

spindles

hydrostatic spindles

The Moore Tool Company, a leader in precision machine tool design and manufacture, produces a wide range of hydrostatic spindles for milling, turning, grinding, and special-purpose machining. The integration of extremely sophisticated individual components with equally sophisticated processes, achieve the high levels of accuracy, productivity, and reliability required for machining quality.

To satisfy the exacting and sometimes conflicting demands placed on the spindle used in precision high-speed machining, Moore's hydrostatic spindles combine ultra-high rotational accuracy, high-static stiffness, extremely high-resistance to vibration and low sensitivities to both imbalance force and high built-in motor temperatures.

Standard spindles

Specifications range from small units with sleeve diameters of 50mm with speeds up to 100,000 rpm, to large spindles with sleeve diameters of 320mm with maximum speeds of 10,000 rpm. (Available with built-in motors or with provisions for external driving motors.)

Multi-mode milling spindles

Combining a ball bearing mode with a hydrostatic bearing mode, these ultra-precision spindles handle low-speed heavy roughing, high-speed precision milling, and mirror-surface diamond turning with rotational accuracy less than 0.1 micron.

Precision grinding spindles

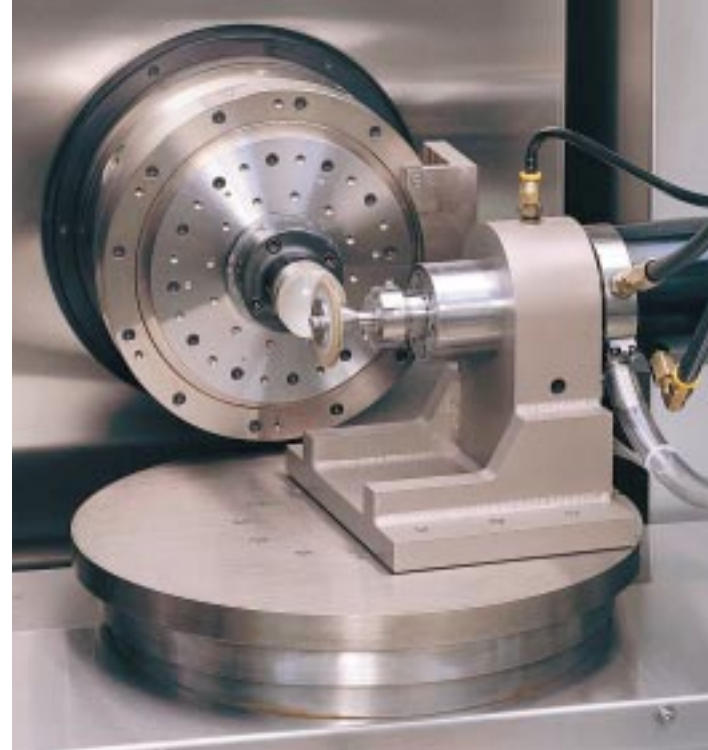
For internal and/or external grinding applications, these spindles can serve as a work head, with rotational accuracy under 0.03 micron. Surface finishes of 10 Angstroms can be achieved when grinding glass.

Axial-oscillating grinding spindles

Controlled axial oscillations improve work piece surface finish and productivity results. Oscillations range from 0 to 2 mm with frequencies from 0 to 100 Hz.

Workpiece centering spindle assembly

Automatic self-centering of the work piece simultaneously occurs in two cross-sections in a few seconds. Aligns the work piece rotationally to less than 0.1 micron, eliminating radial run-out and tilting motion.



specifications

Milling and turning spindles

Model	Max. speed rpm	Net power kW	Stiffness		OD mm	Nose configuration
			Radial N/um	Axial N/um		
80 HYD 50M	50,000	6.0	60	120	80	HSK 25
100 HYD 40M	40,000	14.0	90	160	100	HSK 32
140 HYD 32M	32,000	9.5	120	220	140	HSK 40
170 HYD 24M	24,000	34.0	200	350	170	HSK 63
230 HYD 12M	12,000	33.5	500	900	230	BT 40
210 HYD 10T	10,000	4.0	350	1000	210	DIN
300 HYD 05T	5,000	9.0	1800	4500	300	DIN

Grinding spindles

Model	Max. speed rpm	Net power kW	Stiffness		Notes
			Radial N/um	Axial N/um	
160 HYD 05 GW	5,000	4.2	400	600	Work Head
120 HYD 05 EG	5,000	NA	250	400	External
220 HYD 05 EG (Os)	5,000	NA	400	600	External (<i>forced axial shaft oscillations</i>)
100 HYD 40 IG (Os)	40,000	14.0	90	120	Internal (<i>forced axial shaft oscillations</i>)
70 HYD 120 IG (A)	100,000	0.9	12	25	Internal (<i>driven by integral air turbine</i>)

Multi-mode milling spindles*

Model	Max. speed rpm	Net power kW	Hydrostatic coupling		Nose configuration
			Max. torque N-M		
240 HYD 42 MM	42,000	30.0	500		HSK 32
170 HYD 32 MM	32,000	35.0	1000		HSK 40
210 HYD 24 MM	24,000	40.0	1,500		HSK 63
280 HYD 15 MM	15,000	55.0	4,000		HSK 100

*Internal and external drive with automatic switching between hydrostatic bearings and conventional ball bearing support



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