

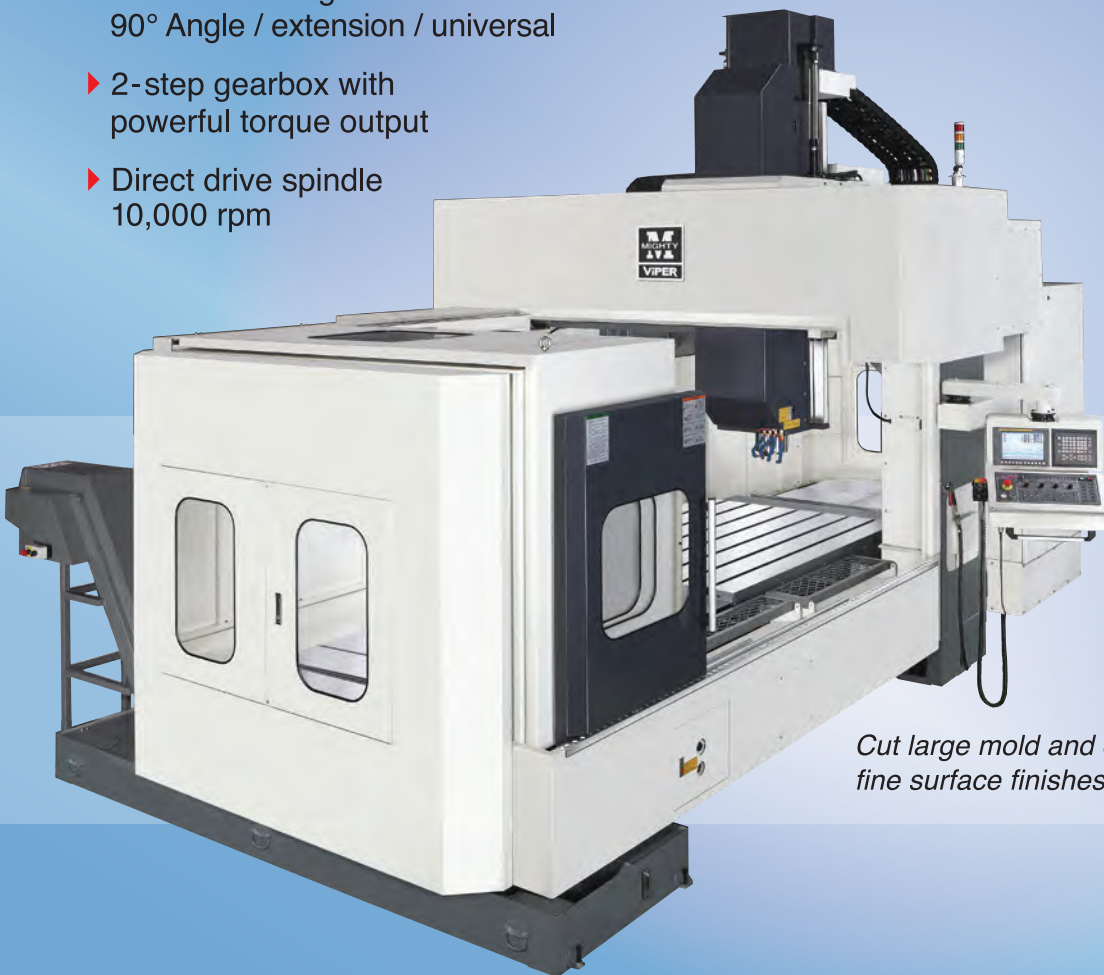
HEAVY-DUTY BOX WAYS

PRO BRIDGE MILL

VERSATILE CUTTING

MULTI-PURPOSE MACHINING

- ▶ Different milling heads:
90° Angle / extension / universal
- ▶ 2-step gearbox with
powerful torque output
- ▶ Direct drive spindle
10,000 rpm



*Cut large mold and die to
fine surface finishes.*

*Great for
job shop
environment*

VIPER



ISO 9001:2008

PRO-Series

2216

2720

3223

4226

6026

Bridge Models PRO-xx16 and PRO-xx20

PRO Bridge Mill

DESIGNED FOR RIGID MACHINING

Through a superior design, a precise manufacturing process and an improved assembly system, we offer a fully complete machine, meeting all the needs, even for the most demanding applications.

PRO Machining Center Features

- X-travel 87" to 165"
- Y-travel 63" to 79"
- Table sizes 79" x 55" to 157" x 67"
- Column distance 67" / 83"

Application Industries

Automotive - Aerospace - Defense - Electronics
Energy - Home appliances - Plastic injection mold



*PRO bridge mill shown with
roof enclosure guarding. (option)*



Solid bed-column construction yields superior rigidity.

Bridge model PRO-xx23 and PRO-xx26

PRO Bridge Mill

DESIGNED FOR HEAVY CUTTING -
HIGHLY RIGID STRUCTURE

The unique slant crossbeam design with large span between two guideways guarantees optimum performance for heavy cutting stability.

