DN SOLUTIONS

LARGE RAM-TYPE VERTICAL TURNING CENTER

PUMA VTR 1012·1216·1620·2025

PUMA VTR 1012F/FM/FC
PUMA VTR 1216/M/F/FM/FC
PUMA VTR 1620/M
PUMA VTR 2025/M

PUMA VTR SERIES

1012F/FM/FC·1216/M/F/FM/FC·1620/M·2025/M

The PUMA VTR Series offers the largest table diameter of Ø1250/1600/2000/2500mm (50.0/63.0/80.0 /98.4 inch) in its class. The machines' stability and high-productivity are complemented by their rigid design and wide-column structure. The PUMA VTR Series provides the optimal solution for machining large components made from difficult-to-machine materials - such as aviation engine housings.

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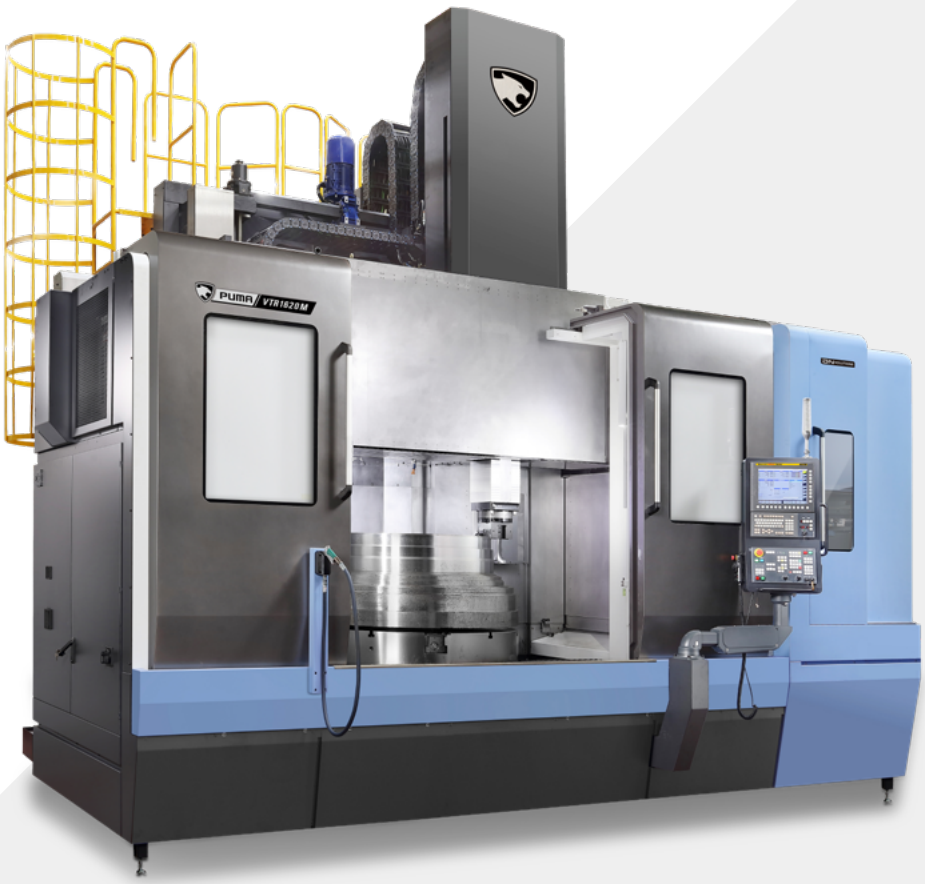


WIDE X-AXIS MOVING & MULTI-ENCLOSED COVER FOR MACHINING FLEXIBILITY

- Full X-axis travel with wide column structure provides a more spacious machining area
  PUMA VTR1012F (-575/+850mm),
  PUMA VTR1216/1216F (-700/+1000mm),
  PUMA VTR1620 (-800/+1420),
  PUMA VTR2025(-1000/+ 1640mm)
- Sealed multi-enclosed cover allows heavy-duty cutting without coolant and chip ingress

HIGHER PRODUCTIVITY WITH RAM TOOL INDEXING SYSTEM AND ATC (AUTOMATIC TOOL CHANGER)

- 90° RAM indexing with a quad tool holder allows clamping of up to four turning tools and ID/OD/FACE machining without the need for additional tool changes.
- The automatic tool changer (ATC) solution mounting up to 60 tools, can improve productivity and efficiency, especially when machining difficult-to-machine materials like SUS (Stainless), Titanium, Inconel etc.

IMPROVED PRODUCTIVITY WITH POWERFUL CUTTING CAPABILITIES

- The high-strength Cr-Mo alloy steel RAM provides 8000kgf of tool clamping force, delivering durability and providing excellent heavy-duty machining performance

BASIC STRUCTURE

The largest machining area in its class guarantees high-productivity and optimised flexibility when machining large workpieces.

X-axis travel distance

PUMA VTR1012 series
1425(-575/+850) mm
(56.1(-22.6/+33.5) inch)

PUMA VTR1216 series
1700(-700/+1000) mm
(66.9(-27.6/+39.4) inch)

PUMA VTR1620 series
2220(-800/+1420) mm
(87.4(-31.5/+55.9) inch)

PUMA VTR2025/M
2640(-1000/+1640) mm
(103.9(-39.4/+64.6) inch)

W-axis travel distance

PUMA VTR1216/M
500(250x2Step) mm
(19.7 (9.8x2step) inch)

PUMA VTR1620/M
840(280x3Step) mm
(33.1 (11.0x2Step) inch)

PUMA VTR2025/M
1020(340x3Step) mm
(40.2 (13.4x2Step) inch)

Max. loading capacity

PUMA VTR1012 series
6000 kg (13227.5 lb)

PUMA VTR1216 series
8000 kg (17636.7 lb)

PUMA VTR1620 series
10000 kg (22045.9 lb)

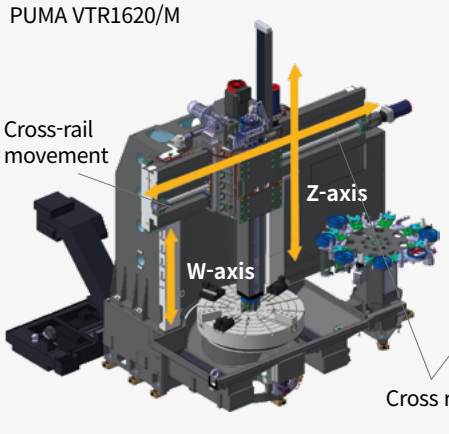
PUMA VTR2025 series
15000 kg (33068.9 lb)

** CHUCK*

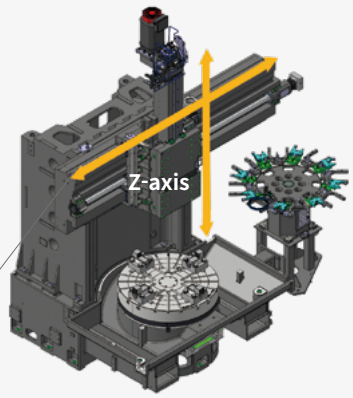
The W-axis can be selected for machining long shafts or for deep pocket machining

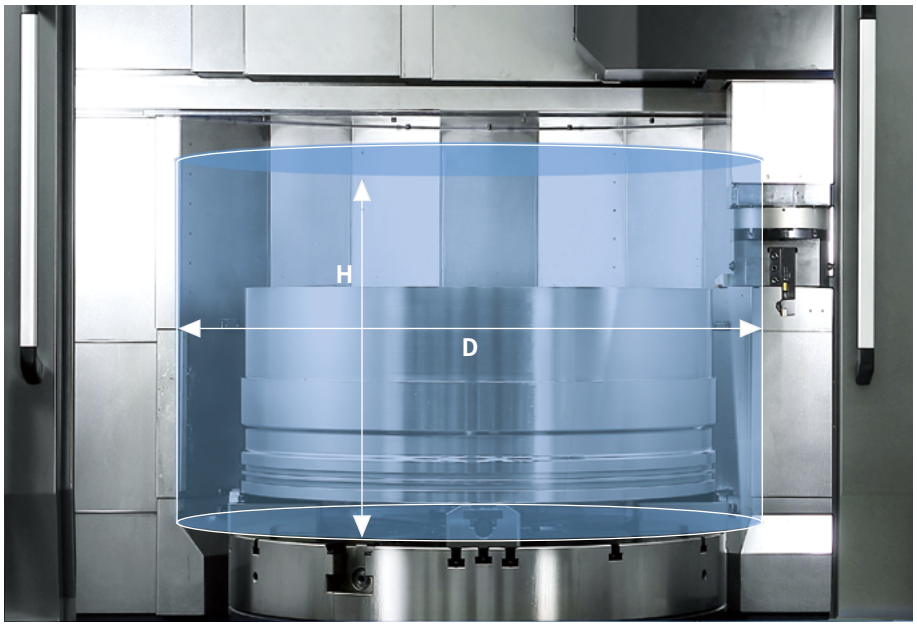
Featuring a wide, one-piece type bed and wide column design, and supported by a large capacity cooler, the PUMA VTR Series guarantees long, powerful, and stable machining performance. Depending on workpiece length (height) and shape etc., a cross-rail fixed or movement type (W-axis) configuration is available.

Cross-rail movement type(W-axis)
PUMA VTR1216/M
PUMA VTR1620/M



Cross-rail fixed type
PUMA VTR1012F/FM/FC
PUMA VTR1216F/FM/FC





Unit : mm (inch)

Description	PUMA VTR1012F	PUMA VTR1012FM	PUMA VTR1012FC	PUMA VTR1216F	PUMA VTR1216FM	PUMA VTR1216FC	PUMA VTR1216	PUMA VTR1216M	PUMA VTR1620	PUMA VTR1620M	PUMA VTR2025	PUMA VTR2025M
Max. Turning Diameter (D)	1250 (49.2)			1600 (63.0)					2000 (78.7)		2500 (98.4)	
Max. Turning Height (H)	750 (29.5)		695 (27.4)	950 (37.4)		855 (33.7)	1250 (49.2)		1800 (70.9)		2000 (78.7)	

SPINDLE

Supplied with a high-capacity cooler as standard, the thermally-symmetrical spindle delivers reliable, stable and long-term precision machining.

Max. torque

PUMA VTR1012 series
19217 N·m (14182.1 ft-lbs) OPTION

PUMA VTR1216 series
31997 N·m (23613.8 ft-lbs) OPTION

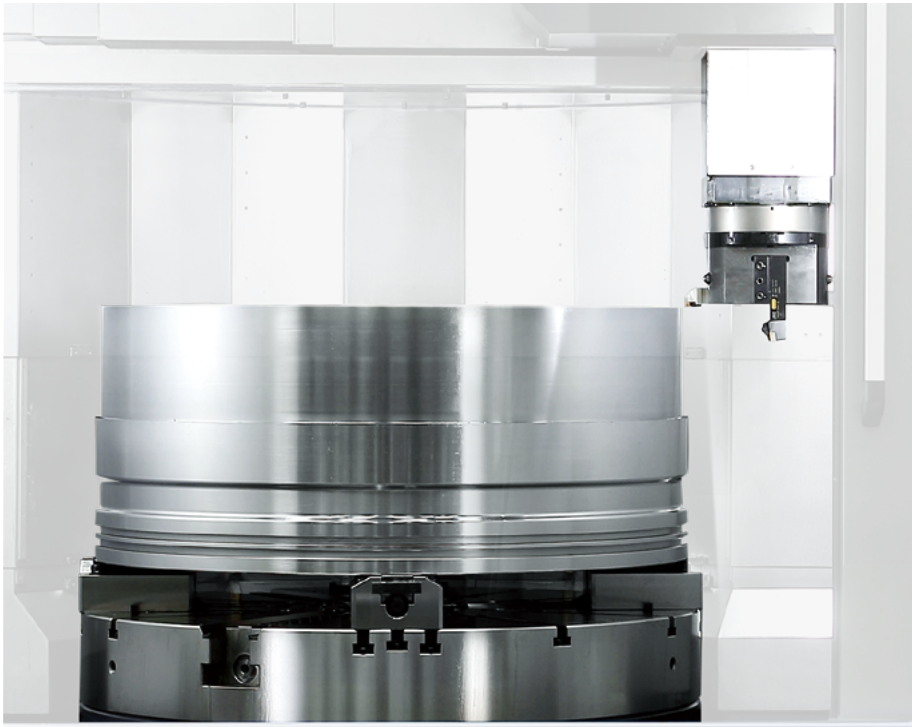
PUMA VTR1620 series
38373 N·m (28319.3 ft-lbs) OPTION

PUMA VTR2025 series
46720 N·m (34479.4 ft-lbs) OPTION

Max. power

PUMA VTR1012 series
70 kW (93.9 Hp) OPTION

PUMA VTR1216/1620/2025 series
75 kW (100.6 Hp) OPTION



RAM tool

The servo-driven tool magazine offers fast and accurate tool selection.

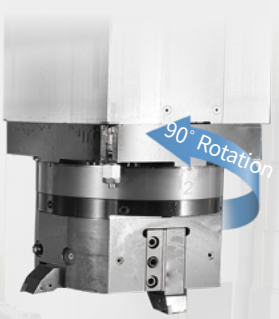
RAM size
260x260 mm
(10.2 X 10.2 inch)

Tool clamping force
8 ton
(17637 lb)

High productivity RAM indexing

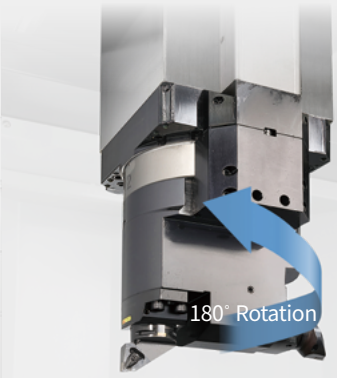
The tool holder's 8 tons of clamping force is ideal for heavy-duty machining operations. DN Solutions's unique ram indexing and quad holder technologies enable the use of 4 tools, with a 90° rotation, without having to use the machine's ATC, thereby increasing overall productivity. The automatic tool changer (ATC) solution mounting up to 60 tools, can also improve productivity and efficiency, especially when machining difficult-to-machine materials like SUS (Stainless), titanium, inconel etc.

Quad holder OPTION
Up to 4 tools can be used in one set-up



PUMA VTR1012F/FM
PUMA VTR1216/M/F/FM
PUMA VTR1620/M
PUMA VTR2025/M

CAPTO holder (C6, C8 OPTION)
Automatic exchange of up to 60 tools



PUMA VTR1012FC
PUMA VTR1216FC

ATC TOOL MAGAZINE

The servo-driven ATC tool magazine enables fast and accurate tool selection.

Max. tool storage capacity

PUMA VTR1012F/1216F/1216/1620/2025

12, 24 ea OPTION

Max. tool length

Model	Unit	Vertical	Horizontal**
PUMA VTR1012F/1216F	mm (inch)	500 (19.7)	150 (5.9)
PUMA VTR1216		590 (23.2)	150 (5.9)
PUMA VTR1620/2025		590 (23.2)	200 (7.9)

*** length from Ram(except FC models)*

Max. tool storage capacity

PUMA VTR 1012FM/1216FM/1216M/1620M/2025M

15 ea

(7 for turning, 8 for milling, 1 for milling cap)

23 ea OPTION

(11 for turning, 12 for milling, 1 for milling cap)

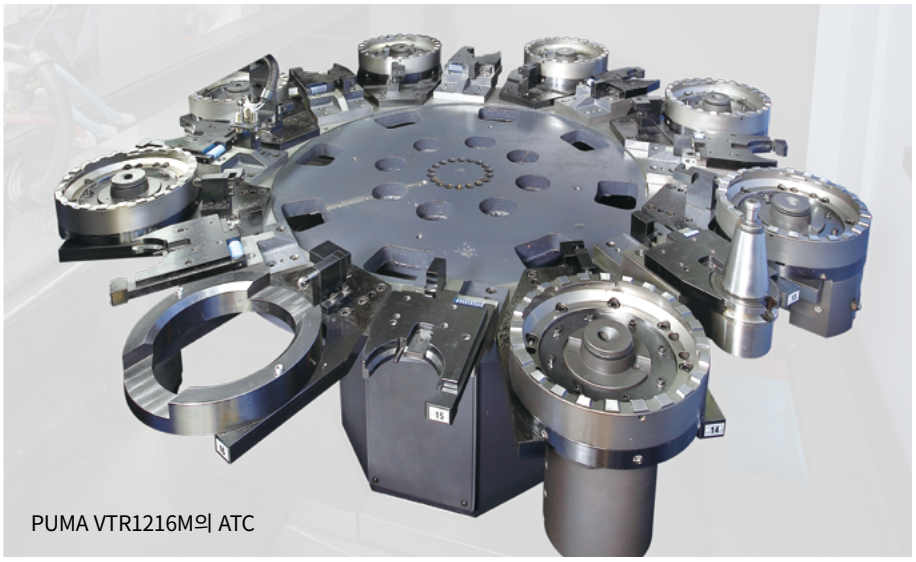
33 ea OPTION

(12 for turning, 21 for milling, 1 for milling cap)

Max. tool length

Model	Division	Unit	Vertical	Horizontal**
PUMA VTR1012FM VTR1216FM	Turning	mm (inch)	500 (19.7)	150 (5.9)
	Milling		530 (20.9)	200 (7.9)
PUMA VTR1216M	Turning		590 (23.2)	150 (5.9)
	Milling		650 (25.6)	200 (7.9)
PUMA VTR1620M VTR2025M	Turning		590 (23.2)	200 (7.9)
	Milling		650 (25.6)	200 (7.9)

