

# Goulds 3700LFI

API 610 11th Edition / ISO 13709 2nd Edition

API OH2 Overhung, Single Stage, Radially Split



# 3700LFI



## End Suction API 610/ISO 13709 Process Pump

- Designed for optimum reliability
- State-of-the-art mechanical design features
- 5 casing sizes and 10 hydraulics each with most casings

## 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 390 GPM (88 m<sup>3</sup>/h)
- Total dynamic head to 1650 feet (503 m)
- Temperature to 800° F (425° C)
- Pressure to 1100 PSIG (75 bar)

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

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

### Applications

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

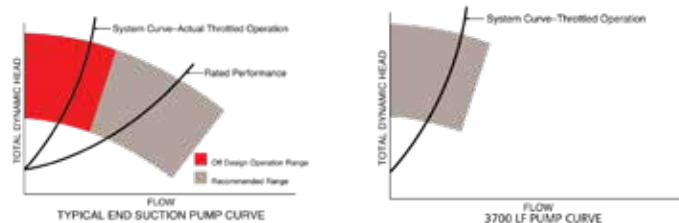
## 3700LFI Design for Low-Flow Services

### 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.

### 3700LFI 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.

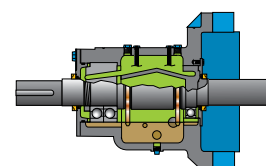
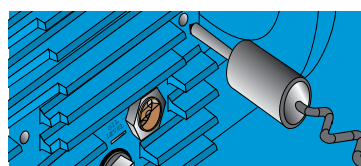


## Standard Features for Optimum Reliability

- 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.

## Improved Bearing Environment

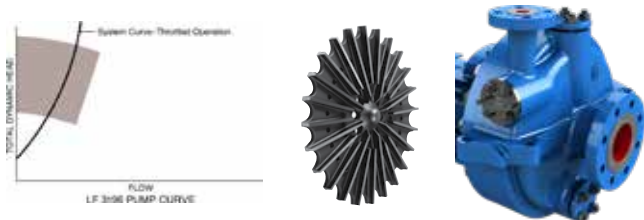
- Bearing frame fins provide optimum heat dissipation.
- Condition-monitoring sites allow easy and consistent monitoring of temperature and vibration. Provision for instrumentation mounting per API 670 available.
- Extra-large oil sump means cooler-running bearings.
- Proven channeled oil lubrication 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.



# 3700LFI

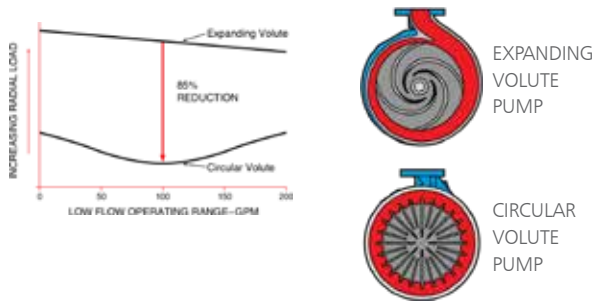
## 3700 LFI Designed Specifically for Trouble-Free Operation At Low Flows

Goulds 3700 LFI concentric (circular volute) casing and open radial vane impeller are designed to eliminate hydraulic and mechanical problems at throttled low flows.



## Reduced Radial Loads for Optimum Reliability

Radial loads are reduced by as much as 85% compared to end suction expanding volute pumps at low flows. Bearing, mechanical seal and overall pump life are optimized.



The 3700LFI is dimensionally interchangeable with the 3700LF. For installations where the existing 3700LF requires a rerate or casing upgrade, a simple replacement casing with insert and metal spiral wound gasket is all that is required.



# Optional Features for Application Flexibility

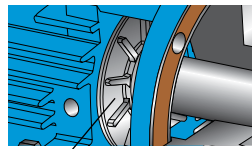
Goolds offers a range of options to meet specific plant and process requirements.

## 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.



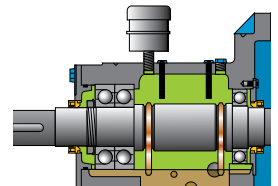
## Lubrication Flexibility

### Oil Mist Lubrication System

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

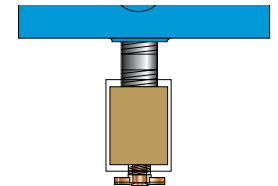
### Sealed Power End

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.



# 3700LFI

API 610 11th Edition / ISO 13709 2nd Edition

API OH2 Overhung, Single Stage, Radially Split

## TANGENTIAL DISCHARGE DESIGN

Maximizes hydraulic efficiency.

