PUMA GT2100 series
Global Standard Turning Center
PUMA GT2100 series

PUMA GT2100 is a Global Standard Turning Center created with DOOSAN’s vast experience and technical prowess to become the world’s leading turning center on the market.
Enhanced Productivity with High Speed, High Rigidity Structure
- Tool service life is further extended by a high rigidity, low vibration structure design
- Higher spindle acceleration/deceleration and shorter tool replacement time

Easy and Convenient Operation
- Compact installation and user-oriented design guarantees excellent accessibility, operability, and maintainability

Eco-Friendly Design, Minimized Owner’s Cost
- Automatic power off/shutdown and LED lighting in addition to minimized power consumption rate of major units
- New concept in oil-water separation extends service life of cutting fluid

Power Consumption

<table>
<thead>
<tr>
<th>Previous Models</th>
<th>PUMA GT2100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19% *

* Based on data from manufacturer self-testing
High Speed, High Rigidity Structure

The bed optimized with computer analysis provides high-level of rigidity by application of box-type guideway. Productivity has been enhanced by higher spindle acceleration/deceleration and shorter tool changing time.

High Rigidity Bed

Cast design optimized with 3D computerized analysis has successfully increased natural frequency by as much as 42% compared to previous models. Stable cutting performance with minimized cutting vibration has been achieved in addition to extended tool service life.

Wide ribs and a box-type slideway further reinforce bed rigidity. The distance between cutting point and slideway ensures an optimized layout to minimize vibration.

Comparison of Bed Rigidity

Stable rigidity is provided by an optimal cast design that has increased natural frequency by 42% compared with previous models.

Comparison of Bed Slideway Deformation by Carriage Position

Up to 3 times higher static rigidity than previous models
High Rigidity, Low Inertial Spindle

An optimized spindle overhang design has minimized the rotational inertial load, enhanced rigidity, and shortened acceleration/deceleration time.

Previous Models

4.37 / 3.38 s

PUMA GT2100

3.79 / 3.18 s

Note: Spindle acceleration/deceleration times are based on the same drive motor (0 → Max, Max → 0)

High Rigidity Feeding Structure

The optimized feeder layout in addition to a feeder design with a low center of gravity produces stable feed at high travel speed and soft feed at low travel speed. A newly designed turret driven with a high-efficiency servo motor guarantees powerful machining and stable tool change performance at high speed.

0.15 s

Note: Indexing time (1 station swivel)
Easy and Convenient Operation

Ease of operation and convenience has been significantly improved with an ergonomic, modular design. A compact design structure allows for higher levels of productivity in a smaller space.

Maximizing Available Space

Installation area has been reduced by 15% from previous models.

<table>
<thead>
<tr>
<th>Previous Models</th>
<th>5.2 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUMA GT2100</td>
<td>4.57 m²</td>
</tr>
</tbody>
</table>

Comfortable Accessibility

Access to the tool post is optimized for the operator’s convenience.

EZ function

Simple tool setter function which memorizes the previous fix position of the tail stock ensuring that the carriage moves to the fixed tail stock position automatically whenever necessary.

**EZ automatic tail stock function**

The Z axis can monitor the position of the tail stock. When the tail stock has been moved, the Z axis can be moved to the fixed tail stock position by pressing a button on the control panel. This makes the task of positioning the tail stock much easier.

**EZ tool setter function**

When a tool touches the tool setter in automatic or manual mode, the necessary axis comes forward at a constant speed to touch the tool and returns automatically.
Easily Cleaned Coolant Tank

The coolant (cutting fluid) tank can be drawn out without removing the chip pan and conveyor. The user can clean the tank easily.

Excellent Maintainability

The cover has been redesigned to be easily removed for convenient service access.

Full Sliding Cover

Application of a full cover is to prevent the heat of chips from being transferred to the bed and guideway. The guideway can be protected and chips can be removed easily.
Eco-Friendly Design to Reduce Costs

Enhanced energy efficiency lowers operating costs and protects the environment.

Hydraulic Unit

Energy-saving, eco-friendly unit is 23% more efficient compared with previous models.

Power consumption (2Hr)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Models</td>
<td>1.7 kWh</td>
</tr>
<tr>
<td>PUMA GT2100</td>
<td>1.3 kWh</td>
</tr>
<tr>
<td>23%↓</td>
<td></td>
</tr>
</tbody>
</table>

LED Work Light and Signal tower

LED lamps provide high energy efficiency even at low voltage and have more than 10 times the lifespan of halogen lamps.
Automatic Light Switch

The work light automatically turns off after 10 minutes of no switch operation on the operator's panel.

