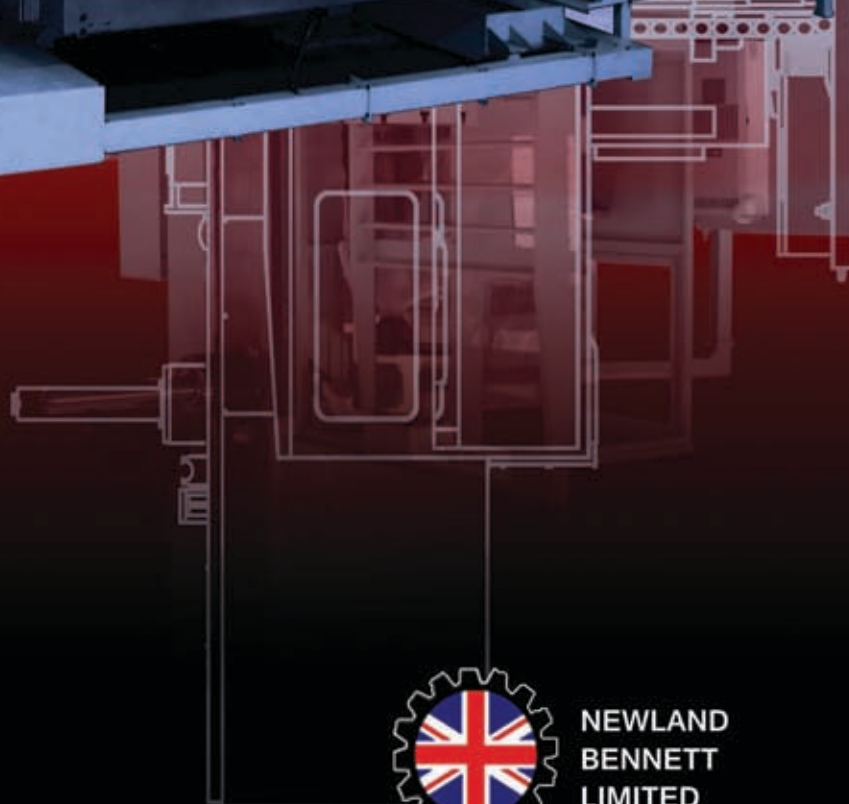


Horizontal Boring Mills



NEWLAND
Newland Machine Tool Group Inc.



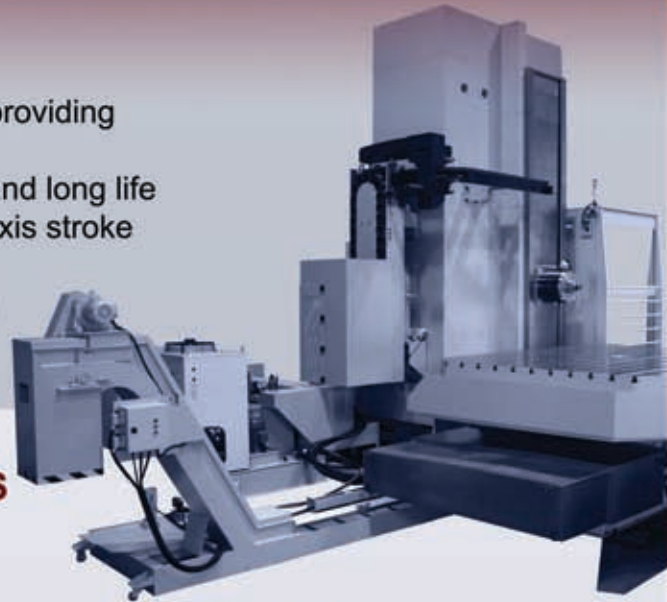
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LIMITED



Horizontal Boring Mills

T-Type HBM ADVANTAGES:

