

BHP130 Series

Heavy Duty CNC Horizontal Boring & Milling Machines





BHP130 SERIES CNC Heavy Duty Horizontal Boring and Milling Machines



SNK Nissin BHP130 Boring Mills have the power and robust construction to handle the toughest jobs all while delivering the highest degree of accuracy, speed and versatility. Superb design and premium grade components throughout assure optimum precision, flexibility of application and long-term machine life. The BHP130 Series is equipped with many standard features that truly make these machines the choice for maximum return on investment.

The X-axis table is of a single piece casting, providing the accuracy and stability of a fully supported cast iron base. X-Axis travel up to almost 200 inches is available.

BHP130 series Boring Mills are designed to handle heavy work up to 44,000 lbs. The generous work envelope and straightforward design provide for efficient work fixturing. Machine system component layout assures optimum operator convenience and safety.

BHP130 SERIES

Designed and Built for Optimum Performance



Maximum accuracy and tough prolonged cutting requires rigid and heavy duty construction. That's why BHP130 Series Boring Mills are manufactured with heavy, high-quality cast iron throughout. The B-Axis is fully supported by a worm and wheel construction with scale feedback. Large work tables with 9 T-slots simplify work fixturing. Peak accuracy is achieved by combining superior mechanical design, thermal compensation, and scales on all axes.



Extra-wide solid boxways easily support large heavy work. Oversize ballscrews are employed on all linear axes - X, Y, Z & W. All ballscrews are precision ground and finished to deliver consistent precise positioning even under the most demanding machining conditions. All are fully supported at both ends and double anchored for stability and consistent reliability. Scale feedback on X, Y, Z & B axes is standard.

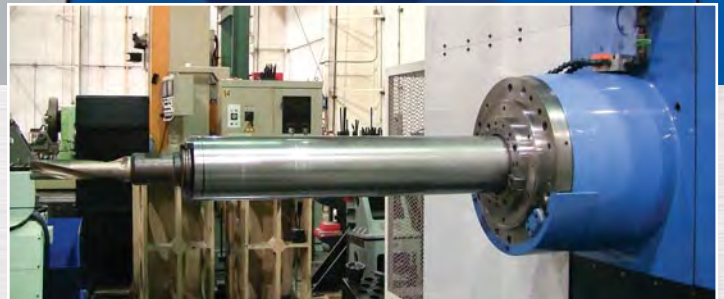
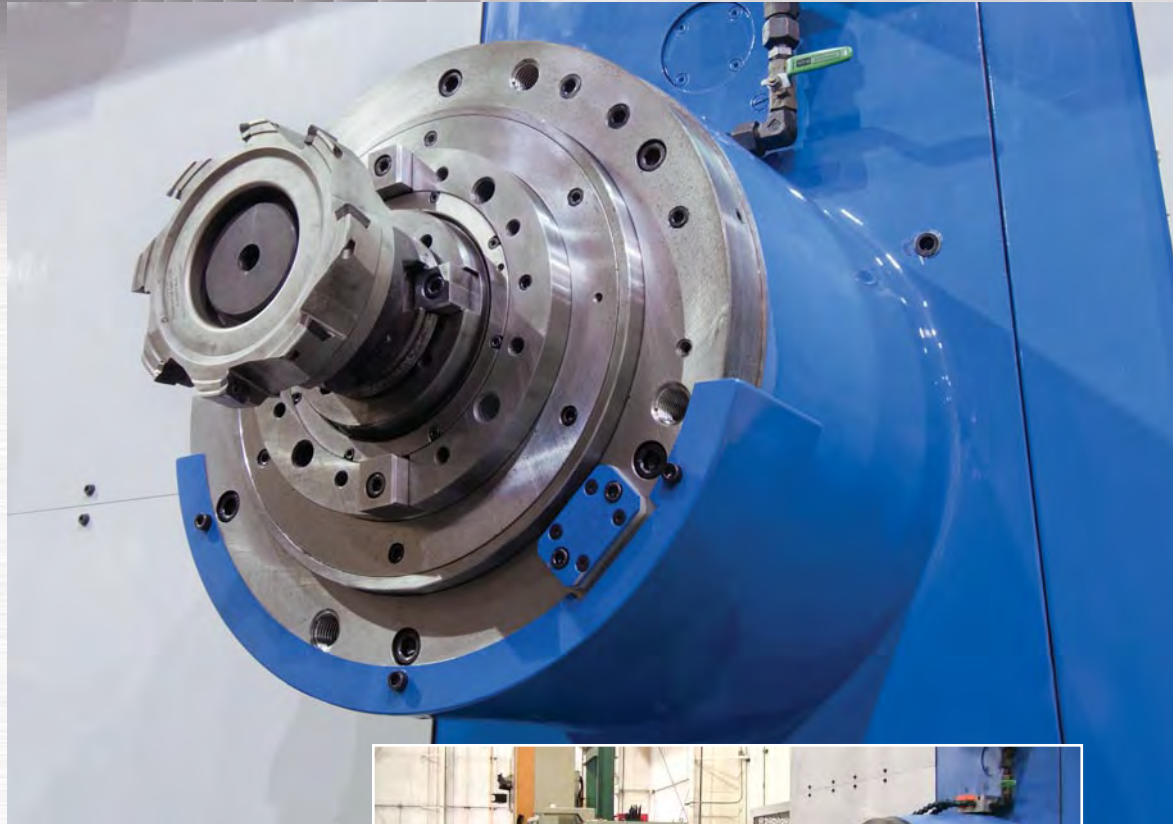