Automatic Shutdown Function

If there has been no switch operation input on the operator's panel for 10 minutes, the spindle, servo motor, chip conveyor motor, and coolant tank motor, are all automatically shut down to save energy and protect the machine.

Oil Skimmer

A new oil skimmer with excellent oil-water separating performance extends coolant service life. Dust is minimized to improve the work environment.
Basic Mechanism

Spindle

The optimized spindle overhang design has minimized rotational inertial load, enhanced rigidity, and shortened acceleration/deceleration time. In addition, the front bearing (a high-speed, high-precision, angular ball bearing) minimizes heat generation and enables stable spindle drive even after long, high speed operation.

Slide

Stable feed of the slide is achieved by a low-inertial design with a low center of gravity. The axis is driven by a large diameter, high precision ball screw supported by high precision bearings in addition to employing a double-anchor pretension system that minimizes thermal expansion at high speed, high accuracy, and high rigidity.

New Tool Post Concept

The tool post driven by a high-efficiency servo motor provides greater reliability with a reduced number of parts. The tool drive with a minimized number of parts is cooled with air and oil, thus generating much less heat. Noise from the bevel gear is significantly reduced to enable long periods of milling work at high speed, thus improving both productivity and accuracy.

High Reliability BMT Turret (PUMA GT2100M / MB)

The BMT55P tooling is strongly fixed to the turret with four bolts and keys to provide powerful machining performance with high efficiency, high rigidity, and a high precision internal drive system. Stable performance is guaranteed even after extensive milling work.

Max. speed of rotating tool
5000 r/min

Max. power output of rotating tool
5.5 kW (7.4 Hp)

Max. torque of rotating tool
47.1 N-m
(34.8 ft-lbs)
Splash Guard

The front door is provided with safety devices on the upper and lower guide to protect the operator. The door remains firmly on the machine even in an emergency situation.

Chip Conveyor

Hinge type, Magnetic scraper type and Screw type chip conveyors are available and the direction of chip discharge can be selected to backward-right or backward as appropriate.

General type chip conveyor
- Hinge type, Magnetic scraper type

Screw type chip conveyor

In case of Screw type chip conveyor, the length of protrusion is reduced by as much as 20% than those of conventional chip conveyors to optimize available space. The chips are compressed and discharged by a screw reduced by more than 75% in volume. Easy handling of the chips is possible as the coolant is not discharged with the chips.

Coolant Chiller

Heat generated from cutting is transferred to the machine, which causes thermal deformation and deterioration in machining accuracy. The coolant cooling system controls the temperature of the cutting fluid to minimize thermal deformation and maintain high machining accuracy. The system is highly recommended for high-pressure cutting fluid pumps or non-water-based cutting fluid to achieve high-accuracy machining.
Easy CNC Set-up and EOP

Easy Set-up

Operating Console
1 Doosan-Fanuc i series
2 10.4” color TFT LCD monitor
   - Large 10.4” LCD screen showing error messages of the machine and controller improves operator’s work convenience.
3 PCMCIA Card
4 USB Port
5 Ethernet Connectivity (embedded)
6 Swing-type Panel
   - The operation panel can swing up to 88° to provide the operator with convenience during work.

EOP (Easy Operation Package)

Programming

G Code List
- Description of G Code can be displayed on the screen when necessary.

M Code List
- Description of M Code can be displayed on the screen when necessary.

Calculator
- Automatic calculation including cutting size and conditions.

Operation / Maintenance

Tool Load Monitor
- To prevent mechanical damage when feeding, the wear or fracture of tools is detected according to pre-set load limits of the spindle and shafts.

Operation Rate - User Log In
- The function to measuring and monitoring the rate of machine operation.

Back Up Custom Data
- The function to save the acquired load information per item from the tool load monitor to the tool table. Information stored can be reloaded for use in the tool load monitor.

Interactive Programming

The EZ Guide supports the entire operation of the NC machining tool from programming, to checking by animation, to processing after programming including tool compensation and coordinate system measurement, and the inspection of finished parts. Program error can be identified by animation. The ISO code programming is the most popular type for NC machine tools enhanced compatibility with CAD/CAM.
PUMA GT2100 Series provides high machining performance in a wide variety of cutting processes.

