

MACHINE SPECIFICATIONS (SELECTION SHEET)

DEM 4000

VERTICAL MACHINING CENTER

Draft	Correction	Approval
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Confirmed by Control Technology Team
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DN SOLUTIONS CO., LTD.

VERTICAL MACHINING CENTER
DEM 4000
MACHINE SPEC. SELECTION SHEET

**1. GENERAL SPECIFICATION**

ITEM		UNIT	SPECIFICATION	SELECTION		
CAPACITY	TABLE SURFACE	mm	T-SLOT (3-125 x 18H8)	DEFAULT		
	TABLE SIZE	mm	650 x 400			
	MAX. WORKPIECE HEIGHT ⁽¹⁾	mm	500 (CAM)			
			400 (ARMLESS)			
	MAX. WORKPIECE WEIGHT	kg	400			
SPINDLE TO TABLE SURFACE	mm	120 ~ 570				
MAIN DIMENSION	LENGTH	mm	1875	DEFAULT		
	WIDTH	mm	2200			
	HEIGHT	mm	2317			
MACHINE WEIGHT(NET) ⁽²⁾		kg	3100 (CAM TYPE)	STD.	SELECTIVE	
			2900 (ARMLESS TYPE)	OPT.		
UTILITY	POWER SOURCE ⁽³⁾		-	DEFAULT		
	REQUIRED POWER CAPACITY ⁽⁴⁾		kVA			20.5
	COMPRESSED AIR	PRESSURE	MPa			0.54
		CONSUMPTION	NL/min			250
MACHINE COLOR			DN SOLUTIONS 4 TONE COLOR MT DARK GRAY(5.3PB 3.0 / 0.4) MT MIDDLE GRAY(1.4RP 4.8 / 0.1) MT LIGHT GRAY(7.3B 7.8 / 0.4) MT BLUE(6.1PB 5.9 / 7.6)	STD.	SELECTIVE	
			USER DEFINED	OPT.		
CNC SYSTEM	MODEL		FANUC I-SERIES	DEFAULT		

(1) This value is the maximum for the height of rectangular without interference of ATC operating.

(2) Specified weight is based on the machine with standard specification and including standard accessories and equipment

(3) Transformer is required according to supplied power specification.

(4) This value is depend on spindle motor power.

2. SPINDLE HEAD

ITEM		UNIT	SPECIFICATION	SELECTION
SPINDLE	POWER(CONT./SHORT)	kW	5.5/7.5(S3-25%)	DEFAULT
	MAX. SPINDLE SPEED	r/min	8,000	
	BASE SPEED	r/min	1,500	
	MAX. TORQUE(SHORT TERM)	N·m	47.7(S3 25%)	
	ORIENTATION		BUILT-IN SENSOR	
	POWER TRANSMISSION		BELT DRIVEN	
SPINDLE TOOL CLAMPING FORCE		kN	6.9±0.5	
TAPER TYPE			ISO #40, 7/24 TAPER	

3. AXES SYSTEM

ITEM		UNIT	SPECIFICATION	SELECTION
STROKE	X AXIS	mm	550	DEFAULT
	Y AXIS	mm	400	
	Z AXIS	mm	450	
RAPID TRAVERSE	X AXIS	m/min	24	
	Y AXIS	m/min	24	
	Z AXIS	m/min	24	
ACCELERATION / DECELERATION TIME	X AXIS	ms	200	
	Y AXIS	ms	230	
	Z AXIS	ms	150	
MAX. CUTTING FEEDRATE		mm/min	12000	
RATED THRUST FORCE AT STALL ⁽¹⁾	Z AXIS	kN	7.5	
BALL SCREW(DIAMETER x LEAD)	X AXIS	mm	32 x 10	
	Y AXIS	mm	32 x 10	
	Z AXIS	mm	32 x 10	
ACCURACY ⁽²⁾	POSITIONING / REPEATABILITY	X AXIS	0.025 / 0.015	
		Y AXIS	0.022 / 0.012	
		Z AXIS	0.022 / 0.012	
DRIVE MOTOR	POWER	X AXIS	kW	1.2
		Y AXIS	kW	1.2
		Z AXIS	kW	1.8
FEEDBACK SYSTEM	ABSOLUTE PULSE CODER		X,Y,Z	DEFAULT

(1) This value is based on the machine with standard specification

(2) Accuracy measuring is based on ISO230-2.

