

MACHINE SPECIFICATIONS (SELECTION SHEET)

BVM 5700

VERTICAL MACHINING CENTER

Draft	Correction	Approval
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DN SOLUTIONS CO., LTD.

VERTICAL MACHINING CENTER

BVM 5700

MACHINE SPEC. SELECTION SHEET



1. GENERAL SPECIFICATION

ITEM		UNIT	SPECIFICATION	SELECTION		
CAPACITY	TABLE SURFACE	mm	T-SLOT (4-125 x 18H8)	DEFAULT		
	TABLE SIZE	mm	1300 x 570			
	MAX. WORKPIECE HEIGHT ⁽¹⁾	mm	495			
	MAX. WORKPIECE WEIGHT	kg	1000			
	SPINDLE TO TABLE SURFACE	mm	150 ~ 610			
MAIN DIMENSION	LENGTH	mm	3080	DEFAULT		
	WIDTH	mm	2560			
	HEIGHT	mm	2890			
MACHINE WEIGHT(NET) ⁽²⁾		kg	7500	DEFAULT		
UTILITY	POWER SOURCE ⁽³⁾		-	DEFAULT		
	3Ph-AC200~480V 50/60Hz					
	COMPRESSED AIR	PRESSURE	MPa	0.54		
		CONSUMPTION	NL/min	400		
REQUIRED POWER CAPACITY_FANUC ⁽⁴⁾		kVA	55.4 ⁽⁴⁻¹⁾	51.00 ⁽⁴⁻²⁾	STD. SELECTIVE	
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		STD.	SELECTIVE	
		HEIDENHAIN TNC620		OPT.		

(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.

(4-1) Spindle type 1 (4-2) Spindle type 2

2. SPINDLE HEAD

ITEM		UNIT	SPECIFICATION		SELECTION		
SPINDLE(FANUC)	TYPE 1	POWER(CONT./SHORT)	kW	18.5/37 (S3 15%)		STD.	SELECTIVE
		MAX. SPINDLE SPEED	r/min	15000			
		BASE SPEED	r/min	1500			
		MAX. TORQUE (SHORT TERM)	N·m	214 (S3 15%)			
		ORIENTATION		Bzi SENSOR			
		POWER TRANSMISSION		BUILT-IN			
	TYPE 2	POWER(CONT./SHORT)	kW	11(Cont.)/22(10min 15%)		OPT.	
		MAX. SPINDLE SPEED	r/min	20000			
		BASE SPEED	r/min	2300			
		MAX. TORQUE (SHORT TERM)	N·m	60(10min,15%)			
		ORIENTATION		Bzi SENSOR			
		POWER TRANSMISSION		BUILT-IN			
SPINDLE(HAIDENHAIN)	TYPE 1	POWER(CONT./SHORT)	kW	18.5/37 (S2 30min)		OPT.	SELECTIVE
		MAX. SPINDLE SPEED	r/min	15000			
		BASE SPEED	r/min	1450			
		MAX. TORQUE (SHORT TERM)	N·m	171 (S3 25%)			
		ORIENTATION		L&B SENSOR			
		POWER TRANSMISSION		BUILT-IN			
	TYPE 2	POWER(CONT./SHORT)	kW	11(Cont.)/18.5(S2 10min)		OPT.	
		MAX. SPINDLE SPEED	r/min	20000			
		BASE SPEED	r/min	2300			
		MAX. TORQUE (SHORT TERM)	N·m	45.7(S3 25%)			
		ORIENTATION		L&B SENSOR			
		POWER TRANSMISSION		BUILT-IN			
SPINDLE TOOL CLAMPING FORCE		MAX. SPINDLE SPEED	r/min	15000	20000	DEFAULT	
			kN	7.35	8.2		
TAPER TYPE				ISO #40, 7/24 TAPER			
SPINDLE COOLING	TANK CAPACITY		L	20			
	CAPACITY 60Hz(50Hz)		kW	2.2 (1.85)			

3. AXES SYSTEM

ITEM		UNIT	SPECIFICATION	SELECTION			
STROKE	X AXIS	mm	1050	DEFAULT			
	Y AXIS	mm	570				
	Z AXIS	mm	460				
RAPID TRAVERSE	X AXIS	m/min	42				
	Y AXIS	m/min	42				
	Z AXIS	m/min	36				
ACCELERATION / DECELERATION TIME	X AXIS	ms	144				
	Y AXIS	ms	144				
	Z AXIS	ms	153				
MAX. CUTTING FEEDRATE		mm/min	18000				
RATED THRUST FORCE AT STALL ⁽¹⁾		kN	10.3				
BALL SCREW(DIAMETER x LEAD)	X AXIS	mm	40 x 16				
	Y AXIS	mm	40 x 16				
	Z AXIS	mm	40 x 12				
ACCURACY ⁽²⁾	POSITIONING / REPEATABILITY	X AXIS	mm	0.011 / 0.006			
		Y AXIS	mm	0.008 / 0.005			
		Z AXIS	mm	0.007 / 0.004			
DRIVE MOTOR (FANUC)	POWER	X AXIS	kW	3	STD.	SELECTIVE	
		Y AXIS	kW	3			
		Z AXIS	kW	4			
DRIVE MOTOR (HAIDENHEIN)	POWER	X AXIS	kW	4.6	OPT.		
		Y AXIS	kW	4.6			
		Z AXIS	kW	4.6			
FEEDBACK SYSTEM	ABSOLUTE PULSE CODER			X,Y,Z	DEFAULT		
	LINEAR SCALE	X AXIS			OPT.	SELECTIVE	
		Y AXIS				OPT.	SELECTIVE
		Z AXIS				OPT.	SELECTIVE