### OD Turning

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>PUMA GT 2100</th>
<th>GT 2100B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip removal rate</td>
<td>cm³/min (inch³/min)</td>
<td>551 (33.6)</td>
<td>519 (31.6)</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>m/min (ipm)</td>
<td>210 (8267.7)</td>
<td>210 (8267.7)</td>
</tr>
<tr>
<td>Feedrate</td>
<td>mm/rev</td>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>t/min</td>
<td>965</td>
<td>563</td>
</tr>
<tr>
<td>Cutting depth</td>
<td>mm (inch)</td>
<td>4.5 (0.2)</td>
<td>4.5 (0.2)</td>
</tr>
</tbody>
</table>

### U-drill

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>PUMA GT 2100</th>
<th>GT 2100B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip removal rate</td>
<td>cm³/min (inch³/min)</td>
<td>472 (28.8)</td>
<td>567 (34.6)</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>m/min (ipm)</td>
<td>200 (7874)</td>
<td>200 (7874)</td>
</tr>
<tr>
<td>Feedrate</td>
<td>mm/rev</td>
<td>0.15</td>
<td>0.18</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>t/min</td>
<td>1010</td>
<td>1011</td>
</tr>
<tr>
<td>U-drill diameter</td>
<td>mm (inch)</td>
<td>63 (2.5)</td>
<td>63 (2.5)</td>
</tr>
</tbody>
</table>

### End mill

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>PUMA GT 2100</th>
<th>Carbon steel (SM45C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip removal rate</td>
<td>cm³/min (inch³/min)</td>
<td>90 (5.5)</td>
<td>90 (5.5)</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>m/min (ipm)</td>
<td>60 (2362.2)</td>
<td>60 (2362.2)</td>
</tr>
<tr>
<td>Feedrate</td>
<td>mm/rev/min</td>
<td>250 (9.8)</td>
<td>250 (9.8)</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>t/min</td>
<td>1060</td>
<td>1060</td>
</tr>
<tr>
<td>Cutting depth</td>
<td>mm (inch)</td>
<td>20 (0.8)</td>
<td>20 (0.8)</td>
</tr>
<tr>
<td>Tool diameter</td>
<td>mm (inch)</td>
<td>18 (0.7)</td>
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### Tapping

<table>
<thead>
<tr>
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<th>Unit</th>
<th>PUMA GT 2100M</th>
<th>Carbon steel (SM45C)</th>
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<tbody>
<tr>
<td>Tap size</td>
<td></td>
<td>M20 x P2.5</td>
<td>M20 x P2.5</td>
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<tr>
<td>Cutting speed</td>
<td>m/min (ipm)</td>
<td>15 (590.6)</td>
<td>15 (590.6)</td>
</tr>
<tr>
<td>Feedrate</td>
<td>mm/min (ipm)</td>
<td>600 (23.6)</td>
<td>600 (23.6)</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>t/min</td>
<td>240</td>
<td>240</td>
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</table>

### Face mill

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>PUMA GT 2100M</th>
<th>Carbon steel (SM45C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip removal rate</td>
<td>cm³/min (inch³/min)</td>
<td>27 (1.7)</td>
<td>27 (1.7)</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>m/min (ipm)</td>
<td>120 (4724.4)</td>
<td>120 (4724.4)</td>
</tr>
<tr>
<td>Feedrate</td>
<td>mm/min (ipm)</td>
<td>190 (7.5)</td>
<td>190 (7.5)</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>t/min</td>
<td>1011</td>
<td>1011</td>
</tr>
<tr>
<td>Cutting depth</td>
<td>mm (inch)</td>
<td>4 (0.2)</td>
<td>4 (0.2)</td>
</tr>
<tr>
<td>Tool diameter</td>
<td>mm (inch)</td>
<td>63 (2.5)</td>
<td>63 (2.5)</td>
</tr>
</tbody>
</table>

* The above data is based on the manufacturer testing and may vary according to operating conditions.
Main Spindle Power - Torque Diagram (GT 2100 / M)

Max. spindle speed 4500 r/min
Main spindle motor power (15min. / cont.)
18.5 / 15 kW
(24.8 / 20.1 Hp)

Main Spindle Power - Torque Diagram (GT 2100B / MB)

