

BenchMill 6100 CNC Milling Center

The BenchMill 6100 is a versatile PC-based benchtop CNC machining center that enables you to deliver robust instruction in computer numerical control and advanced manufacturing for your students.

The BenchMill 6100 comes equipped with Ethernet-based motion control, 3-axis stepper motors, ball screws, a variable speed spindle motor, and ISO20 taper tooling.

This CNC system requires no assembly, arriving at your facility ready to run on an Ethernet port on a standard PC, and fits comfortably into any classroom, without sacrificing features. Like larger industrial machines, the BenchMill 6100 uses EIA, ISO, and FANUC™-compatible G&M code programs to cut parts in a variety of materials.



Standard Features

- Ethernet-based control
- Brushless spindle motor
- Full enclosure with pneumatic shield
- Automatic diagnostics and power cut-off protection
- PC-based CNC software
- Coolant ready
- Jog pendant ready
- 4th-axis ready
- Pneumatic drawbar
- Pneumatic door opener
- Robotic integration ready with 6 inputs, 6 outputs
- No assembly required

Included Accessories

- Pneumatic drawbar
- Pneumatic door opener
- Internal work light
- One-shot lubrication system
- BenchMill accessory package:
 - ◇ (1) 10-pc. Clamping kit
 - ◇ (1) 4-flute, HSS end mill - 3 mm
 - ◇ (1) 4-flute, HSS end mill - 1/8"
 - ◇ (1) ISO 20 tool holder
 - ◇ (1) ER16 collet - 4 mm
 - ◇ (1) ISO 20 Tool holder nut wrench
 - ◇ (1) Tool Holder wrench, 30mm
 - ◇ (1) Open-end wrench Set, 3-pc
 - ◇ (1) Allen wrench set, 6-pc
 - ◇ (1) 2M Ethernet cable
 - ◇ (1) Storage box
 - ◇ Misc. accessories

Specifications

Axis Travel

X Axis, max	260 mm	10.24"
Y Axis, max	152 mm	6.00"
Z Axis	180 mm	7.09"

Work Area

Table Size	400x145 mm	16"x 5.70"
No. of T-Slots	3	
T-slot size	12 mm	0.47"
Max. table load	20 Kg	44 lbs

Spindle

Motor Type	Brushless	
Motor power	1.34 hp, 1000 w	
Spindle speed	100– 5000 RPM	
Spindle taper	ISO20	
Max. tool diam.	10 mm	0.375"
Throat	150 mm	5.900"

Accuracy

Position accuracy	0.038 mm	0.0015"
Repeatability	0.010 mm	0.0004"

Dimensions

Machine size

Width	1040 mm	41"
Depth	880 mm	35"
Height	940 mm	37"

Shipping size

Width	1170 mm	46"
Depth	960 mm	38"
Height	1100 mm	43.38"

Weight (approximate)

Machine weight	178 Kg	393 lbs
Shipping weight	218 Kg	480 lbs

Axis Drive Motors

Axis motor type	Stepper	
X axis	1.35 N-m	192 oz-in
Y axis	1.35 N-m	192 oz-in
Z axis	2.2 N-m	312 oz-in
Rapid feed rate	2000 mm/min	79 ipm
Feed rate	1000 mm/min	40 ipm

Air Supply Requirements

620 kPa [90 psi]
1/4" NPT female connection provided

Control Software

EIA RS274-D standard G & M code compatible
FANUC® compatible
CAD/CAM compatible
Advanced NC code editing
Real-time or simulated graphic tool path verification

Computer System Requirements

Pentium 4 Dual Core 3 GHz
Windows XP SP3/Windows 7 - 32 or 64 bit/
Windows 10 - 32 or 64 bit
1GB RAM (2GB for Windows 7/10)
1GB available disk space
CD ROM drive
Separate RS-232 port for each hardware device that uses an RS-232 port

*Additional LAN port required if your computer requires wired network access

Power Requirements

115 VAC (+5%/-10%) 60 Hz, 20A
or 230 VAC (+5%/-10%) 50 Hz, 8A

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Curriculum

CNC Milling w/BenchMill 6100, Virtual, Imperial	77-3140-0001
CNC Milling w/BenchMill 6100, Virtual, Metric	77-3140-0002
CNC Milling w/BenchMill 6100, Lab, Imperial	77-8140-0001
CNC Milling w/BenchMill 6100, Lab, Metric	77-8140-0002

Hardware

BenchMill 6100 - 110 VAC	00-5505-N110
BenchMill 6100 - 220 VAC	00-5505-N220

BenchMill 6100 Bundles

Starter Bundle, Imperial/Metric **CNC-6100-STRT**

- CNC BenchMILL 6100
- 4" Vise
- 58-pc. Clamping Kit
- ER16 Collet set, 8-pc
- Advanced End Mill Package
- LM7 Content, Vir, CNC Milling w/BenchMill 6100

