



Doosan Infracore
Machine Tools

PUMA 280

High Productivity Turning Center



High Performance and Heavy Duty Turning Center

Combining rigid slant bed construction with advanced technology for superior machining of mid to large sized workpieces.

PUMA 280





Main Spindle



C-axis
360° (in 0.001° increment)

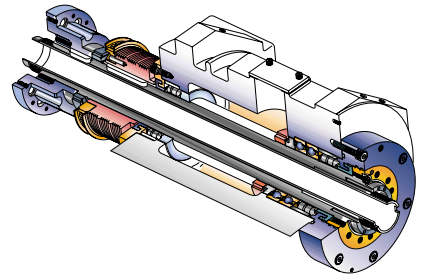
C-axis contouring provides main spindle positioning in increments of 0.001 degree. Three dimensional contouring, complex round and prismatic machining, square shoulder and lettering are accomplished by synchronizing the spindle with X and Z axes (on PUMA 280LM)

Note) * Puma 280M[LM] only

Max. spindle speed Motor (30min)
3500 r/min 22 kW

Main Spindle

Both main and sub spindle have characteristic as integral motor spindles that are whole covered with each oil cooling system to ensure remarkable range of applications from heavy duty cutting with high power at low speed to fine to finish cutting at high speed and optimize thermal displacement.



Headstock and Spindle

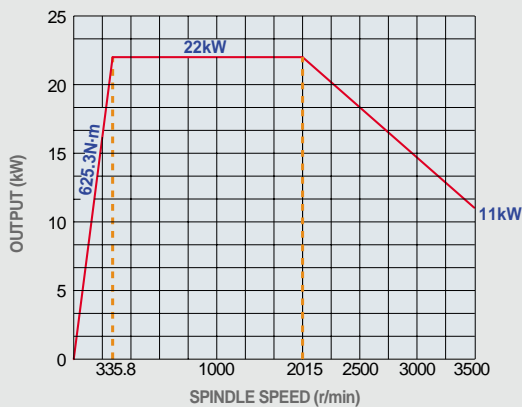
The powerful spindle motor enables heavy stock removal, reducing the number of roughing passes required.



Power-Torque Diagram Main Spindle

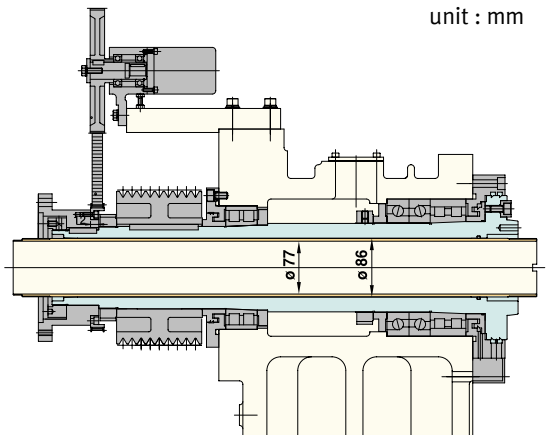
Spindle speed range : 3500 r/min

Motor power : 22 kW



Cross Section of Main Spindle

unit : mm



Turret



Index time (1-station swivel)

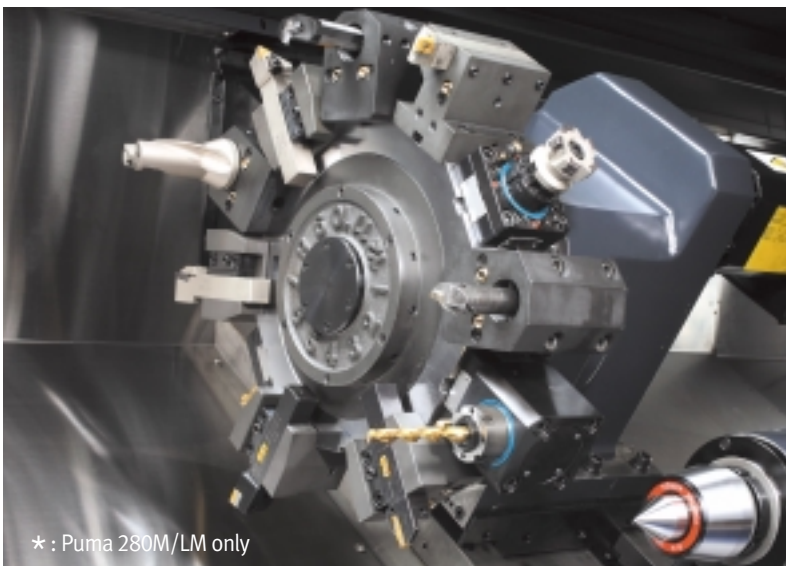
0.15 s

No. of tool station

10 stations

The heavy duty design provides unsurpassed rigidity for heavy stock removal, fine surface finishes, long boring bar overhang ratios, and extended tool life. Turret indexing is direct and bi-directional, with a 0.15 second next station index time. Turning tools are securely attached to the turret by wedge clamps.

