



5-Axis Machining

HIGH PERFORMANCE, MULTI-AXIS MACHINING

Our 5-axis cell is set-up to manufacture precision parts, with difficult geometries, from a variety of materials. All parts are fully inspected to insure compliance with your specifications. Written certifications are available upon request.

Metrology Department

TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

The Moore Tool Metrology Department is traceable to the National Institute of Standards and Technology (NIST). Located within the Precision Manufacturing Center, we calibrate our own inspection equipment, as well as the customer parts and gauges in-house. All production tools designed and manufactured by Moore Tool are held to the highest standards.

- CAPABILITY TO MEASURE IN MICRO INCHES
- FULL RANGE OF METROLOGY SERVICES AND EQUIPMENT
- UCMM FOR 3-D SCANNING
- MOORE MANUAL MEASURING MACHINES
- CONTRACT GAGE CALIBRATION AND CERTIFICATION



Tool Room

IN OPERATION FOR 85 YEARS

Our Tool Room blends cutting edge technology with proven precision tool making processes for short-run and prototypical manufacturing. Our skilled technicians use their knowledge and experience to create parts to sub-micron accuracy, while holding the tightest geometric tolerances achievable.



INFO

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FTP

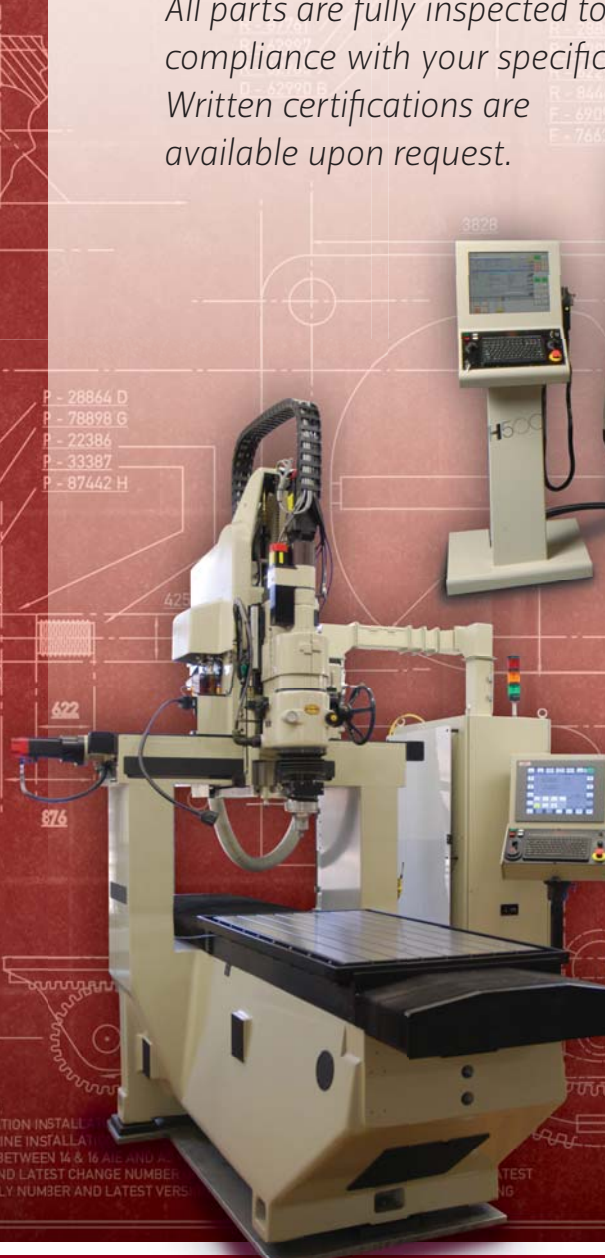
File Transfer Protocol

- 2D files in DXF
- 3D models in IGES
- detailed prints in PDF

Jig Grinding

SPECIALIZED EQUIPMENT & APPLICATIONS

A leader in precision tool design and manufacturing, Moore Tool offers unique capabilities ranging from precision jig grinding to high performance 5-axis machining. Our contract jig grinding cell is set-up for difficult precision parts. All parts are fully inspected to insure compliance with your specifications. Written certifications are available upon request.