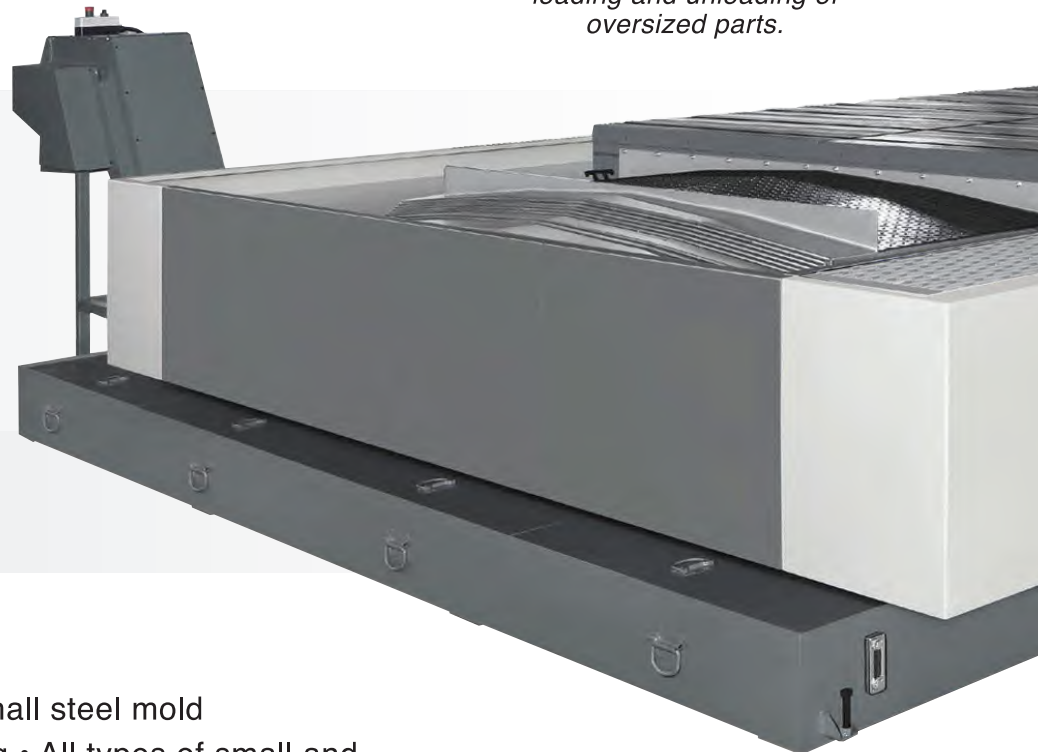
PRO Machining Center Features

- X-travel 126" to 236"
- Y-travel 91" and 102"
- Table sizes 118" x 79" to 236" x 79"
- Column distance 99"/ 110"

Semi-guarding allows for unobstructed workpiece loading and unloading of oversized parts.

Link type **chip conveyor**
standard accessory

Link-type chip conveyor
available as option.



Application Industries

Plastic mold • Medium and small steel mold
Automotive interior processing • All types of small and medium-sized industrial machinery processing

Z-axis utilizes a **counter balance** that provides outstanding dynamic stability on spindle and ballscrews.

CAT-50
Spindle
Taper

Swivel arm hanging pendant **control unit** with utility tray.

Greater table access — **walkway** grating panels are fitted along operator side of work table.

PRO bridge mill shown with optional semi guarding, **full splash guarding** is standard.

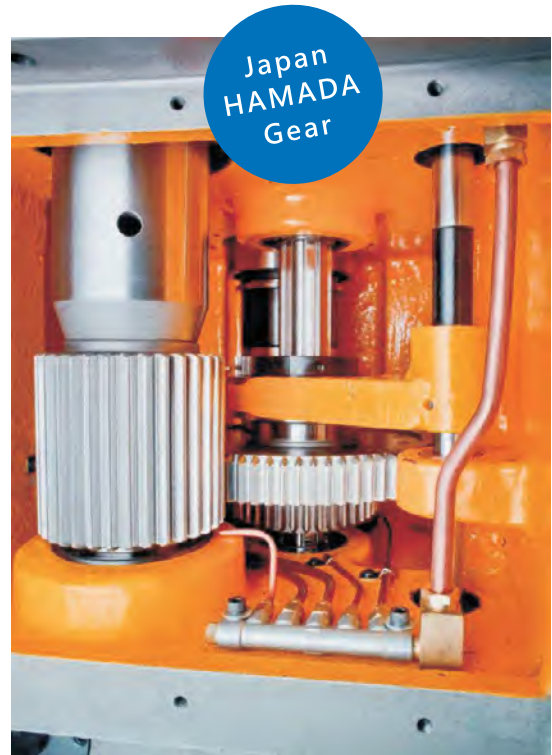
High Precision Spindle Powerful torque output

2-Step Gearbox

with Japanese made JIS class 0 gears.

- High efficiency power transmission.
- Great torque output.
- Forced cooling to bearings, gears, and spindle ensures a constant temperature over the complete system and provides smooth operation.

*The standard 2 speed gearbox employs **Hamada gears** (Japanese made) and has a direct geared head type spindle, providing 562 ft-lbs of torque, utilizing a 35 HP power motor.*



Spindle Selection

A wide variety of spindle options for application specific solutions.

