATC (cam type)	Spindle taper		n/a	n/a	n/a	ISO 50	
Min. / Max. distance from spindle nose mm n/a n/a n/a n/a n/a n/a n/a n/a n/a 100 / 770 to table surface swinging arm ATC swinging arm	Max. power S1 / S6 (25%)*	kW	n/a	n/a	n/a	15/32	
Min. / max. but the first of the first	Max spindle torgue S1 /S6 (25%)*	Nm	n/a	n/a	n/a	119/254	
Tool CHANGER: swinging arm ATC (cam type) swinging		mm	n/a	n/a	n/a	100 / 770	
swinging arm ATC (cam type)swinging arm ATC (cam type)Total outer are X / Y	to table surface		ά ι	- Co	D),	1007110	
swinging arm ATC (cam type)swinging arm ATC (cam type)Total outer are X / Y	TOOL CHANGER:						
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Tool to tool change time sec. 2,0 2,0 2,0 2,0 2,0 2,0 Max tool velopt mm 85/130** 85/130** 85/130** 85/130** 75/110** Max tool velopt kg 7 7 7 8 Max tool velopt mm 300 300 300 300 FEEDS: m/min 0 - 35/35/35 0 - 35/35/35 0 - 24/24/24 Rapid traverse X / Y / Z m/min 35/35/35 35/35/35 35/35/35 24/24/24 Standard HEIDENHAIN TNC 640 19"	Number of tools	DCS.	30	30	30	40	
Max tool diameter mm 85/130** 85/130** 85/130** 71/130** Max tool weight kg 7 7 7 8 Max tool length mm 300 300 300 300 FEEDS: -35/35/35 0 - 35/35/35 0 - 35/35/35 0 - 24/24/24 Standard HEIDENHAIN TNC 640 19" 840D-SL 19" 840D	그는 것이었지? 그것이 모두는 것이 같아.	1. A A A A A A A A A A A A A A A A A A A	10.00		1000		
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Feed rate X / Y / Z m/min 0 – 35/35/35 0 – 35/35/35 0 – 35/35/35 0 – 24/24/24 Rapid traverse X / Y / Z m/min 35/35/35 35/35/35 35/35/35 24/24/24 Standard HEIDENHAIN TNC 640 19" 40.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004) ±0.005 (±0.004			500	500	500	300	
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Standard HEIDENHAIN TNC 640 19" Standard Option SIEMENS 840D-SL 19" 840D-SL 19" 840D-SL 19" 840D-SL 19" 840D-SL 19" 840D-SL 19" 01-MF 15"		m/min	35/35/35	35/35/35	35/35/35	24/24/24	
Option SIEMENS 840D-SL 19" 840D-SL 19" 840D-SL 19" 840D-SL 19" Option FANUC 0i-MF 15" 0i-MF 15" 0i-MF 15" 0i-MF 15" MISCELLANEOUS:				THE C 10 100	THE C 10 107		
Option FANUC OI-MF 15" OI-MF 15" OI-MF 15" MISCELLANEOUS: Accuracy of positioning (option)*** mm ±0,005 (±0,004) ±0,005 (±0,0			TNC 640 19"	TNC 640 19"	TNC 640 19"	TNC 640 19"	
MISCELLANEOUS: Accuracy of positioning (option)*** mm ±0,005 (±0,004) ±0,005 (±0,004) ±0,005 (±0,004) ±0,005 (±0,004) ±0,005 (±0,004) ±0,005 (±0,004) 0,005 Repeatability (option)*** mm 0,005 (0,004) 0,005 (0,004) 0,005 (0,004) 0,005 0,005 Total power installed kVA c.a. 25 27 27 45 Overall Dimensions X / Y / Z mm 2785/2650/2750 3450/2600/2750 3550/3900/30 Weight approx. gross kg c.a. 4400 c.a. 4950 c. a. 5300 c.a. 9300 *for HEIDENHAIN TNC640 **	Option	SIEMENS	840D-SL 19"	840D-SL 19"	840D-SL 19"	840D-SL 19"	
Accuracy of positioning (option)**** mm ±0,005 (±0,004) ±0,005 (±0,004) ±0,005 (±0,004) ±0,005 Repeatability (option)**** mm 0,005 (0,004) 0,005 (0,004) 0,005 (0,004) 0,005 Total power installed kVA c.a. 25 27 27 45 Overall Dimensions X / Y / Z mm 2785/2650/2750 (3030) 3065/2650/2750 3450/2600/2750 3550/3900/30 Weight approx.gross kg c.a. 4400 c.a. 4950 c. a. 5300 c.a. 9300 ** second pocket empty *** second pocket empty *** acc. to PN-ISO 230-2 c.a. 1950 c.a. 9300 electric handwheel HRS10, electric handwheel HRS10	Option	FANUC	0i-MF 15"	0i-MF 15"	0i-MF 15"	0i-MF 15"	
Repeatability (option)*** mm 0,005 (0,004) 0,005 (0,004) 0,005 (0,004) 0,005 (0,004) 0,005 Total power installed kVA c.a. 25 27 27 45 Overall Dimensions X / Y / Z mm 2785/2650/2750 (3030) 3065/2650/2750 3450/2600/2750 3550/3900/30 Weight approx. gross kg c.a. 4400 c.a. 4950 c. a. 5300 c.a. 9300 *** second pocket empty *** acc. to PN-ISO 230-2 colant wash gun and compressed air gun, chip flushing system, electric handwheel HR510, automatic tool changer, colant wash gun and compressed air gun, chip flushing system, electric handwheel HR510, screw type chip conveyor, telescopic covers of all guideways, pull studs – 6 pcs, operator's and programming manuals. pull studs – 6 pcs, pull studs – 6 pcs, cooling through spindle CTS (20 or 70 bar), cooling through spindle CTS (20 or 70 bar), cooli separator, oil mist collector with filter, col	MISCELLANEOUS:						
Repeatability (option)***mm0,005 (0,004)0,005 (0,004)0,005 (0,004)0,005Total power installedkVAc.a. 25272745Overall Dimensions X / Y / Zmm2785/2650/2750 (3030)3065/2650/27503450/2600/27503550/3900/30Weight approx. grosskgc.a. 4400c.a. 4950c.a. 5300c.a. 9300*** second pocket empty***c.a. 1400c.a. 4950c.a. 5300c.a. 9300*** acc. to PN-ISO 230-2statusof HEIDENHAIN TNC640collar wash gun and compressed air gun, chip flushing system, electric handwheel HR510,collar wash gun and compressed air gun, chip flushing system, electric handwheel HR510,collar wash gun and compressed air gun, chip flushing system, electric handwheel HR510,collar wash gun and compressed air gun, chip flushing system, electric handwheel HR510,of truly enclosed working area,operator's and programming manuals.operator's and programming manuals.OTIONAL EQUIPMENT:operator's and programming manuals.OTIONAL EQUIPMENT:chalper, pull studs – 6 pcs, operator's and programming manuals.Otio probes, workpiece probes, cooling through spindle CTS (20 or 70 bar), cooling through spindle CTS (20 or 70 bar), cocoling through spindle CTS (20 or 70 ba	Accuracy of positioning (option)***	mm	±0,005 (±0,004)	±0.005 (±0.004)	±0,005 (±0,004)	±0,005	
