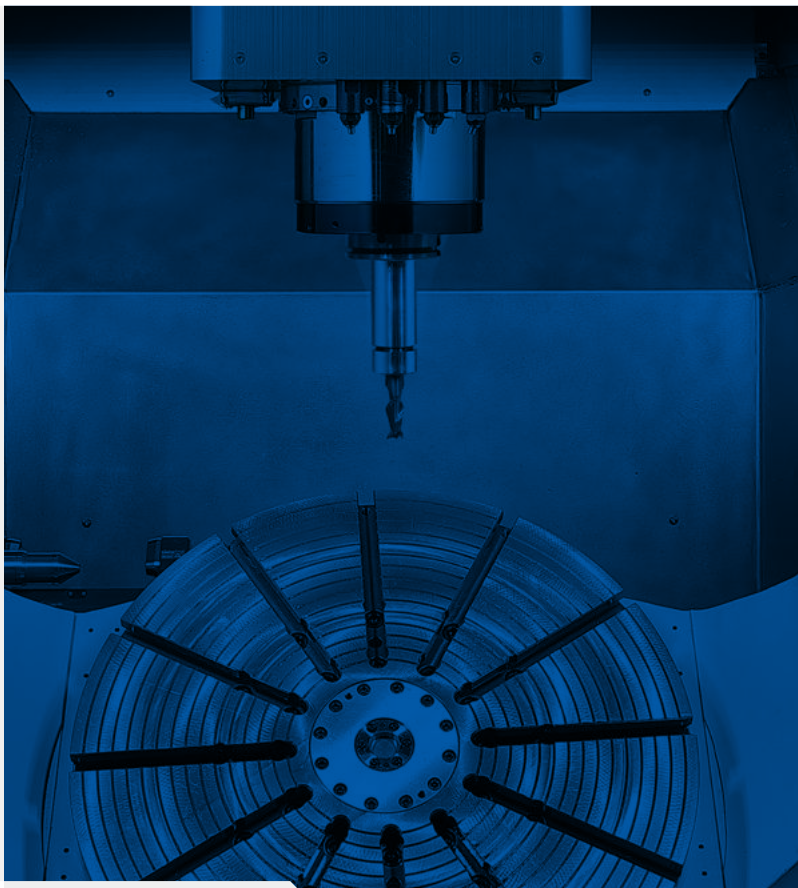
DN SOLUTIONS

PREMIUM SIMULTANEOUS 5-AXIS MACHINING CENTER

DVF 6500·8000

DVF 6500/T
DVF 8000/T · 8000/50 · 8000T/50





DVF 6500·8000

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 highprecision medical parts through to large aerospace jet engine components.
DVF machines are the ultimate simultaneous 5-axis machining centres.

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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.

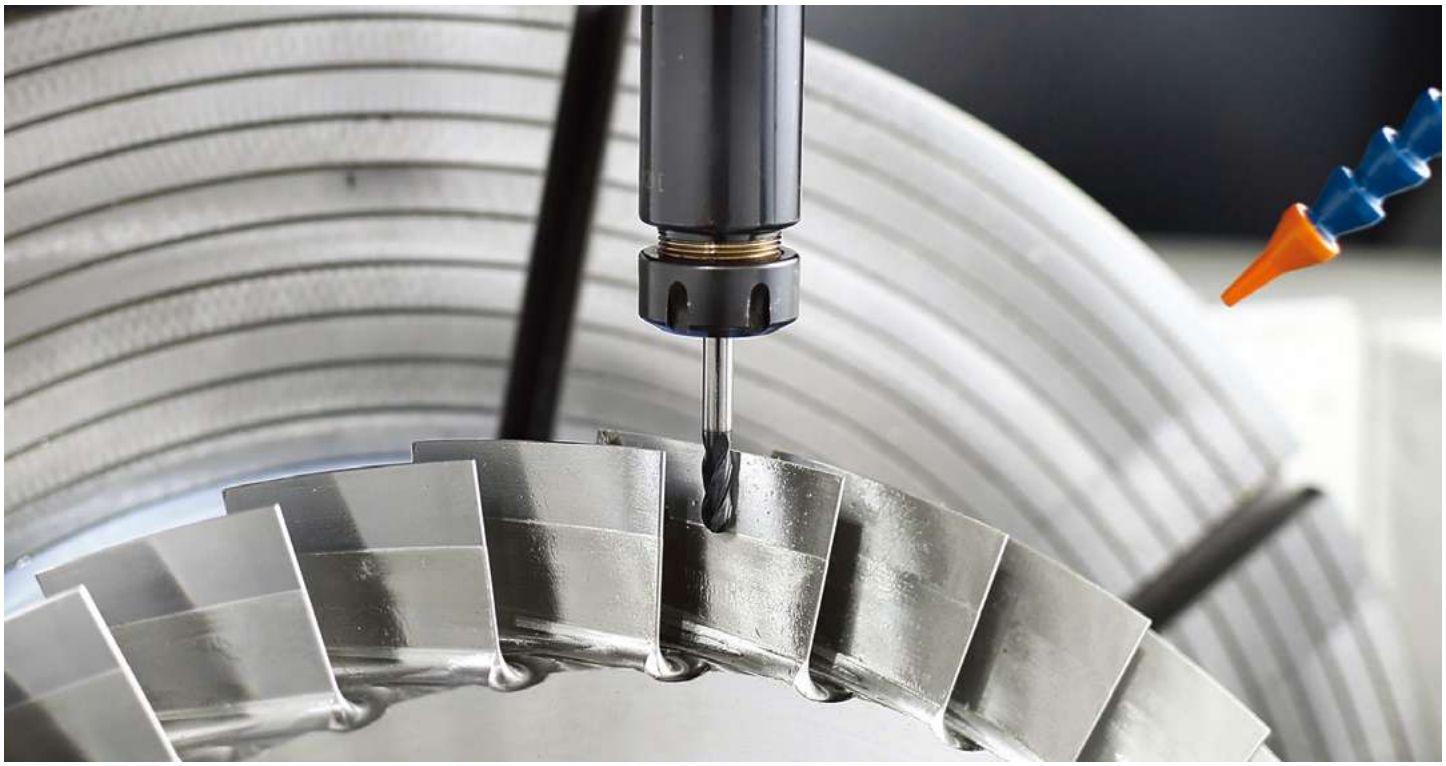


Table size

DVF 6500 (W/APC)

ø650 x **600** mm

(ø25.6 inch x 23.6 inch)

□500 mm

(□19.7 inch)

DVF 6500T

ø650

(ø25.6 inch)

DVF 8000, 8000/50 (W/APC)

ø800 x **680** mm

(ø31.5 inch x 26.8 inch)

□630 mm

(24.8 inch)

DVF 8000T, 8000T/50

ø800

(ø31.5 inch)

Maximum workpiece size

DVF 6500 series (W/APC)

ø840 x **H500** mm

(ø33.1 inch x H19.7 inch)

ø630 x **H430** mm

(ø24.8 inch x H16.9 inch)

DVF 8000 series (W/APC)

ø1000 x **H590** mm

(ø39.4 inch x H23.2 inch)

ø850 x **H490** mm

(ø33.5 inch x H19.3 inch)

Table turning function

DVF 6500T

1000 r/min

DIRECT DRIVE

DVF 8000T, 8000T/50

600 r/min

DIRECT DRIVE

Maximum workpiece weight

DVF 6500

600 kg

(1322.8 lbs)

TANDEM 1000kg
(2204.6 lbs)
AUTOMATION 500kg
(1102.3 lbs)
(/W Pallet)

DVF 8000, 8000/50

1400 kg

(3086.4 lbs)

AUTOMATION 850kg
(1873.9 lbs)
(/W Pallet)

DVF 6500T

500 kg

(1102.3 lbs)

AUTOMATION 500kg
(1873.9 lbs)
(/W Pallet)

DVF 8000T, 8000T/50

700 kg

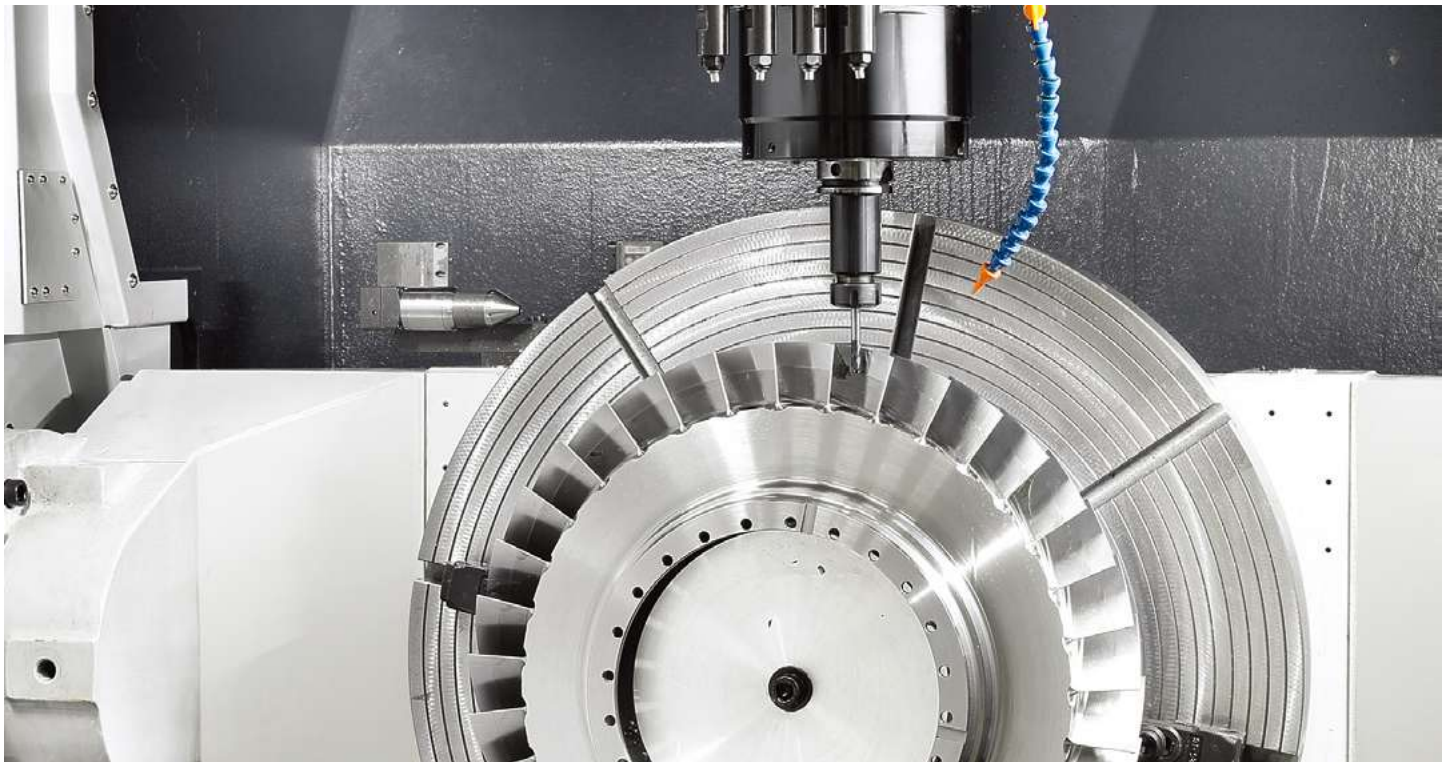
(1543.2 lbs)

AUTOMATION 700kg
(1543.2 lbs)
(/W Pallet)

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 18000 r/min spindle gives total access to the part while maintaining rigidity, ready for lights-out machining.

Max. spindle speed

DVF 6500, 8000
12000 {18000 OPTION} r/min

DVF 6500T, 8000T
18000 r/min

DVF 8000/50, 8000T/50
10000 r/min

Max. spindle motor power

DVF 6500,8000, 6500T, 8000T
22 kW *FANUC*
(29.5 hp)

30 kW *SIEMENS, HEIDENHAIN*
(40.2 hp)

47 kW *FOR SKIVING(HEIDENHAIN, ONLY DVF6500T/8000T)*
(63.0 hp)

DVF 8000/50, 8000T/50
35 kW *FANUC*
(46.9 hp)

37 kW *SIEMENS, HEIDENHAIN*
(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} (29.5/24.8 hp {29.5 hp/24.8 hp})	22 / 18.5 kW (29.5/24.8 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%/Cont.)	30 / 24 kW (40.2 hp/32.2 hp)	30 / 24 kW (40.2 hp/32.2 hp) {47.2(S6 25%)/31.5kW (63.3/42.2 hp), Heidenhain only for skiving}	37 / 25 kW (49.6/33.5 hp) (S6 25%/Cont.)
	Max. spindle torque	155 N·m (114.4 ft-lbs)	155 N·m (114.4 ft-lbs) {226 N·m (166.8 ft-lbs), Heidenhain only for skiving}	426 N·m

TABLE VARIANTS

DVF 6500 · 6500T

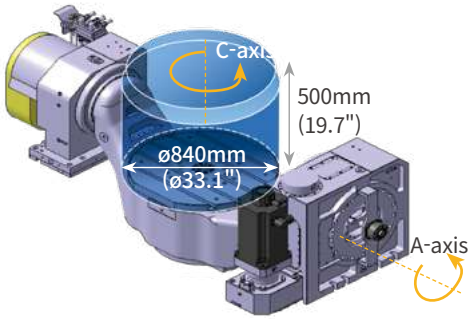
Various table specifications from standard mechanical drive to direct drive and turning function.

