



# ITT

## Goulds Pumps

# Goulds 3640

ISO 13709 2nd Edition/API 610 11th Edition  
API BB2 Two-Stage, Between-Bearing,  
Radially Split



*Engineered for life*

**motralec**

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# A Leader in API Engineered Pump Package Solutions...

## Proven API Leadership

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ITT Goulds Pumps is a proven leader in API Pumps

- ◆ Over 18,000 units installed
  - Over 15,500 OH2/OH3's
  - Over 2,500 BB1/BB2/BB3 pumps
- ◆ 50+ years of API expertise
- ◆ Participating member on API 610 and API 682 committees

## Family of API Pumps

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ITT Goulds Pumps has a family of proven API pumps

- ◆ Overhung pumps
- ◆ Single and two-stage between-bearing pumps
- ◆ Multistage between-bearing pumps
- ◆ Vertical, double casing pumps
- ◆ Specialty pumps

## Global Coverage

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ITT Goulds Pumps has the global coverage needed to serve multi-national companies in any region.

## Industry Leading Hydraulic Coverage

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- ◆ We offer dense hydraulic coverage to meet your process needs.
- ◆ Better hydraulic fits can mean improved efficiency and long-term reliability and parts life.



## 4600 Horsepower Testing Capability

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- ◆ Our expanded test facility can test your pump in the most demanding of conditions.
- ◆ Testing at rated speeds is critical to assess the impact of dynamic conditions including vibration.

## API Engineering Expertise

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- ◆ We are experts in packaging engineered pumps that meet your demanding applications — with true conformance to the latest API specifications.
- ◆ We have extensive experience in nearly every type of driver, bearing, seal, piping configuration, nozzle configuration, flange and baseplate designs to meet your application needs.
- ◆ ITT is a world leader in technology and engineering including hydraulics, materials science, mechanical design, and fluid dynamics.

## Broad Applications

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- ◆ Petroleum refining, production, and distribution
- ◆ Petrochemical and demanding chemical processing
- ◆ High temperature applications including boiler circulation
- ◆ General industrial requiring high temperature or high pressures





Goulds Model 3640 between-bearings radially split process pumps are designed for smooth, reliable operation, and meet the toughest specification requirements of ISO 13709/API-610 to assure extended service life.



## Goulds 3640

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### High Temperature and Pressure Process Pumps that Meet or Exceed or Exceed ISO 13709 and API 610 11th Edition

Safety, reliability and versatility are the key words for our 2 stage, centerline mounted, between-bearing (BB2) API 610 process pump.

### Safety and Reliability

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We provide engineered solutions with true conformance to the latest API specifications including the stringent emissions containment per API 682.

The result is a safe and rugged between-bearing API process pump designed for a 20-year life.

### Versatility

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- ◆ **Capacity** to 7500 GPM (1700 m<sup>3</sup>/h)
- ◆ **Total Dynamic Head** to 2500 feet (760 m)
- ◆ **Temperature** to 850°F (455°C)
- ◆ **Pressure vacuum** to 1130 PSIG (75 kg/cm<sup>2</sup>)

**Materials:** Available in a wide range of materials including all API 610 constructions and custom application needs.

**Engineered Hydraulics:** Dense hydraulic coverage to better match your process for efficiency and reliability. Custom hydraulics are available.

**Engineered Packaging** with a wide range of drivers, seals, piping, nozzle configurations, flanges, base plates, and QC testing.

