VMC-Series

3-Axis Vertical Machining Centers for Production

Featuring High Speed and Precision + Conversational DXF + Standard G-Code



VMC Production Machining Centers

The VMC series machines are versatile machining centers designed for all-purpose milling. It is well-suited for production machining of prototypes, molds and bases, automobile, aerospace, medical, and other precision parts manufacturing. It features a rigid C-frame design with an extra wide base and enlarged roller-type rails, driven by direct-coupled Yaskawa digital drives and motors.

Standard Features:

- Rigid high-precision design with wide C-Frame base , A-Frame Column, and large 40 mm Rails.
- 36m/min Rapid Speeds using latest Yaskawa Digital Drives and Motors.
- 24-Tool Arm Type Automatic Tool Changer.
- High accuracy Taiwan HIWIN Linear Roller Ways and PMI Ball Screws.
- CAT40 or BT40, 8000 RPM belt-driven spindle, with 12K RPM direct-drive spindle and Coolant-Thru-Spindle options.
- Laser pitch error compensation ensures 6um positioning accuracy and 3 um repeatability across work envelope.

Options:

- Chip Conveyor
- Oil Mist Collector
- 4th Axis Rotary Table
- Spindle Probe & Tool Setters
- CE/UKCA/UL Electrical and Safety

Control Features



The DynaPath WinDelta control system is a powerful and versatile control featuring standard JOG/MPG/MEM/MDI/EDIT modes and a large LCD touchscreen for simple operation. Its Advanced Motion Control is equipped with dynamic lookahead for accurate and smooth machining. The control is fully Standard G-Code compatible and can be programmed with its built-in Conversational + DXF Editor, or by transferring G-Code programs from the network or USB drive with no limit on file size. The control is also capable of Networked File Management and Remote Diagnostics and Support.





DynaPath 🔼 WinDelta Control System

The WinDelta Control system is a PC-based, fully closed loop CNC control solution featuring advanced motion control, built-in software PLC, and a Windows-based HMI. The WinDelta CNC is designed for high-speed and high-precision machining, quick set up, easy programming, and universal compatibility, featuring:

- Industrial Touchscreen LCD interface for intuitive operation,
- · Advanced motion control for high speed, high precision machining,
- Conversational DXF Programming with touch-based CAD Editing and Import,
- Networked part program management,
- Remote diagnostics and support,
- Standard G/M-Code for universal compatibility, with G-Code Macro Programming.



CNC Hardware Specifications

DynaPath 🥂 Advanced Path Planning with Look Ahead + Feed Forward

Path Smoothing algorithms provide precision control and curvature control. The result is the optimal tool path for speed and precision.



Smart Interpolation ensures machining accuracy by performing acceleration and deceleration before path interpolation.



Without Feed Forward and Friction Compensation

XY and Z axes motion accuracy is prone to in correctable position errors, as demonstrated in the following plots on a circular tool path of 28.3mm diameter, at 8 m/min feed rate. In this case the final trajectory has a maximum position error exceeding 20 µm and more than 6 µm reversal spikes are presented.





Look Ahead anticipates upcoming programmed motion commands and plans the optimal trajectory dynamically in real time.



Jerk Reduction is performed by using trapezoidal or S-curve acceleration and deceleration, allowing smoother motion, higher machining speeds, and helps protect against machine wear.



With Feed Forward and Friction Compensation

XY and Z axes motion accuracy is greatly increased, as demonstrated in the following plots on a circular tool path of 28.3 mm diameter, at 8 m/min feed rate. The final trajectory has a maximum position error within 5 µm and the reversal spikes are less than 2µm.





DynaPath O CNCs are the most versatile control for your operations.

Quick Set Up + Conversational DXF Programming + G-Code

QUICK, EASY, AND ACCURATE SETUP

Automatic tool setter and spindle probe options enable quick and accurate setting up of parts. **Special Center Finding** and **Tool Setting screens** are easy to use and efficient, so you spend less time setting up and more time cutting.



