



Optimal Solutions for the Future

PUMA 4100/5100 series



**Doosan's Medium
to Large Turning
Center with 2-axis
to Y-axis Machining
Capability**

**PUMA 4100 series
PUMA 5100 series**

ver. EN 160624 SU

Basic Information

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PUMA 4100/5100 series

PUMA 4100/5100 series are horizontal turning centers designed for machining medium to large size workpieces. It ensures powerful machining capability by using a 2 step gearbox and high torque motors together with a rigid box guideway structure. Also, it can process complex workpieces by using the optional Y axis function. In addition, the optional Doosan threading functions, especially for Oil/Gas industry parts, makes it the solution for a wide variety of applications.



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Various Line-up

- For machining various medium to large size workpieces, the PUMA 4100/5100 series offers 25 models in the line-up. This consists of chuck sizes from 12" to 21" diameter with optional big bore spindle, 1m or 2m turning length and 2 axis to Y axis configurations.

Powerful machining capability

- PUMA 4100/5100 series have powerful machining capability with optimized cutting performance due to the 2 speed gearbox and high torque spindle motors, and stable box guideway structure.

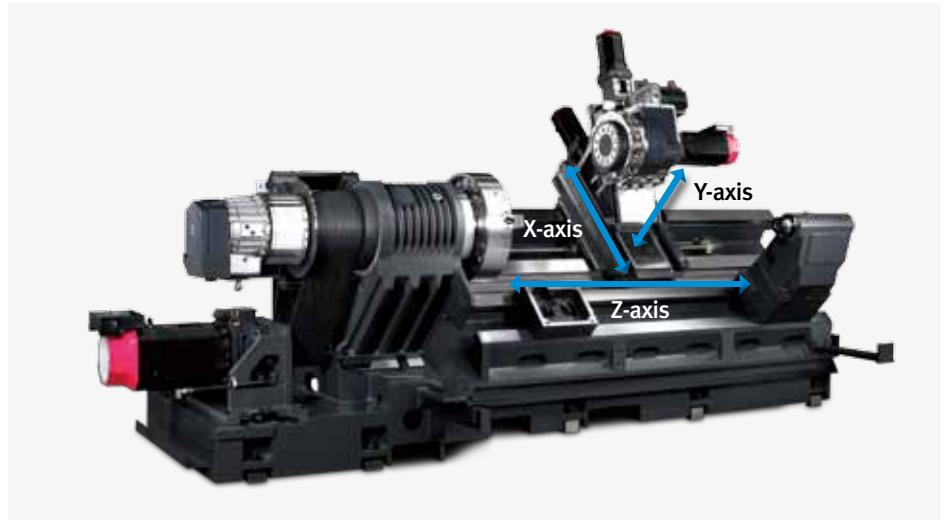
Improve convenience

- PUMA 4100/5100 series can process complex parts in just one setup by applying the optional Y axis function. In addition, the newly designed operation panel and optional threading functions optimize the operators convenience.



Basic Structure

Machine capability ranges from 2 axis to Y axis, which allows large, complex parts to be completed in a single setup.

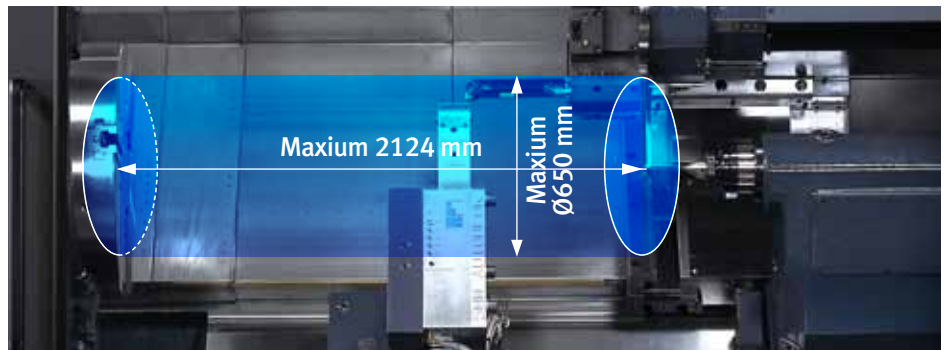


| Model | Chuck size (inch) | 1m (Std.) | | | 2m (L) | | | |
|-----------|-------------------|-----------|---|---|--------|---|---|---|
| | | 2-axis | M | Y | 2-axis | M | Y | |
| PUMA 4100 | A | 12 | ○ | ○ | - | ○ | ○ | - |
| | B | 15 | ○ | ○ | - | ○ | ○ | - |
| | C | 21 | ○ | ○ | - | ○ | ○ | - |
| PUMA 5100 | A | 15 | ○ | ○ | - | ○ | ○ | ○ |
| | B | 21 | ○ | ○ | - | ○ | ○ | ○ |
| | C | Big Bore | ○ | - | - | ○ | - | ○ |



Machining area

The largest work envelop in its class with maximum turning diameter of Ø650 mm and maximum turning length of 2m.



Max. turning diameter

Ø650 mm
(Ø25.6 inch)

Max. turning length

2124 mm
(83.6 inch)

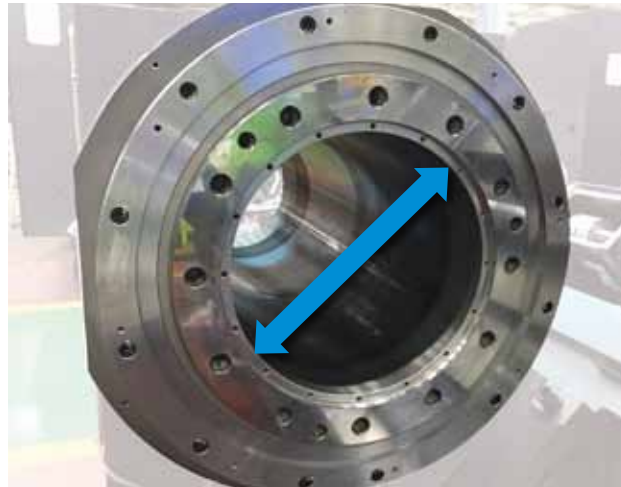
Unit : mm (inch)

| Function | | Model | Max. turning diameter | Max. turning length |
|-----------|--------|----------------------|-----------------------|---|
| PUMA 4100 | 2-axis | PUMA 4100A/B/C | 550 (21.7) | 1074 / 1042 / 1002 (42.3/41/39.4) |
| | | PUMA 4100LA/LB/LC | | 2124 / 2092 / 2052 (83.6/82.4/80.8) |
| | M | PUMA 4100MA/MB/MC | 560 (22.0) | 1010 / 978 / 938 (39.8/38.5/36.9) |
| | | PUMA 4100LMA/LMB/LMC | | 2060 / 2028 / 1988 (81.1/79.8/78.2) |
| PUMA 5100 | 2-axis | PUMA 5100A/B/C | 650 (25.6) | 1032 / 992 / 992 (40.6 / 39.1 / 39.1) |
| | | PUMA 5100LA/LB/LC | | 2082 / 2042 / 2042 (82.0 / 80.4 / 80.4) |
| | M | PUMA 5100MA/MB | | 992 / 952 (39 / 37.5) |
| | | PUMA 5100LMA/LMB | | 2042 / 2002 (80.4/78.8) |
| | Y | PUMA 5100LYA/LYB/LYC | | 550 (21.7) |



Machining area

The machines are available with a variety of spindle through bore sizes to provide the ideal solution for customers pipe diameters.



Max. spindle through hole diameter

Ø275 mm
(Ø10.8 inch)

Unit : mm (inch)

| Model | | Max. spindle through hole diameter |
|-----------|---|------------------------------------|
| PUMA 4100 | A | 115(4.5) |
| | B | 132 (5.2) |
| | C | 181 (7.1) |
| PUMA 5100 | A | 132 (5.2) |
| | B | 181 (7.1) |
| | C | 275 (10.8) |



Spindle

The gearbox design allows PUMA 4100/5100 spindle to have unparalleled power and torque, which boosts productivity with extreme heavy-duty cutting capability.



Max. spindle speed

1500 r/min

Max. spindle power (30min / Cont.)

45/37 kW
(60.3 / 49.6 Hp)

Max. spindle torque

4038 N·m
(2980.0 ft-lb)

PUMA 5100B

| Model | Max. spindle speed r/min | Max. spindle power (30min / Cont.) kW (Hp) | Max. spindle torque N·m (ft-lb) |
|-----------------|-----------------------------|--|------------------------------------|
| PUMA 4100A/LA | 3000 | 35 (S3 25%) / 26 / 22 (46.9(S3 25%) / 34.9 / 29.5) | 1584 (1169.0) |
| PUMA 4100B/LB | 2000 | 35 (S3 25%) / 26 / 22 (46.9(S3 25%) / 34.9 / 29.5) | 2379 (1755.7) |
| PUMA 4100C/LC | 1500 | 37 / 30 (49.6 / 40.2) | 3280 (2420.6) |
| PUMA 4100MA/LMA | 3000 | 30 / 22 (40.2 / 29.5) | 832 (614.0) |
| PUMA 4100MB/LMB | 2000 | 30 / 22 (40.2 / 29.5) | 1611 (1188.9) |
| PUMA 4100MC/LMC | 1500 | 37 / 30 (49.6 / 40.2) | 2432 (1794.8) |
| PUMA 5100A/LA | 2000 | 37 / 30 (49.6 / 40.2) | 3280 (2420.6) |
| PUMA 5100B/LB | 1500 | 45 / 37 (60.3 / 49.6) | 4038 (2980.0) |
| PUMA 5100C/LC | 1000 | 45 / 37 (60.3 / 49.6) | 4463 (3293.7) |
| PUMA 5100MA/LMA | 2000 | 37 / 30 (49.6 / 40.2) | 2432 (1794.8) |
| PUMA 5100MB/LMB | 1500 | 45 / 37 (60.3 / 49.6) | 2957 (2182.3) |
| PUMA 5100LYA | 2000 | 37 / 30 (49.6 / 40.2) | 2431 (1794.1) |
| PUMA 5100LYB | 1500 | 45 / 37 (60.3 / 49.6) | 2957 (2182.3) |
| PUMA 5100LYC | 1000 | 45 / 37 (60.3 / 49.6) | 3268 (2411.8) |

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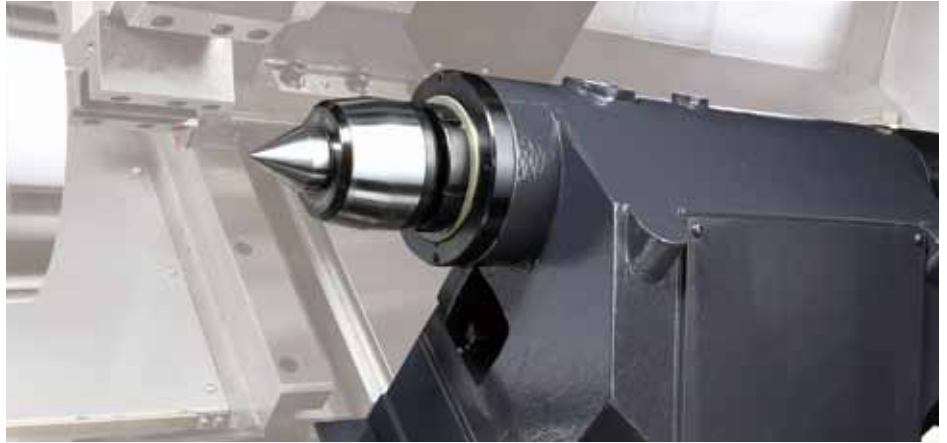
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Tailstock

High rigidity hydraulic tailstock is rigidly clamped to the bed slide way to provide stable support for long workpieces.