Extra-large boxways are ultra-precision finished using SNK's 40 year proven "Mirror Surface Finish" machining technology.

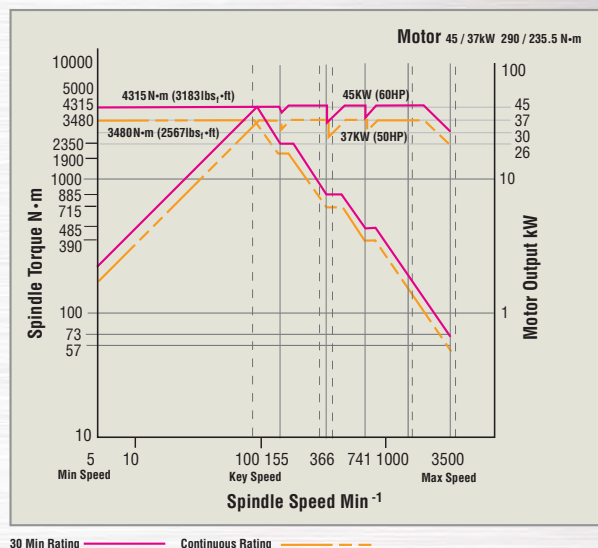


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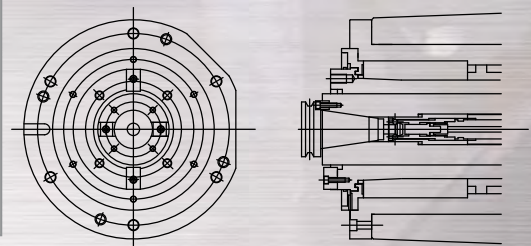
The BHP130 Series spindles ride on a massive column assembly on hardened and 'mirror surface' ways that provide maximum rigidity even under prolonged heavy-duty cutting. This assembly delivers high power and exceptional cutting torque. The 5.1" boring spindle travels within the 8" milling spindle to provide a full 27.5" stroke. The 4-gear AC 60 HP spindle motor has a 5 ~ 3,500 rpm spindle speed range and generates 3,182 lbs_f•ft of torque. Incorporated W-axis thermal growth compensation provides optimum accuracy. 5 strategically positioned sensors on the spindle casting and bearings constantly monitor temperature and make changes in the W-axis down to micron levels.



