

# Doosan PUMA V550L – Equipment Specification Sheet

**This machine model # has been discontinued. We require these specs in a later version or a different make & model.**

**Quantity Required: 2**

**Equipment type:** CNC vertical turning center / vertical lathe

**Manufacturer names to search:** Doosan, Daewoo-Doosan, Doosan Machine Tools, DN Solutions

**Model:** PUMA V550L

**Acceptable search variants:** PUMA V550, V550L

**Configuration required:** Single vertical spindle, single turret, two-axis turning machine

The most reliable legacy technical document I found is identified as a **PUMA V550**, rather than specifically V550L. Used-machine listings show that chuck size, turret capacity, control and options vary by year. Suppliers should therefore verify every candidate against the client's serial-number-specific build sheet and physical nameplate.

## Core machine specifications

| Category                                   | Required/reference specification |
|--------------------------------------------|----------------------------------|
| Machine architecture                       | Vertical CNC lathe               |
| Number of spindles                         | <b>1</b>                         |
| Number of turrets/heads                    | <b>1</b>                         |
| Controlled axes                            | <b>X and Z</b>                   |
| Guideway construction                      | Integral box guideways           |
| Swing over bed                             | <b>800 mm / 31.50 in</b>         |
| Swing over carriage                        | <b>490 mm / 19.29 in</b>         |
| Maximum turning diameter                   | <b>730 mm / 28.74 in</b>         |
| Maximum workpiece length/turning height    | <b>750 mm / 29.53 in</b>         |
| Maximum weight on spindle, including chuck | <b>650 kg / 1,433 lb</b>         |
| X-axis travel                              | <b>390 mm / 15.35 in</b>         |
| Z-axis travel                              | <b>780 mm / 30.71 in</b>         |
| X-axis rapid traverse                      | <b>12 m/min / 472 ipm</b>        |
| Z-axis rapid traverse                      | <b>16 m/min / 630 ipm</b>        |
| Maximum cutting feed                       | <b>500 mm/rev</b>                |

These capacity, travel and guideway specifications are stated in a legacy V550 technical specification.

## Main spindle

| <b>Category</b>                                                        | <b>Required/reference specification</b>      |
|------------------------------------------------------------------------|----------------------------------------------|
| Spindle type                                                           | Gearbox-driven, high-torque vertical spindle |
| Gearbox                                                                | Two-speed/gear-driven configuration          |
| Spindle nose                                                           | <b>A2-11</b>                                 |
| Maximum speed                                                          | <b>2,000 rpm</b>                             |
| Spindle output                                                         | <b>30 kW continuous / 37 kW 30-minute</b>    |
| Approximate output                                                     | <b>40 hp continuous / 50 hp short-term</b>   |
| Maximum spindle torque                                                 | <b>2,764 N·m / approximately 2,039 lb-ft</b> |
| Typical chuck class                                                    | <b>20- or 24-inch hydraulic chuck</b>        |
| Published standard-machine example 15-inch open-center hydraulic chuck |                                              |

The original technical specification states an A2-11 nose, 2,000 rpm maximum speed, 30/37 kW output and 2,764 N·m maximum torque. Dealer configurations commonly include a 24-inch chuck, showing that workholding varied by machine and application.

### **Critical supplier requirement**

For the wheel application, the seller must identify:

- Chuck manufacturer and model
- Chuck diameter
- Through-hole/open-center dimensions
- Hydraulic cylinder model
- Maximum chuck speed
- Maximum allowable combined part-and-chuck weight
- Jaw stroke
- Hard and soft jaws included
- Part-seating and clamp-confirmation features

A candidate should not be accepted solely because it is labeled “V550” or “V550L.”

## **Turret and tooling**

| <b>Category</b>              | <b>Reference specification</b>              |
|------------------------------|---------------------------------------------|
| Turret type                  | DI-base heavy-duty turret                   |
| Standard documented capacity | <b>10 stations</b>                          |
| Other field configurations   | <b>12 stations also commonly listed</b>     |
| Standard OD tool size        | <b>32 mm square / 1.26 in</b>               |
| Boring-bar capacity          | <b>60 mm diameter / 2.36 in</b>             |
| Live tooling                 | <b>No, on standard V550/V550L</b>           |
| C axis                       | <b>No, unless a special/milling version</b> |
| Y axis                       | <b>No</b>                                   |

The legacy specification identifies a 10-station turret, 32 mm OD tools and 60 mm boring bars. Later or differently optioned used machines are also advertised with 12-position turrets, so the supplier must document the installed turret rather than assume a standard configuration.

## Machine size and utilities

| Category                    | Reference specification                                        |
|-----------------------------|----------------------------------------------------------------|
| Approximate machine weight  | <b>9,000 kg / 19,842 lb</b>                                    |
| Approximate floor footprint | <b>1,905 × 2,720 mm</b>                                        |
| Approximate footprint       | <b>75 × 107 in</b>                                             |
| Approximate machine height  | <b>3,260 mm / 128.3 in</b>                                     |
| Electrical requirement      | <b>54 kVA</b> in one published specification                   |
| Air pressure                | <b>6 kgf/cm<sup>2</sup></b> , approximately 85 psi             |
| Typical voltage             | Must be confirmed; used machines may be configured differently |

The published specification gives a 9,000 kg weight, 1,905 × 2,720 mm footprint, 3,260 mm height, 54 kVA supply and 6 kgf/cm<sup>2</sup> air requirement.