DYNAPATH D JOG			WORK OFFSET			Price	Priority None	
	G54 (REF A)	G55 (REF B)	G 56 (REF C)	G57 (REF D)	G58 (REFE)	G59 (REF F)	X AXIS	
X	266.923	550.000	295.159	295.159	295.159	295.159		
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CONVERSATIONAL DXF PROGRAMMING

For general parts and jobs, the *Conversational Editor with DXF Import* enables any operator to *open and edit CAD drawings* then import geometry as *Conversational Events* to generate part programs without writing G-Code.

STANDARD G-CODE

For CAD/CAM users, simply post-process to standard ISO/EIA G-Code, then send the program via USB or networked file transfer to the control. Advanced G-Code Macro Programming is also fully supported.







DynaPath 🔨 WinDelta® Programming

Conversational Programming + DXF Import + G-Code Editing

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Conversational Event Based Programming allows making

part programs by simply choosing machining events and configuring its parameters, without having to write G-Code.

Built-in Events include standard drill, bore, tap, contour, pocket, helix, pattern, setup, and auxiliary events.

Smart Profile Editor allows quick and easy path creation and assists with geometric calculations.

Conversational Graphics convey detailed information about event parameters using graphical illustrations to assist with data entry.









DXF Drawing Import allows direct geometry import from CAD drawings via an intuitive, touchscreen interface, saving programming time and reducing errors.

Preview Simulation allows visual inspection of generated tool paths and final dimensions.

G-Code Editor enables ISO/EIA G-Code editing for writing standard G-Code part programs or to fine tune CAD/CAM posts.

File Manager and Server

allows USB file transfer and Networked FTP file management of all part programs and drawings on the control.







Comprehensive production support:

For all customers, we offer pre-production, in-production, and postproduction support.

- Send us the part program and the requirements to proof the process and the part on an actual machine, prior to purchase.
- We will work with you to optimize the process and teach you the key compromises and tradeoffs.
- While in production we will be on standby to assist with any issues, because there are always issues.
- After production we will review encountered issues and assist in further tuning and optimizing the process.