## CONFINED CONTROLLED-COMPRESSION GASKETS

Spiral-wound gaskets assures positive sealing with no chance of misalignment for casing and insert.



Hydraulic Insert

## GOULDS LOW FLOW IMPELLER

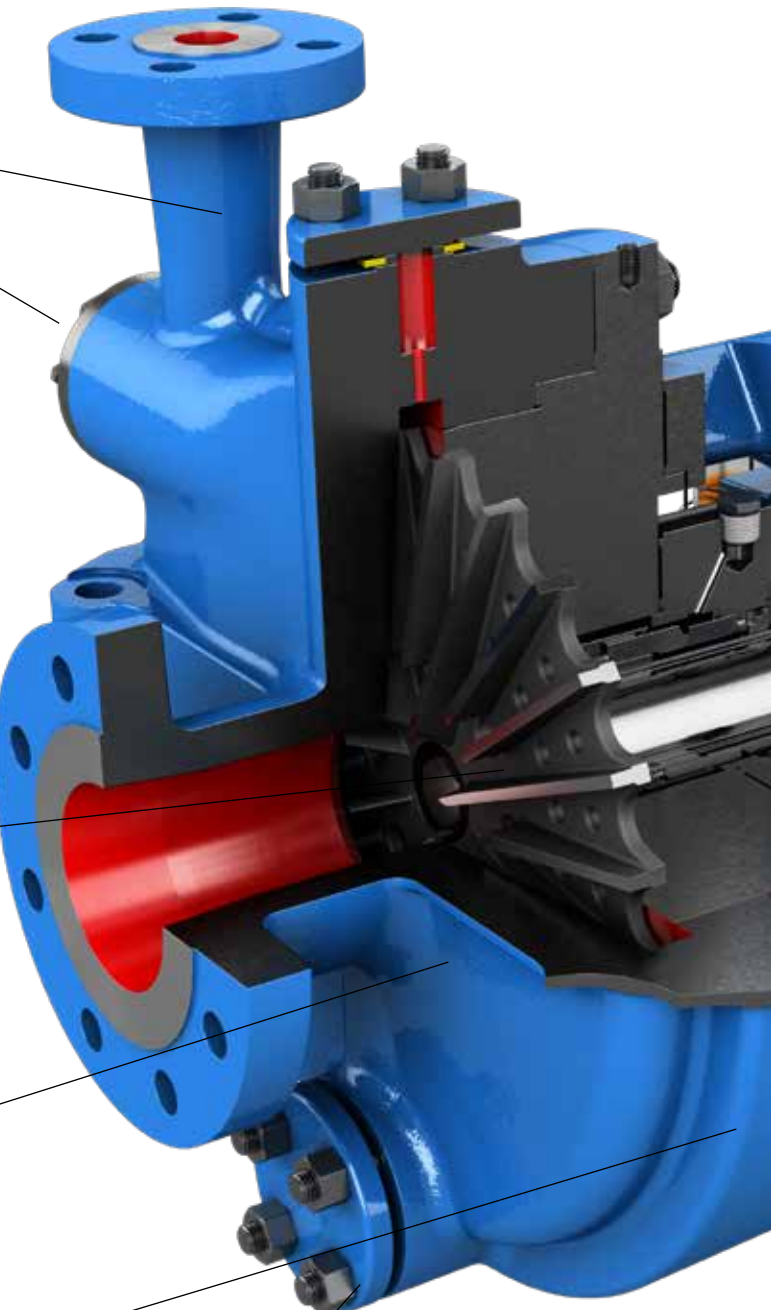
Multiple open radial vanes reduce pulsations, vibration and vane stress. Full shroud for superior vane strength when operating at extreme low flows. Balance holes reduce axial thrust, minimize stuffing box/seal chamber pressure for longer bearing and seal life. they do not utilize impeller or casing wear rings.

## NOZZLE LOAD CAPABILITY

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

## CIRCULAR VOLUTE CASING

Reduces radial loads during low flow operation. Mechanical seal and bearings last longer. Fully machined discharge and volute provide maximum efficiency and precise control of hydraulics at low flows.



## INTEGRAL CASE FLANGES

Drain (std) & Vent (optional) connection.



**i-ALERT2® CONDITION MONITOR**

Constantly measures vibration and temperature at the thrust bearing. Colored LED's indicate general pump health. Provides early warning of improper operation before catastrophic failure occurs.

