DN SOLUTIONS

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

# DVF 5000 2nd Gen.





# NEW DVF 5000 2nd Gen.

DVF 5000 2nd 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.

## CONTENTS


**Product Overview**

**Basic Information**

04 Basic Structure
05 Spindle Specifications
06 Magazine
07 Cooling & Thermal Compensation

**Detailed Information**

08 Standard / Optional Specifications
10 Peripheral Equipment
11 AWC Automation
12 AWC External Dimensions
15 CUFOS
17 Conveninet Operation
19 Power | Torque
20 External Dimensions
21 Working Range
22 Machine Specifications

**Customer Support Service**

23 Customer Support and Services
23 Global Network




## FAST & PRECISE 5-AXIS EXCEEDS EXPECTATIONS

- 15000, 20000 r/min high speed spindle
- Tool chang time(C-T-C) 4.1s (SIEMENS), 23% 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**

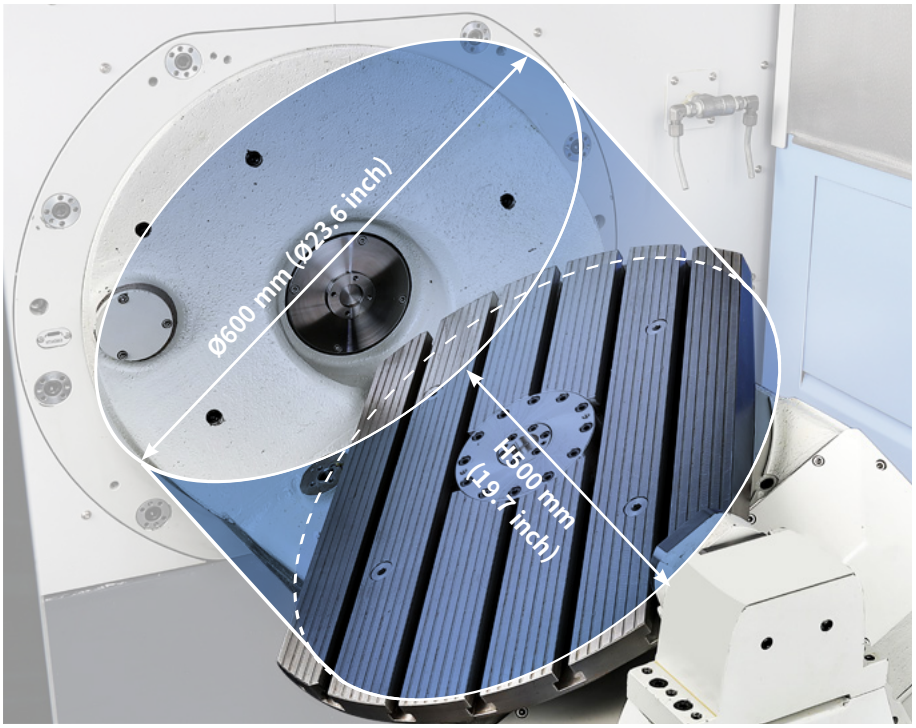
**Ø630 x 450** mm
(ø24.8 inch x 17.7 inch)

**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

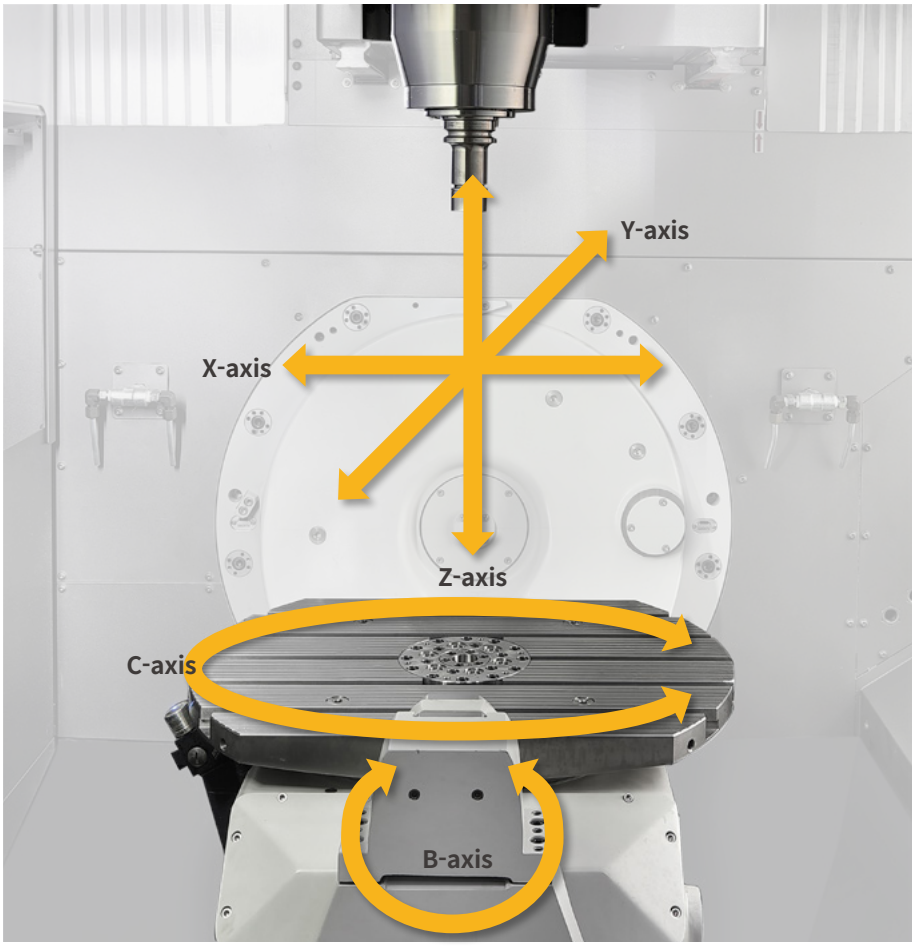
**Rapid traverse rate**

**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)*

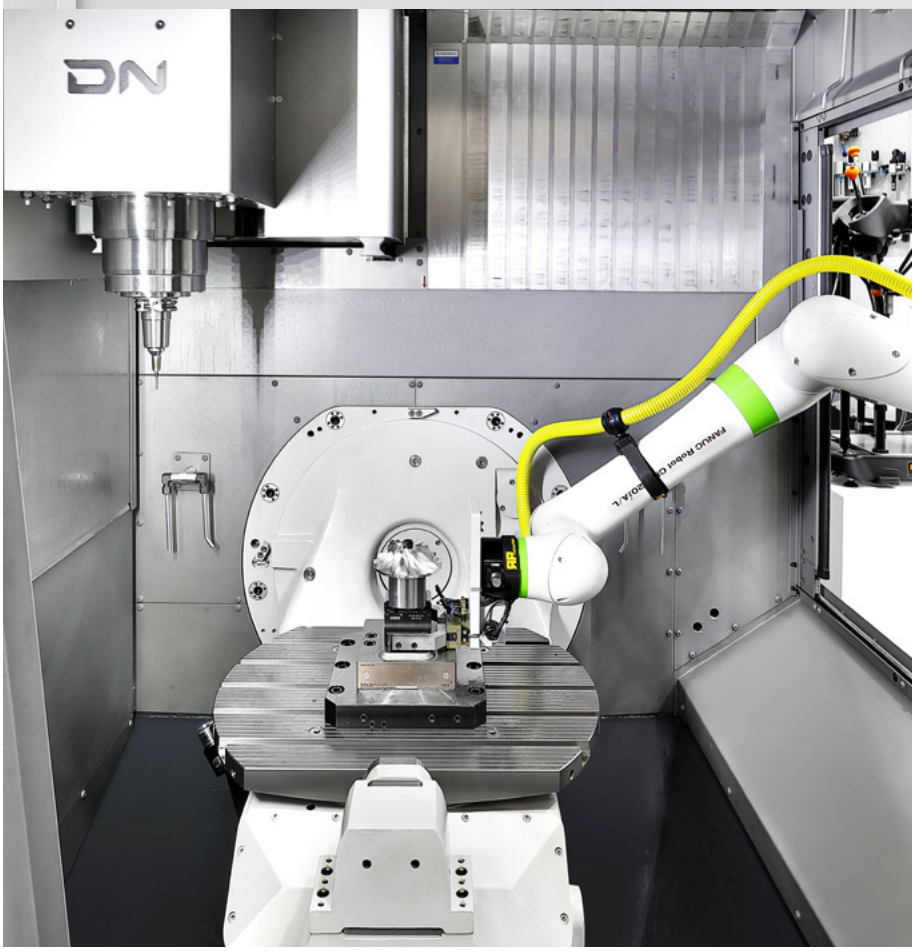
**45** kW / **204** N·m
(60.3 Hp / 150.6 ft-lbs)
*(HEIDENHAIN / SIEMENS)*

**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**

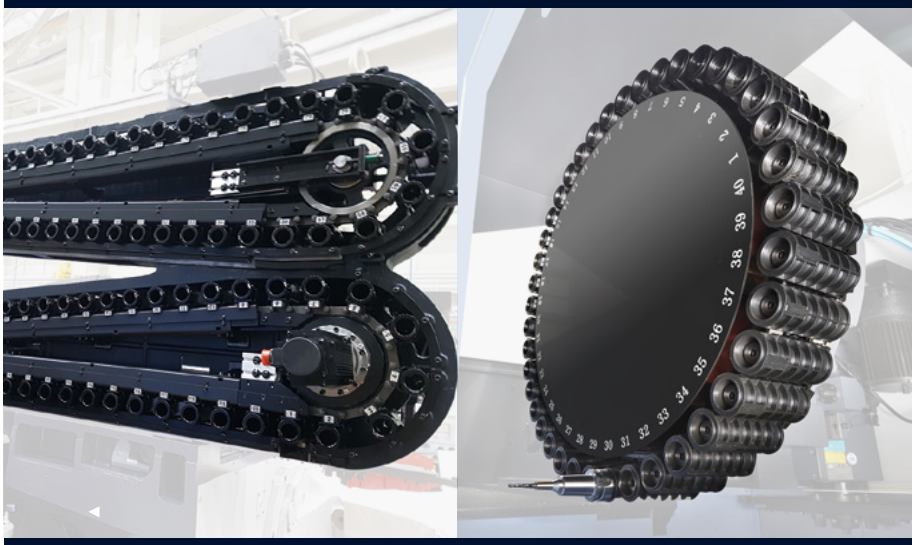
**Tool capacity**
Drum type
**30** {40 OPTION}
Chain type
{60/120 OPTION}

**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
**4.1** sec
(SIEMENS)




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 (Adjacen 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



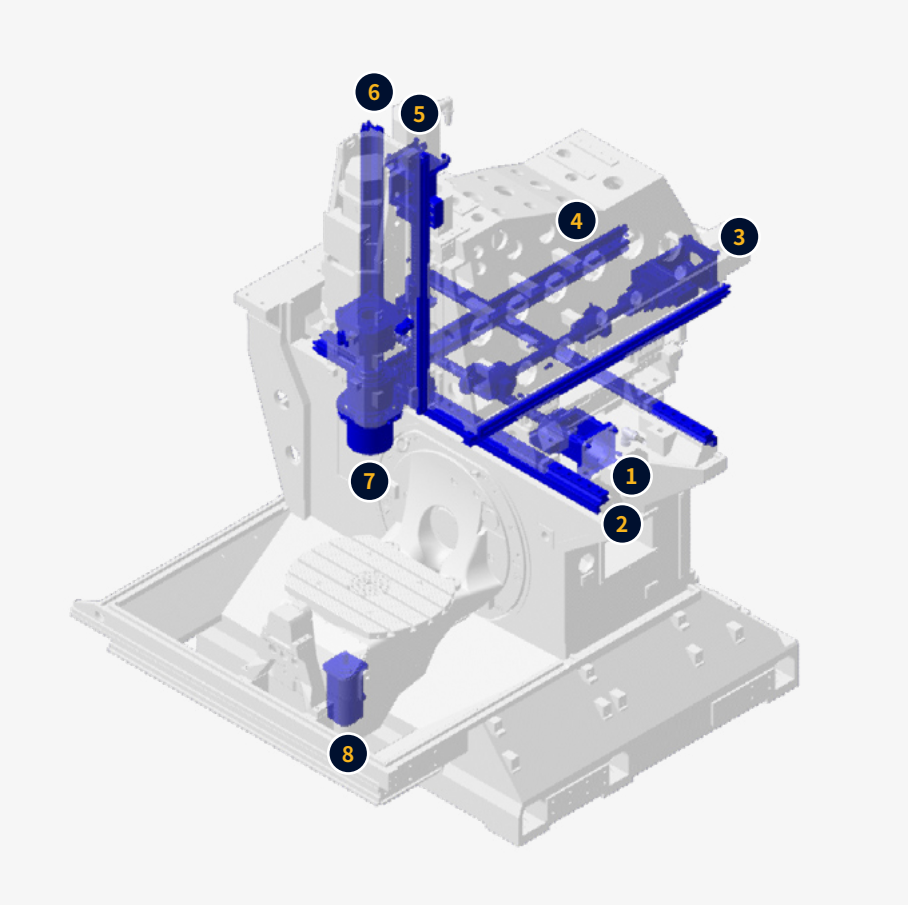
## Features

- 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 TOACHIEVE 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 2nd |
|---|---|---|---|---|
| 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 | | | ○ |
| | 10000 r/min | | | X |
| Magazine | Tool storage capacity | | 30 ea | ● |
| | | | 40 ea | ○ |
| | | | 60 ea | ○ |
| | | | 120 ea | ○ |
| | Multi-Level round | #40 | 175 ea | X |
| | | | 204 ea | ○ |
| | | | 252 ea | ○ |
| | | | 300 ea | ○ |
| | | #50 | 120 ea | X |
| | | | 150 ea | X |
| | | | 210 ea | X |
| | | | 258 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 | ● |
| | | | 2.5kW,0.2MPa | X |
| | TSC | | 2.9kW, 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 | ○ |
| | | | 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 |
| | | | CCS II / Hinge Drum | X |
| | Chip bucket | | folklift type, 300L | ○ |
| | | | Rotation type, 300L | ○ |
| | Air blower | | | ○ |
| | Air gun | | | ○ |
| | Coolant gun | | | ○ |
| | Paper filter | | | ○ |
| | Mist collector | | Water soluble | ○ |
| | | | None water soluble | ○ |
| Rotary table | Air clamping | | B-axis/C-axis | - |
| | Rotary joint | | Hyd. Fixture line thru table center(Max. 4 port) | X |
| | | | Hyd. Fixture line thru table center(Max. 6 port) | ○ |
| | Fixture interface | | 2AB | X |
| | | | 2AB+GAP SENSING(5PORT) | ○ |
| 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 | | NONE | ○ |
| | | Touch type | RTS RENISHAW | ○ |
| | | | TT460 HEIDENHAIN | ○ |
| | | | ZX SPEED BLUM | ○ |
| | | Laser type | NC4F RENISHAW | ○ |
| | | | LC50 BLUM | ○ |
| | | HYBRID | NC4F HYBRID RENISHAW | X |
| | | | LC52 BLUM | X |
| | Auto workpiece measurement | | NONE | ● |
| | | | RMP60 RENISHAW | ○ |
| | | | RMP600 RENISHAW | ○ |
| | | | TS460 HEIDENHAIN | ○ |
| | | | TC60 BLUM | ○ |
| | DATUM BALL FOR IKC | | NONE | ● |
| | | | DATUM BALL D25 | ○ |
| | MASTER TOOL | | NONE | ● |
| | | | MASTER TOOL | ○ |
| Others | APC | | 2/4 PALLETS | X |
| | RPS | | 7/14/21 PALLETS | X |
| | | | 6/12/18 PALLETS | X |
| | LPS | | | X |
| | SINGLE LEVEL AWC | | 4/6/8/12 PALLETS | ○ |
| | MULTI LEVEL AWC | | 24/28/32/40 PALLETS | ○ |
| | AUTO DOOR | | With safety edge | ○ |
| | | | With safety edge | ○ |
| | SPIN WINDOW | | | ○ |
| | 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 | | | ○ |
| Option | BK9 | | | ○ |
| | 7 STEPS VARIABLE PRESSURE TSC PUMP | | | ○ |

* *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*



**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.

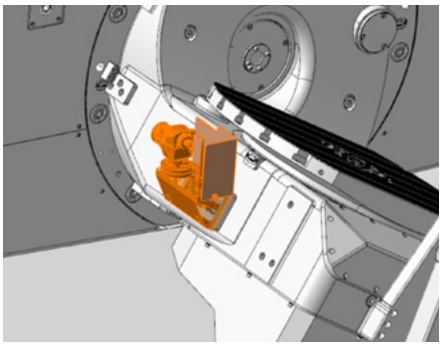
# PERIPHERAL EQUIPMENT

## Automatic Workpiece Measurement

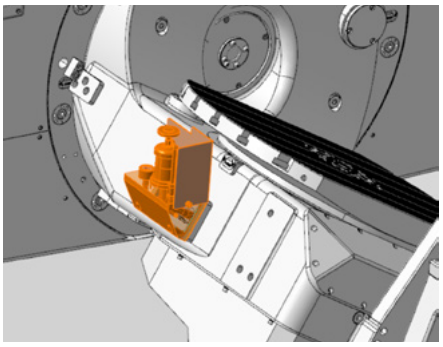


Touch probe : RMP60(Renishaw), TC-60(Blum)

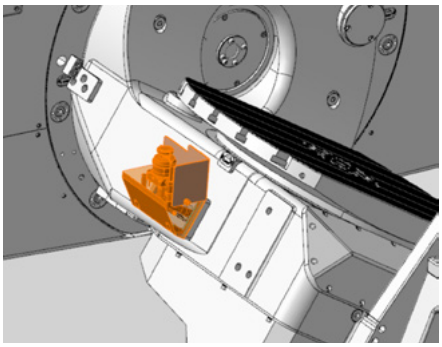
## Automatic Tool Measurement



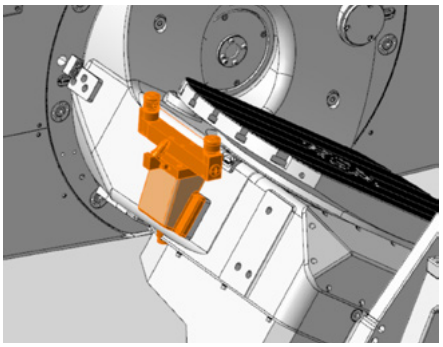
Renishaw(RTS)



Heidenhain(TT460)



Blum(ZX Speed)



Renishaw(NC4F)

**Touch type**

**RENISHAW**
RTS

**HEIDENHAIN**
TT460

**BLUM**
ZX SPEED

**Laser type**

**RENISHAW**
NC4F

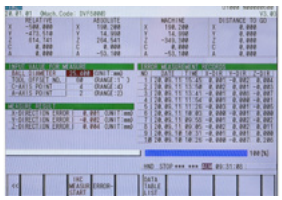
**BLUM**
LC50

## Intelligent Kinematic Compensation for 5-axis

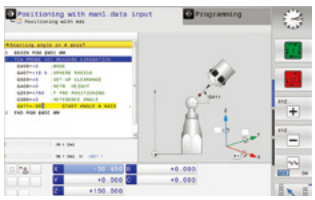
For high-accuracy 5-axis machining, the Intelligent Kinematic Compensation function is recommended. This function minimizes errors in complex 5-axis machining applications by maintaining the tool point in the correct position relative to the workpiece.

**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

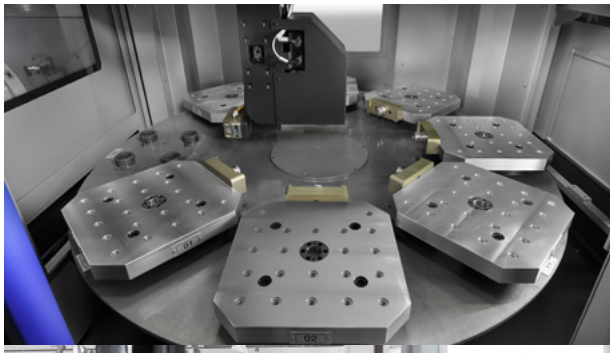


# AWC

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.









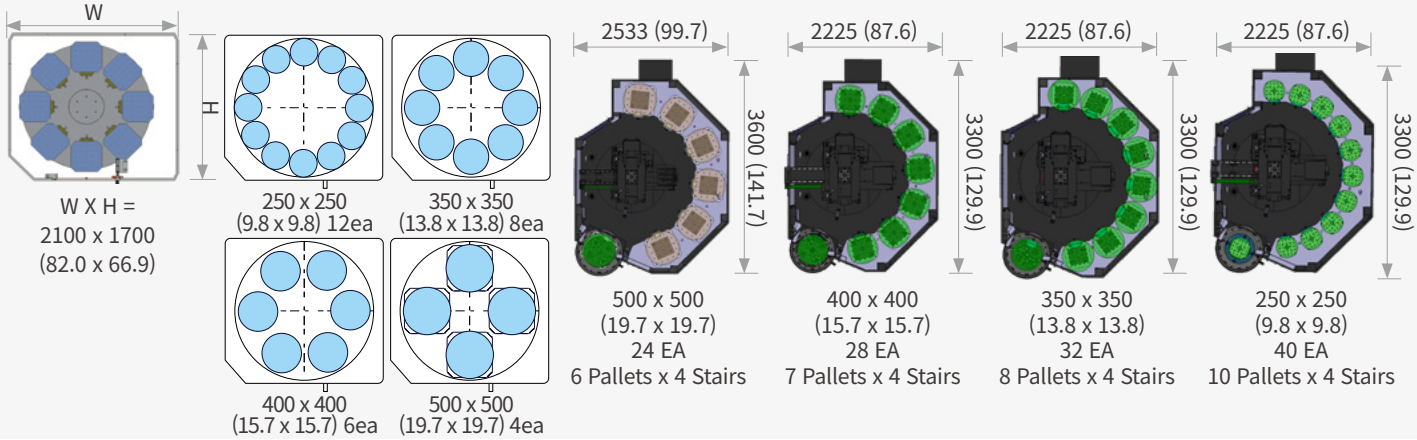

## Multi-AWC

Automation solution capable of mounting up to 40 workpieces.

| Description | Pallet size | No. of pallets | Max. workpiece dia. x height | Max. workpiece weight (Including pallet) |
|---|---|---|---|---|
| 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) (HSK A100 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

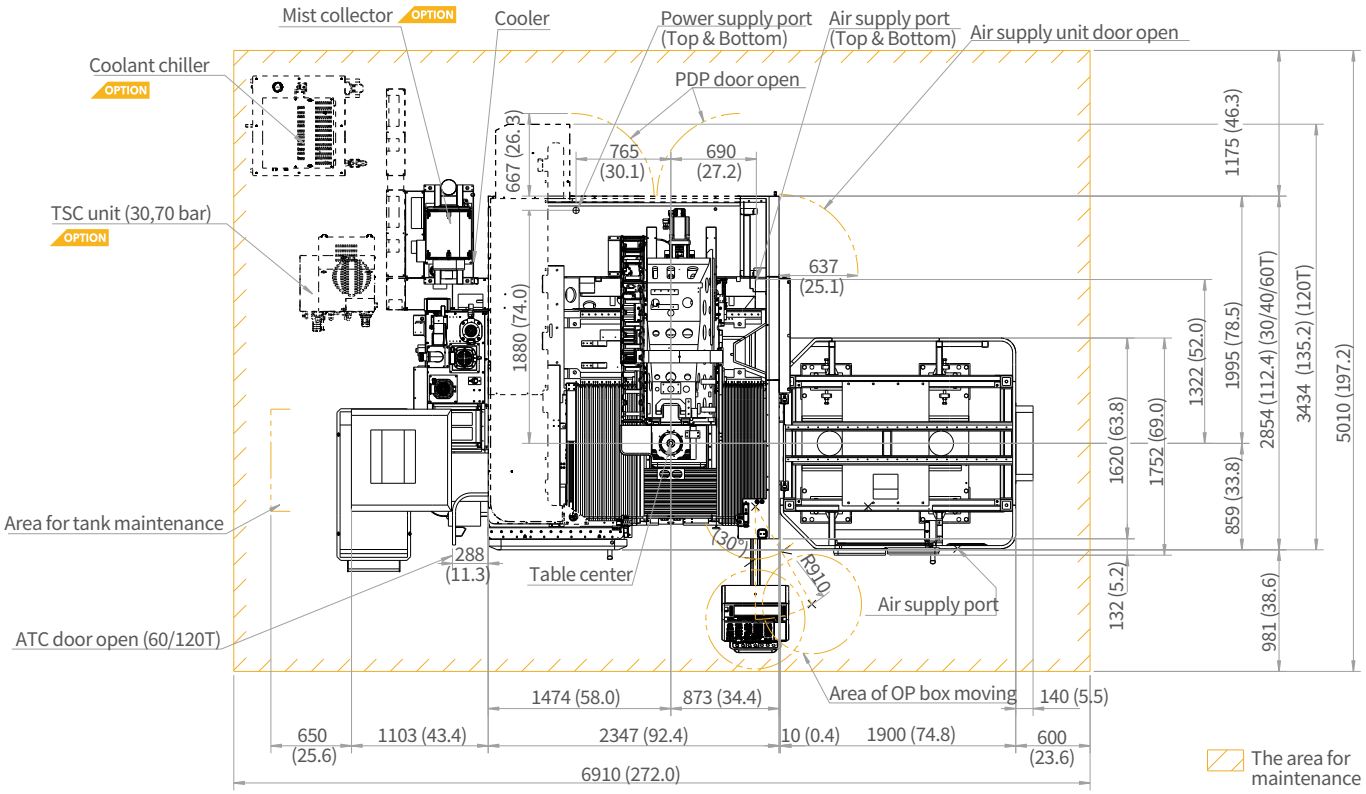
*unit : mm (inch)*



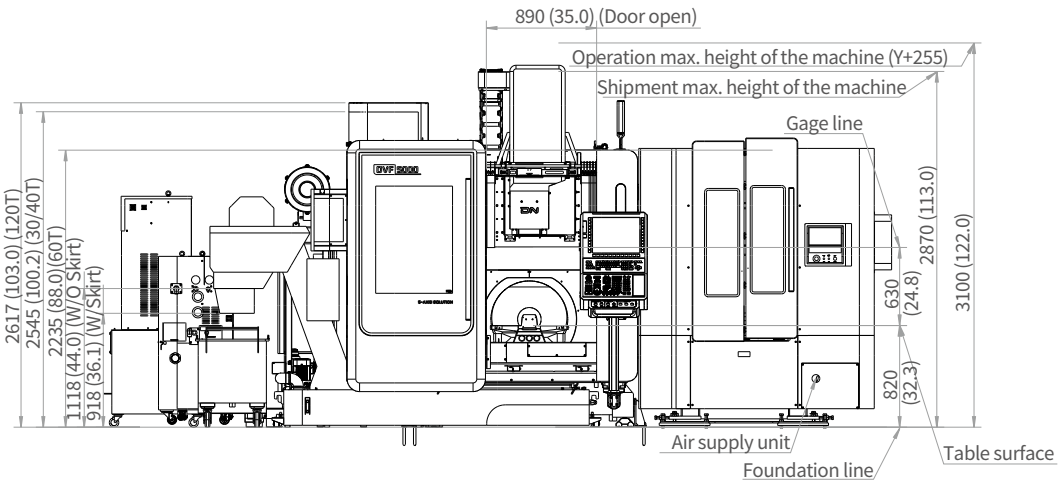
# S-AWC DIMENSIONS

*Units : mm (inch)*

TOP




FRONT



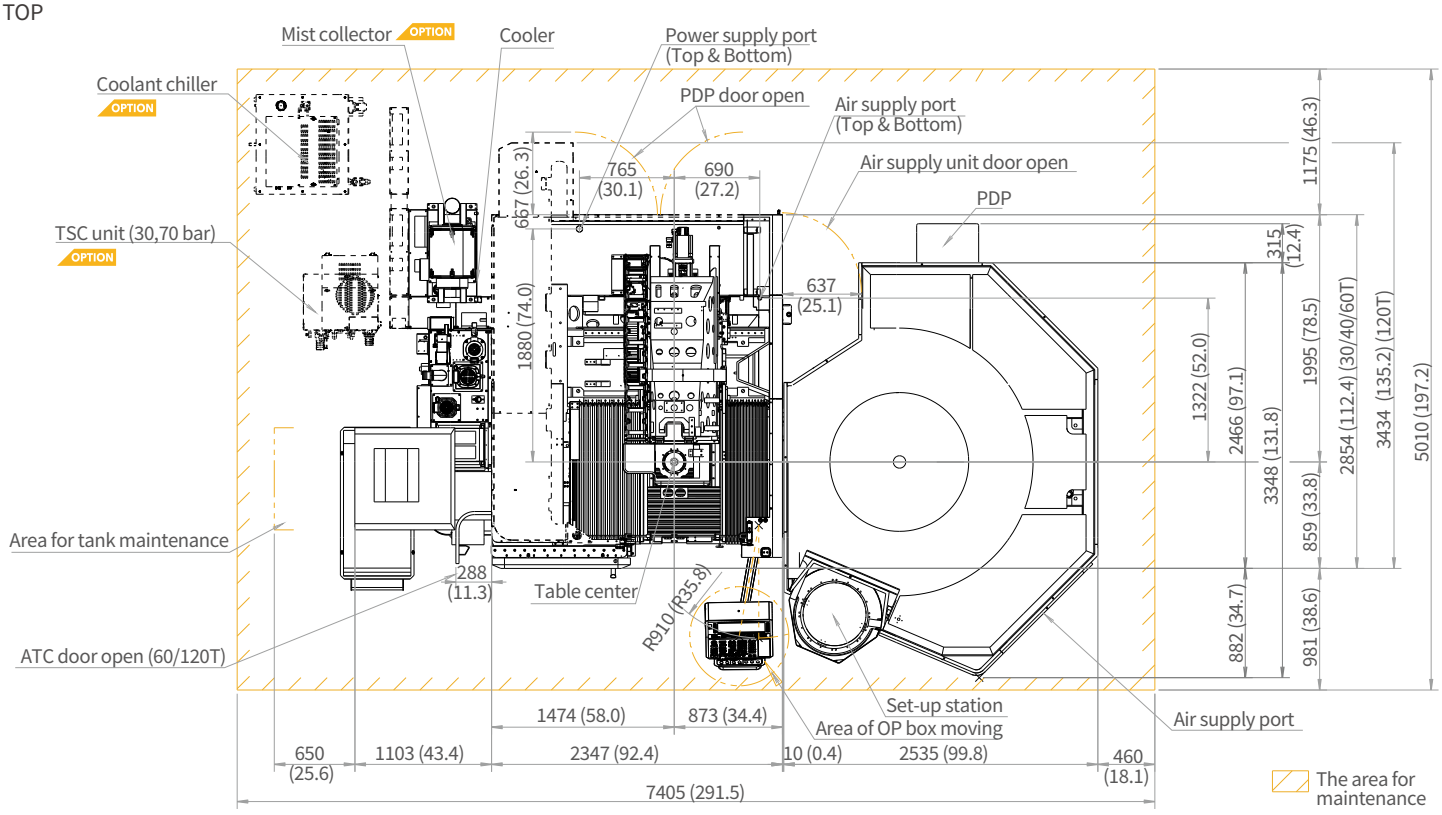

**Some peripheral equipment can be placed in other areas.*

# M-AWC DIMENSIONS

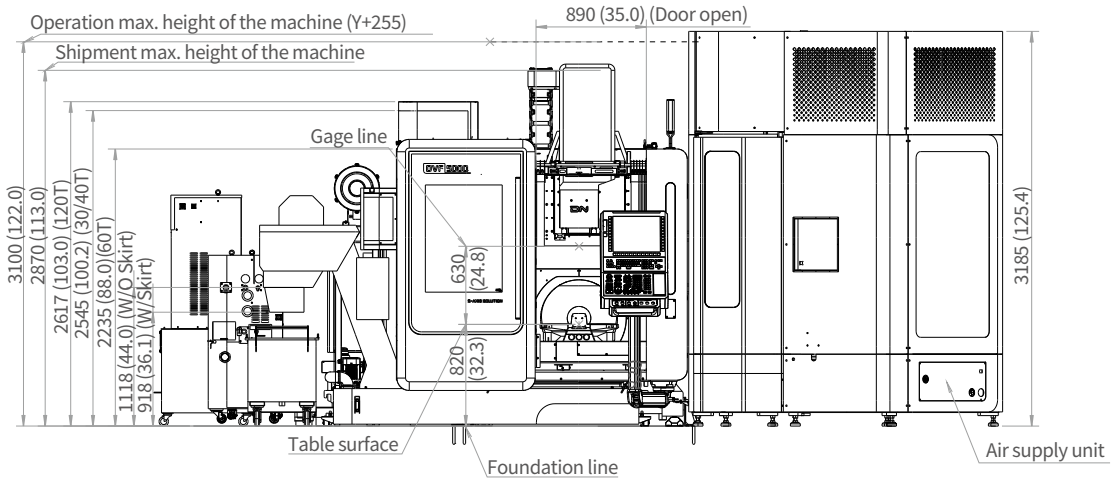
24P

*Units : mm (inch)*

TOP




FRONT



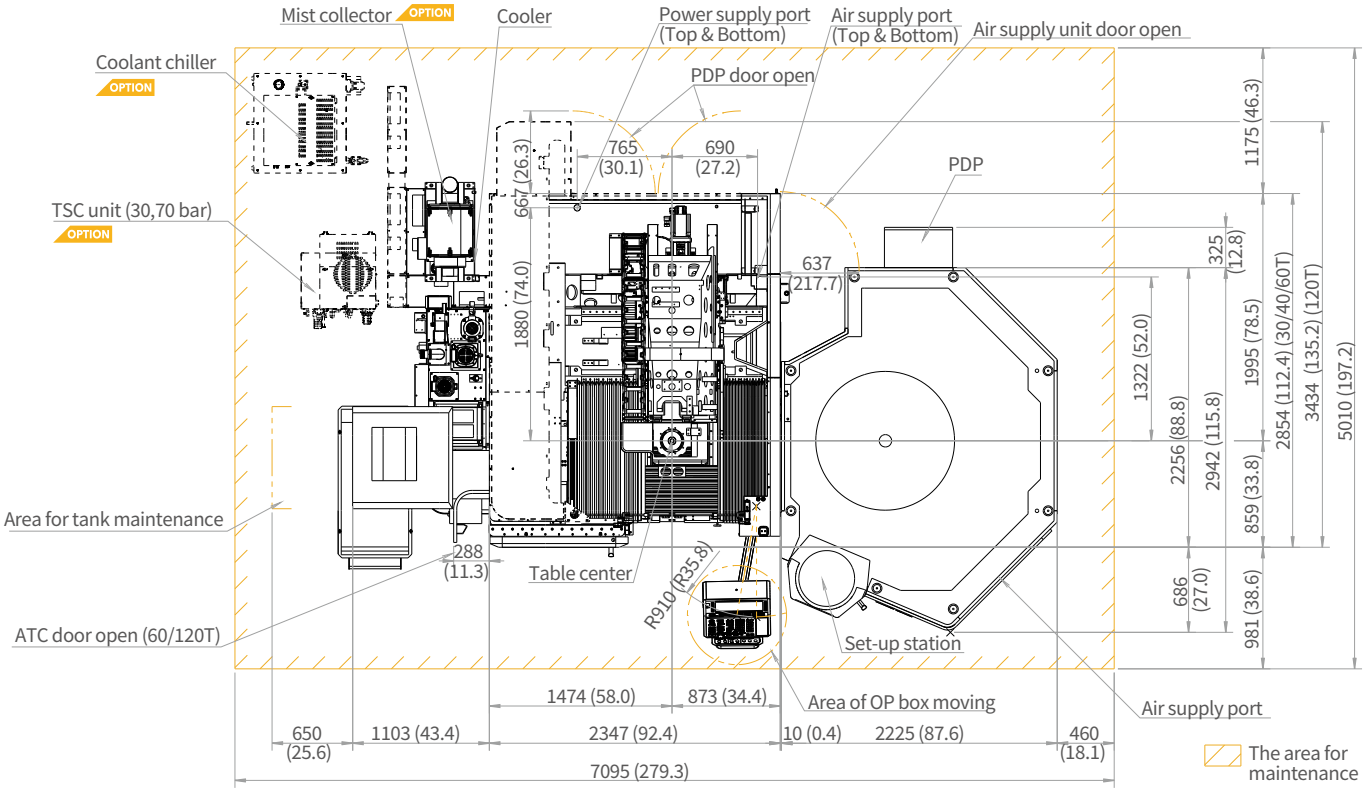

 **Some peripheral equipment can be placed in other areas.*

# M-AWC DIMENSIONS

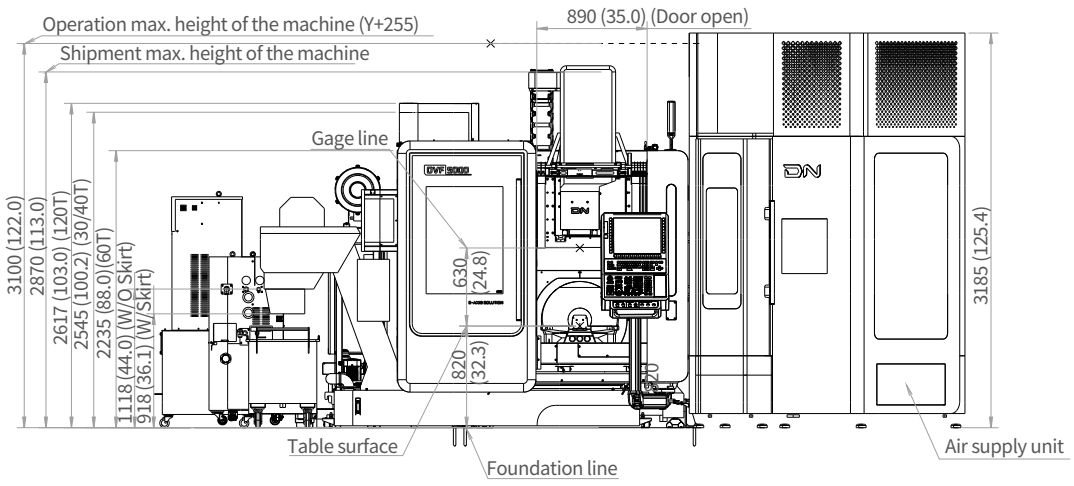
28 / 32 / 40P

*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**
- 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 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

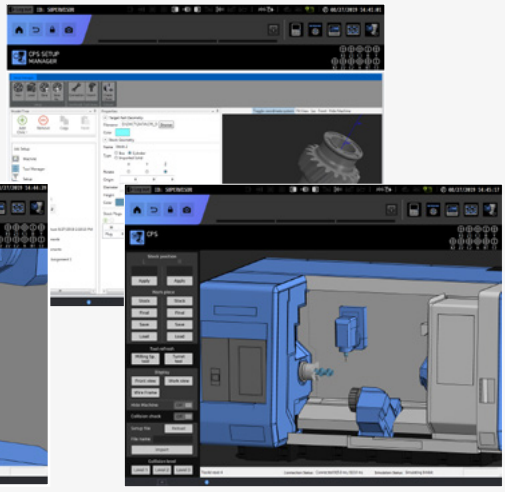
CPS

CPS SETUP MANAGER

### 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

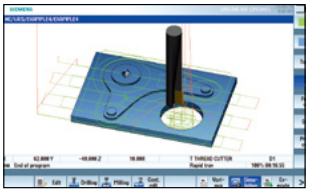



**Even Faster & Easier processing + 21.5" screen**

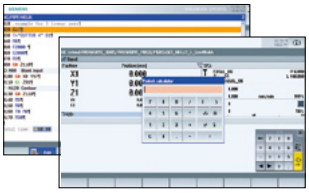
All programming, set-up, actual machining and verification process are getting easier and faster. Especially, intuitive conversational programming guidance with 3D UI(user interface) on 21.5" large touch screen is helpful for unskilled engineers.

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

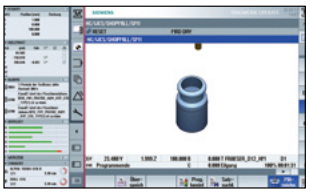
## Conversational convenient function



Simulation and machining contour monitoring



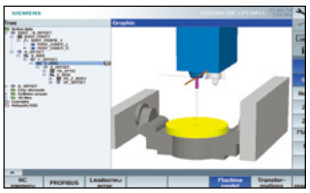
Smart function



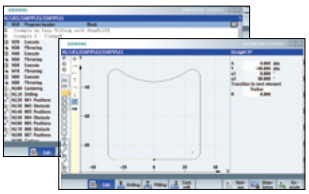
Side screen widget



5-axis kinematic measuring cycles



3D collision avoidance and collision avoidance ECO



Shop mill part programming

## NUMERIC CONTROL SPECIFICATIONS

SIEMENS

| | Item | Specifications | S-ONE |
|---|---|---|---|
| **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 TNC7



<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

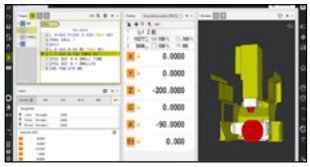
## Conversational convenient function



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 cyclesfor 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

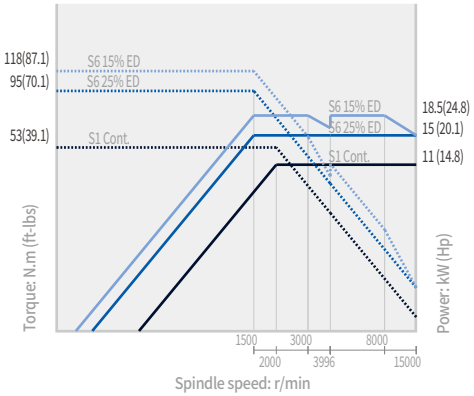
| | Item | Specifications | TNC7 |
|---|---|---|---|
| **Controlled axis** | Controlled axis | | 5 axes (X,Y,Z,C,B) |
| | Simultaneously controlled axis | | 5 axes |
| **Interface function** | Embedded ethernet | | ● |
| | USB interface (USB 2.0) | | ● |
| | HEIDENHAIN DNC | | ○ |
| | Profinet | | ● |
| | Profibus DP | | ● |
| **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** | OPCUA(server) | | ○ |
| **Others** | Display unit | touch panel | 24" |
| | Program memory for NC programs | | 189GB |
| | CAD Import | | ○ |
| | Ext. Tool Management | | ○ |
| | Active Chatter Control | | ○ |
| | Model Aided Setup | | ○ |
| | Opt. Contour Milling | | ○ |
| | Process Monitoring | | ○ |

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

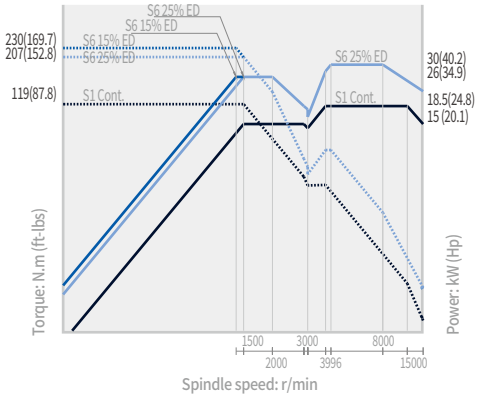
# POWER | TORQUE

## FANUC

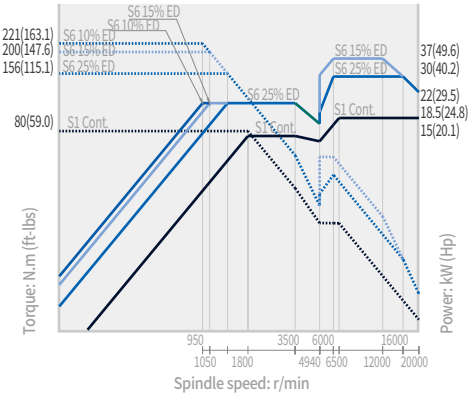
### 15000r/min Direct
Power 18.5/11 kW (24.8/14.8 Hp)
Torque 118 N·m (87.1 ft-lbs)




### 15000r/min Built in OPTION
Power 30/18.5 kW (40.2/24.8 Hp)
Torque 230 N·m (169.7 ft-lbs)

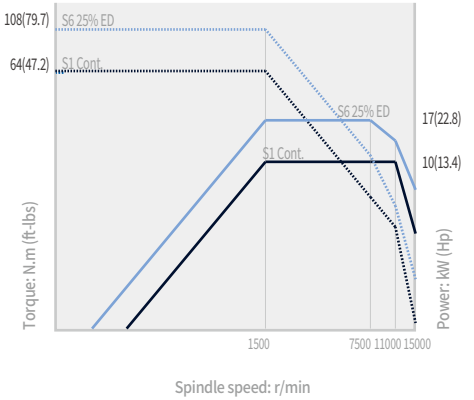



### 20000r/min Built in OPTION
Power 37/18.5 kW (49.6/24.8 Hp)
Torque 221 N·m (163.1 ft-lbs)

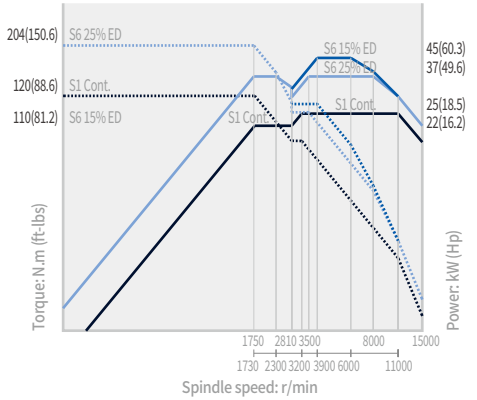



## HEIDENHAIN

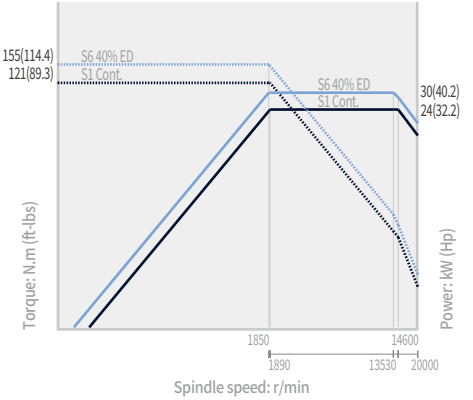
### 15000r/min Direct
Power 17/10 kW (22.8/13.4 Hp)
Torque 108 N·m (79.7 ft-lbs)




### 15000r/min Built in OPTION
Power 45/25 kW (60.3/33.5 Hp)
Torque 204 N·m (150.6 ft-lbs)

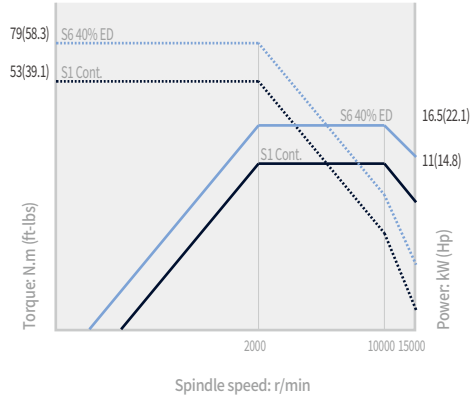



### 20000r/min Built in OPTION
Power 30/24 kW (42.9/32.2 Hp)
Torque 155 N·m (114.4 ft-lbs)

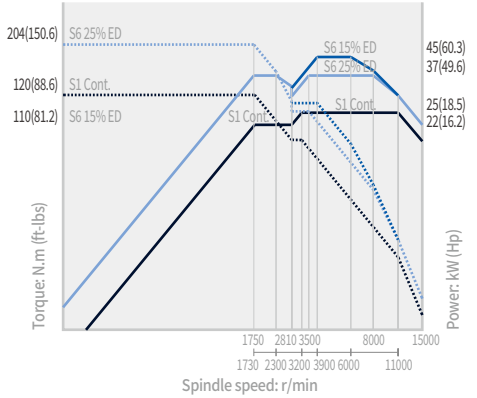



## SIEMENS

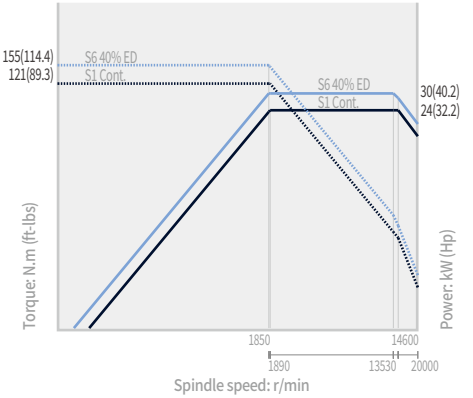
### 15000r/min Direct
Power 16.5/11 kW (22.1/14.8 Hp)
Torque 79 N·m (58.3 ft-lbs)




### 15000r/min Built in OPTION
Power 45/25 kW (60.3/33.5 Hp)
Torque 204 N·m (150.6 ft-lbs)



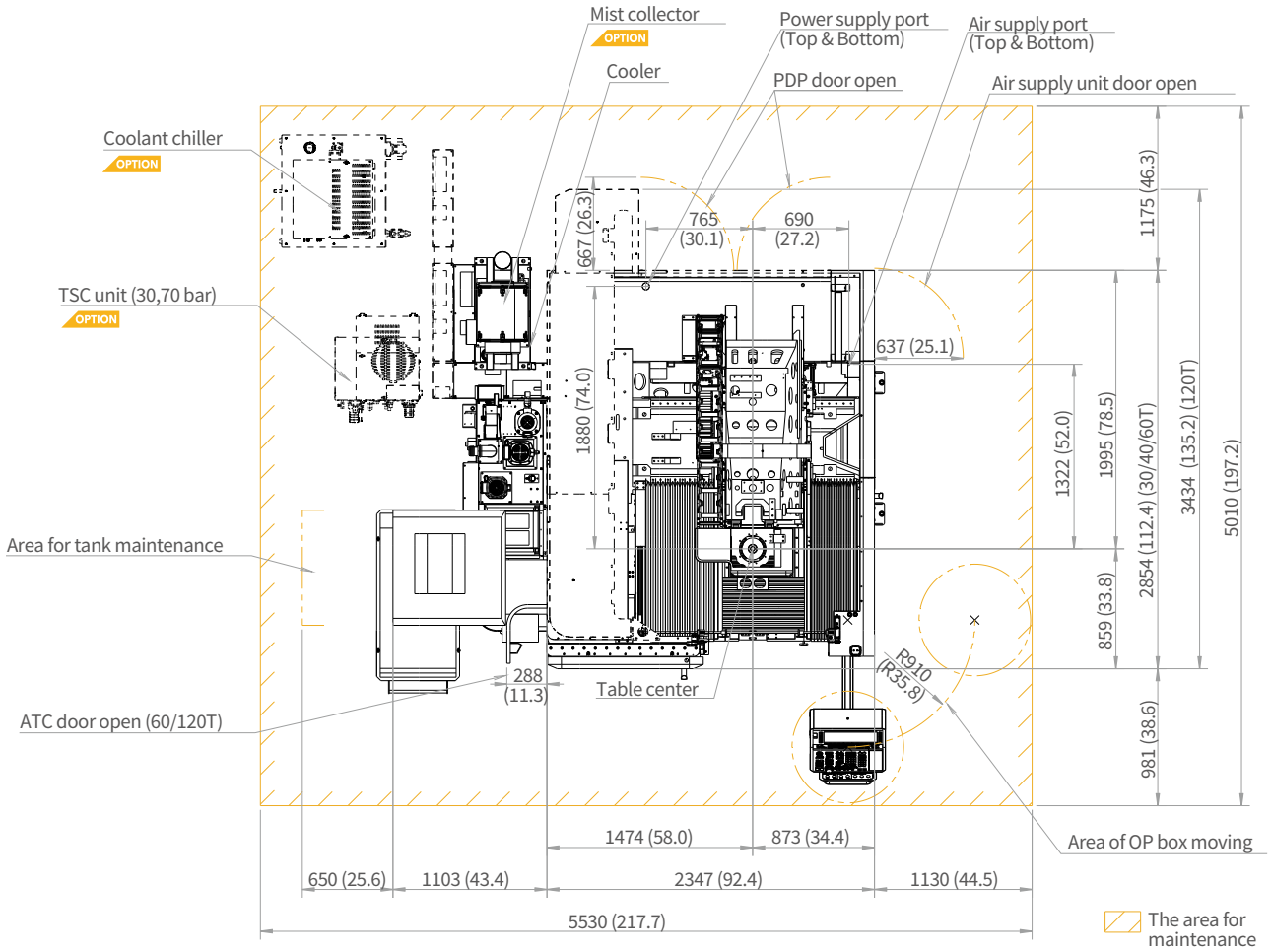

### 20000r/min Built in OPTION
Power 30/24 kW (42.9/32.2 Hp)
Torque 155 N·m (114.4 ft-lbs)



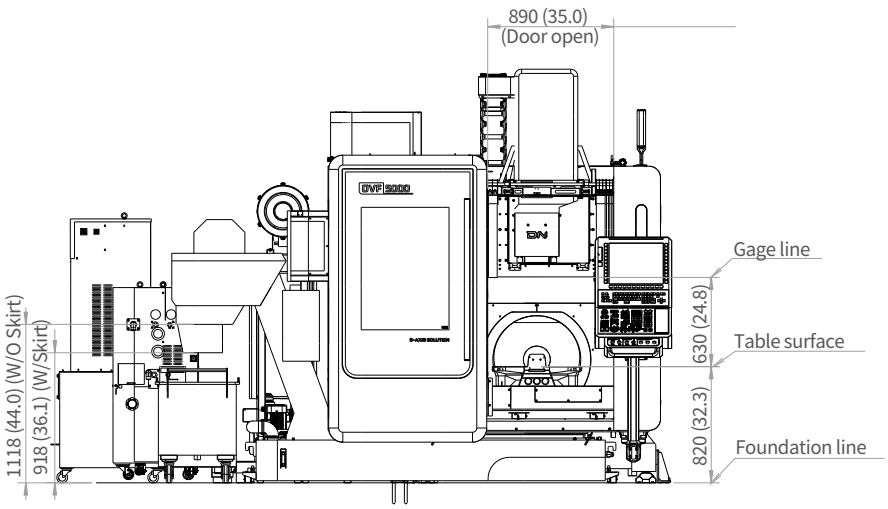
# EXTERNAL DIMENSIONS

*Units : mm (inch)*

TOP




FRONT

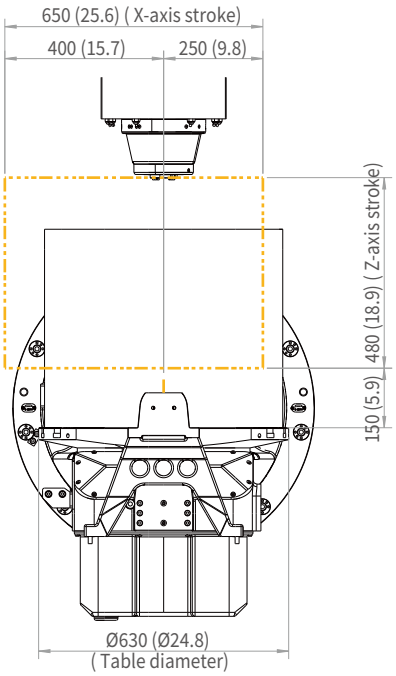



*Some peripheral equipment can be placed in other areas.*

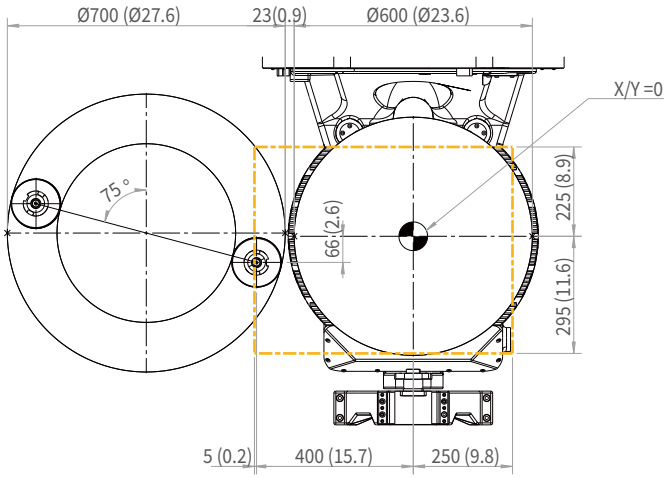
# WORKING RANGE

*Units : mm (inch)*

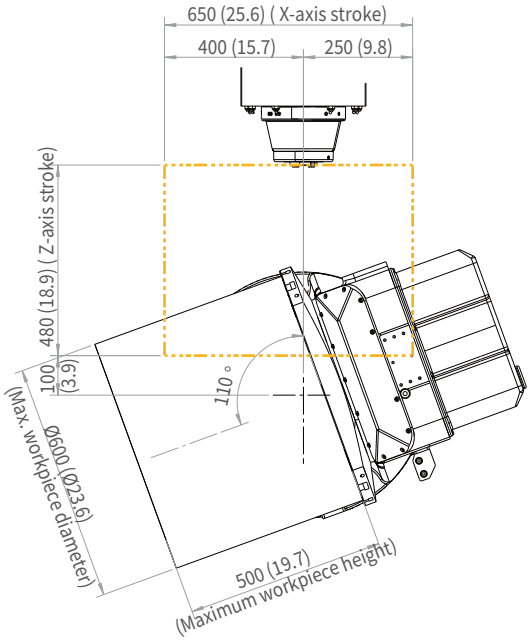
Front view



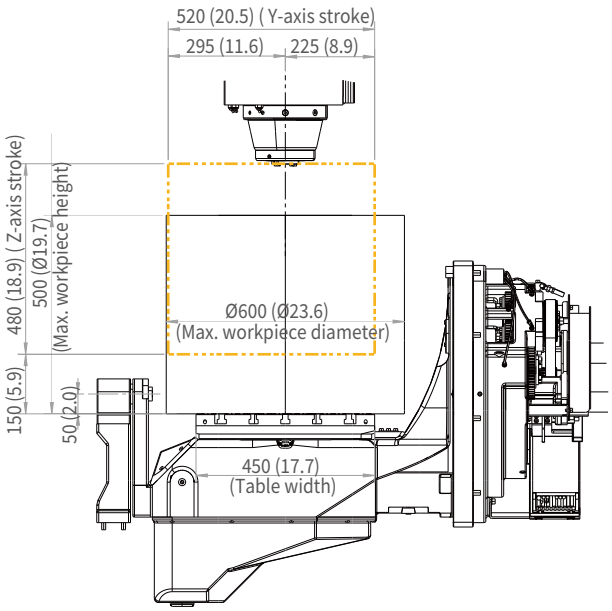

Front view




Front view




Right view



# MACHINE SPECIFICATIONS

| Description | | | Unit | DVF 5000 2nd | | |
|---|---|---|---|---|---|---|
| **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 :<br>15K Direct 18.5/11 (24.8/14.8)<br>(S6 15%/cont.)<br>15K Built-in 30/18.5 (40.2/24.8)<br>(S6 25%/cont.)<br>20K Built-in 37/18.5 (49.6/24.8)<br>(S6 15%/cont.) | TNC7 :<br>15K Direct 17/10 (22.8/13.4)<br>(S6 25%/cont.)<br>15K Built-in 45/25 (60.3/33.5)<br>(S6 15%/cont.)<br>20K Built-in 30/24 (40.2/32.2)<br>(S6 40%/cont.) | Sinumerik One :<br>15K Direct 16.5/11 (22.1/14.8)<br>(S6 40%/cont.)<br>15K Built-in 45/25 (60.3/33.5)<br>(S6 15%/cont.)<br>20K Built-in 30/24 (40.2/32.2)<br>(S6 40%/cont.) |
| | Max.torque | | N·m (ft-lbs) | CUFOS :<br>15K Direct 118 (87.1)<br>15K Built-in 230 (169.7)<br>20K Built-in 221 (163.1) | TNC7 :<br>15K Direct 108 (79.7)<br>15K Built-in 204 (150.6)<br>20K Built-in 155 (114.4) | Sinumerik One :<br>15K Direct 79 (58.3)<br>15K Built-in 204 (150.6)<br>20K Built-in 155 (114.4) |
| **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 | | |
| | | C-T-C | sec | 4.1(SIEMENS) | | |
| **Coolant** | Coolant tank capacity | | L (gal) | 440 (116.2) | | |
| **Machine dimensions** | Height | | mm (inch) | 3100 (122.0) | | |
| | Length x Width | | mm (inch) | 2855 (30/40/60T) x 2350 (112.4 x 92.5),<br>3435 (120T) x 2350 (135.2 x 92.5) | | |
| | Weight | | kg (lb) | 8000 (17636.7) (30, 40,60T), 9000 (19841.6) (120T) | | |
| **Control** | NC system | | - | CUFOS, TNC7, Sinumerik One | | |

*{ } : Option

# **WHY** 5-Axis machining?

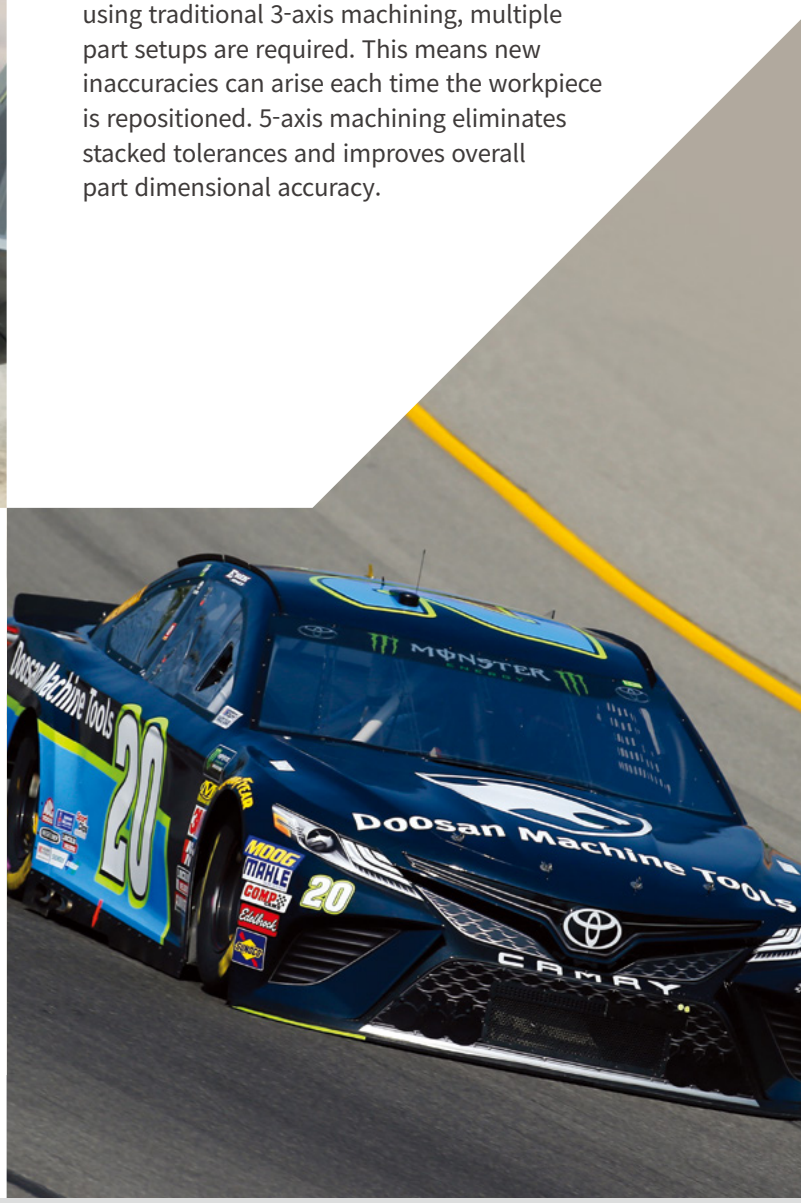
## SINGLE SETUP EFFICIENCY

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

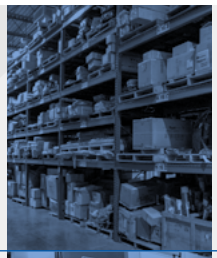
## WE'RE THERE FOR YOU WHENEVER YOU NEED US.

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

DN SOLUTIONS

dn-solutions.com


***Head Office***

19F, 10, Tongil-ro, Jung-gu, Seoul, Republic of Korea, 04527

Tel: +82-2-6972-0370
Fax: +82-2-6972-0400

***DN Solutions America***

360 E State PKWY, Schaumburg, IL. 60173, United states

Tel: +1-315-265-7500

***DN Solutions Europe***

Emdener Strasse 24, D-41540 Dormagen, Germany

Tel: +49-2133-5067-100
Fax: +49-2133-5067-111

***DN Solutions (India) Private Limited***

Plot No. 137, Devanahalli General Industrial Area ( KIADB ), ACIL, Kundana and Kasaba Area, Devanahalli, Bengaluru Rural – 562110. Karnataka, INDIA.

Email: info.india@dncompany.com

***DN Solutions China***

No 1. Dou Shan One Road, ETDZ Yantai, China

Tel: +86-0535-693-5000
Fax: +86-0535-693-5619

***DN Solutions Vietnam***

M.O.R.E building 2F, 40A-40B Ut Tich Street, 04 Ward 04, District Tan Binh District, Ho Chi Minh City, Vietnam

Tel: +84 28-7304-0163

***DN Solutions Mexico***

Avenida Parque Bicentenario #100 Nave M65L3-6, Fraccionamiento San Isidro Business Park, Santa Rosa Jauregui, Querétaro, México

E-mail: efrain.figueroa@dncompany.com

***Sales inquiry***

sales@dncompany.com


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

ver. EN 261022 SU