



CAMPRO CPV-1050B 4 Plus 1 HIGH PERFORMANCE VERTICAL MACHINING CENTER

MACHINE FEATURES

- Constructed with high quality meehanite cast iron and heat treated to relieve stress thereby assuring maximum rigidity and accuracy.
- Box ways on all 3 axes greatly upgrades stability and dampening capability.
- Automatic lubrication unit with intelligent pressure failure detection function provides reliable supply for saving cost and for environmental protection.
- Oil-coolant separation design which meets the environment protection requirements allows centralized collection for all way oil.

STANDARD FEATURES:

- * Fanuc Oi-MF PLUS Control
- * AICC2+ Contour Control
- * 12,000 RPM Spindle (Belt Drive)
- * Powerful 25 HP high torque spindle motor
- * Cartridge Spindle Design
- * CAT40 Big Plus Spindle
- * 290 PSI Through Spindle Coolant
- * Spindle Air Blow
- * Rigid tapping

STANDARD FEATURES (CONT'D):

- * Custom Macro B (User Definable)
- * Twin Arm 24 Tool ATC
- * Portable Manual pulse generator
- * Massive One-piece Meehanite cast iron bed
- * Chip Auger
- * 4th Axis Prep
- * Low friction Turcite mating way surfaces
- * Double Anchored, Pre-tensioned Ballscrews
- * Fast 1,181 IPM Rapid Traverse rate
- * Full enclosure splash guard
- * Flood coolant with large coolant tank
- * Work light
- * Operator call lamp (red, yellow, green)
- * Spindle load meter
- * Assembly and operation tools
- * Auto Power Off
- * Heat exchanger for Electrical Cabinet
- * Instruction manual, parts list, and electrical diagram
- * Fanuc operator and maintenance manuals
- * WARRANTY-MACHINE: One-Year
- * WARRANTY-CONTROL: Two-Years

SPECIFICATIONS

CAPACITY:

X axis travel	41.3"
Y axis travel	20.9"
Z axis travel	30.7"
Table loading area	41.3" x 20.9"
Allowable table load	2200 pounds

TRUNNION TABLE

Table diameter	12.6"
Maximum Workpiece Diameter	15.75"
Spindle nose to trunnion table top	20.6"
Maximum Workpiece Weight	220 pounds

SPINDLE:

Spindle nose to machine table top	3.9" – 34.6"
Spindle Bearing Diameter	2.8"
Column to spindle center	23.2"
Spindle taper	CAT 40 Big Plus
Spindle speed	12,000 RPM
A.C. spindle motor	25 HP
Spindle torque	132 ft-lbs.
Spindle Driving Method	Belt Drive

SPECIFICATIONS (Continued)

AUTOMATIC TOOL CHANGER:

ATC Type	Twin Arm Type
Number of Tools	24
Tool Shank	CAT 40
Max. Tool Dia.	3.1"
Max tool Diameter (No Adjacent Tool)	5.9"
Max. Tool Length	9.8"
Max. Tool Weight	15.4 lbs.
Tool Selection	Random Bi-Directional

MOTION:

X and Y axis rapid traverse rate	1,181 IPM
Z axis rapid traverse rate	1,181 IPM
Cutting feed rate	393 IPM
Slide Type	Box Ways
Least command increment	.001mm,
Roundness accuracy	< .00020"
Bi-Directional Accuracy	< .00020"
Bi-Directional Repeatability	< .00030"

GENERAL:

Floor Space Required (W x D X H)	125" x 96" X 120"
Machine Weight	14,770 lbs.
Standard Power Source Requirement - Fanuc	205-235 Volts / 3 Phase/60HZ
Power Capacity	53 Amps Minimum
Air Source Requirement	85 – 115 PSI

CONSTRUCTION:

- Balanced 12,000 RPM Spindle with 6000 BTU spindle oil cooler for High Speed Machining.
- Hardened and Ground C3 Double Nut Ballscrews (Ø40 mm) are pre-tensioned to minimize backlash, provide high precision movement, and reduce heat deformation on all axes.
- All solid ways are coated with high grade Turcite-B. Hardened and ground slideways give an extra 40% wear resistance.
- 2 Solid Box Ways are on a one-piece base instead of two supporting ways connected to the main base, which provides more rigidity under heavy machining.
- Main frame is made of Meehanite casting for superior rigidity

BED, COLUMN, AND SADDLE:

The bed is a rigid one-piece casting with heavy ribbing to prevent deformation during heavy cutting. Fine grain Meehanite cast iron is used for its excellent dampening characteristics. Extra wide boxways provide excellent support for the saddle, regardless of the load distribution on the table. The table is fully supported by the saddle in all positions. There is no table overhang. The rigid box type column casting is heavily ribbed to prevent twisting or distortion.

CONSTRUCTION (Continued)

SPINDLE, HEADSTOCK, AND COLUMN

The high speed, 12,000 RPM, 40 taper spindle is a true cartridge type unit supported by precision class bearings that are permanently grease lubricated. The spindle is driven by a high torque 25 HP A.C. motor delivering an impressive 132 ft/lbs. Power is transferred through a heavy-duty cogged drive belt eliminating slippage, promoting thermal stability, and minimizing vibration. An encoder is attached to the spindle to allow rigid tapping.

