

HBM – Horizontal Bar Machining Center Pricing

Effective January 1, 2009



Machine Model	HBM5
CNC Control	Fanuc 18i/Control
Base Price	\$749,900
Travel (X,Y,Z,W)	137 x 102 x 55 x 27"
Bar Diameter	5.1" 130 mm
Spindle Horsepower 1 minute / 30 minutes	60/50 HP 45/37 kw
Tool Changer	60 Pocket Arm
MACHINE FEATURES	FANUC CONTROL FEATURES
<ul style="list-style-type: none"> • Two Year Warranty • Massive Heavily Ribbed Cast Iron Construction • Hardened and Ground Square Box Ways with Turcite Column Construction with Linear Roller Guide Way Table Travel and Column Travel • Infinitely Programmable Rotary Table • Heavy Duty #50 Taper Spindle with Two Speed Geared Head • Spindle Extension Sleeve • Automatic Metered Lubrication with Low Lube Fault • Double Arm 60 Pocket ATC • Conveyor Chip Removal System • Metal Way Covers • Flood Coolant System with Oil Skimmer • Massive 15 Ton Table Capacity 	<ul style="list-style-type: none"> • 10.4" Dynamic Graphic LCD Display • Manual Guide <i>i</i> • Heidenhain Glass Scales on X/Y/Z Axis • 256 Kb Program Storage • Macro Executor • Scaling, Rotation & Mirror Image • PCMCIA Slot • Electronic Handwheel • RS-232 Port with DNC Capability • Ethernet Port • End of Cycle Light • Spindle Oil Chiller and Hydraulic System • Factory Installation and Setup
ACCESSORIES	
Coolant Through Spindle – 700 PSI System <i>A simple splash shield is included, no full enclosure available. Environmental issues should be considered</i>	21,000
Right Angle Milling Head	11,900
Universal Milling Head	17,900
90° Angle Plate 39" 1000 mm Square	20,500
Chip Bucket	400
Spindle Extension Sleeve	Standard
Contact Tool Offset Probing with Macros <i>Consult Factory</i>	1,900
Laser Tool Setter <i>Consult Factory</i>	6,900
Work Offset Probing with Macros <i>Consult Factory</i>	5,900
RS-232 Cable, 50' 15 Meters	100
Bound Hard Copy Programming, Maintenance or Operators Manuals <i>Price for each</i>	400
Additional Machine Manual	250
Fanuc Power Requirements 208-240 VAC, 50 – 60 hz, 3Ø	Standard
380-480 Transformer (Reduces Voltage to 208-240) – 80 kVA <i>Factory recommended sizes. Consult local electrical codes for proper transformer sizing.</i>	4,500
On Site Machine Installation, U.S. only <i>Training may be purchased separately from Fanuc if required, includes travel expenses</i>	Included
<p><i>Terms within USA: Cash or terms with approved credit; down payment due with order. Terms outside USA: Cash or approved Letter of Credit</i></p> <p><i>F.O.B Waconia, Minnesota USA; Prices do not include taxes, duties, transportation, rigging or start-up.</i></p> <p><i>Milltronics reserves the right to amend or change without notice without incurring obligation; not responsible for typographical errors.</i></p> <p><i>All sales of equipment, parts, software and service are subject to Milltronics' Standard Terms and Conditions of Sale.</i></p>	

