TOOL ROOM MILLS

4-Axis CNC for Job Shops, Tool Rooms, and General Production

Featuring Automatic Tool Changer + Rigid Tapping + Versatile Programming



VKT Knee Mill with Automatic Tool Changer

The VK-T Knee Mill is a versatile CNC milling machine for manual DRO and semi-automatic jobs, while also capable of fully automatic CNC operation, enabling traditional manual machinists or new operators to run it without any CNC training. It operates quietly with direct driven X, Y, Z, and spindle, while saving space with its compact frame. It is the ideal machine for tool rooms, prototype and repair operations, garage shops, and small parts manufacturing.

Standard Features:

- 4-Tool "Spider" Type automatic tool changer
- Peck rigid tapping and thread milling cycles
- CAT/BT 40, max 6000 RPM Spindle with Dual Winding
- Direct-drive X, Y, Z, and Spindle
- Automatic lubrication, Flood Coolant, Air Blast systems
- Table-top enclosure, splash guard, and drip pan
- MPG Handwheel with MPG Offset and MPG Run

Options:

- Dual X+Y Electronic Handwheels
- 4th Axis Rotary Table
- Power Table Height Elevator
- Tool Setting System
- Spindle Probe System

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"Spider" 4T ATC

DMC Milling Center

The DMC Milling Center is a general purpose fully-enclosed CNC mill for fast and light machining. It features linear ways, a full enclosure, flood coolant, washdown, and an automatic tool changer. It is the ideal machine for tool rooms, prototype design shops, small lot, or full production operations requiring more machining speed and automation.

"Spider" 8T ATC (Standard)

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Arm Type ATC (Option)

Standard Features:

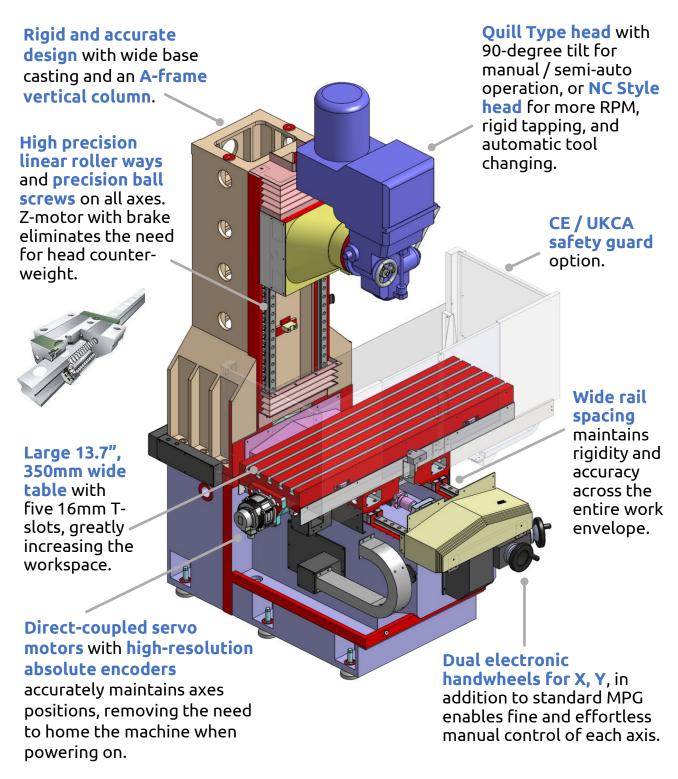
- 8-Tool "Spider" Type automatic tool changer.
- Peck Rigid tapping + Thread Milling.
- BT/CAT 40, 8000 RPM belt-drive spindle.
- Direct-drive XYZ axes.
- Advanced Motion Control.
- Auto-lube, Flood coolant, and Washdown.
- MPG Handwheel with MPG Offset and MPG Run.
- DRO+ Semi-Auto, Conversational + DXF, and G/M/S/T-Code Programming.