### Services

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- ◆ **Refinery** — Process feed, reflux, splitter bottoms, high-pressure process transfer





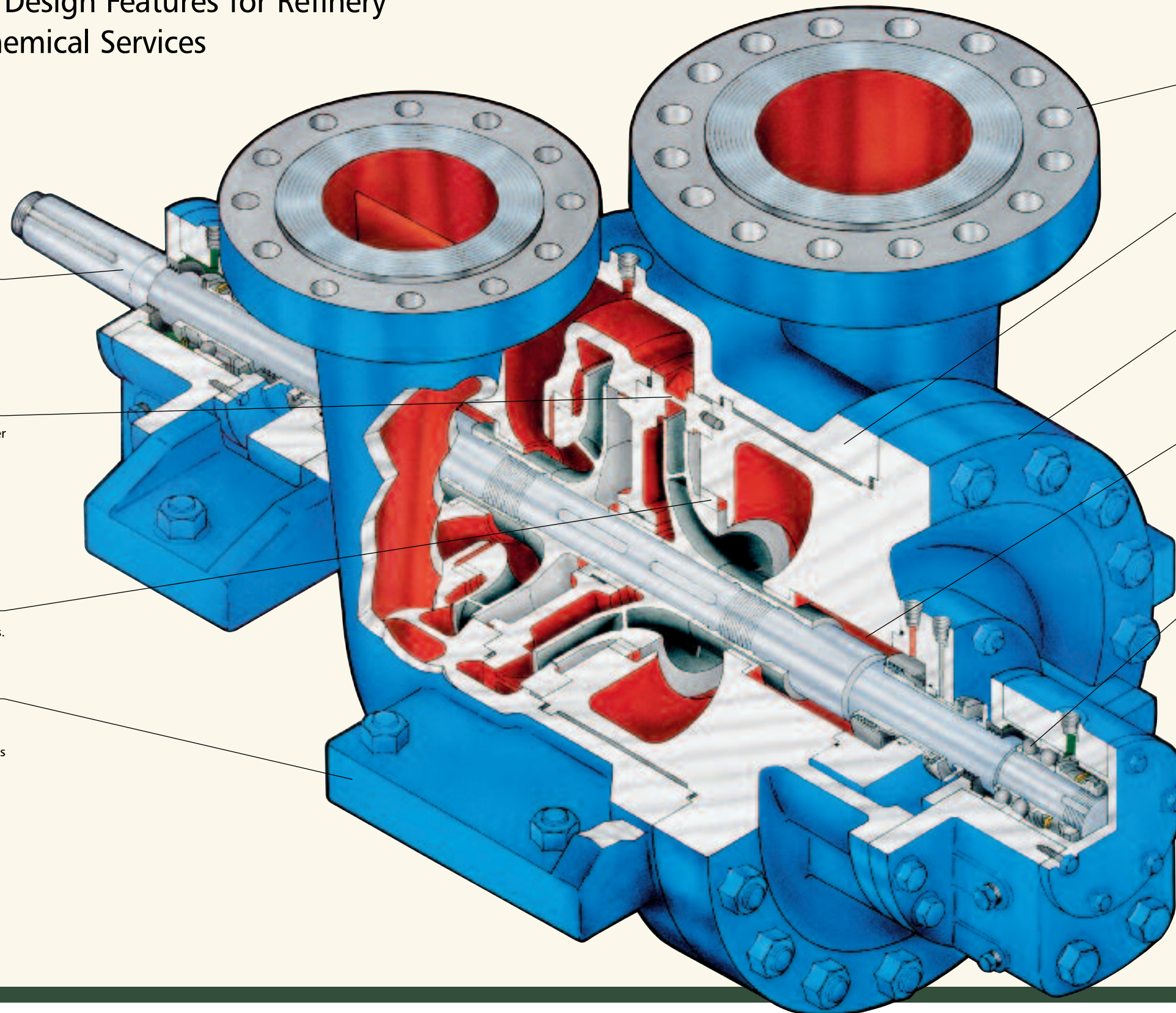
# Model 3640 (ISO 13709/API BB2) High-Pressure/ High-Temperature Two-Stage Process Pumps Heavy-Duty Design Features for Refinery and Petrochemical Services

**HEAVY DUTY SHAFT**  
Minimum shaft deflection for extended seal bearing life. Sized to meet deflection and rotor dynamics requirements of ISO 13709/API-610.

