

SMEC

PL 250V(VM)

VERTICAL TURNING CENTER

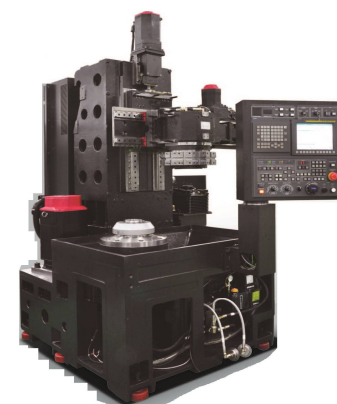


SMEC SMEC CO.,LTD.

MACHINE CONSTRUCTION / FEATURES

BED

- The main spindle body of PL250V is consisted of one piece meehanite cast iron bed, wide column, anti-heat displacement spindle and head stock.
- Box way construction with anti-friction mation way surface that ensure unsurpassed long Term rigidity and superior accuracy.
- Maximum rigidity and minimal deformation under heavy machining.
- Three adjustable Gibs on X and Z axis provide easier maintenance as well as long term rigidity and accuracy.



SPINDLE & HEADSTOCK

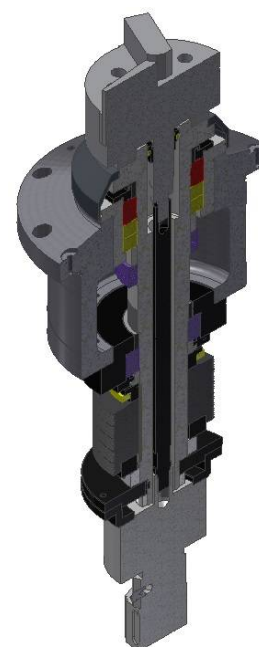
The machine headstock utilizes a precision ground spindle that is machined in a temperature-controlled environment and clean room assembled.

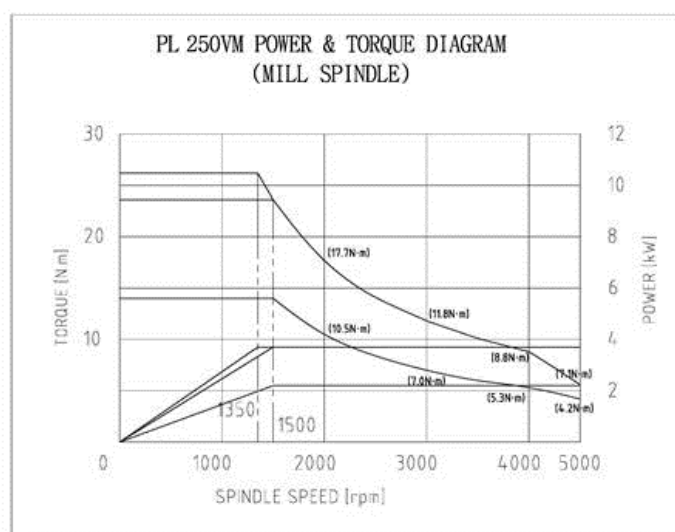
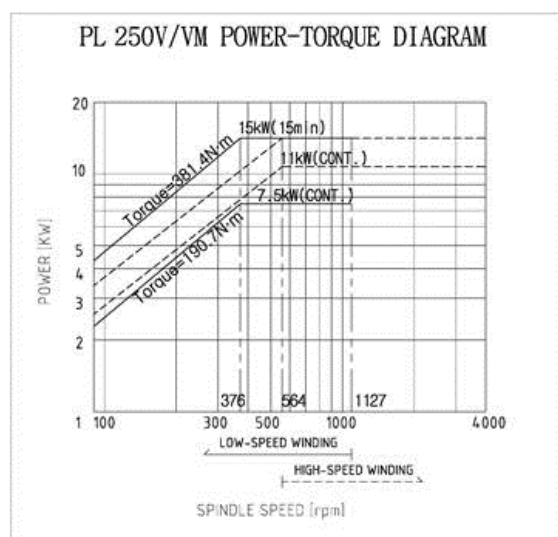
- Spindle Nose ASA A2-6
- Spindle Bore Dia. Ø 42
- Spindle Speed (18" Chuck) Max 4,000 rpm
- Spindle Drive Method Belt
- Spindle Bearings I.D. (Front) Ø100

