

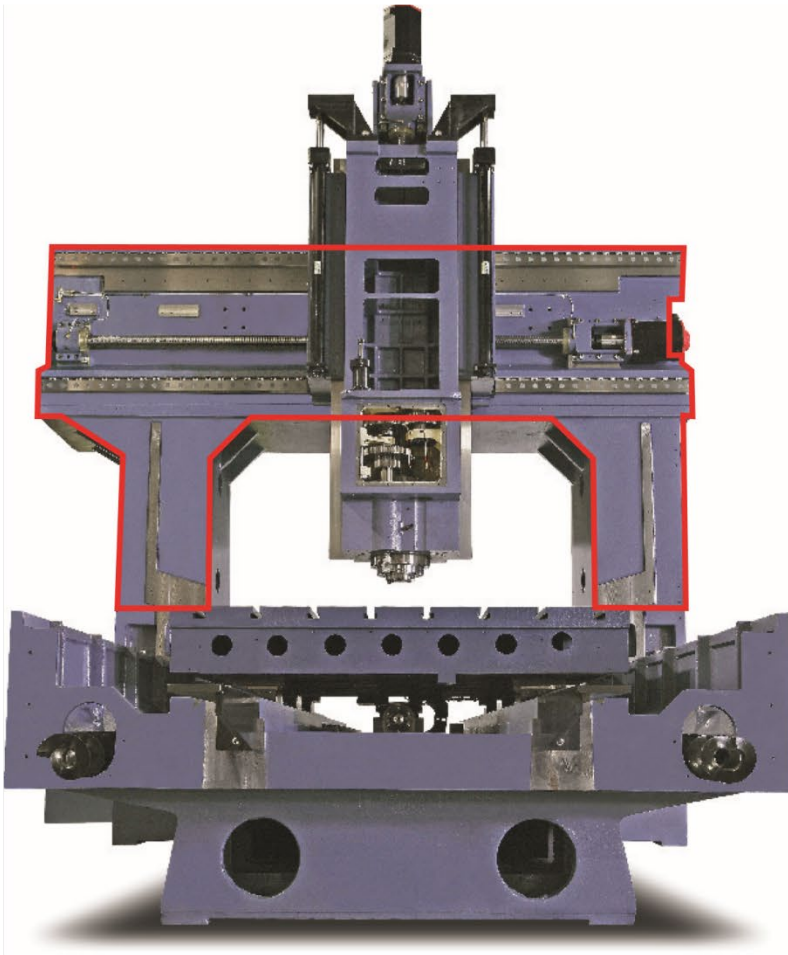


**PV-4221 DOUBLE COLUMN
VERTICAL MACHINING CENTER**

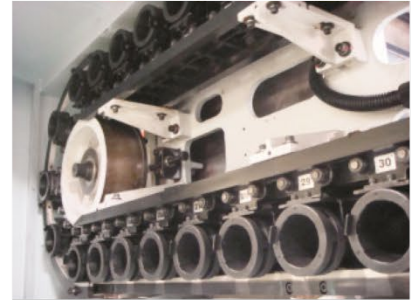
Campro USA
5 Highland Avenue • Suite C • Bethlehem, PA 18017
Phone (484) 892-6333 • Fax (484) 892-6334
sales@campro-usa.com

STANDARD FEATURES:

- * Fanuc Oi-MF PLUS Control (Package 1)
- * AI APC Contour Control
- * 6,000 RPM Spindle with Gear Head (10,000 RPM Built In is optional)
- * Spindle Oil Chiller
- * Powerful 25 HP (30 min) high torque spindle motor
- * High Column (37.4" Spindle nose to table)
- * Cartridge Spindle Design
- * CAT50 Big Plus Spindle
- * 1,000 PSI Coolant thru spindle prep
- * Spindle Air Blow
- * Rigid tapping
- * Twin Arm 32 Tool ATC
- * Portable Manual pulse generator
- * Program and data protection key switch
- * Massive One-piece Meehanite cast iron bed
- * X & Y Heavy Duty Linear Guides
- * Z axis Heavy Duty Box Way
- * Chip Auger
- * Chip Conveyor (W/ Bucket)
- * Double Anchored, Pre-tensioned Ballscrews
- * Fast X & Y - 787, Z - 630 IPM Rapid Traverse rate
- * Flood coolant with large coolant tank
- * Work light
- * Heat exchanger for Electrical Cabinet
- * Automatic Lubrication Unit
- * Instruction manual, parts list, and electrical diagram
- * Fanuc operator and maintenance manuals
- * One-year Parts warranty: Parts
- * Two-year NC Control Warranty: Parts and Labor by control builder



