



3-AXIS VERTICAL GENERAL MACHINING CENTER

DEM

4000



DN SOLUTIONS

DEM 4000

DEM series is a vertical machining center for 3-axis general machining with high rigidity structure. The model is designed very suitable for basic performance necessary for cutting processing.





FAITHFUL TO THE BASICS

DEM4000 has high rigidity structure for excellent basic cutting performance, High speed belt spindle of 8000 r / min, cam type, ATC magazine is adopted

NC SYSTEM WITH WIDE RANGE OF SPECIFICATIONS

DEM4000 has Fanuc and Mitsubishi CNC each CNC is optimized for the machine high performance.

BEST CAPACITY IN CLASS

DEM4000 has a table size of 650 x 400 mm, 400kg allowable specification.

BASIC STRUCTURE

Apply high rigidity structure cutting performance for basic cutting.

Travel distance

X-axis **550** mm
21.7 inch

Y-axis **400** mm
15.7 inch

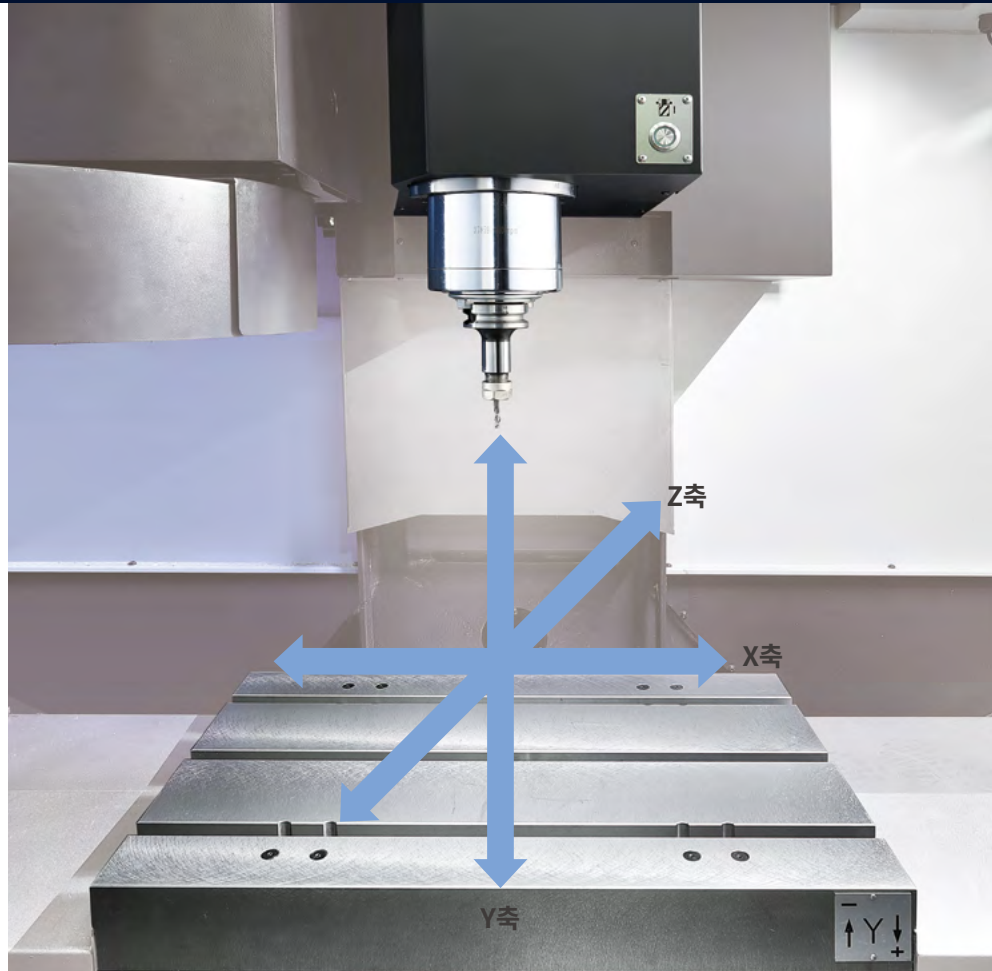
Z-axis **450** mm
17.7 inch

Rapid traverse

X-axis **24** m/min
944.9 ipm

Y-axis **24** m/min
944.9 ipm

Z-axis **24** m/min
944.9 ipm



SPINDLE

High speed belt spindle is applied.

