



PREMIUM SIMULTANEOUS 5-AXIS  
MACHINING CENTER

# DVF

**6500 • 6500T • 8000 • 8000T**  
**8000/50 • 8000T/50**



**DN SOLUTIONS**

# DVF 6500/8000 SERIES

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The DN Solutions 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.



DN Solutions DVF 5-axis models, with their rigid travelling column design and fully integrated tables, are available in a range of sizes. They are ideal for machining everything from small high-precision medical parts through to large aerospace jet engine components. DVF machines are the ultimate simultaneous 5-axis machining centres.



## HIGH SPEED & PRODUCTIVITY

- 12000, 18000 r/min high-speed spindle
- 2-axis rotary/tilt table
  - Turning function (DVF 6500T, 8000T, 8000T/50)

## HIGH PRECISION

- Integrated thermal compensation systems for spindle and structure
- Spindle cooling provided as standard
- Ballscrew shaft cooling system

## USER-FRIENDLY MACHINE

- Compact footprint
- Grease lubrication system
- Easy operator access to machine
- Automation

# BASIC STRUCTURE

## DVF 6500/8000 series

High rigidity and stable structure with direct axis drive.

### Table size

DVF 6500	<b>ø650 x 600</b> mm ø25.6 inch x 23.6 inch
DVF 6500T	<b>ø650 x 500</b> mm ø25.6 inch x 19.7 inch
DVF 8000, 8000/50	<b>ø800 x 680</b> mm ø31.5 inch x 26.8 inch
DVF 8000T, 8000T/50	<b>ø800</b> mm ø31.5 inch

### Maximum workpiece weight

DVF 6500	<b>600</b> kg <i>TANDEM 1000KG</i> 1322.8 lbs
DVF 6500T	<b>500</b> kg 1102.3 lbs
DVF 8000, 8000/50	<b>1400</b> kg 3086.4 lbs
DVF 8000T, 8000T/50	<b>700</b> kg 1543.2 lbs

### Maximum workpiece size

DVF 6500 SERIES	<b>ø840 x H500</b> mm ø33.1 inch x H19.7 inch
DVF 8000 SERIES	<b>ø1000 x 590</b> mm ø39.4 inch x H23.2 inch

### Table turning function

DVF 6500T	<b>1000</b> r/min <i>DIRECT DRIVE</i>
DVF 8000T, 8000T/50	<b>600</b> r/min <i>DIRECT DRIVE</i>



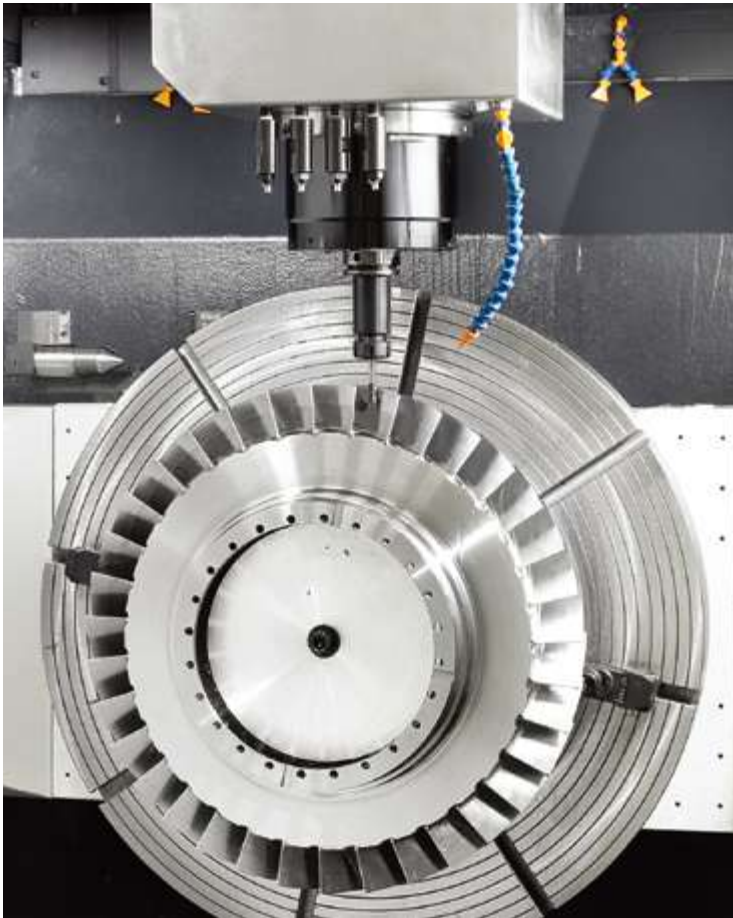
# SPINDLE SPECIFICATIONS

## DVF 6500/8000 series

Providing stable machining performance with a high-speed, direct-coupled or a built-in spindle.

### Speed meets strength with the 5-axis DVF series

An optional 18,000 r/min spindle gives total access to the part while maintaining rigidity, ready for lights-out machining.



#### Max. spindle speed

**ISO #40 12000 r/min**  
**18000 r/min** option

**ISO #50 10000 r/min**

#### Max. spindle motor power

**ISO #40** FANUC **22 kW** 29.5 hp  
(DVF 6500)

SIEMENS  
HEIDENHAIN **30 kW** 40.2 hp

**ISO #50** FANUC **37 kW** 49.6 hp

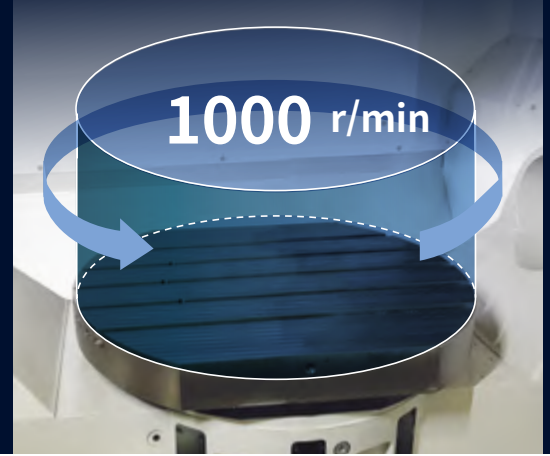
Description		DVF 6500 · DVF 8000	DVF 6500T · 8000T	DVF 8000/50, 8000T/50
FANUC	Max. spindle speed	12000 r/min {18000 r/min}	18000 r/min	10000 r/min
	Max. spindle power (S6 25%/Cont.)	22 / 18.5 kW {22/18.5 kW} (29.5 hp/24.8 hp {29.5 hp/24.8 hp})	22 / 18.5 kW (29.5 hp/24.8 hp)	35 / 25 kW (46.9 hp/33.5 hp)
	Max. spindle torque	204 N · m {118 N · m} (150.6 ft-lbs {87.1 ft-lbs})	117 N · m (86.3 ft-lbs)	488 N · m (360.1 ft-lbs)
HEIDENHAIN SIEMENS	Max. spindle speed	12000 r/min {18000 r/min}	18000 r/min	10000 r/min
	Max. spindle power (S6 40%/continuous)	30 / 24 kW (40.2 hp/32.2 hp)	30 / 24 kW {47.2(S6 25%) / 31.5kW}	37 / 25 (S6 25%/Cont.)
	Max. spindle torque	155 N · m {155 N · m} (114.4 ft-lbs {114.4 ft-lbs})	155 N · m {226 N · m} (114.4 ft-lbs {166.8 ft-lbs})	426 N · m (314.4 ft-lbs)

\*{ } : option

# TABLE VARIANTS

DVF 6500 · 6500T

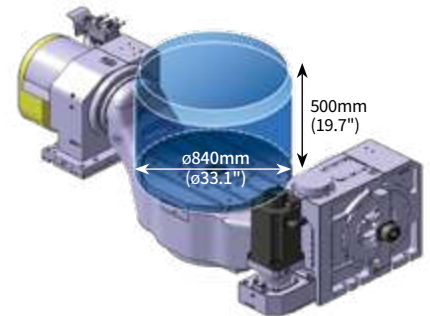
Various table specifications from standard mechanical drive to direct drive and turning function.



Description	C-axis RGC	C-axis DD
<b>A-axis RGC single Standard</b>	<b>Job Shop</b>	<b>Die &amp; Mold</b>
	<ul style="list-style-type: none"> <li>• Highest stiffness</li> <li>• High torque</li> </ul> 	<ul style="list-style-type: none"> <li>• Highest dynamics</li> <li>• Continuous operation in C-axis possible</li> <li>• Water cooled DirectDrive-technology in C</li> </ul> 
<b>A-axis RGC tandem</b>	<b>Job Shop (heavy cutting)</b>	<b>Aerospace (brisk, impeller)</b>
	<ul style="list-style-type: none"> <li>• Highest stiffness</li> <li>• High torque</li> </ul> 	<ul style="list-style-type: none"> <li>• Highest dynamics</li> <li>• Best position uncertainty in A- and C-axis</li> <li>• Low-maintenance due to DirectDrive-technology in C</li> </ul> 

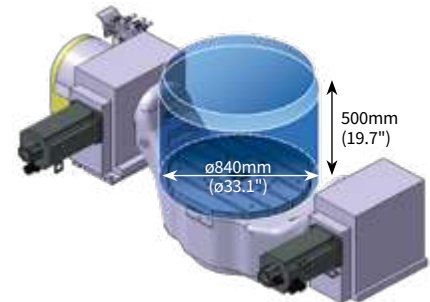
## Swiveling rotary table · single drive

Description	Unit	Roller Gear Cam	Direct Drive
<b>Table size</b>	mm (inch)	ø650 X 600 (ø25.6 X 23.6)	
<b>Maximum load</b>	kg (lb)	600 (1322.8)	
<b>Maximum workpiece size</b>	mm (inch)	ø840 X H500 (ø33.1 X H19.7)	
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	1200 (885.1)	1240 (914.6)
<b>Rapid (rotating axis)</b>	r/min	50 (RGC)*	80 (direct drive)
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	3800 (RGC single)* (2802.7)	
<b>Rapid (tilting axis)</b>	r/min	25	



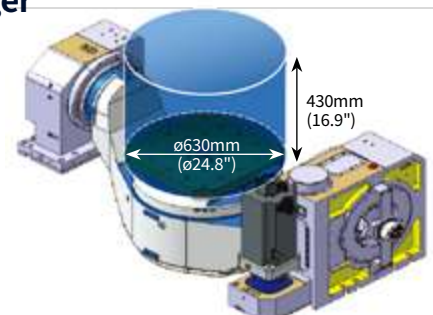
## Swiveling rotary table · tandem drive

Description	Unit	Roller Gear Cam	Direct Drive
<b>Table size</b>	mm (inch)	ø650 X 600 (ø25.6 X 23.6)	
<b>Maximum load</b>	kg (lb)	1000 (2204.6)	
<b>Maximum workpiece size</b>	mm (inch)	ø840 X H500 (ø33.1 X H19.7)	
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	1200 (885.1)	1240 (914.6)
<b>Rapid (rotating axis)</b>	r/min	50 (RGC)*	80 (direct drive)
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	4200 (RGC tandem)* (3097.8)	
<b>Rapid (tilting axis)</b>	r/min	25	



