PHYSICAL AND TECHNICAL CAPABILITIES

June 2024

Pioneer Motor Bearing Co. D.B.A. PMB Machine Works

FACILITY

Office area:	6,400 ft^2
Manufacturing area:	27,500 ft^2
Storage area:	3,200 ft^2
Total:	37,100 ft^2

MAJOR MACHINE SHOP EQUIPMENT

DMG MORI DMC125FD 5-Axis	-49.2" swing x 49.2" turn/mill height
C.N.C. Horz. machining centers	-118" x 90" x 63" x 24"
C.N.C. Vertical boring mills	
Okuma VTR-160A	-64" swing x 35" length, W/Live Tools
Momentum MVL-12HD	-63" swing x 45" length
Summit SCV-48	-55" swing x 39" length
C.N.C. Lathes	-to 28" swing x 39.4" turn length with bar feed and live tooling
Engine Lathes	-to 29" swing x 60" between centers
Horizontal NC/manual Lathe	-to 24" swing x 70" between centers
Vertical boring mills	-to 89" swing x 60" under rail
Radial drills	-to 8' arm
Floor drill presses	-to 2" drill size
Saws	
Band saws	-to 48" x 48"
Cold saw	-14"
Hydraulic presses	-to 200 tons
Boring machines	-to 4"
Bridge cranes	-to 10 tons x 20'
	-17' height under hook
Vertical NC/Manual Mill	-60" x 23" x 23"

MAJOR ABRASIVE EQUIPMENT

LapMaster Lapping Machine	- Up to 36" diameter
I.D./O.D. Grinders	-12" I.D., 14" O.D.
Surface Grinder	-12" x 36"
Cylindrical Grinder	-to 10" x 48"
Abrasive blast equipment	-95" x 66" x 90"
Bead blast equipment	-57" x 56" x 38"

MAJOR FOUNDRY EQUIPMENT

Centrifugal casting machines	-to 127" O.D. x 60" length x 24 Tons
Tin baths	-58" x 40" x 57"
Babbitt casting pots w/automatic temperature control	-to 2,000 Lb.
Hand pyrometers	
Tin (bath) plating	

MAJOR INSPECTION EQUIPMENT

All laboratory instruments and equipment are certified and traceable to the NIST

Temperature controlled room	+/- 2 degrees with 24 hour chart recorded
Ultrasonic flaw detectors	-2.5 to 5 MHz transducers with 1/4" to 3/4" transducer diameters
Outside micrometers	-to 72"
Inside micrometers	-to 120"
3 point I.D. micro-meters (Intramik)	-to 7"
Electronic dial indicators	-.00001" resolution
Multiple inspection grade Planekators	-Up to 84" length .00002" resolution

Optical flats w/ monochromatic light-1/2 Helium light band flatness resolution
Wilson Rockwell hardness tester
SPI Portable Hardness Tester

Dillon tensile/compression tester	-Chalmer's bond tests
Micrometer end standards	-to 54"
Master ring gages	-to 7"
Thread gages	-American: up to 1-3/4", Various others: Metric, BSP, Pipe
Resistance checker	-to 1000 MΩ 500VDC

Mahr Surface finish (profilometer) gages
Therma-K Temperature Logger with probes
Hand pyrometer
Multiple Inspection Grade Granite Surfaces up to 48" x 96"
Borescopes: 1' to 10' camera lengths - with video recording

MAJOR ENGINEERING EQUIPMENT

Desktop Software
- Autodesk Inventor
- GibbsCAM

High Speed Rotordynamics Test Stand
- Infinitely variable speed up to 25,000 RPM
- Up to 2" bearing I.D.
- Misalignment capabilities to 5°
- Direct computer monitoring

CERTIFICATIONS

HUBZone
AS9100D Compliant
CMMC Level 1 Compliant
JCP DD2345
Pioneer is an ISO 9001:2015 Registered Company by TUV Rheinland

Member of:
- National Hydropower Association
- American Nuclear Society
- National Agency for Finite Element Methods and Standards

BEARING CODES

GENMAT™ – Specialized analysis of hydrodynamic thrust bearings handling a range of support styles.

DyRoBes – Rotordynamics analysis of shafts, bearings, seals, and supports. Provides stability, forced response, and transient calculations.

BePerf – module providing simple analysis of radial bearings with different bore configurations.

RBTS – ARMD

JOURN – Analysis of radial, hydrodynamic bearings allowing specific variations or defects in the babbitt surface.

Fluid Pivot® Version 4 – Pioneer proprietary code to predict the static and dynamic characteristics of a radial, Fluid Pivot® bearing

ANSYS within Autodesk Inventor

ROMAC Codes

MAXBRG3D - Analysis of radial, hydrodynamic bearings (fixed bore or tilting pad) allowing consideration of shaft deformation

MAXBRG - Analysis of radial, hydrodynamic bearings (fixed bore or tilting pad) allowing consideration of shaft deformation

THPAD - Analysis of radial, hydrodynamic, tilting pad bearings

THBRG - Analysis of radial, hydrodynamic, fixed-bore bearings