Options:

- 12,000K RPM direct-spindle with CTS.
- Chip auger system.
- 24-Tool Arm Type ATC.
- 4th Axis rotary table.
- Spindle Probe and Tool Setter.
- Dual X+Y Electronic Handwheels.

AR Bed Mill with A-Frame and Linear Rails

The AR-Series is a next generation CNC bed mill uniquely designed for precision, speed, and versatility by improving upon traditional bed mill designs.



AR Bed Mill Quill and NC Head Options

The AR-Series can be equipped with a Quill Head or NC Head.

QUILL HEAD OPTION

The ideal mill for manual and semi-auto ops, such as job shops, prototyping, or tool rooms, featuring:

- 5 HP Spindle up to 5000 RPM with High/Low Gear.
- Manual Quill with linear encoder, up to 127mm (5") of travel, mounted on CNC controlled z-axis.



NC + ATC HEAD OPTION

The standard bed mill for general purpose machining, featuring:

- 10 HP Spindle up to 8000 RPM.
- 16-Tool Carousel-Type Tool Changer.
- Rigid Tapping and Spindle Orientation.



DynaPath MinDelta Control System

The WinDelta Control system is a PC-based 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. Its versatility allows seamless operation between manual DRO, semi-automatic, and full CNC operation, enabling any operator of any experience level to cross seamlessly from traditional manual machining into CNC automation. Features include:

- Industrial Touchscreen LCD interface for intuitive operation,
- Advanced motion control for high speed, high precision machining,
- DRO + Semi-Auto Mode bridges manual machining with automatic operation,
- Conversational DXF Programming with touch-based CAD Editing and Import,
- Networked file management enables shop-wide centralized data management,
- Remote diagnostics and support to quickly respond to any issue or service request,
- Standard G/M-Code with G-Code Macro Programming for universal compatibility.



CNC Hardware Specifications

Control • DynaPath WinDelta

Memory • 4 GB DDR3
Storage • 16 GB SSD

Ports • RS232, RS422/RS485

RJ45 Network Port

2x USB

• 10.4", 12.1", 15.6", 17", 19" Industrial Touchscreen LCD

>500 cd/m² Luminance

Operating • MDI 1st Panel

Panel • Operator's 2nd Panel

• USB Keyboard + Mouse

Handwheel • Remote Jog Unit (MPG)

2x Electronic Handwheels (*Option)

• EtherCAT or Yaskawa M-III Digital I/F

Max Simultaneous 4-Axis Milling

Dynamic 10,000-Block Look Ahead

1ms Servo Update Rate

32 DI/20 DO, 2DA/ENC/Pulse, 1 MPG

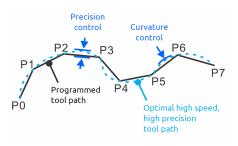
Expansion I/O • 8 DI/18 DO

Power Input • 24 VDC 6 A

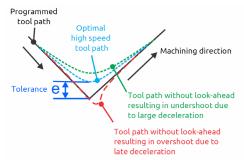
Axis Control

Standard I/O

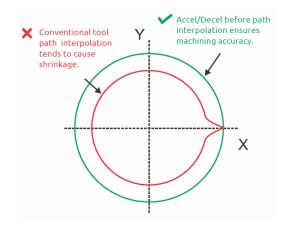
Path Smoothing algorithms provide precision control and curvature control. The result is the optimal tool path for speed and precision.



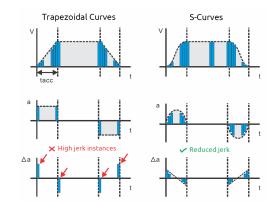
Look Ahead anticipates upcoming programmed motion commands and plans the optimal trajectory dynamically in real time.



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

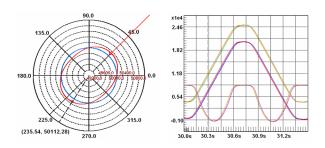


Jerk Reduction is performed by using trapezoidal or S-curve acceleration and deceleration, allowing smoother motion, higher machining speeds, and helps protect against machine wear.