Description	C-axis Roller Gear Cam		C-axis Direct Ddrive	
A-axis RGC single Standard	Job Shop • Highest stiffness • High torque		Die & Mold • Highest dynamics • Continuous operation in C-axis possible • Water cooled Direct Drivetechnology inC	
A-axis RGC tandem	Job Job Shop (heavy cutting) • Highest stiffness • High torque		Aerospace (brisk, impeller) • Highest dynamics • Best position uncertainty in A- and C-axis • Low-maintenance due to DirectDrive-technology inC	

C-axis(Swiveling rotary table) · A-axis(single/tandem drive for pallet changer)

Description	Unit	Roller Gear Cam	Direct Drive
Table size	mm (inch)	ø650 X 600 (ø25.6 X 23.6)	
Maximum load	kg (lb)	600 (1322.8) (RGC single) / 1000 (2204.6) (RGC tandem)	
Maximum workpiece size	mm (inch)	ø840 X H500 (ø33.1 X H19.7)	
Torque (rotating axis)	N·m (ft-lbs)	1200 (885.1)	1240 (914.6)
Rapid (rotating axis)	r/min	50 (RGC)*	80 (direct drive)
Torque (tilting axis)	N·m (ft-lbs)	3800 (2802.7) (RGC single)* 4200 (3097.8) (RGC tandem)*	
Rapid (tilting axis)	r/min	25	

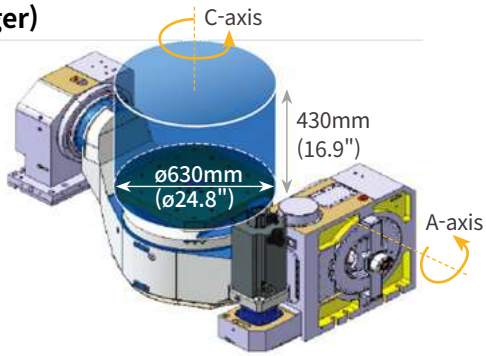
*RGC : Roller Gear Cam



C-axis(Swiveling rotary table) · A-axis(single/tandem drive for pallet changer)

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

*RGC : Roller Gear Cam



Swiveling rotary table · single/tandem drive for turning

Description	Unit	Specifications
Table size	mm (inch)	ø650 (ø25.6)
Maximum load	kg (lb)	500 (1102.3)
Maximum workpiece size	mm (inch)	ø840 X 500 (ø33.1 X 19.7), APC ø630 x H430 (ø24.8 x H16.9)
Torque (rotating axis)	N·m (ft-lbs)	1360 (1003.7)
Rapid (rotating axis)	r/min	1000 (with turning)
Torque (tilting axis)	N·m (ft-lbs)	3800 (2804.4) (single) / 4200 (3099.6) (tandem)
Rapid (tilting axis)	r/min	25

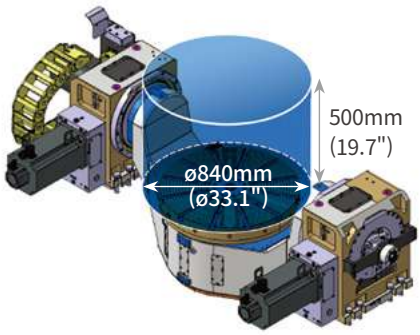
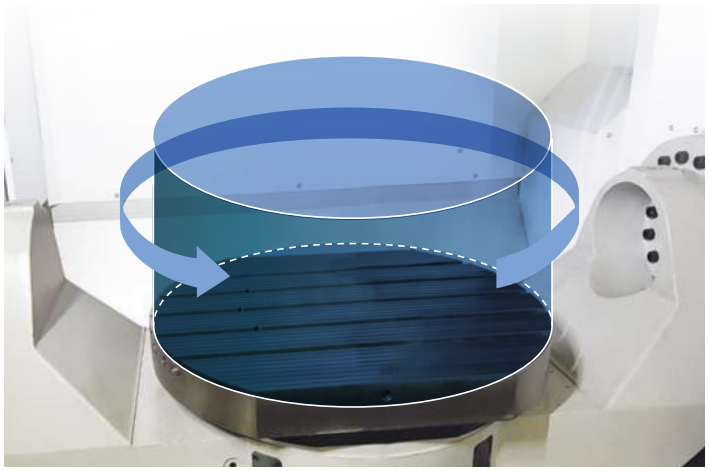
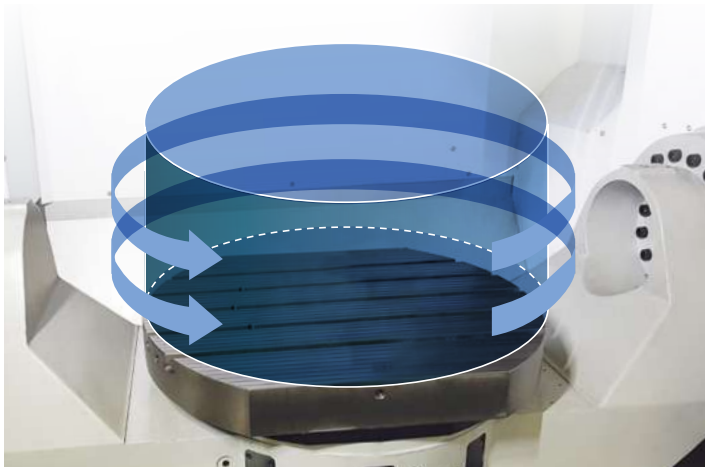


TABLE VARIANTS

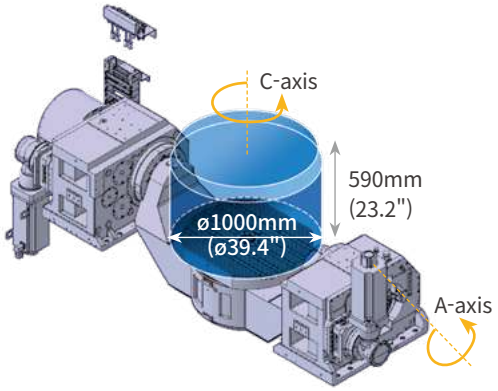
DVF 8000 · 8000T · 8000/50 · 8000T/50





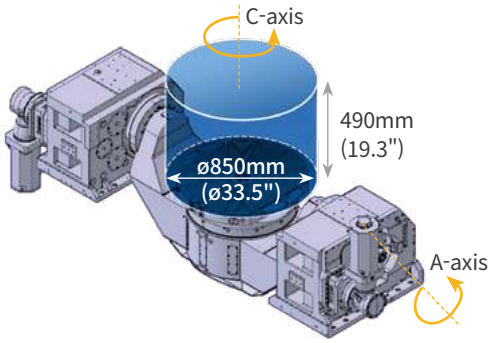
C-axis(Swiveling rotary table) · A-axis(tandem drive)

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



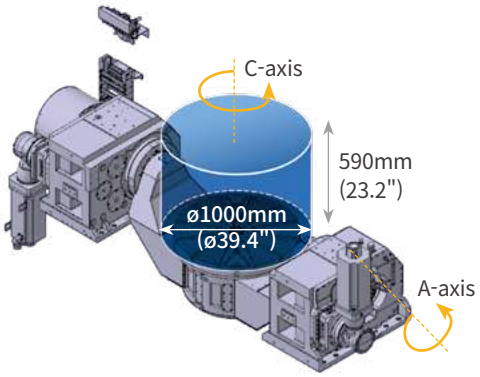
C-axis(Swiveling rotary table) · A-axis(tandem drive for pallet changer)

Description	Unit	Specifications
Table size	mm (inch)	□630 (24.8)
Maximum load	kg (lb)	850 (1873.9) with pallet
Maximum workpiece size	mm (inch)	ø850 X H490 (ø33.5 X H19.3)
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 (5900.5) gear train (tandem)
Rapid (tilting axis)	r/min	25



C-axis(Swiveling rotary table) · A-axis(tandem drive for turning)

Description	Unit	Specifications
Table size	mm (inch)	ø800 (ø31.5)
Maximum load	kg (lb)	700 (1543.2)
Maximum workpiece size	mm (inch)	ø1000 X 590 (ø39.4 X H23.2), APC ø850 X H490 (ø33.5 X H19.3)
Torque (rotating axis)	N·m (ft-lbs)	2120 (1563.6)
Rapid (rotating axis)	r/min	600 (with turning) (direct drive)
Torque (tilting axis)	N·m (ft-lbs)	8000 (5900.5) gear train (tandem)
Rapid (tilting axis)	r/min	25



MAGAZINE SPECIFICATIONS

Servo tool magazine delivers high productivity and reliability.

ISO #40

Tool type

DVF 6500 · 8000
ISO #40

DVF 6500T · 8000T
HSK-T63

Tool capacity

40, 60, 120

Maximum tool diameter

Contiuous
75 mm
(3.0 inch)

W/O Adjacent
125 mm
(4.9 inch)

Maximum tool length
300 mm
(12.6 inch)

Maximum tool weight
8 kg
(17.6 lbs)

Tool-to-tool

DVF 6500
1.0 sec

DVF 6500T · 8000 · 8000T
1.3 sec

40 tools



120 tools



ISO #50

Tool type

DVF 8000
ISO #50

DVF 8000T
HSK-T100

Tool capacity

40, 60

Maximum tool diameter

Contiuous
125 mm
(4.9 inch)

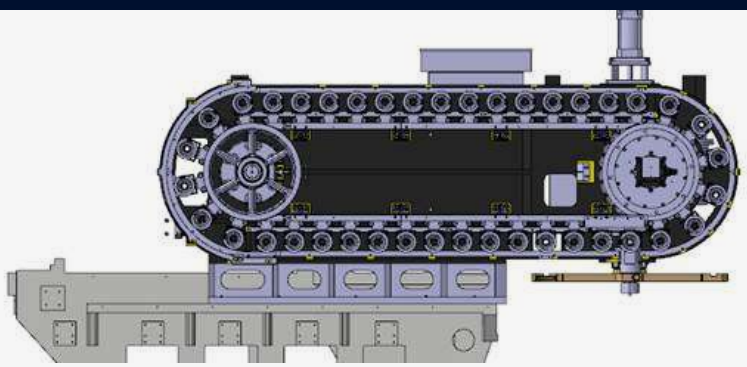
W/O Adjacent
220 mm
(8.7 inch)

Maximum tool length
320 mm (12.6 inch)

Maximum tool weight
15 kg (33.1 lbs)

Tool-to-tool
2.5 sec

40 tools



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

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



ROUND MAGAZINE

High capacity tool handling system for VMC with improved space efficiency and tool change time.

Features

- Optimized solution for high capacity vertical tool storage and handling
- Multiple waiting pots for reducing tool change time
- Up to 5 tools can be taken out and brought in simultaneously
- Easy installation for local environment
- Large touch screen provided
- Servo motor applied to all axis



40 Typ

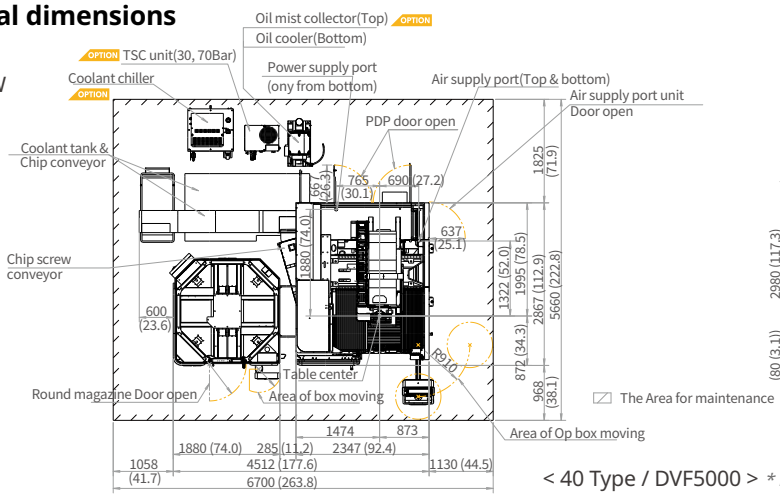


50 Type

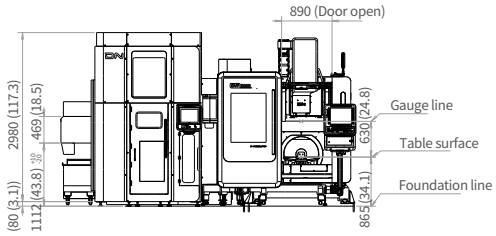
External dimensions

Unit : mm (inch)

TOP VIEW



FRONT VIEW



< 40 Type / DVF5000 > ** Please inquire separately for the 50 Type.*

Machine specifications

Available model			40 Type Tool Magazine DVF4000/5000/6500 2nd(T)/8000 2nd(T)	50 Type Tool Magazine DVF8000 2nd(T)/50/Myn x6500
Max. Tool Diameter		mm (inch)	80 (3.1)(cont.) 125 (4.9) (Adjacen Pots Empty)	125 (4.9) (cont.) 225 (8.9) (Adjacen Pots Empty)
Max. Tool Length		mm (inch)	300 (11.8)	320 (12.6)
Tool Storage Capacity		ea	204/252/300	90/120/150/210/258
Max. Tool Weight		kg (lb)	8 (17.6)	20 (44.1)
Max. Tool Moment		N·m (ft-lbs)	5.88 (4.3)	22 (16.2)
Max. Tool Searching Time		sec	26	30
Pull Out		ea	5	
Waiting Pot		ea	4	
Tool type		-	BT40 / CAT40 / DIN / HSK63A	BT50 / CAT50 / DIN / HSK100A
Tool		-	Verticality	
Structure		-	Round Type	
Control		-	PLC operation (Built-in control)	
Carrier Drlving Mechanism	U-Axis	-	Servo Motor & Rack / Pinion w / LMG	
	V-Axis	-	Servo Motor & Ball Screw w / LMG	
	R-Axis	-	Servo Motor & Gear	
Dimension		mm (inch)	1875 x 2069 (73.8 x 81.5)	2300 x 2300 (90.6 x 90.6)

STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description				DVF 6500	DVF 8000	DVF 6500T	DVF 8000T	DVF 8000/50	DVF 8000T/50
Spindle	12000 r/min (Built-in)			●	●	X	X	X	X
	15000 r/min (Built-in)			X	X	X	X	X	X
	18000 r/min			○	○	●	●	X	X
	20000 r/min			X	X	X	X	X	X
	10000 r/min			X	X	X	X	●	●
Magazine	Tool storage capacity		30 ea	X	X	X	X	X	X
			40 ea	●	●	X	X	●	●
			60 ea	○	○	●	●	○	○
			120 ea	○	○	○	○	X	X
	Multi-Level round	#40	175 ea	○	○	○	○	X	X
			204 ea	○	○	○	○	X	X
			252 ea	○	○	○	○	X	X
			300 ea	○	○	○	○	X	X
		#50	120 ea	X	X	X	X	○	○
			150 ea	X	X	X	X	○	○
			210 ea	X	X	X	X	○	○
			258 ea	X	X	X	X	○	○
Tool type (shank)	BIG-PLUS BT40			●	●	X	X	X	X
	BIG-PLUS BT50			X	X	X	X	●	X
	CAT/DIN40/HSK63			○	○	X	X	X	X
	CAT/DIN50/HSK A100			X	X	X	X	○	X
	HSK T63			X	X	●	●	X	X
	HSK T100			X	X	X	X	X	●
Coolant	FLOOD&FLUSHING		2.5kW,0.2MPa	●	●	●	●	●	●
	TSC		4.0kW,2.0MPa,Cyclone filter	○	○	○	○	○	○
			2.9kW,3.0MPa,Cyclone filter	○	○	○	○	○	○
			7.5kW,7.0MPa,Cyclone filter	○	○	○	○	○	○
	OIL SKIMMER			○	○	○	○	○	○
	Coolant level switch			○	○	○	○	○	○
	Coolant chiller			●	●	●	●	●	●
Chip disposal	Chip pan			●	●	●	●	●	●
	Chip conveyor		Hinge+scraper belt type/Left side	X	X	X	X	X	X
			Hinge+scraper belt type/Lear side	○	○	○	○	X	X
			Scraper Drum filter type/Left side	X	X	X	X	X	X
			Scraper Drum filter type/Lear side	○	○	X	X	X	X
			Hinged Drum filter type/Lear side	X	X	○	○	X	X
			CCS II / Scraper Drum	○	○	X	X	X	X
			CCS II / Hinge Drum	X	X	○	○	○	○
	Chip bucket		folklift type, 300L	○	○	○	○	○	○
			Rotation type, 300L	○	○	○	○	○	○
	Paper filter			○	○	○	○	○	○
	Mist collector		Water soluble	○	○	○	○	○	○
			None water soluble	○	○	○	○	○	○
Rotary table	Rotary joint		Hyd. Fixture line thru table center(Max. 4 port)	X	X	○	○	X	○
			Hyd. Fixture line thru table center(Max. 6 port)	○	○	X	X	○	X
	Fixture interface		2AB	X	X	○	○	X	○
			2AB+GAP SENSING(5PORT)	○	○	X	X	○	X
Accuracy	Structure Smart Thermal Control		Spindle	●	●	●	●	●	●
			Structure	●	●	●	●	●	●
	Linear scale		X/Y/Z axis	○	○	○	○	●	●
	Rotary encoder		A/B/C axis	●	●	●	●	●	●
Measurment	IKC-READY		S/W ONLY	●	●	●	●	●	●
			RENISHAW (RMI-QE)+S/W	○	○	○	○	○	○
			HEIDENHAIN(SE660)+S/W	○	○	○	○	○	○
			BLUM(RC66)+S/W	○	○	○	○	○	○
	Auto tool length measurement	Touch type	NONE	○	○	X	X	○	X
			RTS RENISHAW	○	○	X	X	○	X
			TT460 HEIDENHAIN	○	○	X	X	○	X
			ZX SPEED BLUM	○	○	X	X	○	X
		Laser type	NC4F RENISHAW	○	○	X	X	○	X
			LC50 BLUM	○	○	X	X	○	X
		HYBRID	NC4F HYBRID RENISHAW	X	X	●	●	X	●
			LC52 BLUM	X	X	○	○	X	○
	Auto workpiece measurement		NONE	●	●	●	●	●	●
			RMP60 RENISHAW	○	○	○	○	○	○
			RMP600 RENISHAW	○	○	○	○	○	○
			TS460 HEIDENHAIN	○	○	○	○	○	○
			TC60 BLUM	○	○	○	○	○	○
	DATUM BALL FOR IKC		NONE	●	●	●	●	●	●
			DATUM BALL D25	○	○	○	○	○	○
	MASTER TOOL		NONE	●	●	X	X	●	X
			MASTER TOOL	○	○	●	●	○	●
Automation	APC		2/4 PALLETS	○	○	○	○	○	○
	DRS		7/14/21 PALLETS	○	○	○	○	○	○
			6/12/18 PALLETS	○	○	○	○	○	○
	LPS			○	○	○	○	○	○
Others	AUTO DOOR		With safety edge	○	○	○	●	○	○
	LED work light			○	○	○	○	○	○
	Signal tower			○	○	○	○	○	○
	Electric cabinet cooling		Fan cooler	●(FANUC)					
			A/C(Air Conditioner)	○(FANUC)/●(HEIDNEHAIN,SIEMENS)					
	EZ WORK			●	●	●	●	●	●
	EZ GUIDE 1			○	○	○	○	○	○
	Automatic power off			○	○	○	○	○	○
	Tool load monitornig			○	○	○	○	○	○
	Air blower			○	○	○	○	○	○
	Air gun			○	○	○	○	○	○
	Coolant gun			○	○	○	○	○	○
Option	BK9			○	○	○	○	○	○
	SPIN WINDOW			○	○	○	○	○	○
	TSC			○	○	○	○	○	○

** Please contact your DN Solutions representative for detailed machine information.*
** When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.*
*** Technical consultation is mandatory for the chilling of non-water soluble coolant*

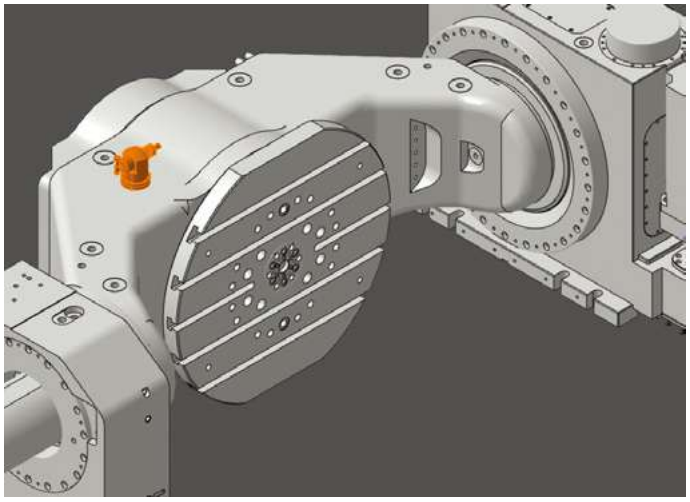
● *Standard* ○ *Optional* X *N/A*

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.

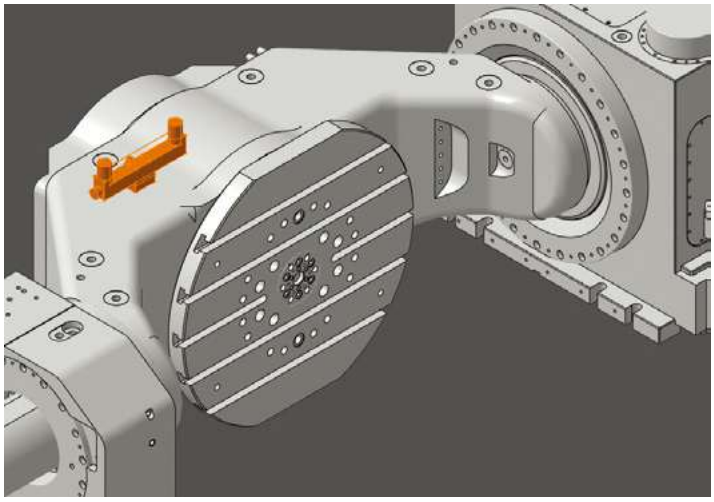
PERIPHERAL EQUIPMENT

Automatic Tool Measurement

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



Rotary body mounting type
RANISHAW RTS
HEIDENHAIN TT460
BLUM ZX SPEED



Rotary body mounting type
Renishaw NC4
Renishaw NC4 HYBRID
BLUM LC50 / BLUM LC52

Touch type

RENISHAW
RTS

HEIDENHAIN
TT460

BLUM
ZX SPEED

Laser type

RENISHAW
DVF 6500/8000
NC4

DVF 6500T/8000T
NC4 HYBRID

BLUM
DVF 6500/8000
LC50

DVF 6500T/8000T
LC52

Intelligent Kinematic Compensation for 5-axis

For high-accuracy 5-axis machining, the Intelligent Kinematic Compensation function is recommended. This function minimizes errors in complex 5-axi s 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 Recommended Option



Datum Ball Recommended Option



Option Auto Tool Measurment Recommended Option



Master Tool Recommended Option



AUTOMATION SOLUTION

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 pallet system below.

Automatic pallet changer (2-APC, 4-APC)

Adds three pallets to your DVF.





DN Round Storage

Seven pallets on three levels for a total of 21 pallets. Includes cell controller.





Pallet System (Linear)

1cell (APC + Pallet System (Linear)), can be expanded by adding more pallets, plus loading stations and more machine interfaces. Includes cell controller.

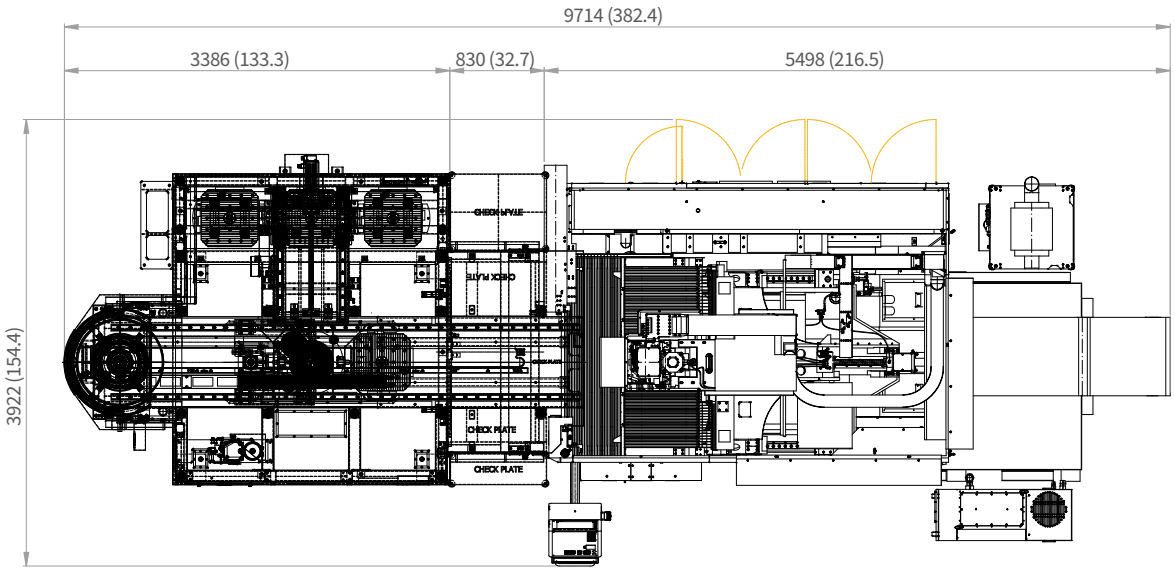


APC | DRS DIMENSIONS

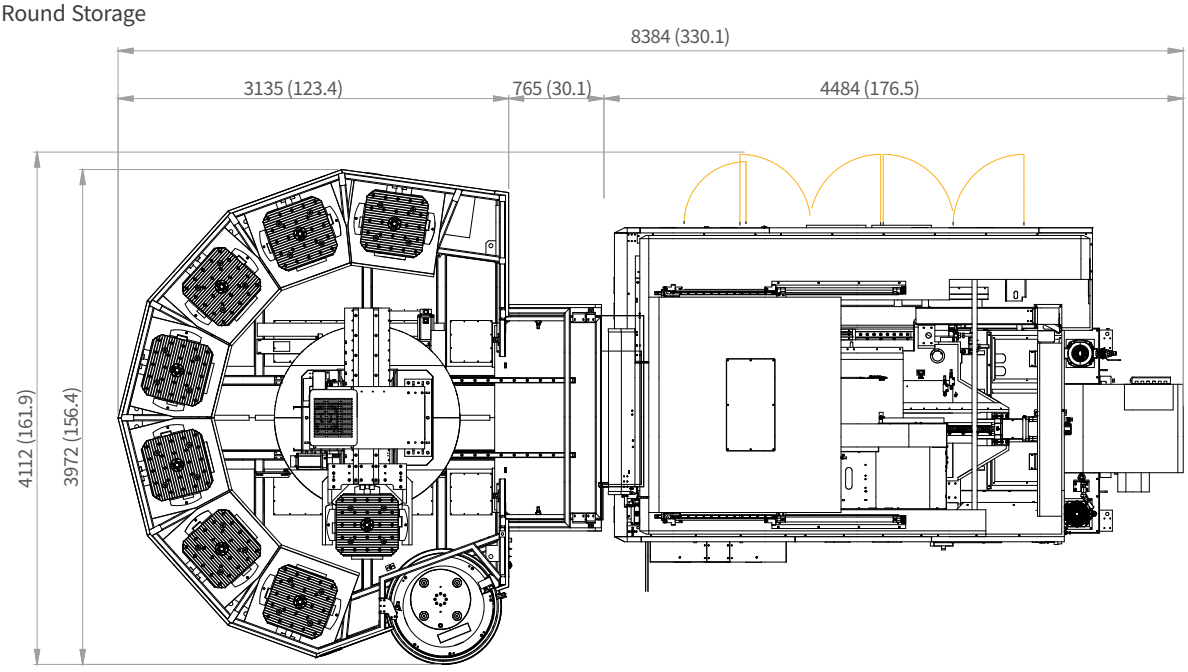
DVF 6500 · 6500T

Units : mm (inch)

