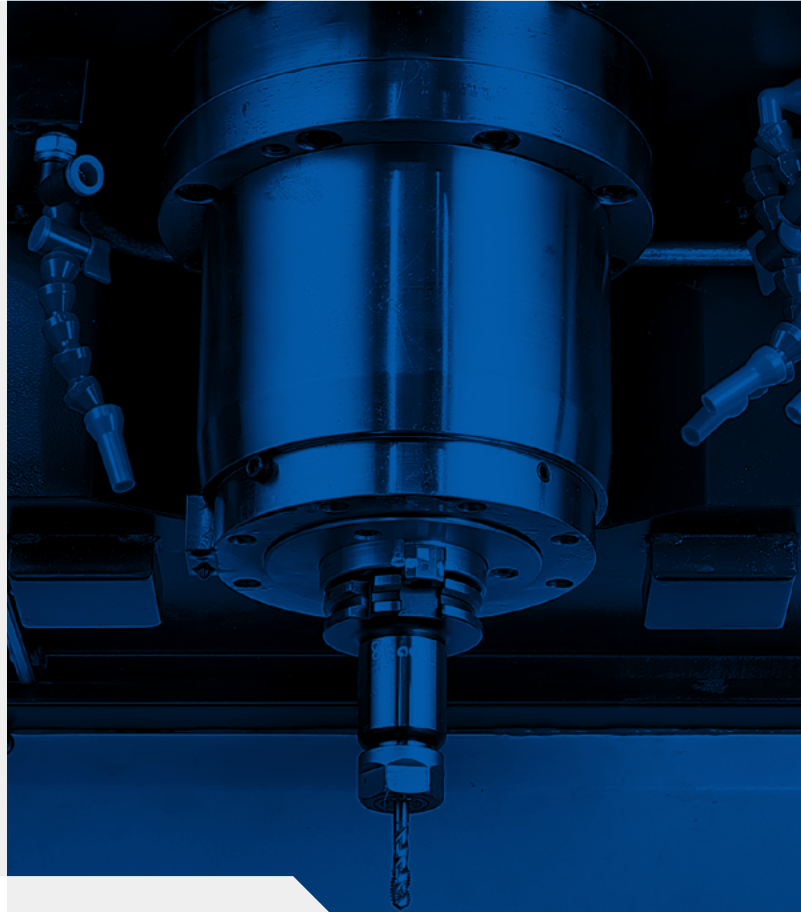


HIGH SPEED, HIGH PRECISION PREMIUM
VERTICAL MACHINING CENTER

BVM 5700



BVM 5700

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.

CONTENTS

Product Overview

Basic Information

- 04 Basic Structure
- 05 Spindle
- 06 Tool Change System

Detailed Information

- 07 Standard | Optional Specifications
- 08 Peripheral Equipment
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- 11 Convenient Operation
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- 13 Table
- 14 Dimensions
- 15 Machine Specifications



**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.

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.

Travel distance

X-axis
1050 mm (41.3 inch)

Y-axis
570 mm (22.4 inch)