*** length from Ram(except FC models)*



PUMA VTR1216M의 ATC

Max. tool storage capacity

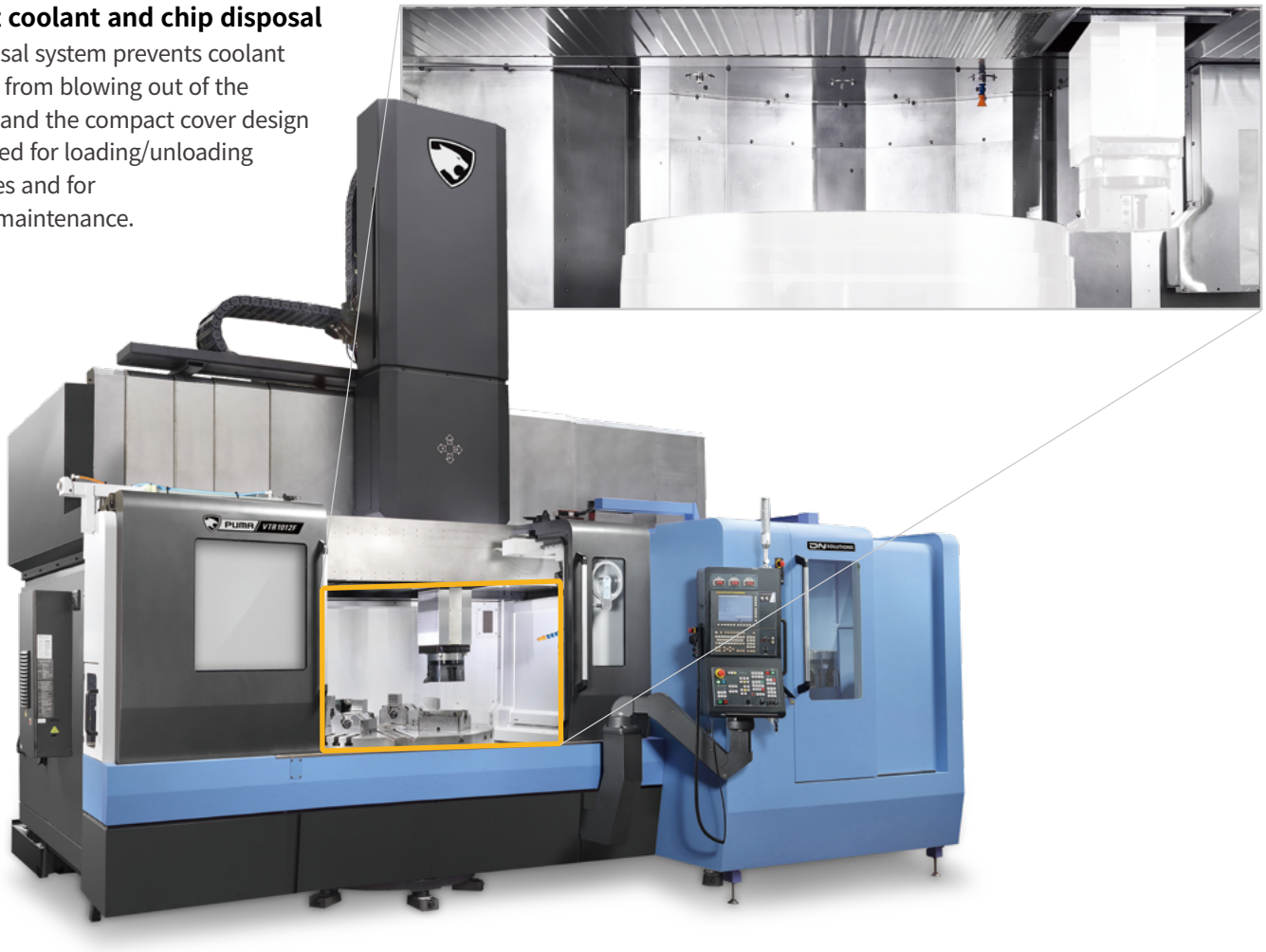
PUMA VTR1012FC/1216FC

60 ea

(Coromant Capto® C6, C8 OPTION ,
Horizontal 30ea, Vertical 30ea)

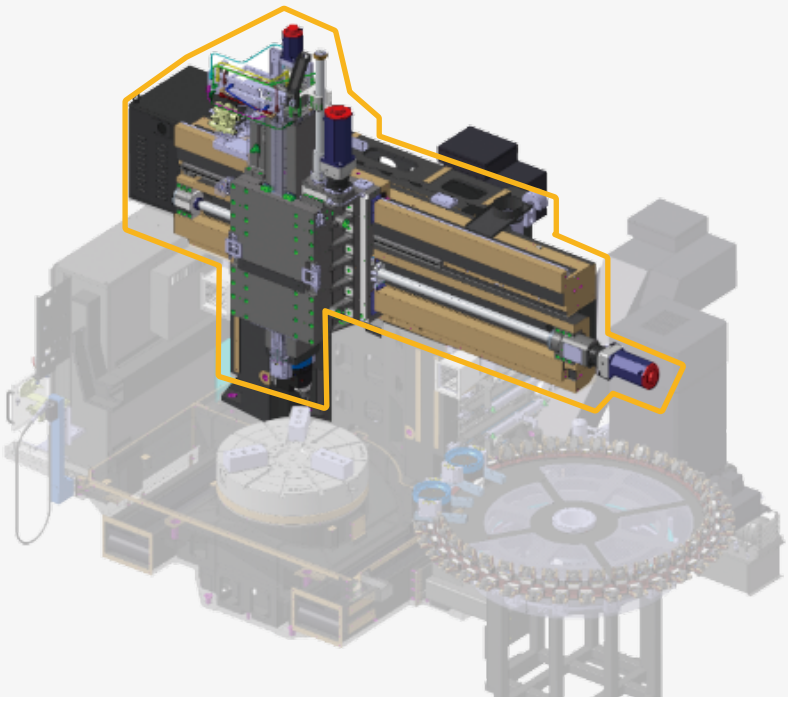
MULTI-ENCLOSED COVER

Efficient coolant and chip disposal
The disposal system prevents coolant and chips from blowing out of the machine, and the compact cover design is optimized for loading/unloading workpieces and for machine maintenance.



Linear scales
Linear scales are included as standard to help maintain high precision.

High accuracy
Linear scales on the X- and Z-axes (cross-rail fixed models) and on the W-axis (cross-rail movement type) are available.



STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	PUMA VTR1012F	PUMA VTR1012FC	PUMA VTR1012FM	PUMA VTR1216F	PUMA VTR1216FC	PUMA VTR1216	PUMA VTR 1216M/FM	PUMA VTR1620	PUMA VTR1620M	PUMA VTR2025	PUMA VTR2025M
Main spindle	45/37 kW, 12354 N·m	●	●	●	X	X	X	X	X	X	X	X
	45/37 kW, 20557 N·m	X	X	X	●	●	●	●	X	X	X	X
	45/37 kW, 24668 N·m	X	X	X	X	X	X	X	●	●	X	X
	70/45/37 kW, 19217 N·m	○	○	X	X	X	X	X	X	X	X	X
	70/45/37 kW, 31997 N·m	X	X	○	○	○	○	○	X	X	X	X
	70/45/37 kW, 38373 N·m	X	X	X	X	X	X	X	○	○	X	X
	75/60 kW, 31147 N·m	X	X	○	X	X	X	○	X	X	X	X
	75/60 kW, 37376 N·m	X	X	X	X	X	X	X	X	○	X	X
	75/60 Kw, 46720 N·m	X	X	X	X	X	X	X	X	X	●	●
Chuck	NONE	○	○	○	○	○	○	○	○	○	○	○
	1000 mm_Manual_4-JAW	●	●	●	X	X	X	X	X	X	X	X
	1000 mm_Power 3-JAW	○	○	○	X	X	X	X	X	X	X	X
	1250 mm_Manual 4-JAW	X	X	X	●	●	●	●	X	X	X	X
	1250 mm_Power 3-JAW	X	X	X	○	○	○	○	X	X	X	X
	1250 mm_Combination	X	X	X	○	○	○	○	X	X	X	X
	1400 mm_Manual 4-JAW	X	X	X	○	○	○	○	X	X	X	X
	1400 mm_Power 3-JAW	X	X	X	○	○	○	○	X	X	X	X
	1400 mm _Combination	X	X	X	○	○	○	○	X	X	X	X
	1600 mm _Manual	X	X	X	X	X	X	X	●	●	X	X
	1600 mm_Power 3-JAW	X	X	X	X	X	X	X	○	○	X	X
	1600 mm_Combination	X	X	X	X	X	X	X	○	○	X	X
	1800 mm_Manual 4-JAW	X	X	X	X	X	X	X	○	○	X	X
	1800 mm_Power 3-JAW	X	X	X	X	X	X	X	○	○	X	X
	1800 mm_Combination	X	X	X	X	X	X	X	○	○	X	X
	2000mm_Manual_4-JAW	X	X	X	X	X	X	X	X	X	●	●
	2000mm_Power_3-JAW	X	X	X	X	X	X	X	X	X	○	○
	2000mm_Combination	X	X	X	X	X	X	X	X	X	○	○
	2300mm_Manual_4-JAW	X	X	X	X	X	X	X	X	X	○	○
Soft top jaws	None	●	●	●	●	●	●	●	●	●	●	●
	Manual-4 ea(1 set)	○	○	○	○	○	○	○	○	○	○	○
	Manual-8 ea(2 set)	○	○	○	○	○	○	○	○	○	○	○
	Combination-7 ea(1 set)	X	X	X	○	○	○	○	○	○	○	○
	Combination-14 ea(2 set)	X	X	X	○	○	○	○	○	○	○	○
	Power-3 ea(1 set)	○	○	○	○	○	○	○	○	○	○	○
	Power-6 ea(2 set)	○	○	○	○	○	○	○	○	○	○	○
Hard top jaws	None	●	●	●	●	●	●	●	●	●	●	●
	Manual-4 ea(1 set)	○	○	○	○	○	○	○	○	○	○	○
	Combination-7 ea(1 set)	X	X	X	○	○	○	○	○	○	○	○
	Power-3 ea(1 set)	○	○	○	○	○	○	○	○	○	○	○
Tool shank type	Big Plus BT50	X	X	●	X	X	X	●	X	●	X	●
	Big Plus CAT50	X	X	○	X	X	X	○	X	○	X	○
	Big Plus DIN50	X	X	○	X	X	X	○	X	○	X	○
ATC	12ea	●	X	X	●	X	●	X	●	X	●	X
	24ea	○	X	X	○	X	○	X	○	X	○	X
	60ea(CAPTO C6)	X	●	X	X	●	X	X	X	X	X	X
	60ea(CAPTO C8)	X	○	X	X	○	X	X	X	X	X	X
	15ea(Turning-7ea/Milling-8ea/Milling CAP-1ea)	X	X	●	X	X	X	●	X	●	X	●
	23ea (Turning-11ea/Milling-12ea/Milling CAP-1 ea)	X	X	○	X	X	X	○	X	○	X	○
	33ea (Turning-12ea/Milling-21ea/Milling CAP1 ea)	X	X	○	X	X	X	○	X	○	X	○
Coolant pump	1.1 kW_0.7 Mpa_32 L/min	●	●	●	●	●	●	●	●	●	●	●
	1.1 kW_1.0 Mpa_20 L/min	○	○	○	○	○	○	○	○	○	○	○
	4.0 kW_2.0 Mpa_20 L/min	○	○	○	○	○	○	○	○	○	○	○
	2.9kW_3.0Mpa_33.3L/min	○	○	○	○	○	○	○	○	○	○	○
	7.5 kW_7.0 Mpa_29 L/min	○	○	○	○	○	○	○	○	○	○	○
	15 Mpa (150bar, need tech. discussion in advance)	X	○	X	X	○	X	X	X	X	X	X
Coolant options	High coolant interface	○	○	○	○	○	○	○	○	○	○	○
	Oil Skimmer (Belt type)	○	○	○	○	○	○	○	○	○	○	○
	Water soluble Coolant Chiller**	○	○	○	○	○	○	○	○	○	○	○
	Coolant flow switch	○	○	○	○	○	○	○	○	○	○	○
	Coolant level switch : Sensing level - low	○	○	○	○	○	○	○	○	○	○	○
Chip disposal options	NONE	●	●	●	●	●	●	●	●	●	●	●
	Rear exit _Hinged belt rear chip conveyor	○	○	○	○	○	○	○	○	○	X	X
	Rear exit _Magnetic scrapper rear chip conveyor	○	○	○	○	○	○	○	○	○	X	X
	Front_Hinged belt rear chip conveyor	X	X	X	X	X	X	X	X	X	○	○
	Front_Magnetic scrapper rear chip conveyor	X	X	X	X	X	X	X	X	X	○	○
	Chip bucket_Folklift 380L	○	○	○	○	○	○	○	○	○	○	○
	Chip bucket_Rotation 380L	○	○	○	○	○	○	○	○	○	○	○
	Chip bucket_Folklift 600L	○	○	○	○	○	○	○	○	○	○	○
	Coolant gun	○	○	○	○	○	○	○	○	○	○	○
Measurement & automation	Automatic workpiece measurement RMP60_RENISHAW	○	○	○	○	○	○	○	○	○	○	○
	Automatic front door and safety devices	○	○	○	○	○	○	○	○	○	○	○
	Tool setter (Auto)	○	○	○	○	○	○	○	○	○	○	○
	ACC (2 station)	Please, contact DN Solutions on further information.										
	ACC (Customizing)											
Accessories	Multi enclosed cover	●	●	●	●	●	●	●	●	●	●	●
	Tool load monitoring system	●	●	●	●	●	●	●	●	●	●	●
	Linear scale (X / Z axis)	●	●	●	●	●	●	●	●	●	●	●
	Auto power off	○	○	○	○	○	○	○	○	○	○	○
	Gravity axis drop prevention	●	●	●	●	●	●	●	●	●	●	●
	Air conditioner	○	○	○	○	○	○	○	○	○	○	○
	Lubricant drop prevention decive	○	○	○	○	○	○	○	○	○	○	○
	Installtion tool kit	●	●	●	●	●	●	●	●	●	●	●
	Maintenance tool kit	○	○	○	○	○	○	○	○	○	○	○

※ Please contact your DN Solutions representative for detailed machine information.
** When chuck specification needs to be changed, it may be necessary to replace the chuck cylinder that matches the chuck specification.*
** 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*

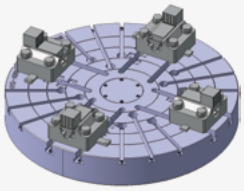
● *Standard* ○ *Optional* X *Not applicable*

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.

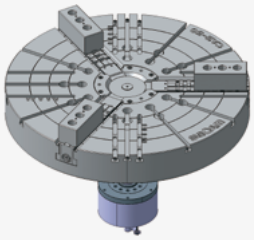
PERIPHERAL EQUIPMENT

Table chuck OPTION

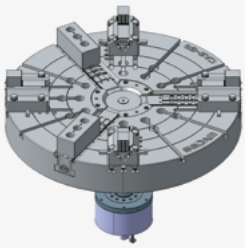
Various types of table chucks are offered, including manual type and hydraulic type.



Manual chuck



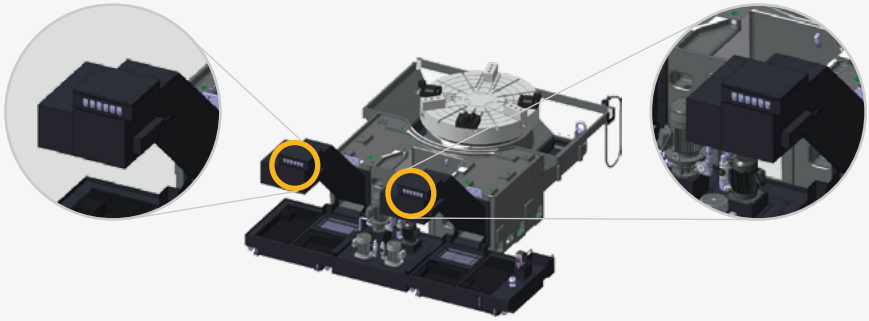
Hydraulic chuck



Manual & Hydraulic combination chuck

Rear exit chip conveyor OPTION

Smooth chip disposal is guaranteed with the one-piece-type bed supplied with chip discharge channels (on both sides of the table), and rear exit dual chip conveyors.



Various tool options OPTION

Tool options include a 90°angle attachment and a grinding unit. The selected tool is driven by the milling spindle motor (M models only).

Angle att.

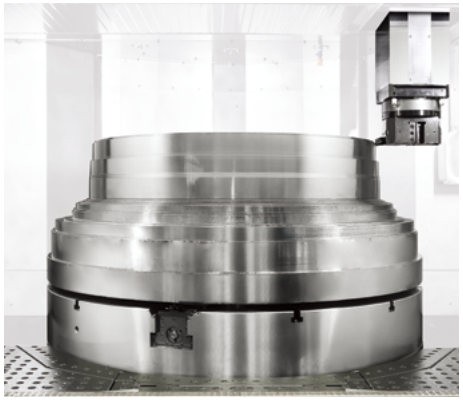
Max. speed : 3000 r/min
Max. torque : 674 N·m
Through tool coolant : Max. 70bar

Grinding unit

Grinding wheel : Ø305 mm
Max. speed : 3000 r/min

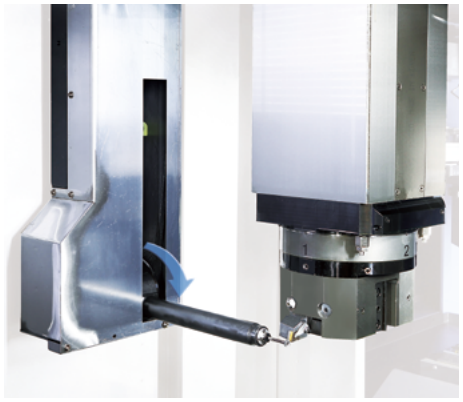
Internal foot rest

Internal foot rest is available for convenient setting and maintenance.