Total power installed kVA c.a. 25 27 27 45 Overall Dimensions X / Y / Z mm 2785/2650/2750 3065/2650/2750 3450/2600/2750 3550/3900/30 Weight approx. gross kg c.a. 4400 c.a. 4950 c. a. 5300 c.a. 9300 *for HEIDENHAIN TNC640 *** *** *** c.a. 4950 c. a. 5300 c.a. 9300 *for HEIDENHAIN TNC640 *** *** c. io PN-ISO 230-2 *** *** c. io PN-ISO 230-2 STANDARD EQUIPMENT: • coolant wash gun and compressed air gun, chip flushing system, electric handwheel HRS10, electric handwheel HRS	Repeatability (option)***						
Overall Dimensions X / Y / Z mm 2785/2650/2750 (3030) 3065/2650/2750 3450/2600/2750 3550/3900/30 Weight approx. gross kg c.a. 4400 c.a. 4950 c. a. 5300 c.a. 9300 *for HEIDENHAIN TNC640 *** c.a. 4950 c. a. 5300 c.a. 9300 *** acc. to PN-ISO 230-2 STANDARD EQUIPMENT: colant wash gun and compressed air gun, chip flushing system, electric handwheel HR510, so chip flushing system, electric handwheel HR510, so crew type chip conveyor, full yenclosed working area, so complete coolant installation, screw type chip conveyor, so perator's and programming manuals. OPTIONAL EQUIPMENT: scraper type or hinge type chip conveyor, so conplete coolant installation, OPTIONAL EQUIPMENT: scraper type or hinge type chip conveyor, conpressed air gun, chip flushing system, electric handwheel HR510, so complete coolant installation, OPTIONAL EQUIPMENT: scraper type or hinge type chip conveyor, conpressed, conpressed							
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Weight approx.gross kg c.a. 4400 c.a. 4950 c. a. 5300 c.a. 9300 *for HEIDENHAIN TNC640 ***** ****** ********* ************************************	Overall Dimensions X / Y / Z	mm	방송 영상 전 전 방송 영상 영상 방송 문화	3065/2650/2750	3450/2600/2750	3550/3900/3000	
 *for HEIDENHAIN TNC640 ** second pocket empty *** acc. to PN-ISO 230-2 STANDARD EQUIPMENT: o roller-type linear guideways for all axes, o directly driven ballscrews in all three axes, o directly driven ballscrews in all three axes, o automatic tool changer, o fully enclosed working area, o lighting system with lamps, o ethernet card, USB, o complete coolant installation, OPTIONAL EQUIPMENT: OPTIONE EQUIPMENT:	Woight approx	her		1050	F200	0300	
 ** second pocket empty *** acc. to PN-ISO 230-2 STANDARD EQUIPMENT: roller-type linear guideways for all axes, directly driven ballscrews in all three axes, automatic tool changer, fully enclosed working area, glighting system with lamps, telescopic covers of all guideways, guill studs – 6 pcs, operator's and programming manuals. OPTIONAL EQUIPMENT: Keidenhain linear scales for all three axes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), colo cooling by compressed air (5 bar), colo coling through spindle ATS (5 bar), color at tables (4th; 5th axis), cond rough spindle ATS (5 bar), color at tables (4th; 5th axis), color at tables (4th; 5th axis), color at tables (4th; 5th axis), other upon request. 		ĸg	c.a. 4400	c.a. 4950	c. a. 5300	c.a. 9300	
 *** acc. to PN-ISO 230-2 STANDARD EQUIPMENT: roller-type linear guideways for all axes, directly driven ballscrews in all three axes, automatic tool changer, fully enclosed working area, lighting system with lamps, ethernet card, USB, complete coolant installation, OPTIONAL EQUIPMENT: Heidenhain linear scales for all three axes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), coling through spindle ATS (5 bar), colol cooling by compressed air (5 bar), col cooling through spindle ATS (5 bar), col cooling through spindle ATS (5 bar), cooling through spindle ATS (5 bar), col cooling through spindle ATS (5 bar), col cooling by compressed air (5 bar), col cooling through spindle ATS (5 bar), col cooling theremal stabilization, 							
STANDARD EQUIPMENT: coolant wash gun and compressed air gun, o directly driven ballscrews in all three axes, chip flushing system, o automatic tool changer, electric handwheel HR510, o automatic tool changer, screw type chip conveyor, fully enclosed working area, telescopic covers of all guideways, lighting system with lamps, pull studs – 6 pcs, o ethernet card, USB, operator's and programming manuals. OPTIONAL EQUIPMENT: scraper type or hinge type chip conveyor, tool probes, workpiece probes, Scraper type or hinge type chip conveyor, tool probes, workpiece probes, CAD/CAM software, o cooling through spindle CTS (20 or 70 bar), two pallet changer, o cooling through spindle ATS (5 bar), paper filter for nebulise materials, o tool cooling by compressed air (5 bar), oil separator, oil mist collector with filter, c CNC rotary tables (4 th ; 5 th axis), Teleservice, Statemonitor (industry 4.0) spindle thermal stabilization, other upon request.							