**RADIAL BALANCE**  
First stage radially balanced by diffuser for minimum shaft deflection.

**RENEWABLE WEAR RINGS**  
ISO 13709/API-610 running clearances. Positively locked.

**CENTERLINE MOUNTED CASING**  
Heavy duty mounting extensions accept ISO 13709/API-610 nozzle loads and maintain pump alignment under extreme service conditions.



**CLASS 300 RF FLANGES STANDARD**  
Other classes and facings optional.

**RADIALLY SPLIT CASING**  
Designed specifically for high pressure/high temperature services. Fully confined controlled compression gaskets assure leak-proof sealing.

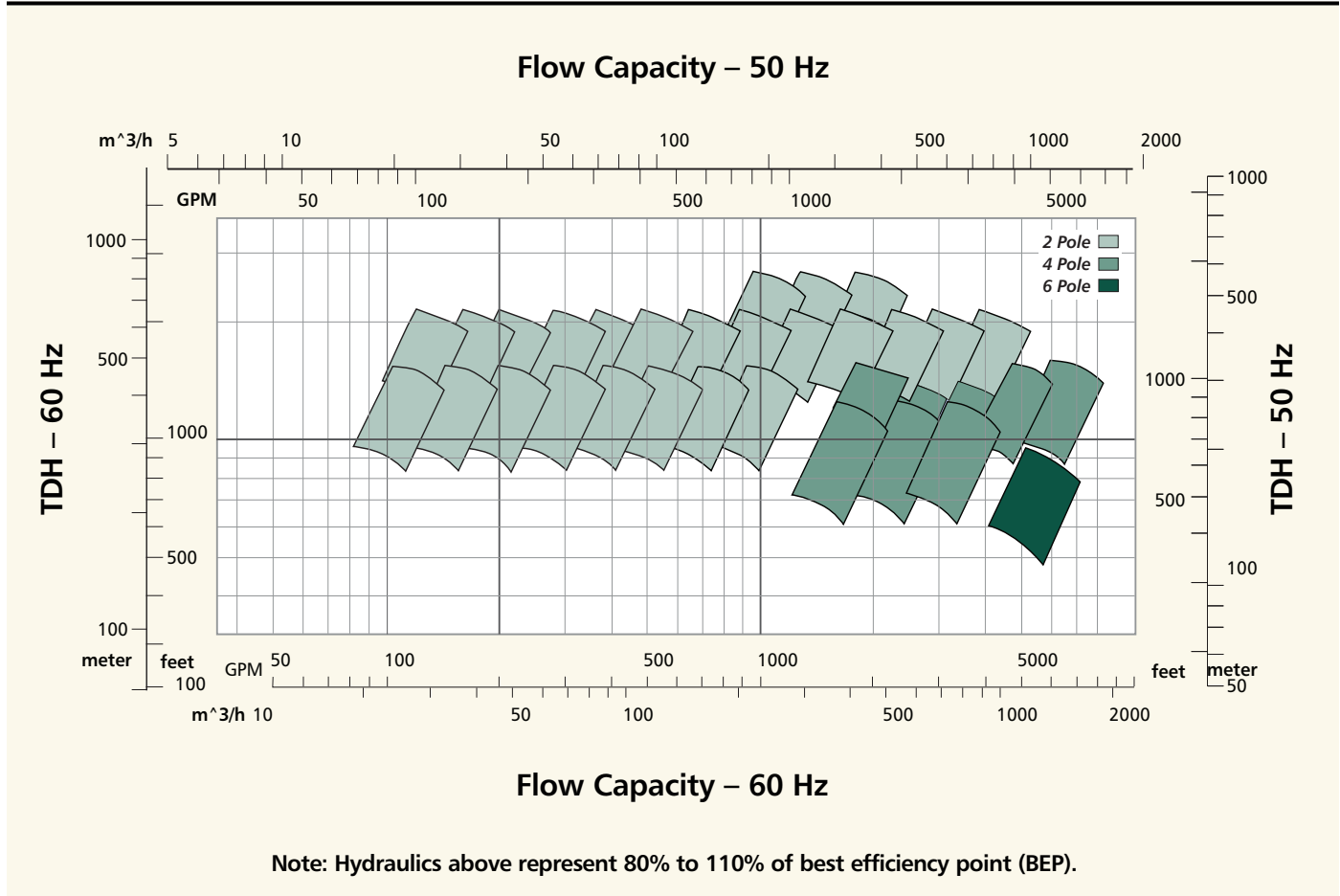
**CASING HEAD ON OUTBOARD END**  
Allows removal of rotor without disturbing suction and discharge piping.