4-APC



7/14/21 DN Round Storage



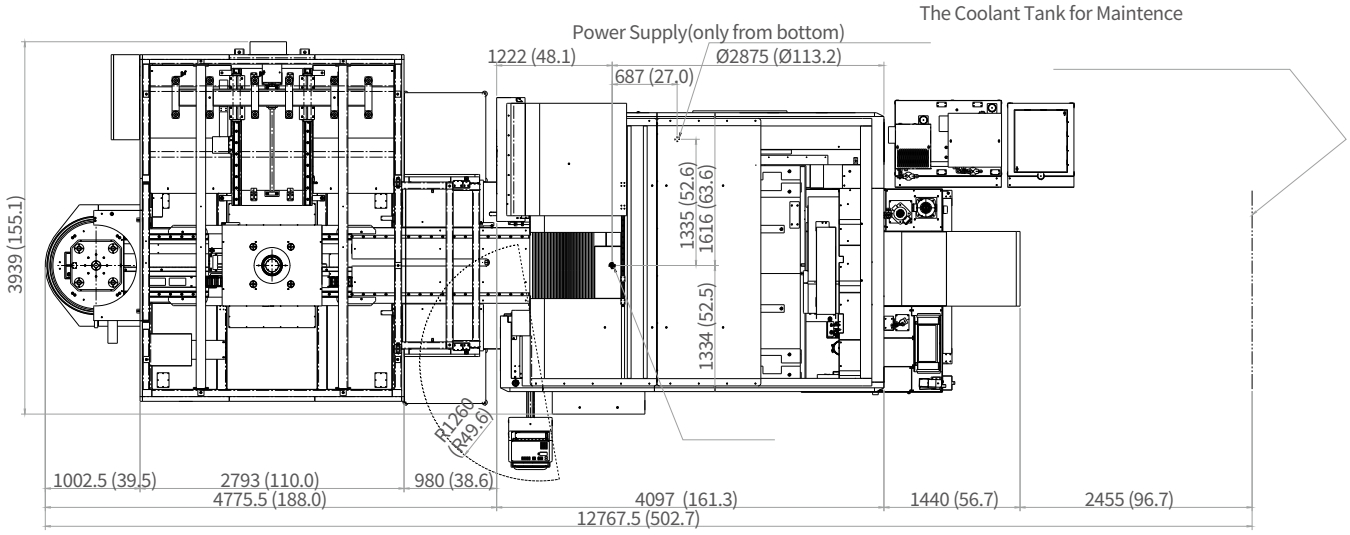
**Some peripheral equipment can be placed in other areas*

APC | DRS DIMENSIONS

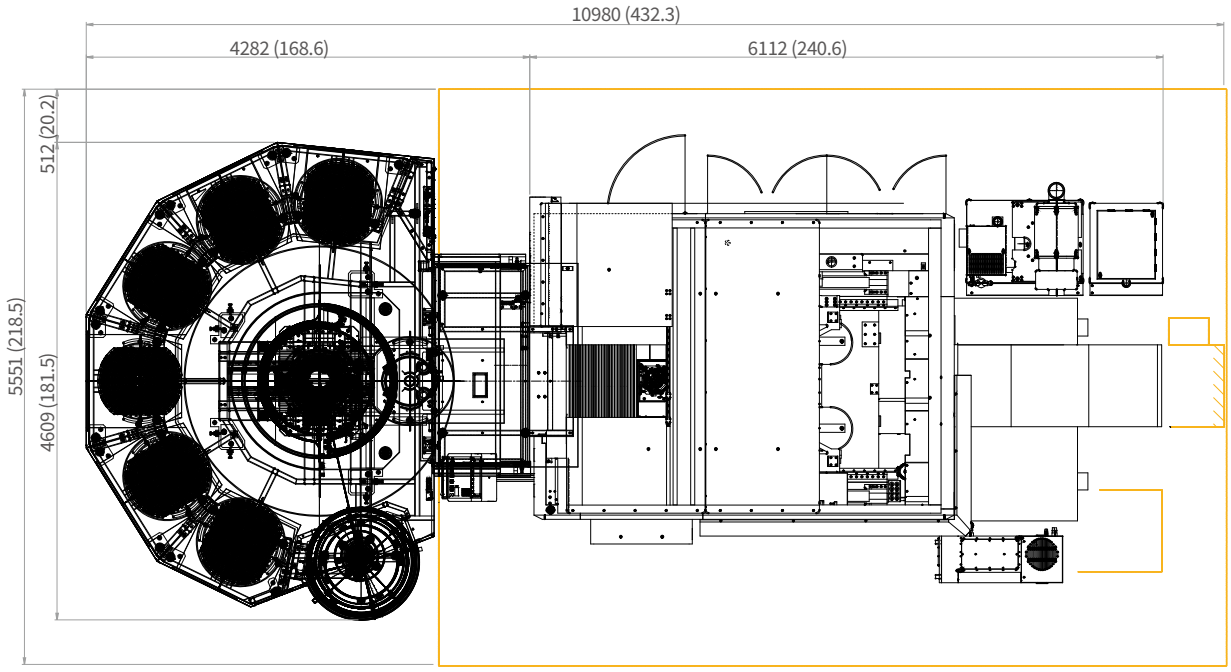
DVF 8000 · 8000T

Units : mm (inch)

4-APC



6/12/18 DN Round Storage



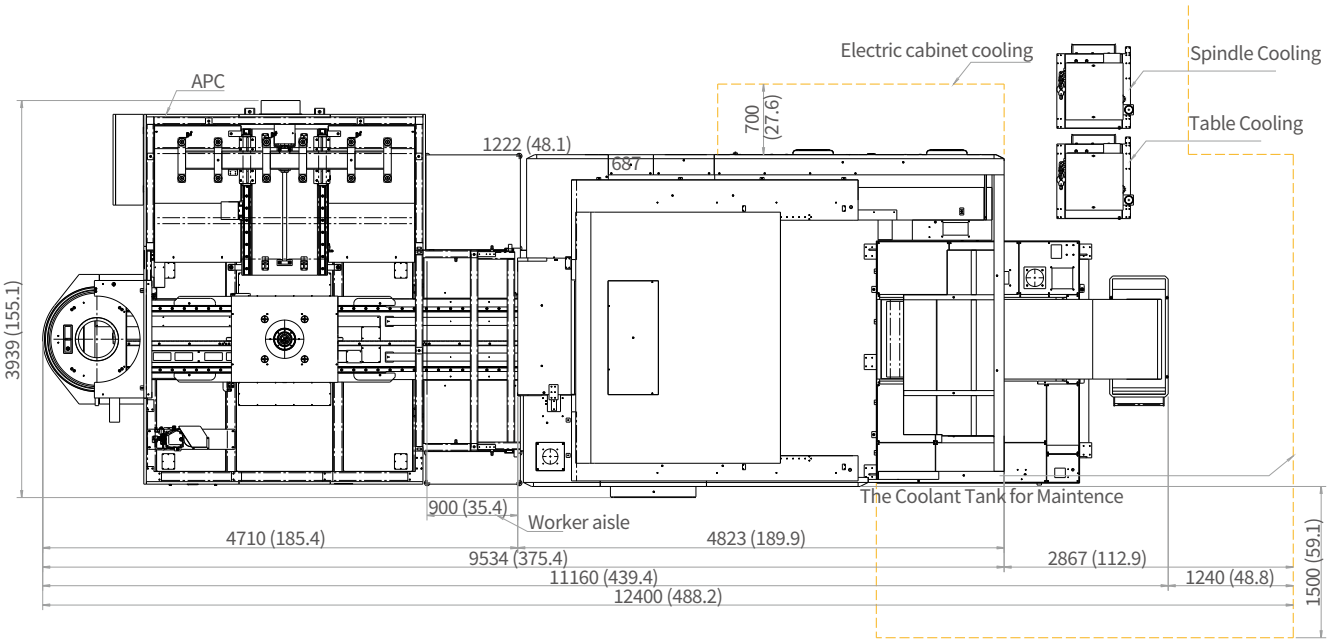
 Some peripheral equipment can be placed in other areas

APC | DRS DIMENSIONS

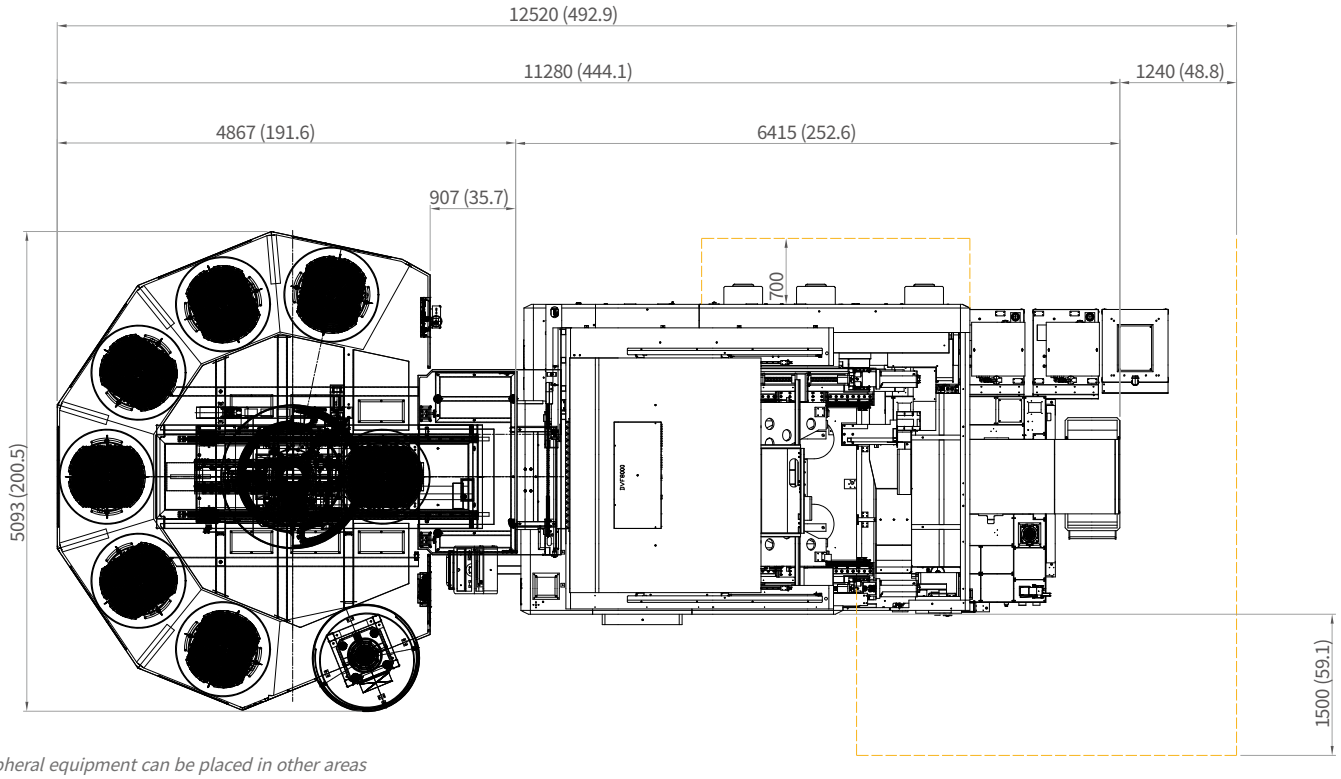
DVF 8000/50 · 8000T/50

Units : mm (inch)

4-APC



6/12/18 DN Round Storage



*Some peripheral equipment can be placed in other areas

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.

FEATURES

19 inch TOUCHSCREEN
- Program memory : 40GB
- App-based Interface like smart phone, tablet PC

EASY PROGRAMMING
- SSD data server : Program file sharing/ managing (CF card/USB/ External PC)

EASY SET-UP/OPERATION
- Tool management for PUMA SMX
- CPS(collision protection system)
- Manual viewer
- File manager & PDF viewer

EASY MAINTENANCE
- Status monitor
- Alarm guidance
- Maintenance manager

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.





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.

Intuitive operation via touch screen

Simple customization is available for specific work environments

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 DN Solutions, to improve overall efficiency and productivity. Using the system's modular construction, each function can be easy integrated with external PC software systems and applications, such as CAM and Tool Data systems.



CUFOS

programming
set up
tool data
machining
maintenance



PC software



Applications



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





Screen captures

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

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 EZ work tool management

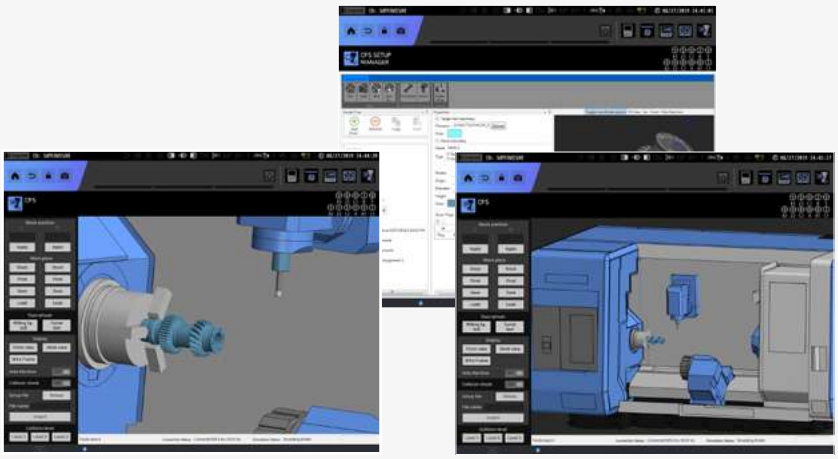




Includes a summary monitoring screen and gives the operator easy access to DN Solutions's own tool management system which provides comprehensive real time data on each tool, such as remaining tool life and status of tool groups.