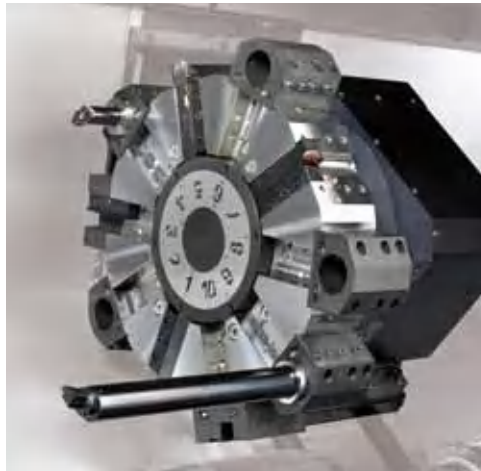
Tailstock travel

1000 mm / 2050 mm (39.4 / 80.7 inch)

| Model | Tailstock travel | Quill diameter | Quill travel | Std. | Opt. |
|------------------------------|------------------|----------------|--------------|--------------|--------------|
| PUMA 4100/M, PUMA 5100/M | 1000 (39.4) | 120 (4.7) | 120 (4.7) | Manual | Programmable |
| PUMA 4100L/LM, PUMA 5100L/LM | 2050 (80.7) | 120 (4.7) | 120 (4.7) | Manual | Programmable |
| PUMA 5100LY | 2050 (80.7) | 120 (4.7) | 140 (5.5) | Programmable | - |

Turret

Turret rotation is controlled by servo motor for fast and reliable tool selection. Doosan's unique BMT85P turret design is used on M and Y specification models to boost heavy duty milling performance.



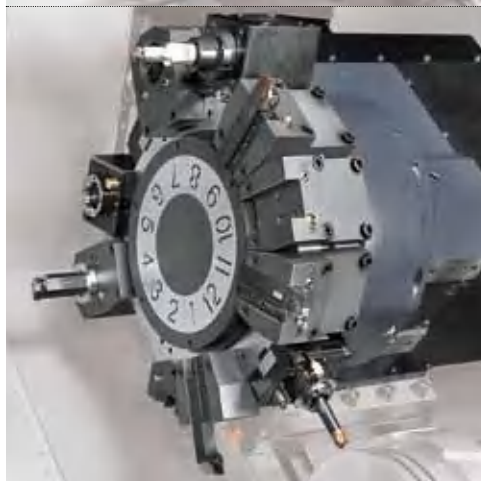
2-axis model

No. of tool stations

PUMA 4100A/LA
12ea (std.) / **10ea** option

PUMA 4100B/LB/C/LC
PUMA 5100 series

10ea (std.) / **12ea** option



M,Y Model

BMT75P

No. of tool stations

12ea

Cutting performance

Multi-functionality including end milling, face milling, drilling, tapping, etc. offers better machining performance while minimizing work setting.



| O.D turning | |
|---------------|------------------------|
| Cutting speed | 210 m/min (8267.7 ipm) |
| Feedrate | 0.55 mm/rev |
| Cutting depth | 11.9 mm (0.5 inch) |



| ID turning (Rough cutting) | |
|----------------------------|-------------------------|
| Cutting speed | 280 m/min (11023.6 ipm) |
| Feedrate | 0.1 mm/rev |
| Cutting depth | 3 mm (0.1 inch) |
| Tool length | 4.0D |



| U-Drill (2-axis) | |
|------------------|------------------|
| Cutting Tool | 80 mm (3.1 inch) |
| Spindle speed | 750 r/min |
| Feedrate | 0.2 mm/rev |



| Face milling | |
|----------------|-----------------------|
| Face mill dia. | 63 mm (2.5 inch) |
| Cutting speed | 176 m/min (6.9 ipm) |
| Feedrate | 900 mm/min (35.4 ipm) |
| Cutting depth | 6 mm (0.2 inch) |



| U-Drill (3-axis) | |
|------------------|------------------|
| Cutting Tool | 25 mm (1.0 inch) |
| Spindle speed | 2500 r/min |
| Feedrate | 0.3 mm/rev |

- * This test result come from under condition
- 1) Material : Steel (SM45C)
 - 2) Test Machine :PUMA 5100LMA
 - Main spindle motor : 37 / 30 kW (49.6 / 40.2 Hp)
 - Rotary tool motor : 11 / 5.5 kW (14.8 / 7.4 Hp)

* The results, indicated in this catalogue are provides as example. They may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

Peripheral equipments

Long boring bar option



The long boring bar option allows you to easily machine deep holes to minimize cycle time. Please consult with Doosan specialist for details.

Twin chucking option

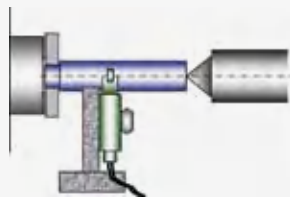


For more stable pipe threading process, twin chucking option(manual or pneumatic) is available. Please consult with Doosan specialist for details.

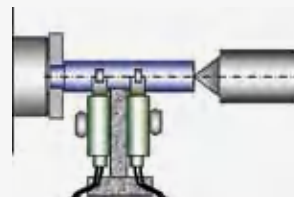
Steady rest option



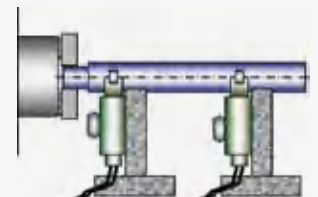
SINGLE



DOUBLE



TWIN

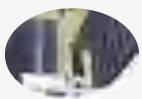


For turning a part with extensive length, various types of hydraulic steady rests(Single, Double or Twin type) are available.

Chip conveyor (Right side) option



Hinged belt



Magnetic scraper



Coolant tank



Doosan's ergonomic roller coolant tank design, allows users to easily replace and refill coolant. Roller on the coolant tank allows users to simply take out and put it back in the machine like a drawer unit.

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

Product Overview



FANUC

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Fanuc CNC is tuned ideally to PUMA 4100 / 5100 series, in order to maximize productivity.

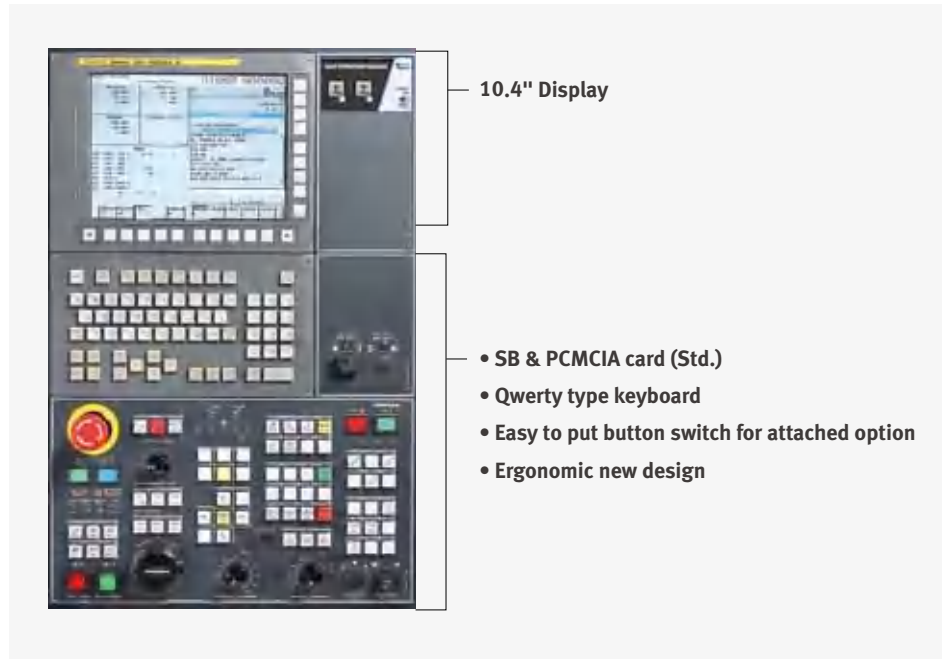
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User-friendly operation panel

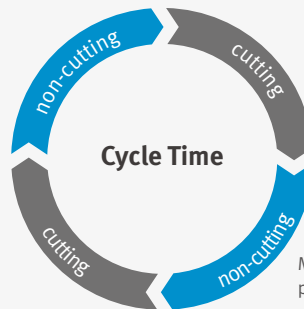
The newly designed operation panel groups all of the common buttons together to enhance operator's convenience. Also, 'QWERTY' keypad is applied as standard to improve convenience of users who are accustomed to PC keyboards.



Easy Operation Package

Increased Productivity

Reduced non-cutting time
by **10%**



Minimizes non-cutting time to further improve productivity.

Tool load monitoring



This function detects overload on tools, caused by wear and damage, and triggers an alarm to minimize damage.

Operation rate



Function allows users to easily keep track of machine operating hours and the number of completed parts.

Stable threading performance

All PUMA 4100 / 5100 series (2-Axis* to Y-Axis) are capable of threading work.

* In order to re-machine threads or perform arbitrary speed threading on a 2-Axis machine, additional optional devices have to be selected.

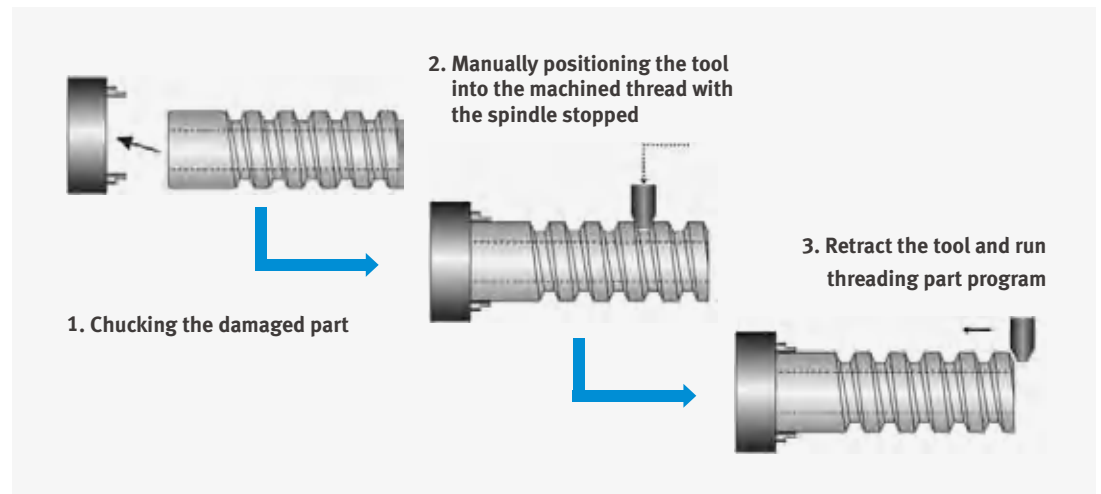
Threading repair function

This function allows users to repair thread even when original program is not available and this is a standard Fanuc NC function.



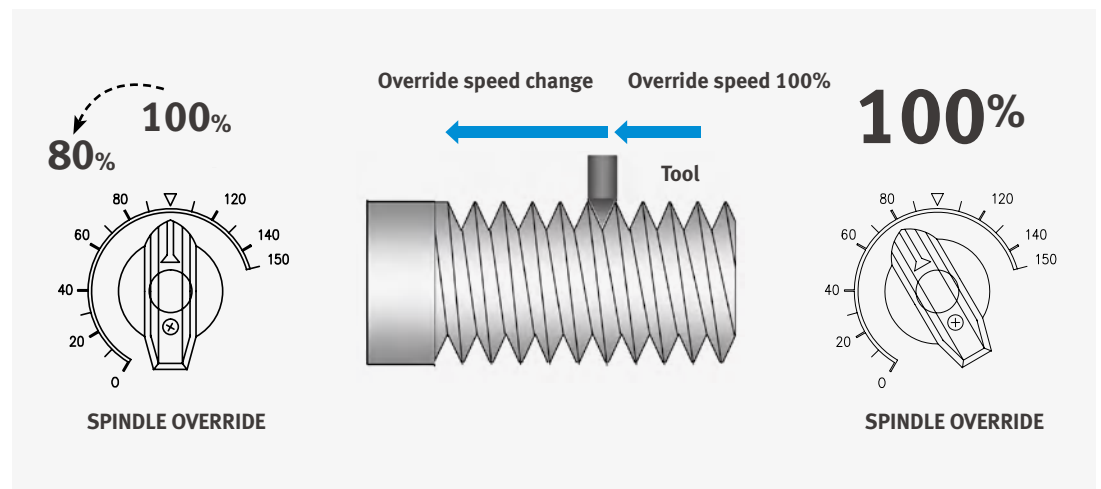
Re-machining function option

This function allows users to re-machine damaged threads by using the existing program.



Arbitrary speed threading option

This function allows users to control spindle speed in order to set it at an ideal machining condition to keep the best thread quality.