Standard Bundle, Imperial **CNC-6100-STND-I**

- CNC BenchMill 6100, 110 VAC
- 4" Vise
- 58-pc. Clamping Kit
- ISO 20 Tool Holder
- Advanced End Mill Package, Imperial
- ER16 Collet set, 8-pc, Imperial
- Table-mounted ATC package
- Jog Pendant Handwheel
- Stock Package, Wax, 3" x 2" x 1.5" - 50 Pcs
- LM7 Content, Vir, CNC Milling w/BenchMill 6100

Advanced Bundle, Imperial **CNC-6100-ADV-I**

Includes all Standard Bundle items, plus:

- ER16 Collet set, 8-pc, Imperial
- Coolant System 27L 110V
- 80mm 3-jaw Chuck
- Engraving Package, Imperial
- 4th-Axis Rotary Worktable with Tailstock

Standard Bundle, Metric **CNC-6100-STND-M**

- CNC BenchMill 6100, 220 VAC
- 4" Vise
- 58-pc. Clamping Kit
- ISO 20 Tool Holder
- End Mill Package, Metric (2X 3,6,8,10 End, 4,6 Ball)
- ER16 Collet set, 8-pc (3,4,5,6,7,8,9,10mm)
- Table-mounted ATC package
- ER16 Collet set 2 x (3,6,8,10mm)
- Jog Pendant Handwheel
- Stock Package, Wax, 3" x 2" x 1.5" - 50 Pcs
- LM7 Content, Vir, CNC Milling w/BenchMill 6100(M)

Advanced Bundle, Metric **CNC-6100-ADV-M**

Includes all Standard Bundle items, plus:

- Coolant system 27L -220V
- 80mm 3-jaw Chuck
- 4th-Axis Rotary Worktable with Tailstock
- Engraving Package, Metric (1,1.5,2 mm End mill)
- Engraving Tool Set, 6mm

Software

CNCBase for Intelitek CNC and Fanuc Emulator	
CNCMotion® for Intelitek CNC and Fanuc Emulator	63-6789-1000
SpectraCAD Engraver	63-6723-0000
SpectraCAM Milling	63-6733-0000

Options and Accessories

Jog Pendant Handwheel	10-1111-1000
4" (100mm) Precision Vise	10-1111-6000
58-Piece Hold Down Set	10-1111-5000
ISO 20 Tool Holder with Nut	10-1111-9000
Tool Holder Set	10-1111-7000
Machinists Kit	10-5810-0000
End Mill Set, 3 Piece, Imperial	10-1113-3000
End Mill Set, 3 Piece, Metric	10-1113-2000
Advanced End Mill Set, 14 Piece, Imperial	10-1113-5000
Advanced End Mill Set, 12 Piece, Metric	10-1113-4000
Engraving Tool Set, 3 Piece, Imperial	10-1113-7000
Engraving Tool Set, 3 Piece, Metric	10-1113-6000
Engraving Tool Set, 7 Piece, Metric	10-1108-6000
ER16 Collet - 10mm	10-1113-0000
ER16 Collet - 4mm	10-1112-4000
ER16 Collet - 7mm	10-1112-7000
ER16 Collet Set - 8 Piece	10-1112-2000
ER16 Collet Set - 8 Piece	10-1115-0000
Table-mounted 4-station Automatic Tool Changer	10-1113-1000
Table-mounted ATC Package	10-1115-2000
4th-Axis Rotary Positioner with Tailstock	10-1108-8000
3" (80mm) 3-Jaw Chuck for Rotary Positioner	10-1109-3000
3" (80mm) 4-Jaw Chuck for Rotary Positioner	10-1106-3000
Dual-axis Pneumatic Vise	10-1110-7000
Single-axis Pneumatic Vise	10-1110-8000
Basic Air Compressor and Conditioning System	10-4526-0000
Quiet Operation Air Compressor / Cond System	10-4527-0000
Coolant System - 110 VAC	10-1108-1110
Coolant System - 220 VAC	10-1108-1220
Mobile Workbench with Storage Cabinet	10-5590-0000
Mobile Workbench with 3 Drawer Cabinet	10-5591-0000
Mobile Workbench with 3 Drawer Cabinet, 96"	10-5592-0000
Mobile Workbench 6Ft, Desk-style, Wood Top	10-5594-0000
100mm Vice with Angle Adjustment	10-1108-2000

Projects

Project, 4-Cavity Mold	77-7022-0001
Project, Planetary Gearbox	77-7023-0001
Project kit, CO2 Car, 50 students	10-7016-1001
CO2 Car Consumables, 50 students	10-9301-0000
Project kit, Precision Measuring Device	10-7006-0001
Precision Measuring Device Consumables, 50 students	10-9304-0000
Project kit, Golf Putter	10-7007-1000
Golf Putter Consumables, 50 students	10-9302-0000
Project Kit, Yo-Yo	10-7001-1001
Project kit, Sterling Engine	10-9603-0000
Project kit, Brass Cannon	10-9307-0000

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