PUMA VTS series
Large Vertical Turning Center with RAM Head Spindle

PUMA VTS series
PUMA VTS1214
PUMA VTS1214M
PUMA VTS1620
PUMA VTS1620M
PUMA VTS series
PUMA VTS1214 / 1620

With its large capacity and heavy duty machining capability, The PUMA VTS series provides excellent productivity for large workpieces
Features

Robust Structure

The PUMA VTS series provides optimum durability by including box guideway construction to all linear axes. The large diameter cross taper roller bearing used in the spindle construction provides high rigidity and accuracy for heavy duty machining applications.

Applied with Box Guideway

PUMA VTS1620

PUMA VTS1214

Highest Cutting Capacity among Competitors

Provides maximum workpiece size capacity

Max. Turning diameter

PUMA VTS1620

Ø 2000 mm

(78.7 inch)

PUMA VTS1214

Ø 1350 mm

(53.1 inch)
Robust Mechanical Construction  PUMA VTS1620 series

The PUMA VTS1620M series provides extended durability and stable accuracy by implementing a large diameter cross roller bearing for the spindle and box guideways for the linear axes.

Machine Construction

Model: PUMA VTS1620 Core Machine

1. A highly rigid X-type cast Meehanite column structure reduces deflection and ensures optimum cutting performance.

2. Deflection is avoided by the high rigidity crossrail and ram carriage construction.
Designed in a base structure that provides a stable cutting performance to the table and carriage, using an X rib structure Meehanite casting.

Ram deformation minimized by enlarged guideway design enabling heavy duty cutting.

Applied with powerful helical gears to guarantee a long life. The VTS1620M is applied with a zero backlash system to realize accurate C axis control.

Max. table speed

\[ 250 \text{ r/min} \]

\( {} : \text{Option} \)

Max. table motor (30min/Cont.)

\[ 45 / 37.5 \text{ kW} \]

\[ (60.3 / 50.3 \text{ Hp}) \]

Max. Table torque

\[ 19875 \{ 24380 \} \text{ N·m} \]

\[ (14667.8 \{ 17992.4 \} \text{ ft·lb}) \]

Designed with large diameter cross taper roller bearing featuring high rigidity in both radial and axial directions. The gears are capable of transmitting high cutting forces.

Designed in a base structure that provides a stable cutting performance to the table and carriage, using an X rib structure Meehanite casting.
**Large Workpiece Capacity and Processing Capability**

**Crossrail Fixed Positions**

The 4 position step block is provided to fix the W axis position of the crossrail, and in combination with a positioning pin, maintains a high level of positioning control.

4 steps = 770 mm (30.3 inch) (actuated by hydraulic cylinder)

**Axis Travel**

- Z-axis: 960 mm (37.8 inch)
- W-axis: 770 mm (30.3 inch)
- X-axis: 1727 (-127/+1600) mm (68.0 (-5.0/+63.0 inch)

Max. Turning diameter: Ø2000 mm (78.7 inch)
Max. Turning height: 1556 mm (61.3 inch)
Max. Allowable load: 10000 kg (22045.9 lb)

**ATC Magazine**

Driving system: Servo motor
No. of tool stations: 18 {24} stations
Max. Tool length in Z-axis: 450 mm (17.7 inch) (Static tool)
350 mm (13.8 inch) (BT50 / DIN 50 rotating tool)
Max. Tool weight: 50 Kg (110.2 lb) / tool ({): Option

**C-axis Table**

C-axis twin gear drive achieves high rigidity and eliminates backlash

**C-Axis Servo Motor VTS 1620 (M)**

Max. Power and torque: 4 kW (5.4 Hp)
26400 N·m (19483.2 ft·lb)
C-axis feedrate: 900 deg/min (travel 360°, 0.001° control)

Servo controlled c-axis table enables milling, drilling and tapping with excellent rotational accuracy and user satisfaction.
Table Motor Power - Torque