Rotary Tool Turret*

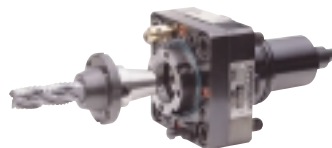


* : Puma 280M/LM only

No. of tool station

12 stations

12 tool stations turret(BMT55P) make it possible to complete complicated parts requiring many tools in just one set-up. Reliable servo driven turrets reduce the total cycle time required to machine parts.

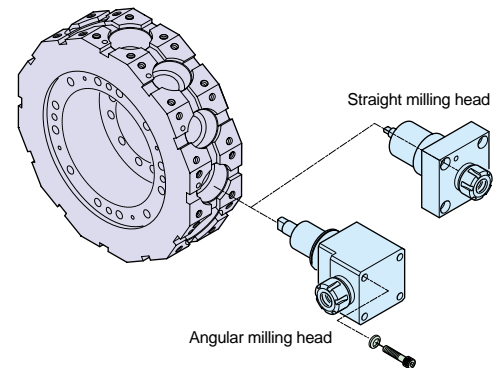


- Preci-flex adapter application



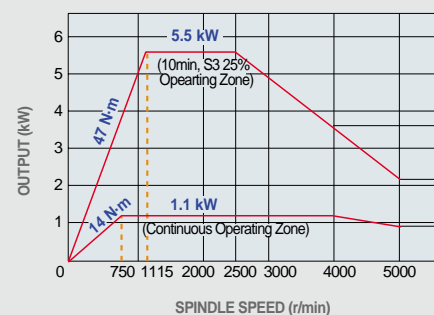
- Collet application

Radial BMT Turret

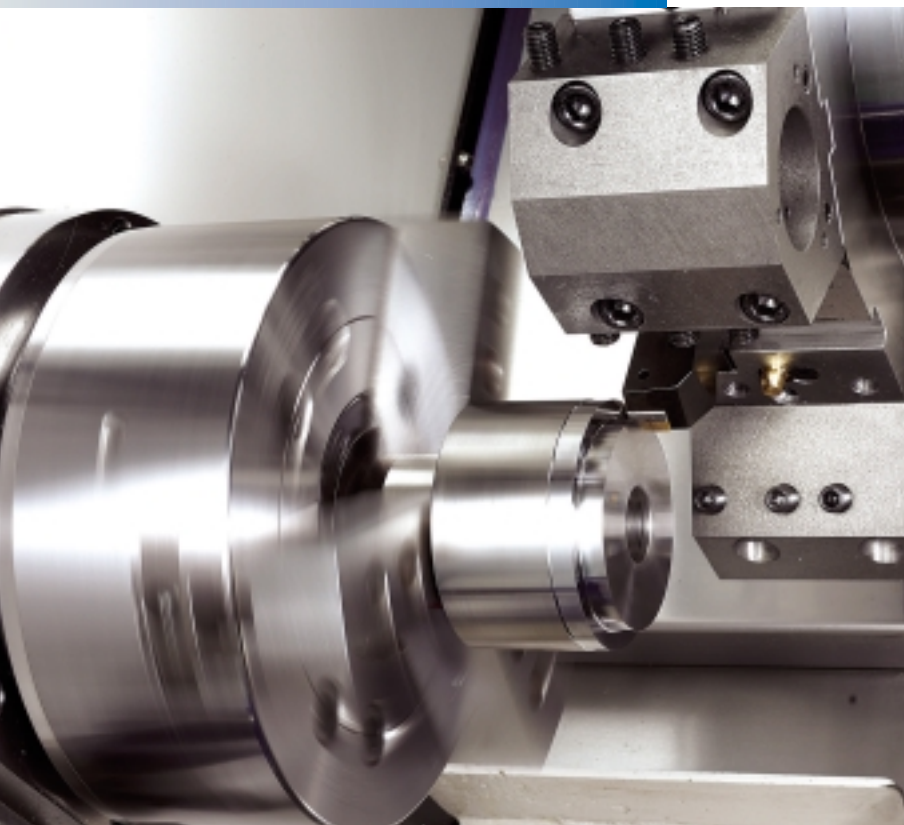


Rotary tool spindle power-torque diagram

Spindle speed range : 5000 r/min



Machine Capacity



Heavy-Duty Cutting

Chip removal rate

799 cm³/min

Cutting depth

9 mm

* Actual results may differ depending on cutting conditions.

Working Range

A : Max. turning dia.

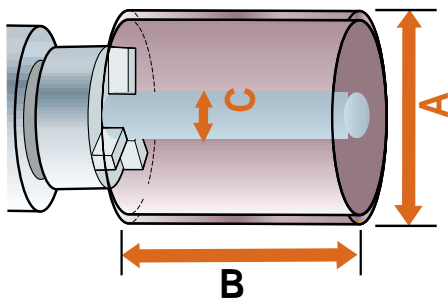
420/410* mm

B : Max. turning length

658/610* [1078/1030*] mm

C : Max. bar working dia.