- Hydrostatic ways with a-static flow regulators on X & Z axes providing dampening, rigidity, high speeds, accuracy and long life
- Combination box ways on the Y axis for dampening, rigidity, and long life
- Patented spindle head with the shortest spindle length to W axis stroke available for increased spindle speed and power capability
- Modular head stock with up to three gear ranges for optimum speed and torque/power characteristics

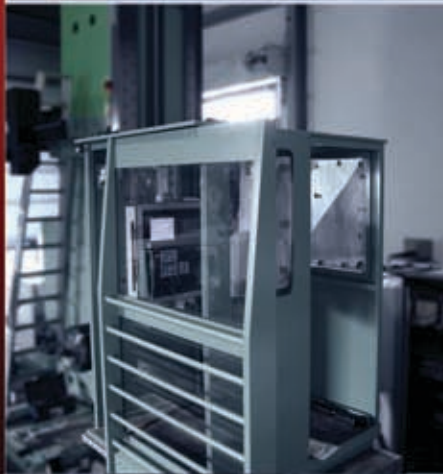


BASIC FEATURES

- T-Type layout with moving column (Z axis)
- Heavy duty cast iron construction
- High spindle speeds and power
- Dual way covers on X and Z axes
- Plain table; Chip conveyor
- Operator cabin

PERFORMANCE ENHANCING OPTIONS

- Linear scales
- Rotary table
- Indexing heads
- Milling heads
- Facing heads
- Automatic tool changer
- Automatic head changer
- Boring spindle support
- Coolant through the spindle
- Pallet changer



SPECIFICATIONS

	NHB 13	NHB 16
Spindle:		
Boring spindle diameter, mm (in)	130 (5.1)	165 (6.5)
Spindle taper	ISO 50	ISO 50
Maximum speed, RPM	4000	3150
Maximum torque, Nm (lbs ft)	2500 (1844)	4150 (3060)
Power, kW (HP)	37 (50)	51 (68)
Travels:		
X-axis (table), mm (in)	2000 (78.7)	2500 (98.4)
Optional	2500 (98.4)	3000 (118.1)
	3000 (118.1)	3500 (137.8)
	3500 (137.8)	4000 (157.5)
Y-axis (spindle head), mm (in)	1600 (63)	2000 (78.7)
Optional	2000 (78.7)	2500 (98.4)
	2500 (98.4)	3000 (118.1)
		3500 (137.8)
Z-axis (column in/out), mm (in)	1250 (49.2)	1500 (59)
W-axis (boring spindle in/out), mm (in)	750 (29.5)	1000 (39.4)
Plain Table:		
Size, mm (in)	1250 x 1600 (49.2 x 63)	1600 x 2000 (63 x 78.7)
Maximum table load capacity, kg (lbs)	10000 (22000)	20000 (44000)
Optional plan table sizes, mm (in)	1600 x 2000 (63 x 78.7)	1600 x 2500 (63 x 98.4)
	1600 x 2500 (63 x 98.4)	2000 x 3000 (78.7 x 118.1)
	1600 x 3000 (63 x 118.1)	2000 x 3500 (78.7 x 137.8)
Feed Rates		
X, Y, Z, mm/min (in/min)	20000 (787)	16000 (630)
Optional X, Y, Z, mm/min (in/min)	25000 (984)	20000 (787)
W, mm/min (in/min)		10000 (394)
Rotary Table (optional):		
Size, mm (in)	1250 x 1600 (49.2 x 63)	1600 x 2000 (63 x 78.7)
Optional rotary table sizes, mm (in)	1600 x 2000 (63 x 78.7)	2000 x 2500 (78.7 x 98.4)
	2000 x 2500 (78.7 x 98.4)	2000 x 3000 (78.7 x 118.1)



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Floor-Type HBM ADVANTAGES:

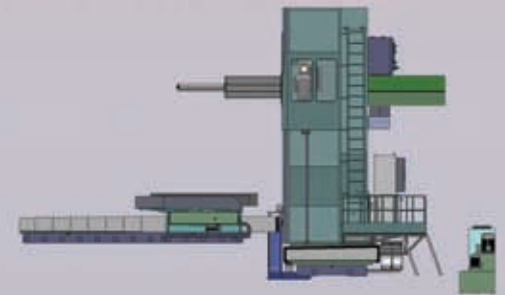
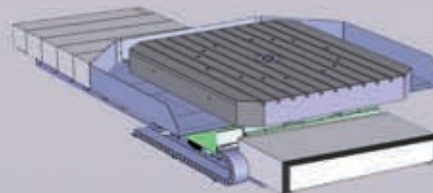
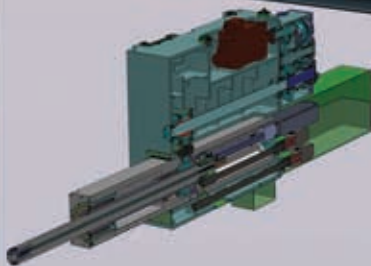
- Hydrostatic ways with a-static flow regulators on X & Z axes providing dampening, rigidity, high speeds, accuracy and long life
- Combination box ways on the Y axis for dampening, rigidity, and long life
- Modular head stock with three gear ranges for optimum speed and torque/power
- Boring spindle, ram and head compensation systems for improved accuracies

BASIC FEATURES

- Floor-Type layout with moving column (X axis)
- Heavy duty cast iron construction
- Rack & dual pinion X axis drive
- Ram type spindle head
- Operator cabin
- Dual way covers on X axis
- Chip conveyor

PERFORMANCE ENHANCING OPTIONS

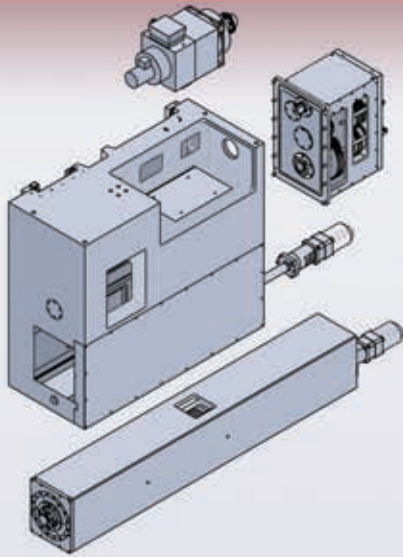
- Linear scales
- Automatic tool changer
- Rotary table
- Milling heads
- Facing heads
- Indexing heads
- Boring spindle support
- Coolant through the spindle
- Automatic head changer



SPECIFICATIONS

	NHF 16	NHF 20	NHF 26
Spindle:			
Boring spindle diameter, mm (in)	165 (6.5)	200 (7.87)	260 (10.2)
Spindle taper	ISO 50	ISO 50/60	ISO 50/60
Maximum speed, RPM	3150	2000	1600
Maximum torque, Nm (lbs ft)	10000 (7375)	18000 (13280)	25000 (1844)
Power, kW (HP)	71 (95)	100 (134)	129 (173)
Travels:			
X-axis (columns), mm (in)	From 3000 (188.1) with increments of 1000 (39.4)	From 4000 (157.5) with increments of 1000 (39.4)	From 6000 (236.2) with increments of 1000 (39.4)
Y-axis (spindle head / vertical), mm (in)	2000 - 4000 (78.7-157.5)	2500 - 5000 (98.4-196.8)	3000 - 7000 (118.1-275.6)
Z-axis (ram in/out), mm (in)	1200 (47.2)	1500 (59)	1800 (70.9)
W-axis (boring spindle in/out), mm (in)	1000 (39.4)	1250 (49.2)	1500 (59)
Z+W, mm (in)	2200 (86.6)	2750 (108.2)	3300 (129.9)
Feed Rates			
X, Y, mm/min (in/min)	16000 (630)	12000 (472)	10000 (394)
Z, W, mm/min (in/min)	10000 (394)	10000 (394)	10000 (394)

