

DOOSAN



DVF 6500 / 8000 / 8000T

Premium Series 5 axis
Machining Centers

DVF 6500
DVF 8000
DVF 8000T



**MACHINE
GREATNESS™**

Basic information

Basic Structure
Cutting
Performance

Detailed Information

Options
CUFOS
Applications
Diagrams
Specifications

Customer Support Service



DVF 6500 / 8000 / 8000T

The Doosan DVF series premium 5 axis Vertical Machining Centers are built for high precision machining of complex parts. The optional table turning function provides the additional flexibility required to finish machine parts in one setting.

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High productivity/high speed simultaneous 5 axis machine

- 12000, 18000 r/min high speed spindle
- 2 axis rotary/tilt table
 - Turning function(DVF 8000T only)

User friendly machine

- Compact footprint
- Grease lubrication system
- Easy operator access to machine
- Automation system(RPS/LPS)

High precision function

- Spindle & structure thermal compensation
- Spindle cooling
- Ballscrew shaft cooling system



Basic Structure

Provides high rigidity and stable structure with direct axis drive.

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Travel distance
(DVF 6500 / DVF 8000, DVF 8000T)

X-axis
750/1000 mm
(29.5 / 39.4 inch)

Y-axis
785/900 mm
(30.9 / 35.4 inch)

Z-axis
600/685 mm
(23.6 / 27.0 inch)

Rapid traverse

X-axis 45 m/min
(1771.7 ipm)

Y-axis 45 m/min
(1771.7 ipm)

Z-axis 45 m/min
(1771.7 ipm)



Spindle

We provide stable machining performance with high speed direct and built-in spindle.

Max. Spindle speed

12000 r/min
18000 r/min option

Max. Spindle motor power

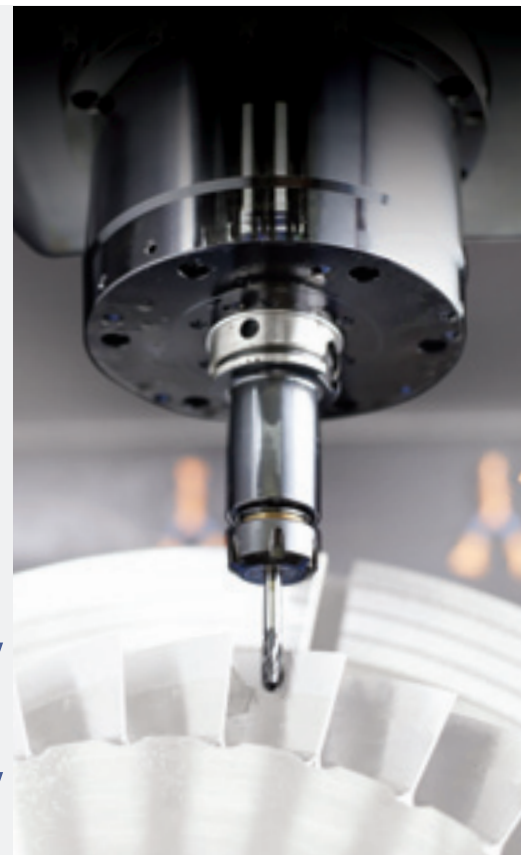
HEIDENHAIN
30/30 kW option
(40.2/40.2 Hp)

FANUC
22/22 kW option
(29.5/29.5 Hp)

Max. Spindle torque

HEIDENHAIN
155/155 N·m option
(114.4/114.4 ft-lbs)

FANUC
204/118 N·m option
(150.6/87.1 ft-lbs)





Magazine

Servo tool magazine for high productivity and reliability.

Servo magazine

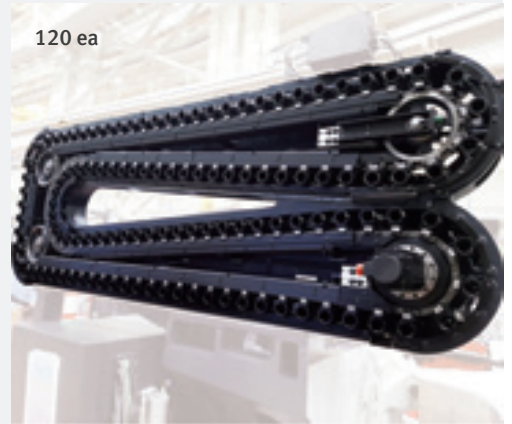
40 ea
(60 / 90 / 120 ea) option

Tool to Tool

1.3 sec

ATC Magazine Panel

- More than 60 tools,
 - Touch panel 7 inch (FANUC, SIEMENS)
 - Touch panel 7.5 inch (SIEMENS)
 - Touch panel 10.2 inch (FANUC, HEIDENHAIN) option



Table

Various table specifications from standard mechanical drive to direct drive and turning function.

DVF 6500

50 r/min
(Roller Gear Cam)

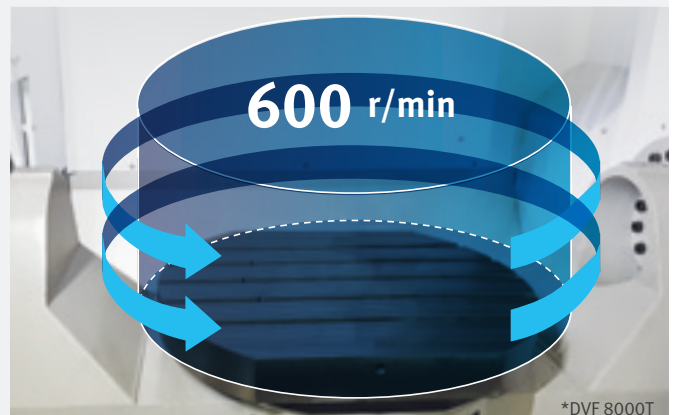
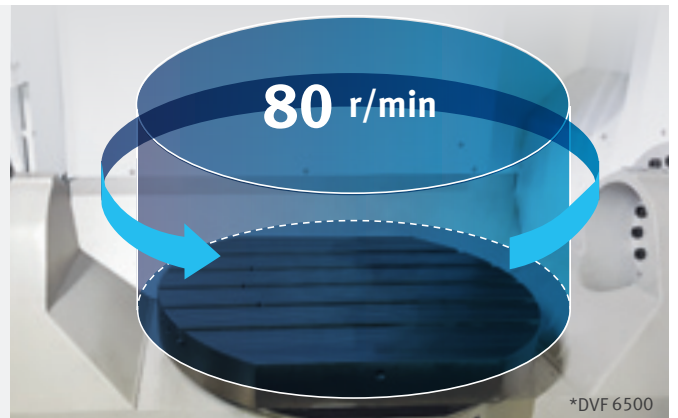
80 r/min
(Direct Drive)

DVF 8000

60 r/min
(Direct Drive)

DVF 8000T

600 r/min
(Direct Drive)



*DVF 6500

*DVF 8000T



Basic information

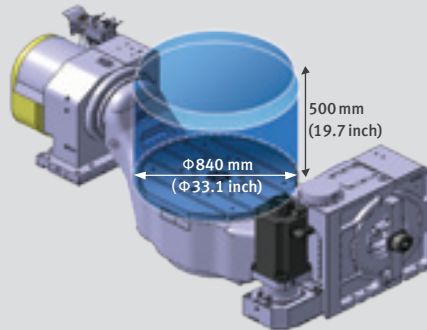
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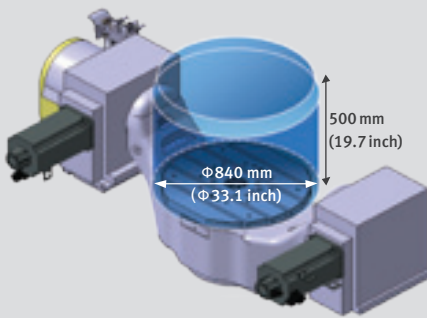
Customer Support Service

Swiveling rotary table - Single drive



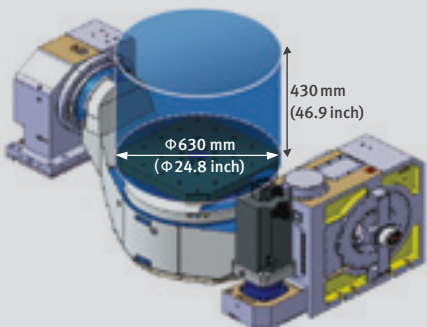
Description	Unit	Roller Gear Cam	Direct Drive
Table size	mm (inch)	Φ 650 X 600 (Φ 25.6 X 23.6)	
Max. load	kg (lb)	600 (1322.77)	
Max. workpiece size	mm (inch)	Φ 840 X H500 (Φ 33.1 X H19.7)	
Torque (Rotating axis)	N·m (ft·lbs)	1200 (885.07)	1240 (914.58)
Rapid (Rotating axis)	r/min	50 (RGC)*	80 (Direct Drive)
Torque (Tilting axis)	N·m (ft·lbs)	3800 (RGC_Single)* (2802.74)	
Rapid (Tilting axis)	r/min	25	

Swiveling rotary table - Tandem drive



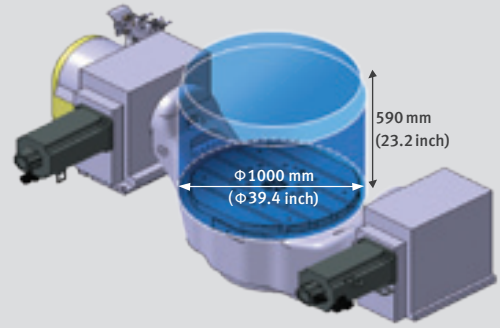
Description	Unit	Roller Gear Cam	Direct Drive
Table size	mm (inch)	Φ 650 X 600 (Φ 25.6 X 23.6)	
Max. load	kg (lb)	1000 (2204.6)	
Max. workpiece size	mm (inch)	Φ 840 X H500 (Φ 33.1 X H19.7)	
Torque (Rotating axis)	N·m (ft·lbs)	1200 (885.07)	1240 (914.58)
Rapid (Rotating axis)	r/min	50 (RGC)*	80 (Direct Drive)
Torque (Tilting axis)	N·m (ft·lbs)	4200 (RGC_Tandem)* (3097.8)	
Rapid (Tilting axis)	r/min	25	

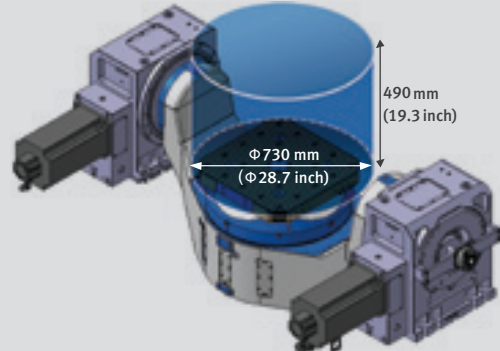
Swiveling rotary table - Single/Tandem drive for Pallet changer



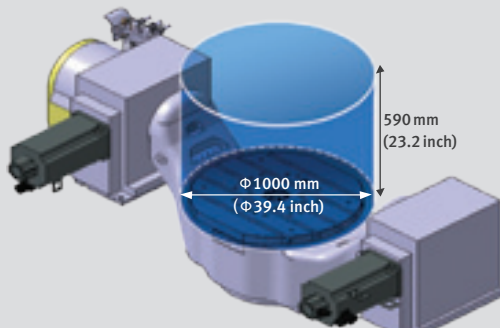
Description	Unit	Single Drive	Tandem Drive
Table size	mm (inch)	Φ 500 X 500 (Φ 19.7 X 19.7)	
Max. load	kg (lb)	600(w/ Pallet) (1332.77)	
Max. workpiece size	mm (inch)	Φ 630 X H430 (Φ 24.8 X H16.9)	
Torque (Rotating axis)	N·m (ft·lbs)	1240 (914.58)	
Rapid (Rotating axis)	r/min	80 (Direct Drive)	
Torque (Tilting axis)	N·m (ft·lbs)	3800 (RGC_Single)* (2802.7)	4200 (RGC_Tandem)* (3097.8)
Rapid (Tilting axis)	r/min	25	