A variety of spindle options are available for application specific efficiency:

- Taper size
- Drive type
- Nose length
- Motor speed

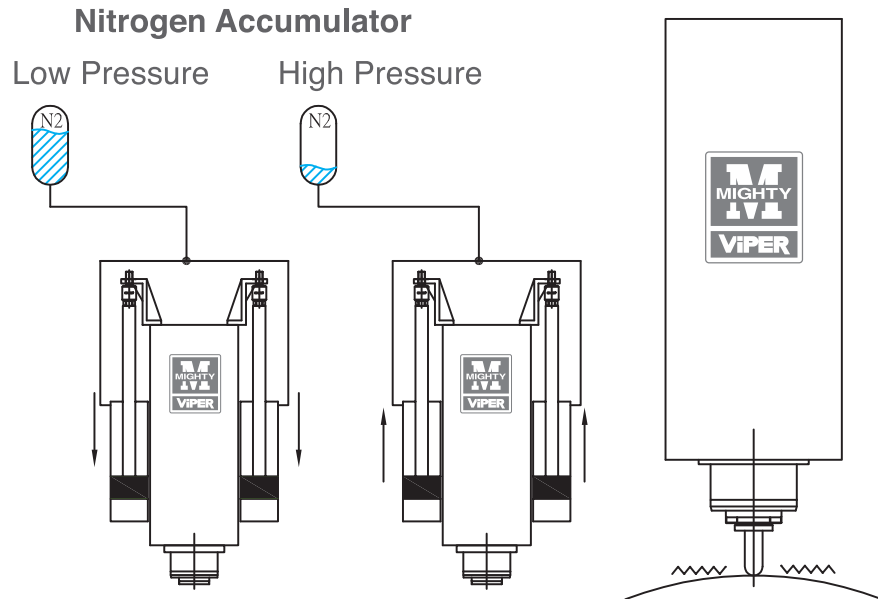
Spindles yield low temperature characteristics, high torque, and long service life.



Outstanding Z-Axis Stability Absorbs impact pressure

Accumulator

The counter-balancing system is equipped with an accumulator to absorb the impact pressure and pressure pulsation, while enhancing the sensitivity of micro movement of the Z-Axis.

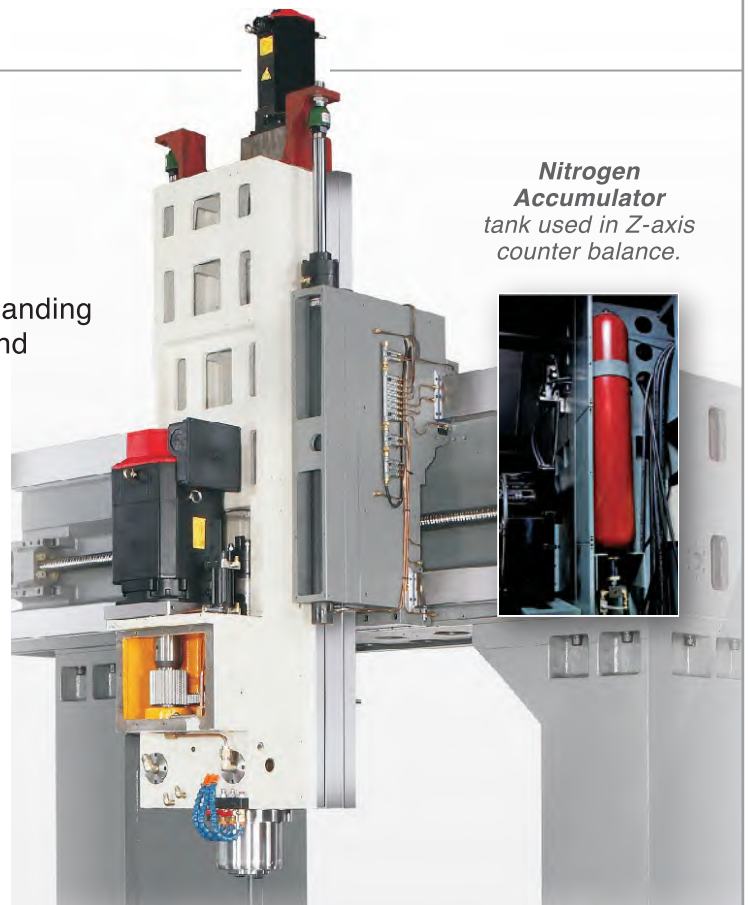


Twin Hydraulic Cylinders Counter Balance

Z-Axis movement is counter-balanced by two hydraulic cylinders. This design provides outstanding dynamic stability on ballscrews and spindle, and ensures high repeatability accuracy.



Nitrogen Accumulator tank used in Z-axis counter balance.