BHP Series Spindle Output & Torque Diagram

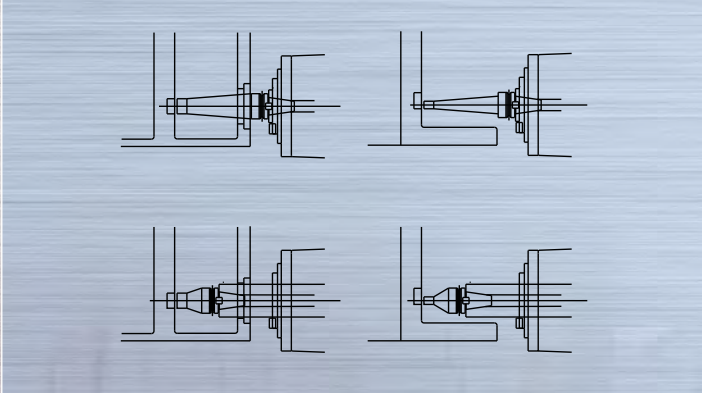


Spindle Nose for 5.1" Bar & 8" Milling Spindle

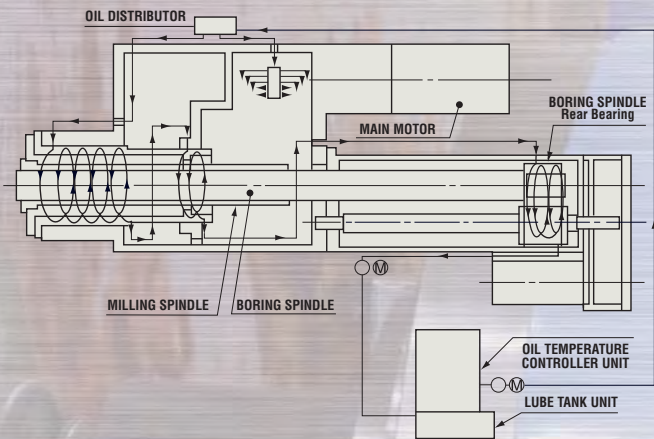


1. Angular Attachment
2. Facing Head, U-Axis, CNC Controlled
3. Universal Attachment

Advantage of Quill/Bar Design vs. Fixed Horizontal Design



Heavy Duty Gear Box Case is Oil Bath Sealed and Chilled





BHP130 SERIES Powerful Control Features

BHP130 Series Boring Mills are equipped with proven Fanuc control and motor technology. For ease of operation the control is pendant mounted. Standard automation software simplifies a wide range of boring mill tasks.

