

# DVF 5000

## High Productivity 5-Axis Simultaneous Vertical Machining Center

The DVF 5000 is designed to machine complex work-pieces with high precision and speed. The 18,000-rpm built-in spindle gives superior performance in virtually any machining application. The travelling column machine structure provides uniform load to all linear machine axes allowing for a highly rigid and stable platform for your most demanding machining processes.



## Main Features

- Fanuc F31i-B5 Control
- 5 Simultaneously controlled axes (X,Y,Z,B,C) with high precision, absolute rotary encoders on B and C axes and absolute glass scales on XYZ axes
- High precision, built in spindle design with (18.5 / 22 kW \ 24.8 / 29.5 hp motor, 18,000 rpm)
- Spindle oil chiller
- Spindle orientation, load meter, override and rigid tapping
- Servo Driven, Double Arm ATC (60 tools)
- High rigidity, traveling column design with large linear roller guides (X - 45 mm \ 1.772", Y - 45 mm \ 1.772", Z - 35 mm \ 1.377")
- Servo motors mounted directly to the oversized, double pre-tensioned ball screws (X - 40 mm \ 1.574", Y - 40 mm \ 1.574", Z - 40 mm \ 1.574")
- Fast rapid traverse rate (X - 40 m/min \ 1,575 ipm, Y - 40 m/min \ 1,575 ipm, Z - 40 m/min \ 1,575 ipm)
- Z-axis thermal compensation by multiple temperature sensors and proprietary Doosan compensation algorithms for increased precision
- 500 mm (19.68") diameter T-Slot table surface
- DSQ 3 (AICC II 600 block look ahead + 1 GB Data Server)
- Renishaw probe ready (RMI-Q radio receiver, RTS tool setter and GUI software)
- Doosan Intelligent Kinematic Compensation (IKC) software for fine calibration of rotary axes. Requires 600 series probe and calibration artifact (sold separately)
- Doosan Tool Load Monitoring and Adaptive Feedrate Control
- 6 port hydraulic fixture preparation configured for 2 circuits (4 hydraulic\2 air sense) that can be used either in conjunction or independently. Maximum rated pressure is 200 bar \ 2,900 PSI. (Hydraulic pump and air sensing circuits not included)

## Standard Equipment and Warranty

- 20 bar (230 psi) Through spindle coolant, Air through spindle
- Flood coolant with large separate coolant tank and way oil skimmer (350 liter \ 92 gallon)
- Multiple flushing nozzles that wash chips down to the chip conveyor for disposal
- Full enclosure splash guard
- Eco friendly grease lubrication with 1 cartridge pre-installed on the machine
- Portable Manual pulse generator
- Program and data protection key
- Work light and 3 color tower signal light
- Two-year machine parts warranty, one-year labor warranty. See warranty pages for details.
- Two-year control warranty: Parts and Labor
- Doosan instruction, operation, parts list and electrical drawing manuals in hardcopy format
- FANUC manuals provided on USB drive (Hardcopy available for purchase, contact parts department)

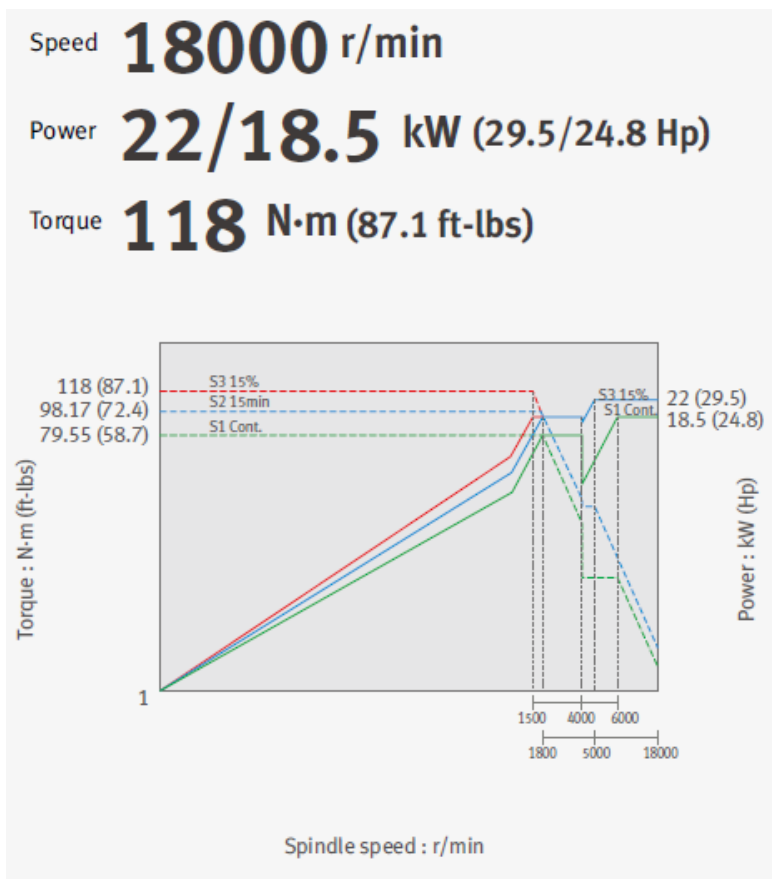
# SPECIFICATIONS:

## CAPACITY:

X axis travel	625 mm (24.6")
Y axis travel	450 mm (17.71")
Z axis travel	400 mm (15.74")
B axis travel	+110 deg \ -30 deg
C axis travel	360 deg
Table Size (Diameter)	500 mm (19.68")
Max Work Piece Diameter	550 mm (21.65")
Max Work Piece Height	450 mm (17.716")
Max Table Load	400 kg (882 lbs)
Table Surface (Without AWC)	(5) - 80 mm x 14H8 (5) - 3.149" x .551"

## SPINDLE:

Spindle nose to table top (Without AWC)	150 mm to 550 mm (5.9" to 21.65")
Big plus Spindle system	CAT 40 Big Plus
Spindle speed	18,000 rpm
AC Spindle Motor (S3 15%)	18.5 / 22 kW (24.8 / 29.5 hp)
Spindle Torque (S3 15%)	118 nm (87.1 ft-lbs)
Spindle Acceleration \ Deceleration time	0 - 18k (2.8 sec) \ 18k - 0 (1.9 sec)



## **AUTOMATIC TOOL CHANGER:**

Number of Tools 60

*(Other tool changers are available. Please see section on ATC's and factory option list for pricing)*

Tool Shank	CAT 40
Pull Stud (Supply Company #)	711-23
Max. Tool Dia. \ Adjacent pots are empty	80 mm \ 125 mm (3.1" \ 4.9")
Max. Tool Length	300 mm (11.8")
Max. Tool Weight	8 kg (17.6 lbs)
Tool Selection	Random
Tool to Tool	1.3 seconds
Chip to Chip	5.3 seconds

## **MOTION:**

X axis rapid traverse rate	40 m/min (1,575 ipm)
Y axis rapid traverse rate	40 m/min (1,575 ipm)
Z axis rapid traverse rate	40 m/min (1,575 ipm)
Cutting feed rate (X, Y and Z)	1 - 20,000 mm/min (.04 - 787 ipm)
Positioning accuracy (Full Stroke)*	+/- .005 mm (+/- .0002")
B and C axes rapid traverse rate	20 rev/min
B and C axes accuracy	B(+/- 10) C(+/-6) seconds
B and C axes max feed rate	7,200 deg/min
Least command increment	.001 mm (.0001")
Repeatability	+/- .002 mm (+/- .000080")

## **GENERAL:**

Machine Height	2,890 mm (114")
Floor Space Required (L x W)	2,900 mm x 2,205 mm (114" x 87")
Machine Weight	7,500 kg (16,534 lbs)

## **UTILITY:**

Power required	65 kVA / 170.78 amps @ 220v
Voltage required - Fanuc	205-235 Volts / 3 Phase

## **TANK CAPACITY:**

Coolant tank capacity	350 liters (92 gallons)
Lubrication tank capacity	.7 liters (.18 gallons)
Air Required	.54 mpa (80 psi) * 9.53 cfm

Geometric accuracies guaranteed only if machine is installed according to the guidelines and specifications as stated in the instruction manual. Note that this machine requires the use of a suitable foundation pad and anchoring procedure. Please review with your dealer prior to purchase.

# Automatic Workpiece Changer

The Doosan Automatic Workpiece Changer (AWC) is a cost effective solution providing multiple pallets for longer periods of unmanned operation or reduced set-up times when producing many different work pieces in low lot sizes. The system can be ordered from the factory complete or added in the field as a retrofit (conditions apply).

**AWC-8 shown for reference and is the most commonly ordered version**



Zero point clamping



Easy to use job scheduler, along with an animated GUI, makes it quick and easy to setup an automated workflow

## Currently available AWC configurations

*Note that overall floor space remains the same regardless of the number of pallets.*

