

HIGH PRODUCTIVITY VERTICAL TURNING CENTER

PV 6300/M

PV 6300/L/R/ML/MR



PV 6300 series

The new PV 6300Series comprises a range of 15"~18" chuck size vertical turning centers developed by DN Solutions using the latest technologies. The column-integrated box guideway and reinforced bed frame machines have a stronger and more rigid structure that is suitable for heavy-duty turning. The Series represents the largest turning capacity of its class further enhancing productivity and profitability.

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PV 6300M (ATC OPTION)

ENHANCED MACHINING CAPACITY



The largest turning capacity in its class is achieved with max. 18" m chuck size and 630 mm (24.8 inch) of max. turning diameter.

HIGHEST POWER AND MACHINING PERFORMANCE IN ITS CLASS

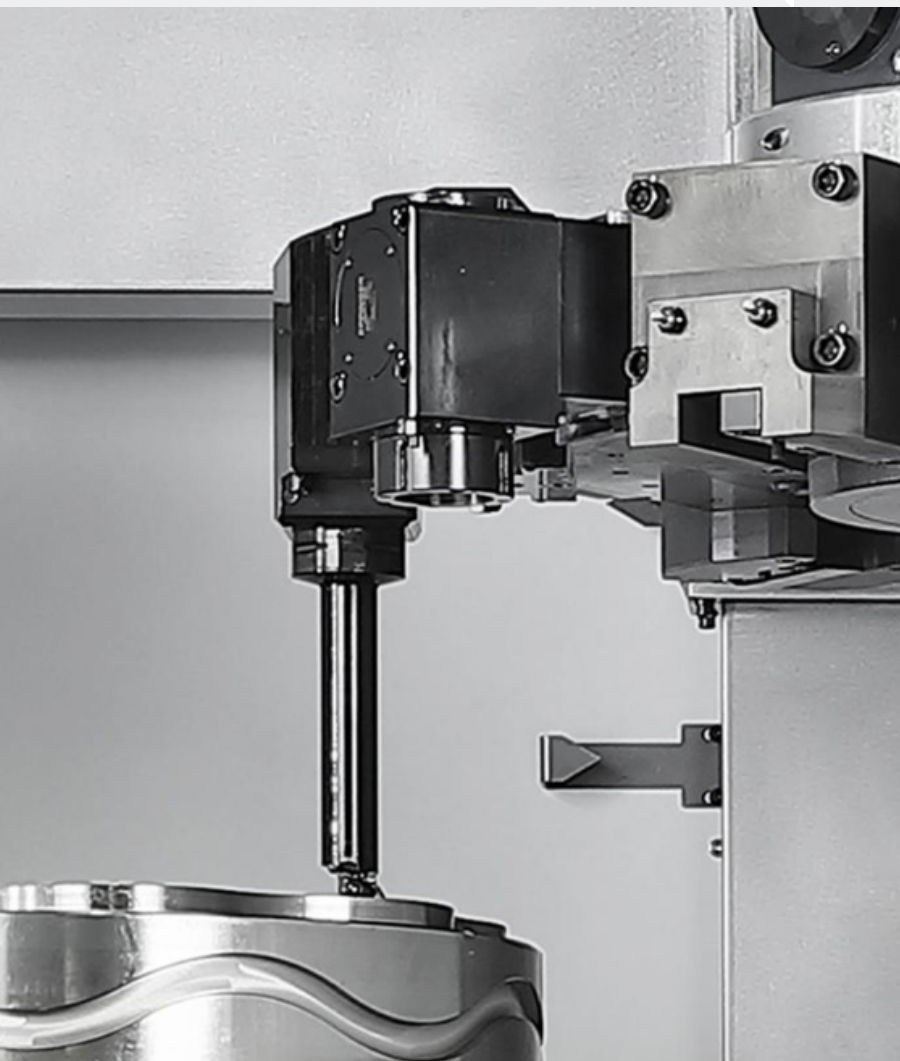


- High power spindle for powerful cutting performance
- Max. power 37kW, Torque 1638N·m
- Increase the number of tools with ATC option can improve the flexibility and efficiency of machining performance
- Fast and stable servo driven turret
- Robust BMT milling holder on turret and best-in-class high power rotary tool motor carry out high productivity in milling 〈M type model〉

IMPROVED OPERATIONAL EFFICIENCY, INCLUDES IMPROVED CHIP DISPOSAL AND OPERATION PANEL



- Highly steep bed structure for easy chip disposal
- Intuitive and user-friendly
DN Solutions FANUC i PLUS CNC
- Pendant type operation panel with easy movement of locating and height adjustment according to operator's workflow



BASIC STRUCTURE

The integral box guideway bed design delivers vibration-free performance and ensures heavy duty and high precision cutting over long periods of operation.

The machine frame and structure have been redesigned to accommodate the enhanced specifications. The rapid traverse is increased to 20 m/min (787.4 ipm) for higher productivity.

Travel distance

X-axis

400(-85~315) mm
(15.7(-3.3~12.4) inch)

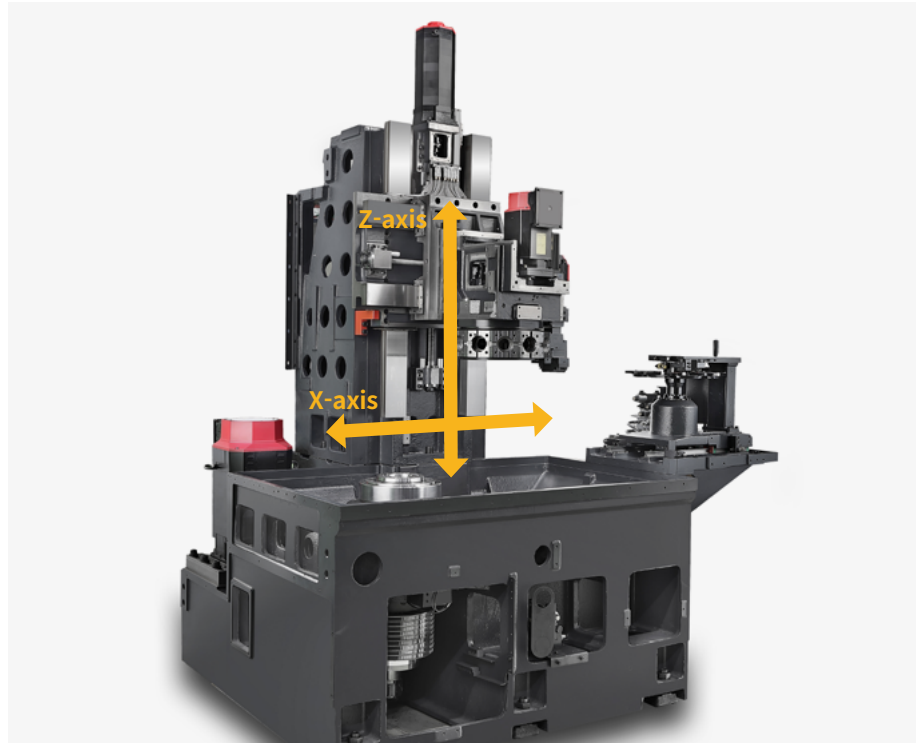
Z-axis

660 mm (26.0 inch)

Rapid traverse rate

X/Z-axis

20 m/min (787.4 ipm)



MACHINING AREA*

Wider machining area for larger/more diverse workpieces.