DVF8000

Swiveling rotary table - Tandem drive		Description	Unit	Specification
	Table size	mm (inch)	Φ800 x 680 (Φ31.5 x 26.8)	
	Max. load	kg (lb)	1400 (3086.5)	
	Max. workpiece size	mm (inch)	Φ1000 X H590 (Φ39.4 X H23.2)	
	Torque (Rotating axis)	N·m (ft·lbs)	2120 (1563.6)	
	Rapid (Rotating axis)	r/min	60 (Direct Drive)	
	Torque (Tilting axis)	N·m (ft·lbs)	8000 Gear Train(Tandem) (5900.5)	
	Rapid (Tilting axis)	r/min	25	

Swiveling rotary table - Tandem drive for Pallet changer		Description	Unit	Specification
	Table size	mm (inch)	Φ630 X 630 (Φ24.8 x 24.8)	
	Max. load	kg (lb)	850(/w Pallet) (1873.9)	
	Max. workpiece size	mm (inch)	Φ730 X H490 (Φ28.7 x 19.3)	
	Torque (Rotating axis)	N·m (ft·lbs)	2120 (1563.6)	
	Rapid (Rotating axis)	r/min	60 (Direct Drive)	
	Torque (Tilting axis)	N·m (ft·lbs)	8000 Gear Train(Tandem) (5900.5)	
	Rapid (Tilting axis)	r/min	25	

DVF8000T

Swiveling rotary table - Tandem drive for Turning		Description	Unit	Specification
	Table size	mm (inch)	Φ800 (Φ31.5)	
	Max. load	kg (lb)	700 (1543.2)	
	Max. workpiece size	mm (inch)	Φ1000 X H590 (Φ39.4 X H23.2)	
	Torque (Rotating axis)	N·m (ft·lbs)	2120 (1563.6)	
	Rapid (Rotating axis)	r/min	600(w/Turning) (Direct Drive)	
	Torque (Tilting axis)	N·m (ft·lbs)	8000 Gear Train(Tandem) (5900.5)	
	Rapid (Tilting axis)	r/min	25	

DVF 6500, 18000r/min

Basic information

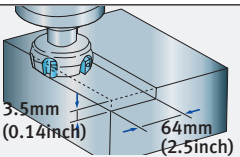
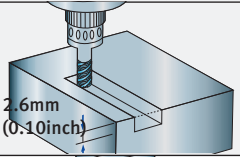
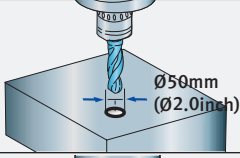
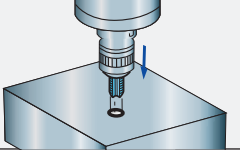
Basic Structure
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High cutting performance with high speed built-in spindle.

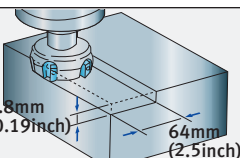
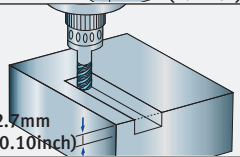
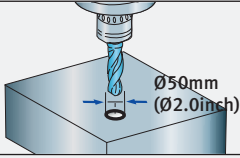
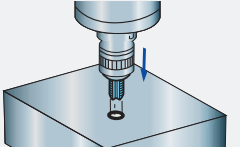
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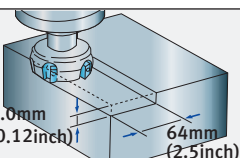
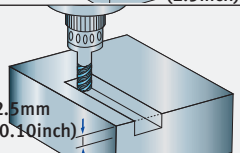
Customer Support Service

Face mill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
605 (36.9)	1890	2700 (106.3)	
Endmill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
215 (13.1)	1500	1650 (65.0)	
U-Drill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
558 (34.1)	1890	284 (11.2)	
Tap Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
M36 x P4.0 (M1.4 x P0.2)	265	1060 (41.7)	

DVF 8000, 12000r/min

Face mill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
664 (40.6)	1200	2160 (85.0)	
Endmill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
179 (10.9)	1200	1320 (52.0)	
U-Drill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
471 (28.7)	1200	240 (9.5)	
Tap Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
M42 x P4.5 (M1.7 x P0.2)	152	684 (26.9)	

DVF 8000, 18000r/min

Face mill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
653 (39.8)	1890	3402 (134.0)	
Endmill (ø80mm (ø3.1inch)) Carbon steel (SM45C)			
Machining rate cm ³ /min (inch ³ /min)	Spindle speed (r/min)	Feedrate m/min (ipm)	
206 (12.6)	1500	1650 (65.0)	

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



Standard / Optional Specifications

Various options are available to satisfy the customers' requirements

● Standard ○ Optional X Not applicable

NO.	Description	Features	DVF 6500	DVF 8000	DVF 800T		
1	Spindle	12000 r/min	●	●	X		
2		18000 r/min	○	○	●		
3	Magazine	Tool storage capacity	40ea	●	●	X	
4			60ea	○	○	●	
5	Tool shank type	BIG PLUS BT40	●	●	X		
6		CAT40 / DIN / HSK A63	○	○	X		
7		HSK T63		X	●		
8	Coolant	FLOOD	2.5 KW_0.44 MPA_100 L/MIN	●	●	●	
9			None	●	●	●	
10		TSC	4.0 KW_2.0 MPA_CYCLON FILTER	○	○	○	
11			3.0 KW_3.0 MPA_CYCLON FILTER	○	○	○	
12			7.5 KW_7.0 MPA_CYCLON FILTER	○	○	○	
13		OIL SKIMMER	None	●	●	●	
14			BELT TYPE	○	○	○	
15		Coolant level switch _Low / High			○	○	
16		Chip disposal	Chip conveyor	CHIP PAN	●	●	●
17				HINGED BELT_REAR SIDE	○	○	○
18	Chip bucket		○	○	○		
19	Air gun		○	○	○		
20	Coolant gun			○	○		
21	Precision machining option	Linear scale	X / Y / Z axis	○	○	○	
22	Measurement & Automation	IKC READY	S/W ONLY	●	●	●	
23			RENISHAW (RMI-Q) + S/W	○	○	○	
24			HEIDENHAIN (SE660) + S/W	○	○	○	
25			BLUM (RC66) + S/W	○	○	○	
26		DATUM BALL FOR IKC	NONE	●	●	●	
27			DATUM BALL_D25	○	○	○	
28		TOUCH PROBE FOR IKC	NONE	●	●	●	
29			RMP60_RENISHAW	○	○	○	
30			OMP60_RENISHAW	○	○	○	
31			OMP400_RENISHAW	○	○	○	
32			TS460_HEIDENHAIN	○	○	○	
33			TC60_BLUM	○	○	○	
34			Automatic tool measurement	NONE	○	○	○
35		TS27R_RENISHAW		●	●	X	
36		RTS_RENISHAW		○	○	X	
37		NC4_RENISHAW		○	○	X	
		NC4S_RENISHAW		○	○	X	
38		TT160_HEIDENHAIN		○	○	X	
39		ZX SPEED_BLUM		○	○	X	
40		HYBRID_BLUM	X	X	●		
41	MASTER TOOL	NONE	●	●	●		
42		MASTER TOOL	○	○	○		
43	Others	LED work light		●	●	●	
44		3 color signal tower		●	●	●	
45		Tool load monitoring		●	●	●	
46		EZ Guide i		○	○	○	
47		Automatic power off		●	●	●	
48	Customized special option	Auto door (w/safty edge)		○	X	X	
49		APC		○	○	○	
50		APC_3 Station/4 (Pallet)		○	○	○	
51		APC + LPS		○	○	○	
52		SIEMENS(12K)		○	○	○	
53		SIEMENS(18K)		○	○	○	
54		Rotary joint for table		○	○	○	
55		Rotary joint for table(APC)		○	○	○	
56		Paper filter with TSC		○	○	○	

* Please contact Doosan for more information.



Peripheral Equipment

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Automatic tool measurement

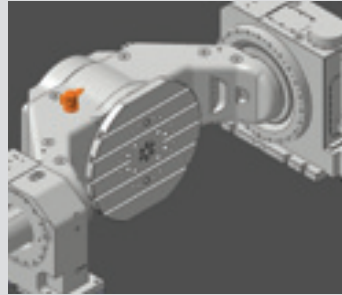
Touch type

Renishaw(TS27R)
Heidenhain(TT160)
Blum(ZX Speed)

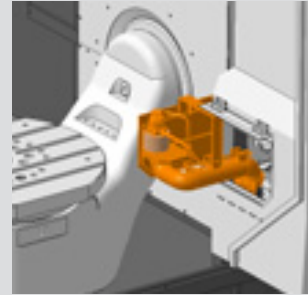
Laser type

Renishaw(NC4)
Blum(MICRO COMPACT NT)

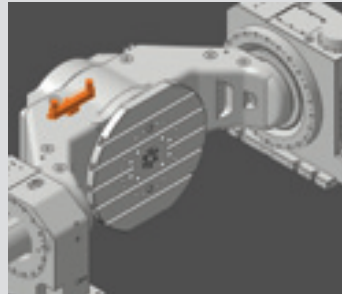
Renishaw(NC4S)
Blum(MICRO SINGLE NT)



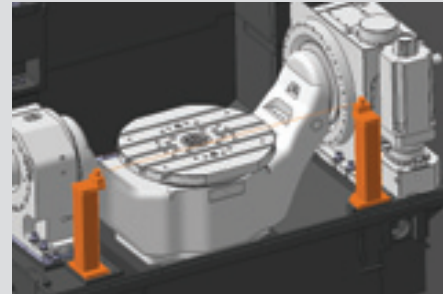
Rotary body mounting type



Renishaw(TS27R) / Heidenhain(TT160)
Blum(ZX Speed)



Rotary body mounting type
Renishaw(NC4) Blum(MICRO COMPACT NT)



Head separated type
Renishaw(NC4S) Blum(MICRO SINGLE NT)

* When using Tool Length Measurement, contact Doosan for detailed capacity diagram

Intelligent Kinematic Compensation for 5-axis

For high accuracy 5 axis machining, Intelligent Kinematic Compensation function is recommended. This function minimizes error in complex 5 axis machining applications by maintaining the tool point in the correct position relative to the workpiece. In order to use this function, the following optional items are required.



Recommended optional items

1. Software



FANUC NC: DCP-i (Developed by DOOSAN)



Heidenhain NC: Kinematic opt

2. Receiver

Recommended Option



3. Touch Probe

Recommended Option



4. Datum ball

Recommended Option



5. Automatic tool measurement

Recommended Option



6. Master Tool

Recommended Option



CUFOS

Customized User-friendly Flexible Operation Solutions

CUFOS is a PC based control system created by Doosan Machine Tools. Equipped with intuitive user-friendly functions such as a smart phone screen and easy customization, CUFOS helps to improve operational efficiency and performance for the user.

• Features of CUFOS

User-Friendly

- 19 inch Multi Touch Screen
- Multiple Apps such as –
 - CPS app (Collision Protection System)
 - Turn-cut app
 - Tool management app
 - Status monitoring and alarm guidance app
- Max. program memory : 40GB option
- App-based Interface for Smartphones & Tablet PC

Customized

- Simple Customization
- Extend Functionality with Additional apps
- Register for up to 6 individual users

Flexible

- Simple Connectivity with External Software (Cloud, Office etc.)
- SSD data server app
- PC based operating system (Windows®7)



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CUFOS Interface

User-Friendly Interface

CUFOS, the PC-based control created by Doosan Machine Tools, is an integrated system solution using an intuitive 19 inch touch screen. The system provides a convenient operator interface, a high level of customization and many useful high technology apps.