Max. spindle speed 3500 r/min
Main spindle motor power (15min. / cont.)
18.5 / 15 kW
(24.8 / 20.1 Hp)
External Dimensions

GT 2100 / M

Top view

Front view

Side view

GT 2100B / MB

Top view

Front view

Side view

Unit: mm (inch)
Tooling System

PUMA GT2100

12st. Turret

- O.D Tool Clamper
- Extended O.D Tool Holder
- Face Tool Holder
- I.D Tool Holder (H40)
- Boring Bar Sleeves
  - ø10 (0.375") H40
  - ø12 (0.5") H40
  - ø16 (0.625") H40
  - ø20 (0.75") H40
  - ø25 (1.0") H40
  - ø32 (1.25") H40
- OPT.
- U-Drill Cap
- OPT.
- Ø40 (1.5")
- OPT.
- Ø20 (0.75") H40
- Ø25 (1.0") H40
- Ø32 (1.25") H40
- Drill Sockets
  - MT#1 H40
  - MT#2 H40
  - MT#3 H40
- OPT.
- Ø20 (0.75") H40
- Ø25 (1.0") H40
- Ø32 (1.25") H40
- Drill Sockets
  - MT#1 H40
  - MT#2 H40
  - MT#3 H40

10st. Turret

- O.D Tool Clamper
- Extended O.D Tool Holder
- Face Tool Holder
- I.D Tool Holder (H40)
- Boring Bar Sleeves
  - ø10 (0.375") H40
  - ø12 (0.5") H40
  - ø16 (0.625") H40
  - ø20 (0.75") H40
  - ø25 (1.0") H40
  - ø32 (1.25") H40
- OPT.
- U-Drill Cap
- OPT.
- Ø40 (1.5")
- OPT.
- Ø20 (0.75") H40
- Ø25 (1.0") H40
- Ø32 (1.25") H40
- Drill Sockets
  - MT#1 H40
  - MT#2 H40
  - MT#3 H40

PUMA GT2100B

- O.D Tool Clamper
- Extended O.D Tool Holder
- Face Tool Holder
- I.D Tool Holder (H40)
- Boring Bar Sleeves
  - ø10 (0.375") H40
  - ø12 (0.5") H40
  - ø16 (0.625") H40
  - ø20 (0.75") H40
  - ø25 (1.0") H40
  - ø32 (1.25") H40
- OPT.
- U-Drill Cap
- OPT.
- Ø40 (1.5")
- OPT.
- Ø20 (0.75") H40
- Ø25 (1.0") H40
- Ø32 (1.25") H40
- Drill Sockets
  - MT#1 H40
  - MT#2 H40
  - MT#3 H40

Unit: mm (inch)
Boring Bar

O.D Tool Sleeves
- Ø10 (0.375”) H40
- Ø12 (0.5”) H40
- Ø16 (0.625”) H40
- Ø20 (0.75”) H40
- Ø25 (1.0”) H40
- Ø32 (1.25”) H40

U-Drill Sleeves
- Ø20 (0.75”) H40
- Ø25 (1.0”) H40
- Ø32 (1.25”) H40

U-Drill Cap

Collet (ER25)
- Ø2~Ø16

Drill Sockets
- MT#1-H40
- MT#2-H40
- MT#3-H40

OPT.

Weldon Adapter

Collet Adapter

Milling Arbor Adapter

Straight Milling Head for Side Cutting

Angular Milling Head for Face Cutting

Single OD Tool Holder

Face Tool Holder

Single ID Tool Holder

Milling Arbor

Adaptor

Boring Bar Sleeves

Boring Bar

U-Drill

Drill

OPT.

Weldon Adapter

Collet (ER25)
- Ø2~Ø16

Drill Sockets
- MT#1-H40
- MT#2-H40
- MT#3-H40

OPT.

Weldon Adapter

Collet (ER25)
- Ø2~Ø16

Drill Sockets
- MT#1-H40
- MT#2-H40
- MT#3-H40

OPT.