Max. spindle speed

8000 r/min

Max. spindle motor power

7.5 kW
10.1 Hp

Max. spindle torque

47.7 N.m
35.2 ft-lbs



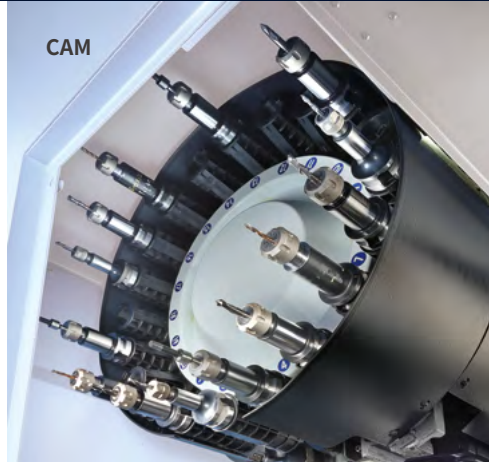
MAGAZINE

From cam type to armless various magazine types are applied.

Magazine

20 ea (CAM)

16 ea (ARMLESS) OPTION



CUTTING PERFORMANCE

End mills, face mills, drilling and tapping each machining provide high performance.

Powerful cutting

* The results, indicated in this catalogue are provides as example. They may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

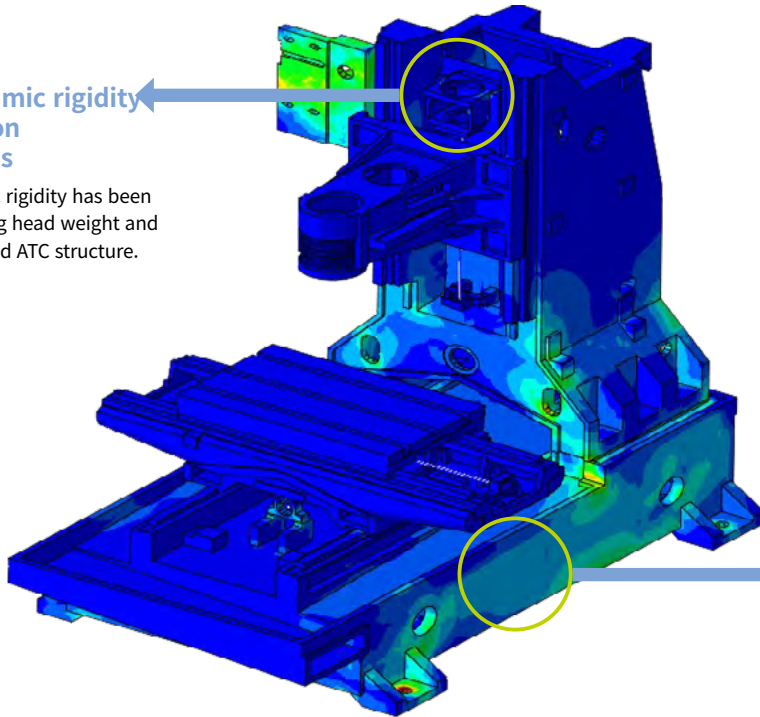
NC unit	Tap	Face mill (Ø80 mm Face mill)	
	SM45C	SM45C	AL6061
DN Solutions Fanuc i Plus (8000 r/min)	M24 x 3.0 (M0.9 x 0.12)	207(81.5) x 1500 x 2700(106.3) x 1.2(0.1)	806(317) x 1500 x 6300(248) x 2.0(0.1)
Mitsubishi M80B (8000 r/min)	M20 x 2.5 (M0.8 x 0.1)	242(95) x 1500 x 2700(106.3) x 1.4(0.1) 260(102) x 1500 x 4050(159.4) x 1.0(0.1)	777(306) x 1500 x 2700(106.3) x 4.5(0.2) 921(362) x 1500 x 7200(283.5) x 2.0(0.1)

HIGH RIGIDITY STRUCTURE DESIGN IMPROVES RELIABILITY

Improved machine structure and increased rigidity through FEM analysis provide stable machining conditions.

Enhanced dynamic rigidity against vibration in X/Z directions

The systems dynamic rigidity has been enhanced by reducing head weight and modifying the bed and ATC structure.



Enhanced dynamic rigidity the bed structure

OPTIMAL DESIGN CONSIDERING CUSTOMER'S ENVIRONMENT

Easier equipment operation by achieving compact size considering installation in apartment-type factories or places with limited space.