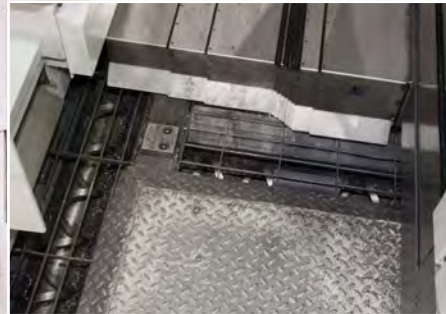
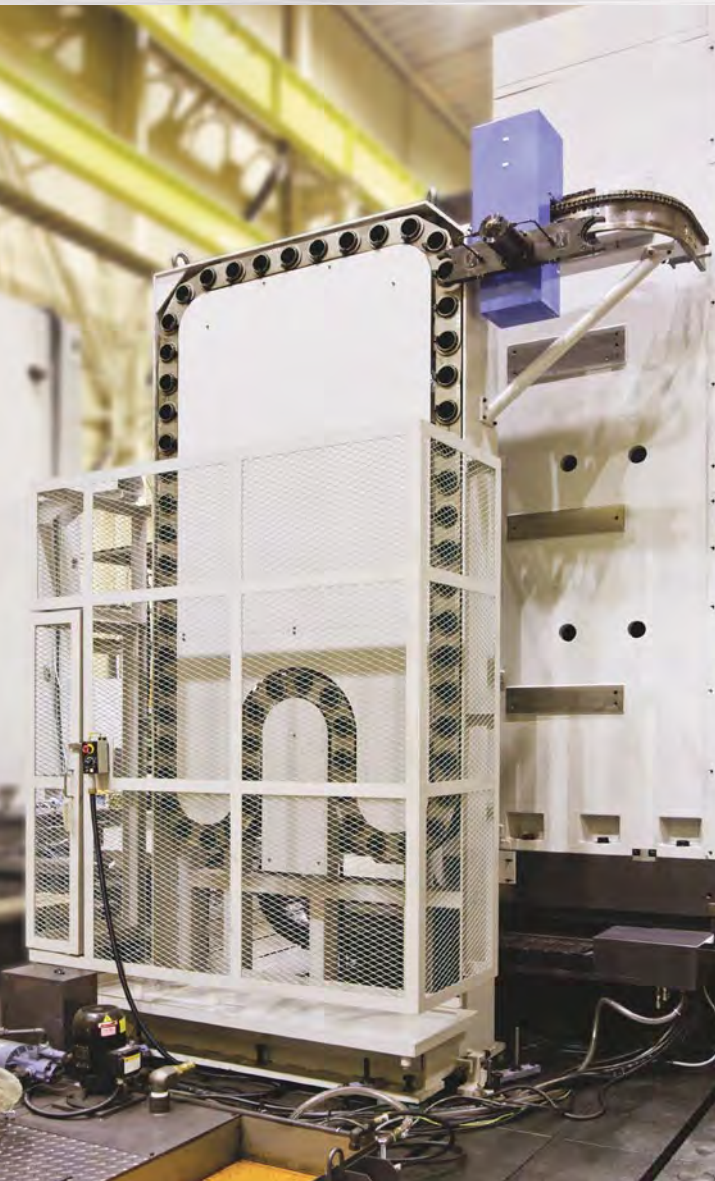
Controlled Axes: 5 Axes (X, Y, Z, W & B Axes)	Decimal Point Programming / Pocket Calculator Type Decimal Point Programming	
Controlled Method: AC Servo Motor + Pulse Corder	Plane Selection (G17, G18, G19)	
Minimum Input Unit: 0.001mm (0.001 deg)	Rotary Axis Designation	
Max. Command Value: ±8-Digit (±9999.999)	Rotary Axis Roll-Over	
Interlock (All axes, each axis, each direction block start, cutting block start)	Workpiece Coordinate System Setting (G92)	
Emergency Stop	Automatic Coordinate System Setting	
Over-Travel	Manual Absolute On / Off	
Stored Stroke Check 1	Subprogram Interpolation by R Programming	
Mirror Image (Each axis of X and Y axes by M code)	Auxiliary Function M8-Digit	
Followup	Main Spindle Function S5-Digit	
Backlash Compensation	Tool Function T8-Digit	
Backlash Compensation for Each Rapid Traverse and Cutting Feed	Tool Offset (G43, G44, G49)	
Automatic Operation	Number of Registerable Programs: 63 Programs	
MDI Operation	Tape Editing	
Program No. Search	Program Protect	
Sequence No. Search	Status Display	
Buffer Register	Clock Function	
Dry Run	Current Position Display	
Single Block	Program Display	
Jog Feed	Parameter Setting and Display	
Manual Reference Point Return	Self-Diagnosis Function	
Incremental Feed	Alarm Display	
Positioning (G00)	Alarm History Display	
Exact Stop Mode (G01)	Operation History Display	
Exact Stop (G09)	Periodical Maintenance Screen	
Linear Interpolation	Maintenance Information Screen	
Circular Interpolation	Help Function	
Dwell (in seconds) G04	Display of Actual Spindle Speed	
Skip Function (G31)	Directory Display of Hardware and Software Configuration	
Reference Point Return (G28)	English Display	
Reference Point Return Check (G27)	Data Protection Key 1 Kind	
2nd Reference Point Return (G30)	Erase CRT Screen Display	
Rapid Traverse	Modem Card Control	
Rapid Traverse Override: F 0, 25, 50, 100%	External Key Input	
Feed Rate per Minute mm/min	External Program Input	
Cutting Feed Rate Override: 0 ~ 200%	External Workpiece Number Search	
Jog Feed Override	Memory Card Interface	
Override Cancel	Screen Hard Copy	
EIA / ISO Automatic Recognition	Servo Wave-Form Display	
Label Skip	Fine Acceleration and Deceleration	
Parity Check	HRV Control	
Control In / Out	Status Display (NC Ready Completion, etc.)	
Optional Block Skip: 1 Switch	DNC Operation by Memory Card	
Maximum Command Value ±8-Digit	Inch / Metric Changeover	
Program No. 04-Digit	Helical Interpolation	
Sequence No. N5-Digit	Rigid Tapping	
Absolute / Incremental Command in Same Block	Tool Offset Memory C	
	Program Storage Tape Length: 160m	
	10.4" Color LCD	
	Program Restart	
	Stored Stroke Check 2	
	Memory Type Pitch Error Compensation	
	Manual Handle Feed: 1 Unit	
	Single Direction Positioning (G60)	
	Workpiece Coordinate Systems (G52 - G59)	
	Workpiece Coordinate Preset	
	Number of Tool Offsets: 99 Pairs	
	Cutter Diameter Compensation C	
	Extended Tape Editing	
	Programmable Data Input (G10)	
	Canned Cycle (G73, G74, G76, G80 - G89)	
	Background Editing	
	Macro Executor	
	Spindle Serial Output	
	Spindle Orientation	
	Position Switch	
	Run Hour and Parts Count Display	
	Reader / Puncher Interface	
	External Data Input	
	Control Axis Detach	
	Dual Position Feedback	