GUIDEWAYS

Wide Box ways are used for unsurpassed long-term rigidity and accuracy. Each guideway is induction hardened and precision ground. Turcite is bonded to the mating way surfaces and then hand scraped to ensure perfect fit and tolerances. The Turcite resin with forced way lubrication provides a low friction surface and virtually eliminates guideway wear. All guideways are fully protected from chips and damage.

OIL JACKET SPINDLE CHILLER (STANDARD)

Machine accuracy is maintained by using a refrigeration system that circulates cooled oil around the spindle reducing the thermal effects of any heat generated.

AUTOMATIC TOOL CHANGER

The high quality 24-position tool changer uses a fast random bi-directional twin arm with 2.5 second tool-to-tool change time, and 6 seconds chip to chip.

BALL SCREWS AND AXIS DRIVES

Each axis is driven by a high precision double-nut ballscrew. The ballscrews are centered between the guideways. The ballscrews are supported on both ends by angular contact thrust bearings. This double anchored pretension design provides outstanding positioning repeatability with virtually no thermal growth. All axes have large diameter 40 mm ball screws that are connected directly to oversize AC servo drive motors without gears or belts, to eliminate backlash. Each axis has a flexible coupling to protect the ball screw in the event of a sudden impact. These couplings can be quickly reset.

PORTABLE MANUAL PULSE GENERATOR

The hand held "Manual Pulse Generator" lets each axis move in increments of 0.0001", 0.0010" or 0.0100" making fixture or part alignment quick and easy. The 10-foot cord gives full access to the machine.

290 PSI (20 BAR) THROUGH-SPINDLE-COOLANT SYSTEM

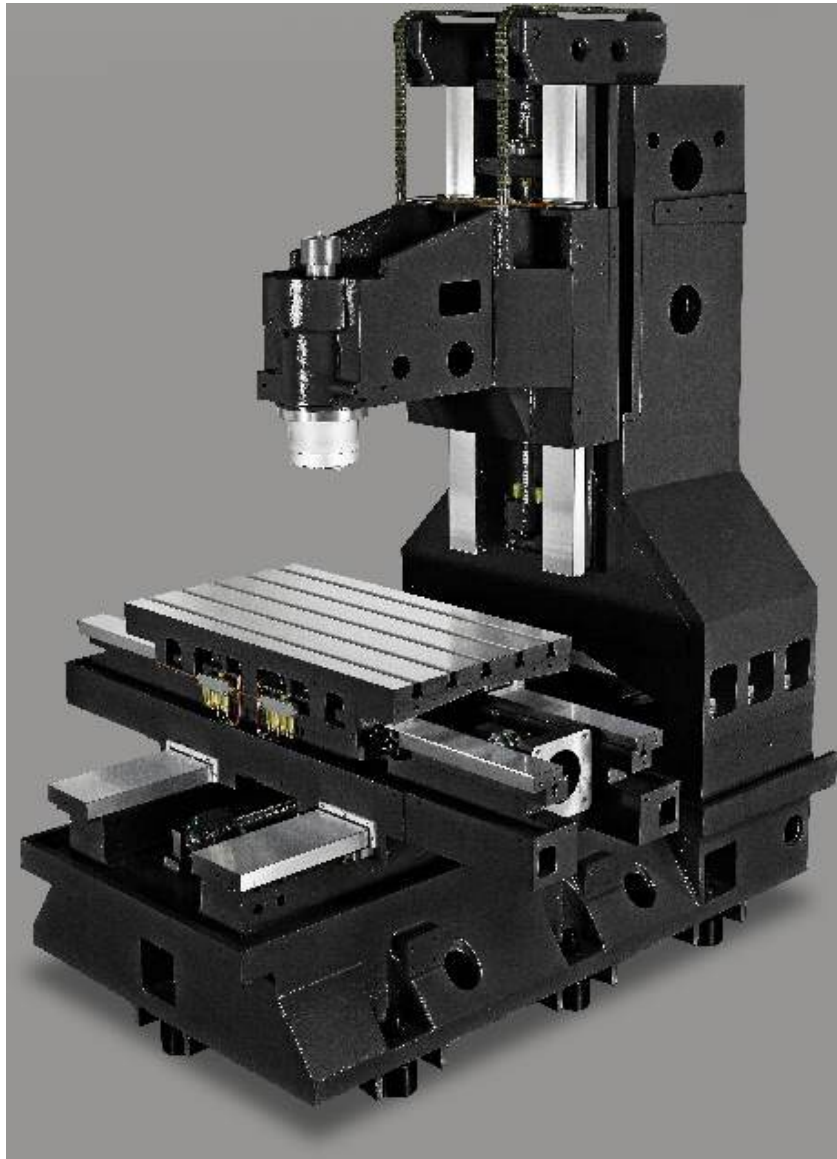
A dedicated 290-PSI positive displacement pump delivers the coolant directly to the tool tip. The immediate benefit is more aggressive feeds and speeds can be maintained throughout the cutting process. There is also no need to stop and adjust coolant nozzles increasing the in-cut time and operator safety. Protecting the spindle and the vital rotary union from contamination is a canister filter with a replaceable 10-micron element.