Width

2200 mm
86.6 inch

Length

1875 mm
73.8 inch

Height

2317 mm
91.2 inch

Distance to table

850 mm
33.5 inch



STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features		DN Solutions Fanuc i Plus	Mitsubishi M80B	
Spindle	MAX. SPINDLE SPEED	8000 R/MIN	●	●	
Tool	TOOL SHANK TYPE	BT40	●	●	
		CAT40	○	○	
		DIN40	○	○	
	TOOL STORAGE CAPACITY	20 EA	●	●	
16 EA		○	○		
Coolant	FLOOD	0.25 KW_0.13 MPA_20 L/MIN	●	●	
	TSC	2 MPa (1.5kW)	○	○	
CHIP PAN, CHIP CONVEYOR & BUCKET	CHIP PAN		●	●	
	CONVEYOR	SCREW(AUGER) TYPE CONVEYOR	○	○	
ACCESSORIES	AUTO. WORKPIECE MEASUREMEN	RENISHAW / OMP60	○	○	
		RENISHAW / OMI-2T_ONLY	○	○	
		RENISHAW / OMI-2T_OMP60	○	○	
		RENISHAW / OMI-2T_OMP60_OTS	○	○	
	AUTO TOOL LENGTH MEASUREMEMENT	RENISHAW / TS27R	○	○	
		RENISHAW / OMI-2T_OTS	○	○	
	AIR GUN	-	○	○	
	CALIBRATION BLOCK	-	○	○	
	PNEUMATIC FIXTURE INTERFACE	A LINE_1 PAIR	○	○	
		A LINE_2 PAIR	○	○	
		A LINE_3 PAIR	○	○	
	TEST BAR GAUGE	-	○	○	
	ADDITIONAL GREASE PACK	GREASE PACK_1EA	○	○	
		GREASE PACK_2EA	○	○	
GREASE PACK_3EA		○	○		
Customized special option	RAISING BLOCK	150 mm (5.9 inch)	○	○	
		200 mm (7.9 inch)	○	○	
		300 mm (11.8 inch)	○	○	
	FLOOD COOLANT(2)	TANK CAPACITY	100 L	○	○
		PUMP MOTOR POWER	1.8 kW (2.4 Hp)	○	○
		FILTRATION	20 (TANK SCREEN FILTER)	○	○
		MAX. PRESSURE	0.69 MPa	○	○
		MAX. FLOWRATE	30 L/min	○	○
	CONVEYOR	HINGED PLATE TYPE CONVEYOR	-	○	○
		SCRAPER TYPE CONVEYOR	-	○	○
	BUCKET	TYPE / CAPACITY	ROTATION TYPE / 220	○	○
	4TH AXIS PREPARATION CABLING FOR SERVO/1-PNEUMATIC PIPING		FACTORY READY MADE	○	○
	4TH AXIS WITH CNC R.TABLE		Φ250 mm (Φ9.5 inch)	○	○
			DEPENDS ON THE TABLE	○	○
ANCHORING		J-BOLT	○	○	

* Please contact DN Solutions to select detailed steady rest specifications

● Standard ● Optional X Not applicable

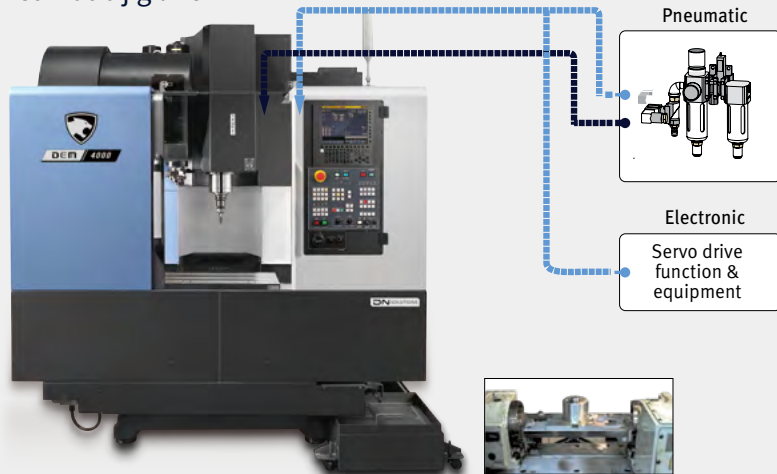


There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

PERIPHERAL EQUIPMENT

4-axis Auxiliary device Interface/Pneumatic Jig Line

- 4-axis Auxiliary device Interface
- Pneumatic jig line



• DEM 4000 ecommendation Rotary Table : Ø200

Auxiliary axes controller

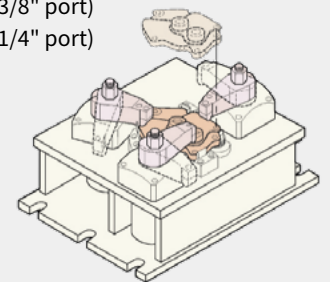
Checklist for pneumatic lines for work clamping

Pneumatic line for jig /T A/B

Customer requirements
_____ L/min at _____ MPA

Number of jig ports

- 1pair (2-PT 1/4" port)
- 2pair (4-PT 3/8" port)
- 3pair (6-PT 1/4" port)



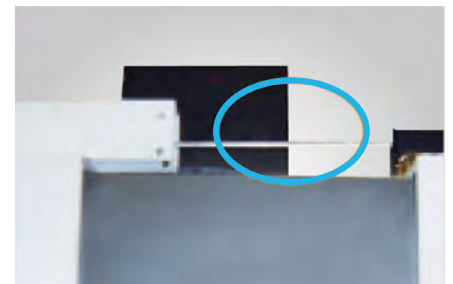
• Please contact us for further detailed specifications.