Weldon Adapter

Collet (ER25)
- Ø2~Ø16

Drill Sockets
- MT#1-H40
- MT#2-H40
- MT#3-H40

Unit: mm ( inch )
PUMA GT2100

Working Ranges

**OD Tool**

<table>
<thead>
<tr>
<th>OD Tool</th>
<th>580 (22.8) (2X-AXIS TRAVEL)</th>
<th>78 (3.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>105 (4.1)</td>
<td>575 (22.6) (2X-AXIS REP. POINT)</td>
<td>5 (0.2)</td>
</tr>
</tbody>
</table>

**Extended OD Tool**

<table>
<thead>
<tr>
<th>Extended OD Tool</th>
<th>580 (22.8) (2X-AXIS TRAVEL)</th>
<th>78 (3.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>105 (4.1)</td>
<td>575 (22.6) (2X-AXIS REP. POINT)</td>
<td>5 (0.2)</td>
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</table>

**ID Tool**

<table>
<thead>
<tr>
<th>ID Tool</th>
<th>580 (22.8) (2X-AXIS TRAVEL)</th>
<th>78 (3.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>105 (4.1)</td>
<td>575 (22.6) (2X-AXIS REP. POINT)</td>
<td>5 (0.2)</td>
</tr>
</tbody>
</table>

**Face Tool**

<table>
<thead>
<tr>
<th>Face Tool</th>
<th>580 (22.8) (2X-AXIS TRAVEL)</th>
<th>78 (3.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>105 (4.1)</td>
<td>575 (22.6) (2X-AXIS REP. POINT)</td>
<td>5 (0.2)</td>
</tr>
</tbody>
</table>

**Tool Interference Diagram**

Unit: mm (inch)
PUMA GT2100M
Working Ranges

Unit: mm (inch)

OD Tool

ID Tool

Face Tool

Straight Milling

Angular Milling

Tool Interference Diagram
Working Ranges, Tool Interference Diagram

PUMA GT2100B
Working Ranges

OD Tool

Extended OD Tool

ID Tool

Face Tool

Tool Interference Diagram

10 st. turret

12 st. turret
PUMA GT2100MB

Working Ranges

OD Tool

ID Tool

Face Tool

Straight Milling

Angular Milling

Tool Interference Diagram

Unit: mm (inch)
## Machine Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>PUMA GT2100</th>
<th>PUMA GT2100B</th>
<th>PUMA GT2100M</th>
<th>PUMA GT2100MB</th>
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</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swing over bed</td>
<td>mm (inch)</td>
<td>600 (23.6)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Swing over saddle</td>
<td>mm (inch)</td>
<td>390 (15.4)</td>
<td></td>
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<tr>
<td>Recom. Turning diameter</td>
<td>mm (inch)</td>
<td>210 (8.3)</td>
<td>255 (10.0)</td>
<td>210 (8.3)</td>
<td>255 (10.0)</td>
</tr>
<tr>
<td>Max. Turning diameter</td>
<td>mm (inch)</td>
<td>390 (15.4)</td>
<td>300 (11.8)</td>
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<tr>
<td>Max. Turning length</td>
<td>mm (inch)</td>
<td>562 (22.1)</td>
<td>550 (21.7)</td>
<td>513 (20.2)</td>
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<td>Chuck size</td>
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<td>10</td>
<td>8</td>
<td>10</td>
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<tr>
<td>Bar working diameter</td>
<td>mm (inch)</td>
<td>65 (2.6)</td>
<td>81 (3.2)</td>
<td>65 (2.6)</td>
<td>81 (3.2)</td>
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<tr>
<td><strong>Travels</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Travel distance</td>
<td>mm (inch)</td>
<td>X-axis</td>
<td>230 (9.1)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Z-axis</td>
<td>580 (22.8)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C-axis</td>
<td>360 (14.2)</td>
<td>(in 0.001)</td>
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<td>Rapid Traverse Rate</td>
<td>m/min (ipm)</td>
<td>X-axis</td>
<td>24 (944.9)</td>
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<tr>
<td></td>
<td></td>
<td>Z-axis</td>
<td>30 (1181.1)</td>
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<tr>
<td></td>
<td></td>
<td>C-axis</td>
<td>-</td>
<td></td>
<td>200 (7874.0)</td>
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<tr>
<td><strong>Main spindle</strong></td>
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<tr>
<td>Max. Spindle speed</td>
<td>r/min</td>
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<td>3500</td>
<td>4500</td>
<td>3500</td>
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<tr>
<td>Spindle nose</td>
<td>ASA</td>
<td>A2-6</td>
<td>A2-8</td>
<td>A2-6</td>
<td>A2-8</td>
</tr>
<tr>
<td>Spindle bearing diameter (Front)</td>
<td>mm (inch)</td>
<td>110 (4.3)</td>
<td>140 (5.5)</td>
<td>110 (4.3)</td>
<td>140 (5.5)</td>
</tr>
<tr>
<td>Spindle through hole</td>
<td>mm (inch)</td>
<td>76 (3.0)</td>
<td>91 (3.6)</td>
<td>76 (3.0)</td>
<td>91 (3.6)</td>
</tr>
<tr>
<td>Min. spindle Indexing angle (C-axis)</td>
<td>deg</td>
<td>-</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Turret</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of tool stations</td>
<td>ea</td>
<td>12</td>
<td>10 (12)</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>OD tool size</td>
<td>mm (inch)</td>
<td>25x25</td>
<td>1.0x1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. boring bar size</td>
<td>mm (inch)</td>
<td>40 (1.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turret indexing time (1 station swivel)</td>
<td>s</td>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Rotary tool speed</td>
<td>r/min</td>
<td>-</td>
<td>5000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tail Stock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quill diameter</td>
<td>mm (inch)</td>
<td>80 (3.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quill bore taper</td>
<td>MT</td>
<td>#4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quill travel</td>
<td>mm (inch)</td>
<td>80 (3.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main spindle motor power (15min./cont.)</td>
<td>kW (Hp)</td>
<td>18.5/15</td>
<td>24.8/20.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotary tool motor power</td>
<td>kW (Hp)</td>
<td>-</td>
<td>5.5 (7.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coolant pump motor power</td>
<td>kW (Hp)</td>
<td>0.4 (0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>Electric power supply (rated capacity)</td>
<td>kVA</td>
<td>29.04</td>
<td>29.04</td>
<td>30.43</td>
</tr>
<tr>
<td><strong>Machine Dimensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>mm (inch)</td>
<td>1700 (66.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>mm (inch)</td>
<td>2940 (115.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>mm (inch)</td>
<td>1628 (64.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lb)</td>
<td>3500 (7716.1)</td>
<td>3600 (7936.5)</td>
<td>3600 (7936.5)</td>
<td>3700 (8157.0)</td>
</tr>
</tbody>
</table>