76 mm

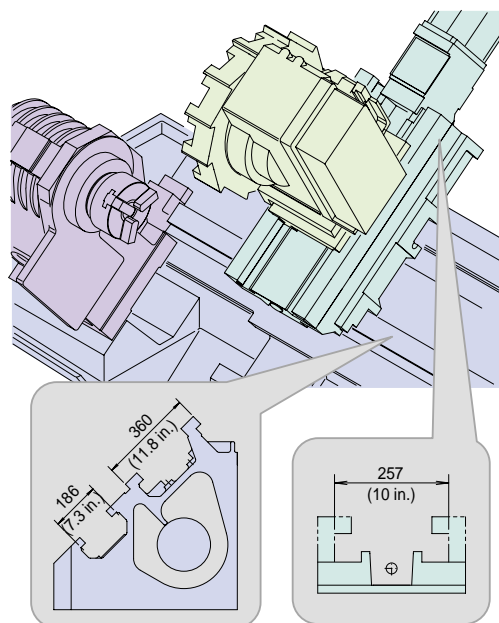


* on M type machine, [] : long bed machine

Slideway Width

X-axis : **257** mm

Z-axis : **360** mm



Additional Equipment



Heavy-Duty Cutting

Widely spaced guide ways and a heavy duty tail stock body ensure ample rigidity. The tail stock body can be positioned with traction bar that engages with the carriage. The traction bar movement and body clamping are programmable.

Tailstock specification		
Tail stock travel	mm	680 [1100]
Tail stock quill diameter	mm	100
Taper hole of tail stock quill	MT#5 <Live center>	
Tail stock quill travel	mm	100

[] : Long bed machine



Collet chuck



Part catcher



Tool pre-setter



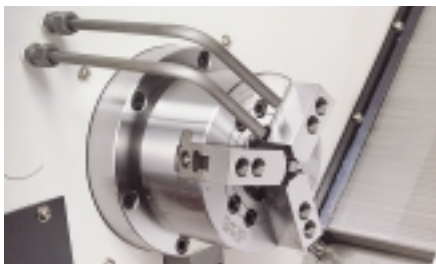
Signal tower



Oil skimmer



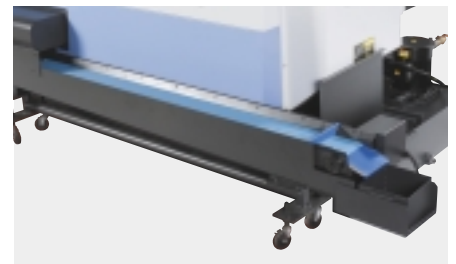
Chip conveyor



Chuck air(or coolant) blower



Work measurement



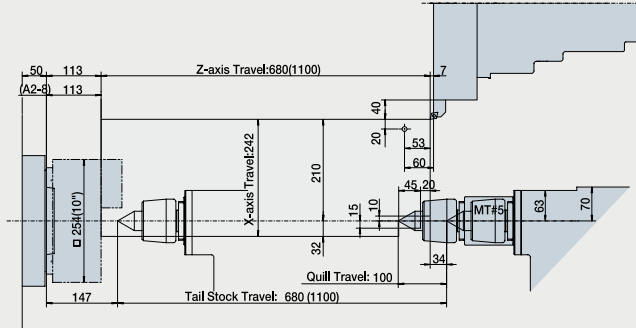
Part conveyor

Working Ranges

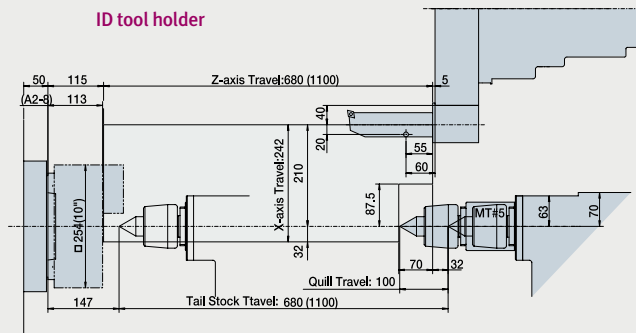
unit : mm

PUMA 280[L]