Front: TAPER Roller bearing
(NN3020KTN9/SPW33WR521 (SKF))

Front : Angular Contact Thrust ball bearing
(BTA100B/SPAVR521 (SKF))

Rear : TAPER Roller bearing
(NN3018KTN9/SPW33WR521 (SKF))



SPINDLE POWER-TORQUE DIAGRAM

The powerful Fanuc αiIP22/6000 (15/11kW) spindle motor system will ensure heavy duty machining within a wide spindle speed range.

MACHINE SPECIFICATIONS

| Classification | | Unit | PL 250V(R,L) | PL250VM(R,L) |
|----------------|--|------|---|--------------|
| Capacity | Swing over the bed | Ø | 550 | |
| | Swing over Cross slide | Ø | 400 | |
| | Max. turning diameter | Ø | 400 | |
| | Max. turning length | Ø | 280 | |
| Main Spindle | Max. spindle speed | rpm | 4,000 | |
| | Spindle nose | ASA | A2-6 | |
| | Spindle bearing hole diameter (Front) | mm | 100 | |
| | Bearing type (Front) | - | 1) TAPER Roller bearing 2) Angular Contact Thrust ball bearing | |
| | Bearing type (Rear) | - | TAPER Roller bearing | |
| | Draw tube ID | mm | - | |
| | Spindle bore diameter | mm | 42 | |
| | Maximum spindle torque | N.m | 381.4 / 190.7 | |
| | Standard chuck size[Opt.] | inch | 8"(10") | |
| Motor | Main Spindle Motor Model [Opt.] & Capacity (Cont./30min) | spec | αiIP22/6000 | |
| | | kW | 11/15 | |
| | X axis Servo Motor Model | spec | αiF12/3000 | |

| | | | | |
|---|--|-------|---|------------|
| | & Capacity | kW | 3 | |
| | Z axis Servo Motor Model & Capacity | spec | αiF22/3000B | |
| | | kW | 4 | |
| | Mill Spindle Model & Capacity (Cont./30min) | spec | - | αil2/10000 |
| | | kW | - | 2.2/3.7 |
| | Turret Index Motor Model & Capacity | spec | βiS8/3000 | |
| | | kW | 1.2 | |
| Feed system | X axis travel | mm | 230 | |
| | Z axis travel | mm | 280 | |
| | Angle of slant bed | deg | Vertical | |
| | X axis guideway span | mm | 180 | |
| | Z axis guideway span | mm | 220 | |
| | Tailstock(B axis) guideway span[Opt.] | mm | - | |
| | X axis rapid traverse rate | m/min | 24 | |
| | Z axis rapid traverse rate | m/min | 24 | |
| | Maximum X axis feed thrust | N | 19,792 | |
| | Maximum Z axis feed thrust | N | 36,191 | |
| | X axis diameter | mm | 32 | |
| | X axis lead | mm | 10 | |
| | Z axis diameter | mm | 32 | |
| | Z axis lead | mm | 10 | |
| Turret | Max. number of tool | st. | 12 | 12[BMT55] |
| | Turning tool shank size | mm | □25x25 | |
| | Boring bar diameter | Ø | 40 | |
| | Turret index time | s | 0.15 | |
| | Tool selection | - | Random | |
| | Curvic coupling diameter | mm | 145 | |
| | Turret clamping force (at 35bar) | N | 62,230 | |
| | Turret driving | - | Servo Motor | |
| Coolant | Coolant pump pressure | bar | 1.5 | |
| | Coolant pump motor | kW | 0.4 | |
| | Coolant tank capacity | ℓ | 210 | |
| Hydraulic | Hydraulic tank capacity | ℓ | 14 | |
| | Max. hydraulic pressure | bar | 35 | |
| Lubrication tank capacity | | ℓ | 3 | |
| Machine Weight | | kgf | 5,000 | 5,100 |
| Floor Space (length x width) [with Chip Conveyor & Coolant tank] | | mm | 1,500 x 1,760 [SIDE : 3,270 x 1,760] [REAR : 1,500 x 3,490] | |

