

**NEW** COMPACT, SIMULTANEOUS 5-AXIS MACHINING CENTER  
FOR HIGH-SPEED MACHINING

# **DVF 5000** 2nd Gen.



# NEW **DVF 5000** 2nd Gen.

DVF 5000<sup>2nd</sup> generation provides significantly improved accuracy and higher productivity for simultaneous 5 axis machining compared to the previous model. The machine has stable bed structure/units and the top level cooling system for long-term base high accuracy condition. Its integrated automation, AWC(Auto Workpiece Changer) and Round Magazine provide "easy to make" automation solutions and enable to accelerate customer return on investment.

From small high precision medical parts to medium-sized automobile, aerospace and semiconductor parts, it is possible to cover various applications for both AL die-cast high-speed light cutting and titanium, inconel, Co-Cr difficult-to-cut machining with DVF's high rigidity, high speed spindle and rigid column/table structure.

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**FAST & PRECISE 5-AXIS  
EXCEEDS EXPECTATIONS**



- 15000, 20000 r/min high speed spindle
- Tool change time(C-T-C) 3.8s, 28% faster than previous model
- Increased X/Y/Z-axis rapid traverse speed & acc./dec.
- Cooling functions as std. on spindle, motor/LM guide/ball screw(X/Y/Z), C-axis table motor
- Integrated thermal compensation systems for spindle and structure

**FURTHER INCREASED  
MACHINING CAPACITY**



- Ø630mm dia. 2-axis tilting table, 26% increased compared to previous model
- Max. Ø600 x H500mm machining area, 32% increased compared to previous model
- Max. 400kg table load capacity with stable table support structure
- X/Y/Z axis travel distance 650/520/480mm, up to 20% increased compared to previous model

**EASY ACCESS,  
EASIER OPERATION**



- Easy setup of workpieces with 580mm distance between operator and table center
- Easy tool exchange by placing the tool magazine door on the front and applying a tool removal device (Auto Kicking Device)
- Improved chip disposal capability with enhanced coolant flood & flushing functions
- Grease lubrication system
- Compact integrated automation system(AWC)



# BASIC STRUCTURE

Roller LM guideways on X/Y/Z axes and 0.001 deg. High accuracy B/C axis get higher accuracy and structural stability.

## Table size

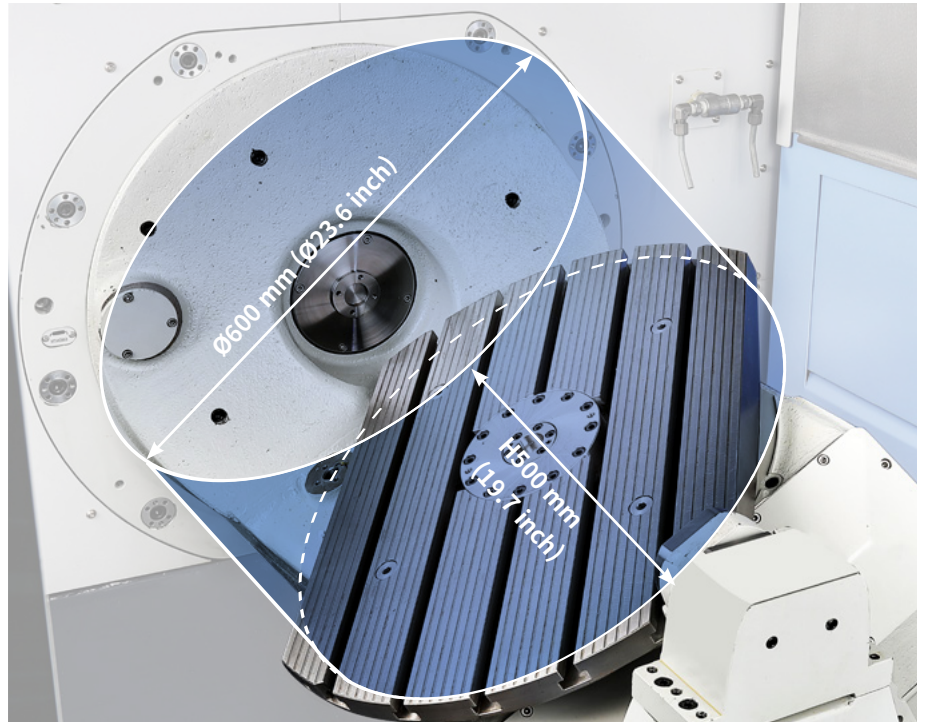
**Ø630 x 450** mm  
(ø24.8 inch x 17.7 inch)

## Maximum workpiece size

**Ø600 x 500** mm  
(ø23.6 inch x 19.7 inch)

## Maximum workpiece weight

**400** kg  
(881.8 lbs)



## Travel distance

X/Y/Z  
**650 / 520 / 480** mm  
(25.6/20.5/18.9 inch)

## B/C

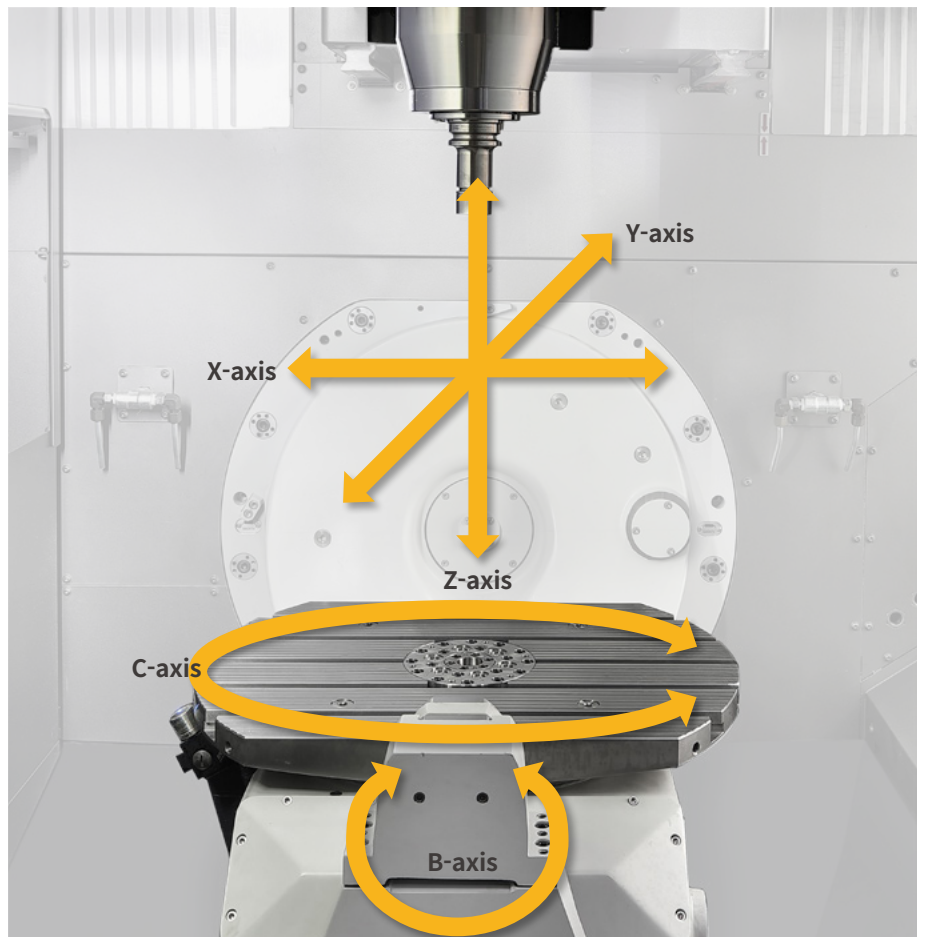
**140**(-30~+110) / **360** deg

## Rapid traverse rate

X/Y/Z  
**42 / 42 / 42** m/min  
(1653.5/1653.5/1653.5 ipm)

## B/C

**25 / 25** r/min



# SPINDLE SPECIFICATIONS

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

- Oil cooling spindle thermal compensation as standard
- Tool clamp confirmation sensor
- FANUC, HEIDENHAIN, SIEMENS controls

**15000 r/min, Direct-coupled**

**18.5 kW / 118 N·m**  
(24.8 Hp / 87.1 ft-lbs)

(FANUC)

**17 kW / 108 N·m**  
(22.8 Hp / 79.7 ft-lbs)

(HEIDENHAIN)

**16.5 kW / 79 N·m**  
(22.1 Hp / 58.3 ft-lbs)

(SIEMENS)