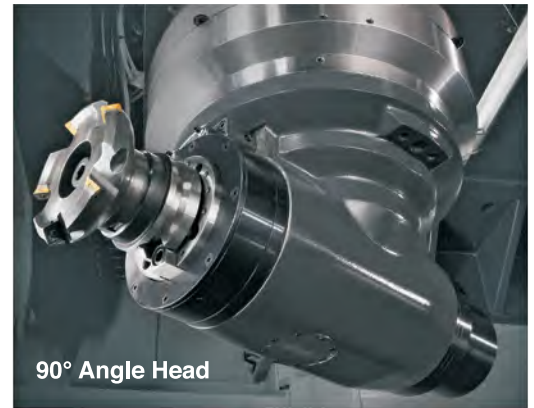


Multiple Spindle Heads

Versatile machining with different milling heads

Enhance machining capacity with the use of various milling heads, the PRO bridge mill is perfectly suited for automotive molds and aerospace industry applications.

- 90° angle head, 30° angle head, extension head and a universal head can be added manually to meet a multitude of machining requirements.
- Automatic clamping function dramatically increases operator efficiency.



90° Angle Head

90° angle head with face mill tool for five-face machining application on PRO bridge mill.

Efficiency



Automatic Clamping Enhance operator efficiency.



AC5
Automatic 90°
Milling Head



AC300
Automatic Extended
Milling Head



AC2
Automatic 2-axis
Milling Head



Productivity



Automatic Indexing and Manual Clamping Semi-automatic



MC5
Semi-Automatic 90°
Milling Head



MC2
Semi-Automatic 2-axis
Milling Head



Versatility



Manual Head Choose from a wide-range of spindle heads.



MH5
90° Angle
Milling Head



MHU
Universal
Milling Head



MH300
Extended
Milling - 300



MH500
Extended
Milling - 500



MHB480
90° Angle
Boring + Milling

Outstanding Machine Design

Features that boost operator productivity



Table Walkway

A table area walking platform that provides greater access to workpiece.

Table walkway step panels are made of strong steel grating. Platform provides easier work table access, allowing operator to stand next to table. Facilitates greater control during loading and unloading for precise workpiece placement.

Organized Electrical Cabinet Conforms to CE safety regulations.



- Equipped with a heat exchanger to maintain a constant temperature.
- Alarm message and self-diagnosis functions enhance safety during operation and maintenance.
- Fully enclosed electrical cabinet.



Convenient Quick Plug

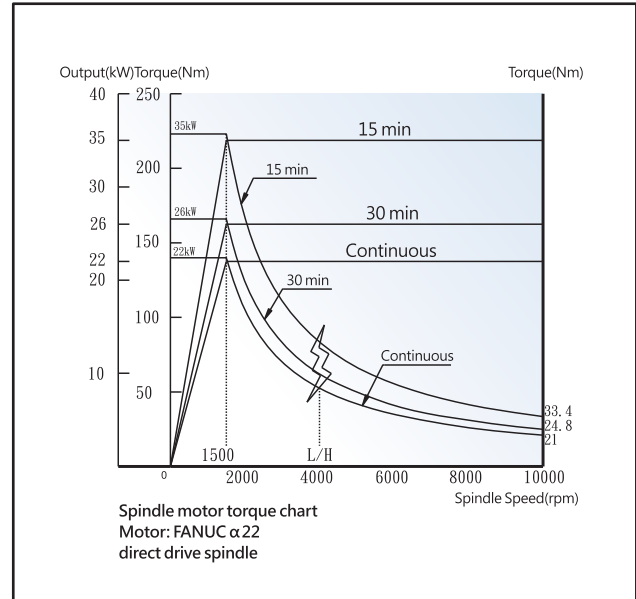
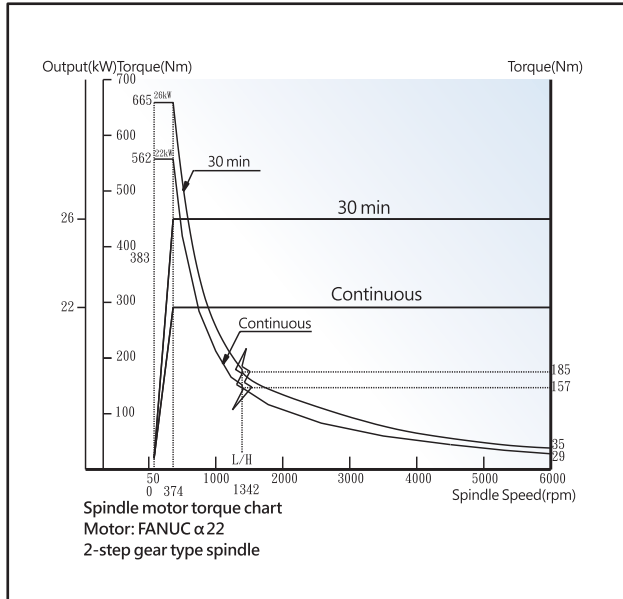
Fast and convenient electrical plug connections.

- ▶ Easier service maintenance
- ▶ Greater operator protection.



Powerful Torque 2-Step Gear or Direct Drive Spindles

Spindle Torque Turning power and speed



Splash Guard Selection Fully enclosed to semi guarding.



Full Splash Guard
(Standard)

Full Splash Guard
Cutting area enclosure that surrounds work table from all sides to protect the operator from direct contact with cutting fluids and metal chips.