* Customer production line



VMC-855L Dimensions





VMC-1160L Dimensions



SPECICATION VMC-855L VMC-1160L AKES XY2 TRAVEL 800 x 550 x 550 nm (31.5" x 21.65") 1100 x 600 x 600 nm (4.31" x 23.62" x 23.62") AKES TYPE X/YZ Linear Rais + Roller Linear Rais + Roller Linear Rais + Roller TOOL TO COLUMN 590 mm (2.23) 650 nm (32.59") 650 nm (32.59") TOOL TO COLUMN 590 mm (22.37) 650 nm (25.9") 650 nm (25.9") MAX TORQUE X/YZ THRUST 18 / 18.7 / 29 / WD ired Drive 29 / 29 / 44 WD Dred Drive 74.64 / 71.6 Nm SPINDLE DIAMETER 160 nm (5.91") 150 nm (5.91") 750 mm (2.5") SPINDLE DIAMETER 160 0m (5.91") 100 mm (5.91") 750 mm (2.5") AFE SPINDLE 8000 RPM Beit-Drive 7.5 kW (10 HP) Rated 51 Ar Coled Ar Col	VMC SPECIFIC	ATIONS			
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OPTIONAL SPINDLE12000 RPM Direct-Drive 11 KW (15 HP) Rated S1 Spindle Chiller Oil Cooled Coolant Thru Spindle Option12000 RPM Direct-Drive 15 KW (20 HP) Rated S1 Spindle Chiller Oil Cooled Coolant Thru Spindle OptionATCTOOL CHANGER24-Tool Am Type24-Tool Am TypeMAX TOOL SPECSØ80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (171 bs) WeightØ80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (171 bs) WeightMOTIONMAX CUTTING FEED XY/Z36 m/min (1417 IPM)36 m/min (1417 IPM)MOTIONMAX CUTTING FEED XY/Z24 m/min (945 IPM)24 m/min (945 IPM)POSITIONING ACCURACY0.006 mm (0.00024")0.006 mm (0.00024")TABLETABLE SIZE1000 x 550 mm (39.37"x 21.65")0.003 mm (0.0012")TABLESLOT S OFFSET X WIDTH5 x 90 mm x 18 mm (5 x 3.54" x 0.7)5 x 100 mm x 18 mm (5 x 3.94" x 0.7)NTATULFLOON SPACE W x L x H2800 x 2875 x 2860 mm (112" x 114" x 113")3300 x 3020 x 2970 mm (130" x 119" x 117")SHIPPING / MACHINE WEIGHTS5800 kg (12760 lbs)7000 kg (15400 lbs)NTATLFLOON SPACE W x L x H280 x 2875 x 2860 mm (112" x 114" x 113")3300 x 3020 x 2970 mm (130" x 119" x 117")AR REQUIREMENTS6 kg/cm² (90 psi), 200 L/min (7 CFM)6 kg/cm² (90 psi), 200 L/min (7 CFM)POWER REQUIREMENTS20 L (65 gal)350 L (90 gal)		BASE SPINDLE	8000 RPM Belt-Drive 7.5 kW (10 HP) Rated S1 Air Cooled	8000 RPM Belt-Drive 11 kW (15 HP) Rated S1 Air Cooled	
ATCTOOL CHANGER24-Tool Arm Type24-Tool Arm TypeMAX TOOL SPECSØ80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (17 lbs) WeightØ80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (17 lbs) WeightMOTIONMAX RAPID SPEED X/Y/Z36 m/min (1417 IPM)36 m/min (1417 IPM)MAX CUTTING FEED X/Y/Z24 m/min (945 IPM)24 m/min (945 IPM)POSITIONING ACCURACY0.006 mm (0.00024")0.006 mm (0.00024")REPEAT ACCURACY0.003 mm (0.00012")0.003 mm (0.00012")TABLETABLE SIZE1000 x 550 mm (39.37"x 21.65")1200 x 600 mm (47.24"x 23.62")SLOTS x OFFSET x WIDTH5 x 90 mm x 18 mm (5 x 3.54" x 0.7)5 x 100 mm x 18 mm (5 x 3.94" x 0.7)MX TABLE LOAD500kg (1100 lbs)800kg (1760 lbs)INSTALLFLOOR SPACE W x L x H2830 x 2875 x 2860 mm (112" x 114" x 113")3300 x 3020 x 2970 mm (130" x 119" x 117")SHIPPING / MACHINE WEIGHTS5800 kg (12760 lbs)7000 kg (15400 lbs)COCLANT CAPACITY250 L (65 gal)350 L (90 gal)AIR REQUIREMENTS6 kg/cm² (90 ps), 200 L/min (7 CFM)6 kg/cm² (90 ps), 200 L/min (7 CFM)POWER REQUIREMENTS20 kVA, 3 Phase, 220 V, 50 A Max25 kVA, 3 Phase, 220 V, 60 A Max		OPTIONAL SPINDLE	12000 RPM Direct-Drive 11 kW (15 HP) Rated S1 Spindle Chiller Oil Cooled Coolant Thru Spindle Option	12000 RPM Direct-Drive 15 kW (20 HP) Rated S1 Spindle Chiller Oil Cooled Coolant Thru Spindle Option	