Max. Table motor & torque

<table>
<thead>
<tr>
<th>Power</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 kW</td>
<td>19875 N·m</td>
</tr>
<tr>
<td>(60.3 Hp)</td>
<td>(14667.8 ft·lb)</td>
</tr>
<tr>
<td>60 kW</td>
<td>24380 N·m</td>
</tr>
<tr>
<td>(80.5 Hp)</td>
<td>(17992.4 ft·lb)</td>
</tr>
</tbody>
</table>

Ram Rotary Spindle
(common for PUMA VTS1214M / VTS1620M)

Max. Rotary tool power

<table>
<thead>
<tr>
<th>Power</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.5 kW</td>
<td>15 kW</td>
</tr>
<tr>
<td>(24.8 Hp)</td>
<td>(20.1 Hp)</td>
</tr>
</tbody>
</table>

Max. Rotary tool torque

<table>
<thead>
<tr>
<th>Torque</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>262 N·m</td>
<td>687 N·m</td>
</tr>
<tr>
<td>(193.4 ft·lb)</td>
<td>(507.0 ft·lb)</td>
</tr>
</tbody>
</table>

Max. Rotary tool speed

<table>
<thead>
<tr>
<th>Speed</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000 r/min</td>
<td>2000 r/min</td>
</tr>
</tbody>
</table>
Robust Mechanical Construction  PUMA VTS1214 series

The PUMA VTS1214 series has minimized heat and vibration emissions using a separable-type gearbox, and it exhibits a high rigidity in heavy duty cutting using large bearings.

Machine Construction

Applied with Box Guideway

A highly rigid X-type cast Meehanite column structure reduces deflection and ensures optimum cutting performance.
2. Vibration and heat generation at the spindle are minimized with a belt-driven, detachable gearbox. Cutting capacity and safety are enhanced with large diameter bearings.

3. Ram deformation is minimized with an enlarged guideway. A wide ram guide enables heavy duty cutting.

Large square cross-section

308 × 250 mm
(12.1 × 9.8 inch)

Wide ram guide corresponding to high torque

4. 24 tool magazines are reinforced with a rigid rib structure for maximum stability.

5. The column and spindle are rigidly supported using a grid-type, rib structure Meehanite cast. Chips can be easily discharged through the sloped top surface.
Cutting Capacity

Crossrail Fixed Positions

The 4 position step block is provided to fix the W axis position of the crossrail, and in combination with a positioning pin, maintains a high level of positioning control.

Crossrail fixed positions

4 steps = 580 mm (22.8 inch)
(Geared motor control type)

Axis Travel

Max Turning diameter \( \varnothing 1350 \text{ mm (53.1 inch)} \)

Hydraulic chuck 40 " (50"

Swing over bed 1400 mm (55.1 inch)

Max. Workpiece length 814 mm (32.0 inch)

Max. Workpiece weight 4000 kg (8818.4 lb) (including chuck)

\( \{ \} : \) Option

Z-axis 800 mm (31.5 inch)

W-axis 580 mm (22.8 inch)

X-axis 1450(-152/+1298) mm (57.1(-6.0/+51.1) inch)

ATC Magazine

Driving system Servo motor

No. of tool stations 15 \{24\} stations

Max. Tool length 450 mm (17.7 inch) (Static tool)

350 mm (13.8 inch) (BT50 / DIN 50 rotating tool)

Max. Tool weight 50 Kg (110.2 lb) / tool

\( \{\} : \) Option

Table Motor Power - Torque

Max. Table Motor & Torque

60 kW (80.5 Hp)

6412 N-m (4732.1 ft-lb)

\( \{\} : \) Option
Optional Equipment and Chip Disposal

Optional Equipment

- Coolant Chiller
- Coolant Tank

The coolant chiller lowers coolant temperature, helping to cool both the workpiece and tool during the machining operation. When using insoluble cutting oils, a coolant chiller is recommended to cool heated oil and preserve machining precision.

Optional Equipment

- Auto door cylinder
- Linear scale
- Auto tool setter
- Oil mist collector (except PUMA VTS1620)
- Oil skimmer
- Automatic pallet changer

Easy Chip Discharge Design

Chips falling off to the left and right are collected in a chip pan and removed by a chip conveyor.