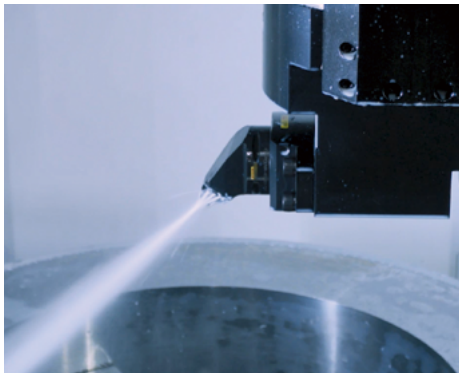
Automatic tool setter OPTION

The device automatically measures tool length and diameter, detects tool wear and calculates the offset to improve machining accuracy.



150 bar high pressure TTC (Through tool coolant) OPTION

Maintaining low temperatures and ensuring quick and effective chip disposal increase productivity, especially when machining difficult-to-machine materials (PUMA VTR1012FC, 1216FC).



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
- Ergonimic operator panel
- 2MB memory
- Hot keys

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.

Display

- Crossrail position
- Tool No. display
- Head index No.
- Tool head rotation button

The operation panel can be raised, lowered, and swivelled for operating convenience.

NUMERIC CONTROL SPECIFICATIONS

FANUC

Description	Item	Features	DN Solutions Fanuc i Plus	
			2-Axis	M
Controlled axis	Controlled axes		2 (X, Z)	3 (X, Z, C)
	Simultaneously controlled axes		2 axes	3 axes
Data input/output	data server		○	○
	Memory card input/output		●	●
	USB memory input/output		●	●
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 Operation package		●	●
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	●	●
	Dual position feedback		X	●
	Pitch error compensation		●	●

Network: FANUC MTConnect and FANUC OPC UA available.

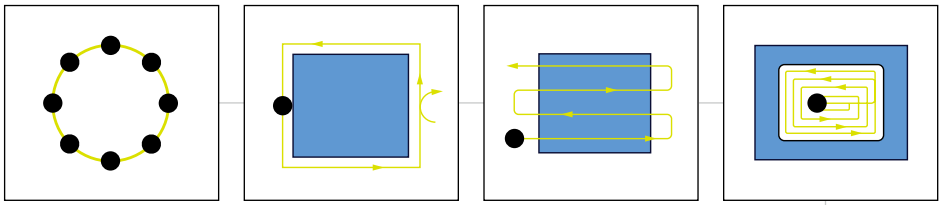
● *Standard* ○ *Optional* X *Not applicable* ✪ *Available*

DN SOLUTIONS FANUC i PLUS

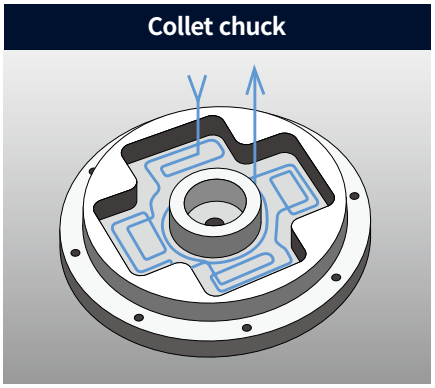
EZ-Guide i

Using the DN Solutions EZ-Guide i, users can create a cutting program for any desired shape, including patterns, by entering just the dimensions.

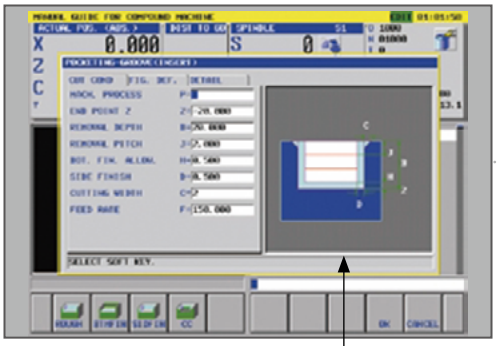
Example programming : Cutting shape



Collet chuck



EZ-Guide i screen



Enter the dimensions of the shape.

Automatic creation of cutting program

```
O7000 (SAMPLE PROGRAM) ;
...
M3 S1500 ;
G0 X50. Y125. ;
G0 Z30. ;
G1040 T0.5 J3. H0.2 K0.5 ... ;
G1020 H120. V50. U37. W68. ... ;
G0 Z80. ;
M5 ;
```

A cutting program is automatically created with the entered values.

EZ WORK

DN Solutions's unique EZ WORK offers tool management function, peripheral device settings, operation, online help, and other functionalities to maximize operational efficiency and user convenience.

Tool Load Monitoring

- Detection function to prevent before tool wear and tool breakage
- Set up and show each tool's load

ATC position compensation

- Tool position change and offset are displayed and set up.
- Easy compensation and prevention against deformation/displacement by long-term operation, etc.

Thermal error compensation (M-series)

- Improved accuracy with thermal displacement compensation
- Real-time-based machine temperature monitoring

CONVENIENT OPERATION

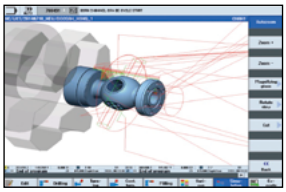
SIEMENS S828D

15.6” display + New OP

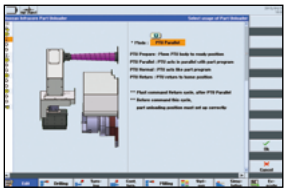
Siemens 828D’ operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

- 15.6 inch display
- USB (standard)
- QWERTY keyboard

Convenient conversational functionality

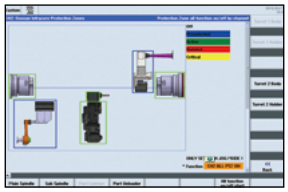


Cutting and operation support function
This function shows a cutting and tool path simulation in real-time.



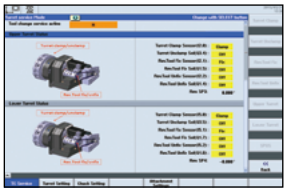
Shop-turn mode
[various]
⬇
[attachments]

The automation elements (parts catcher, parts unloader etc.), can be easily controlled via interactive screens.



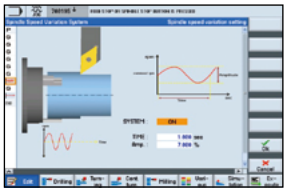
[Custom]
⬇
[Protection zones]

Operation safety function
Protection Zone Synchronized Actions checks the interference between the turret and the spindle to prevent collisions caused by operator error.



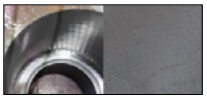
[offset]
⬇
[operating parameter]
⬇
[TC service]

Maintenance and service convenience function
Maintenance and service of major equipment and peripheral devices, including the timer and parts counter settings can be easily undertaken.

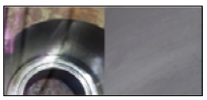


[various]
⬇
[attachment]
⬇
[DSSV]

Machining accuracy improvement
The NC controls spindle speed at an optimal level for precision threading and turning, making it possible to automatically improve surface roughness.



Before applying the function



After applying the function

NUMERIC CONTROL SPECIFICATIONS

SIEMENS

Description	Item	Features	2-Axis S828D	M/F/FM/FC S828D
Controlled axis	Controlled axes		X,Z,SP	X,Z,C,R
	Simultaneously controlled axes		4 axes	4 axes
Data input/output	Memory card input/output		X	X
	USB memory input/output		●	●
Interface function	Ethernet	(X130)	○	○
Operation	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 - G59, G507 - G599	●	●
Feed function	Advanced surface		X	X
	Top surface		X	X
	Look ahead number of block		1	1
Programming & Editing function	3D simulation, finished part		●	●
	Simultaneous recording		●	●
	DXF Reader for PC integrated in SINUMERIK Operate		○	○
Operation Guidance Function	Shopturn		●	●
	EZ Operation package		●	●
Setting and display	Operation via a VNC viewer		●	●
Network	MTConnect		✪	✪
	OPCUA		○	○
Others	Display unit	15.6" color display with touch screen	●	●
	Part program storage size	CNC user memory 5MB	●	●
		CNC user memory 100 MB	○	○
		CNC user memory 6GB	X	X
		CNC user memory 40GB (with PCU or IPC)	X	X
		CNC user memory without limit (Execution from extenal storage devices) (EES / Using by USB or Network)	○	○
		HMI user memory for CNC part program 6GB	X	X

● *Standard* ○ *Optional* X *Not applicable* ✪ *Available*

POWER | TORQUE

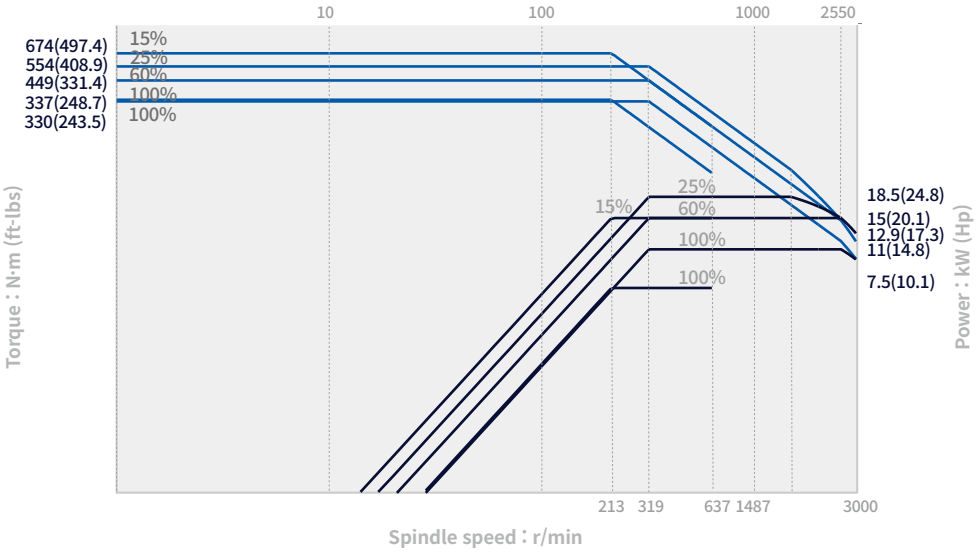
Milling spindle

PUMA VTR1012FM
PUMA VTR1216M/1216FM
PUMA VTR1620M

Max speed of live tool
3000 r/min

Max power of live tool
18.5 kw (24.8 Hp)

Max. torque
674 N·m (497.4 ft-lbs)

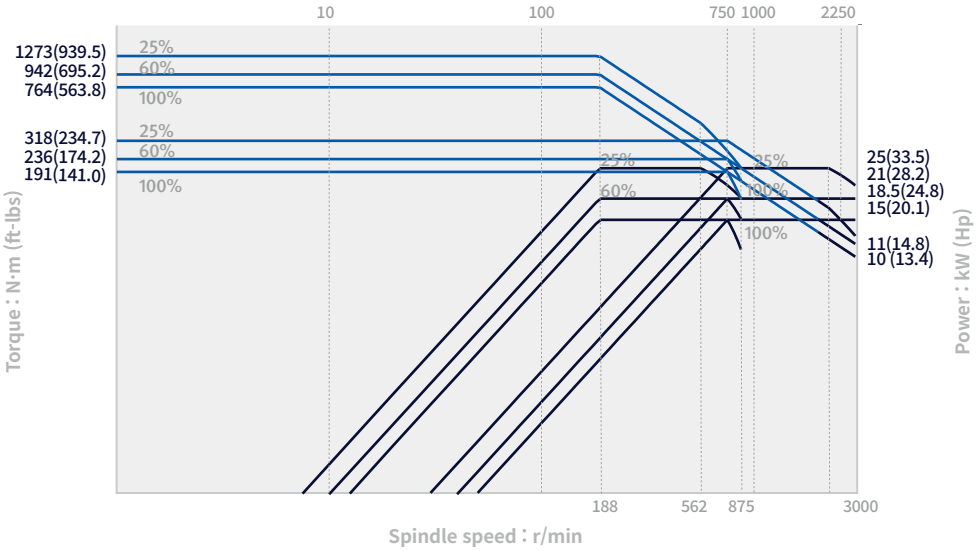


PUMA VTR1216M/1216FM Gearbox OPTION

Max speed of live tool
3000 r/min

Max power of live tool
25 kw (33.5 Hp)

Max. torque
1273 N·m (939.5 ft-lbs)

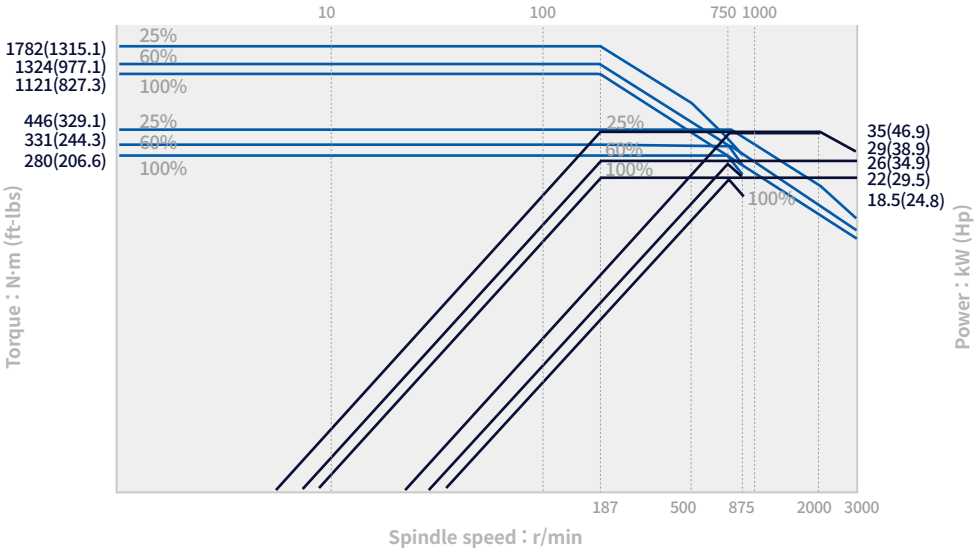


PUMA VTR1620M OPTION
PUMA VTR2025M Gearbox

Max speed of live tool
3000 r/min

Max power of live tool
35 kw (46.9 Hp)

Max. torque
1782 N·m (1315.1 ft-lbs)



POWER | TORQUE

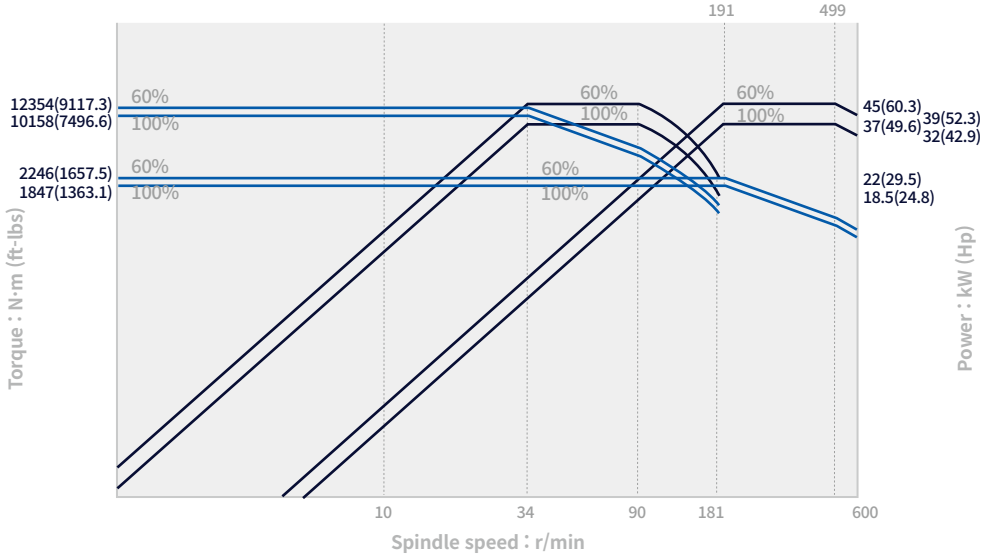
Main Spindle

PUMA VTR1012F/FC/FM

Max. speed
600 r/min

Max. power
45 kw (60.3 Hp)

Max. torque
12354 N·m (9117.3 ft-lbs)