| | | | |
|--|-----|---------|----|
| Height [with Chip Conveyor & Coolant tank] | mm | 2,470 | |
| Voltage Required | V | 220 | |
| Power Requirement | Kva | 29 | 33 |
| NC | - | F 0i-TD | |

TOOL PRESETTER [Opt.]

- **MANUAL TOOL PRESETTER (Removable TYPE)**
Manual Tool presetter serves as a monitoring system for tool wear compensation and tool-breakage detection
- **TOOL SETTING**
Tool setting data is registered to the CNC by simply bringing the tool tip into contact with the tool sensor.
- **TOOL PRESETTER FOR PRODUCTIVITY**
 - Reduced set-up time
 - Reduced change over time from part to part
 - Reduced time due to worn inserts or broken tools

HYDRAULIC CHUCK & CYLINDER

- **Chuck Type** HC-08A06-SM (SAMCHUNLLY)
- **Matching Soft / Hard Jaw** SB08B1/HB08A1
- **Jaw Stroke Diameter** ϕ 8.8 mm
- **Max. Speed of Chuck** 4,000 rpm
- **Spindle Nose** A2-6
- **Chuck Cylinder Type** YH-12125RE (SAMCHUNLLY)
- **Cylinder Ability**
 - Max. Allowable Pressure** 40.8 kgf / cm² (40 bar)
 - **Thrust (Push / Pull)** 4,326 kgf / 4022 kgf (42 KN / 39 KN)

BALL SCREW

- **X Axis : R32-10K6-FSC-392-518-0.008 (HIWIN)**
- **Z Axis : R32-10K6-FSC-447-602-0.008 (HIWIN)**

LUBRICATION

- **Pump unit** AMZ-III-1-3 (LUBE)
- **Motor** 19W AC100V x 50 / 60 Hz
- **Discharge flow rate** 0.09 / 0.11 L/min
- **Discharge pressure** 15 kgf/cm²
- **Tank capacity** 3 Liters

COOLANT AND CHIP PAN

- **Type** Removable / Independent
- **Discharge & Pressure** 210 L/min
0.5 kgf/cm² at 60 Hz

MACHINE SPECIFICATIONS**CAPACITY**

| | |
|----------------------------|--------------------|
| Maximum Swing (on the Bed) | Ø550mm |
| Turning Diameter (Max.) | Ø400mm |
| Maximum Turning Length | 280mm |
| Chuck Size | 8 " standard (10") |

SPINDLE

| | |
|--------------------|-------------------------|
| Spindle Nose | A2-6 (ASA) |
| Bore Diameter | Ø42 |
| Main Spindle Motor | 11/ 15 kW |
| Spindle Speed | 4,000 rpm with 8" chuck |
| Spindle Torque | 381.4 / 190.7 N.m |

SLIDE & CARRIAGE

| | |
|--------------------|----------------------|
| "X" Axis Travel | 230 mm |
| "Z" Axis Travel | 280 mm |
| Rapid Traverse "X" | 24 m/min |
| Rapid Traverse "Z" | 24 m/min |
| Slide Ways (X / Z) | Linear Guide(Roller) |

TURRET

| | |
|--------------------------------------|----------|
| Number of Tool Stations | 12 Tools |
| Turret Indexing Speed (Full) | 0.15 s |
| Tool Size (Turning and Facing) | □25x25 |
| Tool Size (Boring Bar Max. Diameter) | Ø40 mm |