BHP130 SERIES Performance Enhancing Components



The standard ATC System provides a generous 60 tool capacity. 90 & 120 tool ATCs are available if additional capacity is required. The standard Pneumatic Foot-pedal frees the operator's hands for faster, safer tool loading and unloading. A reliable, high-efficiency tool change mechanism minimizes machine idle time. Available fully enclosed splash guard promotes shop cleanliness and operator safety.



A micro-filtration and chip conveyor system provides efficient chip evacuation. Skimmer, chip covers and splash guards keep ways and drive components clear of chips.

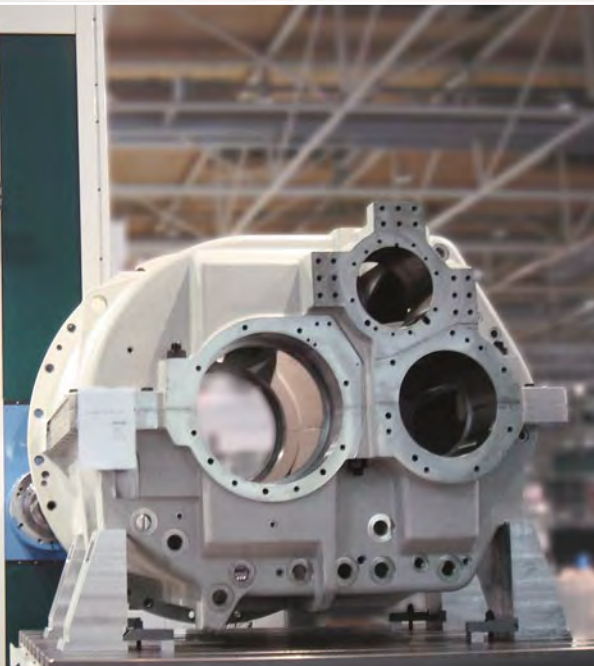




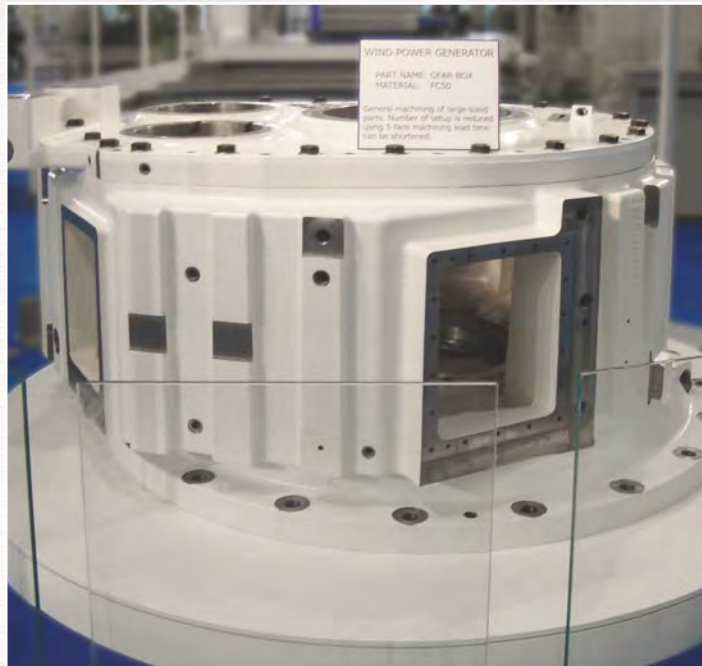
BHP130 SERIES

Designed for the Most Demanding Machining

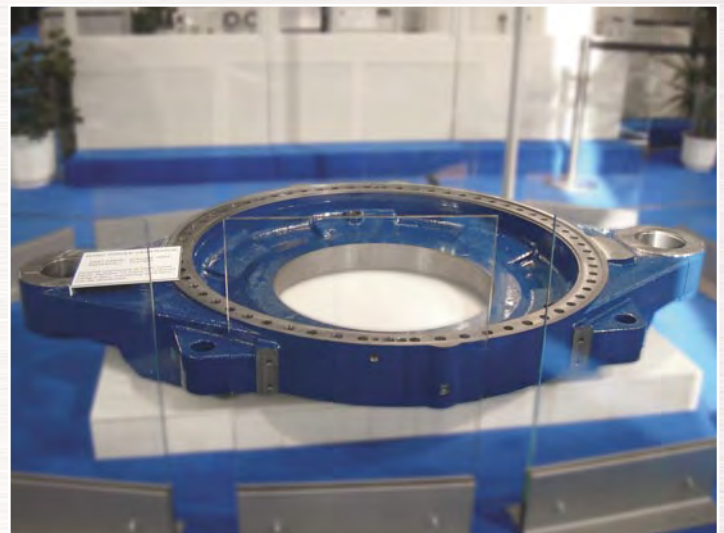