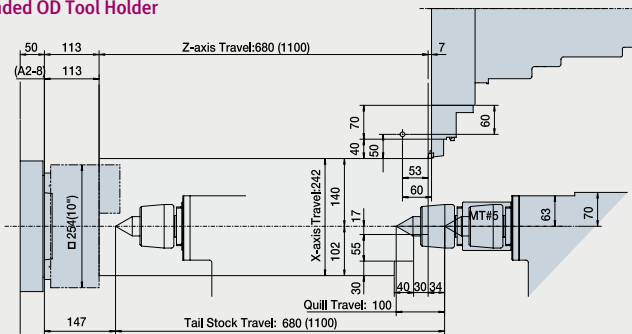
OD tool holder



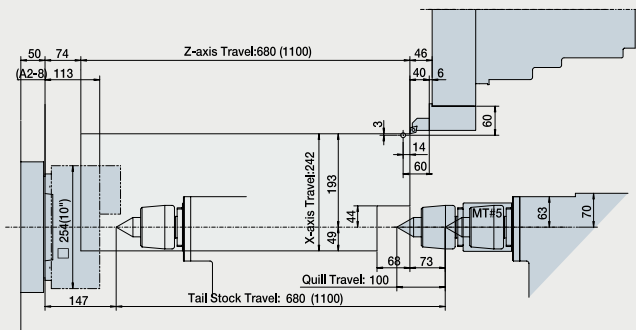
ID tool holder



Extended OD Tool Holder



Face Tool Holder



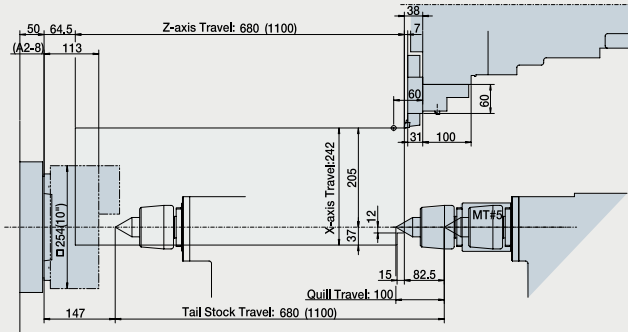
() : Long Bed

Working Ranges

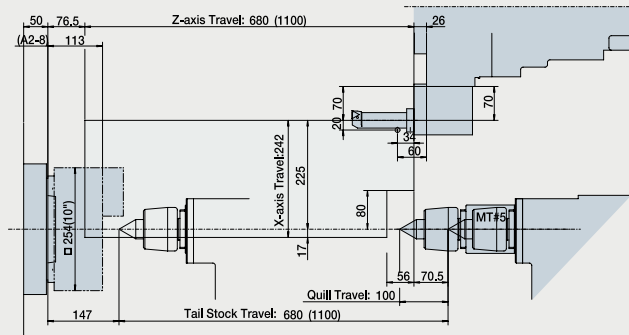
unit : mm

PUMA 280 M[LM]