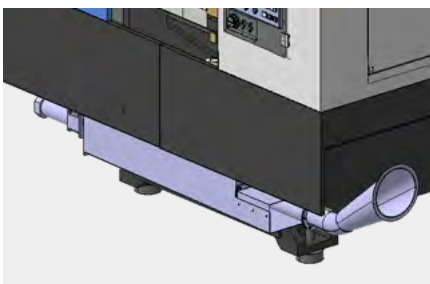
Through-spindle coolant system



Raised column(150mm)



Auto door



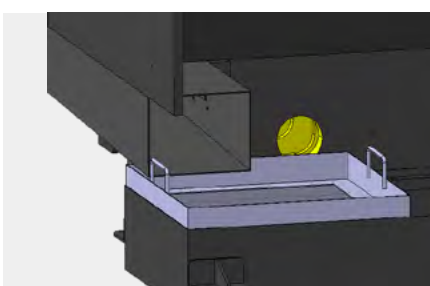
Chip conveyor



Auto tool measurement device



Auto tool measurement device



8 Chip box



Oil Skimmer

DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus maximizes customer productivity and convenience.

10.4" Screen + New OP

DN Solutions Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

DN Solutions Fanuc i Plus

- 10.4 inch color display
- Intuitive and user-friendly design

USB and PCMCIA card QWERTY keyboard

- EZ-Guide i standard
- Ergonomic operator panel
- 2MB Memory
- Hot keys



iHMI touchscreen OPTION

iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.

NUMERIC CONTROL SPECIFICATIONS

FANUC

Division	Specifications	DEM 4000 0i PLUS
Controlled axes		3 (X,Y,Z)
Simultaneously controlled axes		4 axes
Additional controlled Axis	Add 1 Axis (5th Axis)	X
Fast data server		X
Memory card input/output		●
USB memory input/output		●
Large capacity memory(2GB)*2	Note *2) Available Option only with 15" Touch LCD (iHMI Only)	X
Embedded Ethernet		●
Fast Ethernet		○
Enhanced Embedded Ethernet function		●
DNC operation	Included in RS232C interface.	●
DNC operation with memory card		●
Workpiece coordinate system	G52 - G59	●
Addition of workpiece coordinate system	G54.1 P1 X 48 (48 pairs)	●
Tool number command		T4 digits
Tilted working plane indexing command	G68.2 TWP	X
AI contour control I	G5.1 Q_, 40 Blocks	●
AI contour control II	G5.1 Q_, 200 Blocks	X
AI contour control III	G5.1 Q_, 600 Blocks	X
AI contour control IV	G5.1 Q_, 1000 Blocks	X
High smooth TCP		X
EZ Guidei (Conversational Programming Solution)		○
iHMI with Machining Cycle	Note *1) Only with 15" Touch LCD standard	X
EZ Operation package		X
CNC screen dual display function		X
FANUC MTConnect		⊕
FANUC OPC UA		⊕
Display unit	10.4" color LCD	●
	15" color LCD	X
	15" color LCD with Touch Panel	X
	640M(256KB)_500 programs	X
	1280M(512KB)_1000 programs	X
Part program storage size & Number of registerable programs	2560M(1MB)_1000 programs	X
	5120M(2MB)_1000 programs	●
	10240M(4MB)_1000 programs	X
	20480M(8MB)_1000 programs	X
	2560M(1MB)_2000 programs	X
	5120M(2MB)_4000 programs	X
	10240M(4MB)_4000 programs	X
	20480M(8MB)_4000 programs	X

*Fanuc i plus iHMI available.

● Standard ○ Optional X N/A ⊕ Available

CONVENIENT OPERATION

Mitsubishi M80B

Provide an easy-to-use environment

- 15-inch wide display screen
- Touch screen
(Can be operated while wearing gloves)

Mitsubishi M80B Features

- USB & SD card available
- SD Card slot allows memory expansion up to 32GB
- QWERTY keyboard applied
- Easy to add buttons when optional
- Newly designed operator panel for ease of use
- Maximum reading (M80B standard)
 - High speed high precision control 1 : 337 BLOCK
 - High speed and high precision control 2 : 675 BLOCK