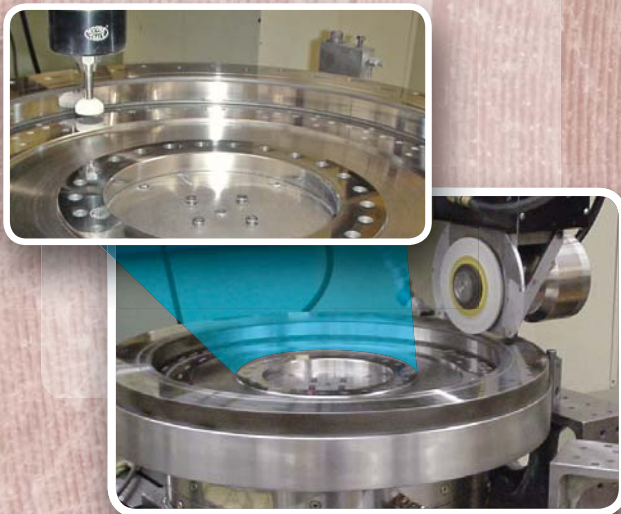
Precision Bearing

1200 CPW Jig Grinder

- ▶ Special Precision Bearing for a United States Government Laboratory
- ▶ Moore built hydrostatic spin table
- ▶ Moore built surface grinder attachment
- ▶ (3) 24 inch diameter ring components, 2 complete sets

Grinding Results:

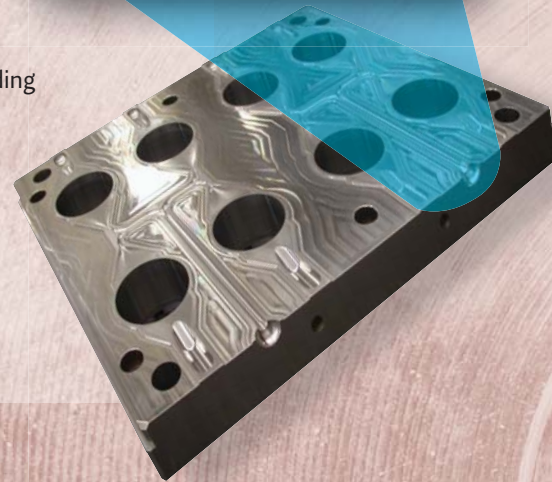
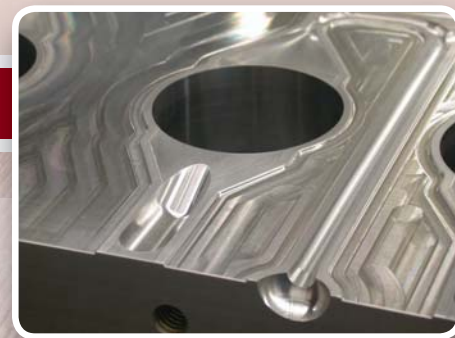
- Flatness – 10 Millionths
- ID – Cylindricity 7 Millionths Total
- OD – Cylindricity 8 Millionths Total



Golf Ball Mold

1200 CPZ Jig Grinder

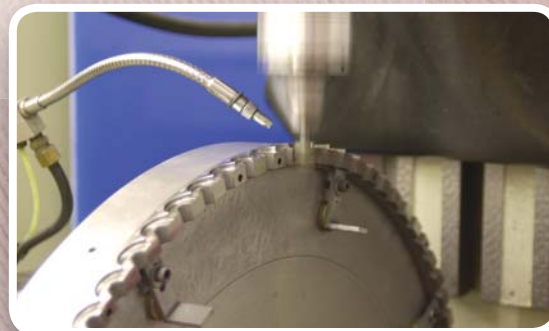
- ▶ 8 precision cavity pockets +/- .0001"
- ▶ .0001" fan gates for LIM Molding
- ▶ 6 guide pin holes .0001" true position
- ▶ 8 sub gates to 6 RMS surface finish
- ▶ Moore Autosize
- ▶ Moore Autogrind
- ▶ 40 K grinding head



Aerospace

450 CP Jig Grinder with A-axis Rotary Table

- ▶ Engine Component, grinding an array of holes
- ▶ Special fixturing designed and built for different size rings
- ▶ Unattended cycle runs
- ▶ Several hundred per year