## Swiveling rotary table · single/tandem drive for pallet changer

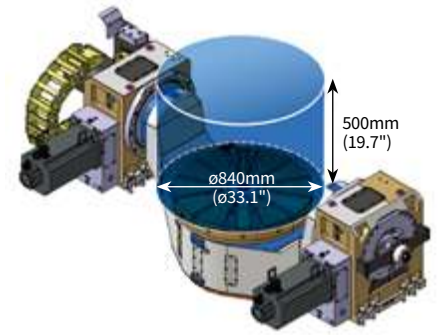
Description	Unit	Roller Gear Cam	Direct Drive
<b>Table size</b>	mm (inch)	ø500 X 500 (ø19.7 X 19.7)	
<b>Maximum load</b>	kg (lb)	600 (with pallet) (1332.8)	
<b>Maximum workpiece size</b>	mm (inch)	ø630 X H430 (ø24.8 X H16.9)	
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	1240 (914.6)	
<b>Rapid (rotating axis)</b>	r/min	80 (direct drive)	
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	3800 (RGC single)* (2802.7)	4200 (RGC tandem)* (3097.8)
<b>Rapid (tilting axis)</b>	r/min	25	



\*RGC : Roller Gear Cam

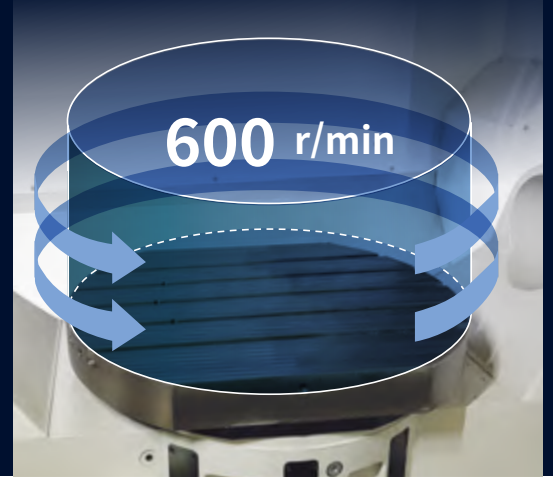
## Swiveling rotary table · single/tandem drive for turning

Description	Unit	Specifications
<b>Table size</b>	mm (inch)	ø650 (ø25.6)
<b>Maximum load</b>	kg (lb)	500 (1102.3)
<b>Maximum workpiece size</b>	mm (inch)	ø840 X 500 (ø33.1 X 19.7)
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	1360 (1003.7)
<b>Rapid (rotating axis)</b>	r/min	1000 (with turning)
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	3800 (2804.4) (single) / 4200 (3099.6) (tandem)
<b>Rapid (tilting axis)</b>	r/min	25



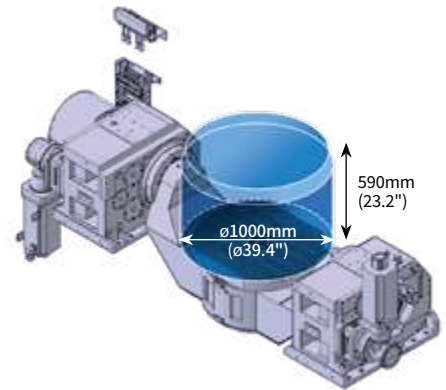
## TABLE VARIANTS

DVF 8000 · 8000T · 8000/50 · 8000T/50



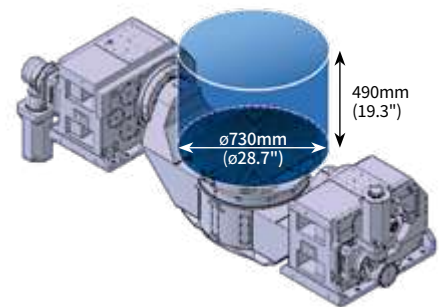
## Swiveling rotary table · tandem drive

Description	Unit	Specifications
<b>Table size</b>	mm (inch)	ø800 X 680 (ø31.5 X 26.8)
<b>Maximum load</b>	kg (lb)	1400 (3086.5)
<b>Maximum workpiece size</b>	mm (inch)	ø1000 X 590 (ø39.4 X H23.2)
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	2100 (1563.6)
<b>Rapid (rotating axis)</b>	r/min	60 (direct drive)
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	8000 gear train (tandem) (5900.5)
<b>Rapid (tilting axis)</b>	r/min	25



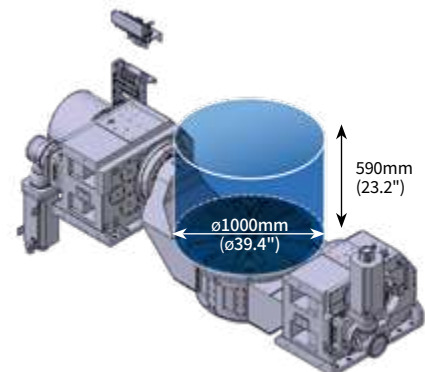
## Swiveling rotary table · tandem drive for pallet changer

Description	Unit	Specifications
<b>Table size</b>	mm (inch)	ø630 X 630 (ø24.8 X 24.8)
<b>Maximum load</b>	kg (lb)	850 with pallet (1873.9)
<b>Maximum workpiece size</b>	mm (inch)	ø730 X H490 (ø28.7 X H19.3)
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	2120 (1563.6)
<b>Rapid (rotating axis)</b>	r/min	80 (direct drive)
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	8000 gear train (tandem) (5900.5)
<b>Rapid (tilting axis)</b>	r/min	25



## Swiveling rotary table · tandem drive for turning

Description	Unit	Specifications
<b>Table size</b>	mm (inch)	ø650 X 600 (ø25.6 X 23.6)
<b>Maximum load</b>	kg (lb)	700 (1543.2)
<b>Maximum workpiece size</b>	mm (inch)	ø1000 X 590 (ø39.4 X H23.2)
<b>Torque (rotating axis)</b>	N · m (ft-lbs)	2120 (1563.6)
<b>Rapid (rotating axis)</b>	r/min	600 (with turning) (direct drive)
<b>Torque (tilting axis)</b>	N · m (ft-lbs)	8000 gear train (tandem) (5900.5)
<b>Rapid (tilting axis)</b>	r/min	25



# MAGAZINE SPECIFICATIONS

Servo tool magazine delivers high productivity and reliability.



## ATC MAGAZINE PANEL

More than 60 tools  
(DVF 8000/50: 40 tools)

- Touch panel 7"  
(FANUC, HEIDENHAIN)
- Touch panel 8.4"  
(SIEMENS)



## ISO #40

### Tool type

DVF 6500 · 8000

DVF 6500T · 8000T

**ISO #40**  
**HSK-T63**

### Tool capacity

**40, 60, 120**

### Maximum tool diameter

CONTINUOUS **75** mm 3.0 inch

W/O ADJACENT **125** mm 4.9 inch

### Maximum tool length

**300** mm 11.8 inch

### Maximum tool weight

**8** kg 17.6 lbs

### Tool-to-tool

DVF 6500 **1.0** second

DVF 6500T · 8000 · 8000T **1.3** second

## ISO #50

### Tool type

DVF 8000/50

DVF 6500T · 8000T

**ISO #50**  
**HSK-T100**

### Tool capacity

**40, 60**

### Maximum tool diameter

CONTINUOUS **125** mm 4.9 inch

W/O ADJACENT **220** mm 8.7 inch

### Maximum tool length

**320** mm 12.6 inch

### Maximum tool weight

**15** kg 33.1 lbs

### Tool-to-tool

**2.5** second




# STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	DVF 6500	DVF 8000	DVF 6500T	DVF 8000T	DVF 8000/50	DVF 8000T/50
<b>Spindle</b>	12000 r/min	●	●	X	X	X	X
	18000 r/min	○	○	●	●	X	X
	10000 r/min	X	X	X	X	●	●
<b>Magazine</b>	Tool storage capacity	40 ea	●	●	X	X	●
		60 ea	○ (60 or 90)	○	●	●	○
		120 ea	○	○	○	○	X
<b>Tool shank type</b>	BIG-PLUS® BT40		●	●	X	X	X
	BIG-PLUS® BT50		X	X	X	X	●
	CAT40/DIN/HSK A63		○	○	X	X	X
	CAT50/DIN/HSK A100		X	X	X	X	○
	HSK T63		X	X	●	●	X
	HSK-T100		X	X	X	X	X
<b>Coolant</b>	Flood	2.5 kW 0.44 MPA 100 l/min	●	●	●	●	●
		4.0 kW 2.0 MPA cyclon filter	○	○	○	○	○
	TSC	3.0 kW 3.0 MPA cyclon filter	○	○	○	○	○
		7.5 kW 7.0 MPA cyclon filter	○	○	○	○	○
	Oil skimmer	Belt type	○	○	○	○	○
	Coolant level switch - low/high		○	○	○	○	○
<b>Chip disposal</b>	Chip conveyor	Chip pan	●	●	●	●	●
		Hinged bet, rear side	○	○	○	○	X
		Scraper drum	○	○	X	X	X
		CCS II(Screw-drum/scraper)	○	X	X	X	X
		CCS II(Scraper-drum)	○	○	X	X	○
		CCS II(Hinged-drum)	X	X	○	○	X
	Chip bucket		○	○	○	○	○
	Air gun		○	○	○	○	○
Coolant gun		○	○	○	○	○	
<b>Precision machining option</b>	Linear scale	X/Y/Z-axis	○	○	○	○	●
<b>Measurement &amp; automation</b>	IKC-ready	S/W only	●	●	●	●	●
		Renishaw (RMI-Q) + S/W	○	○	○	○	○
		Heidenhain (SE660) + S/W	○	○	○	○	○
		Blum (RC66) + S/W	○	○	○	○	○
	Datum ball for IKC	None	●	●	●	●	●
		Datum ball D25	○	○	○	○	○
		None	●	●	●	●	●
	Touch probe for IKC	None	●	●	●	●	●
		RMP60 Renishaw	○	○	○	○	○
		TS460 Heidenhain	○	○	○	○	○
		TC60 Blum	○	○	○	○	○
	Automatic tool measurement	None	○	○	○	○	○
		RTS Renishaw	○	○	X	X	○
		NC4 Renishaw	○	○	X	X	○
		NC4S Renishaw	○	○	X	X	○
		TT460 Heidenhain	○	○	X	X	○
		ZX Speed Blum	○	○	X	X	○
		BLUM Hybrid	X	X	●	●	X
		NC4 Hybrid Renishaw	X	X	○	○	X
	Master tool	None	●	●	X	X	●
Master tool		○	○	●	●	○	
<b>Others</b>	LED work light		●	●	●	●	●
	3-color signal tower		○	○	○	○	○
	Tool load monitoring		●	●	●	●	●
	EZ Guide i		○	○	○	○	○
	Automatic power off		●	●	●	●	●
<b>Customized special option</b>	Auto door (w/safety edge)		○	○	○	●	○
	APC		○	○	○	○	○
	APC 3-station/4-pallet)		○	○	○	○	○
	APC + LPS		○	○	○	○	○
	Rotary joint for table		○	○	○	○	○
	Rotary joint for table (APC)		○	○	○	○	○
	Paper filter with TSC		○	○	○	○	○
Coolant Chiller		○	○	○	○	○	

Please contact DN Solutions for more information.