**15000 r/min High Torque Built-in**

**30 kW / 230 N·m**  
(40.2 Hp / 169.7 ft-lbs)

(FANUC / HEIDENHAIN / SIEMENS)

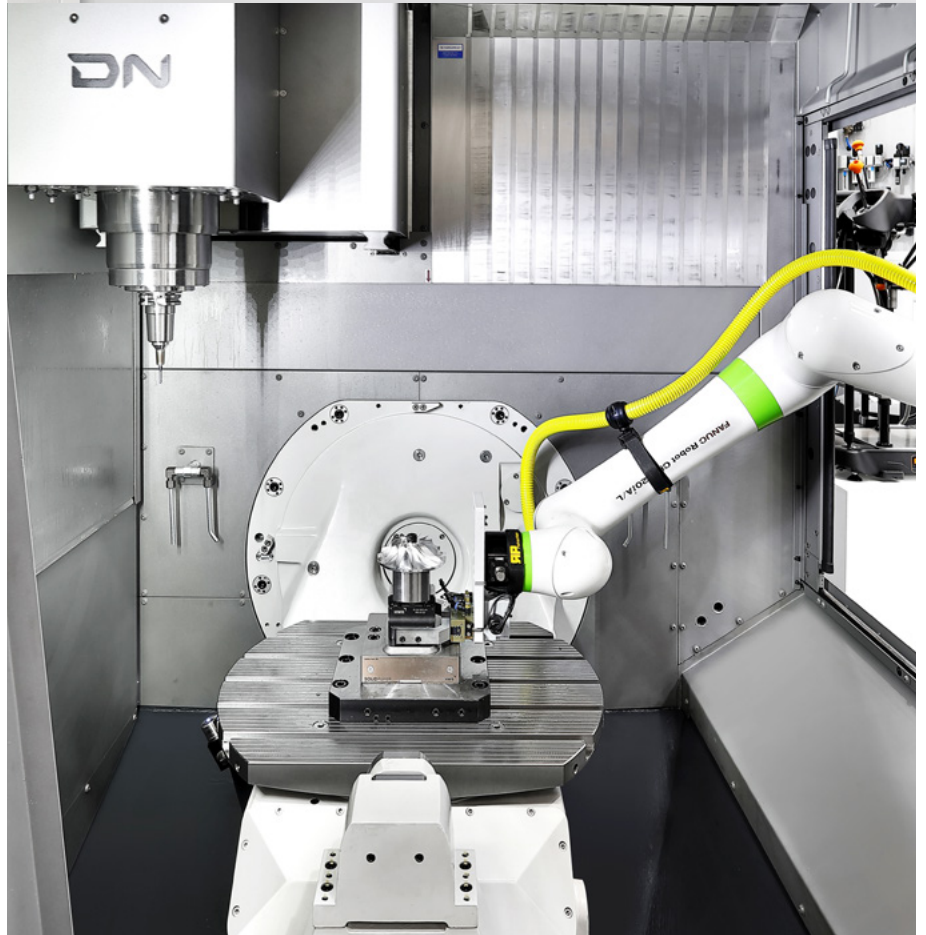
**20000 r/min, High Speed Built-in**

**37 kW / 221 N·m**  
(49.6 Hp / 163.1 ft-lbs)

(FANUC)

**30 kW / 155 N·m**  
(40.2 Hp / 114.4 ft-lbs)

(HEIDENHAIN / SIEMENS)



# MAGAZINE SPECIFICATIONS

Servo tool magazine delivers high productivity and reliability.

**Tool type**  
**ISO #40**

**Tool capacity**

Drum type

**30** {40 OPTION}

Chain type

{60/120 OPTION}

**Maximum tool diameter**

Continuous

**75 mm** (3.0 inch)

W/O Adjacent tools

**125 mm** (4.9 inch)

**Maximum tool length**

**300 mm**  
(11.8 inch)

**Maximum tool weight**

**8 kg** (17.6 lb)

**Tool-to-tool**

T-T-T

**1.3 sec**

C-T-C

**3.8 sec**



Tool magazine door at front side helps easy tooling setup and operation.

**High-capacity tool Handling system for VMC with improved space efficiency and tool change time**

Description		Round tool magazine
Available Model	-	DVF series
Max. Tool Diameter	mm	80(cont.), 125 (Adjacent Pots Empty)
Max. Tool Length	mm	300
Tool Storage Capacity	ea	204/252/300
Max. Tool Weight	kg	8
Max. Tool Moment	N·m	5.88
Max. Tool Searching Time	sec	26
Pull Out	ea	5
Waiting Pot	ea	4
Tool	-	Verticality
Structure	-	Round Type
Control	-	Built-in
Carrier Driving Mechanism	U-Axis	- Servo Motor & Rack / Pinion w / LMG
	V-Axis	- Servo Motor & Ball Screw w / LMG
	R-Axis	- Servo Motor & Gear
Dimension	mm	1875 x 2069



Round tool magazine

**Features**

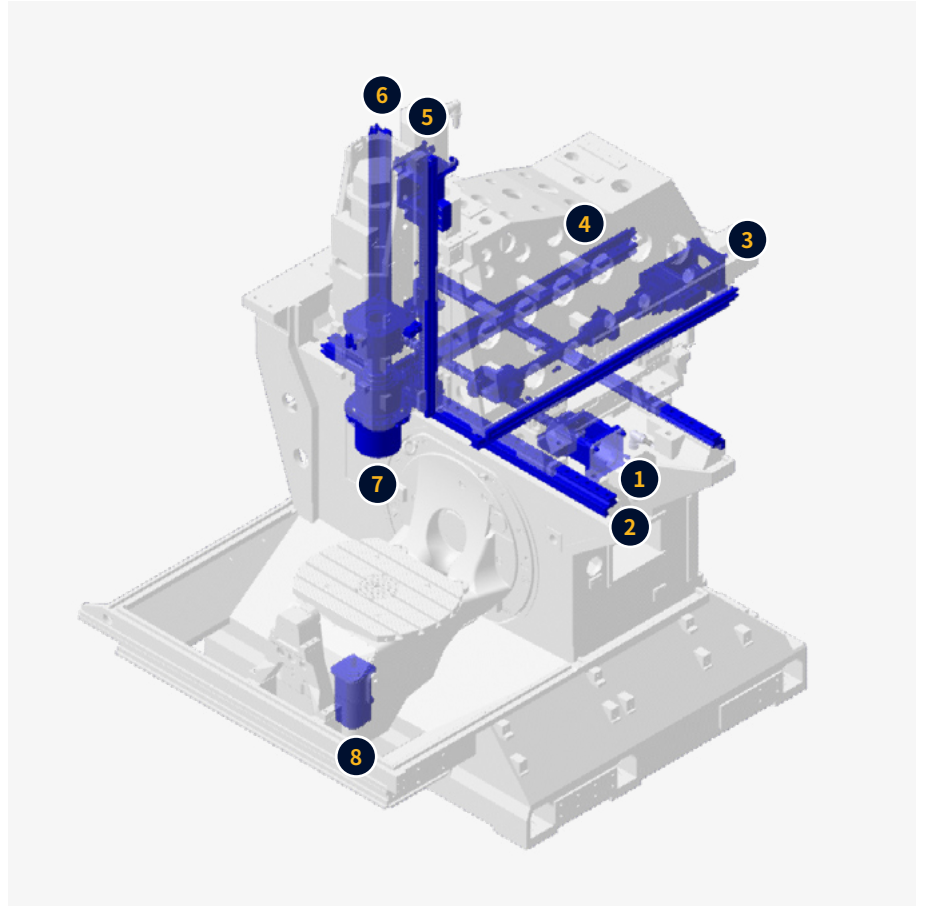
- Optimized solution for high-capacity vertical tool storage and handling
- Enhanced tool change time through Multi-Waiting Pot Station with multiple next tool places
- Up to 5 tools can be taken out and brought in simultaneously
- Easy installation for local environment
- Large touch screen provided
- Servo motor applied to all axis
- Built-in controller



# COOLING & THERMAL COMPENSATION CONCEPT TO ACHIEVE HIGH ACCURACIES OVER LONG MACHINING RUN

## X/Y/Z-axis Cooling (Guideways, Ball screw, Motor) & Cooled motor plate in C axis

- ❶ Cooled motor plate in X axis & ball screw shaft
- ❷ Cooled X axis linear guideways
- ❸ Cooled motor plate in Y axis & ball screw shaft
- ❹ Cooled Y axis linear guideways
- ❺ Cooled motor plate in Z axis & ball screw shaft
- ❻ Cooled Z axis linear guideways
- ❼ Cooled Spindle bearing & Motor plate
- ❽ Cooled motor plate in C axis