 roller-type linear guideways for all axes, directly driven ballscrews in all three axes, automatic tool changer, fully enclosed working area, lighting system with lamps, ethernet card, USB, complete coolant installation, OPTIONAL EQUIPMENT: Heidenhain linear scales for all three axes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cooling through spindle ATS (5 bar), color guide (4th); 5th axis), conding three at abilization, 							
 roller-type linear guideways for all axes, directly driven ballscrews in all three axes, automatic tool changer, fully enclosed working area, lighting system with lamps, ethernet card, USB, complete coolant installation, OPTIONAL EQUIPMENT: Heidenhain linear scales for all three axes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), cool cooling by compressed air (5 bar), cool cooling through spindle ATS (5 bar), co	STANDARD EQUIPMENT:						
 directly driven ballscrews in all three axes, automatic tool changer, fully enclosed working area, lighting system with lamps, ethernet card, USB, complete coolant installation, OPTIONAL EQUIPMENT: Heidenhain linear scales for all three axes, cooling through spindle CTS (20 or 70 bar), cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), concloring by compressed air (5 bar)	 roller-type linear guideways for all axes, 				ompressed air gun,		
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 lighting system with lamps, ethernet card, USB, complete coolant installation, pull studs – 6 pcs, operator's and programming manuals. OPTIONAL EQUIPMENT: Heidenhain linear scales for all three axes, tool probes, workpiece probes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), cool cooling by compressed air (5 bar), col cooling through spindle ATS (5 bar), cool cooling through spindle ATS (5 bar),	 fully enclosed working area, 						
 ethernet card, USB, complete coolant installation, operator's and programming manuals. OPTIONAL EQUIPMENT: Heidenhain linear scales for all three axes, tool probes, workpiece probes, cooling through spindle CTS (20 or 70 bar), cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), cool cooling by compressed air (5 bar), cool cooling by compressed air (5 bar), cool cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), cool cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), cool cooling through spindle ATS (5 bar), cool cooling by compressed air (5 bar), cool cooling through spindle ATS (5 bar), cool cooling through spin	 lighting system with lamps, 						
o complete coolant installation, OPTIONAL EQUIPMENT: o Heidenhain linear scales for all three axes, o scraper type or hinge type chip conveyor, CAD/CAM software, o cooling through spindle CTS (20 or 70 bar), o cooling through spindle ATS (5 bar), o paper filter for nebulise materials, o tool cooling by compressed air (5 bar), oil separator, oil mist collector with filter, o CNC rotary tables (4 th ; 5 th axis), o o spindle thermal stabilization, o	e 이 말 것 같은 것 같아요. 이 것 같아요. 것 같아요. 전가 같아요. 같아요. 이 것 같아요. 이 있						
 Heidenhain linear scales for all three axes, tool probes, workpiece probes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cooling through spindle ATS (5 bar), tool cooling by compressed air (5 bar), CNC rotary tables (4th; 5th axis), spindle thermal stabilization, other upon request. 	 complete coolant installation, 		0	oberator a and brokram	manuals.		
 Heidenhain linear scales for all three axes, tool probes, workpiece probes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), cooling through spindle ATS (5 bar), tool cooling by compressed air (5 bar), CNC rotary tables (4th; 5th axis), spindle thermal stabilization, other upon request. 	OPTIONAL EQUIPMENT:						
 tool probes, workpiece probes, cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), tool cooling by compressed air (5 bar), CNC rotary tables (4th; 5th axis), spindle thermal stabilization, CNC rotary tables (4th; 5th axis), other upon request. 			0	scraper type or hinge type	e chip conveyor,		
 cooling through spindle CTS (20 or 70 bar), cooling through spindle ATS (5 bar), tool cooling by compressed air (5 bar), CNC rotary tables (4th; 5th axis), spindle thermal stabilization, tool cooling through spindle ATS (5 bar), tool cooling by compressed air (5 bar), tool cooling by compressed	이 것 같아? 것 같아요. 안 많은 것 같아요. 이 것은 것이 모아진 것이 같아? 이 여름이 가지 않는 것이 같아?						
 cooling through spindle ATS (5 bar), tool cooling by compressed air (5 bar), CNC rotary tables (4th; 5th axis), spindle thermal stabilization, paper filter for nebulise materials, paper filter for nebulise material				성장 같은 것은 것을 알 것 같은 것을 것 것 같은 것이다. 것 같은			
 tool cooling by compressed air (5 bar), CNC rotary tables (4th; 5th axis), spindle thermal stabilization, oil separator, oil mist collector with filter, Teleservice, Statemonitor (industry 4.0) other upon request. 					naterials.		
CNC rotary tables (4 th ; 5 th axis), spindle thermal stabilization, spindle thermal stabilization, o ther upon request.							
o spindle thermal stabilization, o other upon request.				영양가 그 같은 것은 것이 많은 것이 안 한 것이 없는 것이 없는 것이 없다.	날만 방법에 다 많다. 것 같은 것 것 같은 것"		
				[2] : 슬랫 옷은 것 안전, 전화방법, 알려 등 가지, 것 2007	11.11993.1299.01997.		