4. ATC

ITEM			UNIT	SPECIFICATION		SELECTION	
TOOL TYPE	TOOL SHANK	PULL STUD	-	MAS403 BT 40	PS806(NIKKEN)	STD.	SELECTIVE
				CAT 40	MODIFIED DIN	OPT.	
				DIN 69871-A40	DIN 69872 #40	OPT.	
CAM TYPE	TOOL STORAGE CAPACITY		ea.	20		STD.	SELECTIVE
	TOOL SELECT TYPE			MEMORY RANDOM			
	MAX. TOOL DIAMETER		mm	80(CONT.), 125(ADJACENT POTS EMPTY)			
	MAX. TOOL LENGTH		mm	300			
	MAX. TOOL WEIGHT		kg	8			
	MAX. TOOL MOMENT		N·m	5.88			
	TOOL-TO-TOOL TIME		s	1.6			
	CHIP-TO-CHIP TIME		s	4			
ARMLESS TYPE	TOOL STORAGE CAPACITY		ea.	16		OPT.	SELECTIVE
	TOOL SELECT TYPE			FIX			
	MAX. TOOL DIAMETER		mm	80(CONT.), 125(ADJACENT POTS EMPTY)			
	MAX. TOOL LENGTH		mm	300			
	MAX. TOOL WEIGHT		kg	8			
	MAX. TOOL MOMENT		N·m	5.88			
	TOOL-TO-TOOL TIME		s	5.7			
	CHIP-TO-CHIP TIME		s	7.7			

5. LUBRICATION & HYDRAULIC SYSTEM

ITEM			UNIT	SPECIFICATION		SELECTION	
LUBRICATION (GREASE)	CARTIRIDGE CAPACITY		L	0.7		DEFAULT	
	PUMP MOTOR POWER		kW	0.015			
	DISCHARGE PRESSURE		MPa	8.00			
	DISCHARGE VOLUME		mL/min	7			
	DISTRIBUTOR TYPE			METERING			

6. COOLANT SYSTEM

ITEM		UNIT	SPECIFICATION	SELECTION	
FLOOD COOLANT(1)	TANK CAPACITY	L	100	STD.	SELECTIVE
	PUMP MOTOR POWER	kW	0.4		
	FILTRATION	mesh	20 (TANK SCREEN FILTER)		
	MAX. PRESSURE 60Hz(50Hz)	MPa	0.16 (0.12)		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	40 (40)		
COOLANT SYSTEM - MIDDLE PRESSURE TSC ⁽⁵⁾	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	1.5		
	FILTRATION	μm	25 (CYCLONE FILTER) ⁽⁴⁾		
	MAX. PRESSURE 60Hz(50Hz)	MPa	2.0(1.9) ⁽¹⁾		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	23 ⁽²⁾ (18) ⁽³⁾		
COOLANT GUN	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	0.6		
	FILTRATION	mesh	20 (TANK SCREEN FILTER)		
	MAX. PRESSURE 60Hz(50Hz)	MPa	0.2 (0.15)		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	70 (55)		

(1) This value is the max.pressure when blocking.

(2) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 0.8MPa.

(3) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 0.6MPa.

(4) If high viscosity neat oil is using for coolant, spindle can be damaged by contamination due to decrease of filtering efficiency.

(For more information, consult with DN Solutions R&D)

(5) If this option is selected, the TSA(through spindle air) function is available. TSA max.pressure is 0.54MPa.

<NOTE>

1. TSC preparation without pump & filter. (TSC ready)

2. At (2)~(3), real pressure and flow rate can be changed by machine & tool condition.

(For more information, consult with DN Solutions R&D)

7. CHIP PAN, CHIP CONVEYOR & BUCKET

ITEM		UNIT	SPECIFICATION	SELECTION	
CHIP PAN		SET	-	STD.	SELECTIVE
CONVEYOR	SCREW(AUGER) TYPE CONVEYOR	SET	-	OPT.	