**ENLARGED SEAL CHAMBERS**  
Conform to ISO 13709/API-610 dimensional requirements. Allows use of wide range of API-682/ISO 21049 cartridge mechanical seals to meet specific service conditions.

**HEAVY DUTY THRUST BEARING**  
Duplex 40-degree angular contact standard. Ring oil lubricated. Other bearing configurations available to meet specific service requirements.

**OPPOSED IMPELLERS ARRANGEMENT**  
Reduced axial forces for maximum bearing life. Impellers are driven by individual keys and positioned on shaft by dual locknuts. Staggered impeller vane tips for reduced pressure pulsations at vane passing frequency.

# Hydraulic Coverage



## PRO Services® Engineered Upgrade

Example of our PRO Services® Engineered upgrade capability. The following two-stage API BB2 Model 3640 was upgraded from an old edition of API 610 to the latest (10<sup>th</sup>) edition of API.

**Original Pump**



**10<sup>th</sup> Edition Upgrade**







**PRO Services®**  
Extending  
Equipment Life...

### Product Repair

- Service Center Repair
- Turnkey Repair/ Installation
- Field Service
- Emergency Service

### Reliability Improvement

- Predictive Condition Monitoring
- Root Cause Failure Analysis
- Machine & System Assessment
- Engineered Upgrades
- Training

### Optimization of Assets

- Inventory Management
- Replacement/Exchange
- Maintenance Management
- Contract Maintenance

- All Brands
- Factory Trained Service Personnel
- Quality
- Fast Turnaround
- Emergency Service – 24 hours/day, 7 days/week
- ISO and Safety Certified



## PROSMART

### Predictive Monitoring Saves Money and Down Time

The ProSmart predictive condition monitoring system enables you to IDENTIFY and SOLVE problems before they impact production.

ProSmart collects and analyzes machine health every 5 seconds, automatically notifying you of changing conditions. Resources are optimized and maintenance activities are PLANNED — not REACTIVE.

A wireless architecture reduces installation costs and complexity.

A web-based client eliminates software installation and maintenance costs and also enables multi-site management.

Approved for Class 1, Division 2 hazardous areas.



# A Leader in API Engineered Pump Package Solutions



API Type	Goulds Model	Capacity GPM (M <sup>3</sup> /Hour)	TDH Feet (Meters)	Temperature °F (°C)	Pressure PSIG (kg/cm <sup>2</sup> )
OH-2	3700	6500 (1475)	1200 (360)	800 (425)	870 (60)
OH-3	3910	7500 (1700)	750 (230)	650 (340)	600 (40)
BB-3	3600	8500 (1930)	9000 (2740)	400 (205)	4000 (275)
BB-2	3620	20000 (4540)	1500 (455)	850 (455)	1000 (70)
BB-2	3640	7500 (1700)	2500 (760)	850 (455)	1130 (75)
BB-1	3610	50000 (11355)	700 (215)	300 (150)	300 (20)
VS6	VIC	70000 (14760)	3500 (1060)	500 (260)	2500 (175)
VS1	VIT	70000 (14760)	3500 (1060)	500 (260)	2500 (175)
VS4	API 3171	3180 (720)	525 (160)	450 (232)	750 (50)