VMC HS SERIES your HSM solution

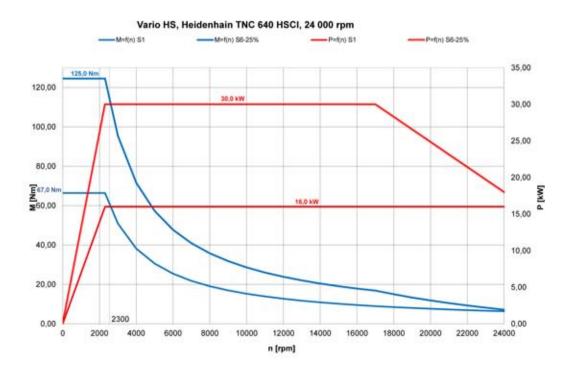


VMC HS SERIES |

The best solution for High Speed Machining thanks to:

- reliable motorspindle 24 000 rpm,
- rapid traverse 42 m/min,
- acceleration in X/Y/Z axes 0,5 G,
- acceleration in interpolation 1 G,

- quickest program single block processing time - 0,5 ms for your complicated CAD-CAM programs.



Technical data		VMC 650 HS	VMC 800 HS	VMC 1000 HS		
TABLE:						
Table surface	mm	800 x 540	1000 x 540	1200 x 540		
T-slots: number / width / spacing	mm	5/18/100	5/18/100	5/18/100		
Max. table load	kg	700	850	1000		
TRAVELS:						
Longitudinal (X)	mm	650	800	1000		
Cross (Y)	mm	540	540	540		
Vertical (Z)	mm	620	620	620		
SPINDLE 24 000 rpm						
Max. spindle speed	rpm	24 000	24 000	24 000		
Spindle taper		HSK 63	HSK 63	HSK 63		
Max. power S1 / S6 (25%)*	kW	16/30	16/30	16/30		
Max spindle torque S1 /S6 (25%)*	Nm	67/125	67/125	67/125		
Min. / Max. distance from spindle nose	10000	150 / 770	150 / 770	150 / 770		
to table surface	mm	150 / 770	150 / 770	150 / 770		
TOOL CHANGER:						
Tool changer type		swinging arm ATC (cam type)	swinging arm ATC (cam type)	swinging arm AT (cam type)		
Number of tools	pcs.	30	30	30		
Tool to tool change time	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:						
Feed rate X / Y / Z	m/min	0-42/42/42	0-42/42/42	0-42/42/42		
Rapid traverse X/Y/Z	m/min	42/42/42	42/42/42	42/42/42		
STEROWANIA CNC:		and the second second				
Standard	HEIDENHAIN	TNC 640 19" TFT	TNC 640 19" TFT	TNC 640 19" TFT		
Option	SIEMENS	840D-SL 19" TFT	840D-SL 19" TFT	840D-SL 19" TFT		
MISCELLANEOUS:						
Accuracy of positioning (option)***	mm	±0,005 (±0,004)	±0,005 (±0,004)	±0,005 (±0,004)		
Repeatability (option)***						
	mm	0,005 (0,004)	0,005 (0,004)	0,005 (0,004)		
Total power installed	kVA	40	40	40		
Overall Dimensions X / Y / Z	mm	2785x2650x2750	3065x2650x2750	3450/2600/2750		
Weight approx. gross	kg	c.a. 4400	c.a. 5300	c. a. 5600		
for HEIDENHAIN TNC640						
** second pocket empty						
*** acc. to PN-ISO 230-2						
STANDARD EQUIPMENT:						
 roller-type linear guideways for all axes, 		o coolant wash g		1,		
 directly driven ballscrews in all three axes, automatic tool changer, 		 chip flushing s electric handw 				
 fully enclosed working area, 		 screw type chi 				
 lighting system with lamps, 	 telescopic covidante 		ers of all guideways,			
 ethernet card, USB, 		 pull studs – 6 pcs 		The second state of the second state of the second state and the second state and the		
 complete coolant installation, Sofware-Option 2 TNC 640 HSCI 		 operator's and 	programming manuals.			
 Sofware-Option 2 TNC 640 HSCI OPTIONAL EQUIPMENT: 						
			r biogo turo chio comune			
 Heidenhain linear scales for all three axes, tool probes, workpiece probes, 		 o scraper type o o CAD/CAM soft 	r hinge type chip conveyor, ware			
 cooling through spindle CTS (20 or 70 bar), 		 two pallet cha 				
 cooling through spindle ATS (5 bar), 			nebulise materials,			
 tool cooling by compressed air (5 bar), 		 oil separator, oil mist collector with filter, other upon request. 				
 CNC rotary tables (4th axis), 						



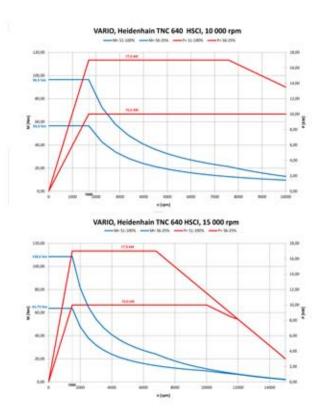
VARIO SERIES continuous 5-axis machining solution

VARIO SERIES

Ideal solution for 5-axis continuous machining thanks to :

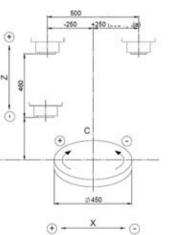
- 450 mm diameter rotary-tilting table with 400 kg max. table load, for large workpieces,

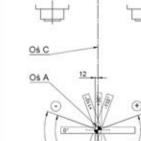
- direct drives of rotary (C) and tilting (A) axes, by torquemotors, for top dynamics,
- precision Heidenhain encoders +/- 5 arc. sec. built in C and A axes centres for highest accuracy,
- wide choice of spindles form 10 000 to 24 000 rpm, for different machining requirements,
- acceleration in X/Y/Z axes 0,5 G, Rapid traverse 42 m/min, for maximum productivity,
- program single block processing time 0,5 ms, for CAM generated 5-axis programs.



