DynaPath

DMC-L845 Milling Center

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

Featuring Automatic Tool Changer + Rigid Tapping + Versatile Programming
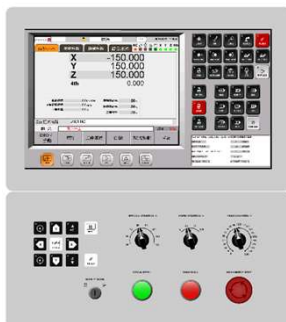

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DMC Milling Center

The DMC Milling Center is a general CNC mill for parts production machining. It features linear ways, full enclosure, and an 8-tool ATC. It is the ideal machine for tool rooms, design prototyping shops, and small lot to full production operations that require more machining speed and automation.

- **Featuring a 8-Way Tool Changer.**

- **Standard peck rigid tapping and peck drilling cycles.**

- **Standard 40-Taper, 8000 RPM belt-drive spindle with dual winding.**

- Standard direct-drive XYZ axis.

- Standard automatic lubrication and automatic coolant systems.

- Standard full enclosure, with coolant system and washdown.

- Standard MPG Handwheel.

- Optional 10,000 RPM spindle with coolant through spindle.

- Optional chip auger system.

- Optional 4th Axis rotary axis capable of simultaneous motion.

DynaPath WinDelta CNC

The DynaPath WinDelta control system enables the machine to be operated manually in DRO Mode, by teaching positions and commands in the Semi-Auto Mode, or by running G-Code programs in full Auto Mode. Programs can be created with the built-in Conversational + DXF Editor, or by direct G-Code programming.

- 15.6" LCD touchscreen display

- USB and Networked File Transfer

- Remote Diagnostics and Support

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DynaPath WinDelta® Control System
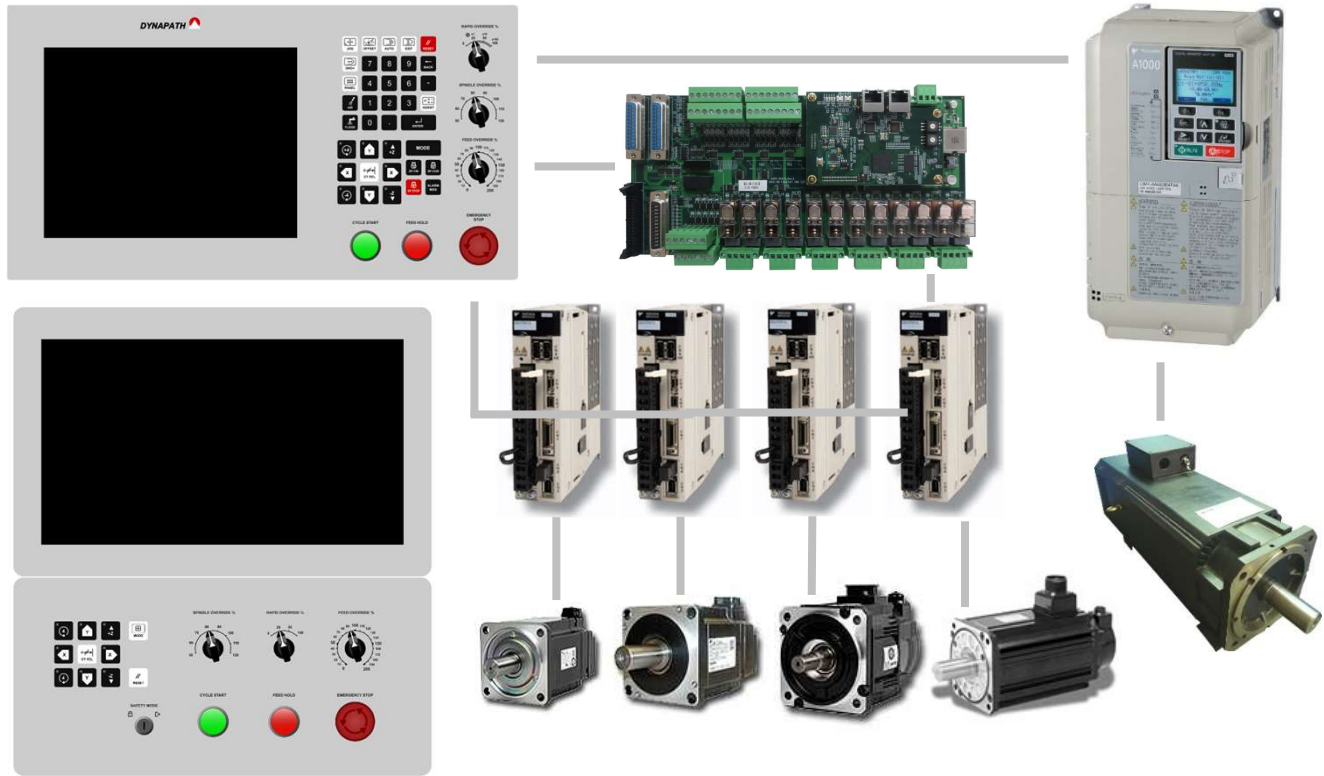
CNC Hardware Specifications