Wider machining area

The turning center now offers larger turning diameter and swing of workpiece.

Max. turning diameter

Ø630 mm (24.8 inch)

Max. turning height

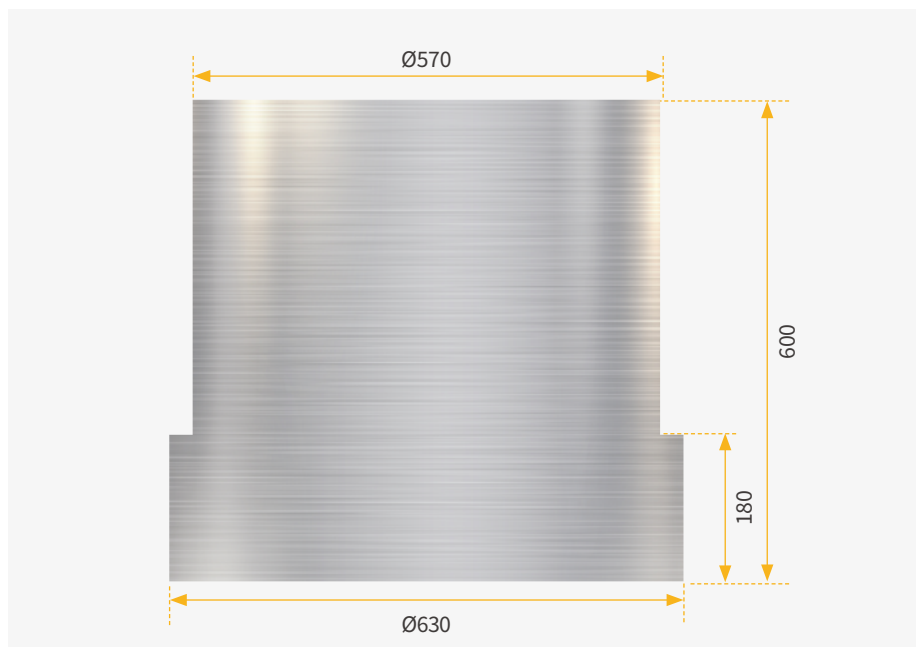
600 mm (23.6 inch)

* When selecting options such as tool setter, it is necessary to check the machining area with DN engineers.

Chuck size

PV 6300

15 {18 OPTION} inch



SPINDLE

Higher reliability and rigidity with improved base and spindle motor assembly.

Stronger spindle

The highly rigid gearbox structure provides the highest power / torque in its class for heavy duty cutting and optimum performance. A variety of spindle specifications are available to suit customers' diverse requirements.

Max. rotating speed

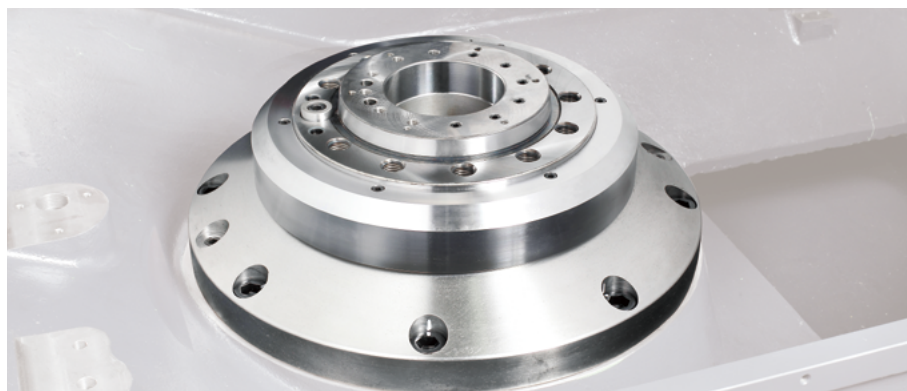
2000 r/min

Max. power (S6 25% / Cont.)

37/22 kW (49.6/29.5 Hp)

Max. torque

1638 N·m (1208.8 ft-lbs)



Description		Unit	PV 6300/M
Standard spindle	Power	kW (Hp)	26/22/18.5 (34.9/29.5/24.8) (S6 25% / S6 60% / S1 Cont.)
	Max. torque	N·m (ft-lbs)	1116 (823.6)
Option 1	Power	kW (Hp)	37/30/22 (49.6/40.2/29.5) (S6 25% / S6 60% / S1 Cont.)
	Max. torque	N·m (ft-lbs)	1306 (963.8)
Option 2 (Gear box)	Power	kW (Hp)	35/26/22 (46.9/34.9/29.5) (S6 25% / S6 60% / S1 Cont.)
	Max. torque	N·m (ft-lbs)	1638 (1208.8)
Spindle nose		ASA	A2-11
C-axis minimum rotation command angle (M type)		deg	0.001

* C-axis contouring control is available with Belt direct type main spindle.

TURRET

The new servo turret facilitates faster indexing and accurate positioning.

Strong and convenient Turret

Enable more powerful cutting by increasing width of turret disk. 2/3-axis turning holders are commonized to share same tools for 2/3-axis machines

No. of tool positions

12 st

Turret indexing time

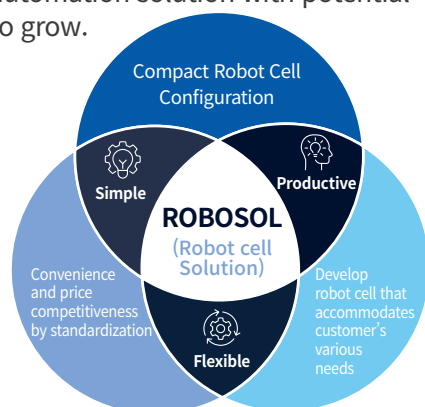
0.2 sec

2-axis Turret	Turning/Milling(3-axis) turret
Holder type BMT65P 	Max. rotary tool speed 5000 r/min Rotary tool max. power 5.5 kW/70 N·m (7.4 Hp/51.7 ft-lbs) 

AUTOMATION SOLUTION

ROBOSOL

By Standardizing Robot interface with our Vertical Turning Centers, DN SOLUTIONS provides high quality automation solution with potential to grow.