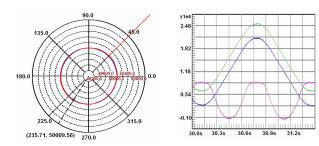
Without Feed Forward and Friction Compensation

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.



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.



WinDelta® CNC is the most versatile control for all your many operations:

DRO + Semi-Auto + Conversational Programming + G-Code

DRO + SEMI-AUTO OPERATION

For quick and simple jobs or work requiring the skilled hands of an experienced machinist, *DRO+ Semi-Auto* offers operators the ability to manually use *electronic handwheels mixed with semi-automatic operations* to quickly machine a part.

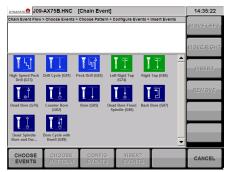
CONVERSATIONAL DXF PROGRAMMING

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

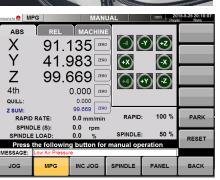
For those with CAD/CAM, simply post-process to standard ISO/EIA G-Code, then send the program via USB or FTP networked file transfer to the control. Advanced G-Code Macro Programming is also fully supported.

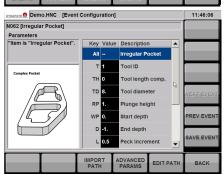






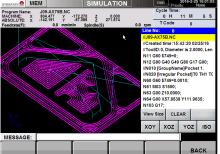












DRO+ Mode for Accurate and Efficient Manual Operation

DynaPath DRO + Semi-Auto Operation

For simple, quick, and single-operation type jobs that traditionally required the skilled hands of a machinist, **DRO+ Semi-Auto** is a special operation mode that enables any operator of any experience level the ability to start operating in manual mode using **Electronic Handwheels and MPG** to quickly and more accurately machine a part, and then seamlessly cross from traditional machining into **Semi-Automatic Operation** to achieve higher efficiency and productivity.



Precise and Accurate operation can be performed using the electronic handwheels with precision up to 0.0001" or 0.001 microns by leveraging the high-resolution fully-closed loop CNC motion control. Additionally, the servo motors are equipped with absolute encoders, so positions are always accurately remembered without having to re-reference the machine.



Auto-Feed Line allows moving one or multiple axes with a press of a button, to quickly and accurately move to a defined location at a set RPM and feed rate, or to perform precise machining along a line.

Calculation Assist functions feature a standard calculator with additional geometric calculation screens to assist with machining calculations such as center finding, intersections, corner blending, pattern locations, and much more.

Store and Recall DRO Offset locations to display coordinates with respect to a defined part zero location that was set to specific fixtures positions, stock sizes, or features on commonly machined parts.



Semi-Automatic Operation with Enhanced CNC Functionality

Semi-Auto Machining for Quick, Single Event Operations

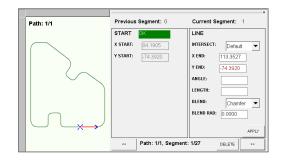
Standard Shape Templates allows defining shapes such as rectangles, circles, ellipse, polygons, and slots by setting a just few parameters.

Center X 0
Center Y 0
N Sides 6
Length 25
Rotate Angle 0

OK Cancel

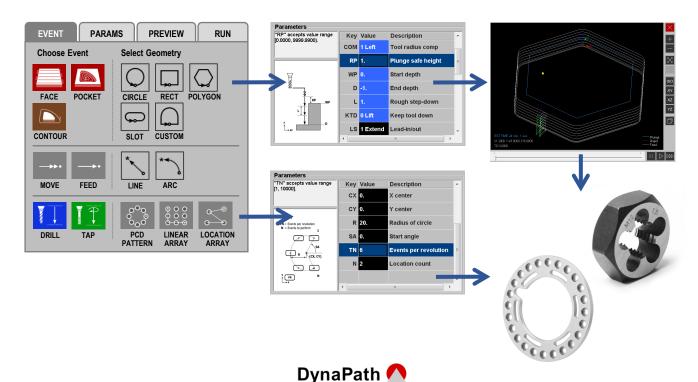
Irregular Rectangle Circle Polygon Slot

Intuitive Polygon Editor allows input of point-to-point geometry to describe a path comprising of lines and arcs for machining.