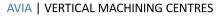
WORK AREA - VARIO 5-axis

VARIO HS









	VARIO 5-axis	VARIO HS 5-axis
mm	Ø450	Ø450
		6/14/60°
		400
Sector Transfer		288
	200	200
	500 (580)	500 (580)
	50 M 1 S 1	2.376.57
		600
		460
		+110" / -110"
deg.		n*360°
		Electro spindle
		HSK63A
rpm		24 000
kW	10/17	16/30
Nm	56/96	67/125
1000	115 / 575	110/570
mm	115/5/5	110/570
mm	127 / 587	122/582
		1020604522
	ISO 40	HSK63A
rom		18 000
		25/43
Nm	64/108	86/120
mm	115 / 575	110/570
mm	127 / 587	122/582
	swinging arm ATC (cam type)	swinging arm ATC (cam typ
pcs	30	30
sec.	2,0	2,0
mm	85 / 130	85/130
kg	7	7
	300	300
m/min	0 = 42/42/42	0-42/42/42
		42/42/42
		60/120
		685 / 231
Nm	2500 / 1250	2500 / 1250
HEIDENHAIN	TNC 640 19"	TNC 640 19"
	+0.005 (+0.004)	+0.005 (+0.004)
		±0,005 (±0,004)
mm	0,005 (0,004)	0,005 (0,004)
sec.	+/- 5″	+/- 5″
kVA	35	45
		3065x2650x2750
	· · · · · · · · · · · · · · · · · · ·	
kg	c.a. 5300	c.a. 5300
0	complete coolant installation,	
0		
0	chip flushing system,	
0	chip flushing system, chip conveyor,	d air eun.
0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse	d air gun,
0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640,	
0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewar	ys,
0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewar pull studs – 6 pcs for ISO 40 spino	ys, Iles,
0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewar	ys, Iles,
0 0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewa pull studs – 6 pcs for ISO 40 spino operator's and programming ma	ys, iles, nuals.
0 0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewar pull studs – 6 pcs for ISO 40 spino	ys, iles, nuals.
0 0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewa pull studs – 6 pcs for ISO 40 spino operator's and programming ma	ys, iles, nuals. 5 bar),
0 0 0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewar pull studs – 6 pcs for ISO 40 spino operator's and programming mar tool cooling by compressed air (S	ys, iles, nuals. 5 bar), ar),
0 0 0 0 0 0 0	chip flushing system, chip conveyor, coolant wash gun and compresse software option 2 for TNC 640, telescopic covers of the guidewa pull studs – 6 pcs for ISO 40 spino operator's and programming ma tool cooling by compressed air (5 coolling through spindle ATS (5 b	ys, iles, nuals. 5 bar), ar),
	mm kg mm mm mm deg. deg. rpm kW Nm mm mm mm mm kW Nm mm mm mm kW Nm mm mm mm kW Nm mm mm mm kW Nm mm mm mm kW Nm mm mm mm kW Nm mm mm mm mm mm mm mm mm mm mm mm mm	mm 6 / 14 / 60° kg 400 mm 288 mm 500 (580) mm 600 mm 460 deg. +110° / -110° deg. n*360* Belt drive ISO 40 rpm 10 000 kW 10/17 Nm 56/96 mm 115 / 575 mm 127 / 587 rpm 15000 kW 10/17 Nm 64/108 mm 115 / 575 mm 127 / 587 Swinging arm ATC (cam type) pcs 30 sec. 2,0 mm 85 / 130 kg 7 mm 300 mm 60/120 Nm 685 / 231 Nm 685 / 231 Nm 6005 (10,004) mm 0,005 (0,004) mm 0,005 (10,004) mm 3065x

other upon request.



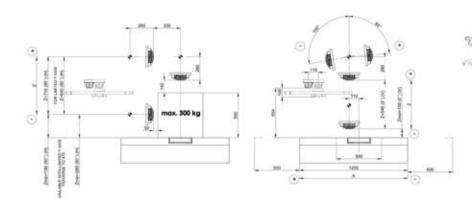
X-5 SERIES

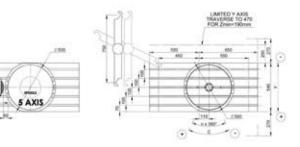
universal 5-axis machining centres with swivel head and rotary table

X-5 SERIES |

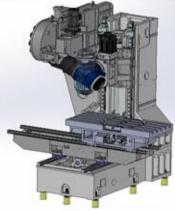
The most versatile 5-axis machining centre for your job-shop :

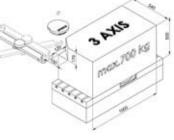
- continuously controlled swivel head with powerful motorspindle,
- large diameter built-in 500 mm rotary table,
- precision encoders +/- 5 arc. sec. built-in rotary axes centres for highest accuracy,
- spacious working area allows machining of large cubic workpieces,
- 5-axis of 5-side machining of medium size workpieces or 4-axis machining of large workpieces,
- heavy duty work table, maximum loads,
- program single block processing time 0,5 ms, for CAM generated 5-axis programs.



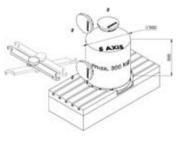






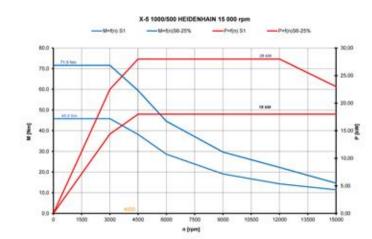


COMMENTS ONLY FOR MACHINE WITHOUT TOOL PROBE. WORKPIECE IN POSITION TOOL CHANGE WORKPIECE IN THE CENTER OF TABLE TOOL CHANGE SMULLATION FOR TOOL © 130mm, L

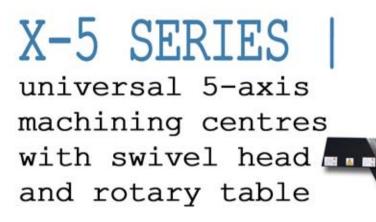


COMMENTS: ONLY FOR MACHINE WITHOUT TOOL PROBE. WORKPIECE IN THE MODULE OF THE ROTARY TABLE.