Robot Cell Interface Standardization

Guaranteed quality by standardized robot interface with vertical turning center

Provision of Customized Cells

Simple cell configuration and various modular option units for automation

Provide User Convenience

Convenient setup and accessibility

Minimized loading/unloading time

37.9% cycle time reduction by machine-robot optimization and interface improvement



* Three types of ROBOSOL layout configuration



Type 1 :
A layout where two machines are consecutively arranged adjacent to two sides of the robot



Type 2 :
A layout where two machines are facing each other with the robot in between



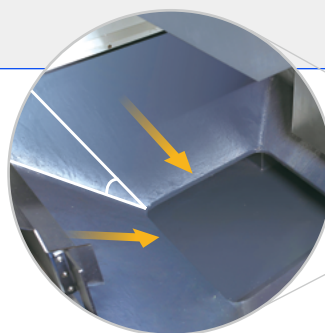
Type 3 :
A layout where three machines are arranged around three sides of the robot

CHIP DISPOSAL

Improved chip disposal system increase the convenience of operation and maintenance for chip disposal even when applying various automation application.

Improved bed structure for easier chip disposal

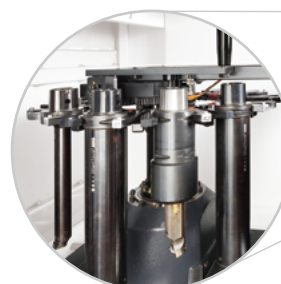
A greater inclined slope results in improved chip removal from the working area, and a wider chip exit is able to handle higher chip volumes.



AUTOMATIC TOOL CHANGER(ATC) OPTION

Increasing the number of tools with ATC option can improve the flexibility and efficiency of machine operation or automation, especially it is advantageous to avoid interference with adjacent tools during long boring machining and minimize downtime for tool change when changing workpieces

Description		Unit	PV 6300
ATC Magazine	Tool shank	-	CAPTO C6
	Tool storage capacity	ea	8
	Max. tool diameter	mm (inch)	90 (3.5)
	Max. tool length	mm (inch)	290 (11.4)
	Max. tool weight	kg (lb)	10(22.0)
	Tool search time(1 port)	sec	0.5
	No. of CAPTO tool holder on turret	ea	1~12



STANDARD | OPTIONAL SPECIFICATIONS

Diverse optional features are available for customer-specific work applications.

Description	Features	PV 6300 series
Chuck	380 mm (15 inch)	●
	450 mm (18 inch)	○
	NONE	○
Turret	12 st	●
	9 st + 1 Straddle tool	○
Coolant pump direction	Side	○
	Rear	●
Coolant pump	1.5 Bar	●
	4.5 Bar	○
	7 Bar	○
	10 Bar	○
	14.5 Bar	○
	20 Bar	○
	70 Bar	○
Coolant options	High coolant interface	○
	Oil Skimmer(Belt type)	○
	Water soluble Coolant Chiller**	○
	Coolant pressure switch	○
	Coolant level switch : Sensing level - Low	○
Chucking option	Dual pressure chucking	○
	Chuck clamp conrmation	●
Work location confirmation	Air limit sensor preperation_Festo	○
	Air limit sensor preperation_TACO	○
Workpiece measurement	Removable tool setter	○
	Auto tool setter(Electric)	○
	In-machine workpiece measuring system(Renishaw)	○
Jaw	Soft jaw	●
	Hardend & Ground hard jaws	○
Side chip conveyor	Hinged belt	○
	Magnetic scrapper	○
Rear chip conveyor	Hinged belt	○
	Magnetic scrapper	○
Chip processing options	Chip bucket	○
	Air blower	○
	Chuck Coolant	○
	Bed flushing Coolant	○
	Air Gun	○
	Coolant gun	○
	Mist collector_1.5kW	○
	Mist collector_2.2kW	○
Automatic configuration	Auto door with safety edge	○
	Automatic side door	○
	Work & Tool counter	○
	OP panel position check (Pendant arm position check)	○
	Automatic Tool Changer	○
Robot Interface	PMC I/O MODULE TYPE	○
	PROFIBUS-DP TYPE	○
Optional devices	Tool load mononitoring system	●
	Signal tower	○
	Additional MPG	○
	Straddle tool preparation	○
	Linear scale (X-axis)	○
	Linear scale (Z-axis)	○
	Auto power off	○
	Quick change tooling(CAPTO)	○
	Pendant arm	●
Customized Special Option	Rotary Type Window Wiper_Electrical	○
	Chip Conveyor_Drum Filter Type	○
	Chuck Type_4 Jaw_T-Slot	○
	Rotary Cylinder_For Air Limit Sensing	○
	Additional Hydraulic A/B Line	○
	Accumulator for Hydraulic Power Unit	○
	Air Blower Through Turret_with Coolant	○

* Please contact your DN Solutions representative for detailed machine information.

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

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

● Standard ○ Optional X Not applicable



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



Long

Short



Needle

Sludge

Hinged belt type*

Most common type of chip conveyor. Appropriate for steel materials generating chips over 30mm (1.2inch).

Magnetic scrapper type

Chip conveyor with a magnet. Appropriate for machining cast iron and the generation of fine chips.

Chip conveyor type		Material	Carbon steel			Cast iron		Aluminium		
			Long	Short	Needle	Short	Sludge	Long	Short	Needle
Hinged belt type*			○	△	X	△	X	○	△	X
Scrapper type	Magnetic		○	○	○	○	○	○	○	○
			○	△	X	△	X	○	△	X
Drum filter type**	Hinged type		○	△	X	△	X	○	△	X
	Scrapper		X	○	△	○	△	X	○	△

○ : Suitable, △ : Possible, X : Not suitable

Servo straddle tool OPTION

Simultaneous dual side cutting for higher productivity.



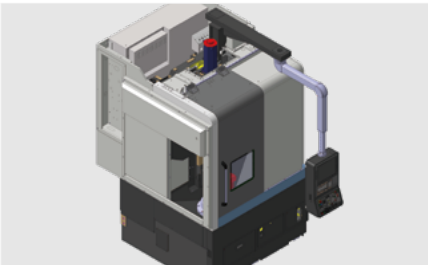
Quick change CAPTO OPTION

The quick change tool system simplifies tool change operations. It is recommended for users who need to a) change tools frequently or b) reduce set-up times.



