

# 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

# BenchMill 6100 CNC Milling Center

## 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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