● Standard ○ Optional X Not applicable

 **Fire Safety Precautions** | There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

# PERIPHERAL EQUIPMENT

## Touch type

### RENISHAW

TS27R

### HEIDENHAIN

TT160

### BLUM

ZX SPEED

## Laser type

### RENISHAW

NC4

NC4S

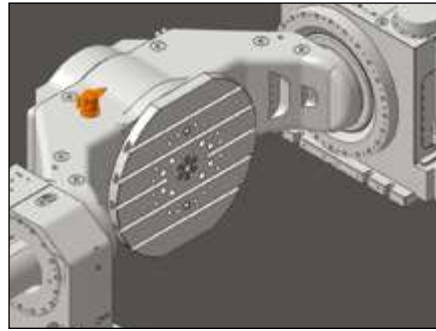
### BLUM

MICRO COMPACT NT

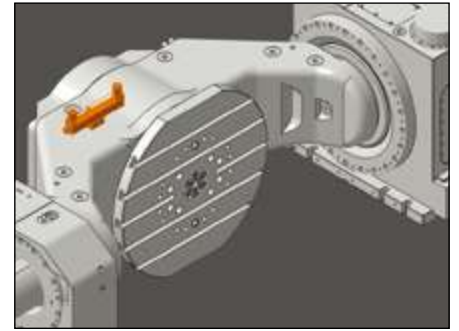
MICRO SINGLE NT

## Automatic tool measurement

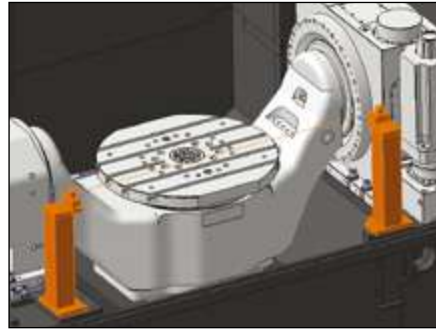
When using Tool Length Measurement, contact DN Solutions for detailed capacity diagrams



Rotary body mounting type



Rotary body mounting type  
Renishaw NC4 · Blum MICRO COMPACT NT



Head separated type  
Renishaw NC4S · Blum MICRO SINGLE NT

## Intelligent kinematic compensation for 5-axis machining

For high-accuracy 5-axis machining, the Intelligent Kinematic Compensation function is recommended. This function minimizes errors 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:

### SOFTWARE



FANUC NC : IKC



HEIDENHAIN NC ; IKC

### RECEIVER Recommended Option



### TOUCH PROBE



### DATUM BALL Recommended Option



### AUTO TOOL MEASUREMENT Recommended Option



### MASTER TOOL Recommended Option



# AUTOMATION

## APC, LPS & Multi-level RPS

No matter which automation option you pair with your DVF 5-axis machine, the combination will help you make parts while you sleep. Learn More about the APC, RPS and LPS below.



**Automatic pallet changer (4APC) :**  
Adds three pallets to your DVF.

**Round pallet system (RPS) :**  
Seven pallets on three levels for a total of 21 pallets. Includes cell controller.

**Linear pallet system (LPS) :**  
1cell(DVF 6500 with APC + LPS 12pallet), can be expanded by adding more pallets, plus loading stations and more machine interfaces. Includes cell controller.



AUTOMATIC PALLET CHANGER



ROUND PALLET SYSTEM



LINEAR PALLET SYSTEM

# CUSTOMIZED USER-FRIENDLY FLEXIBLE OPERATION SOLUTIONS

CUFOS is a PC based control system created by DN Solutions. 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.

## CUFOS FEATURES

### 19 INCH TOUCH SCREEN

- Program memory : 2GB (40GB **option** )
- App-based Interface like smart phone, tablet PC

### EASY PROGRAMMING

- Conversational Programming
- SSD Data Server : Program file sharing/ managing (CF card/USB/External PC)

### EASY SET-UP/OPERATION

- CPS(Collision Protection System)
- Manual Viewer
- File Manager

### EASY MAINTENANCE

- Status Monitor
- Alarm Guidance
- Maintenance Manager
- Easy connection with external S/W (creating additional App.)



# CUFOS

# CUFOS INTERFACE

## User-friendly screen controls

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



**Intuitive operation via touch screen**

Simple customization is available for specific work environments.



**Supports various apps in three fields—setup, machining and utility**

It provides easy configuration by allowing users to add and edit functions on the home screen according to job requirements.

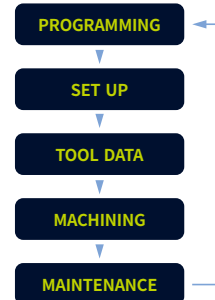
## CUFOS open CNC

### CUFOS operation for enhanced productivity

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



CUFOS



PC software



Applications

# CUFOS INTERFACE: UTILITIES

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 or e-mail. User setting allows users to register and delete up to six users from the account. CUFOS apps and NC functions can be user-restricted as necessary.



Register up to six user accounts



### 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. A maximum of 120 memos can be saved



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

Screen captures

# EASY SET-UP & OPERATION

Tool management, Collision Protection between machine unit/ workpiece/tooling and various user guidance provide higher productivity and user-convenience.



## Tool management

DN Solutions EOP  
(Easy Operation Package)  
tool management

Applicable models:  
PUMA SMX series/NHP series



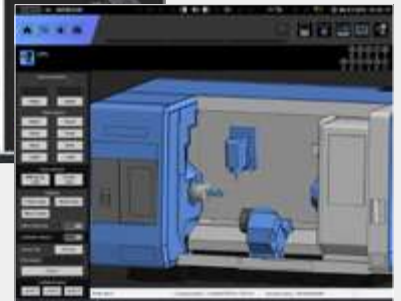
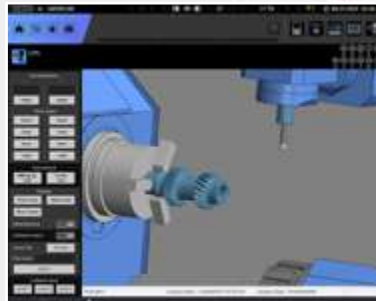
Includes a summary monitoring screen and gives the operator easy access to DN Solutions's own tool management system which provides comprehensive real time data on each tool, such as remaining tool life and status of tool groups.



## 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.

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



## File Manager

Ability to transfer various type of files including CF cards, USB memory, external PCs and memory inside CUFOS, NC programs between NC memory



# EASY MAINTENANCE

Keeping a machine in best condition through Status Monitoring, Alarm Guidance and Maintenance manager functions.



## Status Monitoring

Monitoring various information such as spindle, milling spindle, feed axis, cycle time, program/tool no. on one screen.



## Alarm Guidance

Presenting an operator alarm's causes and troubleshooting guides and sending an email when the alarm last for a long time.



## Maintenance manager

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



# CUFOS : STANDARD | OPTIONAL SPECS

A diverse range of functions and apps are available to meet your needs.

Description	Features	DVF Series	
Hardware	19" Color LCD Screen	●	
	Main RAM memory	4 GB ●	
	Storage Memory	SSD 32GB	●
		SSD 64GB	○
		SSD 128GB	○
	2 point-touch panel port	●	
Windows Embedded standard 7 Operating System (Including the Recovery disk)	●		
Applications	DN Solutions Tool Management	X	
	Collision Protection System (Note: In case of using this application, Main Memory 8GB and SSD 64GB are required.)	○	
	SSD Data server Application (Note: In case of using this application, Data server (for Standard CNC) function can not be used)	●	
	Turncut	X	
	Set and Inspection Application (cooperated with Renishaw)	X	
	File Manager	●	
	FTP Server service	●	
	Smart key access control application	○	
	Memo Application	●	
	Machine status Monitor application	●	
	Alarm guidance application	●	
	Sketch Cycle	X	
	EOP	●	
iHMI basic application	NC Control	●	
	FANUC iHMI	●	
	Manual viewer Application	●	
	Calendar Application	●	
	Browser Application	●	
	Periodic Maintenance Application	●	
	Data Logger Application	●	
	Servo viewer Application	●	

● Standard ○ Optional X N/A

Please contact your DN Solutions representative for detailed machine information.

# FANUC 31i PLUS

Fanuc 31i Plus maximizes customer productivity and convenience.

## 15" Touch screen + New OP

DN Solutions Fanuc 31iB/B5 Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

## Fanuc 31i Plus

- 15-inch color display
- Intuitive and user-friendly design

## USB and PCMCIA card QWERTY keyboard

- EZ-Guide i standard
- Ergonomic operator panel
- 4MB Memory
- Hot keys
- Enhance AICC BLOCK
- Touch pen provided as standard



## iHMI touchscreen

iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

## Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.

# NUMERIC CONTROL SPECIFICATIONS

# FANUC

	Item	Specifications	F31iB5 Plus
			DVF Series
Controlled axis	Controlled axes		5 (X,Y,Z,C,A) (X,Y,Z,C,B)
	Simultaneously controlled axes		5 axis
	Additional controlled axis	Add 1 Axis (5th Axis)	●
Data input/output	data server		○
	Memory card input/output		●
	USB memory input/output		●
Interface function	Embedded Ethernet		●
	Fast Ethernet		○
	Enhanced embedded ethernet function		●
Operation	DNC operation	Included in RS232C interface.	●
	DNC operation with memory card		●
Program input	Workpiece coordinate system	G52 - G59	●
	Addition of workpiece coordinate system	G54.1 P1 X 48 (48 pairs)	●
	Tool number command		T4 digits
	Tilted working plane indexing command	G68.2 TWP	●
Feed function	AI contour control II	G5.1 Q_, 1000 Blocks	●
	High smooth TCP		●
Operation Guidance Function	EZ Guide i		●
	EZ Operation package		●
Setting and display	CNC screen dual display function		●
Network	FANUC MTConnect		⊗
	FANUC OPC UA		⊗
Others	Display unit	15" color LCD with Touch Panel	●
		10240M(4MB)_1000 programs	●
		20480M(8MB)_1000 programs	○
		2560M(1MB)_2000 programs	○
		5120M(2MB)_4000 programs	○
		10240M(4MB)_4000 programs	○
		20480M(8MB)_4000 programs	○

Network: FANUC MTConnect and FANUC OPC UA available.

● Standard ○ Optional X Not Available ⊗ Available



# EZ WORK

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

## EZ work

The EZ work package delivers speed and efficiency. This menu-driven innovation not only helps customers reduce setup times, but also simplifies common tasks and procedures, reducing the potential for errors. EZ work reduces operating time, protects machinery, enhances quality and speeds up maintenance interventions.