Automatic Tool Change Capacity

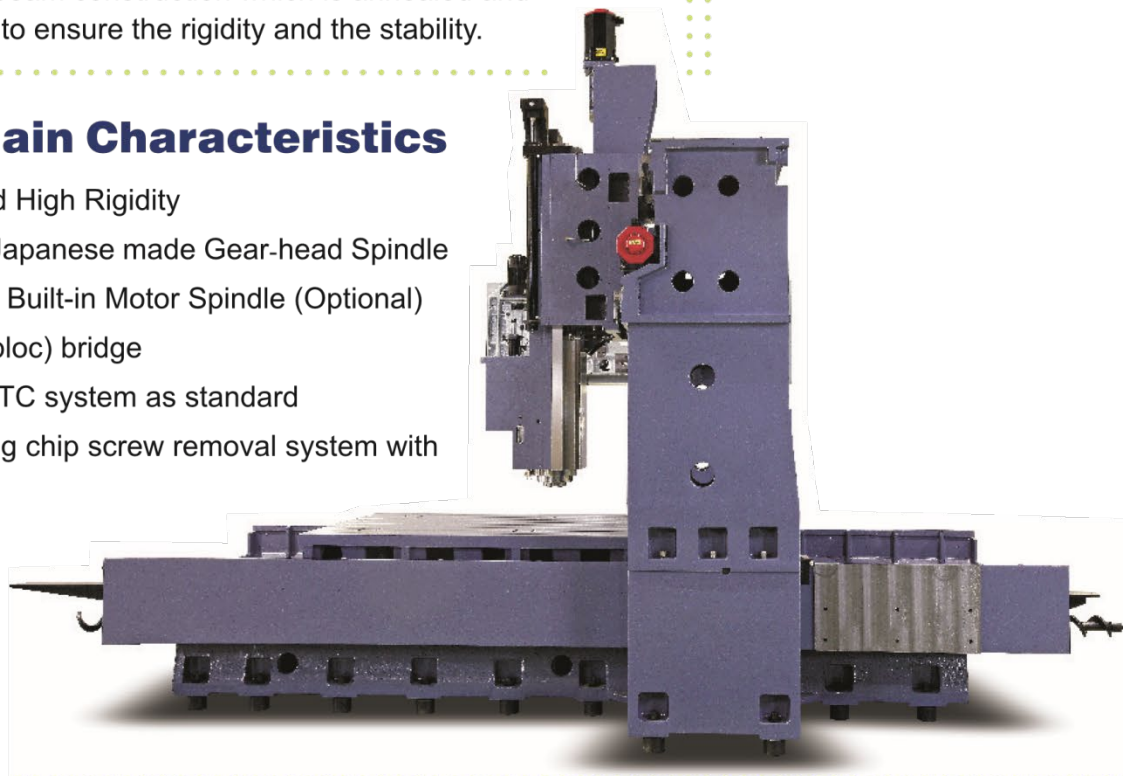


- 32-tool BT-50 chain type tooling system
- Maximum tool diameter 125 mm, tool length 300 mm and tool weight 15 kg
- Dual arm ATC system to ensure the no system with user-friendly design

The single unit (monobloc) oversized bridge is made from one piece box type beam construction which is annealed and stress released to ensure the rigidity and the stability.