Power-Torque Diagram

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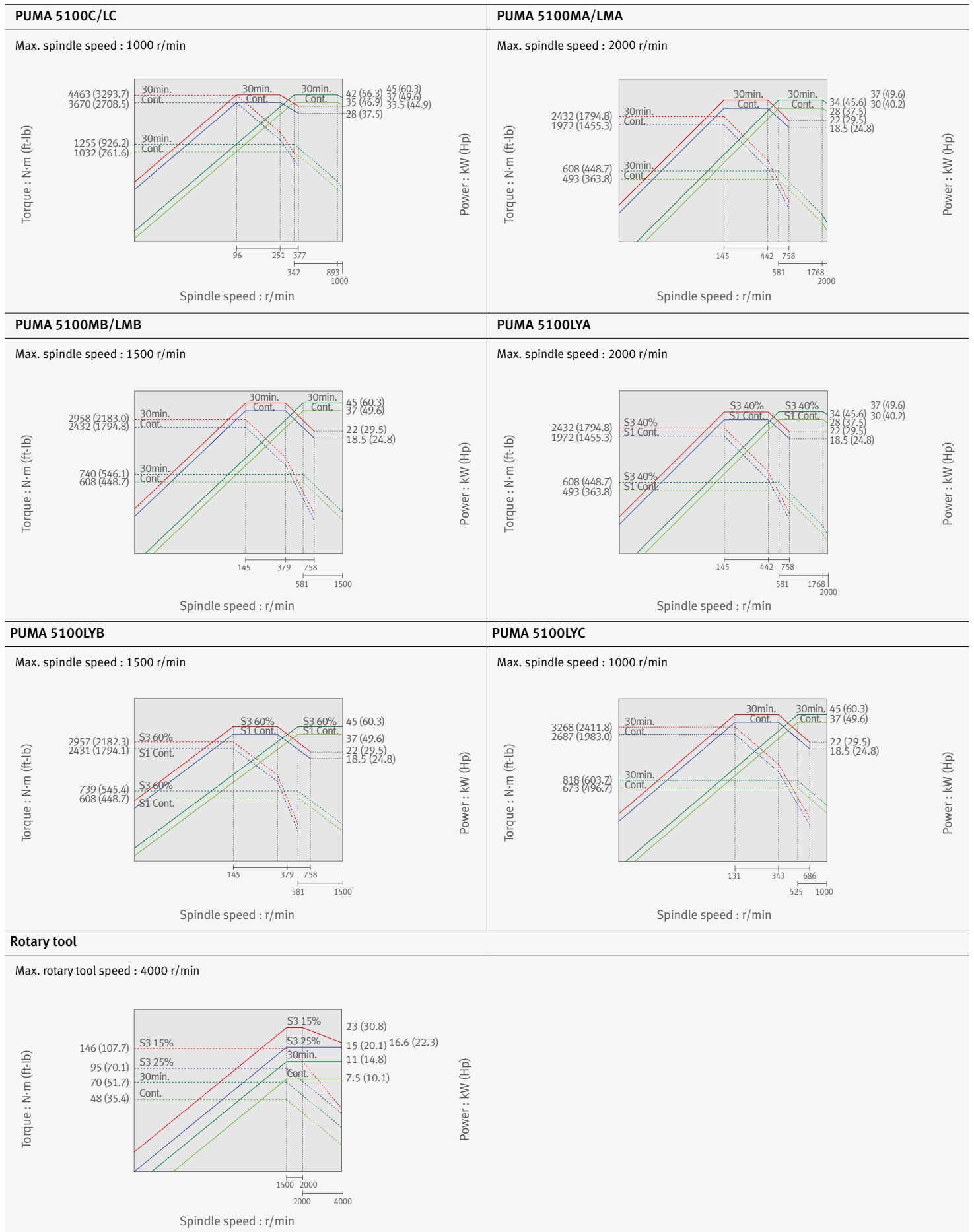
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| | |
|--|--|
| <p>PUMA 4100A/LA</p> <p>Max. spindle speed : 3000 r/min</p> | <p>PUMA 4100B/LB</p> <p>Max. spindle speed : 2000 r/min</p> |
| <p>PUMA 4100C/LC</p> <p>Max. spindle speed : 1500 r/min</p> | <p>PUMA 4100MA/LMA</p> <p>Max. spindle speed : 3000 r/min</p> |
| <p>PUMA 4100MB/LMB</p> <p>Max. spindle speed : 2000 r/min</p> | <p>PUMA 4100MC/LMC</p> <p>Max. spindle speed : 1500 r/min</p> |
| <p>PUMA 5100A/LA</p> <p>Max. spindle speed : 2000 r/min</p> | <p>PUMA 5100B/LB</p> <p>Max. spindle speed : 1500 r/min</p> |

Power-Torque Diagram



External Dimensions

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PUMA 4100 / 5100 series

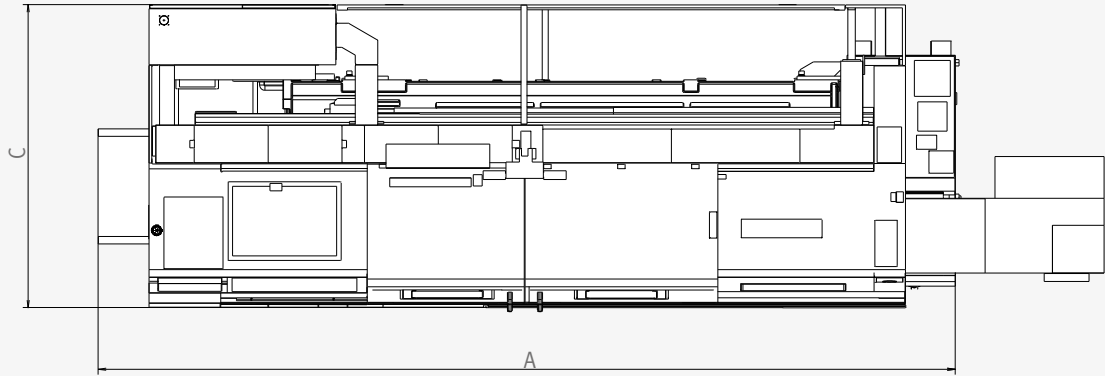
Unit : mm (inch)

Detailed Information

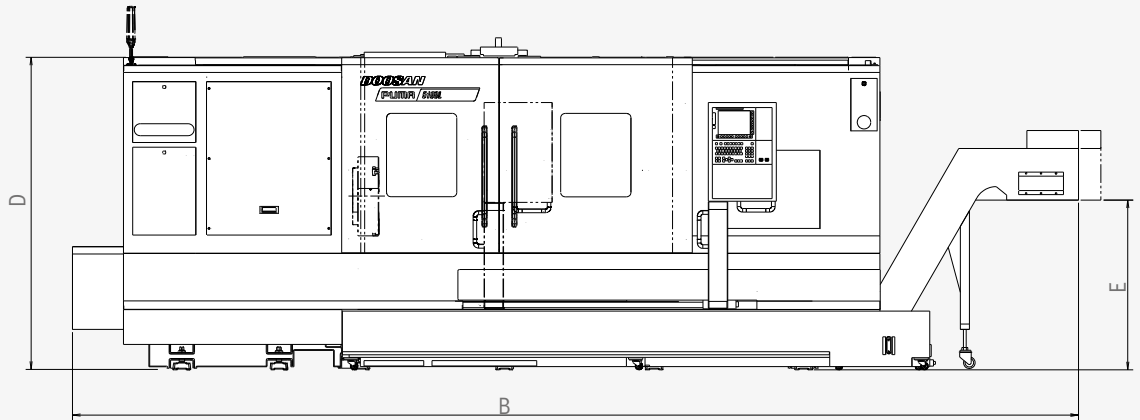
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Top view



Front view

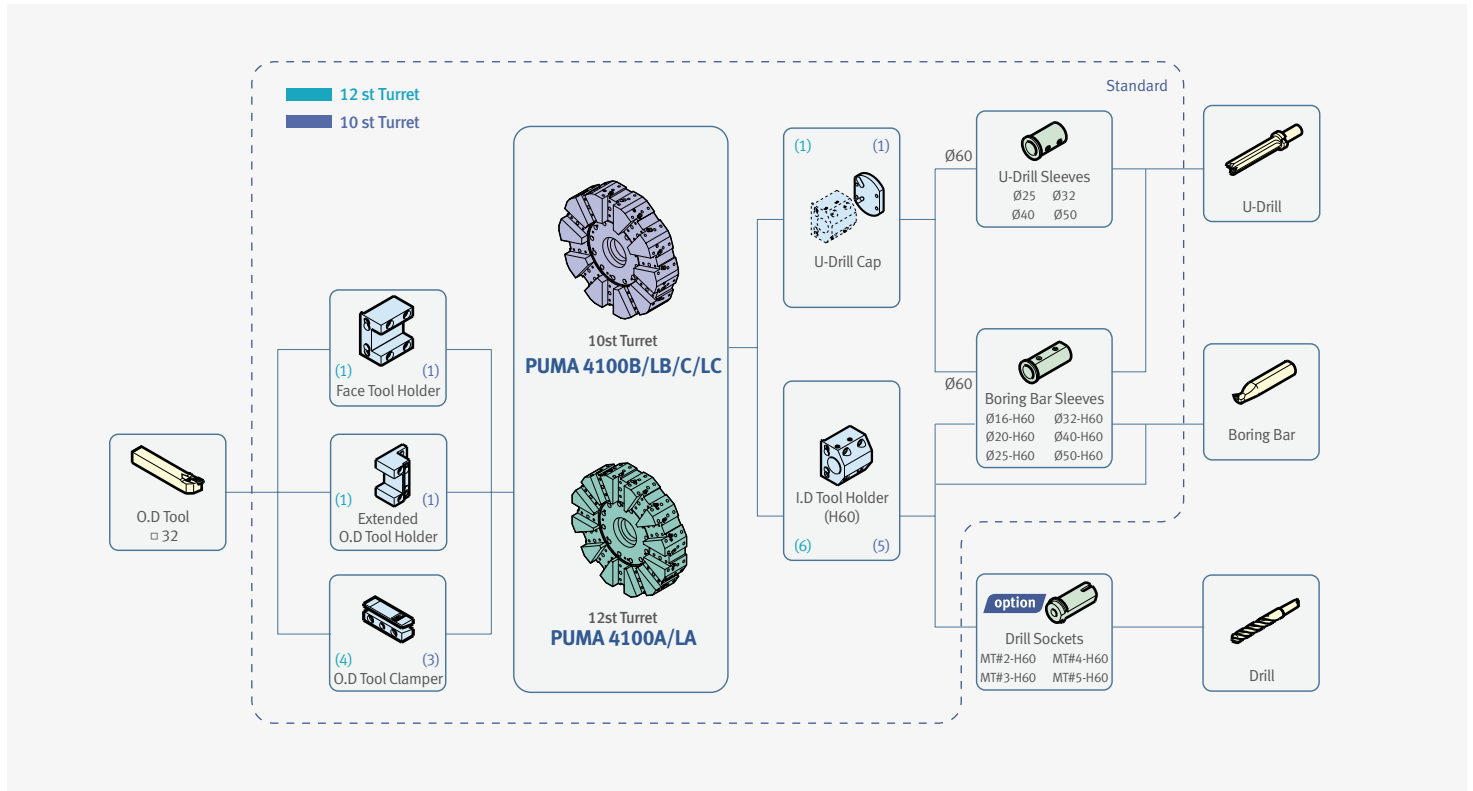


| Model | A (Length) | B (Length with chip conveyor) | C (Width) | D (Height) | E (Height of ground to chip outlet) |
|--------------------|--------------------------------|----------------------------------|--------------|---------------|--|
| PUMA 4100/5100 | 4654 / 4759 (183.2 / 187.4) | 5549 / 5654 (218.5 / 222.6) | 2056 (80.9) | 2194 (86.4) | 1053 (41.5) |
| PUMA 4100L/5100L | 5774 / 5879 (227.3 / 231.5) | 6731 / 6836 (265.0 / 269.1) | 2275 (89.6) | 2272 (89.4) | 1053 (41.5) |
| PUMA 4100M/5100M | 4654 / 4759 (183.2 / 187.4) | 5549 / 5654 (218.5 / 222.6) | 2275 (89.6) | 2194 (86.4) | 1053 (41.5) |
| PUMA 4100LM/5100LM | 5774 / 5879 (227.3 / 231.5) | 6731 / 6836 (265.0 / 269.1) | 2275 (89.6) | 2272 (89.4) | 1053 (41.5) |
| PUMA 5100LY | 5980 (235.4) | 6890 (271.3) | 2522 (99.3) | 2885 (113.6) | 1050 (41.3) |