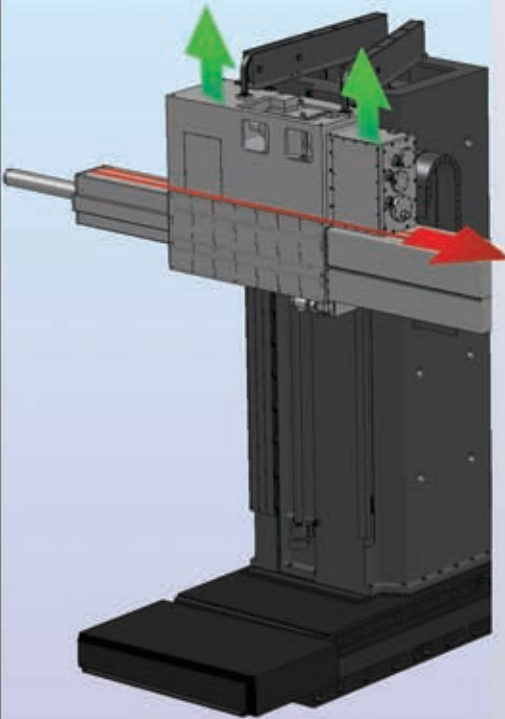
Floor-Type HBM



RAM STYLE HEAD

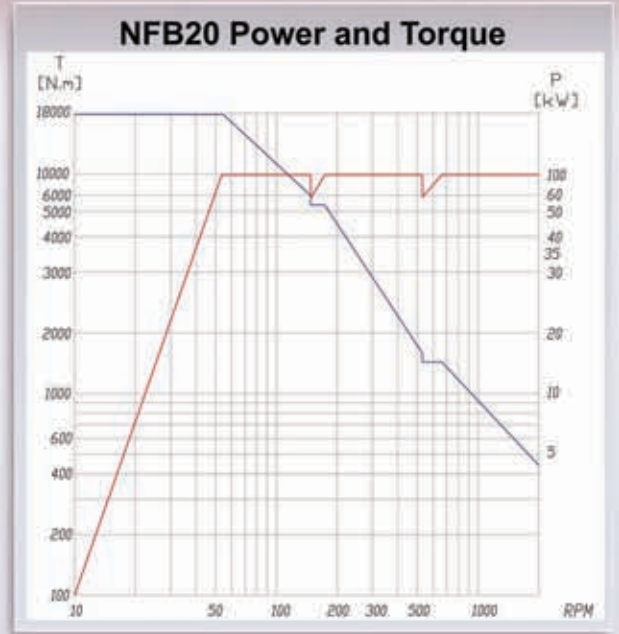
The modular construction of our ram style head provides the same benefits as our T-type boring head and spindle. The ground, cast steel ram travels on hydrostatic bearings for improved rigidity and vibration dampening.

DROOP COMPENSATION



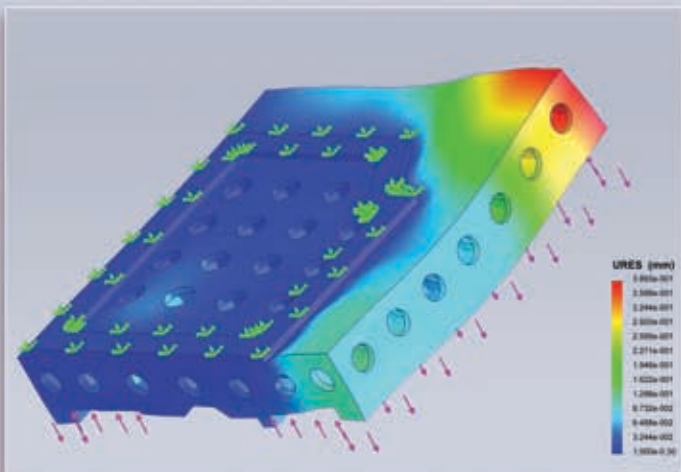
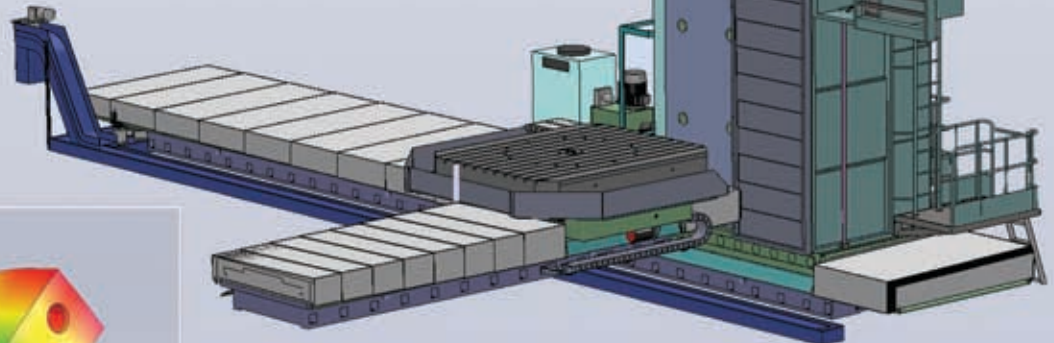
↑ Compensation of the spindle head deflection caused by ram extension and attachment weight (green arrows) by automatic change of pressure in hydraulic counterbalancing cylinders.