Windmill Gear Box



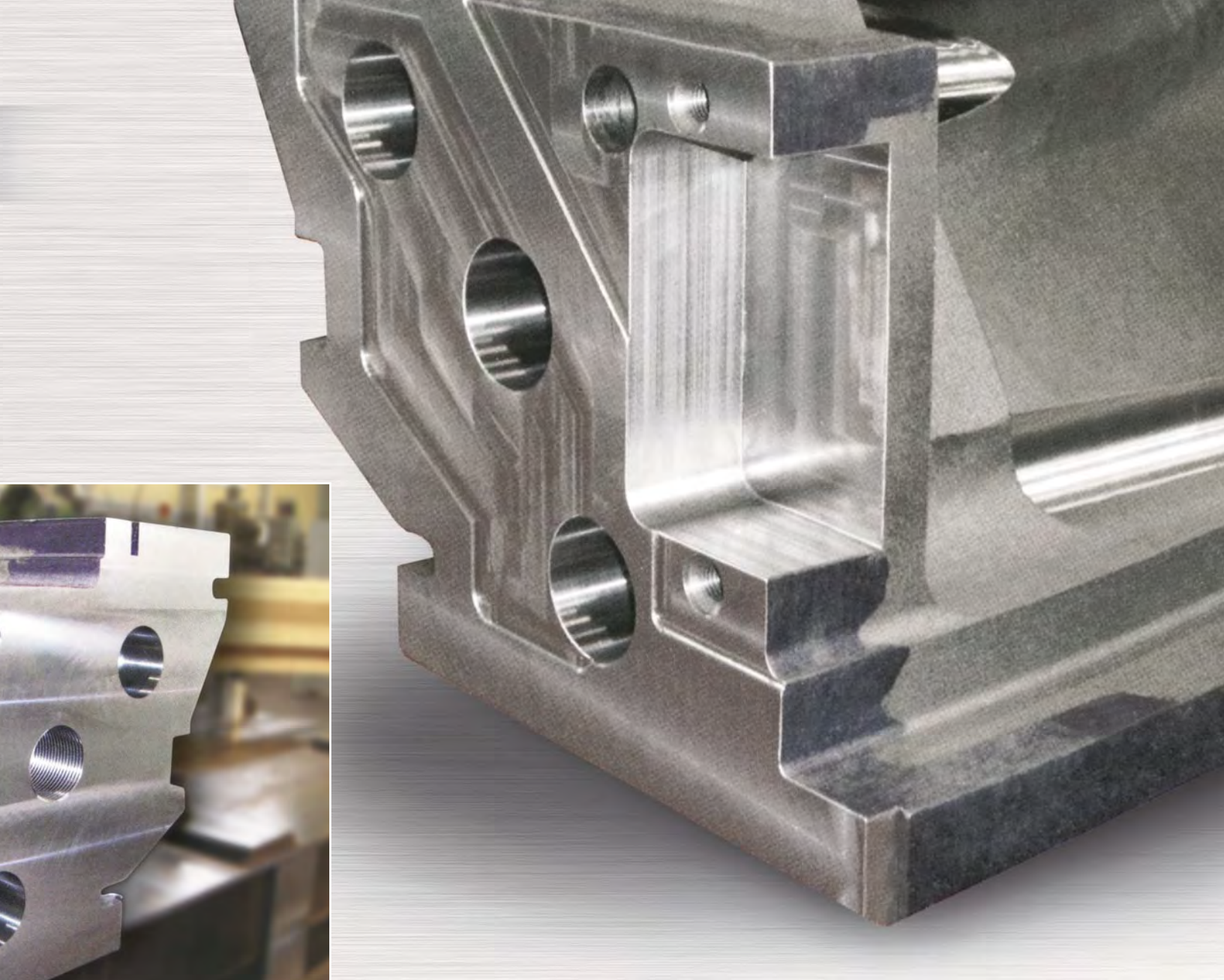
Power Generation



Heavy Construction



Windmill Torque Arm



Standard Equipment:

- Heavy Duty Box Way Construction
- High Quality Cast Iron Construction
- Spindle Orientation Function
- Automatic Spindle Head Lubrication (Oil-Air Mist)
- Automatic Tool Changer (Std. Magazine Capacity 60 Tools)
- Scale Feedback (X, Y, Z, B Axes)
- Thermally Controlled Head Stock
- Main Operation Panel
- Pendant Control Operation Panel with MPG
- Bed Slideway Cover (Cover of X and Z Axes)
- Column Front Slide Cover for Y Axis (Main Spindle Head Up and Down)
- Coil Conveyor (Built-In X Axis Table Bed and Z Axis Column Bed)
- Fanuc CNC System

- Automation Software
- Helical Interpolation
- Rigid Tapping
- Coolant System and Filter Unit
