

 **GOULDS PUMPS**

Goulds 3700

API 610 11th Edition / ISO 13709 2nd Edition
API OH2 Overhung, Single Stage, Radially Split



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ITT

ENGINEERED FOR LIFE

Goulds 3700

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

Proven API Leadership

ITT Goulds Pumps is a proven leader in API Pumps

- More than 20,000 units installed
 - More than 17,000 OH2/OH3s
 - More than 3,000 BB1/BB2/BB3 pumps
- 40+ years of API expertise
- Participating member on API 610 and API 682 committees

Family of API Pumps

ITT Goulds Pumps has a family of proven API pumps:

- Overhung pumps
- Single- and two-stage between-bearing pumps
- Multistage between-bearing pumps— axially split
- Barrel multistage - radially split
- Vertical, double-casing pumps
- Specialty pumps

Industry-Leading Hydraulic Coverage

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

8000 HP/6000 kW Testing Capability

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

API Engineering Expertise

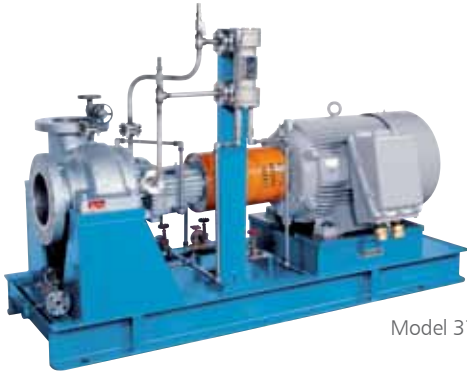
- We are experts in packaging engineered pumps that meet your demanding applications — with true conformance to the latest API specifications.
- We have extensive experience in nearly every type of driver, bearing, seal, piping configuration, nozzle configuration, flange and baseplate design to meet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

Broad Applications

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



Goulds 3700



Model 3700

End Suction API 610/ISO 13709 Process Pump

- Designed for optimum reliability
- State-of-the-art mechanical design features
- 54 casing sizes and choice of impellers with most casings



Model 3700 on high-temperature service at a U.S. Gulf Coast refinery.



Gold Tailings Pumps in Australia - 3700 4x6-19

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

Safety, reliability and versatility are the key words for our end-suction, centerline-mounted, overhung (OH-2) API 610 process pump.

Safety and Reliability

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 overhung API process pump designed for a 20-year life.

Serviceability

- Capacity to 8,500 GPM (1930 m³/h)
- Total dynamic head to 1,200 feet (360 m)
- Temperature to 800° F (425° C)
- Pressure to 870 PSIG (60 bar)

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

Engineered Hydraulics: An industry-leading 135 hydraulic combinations 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, baseplates and QC testing.

Services

Column reflux, hot oil, stabilizer overhead, column bottoms, reboiler, stripper overhead, column charge, reactor feed, heat transfer, injection, tower bottoms, slop gas oil, fuel blending, heavy gas oil, scrubber circulation, offsite hydrocarbon transfer

Goulds 3700

Standard Features for Optimum Reliability

- **Proven API 610 Nozzle-Load Design**
Rugged casing and baseplate/pedestal support system provides flange-loading capability exceeding API 610 / ISO 13709 requirements without the use of a bearing frame support.
- **Full Flange Rating Pressure Capability**
All pumps designed to operate at two pole running speeds have casings designed for the full pressure capability of a 300 RF flange.
- **Spiral-Wound Casing Gasket**
Casing to cover joint sealed with a spiral-wound, controlled-compression gasket required by API 610. Provides positive sealing up to the maximum design pressure and temperature.



Optional Design for Solids Handling - Model 3703

For over 19 years, ITT has offered a fully API compliant optional design (Model 3703) that utilizes a traditional-style semi-open impeller - useful when you require a pump with high temperatures or pressures, yet need the improved solids handling of an semi-open impeller. Examples of 3703 services are mine dewatering and PTA chemical plant services. The single stage Model 3703 has interchangeable parts with Model 3700.