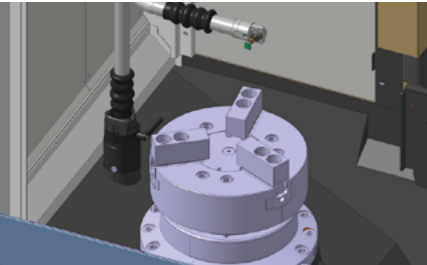
Auto side door OPTION

Automatic side door enables the machine to become automated.



Detachable tool setter OPTION

The tool setter facilitates the setting of cutting tools, and can be used to detect worn tools.



Axis-tool number display OPTION

Axis-tool 'Number Display' is located inside the machine and it displays real time information to the operator.



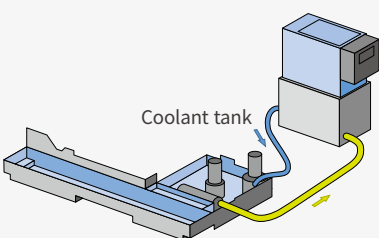
Auto Tool Setter OPTION

Tool measurement for initial setting and worn tool length compensation can proceed without manual work or machine stop



Coolant chiller (recommended) OPTION

A coolant chiller is recommended to help prevent temperature rises and to reduce thermal deformation when using a water-insoluble coolant or high-pressure coolant system (i.e., power over 1.5kW).



DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus maximizes customer productivity and convenience.

15" Screen + New OP

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

DN Solutions Fanuc i Plus

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

USB and 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

Division	Item	Specifications	2-axis	M
			DN Solutions Fanuc i Plus	DN Solutions Fanuc i Plus
Controlled axis	Controlled axes		2 (X,Z)	3 (X,Z,C)
	Simultaneously controlled axes		2 axes	3 axes
Data input/output	Fast data server		○	○
	Memory card input/output		●	●
	USB memory input/output		●	●
	Larger capacity memory_2GB	Note *2) Available Option only with 15" Touch LCD (iHMI Only)	○*2)	○*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	●	●
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	●	●
	AI contour control II	G5.1 Q_, 200 Blocks	○	○
Operation Guidance Function	EZ Guidei (Conversational Programming Solution)		●	●
	iHMI with Machining Cycle	Note *1) Only with 15" Touch LCD standard	○*1)	○*1)
	Multi path function	Supporting 2 or 3 path machine	●	●
	EZ WORK		●	●
Setting and display	CNC screen dual display function		●	●
Network	FANUC MTConnect		✱	✱
	FANUC OPC UA		✱	✱
Others	Display unit	15" color LCD	●	●
		15" color LCD with Touch Panel	○	○
	Part program storage size & Number of registerable programs	5120M(2MB)_1000 programs	●	●

Network: FANUC MTConnect and FANUC OPC UA available.

● Standard ○ Optional X Not applicable ✱ Available

POWER | TORQUE

FANUC

PV 6300/M

Max. spindle speed

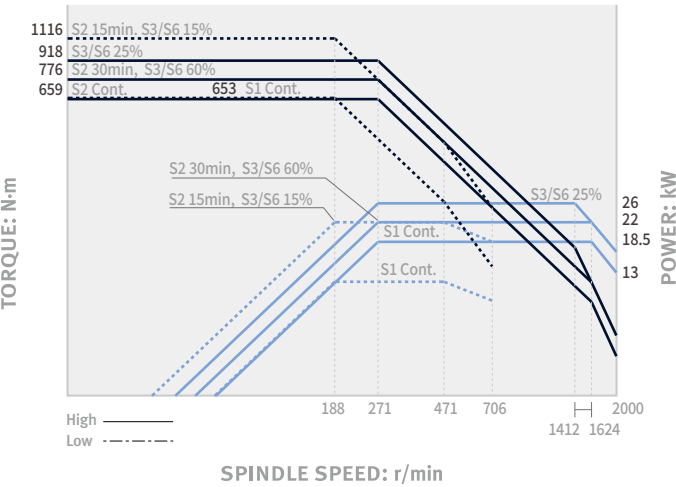
2000 r/min

Max. spindle power

26 kW (34.9 Hp)

Max. Spindle torque

1116 N·m (823.6 ft-lbs)



PV 6300/M OPTION

Max. spindle speed

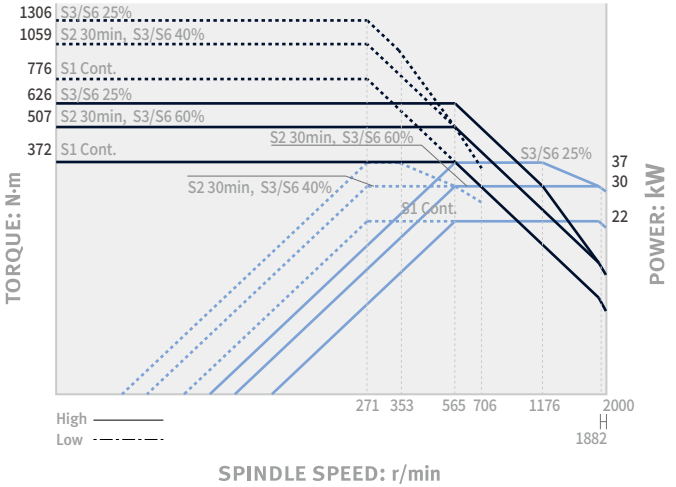
2000 r/min

Max. spindle power

37 kW (49.6 Hp)

Max. Spindle torque

1306 N·m (963.8 ft-lbs)



PV 6300/M, Gear box OPTION

Max. spindle speed

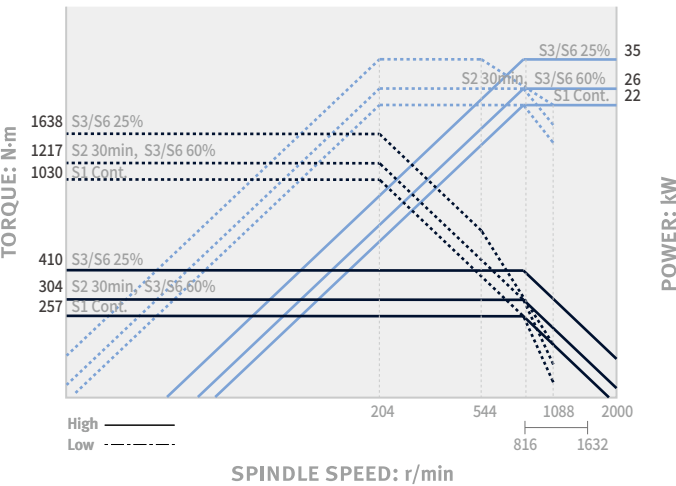
2000 r/min

Max. spindle power

35 kW (46.9 Hp)