## Thermal compensation function for Spindle and Structure as standard

- Real-time thermal displacement measuring and compensation through active thermal sensors
- 8 sensors are located



# STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description			DVF 5000 <sup>2nd</sup>	
Spindle	12000 r/min(Direct-coupled)		X	
	12000 r/min(Built-in)		X	
	15000 r/min(Direct-coupled)		●	
	15000 r/min(Built-in)		○	
	18000 r/min		X	
	20000 r/min		○	
Magazine	Tool storage capacity	30 ea	●	
		40 ea	○	
		60 ea	○	
		120 ea	○	
		175 ea	X	
	Multi-Level round	#40	204 ea	○
			252 ea	○
		#50	300 ea	○
			120 ea	X
			150 ea	X
Tool type(shank)	BIG-PLUS BT40		●	
	BIG-PLUS BT50		X	
	CAT/DIN40/HSK63		○	
	CAT/DIN50/HSK A100		X	
	HSK T63		X	
	HSK T100		X	
			○	
Coolant	FLOOD&FLUSHING		●	
	1.5Kw, 0.2Mpa		X	
	2.5kw,0.2MPa		○	
	TSC		○	
	2.9kW, 2.0Mpa, Cyclone filter		○	
	2.9kW,3.0MPa,Cyclone filter		○	
Chip disposal	OIL SKIMMER		○	
	Coolant level switch		○	
	Coolant chiller		○	
	Chip pan		●	
	Chip conveyor	Hinge+scraper belt type/Left side		○
		Hinge+scraper belt type/Lear side		X
		Scraper Drum filter type/Left side		○
		Scraper Drum filter type/Lear side		X
		Hinged Drum filter type/Lear side		X
		CCS II / Scraper Drum		X
	Chip bucket	CCS II / Hinge Drum		X
		folklift type, 300L		○
Rotation type, 300L		○		
Air blower		○		
Air gun		○		
Coolant gun		○		
Rotary table	Paper filter		○	
	Mist collector		○	
	Water soluble		○	
	None water soluble		○	
	B-axis/C-axis		-	
	Air clamping		X	
Accuracy	Rotary joint		○	
	Hyd. Fixture line thru table center(Max. 4 port)		○	
	Hyd. Fixture line thru table center(Max. 6 port)		○	
	Fixture interface		X	
Measurement	2AB		○	
	2AB+GAP SENSING(5PORT)		○	
	Structure Smart Thermal Control		●	
	Spindle		●	
	Structure		●	
	Linear scale		○	
	Rotary encoder		○	
	S/W ONLY		●	
	Auto tool length measurement	IKC-READY		○
		RENISHAW (RMI-QE)+S/W		○
		HEIDENHAIN(SE660)+S/W		○
		BLUM(RC66)+S/W		○
NONE		○		
RTS RENISHAW		○		
Auto workpiece measurement	Touch type		○	
	TT460 HEIDENHAIN		○	
	ZX SPEED BLUM		○	
	NC4F RENISHAW		○	
DATUM BALL FOR IKC	Laser type		○	
	LC50 BLUM		○	
	NC4F HYBRID RENISHAW		X	
	LC52 BLUM		X	
MASTERS TOOL	NONE		●	
	RMP60 RENISHAW		○	
	RMP600 RENISHAW		○	
	TS460 HEIDENHAIN		○	
SINGLE LEVEL AWC	TC60 BLUM		○	
	NONE		○	
	DATUM BALL D25		○	
	NONE		●	
MULTI LEVEL AWC	MASTER TOOL		○	
	4/6/8/12 PALLETS		○	
	24/28/32/40 PALLETS		○	
	2/4 PALLETS		X	
Others	APC		X	
	RPS		X	
	LPS		X	
	AUTO DOOR		○	
Option	With safety edge		○	
	LED work light		○	
	Signal tower		○	
	Electric cabinet cooling		○	
Option	Fan cooler		● (FANUC)	
	A/C(Air Conditioner)		○ (FANUC)/● (HEIDNEHAIN,SIEMENS)	
	EZ WORK		○	
	EZ GUIDE 1		○	
Option	Automatic power off		○	
	Tool load monitornig		○	
	BK9		○	
	SPIN WINDOW		○	
Option	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.

● Standard ○ Optional X N/A



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.

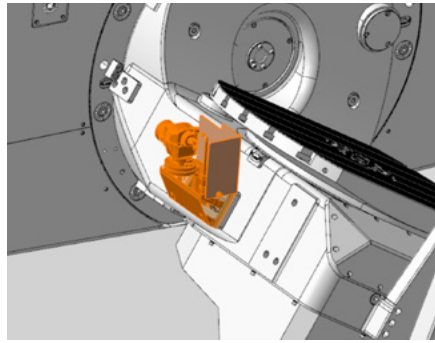
# PERIPHERAL EQUIPMENT

## Automatic Workpiece Measurement

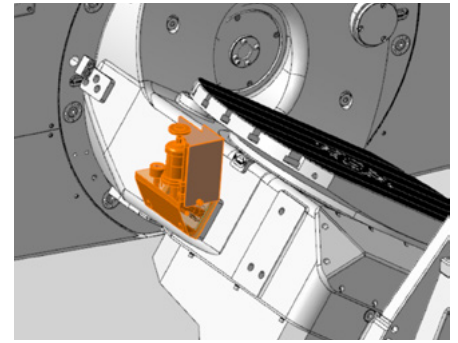


Touch probe : RMP60(Renishaw), TC-60(Blum)

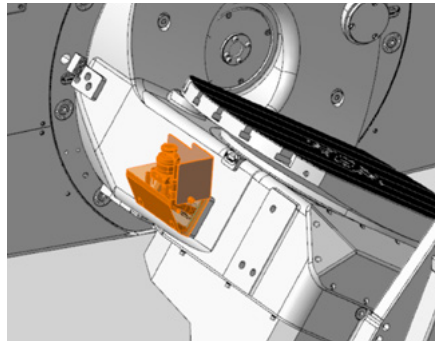
## Automatic Tool Measurement



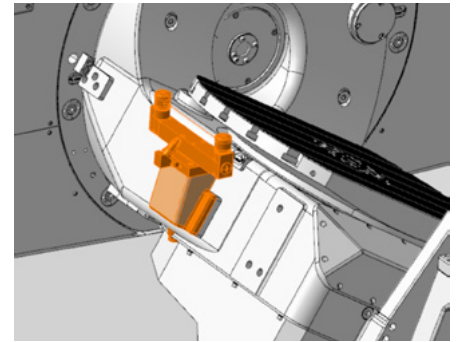
Renishaw(RTS)



Heidenhain(TT460)



Blum(ZX Speed)



Renishaw(NC4F)

Touch type

**RENISHAW**

RTS

**HEIDENHAIN**

TT460

**BLUM**

ZX SPEED

Laser type

**RENISHAW**

NC4F

**BLUM**

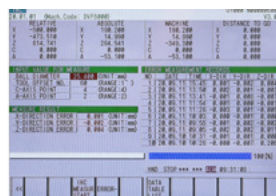
LC50

## Intelligent Kinematic Compensation for 5-axis

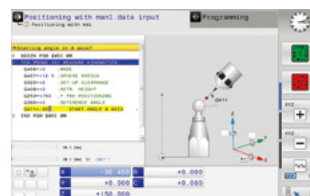
For high-accuracy 5-axis machining, the Intelligent Kinematic Compensation function is recommended. This function minimizes errors in complex 5-axis machining applications by maintaining the tool point in the correct position relative to the workpiece.

**In order to use this function, the following optional items are required :**

SOFTWARE



FANUC NC : IKC



HEIDENHAIN NC ; IKC

RECEIVER Recommended Option



TOUCH PROBE Recommended Option



DATUM BALL Recommended Option



AUTO TOOL MEASUREMENT Recommended Option



MASTER TOOL Recommended Option



# AWC

A compact loading/unloading automation capable of mounting up to 40 workpieces.

## AWC

A compact automation system providing fast, reliable and high productivity workpiece change capabilities.



