MACHINE SPECIFICATIONS
(SELECTION SHEET)

DVF 5000

VERTICAL MACHINING CENTER

Draft	Correction	Approval
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DN SOLUTIONS CO., LTD.

VERTICAL MACHINING CENTER

DVF 5000

MACHINE SPEC. SELECTION SHEET

DN SOLUTIONS

1. GENERAL SPECIFICATION

ITEM			UNIT	SPECIFICATION			SELECTION	
				FANUC	HEIDENHAIN	SIEMENS		
CAPACITY	TABLE SURFACE		mm	T-SLOT (5-80 x 14H8)			DEFAULT	
	TABLE SIZE		mm	Φ630 X 450				
	MAX. WORKPIECE DIAMETER		mm	Φ600				
	MAX. WORKPIECE HEIGHT		mm	500				
	MAX. WORKPIECE WEIGHT		kg	400				
	SPINDLE TO TABLE SURFACE		mm	150 ~ 630				
MAIN DIMENSION		LENGTH	mm	2,855(30/40/60T) / 3,435(120T)			DEFAULT	
		WIDTH	mm	2350				
		HEIGHT	mm	2870(1) / 3100(Y+225)(2)				
MACHINE WEIGHT(NET)(3)			kg	8,000(30/40/60T) , 9,000(120T)			DEFAULT	
UTILITY	POWER SOURCE*	VOLT/FREQUENCY	V / Hz	3Ph-AC200~480V 50/60Hz			OPT. STD. OPT. OPT. OPT. OPT.	SELECTIVE
		PHASE	PH	3			DEFAULT	
	REQUIRED POWER CAPACITY		kVA	57.4(**-1) / 65(**-2)	51.8(**-3) / 69.8(**-4)	50.7(**-5) / 67.4(**-6)	SELECTIVE	
	COMPRESSED AIR	PRESSURE	MPa	0.54			DEFAULT	
		CONSUMPTION	NL/min	250(6)270(7)			SELECTIVE	
MACHINE COLOR				DN SOLUTIONS 2 TONE COLOR LEATHER SILVER(8.1G 5.2/0.1) MT DARK GRAY(5.3PB 3.0 / 0.4)			STD.	SELECTIVE
				USER DEFINED			OPT.	
CNC SYSTEM	MODEL			FANUC 31iB5 PLUS (CUFOS)	HEIDENHAIN TNC7	SIEMENS Sinumerik One	STD.	DEFAULT

(1) Maximum height of the machine in its shipping configuration.

(2) Maximum operating height of the machine when the Y-axis is at +250

(3) Specified weight is based on the machine with export standard specification and

including standard accessories and equipment.

(4) * Transformer is required according to supplied power specification.

(5) ** Depend on spindle motor power.

(**-1)Spindle type 1,2, (**-2)Spindle type 3, (**-3)Spindle type 4,5, (**-4)Spindle type 6, (**-5)Spindle type 7,8, (**-6)Spindle type 9

(6) 15K r/min Direct SPINDLE

(7) 15K, 20K r/min Built-in SPINDLE

2. SPINDLE HEAD

ITEM			UNIT	SPECIFICATION	SELECTION
SPINDLE	TYPE1_FANUC	POWER(CONT./SHORT)	kW	18.5(S6 15%) / 11(CONT.)	
		MAX. SPINDLE SPEED	r/min	15,000	
		BASE SPEED	r/min	1,500	
		MAX. TORQUE (SHORT TERM)	N·m	118(S6 15%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		DIRECT CONNECTION	
	TYPE2_FANUC	POWER(CONT./SHORT)	kW	30(S6 15%) / 18.5(CONT.)	
		MAX. SPINDLE SPEED	r/min	15,000	
		BASE SPEED	r/min	1,200	
		MAX. TORQUE (SHORT TERM)	N·m	230(S6 15%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		BUILT-IN DRIVE	
	TYPE3_FANUC	POWER(CONT./SHORT)	kW	37(S6 10%) / 18.5(CONT.)	
		MAX. SPINDLE SPEED	r/min	20,000	
		BASE SPEED	r/min	1,800	
		MAX. TORQUE (SHORT TERM)	N·m	221(S6 10%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		BUILT-IN DRIVE	
	TYPE4_ HEIDENHAIN	POWER(CONT./SHORT)	kW	17(S6 25%) / 10(CONT.)	
		MAX. SPINDLE SPEED	r/min	15,000	
		BASE SPEED	r/min	1,500	
		MAX. TORQUE (SHORT TERM)	N·m	108(S6 25%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		DIRECT CONNECTION	
	TYPE5_ HEIDENHAIN	POWER(CONT./SHORT)	kW	45(S6 15%) / 25(CONT.)	
		MAX. SPINDLE SPEED	r/min	15,000	
		BASE SPEED	r/min	1,200	
		MAX. TORQUE (SHORT TERM)	N·m	204(S6 25%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		BUILT-IN DRIVE	