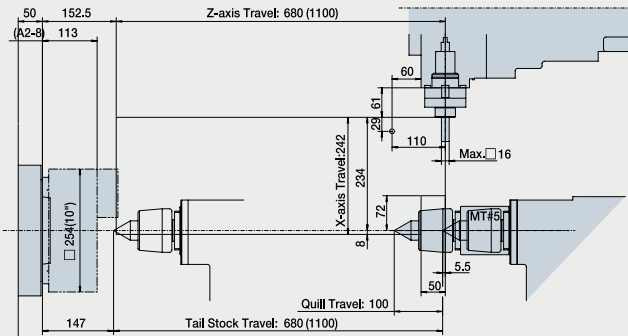
OD tool holder



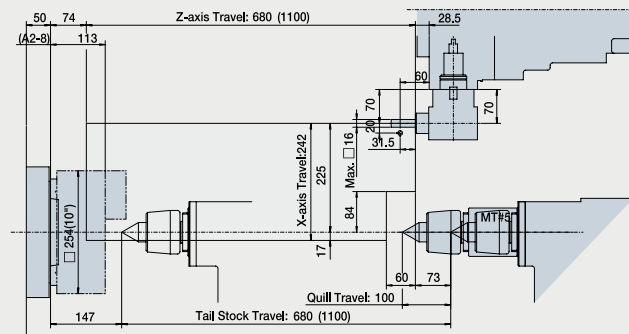
ID tool holder



Straight milling Unit



Angular milling Unit

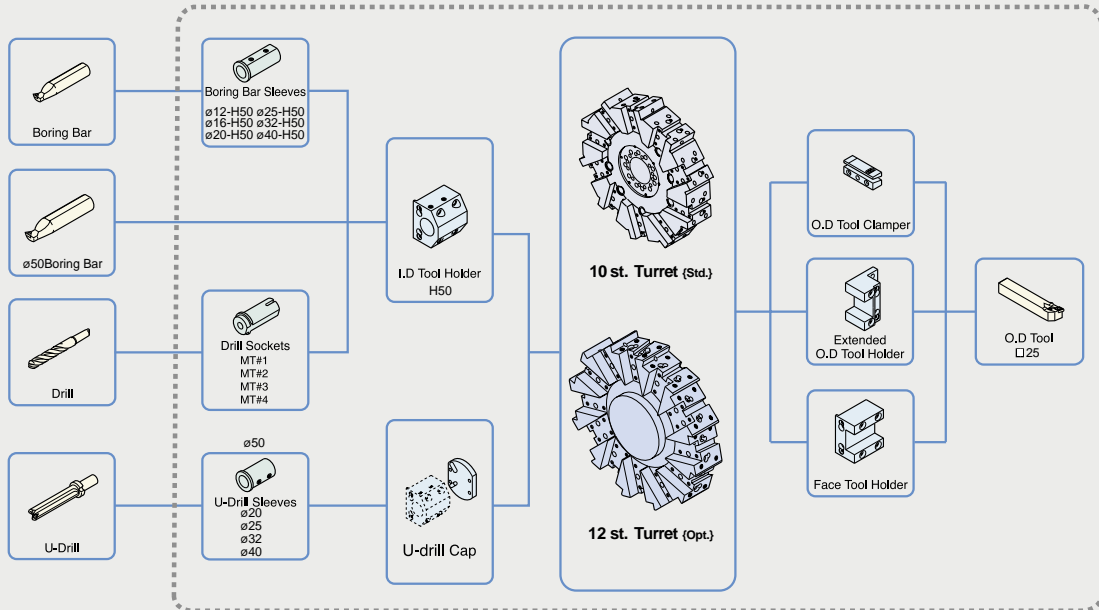


() : Long Bed

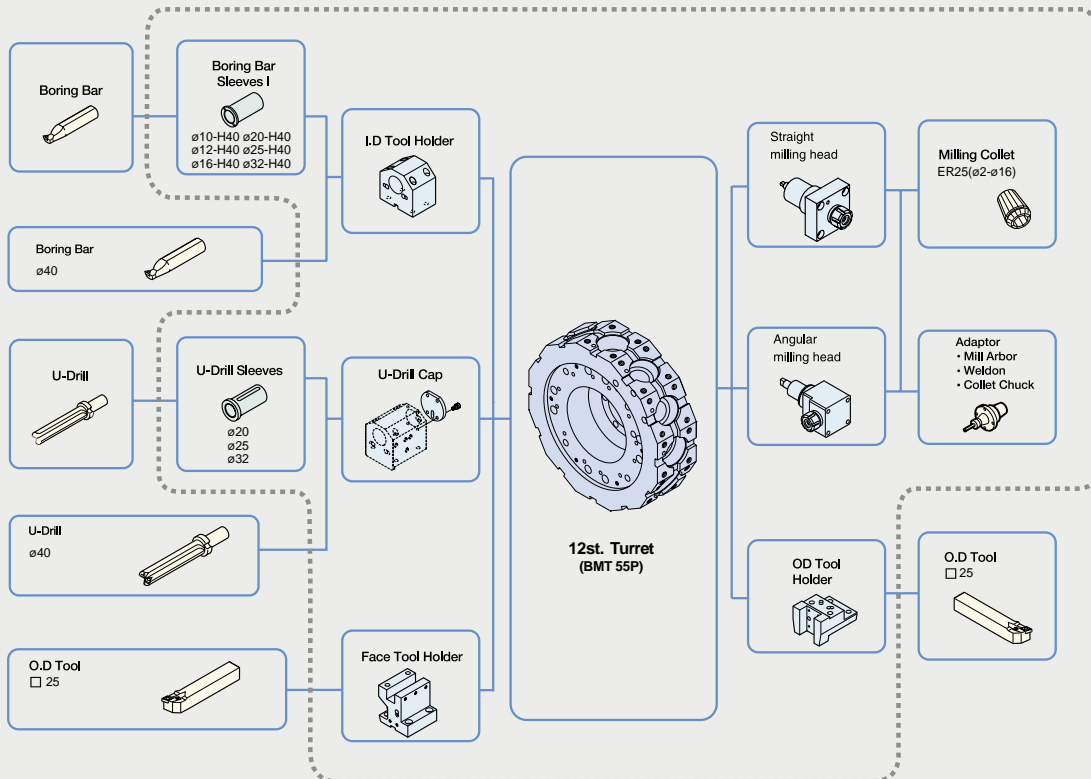
Tooling System

unit : mm

PUMA 280[L]



PUMA 280 M[LM]