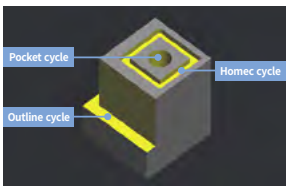
Easy operation functions



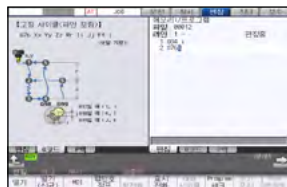
TOUCH SCREEN



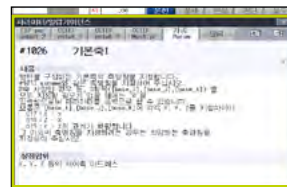
NVAI MILL



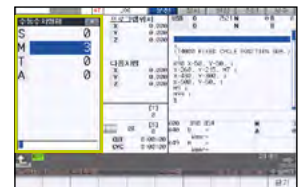
3D SOLRID PROGRAM CHECK



G-CODE Guidance



ALARM / PARAMETER Guidance



Manual Numerical Command Function

NUMERIC CONTROL SPECIFICATIONS

MITSUBISHI

Division	Item	Specifications	DEM4000
			M80B
Controlled axis	Number of Basic Control Axes (NC Axes)	3 (X,Y,Z)	X,Y,Z
	Number of Simultaneous Contouring Control Axes		4 axes
Input/Output Functions and Devices	Front-side SD Card I/F [Up to 32GB]		●
	Ethernet I/F		●
	Display Unit-side Data Server I/F		●
	Front-side USB Memory I/F [Up to 32GB]		●
Operation	High-speed Simple Program Check		●
	Workpiece Coordinate System Selection (6 Sets)		●
Program input	Extended Workpiece Coordinate System Selection (48 Sets)	G54.1P1 to P48	●
	Tool number command		T2 digits
	High-speed Machining Mode I (G05P1) Maximum [kBPM]		●16.8
Feed Function	High-speed Machining Mode II (G05P2) Maximum [kBPM]		●67.5
	High-accuracy Control (G61.1/G08)		●
	SSS Control		●
	Tolerance Control		●
	High-speed High-accuracy Control I (G05.1Q1) Maximum [kBPM]	337 BLOCK	●33.7
	High-speed High-accuracy Control II (G05P10000) Maximum [kBPM]	675 BLOCK	●67.5
	High-speed High-accuracy Control III (G05P20000) Maximum [kBPM]	1350 BLOCK	X
	Smooth Fairing		X
Operation Guidance Function	Ethernet Connection		●
	Simple Programming (NAVI MILL/LATHE)		●
	G code Guidance		●
Network	CC-Link Connection		●
Others	Display unit	10.4" color LCD with Touch Panel	●
	Part program storage size & Number of registerable programs	1280M(500KB)_1000 programs	●