Fechnical data		X-5 1000 / 500	
TABLE:			
Table surface plain / rotary	mm	1200 x 540 / Ø500	
T-slots: number /width / spacing	mm	5/18/100	
Max. table load plain / rotary	kg	700 / 300	
TRAVELS:			
Longitudinal (X)	mm	1000	
Cross (Y)	mm	540	
Vertical (Z)	mm	540 (V) / 640 (H)	
Swivel Head (B)	deg.	+110° / -85°	
Rotation (table) (C or A)	deg.	n*360° vertical axis (C)	
Min. / Max. distance from spindle nose to table surface	mm	100/640	
Min. / Max. distance from spindle nose to table surface at 90*	mm	260/900	
ELECTROSPINDLE 15 000 rpm – standard:			
Spindle taper		ISO 40	
Max spindle speed	rpm	15 000	
Max. power S1 / S6 (25 %)*	kW	18/28	
Max. torque S1 / S6 (25 %)*	Nm	45/71	
TOOL CHANGER:			
		swinging arm ATC	
Tool changer type		(chain type)	
Number of tools	pcs	40	
Max tool diameter	mm	76/127	
Max tool length	mm	300	
Max tool weight	kg	7	
FEEDS:			
Feed rate X/Y/Z	m/min	0 - 35/35/35	
Rapid traverse X/Y/Z	m/min	35/35/35	
Max. speed of B and C axes	rpm	30/100	
Max. continuous torque of tilting (B) and rotary (C) axes		520/231	
Max. clamping torque of tilting (B)and rotary (C) axes		1500/1250	
CNC SYSTEMS:			
Standard	HEIDENHAIN	TNC 640 19"	
MISCELLANEOUS:			
Accuracy of positioning**	mm	±0,005	
Repeatability**	mm	0,005	
Accuracy of positioning of rotary axes B and C**	sec.	+/- 5"	
Total power installed	kVA	c.a. 50	
Overall Dimensions			
	mm	3065/2650/2750	
Weight approx. gross	kg	c.a. 5500	
*for HEIDENHAIN TNC 640			
** acc. to PN-ISO 230-2			
STANDARD EQUIPMENT:			
o Heidenhain linear scales for all three linear axes and precision	 spindle and rotary-tilting ta 	ble thermal stabilization,	
(+/- 5 arc. sec) rotary encoders for rotary axes *,	 complete coolant installation 		
 roller-type linear guideways for all three axes, 	 chip flushing system, 	sant and sant	
 directly driven ballscrews in all three axes, 		of scraper type chip conveyor,	
 automatic tool changer, 	 coolant wash gun and com 		
 fully enclosed working area, 	 software option 1+2 for TN 		
 lighting system with lamps, 	o telescopic covers of the gui		
 ethernet card, USB and RS232 port, 	o operator's and programmin		
 electric handwheel, 	 other upon request. 		
CIONAL EQUIPMENT:			
 coolant through spindle CTS (20 or 70 bar), 	 workpiece probes, 		
 tool cooling by compressed air (5 bar), 	o tool probes,		
	 CAD/CAM software, 		
 tool cooling by oil mist, 	Cho/Chivi solevale,		





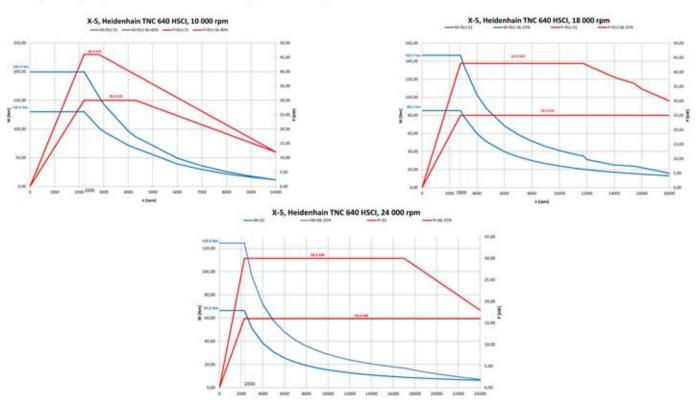




X-5 SERIES

The most versatile 5-axis machining centre for your job-shop :

- continuously controlled swivel head with powerful motorspindle,
- large diameter built-in 630 mm rotary table or 400 mm rotary table with horizontal axis,
- precision Heidenhain encoders +/- 5 arc. sec. built-in rotary axes centres for highest accuracy,
- spacious working area allows machining of large cubic workpieces,
- 5-axis continuous or 5-side machining of medium size workpieces or 4-axis machining of large workpieces,
- heavy duty work table, maximum loads,
- program single block processing time 0,5 ms, for CAM generated 5-axis programs,
- turning milling capabilities for ultimate versatility (X-5 MILLturn).