Roof Enclosure Splash Guard
(Optional)

Roof Enclosure Splash Guard
A top and side enclosure that surrounds work table area completely to protect the operator from contact with cutting fluids and metal chips.

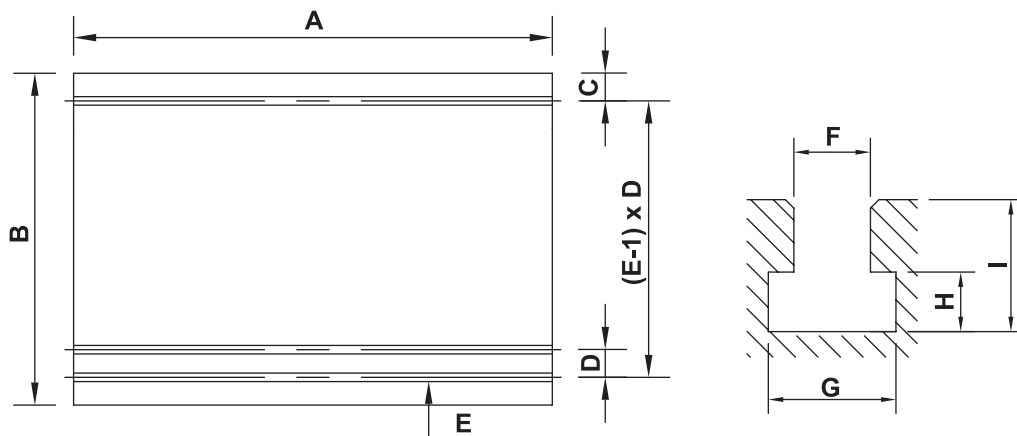


Semi Splash Guard
(Optional)

Semi Splash Guard
Minimal shields that protect the tool magazine and the operator. Semi shield allows unobstructed loading and unloading of the workpiece.

Table Size and T-Slot Dimensions

Specifications subject to change without prior notice.



Model	Unit	A	B	C	D	E	F	G	H	I
PRO-2216	inch	78.7	55.1	6.3	7.09	7	0.87H0.3	1.49	0.63	1.49
PRO-2716	inch	98.4	55.1	6.3	7.09	7	0.87H0.3	1.49	0.63	1.49
PRO-3216	inch	118	55.1	6.3	7.09	7	0.87H0.3	1.49	0.63	1.49
PRO-4216	inch	157	55.1	6.3	7.09	7	0.87H0.3	1.49	0.63	1.49
PRO-2220	inch	78.7	66.9	5.1	7.09	9	0.87H0.3	1.49	0.63	1.49
PRO-2720	inch	98.4	66.9	5.1	7.09	9	0.87H0.3	1.49	0.63	1.49
PRO-3220	inch	118	66.9	5.1	7.09	9	0.87H0.3	1.49	0.63	1.49
PRO-4220	inch	157	66.9	5.1	7.09	9	0.87H0.3	1.49	0.63	1.49
PRO-3223	inch	118	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-4223	inch	157	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-5223	inch	197	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-6023	inch	236	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-3226	inch	118	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-4226	inch	157	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-5226	inch	197	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04
PRO-6026	inch	236	78.7	3.9	7.09	11	1.1H0.3	1.88	.86	2.04

Machine Specifications

Specifications subject to change without prior notice.

ITEM	UNIT	PRO-2216	PRO-2716	PRO-3216	PRO-4216
Travels					
X-axis	inch	86.6	106	126	165
Y-axis	inch	63.0			
Z-axis	inch	31.5 (39.4)*			
Distance from Spindle Nose to Table Surface	inch	5.9-37.4 (5.9-45.3)*			
Distance between the Columns	inch	66.9			
Table					
Table Length (X)	inch	78.7	98.4	118	157
Table Width (Y)	inch	55.1			
T-slots (size x number x pitch)	inch	0.9 x 7 x 7.1			
Max. Table Load	lb	17,600	20,000	22,000	26,500
Spindle					
Spindle Motor (30min)	HP	35			
Spindle Speed (Gear)	rpm	6,000 / 4,500			
Spindle Speed (Direct Drive)	rpm	8,000 / 10,000			
Spindle Taper		CAT-50 / BT-50			
Feedrates					
Rapid Feedrate (X/Y/Z)	ipm	472 / 472 / 591	472 / 472 / 591	472 / 472 / 591	394 / 472 / 591
Cutting Feedrate	ipm				
Servomotors	HP	9.4 / 9.4 / 9.4	9.4 / 9.4 / 9.4	9.4 / 9.4 / 9.4	12 / 9.4 / 9.4
ATC System					
Tool Magazine Capacity		40 (60)*			
Max. Tool Diameter	inch	Ø4.9			
Max. Tool Diameter (without adjacent tools)	inch	Ø9.6			
Max. Tool Length	inch	15.7			
Max. Tool Weight	lb	44			
Tool Shank		CAT-50 / BT-50			
Pull Stud		P50T-1			
Accuracy					
Positioning (JIS)	inch	±0.0002 / 12"		±0.0006 / Full Travel	
Positioning (VDI 3441)	inch	P 0.0012		P 0.0014	
Repeatability (JIS)	inch				
Repeatability (VDI 3441)	inch	Ps 0.0010		Ps 0.0011	
Miscellaneous					
Guideway type (X/Y/Z)		Box way / Box way / Box way			
Power Supply	kVA	65			
Air Pressure	psi	90			
Net Weight	lb	44,000	48,500	53,000	61,500
Length	inch	25' 0"	28' 3"	31' 6"	38' 0"
Width	inch	18' 5"	18' 5"	18' 5"	18' 5"
Height	inch	15' 6"	15' 6"	15' 6"	15' 6"