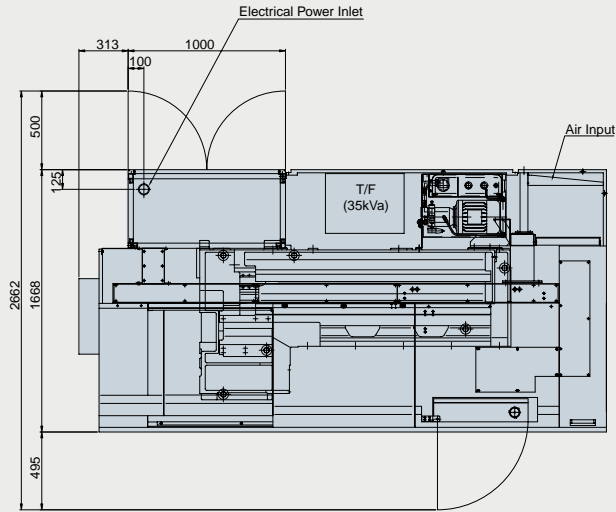


External Dimension

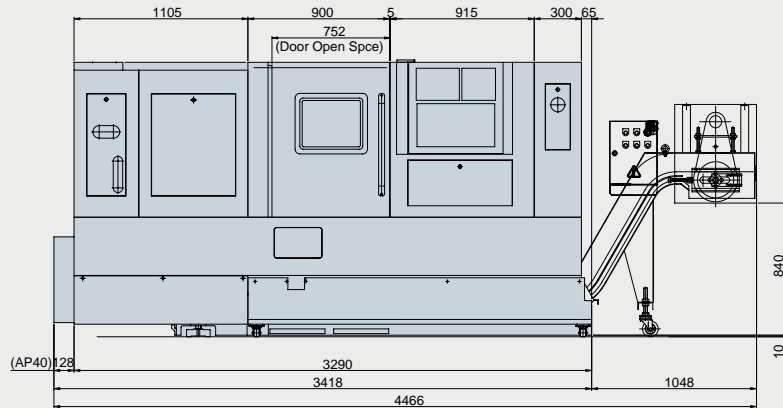
unit : mm

PUMA 280[M]

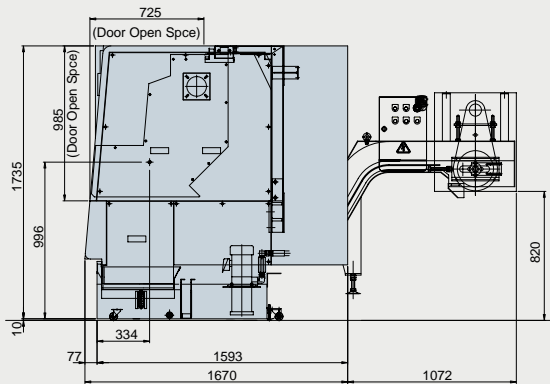
TOP VIEW



FRONT VIEW



SIDE VIEW

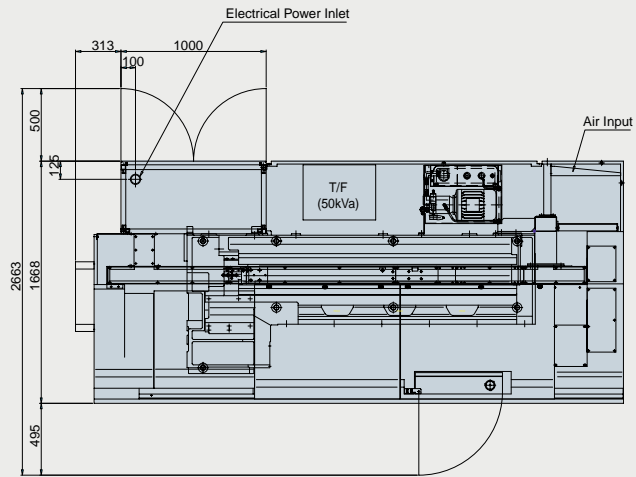


External Dimension

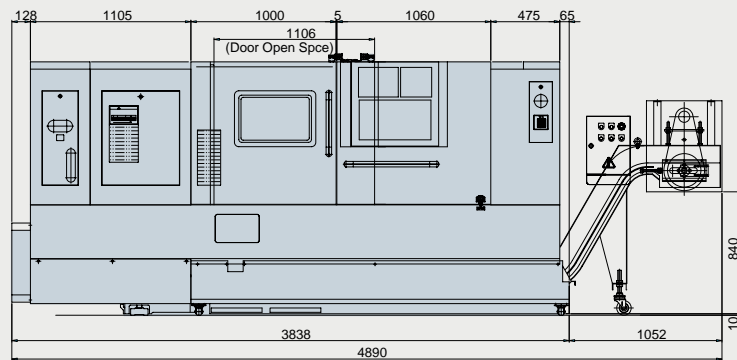
unit : mm

PUMA 280L[LM]