- Lift-Up Type Chip Conveyor (Hinge-Pan)
- Coolant Through Spindle
- Splash Guard: A Type Max Swing of Workpieces: 3,000mm (118.1")
- W Axis Thermal Displacement Compensation Function
- Spindle RPM Display and Spindle Motor Load Display (On LCD Screen)
- Automatic Power Shut-Off Function
- Tool No. Display (On LCD Screen)
- Machine Completion Signal Tower (Red - Amber - Green)
- Illumination Equipment (Halogen Light 1 Unit)

- Self-Diagnosis Function (NC Equipment)
- Installation Hardware and Toolbox

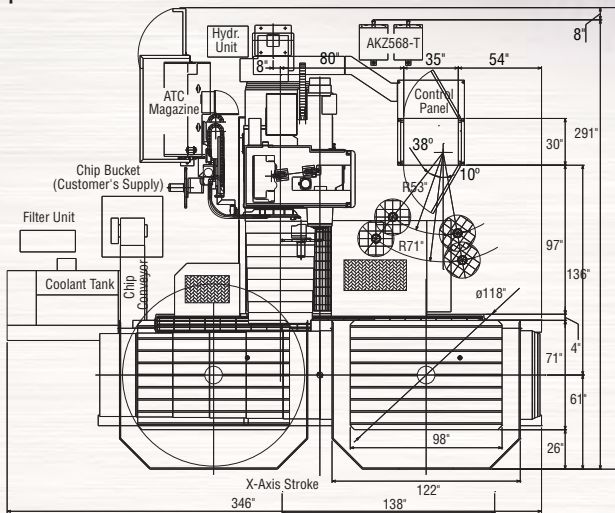
Optional Equipment:

- Right Angle Head
- Universal Attachment
- Angular Attachment
- Facing Head, U-Axis, CNC Controlled
- Plane Table Machine
- Full Enclosure
- ATC Magazine Tool Capacity Extension 90 Tools or 120 Tools
- Pallet Changer Options