Max. Spindle torque

1638 N·m (1208.8 ft-lbs)



Rotary Tool_PV 6300M

Max. spindle speed

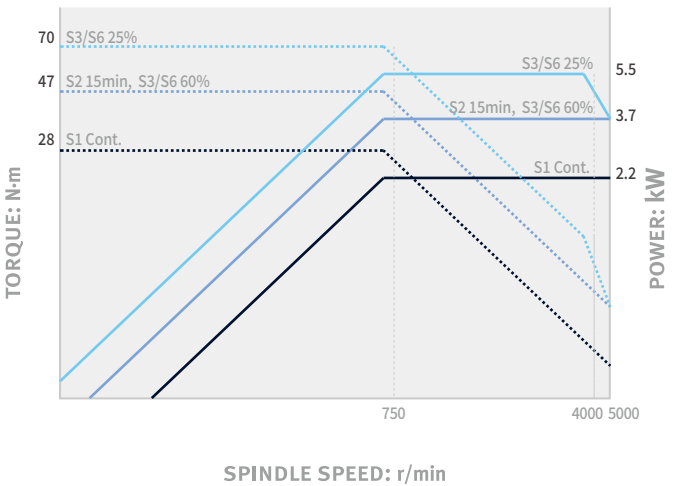
5000 r/min

Max. spindle power

5.5 kW (7.4 Hp)