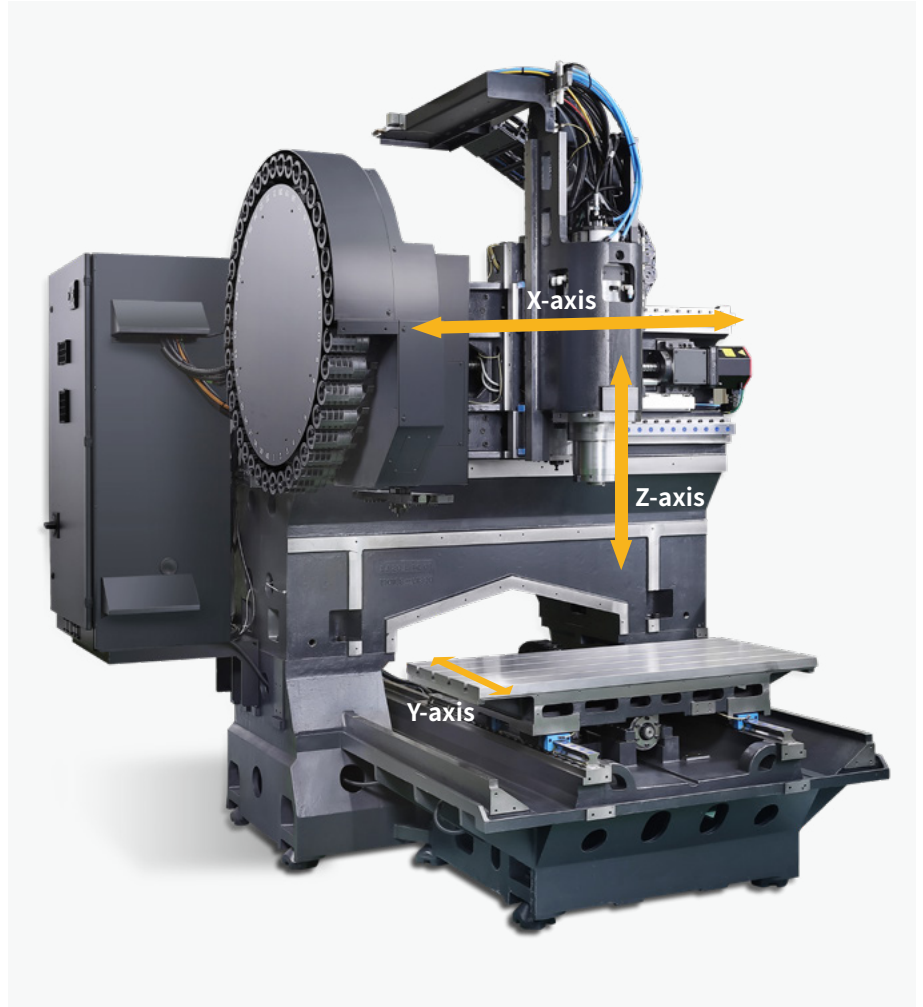
Z-axis
460 mm (18.1 inch)

Rapid traverse rate (X / Y / Z axis)

42 / 42 / 36 m/min
(1653.5 / 1653.5 / 1417.3 ipm)

Acceleration/deceleration rate (G)

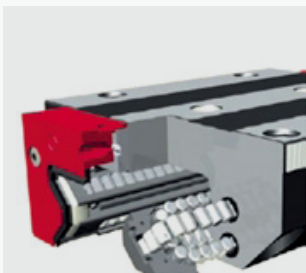
0.5 / 0.5 / 0.4



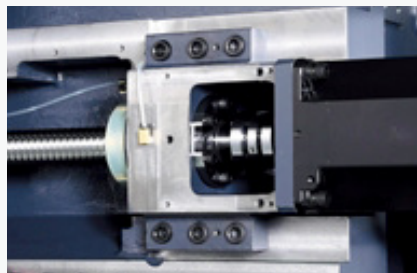
High-precision travel system

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

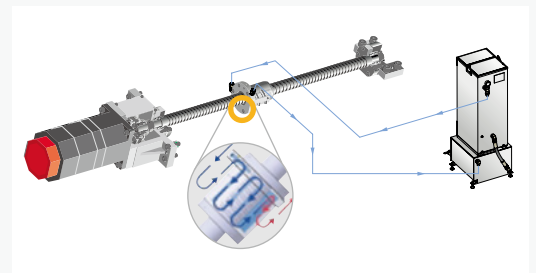


Rigid coupling



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

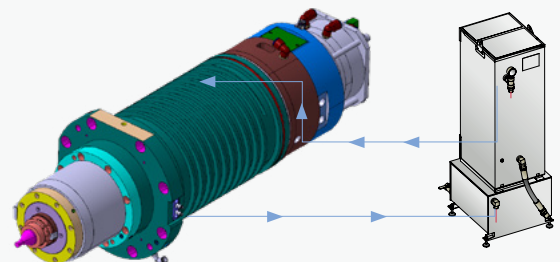
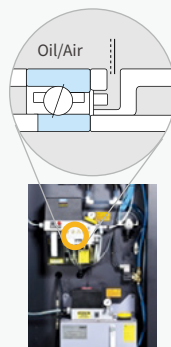
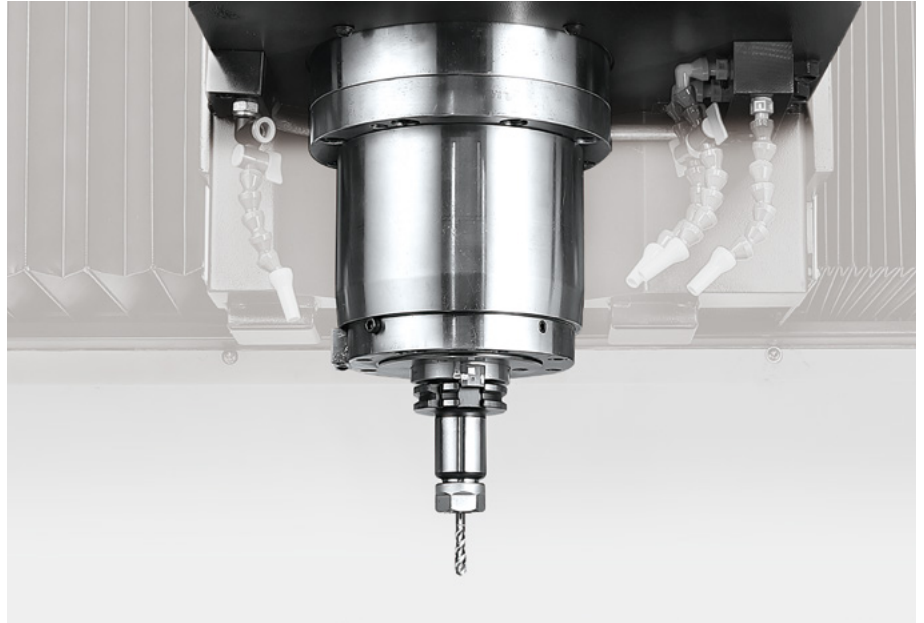
18.5 / 37 kW
(24.8/49.6 Hp)