SPINDLE	TYPE6_ HEIDENHAIN	POWER(CONT./SHORT)	kW	30(S6 40%)/24(CONT.)	
		MAX. SPINDLE SPEED	r/min	20,000	
		BASE SPEED	r/min	1,890	
		MAX. TORQUE (SHORT TERM)	N·m	155(S6 40%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		BUILT-IN DRIVE	
	TYPE7_ SIEMENS	POWER(CONT./SHORT)	kW	16.5(S6 40%)/11(CONT.)	
		MAX. SPINDLE SPEED	r/min	15,000	
		BASE SPEED	r/min	2,000	
		MAX. TORQUE (SHORT TERM)	N·m	79(S6 40%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		DIRECT CONNECTION	
	TYPE8_ SIEMENS	POWER(CONT./SHORT)	kW	45(S6 15%) / 25(CONT.)	
		MAX. SPINDLE SPEED	r/min	15,000	
		BASE SPEED	r/min	1,200	
		MAX. TORQUE (SHORT TERM)	N·m	204(S6 25%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		BUILT-IN DRIVE	
	TYPE9_ SIEMENS	POWER(CONT./SHORT)	kW	30(S6 40%)/24(CONT.)	
		MAX. SPINDLE SPEED	r/min	20,000	
		BASE SPEED	r/min	1,890	
		MAX. TORQUE (SHORT TERM)	N·m	155(S6 40%)	
		ORIENTATION		BUILT-IN SENSOR	
		POWER TRANSMISSION		BUILT-IN DRIVE	
SPINDLE TOOL CLAMPING FORCE			kN	7.4 (18)[1]	DEFAULT
TAPER TYPE				ISO #40, 7/24 TAPER	
SPINDLE COOLING		TANK CAPACITY	L	40	DEFAULT
		CAPACITY 60Hz(50Hz)	kcal/h	3350(3000)[2] , 4460(3720)[3]	

(1) In case of HSK spindle, tool clampling force is 18kN

(2) The value and type are based on the machine with 15000rpm direct spindle motor.

(3) The value and type are based on the machine with 15000rpm, 20000rpm built-inspindle motor.

3. AXES SYSTEM

ITEM			UNIT	SPECIFICATION			SELECTION	
				FANUC	HEIDENHAIN	SIEMENS		
STROKE		X AXIS	mm	650			DEFAULT	
		Y AXIS	mm	520				
		Z AXIS	mm	480				
		B AXIS	deg	140 (-30 ~ +110)				
		C AXIS	deg	360				
RAPID TRAVERSE		X AXIS	m/min	42				
		Y AXIS	m/min	42				
		Z AXIS	m/min	42				
		B AXIS	r/min	25				
		C AXIS	r/min	25				
ACCELERATION / DECELERATION TIME		X AXIS	ms	150				
		Y AXIS	ms	150				
		Y AXIS	ms	150				
		B AXIS	ms	150				
		C AXIS	ms	150				
MAX. CUTTING FEEDRATE		X,Y,Z AXIS	mm/min	42,000				
		B,C AXIS	deg/min	9,000				
RATED THRUST FORCE AT STALL		Z AXIS	kN	11.50				
BALL SCREW(DIAMETER x LEAD)		X AXIS	mm	40 x 16				
		Y AXIS	mm	40 x 16				
		Z AXIS	mm	40 x 16				
ACCURACY	POSITIONING / REPEATABILITY (1)	X AXIS	mm	0.008/0.005				
		Y AXIS	mm	0.008/0.005				
		Z AXIS	mm	0.007/0.004				
		B,C AXIS	sec	9"/5"				
	POWER	X AXIS	kW	3.0	3.5	3.3		
		Y AXIS	kW	3.0	3.5	3.3		
		Z AXIS	kW	3.0	5.0	4.6		
		B AXIS	kW	4.5	5.7	3.3		
		C AXIS	kW	2.7	2.3	2.9		
FEEDBACK SYSTEM	ABSOLUTE PULSE CODER			X,Y,Z				
	Absolute Rotary encoder			B, C			STD.	SELECTIVE
	LINEAR SCALE	X AXIS					OPT.	SELECTIVE
		Y AXIS					OPT.	SELECTIVE
		Z AXIS					OPT.	SELECTIVE