**INPRO VBXX-D HYBRID LABYRINTH SEALS**

Prevents premature bearing failure caused by lubricant contamination or loss of oil. Made from non sparking metal.

**RIGID, HEAVY-DUTY SHAFT**

Minimizes shaft deflection, maximizes bearing and mechanical seal life.

**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.

# i-ALERT<sup>®</sup> Monitoring Solution

## Sensor | App | Ai Platform

www.i-alert.com



### What it Does:

#### Monitor

Tracks vibration, temperature & run-time hours 24/7/365.

#### Alarm

Takes high resolution data when an alarm condition occurs and stores it for later analysis.

#### Trend

Captures data every 1-60 minutes and has up to 170 days of hourly on-board storage.

#### Analyze

Diagnose machine faults with vibration tools  
Fast Fourier Transform (FFT) & Time Wave Form Analysis.

#### Environment

Rated for any industrial environment. water & dust resistant.  
Intrinsically Safe with a 3-year battery life (use dependent).

- ATEX Zone 0 AEx ia IIB Ga (Groups C & D)

#### Wireless

Sync data via Bluetooth Smart enabled smartphones and tablets.

#### Online Monitoring

Monitor and manage all of your i-ALERT enabled machines in one place - i-ALERT Ai Online Platform. This subscription service requires no software to download or dedicated hardware to run.

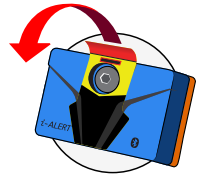


Spend less time collecting data and more time fixing problems. The i-ALERT mobile app has the ability to scan multiple i-ALERT2 sensors within range to quickly and safely inspect multiple machines.

### How it Works:

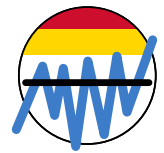
#### 1. ACTIVATE

The i-ALERT2 devices are light activated by removing the sticker. The sensor begins wirelessly broadcasting once activated.



#### 2. AUTO CONFIGURATION

The i-ALERT device averages the vibration over 25 hours of run-time and sets the alarm levels to 2 x average (0.1-1.5ips minimum). Temperature alarm default to 80°C (176°F)



OR

#### 2. MANUAL CONFIGURATION

User manually sets the alarm thresholds via the i-ALERT mobile application.



#### 3. Monitor

The i-ALERT2 sensor is configurable to check every 1-5 minutes. If two consecutive readings are above alarm threshold the i-ALERT device will go into alarm.



#### Dashboard

Simple, intuitive dashboard to track vibration, temperature, run-time & battery life.



#### Trending

Trend vibration, temperature, & kurtosis to monitor any changes in the equipment operation.