↔ Compensation of ram deflection through automatic change of tension in the compensating bars by short stroke hydraulic cylinders



KF20 FLOOR TYPE HBM

Pictured with optional rotary table/V axis, 40 position automatic tool changer and chip conveyor.



FINITE ELEMENT ANALYSIS

Our designs are based on extensive Finite Element Analysis to insure the optimum rigidity, dampening and volumetric accuracies possible. FEA is also used to minimize deformation of the saddle under hydrostatic forces.



DUAL HYDRAULIC POWER UNITS

Separate power units are provided for hydraulically powered actuators and hydrostatic ways. Oil is temperature controlled for thermal stability.

B AXIS DRIVE

Each of the B axis dual pinions is driven by a separate worm & wheel with one worm fixed and one worm hydraulically opposed for backlash free operation. Larger tables utilize tandem drives for superior dynamic response.

B-AXIS ROTARY TABLE

The optional B axis table features crossed roller bearing with hand scraped mounting surface for exceptional accuracy. Four dual piston brakes insure the position is maintained even during heavy cuts. Larger tables are equipped with new generation a-static flow control hydrostatic bearings.

DUAL WAY COVERS

The X and Z axes hydrostatic ways will be protected from contamination by our proprietary dual way covers consisting of bellows style under and telescoping steel above. This design combines the superior sealing of the bellows with the damage resistant features of telescoping steel covers.

LINEAR AXES

All linear motions are driven by oversized, pre-loaded, precision ground ballscrews through planetary reducers or Chevron belt transmissions. The optimized ratios of our designs provide the best dynamic performance available today.

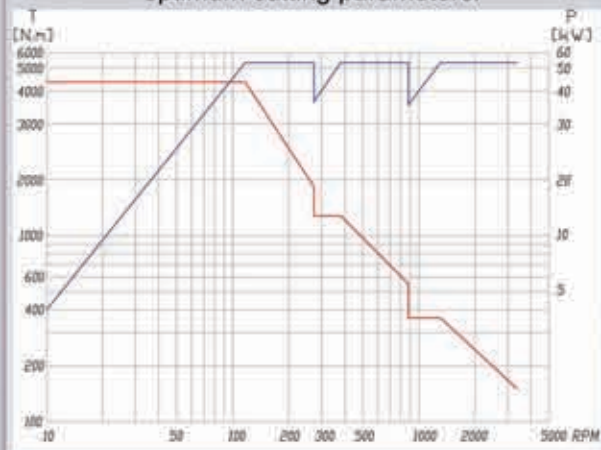
HYDROSTATIC FLOW CONTROL

New generation a-static flow control valves are designed to keep oil flow to any actuator constant irrespective of the load fluctuations. This design improves accuracy by providing stability to the work piece under different cutting forces.