Machine Specifications

**Optional accessory.*

PRO-2220	PRO-2720	PRO-3220	PRO-4220
86.6	106	126	165
78.7			
31.5 (39.4)*			
5.9-37.4 (*5.9-45.3)			
82.6			
78.7	98.4	118	157
66.9			
0.9x9x7.1			
17,600	20,000	22,000	26,500
35			
6,000 / 4,500			
8,000 / 10,000			
CAT-50 / BT-50			
472 / 472 / 591	472 / 472 / 591	472 / 472 / 591	394 / 472 / 591
276			
9.4 / 9.4 / 9.4	9.4 / 9.4 / 9.4	9.4 / 9.4 / 9.4	12 / 9.4 / 9.4
40 (60)*			
Ø4.9			
Ø9.6			
15.7			
44			
CAT-50 / BT-50			
P50T-1			
±0.0002 / 12"		±0.0006 / Full Travel	
P 0.0012		P 0.0014	
±0.00012			
Ps 0.0010		Ps 0.0011	
Box way / Box way / Box way			
65			
90			
48,500	53,000	57,200	66,000
25' 0"	28' 3"	31' 6"	38' 0"
20' 1"	20' 1"	20' 1"	20' 1"
15' 6"	15' 6"	15' 6"	15' 6"

Machine Specifications

Specifications subject to change without prior notice.

ITEM	UNIT	PRO-3223	PRO-4223	PRO-5223	PRO-6023
Travels					
X-axis	inch	126	165	205	236
Y-axis	inch	90.6			
Z-axis	inch	39.4			
Distance Spindle Nose to Table Surface	inch	5.9 - 45.3			
Distance between the Columns	inch	98.4			
Table					
Table Length (X)	inch	118	157	197	236
Table Width (Y)	inch	78.7			
T-slots (size x number x pitch)	inch	1.1 x 11 x 7.1			
Max. Table Load	lb	24,200	28,600	33,000	37,500
Spindle					
Spindle Motor (30 min.)	HP	35			
Spindle Speed (Gear)	rpm	6,000 / 4,500			
Spindle Speed (Direct Drive)	rpm	8,000 / 10,000			
Spindle Taper		CAT-50 / BT-50			
Feedrates					
Rapid Feedrate (X/Y/Z)	ipm	472 / 472 / 472	394 / 472 / 472	394 / 472 / 472	315 / 472 / 472
Cutting Feedrate	ipm	276			
Servomotors	HP	12 / 12 / 9.4	12 / 12 / 9.4	12 / 12 / 9.4	12 / 12 / 9.4
ATC System					
Tool Magazine Capacity		40 (60 / 90)*			
Max. Tool Diameter	inch	Ø4.9			
Max. Tool Diameter (without adjacent tools)	inch	Ø9.6			
Max. Tool Length	inch	15.7			
Max. Tool Weight	lb	44			
Tool Shank		CAT-50 / BT-50			
Pull Stud		P50T-1			
Accuracy					
Positioning (JIS)	inch	±0.0002 / 12"		±0.0006 / Full Travel	
Positioning (VDI 3441)	inch	P 0.0014		P 0.0018	
Repeatability (JIS)	inch	±0.00012			
Repeatability (VDI 3441)	inch	Ps 0.0011		Ps 0.0012	
Miscellaneous					
Guideway type (X/Y/Z)		Box way / Box way / Box way			
Power Supply	kVA	65			
Air Pressure	psi	90			
Net Weight	lb	77,000	86,000	99,000	110,000
Length	inch	32' 0"	38' 6"	45' 0"	51' 6"
Width	inch	22' 0"	22' 0"	22' 0"	22' 0"
Height	inch	17' 9"	17' 9"	17' 9"	17' 9"

Machine Specifications

**Optional accessory.*

PRO-3226	PRO-4226	PRO-5226	PRO-6026
126	165	205	236
	102		
	39.4		
	5.9 - 45.3		
	110		
118	157	197	236
	78.7		
	1.1 x 11 x 7.1		
24,200	28,600	33,000	37,500
	35		
	6,000 / 4,500		
	8,000 / 10,000		
	CAT-50 / BT-50		
472 / 472 / 472	394 / 472 / 472	394 / 472 / 472	315 / 472 / 472
	276		
12 / 12 / 9.4	12 / 12 / 9.4	12 / 12 / 9.4	12 / 12 / 9.4
	40 (60 / 90)*		
	Ø4.9		
	Ø9.6		
	15.7		
	44		
	CAT-50 / BT-50		
	P50T-1		
	±0.0002 / 12"	±0.0006 / Full Travel	
P 0.0014			P 0.0018
	±0.00012		
Ps 0.0011			Ps 0.0012
	Box way / Box way / Box way		
	65		
	90		
81,500	90,000	104,000	115,000
32' 0"	38' 6"	45' 0"	51' 6"
23' 0"	23' 0"	23' 0"	23' 0"
17' 9"	17' 9"	17' 9"	17' 9"

Optional Accessories

Specifications subject to change without prior notice.