(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		
CAM TYPE	TOOL SHANK	PULL STUD		MAS403 BT 40	PS806(NIKKEN)	STD.	SELECTIVE	
				CAT 40	MODIFIED DIN	OPT.		
				DIN 69871-A40	DIN 69872 #40	OPT.		
				ISO 12164-1HSK-A63		OPT.		
	TOOL STORAGE CAPACITY			ea.	30		STD.	SELECTIVE
					40		OPT.	
	TOOL SELECT TYPE				MEMORY RANDOM		DEFAULT	
	MAX. TOOL DIAMETER	30TOOL	mm	80(CONT.), 125(ADJACENT POTS EMPTY)				
		40TOOL		75(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	1.3			
CHIP-TO-CHIP TIME			s	5.5				

5. LUBRICATION SYSTEM

ITEM			UNIT	SPECIFICATION		SELECTION	
LUBRICATION (AXIS)	CARTIRIDGE CAPACITY		L	0.7		DEFAULT	
	PUMP MOTOR POWER		kW	0.024			
	DISCHARGE PRESSURE		MPa	5.00			
	DISCHARGE VOLUME		mL/min	7			
	DISTRIBUTOR TYPE			METERING			
LUBRICATION (SPINDLE)	CARTIRIDGE CAPACITY		L	1.32		DEFAULT	
	PUMP MOTOR POWER		kW	0.06			
	DISCHARGE PRESSURE		MPa	1.6±0.1			
	DISCHARGE VOLUME		mL/min	0.1			
	DISTRIBUTOR TYPE			METERING			

6. COOLANT SYSTEM

ITEM		UNIT	SPECIFICATION	SELECTION	
FLOOD COOLANT(1)	TANK CAPACITY	L	250	STD.	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)		
FLOOD COOLANT(2)	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	1.1		
	FILTRATION	mesh	20 (TANK SCREEN FILTER)		
	MAX. PRESSURE 60Hz(50Hz)	MPa	0.7(0.47)		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	30(30)		
Y-REAR FLUSHING COOLANT	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)		
COOLANT SYSTEM -MIDDLE PRESSURE TSC I ⁽⁹⁾	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	1.5		
	FILTRATION	μm	25 (CYCLONE FILTER) ⁽⁸⁾		
	MAX. PRESSURE 60Hz(50Hz)	MPa	2.0(1.9) ⁽¹⁾		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	23 ⁽²⁾ (18) ⁽³⁾		
COOLANT SYSTEM -MIDDLE PRESSURE TSC II ⁽⁹⁾	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	4.0		
	FILTRATION	μm	25 (CYCLONE FILTER) ⁽⁸⁾		
	MAX. PRESSURE 60Hz(50Hz)	MPa	2.0(1.3) ⁽¹⁾		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	50 ⁽⁴⁾ (35) ⁽⁵⁾		
COOLANT SYSTEM -HIGH PRESSURE TSC ⁽⁹⁾	TANK CAPACITY	L	140	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	7.5		
	FILTRATION	μm	25 (CYCLONE FILTER) ⁽⁸⁾		
	MAX. PRESSURE 60Hz(50Hz)	MPa	7.0(7.0) ⁽¹⁾		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	39 ⁽⁶⁾ (32) ⁽⁷⁾		
TOP FLUSHING	TANK CAPACITY	L	350	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	1.8		
	FILTRATION	mesh	20 (TANK SCREEN FILTER)		
	MAX. PRESSURE	MPa	0.2		
	MAX. FLOWRATE	L/min	250		

6. COOLANT SYSTEM (CONTINUED)

ITEM		UNIT	SPECIFICATION	SELECTION	
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)		
OIL SKIMMER	TYPE		BELT	OPT.	SELECTIVE
COOLANT CHILLER ⁽¹⁰⁾		SET	CIRCULATION TYPE	OPT.	SELECTIVE

(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) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 1.7MPa.

(5) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 1.2MPa.

(6) This value is the coolant flow rate when tool hole dia. is 5 mm and pump outlet pressure is 1.8 MPa.

(7) This value is the coolant flow rate when tool hole dia. is 5 mm and pump outlet pressure is 1.1 MPa.