8. COOLING FOR ELECTRIC CABINET

ITEM		UNIT	SPECIFICATION	SELECTION	
FAN COOLER		SET	-	STD.	SELECTIVE
AIR CONDITIONER			-	OPT.	

9. ACCESSORIES

구분	ITEM		UNIT	SPECIFICATION	SELECTION
STANDARD	WORK LIGHT		SET	LED LAMP	DEFAULT
	OPERATOR CALL LAMP		SET	3-COLOR SIGNAL TOWER(LED)	
	LEVELING BLOCK & BOLT		SET	-	
	INSTALLATION TOOL KIT		SET	-	
OPTIONAL	MAINTENANCE TOOL KIT		SET	L-WRENCH AND SPANNER SET	SELECTIVE
	AUTO WORKPIECE MEASUREMENT	MAKER/SPEC.	SET	RENISHAW / OMP60	SELECTIVE
			SET	RENISHAW / OMI-2T_ONLY	
			SET	RENISHAW / OMI-2T_OMP60	
			SET	RENISHAW / OMI-2T_OMP60_OTS	
	AUTO TOOL LENGTH MEASUREMENT	MAKER/SPEC.	SET	RENISHAW / TS27R	SELECTIVE
			SET	RENISHAW / OMI-2T_OTS	
	AIR GUN		SET	-	SELECTIVE
	CALIBRATION BLOCK		SET	-	SELECTIVE
	PNEUMATIC FIXTURE INTERFACE		SET	A LINE_1 PAIR	SELECTIVE
			SET	A LINE_2 PAIR	
			SET	A LINE_3 PAIR	
	TEST BAR		SET	BT 40	SELECTIVE
	ADDITIONAL GREASE PACK		SET	GREASE PACK_1EA	SELECTIVE
			SET	GREASE PACK_2EA	
SET			GREASE PACK_3EA		

10. SPECIAL QUOTATION OPTIONS

ITEM		UNIT	SPECIFICATION	SELECTION	
RAISING BLOCK		mm	150	OPT.	SELECTIVE
			200	OPT.	
			300	OPT.	
FLOOD COOLANT	TANK CAPACITY	L	100	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	1.1		
	FILTRATION	mesh	20 (TANK SCREEN FILTER)		
	MAX. PRESSURE 60Hz(50Hz)	MPa	1.0 (0.75)		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	20 (20)		
CONVEYOR	HINGED PLATE TYPE CONVEYOR	SET	-	OPT.	SELECTIVE
	SCRAPER TYPE CONVEYOR	SET	-	OPT.	
BUCKET	TYPE / CAPACITY	SET / L	ROTATION TYPE / 220	OPT.	SELECTIVE
4TH AXIS PREPARATION CABLING FOR SERVO/1-PNEUMATIC PIPING		SET	FACTORY READY MADE	SELECTIVE	
4TH AXIS WITH CNC R.TABLE	AVAILABLE SIZE	mm	φ250		
	SERVO MOTOR	kW	DEPENDS ON THE TABLE		
ANCHORING ⁽¹⁾		SET	J-BOLT	SELECTIVE	

(1) Please refer to foundation drawing in relation to anchoring. if more detail information want, consult with DN Solutions service.

< NOTE >

1. Specifications are subject to change without prior notice.
2. All specified values are given at standard electric power conditions.(60Hz, 220V)
3. Machine demension and weight are changed according to optional specification.
4. Please refer to lay-out and foundation drawing in relation to installation/electric device.
5. All specified values of pressure, flowrate of coolant, lubrication are given at pump outlet.
6. The flowrate and pressure of the coolant are given at the condition of using water soluble coolant.
7. Refer to the separated spec. sheets in relation to specification, function and option of CNC controller.
8. Please inquire DN Solutions R&D department about special quotation options