Intuitive operation via the touch screen

Simple customization is available for customers' work environment.

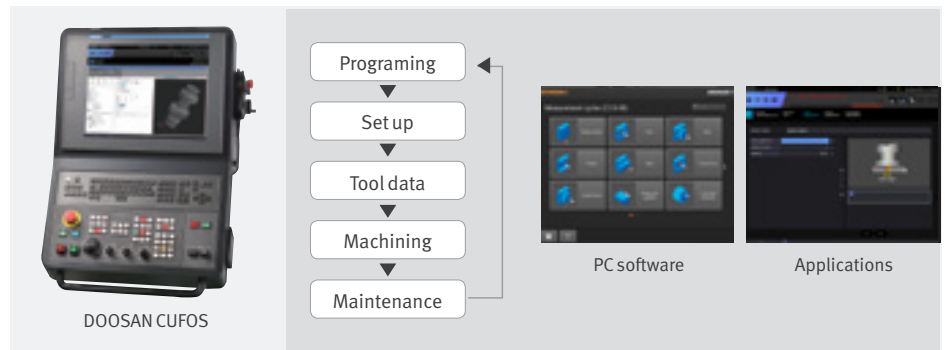


Supports various Apps in three fields – Setup/ Machining/Utility. It provides easy configuration by allowing the user to add and edit functions on the Home Screen according to job requirements.

CUFOS Open CNC

CUFOS operation for enhanced productivity

The CUFOS operating system is based upon the integration of all aspects of the manufacturing process, including setting, machining and maintenance. It consolidates up-to-date software technology created by Doosan Machine Tools, to improve overall efficiency and productivity. Using the system's modular construction, each function can be easily integrated with external PC software systems and applications, such as CAM and Tool Data systems.



CUFOS Machines

Maximizing efficiency for multi-tasking machining

Applied to those multi-tasking turning center like PUMA SMX series as well as high performance, high productivity horizontal machining center NHP / NHM / DVF series, CUFOS maximizes the operational efficiency by adding up-to-date software technology of Doosan Machine Tools including new developed application such as CPS (Collision Protection System), Turn-cut, and the Tool Management function etc.



Machining

Reduce downtime and improve productivity by providing CPS(Collision Protection System), real-time status monitoring and maintenance guides during operating the machine



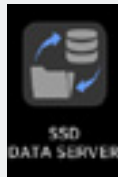
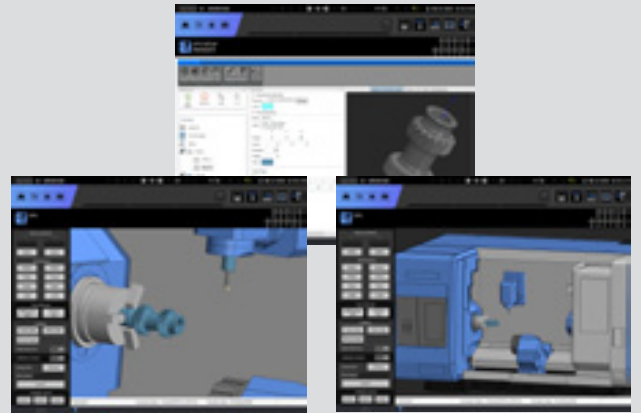
CPS (Collision Protection System)

A function to prevent real-time collision in manual mode between the tool and equipment / machine elements inside the working area.

Applicable models:
NHM / NHP / PUMA SMX / DVF series

- Supports Sandvik's cloud-based tool library for creation of 3D tool model

Use the Setup Manager with the CPS app to build up the machine model, and add tool, workpiece and workholding equipment details.



SSD data server

As a PC based NC, it allows the HDD to be used as a storage space for machining program, saving time for program transfer.

Applicable models:
NHM / NHP / PUMA SMX / DVF series

Max. storage size

40GB*

Max. file size

2GB

Max. file number

Up to 1000

(including folder)

- * Max. storage size is determined by the size of SSD in Panel iPro. If customer need Max. storage size of 40GB, it is necessary to select SSD129GB(option).



NC control

Easy to convert the screen to standard FANUC format for operator convenience



Status monitoring & Alarm guidance

Displays the cause and necessary action for NC/PMC alarms during machine running time. The system can send an email containing the alarm message if the condition persists for a specified time period.

Applicable models:
NHM / NHP / PUMA SMX / DVF series



Basic information

Basic Structure
Cutting
Performance

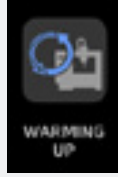
Detailed Information

Options
CUFOS
Applications
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Specifications

Customer Support Service

Set up

Make easy & interactive guides to facilitate machining preparations such as setting materials, tool management and warming-up



Warming up

Automatically checks if a warm up process is required, and displays the required operator procedure graphically. The requirement is automatically determined by the machine status.

Applicable model:
PUMA SMX series



Start warming up



Head tool change



Warming up completed



MDI mode



Cycle starting

Utility

Support user convenience functions and additional software modules handling various peripheral devices like measurement

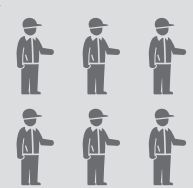


Setting

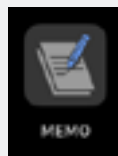
CUFOS Provides management and setting functions such as HMI parameter / User setting / Setup manager / e-mail

User setting

Allows the user to register and delete up to six persons from the user account. CUFOS apps and NC functions can be user-restricted as necessary.



Register user account up to six users



Memo

Users can generate memos, either with a high level of detail via screen capture, or entered by keyboard/ touchscreen. The user can add data to existing memos if required

Maximum 120 memos can be saved



메모



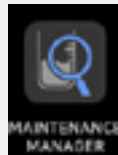
Screen capture

Memo through touch screen or key board or using a captured screen



Manual viewer

Users can store and view manuals on the 19 inch screen.



Maintenance manager

Monitors the status of machine and control elements, and confirms the alarm condition and maintenance schedule for preventative maintenance.



Video viewer

Video transfer and viewer functions make clearer communication possible between operators and helpful for training new workers, complex job arrangement

* Video format : .wmv, .avi, .mpg, .mpeg, .mp2, mp3, .wav, .mov, .mp4 (same as Window media open files)





Standard / Optional Specifications (CUFOS)

● Standard ○ Optional X Not applicable

Basic information

Basic Structure
Cutting
Performance

A diverse range of functions and apps are available to meet specific customer requirements.

Detailed Information

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Customer Support Service

NO.	Description	Features		DVF 6500 / 8000 / 8000T
1	Hardware	Display Unit	19" Color display	●
2		Main RAM Memory	4GB	●
3		Program Storage Memory	2GB	●
4			20GB	○
5			40GB	○
6		2 point-touch panel port		●
7		Windows 7 operating system		●
8	Applications	Doosan Tool Management		X
9		CPS(Collision Protection System)		○
10		SSD Data server application		○
11		Set and Inspection Application(Renishaw)		X
12		Manager's Message Notification application		●
13		FTP Server service		●
14		Smart key access control application		○
15		Memo Application		●
16		Machine status Monitor application		●
17		Alarm guidance application		●
18		Sketch Cycle		X
19		Sketch Turn for CUFOS		X
20		CS Turncut		X
21		BLUM Contour Scan(BLUM)		X
22		Alarm Notification via email		●
23	iHMI Basic Application	Manual viewer application		●
24		Calendar application		●
25		Browser application		●
26		Periodic Maintenance Application		●
27		Data Logger application		●
28		Servo viewer application		●

* Please contact your Doosan machine tool representative for detailed solution information.



Convenient Operation

Convenient and intuitive User interface.

HEIDENHAIN TNC640

Superior Hardware Specifications

15 inch display and large capacity 21GB memory



15 inch display

Description	HEIDENHAIN	Remarks
Screen size	15" STD	-
Storage memory	21GB STD	-
Interference prevention system	Optional	-
Kinematic OPT.	Optional	Measuring device not included
Look-ahead block	1024 blocks	-
3D line graphics	Std.	-

FANUC 3115

User-Friendly Operation Panel

15inch display and user-friendly operating function ensure convenient and efficient operation.



15inch display

Design optimized for customers' needs based on extensive know-how

Designed for user convenience	Convenient and intuitive UI
	Optimized button size
	High-visibility lamps
	Long lifecycle buttons
	Partitioned to prevent operator error

Convenient option buttons	Detachable buttons
	Spare I/O signal ports for optional devices

Customized functionality	Customer-specific function switches
	Available for auxiliary panel design



SIEMENS 840D

Basic information

Basic Structure
Cutting
Performance

Detailed Information


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Customer Support Service

SIEMENS CNC optimized for DOOSAN machine tools maximizes users' productivity.

15.6 inch screen + New OP

The newly-designed operation panel enhances operating convenience by incorporating common-design buttons and layout, and features the Qwerty keyboard for fast and easy operation.

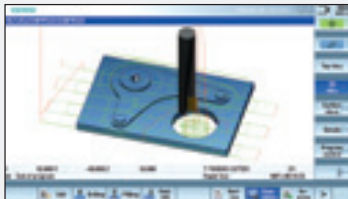


15.6-inch display

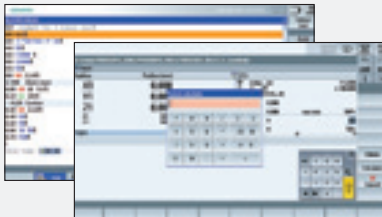
- 10MB high capacity user memory
- USB & Ethernet (standard)
- QWERTY Keyboard (standard)
- High speed calculation and simulation can be fulfilled by improved processor skill

Conversational Convenient function


The machining monitoring function developed on the basis of the Shop Mill – an interactive machining support function of SIEMENS – provides users with cutting, servicing and maintenance screens for easy and convenient machine operation.



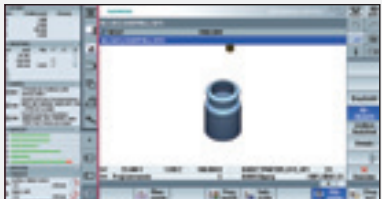
Simulation and machining contour monitoring
Simulation results with different views can be checked.




Smart function
Color highlighting is provided for each processing code function, and the calculator can be used easily by using the pocket calculator on display.



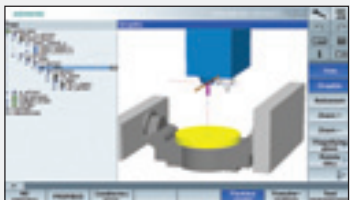
Shop Mill Part Programming
It helps to write the part program and shorten the writing time.



Side screen widget
Through the side widget, operator can easily monitor the current machining status.



5-axis kinematic measuring cycles
This function automatically measures and corrects the rotation axis center, increasing 5-axis machining accuracy.



3D Collision Avoidance ECO
Detect collisions in real time. Detection is possible in all operation modes.

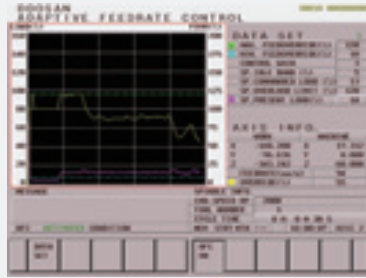


Easy Operation Package (Fanuc)

The software developed by Doosan's own technology provides numerous functions designed for convenient operation.

Easy Operation Package (EOP)

Setting up of tools, work pieces and programs, as well as troubleshooting for abnormal condition of main machine elements is designed to minimize waiting time, maximize operational efficiency, and enhance operator convenience.



