GR Series
Between Bearing, External Gear Pump
Flowserve is the driving force in the global industrial pump marketplace. No other pump company in the world has the depth or breadth of expertise in the successful application of pre-engineered, engineered and special purpose pumps and systems.

Pumping Solutions
Flowserve is providing pumping solutions which permit customers to continuously improve productivity, profitability and pumping system reliability.

Market Focused Customer Support
Product and industry specialists develop effective proposals and solutions directed toward market and customer preferences. They offer technical advice and assistance throughout each stage of the product life cycle, beginning with the inquiry.

Dynamic Technologies
Flowserve is without peer in the development and application of pump technology, including:
- Hydraulic engineering
- Mechanical design
- Materials science
- Intelligent pumping
- Manufacturing technology

Broad Product Lines
Flowserve offers a wide range of complementary pump types, from pre-engineered process pumps, to highly engineered and special purpose pumps and systems. Pumps are built to recognized global standards and customer specifications.

Pump designs include:
- Single stage process
- Between bearing single stage
- Between bearing multistage
- Vertical
- Submersible motor
- Rotary
- Reciprocating
- Nuclear
- Specialty
**GR Series**

*Between Bearing, External Gear Pump*

**Designed for Smooth, Efficient Handling of Viscous Liquids**

The GR Series between bearing, herringbone gear pump has long been a work-horse within a multitude of industrial markets due to its dependability, efficiency and low life cycle cost.

**Superior External Herringbone Gear Design**

Designed to reliably handle viscous fluids across a broad range of flows and pressures, the GR Series’ simple between bearing gear design is the most robust in the industry.

**Benefits of the GR include:**
- Pulse-free operation
- Mechanically and hydraulically balanced
- Self-priming
- No gear box required
- Speeds to 1800 rpm
- Run dry capability when packed
- Ease of maintenance
- Low NPSHR
- Only one mechanical seal
- No external lubrication required
- Improved reliability
- Minimal shaft deflection
- Long mechanical seal life
- Reduced bearing loads
- Superior high pressure capability
- Suitable for fluids with poor lubricating characteristics
- Reduced wear rates

**Typical Applications**

- Process industries
  - Paints
  - Soaps
  - Gels
  - Polymers
- OEM
  - Filtration equipment
  - Lubrication units
  - Fire foam systems
- Marine
  - Engine room fuel
  - Engine room lubrication
- Petrochemical
  - Viscous crude oil
  - Asphalt
  - Tars
  - Grease
- Power plants and utilities
  - Fuel unloading
  - Fuel oil transfer
  - Lube oil supply

**Complementary Pump Designs**

- GAX Series double helical gear pumps
- Gearex double helical gear pump
- Hydrex double helical gear pump
- Sier-Bath Two-Screw gear pump
- HS reciprocating gear pump
GR Series pumps provide high efficiency, pulse-free pumping, even under the most challenging conditions. They are designed to handle viscous fluids across a broad spectrum of flows and pressures. The GR Series’ simple external design has only two moving parts and only one shaft seal to insure long life and ease of maintenance.

Available in standard sizes from 40 mm to 200 mm (1.5 in to 8 in) ports, the GR Series pumps are self-priming. Standard construction is cast iron and carbon steel.

Operating Parameters
- Flows to 275 m³/h (1200 gpm)
- Pressures to 35 bar (500 psi)
- Temperatures to 350°C (650°F)
- Viscosities to 33 000 cps (1 million ssu)
- Speeds to 1800 rpm

Back Pullout Design facilitates maintenance by allowing faster access to pump internals and enables inspection without disturbing piping

Extra Deep Jacketed Stuffing Box is available for hard-to-handle solutions and to cool or heat packing

High Speed Capability translates into lower costs and higher efficiency.
- Only one coupling guard
- No speed reducers
- Higher speed motors

Sideplates and body are doweled to insure accurate internal alignment. Joints are ground to maintain clearances and eliminate the necessity of gaskets

Convertible Stuffing Box allows for ample packing or mechanical seals to be used for greater flexibility

Large, Unobstructed Suction and Discharge passages keep entrance losses and turbulence to a minimum

High Capacity Double Row Roller Bearings are anti-friction to assure long life

Babbitted Carbon Sleeve Bushings may be used when handling liquids with poor lubricity or low viscosities. Also available in antimony impregnated carbon for high temperature applications

Shafts are fine-grain, hot rolled medium carbon steel and are generously sized to minimize deflection

Between Bearing Gear Design minimizes shaft deflection and reduces bearing loads. High pressure and high speed capabilities are improved, extending pump life and improving reliability
Dual Stuffing Box extends pump life in high suction pressure applications.