Control	•	WinDelta-M CNC
Storage	•	4 GB SSD
Serial Ports	•	RS232, RS422/RS485
Networking	•	T10/T100 Ethernet Port
Device Inputs	•	1x PS/2, 2x USB 2.0
Display	•	12.1"/15.6" LCD Display
	•	Resistive Touch Display
	•	400 cd/m² Luminance
Operating Panel	•	D1, D10 Type Console

Handwheel	•	8-Function Remote Jog Unit (MPG)
Axis Control	•	4-axis simultaneous
Standard I/O	•	32 DI/12RO/8SO
Expansion I/O	•	8DI/20SO
Power Input	•	24 VDC

Environmental Specifications

Operating Temp	•	0 to 50 ˚C (0 to 122 ˚F)
Storage Temp	•	-20 to 60 ˚C (-4 to 140 ˚F)
Operating Humidity	•	5% to 85% RH, non-condensing

Vibration	•	16.7 Hz: acceleration of 1.5G
	•	10 to 57 Hz: amplitude of 0.075 mm
	•	57 to 150 Hz: acceleration of 1G
EMI/EMS	•	1.5 kV CE certified

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# Advanced Path Planning with Look Ahead and Feed Forward

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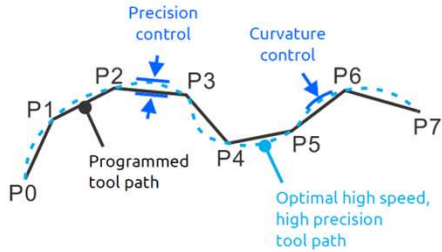

Look Ahead anticipates upcoming programmed motion, and plans the optimal trajectory in real time up to 1000 blocks.
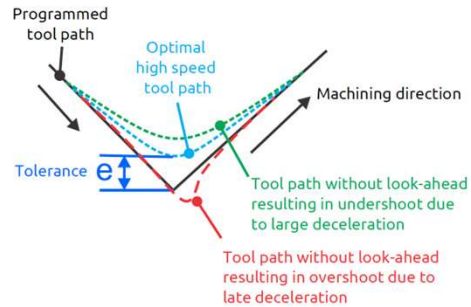
**Smart Interpolation** ensures machining accuracy by performing acceleration and deceleration before path interpolation.
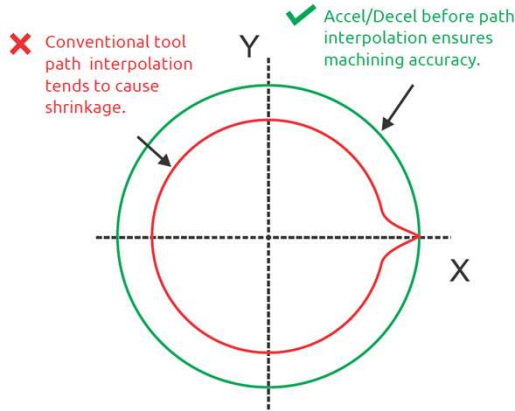
Jerk Reduction is performed by using trapezoidal or S-curve acceleration and deceleration, allowing smoother motion, higher machining speeds, and helps protect against machine wear.
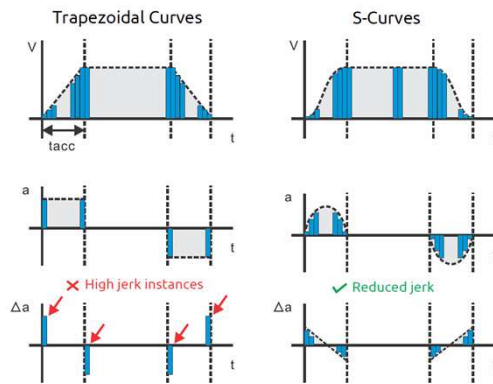
Without Feed Forward and Friction Compensation
XY and Z axes motion accuracy is prone to in correctable position errors, as demonstrated in the following plots on a circular tool path of 28.3mm diameter, at 8 m/min feed rate. In this case the final trajectory has a maximum position error exceeding 20 µm and more than 6 µm reversal spikes are presented.
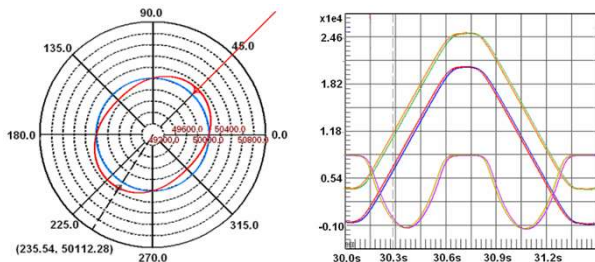
With Feed Forward and Friction Compensation
XY and Z axes motion accuracy is greatly increased, as demonstrated in the following plots on a circular tool path of 28.3 mm diameter, at 8 m/min feed rate. The final trajectory has a maximum position error within 5 µm and the reversal spikes are less than 2µm.