### Thermal Compensation

A function to maintain high-precision machining quality by analyzing and correcting the amount of thermal displacement of a structure through a temperature sensor



### M/G-Code List

Functional description of M code and G code



### Tool Management

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



### Operation Rate

Machine operation history management function by date based on load



### Adaptive Feed Control

Function to control feedrate so that the cutting can be carried out at a constant load



### IKC (DCP-I)

The function to compensate the position of the workpiece and the tool tip to be constant regardless of the rotation of the rotating shaft error



### Spindle Warm Up

A function that assists spindle warm-up for spindle life when the spindle has not been used for a certain period of time



### 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)



### Addition of Optional Block Skip

In addition to the OPTIONAL BLOCK SKIP of the operation panel, the function to skip a specific block selected in the machining program

# CONVENIENT OPERATION

## Heidenhain TNC640

### Superior hardware specifications

The TNC 640 features optimized motion control, short block processing times and special control strategies. Together with its uniform digital design and its integrated digital drive control (including inverters), it enables you to achieve high machining speeds and the best possible contour accuracy.

- 15.6" display
- 21GB Storage memory
- 1024 look ahead blocks
- High user convenience with folder structure data management



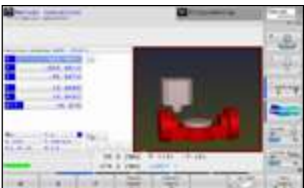
### Conversational convenient function



Data are controlled in the folder structure; convenient communication via USB devices



KinematicOpt & KinematicComp option  
(Touch probe cycle for automatic measurement)



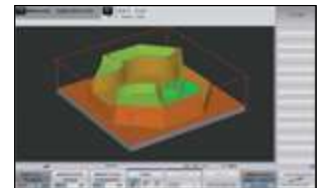
Collision protection system option



Adaptive feed control option



Various built-in pattern cycles for a wider scope of application (Software standard)



Graphic simulation

## NUMERIC CONTROL SPECIFICATIONS



HEIDENHAIN

Item		Specifications	TNC640
			DVF Series
<b>Controlled axis</b>	Controlled axis		5 (X,Y,Z,C,A) (X,Y,Z,C,B)
	Simultaneously controlled axis		5 axis
<b>Data input/output</b>	USB memory input/output		●
<b>Interface function</b>	Embedded ethernet		●
<b>Feed function</b>	Look-ahead	5000 blocks	●
<b>Axis compensation</b>	KinematicsOpt	Automatic measurement and optimization of machine kinematics	●
<b>Collision monitoring</b>	Dynamic collision monitoring (DCM)		○
<b>Network</b>	MTConnect		⊕
<b>Others</b>	Display unit	15" color LCD	●
		15" color LCD with touch panel	○
	Part program storage size & number of registerable programs	21 GB	●

● Standard ○ Optional ✕ Not Available ⊕ Available

# CONVENIENT OPERATION

## Siemens 840D

### 15.6" screen + new operation panel

The newly-designed operation panel improves the customer convenience by incorporating and using common-design buttons and layouts, and includes the familiar QWERTY keyboard for fast and easy operation.

- 15.6" display
- 10MB high capacity user memory
- USB & ethernet (standard)
- QWERTY keyboard (standard)
- High-speed calculation and simulation can be fulfilled by improved processor functionality



### Conversational convenient function



Simulation and machining contour monitoring



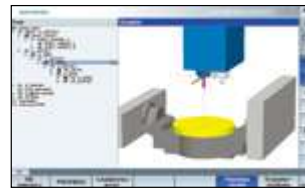
Smart function



Side screen widget



5-axis kinematic measuring cycles



3D collision avoidance and collision avoidance ECO



Shop mill part programming

## NUMERIC CONTROL SPECIFICATIONS

SIEMENS

	Item	Specifications	S840Dsl
			DVF 8000
<b>Controlled axis</b>	Controlled axes	5 axes	●
	Simultaneously controlled axes	5 axes	●
<b>Data input/output</b>	Memory card input/output	(Local drive)	●
	USB memory input/output		●
<b>Interface function</b>	Ethernet	(X130)	●
<b>Operation</b>	On network drive	(without EES option, Extcall)	●
	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●
<b>Program input</b>	Workpiece coordinate system	G54 - G57	●
	Addition of workpiece coordinate system	G505 - G599	●
<b>Interpolation &amp; feed function</b>	Advanced surface		●
	Top surface		○
<b>Programming &amp; editing function</b>	Look ahead number of block	S/W version 4.8	1000
	3D simulation, finished part		●
	Simultaneous recording		●
<b>Operation guidance function</b>	Measure kinematics		●
	DXF Reader for PC integrated in SINUMERIK Operate		○
	ShopMill		●
<b>Setting and display</b>	EZ Work		●
	Operation via a VNC viewer		●
<b>Network</b>	MTConnect		⊕
	OPCUA		○
<b>Etc. function</b>	15.6" color display with touch screen		●
	19" color display without touch screen		○
	21.5" color display with touch screen		○
	CNC user memory	10 MB	●
	Expansion by increments	2 ~ 12 MB	○
	Collision avoidance		○
Collision avoidance ECO (machine, working area)		●	