● Standard ○ Optional X N/A ⊕ Available

POWER | TORQUE

DEM 4000

Max. spindle speed : **8000** r/min

Max. motor power : **7.5** kW
10.1 Hp

Max. motor torque : **47.75** N·m
35.2 ft-lbs

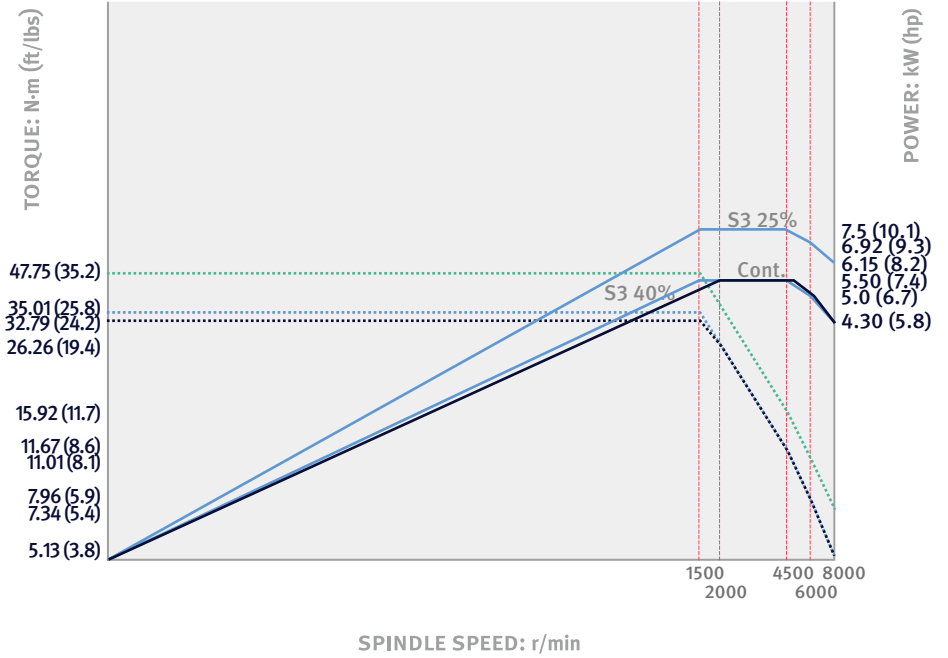
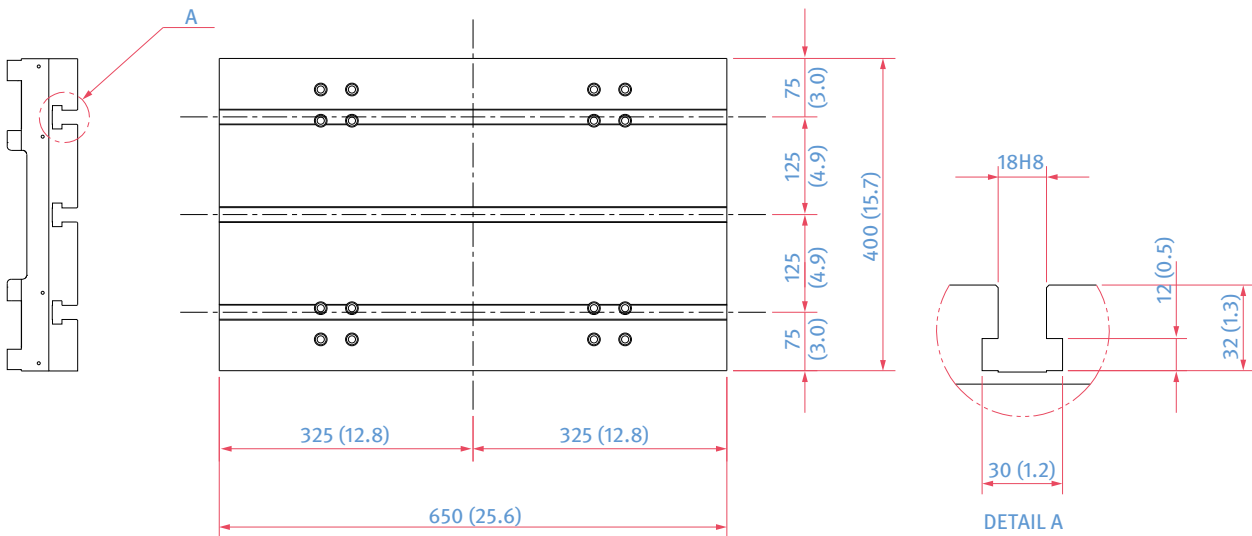


TABLE DIMENSIONS

Unit : mm (inch)