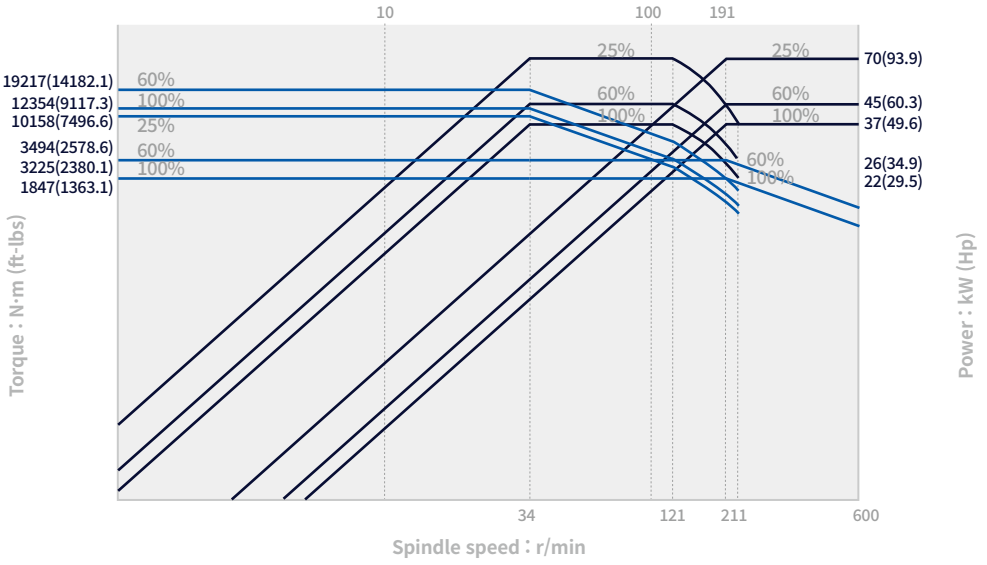


PUMA VTR1012F/FC/FM OPTION

Max. speed
600 r/min

Max. power
70 kw (93.9 Hp)

Max. torque
19217 N·m (14182.1 ft-lbs)

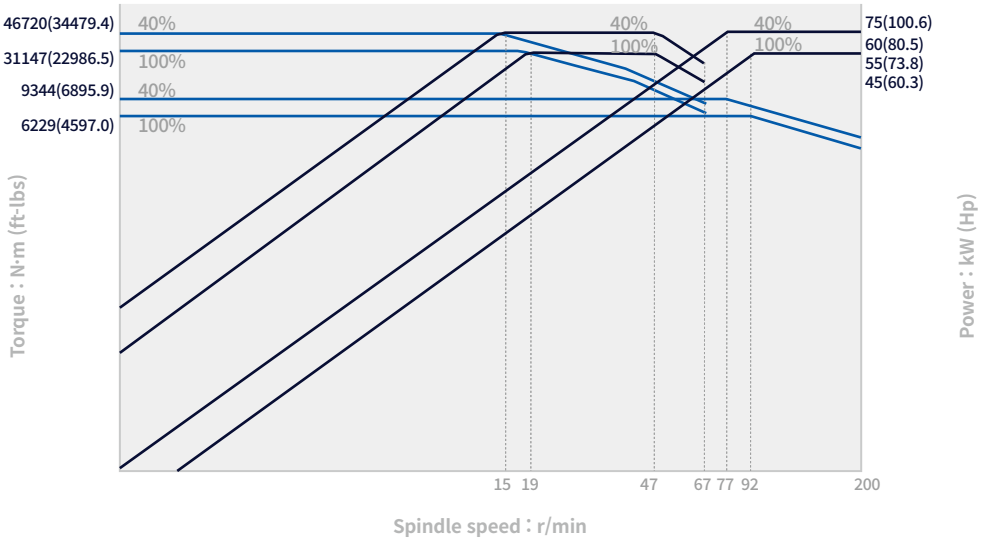


PUMA VTR2025/M

Max. speed
200 r/min

Max. power
75 kw (100.6 Hp)

Max. torque
46720 N·m (34479.4 ft-lbs)



POWER | TORQUE

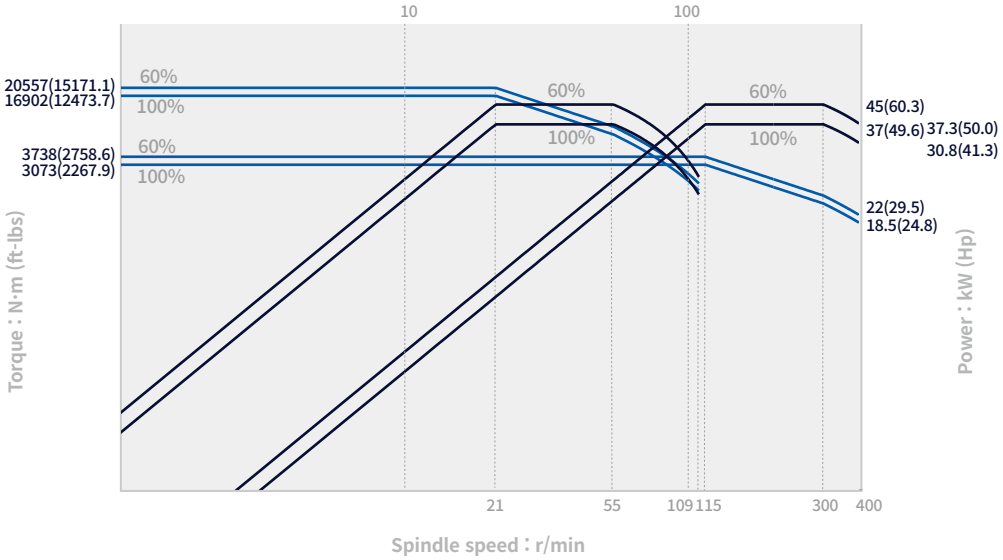
Main Spindle

PUMA VTR1216/M/F/FM/FC

Max. speed
400 r/min

Max. power
45 kw (60.3 Hp)

Max. torque
20557 N·m (15171.1 ft-lbs)

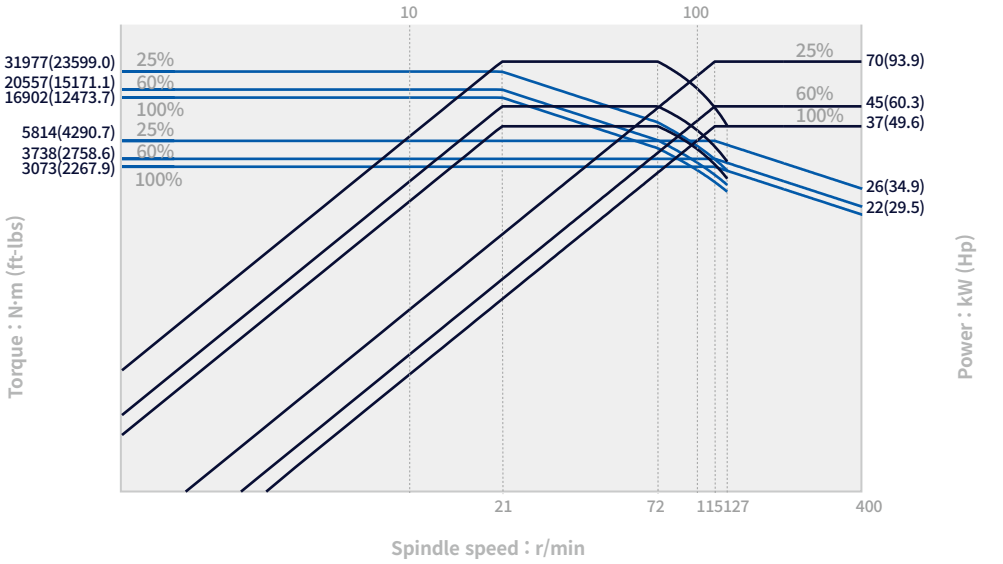


PUMA VTR1216/M/F OPTION
PUMA VTR1216FM/FC OPTION

Max. speed
400 r/min

Max. power
70 kw (93.9 Hp)

Max. torque
31977 N·m (23599.0 ft-lbs)

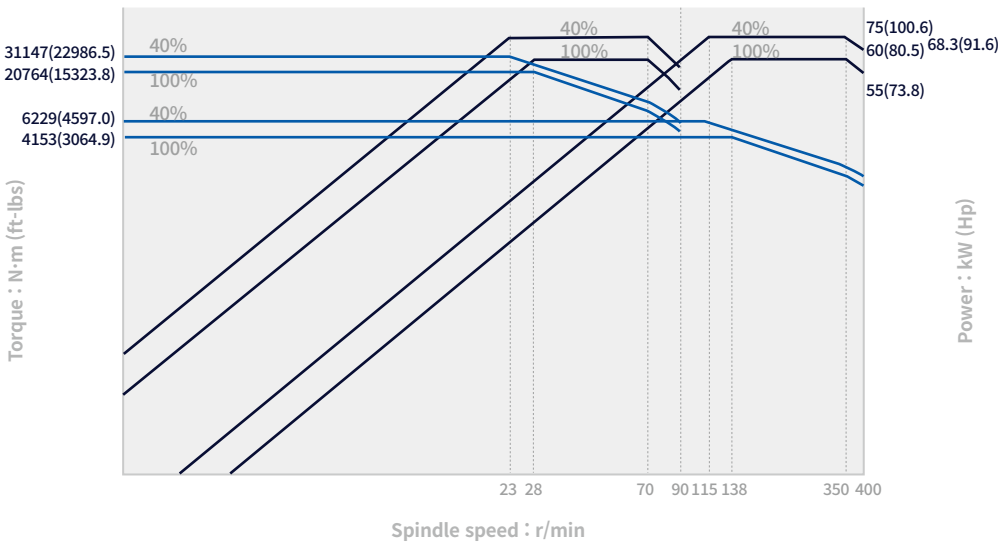


PUMA VTR1216/M/F OPTION
PUMA VTR1216FM/FC OPTION

Max. speed
400 r/min

Max. power
75 kw (100.6 Hp)

Max. torque
31147 N·m (22986.5 ft-lbs)



POWER | TORQUE

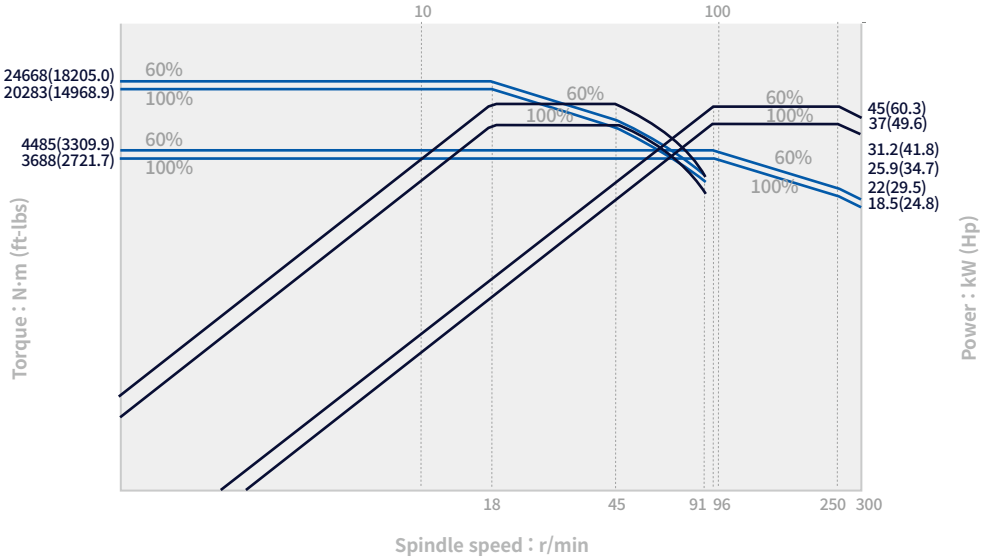
Main Spindle

PUMA VTR1620/M

Max. speed
300 r/min

Max. power
45 kw (60.3 Hp)

Max. torque
24668 N·m (18205.0 ft-lbs)

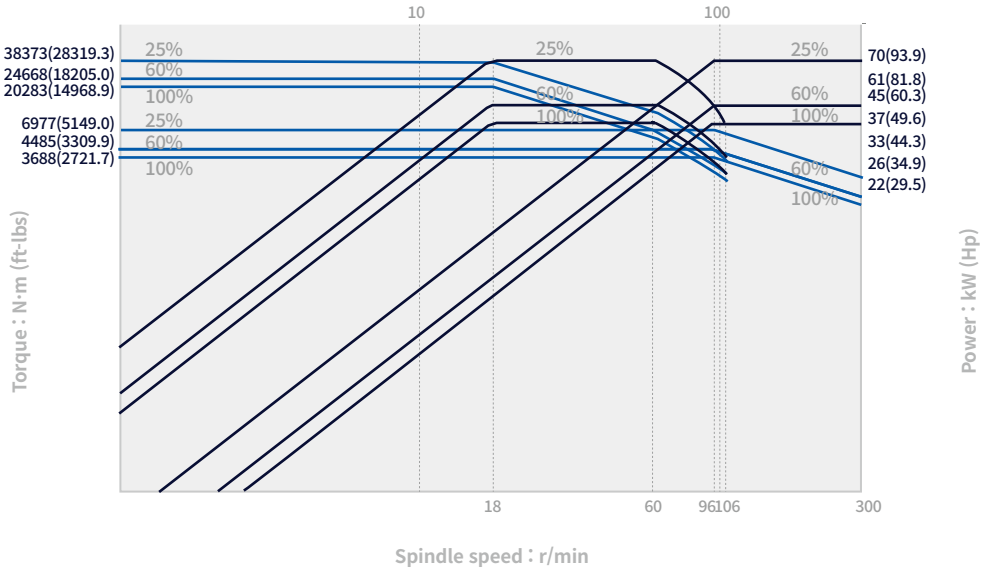


PUMA VTR1620/M OPTION

Max. speed
300 r/min

Max. power
70 kw (93.9 Hp)

Max. torque
38373 N·m (28319.3 ft-lbs)

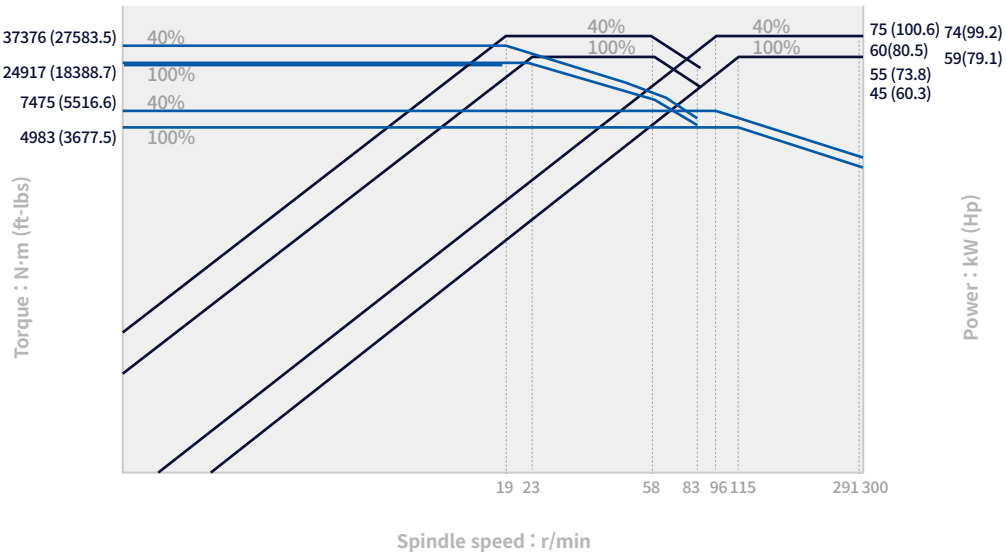


PUMA VTR1620M OPTION

Max. speed
300 r/min

Max. power
75 kw (100.6 Hp)

Max. torque
37376 N·m (27583.5 ft-lbs)

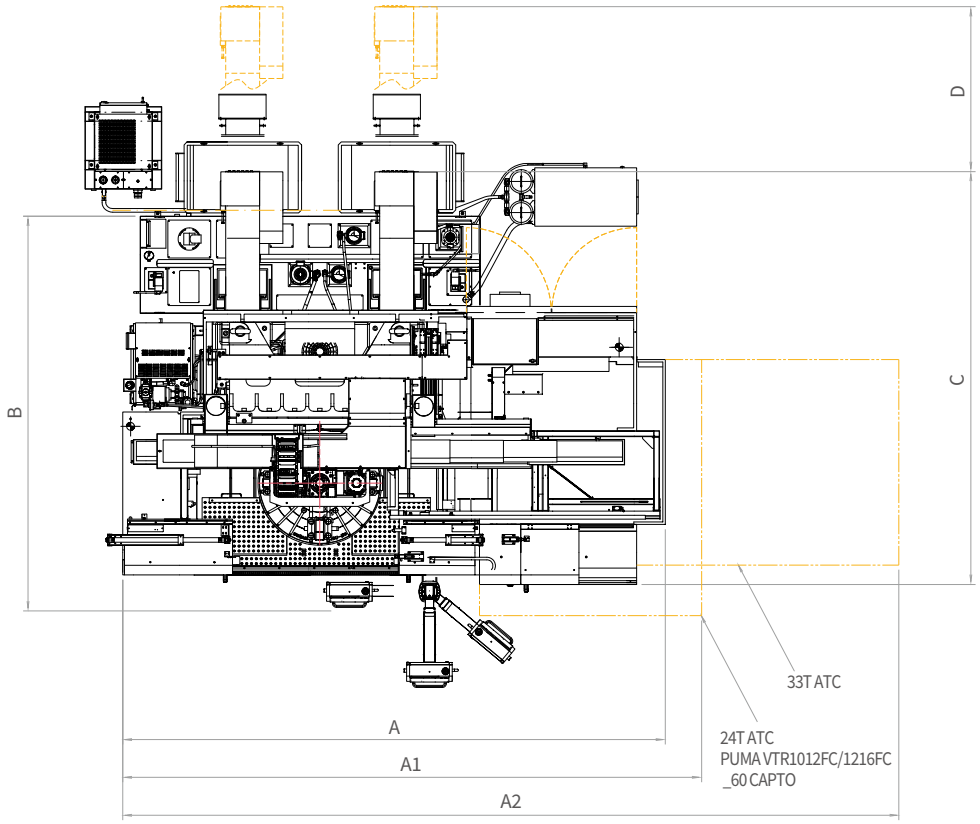


EXTERNAL DIMENSIONS

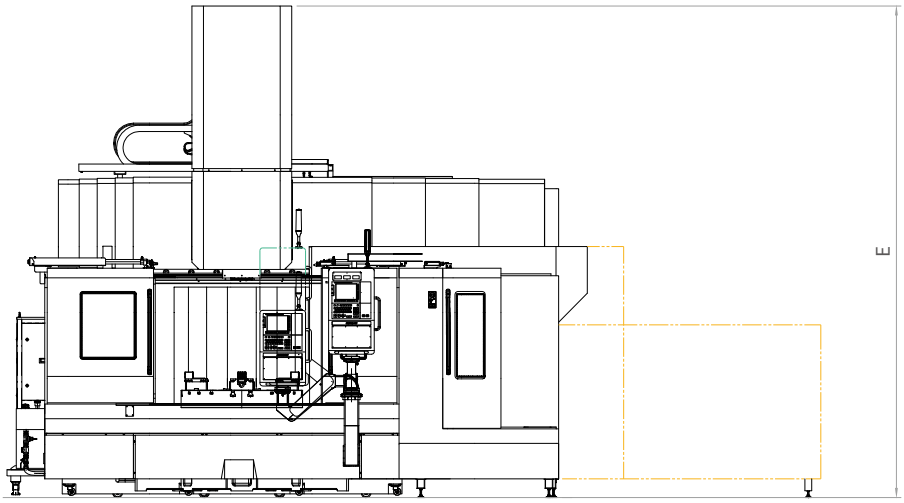
PUMA VTR 1012/1216/1620 series

Top

Unit: mm (inch)