MAX TOOL SPECSØ80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (17 lbs) WeightØ80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (17 lbs) WeightMOTION MAX RAPID SPEED XY/Z36 m/min (1417 IPM)36 m/min (1417 IPM)MAX CUTTING FEED XY/Z24 m/min (945 IPM)24 m/min (945 IPM)POSITIONING ACCURACY0.006 mm (0.00024")0.006 mm (0.00024")REPEAT ACCURACY0.003 mm (0.00012")0.003 mm (0.00012")TABLETABLE SIZE1000 x 550 mm (39.37"x 21.65")1200 x 600 mm (47.24"x 23.62")TABLESLOTS x OFFSET x WIDTH5 x 90 mm x 18 mm (5 x 3.54" x 0.7)5 x 100 mm x 18 mm (5 x 3.94" x 0.7)MAX TABLE LOAD500kg (1100 lbs)800kg (1760 lbs)INSTALLFLOOR SPACE W x L x H2830 x 2875 x 2860 mm (112" x 114" x 113")3300 x 3020 x 2970 mm (130" x 119" x 117")SHIPPING / MACHINE WEIGHTS5800 kg (12760 lbs)7000 kg (15400 lbs)COLANT CAPACITY250 L (65 gal)350 L (90 gal)AIR REQUIREMENTS6 kg/cm² (90 psi), 200 L/min (7 CFM)6 kg/cm² (90 psi), 200 L/min (7 CFM)POWER REQUIREMENTS20 kVA, 3 Phase, 220 V, 50 A Max25 kVA, 3 Phase, 220 V, 60 A Max	ATC	TOOL CHANGER	24-Tool Arm Type	24-Tool Arm Type	
MOTION MAX RAPID SPEED X/Y/Z 36 m/min (1417 IPM) 36 m/min (1417 IPM) MAX CUTTING FEED X/Y/Z 24 m/min (945 IPM) 24 m/min (945 IPM) 24 m/min (945 IPM) POSITIONING ACCURACY 0.006 mm (0.00024") 0.006 mm (0.00024") 0.003 mm (0.00012") REPEAT ACCURACY 0.003 mm (0.00012") 0.003 mm (0.00012") 0.003 mm (0.00012") TABLE TABLE SIZE 1000 x 550 mm (39.37"x 21.65") 1200 x 600 mm (47.24"x 23.62") SLOTS x OFFSET x WIDTH 5 x 90 mm x 18 mm (5 x 3.54" x 0.7) 5 x 100 mm x 18 mm (5 x 3.94" x 0.7) MAX TABLE LOAD 500kg (1100 lbs) 800kg (1760 lbs) INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) 500 kg (1200 lbs) COLANT CAPACITY 250 L (65 gal) 350 L (90 gal) 350 L (90 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) 55 kVA, 3 Phase, 220 V, 60 A Max		MAX TOOL SPECS	Ø80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (17 lbs) Weight	Ø80 mm (Ø3.15") Diameter 200 mm (11.81") Length 8 kg (17 lbs) Weight	
MAX CUTTING FEED X/Y/Z 24 m/min (945 IPM) 24 m/min (945 IPM) POSITIONING ACCURACY 0.006 mm (0.00024") 0.006 mm (0.00024") REPEAT ACCURACY 0.003 mm (0.00012") 0.003 mm (0.00012") TABLE TABLE SIZE 1000 x 550 mm (39.37"x 21.65") 1200 x 600 mm (47.24"x 23.62") SLOTS x OFFSET x WIDTH 5 x 90 mm x 18 mm (5 x 3.54" x 0.7) 5 x 100 mm x 18 mm (5 x 3.94" x 0.7) MAX TABLE LOAD 500kg (1100 lbs) 800kg (1760 lbs) INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max	MOTION	MAX RAPID SPEED X/Y/Z	36 m/min (1417 IPM)	36 m/min (1417 IPM)	
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REPEAT ACCURACY 0.003 mm (0.00012") 0.003 mm (0.00012") TABLE TABLE SIZE 1000 x 550 mm (39.37" x 21.65") 1200 x 600 mm (47.24" x 23.62") SLOTS x OFFSET x WIDTH 5 x 90 mm x 18 mm (5 x 3.54" x 0.7) 5 x 100 mm x 18 mm (5 x 3.94" x 0.7) MAX TABLE LOAD 500kg (1100 lbs) 800kg (1760 lbs) INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) 1000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) 350 L (90 gal) 100 kg (100 lbs) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) 550 L (90 gal)		POSITIONING ACCURACY	0.006 mm (0.00024")	0.006 mm (0.00024")	