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

<NOTE>

1. This value is based on the machine with standard specification. -- Refer to drive motor

4. ATC

ITEM			UNIT	SPECIFICATION		SELECTION	
CAM TYPE	TOOL SHANK	PULL STUD		MAS403 BT 40	TSC DIN SHAPE	STD.	SELECTIVE
				CAT 40	TSC DIN SHAPE	OPT.	
				DIN 69871-A40	DIN 69872 #40	OPT.	
				ISO 12164-1 HSK-A63		OPT.	
	TOOL STORAGE CAPACITY		ea.	30		STD.	SELECTIVE
				40		OPT.	
				60		OPT.	
				120		OPT.	
	TOOL SELECT TYPE			RANDOM ADDRESS		DEFAULT	
	MAX. TOOL DIAMETER		mm	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	4.6(1) / 4.7(2) / 4.1(3)			

<NOTE>

1. Depend on CNC system.

(1) FANUC (2) HEIDENHAIN (3) SIEMENS

5. LUBRICATION SYSTEM

ITEM		UNIT	SPECIFICATION	SELECTION
LUBRICATION	TANK CAPACITY(AVAILABLE)	L	0.7	DEFAULT
	PUMP MOTOR POWER	kW	0.02	
	DISCHARGE PRESSURE	MPa	5.00	
	DISCHARGE VOLUME	mL/min	7	
	DISTRIBUTOR TYPE		METERING	

6. COOLANT SYSTEM

ITEM		UNIT	SPECIFICATION	SELECTION	
FLOOD & FLUSHING COOLANT	TANK CAPACITY	L	440	STD.	DEFAULT
	PUMP MOTOR POWER	kW	1.5		
	FILTERATION	㎛	20(TANK SCREEN FILTER)		
	MAX. PRESSURE 60Hz(50Hz)	MPa	0.25(0.15)		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	240(220)		
COOLANT SYSTEM -MIDDLE PRESSURE TSC I [9]	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	2.9		
	FILTERATION	㎛	20~30(CYCLONE FILTER)		
	MAX. PRESSURE 60Hz(50Hz)	MPa	2.0(1.3)[1]		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	33.8[2](29.3)[3]		
COOLANT SYSTEM -MIDDLE PRESSURE TSC II [9]	TANK CAPACITY	L	140	OPT.	
	PUMP MOTOR POWER	kW	2.9		
	FILTERATION	㎛	25 (CYCLONE FILTER)[8]		
	MAX. PRESSURE 60Hz(50Hz)	MPa	3.0(3.0)[1]		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	36[4](31)[5]		
COOLANT SYSTEM -HIGH PRESSURE TSC I [9]	TANK CAPACITY	L	140	OPT.	
	PUMP MOTOR POWER	kW	7.5		
	FILTERATION	㎛	25 (CYCLONE FILTER)[8]		
	MAX. PRESSURE	MPa	7.0[1]		
	MAX. FLOWRATE 60Hz(50Hz)	L/min	39[6](32)[7]		
COOLANT GUN	TANK CAPACITY	L	STD. TANK COMMON	OPT.	SELECTIVE
	PUMP MOTOR POWER	kW	0.6		
	FILTERATION	㎛	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

(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 1.7MPa.
(3) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 1.2MPa.
(4) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 1.4 mpa.
(5) This value is the coolant flow rate when tool hole dia. is 6mm and pump outlet pressure is 1.0 mpa.
(6) This value is the coolant flow rate when tool hole dia. is 5mm and pump outlet pressure is 1.8 mpa.
(7) This value is the coolant flow rate when tool hole dia. is 5mm 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 0.54MPa.
<NOTE>
1. At (2)~(7), real pressure and flow rate can be changed by machine & tool condition.
(For more information,consult with DN Solutions R&D)