Adaptive Feed Control (AFC)

Function to control feedrate so that the cutting can be carried out at a constant load (To adapt to the spindle load set up with constant load feedrate control function)



Tool Management

Function to manage tool information [Tool information]
- Tool No.
- Tool condition : normal, large diameter, worn/damaged, used for the first time, manual
- Tool name



Tool Load Monitor

Function to automatically monitor tool load (Different loads can be set for one tool according to M700 ~ M704)



Pattern Cycle (Engraving function : **option**)

Function to create frequently-used cutting programs automatically
- Pattern Cycle: creates a program for a pre-defined shape
- Engraving: creates a program for cutting a shape described with characters (option)



Work Offset Setting

Function to configure various work offset settings



Alarm Guidance

Function to show detailed info on frequently triggered alarms and recommended actions



Sensor Status Monitor

Function to view sensor conditions of the machine



ATC Recovery

Function to view detailed info with recommended actions and to perform step-by-step operation manually (when an alarm is triggered during an ATC operation)

Power-Torque Diagram

Basic information

- Basic Structure
- Cutting
- Performance

FANUC

DVF 6500, DVF 8000

Speed **12000 r/min**

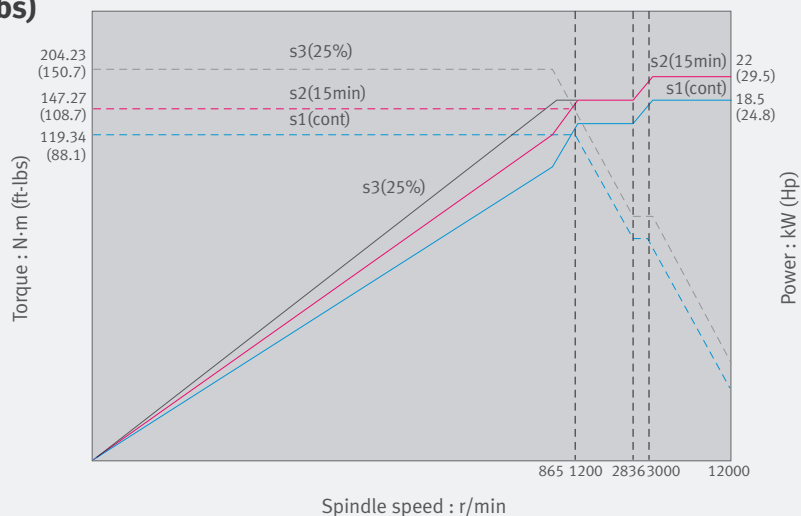
Power **22 kW (29.5 Hp)**

Torque **204 N·m (150.6 ft-lbs)**

Detailed Information

- Options
- CUFOS
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- Specifications

Customer Support Service

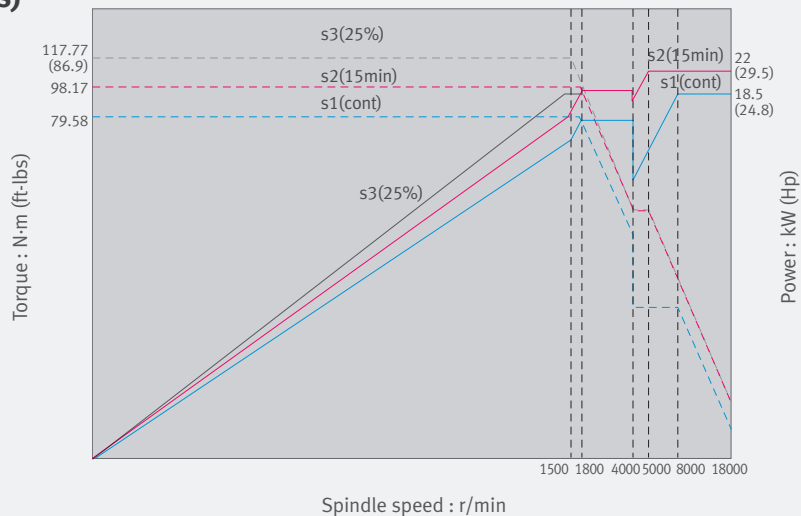


DVF 6500, DVF 8000, DVF 8000T

Speed **18000 r/min**

Power **22 kW (29.5 Hp)**

Torque **118 N·m (87.1 ft-lbs)**



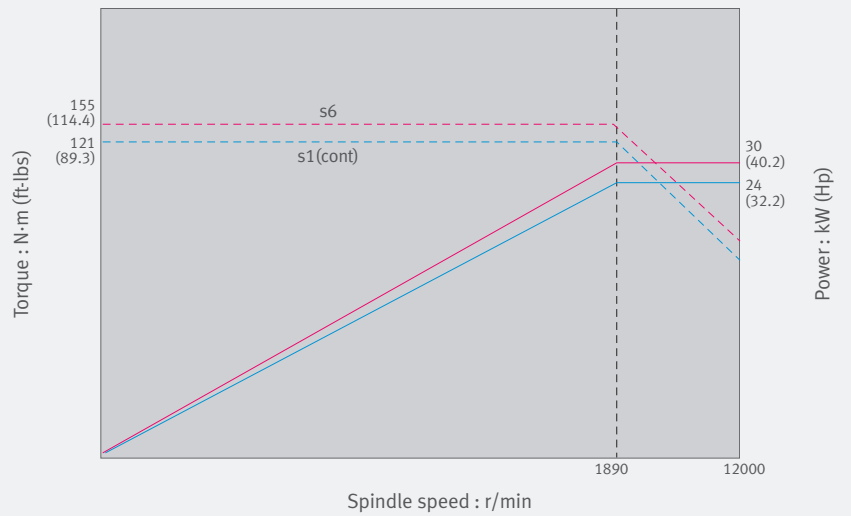
HEIDENHAIN, SIEMENS

DVF 6500, DVF 8000

Speed **12000 r/min**

Power **30 kW (40.2 Hp)**

Torque **155 N·m (114.4 ft-lbs)**

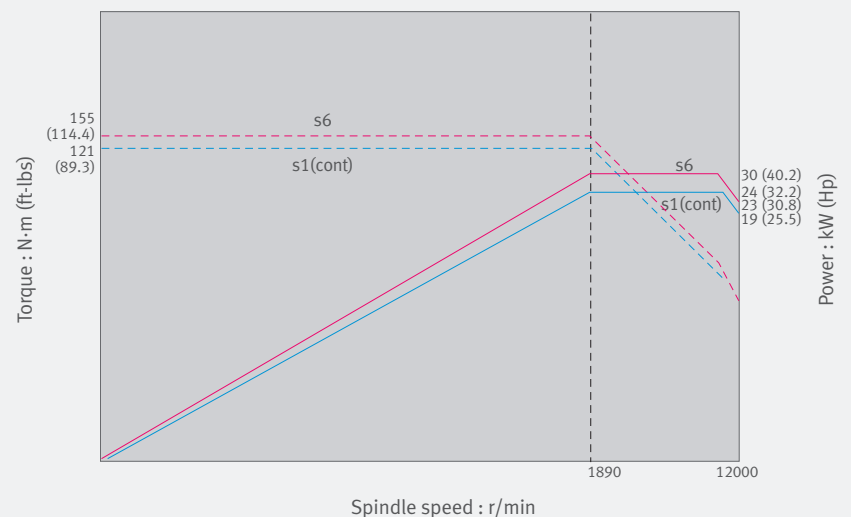


DVF 6500, DVF 8000, DVF 8000T

Speed **18000 r/min**

Power **30 kW (40.2 Hp)**

Torque **155 N·m (114.4 ft-lbs)**



External Dimensions

Basic information

Basic Structure
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Detailed Information

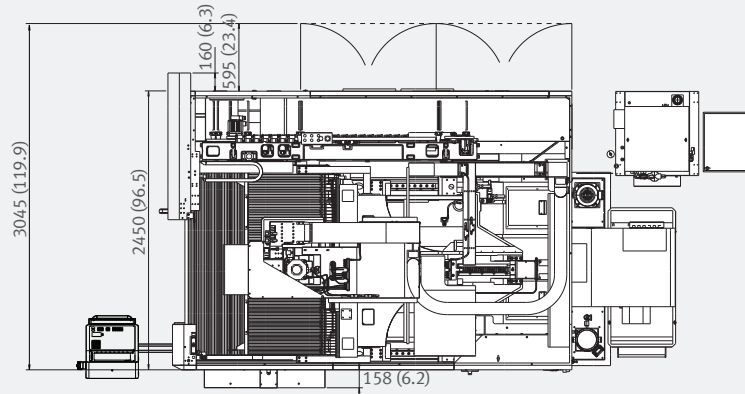
Options
CUFOS
Applications
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Specifications

Customer Support Service

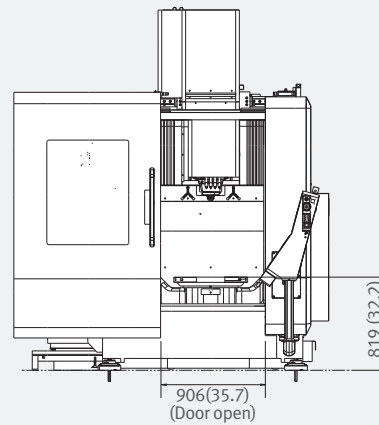
DVF 6500

Unit : mm (inch)

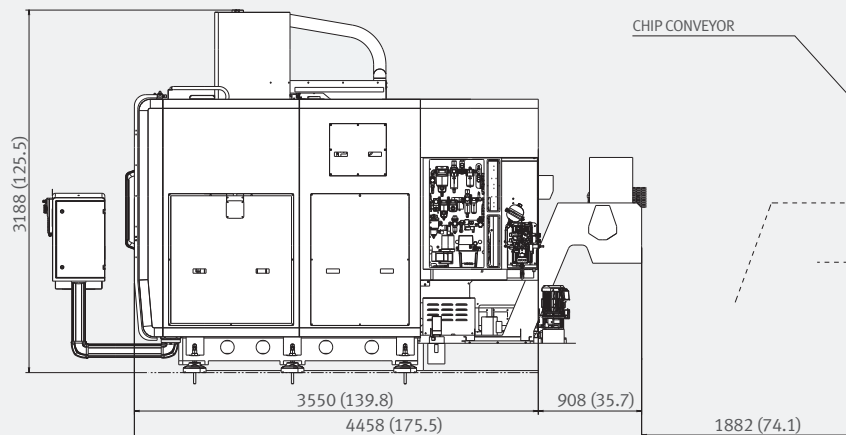
Top View



Front View



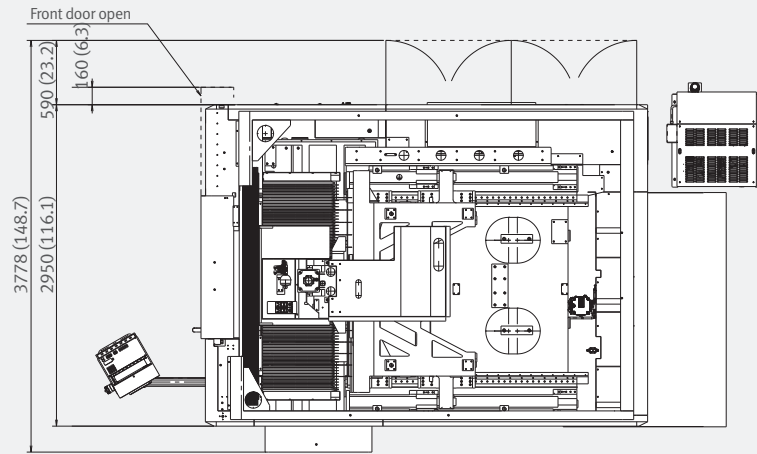
Side View



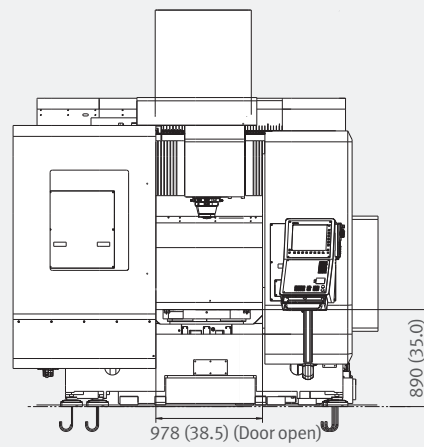
DVF 8000

Unit : mm (inch)