MACHINE SIZE

| | |
|----------------------------------|--------------------------|
| Floor Space Requirements (L x W) | 1,500 x 1,760 |
| Machine Weight | 5,000 kg (5,100kg) |
| Power Consumption | 29(33)kVA |
| Voltage | 220V±10%, 60 Hz, 3 phase |

CNC

| | |
|--------------|-----------------------------|
| CNC Model | Fanuc 0i-TD |
| Display Unit | 10.4" TFT LCD Color Monitor |

STANDARD EQUIPMENT

- **10.4" TFT LCD Color Monitor**
- **Machine Work Light**
- **Complete Coolant System(4.5bar-60Hz) :** Tank capacity 210 Liters
- **Splash Guard with rear coolant tank (Full Coverage)**
- **8 Inch Dia. Hydraulic Solid Chuck Package:**
 - Samchully with One (1) set of hard jaws, Three (3) set of soft jaws
- **Hydraulic Unit:** 1.5 kW Pump, 14 liter Tank, 35 kgf/cm² (35 bar)
- **12Drum - 12 Position Turret**
- **Lubrication System**
- **Front /SIDE Door Interlock**
- **Machine Arranged for 220V \pm 10%, 60Hz**
- **One (1) set of Adjusting Tools**
- **Manuals: One (1) each** (Programming, Operating, Part List, Electric circuit diagrams)
- **12D 12P Turret Standard Tooling Pack.**
- **Safety precaution name plate**
- **Leveling Blocks**
- **Chuck Clamp foot switch**
- **Chuck Clamp confirmation**
- **Chuck pressure switch**
- **Main spindle orientation**

| Items | PL250V(R,L) | PL250VM(R,L) |
|-------------------------|-------------|--------------|
| Face holder | 1pc | 1pc |
| O.D holder | 5pc | 3 pc |
| Boring bar holder | 5pc | 3 pc |
| Axial Holder | - | 2 pc |
| Radial Holder | - | 2 pc |
| U-Drill Holder | 1pc | 1 pc |
| Boring Bar Sleeve: Ø 32 | 1pc | 1pc |
| Boring Bar Sleeve: Ø 25 | 1pc | 1pc |
| Boring Bar Sleeve: Ø 20 | 1pc | 1pc |
| Boring Bar Sleeve: Ø 16 | 1pc | 1pc |
| Boring Bar Sleeve: Ø 12 | 1pc | 1pc |
| Boring Bar Sleeve: Ø 10 | 1pc | 1pc |

| | | |
|------------------------|-----|-----|
| Boring Bar Sleeve: Ø 8 | 1pc | 1pc |
| Drill Socket MT 2,3, | 1pc | 1pc |

OPTIONAL EQUIPMENT

- Auto Door
- External Work Counter
- Linear scale (X/Z axis)
- 3 Step Patrol Lamp
- High Pressure Coolant (4.5, 7, 10, 14.5, 20 bar - 60Hz)
- Chip Conveyor (Rear / Side)
- Chip Bucket
- Chuck Air Blower
- Tool Presetter
- Special Chuck
- Air gun
- Oil skimmer
- Dual pressure chucking
- Chuck coolant
- Coolant gun
- Coolant chiller
- Coolant pressure switch
- Coolant level switch
- Mist collector
- Soft Jaw (1 set, 3 each)
- Hard Jaw (1 set, 3 each)
- Transformer
- Boring Bar Holder 32(1-1/4")
- Boring Bar Sleeve 25(1")
- Boring Bar Sleeve 20(3/4")
- Boring Bar Sleeve 16(5/8")
- Boring Bar Sleeve 12(1/2")
- Boring Bar Sleeve 10(3/8")
- Boring Bar Sleeve 8(-)
- Drill Socket (MT#2, MT#3)