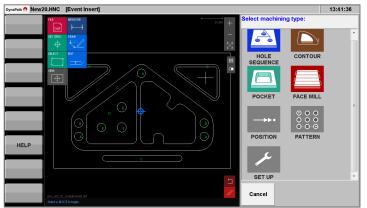
Semi-Auto Events includes standard milling cycles such as **Frames, Circles, Polygons, and Face milling events.** For hole-making, there are events such as **Drill, Bore, Tap, PCD bolt hole pattern, and Location Arrays.** The operation is quick and simple:

- 1. Select the machining event and geometry to perform.
- 2. Set parameters such as depths, feeds, and speeds.
- 3. Preview and run the machining operation.



DynaPath WinDelta® Programming

Conversational Programming + DXF Import + G-Code Editing



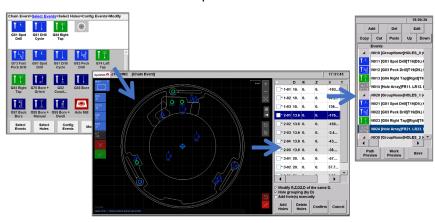
Conversational Multi-Window Event-Based Programming allows creating part programs by choosing machining events, setting its geometry, and configuring its parameters, without having to write G-Code.

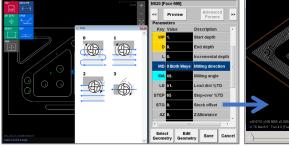
Built-in Milling and Hole Events include standard contour, pocket, helix, thread mill, taper, engrave, pattern, drill, bore, tap, and many other events.

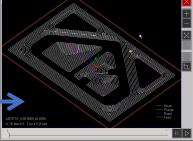
DXF Import and CAD Editing allows geometric import from DXF drawings and offers CAD editing functions via the intuitive touchscreen interface, saving valuable programming time and reduces input errors.

Hole Import enables intelligent programming of holes by:

- Defining a sequence of drill, bore, tap, or hole mill events to machine,
- Drag select a region of holes to apply automatic geometric grouping into a table for editing,
- 3. Configure cutting parameters for each group of holes,
- Save and generate a tooloptimized hole machining program.







Conversational Graphics

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

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

G-Code Editor enables ISO/EIA G/M/S/T-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.