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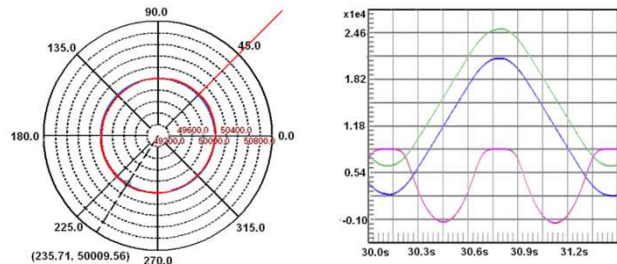
WinDelta ® CNC is the most versatile control for all your many operations:

Semi-Automatic + Conversational Programming + G-Code

SEMI-AUTOMATIC OPERATION

For quick and simple jobs, or work requiring the skilled hands of an experienced machinist, *Semi-Automatic Operation* functionality offers operators the most *friendly and familiar* way to do the job.

CONVERSATIONAL PROGRAMMING

For general parts and jobs, the *Conversational Editor with DXF Import* enables any operator to generate part programs without writing G-Code, oftentimes faster than it takes to set up for the part.

CAD/CAM 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, and fully leverage the power of CNC production.

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DynaPath WinDelta® Programming

## Conversational Programming + DXF Import + G-Code Editing
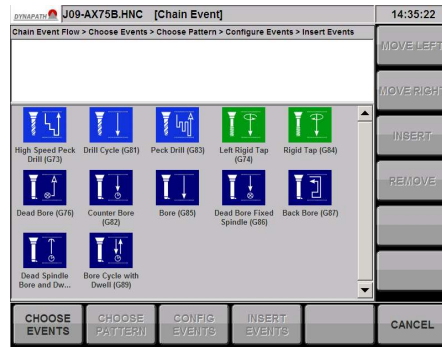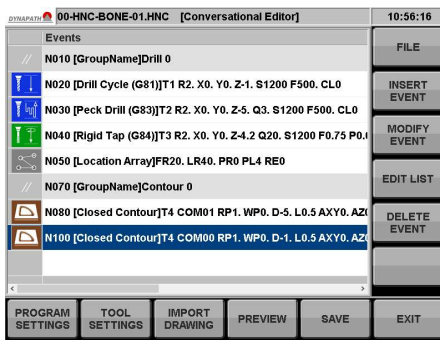
Conversational Event Based Programming allows making part programs by simply choosing machining events and configuring its parameters, without having to write G-Code.