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

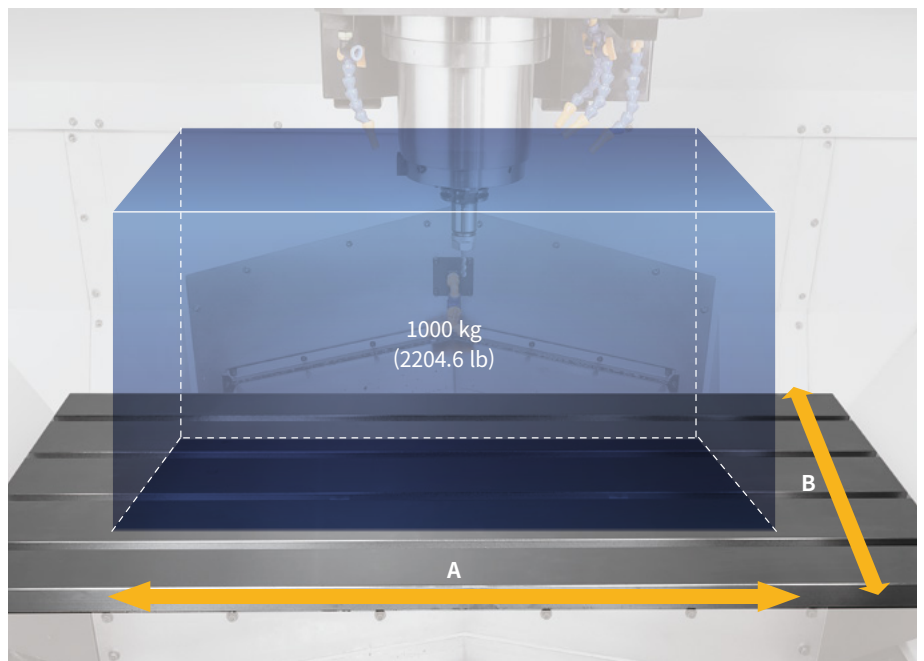
The table size and maximum load capability represent the largest in its class

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)



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

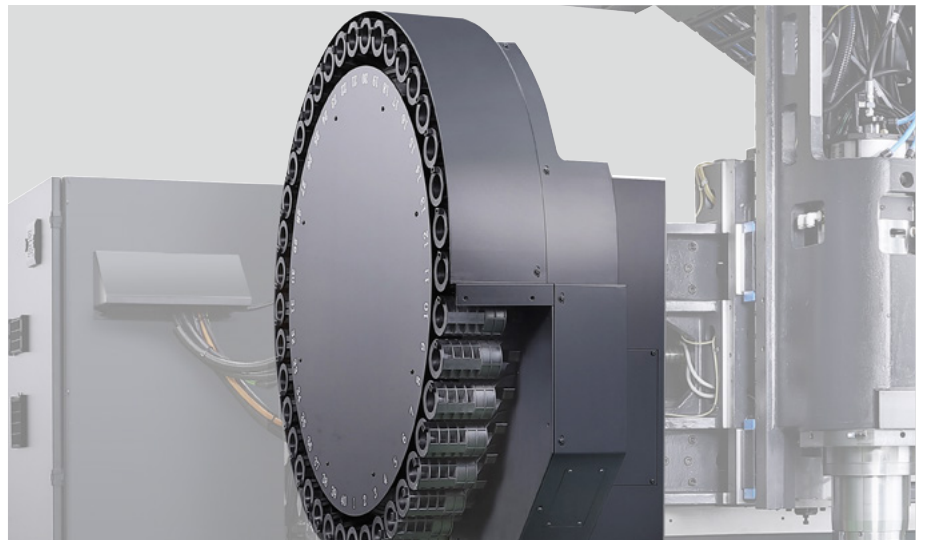
** The Chip-to-Chip time has been tested in accordance with DN Solutions's strict testing procedures, but may vary depending on the user's operating conditions and environment.*