CPS (Collision protection system)

A function to prevent real-time collision 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 & PDF viewer

Ability to transfer various type of files including CF cards, USB memory, external PCs and memory inside CUFOS, NC programs between NC memory.
PDF drawings can be directly open on the screen via PDF viewer



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 maintenanceschedule 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	16 GB	●
	Storage Memory	SSD 240 GB	●
	2 point-touch panel port		●
	Windows Embedded standard 10 Operating System		●
Applications	DN Solutions Tool Management		X
	Collison Protection System (Note: Incase of using this application, Main Memory 8GB and SSD 64GB are required.)		○
	SSD Data server Application(Note: Incase of using this application, Data server(for Standard CNC) funtion 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 Maintenace Application		●
	Data Logger Application		●
	Servo viewer Application		●

● Standard ○ Optional X N/A

FANUC 31i-B PLUS

FANUC 31i-B 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-B Plus

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

USB and PCMCIA card QWERTY keyboard

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

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

Description		Features	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		●
	iHMI with machining cycle	Note *1) Only with 15" Touch LCD standard	X
	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	●
	Part program storage size & number of registerable programs	10240M(4MB)_1000 programs	●
		20480M(8MB)_1000 programs	○
		2560M(1MB)_2000 programs	○
		5120M(2MB)_4000 programs	○
		10240M(4MB)_4000 programs	○
		20480M(8MB)_4000 programs	○

*Note *2) CUFOS specification have 19" color LCD with Touch Panel*

● 표준 ○ 선택 시방 X 해당 없음 ✪ Available

CONVENIENT OPERATION

FANUC 31i-B Plus

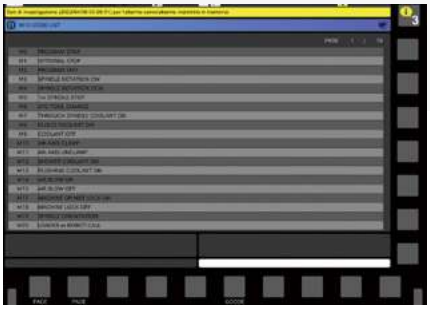
EZ WORK function

Tool load monitoring, Setup guide, Status monitoring, Operation and Recovery guide can provide more convenience and efficiency incresing for user operation.



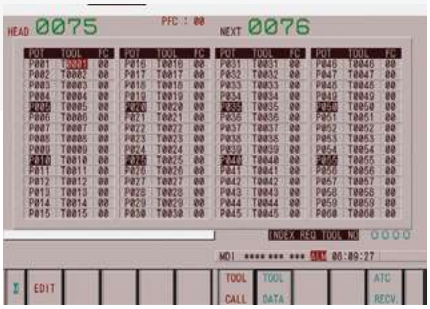
Thermal Compensation

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 therst time, manual) / Tool name]



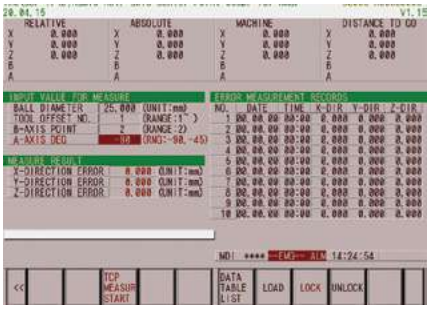
Operation Rate

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



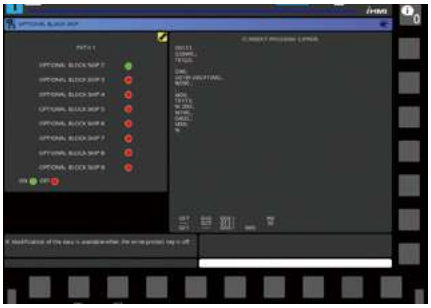
Spindle Warm Up

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

SIEMENS SINUMERIK ONE

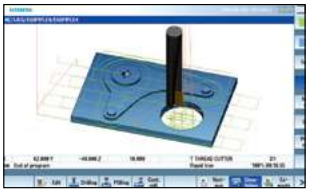


Even Faster & Easier processing + 21.5" screen

All programming, set-up, actual machining and verification process are getting easier and faster. Especially, intuitive conversational programming guidance with 3D UI(user interface) on 21.5" large touch screen is helpful for unskilled engineers.

- 21.5 inch touch screen
- 50% improvement in processing speed (compared to S840D)
- Graphic programming
- PLC-based flexible automation/peripheral device expandability

Conversational convenient function



Simulation and machining contour monitoring



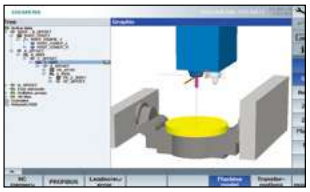
Smart function



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	S-ONE
Controlled axis	Controlled axes		5 axes (X,Y,Z,C,B)
	Simultaneously controlled axes		5 axes
Data input/output	Memory card input/output	(Local drive)	●
	USB memory input/output		●
Interface function	Ethernet	(X130)	●
Operation	Execution from Extenal Storage(EES)		○
	On network drive	(without EES option, Extcall)	●
	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●
Program input	Workpiece coordinate system	G54 - G57	●
	Addition of workpiece coordinate system	G505 - G599	●
Interpolation & Feed function	Top surface		○
	Look ahead number of block		1000
	monitoring for max. tool speed/ acceleration		○
	Top Surface		○
	Top Speed Plus		○
Programming & Editing function	3D simulation, finished part		●
	Simultaneous recording		●
	Measure kinematics		●
	DXF Reader for PC integrated in SINUMERIK Operate		○
Operation Guidance Function	ShopMill		●
	EZ Work		●
Setting and display	Operation via a VNC viewer		●
Network	MTConnect		✪
	OPCUA		○
Others	18.5" color display with touch screen		○
	21.5" color display with touch screen		●
	CNC user memory	10 MB	●
	Max. CNC user memory	28 MB	○
	Collision avoidance (machine, working area)		○
	Collision avoidance ECO (machine, working area)		●
	Evaluation of internal drive		○
	CNC user memory extend		○
	TOOL ID		○
	PMM		○

● *Standard* ○ *Optional* *X N/A* ✪ *Available*

CONVENIENT OPERATION

HEIDENHAIN TNC640

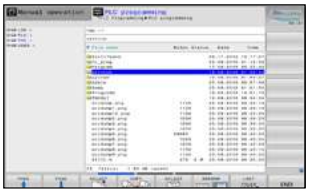


Superior hardware specifications

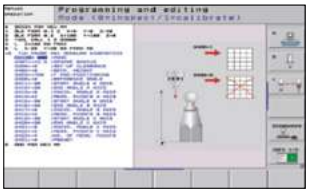
The TNC 640 features optimized motion control, short block processing times and special control strategies. Together with its uniform digital design and its integrated digital drive control (including inverters), it enables you to achieve high machining speeds and the best possible contour accuracy.