# POWER | TORQUE

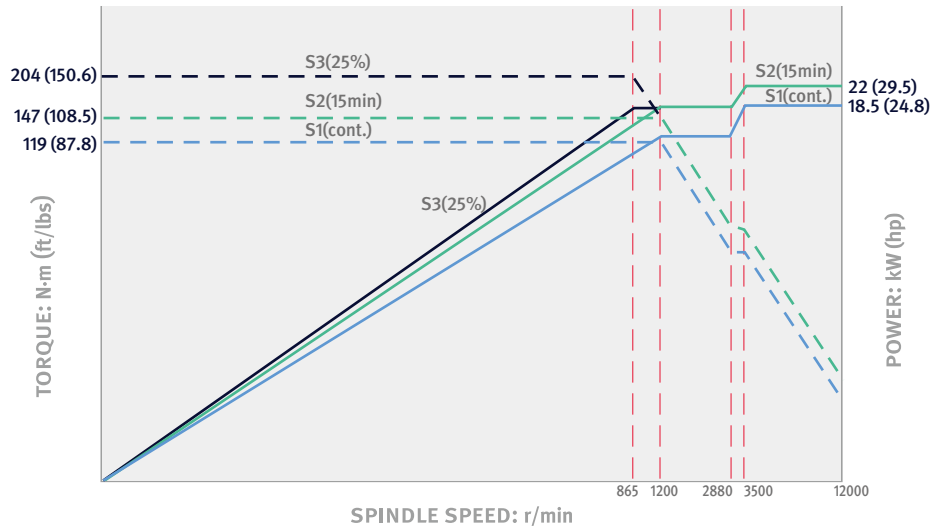
## FANUC

### DVF 6500, 8000

SPEED: **12000** r/min

POWER: **22/18.5** kW  
29.5/24.8 hp

TORQUE: **204** N·m 150.6 ft-lbs



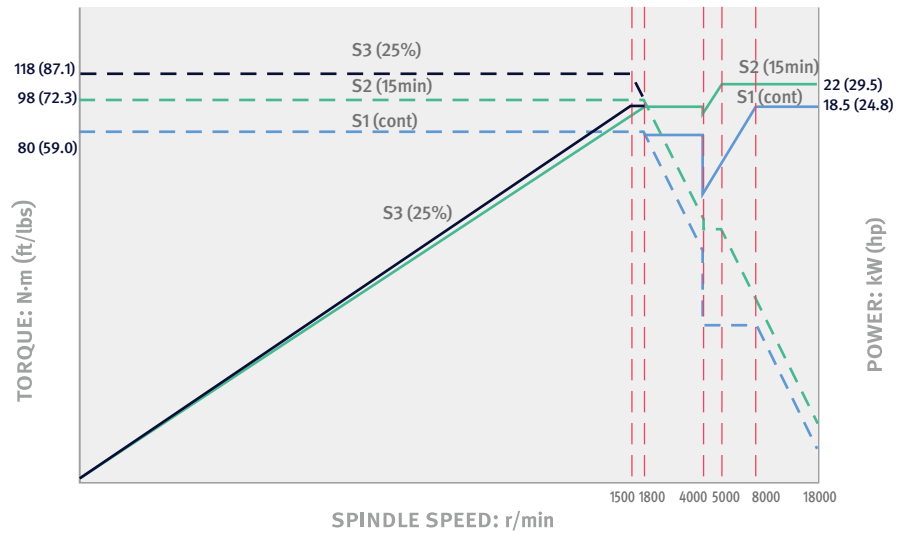
### DVF 6500, 8000 option

### DVF 6500T, 8000T

SPEED: **18000** r/min

POWER: **22/18.5** kW  
29.5/24.8 hp

TORQUE: **118** N·m 87.1 ft-lbs

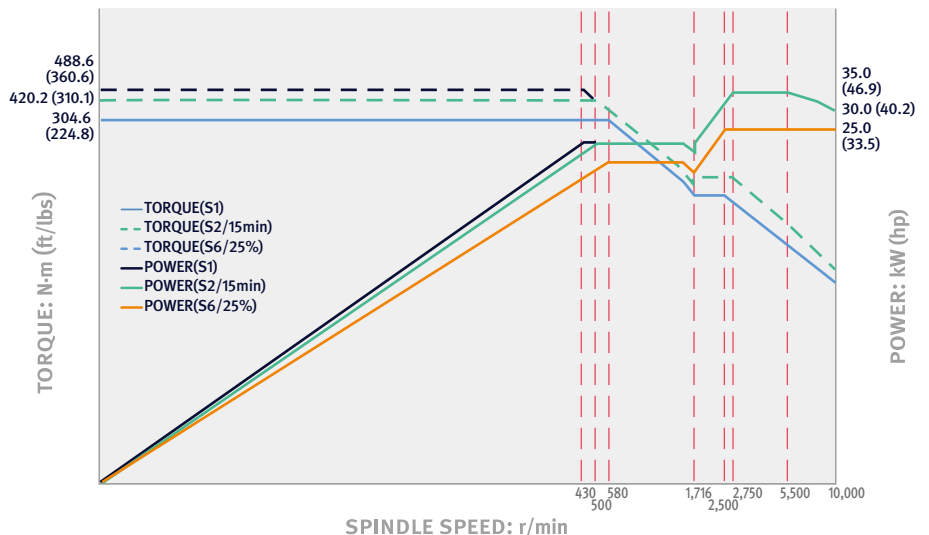


### DVF 8000/50, 8000T/50

SPEED: **10000** r/min

POWER: **35/25** kW  
46.9/33.5 hp

TORQUE: **488** N·m 360.1 ft-lbs



# POWER | TORQUE

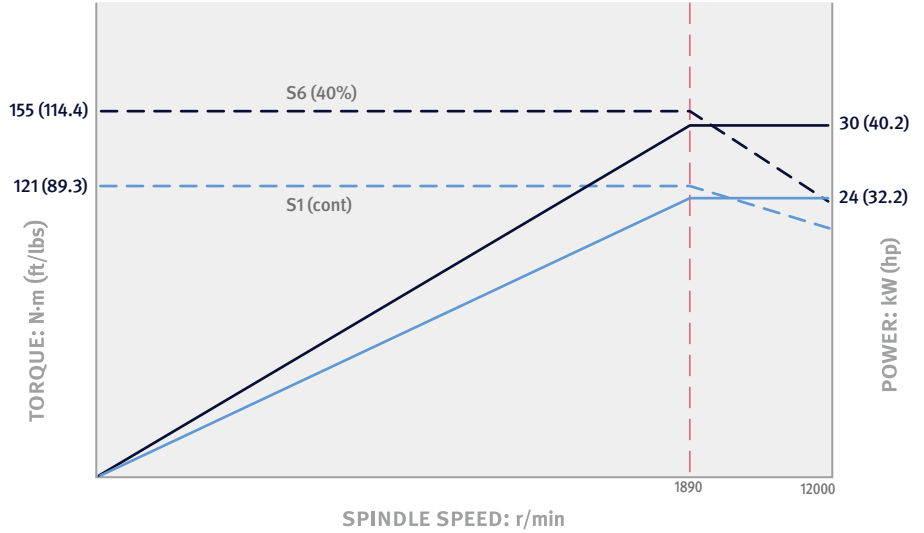
**HEIDENHAIN • SIEMENS**

## DVF 6500, 8000

SPEED: **12000** r/min

POWER: **30/24** kW  
40.2/32.2 hp

TORQUE: **155** N·m 150.6 ft-lbs



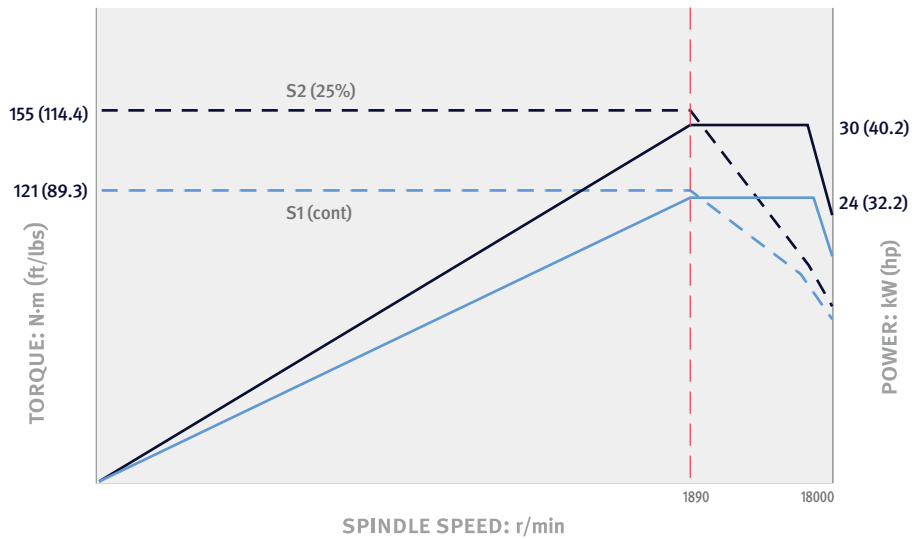
## DVF 6500, 8000 option

## DVF 6500T, 8000T

SPEED: **18000** r/min

POWER: **30/24** kW  
40.2/32.2 hp

TORQUE: **155** N·m 150.6 ft-lbs

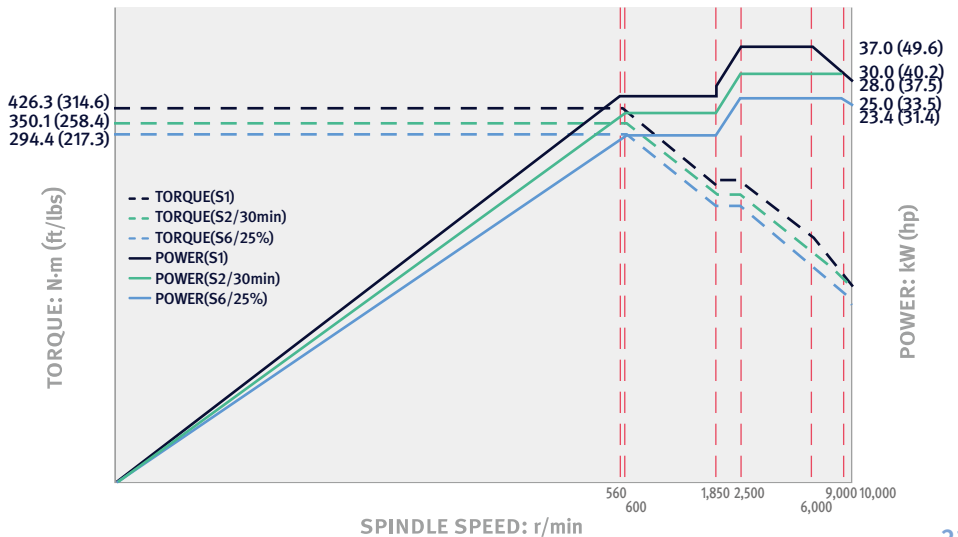


## DVF 8000/50, 8000T/50

SPEED: **10000** r/min

POWER: **37/25** kW  
49.6/33.5 hp

TORQUE: **426** N·m 314.6 ft-lbs

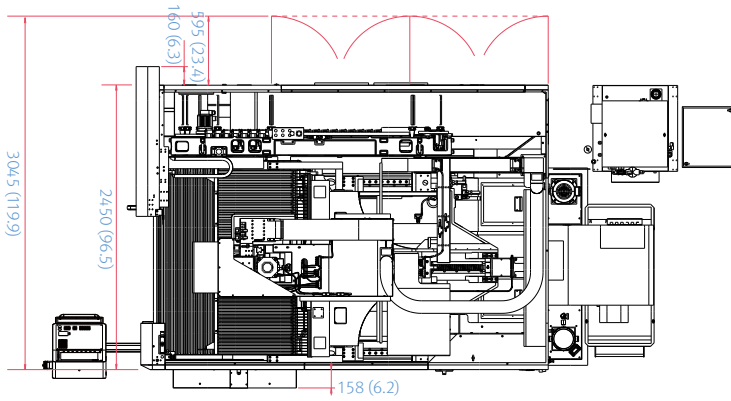


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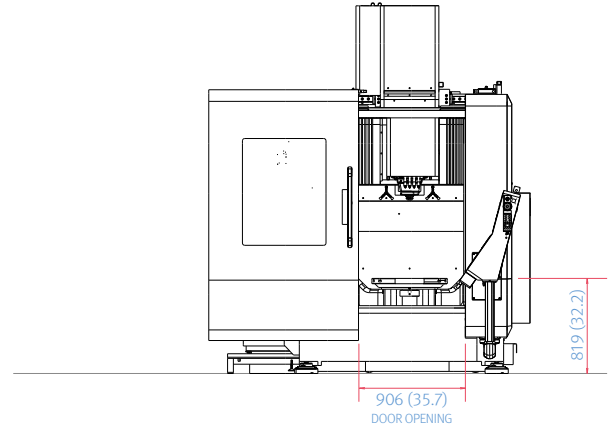
DVF 6500 · 6500T

## DVF 6500

Units : mm (inch)

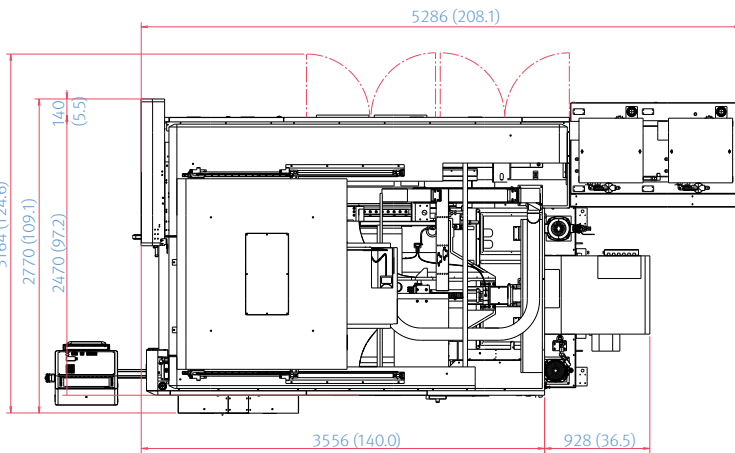


TOP

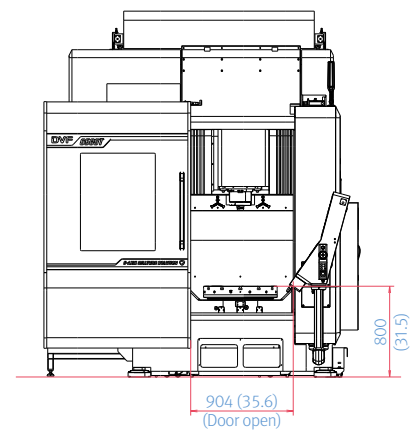


FRONT

## DVF 6500T



TOP



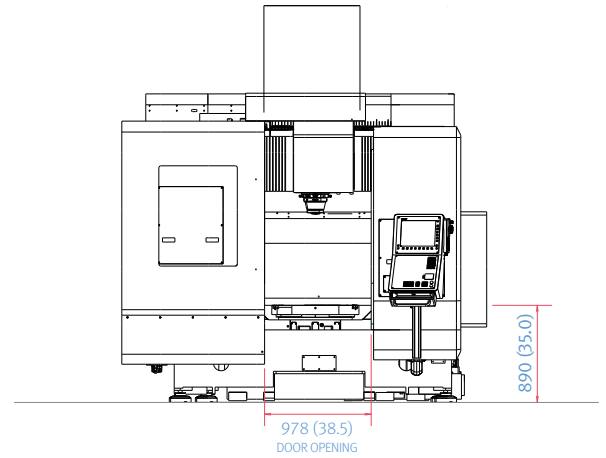
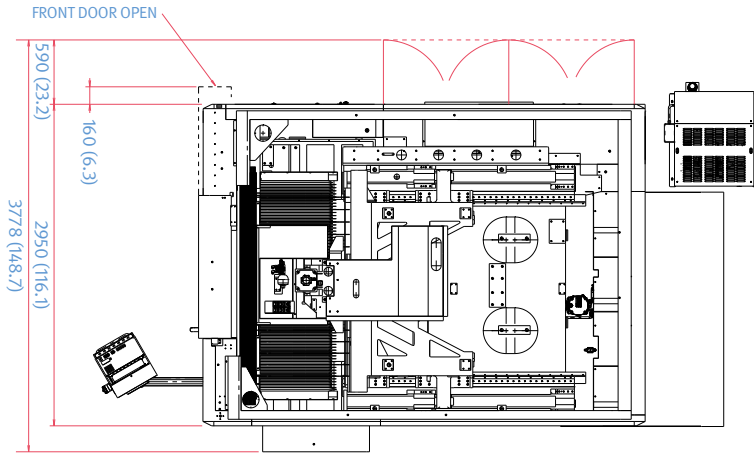
FRONT