TABLE TABLE SIZE 1000 x 550 mm (39.37" x 21.65") 1200 x 600 mm (47.24" x 23.62") SLOTS x OFFSET x WIDTH 5 x 90 mm x 18 mm (5 x 3.54" x 0.7) 5 x 100 mm x 18 mm (5 x 3.94" x 0.7) MAX TABLE LOAD 500kg (1100 lbs) 800kg (1760 lbs) INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max		REPEAT ACCURACY	0.003 mm (0.00012")	0.003 mm (0.00012")	
SLOTS x OFFSET x WIDTH 5 x 90 mm x 18 mm (5 x 3.54" x 0.7) 5 x 100 mm x 18 mm (5 x 3.94" x 0.7) MAX TABLE LOAD 500kg (1100 lbs) 800kg (1760 lbs) INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) 7000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM)	TABLE	TABLE SIZE	1000 x 550 mm (39.37"x 21.65")	1200 x 600 mm (47.24"x 23.62")	
MAX TABLE LOAD 500kg (1100 lbs) 800kg (1760 lbs) INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max		SLOTS x OFFSET x WIDTH	5 x 90 mm x 18 mm (5 x 3.54" x 0.7)	5 x 100 mm x 18 mm (5 x 3.94" x 0.7)	
INSTALL FLOOR SPACE W x L x H 2830 x 2875 x 2860 mm (112" x 114" x 113") 3300 x 3020 x 2970 mm (130" x 119" x 117") SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max		MAX TABLE LOAD	500kg (1100 lbs)	800kg (1760 lbs)	
SHIPPING / MACHINE WEIGHTS 5800 kg (12760 lbs) 7000 kg (15400 lbs) COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max	INSTALL	FLOOR SPACE W x L x H	2830 x 2875 x 2860 mm (112" x 114" x 113")	3300 x 3020 x 2970 mm (130" x 119" x 117")	
COOLANT CAPACITY 250 L (65 gal) 350 L (90 gal) AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max		SHIPPING / MACHINE WEIGHTS	5800 kg (12760 lbs)	7000 kg (15400 lbs)	
AIR REQUIREMENTS 6 kg/cm² (90 psi), 200 L/min (7 CFM) 6 kg/cm² (90 psi), 200 L/min (7 CFM) POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max		COOLANT CAPACITY	250 L (65 gal)	350 L (90 gal)	
POWER REQUIREMENTS 20 kVA, 3 Phase, 220 V, 50 A Max 25 kVA, 3 Phase, 220 V, 60 A Max		AIR REQUIREMENTS	6 kg/cm ² (90 psi), 200 L/min (7 CFM)	6 kg/cm ² (90 psi), 200 L/min (7 CFM)	
		POWER REQUIREMENTS	20 kVA, 3 Phase, 220 V, 50 A Max	25 kVA, 3 Phase, 220 V, 60 A Max	

CONTROL SPECIFICATIONS	MACHINE FEATURES	ADDITIONAL OPTIONS	
 15.6" Touchscreen LCD Display 16 GB Program Storage 2 USB, 1 LAN Ports 4-Axis Synchronous Capable MPG Offset and MPG Run DRO + Semi-Auto Operation Standard ISO G-Code + Macro Programming Conversational Programming DXF CAD Drawing + Import via Touch File Send / Receive thru LAN / USB FTP Networked File Server Remote Diagnosis & Support Remote Monitoring and Reporting Dynamic 10,000 Block Look Ahead Program Retrace, MPG Run 	 24-Tool Arm Type Tool Changer Peck Rigid Tapping + Thread Milling C3 Class Precision Ball Screws Auto Lubrication System Full Enclosure Flood Coolant System & Chip Recovery Tray Washdown and Hose Gun LED Work Lights Tri-color Light Post Tools and Toolbox One Year Warranty on All Parts 	 12,000 RPM Direct Drive Spindle with Coolant Through Spindle (CTS) 4th Axis Rotary Table Tool Setter System Spindle Probe System Chip Conveyor System Oil Mist Collection System CE / UKCA Safety and Electrical 	







ASIA PACIFIC

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