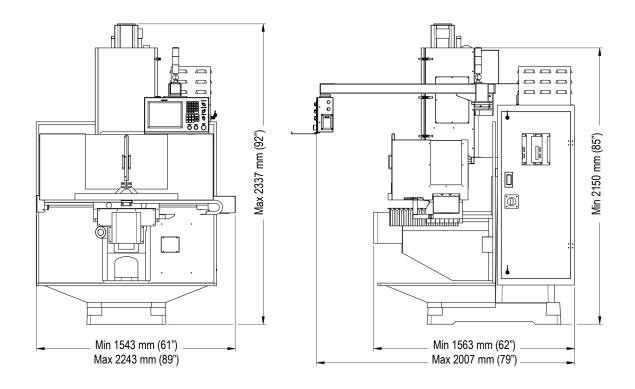




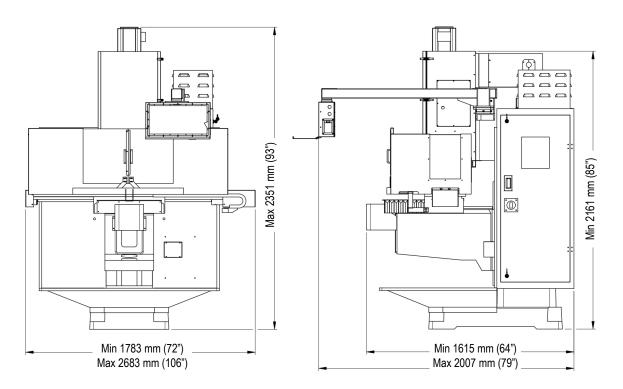
VKT KNEE MILL SPECIFICATIONS						
SPECICATION			VKT-3T		VKT-4T	
AXES	XYZ TRAVEL		700 x 310 x 270 mm (27.5" x 12.2" x 10.6")		900 x 340 x 270 mm (35.4" x 13.3" x 10.6")	
	AXES TYPE X/Y/Z		Dove / Dove / Linear		Dove / Dove / Linear	
KNEE TRAVEL (Z)			350 mm (13.7")			
	SPINDLE NOSE TO TABLE		100-400 mm (3.9-15.7")			
	TOOL TO COLUMN		360 mm (14.2")			
MOTORS X/Y/Z			0.85 / 0.85 / 0.85 kW Direct Drive			
SPINDLE	DIAMETER		120 mm (4.7")		120 mm (4.7")	
	RPM		50-6000 RPM		50-6000 RPM	
	DRIVE METHOD		Direct Direct		Direct	
	TAPER		BT40 / CAT40			
	MOTOR		5 HP (3.75kW) Direct Drive, Dual Winding			
	RATED TORQUE		24 N-m (17.7 ft-lb")			
ATC	TOOL CHANGER		4-Stations		4-Stations	
MOTION	MAX RAPID SPEED X/Y/Z		6000 mm/min (230 IPM)		6000 mm/min (230 IPM)	
	POSITIONING ACCURACY		0.020 mm (0.000787")			
	REPEAT ACCURACY		0.010 mm (0.000394")			
TABLE	TABLE SIZE		1270 x 254 mm (50" x 10")		1470 x 320 mm (57.9" x 12.6")	
	SLOTS x OFFSET x WIDTH		3 x 65 mm x 16 mm (3 x 2.°9/16 x 5/8)		3 x 75 mm x 16 mm (3 x 2"61/64 x 5/8)	
	MAX TABLE LOAD		220 kg (480 lbs)			
SIZE	MACHINE L x W x H		1550 x 1570 x 2200 mm (61" x 62" x 87")		1790 x 1615 x 2200 mm (71" x 64" x 87")	
	FLOOR SPACE L x W x H		2250 x 2010 x 2400 mm (90" x 79" x 94")		2690 x 2010 x 2400 mm (106" x 79" x 94")	
	MACHINE WEIGHT		1600 kg (3520 lbs)		1800 kg (3960 lbs)	
INSTALL	COOLANT CAPACITY		40 L (10 gal)			
	AIR REQUIREMENTS		6 kg/cm² (90 psi), 30 L/min (1 CFM)			
	POWER REQUIREMENTS		8 kVA, 3 Phase, 220V			
CONTROL SPECIFICATIONS MACHINE FEAT		URES ADDITIONAL OPTIONS				
 16 GB Program Storage 2 USB, 1 LAN 4-Axis Synchronous 4th Axis Rotary Table Option DRO Operation ISO G-Code Motion Interpreter Core Shop Floor Conversational Programming DXF Drawing Import via Touch File Send / Receive thru LAN / USB FTP Networked File Transfer Remote Diagnosis & Support FF 		 Peck Rigid T C3 Class Pr Manual Table Auto Lubrica Air + Flood C Table-Top E Splash Guar Way Covers LED Work L Tri-color Lig Tools and To 	4-Tool "Spider" Type Tool Changer Peck Rigid Tapping + Thread Milling C3 Class Precision Ball Screws Manual Table Height Crank Auto Lubrication System Air + Flood Coolant System Table-Top Enclosure Splash Guard + Coolant Tray Way Covers LED Work Light Tri-color Light Post Tools and Toolbox One Year Warranty on All Parts		 Power Table Height Elevator 4th Axis Rotary Table Tool Setter System Spindle Probe System CE / UKCA Safety and Electrical Dual X+Y axis Electronic Handwheels 	