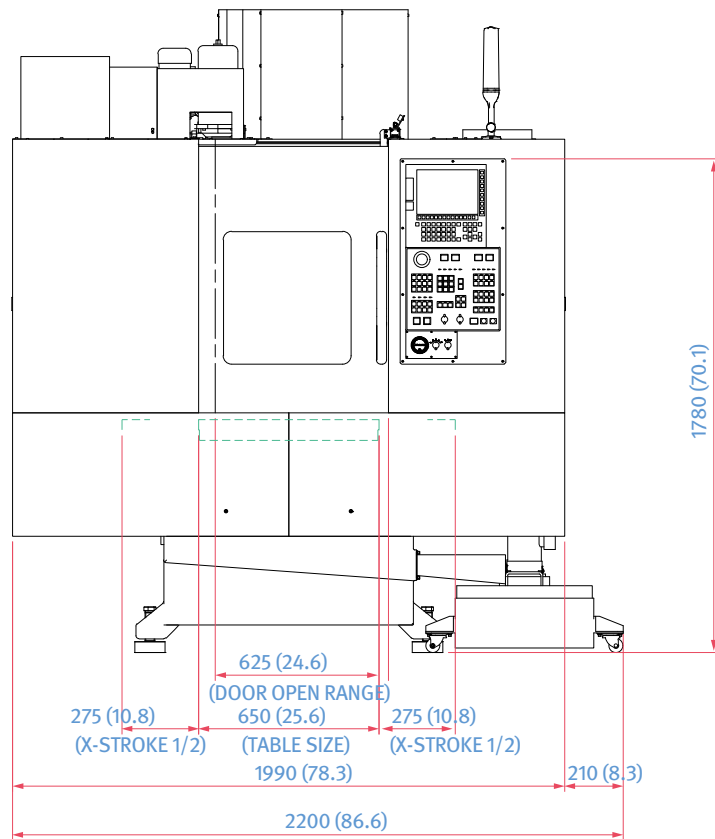


EXTERNAL DIMENSIONS

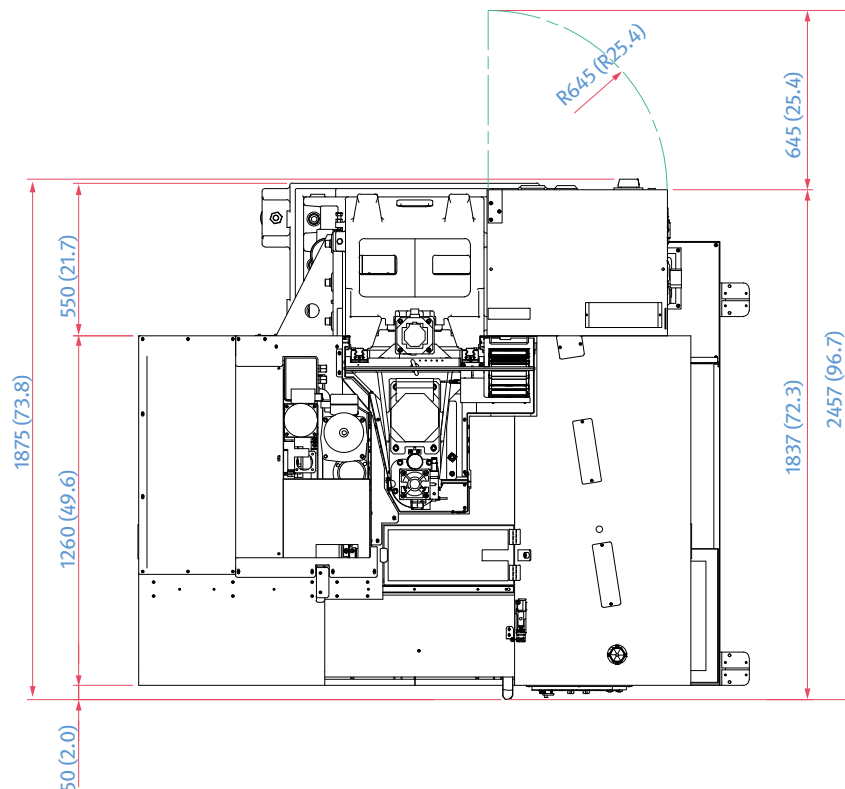
DEM 4000_CAM Type_ISO #40-20Tool

Unit : mm (inch)