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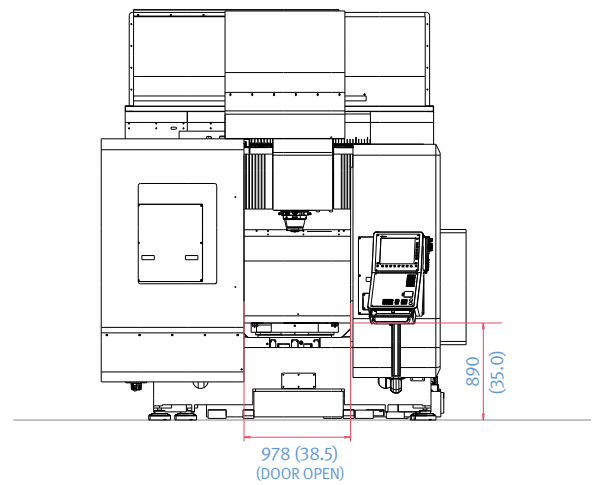
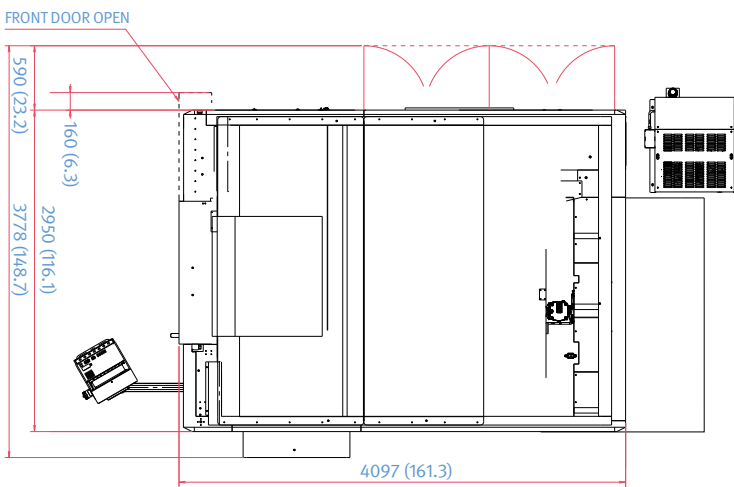
DVF 8000 · 8000T

## DVF 8000

Units : mm (inch)



## DVF 8000T



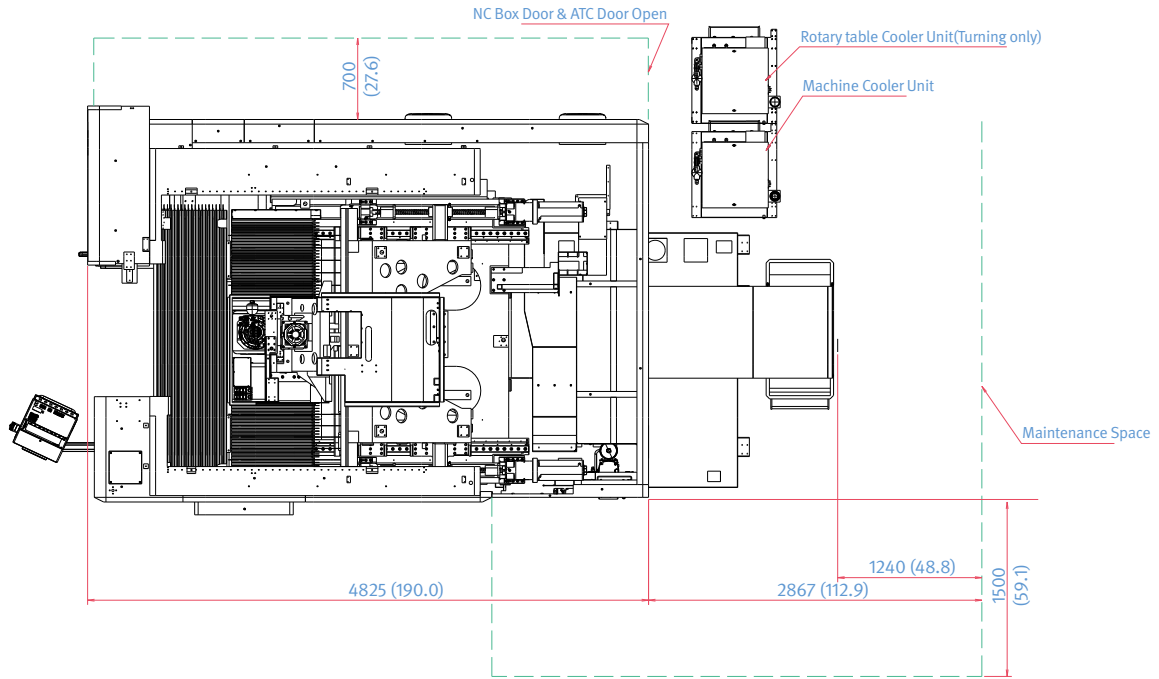
\*Some peripheral equipment can be placed in other areas

# DIMENSIONS

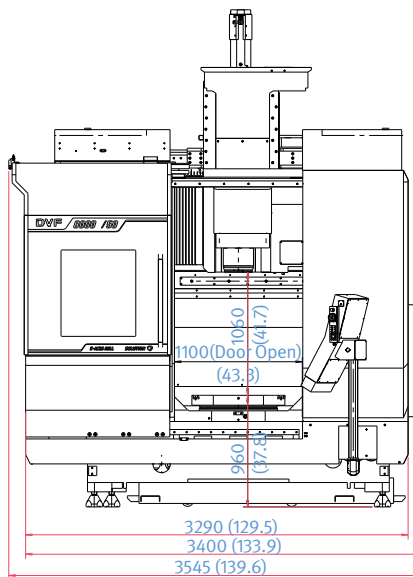
DVF 8000/50 · DVF 8000T/50

## DVF 8000/50, DVF 8000T/50

Units : mm (inch)



TOP



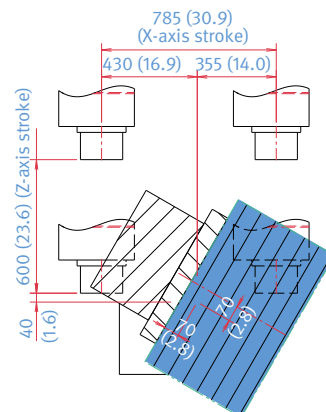
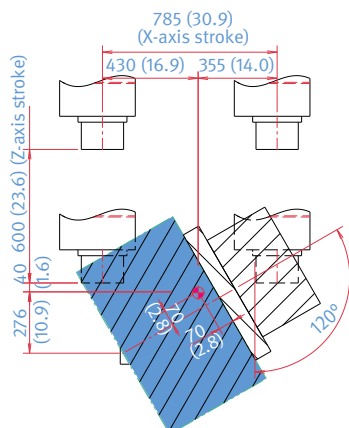
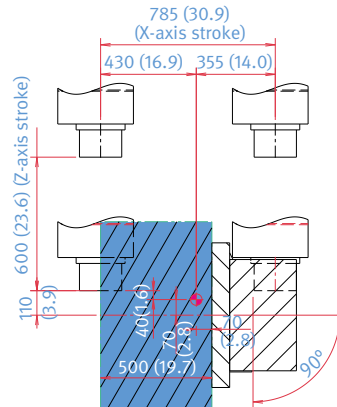
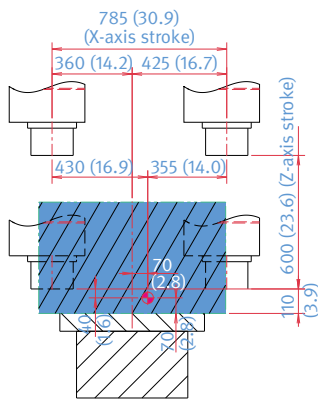
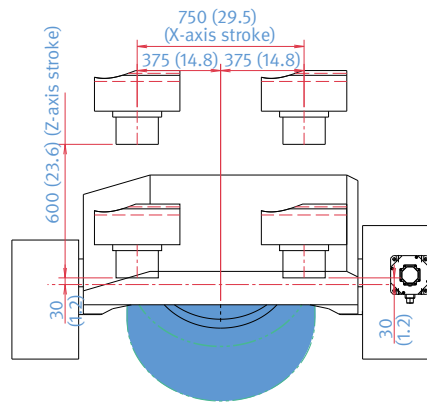
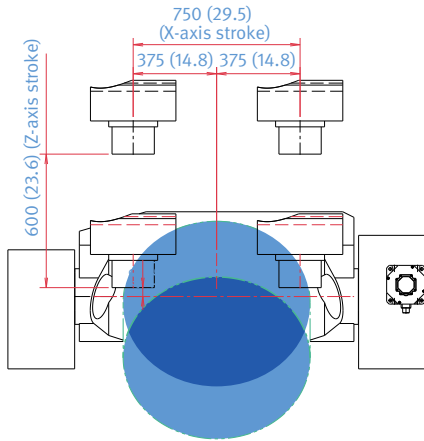
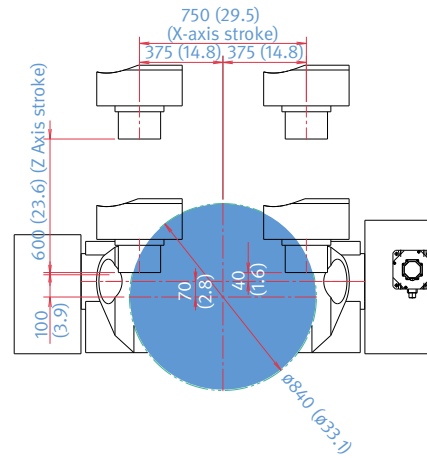
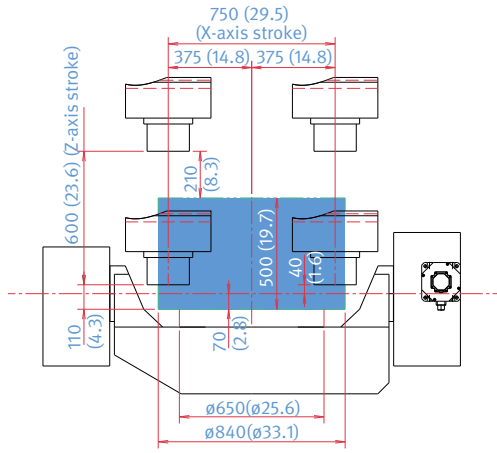
FRONT



# INTERFERENCE

DVF 6500 · 6500T

Units : mm (inch)