(8) 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)

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

(10) In case of using neat cutting oil, this device is highly recommended in order to reduce the change of accuracy by rising the coolant temperatures. (For more information, consult with DN Solutions R&D)

<NOTE>

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

2. At (2)~(7), 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.	
CONVEYOR	HINGED PLATE TYPE CONVEYOR	SET	RIGHT	OPT.	SELECTIVE
	SCRAPER TYPE CONVEYOR	SET	RIGHT	OPT.	
BUCKET	TYPE / CAPACITY	SET / L	FORK LIFT TYPE / 300	OPT.	SELECTIVE
		SET / L	ROTATION TYPE / 300		

8. COOLING FOR ELECTRIC CABINET

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

9. ACCESSORIES

ITEM		UNIT	SPECIFICATION	SELECTION	
STANDARD	WORK LIGHT	SET	LED LAMP	DEFAULT	
	OPERATOR CALL LAMP	SET	3-COLOR SIGNAL TOWER (LED)		
	LEVELING BLOCK & BOLT	SET			
	SMART THERMAL CONTROL	SET	SENSOR TYPE (SPINDLE & STRUCTURE)		
	INSTALLATION TOOL KIT	SET			
	ATC AUTO SHUTTER	SET			
OPTIONAL	MAINTENANCE TOOL KIT		SET	L-WRENCH AND SPANNER SET	SELECTIVE
	AUTO TOOL LENGTH MEASUREMENT	MAKER/SPEC.	SET	RENISHAW / TS27R	SELECTIVE
		MAKER/SPEC.	SET	RENISHAW / OTS	
		MAKER/SPEC.	SET	BLUM / ZX SPEED	
	AUTO TOOL BREAKAGE DETECTION	MAKER/SPEC.	SET	FAR-EAST MACHINE TOOL / FEM-1CP (NEEDLE TYPE IN CUTTING AREA)	SELECTIVE
	AUTO WORKPIECE MEASUREMENT	MAKER/SPEC.	SET	RENISHAW / OMP60	SELECTIVE
		MAKER/SPEC.	SET	BLUM / TC50	SELECTIVE
	CALIBRATION BLOCK	MAKER	SET	BLUM	SELECTIVE
	4TH AXIS PREPARATION CABLING FOR SERVO/1-PNEUMATIC PIPING		SET	FACTORY READY MADE	SELECTIVE
	4TH A-AXIS WITH CNCR.TABLE TYPE 2	MAKER/SPEC.	SET	SAMCHULLY / S-250F8-DS	SELECTIVE
		TABLE DIAMETER	mm	240	
		ACCURACY	arcsecs	20 (POSITIONING) / 4 (REPEATABILITY)	
		MAX.ROTATING SPEED	r/min	33.3	
	4TH A-AXIS WITH CNCR.TABLE TYPE 3	MAKER/SPEC.	SET	SAMCHULLY / S-320F8-DS	SELECTIVE
		TABLE DIAMETER	mm	310	
		ACCURACY	arcsecs	20 (POSITIONING) / 4 (REPEATABILITY)	
		MAX.ROTATING SPEED	r/min	25	
	MIST COLLECTOR	SET		1.5 KW_WATER SOLUBLE	SELECTIVE
		SET		1.5 KW_NONE WATER SOLUBLE	
	AUTO DOOR WITH SAFETY EDGE		-		SELECTIVE
	WORK LOCATING CONFIRMATION	SET		1 PORT	SELECTIVE
				2 PORT	
	AIR BLOWER		SET		SELECTIVE
MACHINE LIFTING HOOKS		SET		SELECTIVE	
TEST BAR		SET		SELECTIVE	
AIR GUN		SET		SELECTIVE	

10. SPECIAL QUOTATION OPTIONS

ITEM		UNIT	SPECIFICATION	SELECTION
ANCHORING ⁽¹⁾		SET	J-BOLT	OPT.
TSA ⁽²⁾	MAX. PRESSURE	MPa	0.54	OPT.
MQL		SET	VOGEL TYPE	OPT.
AUTO TOOL LENGTH MEASUREMEMENT	MAKER/SPEC.	SET	RENISHAW / LTS	OPT.
AUTO WORKPIECE MEASUREMENT	MAKER/SPEC.	SET	RENISHAW / RMP400	OPT.
4TH AXIS WITH CNC R.TABLE ⁽³⁾	AVAILABLE SIZE	mm	Φ360	OPT.
	SERVO MOTOR	kW	DEPENDS ON THE TABLE	OPT.
RAISING BLOCK		mm	150	OPT.
DRUM CHIP CONVEYOR		SET	RIGHT	OPT.

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

(2) In case of TSC is not required and only TSA is needed, this option can be selected.

(3) Please inquire DN Solutions R&D department when end-user select.

1. Please inquire DN Solutions R&D department about special quotation options

< 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 and hydraulic pump are given at pump outlet.
6. The flowrate and pressure of the coolant are given at the condition of using water soluble coolant.
7. Since pressure and flowrate of T-S-C has influence on tool life and cutting capability, type of T-S-C should be selected with prudence.
For detail specification about T-S-C , refer to chapter II-12-B of machining center sales guides.
8. Refer to the separated spec. sheets in relation to specification, function and option of CNC controller.