Tool storage capacity

30 {40 OPTION} ea

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	18.5/37 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	0.2/0.15 MPa (0.6 kW)	●
	Max pressure 60Hz/50Hz (Pump motor power)	0.7/0.47 MPa (1.1 kW)	○
	TSC	None	●
	Max pressure 60Hz/50Hz (Pump motor power)	2.0/1.9 Mpa (1.5 kW)	○
		2.0/1.3 Mpa (4.0 kW)	○
		7.0/7.0 Mpa (7.5 kW)	○
	Top flushing	0.2 Mpa (1.8 kW)	○
	Max pressure (Pump motor power)		
	Y-rear flushing coolant	0.2/0.15 MPa (0.6 kW)	○
Max pressure 60Hz/50Hz (Pump motor power)			
Water soluble Coolant Chiller**		○	
Chip conveyor		○	
Chip disposal	Chip pan		●
	Chip conveyor	Chip pan	○
		Hinged type (Left/Right)	○
		Magnetic scraper type (Left/Right)	○
	Chip bucket		○
	Air blower		○
	AIR GUN		○
Precision machining option	Coolant gun		○
	Mist collector		○
	SSP(Smooth Surface Pacakge)		●
	Linear scale	X / Y / Z axis	○
Measurement & Automation	AICCII (200 block)		●
	Spindle thermal compensation function	SENSOR TYPE	●
	Automatic tool measurement	TS27R_Renishaw	○
		ZX Speed_Blum	○
		OTS_Renishaw	○
	Automatic tool breackage detection	FEM-1CP_Far east mmchine tool	○
4 axis Rotary table	Automatic workpiece measurement	OMP60_Renishaw	○
		TC50_Blum	○
	Automatic front door with safety edge		○
Accessories	S-250F8-DS		○
	S-320F8-DS		○
	4 th axis Preparation cabling	Servo/1-pneumatic piping	○
	LED Lamp		●
	3-color Signal Tower		●
	Leveling Block & Bolt		●
	Smart Thermal Control		●
	Installation Tool Kit		●
	ATC Auto Shutter		●
	Maintenance Tool Kit		○
Customized Special Option	Work Locating Confirmation (1/2 port)		○
	Test Bar		○
	Machine Lifting Hooks		○
	ANCHORING	J-Bolt	○
	Raising block		○
Drum chip conveyor		○	
Calibration block	Blum	○	

* Please contact DN Solutions for detailed specification information.

* When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.

** Technical consultation is mandatory for the chilling of non-water soluble coolant

● Standard ○ Optional X N/A

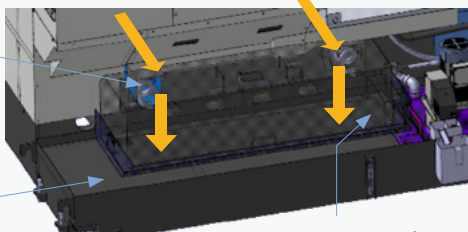
 **Fire Safety Precautions** | There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully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

PERIPHERAL EQUIPMENT

Chip conveyor OPTION

CHIP PAN : Standard HINGE / SCRAPER Conveyor OPTION

Machine inside Screw
• Left/Right front ⇌ Rear direction

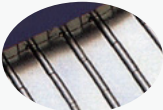
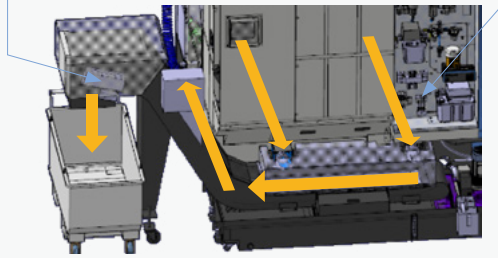


Coolant Tank
• Rear Side Coolant Tank

Chip pan (standard)

Conveyor OPTION
• Right Side Chip Conveyor
• Hinged / Scraper type

Machine inside Screw
• Left, Right front ⇌ rear



Hinged belt



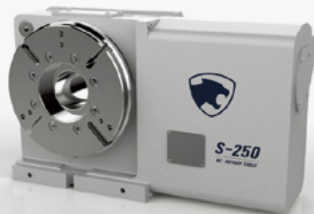
Magnetic scraper



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.