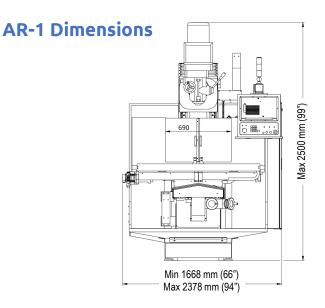
VK-3T Dimensions

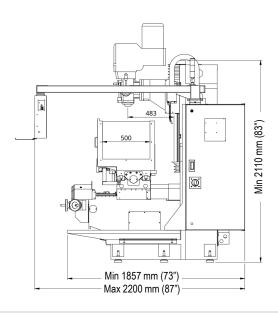


VK-4T Dimensions

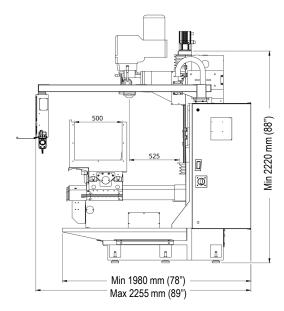


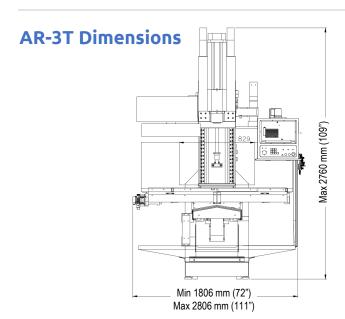
AR BED MILL S	SPECIFICATIONS					
SPECS		AR-1	AR-3	AR-3T		
AXES X TRAVEL		710 mm (27.95")	1000 mm (39.37")			
	Y TRAVEL	400 mm (15.75")	500 mm (19.69")			
Z TRAVEL		500 mm (19.69")	600 mm (23.62")	510 mm (20")		
	QUILL TRAVEL	127 mm (5")	127 mm (5")			
	NOSE TO TABLE, MIN	100 mm (3.94")	100 mm (3.94")			
	NOSE TO TABLE, MAX	600 mm (23.62")	710 mm (27.95")	620 mm (24.4")		
	TOOL TO COLUMN	483 mm (19.02")	533 mm (20.98")			
	MAX RAPID SPEED	12 m/min (472 ipm)	12 m/min (472 ipm)			
	MAX CUTTING FEED	12 m/min (472 ipm)	12 m/min (472 ipm)			
	RATED OUTPUT XYZ	0.85 / 0.85 / 0.85 kW				
	MAX TORQUE XYZ	24 / 24 / 24 Nm	24 / 24 / 32 Nm			
TABLE	LENGTH	1250 mm (49.21")	1525 mm (60.04")			
	WIDTH	350 mm (13.78")	350 mm (13.78")			
	T-SLOTS/GAP/WIDTH	5 x 65 mm x 16 mm	5 x 65 mm x 16 mm			
	MAX LOAD	400 kg (880 lbs)	500 kg (1100 lbs)			
SPINDLE	TYPE	Quill Type BT40 or CAT40	Quill Type BT40 or CAT40	NC Style BT40 or CAT40		
	MAX RPM	0-500 RPM Low Gear 500-4000 RPM High Gear	0-500 RPM Low Gear 500-4000 RPM High Gear	8000 RPM		
	RATED OUTPUT	5.5 kW (7 HP)	5.5 kW (7 HP)	7.5 kW (10 HP)		
	DIAMETER 100 mm (3.94")		100 mm (3.94")	120 mm (4.72")		
ATC	TYPE			16-Tool Carousel		
	MAX TOOL DIA			Ф90 mm (3.54")		