PV Series Main Characteristics

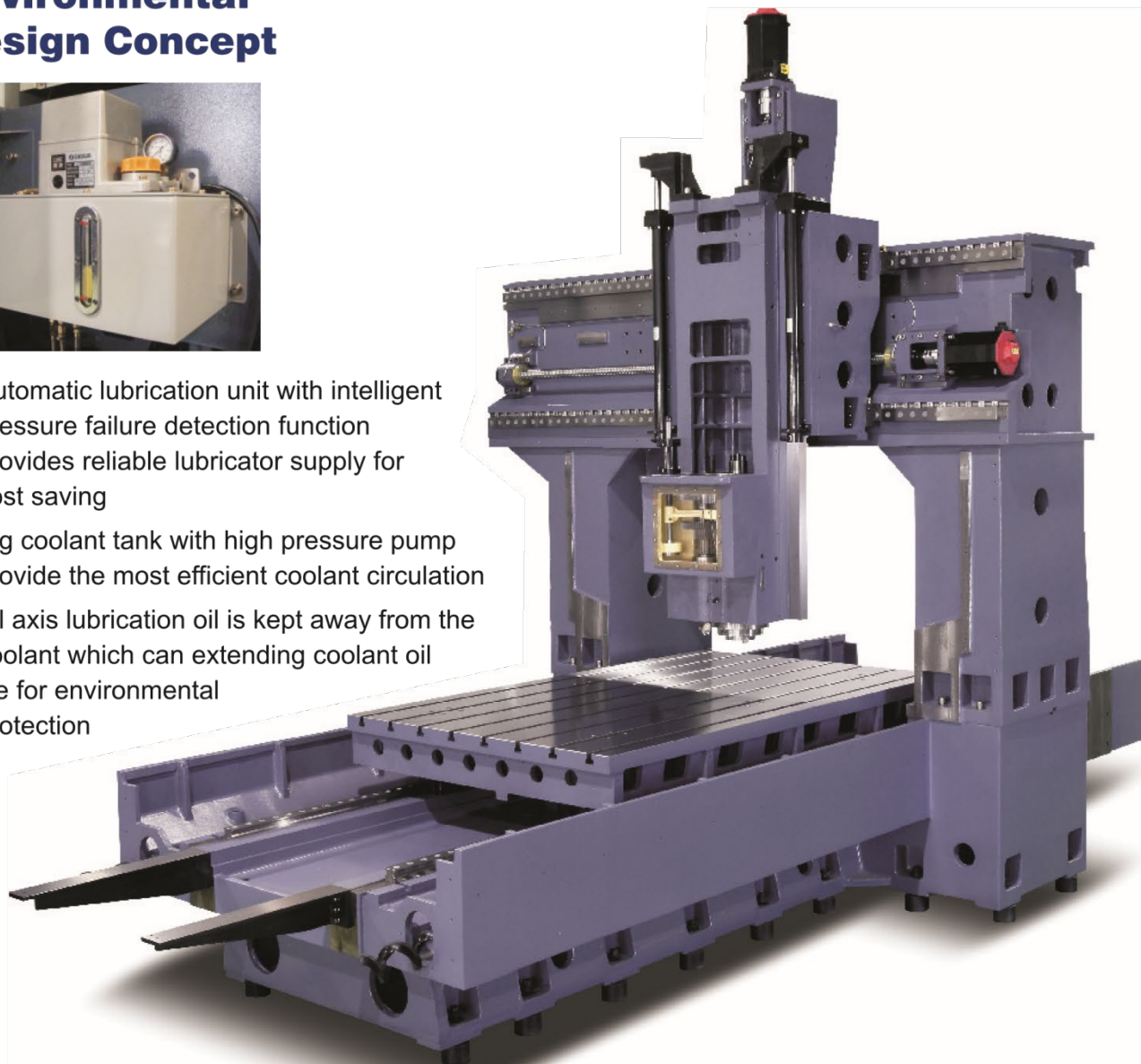
- High Accuracy and High Rigidity
- 25 hp, 6,000 rpm Japanese made Gear-head Spindle
- 34 hp, 10,000 rpm Built-in Motor Spindle (Optional)
- Single unit (monobloc) bridge
- Largest 32-tools ATC system as standard
- Dual built-in casting chip screw removal system with chip conveyor
- Roller type linear guideways on X-axes and Y-axes