Max. Spindle torque

70 N·m (51.7 ft-lbs)

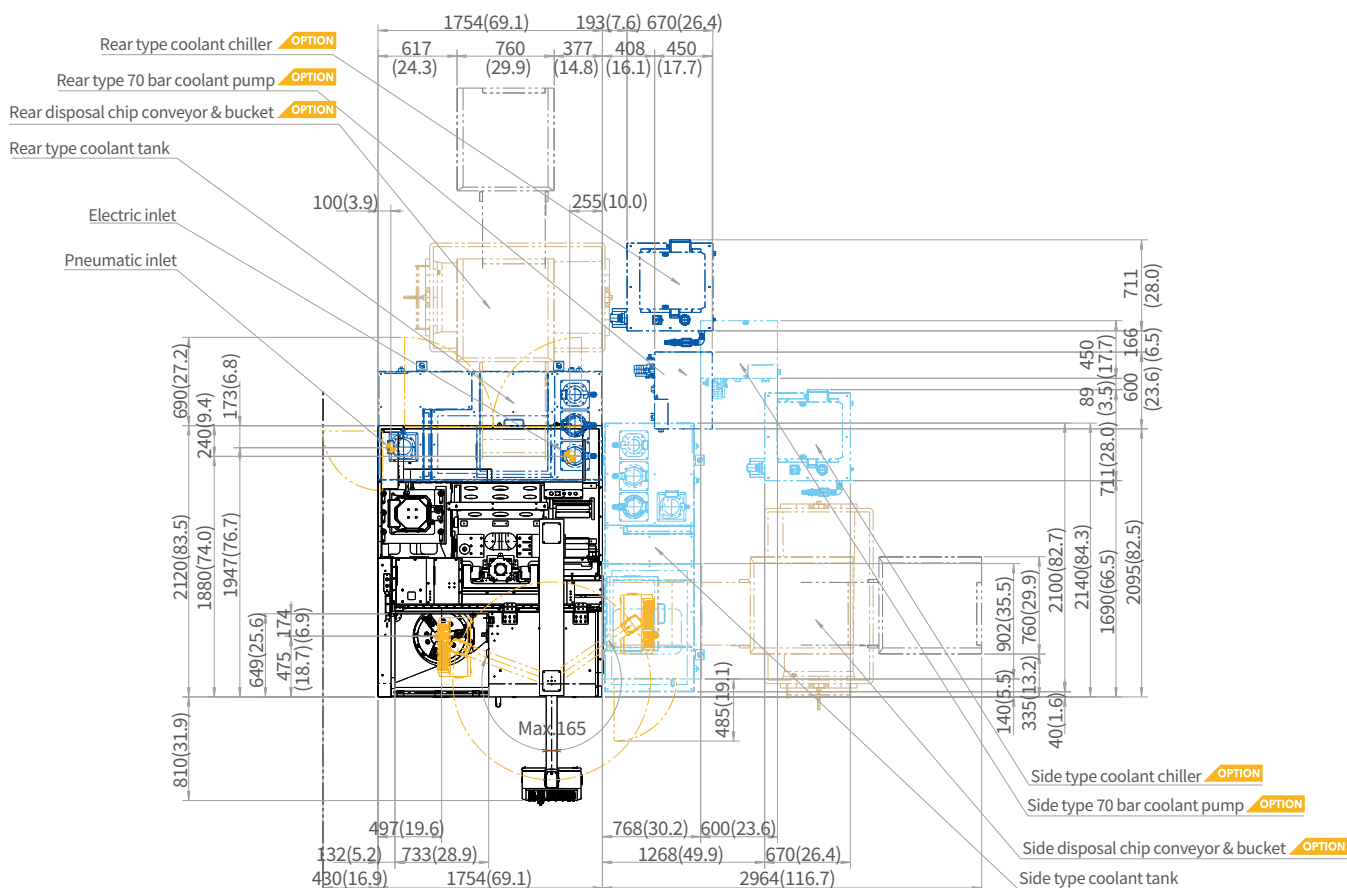


EXTERNAL DIMENSIONS

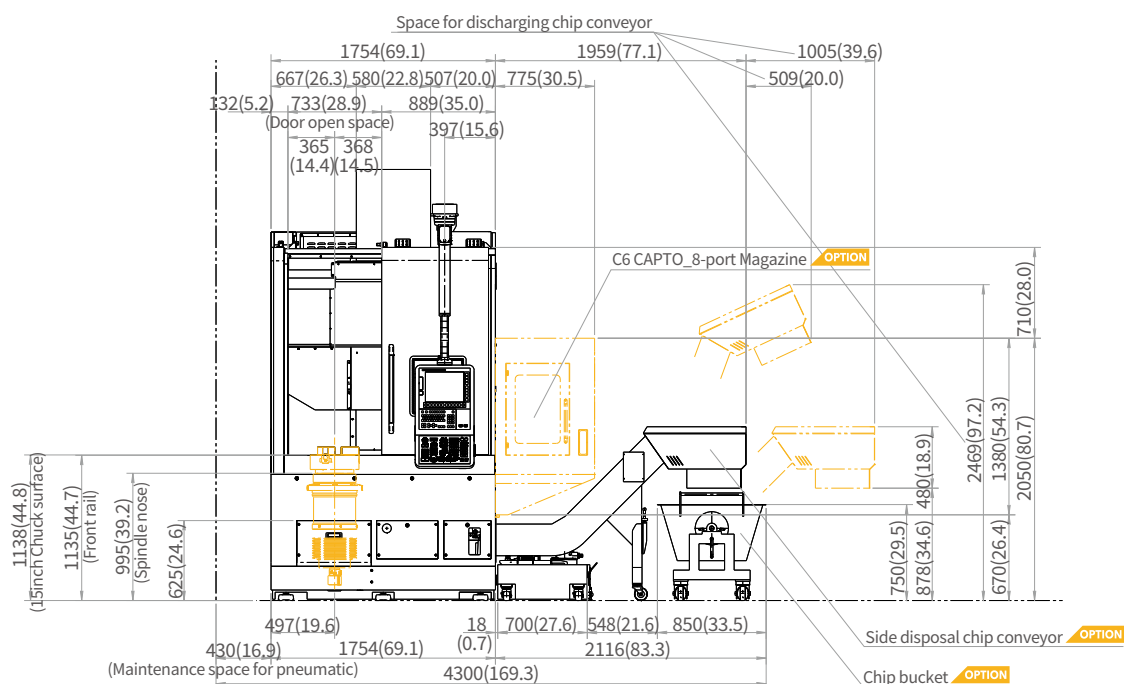
PUMA V6300/M (R type)

Unit : mm (inch)

TOP



FRONT



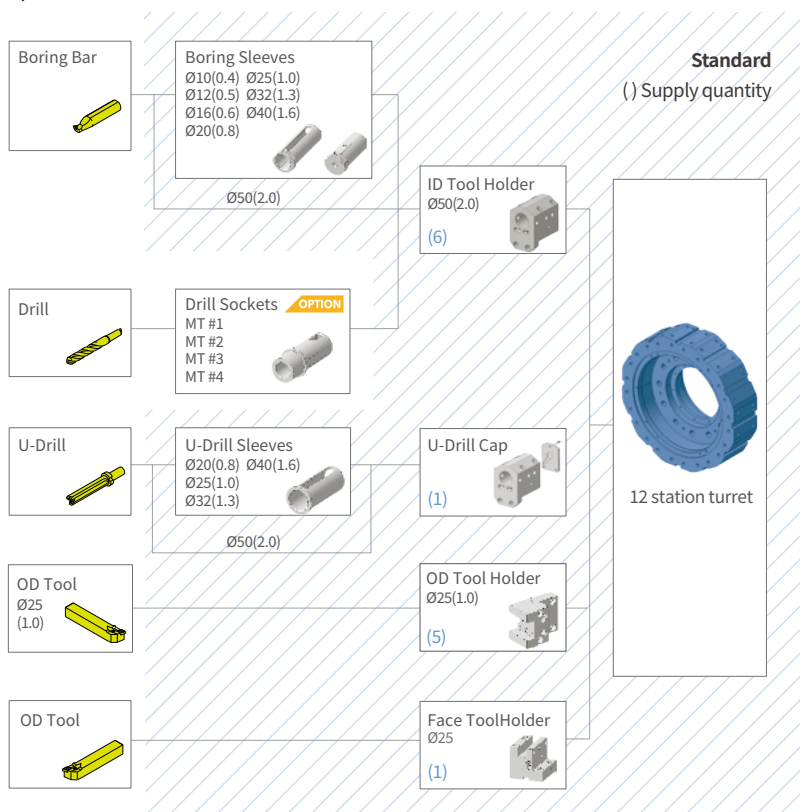
* Some peripheral equipment can be placed in other areas.

Unit : mm (inch)

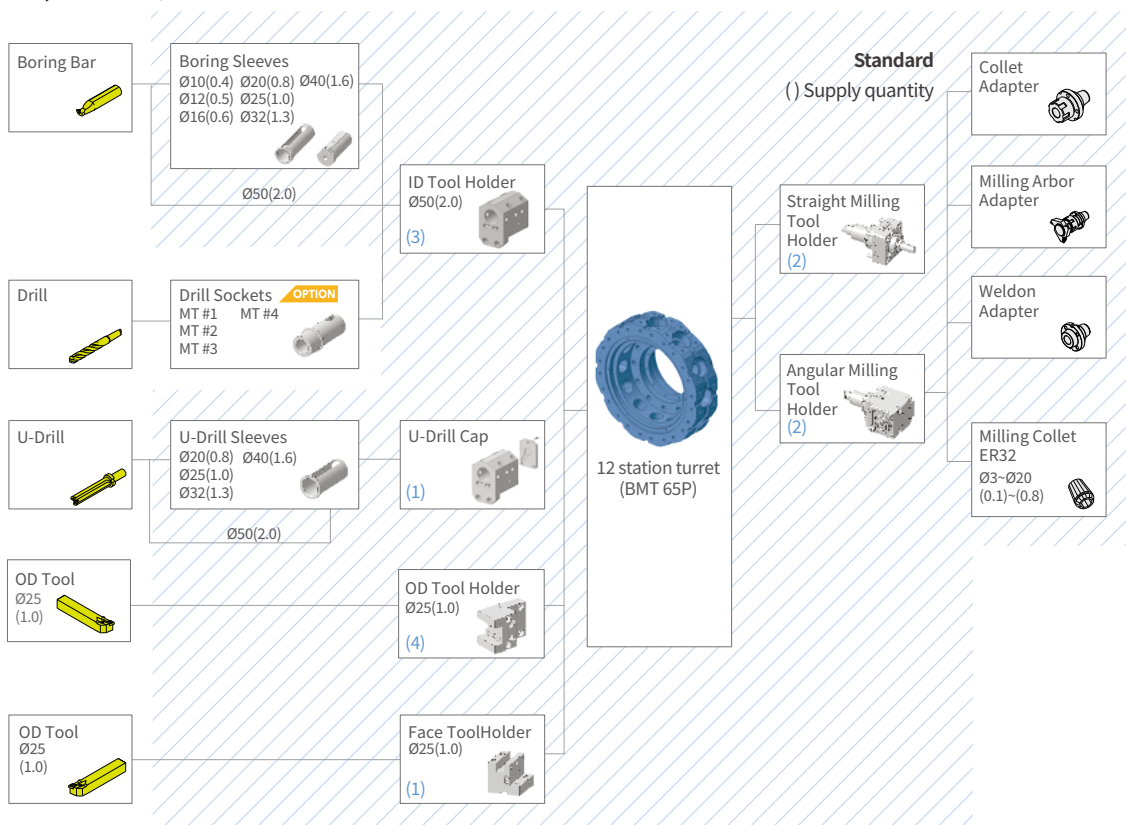
TOOLING SYSTEM

Unit : mm (inch)