	MAX TOOL LENGTH			300 mm (11.81"		
	MAX TOOL WEIGHT			7 kg (15.4 lbs)		
ACCURACY	POSITIONING ACCURACY	0.006 mm (0.00024")	0.006 mm (0.00024")	0.006 mm (0.00024")		
	REPEAT ACCURACY	0.003 mm (0.00012")	0.003 mm (0.00012")	0.003 mm (0.00012")		
SIZE	FLOOR SPACE, WIDTH	2378 mm (94")	2806 mm (111")	2806 mm (111")		
	FLOOR SPACE, DEPTH	2200 mm (87")	2255 mm (89")	2255 mm (89")		
	FLOOR SPACE, HEIGHT	2500 mm (99")	2600 mm (103")	2760 mm (109")		
	WEIGHT	2150 kg (4730 lbs)	2950 kg (6490 lbs)	3150 kg (6930 lbs)		
INSTALL	POWER LOAD	3 P, 220 V, 50 A, 8 KVA	3 P, 220 V, 50 A, 8 KVA			
	AIR	6 kgf/cm2 (85 PSI) 0.03 m3/min (1 CFM)	6 kgf/cm2 (85 PSI) 0.03 m3/min (1 CFM)			
	COOLANT CAPACITY	30 L (8 gal)	50 L (11 gal)			
	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	- (~ 3~··/	- (··· 3 ~·/			
CONTROL SPE	ECIFICATIONS	MACHINE FEATURES	ADDITIONAL O	PTIONS		
 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 		Auto Lubrication System Air/Flood Coolant System Thread Milling C3 Class Precision Ball Screet Table-Top Enclosure Splash Guard + Coolant Traet Way Covers LED Work Light Available on NC Head: Tri-color Light Post Rigid Tapping Spindle Orientation	• Dual X+Y av • 4th Axis Rot • Tool Setter v • Spindle Prol • CE / UKCA	4th Axis Rotary Table Tool Setter System Spindle Probe System		
		EZLearn				
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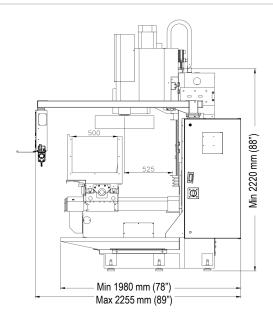