The Newland Horizontal Boring Mills offer unsurpassed rigidity, dampening, accuracy and reliability by design.

NHB16 Power and Torque

The three range gearbox provides near constant power from base speed allowing for use of optimum cutting parameters.



BORING SPINDLE

Our patented boring spindle has the best dynamic performance available. The spindle has a hard nitrided surface and travels in a tempered steel sleeve for maximum support, rigidity and long wear. Circulating, chilled oil is used for lubrication and temperature control for thermal stability.



MACHINE CONTROL

Machines available with Fanuc 31i or Siemens 840D CNC controls and servo drives.

BORING HEAD

Our proprietary boring spindle headstock consists of the main housing, spindle cartridge and gearbox. The modular design provides ease of maintenance and replacement of the units and also provides higher reliability as each module is tested independently prior to final assembly.



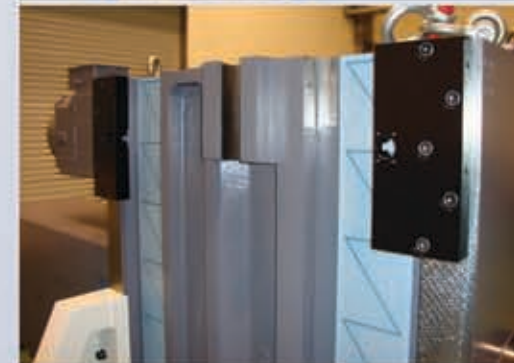
BORING HEAD GEARBOX

The spindle is driven through our proprietary three-range, hydraulically shifted gearbox with best in class power curve. The precision ground helical gears minimize vibration and noise, improving surface finish and tool life.



Y-AXIS

The Y-axis ways are a combination box way-guide way design consisting of Bi-Plast low friction material opposite pre-loaded roller bearings on hardened steel. This design provides the rigidity and dampening of sliding-type box ways and the high accuracy of linear ways and is the key to maintaining long-term durability and reliability. A hydraulic counterbalance is provided for power loss back up and improved axis performance.