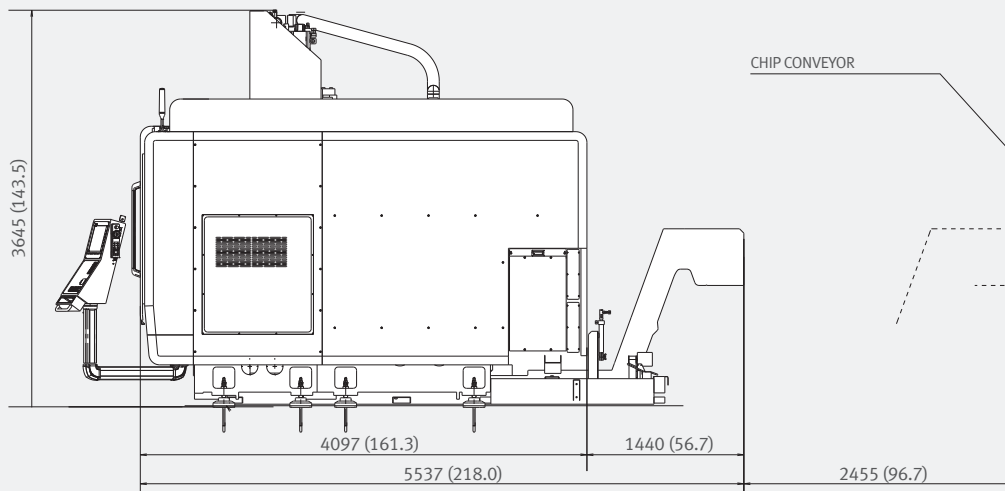
Top View



Front View



Side View



* Some peripheral equipment can be placed in other places

External Dimensions

Basic information

Basic Structure
Cutting
Performance

Detailed Information

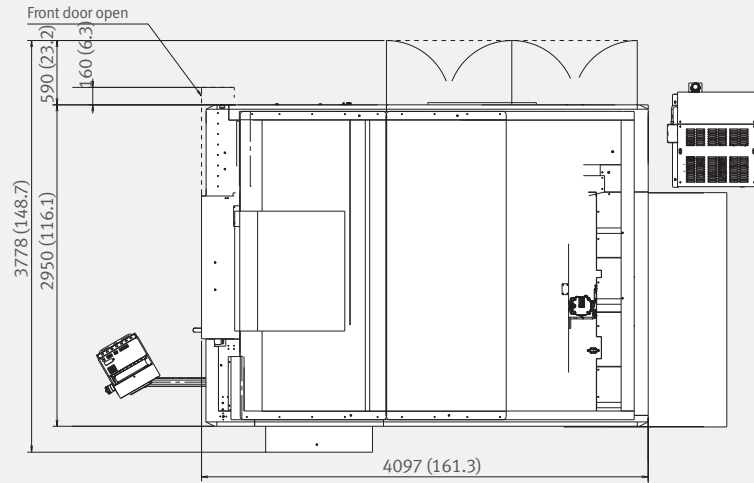
Options
CUFOS
Applications
Diagrams
Specifications

Customer Support Service

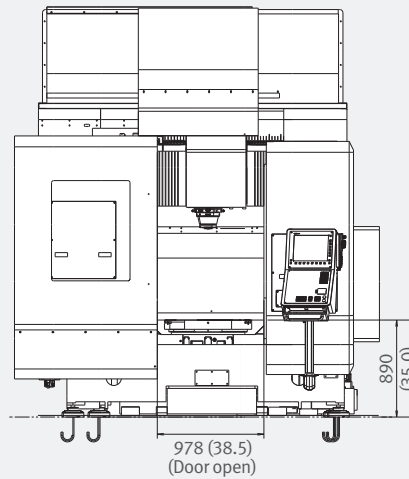
DVF 8000T

Unit : mm (inch)

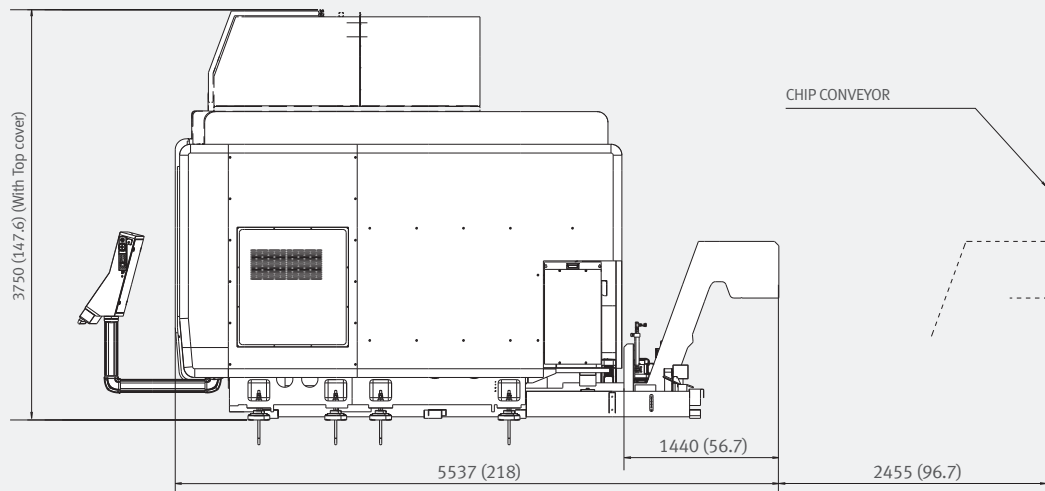
Top View



Front View



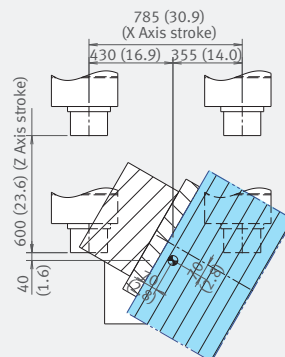
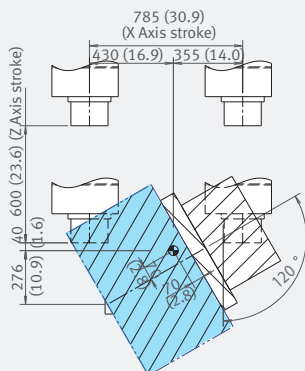
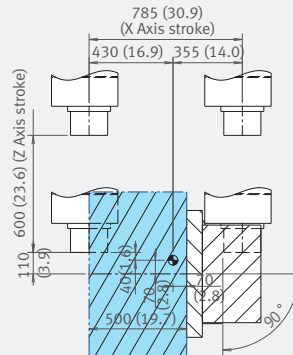
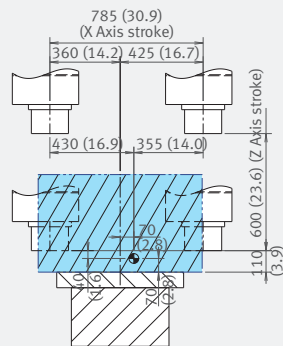
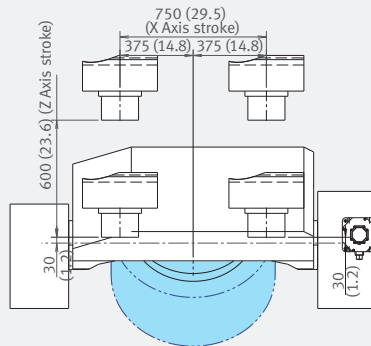
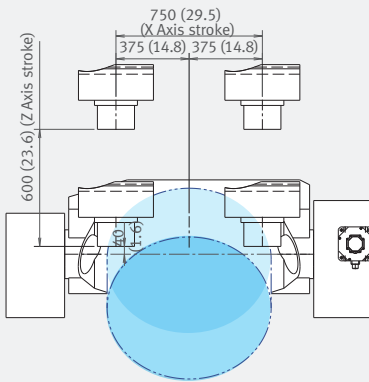
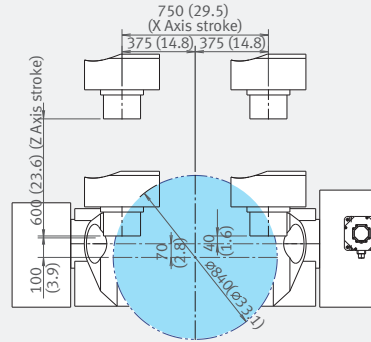
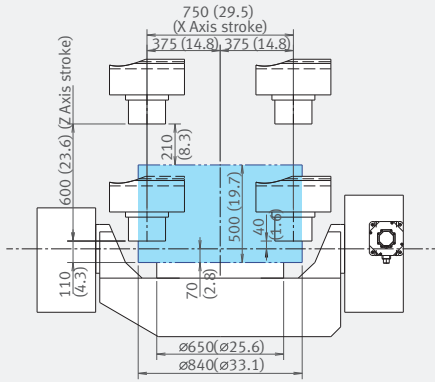
Side View



Interference diagram

DVF 6500

Unit : mm (inch)



* Some peripheral equipment can be placed in other places

Interference diagram

Basic information

- Basic Structure
- Cutting
- Performance

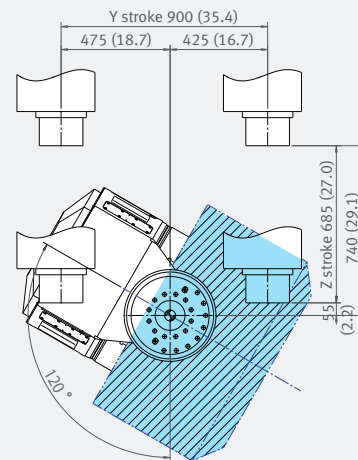
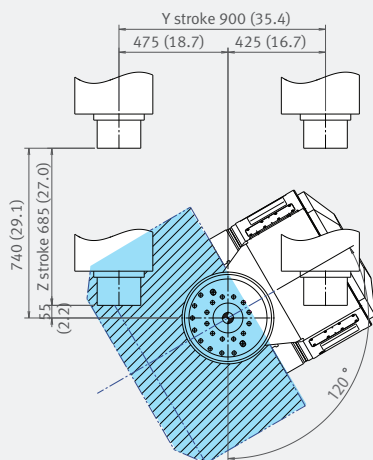
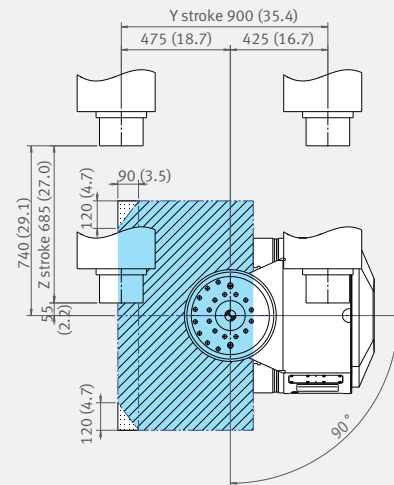
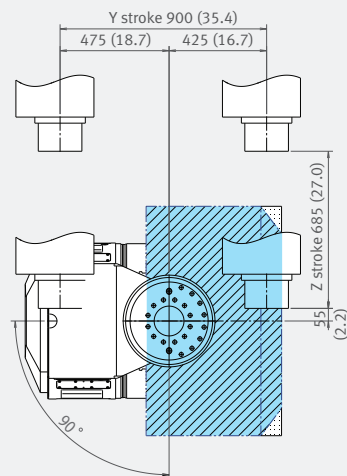
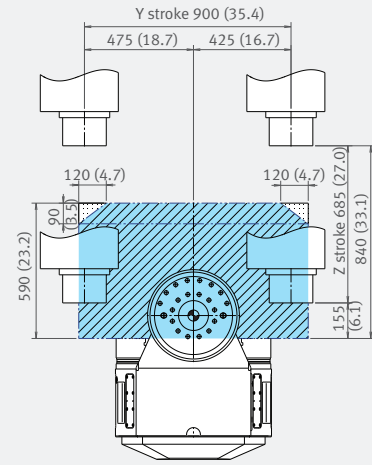
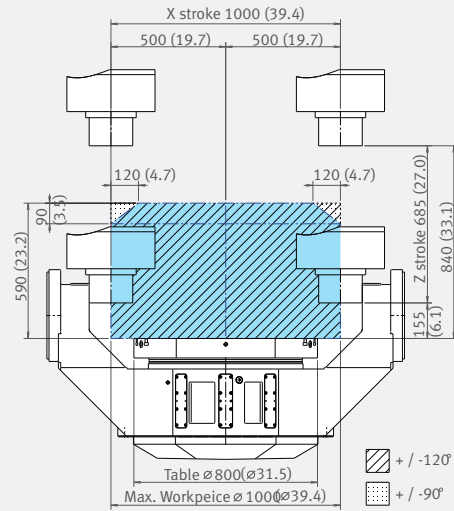
Detailed Information