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

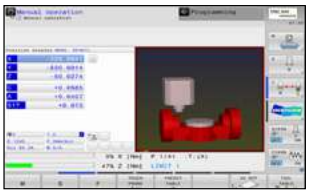
Conversational convenient function



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



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



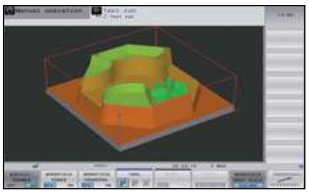
Collision protection system OPTION



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

● Standard ○ Optional X N/A ✪ Available

POWER | TORQUE

FANUC

DVF 6500, 8000

Max. spindle speed

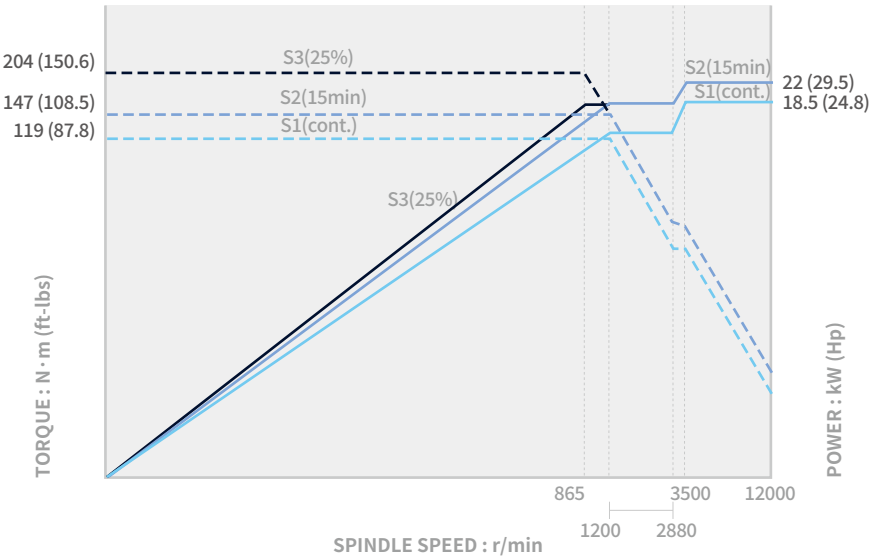
12000 r/min

Max. spindle motor power

22/18.5 kW
29.5/24.8 hp

Max. spindle torque

204 N·m
150.6 ft-lbs



DVF 6500, 8000 OPTION
DVF 6500T, 8000T

Max. spindle speed

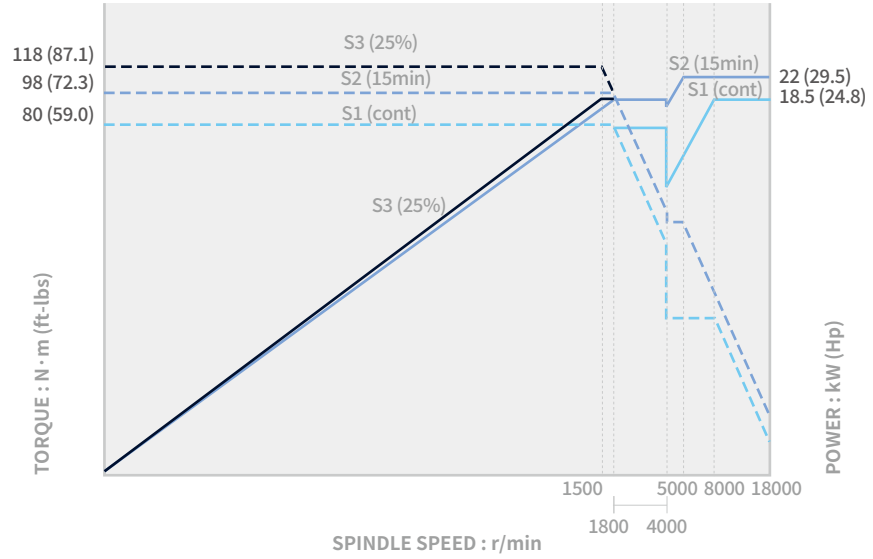
18000 r/min

Max. spindle motor power

22/18.5 kW
29.5/24.8 hp

Max. spindle torque

118 N·m
87.1 ft-lbs



DVF 8000/50, 8000T/50

Max. spindle speed

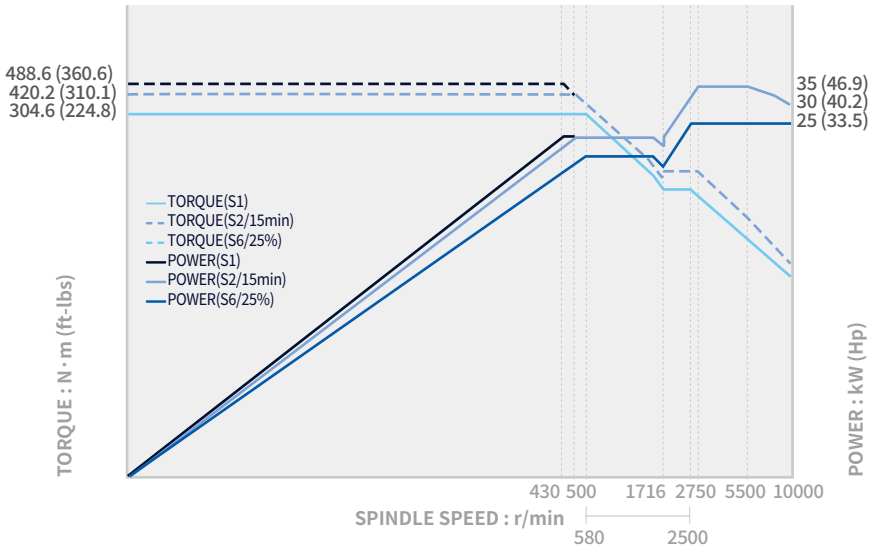
10000 r/min

Max. spindle motor power

35/25 kW
46.9/33.5 hp

Max. spindle torque

488 N·m
360.1 ft-lbs



POWER | TORQUE

HEI DENHAIN • SIEMENS

DVF 6500, 8000

Max. spindle speed

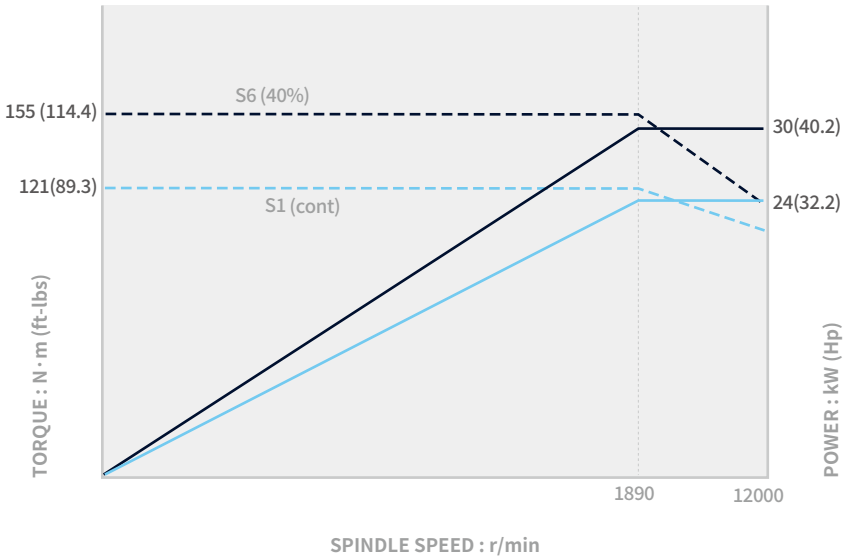
12000 r/min

Max. spindle motor power

30/24 kW
40.2/32.2 hp

Max. spindle torque

155 N·m
150.6 ft-lbs



DVF 6500, 8000 OPTION
DVF 6500T, 8000T

Max. spindle speed

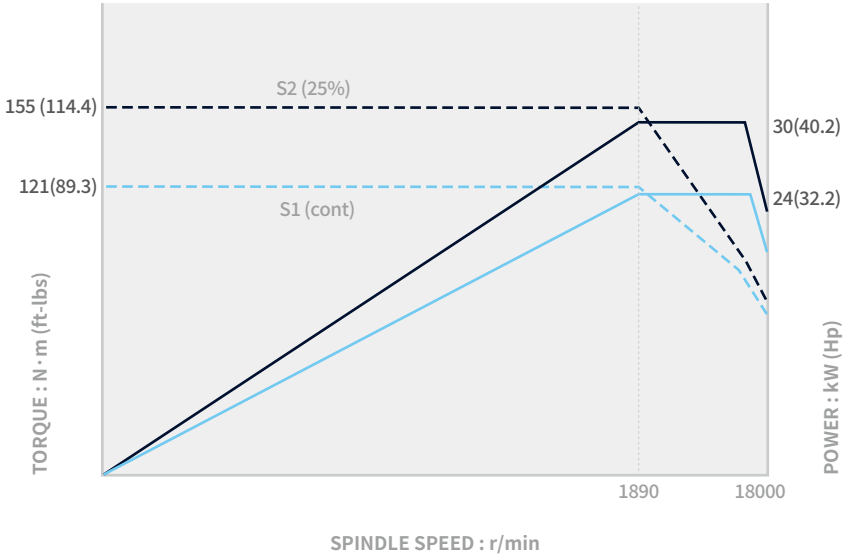
18000 r/min

Max. spindle motor power

30/24 kW
40.2/32.2 hp

Max. spindle torque

155 N·m
150.6 ft-lbs



DVF 8000/50, 8000T/50

Max. spindle speed

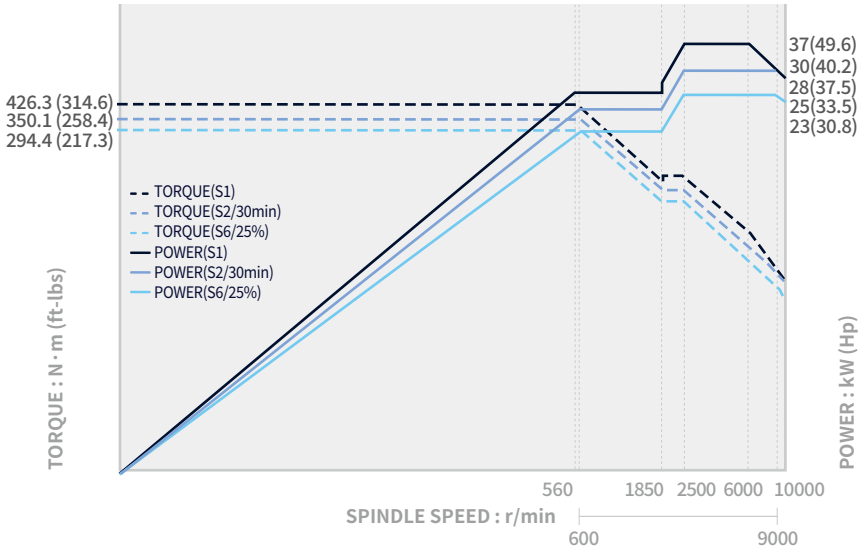
10000 r/min

Max. spindle motor power

37/25 kW
49.6/33.5 hp

Max. spindle torque

426 N·m
314.6 ft-lbs

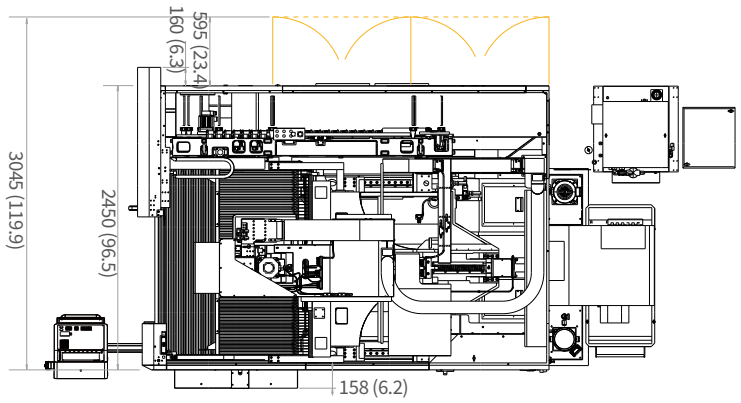


EXTERNAL DIMENSIONS

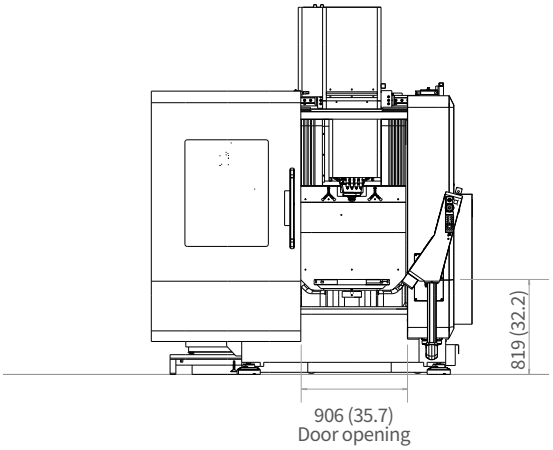
DVF 6500 · 6500T

Units : mm (inch)

DVF 6500

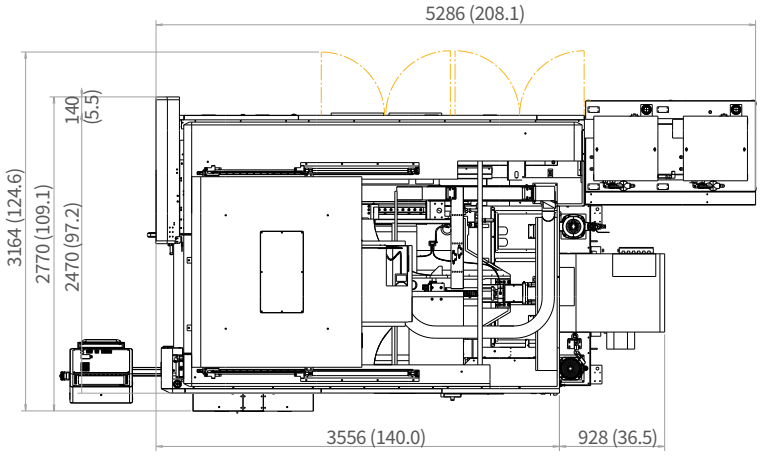


TOP

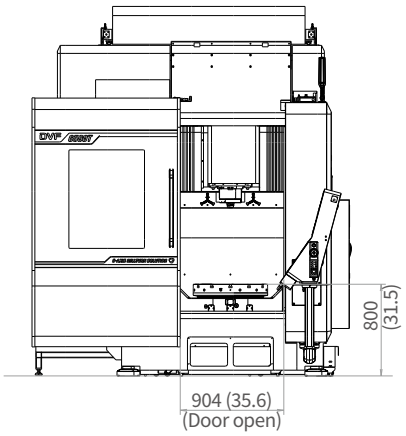


FRONT

DVF 6500T



TOP



FRONT

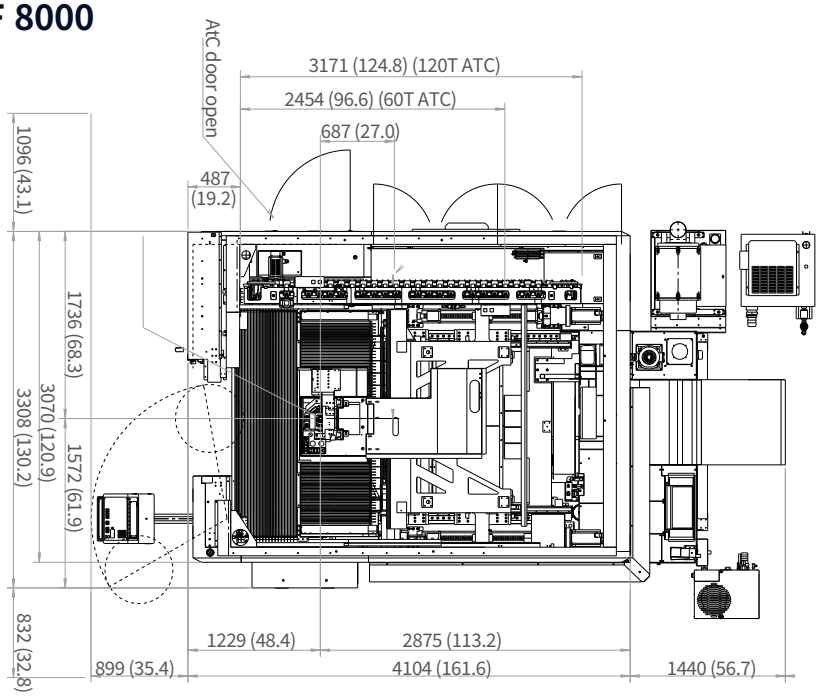
 **Some peripheral equipment can be placed in other areas*

EXTERNAL DIMENSIONS

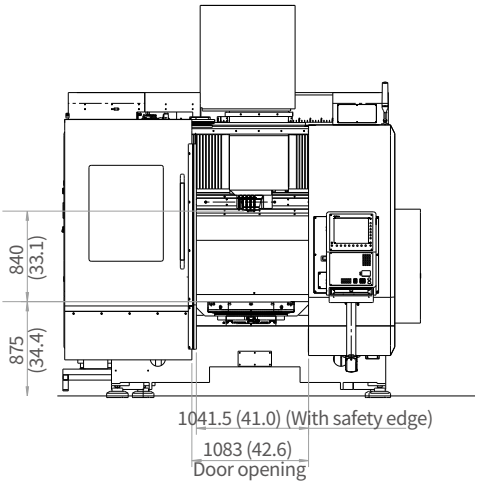
DVF 8000 · 8000T

Units : mm (inch)

DVF 8000

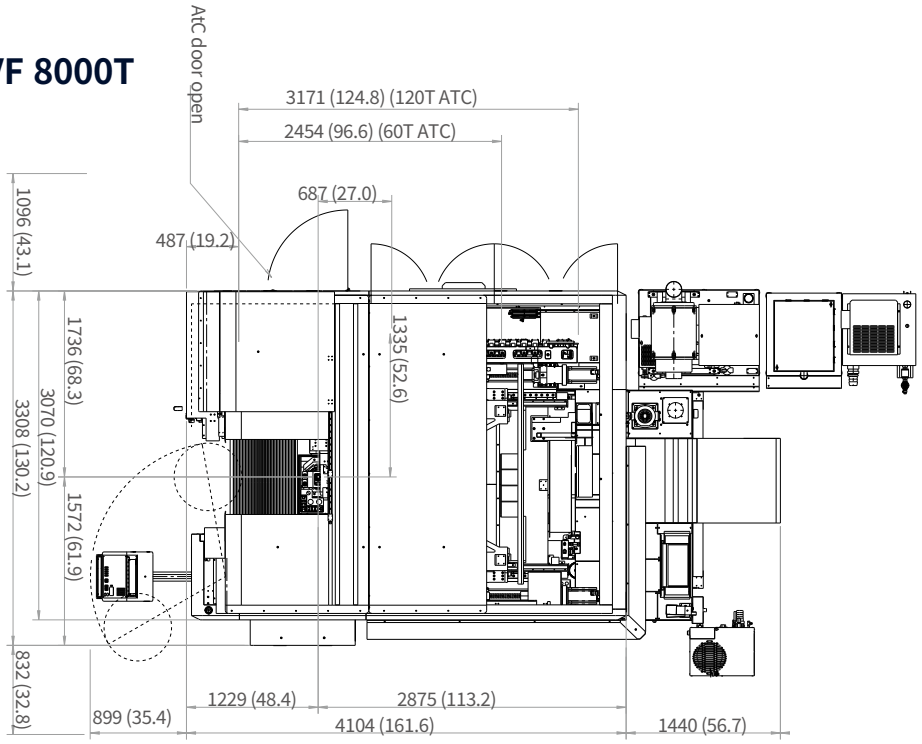


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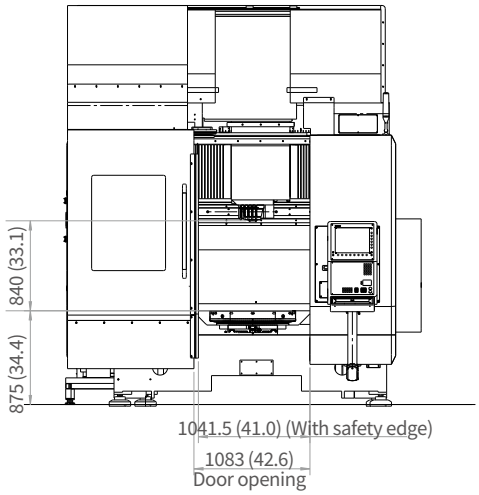


FRONT

DVF 8000T



TOP



FRONT

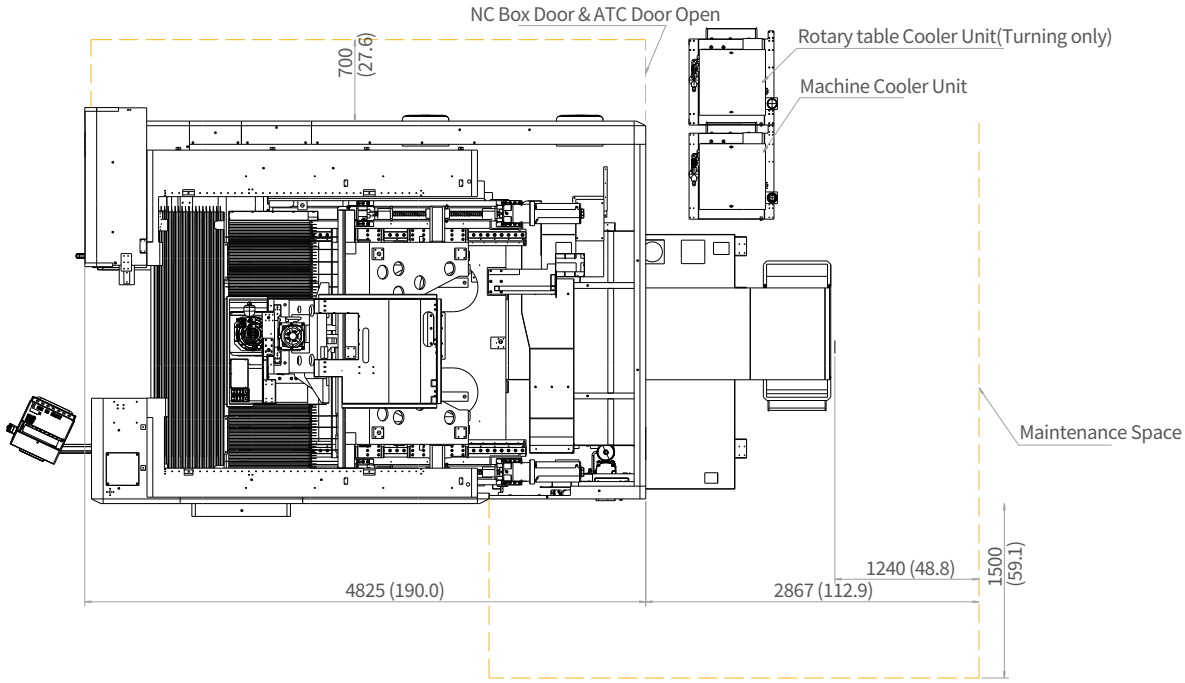
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EXTERNAL DIMENSIONS