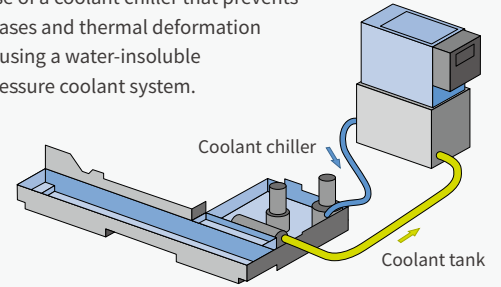
4 axis rotary table OPTION

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



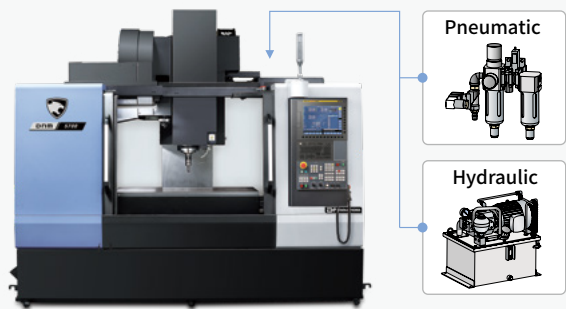
Chip bucket OPTION

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%**



FANUC i PLUS

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.

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



Item		Specifications	DN Solutions Fanuc i (F0i PLUS) BVM 5700
Controlled axis	Controlled axes		3 (X,Y,Z)
	Simultaneously controlled axes		4 axes
	Additional controlled Axis	Add 1 Axis (5th Axis)	●
Data input/output	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		T4 digits
	Tilted working plane indexing command	G68.2 TWP	○
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	X
	AI contour control II	G5.1 Q_, 200 Blocks	●
	AI contour control II	G5.1 Q_, 600 Blocks	X
	AI contour control II	G5.1 Q_, 1000 Blocks *1)	X
	High smooth TCP		X
Operation guidance function	EZ Guidei (Conversational Programming Solution)		●
	iHMI with Machining Cycle	Only with 15" Touch LCD standard *2)	X
Setting and display	EZ Operation package		●
	CNC screen dual display function		●
Network	FANUC MTConnect		⊛
	FANUC OPC UA		⊛
Others	Display unit	10.4" color LCD	X
		15" color LCD	X
		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

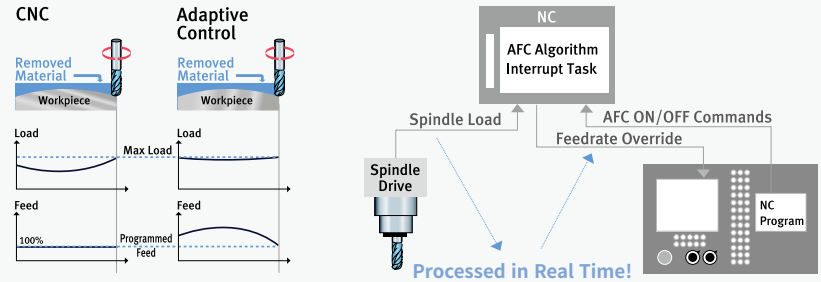
EZ WORK

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 realltimespindle 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



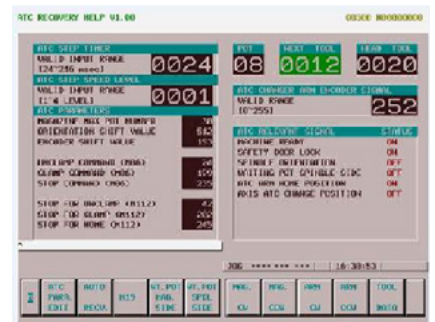
EZ work Main screen

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.



