پتروپدم
ETRO PEDAM

Gear Pumps
Between Bearings,
Herringbone Gear Designs

GPI, GPE, GPHI

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ETRO PEDAM

Superior Engineering and Low Cost of Ownership

Designed to reliably handle viscous fluids across a broad range of flows and pressures, Petropedam gear pumps feature double helical, herringbone type gears. These pumps are widely used because of their reliability and low cost of ownership. Available in a variety of materials and mounting configurations, these robust pumps provide high-efficiency, pulse-free pumping, even under the most challenging conditions.

Advanced External Herringbone Gear Design

- Quiet, pulse-free flow
- Better load carrying ability, greater strength and minimal hydraulic shock
- Gradual, continuous gear tooth engagement ensures smooth flow and no air entrapment
- Elimination of end thrust and no need for thrust bearings with inherently hydraulically balanced design
- High-speed pump capability
- Compatible with off-the-shelf motors

Benefits of Between Bearings Design

- Improved reliability and extended pump life
- High efficiency
- Minimal shaft deflection
- Long mechanical seal life
- Reduced bearing loads
- Superior TDH and high-pressure capability
- Tolerant of fluids with

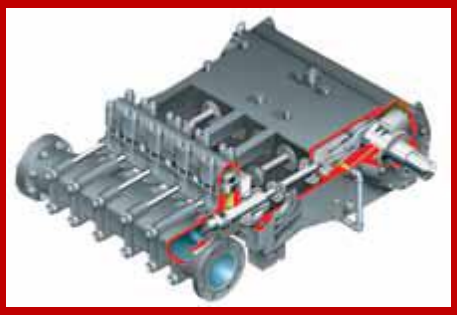
Applications

- Lube oil/hydraulic oil circulation
- Process industries
- OEM
- Filtration equipment
- Fire foam systems
- Petrochemical blending and transfer
- Food and beverage industry

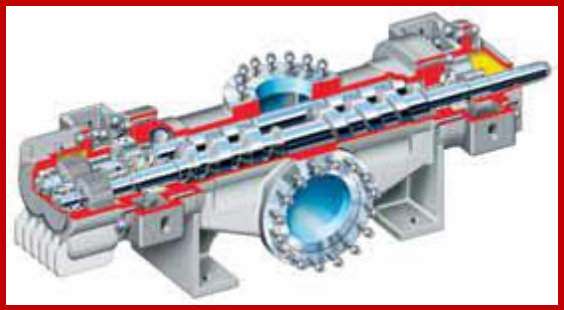
Complementary Pump Designs

Petropedam also can provide the following complementary pump models:

- WT double-suction, twin-screw pump
- DP reciprocating multi-plunger pump



DP



WT

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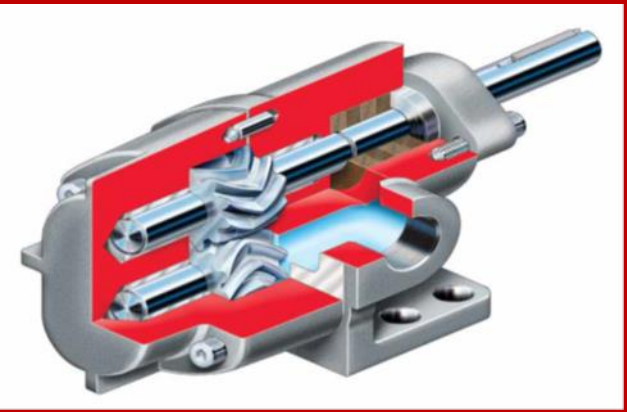


GPI Series Between Bearings, Herringbone Gear Pumps

GPI Series gear pumps have long been workhorses in highly viscous applications within a multitude of industries due to their dependability, efficiency and low total life cycle costs. Engineered to reliably pump viscous fluids over a broad range of flows and pressures, the GA Series' superior between bearings, external gear design offers the benefits of pulse-free operation, dry-run capability and ease of maintenance.

