



CAMPRO CNV-1300 VERTICAL MACHINING CENTER

MACHINE FEATURES:

- Constructed with high quality meehanite cast iron and heat treated to relieve stress thereby assuring maximum rigidity and accuracy.
- The CNV-1300 is equipped with high precision and heavy loading series linear guideways on X and Y axes and rugged box ways on the Z axis.
- The base is reinforced by "A" type rib layout to upgrade absorption capability of vibration and is constructed of a box type structure for excellent rigidity. The machine structure is designed via Finite Element Analysis (FEA) and advanced 3D software.
- Our counter balance system is equipped with a guide rail for increased stability, thus avoiding vibration during high feedrates and rapid traverse, this ensures machining accuracy.

The CNV-1300 is designed for long-term high accuracy, and superior surface finishes. Classic manufacturing methods and ultra-rigid construction are combined with advanced technological features to provide exceptional value.

Please note that features and specifications are subject to change and should be verified at the time of order.

STANDARD FEATURES:

- * Fanuc 0i-MF PLUS Control (Package B)
- * AI APC Contour Control
- * 12,000 RPM Spindle
- * Powerful 25 HP high torque spindle motor
- * Cartridge Spindle Design
- * CAT40 Big Plus Spindle
- * 290 PSI Coolant Through Spindle - Prep Only
- * Spindle Air Blow
- * Rigid tapping
- * Custom Macro B (User Definable)
- * Twin Arm 24 Tool ATC
- * Tool Change Time (Tool To Tool) 3.5 sec.
- * Tool Change Time (Chip to Chip) 7.0 sec. * Portable Manual pulse generator
- * Program and data protection key switch
- * Massive One-piece Meehanite cast iron bed
- * Chip Auger
- * Chip Flushing System
- * Double Anchored, Pretensioned Ballscrews
- * Fast 1,181 IPM Rapid Traverse rate
- * Full enclosure splash guard
- * Flood coolant with large coolant tank
- * Work light (2)
- * 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, Parts
- * Control: Two Years, Parts & Labor

SPECIFICATIONS:

CAPACITY:

X Axis Travel	51.1"
Y Axis Travel	23.6"
Z Axis Travel	24.0"
Distance from Spindle Nose to Table	3.1" – 27.1"

SPINDLE:

Spindle Speed	12,000 RPM (15,000 Optional)
Spindle Motor	25 HP
Spindle Taper Type	CAT 40 Big Plus
Spindle Driving Method	Belt Drive

AUTO TOOL CHANGER:

ATC Type	Twin Arm Type
Tool Shank	CAT 40 BIG +
Pull Stud	P – 40T (45 Deg.)
Tool Storage Capacity	24
Max. Tool Dia.	3.15"
Max Tool Dia. (Adjacent Pot Empty)	5.9"
Max Tool Length	9.8"
Max Tool Weight	15.4 lbs.
Tool Change Time TOOL – TOOL	3.5 sec.
Tool Change Time CHIP – CHIP	7.0 sec.
Tool Selection	Random Bi-Directional Type

FEEDRATE:

Rapid Traverse Feedrate	1,181 IPM X and Y 945 IPM Z
Cutting Feedrate	394 IPM
Least Command Increment	.001 mm,
Positioning Accuracy	.00020"
Repeatability	.00008"

POWER:

Air Source Requirement	85 – 115 PSI (3/8 ID Supply Hose)
Standard Power Source	220V, 60HZ, 3 Phase +/- 10%
Power Capacity	50 Amps Minimum
Floor Plan (W X D)	135" x 100" in.
Height	111" in.

CONSTRUCTION:



- Balanced 12,000 RPM Spindle with spindle oil cooler 6000 BTU for High Speed Machining.
- Hardened and Ground C3 Double Nut Ballscrews are pretensioned to minimize backlash, provide high precision movement, and reduce heat deformation on all axes.

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. 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.

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. 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.

OIL JACKET SPINDLE CHILLER

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

CONSTRUCTION (Cont'd)

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.

BALLSCREWS 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 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.

PROGRAM AND DATA PROTECTION KEY SWITCH

The keyed switch enables the protection mode for both the program and offset data. Removing the key limits access to only authorized personnel. In the unprotected position the key cannot be removed and all data is available for edit.

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.

1,000 PSI THROUGH-SPINDLE-COOLANT (Optional)

Severe applications, holes with high length to diameter ratios or tough materials require high-pressure coolant to evacuate chips and keep the cutting edge cool. The increased coolant and chip flow improves finishes and tool life, while allowing more aggressive feeds and speeds.

FULLY ENCLOSED GUARDING

The fully enclosed guarding is made of heavy gauge sheet metal to contain both chips and coolant. 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.

Control Specifications - Fanuc 0iM-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
- 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 Feedrate Direct Command)
- Feedrate 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

CONTROL SPECIFICATIONS (CONT'D.):

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
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
AI 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: 2 MB

CONTROL SPECIFICATIONS (CONT'D.):

Registered Programs 1000 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
4 axes simultaneous control std.
Scaling
Custom Macro B
High speed skip signal