Environmental Design Concept

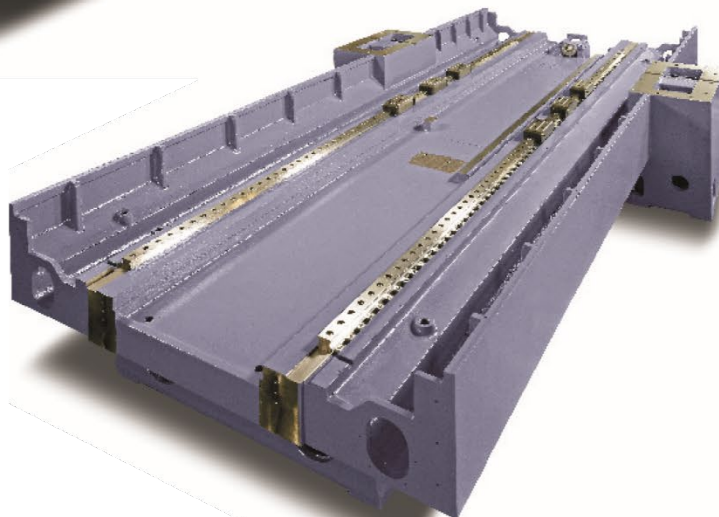


- Automatic lubrication unit with intelligent pressure failure detection function provides reliable lubricator supply for cost saving
- Big coolant tank with high pressure pump provide the most efficient coolant circulation
- All axis lubrication oil is kept away from the coolant which can extending coolant oil life for environmental protection



Base Structure

- Extra heavy load recirculating roller linear guideway on X-axis and Y-axis
Fast rapid feedrate on X-axis and Y-axis are 20 m/min, and Z-axis is 16 m/min
Automatic lubrication to the sliding points
Final laser inspection and ball bar testing ensure repeatability and positioning accuracy. Linear scales for high precision feedback system (Optional)



PV-4221



High reliability and high power double column machine

- BT-50 25 HP spindle motor 6,000 rpm
Japanese made two steps variable gear-head for heavy cutting
- Output torque is 521 Nm, provide wide range of cutting capacity for heavy cutting at low speed and fine cutting at high speed
- BT-50 34 HP 10,000 rpm built-in motor spindle for robust performance and unsurpassed reliability (Optional)

Spindle System

• 2-stage variable gear-head spindle

Power : 15 / 18.5 kW
Torque : 521 Nm
Speed : 50~6,000 rpm
Spindle taper : 7/24 Taper No. 50
Tooling : BT

• Built-in motor spindle

Power : 22 / 25 kW
Torque : 233 Nm
Speed : 10,000 rpm
Spindle taper : 7/24 Taper No. 50
Tooling : BT / HSK

Optional Accessories



Hydraulic-clamped 90° Angular Milling Head with four positions at 0°, 90°, 180°, and 270°.

- Manual
- Automatic
- 2,000 rpm
- 3,500 rpm



3,000 rpm manual Universal Milling Head



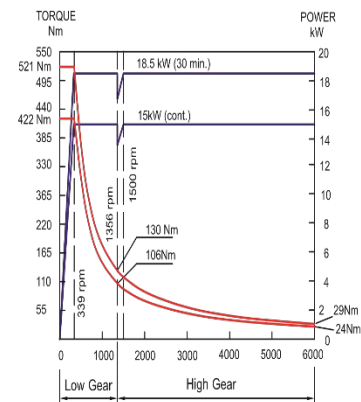
3,500 rpm, 300 mm lengthened Extended Head with tool clamp/unclamp



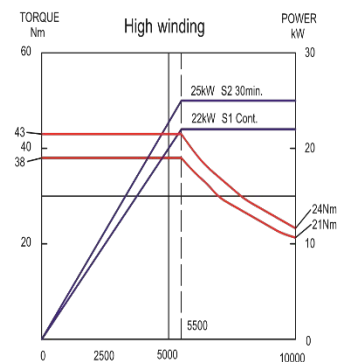
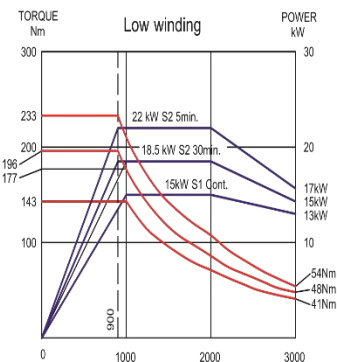
30° / 45° Angular Milling Head