Technical data		X-5 1300/630	X-5 1300/400 Blademaker	X-5 MILLturn
		1500/850	biauemaker	WILLIUM
TABLE:				
Table surface plain / rotary	mm	1500 x 710 / Ø630	1500 x 710	1500 x 710 / Ø400
T-slots: number /width / spacing	mm	5/18/125	5/18/125	5/18/125
Max. table load plain / rotary	kg	1000/700	1000/400	1000/500
TRAVELS:				
Longitudinal (X)	mm	1300	1300	1300
Cross (Y)	mm	700	700	700
Vertical (Z)	mm	710	810	710
wivel Head (B)	deg.	+115°/-85*	+115°/-85°	+115" / -85"
Rotation (table) (C or A)	deg.	n*360° vertical axis (C)		n*360° horizontal axis (/
Min. / Max. distance from spindle nose to table surface	mm	90/800	219/929	90/800
Min. / Max. distance from spindle nose to table surface at 90°	mm	260/970	389/1099	260/970
ELECTROSPINDLE 18 000 rpm – Standard:		1161/62	110400	1161/63
pindle taper		HSK63	HSK63	HSK63
Max spindle speed	rpm	18 000	18 000	18 000
Max. power S1 / S6 (25 %)*	kW	25/43	25/43	25/43
Max. torque S1 / S6 (25 %)*	Nm	86/146	86/146	86/146
ELECTROSPINDLE 10 000 rpm – Option:			1101100	
pindle taper		HSK63	HSK63	8
Max spindle speed	rpm	10 000	10 000	
Max. power S1 / S6 (40 %)*	kW	30/46	30/46	
Max. torque S1 / S6 (40 %)*	Nm	130/200	130/200	
ELECTROSPINDLE 24 000 rpm – Option:				
Spindle taper		HSK63	HSK63	
Max spindle speed	rpm	24 000	24 000	÷.
Max. power S1 / S6 (25 %)*	kW	16/30	16/30	
Max. torque S1 / S6 (25 %)*	Nm	67/125	67/125	
FOOL CHANGER:				
Fool changer type		swinging arm ATC	swinging arm ATC	swinging arm ATC
Number of tools		(chain type)	(chain type) 40	(chain type) 40
Max tool diameter	pcs	40 75/150	75/150	2.5
	mm			75/150
Max tool length	mm	300 8	300 8	300
Max tool weight	kg	8	8	8
FEEDS:	no feata	0 24/24/24	0. 24/24/24	0 24/24/24
Feed rate X/Y/Z	m/min	0-24/24/24 24/24/24	0-24/24/24	0-24/24/24
Rapid traverse X / Y / Z	m/min		24/24/24	24/24/24
Max. speed of B and C axes	rpm	33,3 / 25 1500 / 1800 (C)	33,3 / (16,7)	33,3 / 500
Max. continuous torque of tilting (B) and rotary (C or A) axes	Nm		1500 / 800 (A) 3000 / 2000 (A)	1500 / 1300 (C)
Max. clamping torque of tilting (B)and rotary (C or A) axes CNC SYSTEMS:	NIII	3000 / 4500 (C)	5000 / 2000 (A)	3000 / 2500 (C)
Standard	HEIDENHAIN	TNC 640 19"	TNC 640 19"	TNC 640 19"
Option	SIEMENS	840D SL 19"	840D SL 19"	n/a
MISCELLANEOUS:				
Accuracy of positioning**	mm	±0,005	±0,005	±0,005
Repeatability**	mm	0,005	0,005	0,005
Accuracy of positioning of rotary axes B and C**	sec.	+/- 5"	+/- 5"	+/- 5"
fotal power installed	kVA	c.a. 65	c.a. 65	c.a. 65
Dverall Dimensions				
	mm	3500/4100/3200	3500/4100/3200	3500/4100/3200
Weight approx. gross	kg	c.a.12 800	c.a. 12 800	c.a. 12 800
for HEIDENHAIN ITNC530				
** acc. to PN-ISO 230-2				
TANDARD EQUIPMENT:				
 Heidenhain linear scales for all three linear axes and precision 	on +/- 5 arc. sec rota		le and rotary-tilting table t	hermal stabilization,
encoders for rotary axes,			lete coolant installation,	
 roller-type linear guideways for all three axes, 		(COS) - 10555 (MS)	lushing system,	THE THERE AND ADDRESS OF A
 directly driven ballscrews in all three axes, 		6 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	of screw type + 1 pc of scr	
 automatic tool changer, 			nt wash gun and compress	ed air gun,
 fully enclosed working area, 			are option 2 for TNC 640,	
 lighting system with lamps, 		o teleso	copic covers of the guidew	ays,
 ethernet card, USB and RS232 port, 		o opera	itor's and programming m	anuals,
o electric handwheel,		o other	upon request.	
OPCIONAL EQUIPMENT:				
coolant through spindle CTS (20 or 70 bar),		o work	piece probes,	
tool cooling by compressed air (5 bar),			probes,	
		a CAD/	CAM software,	
 tool cooling by oil mist, 		o CAD/	CAIVI SUILWAIE,	



DISCOVER BASIC VERSIONS OF MACHINE SERIES X-5 |

X-5 1300/630 |

4th axis has been solved by the rotation of large rotary table dia. 630 mm built in plane table 1500 x 710 mm.

5th axis is provided by continuously controlled swivel head with built in electro spindle. Swivel range is +/- 100 degrees.

This kind of solution increases versatility of usage of this machining centre. Applications of 4-axis machining of large parts and 5-axis machining of medium size workpieces are possible on one machine.

This model is perfectly suitable for machining of complicated parts as well as mold and die making.

X-5 1300/400 BLADEMAKER |

4th axis has been solved by the rotation of rotary table dia. 400 mm (horizontal axis) mounted on plane table 1500x710 mm.

5th axis is provided by continuously controlled swivel head with built in electro spindle. Swivel range is +/- 100 degrees.

This model is designed to make blade-shape parts for different kind of turbines.

Machine could be applied for 4-axis machining of large moulds and dies as well, when rotary table is dismantled on plane table.

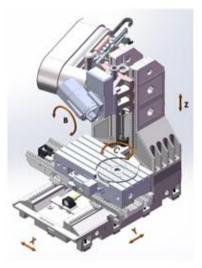
X-5 1300/630 MILLTURN |

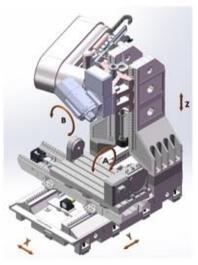
FOR MILLING AND TURNING

CNC swivel head with 18,000 rpm electrospindle with built-in brake and mechanical locking of the B-axis position in three positions as standard.