HBM - Horizontal Bar Machining Center Specifications

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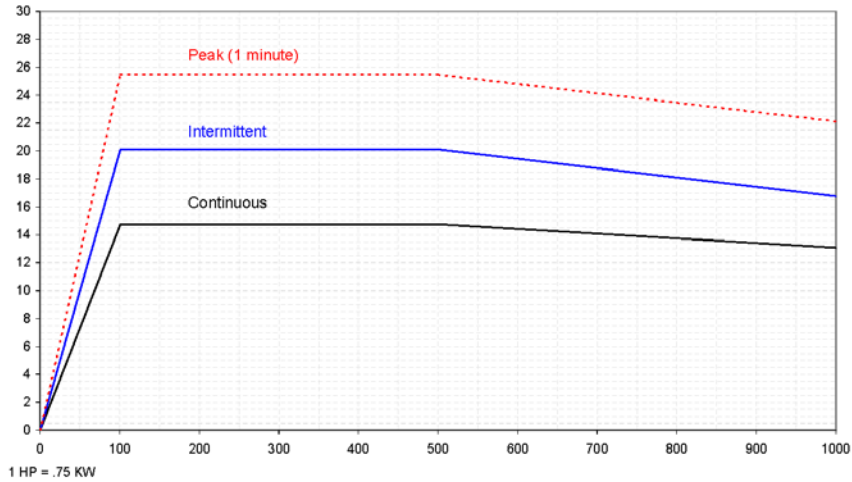
Machine Model	HBM5
Configuration	Horizontal Bar with Rotary Table
Control Type	Fanuc 18i
Number of CNC Axes	5
TABLE	
Table Size	86.6 x 70.8" <i>2200 x 1800 mm</i>
Table Height	
Table "T" Slots (# / width / center distance)	11 / <i>22 mm</i> / 6.29" <i>160 mm</i>
Table Load Capacity	15 Tons
TRAVELS	
X Axis – Table Travel	137.7" <i>3500 mm</i>
Y Axis – Head Travel on Column	102.3" <i>2600 mm</i>
Z Axis – Column Travel In/Out	55.1" <i>1400 mm</i>
W Axis without Spindle Extension Support Sleeve	27.5" <i>700 mm</i>
W Axis with Spindle Extension Support Sleeve	6" <i>150 mm</i>
Spindle Nose to Table Center	34.9 - 90" <i>887 - 2287 mm</i>
Spindle Center to Table Surface	0 – 102.3" <i>0 - 2600 mm</i>
SPINDLE	
Spindle Taper	CT or BT 50
Spindle Horsepower – Fanuc System <i>1 minute / 30 minutes</i>	60/50 HT HP <i>45/37 kw</i>
	Reference Torque Chart: Under Development
Spindle Transmission	Two Speed ZF Gear Box
Transmission Type	Automatic Shift
Spindle Speed	10 - 3000 RPM
Gear Ratio (High) 1:1	900 - 3000 RPM
Gear Ratio (Low) 1:4	10 - 900 RPM
Quill Diameter	5.1" <i>130 mm</i>
Spindle Bearing Diameter – ID / OD	170 / 260 mm
X, Y & Z AXIS TRANSMISSION	
Servo Motor Type	AC Digital
Ball Screw Diameter - Pitch, C2 Grade, Double Nut (X & Z / Y)	80 - 10 mm / 63 - 10 mm
Transmission	X & Z 1:1 Direct Drive Y Belted 1:2
Axis Thrust X,Z/Y	
Feedback Resolution – Heidenhain Scale RA-65	.00004" <i>.001 mm</i>
W AXIS TRANSMISSION	
Servo Motor Type	AC Digital
Ball Screw Diameter / Pitch – C3 Grade	63 / 5 mm
Transmission – 1:2	Belted
Axis Thrust	
Feedback Resolution	.00004" <i>.001 mm</i>
B AXIS TRANSMISSION – Full Contouring Rotary Table	
Servo Motor Type	AC Digital
Transmission – 1:720	Geared
Clamping System (for 10T loading table)	850 lbs/in ² <i>60 kg/cm²</i>
Clamping Torque	kgf-m
Feedback Resolution	.001°
X AXIS LINEAR GUIDE WAY	
Brand	NSK
Model	RA655170BNC
Guide Way Size	65mm

Guide Span Distance	51.7" <i>1313mm</i>
Y AXIS BOX WAY	
Width	9.8" <i>250mm</i>
Thickness	3.3" <i>85mm</i>
Guide Distance	24.4" <i>620mm</i>
Support Span	44" <i>1120mm</i>
Z AXIS LINEAR GUIDE WAY	
Brand	NSK
Model	RA653145BNC
Guide Way Size	65mm
Guide Span Distance	56.5" <i>1437mm</i>
PERFORMANCE	
Rapid Traverse Rates X, Y, Z, W:	400 ipm <i>10 m/m</i>
B:	2 RPM
Feedrates X, Y, Z, W:	200 ipm <i>5 m/m</i>
Positioning Accuracy X, Y, Z, W <small>See note</small>	±0.00011" <i>0.003 mm</i>
Repeatability X, Y, Z, W <small>See note</small>	0.00019" <i>0.005 mm</i>
Positioning Accuracy B <small>See note</small>	
Repeatability B <small>See note</small>	
AUTOMATIC TOOL CHANGER	
Number of Pockets	60
Maximum Tool Diameter – <i>Occupied/Empty Adjacent Pots</i>	5"/10" <i>125/250 mm</i>
Maximum Tool Length	11.8" <i>300 mm</i>
Maximum Tool Weight	55 lb <i>25 kg</i>
Tool to Tool Change Time	9 seconds
MISCELLANEOUS	
Way Lubrication	Auto Lubrication
Flood Pump	2 HP <i>1.7 kw</i>
Flood Capacity	71 Gal <i>270 L</i>
Flood Volume	17 GPM <i>65 LPM</i>
5 HP 3.7 kw Hydraulic Pump	Standard
Hydraulic Tank Capacity	21 Gal <i>80 L</i>
Hydraulic Oil Type <i>or equivalent</i>	Mobil DTE 26
Way Lube Type <i>or equivalent</i>	Vactra #2
Warranty	Parts: Two years or 4200 hours, whichever occurs first, for normal failures. Service: One year or 2100 hours, whichever occurs first, from distributor.
MACHINE SIZE AND POWER	
Floor Occupation Overall Length	284" <i>7200 mm</i>
Overall Width	333" <i>8450 mm</i>
Overall Height	200" <i>5050 mm</i>
Machine Weight	108,000 lb <i>49,000 kg</i>
Foundation Requirements	Consult Factory For Detailed Requirements and Foundation Drawings
Fanuc Power Requirements - 208-240 VAC, 50-60hz, 3Ø	200 amps 76 KVA
<p><i>Measurements performed with Renishaw laser and ballbar systems. Measurements are linear over entire travel. Temperature changes and table loads may affect tolerances. Tolerances are guaranteed over 10" sq. area. Centurion features covered under separate literature. For machine duty rating, see "Truth in Specifications" on www.milltronics.net. Milltronics reserves the right to change specifications at any time without incurring obligation.</i></p>	