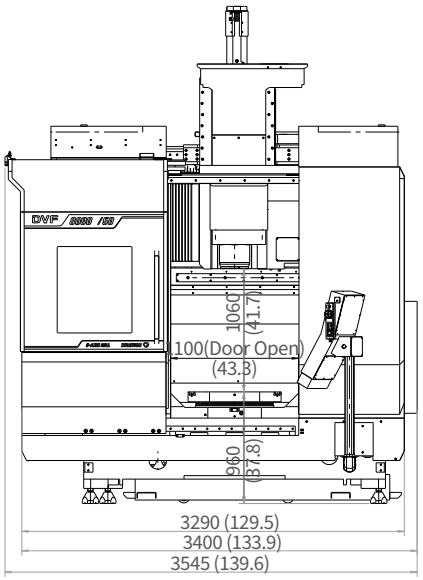
DVF 8000/50 · DVF 8000T/50

Units : mm (inch)

DVF 8000/50, DVF 8000T/50



TOP



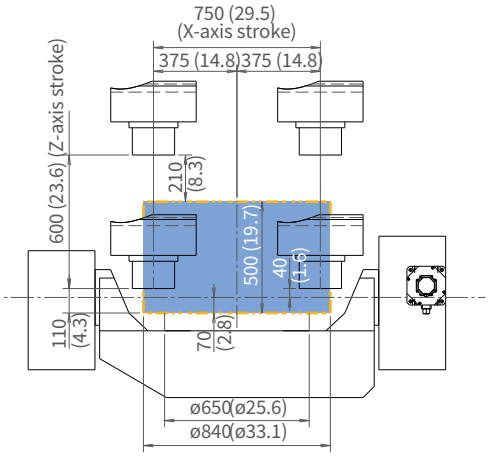
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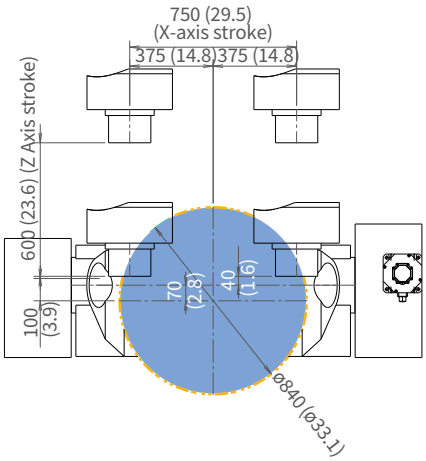
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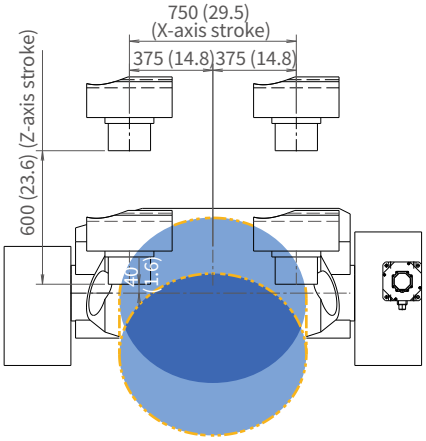
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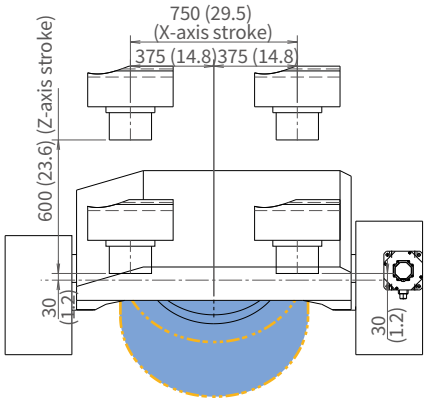
DVF 6500 · 6500T

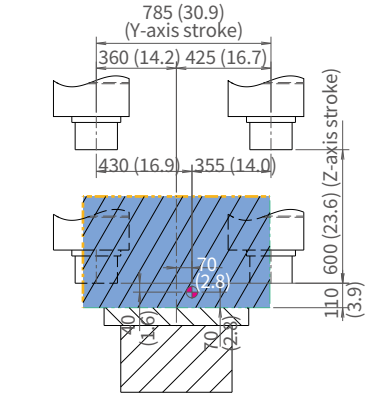
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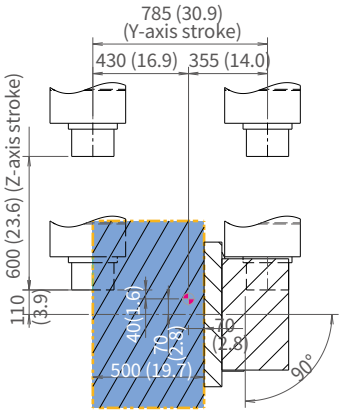


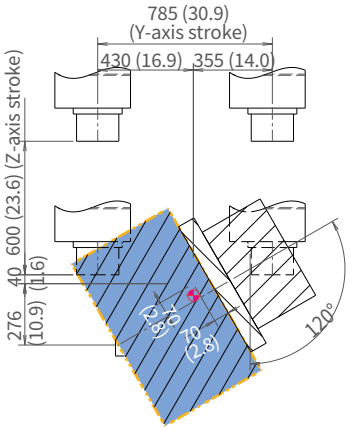


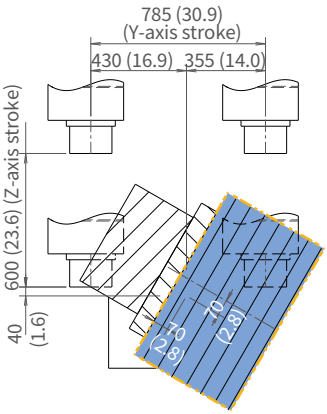










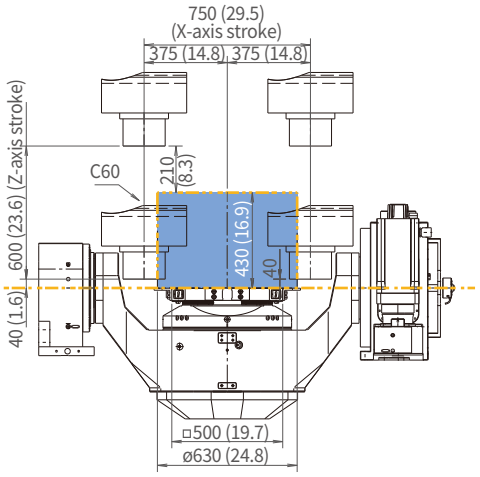


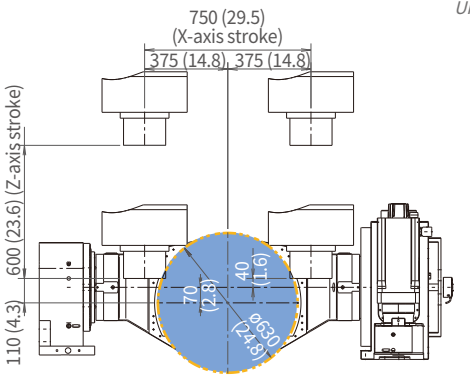
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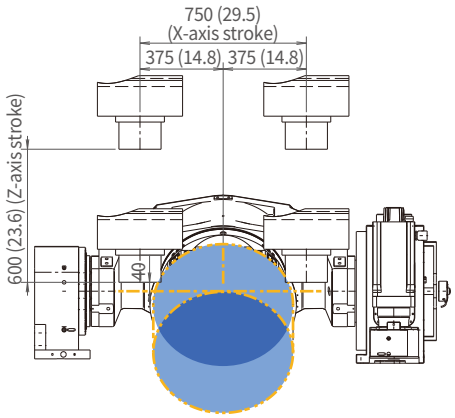
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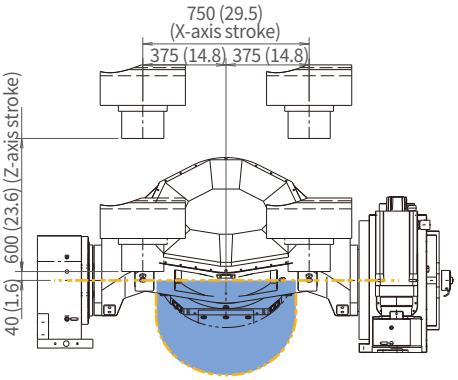
DVF 6500 · 6500T (APC)

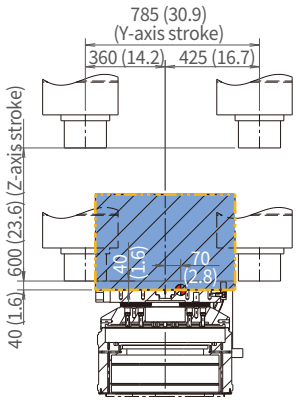
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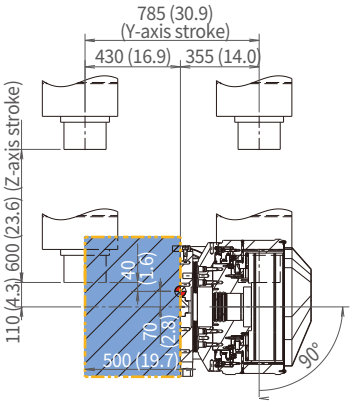


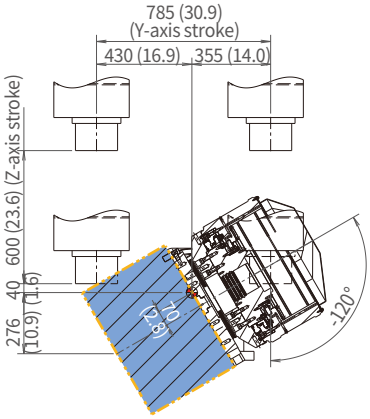


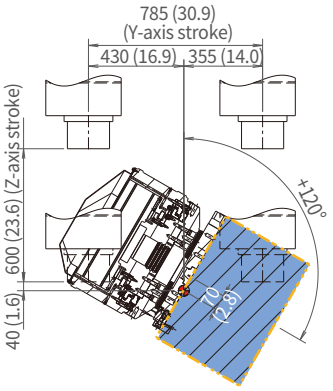










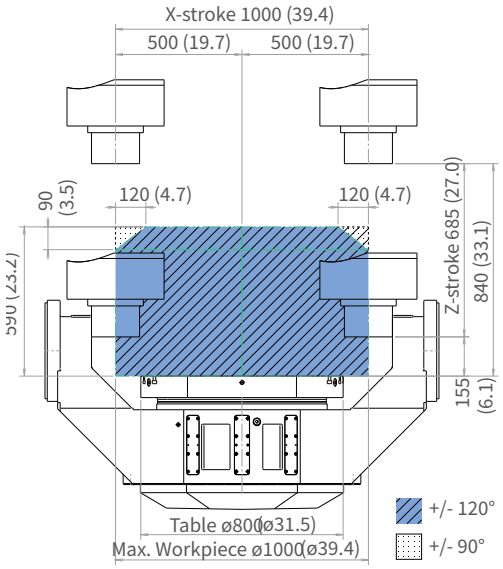


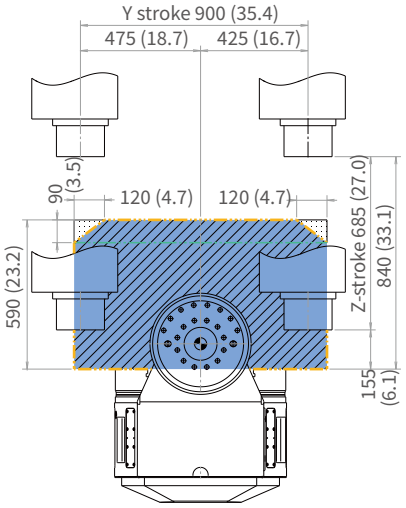
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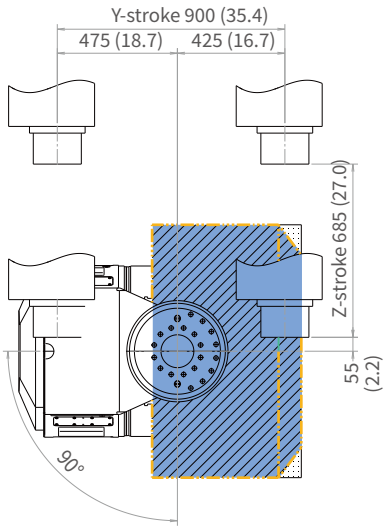
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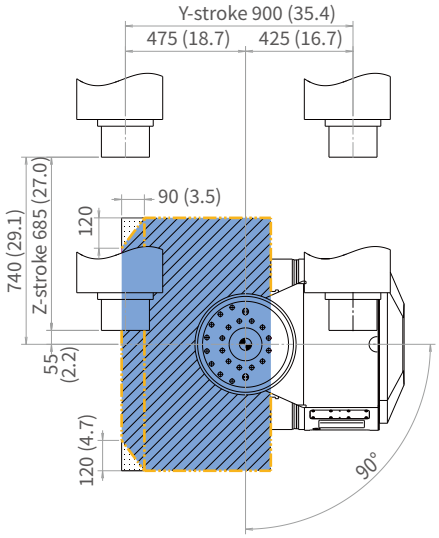
DVF 8000 · 8000T