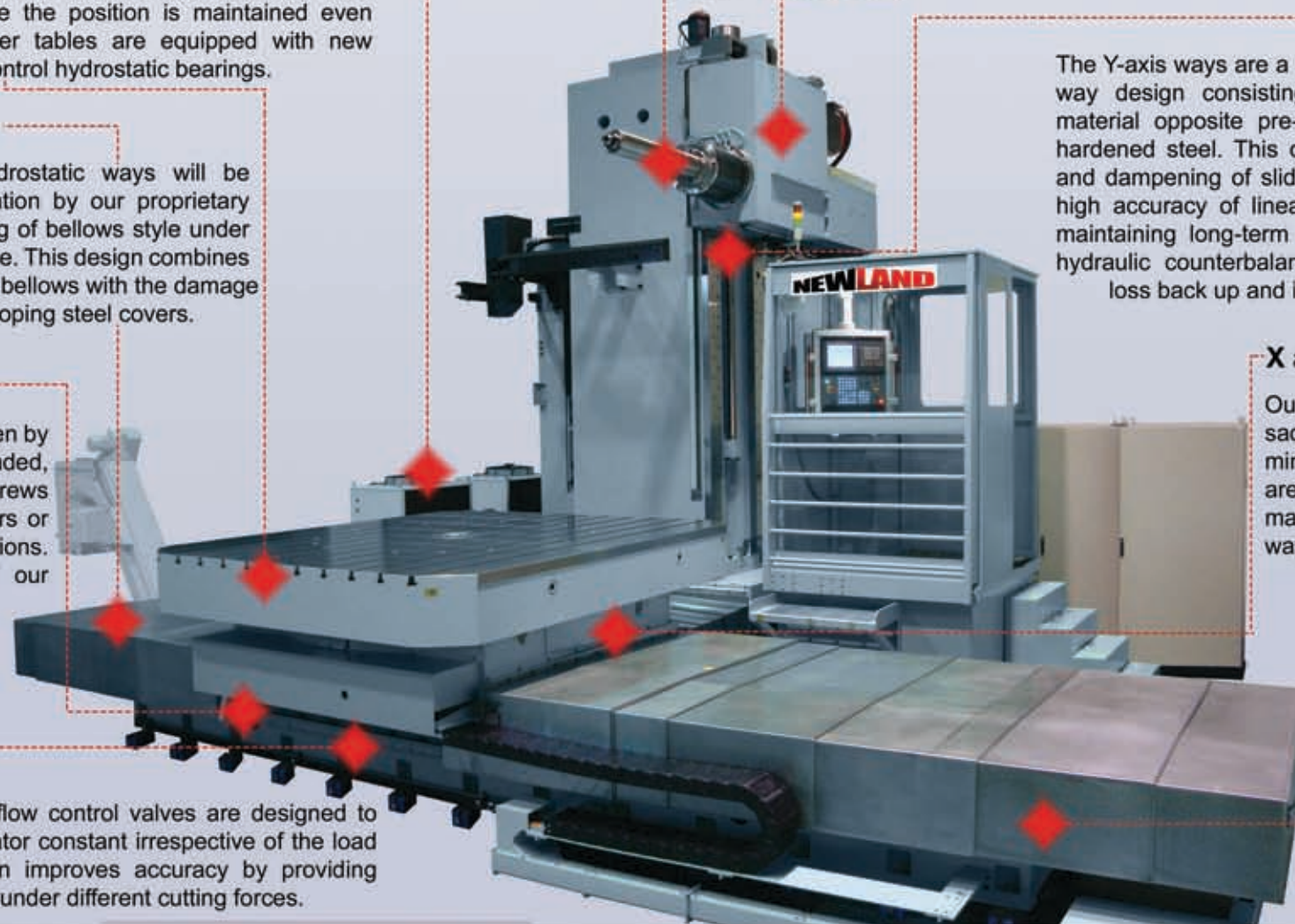
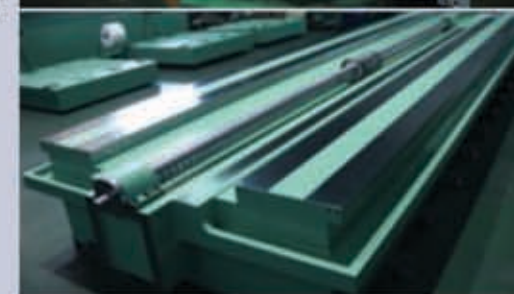
X and Z-AXIS SADDLES

Our proprietary hydrostatic saddles are designed to minimize distortion. Pockets are fashioned from anti-friction material for protection of the way surface in case of hydrostatic pressure loss.



HYDROSTATIC WAYS

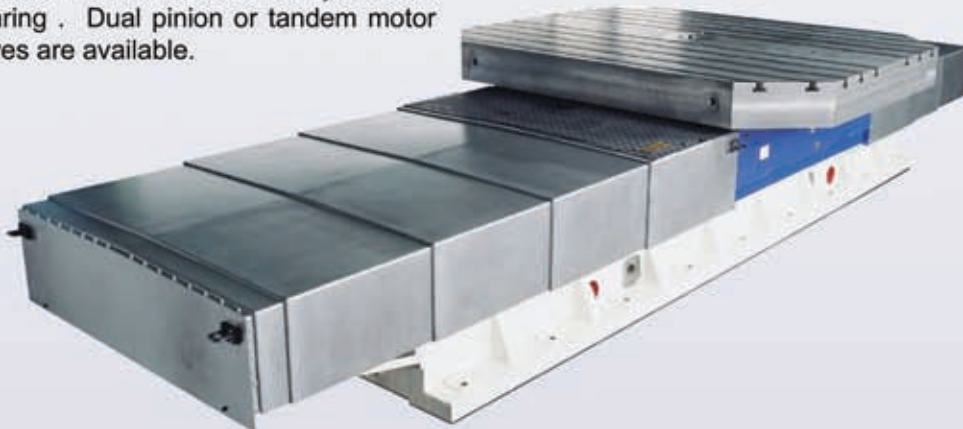
The horizontal axes are equipped with several hydrostatic ways for accurate, high speed positioning of heavy loads and dampening for reduced vibration.