Front



※ *Please comply with our company's installation guideline, such as ground condition and anchoring, in order to achieve the maximum precision and performance of the machine.*

Description	A	A1 (24ATC)	A2 (33ATC)	B	C	D	E
PUMA VTR1012F/FM	4990 (196.5)	5545 (218.3)	-	3870 (152.4)	4128 (162.5)	1700 (66.9)	4768 (187.7)
PUMA VTR1012FC	4990 (196.5)	5545 (218.3) (60T Capto)	-	3987 (157.0)	4128 (162.5)	1700 (66.9)	4768 (187.7)
PUMA VTR1216F / FM	5590 (220.1)	5965 (219.1)	7995 (314.8)	4066 (160.1)	4225 (166.3)	1700 (66.9)	5065 (199.4)
PUMA VTR1216FC	5590 (220.1)	5965 (219.1) (60T Capto)	-	4115 (162.0)	4225 (166.3)	1700 (66.9)	5065 (199.4)
PUMA VTR1216 / M	5590 (220.1)	5965 (219.1)	7995 (314.8)	4066 (160.1)	4225 (166.3)	1700 (66.9)	5650 (222.4)
PUMA VTR1620 / M	6500 (255.9)	6955 (273.8)	9005 (354.5)	4757 (187.3)	5240 (206.3)	3000 (118.1)	6345 (249.8)

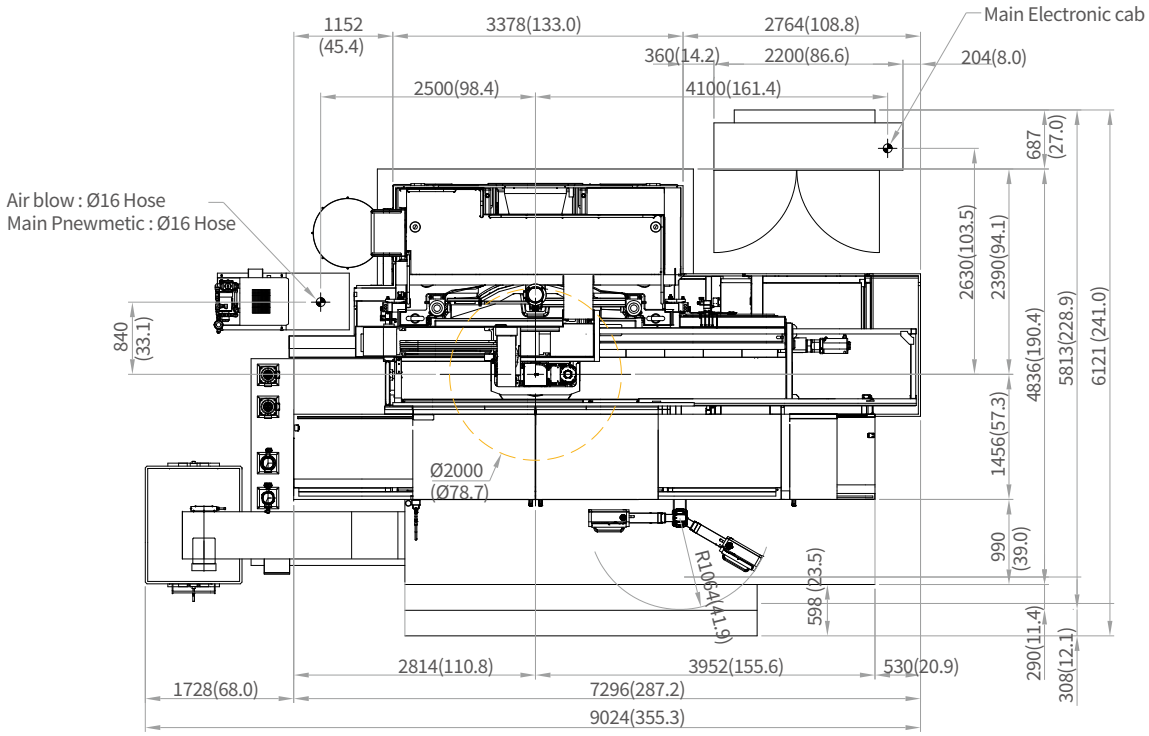
** Some peripheral equipment can be placed in other places*

EXTERNAL DIMENSIONS

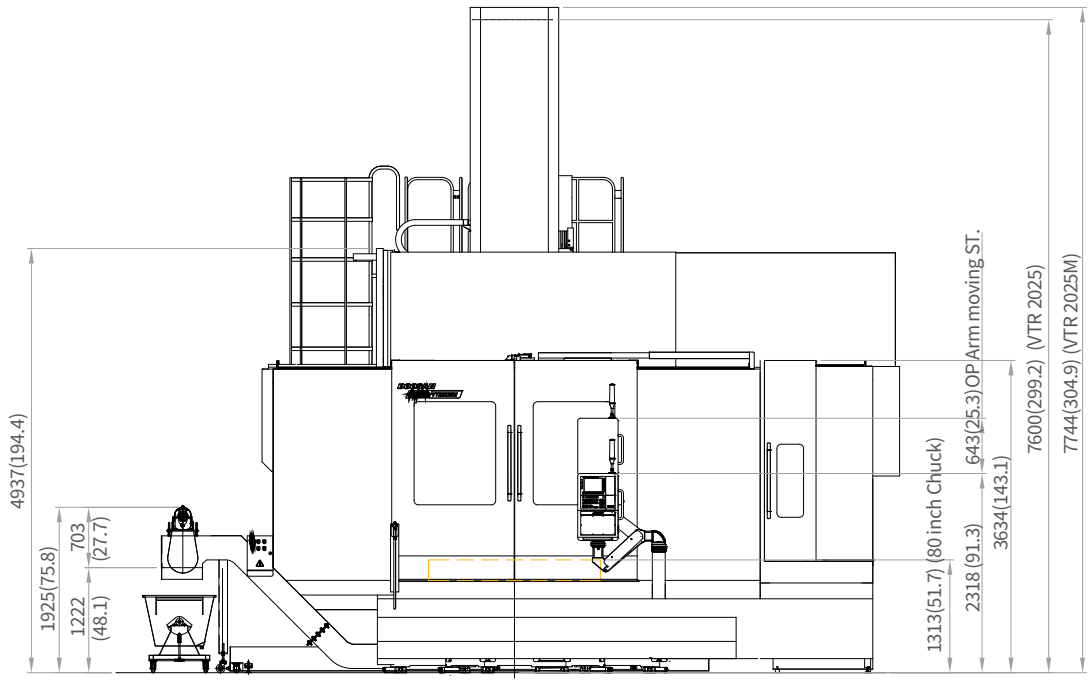
PUMA VTR 2025/M

Unit: mm (inch)

Top



Front

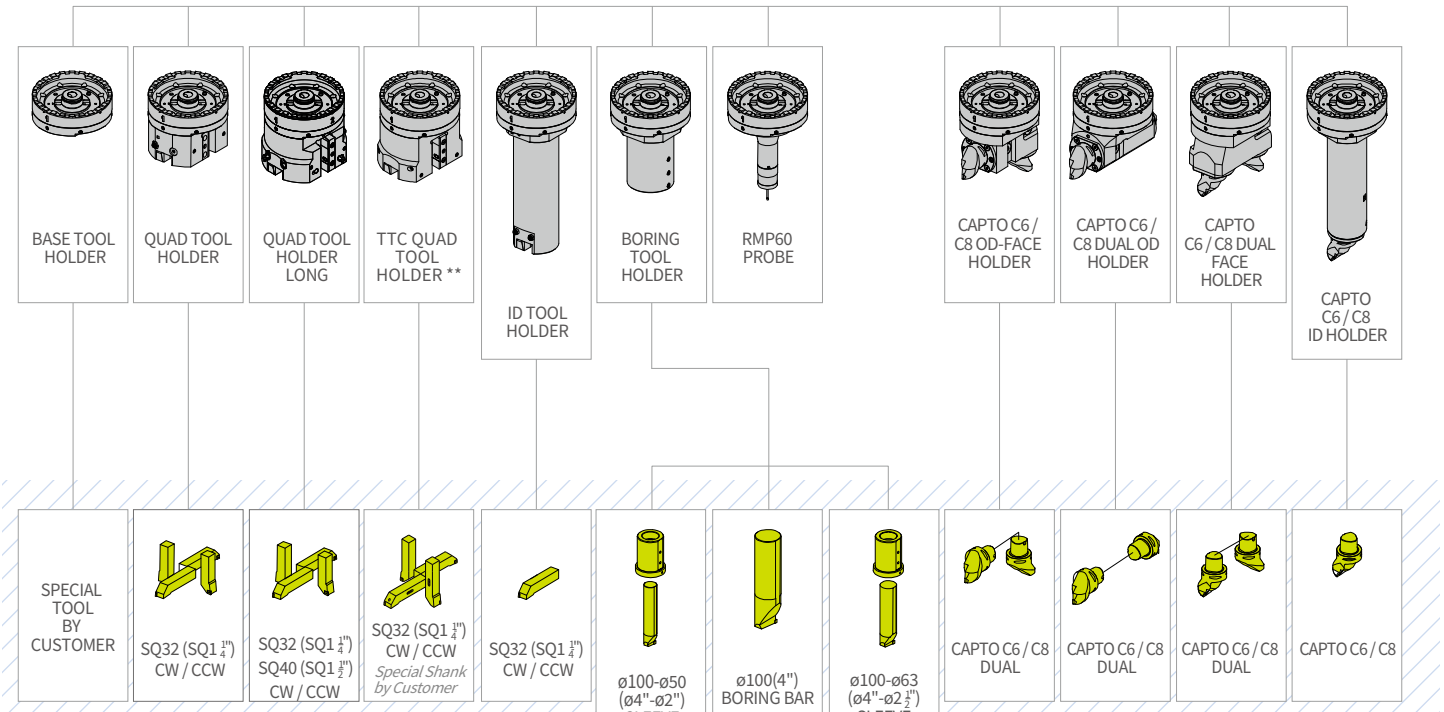


** Some peripheral equipment can be placed in other places*

TOOLING SYSTEM

Turning

Unit: mm (inch)

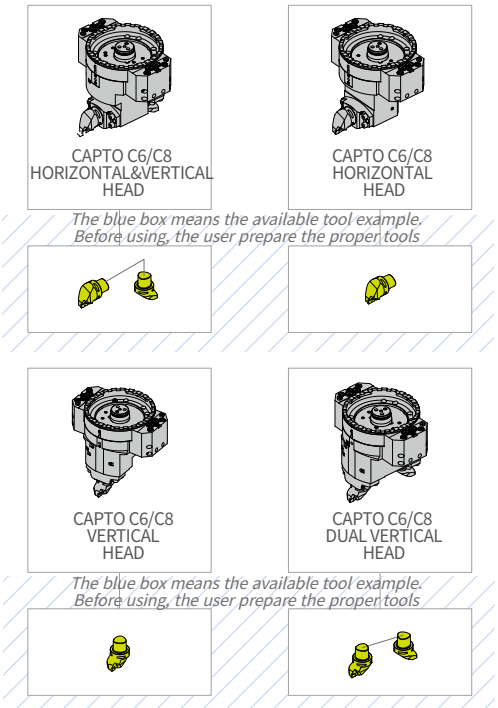


The blue box means the available tool example.
Before using, the user prepare the proper tools
*** Please contact DNS solutions, before select TTC QUAD TOOL HOLDER*

** PUMA VTR1012FC/VTR1216FC except*

Turning

PUMA VTR1012FC, VTR1216FC

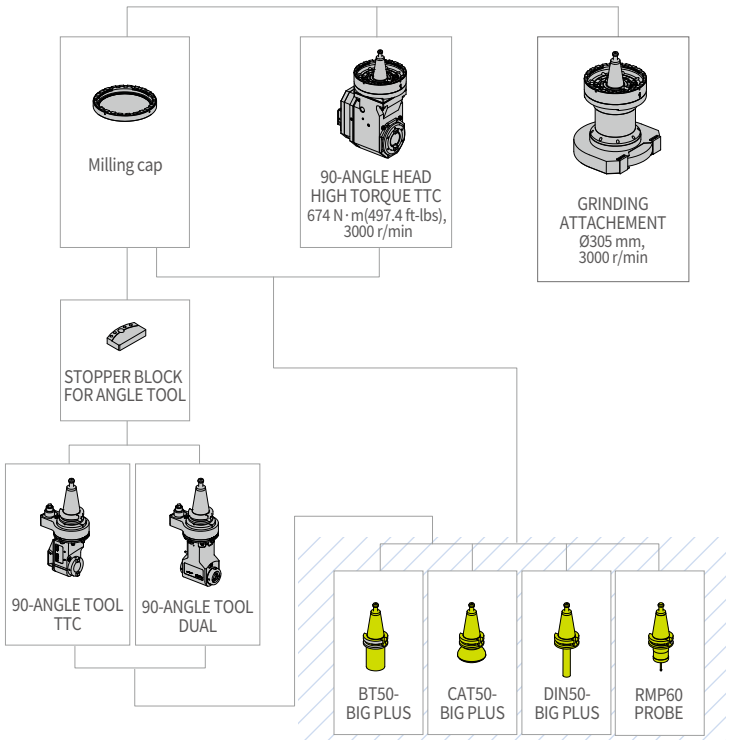


The blue box means the available tool example.
Before using, the user prepare the proper tools

** HORIZONTAL&VERTICAL HEAD 1set : Standard*

Milling

PUMA VTR1216M/FM, VTR1620M, VTR2025M



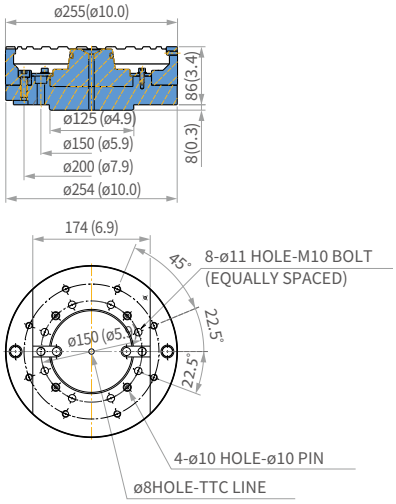
The blue box means the available tool example.
Before using, the user prepare the proper tools

TOOLING ATTACHMENT

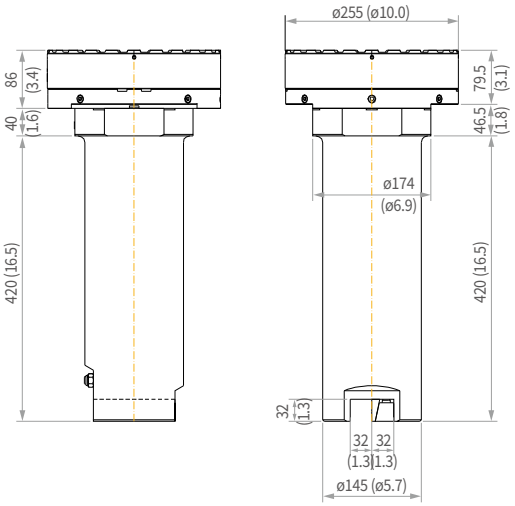
PUMA VTR series

Unit: mm (inch)