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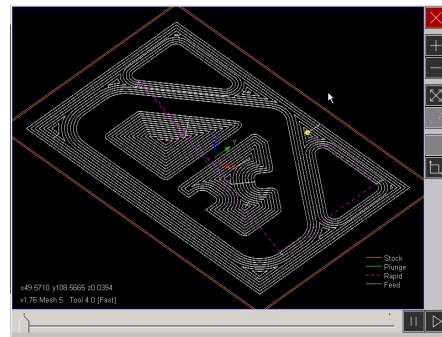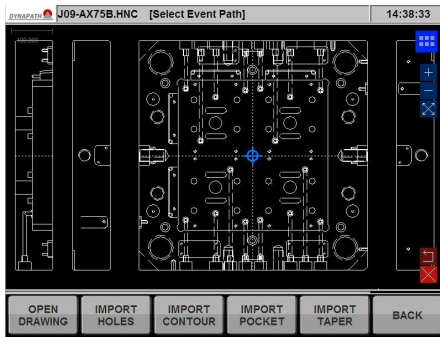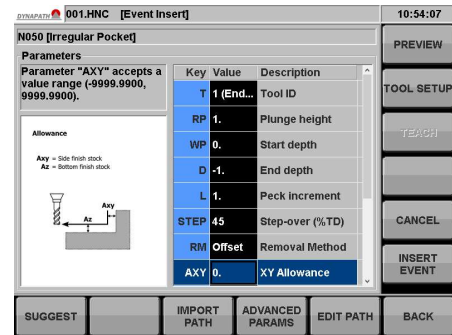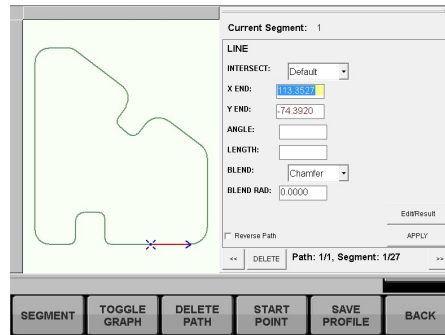
DXF Drawing Import allows direct geometry import from CAD drawings via an intuitive, touchscreen interface, saving programming time and reducing errors.

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.

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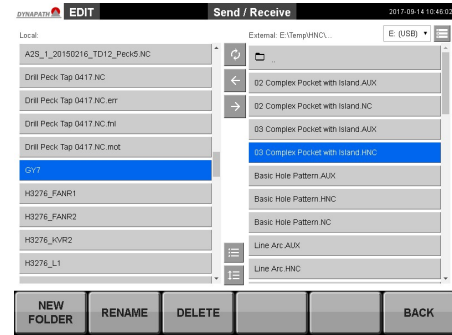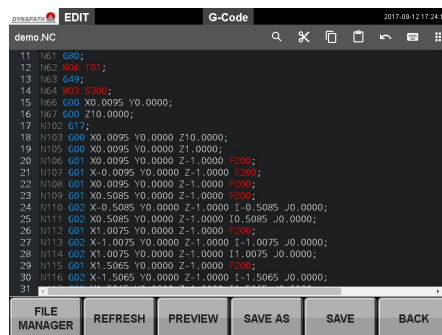
DMC MILLING CENTER SPECIFICATIONS

| SPECICATION		DMC-845L	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-Station Independent Arm	
	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	6 kg/cm^2 (90 psi)	
	POWER REQUIREMENTS	15 kVA, 3 Phase, 220V	

CONTROL SPECIFICATIONS

- 15.6" Touchscreen LCD Display
- 4 GB Program Storage
- 2 USB, 1 LAN
- 4-Axis Synchronous
- 4th Axis Rotary Table Optional
- 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
- Remote Monitoring and Reporting
- 500 Block Look Ahead
- Program Retrace, MPG Run

MACHINE FEATURES

- Automatic 8-Way Tool Changer
- CNC Rigid Tapping
- C3 Class Precision Ball Screws
- Auto Lubrication System
- Full Enclosure
- Flood Coolant System & Chip Recovery Tray
- LED Work Light
- Tri-color Light Post
- Tools and Toolbox
- One Year Warranty on All Parts

ADDITIONAL OPTIONS

- 12,000 RPM Direct Drive Spindle with Through Spindle Coolant (TSC)
- 4th Axis Rotary Table
- Tool Setter System
- Spindle Probe System
- Chip Auger System

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DMC Dimensions

2200 mm (87")

2262 mm (89")

2544 mm (100")

