



fives

BRYANT UL2

High volume production grinding

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High precision internal production grinder

High-speed internal grinding machine designed for high-volume productivity

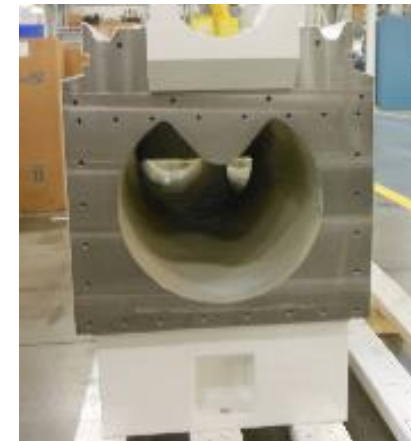
- Ideal for valve train, gears & bearing applications
- Highest rigidity
- “Flow-thru” concept for ultimate thermal stability
- Round bar hydrostatic slide ways
- Rapid traverse rate (46 m/min)
- Independent X & Z slides
- High resolution servo motors in “X” & “Z”



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Machine Bed

- Unique torque tube design that resists torsional and bending forces



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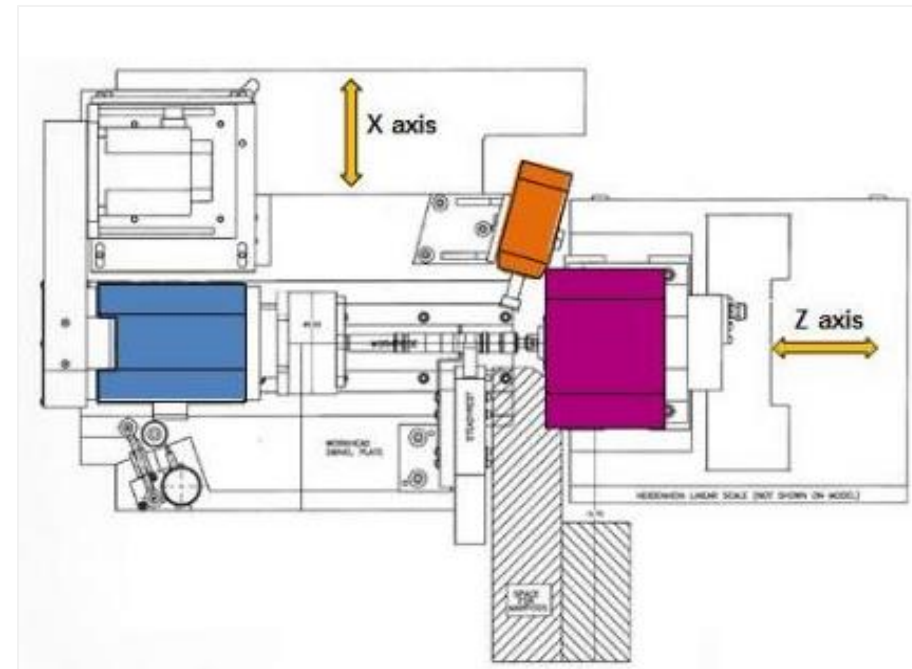
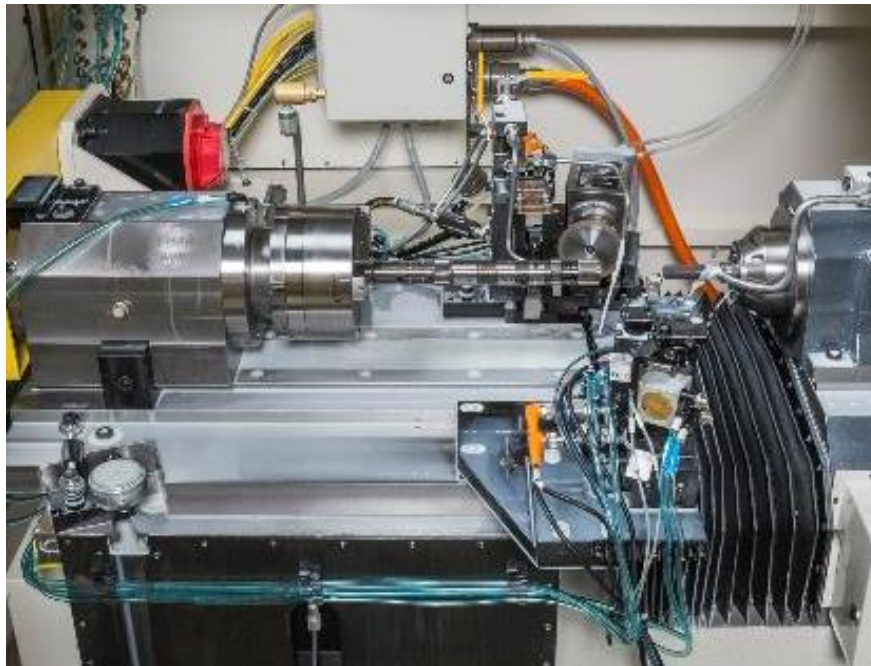
Hydrostatic way systems