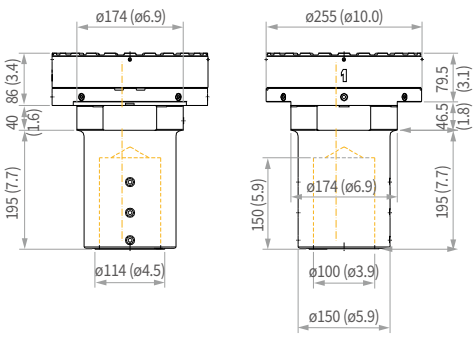
BASE TOOL HOLDER OPTION



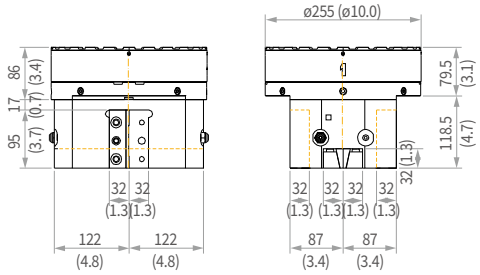
ID TOOL HOLDER OPTION



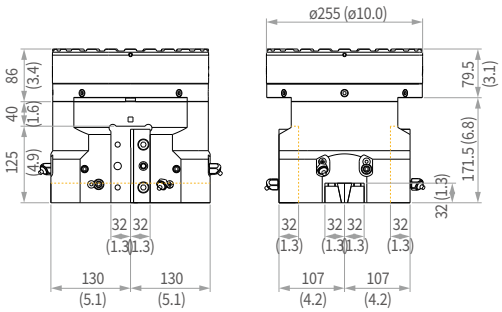
BORING TOOL HOLDER OPTION



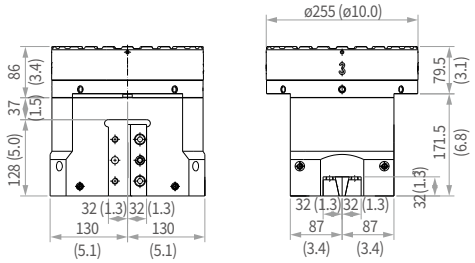
QUAD TOOL HOLDER OPTION



QUAD TOOL HOLDER_LONG OPTION

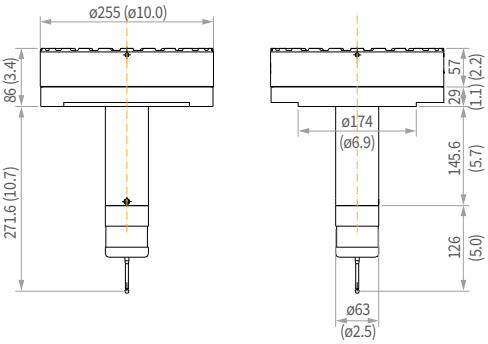


QUAD TOOL HOLDER(TTC) OPTION



** Before select TTC QUAD TOOL HOLDE, please contact DN Solutions.*

RMP60 PROBE OPTION

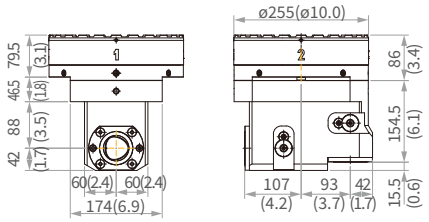


TOOLING ATTACHMENT

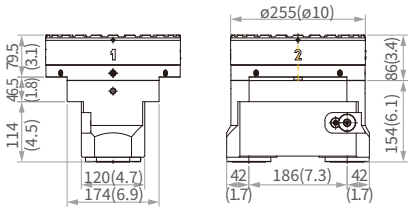
PUMA VTR series

Unit: mm (inch)

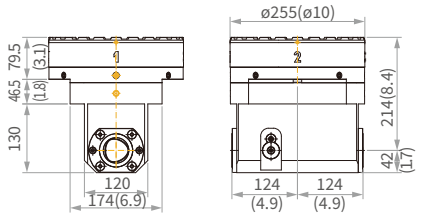
CAPTO-C6 OD-FACE HOLDER OPTION



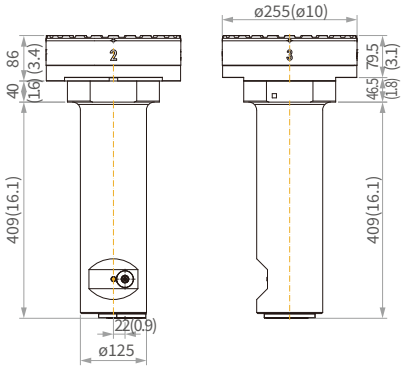
CAPTO-C6 DUAL FACE HOLDER OPTION



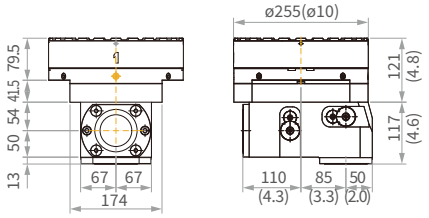
CAPTO-C6 DUAL OD HOLDER OPTION



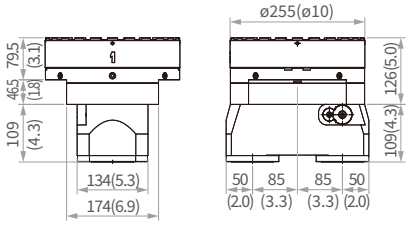
CAPTO-C6 ID HOLDER OPTION



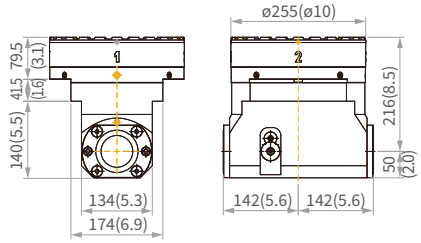
CAPTO-C8 OD-FACE HOLDER OPTION



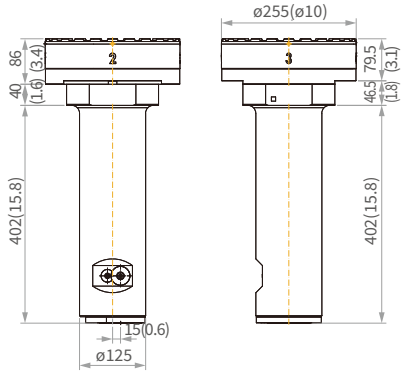
CAPTO-C8 DUAL FACE HOLDER OPTION



CAPTO-C8 DUAL OD HOLDER OPTION



CAPTO-C8 ID HOLDER OPTION

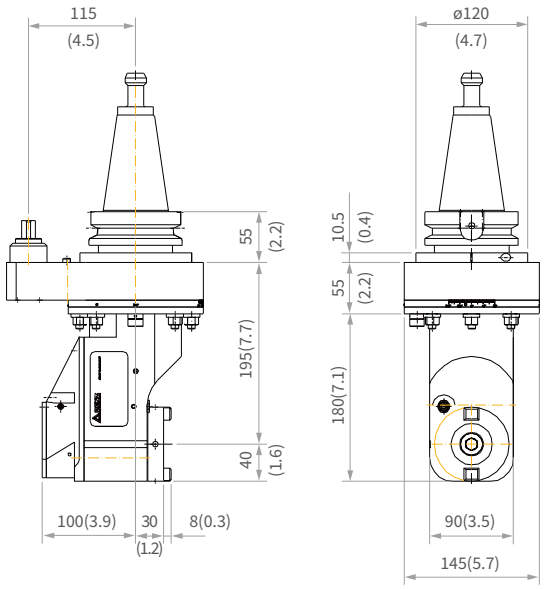


TOOLING ATTACHMENT

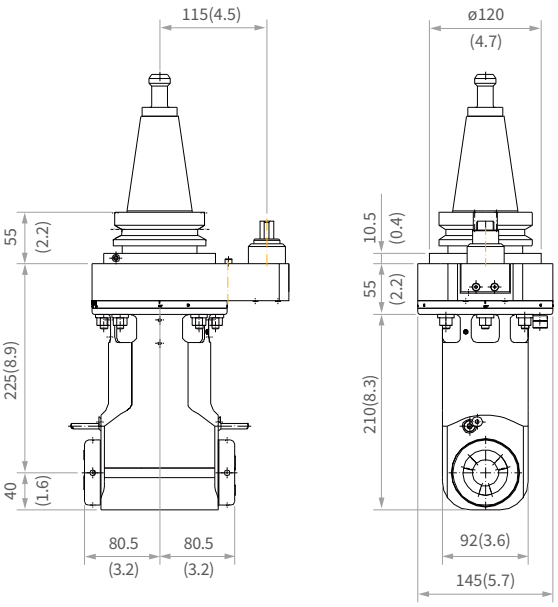
PUMA VTR series

Unit: mm (inch)

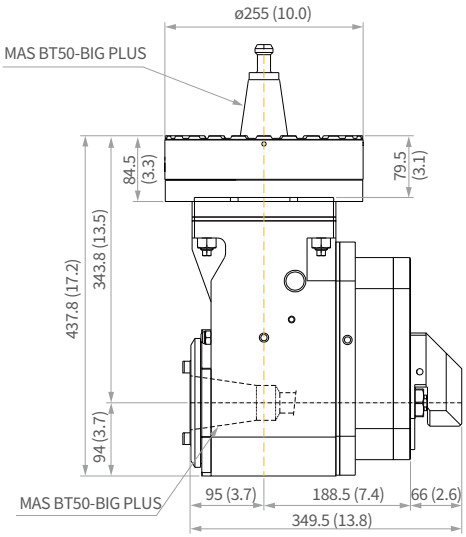
90-ANGLE TOOL TTC OPTION



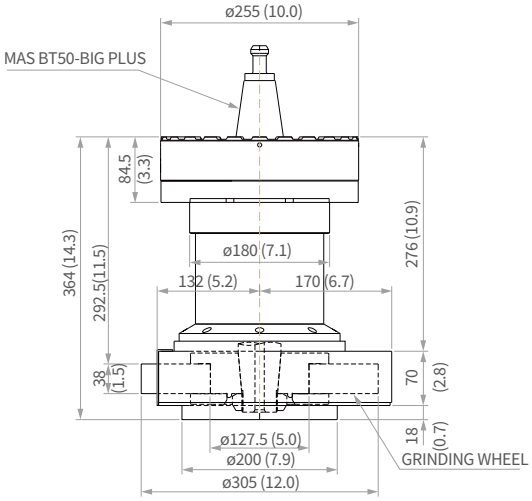
90-ANGLE TOOL DUAL OPTION



90-ANGLE HIGH TORQUE TTC OPTION



GRINDING ATTACHMENT OPTION

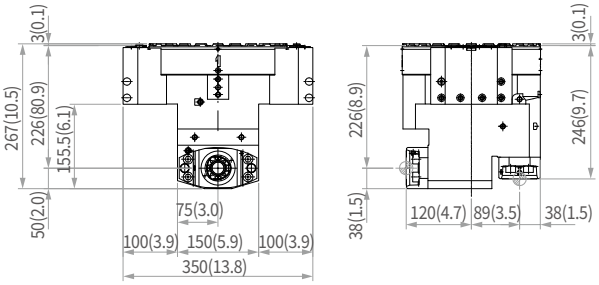


TOOLING ATTACHMENT

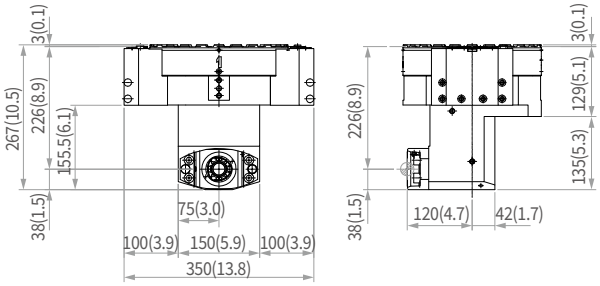
PUMA VTR1012FC/1216FC

Unit: mm (inch)

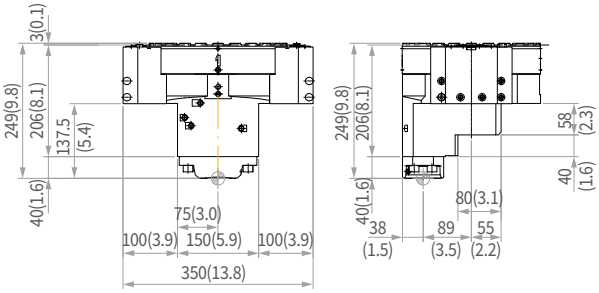
CAPTO C6 HORIZONTAL VERTICAL HOLDER OPTION



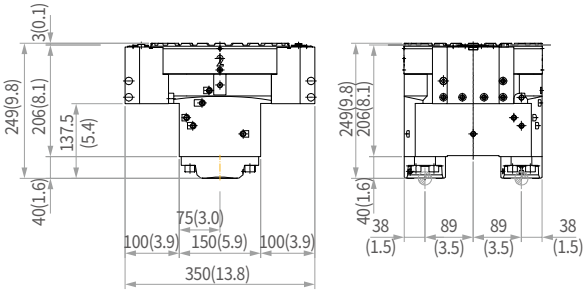
CAPTO C6 HORIZONTAL HOLDER OPTION



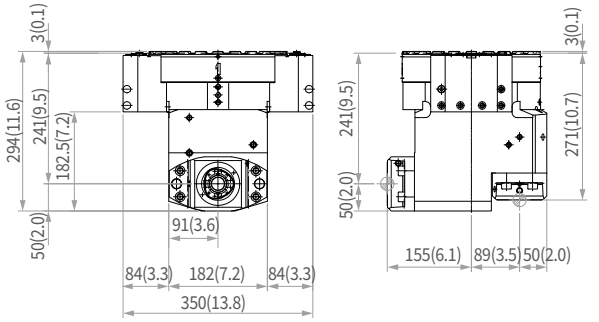
CAPTO C6 VERTICAL HOLDER OPTION



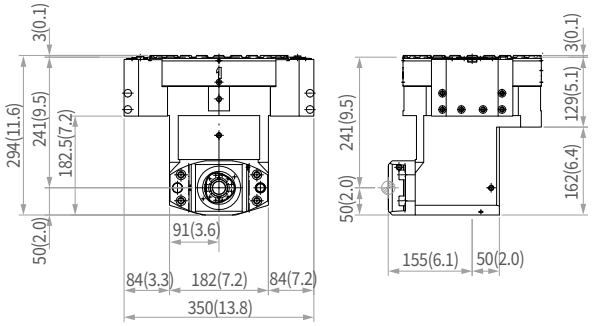
CAPTO C6 DUAL VERTICAL HOLDER OPTION



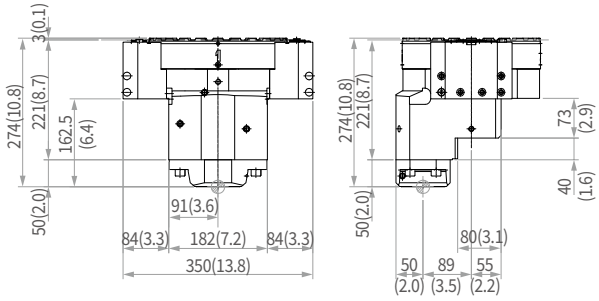
CAPTO C8 HORIZONTAL VERTICAL HOLDER OPTION



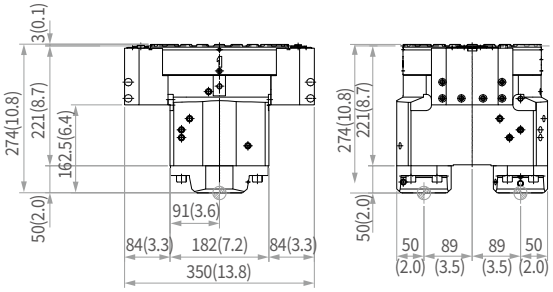
CAPTO C8 HORIZONTAL HOLDER OPTION



CAPTO C8 VERTICAL HOLDER OPTION



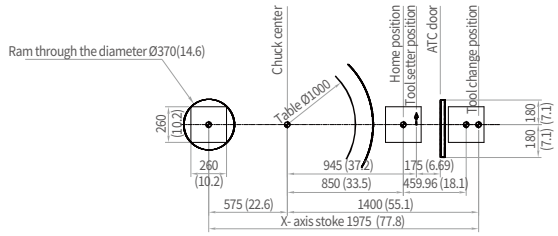
CAPTO C8 DUAL VERTICAL HOLDER OPTION

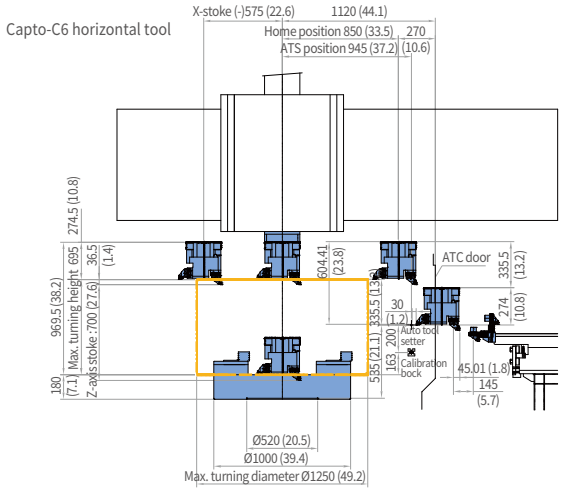


WORKING RANGE DIAGRAM

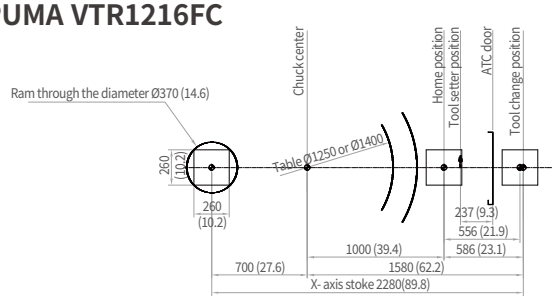
Unit: mm (inch)