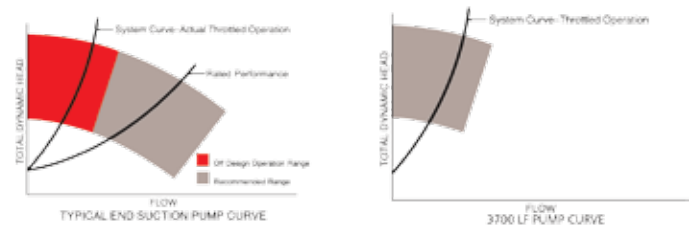
Optional 3700LF Design for Low-Flow Services

Not All Pumps are Designed for Low Flows

Many users throttle pumps to attain low flow rates, which creates bearing and seal issues. The traditional enclosed impeller passageways would be too small to properly manufacture at these low flow rates.

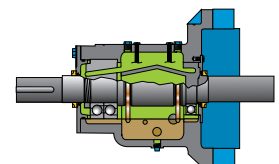
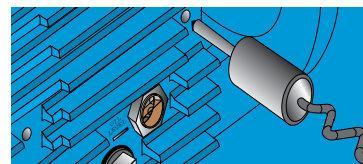
3700LF Low-Flow Solution - Fully API compliant

The 3700 LF semi-open radial vane Barske type impeller eliminates these enclosed impeller limitations. The unique circular volute casing eliminates diffusers, thus reducing the pump size, footprint and lifetime costs.



Improved Bearing Environment

- Bearing frame fins provide optimum heat dissipation.
- Condition-monitoring sites allow easy and consistent monitoring of temperature and vibration. Provision for instrumentation mounting per API 670 available.
- Large oil sight glass allows viewing of the condition and level of oil, critical for bearing life.
- Extra-large oil sump means cooler-running bearings.
- Proven channeled oil lubrication system ensures flow-through of cooled oil to thrust and radial bearings.
- Standard dual oil rings, positively located, provide oil flow to channeled oil lubrication system and prevent oil foaming.



Optional Features for Application Flexibility

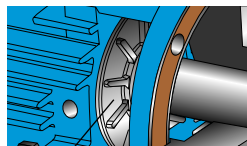
Goulds offers a range of options to meet specific plant and process requirements.

High-Temperature Capability

For high-temperature applications, these options are available:

Heat Flinger

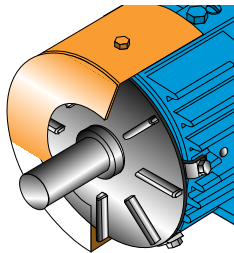
Heat flinger dissipates shaft-conducted heat and circulates air to reduce heat buildup.



Heat Flinger

Air Cooling

High-capacity fan and shroud mounted on power end effectively reduce bearing frame temperature for cooler-running bearings without using cooling water.



Water Cooling

Finned cooler for maintaining oil/bearing temperature. Corrosion-resistant material.



Inducer Option

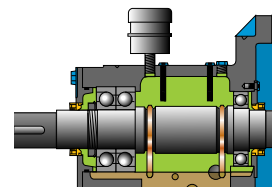
Lubrication Flexibility

Oil Mist Lubrication System

Connections for pure or purge oil mist lubrication can be provided for immediate use or future requirements.

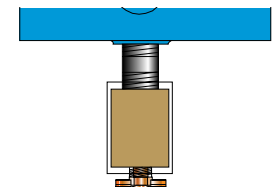
Sealed Power End

Designed with magnetic end face seals and expansion chamber to prevent contaminants from entering the power end.



Lubricant Sight Glass and Sampling Bottle

For visual inspection and sampling of oil.



Other Options

Extra-Wide Baseplate

Provided for seal systems with auxiliary components to improve maintenance access.

Heavy-Duty Pedestal

Unique trapezoidal design provides superior resistance to deflections from flange loads.

Top Suction Nozzle

This option reduces space requirements and installation costs for unique applications.