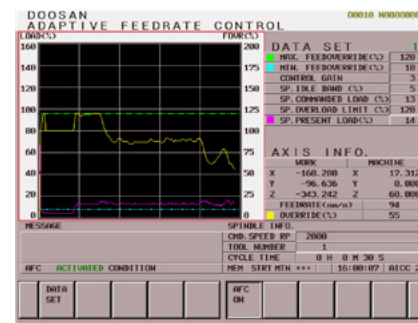
ATC Recovery

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



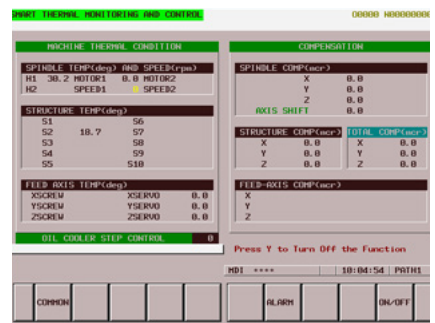
Tool Load Monitoring

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.

CONVENIENT OPERATION

HEIDENHAIN TNC620

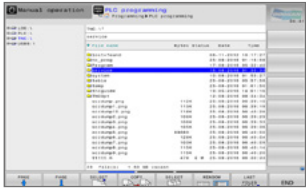
Superior hardware specifications

The TNC 620 features optimized motion control, short block processing times and special control strategies. Together with its uniform digital design and its integrated digital drive control (including inverters), it enables you to achieve high machining speeds and the best possible contour accuracy.

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



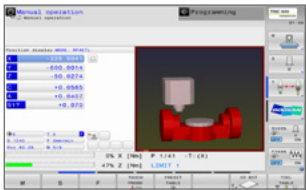
Conversational convenient function



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



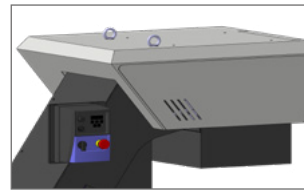
KinematicOpt & KinematicComp **OPTION**
(Touch probe cycle for automatic measurement)



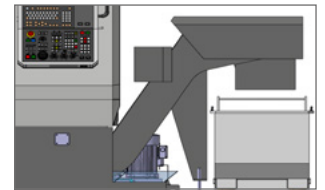
Collision protection system **OPTION**



Adaptive feed control **OPTION**



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



Graphic simulation

NUMERIC CONTROL SPECIFICATIONS



HEIDENHAIN

Item		Specifications	TNC620
			BVM 5700
Controlled axis	Controlled axis		3 (X,Y,Z)
	Simultaneously controlled axis		4 axis
Data input/output	USB memory input/output		●
Interface function	Embedded ethernet		●
Feed function	Look-ahead	5000 blocks	●
Axis compensation	KinematicsOpt	Automatic measurement and optimization of machine kinematics	○
Collision monitoring	Dynamic collision monitoring (DCM)		X
Network	MTConnect		⊕
Others	Display unit	15" color LCD with touch panel	●
	Part program storage size & number of registerable programs	4GB	●

CONVENIENT OPERATION

HEIDENHAIN TNC7

Visualized, intuitive task support, customized UI

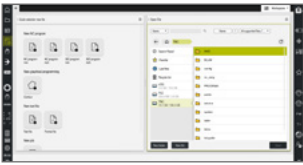
The TNC7 makes machining even easier, for everything from programming to program validation and from machine setup to actual machining. You intuitively operate highly complex applications directly on the touchscreen with various integrated solutions for standard tasks.

TNC7 NEW

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



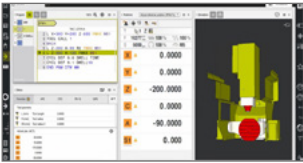
Conversational convenient function



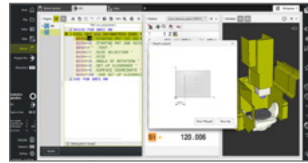
Data are controlled in the folder structure; convenient communication via USB devices



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



Collision protection system OPTION



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



Graphic simulation



Enhanced collision protection function DCMv2 OPTION



Improved maintenance environment



Highly practical programming and setup based on touch operation

수치 제어 장치 사양



Item		Specifications	TNC7
Controlled axis	Controlled axis		3 (X,Y,Z)
	Simultaneously controlled axis		4 axes
Interface function	Embedded ethernet		●
	USB interface (USB 2.0)		●
Feed function	Look-ahead	5000 blocks	●
Axis compensation	KinematicsOpt	Automatic measurement and optimization of machine kinematics	●
Collision monitoring	Dynamic collision monitoring (DCM)		○
Network	MT Connect		◦
Others	Display unit	touch panel	24"
	Program memory for NC programs		189GB