### Standard Features
- Automatic Door Lock
- Coolant Supply System
- Foot Switch
- Hydraulic Chuck & Cylinder
- Live Center
- Lubricant Supply System
- Parts for installation
- Soft Jaw
- Standard Work Tools (including holders)
- Work Light

### Optional Features
- Additional tool holder and sleeves
- Air blast for chuck jaw cleaning
- Air gun
- Bar feeder interface
- Built-in dead center
- Chip conveyor & chip bucket
- Chuck pressure check switch
- Coolant Chiller
- Front automatic door
- Hard jaw
- High pressure coolant system
- Signal tower (yellow, red, green)
- Mist collector
- Oil skimmer
- Parts catcher
- Parts conveyor
- Pressure chucking selection function
- Programmable tail stock
- Tool setter (Manual / Hyd.)

*The specifications and information above-mentioned may be changed without prior notice.*

*For more details, please contact Doosan*
DOOSAN-FANUC i series

NC Unit Specifications

Axes Control
- 3 controlled axes: X, Z (PUMA GT2100) X, Z, C (PUMA GT2100M)
- Axes controlled by PMC
- Backlash compensation
- Raft feed compensation for each rapid traverse and cutting feed
- Chubming on/off
- Emergency stop
- Follow-up
- H.R.Z control
- Inch/Metric conversion
- Increment system
  - 1 / 0.0005 / 0.00005 mm/each
- Int. lock
  - All axes / each axis
- Machine lock
  - All axes / each axis
- Manual
- Overload
- Position reset
- Sentry off
- Stroke limit check before move
- Strode stroke check 1, 3
- Torque control
- Unexpected disturbance/torque detection function

Operation
- Automatic operation, continuation
- Buffer-resizer
- DNC operation (Reader / puncher interface is required)
- Dry run
- Handle increment/decimation
  - X1, X10, X100
- Jog feed
- Manual / Handle increment
- Manual handle feed
- Manual / Incrementation return
- Manual jog generator
- Manual reference position return
- Mill operation
- Program number search
- Program recondition
- Reference position return
- Reference position setting without dog
- Sequence number search
- Single block
- Wrong operation prevention