BHP130 SERIES Machine and Table Drawings

Top View **BHP130 3.5**



Side View **BHP130 3.5**

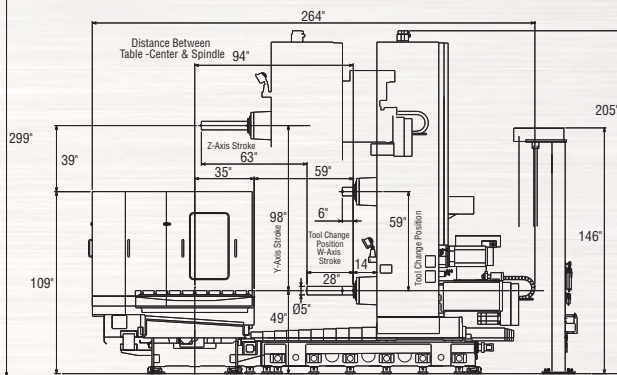
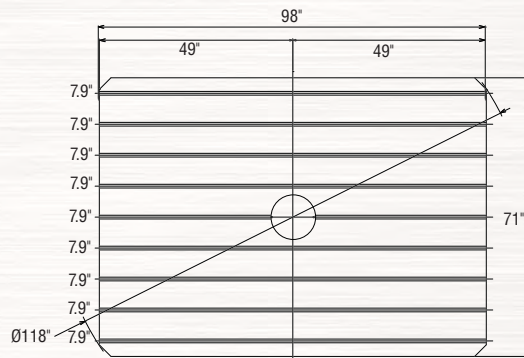


Table **BHP130 3.5**



BHP130 SERIES Specifications

	BHP130-3.5	BHP130-4.0	BHP130-5.0
TABLE			
Full Rotary Table	70.87" x 98.43" (1,800 x 2,500mm)		
Table Indexing	0.001 deg		
Maximum Load Capacity	44,100 lbs (20,000kg)		
Table Face	24mm - 9 T-Slots		
Min. Increment	0.001° (90°positioning pin)		
TRAVEL DISTANCE			
X-Axis	137.80" (3,500mm)	157.48" (4,000mm)	196.85" (5,000mm)
Y-Axis	98.43" (2,500mm)		
Z-Axis	62.99" (1,600mm)		
W-Axis	27.56" (700mm)		
SPINDLE			
Spindle Motor	AC60/50hp (45/37kW)		
Spindle Range / Speeds	5 ~ 3,500rpm		
Maximum Torque	3,183 lbs _f •ft (4,315 N•m)		
Spindle	4 Range / Gear		
Spindle Diameter	5.12" (130mm)		
Spindle Taper	Cat # 50		
RAPID TRAVERSE			
X Axis	393.7 in/min (10m/min)		
Y & Z Axes	393.7 in/min (10m/min)		
W-Axis	236.22 in/min (6m/min)		
B-Axis	1rpm		
CUTTING FEEDRATE			
X, Y, Z, W Axes	0.01 ~ 196.85 in/min (1~ 5,000mm/min)		
B-Axis	1rpm		
ATC			
Tool Shank	CAT50		
Pull Stud	MAS P50-I (45°)		
Number of Tools (Optional)	60 (90, 120)		
Max. Dia. [Adj. Pots Empty]	4.92" (125mm) [9.44" (240mm)]		
Max. Length	19.6" (500mm)		
Max. Weight	55.12 lbs (25kg)		
Tool Selection	Random Shortest Route		
ACCURACY			
Positioning Accuracy			
Full Length with Scales for X, Y and Z Axes	0.0002" (0.005mm)		
Full Length W Axis	0.0004" (0.01mm)		
B Axis NC Rotary	5 arc/sec		
B Axis NC Rotary at every 90° Positioning	5 arc/sec		
Repeatability			
Full Length with Scales for X, Y and Z Axes	0.0001" (0.003mm)		
Full Length W Axis	0.0001" (0.003mm)		
B Axis NC Rotary	3 arc/sec		
B Axis NC Rotary at every 90° Positioning	3 arc/sec		
NET WEIGHT Approx.	99,000lbs (45,000kg)	101,200lbs (46,000kg)	104,500lbs (47,500kg)
MACHINE SPACE W x D x H	346" x 299" x 205" (8,800 x 7,600 x 5,200mm)	370" x 299" x 205" (9,400 x 7,600 x 5,200mm)	411" x 299" x 205" (10,450 x 7,600 x 5,200mm)
POWER	95 kVA		
CNC CONTROL	Fanuc 31i-B5		

Specifications subject to change without notice.



SNK AMERICA, INC.
MACHINE TOOL GROUP

1150 Feehanville Dr. Mt. Prospect, IL 60056
Tel: 847.364.0801 Fax: 847.364.4363
www.snkamerica.com