FULLY ENCLOSED GUARDING

The fully enclosed guarding, including cut-out for filter mist, is made of heavy gauge sheet metal to contain both chips, coolant and coolant mist. The large dual sliding doors open to provide unrestricted overhead access for ease of lifting heavy fixtures or work pieces.

CHIP DISPOSAL AND COOLANT SYSTEM

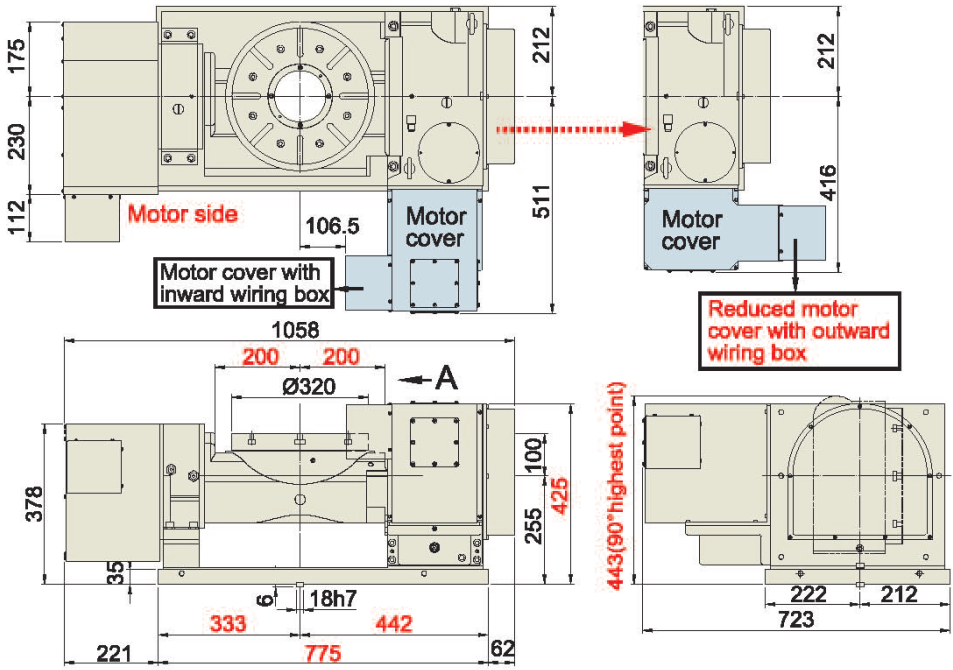
High volume coolant system washes chips down into the front of sheet metal enclosure for chip auger evacuation and provides flood coolant through adjustable head mounted nozzles along with four flushing nozzles mounted directly to spindle nose.



CPV-1050B 4 Plus 1 with 320mm Trunnion Table



FHR-320 (Standard type) 



CPV-1050B 4 Plus 1 with 320mm Trunnion Table

Control Specifications - Fanuc 0i-MF PLUS

10.4" Color LCD Screen

MANUAL GUIDE i

2 MB Program Storage Size

1000 Part Program Storage

AICC2+

Fine Surface Machining:

- 200 Block Look-Ahead
- Smooth Tolerance Control
- Jerk Control
- Machining Quality Level Adjustment

Machine Condition Selecting (Programmable, G05.1 R1-10 sets accuracy level)

USB Reader

RS-232 Interface

PCMCIA Memory Card

Embedded Ethernet

Back Ground Editing

Extended Part Program Editing (Copy, Move, Change of NC Program)

Set-up Guidance

Dynamic Graphic Display

Skip Signal

Multi-Step Skip Signal

Multi-language Display

Color graphics

Simultaneous Controlled Axis

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 disturbance torque detection

Stored pitch compensation

Automatic Operation (Memory)

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 Feed Rate Direct Command)

Feed rate Override 0-200% (10% Unit)

Jog feed 0-5,000 mm/min (197 ipm)

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

Threading/Synchronous Feed

Manual Reference Point Return

1st Reference Point Return G28

Reference Point Return Check G27

Control Specifications - Fanuc 0i-MF PLUS CONT'D:

2nd Reference Point Return G30
3rd and 4th Reference Point Return
Program stop, optional stop, end of program 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)
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
Memory Lock
Back Ground Editing
Extended Part Program Editing (Copy, Move, Change of NC Program)
History Display of Alarm and Operator Message
Help Function
Run Hour / Parts Count Display
Actual Cutting Feed Rate Display
Spindle / Servo Setting Screen
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
Automatic Acceleration / deceleration with Bell Shaped rapid acc / dec
4 axes simultaneous control std.
Scaling
Custom Macro B
High speed skip signal