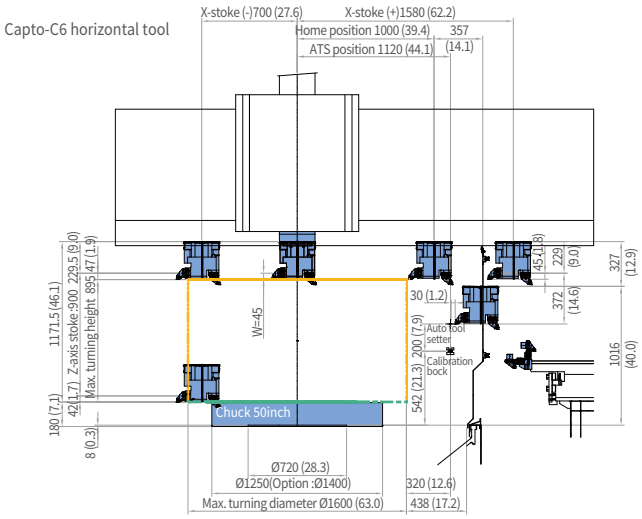
PUMA VTR1012FC





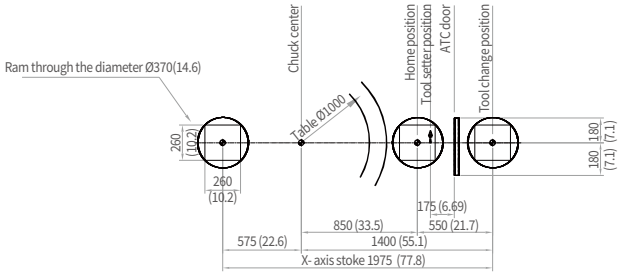
PUMA VTR1216FC

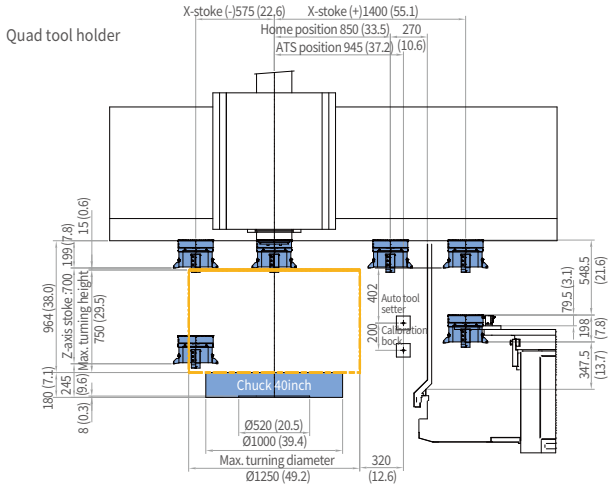




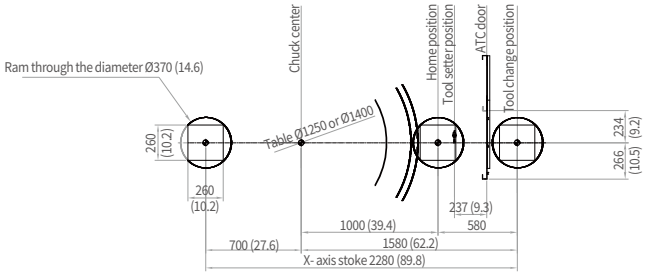
** This working range diagram for Capto-C6 Horizontal & Vertical Head. If the user using another tool holder, please contact DN Solutions.*

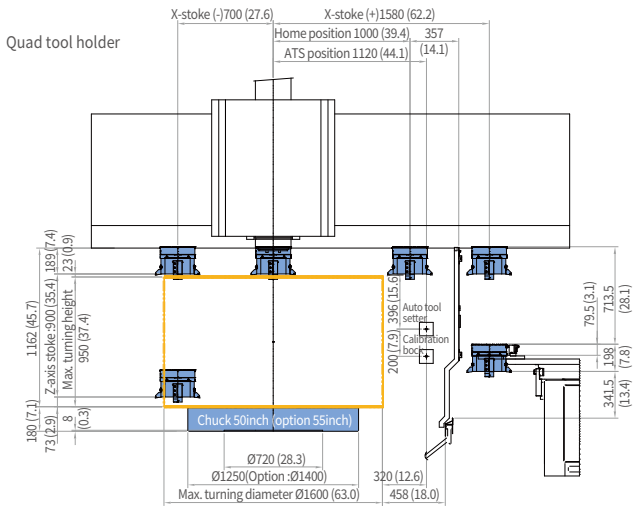
PUMA VTR1012F/FM





PUMA VTR1216F/FM



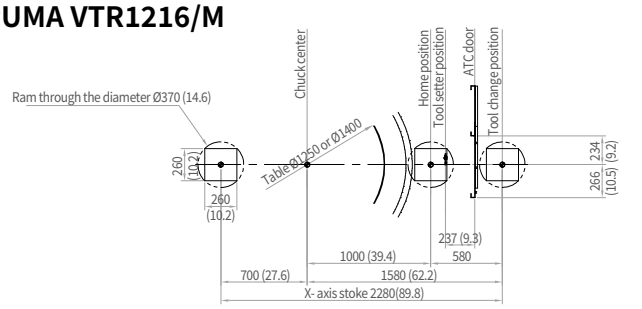


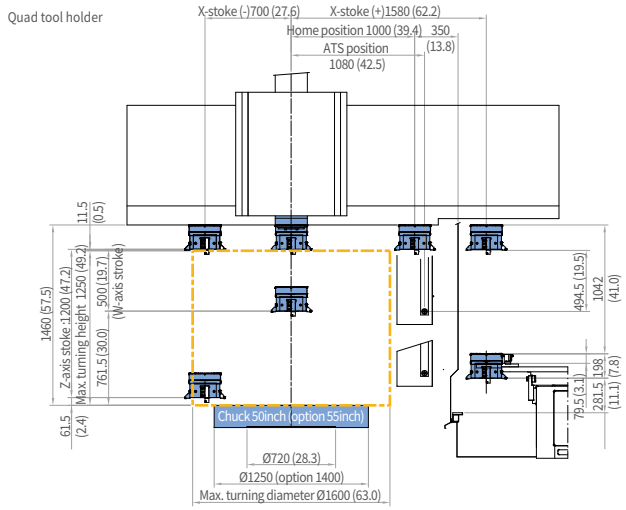
** This working range diagram for QUAD tool holder. If the user using another tool holder, please contact DN Solutions.*

WORKING RANGE DIAGRAM

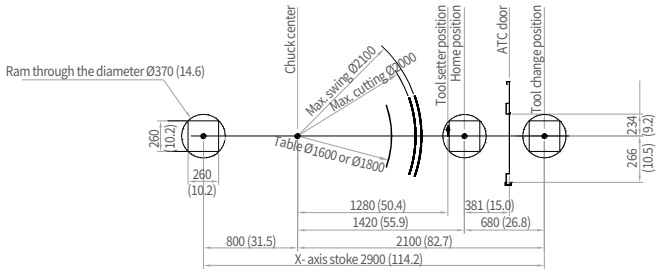
Unit: mm (inch)

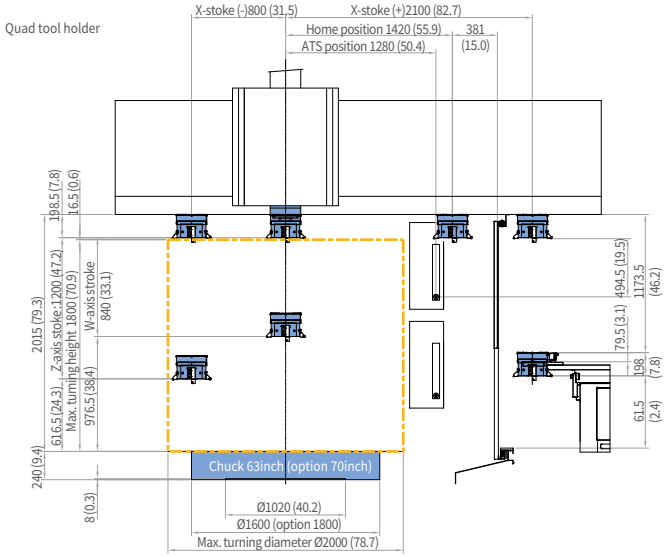
PUMA VTR1216/M



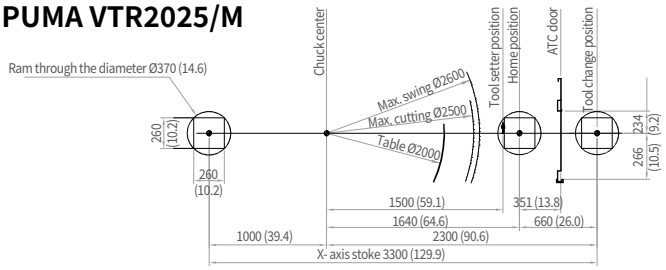


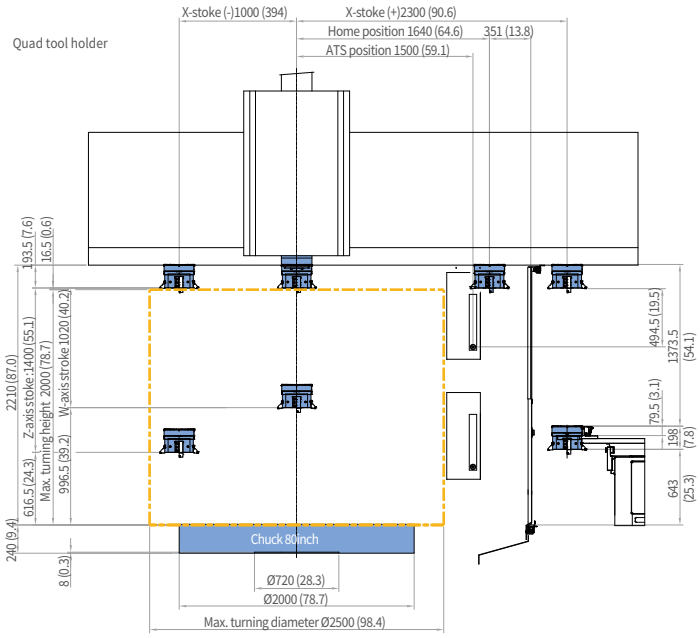
PUMA VTR1620/M





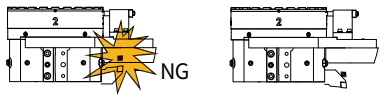
PUMA VTR2025/M



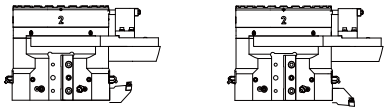


TOOL INTERFERENCE DIAGRAM

[caution] Normal Type

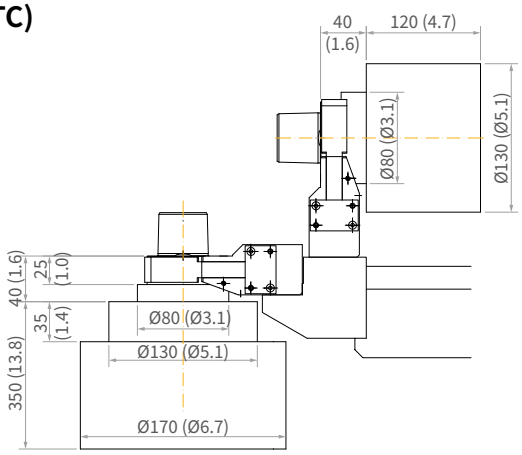


Long Type

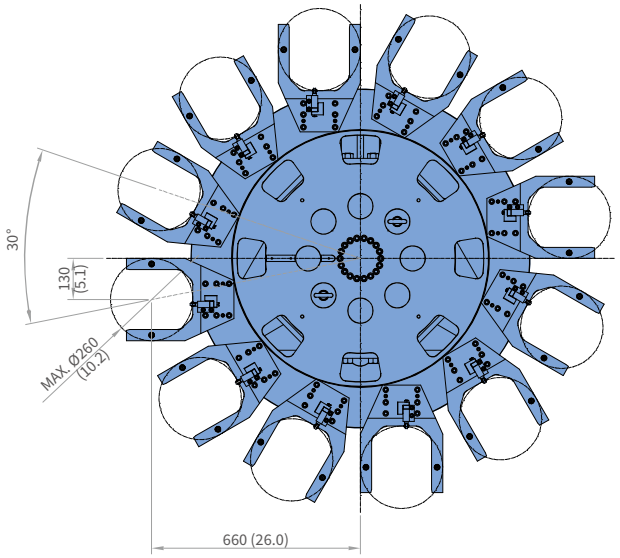


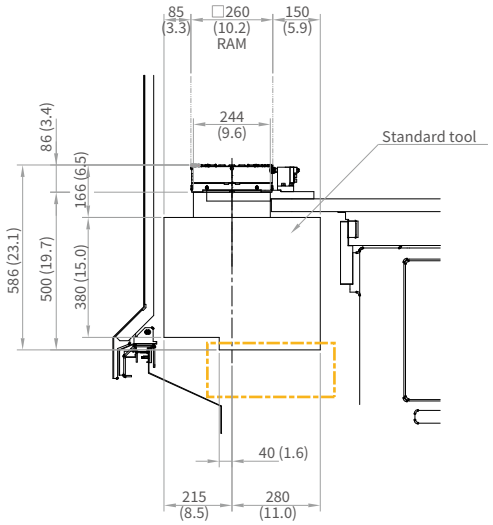
PUMA VTR1012FC/1216FC (60-ATC)

Unit: mm (inch)

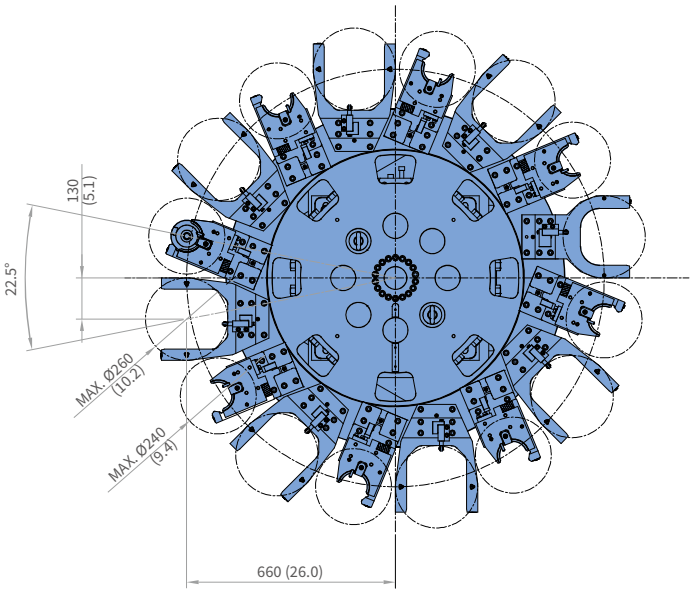


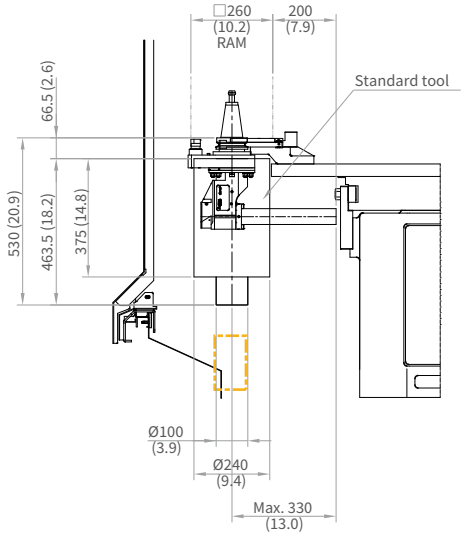
PUMA VTR1012F/1216F (12-ATC)





PUMA VTR1012FM/1216FM (15-ATC)

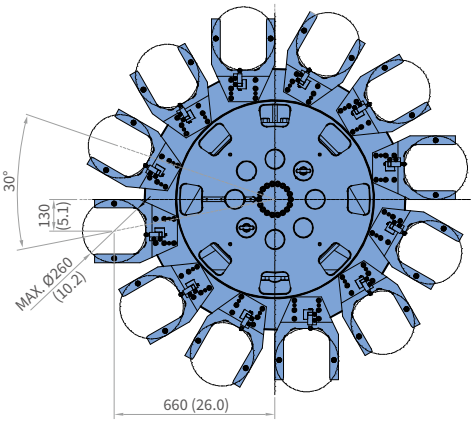


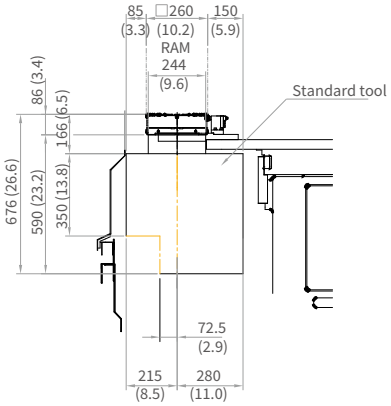


TOOL INTERFERENCE DIAGRAM

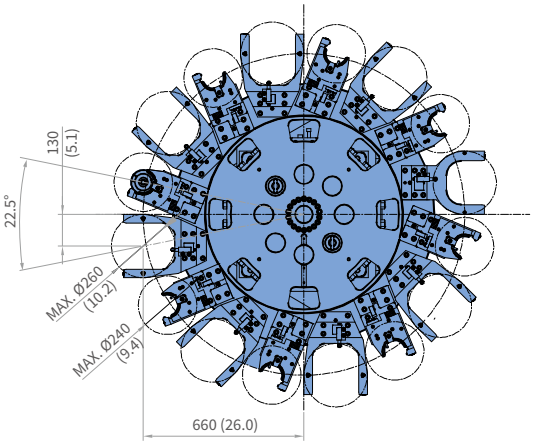
Unit: mm (inch)