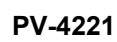
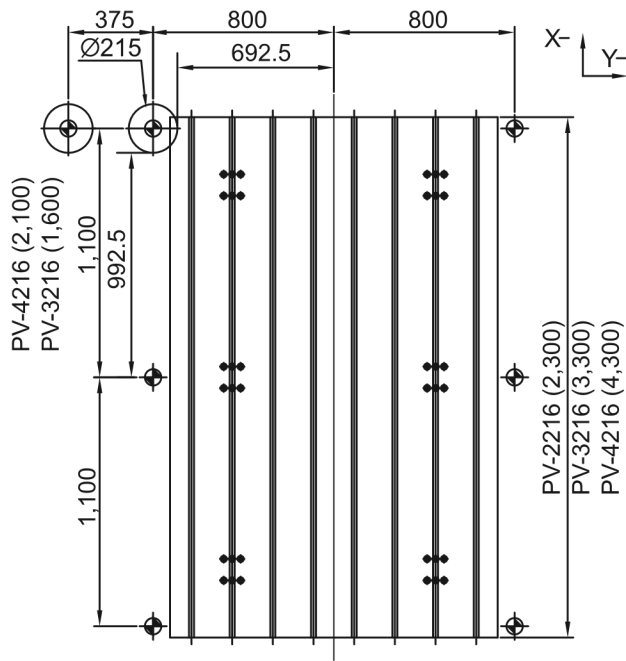
Spindle Diagram

FANUC 25HP



Built-in Spindle Motor (Optional)





SPECIFICATIONS

TABLE:

Table loading area	157.48" x 66.93"
Allowable table load	22,046 lbs.
T Slots, width x spacing x # slots	.86" X 8"

SPINDLE:

Spindle taper	CAT-50 Big Plus
Spindle RPM	6,000 RPM
Spindle Power Output (max 30 min.)	25 HP
Spindle torque (max 30 min)	459.5 ft. lbs.
Spindle Driving Method	Gear Type

FEED:

X axis travel	165.3"
Y axis travel	82.6"
Z axis travel	31.4"
Spindle nose to table surface	9.87" – 49.20"
Distance between Columns	88.61"
Rapid Traverse X axis	472 IPM
Rapid Traverse Y and Z axis	590 IPM

AUTOMATIC TOOL CHANGER:

Number of Tools	32
Tool Shank	CAT 50
Max. Tool Dia.	4.92
With adjacent pocket open	8.46
Max. Tool Length	17.38 inches
Max. Tool Weight	44.1 lbs.
Tool Selection Method	Random

TANK CAPACITY:

Coolant Tank	53 Gallons
Lubricating Tank	.5 Gallons
Hydraulic Tank	30 Gallons

POWER SUPPLY:

Electric Power Supply Voltage / KVA	220V 3 Phase (60HZ) / 40
Minimum Air Supply	85 PSI (3/8 ID Supply Hose)

FEED AND ACCURACY:

Cutting feed rate	315 IPM
Least command increment	.001mm
Positioning accuracy	+/- .00020" (full stroke)
Repeatability	+/- .00008"

MACHINE:

Floor Space Required (L X W)	425.2" x 196.85"
Height	165.35"
Machine Weight	83,776 lbs.