8. CHIP PAN, CHIP CONVEYOR & BUCKET

ITEM		UNIT	SPECIFICATION	SELECTION	
CHIP PAN		SET		STD.	SELECTIVE
CONVEYOR	HINGE BELT TYPE WITH SCRAPER CONVEYOR	SET	LEFT SIDE	OPT.	
	SCRAPER TYPE DRUM FILTER CONVEYOR	SET	LEFT SIDE	OPT.	
BUCKET	TYPE	-	FORKLIFT	OPT.	SELECTIVE
			ROTATION		
	CAPACITY	L	300		

9. COOLING FOR ELECTEIC CABINET

ITEM	UNIT	SPECIFICATION			SELECTION
		FANUC	HEIDENHAIN	SIEMENS	
FAN COOLER	SET	STD.			DEFAULT
AIR CONDITIONER	SET	OPT.	STD.	STD.	

10. 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			
	ANCHORING(1)		SET	SIDE CLAMP & CHEMICAL ANCHOR BOLT		
	SMART THERMAL CONTROL		SET	SENSOR TYPE (SPINDLE & STRUCTURE)		
	ASSEMBLY & OPERATION TOOLS		SET			
	Z AXIS HEAT DISPLACEMENT C0NTROL DEVICE		SET			
	IKC(2) (INTELLIGENT KINEMATIC COMPENSATION)	FANUC	SET	DCP-i	DEFAULT	
		HEIDENHAIN	SET	Kinematic OPT.		
		SIEMENS	SET	CYCLE9960		
OPTIONAL	AUTO TOOL LENGTH MEASUREMEMT (TOUCH)	MAKER/SPEC.	SET	RENISHAW / RTS	OPT.	SELECTIVE
			SET	HEIDENHAIN / TT460		
			SET	BLUM / ZX SPEED		
	AUTO TOOL LENGTH MEASUREMEMT (LASER)	MAKER/SPEC.	SET	RENISHAW / NC4F	OPT.	SELECTIVE
			SET	BLUM / LC50		
	AUTO WORKPIECE MEASUREMENT	MAKER/SPEC.	SET	RENISHAW / RMP60	OPT.	SELECTIVE
			SET	RENISHAW / RMP600		
			SET	HEIDENHAIN / TS460		
			SET	BLUM / TC-60		
	AIR GUN		SET		OPT.	SELECTIVE
	MIST COLLECTOR		SET	0.75 KW_WATER SOLUBLE	OPT.	SELECTIVE
			SET	0.75 KW_NONE WATER SOLUBLE		SELECTIVE
	ROTARY JOINT FOR TABLE		SET	NONE	DEFAULT	
				FIXTURE LINE THRU ROTARY TABLE CENTER (MAX. 6 PORTS)	OPT.	
	AIR BLOWER		SET		OPT.	
	TEST BAR GAUGE		SET		OPT.	
	LIFTING HOOKS		SET	EYE BOLT	OPT.	
	COOLANT CHILLER(3)		SET		OPT.	
	AUTO DOOR		SET	FRONT _ AUTO DOOR (w/SAFETY EDGE)	OPT.	
			SET	RIGHT SIDE _ AUTO DOOR (w/SAFETY EDGE)	OPT.	
	ROTARY WINDOW WIPER		SET		OPT.	
	AUTOMATIC WORKPIECE CHANGER		SET	4 / 6 / 8 / 12 24 / 28 / 32 / 40	OPT.	
	PAPER FILTER WITH TSC		SET	20 / 30 / 70 BAR	OPT.	

(1) Please refer to foundation drawing in relation to anchoring.

If more detail information want, consult with DN Solutions service.

(2) IKC is function compensating rotational center in 5-axis machining center.

(3) In case of using neat cutting oil, this device is highly recommended in order to

reduce the change of accuracy by rising the coolant temperature.

<NOTE>

1. Please inquire DN Solutions R&D department when end-user select.

11. SPECIAL QUOTATION OPTIONS

ITEM	UNIT	SPECIFICATION	SELECTION
ROOF_ AUTO DOOR	SET		OPT.

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.(60 Hz, 220 V)
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. Refer to the separated spec. sheets in relation to specification, function and option of CNC controller.