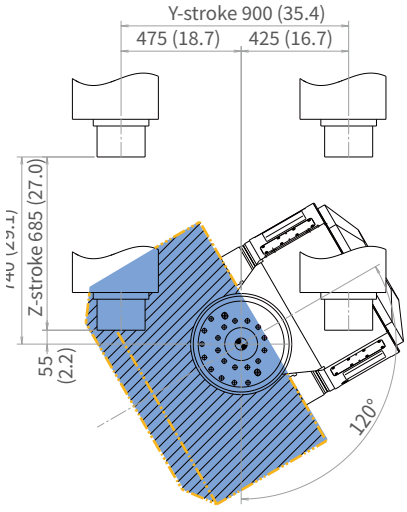
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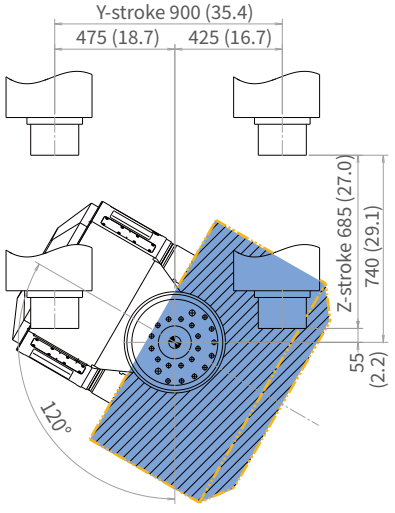










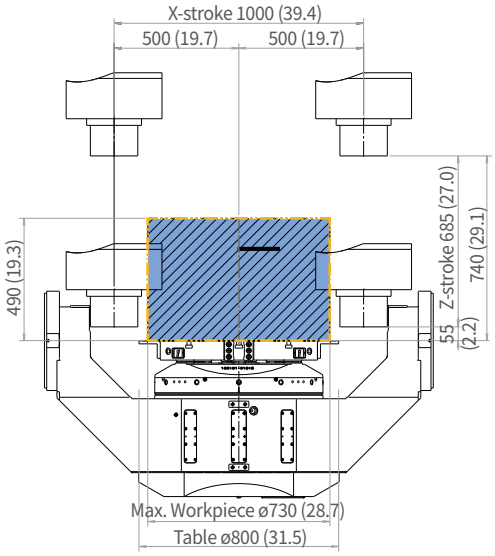


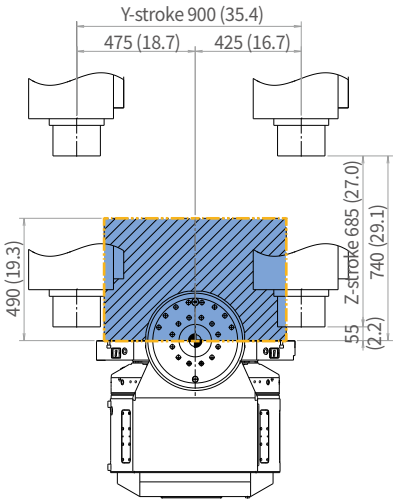
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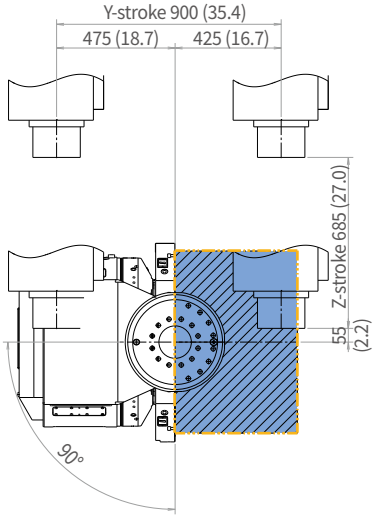
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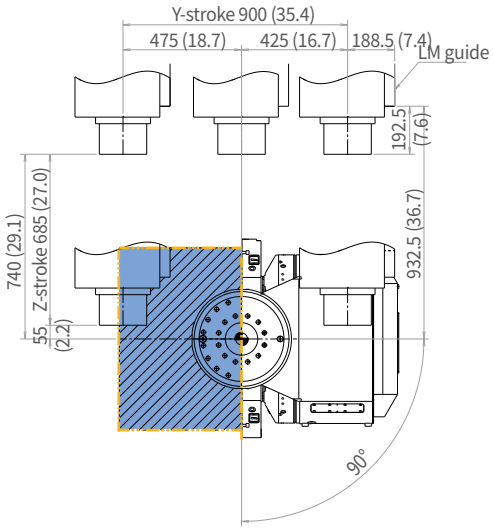
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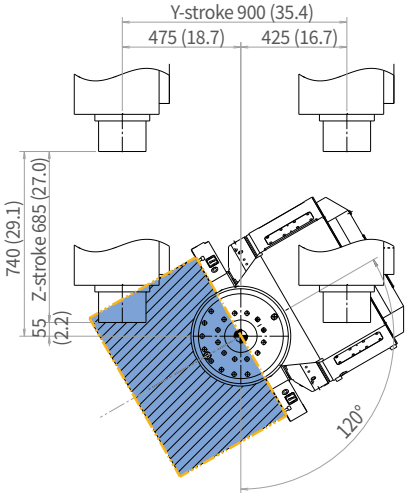
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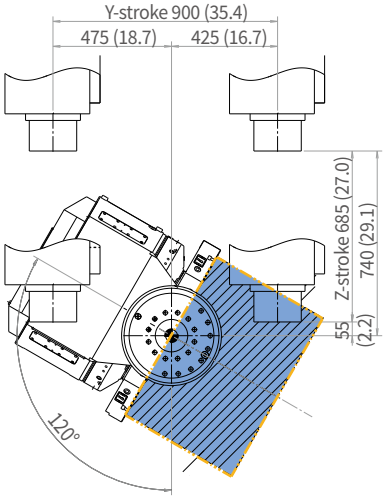










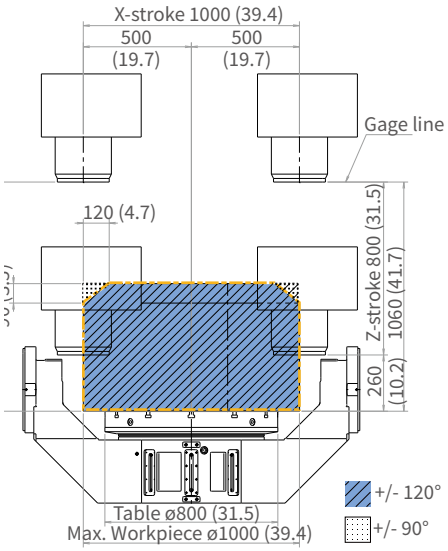


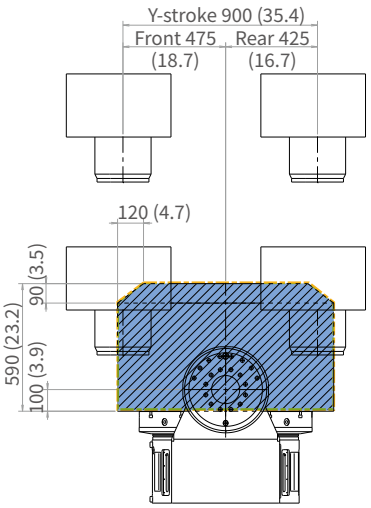
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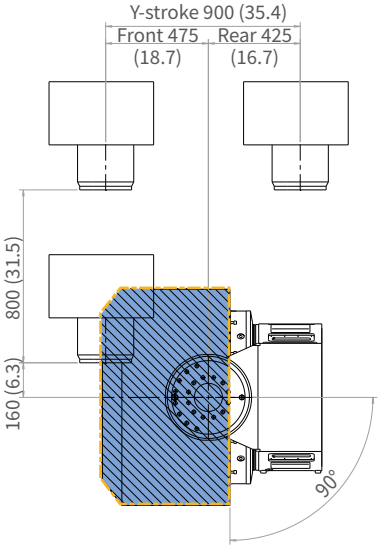
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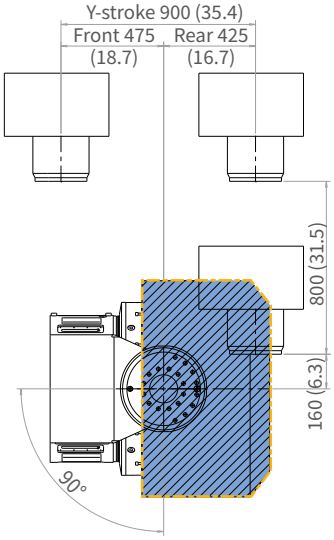
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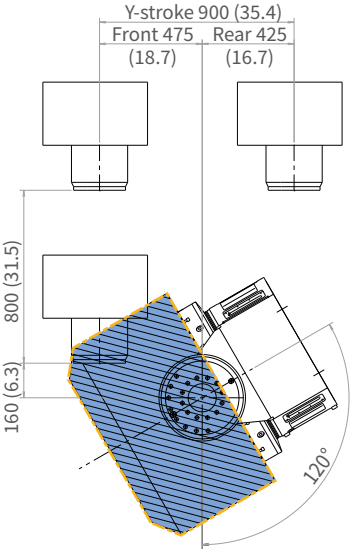
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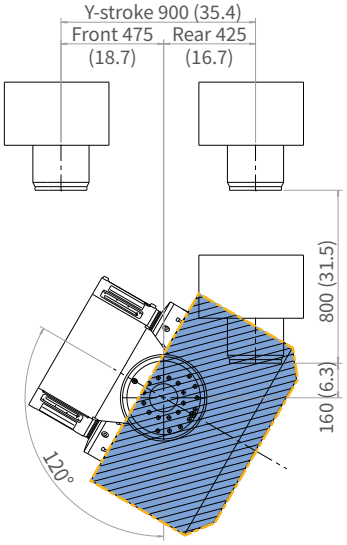










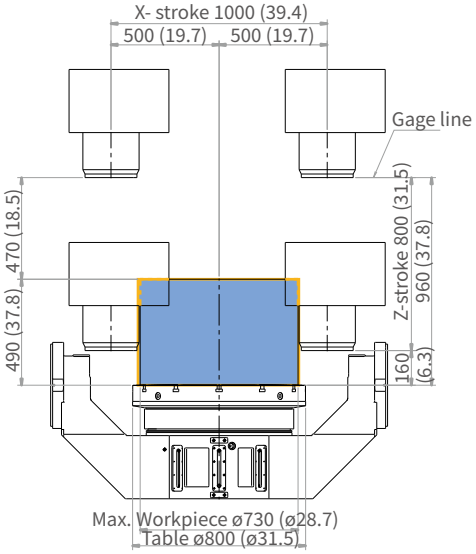


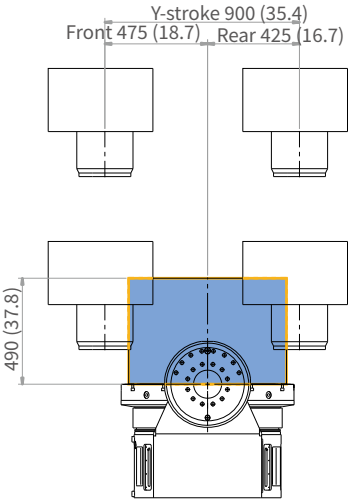
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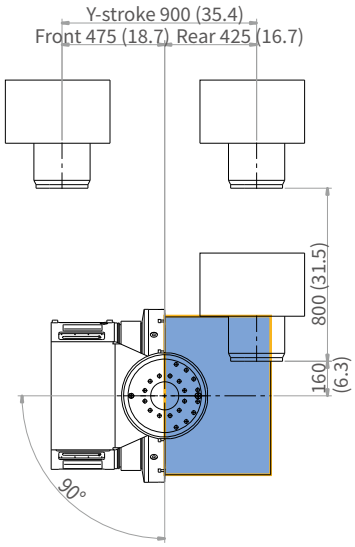
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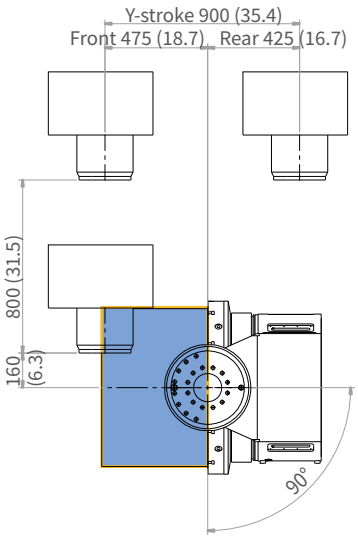
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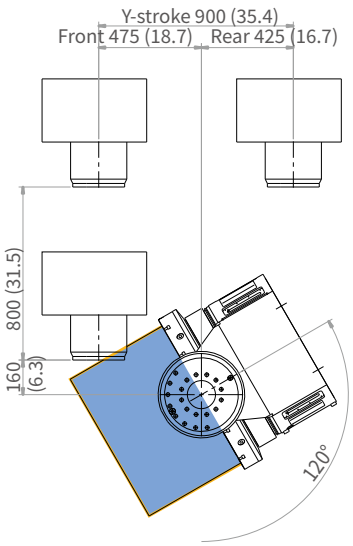
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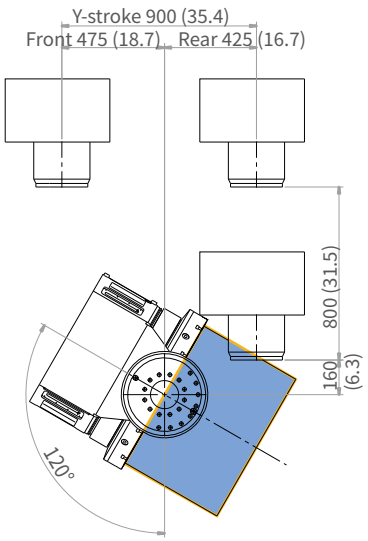












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MACHINE SPECIFICATIONS

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 (ø25.6)	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: 1000) (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 (46.9/33.5)	
		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 {60,120}	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/TNC 7, SIEMENS/Sinumerik One, FANUC 31iB5 Plus					

{ } : Option

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** For more details, please contact DN Solutions.*
** Specifications and information contained within this catalogue may be changed without prior notice.*

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