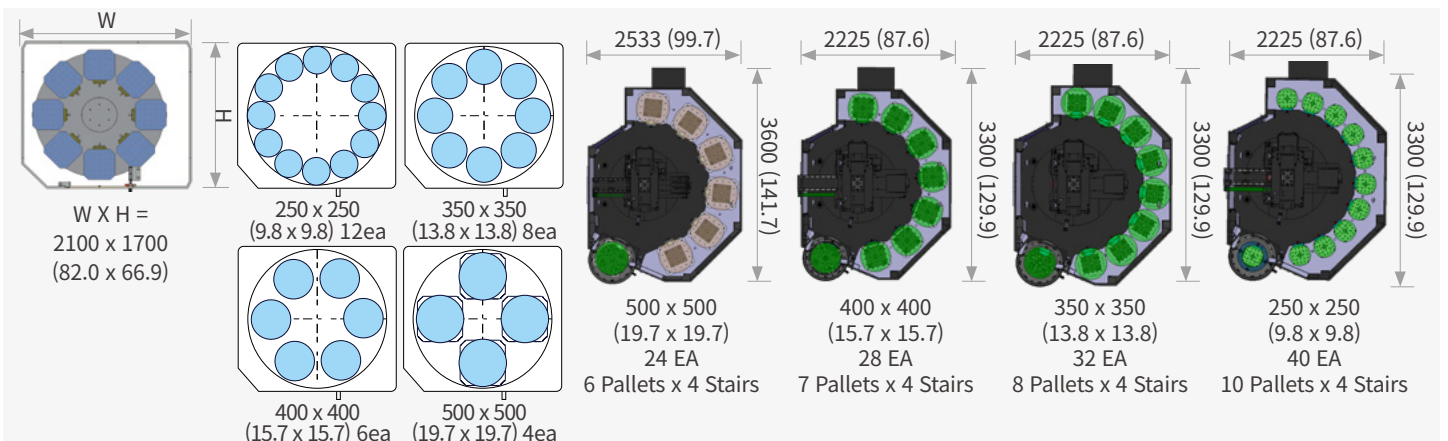
## Multi-AWC

Automation solution capable of mounting up to 40 workpieces.

Description	Pallet size	No. of pallets	Max. workpiece dia. x height	Max. workpiece weight
AWC	250x250 mm (9.8x9.8 inch)	12ea	Ø300x350 mm (11.8x13.8 inch)	130 kg (286.6 lb)
	350x350 mm (13.8x13.8 inch)	8ea	Ø400x350 mm (15.7x13.8 inch)	300 kg (661.4 lb)
	400x400mm (15.7x15.7 inch)	6ea	Ø450x350 mm (17.7x13.8 inch)	300 kg (661.4 lb)
	500x500mm (19.7x19.7 inch)	4ea	Ø550x350 mm (21.7x13.8 inch)	300 kg (661.4 lb)
Multi-AWC	Ø160 mm (6.3 inch) (HSKA100 Tool Type)	40ea	Ø350x315mm (13.8 x 12.4 inch)	80 kg (176.4 lb)
	250x250mm (9.8x9.8 inch)	40ea	Ø300x350 mm (11.8x13.8 inch)	130 kg (286.6 lb)
	350x350mm (13.8x13.8 inch)	32ea	Ø400x350 mm (15.7x13.8 inch)	300 kg (661.4 lb)
	400x400mm (15.7x15.7 inch)	28ea	Ø450x350 mm (17.7x13.8 inch)	300 kg (661.4 lb)
	500x500mm (19.7x19.7 inch)	24ea	Ø550x350 mm (21.7x13.8 inch)	300 kg (661.4 lb)

## Pallet storage-table configuration

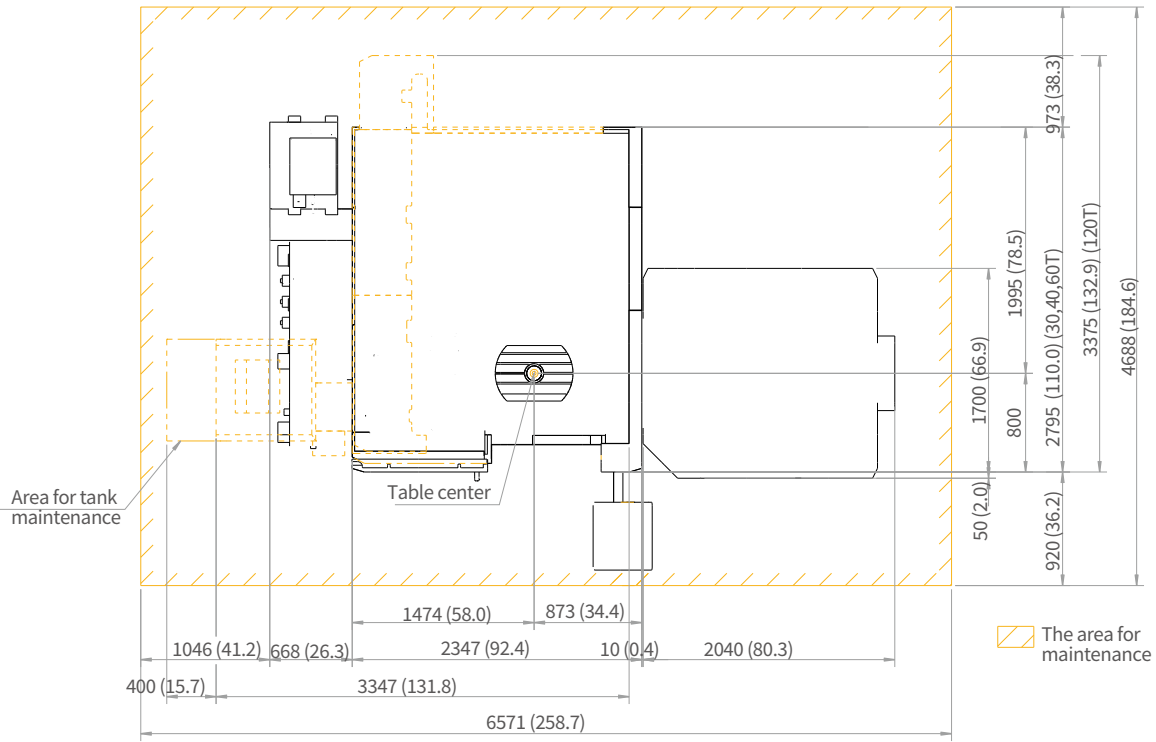
unit : mm (inch)



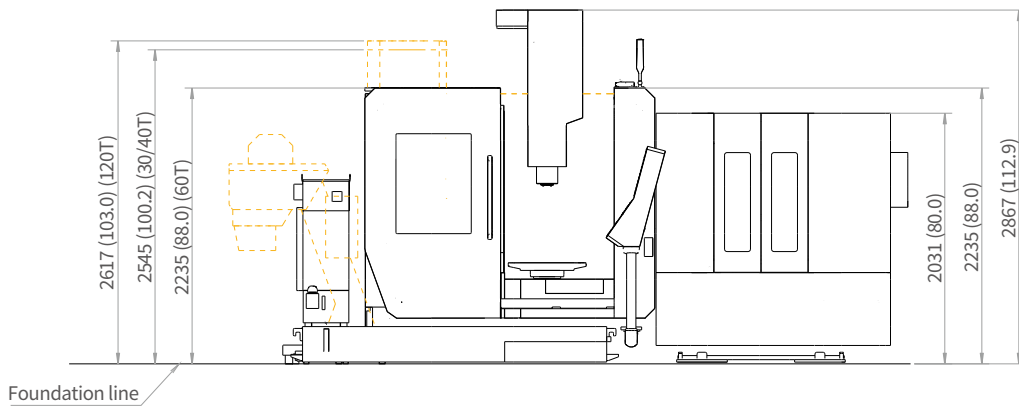
# S-AWC DIMENSIONS

Units : mm (inch)