Inducer Option

Under certain conditions, reduction in NPHSR can be provided with an axial flow inducer.

Coke-Crusher Option

Allows coke particles to be easily pumped by crushing coke with a cutter screw.

Model 3700

API 610 11th Edition / ISO 13709 2nd Edition

API OH2 Overhung, Single Stage, Radially Split

DUAL VOLUTE CASING

Standard on 3-inch discharge and larger. Minimizes radial load and reduces shaft deflection for increased mechanical seal life.

TANGENTIAL DISCHARGE DESIGN

Maximizes hydraulic efficiency.

CONFINED CONTROLLED-COMPRESSION GASKET

Spiral-wound gasket assures positive sealing with no chance of misalignment.

RENEWABLE WEAR RINGS STANDARD ON ALL SIZES

Positively locked and set screwed. Front and rear rings control seal chamber flows and pressures. Optional non-metallic rings for improved efficiency. Wear rings not utilized in 3700LF pumps.

IMPELLER

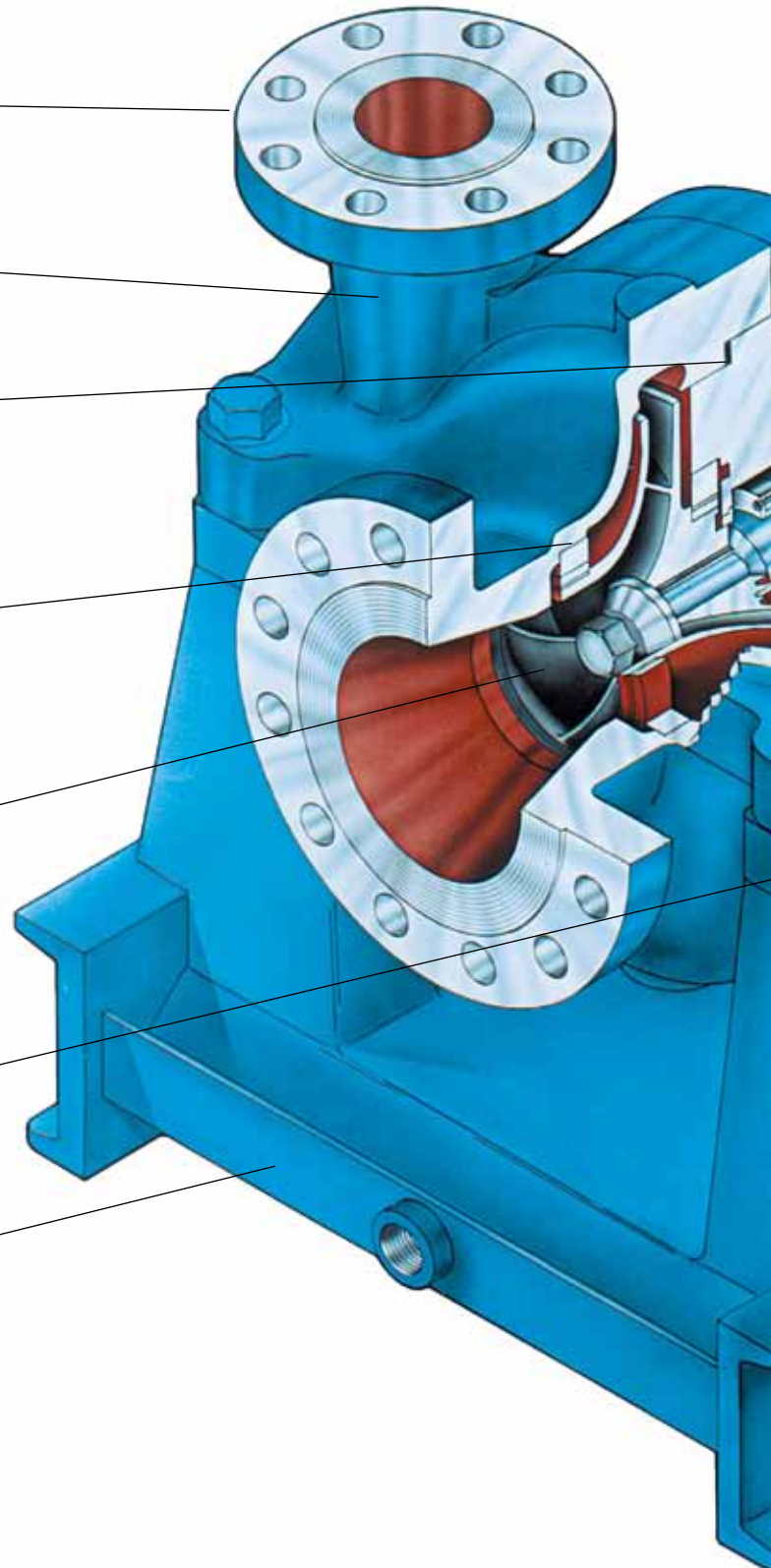
Multiple closed impellers for most casings to meet specific hydraulic requirements. Balanced to stringent ISO 1940 Grade 1.0 (exceeds API minimum). 3700LF low flow pumps and 3703 high solids pumps utilize a semi-open impeller - they do not utilize impeller or casing wear rings.