POWER | TORQUE

Torque

SPEED

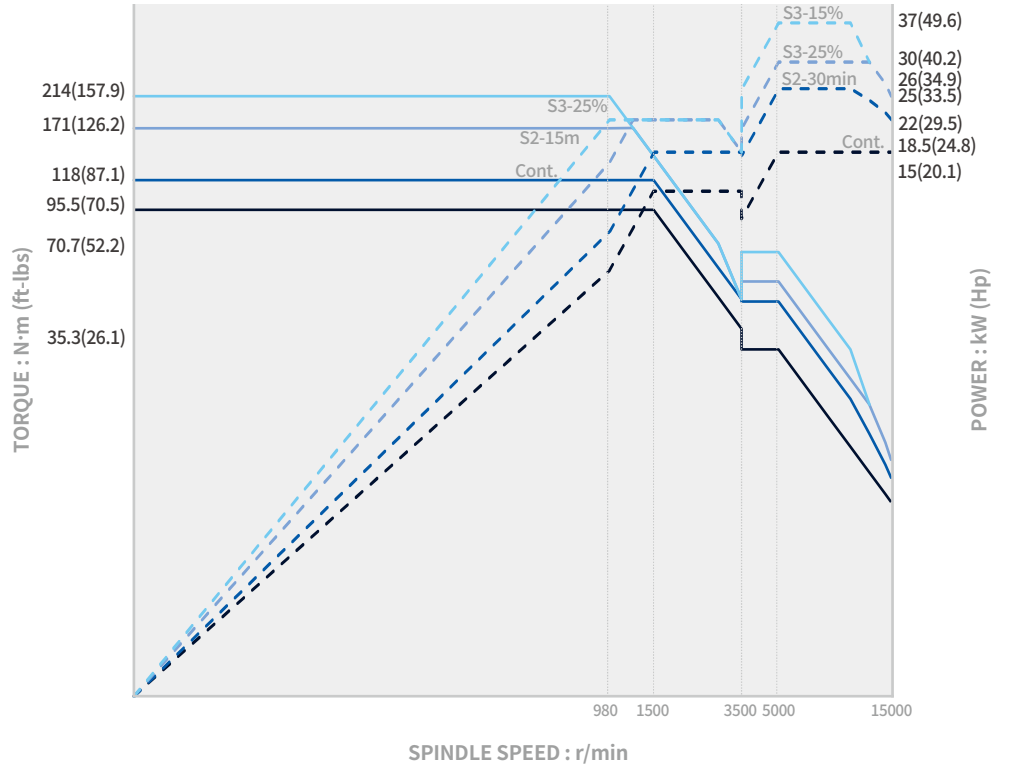
15000 r/min

POWER

37 / 18.5 kW
(49.6/24.8 Hp)