PUMA VTS1620

- Chip conveyor: Hinge type, Scrapper type

PUMA VTS1214

- ATC shower
- Base shower

Coolant Chiller

The coolant chiller lowers coolant temperature, helping to cool both the workpiece and tool during the machining operation. When using insoluble cutting oils, a coolant chiller is recommended to cool heated oil and preserve machining precision.
Tooling System

2-axis RAM

Face OD holder
- 32 mm (1.3 inch) - BT50
- 40 mm (1.6 inch) - BT50

ID holder
- 25 mm (1.0 inch) - BT50

ID holder - ZL
- 25 mm (1.0 inch) - BT50

ID holder - XS
- 25 mm (1.0 inch) - BT50

ID holder - ZS
- 25 mm (1.0 inch) - BT50

Boring holder
- Ø100 mm (3.9 inch) - BT50

Tool adaptor block
- BT50

Unit: mm (inch)

3-axis RAM

Angle head

2000 r/min Rigid tap
2000 r/min High torque

Milling tools by customer

Face OD holder
- 32 mm (1.3 inch) - BT50
- 40 mm (1.6 inch) - BT50

ID holder
- 25 mm (1.0 inch) - BT50

ID holder - ZL
- 25 mm (1.0 inch) - BT50

ID holder - XS
- 25 mm (1.0 inch) - BT50

ID holder - ZS
- 25 mm (1.0 inch) - BT50

Boring holder
- Ø100 mm (3.9 inch) - BT50

Tool adaptor block
- BT50

cover for ram face
(standard 1 ea)
Tool Holder Dimensions

Unit: mm (inch)

1:1 Rigid tap

3:2 High torque

* If the magazine is attached, tools are needed to separate.
Easy CNC Set-up and EOP

Easy Set-up

Operating console
1. Doosan-Fanuc i series
2. 10.4” color TFT LCD Monitor
   Various alarm messages indicating errors from the machine and controller will be displayed on the 10.4” LCD screen, enhancing the operator’s convenience.
3. PCMCIA Card
4. USB Port
   (only DOOSAN Fanuc i series)
5. Swivel-type Operating Consol
6. Ethernet function (embedded)

ATC Guidance

ATC guidance main screen display
Guidance screen for ATC tool change
Tool holder information screen

Cross Rail Manual Fine Feeding

Fine feeding for the cross rail service and adjustment

Select jog mode for fine feeding of cross rail

JOG mode
Working Range

**PUMA VTS1620 / VTS1620M**

Unit: mm (inch)

![Diagram of PUMA VTS1620 / VTS1620M](image)

**PUMA VTS1214 / VTS1214M**

Unit: mm (inch)

![Diagram of PUMA VTS1214 / VTS1214M](image)
External Dimension

PUMA VTS1620 / VTS1620M

Top View

Front View

Side View

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

PUMA VTS1214 / VTS1214M

Top View

Front View

Side View

* Some peripheral equipment can be placed in other places
## Machine Specifications

### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Unit</th>
<th>PUMA VTS1620</th>
<th>PUMA VTS1620M</th>
<th>PUMA VTS1214</th>
<th>PUMA VTS1214M*</th>
</tr>
</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>2000 (78.7)</td>
<td>1400 (55.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Turning diameter</td>
<td>mm (inch)</td>
<td>2000 (78.7)</td>
<td>1350 (53.1)</td>
<td>814 (32.0)</td>
<td></td>
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<tr>
<td>Max. Turning height</td>
<td>mm (inch)</td>
<td>1556 (61.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Turning weight</td>
<td>kg (lb)</td>
<td>10000 (22045.9)</td>
<td>4000 (8818.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Travels</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel distance</td>
<td>mm (inch)</td>
<td>127 (5.0)</td>
<td>152 (6.0)</td>
<td>1600 (63.0)</td>
<td>1298 (51.1)</td>
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<tr>
<td>X-axis (To left from table center)</td>
<td>mm (inch)</td>
<td>1600 (63.0)</td>
<td>900 (35.8)</td>
<td></td>
<td></td>
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<tr>
<td>Z-axis</td>
<td>mm (inch)</td>
<td>960 (37.8)</td>
<td>800 (31.5)</td>
<td>1000 (40.0)</td>
<td>320 (12.6)</td>
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<tr>
<td>C-axis</td>
<td>deg</td>
<td>-</td>
<td>360</td>
<td>-</td>
<td>360</td>
</tr>
<tr>
<td>W-axis</td>
<td>mm (inch)</td>
<td>770 (30.3)</td>
<td>580 (22.8)</td>
<td></td>
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<tr>
<td><strong>Feedrates</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid Traverse</td>
<td>m/min (ipm)</td>
<td>12 (472.4)</td>
<td>12 (472.4)</td>
<td>12 (472.4)</td>
<td>12 (472.4)</td>
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<tr>
<td>Z-axis</td>
<td>m/min (ipm)</td>
<td>12 (472.4)</td>
<td>12 (472.4)</td>
<td>12 (472.4)</td>
<td>12 (472.4)</td>
</tr>
<tr>
<td><strong>Ram</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ram size</td>
<td>mm (inch)</td>
<td>308 × 250 (12.1 × 9.8)</td>
<td>308 × 250 (12.1 × 9.8)</td>
<td>308 × 250 (12.1 × 9.8)</td>
<td>308 × 250 (12.1 × 9.8)</td>
</tr>
<tr>
<td>Min. through hole inside diameter</td>
<td>mm (inch)</td>
<td>320 (12.6)</td>
<td>320 (12.6)</td>
<td>320 (12.6)</td>
<td>320 (12.6)</td>
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<tr>
<td><strong>Table</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td>60 (80.5)</td>
<td>118.1 (78.7)</td>
<td>118.1 (78.7)</td>
<td>118.1 (78.7)</td>
</tr>
<tr>
<td><strong>Rotary Tool</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. rotary tool spindle torque</td>
<td>ea</td>
<td>262 (687)</td>
<td>262 (687)</td>
<td>262 (687)</td>
<td>262 (687)</td>
</tr>
<tr>
<td>Rotary tool bearing diameter</td>
<td>mm (inch)</td>
<td>100 (3.9)</td>
<td>100 (3.9)</td>
<td>100 (3.9)</td>
<td>100 (3.9)</td>
</tr>
<tr>
<td><strong>Tool magazine</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool storage capa.</td>
<td>stations</td>
<td>18 (24)</td>
<td>15 (24)</td>
<td>15 (24)</td>
<td>15 (24)</td>
</tr>
<tr>
<td>Tool size</td>
<td>Face OD</td>
<td>32 × 32</td>
<td>32 × 32</td>
<td>32 × 32</td>
<td>32 × 32</td>
</tr>
<tr>
<td><strong>Motors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table motor power</td>
<td>kW (Hp)</td>
<td>45 (60.3) / 37.5 (50.3) (30min/cont.)</td>
<td>60 (80.5) / 55 (73.8) / 45 (60.3) (10min/30min/cont.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotary tool motor power</td>
<td>kW (Hp)</td>
<td>18.5 (24.8) / 15 (20.1) / 11 (14.8) (30min/30min/cont.)</td>
<td>18.5 (24.8) / 15 (20.1) / 11 (14.8) (30min/30min/cont.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power source</td>
<td>Electric power supply (rated capacity)</td>
<td>kW (Hp)</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>kVA</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</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>5639 (222.0)</td>
<td>4820 (189.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>mm (inch)</td>
<td>5200 × 3451 (204.7 × 135.9)</td>
<td>3590 × 3725 (141.3 × 146.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lb)</td>
<td>30000 (66137.7)</td>
<td>25500 (56217.0)</td>
<td>26000 (57319.3)</td>
<td></td>
</tr>
</tbody>
</table>