Operating Parameters

- Flows to 100 m3/h
- Speeds to 1000 rpm
- Viscosities to 10 000 cSt
- Temperatures to 350°C
- Pressures to 6 bar

Features and Benefits

Two-Piece Doweled Construction *ensures accurate alignment and facilitates maintenance by allowing faster access to pump internals without disturbing piping.*

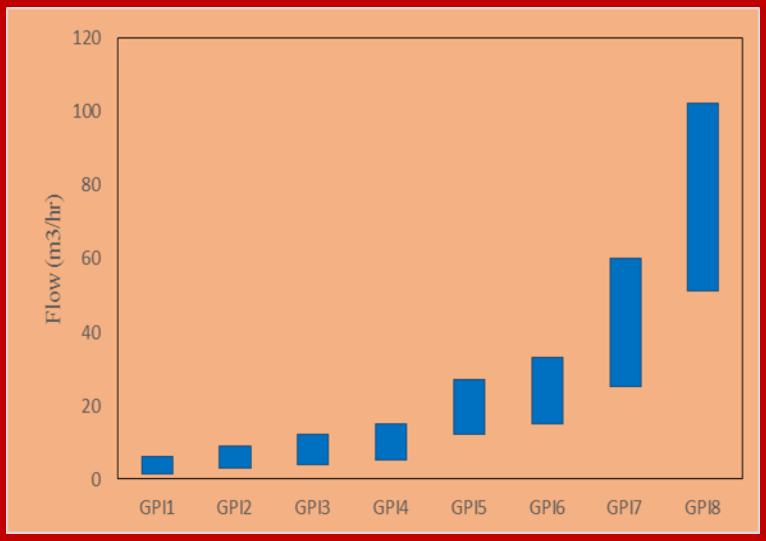
Stuffing Box *on long-coupled configuration allows for ample packing or mechanical seals for greater flexibility. To increase uptime and reduce maintenance costs, the stuffing box is exposed to suction pressure only.*

Full Hydraulic Balance *eliminates need for specialized balancing devices or thrust bearings.*

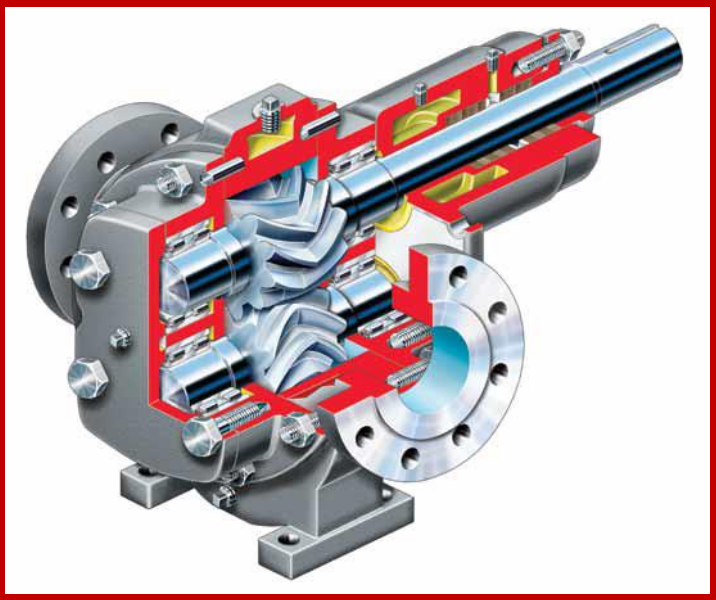
Suction and Discharge *passages designed for free, even flow and greater suction lift capability.*

Standard Carbon Sleeve Bearings *are self-lubricating for handling low-viscosity fluids. Bronze bearings are available for dirty fluid applications.*

Precision Machined Teeth *engage gradually, preventing trapping of liquid and eliminating shock loading.*



GPI Series Quick Selection Chart



GPHI Series
Between Bearings,
Herringbone Gear Pumps

Capable of higher flows and pressures than GPI Series pumps, GPHI 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 GPHI Series' simple external design has only two moving parts and only one shaft seal to ensure long life and ease of maintenance.

GR Series pumps are self-priming and available in standard sizes from 40 mm to 200 mm (1.5 in to 8 in) ports. Standard construction is cast iron and carbon steel. For oil and gas applications, an API 676, second edition compliant configuration is available.