Interpolation Functions
- Linear interpolation
  - -1st reference position return
  - Manual, G28
  - +1st reference position return
  - G50
  - Circular interpolation
  - G60
- Continuous threading
- Dead time per sec
- High speed skip
- Linear interpolation
  - G01
- Multiple threading
- Pseudorandom
  - G50
- Reference position return check
  - G27
- Thread cutting / Synchronous cutting
- Thread cutting retract
- Torque limit
- Variable feed threading

Feed Function
- Automatic increment/decrement function
- Cutting feed clamp
- Feed per minute
- Feed per revolution
- Feed overfeed (100% unit)
  - 0 - 200 %
- Jog feed override (100% unit)
  - 0 - 2000 mm/min
- Manual jog override
- Overdue cancel
- Rapid traverse override
  - F0, 25, 100 %
- Rapid traverse rate
- Tangential speed constant control

Auxiliary / Spindle Speed Function
- Spindle function
  - Actual spindle speed output
- Auxiliary function lock
- Constant speed control
- High-speed bit 1, 2, 3 interface
- M - code function
  - N5 digits
- Rapid tapping
- S - code function
  - S4 / S5 digits
- Spindle servo output
  - S4 / S5, digits
- Spindle speed override
  - 0 - 150 %
- Spindle output switching

Program Input
- Absolute / incremental programming
- Addition of custom macro common variables
- Automatic coordinate setting
- Canned cycle for drilling / turning
- Canned cycle
- Cylindrical interpolation by Programming
- Control on/off
- Coordinate system setting
  - G50
- Coordinate system shift
- Custom macro
- Decimal point programming
- Packet calculator type decimal point programming
- Diameter / radius programming (4 axes)
- Select change (literature programming)
- Direct of coordinate system shift
- X - code suffixes (X, Y, Z)
- Input unit / time multiply
- Interpolation type custom macro
- Label skip
- Manual absolute on and off
- Maximum program dimensions
  - 35 digits
- Multiple repetitive canned cycle
  - G70 - G76
- Multiple repetitive canned cycle 2
- Optional block skip
- Optional check
- Pattern data input
- Planar definition
- Program number
  - G01, G02, G03
- Program location
  - G01, G02, G03
- Programmed data input
  - G90
- Sequence number
  - N5 digits
- Software program call
  - 10 kits read-out
- Tape code: ISO / EIA auto recognition
  - EIA RS422 / ISO840
- Tape format for FANUC Series 0 I / J
- Work coordinate system
  - G50 - G59
- Work coordinate system preset

Tool Function / Tool Compensation
- Absolute tool setting
- Direct input of offset value measured
- Direct input of offset value measured B
- Extended tool life management
  - T - code function
  - 17 - 2 digits
- Tool geometry / wear compensation
- Tool life management
- Tool nose radius compensation
- Tool offset
- Tool offset / spindle
- Tool offset pairs
- Tool offset value countper input

Editing Operation
- Manual block editing
  - Extended part program setting
  - Number of registered programs
  - 60/50 axis
- Part program editing
  - Part program storage length
  - 1280 min (512KB)
- Plug back
- Program protect

Setting and Display
- Manual operation
  - Alarm display
- Alarm history display
- Current position display
- Directory display and punch for each group
- Directory display of floppy cassette
- Display of spindle speed and T code at all screens
- Display message
- Help feature
- Multi-language display
- Operation history display
- Parameter setting and display
- Program name display
  - No hour / part count display
- Self-diagnosis function
- Screen saving function
- Spindle saving screen
- Status display
- Status display
- Operating monitor screen
- Soft operator's panel
- Tool path graphic display

Data Input / Output
- External data input
  - External key input
- External program input
  - External program number search
  - External work number search
- Memory card input / output
- Reader / puncher interface
  - CH1 INTERFACE
- RS232C INTERFACE

Others
- UDC and unit setup
  - Display unit
  - 10.4" Color LCD
- Feed hold and clamp
- In. and outer ready
- PMC in use
  - In the front of LED display unit
- PMC software
  - Manual / Hand
- USB port
  - In the front of LED display unit

Operation Guidance Function
- Operation guidance

Interface Function
- Basic function

Auxiliary / Spindle Speed Function
- Enhanced function

Axis Control
- Internal axis expansion (total)
  - Max. 6 axes
- Simultaneous controlled axes expansion (total)
  - Max. 6 axes

Feed Function
- Enhanced function

Robot Interface
- Optional interface
  - 10 kits read-out
- Slot puncher interface
  - PROFIBUS DP
- Robot interface with PROFIBUS-DP

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