Thermoforming / Food Packaging

1200 CPZ Jig Grinder

- ▶ Simultaneously grinding Punch and Die Shoe
- ▶ Tolerance Punch to Die +/- .0001"
- ▶ 40K Grinding head
- ▶ D2 Tool Steel 62 Rc and 8 RMS surface finish



500 series specifications

CAPACITY	
Table working surface	12.0 x 24.0 in. (305 mm x 610 mm)
Travel X longitude	19.6 in. (500 mm)
Travel Y cross	11.8 in. (300 mm)
Table top to wheel collet	2.0 to 18.0 in. (50 mm to 450 mm)
Spindle housing travel	13.8 in. (350 mm)
Quill travel Z vertical	CP & CPW: 3.5 in. (89 mm) CPZ: 5.5 in. (140 mm)
Spindle angular adjustment	+/- 1.5 degrees
Grinding hole diameter range	.016 to 5 in. (0,4 mm to 127 mm)

SPEEDS AND FEEDS	
Traverse speed: X & Y axes	80 in./min. (2,000 mm/min.)
Main spindle range	2 to 300 rpm
Grinding wheel with air & electric heads	6,000 to 175,000 rpm

ACCURACY	
POSITIONING: STEP GAGE	
Deviation in full travel: X & Y axes	80 µin. (2,0 µm)

POSITIONING: VDI/DGQ 3441	
Positional uncertainty P: W, X & Y axes	80 µin. (2,0 µm)
Positional uncertainty P: Z axis	160 µin. (4,0 µm)
Positional deviation Pa: W, X & Y axes	60 µin. (1,5 µm)
Positional deviation Pa: Z axis	120 µin. (3,0 µm)

CONTOURING	
X, Y & C at 250 mm/min., measuring a 200 mm (8 in.) ring gage	120 µin. (3,0 µm)

GEOMETRIC: SQUARENESS	
Full travel: X to Y axes	32 µin. (0,8 µm)
Spindle housing travel: X-Y plane	80 µin. (2,0 µm)

GEOMETRIC: ALIGNMENT	
Total spindle travel: Parallelism of spindle centerline to column guideways	80 µin. (2,0 µm)

1200 series specifications

CAPACITY	
Table working surface	24.0 x 48.0 in. (610 mm x 1220 mm)
Travel X longitude	48.0 in. (1220 mm)
Travel Y cross	24.0 in. (610 mm)
Table top to wheel collet	6.0 to 24.5 in. (150 mm to 620 mm)
Spindle housing travel	13.0 in. (330 mm)
Quill travel (Z) vertical	CP & CPW: 5.1 in. (127 mm) CPZ: 5.5 in. (140 mm)
Spindle angular adjustment	+/- 1.5 degrees
Grinding hole diameter range	.016 to 5 in. (0,4 mm to 127 mm)

SPEEDS AND FEEDS	
Traverse speed: X & Y axes	60 in./min. 1,500 mm/min.
Main spindle range	2 to 300 rpm
Grinding wheel with air and electric heads	6,000 to 175,000 rpm

ACCURACY	
POSITIONING: STEP GAGE	
Deviation in full travel: X axis	100 µin. (2,5 µm)
Deviation in full travel: Y axis	80 µin. (2,0 µm)

POSITIONING: VDI/DGQ 3441	
Positional uncertainty P: X axis	100 µin. (2,5 µm)
Positional uncertainty P: Y axes	80 µin. (2,0 µm)
Positional uncertainty P: Z axis	160 µin. (4,0 µm)
Positional deviation Pa: X & Y axes	60 µin. (1,5 µm)
Positional deviation Pa: Z axis	120 µin. (3,0 µm)

CONTOURING	
X, Y & C at 250 mm/min., measuring a 200 mm (8 inch) ring gage	120 µin. (3,0 µm)

GEOMETRIC: SQUARENESS	
Full travel: X to Y axes	60 µin. (1,5 µm)
Spindle housing travel:	X-Y plane 120 µin. (3,0 µm)

GEOMETRIC: ALIGNMENT	
Total spindle travel: Parallelism of spindle centerline to column guideways	90 µin. (2,3 µm)

(All statements concerning accuracy are based on calibration temperature of 20 +/- 0.5 degrees C [68 +/- 1.0 degrees F])