Control Specifications - Fanuc OiM-F PLUS Control

10.4" color LCD screen
Color graphics
Simultaneous Controlled Axis
Part Program Storage 2 MB
AICC-2
 AI Contour Control
 Fine Surface Machining
 Jerk Control
Setup Guidance Function
Dynamic Graphic Display
Manual Guide I
1,000 Registerable Programs
Multi Step Skip
Manual Handle Retrace
Quick Program Restart
Least input Increment on X, Y, and Z is .001 mm
Least command increment on X, Y, and Z is .001mm
Inch/Metric Conversion (G20/G21)
Interlock on All Axes
Machine Lock on All Axes
Emergency Stop
Stored Stroke Check 1, 2, 3,
Mirror Image
Backlash Compensation
Unexpected torque detection
Stored pitch compensation
MDI Operation
Search Function (Sequence, Program)
Program restart
Dry Run
Single Block
Buffer Register
Manual Handle Interrupt
Manual Jog Feed (Rapid, Jog, Handle)
Manual Handle Feed Rate (x1, x10, x100)
Feed Command (F Code Feedrate Direct Command)
Feedrate Override 0-200% (10% Unit)
Rapid traverse override (F0, F25%, F50%, F100%)
Override Cancel
Rapid Traverse Bell-Shaped Acceleration/Deceleration
Block Skip
Exact Stop Mode / Exact Stop (G61/G09)
Dwell (G04)
Helical Interpolation
Manual Reference Point Return
1st Reference Point Return G28
Reference Point Return Check G27
2nd Reference Point Return G30
3rd and 4th Reference Point Return
Program stop, optional stop, end of pgm M00, M01, M02, M30
Tape Code EIA RS-244/ISO 840 (Automatic Recognition)
Optional Block Skip (9 ea)

Maximum Programmable Dimensions +/- 9999.9999" (+/- 8 digits)
 Program Number O4 Digit
 Absolute and Incremental Command G90/G91
 Decimal Point Input
 Plane Selection G17. G18. G19
 Work Coordinate System Setting (G52 – G59)
 Work Coordinate Preset
 Additional Work Coordinate System 48 pairs
 Manual Absolute "On" fixed
 Programmable Data Input G10
 Sub Program Call 4 Levels of Nesting Custom Macro #100 to #199
 Addition to Custom Macro Common Variables #500 to #999
 Circular Interpolation by radius R
 Canned Cycle (G73, G74, G76, G80 ~ G89)
 Optional Chamfering / Corner R
 Skip Function (G31)
 Automatic Coordinate System Setting
 Coordinate System Rotation
 Programmable Mirror Image
 Single direction positioning (G60)
 External Data Input (Tool Offset, message, machine zero point shift)
 Cylindrical interpolation
 A1 Advance Preview Control (G5.1)
 Polar Coordinate Command
 Miscellaneous Function (M3 digits)
 Miscellaneous Function Lock
 Spindle Speed Command (S5 Digits, binary output)
 Spindle Speed Override (50% ~ 120%) 10% Unit
 Rigid Tapping
 Cutter Compensation C (G40-G42)
 Tool Length Measurement
 Tool Length Compensation (G43, G44, G49)
 Tool Offset Amount (+/- 6 Digits)
 Tool Offset Pairs (400 Pairs)
 Tool Life Management
 Reader/Puncher Interface RS232C
 Memory Card input/output
 Embedded Ethernet (100 Mbps)
 Part Program Storage Length: 320M
 Registered Programs 400 ea
 Memory Lock
 Back Ground Editing
 Extended Part Program Editing (Copy, Move, Change of NC Program)
 Self Diagnosis Function
 History Display of Alarm and Operator Message
 Help Function
 Run Hour / Parts Count Display
 Actual Cutting Feedrate Display
 Spindle / Servo Setting Screen
 Multi-language display (Selection of 5 Optional Language)
 Erase CRT Screen Display (Screen Saver)
 Bi-Direction Pitch Error Compensation
 Tool Management Function
 Protection of Data at 8-Levels

Tool Monitoring Function (HWTM – Built-on Fanuc Type)
Fanuc Manual Guide i conversational programming
Alpha i AC digital servo system with 1,000,000 pulse encoders
Full MDI keyboard
PCMCIA data card slot on left side of LCD for program input / output – up to 2GB storage
Advanced Preview Control (Look ahead of multi-blocks – 20 blocks look ahead)
Automatic Acceleration / deceleration with Bell Shaped rapid acc / dec
3 axes simultaneous control std. (4 axis opt.)
Scaling
Custom Macro B
High speed skip signal