### Standard Feature

- 3 jaws hydraulic chuck (VTS1214/M)
- 4 jaws manual chuck (VTS1620/M)
- ATC shower coolant
- Bed shower coolant
- Column ladder and rail (VTS1620/M)
- Crossrail positioning unit
- Hydraulic unit
- Leveling bolts and plates
- Lubricant supplier
- Machine installation parts
- M code program (Drive vertical crossrail)
- Ram air blast
- Ram shower coolant
- Splash guard
- Standard tool holder
- Table cooling system (VTS1620/M)
- Tool clamp air seating checker
- Coolant gun
- Linear scale (X, Z-axis)
- Line filter for coolant
- Mist collector (VTS1214/M)
- Oil Skimmer (belt type)
- Parts probe
- Signal tower
- Special chuck
- Coolant level switch: Sensing level - Low

### Optional Feature

- 50" hydraulic chuck (VTS1214/M)
- 50" combination chuck (VTS1214/M)
- 63" combination chuck (VTS1620)
- 70 bar coolant
- Air conditioner
- Automatic front door
- Auto tool setter
- Chip bucket, chip conveyor

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

*For more details, please contact Doosan.

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*For machining accuracy of X / C axes contouring, please contact Doosan.*

( ): Option
NC Unit Specifications

DOOSAN Fanuc i series

Standard Specifications

**AXES CONTROL**
- Controlled axes: X, Y, Z
- Simultaneous controlled axes: 2 axes
- Axis control by PMC
- Stack backlash compensation: 0.019999
- Backlash compensation for each rapid traverse and cutting feed
- Coordinate system shift: X, Y, Z
- C-axis contouring control
- 3rd / 4th. reference position return G30
- Simultaneous controlled axes: 2 axes
- Inch / Metric conversion

**ITERATION FUNCTIONS**
- NC Interlock: All axes / each axis
- Lead traveling command: 0.001 mm/axis
- Machine block: All axes / each axis
- Overtravel
- Position switch
- Stored stroke check: 1
- Stored stroke check: 2

**OPERATION**
- Automatic operation (memory)
- Buffer register
- PLC operation (Reader / puncher interface is required)
- Handle incremental feed: X, Y, Z, X, Y, X, Y, X, Y
- Manual handle feed: 1 unit
- Manual handle setting without dog
- Warning operation prevention

**INTERPOLATION FUNCTIONS**
- 1st. reference position return: Manual, 628
- 2nd. reference position return: 630
- 3rd. / 4th. reference position return: 630
- Circular interpolation: 662
- Continuous threading
- Dwell (per sec): G04
- Linear interpolation: G01

**PROGRAM INPUT**
- Absolute / incremental programming
- Addition of custom macro common variables
- Automatic coordinate system setting
- canned cycle for drilling / Turning
- Circular interpolation by # programming
- Coordinate system setting: G50
- Custom macro
- Decimal point programming
- Diameter / radius programming (X axis)
- Direct drawing dimension programming
- Direct of coordinate system programming
- # code system A / B / C
- Input unit: 10 time multiple
- Maximum program dimension: 19 digits
- Multiple repetitive canned cycle: G70 / G71
- Multiple repetitive canned cycle: B
- Optional block skip: 1 piece
- Optional block skip: (Soft operator’s panel) 9 pieces
- Plane selection: G17, G18, G19
- Pocket calculator: Dec. point program point

**EDITING OPERATION**
- Editing operation
- Number of registered programs: 400 ea
- Part program storage length: 1280k / 5120k bit
- Program protect

**SETTING AND DISPLAY**
- Alarm history display
- Display of spindle speed and Toolset at all screens
- Display of multi-language
- Displaying monitor variable
- Parameter setting and display
- Parameter setting display
- Program name display
- Self-diagnosis function
- Spindle speed screen
- Soft operator’s panel
- Tool path graphic display

**TOOL FUNCTION / TOOL COMPENSATION**
- Cycle start and lamp
- Display unit
- 10.4” Color TFT LCD (Except Lynx20M / 300M)
- 8.4” Color LCD: Lynx20M / 300M
- Feed hold and lamp
- M and S axis ready
- PLCMCA port in the front of LCD display unit
- PMC system
- PMC reset / rewind