TOP



FRONT



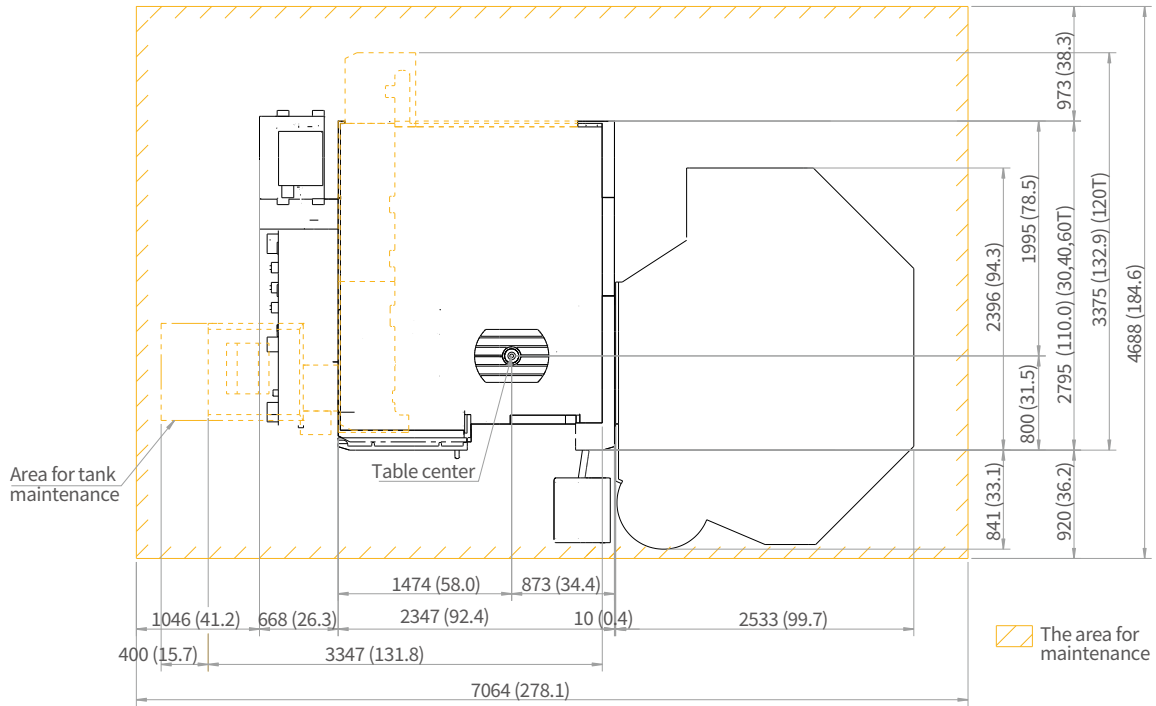
\*Some peripheral equipment can be placed in other areas.

# M-AWC DIMENSIONS

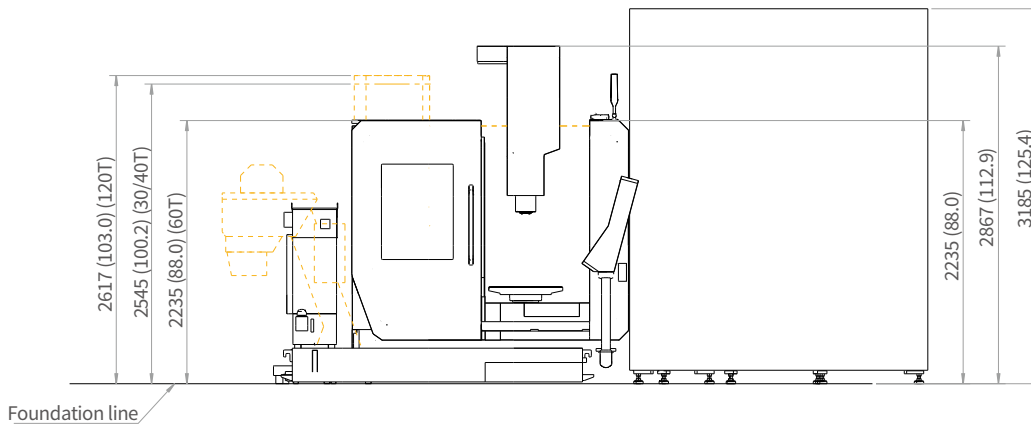
24P

Units : mm (inch)

TOP



FRONT

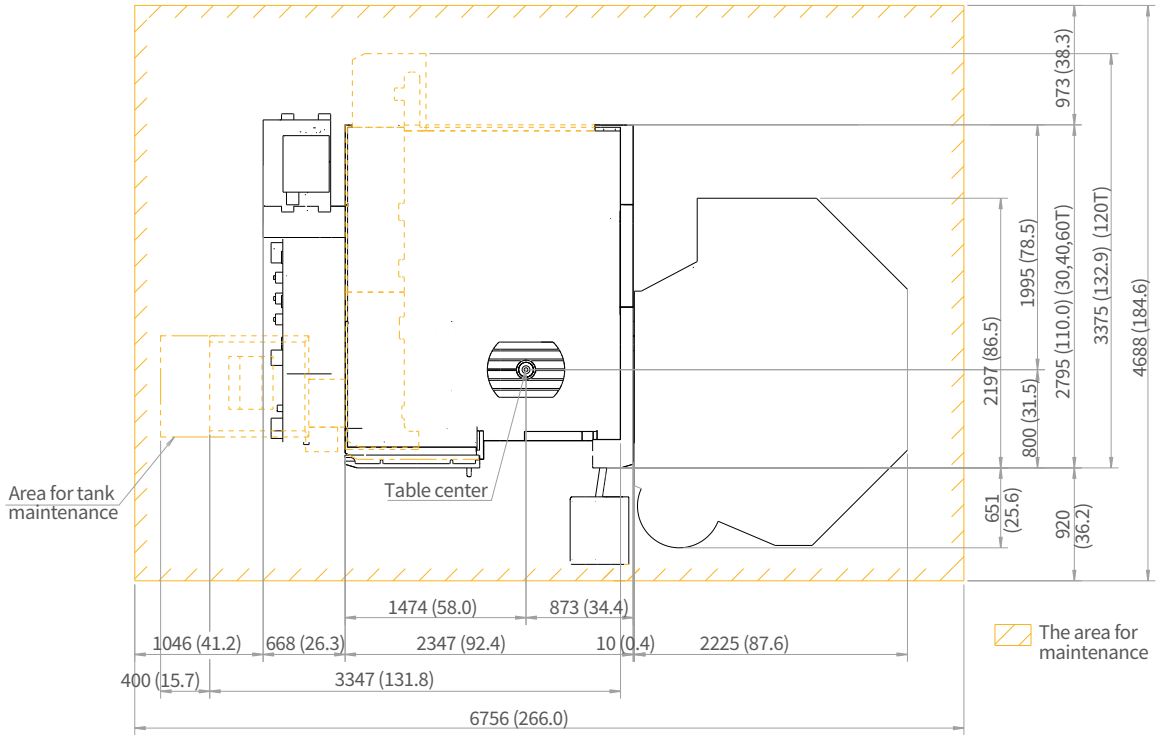


# M-AWC DIMENSIONS

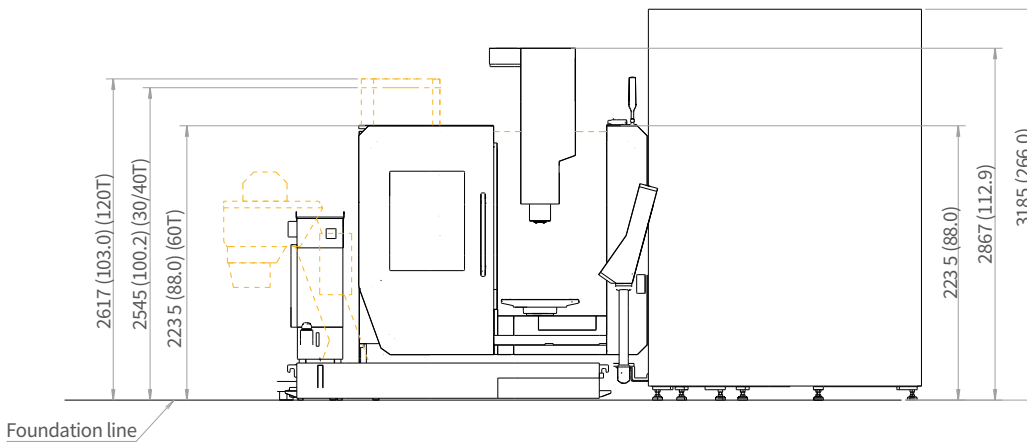
28 / 32 / 40P

Units : mm (inch)

TOP



FRONT



\*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

- Sketch cycle : Gear skiving, Gear hobbing, Polygon turning (continuously being added...)
- SSD data server : Program file sharing/managing (CF card/USB/External PC)

### EASY SET-UP/OPERATION

- Tool management
- 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



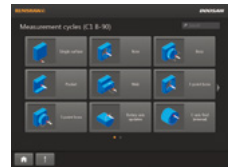
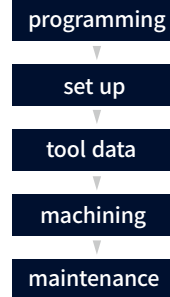
## CUFOS Open CNC

### 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 easily integrated with external PC software systems and applications, such as CAM and Tool Data systems.



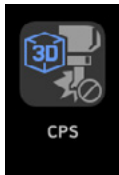
CUFOS



PC software



Applications



### CPS (Collision Protection System)

A function to prevent real time collision in Auto/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.