FRONT



TOP

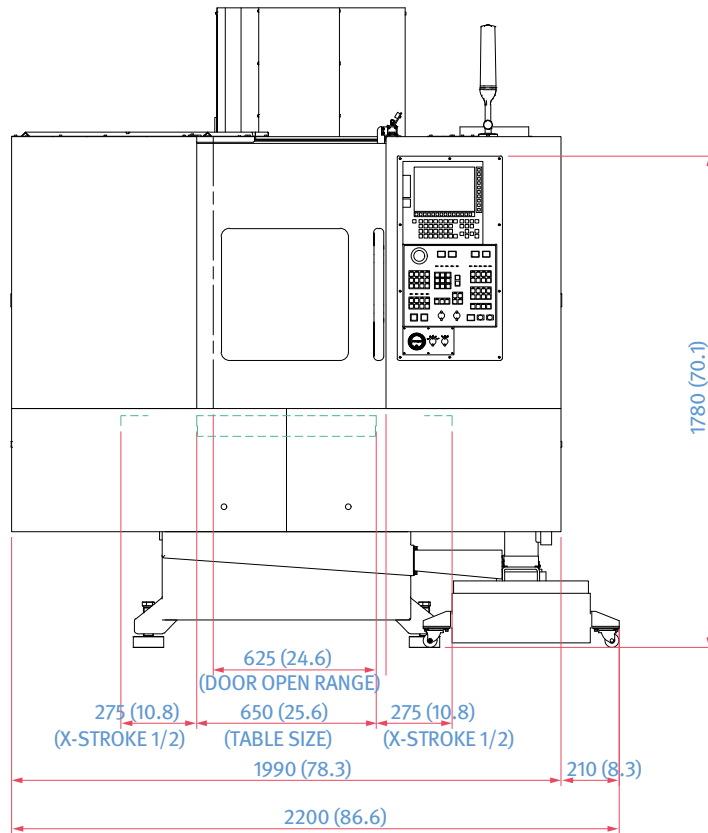


EXTERNAL DIMENSIONS

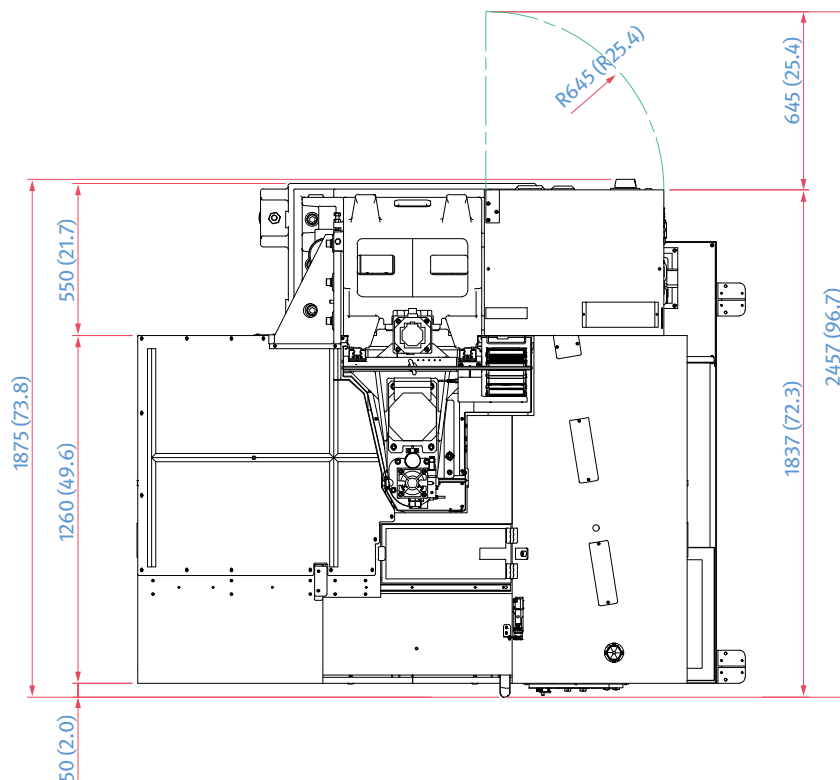
DEM 4000_Armless Type_BT40-16Tool

Unit : mm (inch)

FRONT



TOP



* Some peripheral equipment can be placed in other places.

MACHINE SPECIFICATIONS

Description			Unit	DEM 4000	
				DN Solutions Fanuc i Plus	Mitsubishi M80B
Travel	Stroke	X axis	mm (inch)	550 (21.7)	
		Y axis	mm (inch)	400 (15.7)	
		Z axis	mm (inch)	450 (17.7)	
	Height Spindle to Table		mm (inch)	120 ~ 570 (4.7~22.4)	
Feedrate	Rapid traverse	X axis	m/min (ipm)	24 (944.9)	
		Y axis	m/min (ipm)	24 (944.9)	
		Z axis	m/min (ipm)	24 (944.9)	
	Cutting feed		m/min (ipm)	12000 (472441.0)	
Table	Table size		mm (inch)	650 X 400 (25.6 X 15.7)	
	Max. Load		kg (lb)	400 (881.8)	
	Table type			T-SLOT (3-125 x 18H8)	
Spindle	Max speed		r/min	8000	
	Spindle taper			ISO #40, 7/24 TAPER	
	Max power		kW (Hp)	7.5 (10.1)	
	Max torque		N · m (ft-lbs)	47.7 (35.2)	
Automatic Tool Changer (ATC)	CAM type	Capacity	ea.	20	
		select type		Random	
		Max diameter	mm (inch)	80 {125}* (3.1 {4.9})*	
		Max length	mm (inch)	300 (11.8)	
		Max weight	kg (lb)	8.0 (17.6)	
		T-T-T	sec	1.6	
		C-T-C	sec	4.0	
	Armless Type	Capacity	ea.	16	
		select type		Fix	
		Max diameter	mm (inch)	80 {125}* (3.1 {4.9})*	
		Max length	mm (inch)	300 (11.8)	
		Max weight	kg (lb)	8.0 (17.6)	
		T-T-T	sec	5.7	
		C-T-C	sec	7.7	
Power consumption			kVA	20.5	18.6
Machine size			W	2200 (86.6)	
			L	1875 (73.8)	
			H	2317 (91.2)	
Machine weight			kg (lb)	3100 (6834.2) (CAM TYPE) 2900 (6393.3) (ARMLESS TYPE)	

* {}: Option

RESPONDING TO CUSTOMERS ANYTIME, ANYWHERE

DN Solutions Global Network

DN Solutions provides systems-based professional support services, before and after the machine tool sale, by responding quickly and efficiently to customers. By supplying spare parts, product training, field service and technical support, we provide the expert care, attention and assistance our customers expect from a market leader.

Global sales and service support network		51	Technical centers Technical center, Sales support, Service support, Parts support
4	Corporations	200	Service posts
155	Dealer networks	3	Factories



CUSTOMER SUPPORT AND SERVICES

We're there for you whenever you need us.

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.



Field services

- On-site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair service



Parts supply

- Supplying a wide range of original DN Solutions spare parts
- Parts repair service



Training

- Programming, machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering



Technical support

- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy



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* For more details, please contact DN Solutions.

* Specifications and information contained within this catalogue may be changed without prior notice.