PV 6300 (12st)



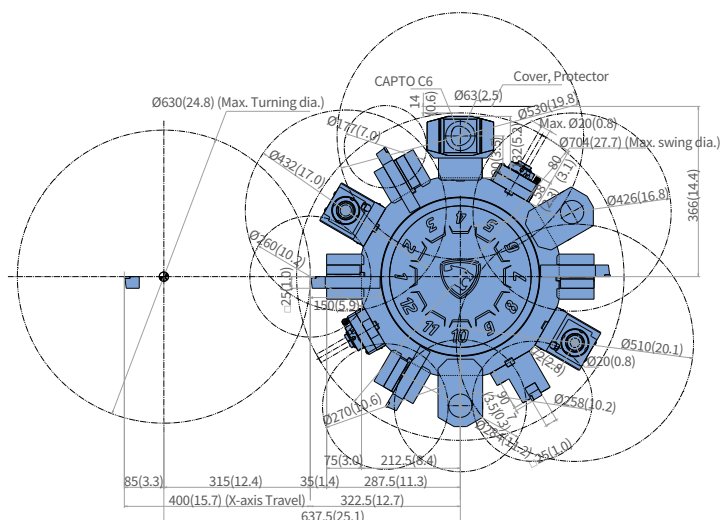
PV 6300M (12st, BMT65P)



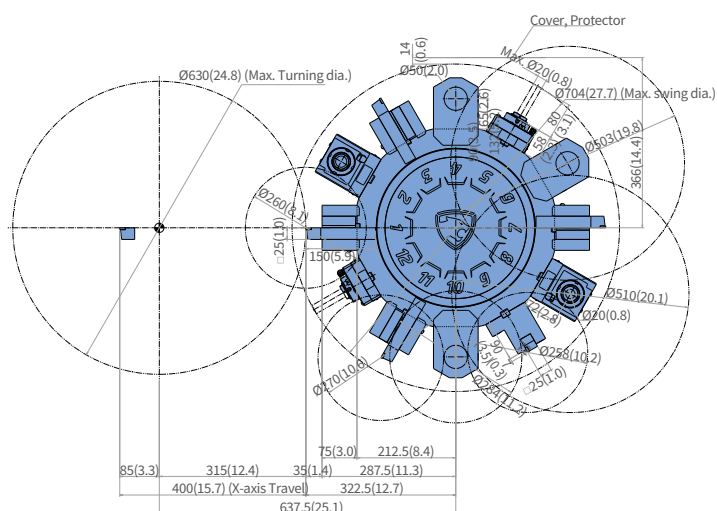
* The milling collet is available as a general option, and special collets (TTC, TSC, tapping collets, etc.) are not available.

Unit : mm (inch)

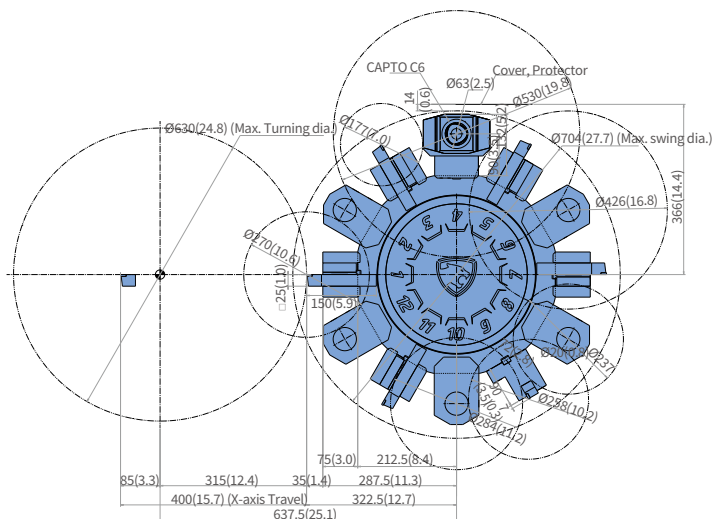
PV 6300MR (3-axis, 12st_ATC)



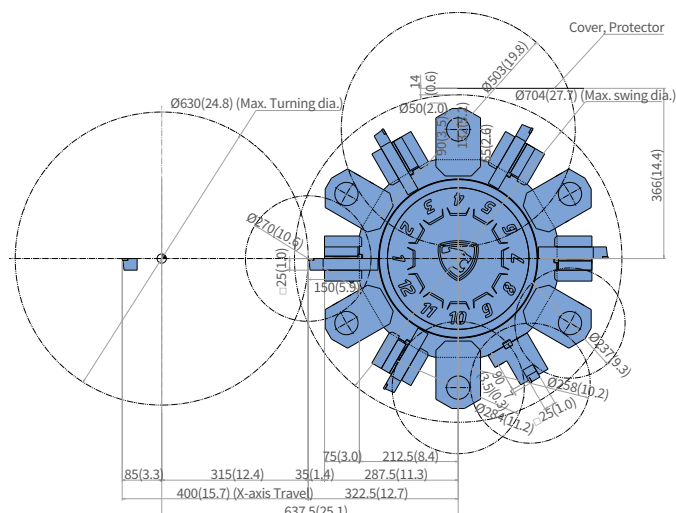
PV 6300MR (3-axis, 12st)



PV 6300R (2-axis, 12st_ATC)



PV 6300R (2-axis, 12st)