- Options
- CUFOS
- Applications
- Diagrams
- Specifications

Customer Support Service

DVF 8000 / DVF 8000T

Unit : mm (inch)



* Some peripheral equipment can be placed in other places

Machine Specifications



Description		Unit	DVF 6500	DVF 8000	DVF 8000T	
Travels	Travel distance	Xaxis	mm (inch)	750 (29.5)	1000 (39.4)	
		Yaxis	mm (inch)	785 (30.9)	900 (35.4)	
		Zaxis	mm (inch)	600 (23.6)	685 (27.0)	
		Aaxis	deg	-120 ~ +120		
		Caxis	deg	360		
Table	Table size		mm (inch)	ø650 x 600 (ø25.6 x 23.6)	ø800 x 680 (ø31.5 x 26.8)	ø800 (ø31.5)
	Max. workpiece size		mm (inch)	ø840 x H500 (ø33.1 x H19.7)	ø1000 x H590 (ø39.4 x H23.2)	
	Max. workpiece weight		kg (lb)	600 (Tandem:1,000) (1322.8)	1400 (3086.4)	700 (1543.2)
Spindle	FANUC	Max. spindle speed	r/min	12000 {18000}*		18000
		Max. spindle power(S3/Cont.)	kW (Hp)	22/18.5 {22/18.5}* (29.5/24.8 {29.5/24.8})		22/18.5 (29.5/24.8)
		Max. spindle torque	N-m (ft-lbs)	204 {118} (150.6 {87.1})		118 (87.1)
	HEIDENHAIN SIEMENS	Max. spindle speed	r/min	12000 {18000}*		18000
		Max spindle power(S6 40%/Cont.)	kW (Hp)	30/24 {30/24}* (40.2/32.2 {40.2/32.2})*		30/24 (40.2/32.2)
		Max. spindle torque	N-m (ft-lbs)	155 {155}* (114.4 {114.4})*		155 (114.4)
Feedrate	Xaxis	m/min (ipm)	45 (1771.7)			
		Yaxis	m/min (ipm)	45 (1771.7)		
	Rapid traverse	Zaxis	m/min (ipm)	45 (1771.7)		
		Baxis	r/min	25		
	Caxis	r/min	50	60	600	
Automatic Tool changer	Tool type	Tool shank	-	ISO #40		HSK-T63
	Tool capacity		ea	40 {60, 90, 120}*		
	Max. tool dia.	Continuous	mm (inch)	75 (3.0)		
		Without adjacent tools	mm (inch)	125 (4.9)		
	Max. tool length		mm (inch)	300 (11.8)		
	Max. tool weight		kg (lb)	8 (17.6)		
Tool to Tool		sec	1.0	1.3		
Tank capacity	Coolant tank		L (gal)	650 (171.7)	800 (211.4)	
Machine dimensions	Height		mm (inch)	3100 (122)	3670 (144.5)	
	Length		mm (inch)	3700 (145.7)	4097 (161.3)	
	Width		mm (inch)	2450 (96.5)	2950 (116.1)	
	Weight		kg (lb)	14500 (31966.6)	25000 (55114.8)	
Control	NC system		-	CUFOS HEIDENHAIN TNC 640 SIEMENS S840D FANUC 31i5		

*{ } : Option

Basic information

Basic Structure
Cutting
Performance

Detailed Information

Options
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Specifications

Customer Support Service



No.	Item	Spec.	FANUC 31i5	
			DVF 6500	DVF 8000
1	Controlled axes	5	X, Y, Z, C, A	X, Y, Z, C, A
2	Additional controlled axes	5 axes in total	STD.	STD.
3	Max simultaneously controlled axes	"Positioning(G00)/Linear interpolation(G01) : 5 axes	●	●
4	Circular interpolation(G02, G03) : 2 axes"		●	●
5	Backlash compensation		●	●
6	Emergency stop / overtravel		●	●
7	HRV control	HRV 3+	●	●
8	Least command increment	0.001 mm / 0.0001"	●	●
9	Least input increment	0.001 mm / 0.0001"	●	●
10	Increment system C	IS-C	○	○
11	Machine lock	all axes / Z axis	●	●
12	Mirror image	"Reverse axis movement	●	●
13	(setting screen and M - function)"		●	○
14	Stored pitch error compensation	Pitch error offset compensation for each axis	●	●
15	Interpolation type pitch error compensation		○	○
16	Inclined Rotary Axis Control		○	○
17	Stored stroke check1	Overtravel controlled by software	●	●
18	2nd reference point return	G30	●	●
19	3rd / 4th reference return		●	●
20	Circular interpolation	G02, G03	●	●
21	Nano interpolation		●	●
22	Inverse time feed		○	○
23	Cylindrical interpolation	G07.1	○	○
24	Linear interpolation	G01	●	●
25	Helical interpolation		●	●
26	Helical interpolation B	Only Fanuc 30i	○	○
27	Smooth interpolation		○	○
28	NURBS interpolation		○	○
29	Exponential interpolation		○	○
30	Involute interpolation		○	○
31	Helical involute interpolation		○	○
32	"Bell-type acceleration / deceleration before look ahead interpolation"		●	●
33	Smooth backlash compensation	G04	●	●
34	Dwell	G09, G61 (mode)	●	●
35	Exact stop check	mm / min	●	●
36	Feed per minute	0 - 200 % (10% unit)	●	●
37	Feedrate override	0 - 200 % (10% unit)	●	●
38	Jog override	G62	○	○
39	Automatic corner override		●	●
40	Cutting feedrate clamp		●	●
41	Rapid traverse bell-shaped acceleration / deceleration		●	●
42	Manual handle feed	Max. 3unit	1 unit	1 unit
43	Manual handle feed rate	x1, x10, x100 (per pulse)	●	●
44	Handle interruption		○	○
45	Manual handle retrace		○	○
46	Manual handle feed 2/3 unit		○	○
47	Override cancel	M48 / M49	●	●
48	Positioning	G00	●	●
49	Rapid traverse override	F0 (fine feed), 25 / 50 / 100 %	●	●
50	Reference point return	G27, G28, G29	●	●
51	Skip function	G31	●	●
52	Nano smoothing	AI contour control II is required.	●	●
53	Nano smoothing 2	AI contour control II is required. Only Fanuc 31i-B5 and 30i	○	○
54	AICC II	200 BLOCK	●	●
55	AICC II	400 BLOCK	○	○
56	High-speed processing	600 BLOCK	○	○
57	Look-ahead blocks expansion	1000 BLOCK	○	○
58	DSQ I	AICC II (200block) + Machining condition selection function	●	●
59	DSQ II	AICC II (200block) + Machining condition selection function + Data server(1GB)	○	○
60	DSQ III	AICC II with high speed processing (600block) + Machining condition selection function + Data server(1GB)"	○	○
61	DSQ IV	AICC II with high speed processing (1000block) + Machining condition selection function + Data server(1GB)"	○	○
62	M-code function	M 4 digits	●	●
63	Spindle orientation		●	●
64	Spindle serial output		●	●
65	Spindle speed command	S5 digits	●	●
66	Spindle speed override	10 - 150 (10% increments)	●	●
67	Spindle output switching 1st		●	●
68	Retraction for rigid tapping		●	●
69	Rigid tapping	G84, G74	●	●
70	Number of tool offsets	64 ea	64 ea	64 ea
71	Number of tool offsets	99 / 200 / 400 / 499 / 999 / 2000 ea	○	○
72	Tool nose radius compensation	G40, G41, G42	●	●
73	Tool length compensation	G43, G44, G49	●	●
74	Tool life management		●	●
75	Addition of tool pairs for tool life management		○	○
76	Tool number command	T4 digits	●	●
77	Tool offset memory C	Geometry / Wear and Length / Radius offset memory	●	●
78	Tool length measurement		●	●
79	Tool length offset		●	●
80	Tool offset	G45 - G48	○	○
81	Rotary table dynamic fixture offset		○	○
82	Work setting error compensation		○	○
83	Cutting point command		●	●
84	High speed smooth TCP		●	●
85	Tolerance control		●	●
86			●	●