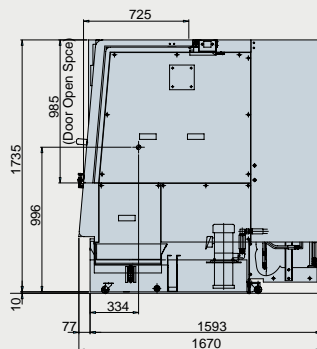
TOP VIEW



FRONT VIEW



SIDE VIEW



Machine Specifications

Item		PUMA 280	PUMA 280L	PUMA 280M	PUMA 280LM	
Capacity	Swing over bed			630		
	Swing over saddle			500		
	Recom. turning diameter			255		
	Max. turning diameter	420		410		
	Max. turning length	658	1078	610	1030	
	Bar working diameter			76		
Main Spindle	Spindle speed			3500		
	Spindle nose			A2 #8		
	Spindle bearing diameter (Front)			136		
	Spindle bore diameter			86		
	Cs spindle index angle			-		
Carriage	Travel distance	X-axis	242(32+210)		242(37+205)	
		Z-axis	680	1100	680	1100
	Rapid traverse	X-axis			20	
		Z-axis			24	
Turret	No. of tool station	10		12st(BMT55P)		
	OD tool height			25 × 25		
	Boring bar diameter	ø50		ø40		
	Indexing time (1st swivel)			0.15		
	Rotary tool spindle speed	-		5000		
Tail Stock	Quill diameter			100		
	Quill bore taper			MT#5		
	Quill travel			100		
Motors	Main spindle motor (30 min)			22		
	Servo motor	X-axis			3.0	
		Z-axis			4.0	
	Rotary tool spindle motor	-		5.5		
	Coolant pump			0.4		
Power Source	Electric power supply(Rated capacity)	36.5		37.9		
Machine Size	Machine height			1735		
	Machine dimension	length	3418	3838	3418	3838
		width			1670	
	Machine weight	4700	5300	4900	5500	

{ } : Optional

Standard Feature

Coolant supply equipment	Hydraulic chuck and actuating cylinder	Manuals
Foot switch	Hydraulic power unit	Safety precaution name plates
Front door Safety Lock	Levelling jack screw & plates	Soft jaws (total)
Full enclosure chip and coolant shield	Live tail center	Standard tooling kit (tool holder & boring sleeve)
Hand tool kit	Lubrication equipment	Work light
(including small tool for operations)	Manual Tail Stock	

Optional Feature

Air blast for chuck jaw cleaning	Coolant temperature control unit	Pressure switch for chucking pressure check
Automatic door	Dual chucking pressure	Proximity switches for chuck clamp detection
Automatic door with safety device	Electric power transformer	Proximity switches for quill position detection
Bar feeder interface	Hardened & ground jaws	Signal tower (Red, Yellow, Green)
Built-in center (MT#4)	Hyd. steady rest (SLU 1/2/B3.1)	Special chucks
Chip conveyor	Parts catcher (on M type)	Tool monitoring system
Chip bucket	Parts conveyor	Tool pre-setter (hydraulic type)

- Design and specifications are subject to change without prior notice.
- Doosan is not responsible for difference between the information in the catalog and the actual machine.

NC Specifications

	Item	Spec.	Fanuc Oi-TC	Fanuc 21i-TB
Controls	Controlled axes		X,Z,C(!)	X,Z,C(!)
	Simultaneously controlled axes	Std. 2 axes	3 axes(!)	3 axes(!)
Axis Functions	Backlash compensation	0- ± 9999 pulses		
	Cs contouring control		(!)	(!)
	Follow-up / Chamfering on/off			
	HRV control			
	Increment system 1/10	0.0001mm / 0.00001		
Operation	Least input increment	0.001mm / 0.0001		
	Stored stroke check1, 2	Overtravel control		
Interpolation	Automatic operation(memory) / Buffer register			
	Search function	Sequence NO. / Program NO.		
	Manual handle feed	X1, X10, X100		
	1st, 2nd reference position check / return	G27/G28, -/ G30		
	Circular interpolation	G02, G03		
	Continuous thread cutting			
	Dwell	G04		
	Linear interpolation	G01		
	Multiple threading /Thread cutting retract			
	Polar coordinate interpolation	G12.1, G13.1	(!)	(!)
Feed Functions	Thread cutting / Synchronous cutting			
	Feed per minute / Feed per revolution	G98 / G99		
	Feedrate override	0 - 200 %(10% unit)		
	Jog feed override	0 - 2000 mm/min		
	Rapid traverse override	F0/ 25 / 100 %		
Axiliary & Spindle Functions	Tangential speed constant control			
	1st Spindle orientation			
	3rd spindle serial output		-	-
	Constant surface speed control	G96, G97		
	M-function	M3 digit		
	Multi-spindle control		(!)	(!)
	Rigid tapping			
	Spindle speed override	0-150%		
	Spindle synchronous control		-	-
	Sub spindle orientation		-	-
Programming Functions	Absolute / Incremental programming			
	Canned cycle for drilling	G80 series		
	Custom macro B			
	Decimal point programming/pocket calculator type decimal point programming			
	Direct drawing dimension programming			
	eZ Guide i	Conversational programming	Opt.	
	Maximum program dimension	± 99999.999mm/(± 9999.9999 inch)		
	Multi repetitive canned cycle	G70-G76	(!)	
	Multi repetitive canned cycle 2			
	Optional block skip(without hardware)	Total 9(Only NC function)		
	Program number / Sequence number	O4 digits / N5 digits		
	Programmable data input	G10		
	Sub program call	Nested holds4	4	4
	Tape format for FANUC series 10/11			
	Tape format for FANUC series 15		-	-
Work coordinate system selection	G52, G53, G54-G59			
Tool Functions	Auto tool offset			
	Tool monitoring system		-	Opt.
	Direct input of tool offset value measured B			
	Tool geometry / wear compensation	Geometry & wear data		
	Tool life management			
	Tool nose radius compensation	G40-G42		
	Tool number command(T-code function)	T2+2 digits		
	Tool offset pairs		64	64
Editing Op. Functions	Tool offset value counter input		-	
	Background editing			
	Expanded part program editing	Copy, Move, Change of NC program		
	No. of Registered programs		400ea	200ea
	Part program editing / Program protect			
Setting & Display	Part program storage length ^{§ 1}		640m	640m
	Display of spindle speed and T-code at all screen			
	Help function	Alarm&Operation display		
	Self diagnostic function			
	Servo setting screen / Spindle setting screen			
Data Input & Output	Tool path graphic display		(!)	Opt.(!)
	I/O interface	RS-232C		
	Memory card input and output			
	Reader puncher control	CH1 interface		
Other Functions	Ethernet function	Embedded ethernet function	Opt.	
	MDI / DISPLAY unit		8.4 Color LCD	10.4 color LCD
	PMC system			