NOZZLE LOAD CAPABILITY

Casing/baseplate design optimized to exceed toughest API/ISO nozzle load criteria.

FABRICATED BASEPLATE

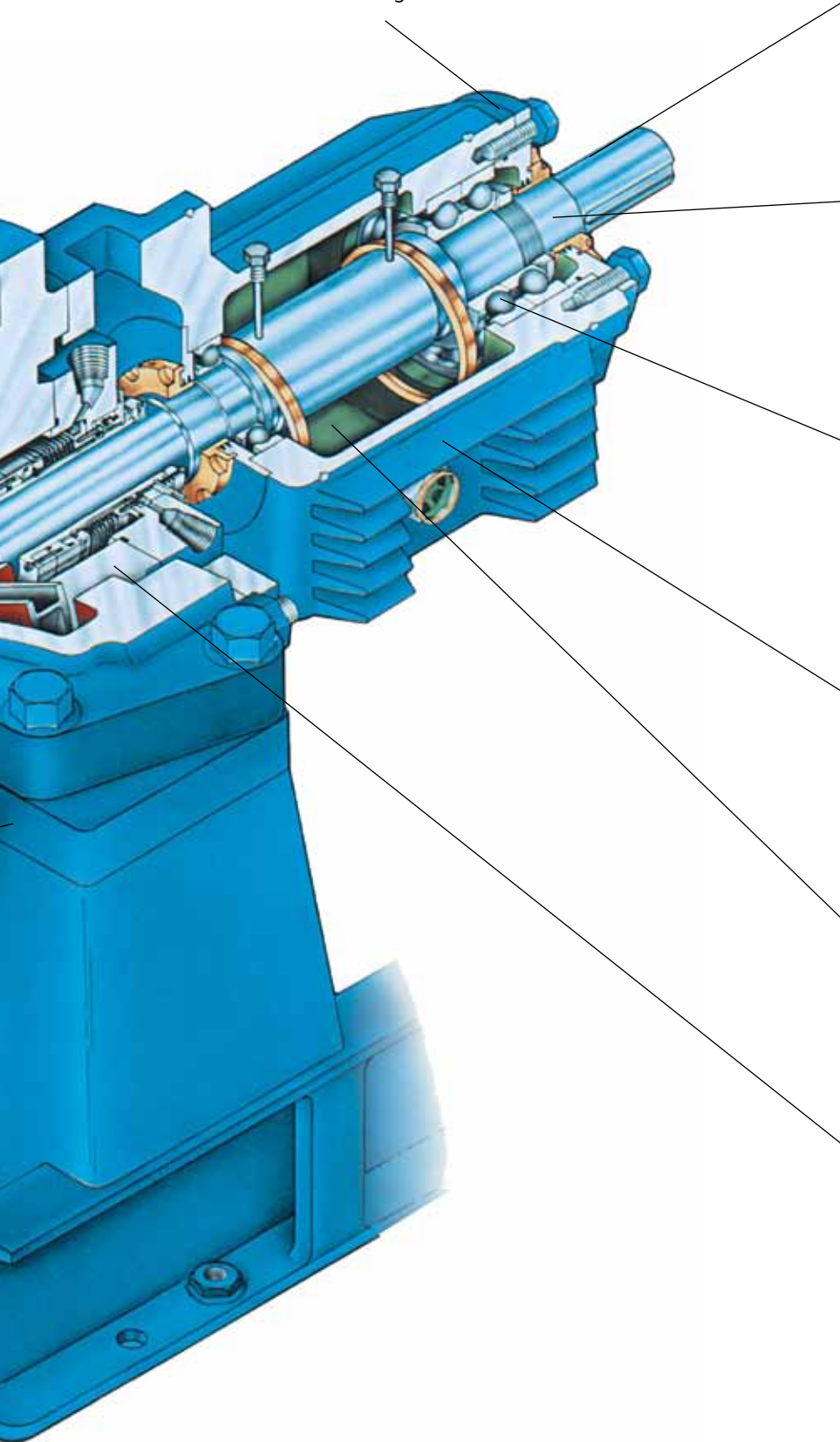
Enlarged drain connection to prevent buildup of debris. All joints are continuously welded. Extra-width sizes available to ease maintenance of seal systems.