No.	Item	Spec.	FANUC 31iB5			
			DVF 6500	DVF 8000		
87	Programming & Editing function	Absolute / Incremental programming	G90 / G91	●	●	
88		Automatic Coordinate system setting		●	●	
89		Background editing		●	●	
90		Canned cycle	G73, G74, G76, G80 - G89, G99	●	●	
91		Circular interpolation by radius programming		●	●	
92		Custom macro		●	●	
93		Addition of custom macro common variables	#100 - #199, #500 - #999	○	○	
94		Macro executor		●	●	
95		Decimal point input		●	●	
96		Extended P-code variables 512Kbyte		512K	512K	
97		Extended P-code variables 1Mbyte		○	○	
98		Extended part program editing		●	●	
99		Part program storage	256KB(640m)	640m	640m	
100		Part program storage	512KB(1,280m), 1MB(2,560m), 2MB(5,120m), 4MB(1,0240m), 8MB(2,0480m)	○	○	
101		Inch/metric conversion	G20 / G21	●	●	
102		Label skip		●	●	
103		Maximum commandable value	+99999.999mm(±9999.9999 inch)	●	●	
104		Number of Registered programs	500 ea, 1000ea, 4000ea	500 ea	500 ea	
105		Optional block skip	9 BLOCK	○	○	
106		Optional stop	M01	●	●	
107		Program file name	32 characters	●	●	
108		Sequence number	N 8-digit	N8 digit	N8 digit	
109		Playback function		○	○	
110		Program protect	\	●	●	
111		Program stop / end	M00 / M02, M30	●	●	
112		Programmable data input	Tool offset and work offset are entered by G10, G11	●	●	
113		Sub program	Up to 10 nesting	●	●	
114		Tape code	ISO / EIA Automatic discrimination	●	●	
115		Thread cutting		●	●	
116		Program restart		●	●	
117		Workpiece coordinate system	G52 - G59	●	●	
118		Addition of workpiece coordinate system	G54.1 P1 - 48 (48 pairs)	48 pairs	48 pairs	
119		Addition of workpiece coordinate system	G54.1 P1 - 300 (300 pairs)	○	○	
120		Tilted working plane indexing command	G68.2, Guidance screens is not shown on 8.4"LCD.	●	●	
121		Tilted working plane command with guidance	G68.2	○	○	
122		Smooth tool center point control	G43.4	●	●	
123		OTHERS FUNCTIONS (Operation, setting & Display, etc)	Machining condition selection function		●	●
124			Alarm display		●	●
125			Alarm history display		●	●
126			Actual cutting speed display		●	●
127			Clock function		●	●
128			Coordinate system rotation	G68, G69	●	●
129	Cycle start / Feed hold			●	●	
130	Display of PMC alarm message		Message display when PMC alarm occurred	●	●	
131	Dry run			●	●	
132	Embed Ethernet			●	●	
133	Graphic display		Tool path drawing	●	●	
134	Help function			●	●	
135	Loadmeter display			●	●	
136	MDI / DISPLAY unit		"15"" Color LCD, eyboard for data input, soft-keys"	●	●	
137	I/O interface		RS - 232C	●	●	
138	Memory card interface			●	●	
139	USB memory interface		Only Data Read & Write	●	●	
140	Operation functions		Tape / Memory / MDI / Manual	●	●	
141	Operation history display			●	●	
142	DNC operation with memory card			●	●	
143	Optional angle chamfering / corner R			●	●	
144	Run hour and part number display			●	●	
145	Search function		Sequence NO. / Program NO.	●	●	
146	Self - diagnostic function			●	●	
147	Servo setting screen			●	●	
148	Single block			●	●	
149	External data input			●	●	
150	Stored stroke check 2			●	●	
151	Multi language display			●	●	
152	Reader/Puncher interface (for 2ch)			○	○	
153	Multi spindle control			○	○	
154	Retraction for 3-dimensional rigid tapping			○	○	
155	Spindle orientation expansion			○	○	
156	Spindle output switching function expansion			○	○	
157	Chopping function		G81.1	○	○	
158	High speed skip function			○	○	
159	Polar coordinate command		G15 / G16	○	○	
160	Polar coordinate interpolation		G12.1 / G13.1	○	○	
161	Programmable mirror image		G50.1 / G51.1	○	○	
162	Scaling		G50, G51	○	○	
163	Single direction positioning		G60	○	○	
164	Pattern data input			○	○	
165	Jerk control	AI contour control II is required.	○	○		
166	Fast Data server with 1GB PCMCIA card		○	○		
167	Fast Ethernet		○	○		
168	3-dimensional coordinate conversion		○	○		
169	3-dimensional tool compensation		○	○		
170	Tape format for FS15		○	○		
171	Figure copying	G72.1, G72.2	○	○		
172	Machining time stamp function		○	○		
173	Machining quality level adjustment		○	○		
174	EZ Guide i (Conversational Programming Solution)	-Doosan Conversational Programming Solution -When the EZ Guide i is used, the Dynamic graphic display cannot application	○	○		
175	Tool load monitoring function (DOOSAN)		○	○		
176	EOP	Easy Operation Package	●	●		

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No.	Item	Spec.	S840D			
			DVF 6500	DVF 8000		
1	Axes control	Controlled axes	5 axes	X, Y, Z, C, B	X, Y, Z, C, B	
2		Simultaneously controlled axes	"Positioning(G00)/Linear interpolation(G01) : 5 axes Circular interpolation(G02, G03) : 2 axes"	●	●	
3		Backlash compensation		●	●	
4		Leadscrew error compensation		●	●	
5		Measuring system error compensation		●	●	
6		Feedforward control	velocity-dependent	●	●	
7		Follow up mode		●	●	
8		Programmable acceleration		●	●	
9		Emergency stop / overtravel		●	●	
10		Least command increment	0.001mm (0.0001 inch)	●	●	
11		Least input increment	0.0001mm (0.0001 inch)	●	●	
12		Maximum commandable value	+99999.999mm (±3937 inch)	●	●	
13		Machine lock (PRT)	All axes	●	●	
14		Position switching signals/cam controller		●	●	
15		Absolute encoder		●	●	
16		Travel to fixed stop with Force Control		○	○	
17		Dry run		●	●	
18	Feedrate/Rapid override	0 - 120 %	●	●		
19	Reference point return	G75 FP=1	●	●		
20	2nd reference point return	G75 FP=2	●	●		
21	3rd / 4th reference return	G75 FP=3, 4	●	●		
22	Advanced surface		●	●		
23	Top surface		○	○		
24	Linear interpolation	Max. 4	●	●		
25	Circular interpolation	G02, G03	●	●		
26	Inverse time feedrate	G93	●	●		
27	Helical interpolation		●	●		
28	Universal interpolator NURBS		●	●		
29	Polynomial interpolation		○	○		
30	Spline interpolation (A, B and C splines)		●	●		
31	Involute interpolation		○	○		
32	Dwell	G04	●	●		
33	Separate path feed for corners and chamfers		●	●		
34	Reposition		●	●		
35	Acceleration with Jerk limitation		●	●		
36	Compressor for 5-axis machining		●	●		
37	Temperature compensation		●	●		
38	Positioning	G00	●	●		
39	Look ahead number of block	S/W version 4.5	150	150		
40		S/W version 4.7	1000	1000		
41		S/W version 4.8	1000	1000		
42	Cartesian point-to-point (PTP) travel		●	●		
43	TRANSMIT/cylinder surface transformation		●	●		
44	Inclined axis TRAANG after TRANSMIT/TRACYL		●	●		
45	Spindle & M code function	Spindle speed, digital setpoint		●	●	
46		Spindle speed, max. programmable value range	106 0.0001 (display: ± 999999999.9999)	●	●	
47		Spindle override	50 - 120 %	●	●	
48		Automatic gear state selection		●	●	
49		Oriented spindle stop		●	●	
50		Spindle speed limitation min./max.		●	●	
51		Constant cutting rate		●	●	
52		Spindle control via PLC (Positioning, oscillation)		●	●	
53		Changeover to axis mode		●	●	
54		Tapping with compensating chuck/rigid tapping		●	●	
55	Tool function	Tool radius compensations in plane	With approach and retract strategies	●	●	
56		3D Tool radius compensation	With transition circle/ellipse on outer edges	●	●	
57		Number of tools/cutting edges in tool list	600/1500	●	●	
58		Tool length compensation		●	●	
59		Operation with tool management		●	●	
60		Tool offset selection via T and D numbers		●	●	
61		Replacement tools for tool management		●	●	
62		Monitoring of tool life and workpiece count		●	●	
63		Manual measurement of tool offset		●	●	
64		Programming language (DIN 66025 and high-level language expansion)		●	●	
65	Programming & Editing function	Main program call from main program and subprogram		●	●	
66		Subprogram levels and interrupt routines, max.		16/2	16/2	
67		Number of subprogram passes ≤ 9999		●	●	
68		Number of levels for skip blocks		8	8	
69		Polar coordinates		●	●	
70		1/2/3-point contours		●	●	
71		Dimensions metric/inch, changeover manually or via program		●	●	
72		Auxiliary function output	Via M word, max. programmable value range: INT 231-1	●	●	
73		CNC High-level language with	"Via H word, max. range: REAL ± 3.4028 ex 38, INT -231 ... 231-1"	●	●	
74			User variables, configurable		●	●
75			Read/write system variables		●	●
76			Indirect programming		●	●
77			Program jumps and branches		●	●
78			Program coordination with WAIT, START, INIT		●	●
79			Arithmetic and trigonometric functions		●	●
80	Compare operations and logic combinations			●	●	
81	Macro techniques			●	●	
82	Control structures IF-ELSE-ENDIF			●	●	
83	Control structures WHILE, FOR, REPEAT, LOOP		●	●		
84	STRING functions		●	●		
85			●	●		

No.	Item	Spec.	S840D		
			DVF 6500	DVF 8000	
86	Programming & Editing function	Dynamic preprocessing memory FIFO	●	●	
87		Frame concept	●	●	
88		Program functions	Inclined-surface machining with swivel cycle	●	●
89			Axis/spindle replacement	●	●
90			Geometry axes, switchable online in the CNC program	●	●
91			Program preprocessing	●	●
92			Online ISO dialect interpreter	●	●
93		Program/workpiece management	Parts programs on (PPU or NCU), max. number	1000	1000
94			Workpieces on (PPU or NCU), max. number	250	250
95			Workpieces on Hard disk, max. number	●	●
96			In additional HMI user memory on CF card	●	●
97			On integral Hard disk PCU50.5	○	○
98			On USB storage medium (e.g. disk drive, USB stick)	●	●
99			On network drive	●	●
100			Templates for workpieces, programs and INI files	●	●
101			Job lists	●	●
102			Basic frames, max. number	●	●
103		Settable offsets, max. number	G54, G55, G56 ...	16	16
104		Zero/work offsets, programmable (frames)	100	100	
105		Scratching, determining zero/work offset	●	●	
106		Work offsets, external via PLC	●	●	
107		Global and local user data	●	●	
108		Global program user data	●	●	
109		Display system variables	●	●	
110		Program editor	Programming support for cycles program (Program Guide)	●	●
111			Dual editor	●	●
112			CNC editor with editing functions: Marking, copying, deleting	●	●
113			Programming graphics/free contour input (contour calculator)	●	●
114			Screens for 1/2/3-point contours (contour definition programming)	●	●
115			Support for parameter input Animated Elements	●	●
116			Shopturn/ShopMill Machining step programming	●	●
117			Technology cycles for drilling/milling	●	●
118		Pocket milling free contour and islands stock removal cycle	●	●	
119		Residual material detection	●	●	
120		Access protection for cycles	○	○	
121		Programming support can be extended, e.g. customer cycles	●	●	
122		Quick view for mold making program	●	●	
123		2D simulation	●	●	
124		3D simulation, finished part	●	●	
125		Simultaneous recording	●	●	
126		Measure kinematics	●	●	
127		DXF Reader for PC integrated in SINUMERIK Operate	○	○	
128		JOG	Handwheel selection	●	●
129			Switchover: inch/metric	●	●
130			Manual measurement of zero/work offset	●	●
131			Manual measurement of tool offset	●	●
132			Automatic tool/workpiece measurement	●	●
133			Reference point approach, automatic/via CNC program	●	●
134	MDA		Input in text editor	●	●
135			Save MDA program	●	●
136			Input screen forms for technology and positioning, cycle support	●	●
137	Teach-in		●	●	
138	Automatic	Execution from USB interface on operator panel front	●	●	
139		Execution from HMI memory on NCU CF card	●	●	
140		Execution from network drive	●	●	
141		Execution from Hard disk (PCU50.5)	○	○	
142		Program control	●	●	
143		Program editing	●	●	
144		DRF offset	●	●	
145		Block search with/without calculation	●	●	
146	CNC user memory expanded for programs	< 100MB	○	○	
147	Execution from external storage EES	○	○		
148	Repos (repositioning on the contour)	With operator command/semi-automatically	●	●	
149		Program-controlled	●	●	
150	Preset	Set actual value	●	●	
151	15.6" color display with touch screen	●	●		
152	18.5" color display with touch screen	○	○		
153	Plain text display of user variables	●	●		
154	OTHERS FUNCTIONS (Operation, setting & Display, etc)	Multi-channel display	○	○	
155		2D representation of 3D protection areas/work areas	●	●	
156		Actual-value system for workpiece	●	●	
157		CNC program messages	●	●	
158		Screen blanking	●	●	
159		Access protection, 7 levels	●	●	
160		Operating software languages	Ch S, En, Fr, Gr, It, Sp	●	●
161			Ch T, Kr, Pt	○	○
162			Additional languages, use of language extensions	○	○
163		Working area limitation	●	●	
164		"Limit switch monitoring (Software and hardware limit switches)"	●	●	
165		Position monitoring	●	●	
166		Standstill (zero-speed) monitoring	●	●	
167		Clamping monitoring	●	●	
168		2D/3D protection areas	●	●	
169	Contour monitoring	●	●		
170	Axis limitation from the PLC	●	●		
171	Alarms and messages	●	●		
172	Action log can be activated for diagnostic purposes	●	●		
173	PLC status	●	●		
174	"Remote Control System (RCS) remote diagnostics"	RCS Host remote diagnostics function	○	○	
175		RCS Commander (viewer function)	●	●	
176	Integrated service planner for the monitoring of service intervals	●	●		
177	Automatic measuring cycles	●	●		
178	Contour handwheel	○	○		
179	Integrate screens in SINUMERIK Operate with SINUMERIK Integrate Run MyScreens	●	●		
180	"Cross-mode actions (ASUPs and synchronized actions in all operating modes)"	●	●		
181	Axis collision protection PROT	●	●		
182	Collision avoidance ECO (machine, working area)	●	●		
183	Collision avoidance (machine, working area)	○	○		
184	MDynamics 5-axis	●	●		