Tooling System

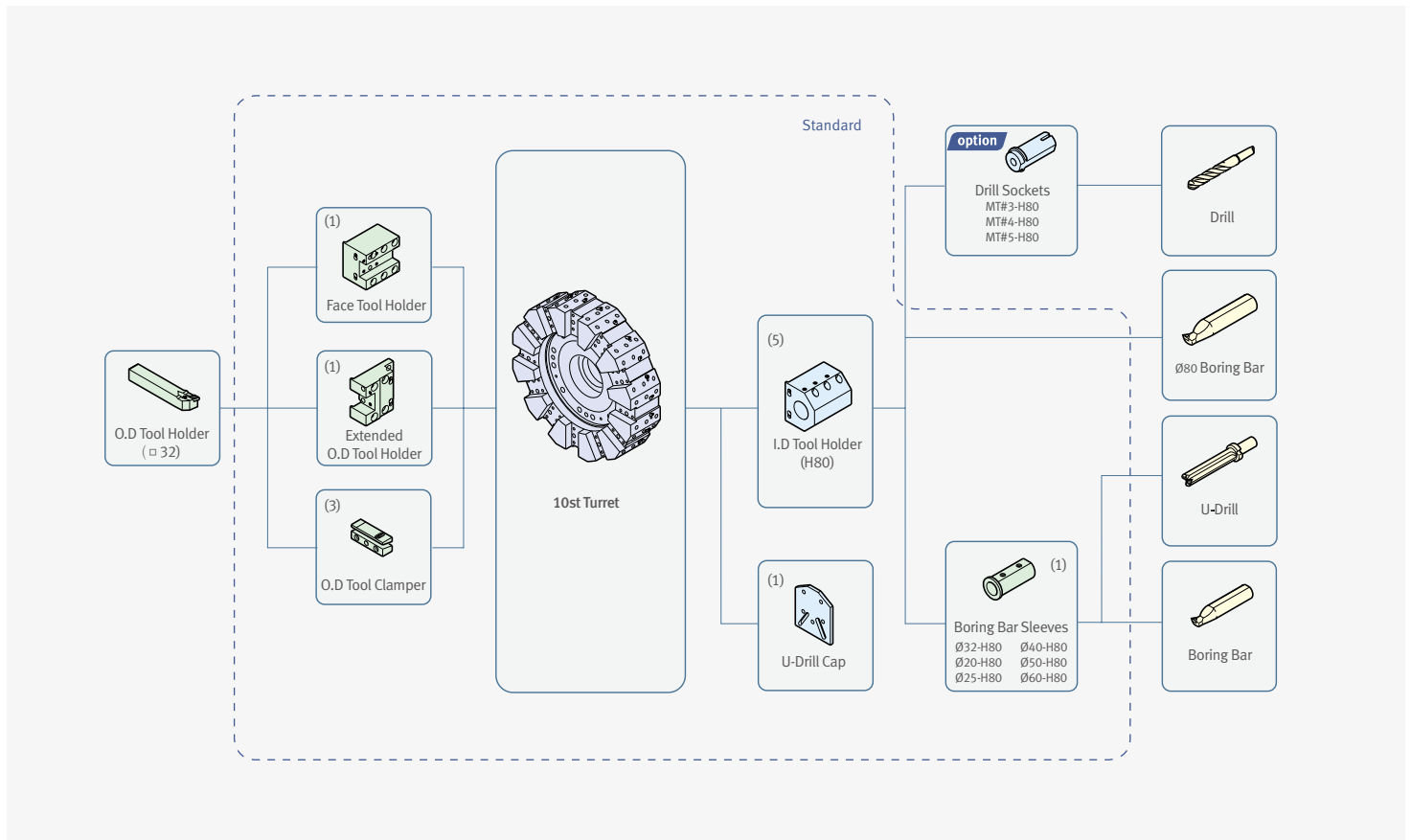
PUMA 4100

Unit : mm (inch)



PUMA 5100

Unit : mm (inch)



Tooling System

Basic Information

PUMA 4100M/LM, PUMA 5100M/LM/LY

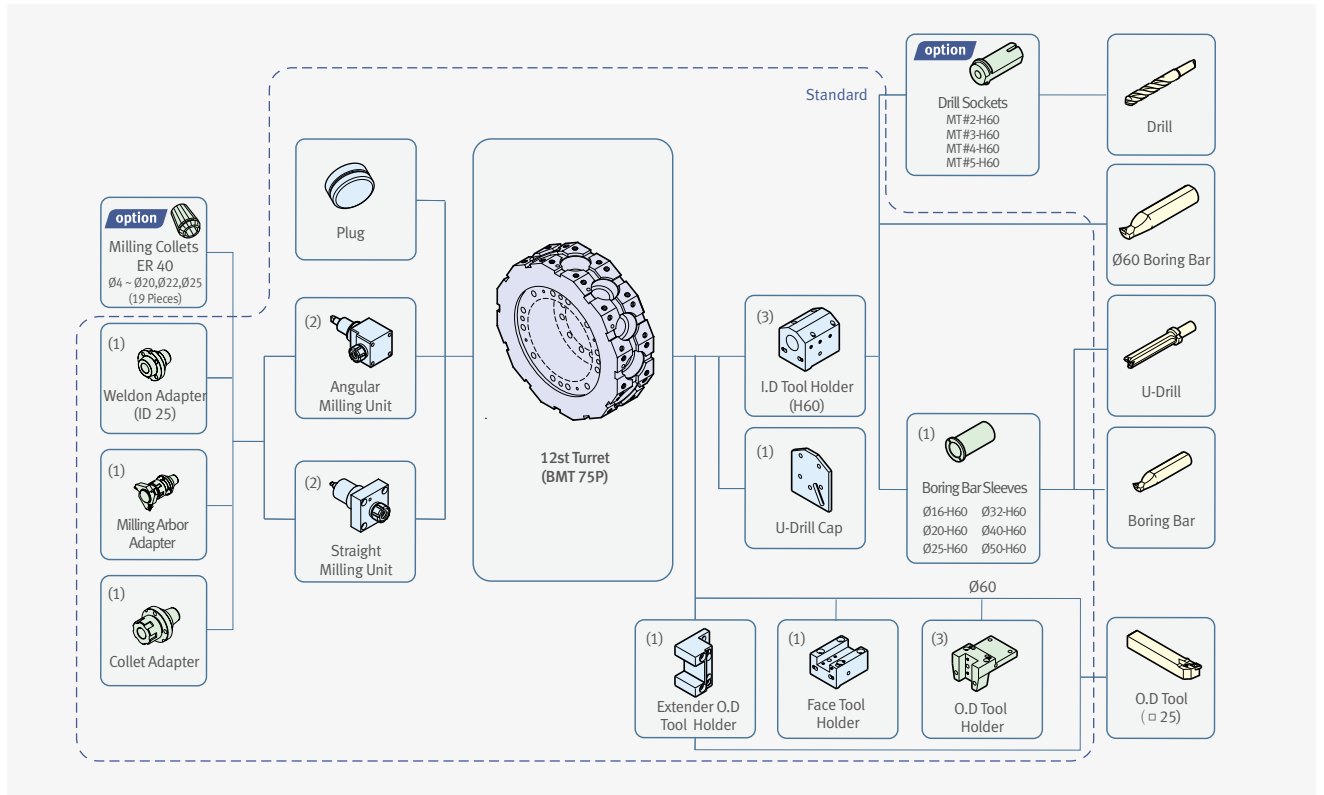
Unit : mm (inch)

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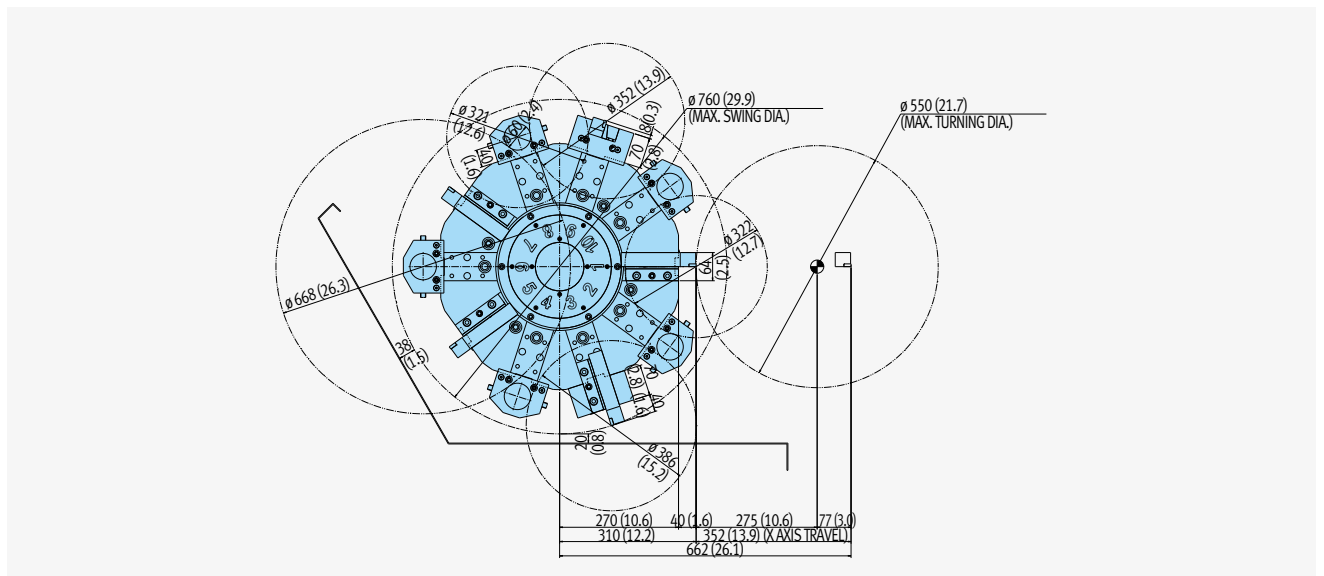
Customer Support Service



Tool Interference Diagram

PUMA 4100 (10 station)

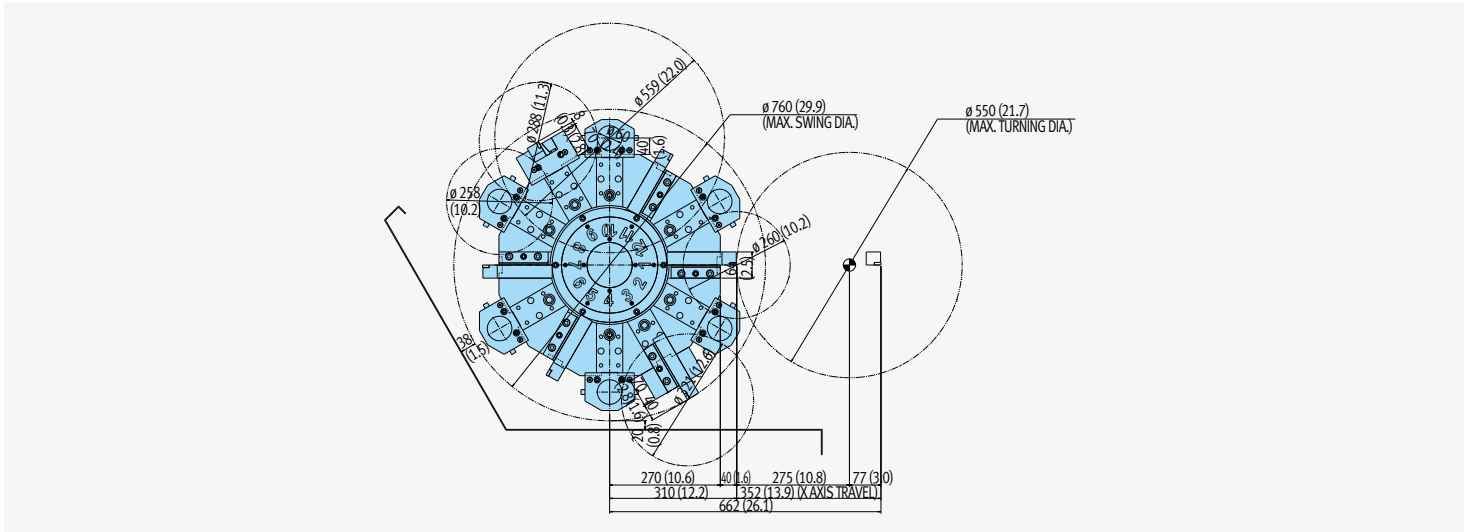
Unit : mm (inch)