Optional Mechanical Seal may be used in lieu of packing. Special duty seals also are available.
### Options and Technical Data

#### Direct V-Belt Drive
- Option includes inboard bearing with mechanical seal to carry the load of mechanical power transmission equipment without shaft deflection.

#### Optional Jacketed Pump Body
- Allows heating or cooling of liquids before start-up and prevents overloading of driver when pumping viscous fluids.

#### Available Integral Safety Relief Valve
- Provides short-term emergency bypass.

#### Additional Options
- Mechanical seal
- Jacketed stuffing box
- Dual stuffing box with external bearing option for high suction pressures

#### Standard Materials of Construction

<table>
<thead>
<tr>
<th>Component</th>
<th>Cast Iron</th>
<th>Cast Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body, Stuffing Box, Bearing Cover, Gland, Sideplates</td>
<td>ASTM A48, Class 40 Cast Iron</td>
<td>ASTM A108, Class 1040 Cast Steel</td>
</tr>
<tr>
<td>Gears</td>
<td>Cast Iron</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>Shaft</td>
<td>ASTM A108, Class 1040 Carbon Steel</td>
<td>ASTM A108, Class 1040 Carbon Steel</td>
</tr>
<tr>
<td>Packing</td>
<td>Acrylic Yarn</td>
<td>Graphited</td>
</tr>
</tbody>
</table>

#### GR Hydraulic Coverage

Refer to the chart at the right for quick selection of the GR pump model corresponding to the desired flow rate. The ranges shown are based on typical viscosities and speeds and assume zero differential pressure. The chart’s purpose is to direct the user to the appropriate performance curve, not to be a substitute for it.

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**INSUROCK® Low-Friction Wearplates**
- May be used to reduce sideplate and gear wear in low viscosity applications, significantly reducing total life-cycle cost. Field retrofit kits are also available.

INSUROCK® is a registered trademark of Richardson Company, Inc.
Global Engineered Services and Support

- Total Cost Reduction
- Asset Management
- Product Life Cycle
- Performance Re-rates
- Site Diagnostics
- Repair Services
- Energy Management
- Spare Parts
- Maintenance Contracts
- Materials Upgrades
- Turnkey Services
- Field Repairs
- Installation
- Project Supervision
- Commissioning
- Equipment Upgrades
- Condition Monitoring
- Systems Analysis
- Field Machining

Service Dedication
Flowserve Engineered Services is focused on providing customers with uncompromising service and support, where and when needed. Dedicated to delivering the highest quality support, Engineered Services integrates its extensive pump and materials engineering knowledge with creative service solutions. Engineered Services fully understands the business challenges facing customers and is prepared to manage solutions to succeed as a team.

A worldwide network of service and repair centers staffed by highly skilled engineers and technicians is available around the clock, seven days a week to respond to customer queries, to evaluate and troubleshoot problems and to provide reliable solutions.

Strength of Experience, Commitment to Excellence
Flowserve has long served industries requiring superior equipment performance and service life.
- Oil and gas production
- Hydrocarbon processing
- Chemical processing
- Water resources
- Power generation
- Nuclear
- Mining and mineral processing
- Pulp and paper
- General industry

Engineered Services is dedicated to maximizing equipment performance and providing reliability-centered maintenance programs for pumps and related equipment, regardless of manufacturer. Using the FlowStar™ asset management software, Engineered Services tracks performance and supports improvement programs using a service life cycle cost business approach. The results are improved reliability and increased profitability.

Business Partner
Flowserve partners with customers to respond to the dynamic business conditions that affect them. Flowserve will work with customers to drive efficiency, maximize throughput and control process quality. Whether user needs involve on-site technical assistance or broader project planning with full turnkey responsibility, Flowserve Engineered Services will deliver professional, reliable results.
To find your local Flowserve representative, please use the Sales Support Locator System found at www.flowserve.com.

Or call toll free: 1 800 728 PUMP (7867)

Flowserve... Supporting Our Customers
With The World's Leading Pump Brands

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