**OPERATION GUIDANCE FUNCTION**
- Jog Guide
- Only: 8.4 Color LCD
- Manual guide
- Only: 8.4 Color LCD

**INTERFACING FUNCTION**
- Ethernet function: Embedded ethernet

**OPTIONAL SPECIFICATIONS**

**AXES CONTROL**
- Controlled axes expansion (total): Max. 4 axes
- Simultaneous controlled axes expansion (total): Max. 4 axes

**OTHERS**
- 16 bit Color TFT LCD (Only Lynx20M / 300M)
- Advanced preview control
- CNC operation (Reader / puncher interface is required)
- Display of spindle speed and Toolset at all screens
- Handle incremental feed
- Feed hold and lamp
- M and S axis ready
- Rear stud spindle
- Remote buffer

**THREE-AXIS INTERFACE**
- Interface expansion: PMC / I / O module
- Hardwire interface with PROBUS / DP

**TOOL FUNCTION / TOOL COMPENSATION**
- Tool Load Monitoring System

FANUC 32i

Standard Specifications

**AXES CONTROL**
- Controlled axes: X, Y
- Simultaneous controlled axes: 2 axes
- Axis control by PMC
- Stack backlash compensation: 0.019999
- Backlash compensation for each rapid traverse and cutting feed
- Controlled path
- HRV control
- CNC operation (memory)
- Interlock: All axes / each axis
- Input command: 0.001 / 0.0001 mm/inch
- Manual handle feed
- Service off
- Strobed stroke check: 1
- Tool timeout
- Unpected data write / block function timeout

**OPERATION**
- Automatic operation (memory)
- Buffer register
- Buffer operation: Memory card
- Handle incremental feed: X, Y, Z, X, Y, X, Y, X, Y
- Manual handle feed: 1 unit
- Manual handle setting without dog
- Warning operation prevention

**INTERPOLATION FUNCTIONS**
- 1st. reference position return: Manual, 628
- 2nd. reference position return: 630
- 3rd. / 4th. reference position return: 630
- Circular interpolation: 662
- Continuous threading
- Dwell (per sec): G04
- Manual handle feed: 2 units
- Manual handle interruption
- High speed skip function
- Manual handle setting without dog
- Manual handle feed: 2 units
- Number of tool offset: 99 pairs

**PROGRAM INPUT**
- Absolute / incremental programming
- Coordinate system setting
- canned cycle for drilling / Turning
- Canned cycle
- Coordinate system setting: G50
- Coordinate system shift
- Decimal point programming
- Decimal point programming (X axis)
- Direct drawing dimension programming
- Dimension / radius programming
- # code system A
- # code system B
- # code system C
- Input unit: 10 time multiple
- Maximum program dimension: 19 digits
- Multiple repetitive canned cycle: G70 / G71
- Multiple repetitive canned cycle: B
- Optional block skip: 1 piece
- Optional block skip: (Soft operator’s panel) 9 pieces
- Plane selection: G17, G18, G19
- Pocket calculator: Dec. point program point

**EDITING OPERATION**
- Editing operation
- Number of registered programs: 99 pairs
- Part program storage length: 1280k / 5120k bit
- Program protect

**SETTING AND DISPLAY**
- Alarm history display
- Display of spindle speed and Toolset at all screens
- Display of multi-language
- Displaying monitor variable
- Parameter setting and display
- Periodic maintenance screen
- Program comment display
- Run hours / part count display
- Self-diagnosis function
- Spindle speed screen
- Servo waveform display
- Spindle setting screen

**OTHERS**
- Cycle start and lamp
- Display unit
- 10.4” Color TFT LCD (Except Lynx20M / 300M)
- 8.4” Color LCD: Lynx20M / 300M
- Feed hold and lamp
- M and S axis ready
- PLCMCA port in the front of LCD display unit
- PMC system
- PMC reset / rewind