Operating Parameters

- Flows to 180 m3/h
- Pressures to 8 bar
- Temperatures to 350°C
- Viscosities to 10 000 cSt
- Speeds to 1000 rpm

Features and Benefits

Between Bearings Gear Design *minimizes shaft deflection and reduces bearing loads, improving highpressure and high-speed capabilities while increasing efficiency and lowering costs.*

Double Herringbone Gears *are deep cut to produce high flow rates with low tip speed and liquid velocity.*

Doweled Sideplates and Body *ensure accurate internal alignment. Joints are ground to maintain clearances and eliminate the need for gaskets.*

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

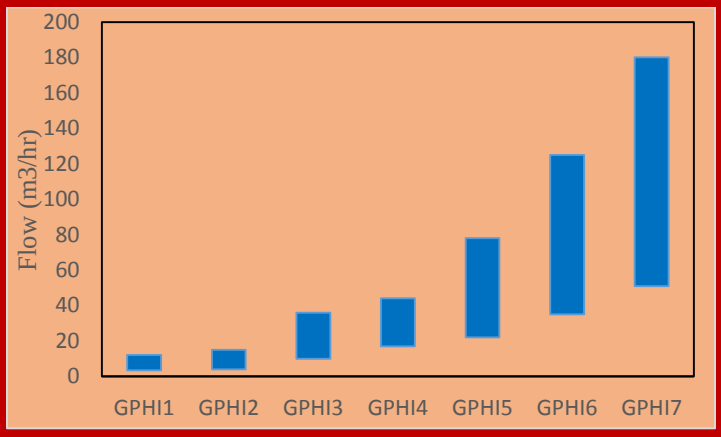
Large, Unobstructed Suction and Discharge *passages keep entrance losses and turbulence to a minimum.*

High-Capacity Double-Row Roller Bearings *are antifriction to assure long life.*

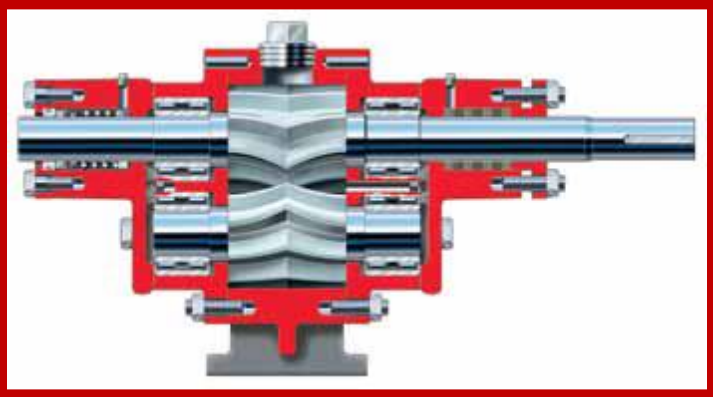
Optional Babbitted Carbon Sleeve Bushings *may be used when handling liquids with poor lubricity or low viscosities. Also available in antimony impregnated carbon for high-temperature applications.*

Shafts *are generously sized to minimize deflection.*

Back Pullout Design *facilitates maintenance and enables inspection without disturbing piping.*



GPHI Series Quick Selection Chart



GPHI With Dual Stuffing Box and Optional Mechanical Seal

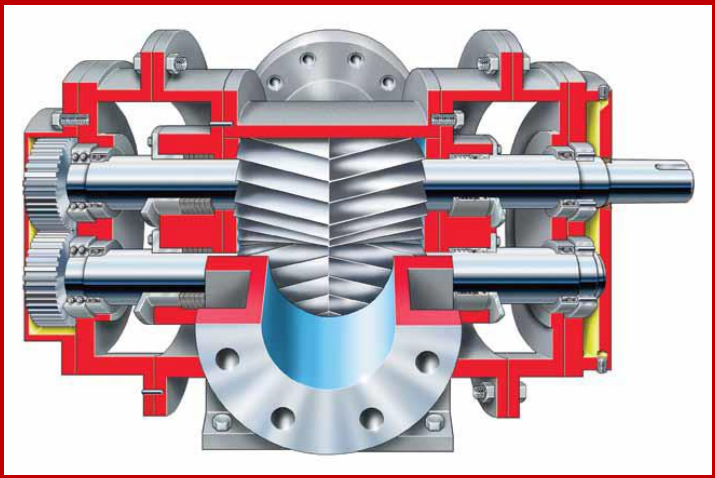
Three Standard Configurations

The GPHI pump is available in three basic gear widths and with multiple options. With its modular design, the GPHI can be customized
to satisfy a wide range of applications.