Tool Interference Diagram

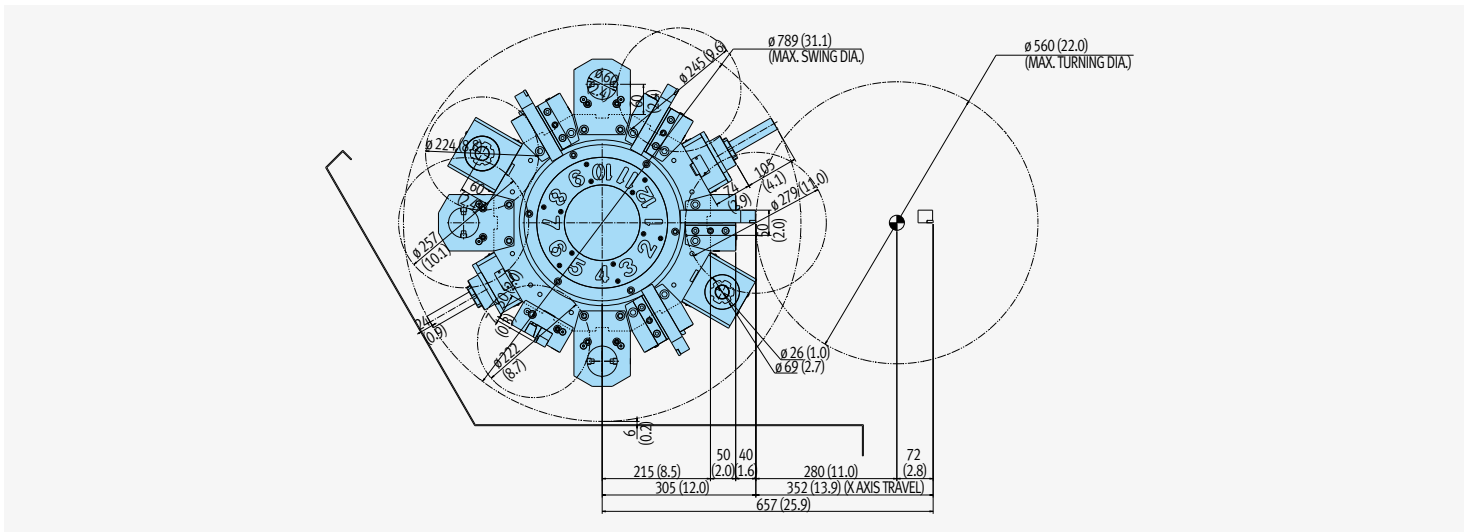
PUMA 4100 (12 station)

Unit : mm (inch)



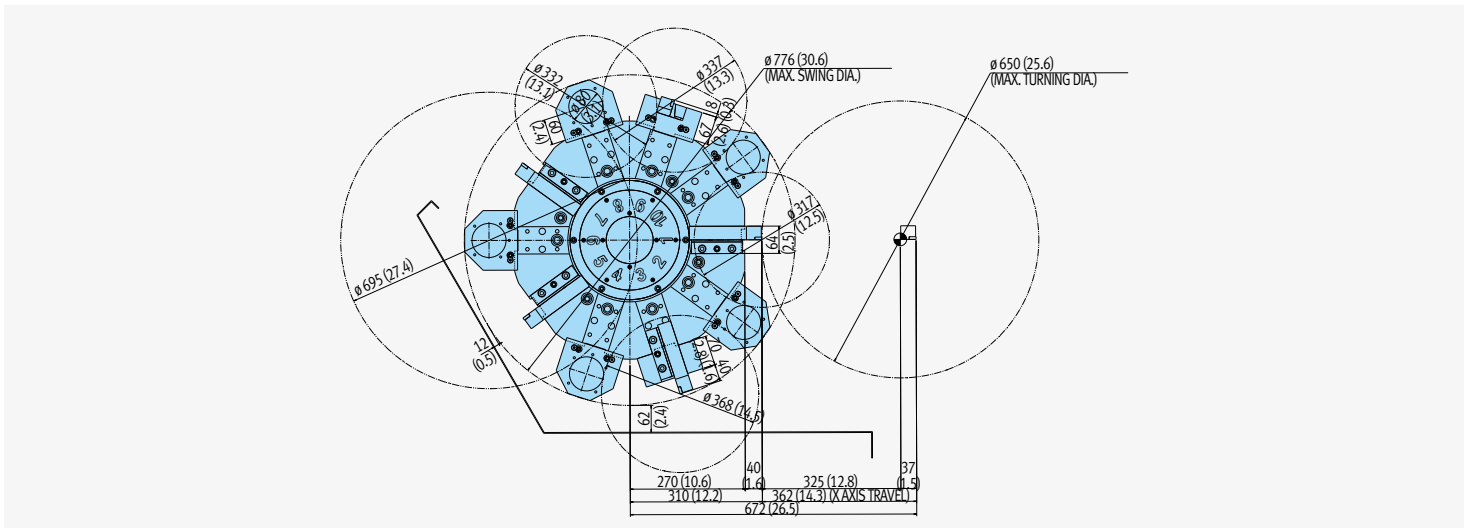
PUMA 4100M (12 station)

Unit : mm (inch)



PUMA 5100 (10 station)

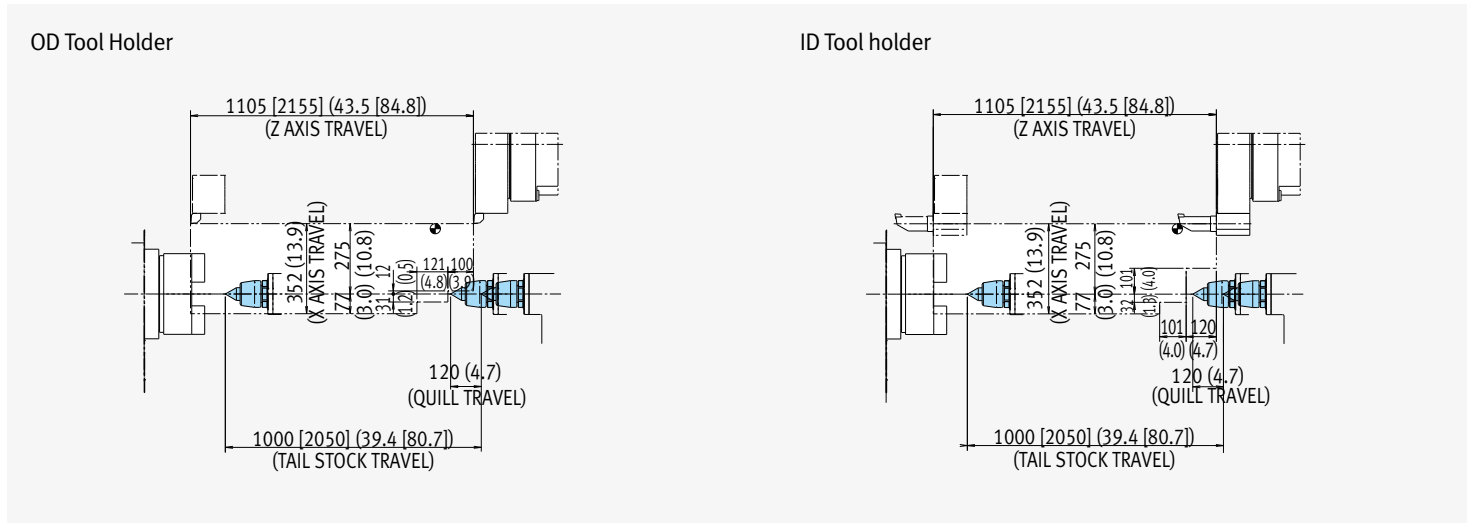
Unit : mm (inch)



Working Range Diagram

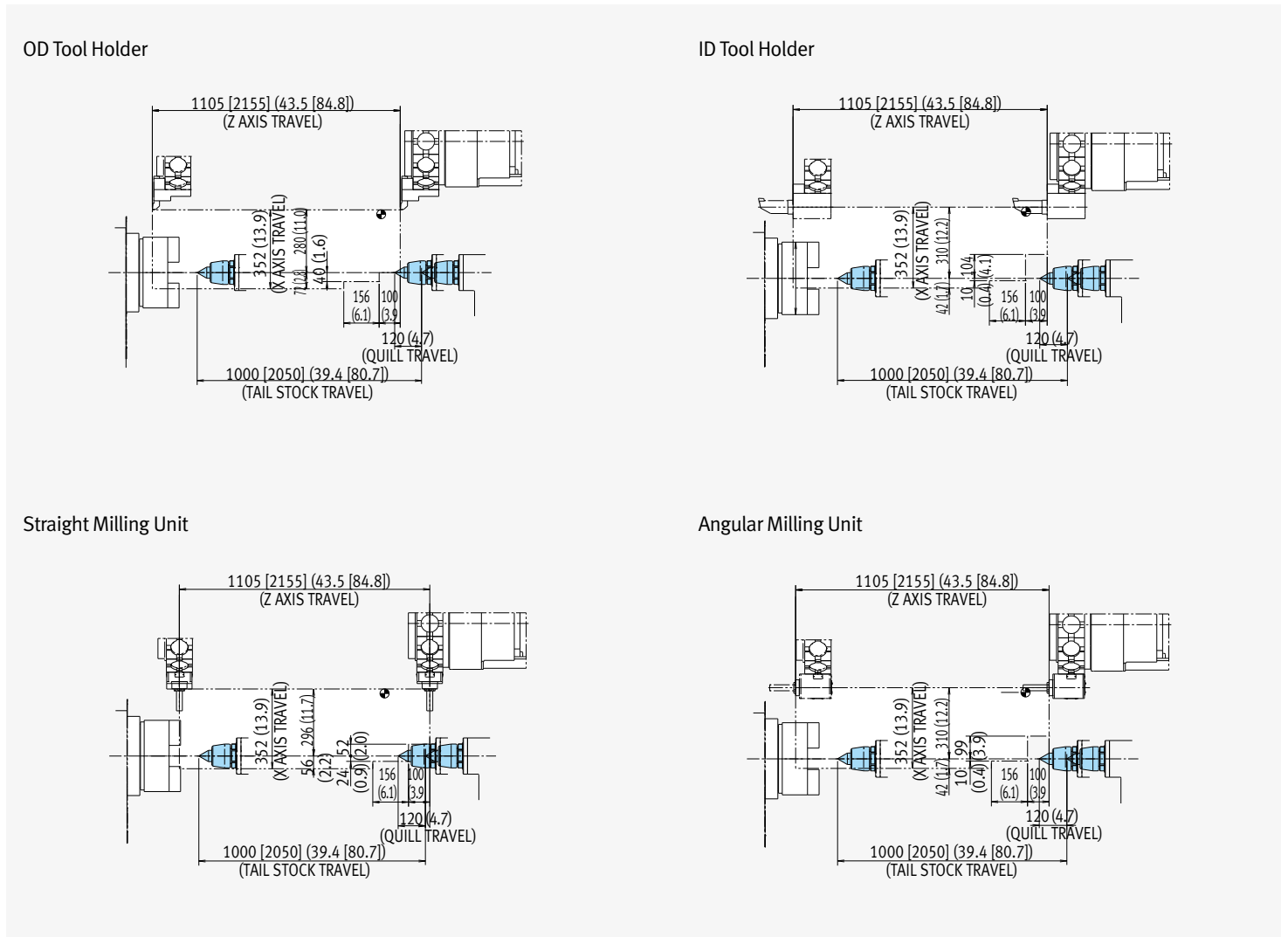
PUMA 4100[L]

Unit : mm (inch)



PUMA 4100M[LM]

