



Griswold® centrifugal pumps are backed by a world-class testing facility and quality assurance procedures unmatched by any other pump manufacturer. All Griswold products are engineered with industry-leading performance and reliability for a wide variety of critical applications.

## **INTEGRATED MANAGEMENT SYSTEM**

ISO 9001

## **PRODUCT** CERTIFICATIONS

- **ASME B73.1**
- **NSF 50**







Member of the Hydraulic Institute



**ENGINEERING** 

## **SOFTWARE AND EQUIPMENT**

- 2D & 3D CAD Software: Solidworks, AutoCAD
- FEA: ANSYS
- CFD (Computational Fluid Dynamics):
  - Pump Head Curve Performance Prediction
  - NPSH Optimization

# **CAPABILITIES**

- Hydraulic Design
- Pressure Boundary Calculations
- Rotating Element Design
- Structural Analysis
- Modal Analysis
- Nozzle Load



## **IN-HOUSE TESTING**



### Standards\*

- Hydraulic Institute Pump Test Lab Approval: HI 40.6
- Performance Testing: ANSI/HI 14.6
- NSPH Testing: ANSI/HI 14.6
- Vibration Testing: ANSI/HI 9.6.4
- Hydrostatic Testing: ANSI/HI 14.6 & ASME
- Mechanical Run Testing: **ANSI/HI 14.6**

# **Test Equipment**

- 10,000 GPM Flow
- Pressure and Vacuum Rated Tank
- Venturi Flow Meters
- Rigid Baseplates
- Himmelstein Torque Meters
- Rosemount Pressure Transmitters
- Automated Performance Testing
- Rosemount Temperature Transmitters

#### **MANUFACTURING**

- CNC Mills
- CNC Lathes
- Centerless Grinders
- Wire EDM
- Rapid Prototyping Capabilities
- Welding

#### QC EQUIPMENT

- CMM: Wenzel
- Portable CMM: Romer Arm with Probe and Surface Scan Capabilities
- Hardness Testers: United and Wilson
- PMI: Niton XRF
- **Functional Gauges**
- Surface roughness

#### CALIBRATION LABORATORY

- In-House Calibration Capabilities: Pressure, Torque, Thread, etc.
- Third Party Calibration: Flow, PMI, CMM, etc.

#### **SUPPLY CHAIN**

- All Suppliers Qualified per Production Part Approval Process (PAPP)
- Global Quality Team Conducting **Routine Audits**
- Materials Meet or Exceed ASTM **Specifications**

#### **DESIGN STANDARDS**

#### **Pump Design**

ASME B73.1

## **Pressure Boundary Calculations**

 ASME Boiler & Pressure Vessel Code

## **Bearing Designs**

- ANSI/ABMA-9, Load Ratings and Fatigue Life for Ball Bearings
- ANSI/ABMA-11, Load Ratings and Fatigue Life for Roller Bearings

\*Griswold adheres to the most recent iteration of the standards referenced.

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# **CNC Mill** Quality Control Test Lab

#### **DESIGN STANDARDS** (continued)

# **Drawing Standards**

ASME Y14.7

### Flange Designs

- ASME B16.5, Pipe Flanges and Flanged Fittings
- ASME B16.42, Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300

# **Material Specifications**

- ASME B73.1
- ASTM Standards

## **ASSEMBLY\***

- Dynamic Balancers Per ISO 1940-1 Grade 6.3 or Better
- Hydrostatic Test Bench (1.5 MAWP)
- Bench Leak Test (100 psi)
- Power Frame Assembly Room
- Paint Booth
- Base Mount and Fabrication Center

## **AVAILABLE CERTIFICATIONS\***

## **Material Certification**

- Declaration of Compliance with Order 2.1 - EN 10204
- Test Report 2.2 EN 10204 Chemical and Mechanical
- Inspection Report 3.1 EN 10204 Chemical Only
- Inspection Certificate 3.1 EN 10204 Mechanical Only
- Inspection Certificate 3.1 EN 10204 Chemical and Mechanical

## **Non-Destructive Testing**

- PMI (Positive Material Identification)
- Hydrostatic Case and Stuffing Box Test per ASME B73.1
- Impeller Balance per ISO 1940-1 Grade 6.3 or better
- LPI (Liquid Penetrant Inspection)
- Weld Certification







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