3910 INTERCHANGEABILITY

Bearing frame, seal chamber, bearings, shaft, mechanical seal, impeller and wear rings completely interchangeable with Goulds Model 3910 bearing frame in-line process pumps. Entire back pull-out assembly interchangeable with Model 3710.



RIGID, HEAVY-DUTY SHAFT

Minimizes shaft deflection, maximizes bearing and mechanical seal life.

LABYRINTH OIL SEALS

Labyrinth seal design prevents oil from leaking out and contaminants from intruding. Made from non-sparking metal.

BEARINGS

Duplex 40° angular contact thrust bearings and deep-groove (Conrad) radial bearings sized for minimum three-year bearing life under most severe operating conditions. Exceeds API 610 / ISO 13709 requirements.

HEAVY-DUTY BEARING FRAME

Piloted and metal-to-metal fits assure runouts and concentricities well within limits specified in API 610 / ISO 13709. Large oil sump capacity. Cast fins enhance cooling.

LUBRICATION SYSTEM

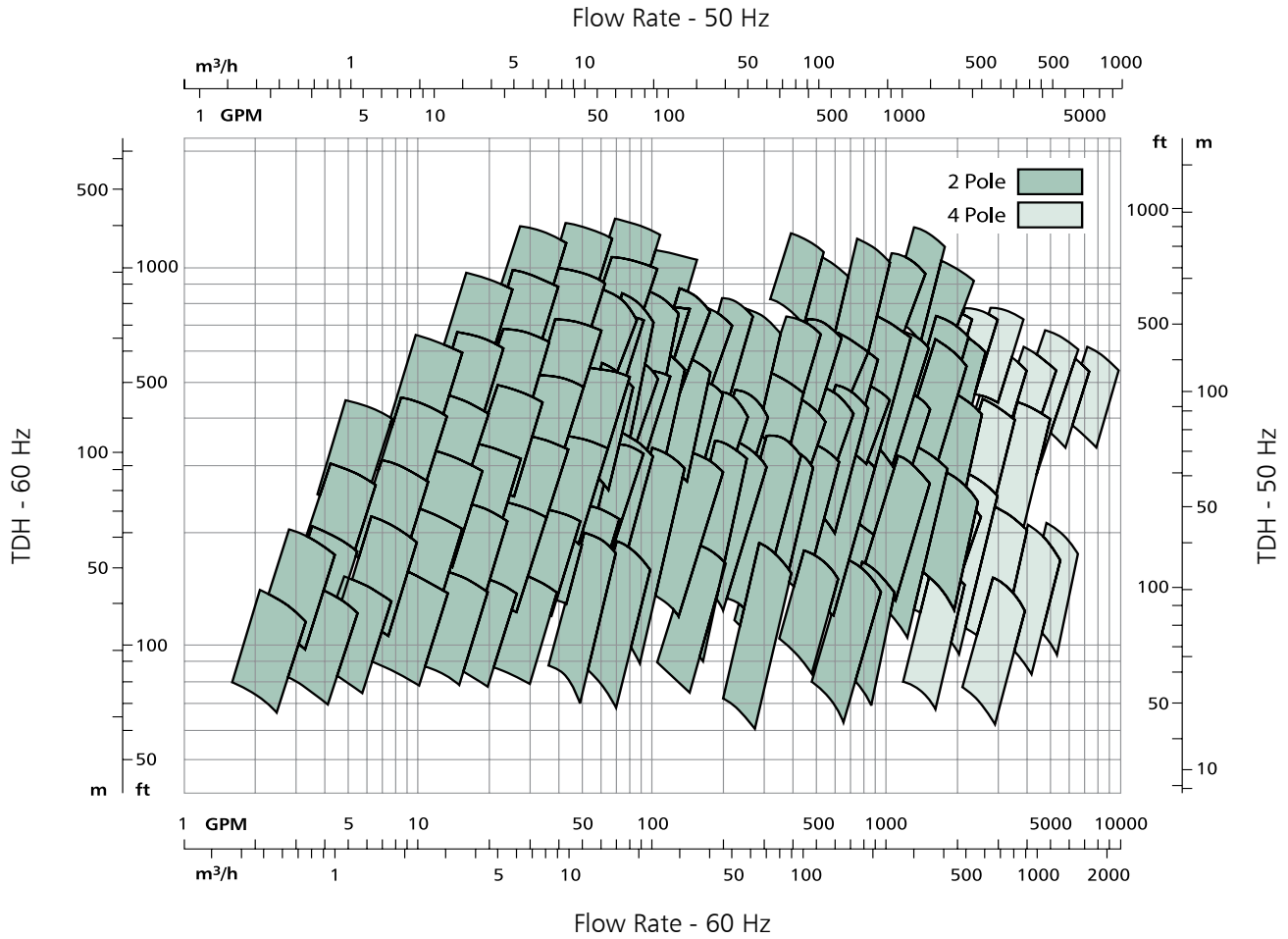
Proven, engineered ring-oiled flow-through bearing lubrication optimizes MTBPM.

API-682 SEAL CHAMBER

Enlarged seal chamber fully conforms to API-610 / ISO 13709 standards. Accepts wide range of API-682 / ISO 21049 cartridge mechanical seals. Renewable throat bushing standard for controlled seal chamber environment.