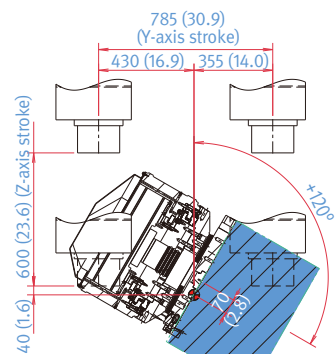
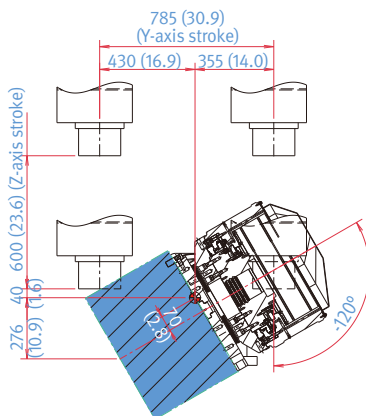
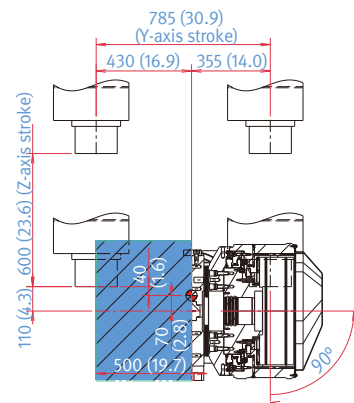
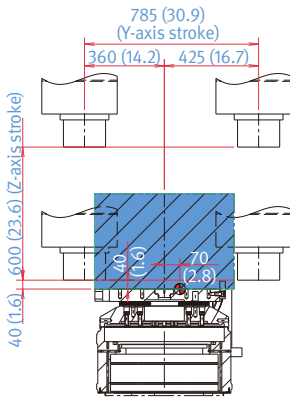
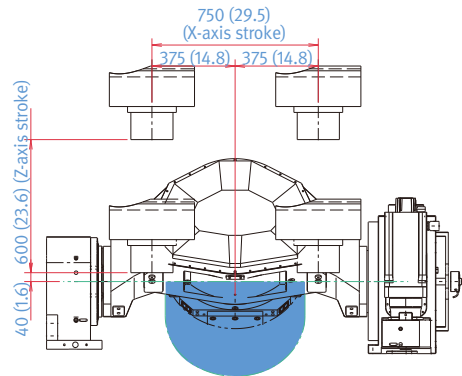
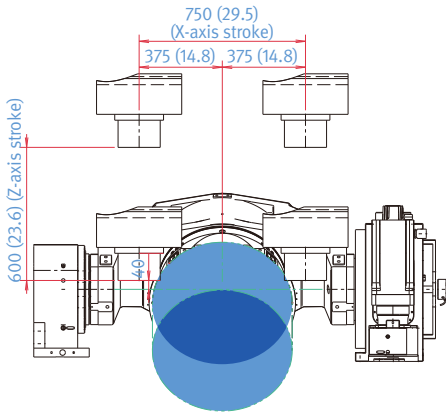
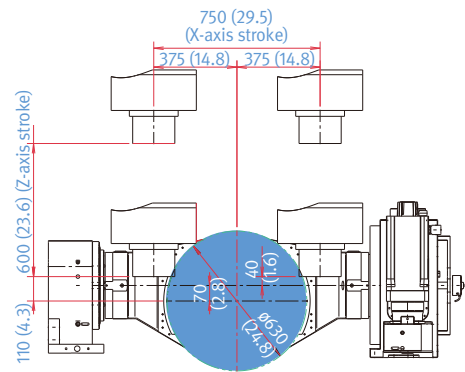
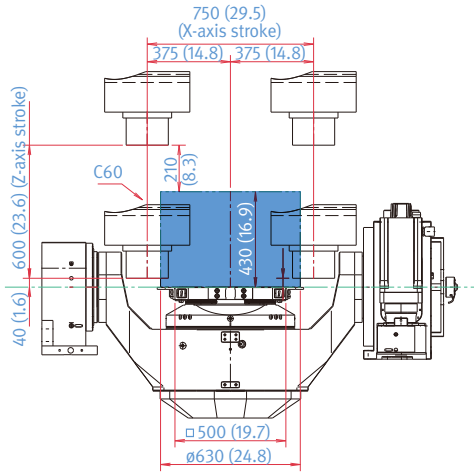


\*Some peripheral equipment can be placed in other areas

# INTERFERENCE

DVF 6500 · 6500T (APC)

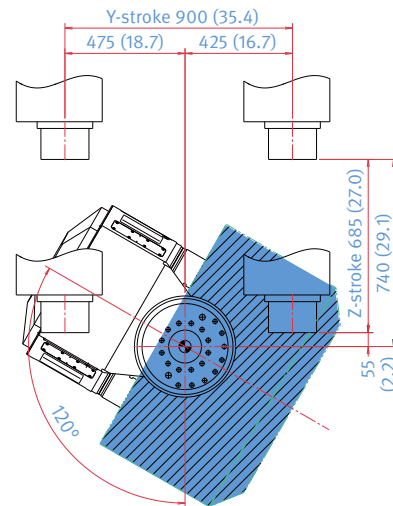
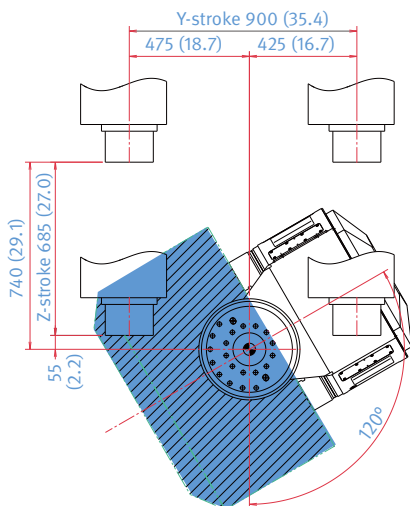
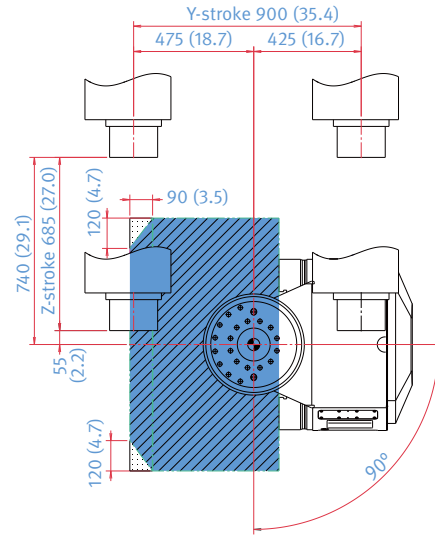
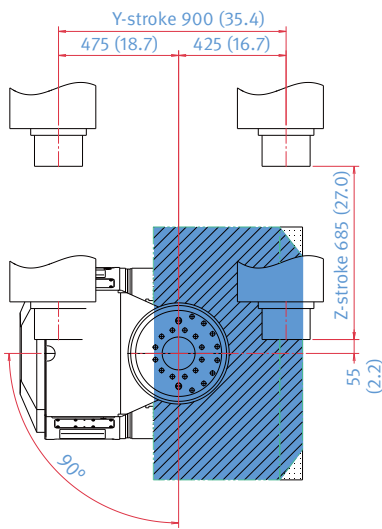
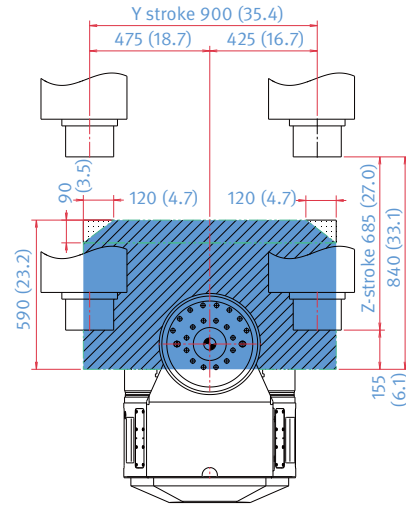
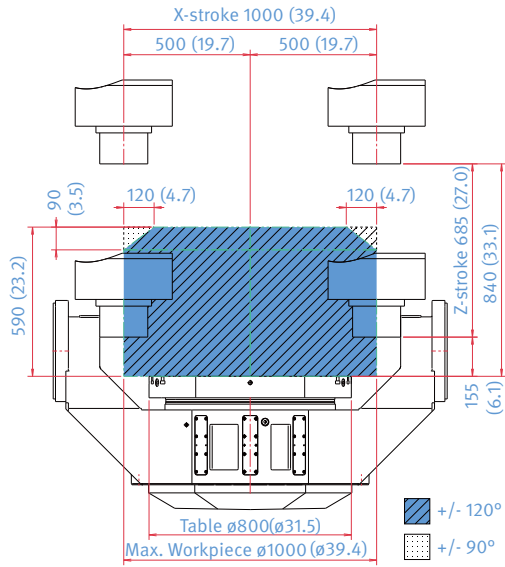
Units : mm (inch)



# INTERFERENCE

DVF 8000 · 8000T

Units : mm (inch)