**OPERATION GUIDANCE FUNCTION**
- Jog Guide
- Only: 8.4 Color LCD
- Manual guide
- Only: 8.4 Color LCD

**INTERFACING FUNCTION**
- Ethernet function: Embedded ethernet

**OPTIONAL SPECIFICATIONS**

**AXES CONTROL**
- Controlled axes expansion (total): Max. 4 axes
- Simultaneous controlled axes expansion (total): Max. 4 axes

**OTHERS**
- 16 bit Color TFT LCD (Only Lynx20M / 300M)
- Advanced preview control
- CNC operation (Reader / puncher interface is required)
- Display of spindle speed and Toolset at all screens
- Handle incremental feed
- Feed hold and lamp
- M and S axis ready
- Rear stud spindle
- Remote buffer

**THREE-AXIS INTERFACE**
- Interface expansion: PMC / I / O module
- Hardwire interface with PROBUS / DP

**TOOL FUNCTION / TOOL COMPENSATION**
- Tool Load Monitoring System

**DATA INPUT/OUTPUT**
- External data input
- External data output
- Ethernet interface
- Data file / Data server
- Remote buffer

**OTHERS**
- High speed skip function
- Manual handle interruption
- Stored pitch error compensation
## Major Specifications

### PUMA VTS series

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>PUMA VTS1620</th>
<th>PUMA VTS1620M</th>
<th>PUMA VTS1214</th>
<th>PUMA VTS1214M</th>
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</thead>
<tbody>
<tr>
<td>Max. Turning diameter</td>
<td>mm (inch)</td>
<td>2000 (78.7)</td>
<td>1350 (53.1)</td>
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<td>Travel distance</td>
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<tr>
<td>X-axis (To left from table center)</td>
<td>mm (inch)</td>
<td>127 (5.0)</td>
<td>152 (6.0)</td>
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<tr>
<td>X-axis (To right from table center)</td>
<td>mm (inch)</td>
<td>1600 (63.0)</td>
<td>1298 (51.1)</td>
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<tr>
<td>Z-axis</td>
<td>mm (inch)</td>
<td>960 (37.8)</td>
<td>800 (31.5)</td>
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<tr>
<td>C-axis</td>
<td>deg</td>
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<td>360</td>
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<tr>
<td>W-axis</td>
<td>mm (inch)</td>
<td>770 (30.3)</td>
<td>580 (22.8)</td>
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<td>Rapid Traverse Rate</td>
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<tr>
<td>X-axis</td>
<td>m/min (ipm)</td>
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<tr>
<td>Z-axis</td>
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<tr>
<td>C-axis</td>
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<td>Max. Spindle speed</td>
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<td>630</td>
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<td>Tool storage capa.</td>
<td>stations</td>
<td>18 (24)*</td>
<td>15 (24)*</td>
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</tbody>
</table>

* ( ) Option

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### Head Office

22F T Tower, 30, Sowol-ro 2-gil, Jung-gu, Seoul, Korea, 04637
Tel +82-2-6972-0370 / 0350
Fax +82-2-6972-0400

### Doosan Machine Tools America

19A Chapin Rd., Pine Brook, NJ 07058, U.S.A.
Tel +1-973-618-2500
Fax +1-973-618-2501

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### Doosan Machine Tools Europe

Emdener Strasse 24, D-41540 Dormagen, Germany
Tel +49-2133-5067-100
Fax +49-2133-5067-111

### Doosan Machine Tools India

No.82, Jakkuar Village, Yelahanka Hobil, Bangalore-560064
Tel +91-80-2205-6900
E-mail india@doosanmt.com

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### Doosan Machine Tools China

Room 101,201,301, Building 39 Xinzhuang Highway No.258 Songjiang District,China Shanghai(201612)
Tel +86 21-5445-1155
Fax +86 21-6405-1472

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Fire Safety Precautions

There is a high risk or fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting use coolants and modifying the machine without the consent of the manufacturer. Please check the SAFETY GUIDANCE carefully before using the machine.