Unit : mm (inch)



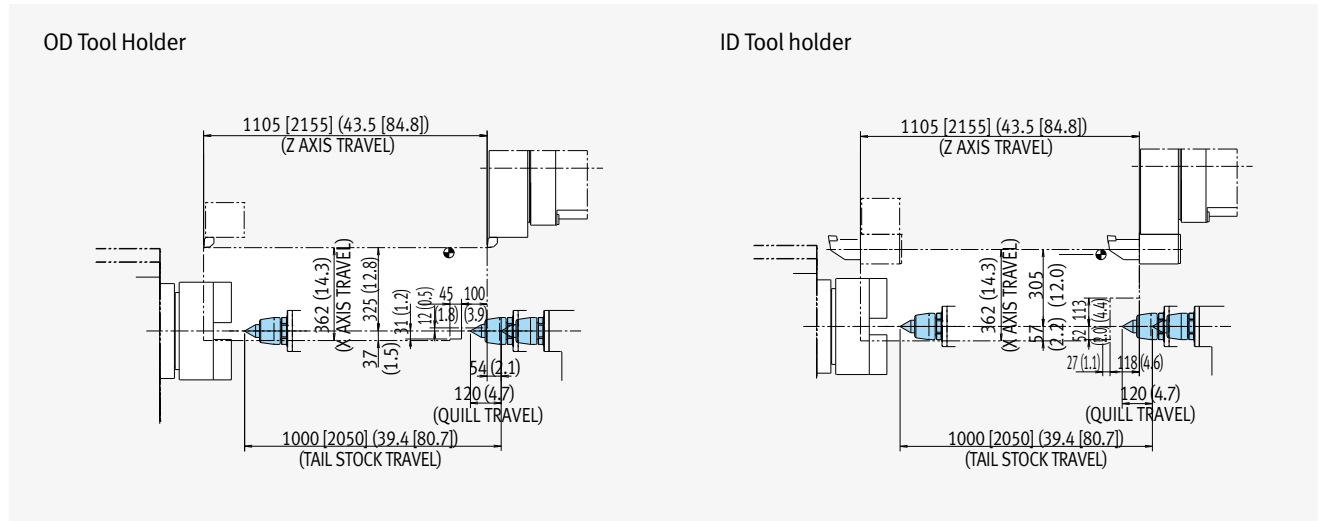
Working Range Diagram

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PUMA 5100[L]

Unit : mm (inch)



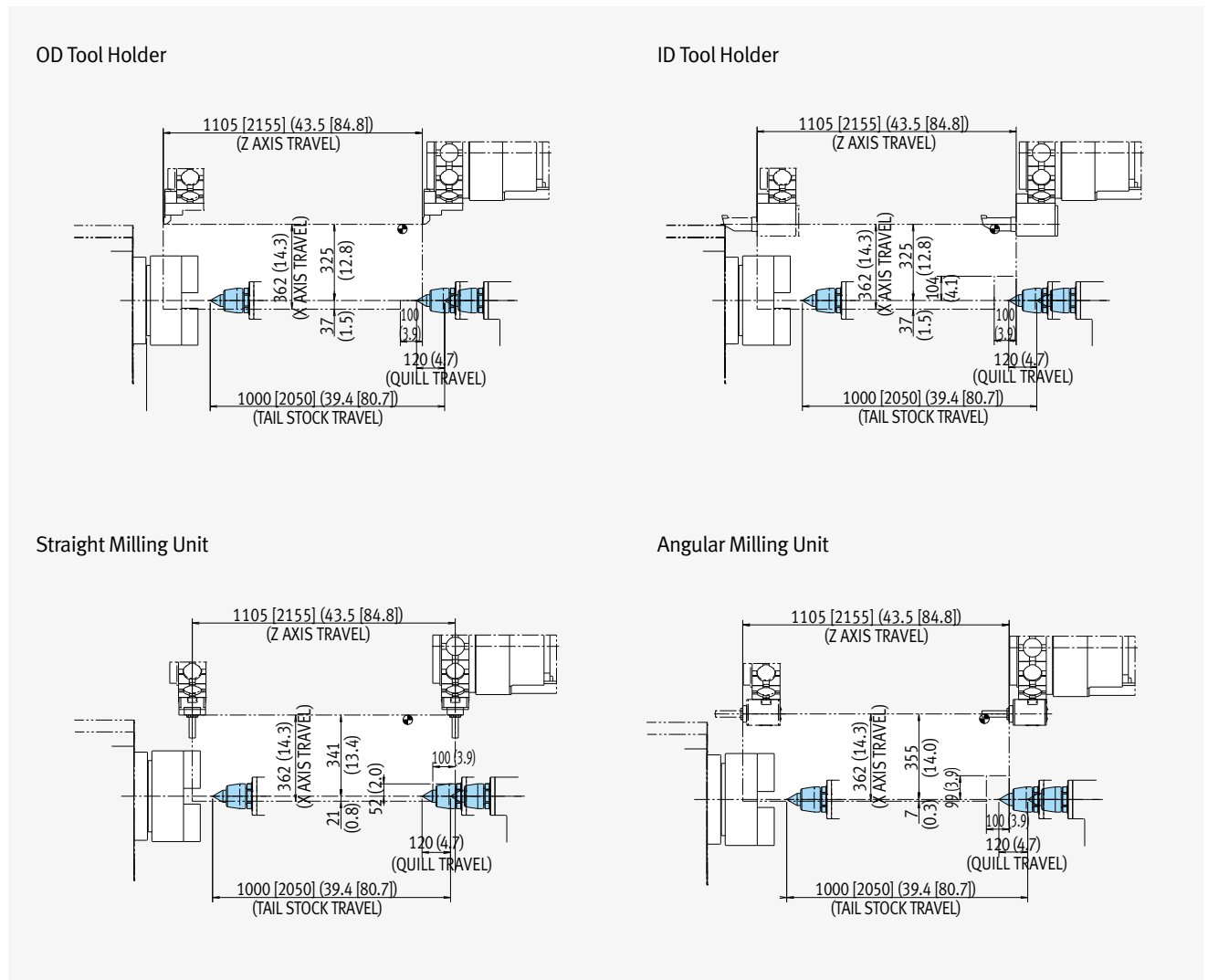
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PUMA 5100M[LM]

Unit : mm (inch)

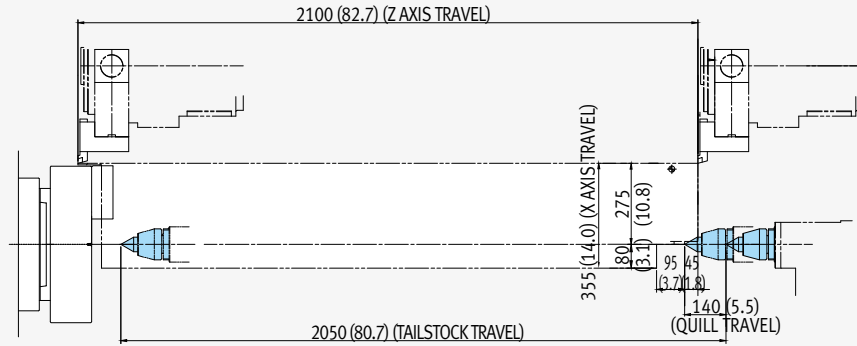


Working Range Diagram

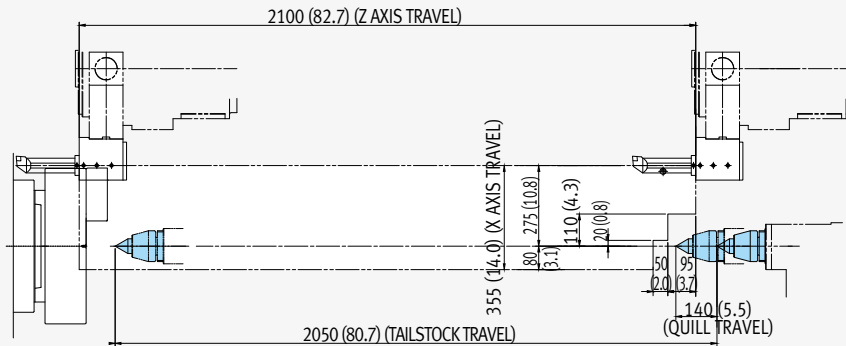
PUMA 5100LY

Unit : mm (inch)