- **GR:** Standard gear width
- **GRW:** Wide gears for higher capacities
- **GRH:** Narrow gears for higher pressures

Available Options

- Dual stuffing box with external bearing for high suction pressure applications
- Jacketed pump body maintains constant fluid temperature and viscosity
- Jacketed stuffing box
- Direct V-belt dive carries the load of mechanical power transmission equipment without shaft deflection. Includes inboard bearing and mechanical seal
- INSUROCK® Low-Friction Wearplates may be used to reduce sideplate and gear wear in low viscosity applications
- Mechanical seal
- API 676, second edition, compliance



GPE
Between Bearings,
Herringbone Gear Pumps

Extremely rugged and unusually compact for its high capacity and range, the GPE rotary pumps are generally compliant with API 676, second edition. Precision machined herringbone pumping gears provide low vibration, pulseless discharge while timing gears quietly and evenly transfer power to the driven rotors, ensuring minimal wear and long life.

The GPE pump is directly connected to motors up to 1000 rpm. They do not require a heavy foundation, belts or reduction gears, thereby minimizing their total cost of operation.

Operating Parameters

- Flows to 180 m^3/h
- Pressures to 8 bar
- Temperatures from -30°C to 350°C
- Viscosities from 10 to 100 000 cSt
- Speeds to 1000 rpm

Features and Benefits

External Timing Gears *evenly transmit power to the rotors while eliminating rotor contact and promoting long pump life.*

Between Bearings Design *virtually eliminates shaft deflection, even under highly viscous loads.*

Split Bracket Construction *facilitates maintenance.*
Heavy-Duty Ball and Roller Bearings *support the rotating element to prevent contact with the housing, thus reducing wear on the rotors and the body bore.*

Externally Lubricated Bearing *design is well suited for corrosive, erosive, non-lubricating and run-dry services.*

Conventional Packing and Glands *are standard, but mechanical seals are easily accommodated.*

Standard Motor Speeds *can be used, eliminating V-belt drives and gear reducers.*

High Carbon Steel Shafts *are machined and ground to close tolerances for accurate fit, symmetrical clearance and precise alignment.*

Directly Connected *to motors up to 1000 rpm, GPE pumps do not require heavy foundations, belts or reduction gears.*

No Contact Between the Pumping Gears

GPE timing gears transfer power to the rotors quietly and evenly. This design prevents metal-to-metal wear, promotes long pump life and reduces maintenance costs. The timing gears also make it possible to build external design GPE pumps in stainless steels.

Vertical Mounting Configurations

• Submerged sump configuration cold oil handling
— Eliminates high suction lift
— Conserves floor space
— Ensures flooded suction without need for foot valves
• Pedestal configuration bolts to floor or wall and is ideal for commercial marine and navy service
— Conserves space
— Straight through flow
— All parts are easily accessible

Split Brackets Ease Maintenance

An option for external bearing pumps, split brackets are easily separated to facilitate seal maintenance. When seal service is required, the bearing half of the bracket can be removed, offering full access to individual mechanical seals.

Available Options

• Flange mounting brackets for engine mounting lube oil pumps
• Jackshafts for V-belt drives
• Portable, truck mounted design
• Jacketed bodies to prevent hardening of heavy liquids
• Special shaft lengths
• Water-cooled bearings
• Lantern rings
• Mechanical seals
• Internally lubricated bearings

Materials of Construction

Component	GPI Series	GPHI Series		GPE Series		
	Cast Iron	Cast Iron	Cast Steel	Cast Iron	Cast Steel	Stainless Steel
Body	ASTM A48 Class 25	ASTM A536 Grade 65-45-12	ASTM A216 Grade WCB	ASTM A536 Grade 65-45-12	ASTM A216 Grade WCB	316 SS
Bracket		-	-	ASTM A48 Class 25	ASTM A48 Class 25	
Shaft	ASTM A29, Class 1045 Carbon Steel	ASTM A322 Grade 4140		ASTM A29, Class 1045 Carbon Steel	ASTM A322 Grade 4140	
Rotor Spacers	-	-		Fine Grain Cast Iron		17-4PH SS
Bushing	Babbitted Carbon	Babbitted Carbon		-	-	-
Packing	Graphited Acrylic Yarn (GASP and GAFP Only)	Acrylic Yarn	Graphited	Carbon Filled TFE		PTFE
Pumping Gears	ASTM A29, Class 1045 Carbon Steel	ASTM A322 Grade 4140	ASTM A322 Grade 4140	ASTM A322 Grade 4140	ASTM A322 Grade 4140	316 SS
Timing Gears	-	-	-	AISI 4150 or 8620 Heat Treated Steel		