MACHINE SPECIFICATIONS

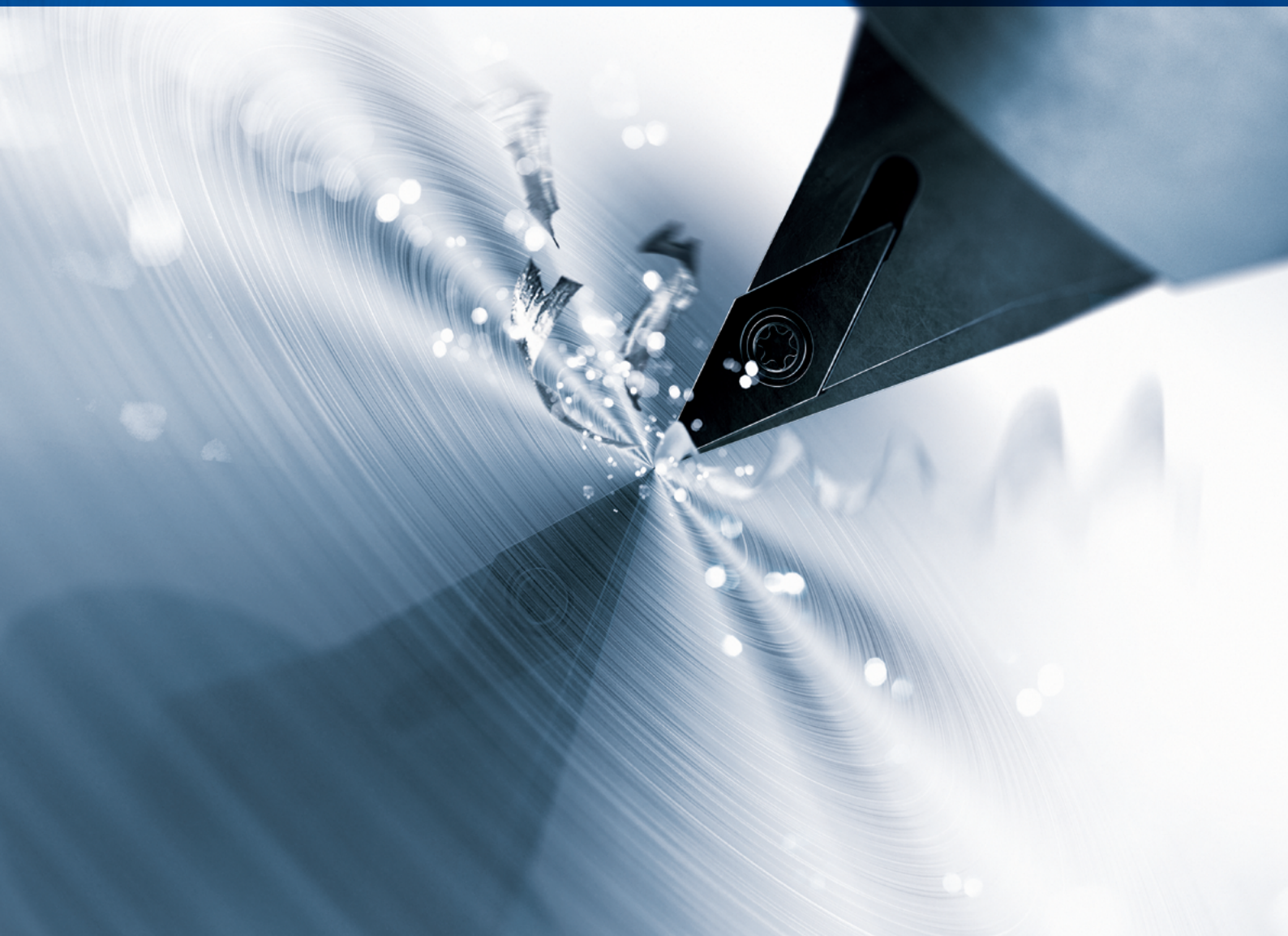
PV 6300 series

Description			Unit	PV 6300	PV 6300M
Capacity	Swing over bed		mm (inch)	700 (27.6)	
	Swing over saddle		mm (inch)	570 (22.4)	
	Recommended turning diameter		mm (inch)	380 (15.0)	
	Max. turning diameter		mm (inch)	630 (24.8)	
	Max. turning length		mm (inch)	600 (23.6)	
	Chuck size		inch	15 {18}*	
Travel	Travel distance	X-axis	mm (inch)	400 (15.7)	
		Z-axis	mm (inch)	660 (26.0)	
Feedrate	Rapid traverse	X-axis	m/min (ipm)	20 (787.4)	
		Z-axis	m/min (ipm)	20 (787.4)	
Spindle	Spindle speed		r/min	2000	
	Spindle motor power (FANUC) (S6 25%/S6 60%/Cont.)		kW	26/22/18.5 (34.9/34.9/24.8) {37/30/22, 35/26/22 (49.6/40.2/29.5, {46.9/34.9/29.5})}	
	Spindle motor torque(FANUC)		N · m (ft-lbs)	1116 {1306, 1638} (823.6 {963.8, 1208.8})	
	Spindle nose		ASA	A2-11	
	Spindle bearing diameter		mm (inch)	160 (6.3)	
	C-axis min.indexing angle		deg	-	0.001
Turret	No.of tool stations		ea	12	
	OD tool size		mm (inch)	25 x 25 (1.0 x 1.0)	
	Turret indexing time(1st swivel)		sec	0.2	
	Max.rotary tool speed		r/min	-	5000
	Rotary tool motor power (FANUC) (S6 25%/S6 60%/Cont.)		kW (Hp)	-	5.5/3.7/2.2 (7.4/5.0/3.0)
Power source	Power consumption		kVA	41.10 {45.22, 45.22}	
Machine dimensions	Length x Width		mm (inch)	1754 x 2590 (69.1 x 102.0)	
	Height		mm (inch)	3369 (132.6)	
	Weight		kg (lb)	7800 (17195.8)	
Control	CNC system			DN Solutions Fanuc i Plus	

*{ } : Option

WHY DN SOLUTIONS

The DN Solutions promise, MACHINE GREATNESS, has two important meanings. The first is simple: DN Solutions makes great machines. The second is a challenge to our end-users. With a product line that is this comprehensive, accurate and reliable, we equip our customers to machine greatness. The big question: ***Why should you choose DN Solutions over other options?*** Here's why...



UNBEATABLE MACHINES

You won't find a more comprehensive range or a better combination of value, performance and reliability anywhere else.

ROBUST PRODUCT LINE

We offer an impressive range of machine models and hundreds of configurations. Whatever your machining needs and requirements, there's a DN Solutions for you.

READILY AVAILABLE - ANYWHERE IN THE WORLD

Machining centres (including 5-axis machines), lathes, multi-tasking turning centres and mill-turn machines, and horizontal borers with best-in-class specifications are all available...ready to install.

EXPERT SERVICE

Our dedicated, experienced and knowledgeable team is totally committed to improving your productivity, growth and success.

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

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.



66	COUNTRIES
140	+ SALES NETWORKS
3	FACTORIES
6	REGIONAL HQS





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