## Controls

V550/V550L machines were supplied across multiple years and may have different Fanuc controls. Publicly listed examples include:

- Fanuc 18-T
- Fanuc 21i-TB
- Fanuc 0i-TD
- Doosan-Fanuc i-Series

The control must not be inferred from the model alone.

For each candidate, require:

| Control information                   | Supplier response |
|---------------------------------------|-------------------|
| CNC make and exact model              | Required          |
| Control serial number                 | Required          |
| Software/version level                | Required          |
| Memory capacity                       | Required          |
| Ethernet/data-transfer capability     | Required          |
| Manual Guide i installed              | Yes/no            |
| PMC ladder backup available           | Yes/no            |
| Machine parameters backed up          | Yes/no            |
| Alarm and maintenance history         | Required          |
| Drives and motors currently supported | Required          |

## Standard or commonly installed equipment

Depending on year and configuration, the machine may include:

- Hydraulic chuck and actuating cylinder
- Hydraulic power unit
- Automatic lubrication
- Flood coolant through the turret
- High-pressure coolant
- Bed and chuck coolant flushing
- Chip conveyor and chip cart
- Automatic front door
- Tool presetter
- Mist collector
- Manual Guide i
- Chuck clamp detection
- Dual chucking pressure
- Signal tower
- Toolholder and boring-sleeve package

A legacy specification lists hydraulic workholding, coolant equipment, lubrication, absolute encoders and a toolholder package; dealer machines frequently add a chip conveyor, automatic door and other production options.

## Supplier search requirements

I recommend sending the following as the minimum requirement:

**Quantity required:** Doosan/Daewoo-Doosan PUMA V550L or technically equivalent PUMA V550 vertical turning center.

Required architecture: one vertical spindle, one turret, X/Z box-guideway machine. Minimum capacity of 730 mm turning diameter and 750 mm turning height, A2-11 spindle nose, approximately 37 kW/50 hp spindle, 2,000 rpm maximum spindle speed, and suitable for a 20- or 24-inch hydraulic chuck.

The machine must be available for an under-power inspection and representative-part test cut. Seller must provide the complete model, serial number, build year, control model, chuck details, turret capacity, hours, present location and maintenance history.

## Mandatory candidate information

Require the seller to return this table for every machine:

| Item                          | Required response |
|-------------------------------|-------------------|
| Complete model from nameplate |                   |

| Item | Required response |
|------|-------------------|
|------|-------------------|

|                                 |  |
|---------------------------------|--|
| Machine serial number           |  |
| Manufacture month/year          |  |
| Present physical location       |  |
| Asking price                    |  |
| Availability/removal date       |  |
| CNC make/model                  |  |
| Power-on hours                  |  |
| Operating hours                 |  |
| Cutting hours                   |  |
| Spindle hours                   |  |
| Chuck make/model/size           |  |
| Turret station count            |  |
| Toolholders included            |  |
| Chip conveyor included          |  |
| Tool presetter included         |  |
| Automatic door included         |  |
| Machine currently under power   |  |
| Maintenance records available   |  |
| Parameters and ladder backed up |  |
| Known alarms or defects         |  |
| Spindle vibration report        |  |
| Geometry/laser report           |  |
| Test cut permitted              |  |
| Rigging/loading included        |  |

## Minimum acceptable substitute specifications

A cross-compatible candidate should meet or exceed:

| Requirement                   | Minimum                                                     |
|-------------------------------|-------------------------------------------------------------|
| Vertical turning architecture | Required                                                    |
| Number of spindles            | 1                                                           |
| Number of turrets             | 1                                                           |
| Turning diameter              | <b>730 mm</b>                                               |
| Turning height                | <b>750 mm</b>                                               |
| Workpiece/chuck capacity      | <b>650 kg</b> or validated for the wheel                    |
| Spindle nose                  | <b>A2-11 or adaptable equivalent</b>                        |
| Spindle power                 | <b>37 kW / 50 hp class</b>                                  |
| Low-speed torque              | <b>Approximately 2,700 N·m class</b> , or proven sufficient |
| Chuck capability              | <b>20- to 24-inch class</b>                                 |

| <b>Requirement</b>  | <b>Minimum</b>                                   |
|---------------------|--------------------------------------------------|
| Turret              | At least <b>10 stations</b>                      |
| Boring-bar capacity | Approximately <b>60 mm</b>                       |
| Guideways           | Box ways preferred for heavy interrupted cutting |
| Automation          | Existing robot/gantry interface must be feasible |
| Control support     | Current parts and service support required       |

## **Important acceptance warning**

The following are **not sufficient evidence of compatibility**:

- Same chuck diameter
- Same nominal turning diameter
- Same spindle horsepower
- Same manufacturer
- Seller's statement that it is the "replacement model"

For the truck-wheel process, the supplier should also demonstrate:

- Torque at the actual cutting rpm
- Fixture and wheel clearance
- Chucking stability and wheel deformation
- Tool access throughout the cycle
- Chip evacuation
- Surface finish
- Dimensional capability
- Cycle time
- Robot or gantry integration

The values above are suitable for market sourcing, but the client's four V550L machines may have serial-specific workholding, turret and control configurations. Photographs of their nameplates and chucks would make the supplier request substantially more precise.