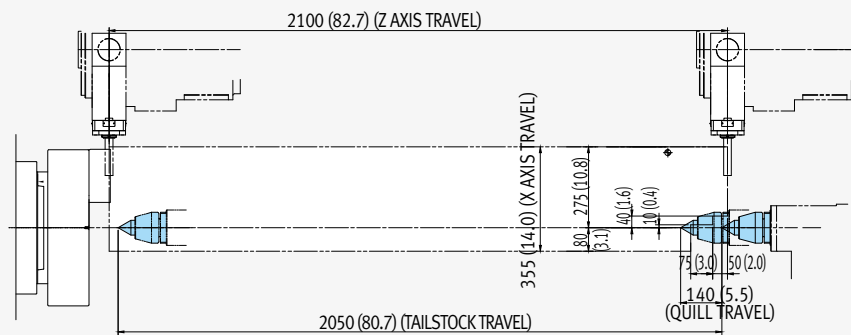
OD Tool Holder



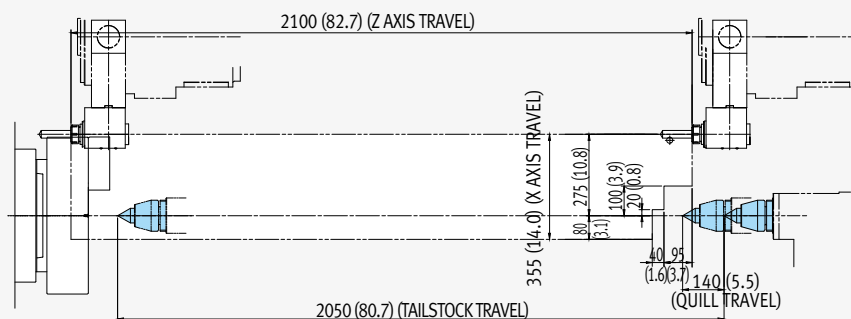
ID Tool Holder



Straight Milling Unit



Angular Milling Unit



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| Description | | Unit | PUMA 4100A[LA] | PUMA 4100B[LB] | PUMA 4100C[LC] | PUMA 4100MA[LMA] | |
|--------------------|---|------------|---|--|---|--|--|
| Capacity | Swing over bed | mm(inch) | 790 (31.1) | | | | |
| | Swing over saddle | mm(inch) | 590 (22.0) | | | | |
| | Recom. turning diameter | mm(inch) | 315 (12.4) | 380 (15.0) | | 315 (12.4) | |
| | Max. turning diameter | mm(inch) | 550 (21.7) | | | | |
| | Max. turning length | mm(inch) | 1074 [2124] (42.3 [83.6]) | 1042 [2092] (41.0 [82.4]) | 1002 [2052] (39.4 [80.8]) | 1010 [2060] (39.8 [81.1]) | |
| | Chuck size | inch | 12 | 15 | 21 | 12 | |
| | Bar working diameter | mm(inch) | 102 (4.0) | 116.5 (4.6) | 165.5 (6.5) | 102 (4.0) | |
| Travels | Travel distance | X-axis | mm(inch) | 352 (13.9) | | | |
| | | Z-axis | mm(inch) | 1105 [2155] (43.5 [84.8]) | | | |
| | | Y-axis | mm(inch) | - | | | |
| Feedrates | Rapid traverse rate | X-axis | m/min (ipm) | 16 (629.9) | | | |
| | | Z-axis | m/min (ipm) | 20 (787.4) | | | |
| | | Y-axis | m/min (ipm) | - | | | |
| Main Spindle | Max. spindle speed | r/min | 3000 | 2000 | 1500 | 3000 | |
| | Main spindle motor power (30min / Cont.) | kW(Hp) | 35 (S3 25%) / 26 / 22 (46.9(S3 25%) / 34.9 / 29.5) | | 37 / 30 (49.6 / 40.2) | 30 / 22 (40.2 / 29.5) | |
| | Max. spindle torque | N·m(ft·lb) | 1584 (1169.0) | 2379 (1755.7) | 3280 (2420.6) | 832 (614.0) | |
| | Spindle nose | ASA | A2-11 | A2-11 | A1-15 | A2-11 | |
| | Spindle bearing diameter (Front) | mm(inch) | 160 (6.3) | 180 (7.1) | 240 (9.4) | 160 (6.3) | |
| | spindle through hole diameter | mm(inch) | 115 (4.5) | 132 (5.2) | 181 (7.1) | 115 (4.5) | |
| | Min. spindle indexing angle (C-axis) | deg | - | | | | |
| Turret | No. of tool stations | ea | 12 {10}* | 10 {12}* | | | |
| | OD tool size | mm(inch) | 32 x 32 (1.3 x 1.3) | | | | |
| | Max. boring bar size | mm(inch) | 60 (2.4) | | | | |
| | Turret indexing time (1 station swivel) | s | 0.25 | | | | |
| | Max. rotary tool speed | r/min | - | | | | |
| | Rotary tool motor power (S3 15% / S3 25% / 30min / Cont.) | kW(Hp) | - | | | | |
| Tailstock | Tailstock travel | mm(inch) | 1000 [2050] (39.4 [80.7]) | | | | |
| | Quill diameter | mm(inch) | 120 (4.7) | | | | |
| | Quill travel | mm(inch) | 120 (4.7) | | | | |
| | Quill bore taper | MT | MT#6 {#5(Dead)}* | | | | |
| Power Source | Electric power supply (rated capacity) | kVA | 42.25 [43.17] | 42.25 [43.17] | 51.05 [51.97] | 43.18 [45.06] | |
| Machine Dimensions | Length | mm(inch) | 4654 [5774] (183.2 [227.3]) | | | | |
| | Width | mm(inch) | 2056 [2275] (80.9 [89.6]) | | | | |
| | Height | mm(inch) | 2194 [2272] (86.4 [89.4]) | | | | |
| | Weight | kg(lb) | 9450 [10900] (20833.4 [24030.0]) | 9950 [11400] (21935.7 [25132.3]) | 10450 [11900] (23038.0 [26234.6]) | 9600 [11050] (21164.1 [24360.7]) | |
| Control | NC system | - | | | | | |

| PUMA 4100MB[LMB] | PUMA 4100MC[LMC] | PUMA 5100A[LA] | PUMA 5100B[LB] | PUMA 5100C[LC] | PUMA 5100MA[LMA] | PUMA 5100MB[LMB] | PUMA 5100LYA | PUMA 5100LYB | PUMA 5100LYC |
|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---|--------------------------------------|--|--|-----------------|
| | | | | 900 (35.4) | | | | 880 (34.6) | |
| | | | | 690 (27.2) | | | | 817 (32.2) | |
| | 380 (15.0) | | | 380 (15.0) | | | | 380 (15.0) | |
| | 560 (22.0) | | | 650 (25.6) | | | | 550 (21.7) | |
| 978 [2028] (38.5 [79.8]) | 938 [1988] (36.9 [78.3]) | 1032 [2082] (40.6 [82.0]) | 992 [2042] (39.1 [80.4]) | | | 952 [2002] (37.5 [78.8]) | 2050 (80.7) | 2020 (79.5) | |
| 15 | 21 | 15 | 21 | - | 15 | 21 | 15 | 21 | - |
| 116.5 (4.6) | 165.5 (6.5) | 116.5 (4.6) | 165.5 (6.5) | - | 116.5 (4.6) | 165.5 (6.5) | 116.5 (4.6) | 165.5 (6.5) | - |
| | | | | 362 (14.3) | | | | 355 (14.0) | |
| | | | | 1105 [2155] (43.5 [84.8]) | | | | 2100 (82.7) | |
| | | | | - | | | | 150 (5.9) | |
| | | | | 16 (629.9) | | | | 20 (787.4) | |
| | | | | 20 (787.4) | | | | 18 (708.7) | |
| | | | | - | | | | 10 (393.7) | |
| 2000 | 1500 | 2000 | 1500 | 1000 | 2000 | 1500 | 2000 | 1500 | 1000 |
| 30 / 22 (40.2 / 29.5) | 37 / 30 (49.6 / 40.2) | 37 / 30 (49.6 / 40.2) | 45 / 37 (60.3 / 49.6) | | 37 / 30 (49.6 / 40.2) | 45 / 37 (60.3 / 49.6) | 37 / 30 (49.6 / 40.2) | 45 / 37 (60.3 / 49.6) | |
| 1611 (1188.9) | 2432 (1794.8) | 3280 (2420.6) | 4038 (2980.0) | 4463 (3293.7) | 2432 (1794.8) | 2957 (2182.3) | 2431 (1794.1) | 2957 (2182.3) | 3268 (2411.8) |
| A2-11 | A1-15 | A2-11 | A1-15 | ISO 702-4 No.20 | A2-11 | A1-15 | A2-11 | A1-15 | ISO 702-4 No.20 |
| 180 (7.1) | 240 (9.4) | 180 (7.1) | 240 (9.4) | 340 (13.4) | 180 (7.1) | 240 (9.4) | 180 (7.1) | 240 (9.4) | 340 (13.4) |
| 132 (5.2) | 181 (7.1) | 132 (5.2) | 181 (7.1) | 275 (10.8) | 132 (5.2) | 181 (7.1) | 132 (5.2) | 181 (7.1) | 275 (10.8) |
| 0.001 | | | | - | | 0.001 | | 0.001 | |
| 12 | | | | 10 {12}* | | 12 | | 12 | |
| 25 x 25 (1.0 x 1.0) | | | 32 x 32 (1.3 x 1.3) | | 25 x 25 {32 x 32}* (1.0 x 1.0 {1.3 x 1.3}*) | | | 25 x 25 {32 x 32}* (1.0 x 1.0 {1.3 x 1.3}*) | |
| 60 (2.4) | | | 80 (3.1) | | 60 (2.4) | | | 60 (2.4) | |
| 0.25 | | | 0.25 | | 0.25 | | | 0.25 | |
| 4000 | | | - | | 4000 | | | 4000 | |
| 23 / 15 / 11 / 7.5 (30.8 / 20.1 / 14.8 / 10.1) | | | | - | 23 / 15 / 11 / 7.5 (30.8 / 20.1 / 14.8 / 10.1) | | 23 / 15 / 11 / 7.5 (30.8 / 20.1 / 14.8 / 10.1) | | |
| | | | | 1000 [2050] (39.4 [80.7]) | | | | 2050 (80.7) | |
| | | | | 120 (4.7) | | | | 120 (4.7) | |
| | | | | 120 (4.7) | | | | 140 (5.5) | |
| | | | | MT#6 {#5(Dead)}* | | | | MT#6 {#5(Dead)}* | |
| 43.18 [45.06] | 51.98 [53.86] | 52.55 [52.55] | 60.25 [60.25] | 60.25 [60.25] | 53.86 [53.86] | 61.56 [61.56] | 61.09 | 68.79 | 68.79 |
| 4654 [5774] (183.2 [227.3]) | | | 4759 [5879] (187.4 [231.5]) | | 4759 [5879] (187.4 [231.5]) | | | 5980 (235.4) | |
| 2056 [2275] (80.9 [89.6]) | | | 2056 [2275] (80.9 [89.6]) | | 2056 [2275] (80.9 [89.6]) | | | 2522 (99.3) | |
| 2194 [2272] (86.4 [89.4]) | | | 2194 [2272] (86.4 [89.4]) | | 2194 [2272] (86.4 [89.4]) | | | 2885 (113.6) | |
| 10100 [11550] (22266.4 [25463.0]) | 10600 [12050] (23368.7 [26565.3]) | 10100 [11550] (22266.4 [25463.0]) | 10600 [12050] (23368.7 [26565.3]) | 10650 [12100] (23478.9 [26675.5]) | 10250 [11700] (22597.0 [25793.7]) | 10750 [12200] (23699.3 [26896.0]) | 13000 (28659.7) | | |

DOOSAN FANUC i / FANUC 32i (SIEMENS S828D / S840D **)

* { } : Option
** : Please contact Doosan

NC Unit Specifications

● Standard ○ Optional X N/A



Basic Information

Basic Structure
Cutting
Performance

Detailed Information

Options
Applications
Capacity Diagram
Specifications

Customer Support Service

| No. | Item | DOOSAN FANUC i | | | FANUC 32i | | |
|-----|--|--------------------------------|----------|------------|-----------|----------|------------|
| | | 2-axis | M | Y | 2-axis | M | Y |
| 1 | Controlled axes | 2(X,Z) | 3(X,Z,C) | 4(X,Z,C,Y) | 2(X,Z) | 3(X,Z,C) | 4(X,Z,C,Y) |
| 2 | Simultaneously controlled axes | 2 axes | 3 axes | 4 axes | 2 axes | 3 axes | 4 axes |
| 3 | Cs contouring control | X | ● | ● | X | ● | ● |
| 4 | Torque control | ● | ● | ● | ● | ● | ● |
| 5 | HRV2 control | ● | ● | ● | ● | ● | ● |
| 6 | Inch/metric conversion | ● | ● | ● | ● | ● | ● |
| 7 | Stored stroke check 1 | ● | ● | ● | ● | ● | ● |
| 8 | Stored stroke check 2,3 | ● | ● | ● | ○ | ○ | ○ |
| 9 | Stored limit check before move | ● | ● | ● | ○ | ○ | ○ |
| 10 | Chamfering on/off | ● | ● | ● | ● | ● | ● |
| 11 | Unexpected disturbance torque detection function | ● | ● | ● | ● | ● | ● |
| 12 | Position switch | ● | ● | ● | ● | ● | ● |
| 13 | DNC operation | Included in RS232C interface. | ● | ● | ● | ● | ● |
| 14 | DNC operation with memory card | | ● | ● | ● | ● | ● |
| 15 | Tool retract and recover | X | X | X | ○ | ○ | ○ |
| 16 | Wrong operation prevention | ● | ● | ● | ● | ● | ● |
| 17 | Dry run | ● | ● | ● | ● | ● | ● |
| 18 | Single block | ● | ● | ● | ● | ● | ● |
| 19 | Reference position shift | ● | ● | ● | ● | ● | ● |
| 20 | Handle interruption | ● | ● | ● | ● | ● | ● |
| 21 | Incremental feed | x1, x10, x100 | ● | ● | ● | ● | ● |
| 22 | Manual handle retrace | | ○ | ○ | ○ | ○ | ○ |
| 23 | Active block cancel | X | X | X | ○ | ○ | ○ |
| 24 | Nano interpolation | ● | ● | ● | ● | ● | ● |
| 25 | Linear interpolation | ● | ● | ● | ● | ● | ● |
| 26 | Circular interpolation | ● | ● | ● | ● | ● | ● |
| 27 | Polar coordinate interpolation | X | ● | ● | X | ● | ● |
| 28 | Cylindrical interpolation | X | ● | ● | X | ● | ● |
| 29 | Helical interpolation | X | ○ | ● | X | ○ | ● |
| 30 | Thread cutting, synchronous cutting | ● | ● | ● | ● | ● | ● |
| 31 | Multi threading | ● | ● | ● | ● | ● | ● |
| 32 | Thread cutting retract | ● | ● | ● | ● | ● | ● |
| 33 | Continuous threading | ● | ● | ● | ● | ● | ● |
| 34 | Variable lead thread cutting | ● | ● | ● | ● | ● | ● |
| 35 | Circular thread cutting | X | X | X | ○ | ○ | ○ |
| 36 | Polygon machining with two spindles | X | ● | ● | X | ○ | ○ |
| 37 | High-speed skip | Input signal is 8 points. | ● | ● | ● | ○ | ○ |
| 38 | 2nd reference position return | G30 | ● | ● | ● | ● | ● |
| 39 | 3rd/4th reference position return | | ● | ● | ● | ○ | ○ |
| 40 | Override cancel | | ● | ● | ● | ● | ● |
| 41 | AI contour control I | | ○ | ○ | ○ | ○ | ● |
| 42 | AI contour control II | | ○ | ○ | ○ | ○ | ○ |
| 43 | Rapid traverse block overlap | | ● | ● | ● | ● | ● |
| 44 | Optional block skip | 9 pieces | ● | ● | ● | ● | ● |
| 45 | Absolute/incremental programming | Combined use in the same block | ● | ● | ● | ● | ● |
| 46 | Diameter/Radius programming | | ● | ● | ● | ● | ● |
| 47 | Automatic coordinate system setting | | ● | ● | ● | ● | ● |
| 48 | Workpiece coordinate system | Part program storage size | ● | ● | ● | ● | ● |
| 49 | Workpiece coordinate system preset | | ● | ● | ● | ○ | ○ |
| 50 | Addition of workpiece coordinate system | 48 pairs | X | X | X | ○ | ○ |
| 51 | Direct drawing dimension programming | | ● | ● | ● | ● | ● |
| 52 | G code system | A | ● | ● | ● | ● | ● |
| 53 | G code system | B/C | ● | ● | ● | ● | ● |