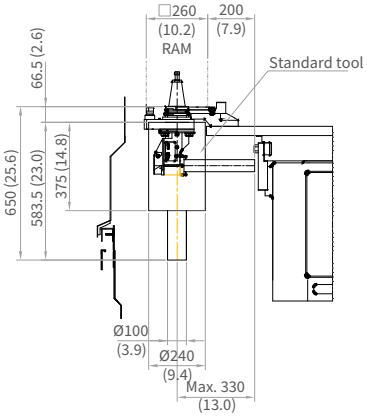
PUMA VTR1216 (12-ATC)



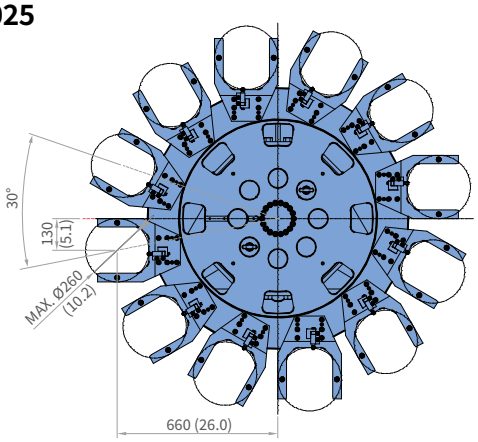


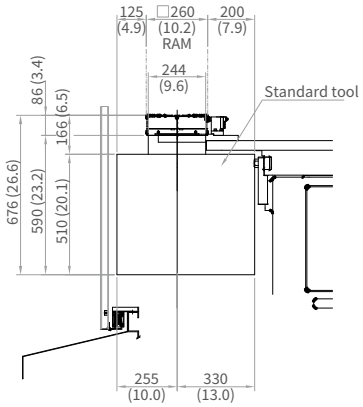
PUMA VTR1216M (15-ATC)



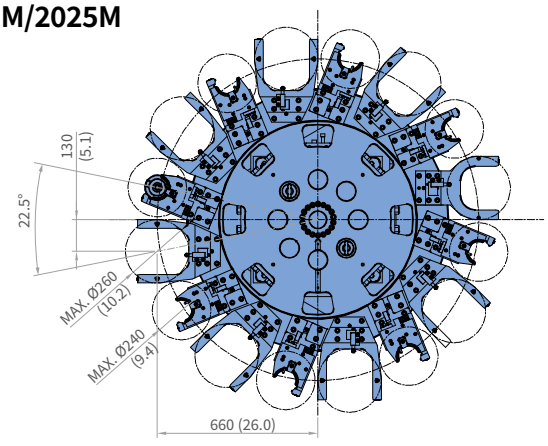


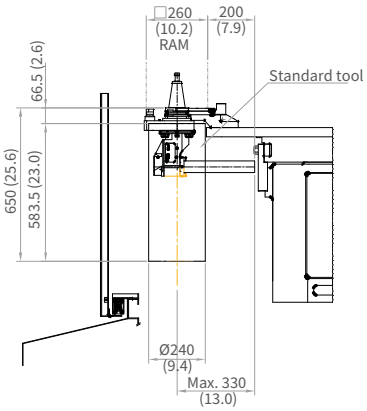
PUMA VTR1620/2025 (12-ATC)





PUMA VTR1620M/2025M (15-ATC)





** Please contact our DN Solutions for tool interference other than standard ATC.*

MACHINE SPECIFICATIONS

PUMA VTR1012F/FC/FM, 1216/F/FC/FM/M

Description			Unit	PUMA VTR 1012F	PUMA VTR 1012FM	PUMA VTR 1012FC	PUMA VTR 1216F	PUMA VTR 1216FC	PUMA VTR 1216FM	PUMA VTR 1216	PUMA VTR 1216M
Capacity	Swing over bed		mm (inch)	1350 (53.1)		1300 (25.0)	1700 (25.0)				
	Recom. turning diameter		mm (inch)	1000 (39.4)			1250 (49.2)				
	Max. turning diameter		mm (inch)	1250 (49.2)			1600 (63.0)				
	Max. turning height		mm (inch)	750 (29.5)		695 (27.4)	950 (37.4)	895 (35.2)	950 (37.4)	1250 (49.2)	
	Max. allowable workpiece weight (including chuck weight)		kg (lb)	6000 (13227.5)			8000 (17636.7)				
Travels	Travel distance	X-axis	mm (inch)	-575 ~ 850 (-22.6~33.5)			-700 ~ 1000 (-27.6~39.4)				
		Z-axis	mm (inch)	700 (27.6)			900 (35.4)			1200 (47.2)	
		W-axis	mm (inch)	-						500 (250 x 2step) (19.7 (9.8 x 2step))	
	Rapid traverse Rate	X-axis	m/min (ipm)	12 (472.4)							
		Z-axis	m/min (ipm)	10 (393.7)							
		W-axis	m/min (ipm)	-							
Spindle	Max. spindle speed		r/min	600			400				
	Motor power	Std.(S3 60%/cont.)	kW (Hp)	45/37 (60.3/49.6)							
		Opt1(High torque, S3 25%/60%/cont.)		70/45/37 (93.9/60.3/49.6)							
		Opt2(High torque /Power, S3 25%/60%/cont.)		-					75/60 (100.6/80.5)	-	75/60 (100.6/80.5)
	Max. torque	Std.	N·m (ft-lbs)	12354 (9117.3)			20557 (15171.1)				
		Opt1(High torque)		19217 (14182.1)			31997 (23613.8)				
		Opt2(High torque/Power)		-					31147 (22986.5)	-	31147 (22986.5)
	Min. spindle indexing angle(C-axis)		deg	-	0.001		-		0.001	-	0.001
Tool magazine	Tool storage capa. (Max.)		ea	12 {24}	15 {23,33}	60 (CAPTO C6 or C8)	12 {24}	60 (CAPTO C6 or C8)	15 {23,33}	12 {24}	15 {23, 33}
	Magazine indexing time(1st)		s	4							
	Max. tool length	Vertical	mm (inch)	Turning 500 (19.7)	Turning : 500 (19.7) Milling : 530 (20.9)	Turning 160 (6.3)	Turning 500 (19.7)	Turning 160 (6.3)	Turning : 500 (19.7) Milling : 530 (20.9)	Turning 590 (23.2)	Turning : 590 (23.2) Milling : 650 (25.6)
		Horizontal**		Turning 150 (5.9)	Turning : 150 (5.9) Milling : 200(7.9)	Turning 350 (13.8)	Turning 150 (5.9)	Turning 360 (14.2)	Turning : 150 (5.9) Milling : 200(7.9)	Turning 150 (5.9)	Turning : 150(19.7) Milling : 200(7.9)
Tooling	OD/Face tool size		mm (inch)	32 (1.3)		-	32{40} (1.3{1.6})	-	32{40} (1.3{1.6})		
	ID tool size		mm (inch)	32 (1.3)		-	32 (1.3)	-	32 (1.3)		
	Boring Bar dia.		mm (inch)	ø100 (ø3.9)		-	ø100 (ø3.9)	-	ø100 (ø3.9)		
	Tool clamping force		kN	78.5	Turning : 78.5 Milling : 20.0	-	78.5	-	Turning : 78.5 Milling : 20.0	78.5	Turning : 78.5 Milling : 20.0
RAM	RAM size		mm (inch)	260 x 260 (10.2 X 10.2)							
Milling spindle	Max. spindle speed		r/min	-	3000		-		3000	-	3000
	Motor power	Std.(S325%/60%/cont.)	kW (Hp)	-	18.5/15/11		-		18.5/15/11 (24.8/20.1/14.8)	-	18.5/15/11 (24.8/20.1/14.8)
		Opt(High torque/Power, S3 25%/60%/cont.)		-					25/18.5/15 (33.5/24.8/20.1)	-	25/18.5/15 (33.5/24.8/20.1)
	Max. spindle torque	Std.	N·m (ft-lbs)	-	674				674 (497.4)	-	674 (497.4)
		Opt(High torque/Power)		-					1273 (939.5)	-	1273 (939.5)
Power source	Power consumption		kVA	112.2							
Machine dimensions	Length		mm (inch)	4990 (196.5)		5545 (218.3)	5590 (220.1)	5965 (234.8)	5590 (220.1)		
	Width		mm (inch)	3703 (145.8)		3987 (157.0)	4066 (160.1)	4115 (162.0)	4066 (160.1)		
	Height		mm (inch)	4766 (187.6)			5065 (199.4)			5650 (222.4)	
	Weight		kg (lb)	26000 (57319.3)			27500 (60626.2)		28000 (61728.5)	29500 (65035.4)	30000 (66137.7)
Control	CNC system			DN Solutions-FANUC i PLUS							

*{ } : Option ** length from Ram(except FC models)

MACHINE SPECIFICATIONS

PUMA VTR1620/1620M/2025/2025M

Description			Unit	PUMA VTR1620	PUMA VTR1620M	PUMA VTR2025	PUMA VTR2025M
Capacity	Swing over bed		mm (inch)	2100 (82.7)		2600 (102.4)	
	Recom. turning diameter		mm (inch)	1600 (63.0)		2000 (78.7)	
	Max. turning diameter		mm (inch)	2000 (78.7)		2500 (98.4)	
	Max. turning height		mm (inch)	1800 (70.9)		2000 (78.7)	
	Max. allowable workpiece weight (including chuck weight)		kg (lb)	10000 (22045.9)		15000 (33068.9)	
Travels	Travel distance	X-axis	mm (inch)	-800 ~ 1420 (-31.5~55.9)		-1000~1640 (-39.4~64.6)	
		Z-axis	mm (inch)	1200 (47.2)		1400 (55.1)	
		W-axis	mm (inch)	840(280 x 3step) (33.1(11.0x3step))		1020(340x3step) ((40.2)119.7x3step)	
	Rapid traverse Rate	X-axis	m/min (ipm)	12 (472.4)		10 (393.7)	
		Z-axis	m/min (ipm)	10 (393.7)			
		W-axis	m/min (ipm)	-			
Spindle	Max. spindle speed		r/min	300		200	
	Motor power	Std.(S3 60%/cont.)	kW (Hp)	45/37 (60.3/49.6)		75/60(100.6/80.5)	
		Opt1(High torque, S3 25%/60%/cont.)		70/45/37 (93.9/60.3/49.6)		-	
		Opt2(High torque/Power, S3 25%/60%/cont.)		-	75/60 (100.6/80.5)	-	
	Max. torque	Std.	N·m (ft-lbs)	24668 (18205.0)		46720 (34479.4)	
		Opt1(High torque)		38373 (28319.3)		-	
		Opt2(Hightorque/Power)		-	37376 (27583.5)	-	
	Min. spindle indexing angle(C-axis)		deg	-	0.001	-	0.001
Tool magazine	Tool storage capa. (Max.)		ea	12 {24}	15 {23, 33}	12 {24}	15 {23/33}
	Magazine indexing time(1st)		s	4			
	Max. tool length	Vertical	mm (inch)	Turning 590 (23.2)	Turning : 590 (23.2) Milling : 650 (25.6)	Turning 590 (23.2)	Turning : 590 (23.2) Milling : 650 (25.6)
		Horizontal**		Turning 200(7.9)	Turning : 200(7.9) Milling : 200(7.9)	Turning 200(7.9)	Turning : 200(7.9) Milling : 200(7.9)
Tooling	OD/Face tool size		mm (inch)	32 {40} (1.3 {1.6})			
	ID tool size		mm (inch)	32 (1.3)			
	Boring bar dia.		mm (inch)	ø100 (ø3.9)			
	Tool clamping force		kN	78.5	Turning : 78.5 Milling : 20.0	78.5	Turning : 78.5 Milling : 20.0
RAM	RAM size		mm (inch)	260 x 260 (10.2 X 10.2)			
Milling spindle	Max. spindle speed		r/min	-	3000	-	3000
	Motor power	Std.(S325%/60%/cont.)	kW (Hp)	-	18.5/15/11 (24.8/20.1/14.8)	-	35/26/22 (46.9/34.9/29.5)
		Opt(High torque/Power, S3 25%/60%/cont.)		-	35/26/22 (46.9/34.9/29.5)	-	
	Max. spindle torque	Std.	N·m (ft-lbs)	-	674 (497.4)	-	1782 (1315.1)
		Opt(High torque/Power)		-	1782 (1315.1)	-	
Power source	Power consumption		kVA	112.2		120	
Machine dimensions	Length		mm (inch)	6500 (255.9)		7296 (287.2)	
	Width		mm (inch)	4757 (187.3)		4836 (190.4)	
	Height		mm (inch)	6345 (249.8)		7600 (299.2)	7744 (304.9)
	Weight		kg (lb)	39000 (85979.0)	40000 (88183.6)	55000 (121252.5)	56000 (123457.0)
Control	CNC system			DN Solutions-FANUC i PLUS			

*{ } : Option ** length from Ram(except FC models)

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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.
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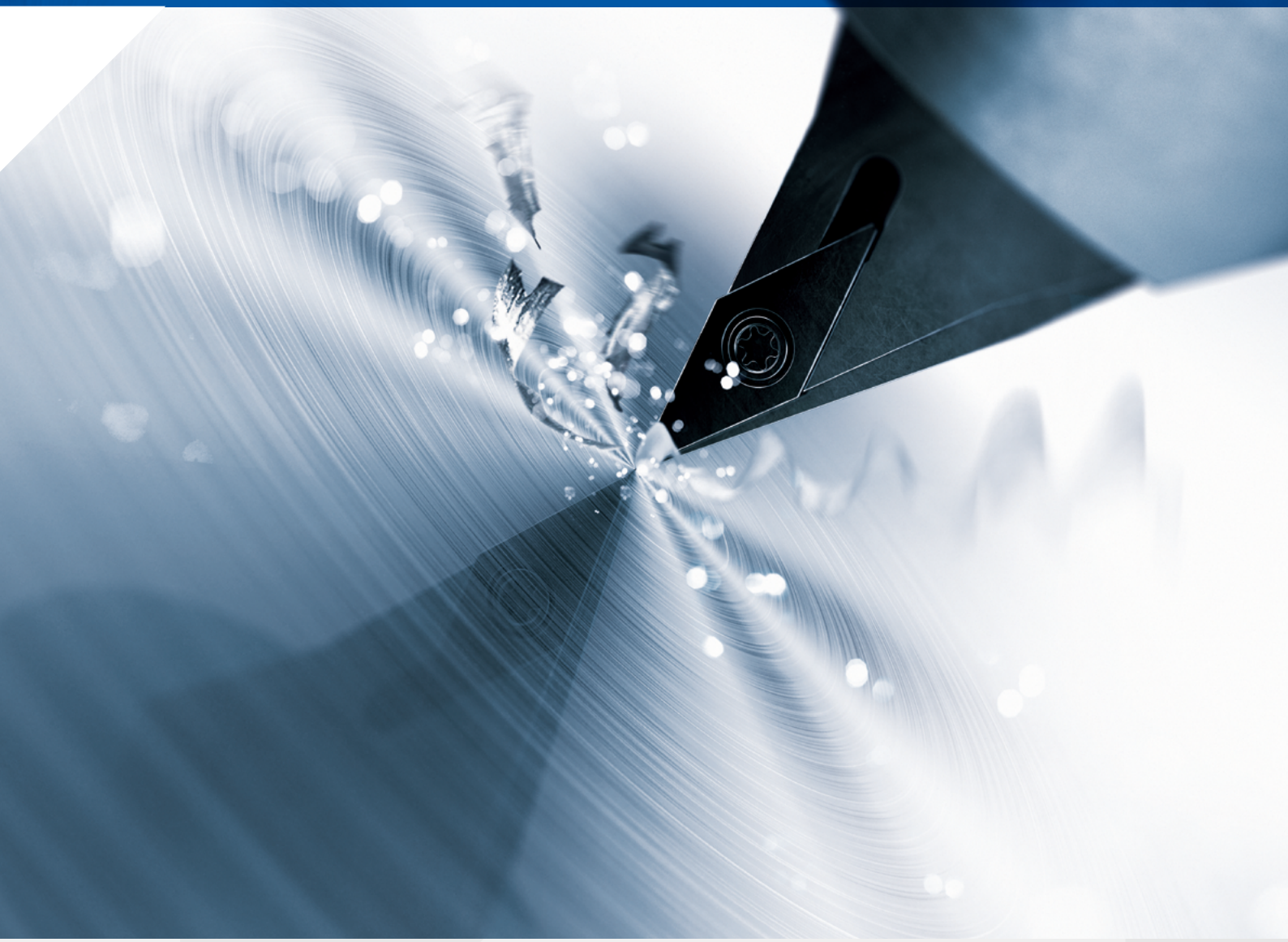

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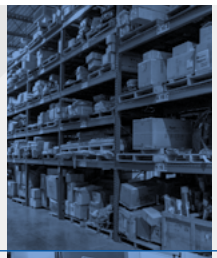

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dn-solutions.com

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

No.82, Jakkuar Village
Yelahanka Hobil,
Bangalore-560064

Tel: +91-80-2205-6900
E-mail: india@dncompany.com

DN Solutions China

Room 101,201,301,
Building 39 Xinzhuan Highway
No.258 Songjiang District
China Shanghai (201612)

Tel: +86 21-5445-1155
Fax: +86 21-6405-1472

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.*
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