# CONVENIENT OPERATION

## SIEMENS SINUMERIK ONE

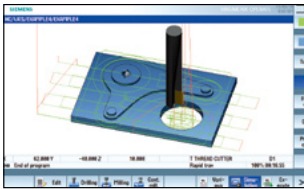
### Even Faster & Easier processing + 21.5" screen

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.

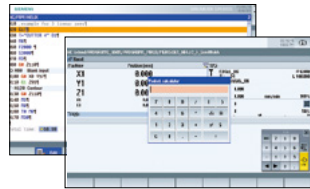
- 21.5 inch touch screen
- 50% improvement in processing speed (compared to S840D)
- Graphic programming
- PLC-based flexible automation



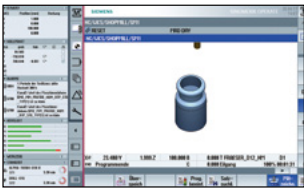
### Conversational convenient function



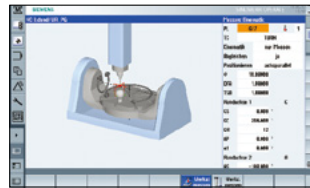
Simulation and machining contour monitoring



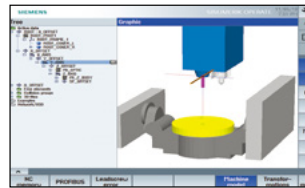
Smart function



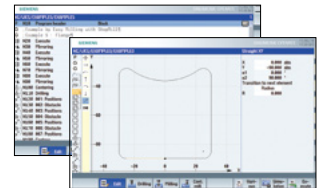
Side screen widget



5-axis kinematic measuring cycles



3D collision avoidance and collision avoidance ECO



Shop mill part programming

## NUMERIC CONTROL SPECIFICATIONS

## SIEMENS

Item	Specifications	S-ONE
<b>Controlled axis</b>	Controlled axes	5 axes (X,Y,Z,C,B)
	Simultaneously controlled axes	5 axes
<b>Data input/output</b>	Memory card input/output	●
	USB memory input/output	●
<b>Interface function</b>	Ethernet	(X130)
	Execution from External Storage(EES)	○
<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
	Top surface	○
<b>Interpolation &amp; Feed function</b>	Look ahead number of block monitoring for max. tool speed/ acceleration	1000
	Top Surface	○
	Top Speed Plus	○
<b>Programming &amp; Editing function</b>	3D simulation, finished part	●
	Simultaneous recording	●
	Measure kinematics	●
	DXF Reader for PC integrated in SINUMERIK Operate	○
<b>Operation Guidance Function</b>	ShopMill	●
	EZ Work	●
<b>Setting and display</b>	Operation via a VNC viewer	●
<b>Network</b>	MTConnect	⊕
	OPCUA	○
	18.5" color display with touch screen	○
	21.5" color display with touch screen	●
<b>Others</b>	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	○

# CONVENIENT OPERATION

## HEIDENHAIN TNC7

### Visualized, intuitive task support, customized UI

The TNC7 makes machining even easier, for everything from programming to program validation and from machine setup to actual machining. You intuitively operate highly complex applications directly on the touchscreen with various integrated solutions for standard tasks.

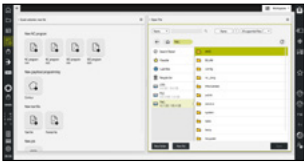
### TNC7 NEW

- 24 inch touch screen
- 189GB Program memory
- Look-ahead 5000 blocks
- Touch Probe Cycles Graphical Programming

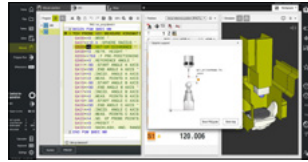


<TNC7>

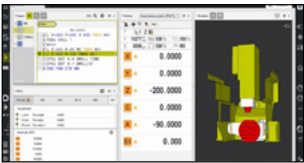
### Conversational convenient function



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



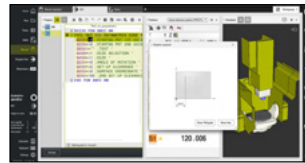
KinematicOpt & KinematicComp (Touch probe cycle for automatic measurement) OPTION



Collision protection system OPTION



Graphic simulation



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



Enhanced collision protection function DCMv2 OPTION



Improved maintenance environment



Highly practical programming and setup based on touch operation

## NUMERIC CONTROL SPECIFICATIONS



HEIDENHAIN

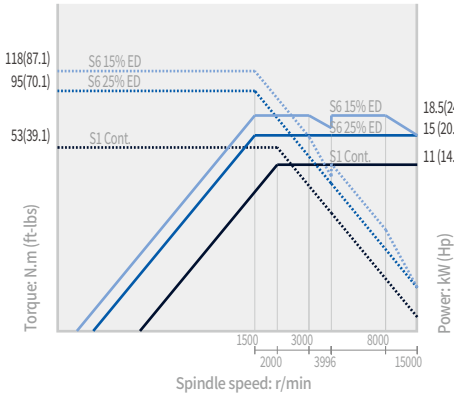
	Item	Specifications	TNC7
Controlled axis	Controlled axis		5 axes (X,Y,Z,C,B)
	Simultaneously controlled axis		5 axes
Interface function	Embedded ethernet		●
	USB interface (USB 2.0)		●
	HEIDENHAIN DNC		○
Feed function	Look-ahead	5000 blocks	●
	Adaptive Feed Control		○
Axis compensation	KinematicsOpt	Automatic measurement and optimization of machine kinematics	●
Collision monitoring	Dynamic collision monitoring (DCM)		○
	Dynamic Collision Monitoring v2		○
Network	MT Connect		⊕
	Display unit	touch panel	19"
Others	Program memory for NC programs		189GB
	CAD Import		○
	Ext. Tool Management		○
	Active Chatter Control		○
	Model Aided Setup		○
	Opt. Contour Milling		○
	Process Monitoring		○

# POWER | TORQUE

## FANUC

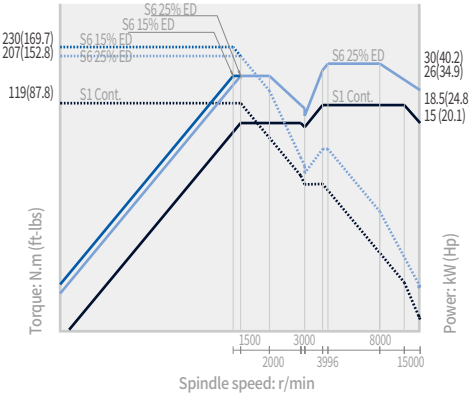
### 15000r/min Direct

Power 18.5/11 kW (24.8/14.8 Hp)  
Torque 118 N·m (87.1 ft-lbs)



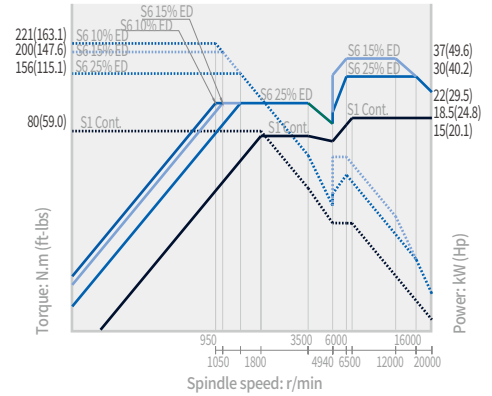
### 15000r/min Built in OPTION

Power 30/18.5 kW (40.2/24.8 Hp)  
Torque 230 N·m (169.7 ft-lbs)



### 20000r/min Built in OPTION

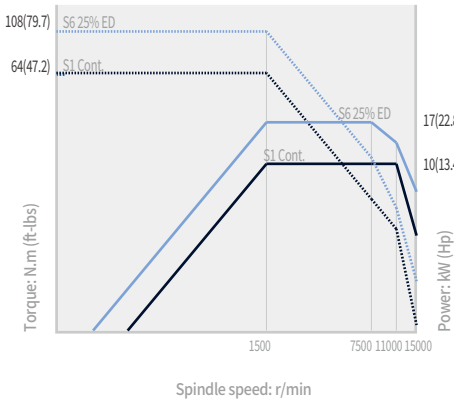
Power 37/18.5 kW (49.6/24.8 Hp)  
Torque 221 N·m (163.1 ft-lbs)



## HEIDENHAIN

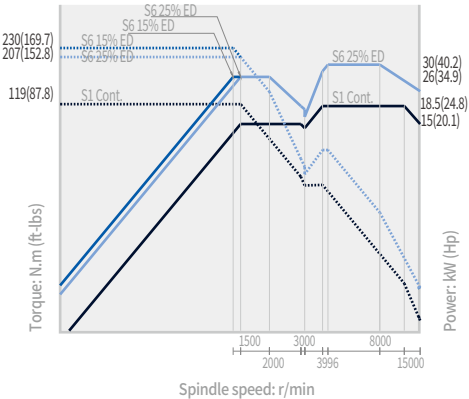
### 15000r/min Direct

Power 17/10 kW (22.8/13.4 Hp)  
Torque 108 N·m (79.7 ft-lbs)



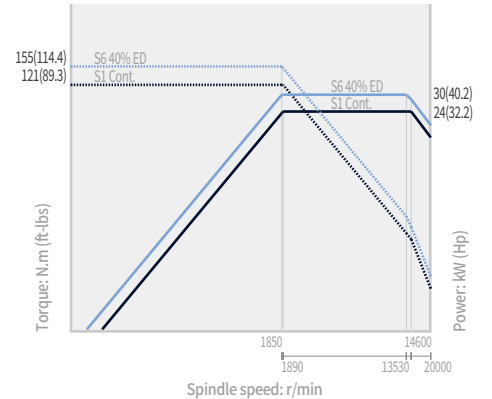
### 15000r/min Built in OPTION

Power 30/18.5 kW (40.2/24.8 Hp)  
Torque 230 N·m (169.7 ft-lbs)



### 20000r/min Built in OPTION

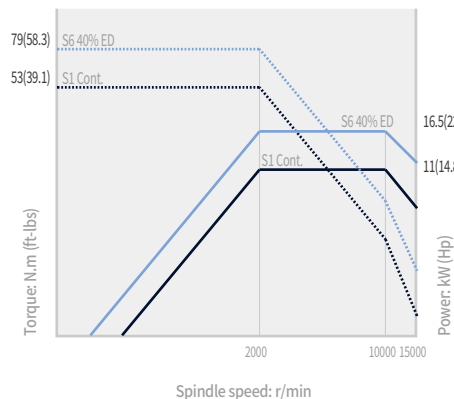
Power 30/24 kW (42.9/32.2 Hp)  
Torque 155 N·m (114.4 ft-lbs)



## SIEMENS

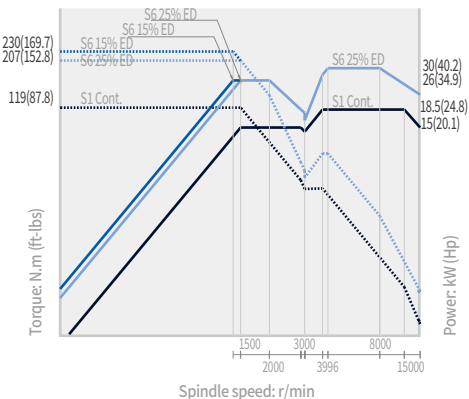
### 15000r/min Direct

Power 16.5/11 kW (22.1/14.8 Hp)  
Torque 79 N·m (58.3 ft-lbs)



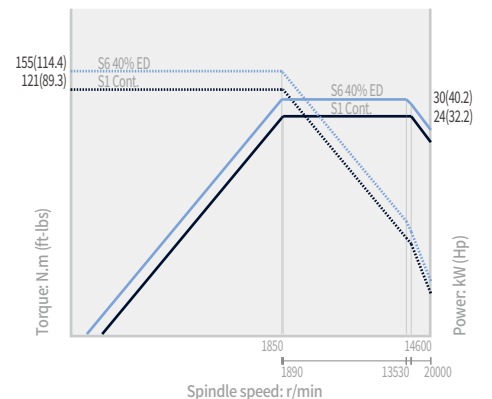
### 15000r/min Built in OPTION

Power 30/18.5 kW (40.2/24.8 Hp)  
Torque 230 N·m (169.7 ft-lbs)



### 20000r/min Built in OPTION

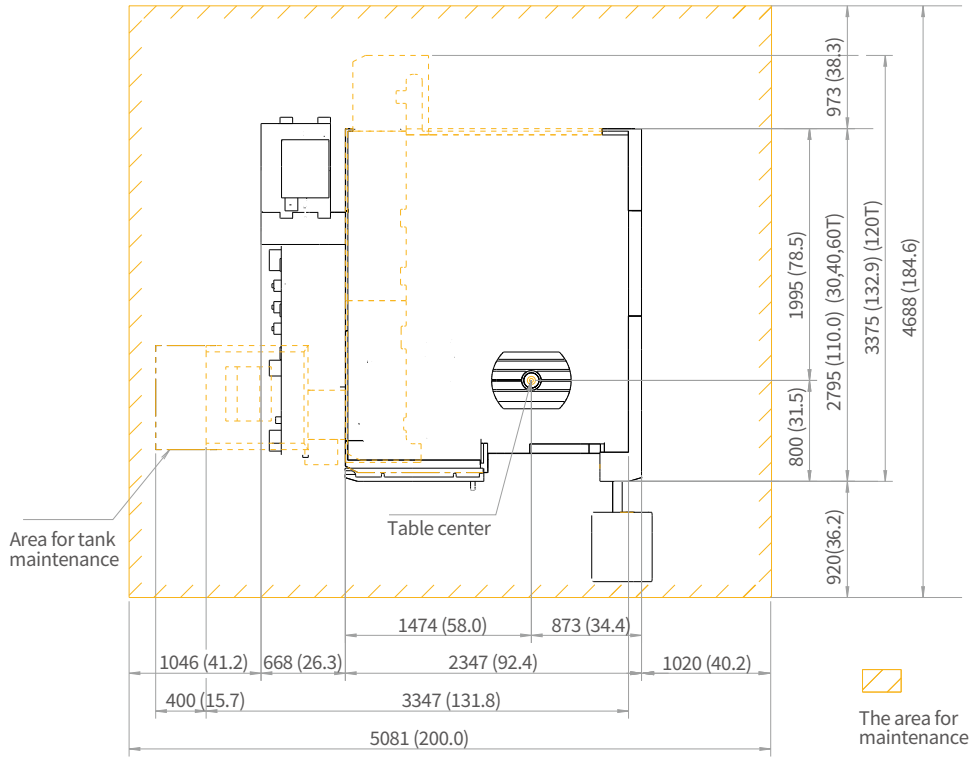
Power 30/24 kW (42.9/32.2 Hp)  
Torque 155 N·m (114.4 ft-lbs)



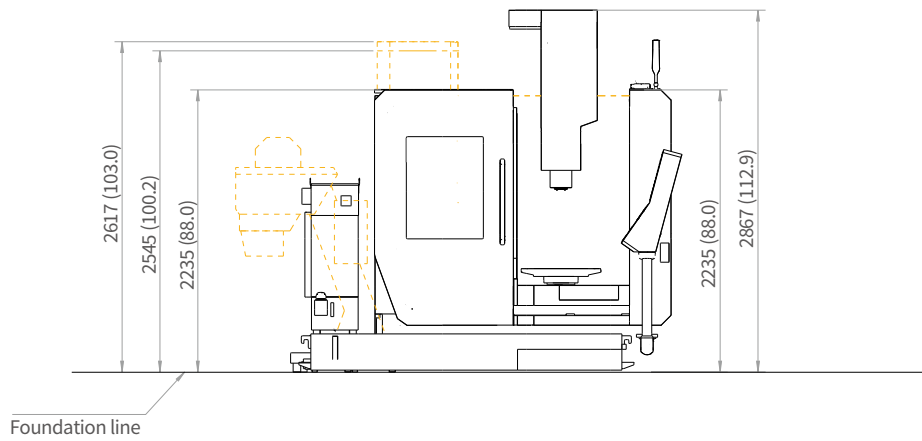
# EXTERNAL DIMENSIONS

Units : mm (inch)

TOP



FRONT

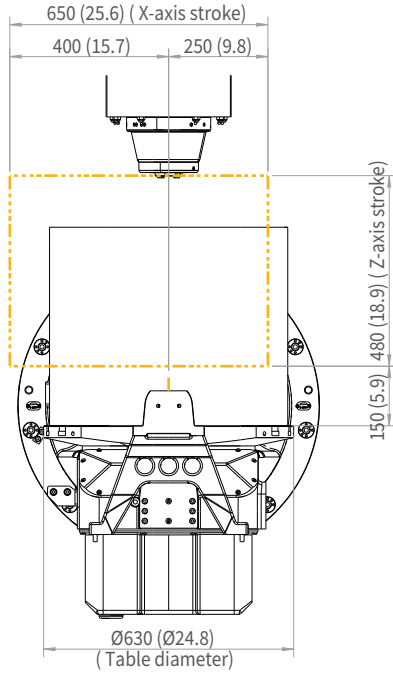


\*Some peripheral equipment can be placed in other areas.

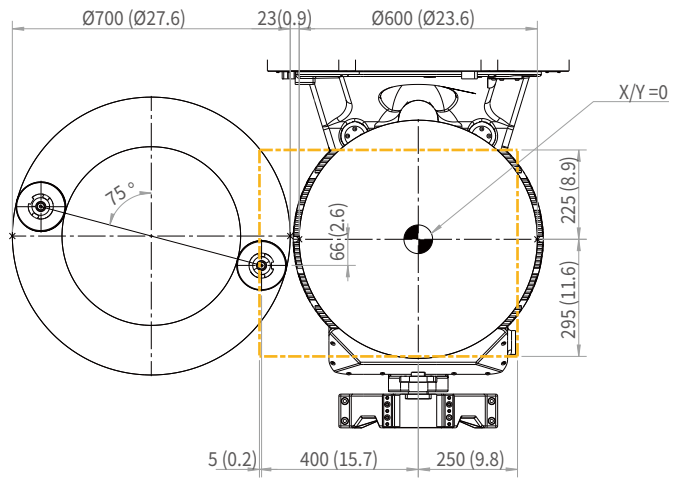
# WORKING RANGE

Units : mm (inch)

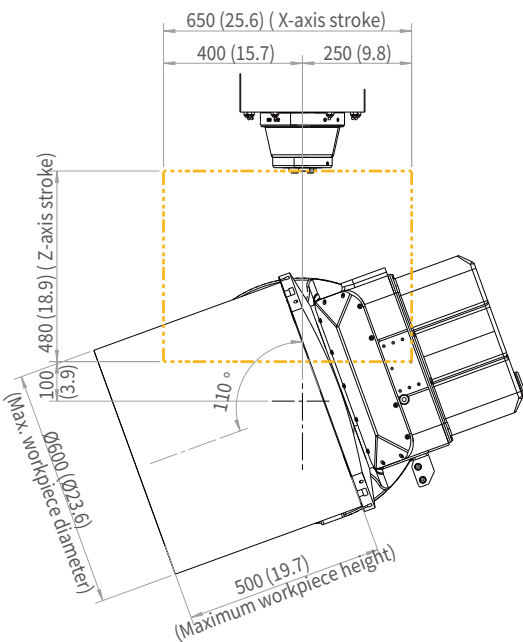
Front view



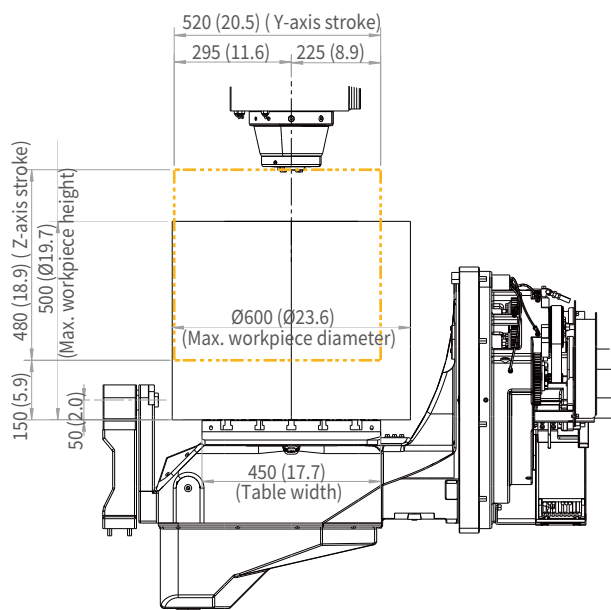
Front view



Front view



Right view



# MACHINE SPECIFICATIONS

Description		Unit	DVF 5000 <sup>2nd</sup>			
Travel distance	X axis	mm (inch)	650 (25.6)			
	Y axis	mm (inch)	520 (20.5)			
	Z axis	mm (inch)	480 (18.9)			
	B axis	deg	B : 140(+110~-30)			
	C axis	deg	360			
Table	Table size	mm (inch)	Ø630 x 450 (Ø24.8 x 17.7)			
	Max. workpiece size	mm (inch)	Ø600 x H500 (Ø23.6 x H19.7)			
	Table loading capacity	kg (lb)	400 (881.8)			
Spindle	Max. speed	r/min	15000 {20000}			
	Max. power	kW (Hp)	CUFOS : 15K Direct 18.5/11 (S6 15%/cont.) 15K Built-in 30/18.5 (S6 25%/cont.) 20K Built-in 37/18.5 (S6 15%/cont.)	TNC7 : 15K Direct 17/10 (S6 25%/cont.) 15K Built-in 30/18.5 (S6 25%/cont.) 20K Built-in 30/24 (S6 40%/cont.)	Sinumerik One : 15K Direct 16.5/11 (S6 40%/cont.) 15K Built-in 30/18.5 (S6 25%/cont.) 20K Built-in 30/24 (S6 40%/cont.)	
	Max.torque	N·m (ft·lbs)	CUFOS : 15K Direct 118 15K Built-in 230 20K Built-in 221	TNC7 : 15K Direct 108 15K Built-in 230 20K Built-in 155	Sinumerik One : 15K Direct 79 15K Built-in 230 20K Built-in 155	
Rapid traverse rate	X axis	m/min (ipm)	42 (1653.5)			
	Y axis	m/min (ipm)	42 (1653.5)			
	Z axis	m/min (ipm)	42 (1653.5)			
	B axis	r/min	25			
	C axis	r/min	25			
Automatic tool changer	Tool shank		ISO #40			
	Tool storage capa.	ea	30 {40, 60, 120}			
	Max. tool diameter	Continuous	mm (inch)	75 (3.0)		
		Without adjacent tools	mm (inch)	125 (4.9)		
	Max. tool length		mm (inch)	300 (11.8)		
	Max. tool weight		kg (lb)	8 (17.6)		
	Tool change time	T-T-T	sec	1.3/1.5 (60Hz/50Hz)		
C-T-C		sec	3.8/4.3 (60Hz/50Hz)			
Coolant	Coolant tank capacity	L (gal)	500 (132.1)			
Machine dimensions	Height	mm (inch)	3100 (122.0)			
	Length x Width	mm (inch)	2795 (110.0) (30, 40, 60T) x 2347 (93.5) , 3375 (120T) x 2347 (132.9 x 93.5)			
	Weight	kg (lb)	8000 (17636.7) ( 30, 40, 60T), 9000 (354.3) (120T)			
Control	NC system	-	CUFOS, TNC640/TNC7, Sinumerik One			

# WHY 5-Axis machining?

## SINGLE SETUP EFFICIENCY

5-axis machining allows you to approach the workpiece from all angles, with complete access to five sides of the part in a single setup. This reduces the overall number of part setups compared to traditional machining, which minimizes machine downtime and maximizes chip making time.



## IMPROVED PART ACCURACY

When making parts with multi-sided features using traditional 3-axis machining, multiple part setups are required. This means new inaccuracies can arise each time the workpiece is repositioned. 5-axis machining eliminates stacked tolerances and improves overall part dimensional accuracy.

## EXTENDED MACHINE SHOP CAPABILITY

DN Solutions 5-axis machines open up new doors for your machine shop. The increased efficiency will make you instantly more competitive, and full 5-axis machining capabilities give you the opportunity to quote on jobs that previously weren't possible. So, what are you going to make today?



“Compared with similar machines from Japan or Europe, DN Solutions has the same level of precision and quality at a better value for money.”

– *OMGM Group, Italy*

“Our DN Solutions 5-axis is making complex, high precision parts for aerospace and defense. Cycle times have been reduced dramatically.”

– *Aerotech Precision Manufacturing, Great Britain*

# RESPONDING TO CUSTOMERS **ANYTIME, ANYWHERE**

## DN SOLUTIONS GLOBAL NETWORK

**66** COUNTRIES | **140** + SALES NETWORKS | **3** FACTORIES | **6** REGIONAL HQS



## CUSTOMER SUPPORT AND SERVICES

### WE'RE THERE FOR YOU WHENEVER YOU NEED US.

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.



#### FIELD SERVICES

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



#### PARTS SUPPLY

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



#### TRAINING

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



#### TECHNICAL SUPPORT

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



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