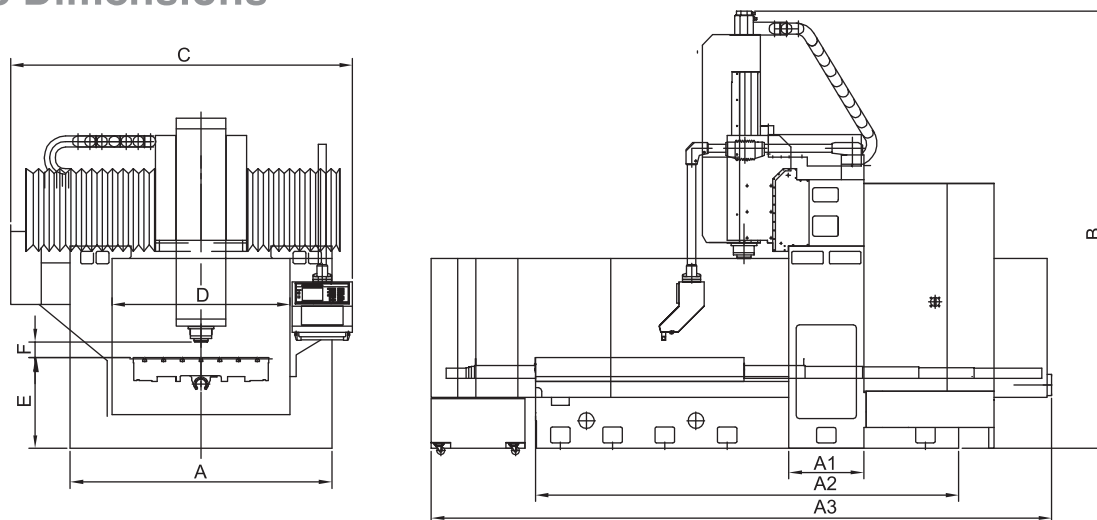
CATEGORY	DESCRIPTION	PRO-xx16 PRO-xx20	PRO-xx23 PRO-xx26
Controller	Fanuc control	●	●
	Mitsubishi control	○	○
	Siemens control	○	○
	Heidenhain control	○	○
Spindle	35 HP spindle motor	●	●
	6,000 2-step gear drive spindle	●	●
	10,000 rpm direct drive spindle	○	○
Z-travel Extension / Higher Column	Z-travel 31.5"	●	✘
	Z-travel 39.4"	○	●
	100mm higher column (standard Z-travel)	✘	○
	200mm higher column (standard Z-travel)	○	○
	300mm higher-column (standard Z-travel)	○	○
	400mm higher column (standard Z-travel)	✘	○
ATC	Automatic tool changer 40 tools	●	●
	Automatic tool changer 60 tools	○	○
	Automatic tool changer 90 tools	✘	○
Splash Guard	Semi splash guard	○	○
	Full splash guard	●	●
	Roof splash guard	○	○
Milling Head Function	Manual: 90° angular milling head / universal head / extension head / boring head	○	○
	Semi automatic: 90° angular milling head / extension head / boring head / universal head (vertical-horizontal ATC and AHS not applicable)	○	○
	Automatic 90° angular milling head / 2-axis head / extension head / boring head	✘	○
	Vertical / Horizontal automatic tool changer (40 / 60 / 90 tools)	✘	○
	Manual head station (Table type)	○	○
	Manual head station (Arm type)	○	○
	Automatic head station	✘	○

Optional Accessories

Specifications subject to change without prior notice.