| No. | Item | | DOOSAN FANUC i | | | FANUC 32i | | | |
|-----|---|--|----------------------------|---|---|-----------|---|---|---|
| | | | 2-axis | M | Y | 2-axis | M | Y | |
| 54 | PROGRAM INPUT | Chamfering/Corner R | ● | ● | ● | ○ | ○ | ○ | |
| 55 | | Custom macro | ● | ● | ● | ● | ● | ● | |
| 56 | | Addition of custom macro common variables | #100 - #199, #500 - #999 | ● | ● | ● | ○ | ○ | ○ |
| 57 | | Interruption type custom macro | | ● | ● | ● | ○ | ○ | ○ |
| 58 | | Canned cycle | | ● | ● | ● | ● | ● | ● |
| 59 | | Multiple repetitive cycles | G70~G76 | ● | ● | ● | ● | ● | ● |
| 60 | | Multiple repetitive cycles II | Pocket profile | ● | ● | ● | ● | ● | ● |
| 61 | | Canned cycle for drilling | | ● | ● | ● | ● | ● | ● |
| 62 | | Automatic corner override | | X | X | X | ○ | ○ | ○ |
| 63 | | Coordinate system shift | | ● | ● | ● | ● | ● | ● |
| 64 | | Direct input of coordinate system shift | | ● | ● | ● | ● | ● | ● |
| 65 | Pattern data input | | ● | ● | ● | ○ | ○ | ○ | |
| 66 | OPERATION GUIDANCE FUNCTION | EZ Guidei(Conversational Programming Solution) | ● | ● | ● | ● | ● | ● | |
| 67 | | EZ Operation package | | ● | ● | ● | ● | ● | ● |
| 68 | AUXILIARY / SPINDLE SPEED FUNCTION | Constant surface speed control | ● | ● | ● | ● | ● | ● | |
| 69 | | Spindle override | 0 - 150% | ● | ● | ● | ● | ● | ● |
| 70 | | Spindle orientation | | ● | ● | ● | ● | ● | ● |
| 71 | | Rigid tap | | ● | ● | ● | ● | ● | ● |
| 72 | | Arbitrary speed threading | | ○ | ○ | ○ | ○ | ○ | ○ |
| 73 | TOOL FUNCTION / TOOL COMPENSATION | Tool offset pairs | 32-pairs | X | X | X | X | X | X |
| 74 | | | 64-pairs | ● | ● | ● | ● | ● | ● |
| 75 | | | 99-pairs | ○ | ○ | ○ | ○ | ○ | ○ |
| 76 | | | 200-pairs | X | X | X | ○ | ○ | ○ |
| 77 | | | 400-pairs | X | X | X | ○ | ○ | ○ |
| 78 | | | 499-pairs | X | X | X | ○ | ○ | ○ |
| 79 | | | 999-pairs | X | X | X | ○ | ○ | ○ |
| 80 | | | 2000-pairs | X | X | X | ○ | ○ | ○ |
| 81 | | Tool offset | | ● | ● | ● | ● | ● | ● |
| 82 | Tool radius/Tool nose radius compensation | | ● | ● | ● | ● | ● | ● | |
| 83 | Tool geometry/wear compensation | | ● | ● | ● | ● | ● | ● | |
| 84 | Automatic tool offset | | ● | ● | ● | ● | ● | ● | |
| 85 | Direct input of offset value measured B | | ● | ● | ● | ● | ● | ● | |
| 86 | Tool life management | | ● | ● | ● | ● | ● | ● | |
| 87 | ACCURACY COMPENSATION FUNCTION | Backlash compensation for each rapid traverse and cutting feed | ● | ● | ● | ● | ● | ● | |
| 88 | | Stored pitch error compensation | | ● | ● | ● | ● | ● | ● |
| 89 | EDITING OPERATION | Part program storage size & Number of registerable programs | 640M(256KB)_500 programs | X | X | X | ● | ● | ● |
| 90 | | | 1280M(512KB)_1000 programs | X | X | X | ○ | ○ | ○ |
| 91 | | | 2560M(1MB)_1000 programs | X | X | X | ○ | ○ | ○ |
| 92 | | | 5120M(2MB)_1000 programs | X | X | X | ○ | ○ | ○ |
| 93 | | | 1280M(512KB)_400 programs | ● | ● | ● | X | X | X |
| 94 | | | 5120M(2MB)_400 programs | ○ | ○ | ○ | X | X | X |
| 95 | Program protect | | ● | ● | ● | ● | ● | ● | |
| 96 | Password function | | ● | ● | ● | ● | ● | ● | |
| 97 | DATA INPUT / OUTPUT | Fast data server | ○ | ○ | ○ | ○ | ○ | ○ | |
| 98 | | External data input | | ● | ● | ● | ○ | ○ | ○ |
| 99 | | Memory card input/output | | ● | ● | ● | ● | ● | ● |
| 100 | | USB memory input/output | | ● | ● | ● | ● | ● | ● |
| 101 | | Automatic data backup | | ○ | ○ | ○ | ○ | ○ | ● |
| 102 | INTERFACE FUNCTION | Embedded Ethernet | ● | ● | ● | ● | ● | ● | |
| 103 | | Fast Ethernet | | ○ | ○ | ○ | ○ | ○ | ○ |
| 104 | OTHERS | Display unit | 10.4" color LCD | ● | ● | ● | ● | ● | ● |
| 105 | | | 15" color LCD | X | X | X | ○ | ○ | ○ |
| 106 | | Robot interface | with PMC I/O module | ○ | ○ | ○ | ○ | ○ | ○ |
| 107 | | | with PROFIBUS-DP | ○ | ○ | ○ | ○ | ○ | ○ |

Responding to Customers Anytime, Anywhere

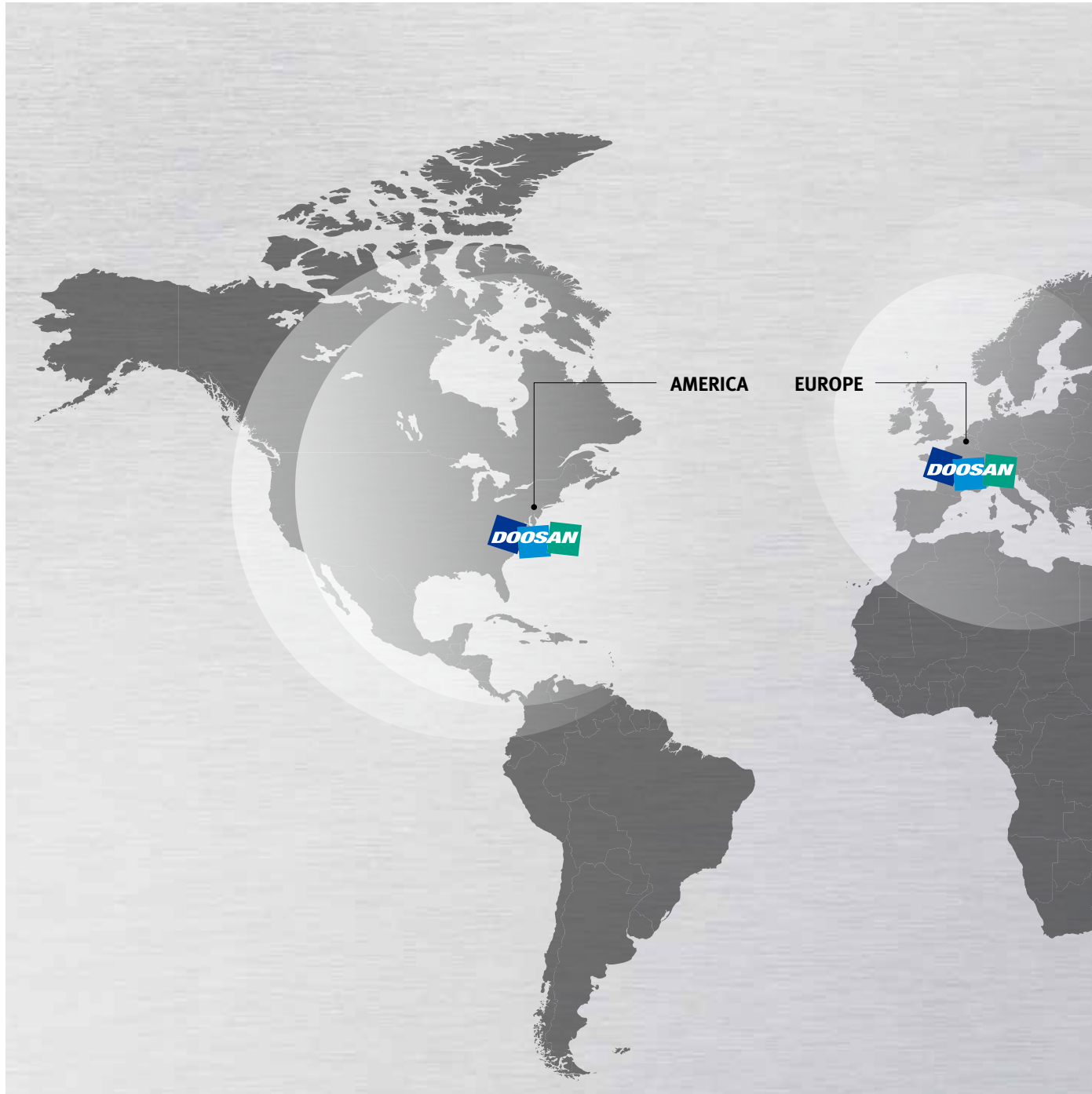
Basic Information

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Global Service Support Network

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Dealer Networks

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Technical Center: Sales Support, Service Support, Parts Support

Doosan Machine Tools' Global Network, Responding to Customer's Needs nearby, Anytime, Anywhere

Doosan machine tools provides a system-based professional support service before and after the machine tool sale by responding quickly and efficiently to customers' demands.

By supplying spare parts, product training, field service and technical support, we can provide top class support to our customers around the world.



Domestic Service Support Network

Integrated Support Centers

2

Sales Branch Offices

7

Post-Sales Service Centers

6

Designated Repair Service Centers

31

Customer Support Service

We help customers to achieve success by providing a variety of professional services from pre-sales consultancy to post-sales support.

Supplying Parts



- Supplying a wide range of original Doosan spare parts
- Parts repair service

Field Services



- On site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair

Technical Support



- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy

Training



- Programming / machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering

Major Specifications

PUMA 4100/5100 series



| Description | Unit | PUMA 4100 series (A / B / C) | PUMA 5100 series (A / B / C) | PUMA 5100LY series (A / B / C) |
|-------------------------------|-----------|---|---------------------------------------|---------------------------------------|
| Max. turning diameter | mm (inch) | 550 (21.7) | 650 (25.6) | 550 (21.7) |
| Max. turning length [Std./L]* | mm (inch) | 1000 [2000] (40 [80]) | 1000 [2000] (40 [80]) | 2000 (80) |
| Chuck size | inch | 12 / 15 / 21 | 15 / 21 / Order made | 15 / 21 / Order made |
| Spindle through hole diameter | mm (inch) | 115 / 132 / 181 (4.5 / 5.2 / 7.1) | 132 / 181 / 275 (5.2 / 7.1 / 10.8) | 132 / 181 / 275 (5.2 / 7.1 / 10.8) |
| Max. spindle speed | r/min | 3000 / 2000 / 1500 | 2000 / 1500 / 1000 | 2000 / 1500 / 1000 |
| NC system | - | DOOSAN FANUC i / FANUC 32i (SIEMENSE S828D / S840D) | | |

* approximate value



Doosan Machine Tools

<http://www.doosanmachinetools.com>

www.facebook.com/doosanmachinetools

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