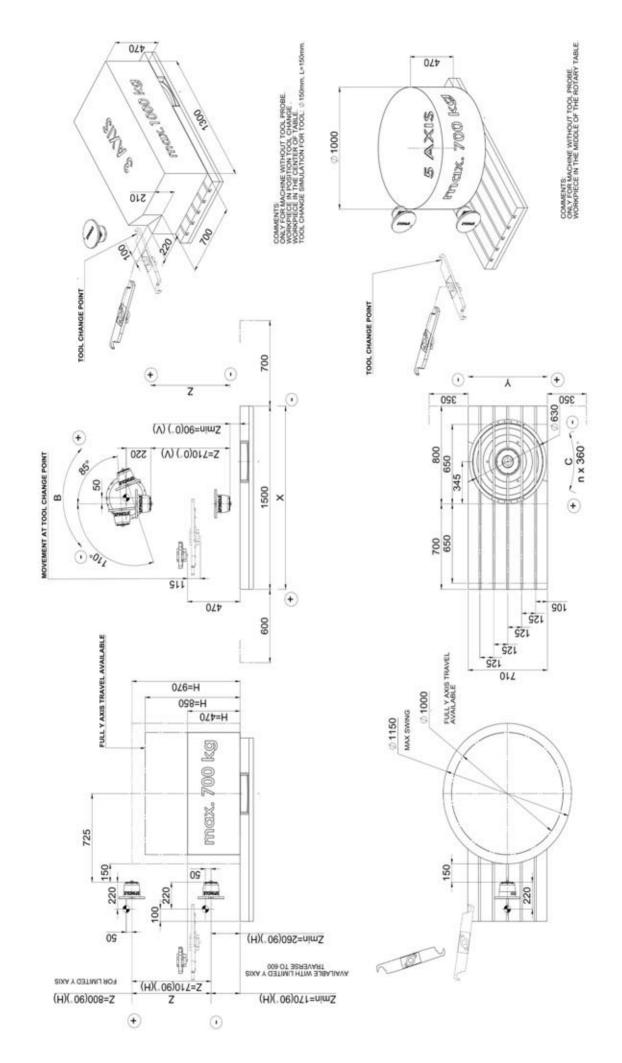
CNC rotary table (C-axis) with a diameter of 630 mm, driven by a torque motor, enables speeds of up to 500 rpm.

Application: Carry out filming without removing details from the machine. Carry out planning, internal and external turning, chamfering and grooving directly at the machining center. All thanks to the best components and the control function of the TNC 640











Discover more technological capabilities...

Automatic measuring solutions

Range of tool and workpiece probes are available from reliable world leading suppliers:

- touch tool probes (infrared and with cable),
- automatic workpiece probles,
- laser tool probes,
- separate measuring stations acc. to Customer's request.

Efficient chip management |

Efficient swarf removal system should be configured according to type of materials used and chips type. Standard chip auger can be altered:

- with scraper type chip conveyour,

- with hinge type chip conveyor

HINGE TYPE I SCRAPER TYPE





Selection of rotary tables - 4th axis

Reliable solution for demanding application. - 4th axis in sized from dia 150 mm up to 400 mm - worm gear / worm wheel solutions for high torque - torque motors solution for high speeds and special application (i.e. dual drive for turbine blades)

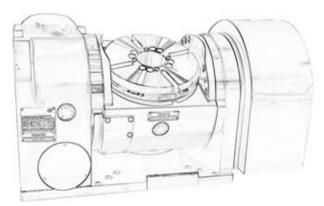
Rotary-tilting table 4th and 5th axis |

Original equipment from AVIA enable to expand capabilities of Vertical Machining Centres ni terms of technology and efficiency. Rotary-tilting table (4th and 5th axis option) diamter 200 mm can be installed along Y axis to save working table space.





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



... thanks to optional equipment available with your AVIA machine tools

Never ending options list |

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

Air Through Spindle (ATS) and tool cooling with air (5bar).

Separate filternig station with paper filter.

Water curtain around the spindle for nebulise materials i.e. graphite

Oil mist separator from working area with air filtration.

Mechanical coolant/ oil separator exceed lifespan for coolant.

Spindle thermostabilization with chiller.

Robotization and automatization preparation for serial production tasks.



CTS 20 bar or CTS 70 bar







water curtain around spindle



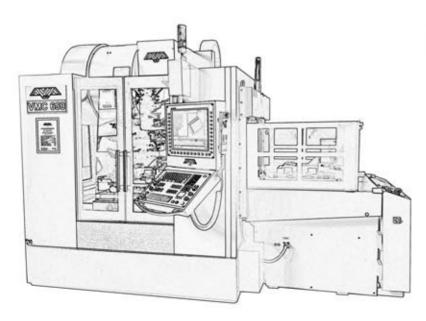
oil mist separator



dedicated technological solutions

Pallet changer for simplest automation |

Automate your prodution with reliable and fast solution. Pallet changer can be ordered with the machie or added to your existing solution. Has own controller, power and air supply. Available with VMC 650; VMC800; VMC 1000



Main technical data

Pallet size: 800 x 490 mm

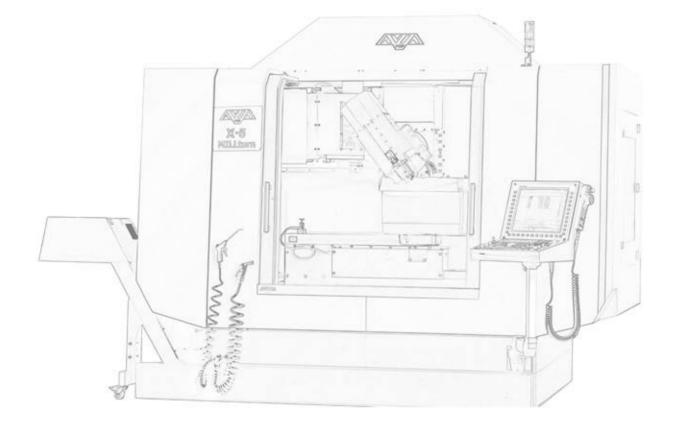
no. of pllets: 2 pcs

Pallet changing time: 15 sec

Load capacity: 450 kg/ pallet

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





Factory:

FABRYKA OBRABIAREK PRECYZYJNYCH AVIA S.A. ul. Siedlecka 47 03-768 Warsaw POLAND

Sales dept.:+48 22 619 90 81 market@avia.com.pl www.avia.com.pl Your sales representative: