



HIGH SPEED, HIGH PRECISION PREMIUM  
VERTICAL MACHINING CENTER

# BVM

5700

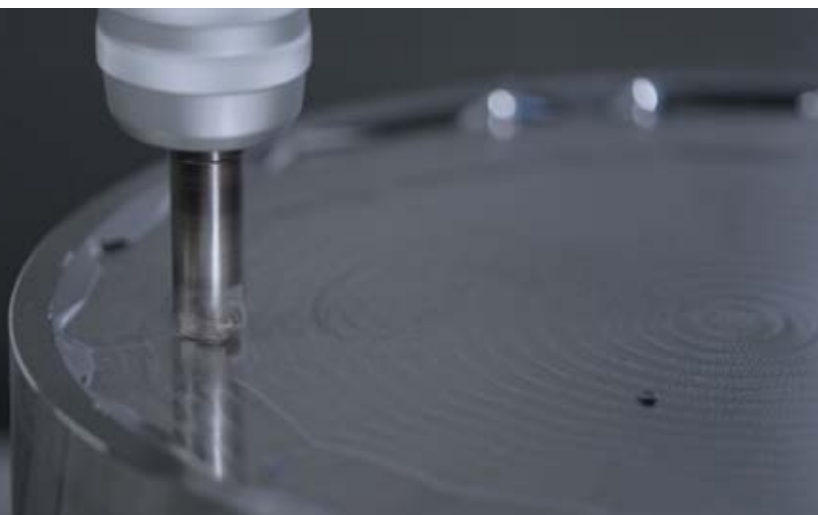


**DN SOLUTIONS**

# BVM 5700

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The BVM 5700 vertical machining center is optimized for stable machining and accuracy by its bridge frame structure. The 15000rpm built-in spindle provides high speed machining capability. The BVM 5700 is the best choice for customers who want the highest levels of precision and productivity.



BVM 5700 is the best choice for customers who want higher precision and improved cutting ability from a 3-axis VMC.



### HIGHER-PRECISION, HIGH-PRODUCTIVITY REALIZED WITH HIGH-SPEED BUILT-IN SPINDLE

- Built-in spindle 15000 r/min supplied as standard
- High spindle acceleration and deceleration deliver significantly improved productivity performance
- Optimized for speed with rapid traverse rates of 42m/min
- Reduced tool change C.T.C / T.T.T times maximizes production efficiency

### EXCELLENT MACHINING CAPABILITY

- 214 Nm spindle torque improves cutting performance
- The machine's structural rigidity combined with the durability of the axis feed system, that incorporates roller guideways, improves machining capabilities and performance

### OPTIMIZED FOR PRECISION MACHINING

- Spindle thermal displacement function is supplied as standard and ensures consistently high machining results and negates the impact of temperature fluctuations
- Minimize thermal displacement of the axis feed system by applying ballscrew nut cooling as standard
- SSP (Smooth Surface Package) function is applied as standard to provide high quality surface finishes

# BASIC STRUCTURE

The BVM series has a bridge frame structure which helps optimize rigidity and stability and delivers high precision even during heavy duty machining operations.

## Travel distance

X-axis  
**1050** mm 41.3 inch

Y-axis  
**570** mm 22.4 inch

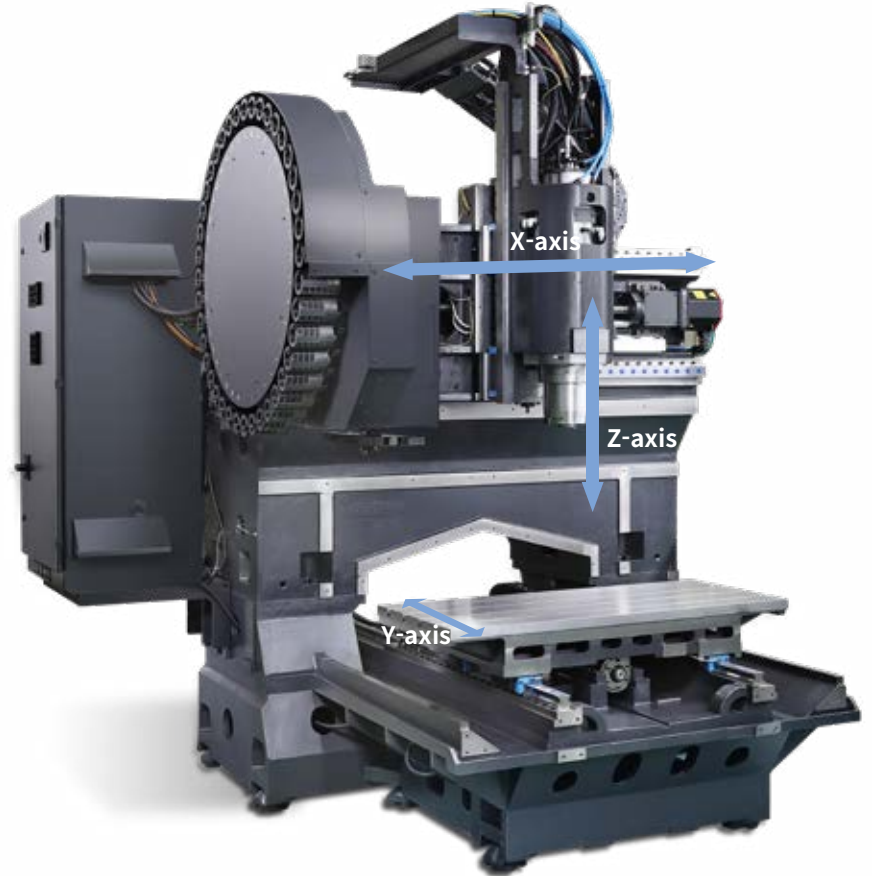
Z-axis  
**460** mm 18.1 inch

## Rapid traverse rate (X / Y / Z axis)

**42 / 42 / 36** m/min  
1653.5 / 1653.5 / 1417.3 ipm

## Acceleration/deceleration rate (G)

**0.5 / 0.5 / 0.4**



# AXIS SYSTEM

The non-cutting time has been dramatically reduced by improving the acceleration/deceleration performance of the axis drive system. In addition, eco-friendly grease lubrication is applied to all axes.

## High-precision travel system

Roller-type linear guideways, high-rigidity coupling, and the ball screw nut cooling system ensure high rigidity and outstanding axis accuracy of the linear feed drive system.

### Roller linear guideway

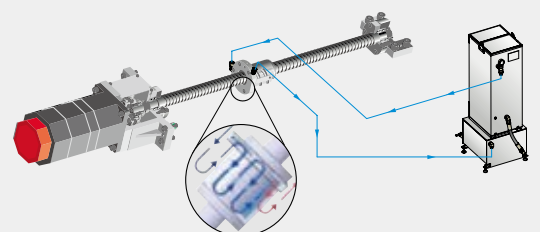


### Rigid coupling



### Ball screw nut cooling

Reduced thermal error of axis feed system



# SPINDLE

The built-in spindle is supplied as standard and improves productivity by optimizing acceleration/deceleration rates, reducing vibration and noise, and delivering high precision and powerful cutting performance.

## Max. spindle speed

**15000** r/min

## Max. spindle motor power

**18.5/37** kW 24.8/49.6 Hp

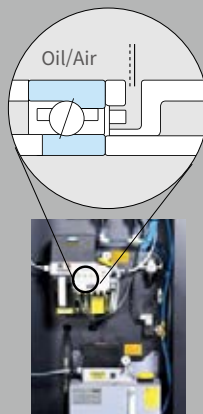
## Max. spindle motor torque

**214** N·m 157.9 ft-lbs



## Spindle cooling system

The cooling system removes heat generated by the bearings and motor to help minimize thermal errors. The air-oil lubrication system structure cools the spindle bearings, removing unwanted heat, and helps extend the service life of the machine.



# TABLE

The table size and maximum load capability represent the largest in its class

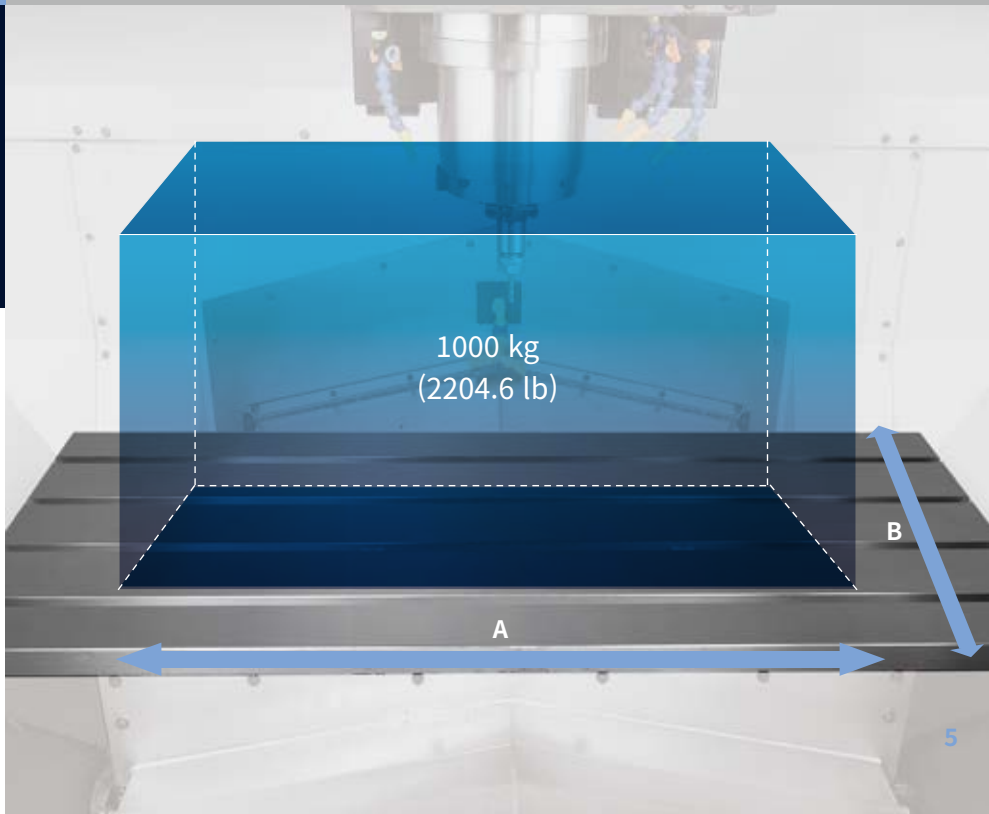
## Table size (A x B)

**1300 x 570** mm

51.2 x 22.4 inch

## Max weight on table (W)

**1000** kg 2204.6 lb



# MACHINING PERFORMANCE

Through various control functions and mechanical features, high precision machining can be realised.

## Cutting performance

Through various function and mechanical support, Rigidity and precisely machining can be executed.

<b>Face mill (ø80mm (3.15 inch)) : 6 Carbon steel (SM45C)</b>			
Chip removal rate cm <sup>3</sup> /min (inch <sup>3</sup> /min)	Spindle speed r/min	Feedrate mm/min (ipm)	
806.4 (49.2)	1500	6300 (248.0)	
<b>Face mill (ø80mm (3.15 inch)) : 6 Aluminium(AL6061)</b>			
Chip removal rate cm <sup>3</sup> /min (inch <sup>3</sup> /min)	Spindle speed r/min	Feedrate mm/min (ipm)	
2534 (154.6)	1500	7200 (283.5)	
<b>U-Drill (ø50mm (2.0 inch)) Carbon steel (SM45C)</b>			
Chip removal rate cm <sup>3</sup> /min (inch <sup>3</sup> /min)	Spindle speed r/min	Feedrate mm/min (ipm)	
763 (46.6)	1500	375 (14.8)	
<b>Tap Carbon steel (SM45C)</b>			
Tap size mm	Spindle speed r/min	Feedrate mm/min (ipm)	
M 42 x P 4.5	150	675 (26.6)	

\* The results, indicated in this catalogue, are provided as examples only. They may not always be achieved owing to different cutting and environmental conditions.

## Smart, multi-compensation thermal displacement technology (DSTC\*)

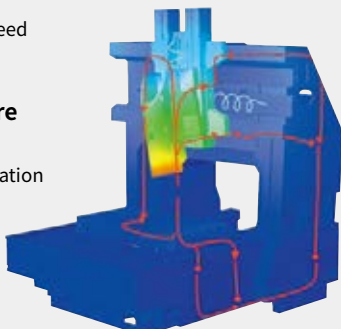
**Realization of high-quality, high-precision machining achieved by thermal compensation of the spindle and machine structure.**

### Compensation of static spindle displacement

Compensates for changes in tool position caused by expansion of the spindle shaft during high speed operations.

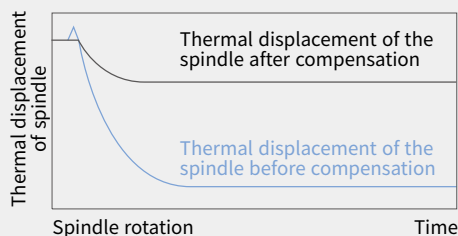
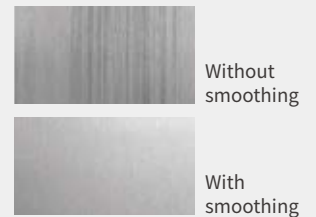
### Compensation of structure thermal displacement

Thermal displacement compensation structure Thermal displacement of the spindle, caused by heat accumulation, is compensated for using 5 algorithms including a smoothing function.



### Structural thermal displacement compensation

Compensates for any irregular deflection or expansion of the structure due to ambient temperature fluctuation by using multiple temperature sensors.



# TOOL CHANGE SYSTEM

To reduce non-cutting time, the tool change system has been optimized compared to previous models, and is available with either 30 or 40 tools.

## Tool to tool time

**1.3 s**

## Chip to chip\* time

**5.5 s**

*\* The Chip-to-Chip time has been tested in accordance with DN Solutions's strict testing procedures, but may vary depending on the user's operating conditions and environment.*

## Tool storage capacity

**30 ea / 40 ea** option

To reduce non-cutting time, the tool change system has been optimized compared to the previous models, and the reliable tool magazine has 30 tools (standard) and up to 40 tools as an option.

## ATC shutter door

An ATC shutter door can be applied instead of the brush mechanism to provide a higher level of protection from potential chip ingress.



# STANDARD | OPTIONAL SPECIFICATIONS

Various optional features are available to satisfy customers' specific machining requirements and applications.

Description	Features		BVM 5700	
Spindle	15000 r/min	37/15 kW, 214 N.m	●	
Magazine	Tool storage capacity	30 {40} ea	●	
Tool shank type	BIG PLUS BT40		●	
	BIG PLUS CAT40		○	
	BIG PLUS DIN40		○	
Coolant	Flood	250 L/min (0.6 kW)	●	
		250L/min (1.8kW)	○	
	TSC	None		●
		20 bar (1.5kW)		○
		20 bar (4.0kW)		○
		70 bar (5.5 kW)		○
Chip conveyor		○		
Chip disposal	Chip conveyor	Chip pan	●	
		Hinged type (Left/Right)		○
		Magnetic scraper type (Left/Right)		○
	Chip bucket		○	
	Air blower		○	
	AIR GUN		○	
	Coolant gun		○	
Mist collector		○		
Precision machining option	SSP(Smooth Surface Pacakge)		●	
	Linear scale	X / Y / Z axis	○	
	AICCII (200 block)		●	
	Spindle thermal compensation function	SENSOR TYPE	●	
Measurement & Automation	Automatic tool measurement	TS27R_Renishaw	○	
		ZX Speed_Blum	○	
		LTS_Renishaw	○	
	Automatic tool breackage detection		○	
	Automatic workpiece measurement	OMP60_Renishaw	○	
		TC50_Blum	○	
Automatic front door with safty edge		○		
4 axis Rotary table	S-200M4-DS		○	
	S-250F8-DS		○	
	S-320F8-DS		○	
	4축 READY	CABLING FOR SERVO/1-PNEUMATIC PIPING	○	
Accessories	LED LAMP		●	
	SIGNAL TOWER		●	
	Tool load monitoring system		●	
	Auto power off		○	
Customized Special Option	ANCHORING	J-Bolt	○	
	Automatic tool measurement	LTS_Renishaw	○	
	Raising block		○	
	Drum Chip conveyor		○	
	Automatic tool breackage detection	MSC/BK9(NEEDLE TYPE ON MAGAZINE)	○	

\*Please contact DN Solutions for detailed specification information.

● Standard ○ Optional X Not applicable

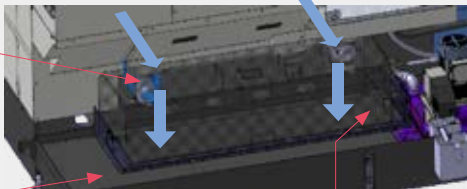


# PERIPHERAL EQUIPMENT

## Chip conveyor option

**CHIP PAN : Standard**  
**HINGE / SCRAPER Conveyor option**

**Machine inside Screw**  
 · Left/Right front ⇔ Rear direction

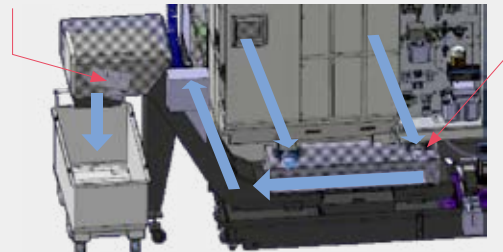


**Coolant Tank**  
 · Rear Side Coolant Tank

**Chip pan (standard)**

**Conveyor option**  
 · Right Side Chip Conveyor  
 · Hinged / Scraper type

**Machine inside Screw**  
 · Left, Right front ⇔ rear



Hinged belt



Magnetic scraper



Chip conveyor type	Material	Description
Hinged belt	Steel	Hinged belt chip conveyor, which is most commonly used for steel work [for cleaning chips longer than 30mm(1.2inch)], is available as an option.
Magnetic scraper	Cast Iron	Magnetic scraper type chip conveyor, which is ideal for die-casting work [for cleaning small chips], is available as an option.

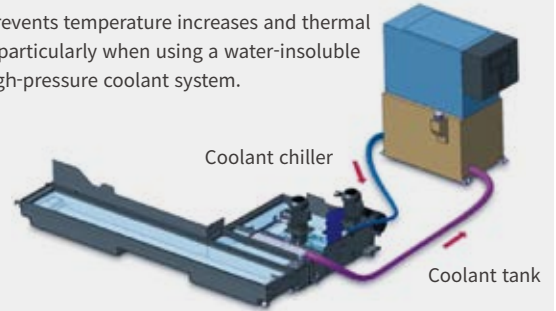
## 4 axis rotary table option

The high-precision split system with its compact and highly rigid design, and double piston structure enables vertical and horizontal use and delivers a strong clamping force.



## Coolant chiller option

Cutting oil circulates heat generated through the machining process throughout the machine transferring it to the machine body, workpiece and fixtures causing thermal deformation. We recommend use of a coolant chiller that prevents temperature increases and thermal deformation particularly when using a water-insoluble coolant or high-pressure coolant system.



## Cooling system (std)

**Machine temperature controlled spindle and axis drive cooling system**

Accurate spindle cooling  
 Accurate ball screw cooling



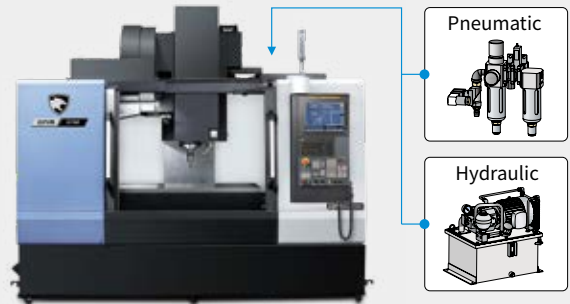
## Chip bucket option

**Capacity**  
**300 L (79.3 gal)**



## Hydraulic / Pneumatic fixture line

The user can prepare pipelines for hydraulic/pneumatic fixtures whose detailed specifications should be first determined through discussions with DN Solutions.



## Grease lubrication system

The standard grease lubrication system eliminates the need for an oil skimmer and reduces lubrication costs by about 60% compared to oil lubrication.

**Yearly maintenance cost**

**Reduced by**  
**Max. 60%**



# DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus is optimized for maximizing customer productivity and convenience.

## 15 inch screen + new operation panel

DN Solutions Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout, and features the Qwerty keyboard for fast and easy operation.

### DN Solutions Fanuc i Plus

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

### USB & PCMCIA card

### QWERTY keyboard

- EZ-guide i standard
- Ergonomic operator panel
- 2MB Memory
- Hot key



### iHMI touchscreen option

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

### Range of applications

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

## NUMERIC CONTROL SPECIFICATIONS

**FANUC**

Item	Specifications	DN Solutions Fanuc i (0i PLUS) BVM 5700	
Controlled axis	Controlled axes	3 (X,Y,Z)	
	Simultaneously controlled axes	4 axes	
Data input/output	Additional controlled Axis	Add 1 Axis (5th Axis)	
	Fast data server	●	
	Memory card input/output	○	
	USB memory input/output	●	
	Large capacity memory(2GB)*2	Available Option only with 15" Touch LCD (iHMI Only) *2)	
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	●	
	Tilted working plane indexing command	T4 digits	
Feed function	AI contour control I	G68.2 TWP	
	AI contour control II	G5.1 Q_, 40 Blocks	
	AI contour control II	G5.1 Q_, 200 Blocks	
	AI contour control II	G5.1 Q_, 600 Blocks	
	AI contour control II	G5.1 Q_, 1000 Blocks *1)	
Operation guidance function	High smooth TCP	X	
	EZ Guidei (Conversational Programming Solution)	●	
	iHMI with Machining Cycle	Only with 15" Touch LCD standard *2)	
Setting and display	EZ Operation package	X	
	CNC screen dual display function	●	
Network	FANUC MTConnect	●	
	FANUC OPC UA	⊕	
Others	Display unit	10.4" color LCD	X
		15" color LCD	X
	Part program storage size & Number of registerable programs	15" color LCD with Touch Panel	●
		640M(256KB)_500 programs	X
		1280M(512KB)_1000 programs	X
		2560M(1MB)_1000 programs	X
		5120M(2MB)_1000 programs	●
		10240M(4MB)_1000 programs	X
		20480M(8MB)_1000 programs	X
		2560M(1MB)_2000 programs	X
		5120M(2MB)_4000 programs	X
		10240M(4MB)_4000 programs	X
		20480M(8MB)_4000 programs	X

\*1) The number of look-ahead blocks may be changed or limited depending on the peripheral device or the configuration of the internal NC system.

\*2) Available Option only with Fanuc i plus iHMI

● Standard ○ Optional X N/A ⊕ Available  
Network: FANUC MT Connect and FANUC OPC UA available.

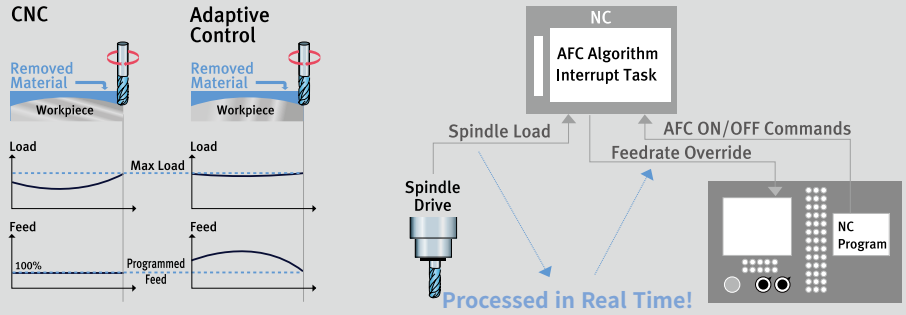
# EZ WORK

The software developed by DN Solutions features numerous functions designed for convenience and ease of operation.

## The Optimal Feed Control (DAFC\*)

Optimal feed control is ensured by realspindle load detection.

\*DAFC : DN Solutions Adaptive Feedrate Control



## EZ work

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

## Conversational convenient function



### EZ work Main screen

On the operation panel, press the CUSTOM1 button to make the initial EZ work screen show up.



### Tool Management

This function controls information on the tools in the tool magazine pots.



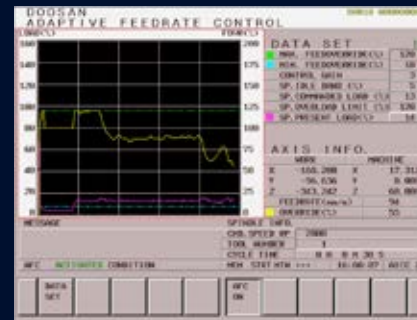
### ATC Recovery

In the event of an error during ATC (automatic tool changer) operation, follow the on-screen instructions for an easy and prompt solution.



### Tool Load Monitoring

During cutting operation, abnormal load caused by wear and tear of the tool is detected and an alarm is triggered to prevent further damage.



### Adaptive Feed Control(AFC)

If tool overload is detected during operation, the feed rate is controlled to prevent the tool from being damaged.



### Thermal compensation function

A thermal error compensation function is provided as a standard feature to secure stable cutting safe from potentially harmful environmental factors.

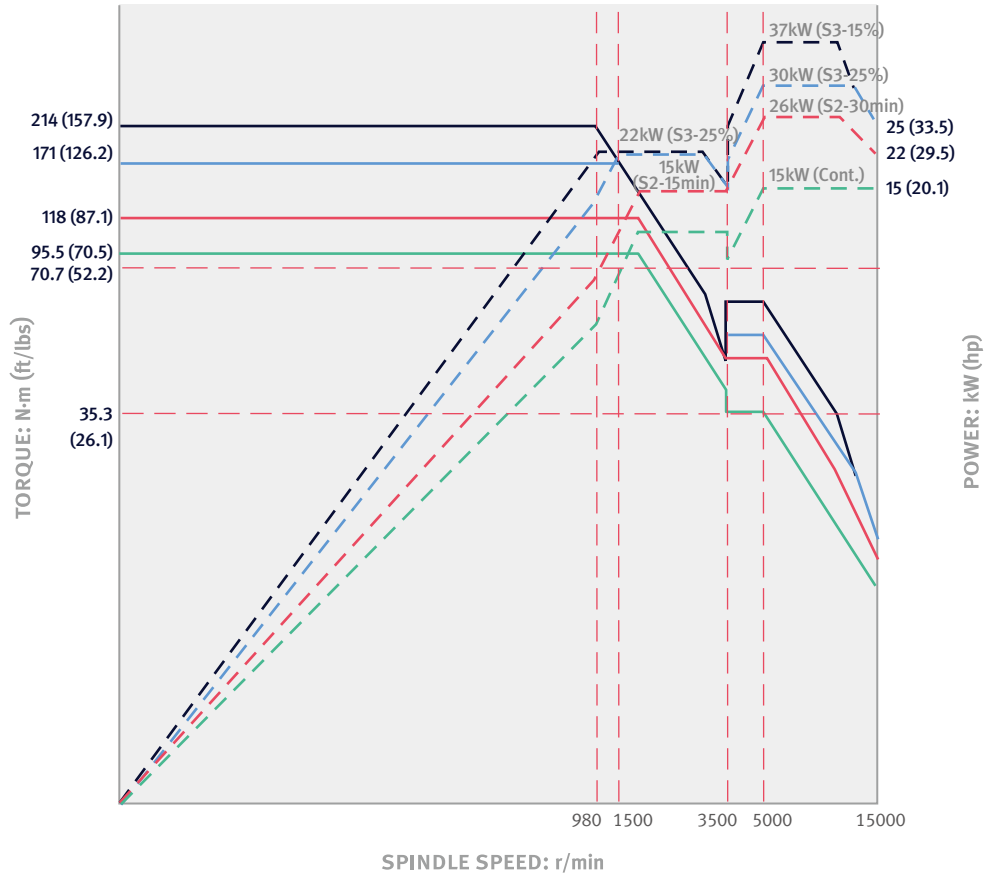
# POWER | TORQUE

## Torque

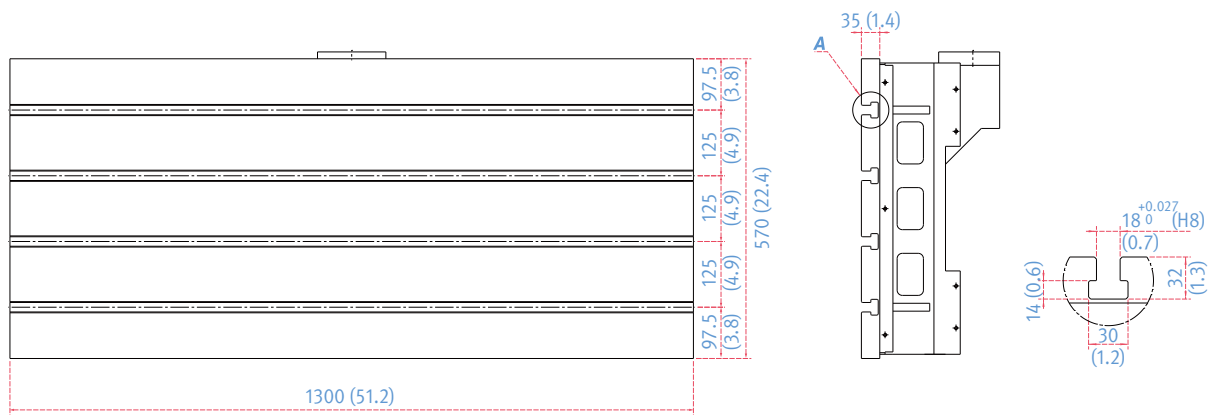
SPEED: **15000** r/min

POWER: **37/15** kW  
24.8 hp

TORQUE: **214** N·m  
70.5 ft-lbs

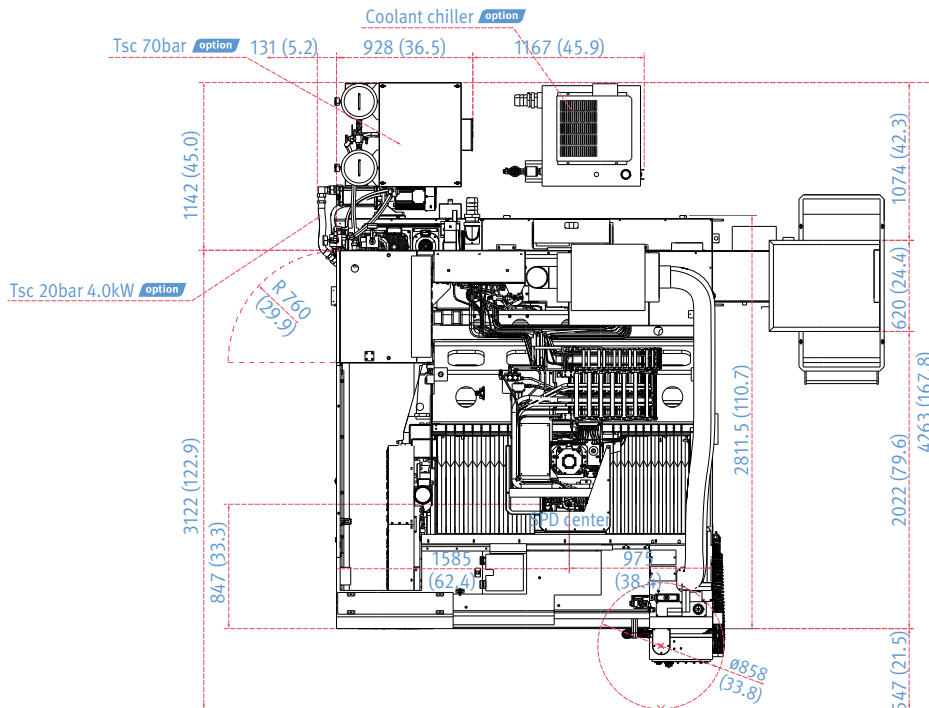


## Table

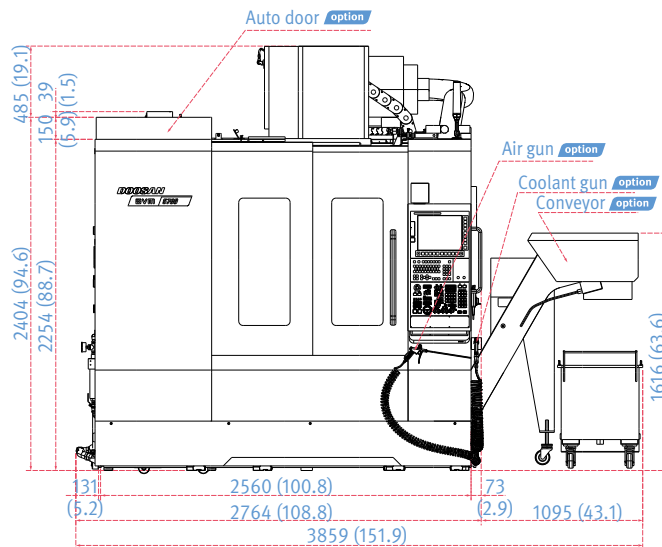


# DIMENSIONS

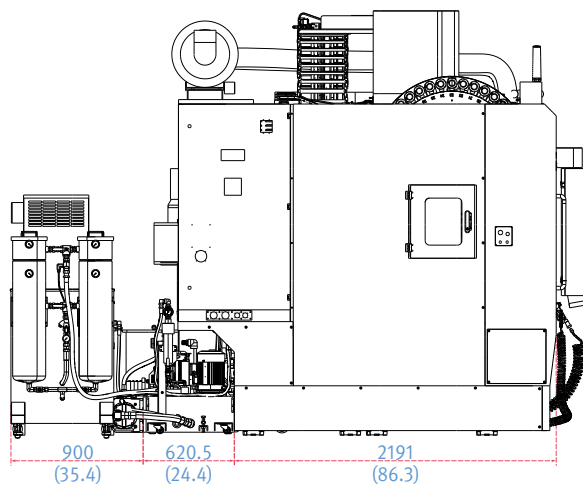
Units : mm (inch)



TOP



FRONT



SIDE

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

# MACHINE SPECIFICATIONS

Description			Unit	BVM 5700
Travels	Travel distance	X axis	mm (inch)	1050 (41.3)
		Y axis	mm (inch)	570 (22.4)
		Z axis	mm (inch)	460 (18.1)
	Distance from spindle nose to table top		mm (inch)	150~610 (5.9~24.0)
Table	Table size		mm (inch)	1300 x 570 (51.2 x 22.4)
	Table loading capacity		kg (lb)	1000 (2204.6)
	Table surface type		mm	T-SLOT (4-125 x 18H8)
Spindle	Max. spindle speed		r/min	15000
	Taper		-	ISO #40
	Max. spindle torque		N·m (ft-lbs)	214 (157.9)
	Max. spindle power (S3/continuous)		kW (Hp)	18.5/37 (24.8/49.6)
Feedrates	Rapid traverse rate	X axis	m/min (ipm)	42 (1653.5)
		Y axis	m/min (ipm)	42 (1653.5)
		Z axis	m/min (ipm)	36 (1417.3)
Automatic tool changer	Type of tool shank		-	BT 40 {CAT/ DIN}
	Tool storage capa.		m/min (ipm)	30 {40} (1181.1 {1574.8})
	Max. tool diameter	Continous	mm (inch)	80 (3.1)
		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 selection			MEMORY RANDOM
	Tool change time (Tool-to-tool)		sec	1.3
	Tool change time (Chip-to-chip)		sec	5.5
Motor	Coolant pump motor power		kW (Hp)	0.6 {1.8} (0.8 {2.4})
Power source	Electric power supply (rated capacity)		kVA	55.4
	Compressed air supply		MPa (psi)	0.54 (78.3)
Tank capacity	Coolant tank capacity		L (gal)	250 (66.1)
Machine dimensions	Height		mm (inch)	2890 (113.8)
	Length		mm (inch)	3080 (121.3)
	Width		mm (inch)	2560 (100.8)
	Weight		kg (lb)	7500 (16534.4)
Control	NC system		-	DN Solutions Fanuc i Plus

{ } : option

# RESPONDING TO CUSTOMERS ANYTIME, ANYWHERE

## DN Solutions Global Network

DN Solutions provides systems-based professional support services, before and after the machine tool sale, by responding quickly and efficiently to customers. By supplying spare parts, product training, field service and technical support, we provide the expert care, attention and assistance our customers expect from a market leader.

Global sales and service support network		<b>51</b>	<b>Technical centers</b> Technical center, Sales support, Service support, Parts support
<b>4</b>	Corporations	<b>200</b>	<b>Service posts</b>
<b>155</b>	Dealer networks	<b>3</b>	<b>Factories</b>



## 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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\* For more details, please contact DN Solutions.

\* Specifications and information contained within this catalogue may be changed without prior notice.