§ 1 : Standard Part program length is different on export condition. On the addition of optional functions, its length can be reduced.

:Std OPT:Option (!):only M type

PUMA 280

<http://domss.doosaninfracore.com>

Sales & Support Network

ARGENTINA/Rosario **AUSTRALIA**/Melbourne/Sydney **AUSTRIA**/Vienna **BELGIUM**/Gullegem **BRAZIL**/Sao paulo **BULGARIA**/Sofia **CANADA**/Edmonton/Montreal/Toronto
/Vancouver **CHILE**/Santiago **CHINA**/Beijing/Chongqing/Guangzhou/Shanghai/Shenyang **COLOMBIA**/Bogota **CZECH**/Brno **DENMARK**/Randers **EGYPT**/Cairo **FINLAND**/Tampere
FRANCE/Annecy **GERMANY**/Dusseldorf **GREECE**/Athens **HONG KONG**/Kowloon **HUNGARY**/Budapest **INDIA**/Bangalore/Pune **INDONESIA**/Jakarta **ISRAEL**/Herzlia
ITALY/Parma **MALAYSIA**/Puchong **MEXICO**/Guadalajara /Mexico City /Monterrey /Vera Cruz **NETHERLANDS**/Goorn **NEW ZEALAND**/Auckland **NORWAY**/Oslo **PAKISTAN**
/Islamabad **POLAND**/Krakow **PORTUGAL**/Lisbon **ROMANIA**/Bucharest **RUSSIA**/Moscow **SINGAPORE**/Singapore **SLOVENIA**/Ljubljana **SOUTH AFRICA**/Kempton Park
SPAIN/Barcelona **SWEDEN**/Stockholm **SWITZERLAND**/Zurich **TURKEY**/Istanbul **THAILAND**/Bangkok **U.A.E**/Sharjah **U. K.**/Leamington **U.S.A.**/Atlanta/Birmingham
/Charlotte/Chicago/Cincinnati/Cleveland/Dallas/Denver/Detroit/Houston/Indianapolis/Kansas City/Little Rock/Los Angeles/Milwaukee/Minneapolis/New Orleans/Norfolk/Philadelphia/Phoenix
/Pittsburgh/Portland/Rochester/Salt Lake City/San Diego/San Francisco/Seattle/Springfield/St. Louis/Tampa/Trenton/Tulsa **VENEZUELA**/Valencia **VIETNAM**/Hanoi



Doosan Infracore
Machine Tools

Head Office : Doosan Tower 22nd FL., 18-12, Euljiro-6Ga, Jung-Gu, Seoul, Korea 100-730
Tel : ++82-2-3398-8651 **Fax** : ++82-2-3398-8699
E-mail : master@domss.com

Doosan Infracore America Corp.: 8 York Avenue, West Caldwell, NJ 07006, U.S.A.
Tel : ++1-973-618-2500 **Fax** : ++1-973-618-2501

Doosan Infracore Germany GmbH : Hans-Böckler-Strasse 29, D-40764 Langenfeld-Fuhrkamp, Germany.
Tel : ++49-2173-8509-10 **Fax** : ++49-2173-8509-60

China Representative Office : 9-101 Xinmao Building, 99 Tianzhou Road, Caohejing Hi-Tech Development
Shanghai, China 200233 **Tel** : ++86-21-5445-1155 (812,815) **Fax** : ++86-21-64403389