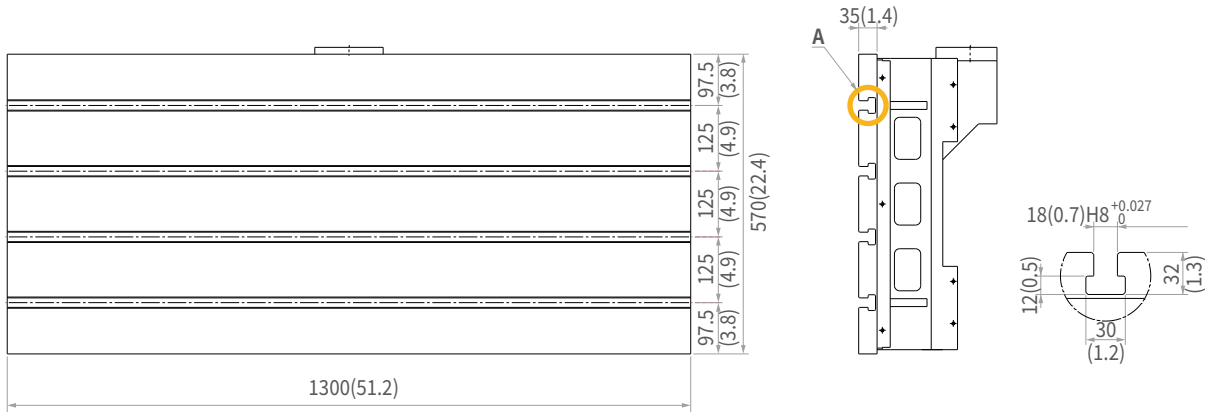
TORQUE

214 N·m
(157.9 ft-lbs)



TABLE

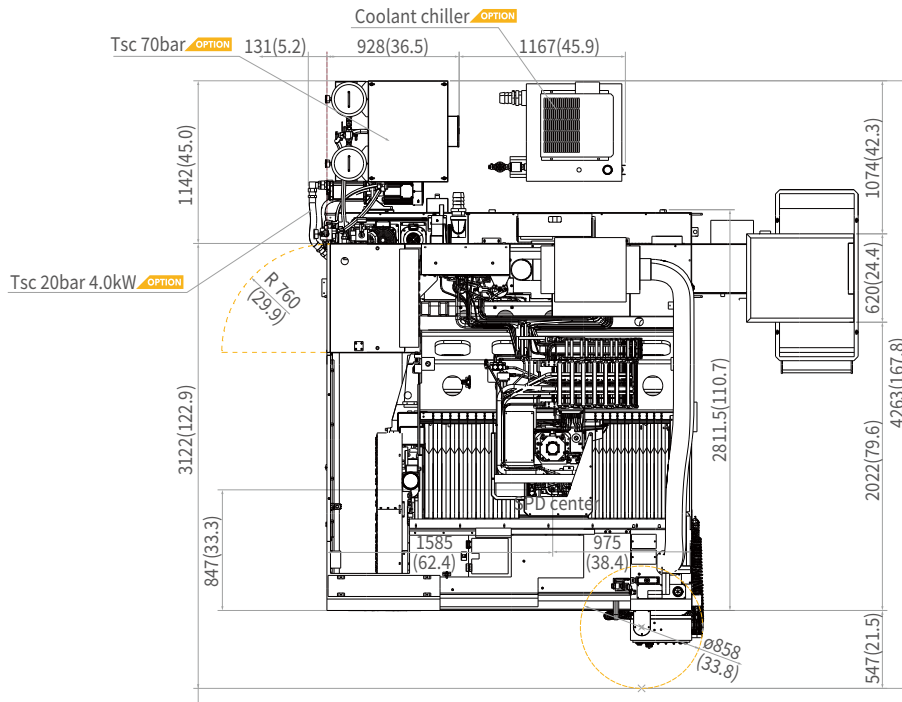
Units : mm (inch)



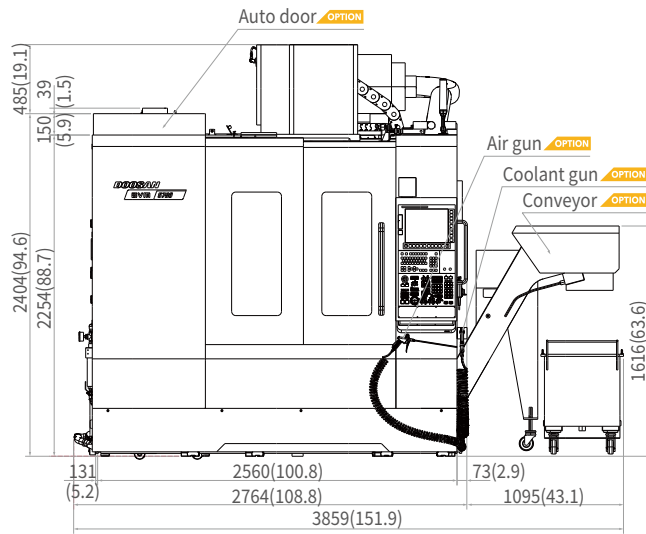
DIMENSIONS

Units : mm (inch)

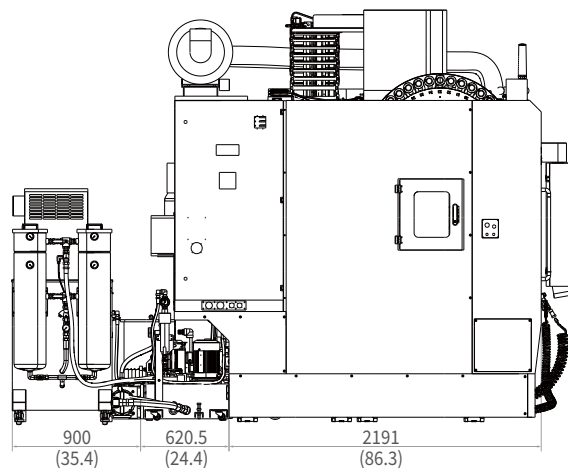
TOP



FRONT



SIDE



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		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	Continuous	mm (inch)	80 {75} (3.1 {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 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)	15/37 (20.1/49.6)
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



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