Goulds 3700

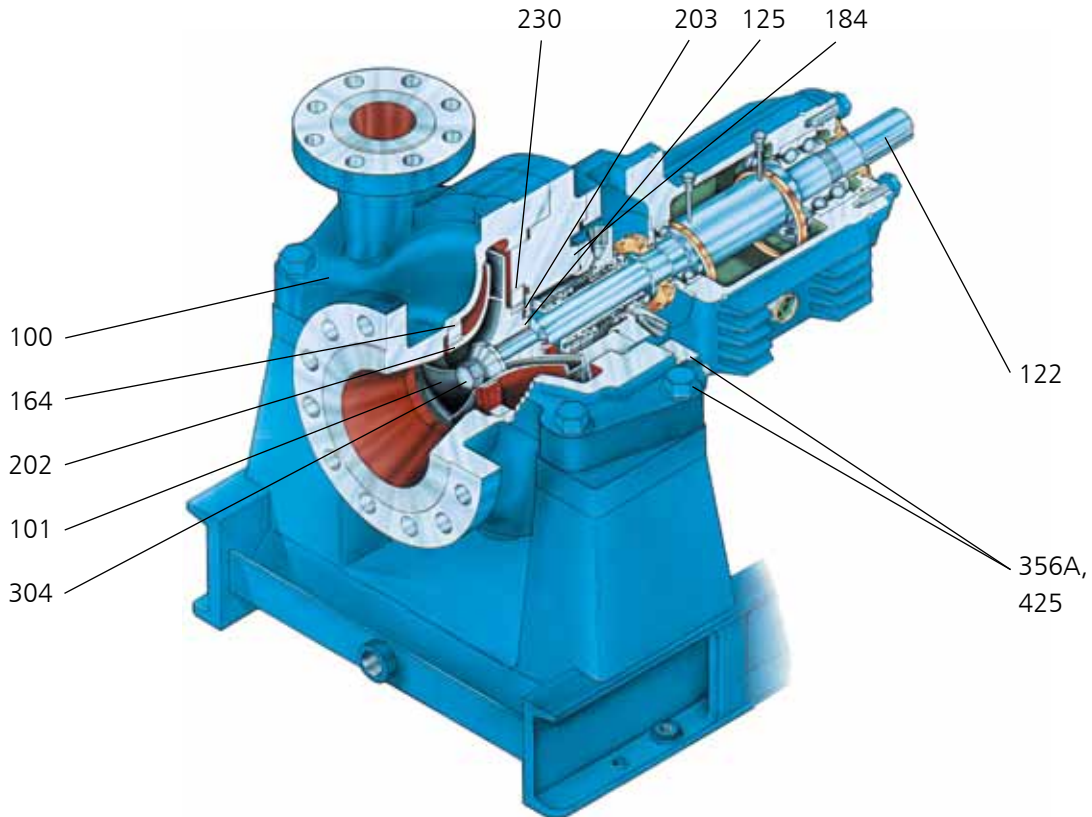
Hydraulic Coverage



Typical 3700 Installation

Goulds 3700

Sectional View



Parts List and Materials of Construction

Item	Part Name	S-4	S-6	S-8	C-6	A-8	D-1	D-2
100	Casing	Carbon Steel			12% Chrome	316L SS	Duplex SS	S. Duplex SS
101	Impeller	Carbon Steel	12% Chrome	316L SS	12% Chrome	316L SS	Duplex SS	S. Duplex SS
122	Shaft	ANSI 4140 *		316L SS	410 SS	316L SS	Duplex SS	S. Duplex SS
125	Throat Bushing	Cast Iron	410 SS	316L SS	410 SS	316L SS	Duplex SS	S. Duplex SS
164, 230	Wear Ring - Casing **	Cast Iron	12% Chrome	316L SS	12% Chrome	316L SS	Duplex SS	S. Duplex SS
202, 203	Wear Ring - Impeller **	Cast Iron	12% Chrome	Nitronic 60	12% Chrome	Nitronic 60	Duplex SS	S. Duplex SS
184	Seal Chamber Cover	Carbon Steel			12% Chrome	316 SS	Duplex SS	S. Duplex SS
304	Impeller Nut	Steel	316 SS				Duplex SS	S. Duplex SS
356A, 425	Casing Studs / Nuts	ANSI 4140						

* 410 SS on S-6 when temperature exceeds 350°F (175°C)

** Not utilized on 3700LF low flow pumps.

Upgrade Your Older-Style API Process Pump

Goulds PRO Services® Centers are experienced with reconditioning all types of pumps and rotating equipment, restoring equipment to original specifications.

Customers rely on PRO Services Centers for economical repair versus replacement, decreased downtime, reduced inventory of replacement parts and the advantage of updated engineering technology.

Benefits:

Years of experience allow PRO Services Centers to easily handle any rotating equipment, including pumps, drivers, gear boxes, centrifuges, blowers, fans and compressors.



Profit from these exclusive quality services:

- Quality rebuilds/repairs ensure maximum reliability from your rotating equipment.
- One-year warranty on all rebuilds/repairs.
- Upgrade old designs to latest technology to maximize reliability.

