

Machine Base and Control	Description
Machine Base	Natural sealed granite with a fabricated steel frame
Machine Type	Ultra precision, two-axis contouring system
Vibration isolation	Passive Self-leveling system
Control System	UPx™ Control System
Operating system	QNX-real time OS utilizing non proprietary motion control boards for advanced capability and performance
Programming resolution	1.0nm
Axis interface cards	PMDI

Linear Hydrostatic Slideways	Description
Type	Hydrostatic oil bearing slideways manufactured in house with symmetrical linear motor placement
Material	Durabar cast iron
Travel	X: 350mm (14") Z: 250mm (10")
Maximum feedrate	1500mm/min. (59"/min)
Drive system	AC linear motor
Motor location	Located centrally and mounted vertically eliminating offset drive forces and minimizing thermal distortions
Position Feedback Resolution	Standard:8.6nm Optional: 1.4nm
X-Axis straightness	Horizontal: 0.30µm (12µ") full travel 0.05µm/25mm (2µ")
Z-Axis straightness	Horizontal: 0.20µm (8µ") full travel 0.05µm/25mm (2µ")
Vertical straightness	X: 0.70µm (27µ") Z: 0.50µm (20µ")

Workholding/Positioning Spindle	SP150 High Performance Spindle	NT151 Heavy Duty Spindle
Type	Slot-type thrust bearing	Slot-type thrust bearing
Material	Steel shaft/Bronze journal	Steel shaft/Bronze journal
Standard swing capacity	350mm (14") diameter	350mm (14") diameter
Motor	Integral DC brushless motor	Integral DC brushless motor
Load capacity	57Kg (125 lbs.) @ 100PSI	68Kg (150 lbs.) @ 100PSI
Axial stiffness	228 N/µm (1,300,000 lbs./in.)	261 N/µm (1,500,000 lbs./in.)
Radial stiffness	105 N/µm (600,000 lbs./in.)	130 N/µm (750,000 lbs./in.)
Motion accuracy	Axial/Radial ≤ 25nm (1µ") through dynamic range.	Axial/Radial ≤ 50nm (2µ") through dynamic range.
Thermal control	Liquid cooled motor housing and Journal bearing	Liquid cooled motor housing and Journal bearing
C-axis feedback resolution	0.05 - 0.72 arc-seconds	0.13-2.16 arc-seconds
C-axis position accuracy	+/- 5 arc-sec (uncompensated)	+/- 5 arc-sec (uncompensated)
C-axis max speed	275 RPM	800 RPM
Work holding spindle max speed	7000 RPM	6000 RPM

Rotary B-Axis	HydroRound Rotary B-axis (small)
Type	Bi-conical, self compensated, Oil hydrostatic bearing. DC Brushless direct drive motor.
Material	Steel
Tabletop size	190mm (7.5")
Standard swing capacity	200mm (8") diameter
Travel	unlimited
Load Capacity	225 Kg (500 lbs.)
Maximum Speed	10 RPM
Motor Torque	3 Ft-lbs.
Position Resolution	0.04-9.0 arc-sec. available
Radial Error Motion	0.10µm (4µ") @ 1" above table
Axial Error Motion	0.10µm (4µ")
Coning Error	1.0nm/mm (1.0µ"/in.)
Radial Stiffness	175N/µm (1,000,000 lbs./in.)
Axial Stiffness	525N/µm (3,000,000 lbs./in.)
Moment Stiffness	10.8N-m/arc-sec (20 lbs-in/µrad.)

High speed milling/grinding spindle	SP75FF High Speed Spindle	PI ISO 2.25 High Speed Spindle
Air Supply Pressure	689 KPA @ 100 PSI	689 KPA @ 100 PSI
Air Consumption	2.8 l/s (6.0 SCFM)	0.9 l/s (2.0 SCFM)
Cooling Water Flow	0.03-0.08 l/s (0.47-1.27 gal/min)	0.7 l/s (3.17 gal/min))
Radial load capacity	20.5 Kg (45 lbs)	20 Kg (40 lbs)
axial stiffness	57N/µm (325,000 lbs/in.)	69N/µm (392,000 lbs/in.)
radial stiffness	22N/µm (125,000 lbs/in.)	23N/µm (130,000 lbs/in.)
axial error motion	< 0.05µm (2µ")	< 0.05µm (2µ")
radial error motion	< 0.05µm (2µ")	< 0.05µm (2µ")
maximum speed	10,000/15,000 RPM	50,000 RPM

Facility Requirements	Nanoform® 350
Power	208 or 230VAC - 3.0 KVA 1 phase - 50/60Hz
Air supply	Typical: 12 SCFM @100PSIG
Floor space	1437mm x 1930mm x 2043mm (57" x 76" x 80")

specifications are subject to change without notice

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