Options and Accessories

ROTARY TABLE / V-AXIS

Rotary tables and V axes are available in a variety of sizes and strokes. Tables are available with cross roller or hydrostatic bearing. Dual pinion or tandem motor drives are available.



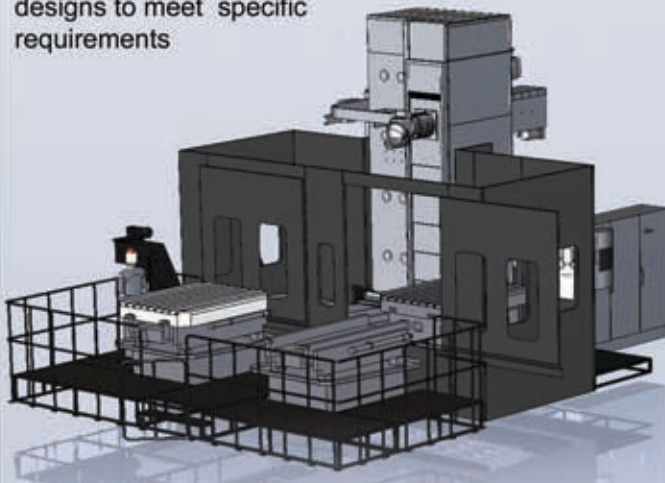
AUTOMATIC TOOL CHANGERS

Optional standard automatic tool changers are available in 40, 60, 90 and 120 tool capacities. Larger special design units are also available.



AUTOMATIC PALLET CHANGERS

Machines can be provided with standard automatic pallet changers or special designs to meet specific requirements.



CHIP & COOLANT SYSTEMS

All horizontal boring mills can be provided with chip conveyors mounted parallel to the X axis. The conveyors can be designed to handle a number of different work piece materials. The conveyors can operate with and without coolant. Coolant can be provided through the ram for chip flushing and through the spindle for through tool coolant, including high pressure options.



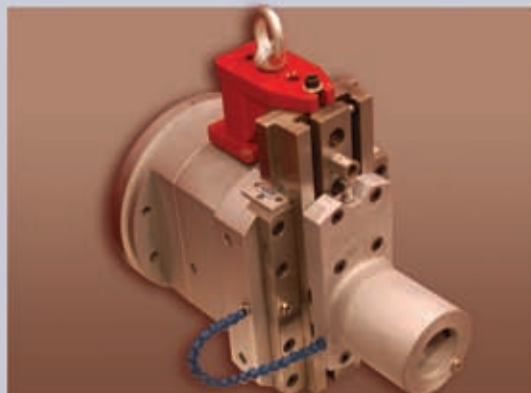
MILLING HEADS

The high-performance single and twin-axis roughing and finishing heads perfectly suit the heavy-duty cutting of our machines.



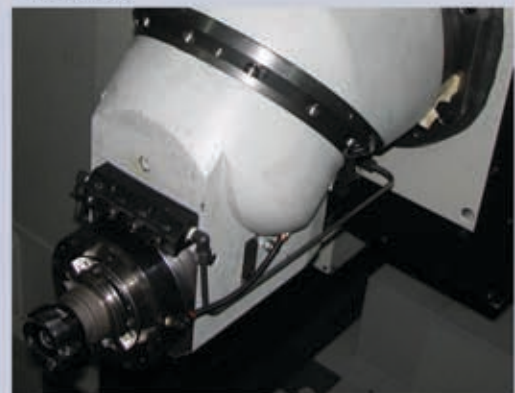
FACING HEADS

Facing heads are available in a variety of speeds, power and strokes.



INDEXING HEADS

One and two axis indexing heads with various speed and power options are available.



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