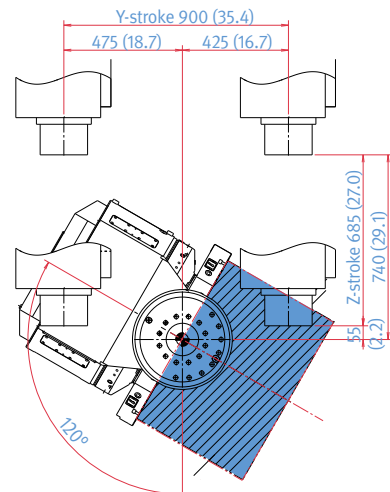
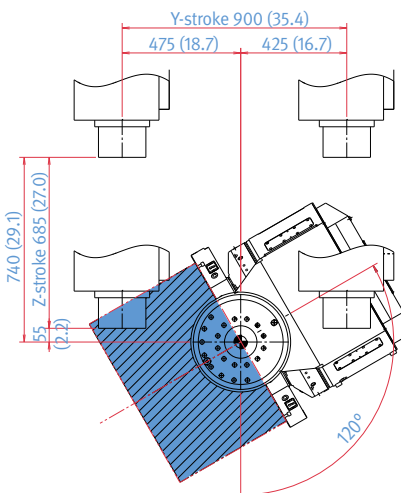
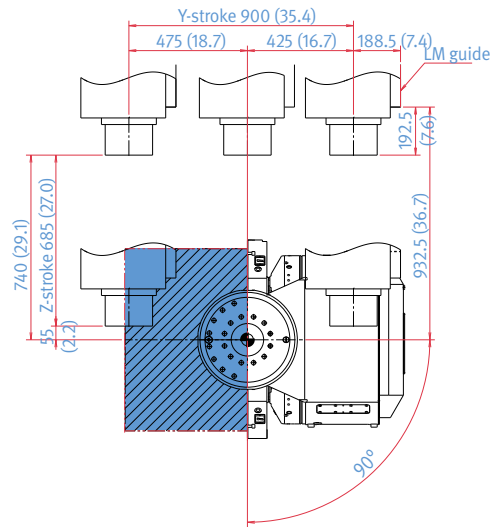
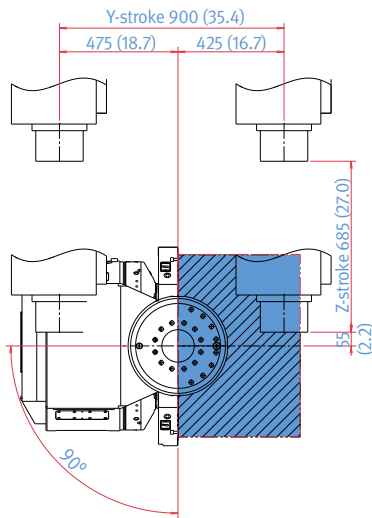
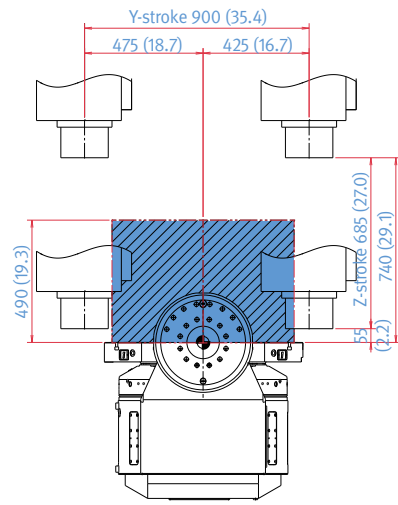
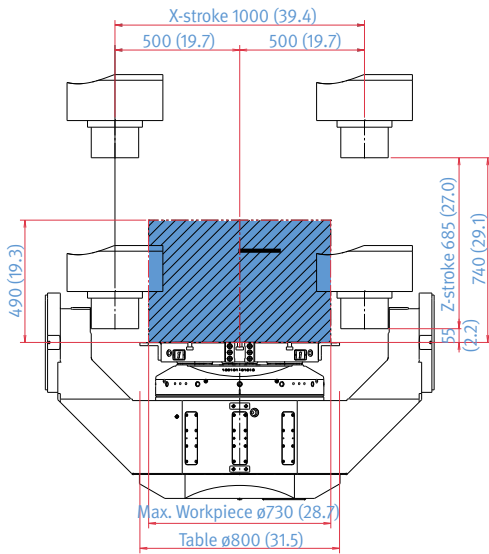


\*Some peripheral equipment can be placed in other areas

# INTERFERENCE

DVF 8000 · 8000T (APC)

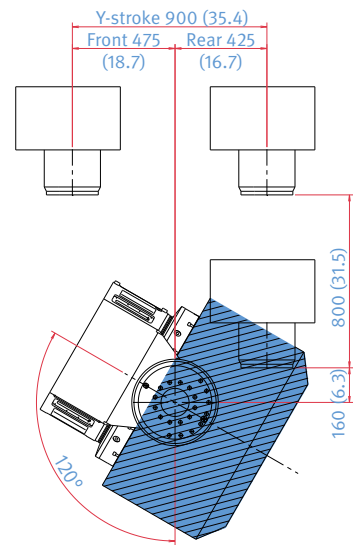
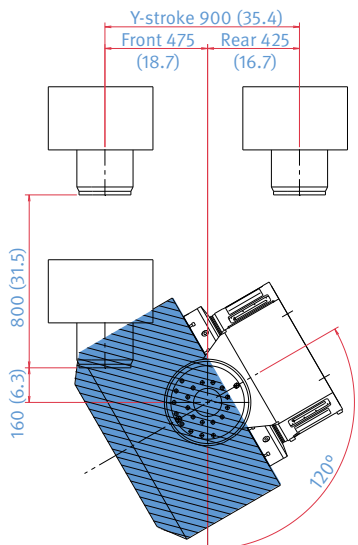
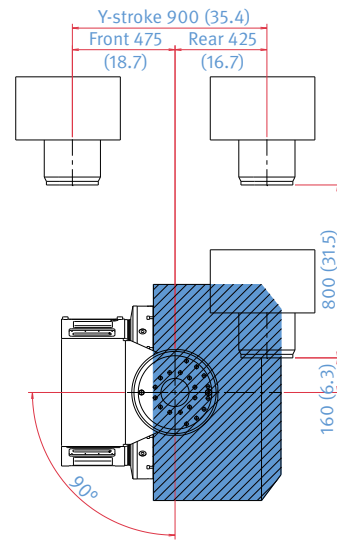
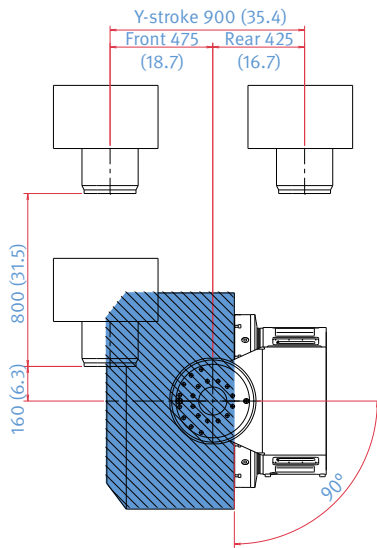
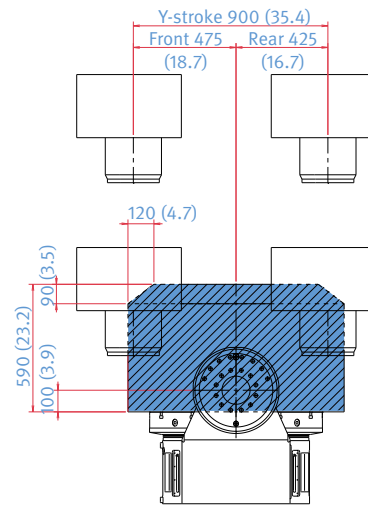
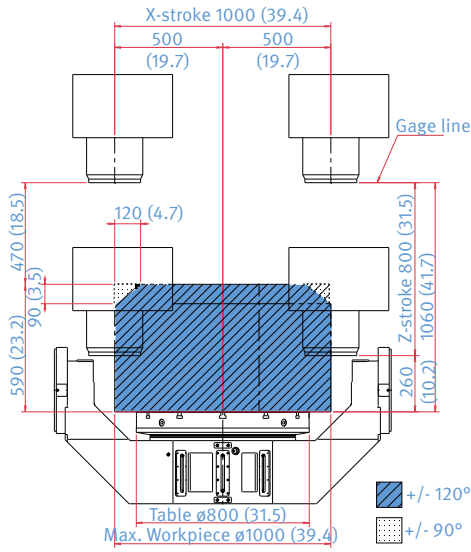
Units : mm (inch)



# INTERFERENCE

DVF 8000/50 · DVF 8000T/50

Units : mm (inch)



\*Some peripheral equipment can be placed in other areas

# MACHINE SPECIFICATIONS

DVF 6500 · 6500T · 8000 · 8000T

Description			Unit	DVF 6500	DVF 6500 T	DVF 8000	DVF 8000T	DVF 8000/50	DVF 8000T/50	
Travels	Travel distance	X axis	mm (inch)	750 (29.5)		1000 (39.4)		1000 (39.4)		
		Y axis	mm (inch)	785 (30.9)		900 (35.4)		900 (35.4)		
		Z axis	mm (inch)	600 (23.6)		685 (27.0)		800 (31.5)		
		A axis	deg	-120 ~ +120						
		C axis	deg	360						
Table	Table size		mm (inch)	ø650 x 600 (ø25.6 x 23.6)	ø650 x 500 (ø25.6 x 19.7)	ø800 x 680 (ø31.5 x 26.8)	ø800 (ø31.5)	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)		ø1000 x H590 (ø39.4 x H23.2)		
	Max. workpiece weight		kg (lb)	600 (Tandem:1,000) (1322.8)	500 (1102.3)	1400 (3086.4)	700 (1543.2)	1400 (3086.4)	700 (1543.2)	
Spindle	FANUC	Max. spindle speed	r/min	12000 {18000}	18000	12000 {18000}	18000	10000		
		Max. spindle power (S6 25%/Cont.)	kW (Hp)	22/18.5 (29.5/24.8)					35/25 (49.6/33.5)	
		Max. spindle torque	N · m (ft-lbs)	204 {118} (150.6 {87.1})	118 (87.1)	204 {118} (150.6 {87.1})	118 (87.1)	488 (360.1)		
	HEIDENHAIN SIEMENS	Max. spindle speed	r/min	12000 {18000}	18000	12000 {18000}	18000	10000		
		Max spindle power (S6 40%/Cont.)	kW (Hp)	30/24 (40.2/32.2)	30/24 (40.2/32.2) {47.2/31.5 (S6 25%/Cont.)}	30/24 (40.2/32.2)	30/24 (40.2/32.2) {47.2/31.5 (S6 25%/Cont.)}	37/25 (25.0/33.5) (S6 25%/Cont.)		
		Max. spindle torque	N · m (ft-lbs)	155 (114.4)	155 {226} (114.4 {166.8})	155 (114.4)	155 {226} (114.4 {166.8})	426 (314.4)		
Feedrate	Rapid traverse	Xaxis	m/min (ipm)	45 (1771.7)				36 (1417.3)		
		Yaxis	m/min (ipm)	45 (1771.7)				36 (1417.3)		
		Zaxis	m/min (ipm)	45 (1771.7)				30 (1181.1)		
		Baxis	r/min	25				25		
		Caxis	r/min	50(RGC), 80(DDM)	1000	60	600	60	600	
Automatic tool changer	Tool type	Tool shank	-	ISO#40	HSK-T63	ISO#40	HSK-T63	ISO#50	HSK-T100	
	Tool capacity		ea	40 {60, 90, 120}	60 {120}	40 {60, 120}	60 {120}	40 {60}	40 {60}	
	Max. tool dia.	Continous	mm (inch)	75 (3.0)				125 (4.9)		
		Without adjacent tools	mm (inch)	125 (4.9)				220 (8.7)		
	Max. tool length		mm (inch)	300 (11.8)				320 (12.6)		
	Max. tool weight		kg (lb)	8 (17.6)				15 (0.6)		
	Tool to Tool		sec	1.0(60Hz), 1.5(50Hz)	1.3(60Hz), 1.5(50Hz)			2.5(60Hz), 3.0(50Hz)		
Tank capacity	Coolant tank		L (gal)	650 (171.7)		800 (211.4)		800 (211.4)		
Machine dimensions	Height		mm (inch)	3100 (122)	3225 (127.0)	3670 (144.5)	3765(148.2)	4275 (168.3)	4330 (170.5)	
	Length		mm (inch)	3700 (145.7)	3700 (145.7)	4097 (161.3)		4825 (190.0)		
	Width		mm (inch)	2450 (96.5)	2450 (96.5)	2950 (116.1)		3400 (133.9)		
	Weight		kg (lb)	14500 (31966.6)	13000 (28659.7)	25000 (55114.8)		25000 (55114.8)		
Control	NC system		-	CUFOS, HEIDENHAIN TNC 640, SIEMENS S840D, FANUC 31iB5 Plus						

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