- Round bar hydrostatic slide ways
- “Flow-thru” system circulates coolant through the round bars
- Outstanding thermal stability
- Extremely stiff system with ultra-low friction
- Fast and smooth acceleration



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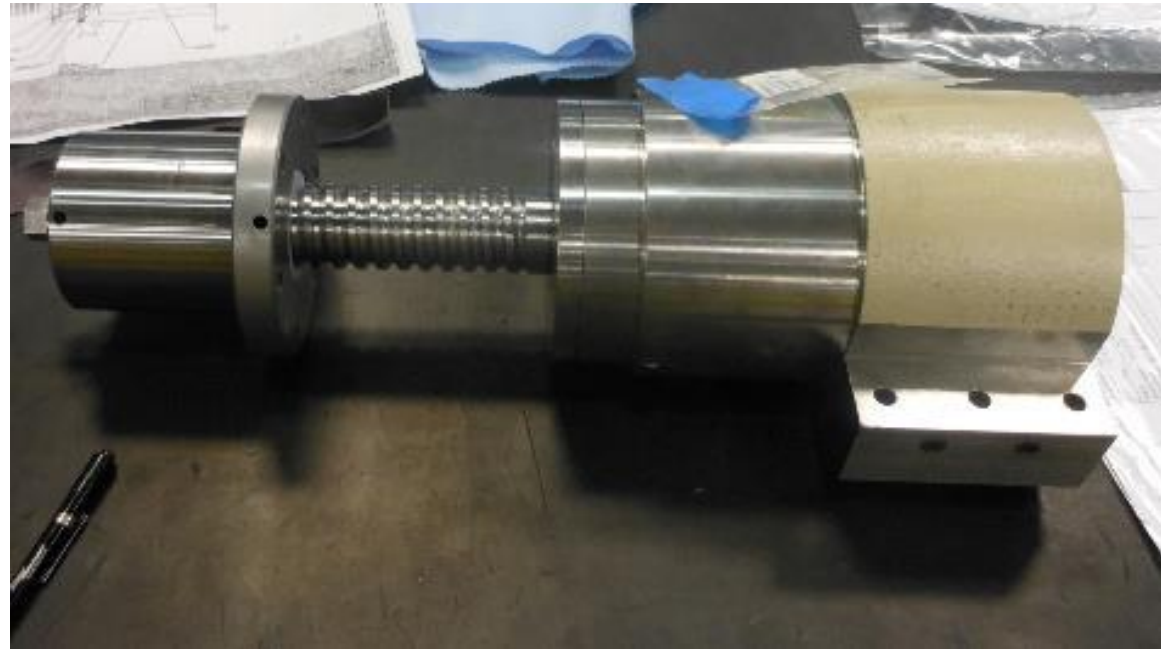
Independent X and Z slides



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Feed system

- Servomotors directly coupled to super precision ball screws
- Reliable positioning
- Resolution 0.05 μ m in X and Z
- Rapid travel in X and Z (up to 46 m/min in Z)



Ballscrew X-axis

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Specifications

Workpiece Material	
Max. workpiece diameter	177 mm (7")
Max. internal grinding diameter	100 (140) mm (3.9")
Max. internal grinding depth	75 mm (3")
Spindles & workhead	
ID spindle speed	up to 120,000 rpm
Max. workhead speed	4,000 rpm

Axes & control	
Axis travel X	50 mm (2")
Axis speed X	13,000 m/min (43 ft/min)
Axis travel Z	254 mm (10")
Axis speed Z	46,000 m/min (151 ft/min)
Control	Fanuc i series
Dimensions	
Dimensions (W x D x H)	2,555 x 1,825 x 2,546 mm (8.4' x 6' x 8.4')
Machine weight	4,750 kg (10,472 lb)

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Sample Applications



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Hydraulic Lash Adjuster



Tolerances	
Diameter	+/- 0.0018 mm
Roundness	0.0015 mm
Cycle time	< 8 sec. incl. load/unload & dress
Cpk	> 2.0

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Most recent acceptance data

First Success

- 4-hour production run

Capability	Step 2 Size		Taper 3 μ m Max
	$\pm 2.5 \mu$ m	$\pm 1.8 \mu$ m	
Cp	3.04	2.19	3.51
CpU	3.15	2.29	3.32
CpL	2.93	2.08	3.70
Cpk	2.93	2.08	3.32
Pp	3.05	2.20	3.53
PpU	3.16	2.31	3.34
PpL	2.95	2.09	3.72
Ppk	2.95	2.09	3.34