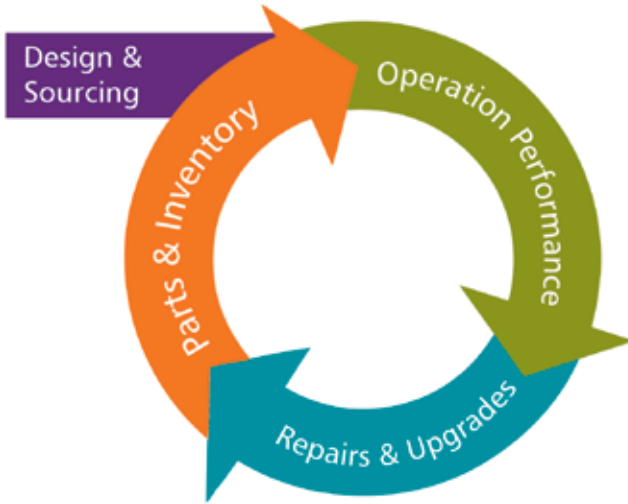
Your local PRO Services Center offers solutions for lowering total cost of ownership of your pumping systems. This can be achieved by upgrading your older-style API process pumps to today's high-performance API standard.

The question of whether to replace or upgrade existing equipment is a challenge faced by most end users today. When casing, piping and foundation are in good shape, upgrading your existing pump to comply with current API standards usually is more economical than new pump installation. By exploring all options, a better decision can be made.

Upgrades may involve hydraulic modifications, drop-in replacements and/or power end conversions. PRO Services Centers are experienced with all pump manufacturers.



Model 3700 With Diesel Engine Driver



Reliability has no quitting time.

PRO Services provides an array of services focused on reducing equipment total cost of ownership (TCO) and increasing plant output, including predictive monitoring, maintenance contracts, field service, engineered upgrades, inventory management, and overhauls for pumps and other rotating equipment.



PRO Services provides OEM parts for Goulds Pumps, Bornemann Pumps, AC, Morris, Goyne, CB, HVC, UXN and ROV in a timely manner to meet end user requirements. Significant levels of inventory and quick response capability provides the necessary programs to meet all repair needs.

PRO Services provides programs of reliability services, energy assessments, asset management and training. These can be deployed as stand-alone or integrated solutions, tailored to the needs of your company.

PRO Services provides an array of repairs and upgrades services to extend equipment life. PRO Services helps customers develop effective maintenance and asset management programs to lower maintenance costs, improve uptime, reduce inventory costs and extend equipment life.

A Leader in API-Engineered Pump Package Solutions

API Family of Pumps

Model 3700
OH-2



Model 3910
OH-3

Model 3620
3640
BB-2



Model 3610
BB-1



API Type	Goulds Model	Capacity GPM (M ³ /Hour)	TDH Feet (Meters)	Temperature °F (°C)	Pressure PSIG (kg/cm ²)
OH-2	3700	8500 (1930)	1200 (360)	800 (425)	870 (60)
OH-3	3910	6000 (1360)	750 (230)	650 (340)	600 (42)
BB-1	3610	50000 (11355)	700 (215)	300 (150)	300 (21)
BB-2	3640	7500 (1700)	2500 (760)	850 (455)	1130 (75)
BB-2	3620	20000 (4540)	1500 (455)	850 (455)	1000 (70)
BB-3	3600	8500 (1930)	9000 (2740)	400 (205)	4000 (275)
BB-5	7200CB	4000 (910)	9000 (2740)	800 (425)	4000 (275)
VS4	API 3171	3180 (720)	525 (160)	450 (232)	750 (50)
VS1	VIT	70000 (14760)	3500 (1060)	500 (260)	2500 (175)
VS6	VIC	70000 (14760)	3500 (1060)	500 (260)	2500 (175)



Model 3600
BB-3



Model 7200CB
BB-5



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