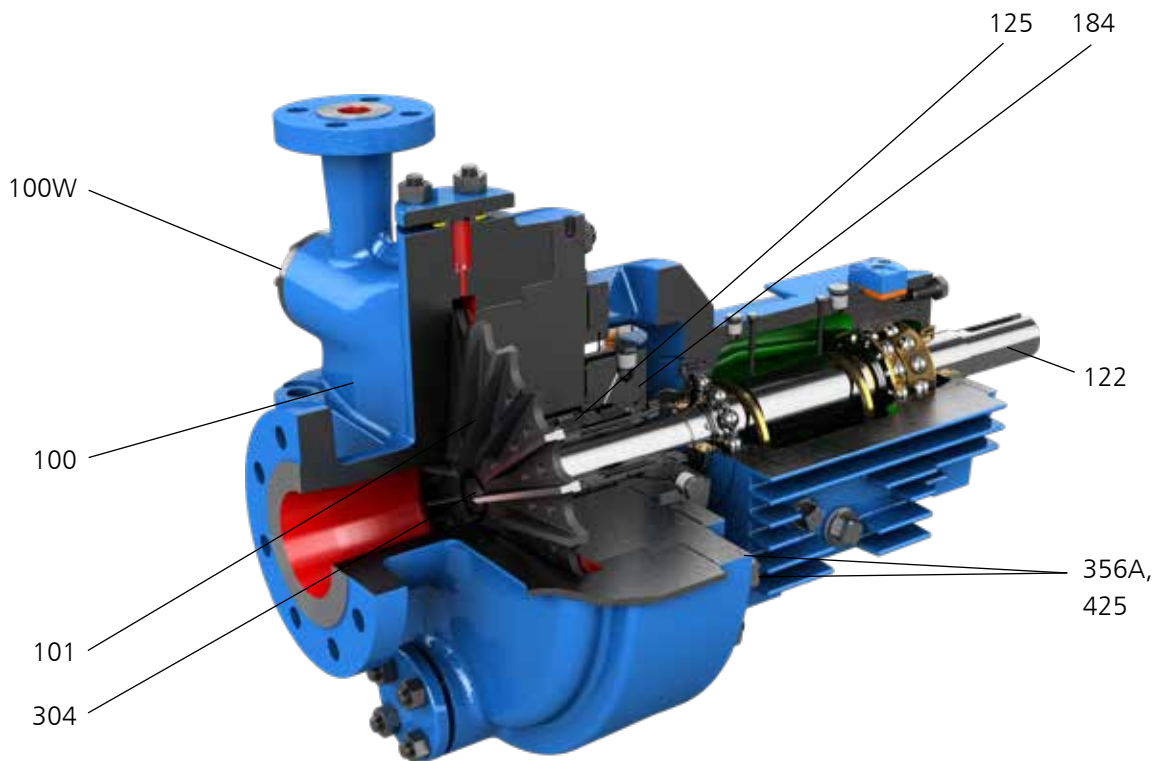


#### BOM

Load the as built of materials based on the pump serial number.



## Sectional View



## Parts List and Materials of Construction

Item	Part Name	S-6	S-8	C-6	A-8	D-1	D-2
<b>100</b>	Casing	Carbon Steel w/ 2.25% Chrome	12% Chrome	12% Chrome	316L SS	Duplex SS	S. Duplex SS
<b>100W</b>	Venturi Insert	12% Chrome			316L SS	Duplex SS	S. Duplex SS
<b>101</b>	Impeller	12% Chrome	316L SS	12% Chrome	316L SS	Duplex SS	S. Duplex SS
<b>122</b>	Shaft	ANSI 4140*	316L SS	410 SS	316L SS	Duplex SS	S. Duplex SS
<b>125</b>	Throat Bushing	410 SS	316L SS	410 SS	316L SS	Duplex SS	S. Duplex SS
<b>184</b>	Seal Chamber Cover	Carbon Steel		12% Chrome	316 SS	Duplex SS	S. Duplex SS
<b>304</b>	Impeller Nut	316 SS				Duplex SS	S. Duplex SS
<b>356A, 425</b>	Casing Studs / Nuts	ANSI 4140*					

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

\*\* Not utilized on 3700LF low flow pumps.

# PRX-OH2 Back Pull-Out Upgrade

## Description

The PRX-OH2 is a back pull-out assembly which provides a complete replacement to your existing equipment while keeping the existing impeller and casing.

The replacement scope consists normally of bearing housing assembly, shaft, seal chamber cover with wear ring, throat bushing, keys and impeller nut. It is available in 4 API seal chamber sizes (#2/4/6/8) and 3 materials classes (S-6/C-6/A-8).

## PRX-OH2 Heritage

The PRX-OH2 is developed from the long established Goulds Pumps 3700 model, a centerline-supported, flexibly coupled horizontal overhung (OH) high temperature and pressure process pump designed to meet or exceed latest API 610 edition.

ITT Goulds Pumps has 40+ years of API experience. More than 17,000 OH units are installed worldwide for various applications in the Petroleum, Petrochemical and Natural Gas industries.

## Benefits of Upgrading your OH2 Pumps with PRX-OH2

- **Increased Reliability**
  - Robust design
  - Low shaft flexibility index ( $L^3/D^4$ ) increasing stiffness and MTBR
  - Upgrade to latest edition API mechanical seals, reducing emissions
- **Minimal Site Disruption & Reduced installation costs**
  - Pipework remains in same position/No driver movement in the majority of cases
  - Inventory for building PRX-OH2 held at PRO Shops ensuring quick turnaround for upgrade and minimal downtime
- **Reduction in Site Inventory & Lead Time**
  - 4 frame sizes available maximizing flexibility and minimizing inventory



Before Upgrade



After Upgrade

# 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 <sup>3</sup> /Hour)	TDH Feet (Meters)	Temperature °F (°C)	Pressure PSIG (kg/cm <sup>2</sup> )
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

# Locations



For more information Please Visit:  
[www.gouldspumps.com](http://www.gouldspumps.com) | [www.ittproservices.com](http://www.ittproservices.com)



— An ITT Brand

240 Fall Street  
Seneca Falls, NY 13148  
Phone: 315.568.2811  
Fax: 315.568.2418  
[www.gouldspumps.com](http://www.gouldspumps.com)

© 2022 ITT Goulds Pumps Inc.

B.3700LFI.en-US.2022-01