CONTROL SPECIFICATIONS

| | Item | F0i-TD |
|-------------------------------------|--|------------------------------|
| Controlled axis | Controlled axes | 2(X,Z) |
| | Cs contouring control | 1(C) (PL 800VM Only) |
| | Max. simultaneously controlled axis | 4 |
| | Least command increment | 0.001mm / 0.0001" |
| | Chuck and tail stock barrier | O |
| | Stored stroke check 1 | O |
| | Stored stroke check 2,3 | O |
| Interpolation/Feed functions | Linear interpolation | G01 |
| | Circular interpolation | G02, G03 |
| | Dwell | G04 |
| | Polar cordinate interpolation | G12.1, G13.1 |
| | Cylindrical interpolation | G07.1 |
| | Polygon machining with two spindles | G50.2, G51.2 (PL 800VM Only) |
| | Variable lead thread cutting | G34 |
| | Continuous threading | O |
| | Reference position return | G28 |
| | Reference position return check | G27 |
| | 2nd/3rd/4th reference position return | G30 |
| | Rapid traverse rate override | F0, 25%, 50%, 100% |
| | Feedrate override | 0 ~ 150% |
| | Jog Override | O |
| | Pulse handle feed | X1, X10, X100 |
| | Feedrate per minute | G98 |
| | Feedrate per revolution | G99 |
| Spindle function | Spindle orientation | M19 |
| | Rigid tapping | M28 |
| | Spindle override | 50 ~ 150% |
| Tool functions | Tool number command | T4-Digt |
| | Tool nose radius compensation | G40 ~ G42 |
| | Tool offset pairs | 64 |
| | Tool geometry/wear offset | O |
| | Tool life management | O |
| | Tool path graphic display | O |
| | Automatic tool offset | O |
| | Direct input of tool offset value measured | O |

| | Item | F0i-TD |
|---|--------------------------------------|--------------------------|
| | B | |
| Program input, Editing operation | Absolute/incremental programming | O |
| | Multiple repetitive cycle | G70 ~ G76 |
| | Multiple repetitive cycle II | O |
| | Canned cycles | G90, G92, G94 |
| | Decimal point programming | O |
| | Inch/metric conversion | G20 / G21 |
| | Program restart | O |
| | Sub program call | O |
| | Max. programmable dimension | ±99999.999mm/±9999.9999" |
| | M function | M3 digit |
| | Custom macro | O |
| | Canned cycle for drilling | O |
| | Direct drawing dimension programming | O |
| | Programmable data input | G10 |
| | Tape code | ISO / EIA |
| | Single Block | O |
| | Dry Run | O |
| | Optional block skip | O |
| | Workpiece coordinate system | G52 ~ G59 |
| | G code system | A/B/C |
| | Number of registerable programs | 400EA |
| Interface function Data Input/Output | Embedded ethernet | O |
| | USB Interface | O |
| | RS-232C | O |
| | Memory card input/output | O |
| | USB memory input/output | O |
| | Part program storage size | 512Kbyte(1280m) |
| Setting and display | Alarm & Operator history display | O |
| | Run hour and parts count display | O |
| | Display spindle & servo overload | O |
| | Self-diagnosis function | O |
| | Extended part program editing | O |
| | Display screen | 10.4" color |
| | External message | O |
| | Multi-language display | O |

STANDARD TERMS AND CONDITIONS

Warranty

The machine is warranted against defects in parts, material and workmanship for a period of twelve months after the date of installation. The control, servomotors and main spindle motor are warranted against defects in parts, material and workmanship for a period of twenty-four months after the date of installation.

Installation

Installation of the machine/control system is supervised by SMEC factory trained servicemen without charge to customer. Initial training on machine/control operation and programming will also be done at the time of the machine installation. Additional training in N/C programming will be available on a scheduled basis.

Delivery

Free on Board, Port of Entry, Duty paid, approximately two to four months upon receipt of firm purchase order with down payment.

Payment Terms

L/C AT SIGHT from the date of shipment from port.

Thank you for the opportunity to quote your machining needs with the SMEC PL250V Horizontal Turning Centers.

After an examination of this quotation, should you have any questions, or desire additional information, please do not hesitate to contact us.

Sincerely,