AR-3 Dimensions Min 1806 mm (72") Max 2806 mm (111")





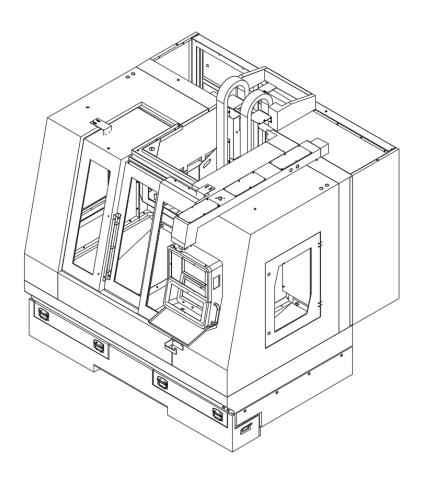


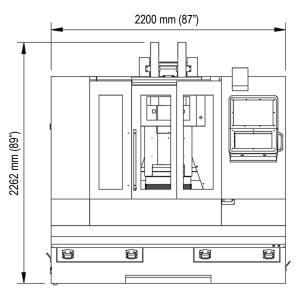
DMC MILLING CENTER SPECIFICATIONS						
SPECICATION		DMC-845LS DMC-845LS		DMC-845LS		
AXES	XYZ TRAVEL		800 x 400 x 500 mm (31.4" x 15.7" x 19.6")			
	AXES TYPE X/Y/Z		Linear Roller / Linear Roller / Linear Roller			
	SPINDLE NOSE TO TABLE		110 - 535 mm (4.3-21.0")			
	TOOL CENTER TO COLUMN		435 mm (17.1")			
	MOTORS X/Y/Z		0.85 / 0.85 / 1.3 kW Direct Drive			
SPINDLE	DIAMETER		127 mm (5.0")			
	TAPER		BT40 / CAT40			
	RPM		50-8000 RPM		50-12,000 RPM	
	TYPE		Belt Drive		Direct Drive + Thru-Spindle Coolant	
	POWER		5.5 kW (7 HP)		7.5 kW (10 HP)	
	MAX TORQUE		36 N-m (26 ft-lbf)		48 N-m (35 ft-lbf)	
	COOLING		Air		Oil Chiller	
ATC	TOOL CHANGER		8-Tool Independent Arm Tool Changer 24-Tool Arm Type Tool Changer (Option)			
	MAX TOOL DIA / WEIGHT		Ø63 mm (Ø2.4") / 5 kg (11.0 lbs)			
MOTION	MAX RAPID SPEED X/Y/Z		20 m/min (787 IPM)			
	MAX CUTTING FEED X/Y/Z		10 m/min (393 IPM)			
	POSITIONING ACCURACY		0.012 mm (0.00020")			
	REPEAT ACCURACY		0.006 mm (0.00012")			
TABLE	TABLE SIZE		850 x 420 mm (33.5"x 16.5")			
	SLOTS x OFFSET x WIDTH		4 x 85 mm x 18 mm (4 x 3"11 x 45/64)			
	MAX TABLE LOAD		200kg (440 lbs)			
INSTALL	FLOOR SPACE W x L x H		2200 x 2200 x 2310 mm (87" x 87" x 91")			
	SHIPPING / MACHINE WEIGHTS		3800 kg (8360 lbs) / 3050 kg (6710 lbs)			
	COOLANT CAPACITY		200 L (52 gal)			
AIR REQUIREMENTS POWER REQUIREMENTS			6 kg/cm² (90 psi), 200 L/min (7 CFM) 15 kVA, 3 Phase, 220V		1)	
		MACHINE FEAT				
 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 		Peck Rigid TaC3 Class PreAuto LubricatFull EnclosurFlood Coolan	Tool "Spider" Type Tool Changer eck Rigid Tapping + Thread Milling B Class Precision Ball Screws ato Lubrication System all Enclosure bod Coolant System & Chip Recovery Tray ashdown and Hose Gun		ool Arm Type Tool Changer O RPM Direct Drive Spindle with Coolant Ugh Spindle (CTS) xis Rotary Table Setter System dle Probe System Auger System	

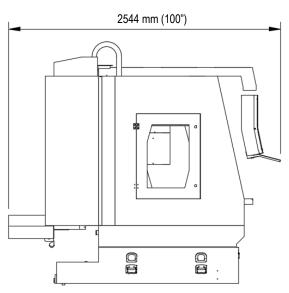
 15.6" Touchscreen LCD Display 	8-Tool "Spider" Type Tool Changer	24-Tool Arm Type Tool Changer
16 GB Program Storage	Peck Rigid Tapping + Thread Milling	12,000 RPM Direct Drive Spindle with Coolant
2 USB, 1 LAN Ports	C3 Class Precision Ball Screws	Through Spindle (CTS)
 4-Axis Synchronous Capable 	Auto Lubrication System	4th Axis Rotary Table
 MPG Offset and MPG Run 	Full Enclosure	Tool Setter System
DRO + Semi-Auto Operation	Flood Coolant System & Chip Recovery Tray	Spindle Probe System
 Standard ISO G-Code + Macro Programming 	Washdown and Hose Gun	Chip Auger System
 Conversational Programming 	LED Work Light	Oil Mist Collection System
 DXF CAD Drawing + Import via Touch 	Tri-color Light Post	CE / UKCA Safety and Electrical
 File Send / Receive thru LAN / USB 	Tools and Toolbox	
 FTP Networked File Server 	One Year Warranty on All Parts	
 Remote Diagnosis & Support 		
 Remote Monitoring and Reporting 		
 Dynamic 10,000 Block Look Ahead 		
Program Retrace, MPG Run		



DMC-845 Dimensions









ASIA PACIFIC

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