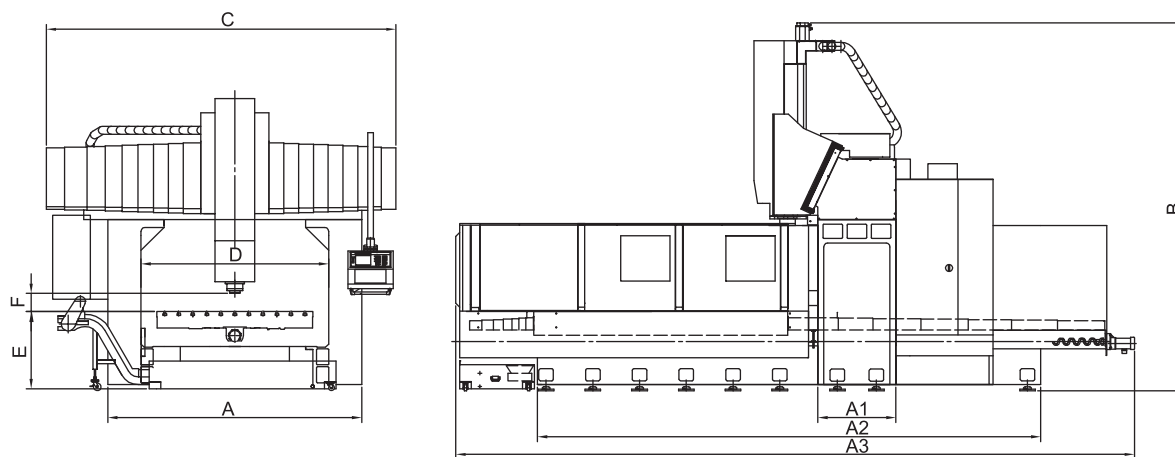
CATEGORY	DESCRIPTION	PRO-xx16 PRO-xx20	PRO-xx23 PRO-xx26
Mechanical	X / Y / Z axes absolute pulse coder	●	●
	Rigid tapping	●	●
	Twin hydraulic cylinders	●	●
	Nitrogen balancing system	●	●
	Automatic lubrication system	●	●
	Spindle oil chiller	●	●
	Air blast through spindle	●	●
	Handlewheel (MPG)	●	●
	Work light	●	●
	Tri-color status light	●	●
	RS-232 interface	●	●
	Heat exchanger for electrical cabinet	●	●
	Coolant system	●	●
	Chip augers (2)	●	●
	Chip conveyor	●	●
	Oil mist device	○	○
	Sub-table	○	○
	3 axes manual pulse generator for mold processing	○	○
	Coolant through spindle at 300 / 600 / 1000 psi	○	○
	Coolant through tool holder interface	○	○
Air conditioner for electrical cabinet	○	○	
Oil skimmer	○	○	
Transformer	○	○	
Measurement	Heidenhain linear scales	○	○
	Automatic tool measuring system	○	○
	Automatic work piece measuring system	○	○
4th Axis Function	CNC rotary table	○	○
	4th axis preparation	○	○
Others	Leveling bolts and blocks	●	●
	Tool box	●	●
	CE norm	○	○

Machine Dimensions



Model	Unit	A	B	C	D	E	F	A1	A2	A3
PRO-2216	feet - inch	7'11"	15'6"	11'6"	66.9"	33.5"	5.9"	27.6"	13'10"	22'0"
PRO-2716	feet - inch	7'11"	15'6"	11'6"	66.9"	33.5"	5.9"	27.6"	17'1"	25'4"
PRO-3216	feet - inch	7'11"	15'6"	11'6"	66.9"	33.5"	5.9"	27.6"	20'4"	28'7"
PRO-4216	feet - inch	7'11"	15'6"	11'6"	66.9"	33.5"	5.9"	27.6"	26'11"	35'2"
PRO-2220	feet - inch	9'3"	15'6"	12'10"	82.6"	33.5"	5.9"	27.6"	13'10"	22'0"
PRO-2720	feet - inch	9'3"	15'6"	12'10"	82.6"	33.5"	5.9"	27.6"	17'1"	25'4"
PRO-3220	feet - inch	9'3"	15'6"	12'10"	82.6"	33.5"	5.9"	27.6"	20'4"	28'7"
PRO-4220	feet - inch	9'3"	15'6"	12'10"	82.6"	33.5"	5.9"	27.6"	26'11"	35'2"

**Optional accessory.*



Model	Unit	A	B	C	D	E	F	A1	A2	A3
PRO-3223	feet - inch	11'6"	17'9"	15'2"	98.4"	37.4"	5.9"	39.4"	20'4"	28'7"
PRO-4223	feet - inch	11'6"	17'9"	15'2"	98.4"	37.4"	5.9"	39.4"	26'11"	35'2"
PRO-5223	feet - inch	11'6"	17'9"	15'2"	98.4"	37.4"	5.9"	39.4"	33'6"	41'8"
PRO-6023	feet - inch	11'6"	17'9"	15'2"	98.4"	37.4"	5.9"	39.4"	36'9"	47'7"
PRO-3226	feet - inch	12'6"	17'9"	16'1"	110"	37.4"	5.9"	39.4"	20'4"	28'7"
PRO-4226	feet - inch	12'6"	17'9"	16'1"	110"	37.4"	5.9"	39.4"	26'11"	35'2"
PRO-5226	feet - inch	12'6"	17'9"	16'1"	110"	37.4"	5.9"	39.4"	33'6"	41'8"
PRO-6026	feet - inch	12'6"	17'9"	16'1"	110"	37.4"	5.9"	39.4"	36'9"	47'7"

MIGHTY VIPER

Over 45 years, **Mighty Viper** has sold more than 25,000 machines nationwide, resulting in a world of satisfied customers and a wealth of feedback that has added to our arsenal of experience and fine craftsmanship. In keeping with our commitment to provide only the highest quality machining centers, every available resource is utilized to maintain a state-of-the art manufacturing process and to continue the delivery of cutting edge technologies.

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