Fanuc Torque Chart 26/20/2/G/FHT – Geared, Low

Used on: Standard HMC70
Optional N/A

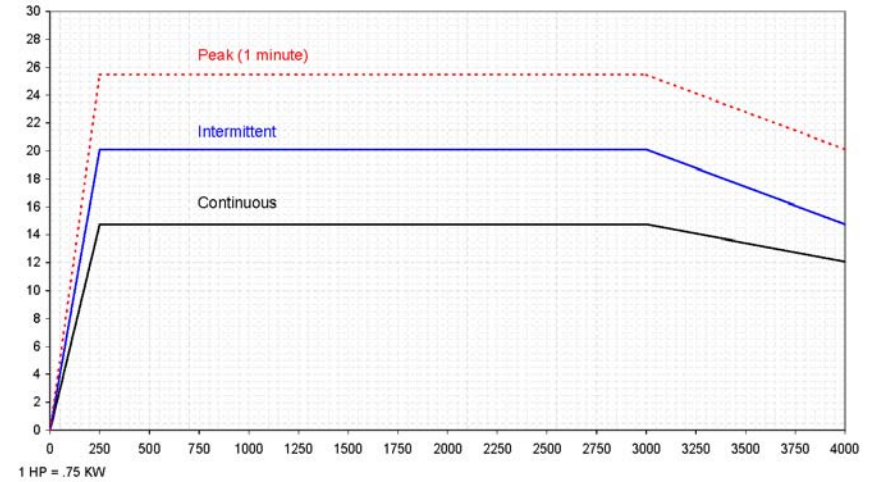
Fanuc aI22/8000p HMC70 6:1 Gearbox Low Power Characteristics of 26/20 HP HT Dual Winding Motor for 1,000 RPM In LOW Gear



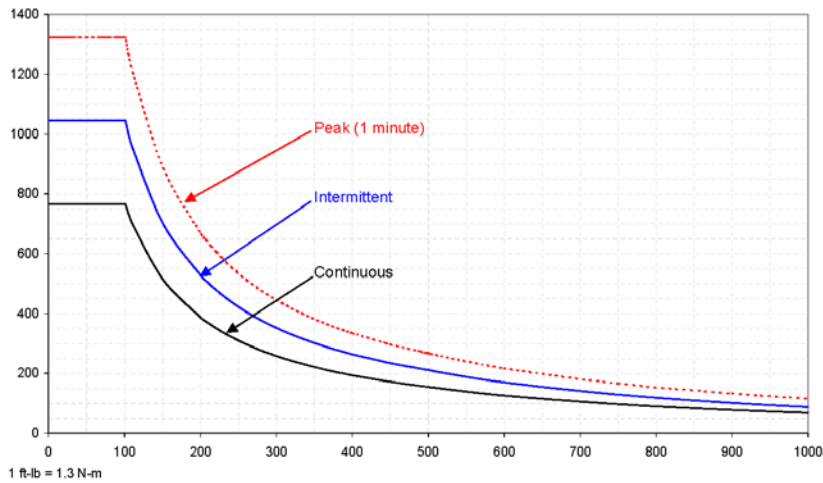
Fanuc Torque Chart 26/20/2/G/FHT – Geared, High

Used on: Standard HMC70
Optional N/A

Fanuc aI22/8000p HMC70 2:1 Gearbox High Power Characteristics of 26/20 HP HT Dual Winding Motor for 4,000 RPM In HIGH Gear



Fanuc aI22/8000p HMC70 6:1 Gearbox Low Torque Characteristics of 26/20 HP HT HMC70 Dual Winding Motor for 1,000 RPM In LOW Gear



Fanuc aI22/8000p HMC70 2:1 Gearbox High Torque Characteristics of 26/20 HP HT HMC70 Dual Winding Motor for 4,000 RPM In HIGH Gear