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No.	Item	Spec.	TNC 640			
			DVF 6500	DVF 8000		
1	Axes	Controlled axes	5 axes	X, Y, Z, C, A	X, Y, Z, C, A	
2		Simultaneously controlled axes	Controlled axes			
3		Controlled axes	Max. 18 axes in total	OPT(Max. 18 axes)	OPT(Max. 18 axes)	
4		Least command increment	0.0001 mm (0.0001 inch), 0.0001°	●	●	
5		Maximum commandable value	0.0001 mm (0.0001 inch), 0.0001°	●	●	
6		Axis feedback control	±99999.999mm (±3937 inch)	●	●	
7		Least command increment	Double-speed control loops for high-frequency spindles and torque/linear motors	○	○	
8		MDI / DISPLAY unit	15.1 inch TFT color flat panel	●	●	
9			19 inch TFT color flat panel	○	○	
10		Program memory for NC programs	SSDR	21GB	21GB	
11		Block processing time		0.5 ms	0.5 ms	
12		Cycle time for path interpolation	CC 61xx	3 ms	3 ms	
13		Encoders	Absolute encoders	EnDat 2.2	EnDat 2.2	
14	Interpolation	Straight line	5 AXES	5 AXES		
15		Circle	3 axes	3 axes		
16		Helix, Combination of circular and linear motion		●	●	
17		Spline interpolation		●	●	
18	Configura-tion	Machine parameters	Tree structure with symbolic names of the parameters	●	●	
19	Commis-sioning and diagnostics	Integrated oscilloscope		●	●	
20		OnLine monitor (OLM)		●	●	
21		BUS diagnostics		●	●	
22		DriveDiag		●	●	
23		ApiData function		●	●	
24		Trace function		●	●	
25		Table function		●	●	
26		Logic diagram		●	●	
27		I/O-Force List		●	●	
28		Log		●	●	
29			Machine operating panel	TE 735	●	●
30			TE 745	○	○	
31		Electronic handwheels	HR 510	●	●	
32		Data interfaces	Ethernet interface	●	●	
33			USB interface (USB 2.0)	●	●	
34	Machine functions	Feedrate override	0 - 150 % (10% unit)	●	●	
35		Spindle orientation		●	●	
36		Spindle speed command	S5 digits	●	●	
37		Spindle speed override	10 - 150 %	●	●	
38		Monitoring functions	Position monitoring		●	●
39			Movement monitoring		●	●
40			Standstill monitoring		●	●
41			Positioning window		●	●
42			Temperature monitoring		●	●
43			Amplitude of encoder signals		●	●
44			Edge separation of encoder signals		●	●
45			Nominal speed value		●	●
46			Buffer battery		●	●
47			Run-time of PLC program		●	●
48	Emergency-stop monitoring		●	●		
49	Internal power supply and housing fan		●	●		
50	Gantry axes and master-slave torque control		●	●		
51	Look-ahead (Intelligent path control by calculating the path speed ahead of time)	Max. 5000 blocks.	●	●		
52	ADP (Advanced Dynamic Prediction)		●	●		
53	HSC filters		●	●		
54	Switching the traverse ranges		●	●		
55	C-axis operation	Spindle motor drives the rotary axis	●	●		
56	User functions	Program input	According to ISO			
57			With smartSelect			
58		Position entry	Nominal positions for lines and arcs in Cartesian coordinates			
59			Incremental or absolute dimensions			
60			Display and entry in mm or inches			
61			Display of the handwheel path during machining with handwheel superimpositioning			
62			Paraxial positioning blocks			
63		Tool compensation	In the working plane and tool length			
64			Radius-compensated contour lookahead for up to 99 blocks (M120)			
65			Three-dimensional tool radius compensation			
66		Tool table	Central storage of tool data			
67			Multiple tool tables with any number of tools			
68		Cutting data calculator	Calculation of spindle speed and			
69		Constant contouring speed	relative to the path of the tool center or to the tool's cutting edge			
70		Parallel operation	Creation of a program while another program is being run			

No.	Item	Spec.	TNC 640		
			DVF 6500	DVF 8000	
71	User functions	MDI mode	●	●	
72		Tilting the working plane with Cycle 19	●	●	
73		Tilting the working plane with the PLANE function	●	●	
74		Manual traverse in tool-axis direction	●	●	
75		Function TCPM	●	●	
76		Rotary table machining	Programming of cylindrical contours as if in two axes	●	●
77			Feed rate in distance per minute	●	●
78		FK free contour programming	for workpieces not dimensioned for NC programming	●	●
79		Program jumps	Subprograms and program section repeats	●	●
80			Calling any program as a subprogram	●	●
81		PNew 3-D simulation graphics in full detail		●	●
82		Program verification graphics	Plan view, view in three planes, 3-D view	●	●
83			3-D line graphics	●	●
84		Programming graphics	2-D line graphics	●	●
85		Program-run graphics	(plan view, view in three planes, 3-D view)	●	●
86		Datum tables	Saving of workpiece-specific datums	●	●
87		Preset table	Saving of reference points	●	●
88	Freely definable table	after interruption of program run	●	●	
89		With mid-program startup	●	●	
90	Returning to the contour	After program interruption (with the GOTO key)	●	●	
91		Autostart	●	●	
92	Actual position capture		●	●	
93	Enhanced file management		●	●	
94	Context-sensitive help for error messages		●	●	
95	TNCguide	Browser-based, context-sensitive helpsystem	●	●	
96	Calculator		●	●	
97	Entry of text and special characters		●	●	
98	Comment blocks in NC program		●	●	
99	"Save As" function		●	●	
100	Structure blocks in NC program		●	●	
101	Entry of feed rates	FU (feed per revolution)	●	●	
102		FZ (tooth feed per revolution)	●	●	
103	Dynamic collision monitoring (DCM)		○	○	
104	Processing DXF data		○	○	
105	Adaptive feed control (AFC)		○	○	
106	KinematicsOpt	Automatic measurement and optimization of machine kinematics	●	●	
107	KinematicsComp	Three-dimensional compensation	○	○	
108	3D-ToolComp	Dynamic 3-D tool radius compensation	○	○	
109	FUNCTION MODE TURN	Switchover to turning mode	○	○	
110	FUNCTION MODE MILL	Switchover to milling mode	○	○	
111	TOOLTURN.TRN	Tool table for turning tools	○	○	
112	Tool compensation for turning		○	○	
113	FUNCTION TURNDATA SPIN VCONST ON VC:253	Constant surface speed with optional spindle speed limiting	○	○	
114	FUNCTION TURNDATA BLANK	Blank-form update during turning	○	○	
115	GRV AXIAL, GRV RADIAL	Undercut as contour element	○	○	
116	UDC TYPE	Recess as contour element, types E, F, H, K, U, threads	○	○	
117	Imbalance monitoring	Cycles for determining and monitoring imbalance	○	○	
118	Touch probe cycles	Calibrating the effective radius on a circular stud	●	●	
119		Calibrating the effective radius on a sphere	●	●	
120	Cycles for automatic workpiece inspection	Save kinematics	●	●	
121		Measure kinematics	●	●	
122		Preset compensation	●	●	
123		TS calibration of length	●	●	
124		TS calibration in a ring	●	●	
125	TS calibration on stud	●	●		
126	Software option 1	Rotary table machining	●	●	
127		Feed rate in mm/min			
128		Coordinate transformation			
129	Interpolation	Circular in 3 axes with tilted working plane	●	●	
130	Software option 2	3-D machining			
131		3-D tool compensation through surface normal vectors			
132		Tool center point management (TCPM)			
133		Keeping the tool normal to the contour			
134	Tool radius compensation normal to the tool direction	Line in 5 axes (subject to export permit)			
135	Interpolation		Spline: execution of splines (3rd degree polynomial)		
136	Python OEM Process	Execute Python applications	○	○	
137	Turning (option 50)	Tool management for turning	●	●	
138		Tool-tip radius compensation			
139		Switching between Milling/Turning mode of operation			
140		Lathe-specific contour elements			
141	Package of turning cycles				

Responding to Customers Anytime, Anywhere

Doosan Machine Tools' Global Network, Responding to Customer's Needs nearby, Anytime, Anywhere

Doosan machine tools provides a system-based professional support service before and after the machine tool sale by responding quickly and efficiently to customers' demands.

By supplying spare parts, product training, field service and technical support, we can provide top class support to our customers around the world.



Global Sales and Service Support Network

Corporations	Dealer Networks	Technical Centers Technical Center: Sales Support, Service Support, Parts Support	Service Post	Factories
4	167	51	200	3

Doosan Machine Tools Customer Support Service

We help customers to achieve success by providing a variety of professional services from pre-sales consultancy to post-sales support.



Supplying Parts

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



Field Services

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



Technical Support

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



Training

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



Major Specifications

DVF 6500/8000/8000T



Description		Unit	DVF 6500	DVF 8000	DVF 8000T
Travel	Travel distance	X-axis	mm (inch)	750 (29.5)	1000 (39.4)
		Y-axis	mm (inch)	785 (30.9)	900 (35.4)
		Z-axis	mm (inch)	600 (23.6)	685 (27.0)
		A-axis	deg	±120	±120
		C-axis	deg	360	360
Feedrate	Rapid traverse	X-axis	m/min (ipm)	45 (1771.7)	
		Y-axis	m/min (ipm)	45 (1771.7)	
		Z-axis	m/min (ipm)	45 (1771.7)	
		A-axis	r/min	25	
		C-axis	r/min	50{DD : 80}	60
Spindle	Max. Spindle speed	r/min	12000 {18000}*}		18000
	Max. Spindle power	kW (Hp)	HEIDENHAIN, SIEMENS : 30 {30}* (40.2 {40.2}) FANUC : 22 {22}* (29.5 {29.5})		HEIDENHAIN : 30 (40.2)
	Max. Spindle Torque	N·m (ft·lbs)	HEIDENHAIN, SIEMENS : 155 {155}* (114.4 {114.4}) FANUC : 204 {118}* (150.6 {87.1})		HEIDENHAIN : 155 (114.4)
	Tool shank	-	ISO #40		HSK T63
Table	Table size	mm (inch)	Ø650 x 600 (Ø25.6 x 23.6)	Ø800 x 680 (Ø31.5 x 26.8)	Ø800 (Ø31.5)
	Max. Work size	mm (inch)	Ø840 x 500 (Ø33.1 x 23.6)	Ø1000 x 590 (Ø39.4 x 23.2)	
	Max. Work load	kg (lb)	600 (1322.8)	1400 (3086.5)	700 (1543.2)
ATC	Tool capacity	ea	40 {60, 90, 120}*}		
Machine Dimensions	Length x Width	mm (inch)	3700 x 2450 (145.7 x 96.5)	4097 x 2950 (161.3 x 116.1)	

* {} : Option

Doosan Machine Tools

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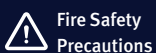
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* For more details, please contact Doosan Machine Tools.

* The specifications and information above-mentioned may be changed without prior notice.

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**Fire Safety
Precautions**

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

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