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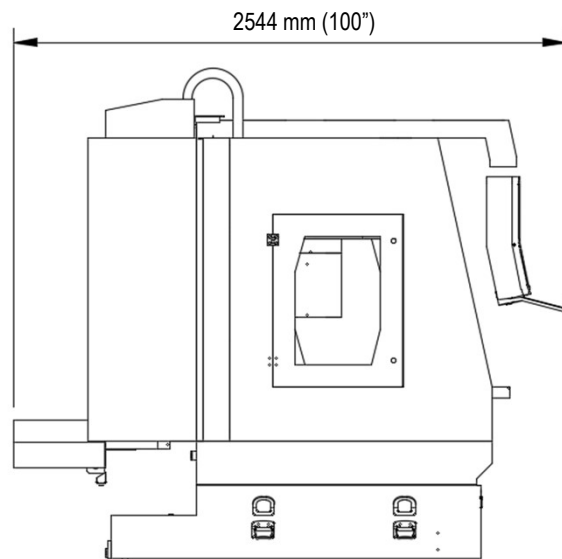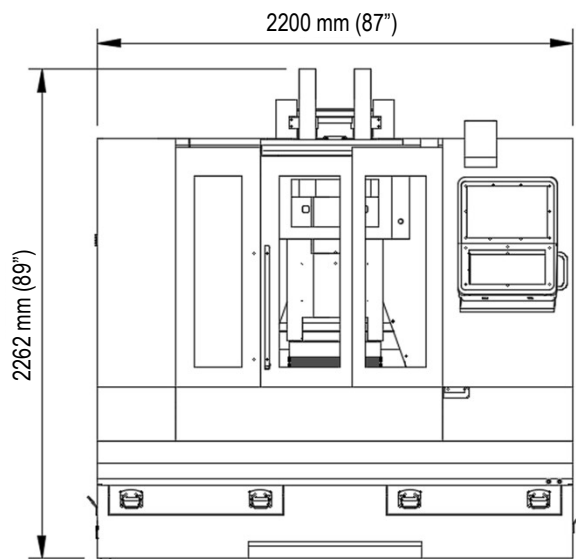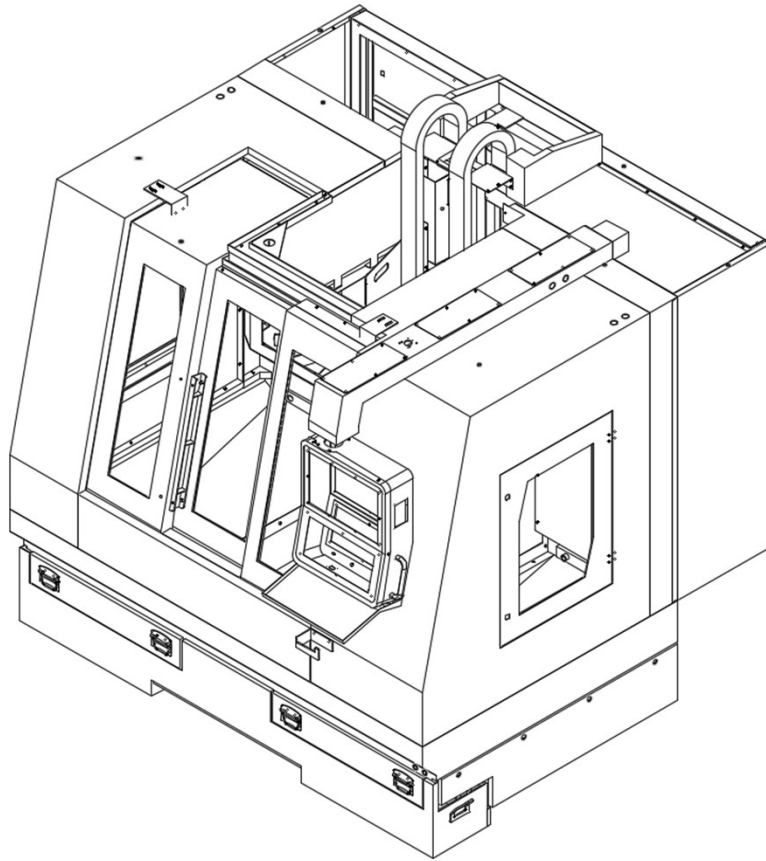
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