

SERVING THE MARINE INDUSTRY SINCE 1947



**HAIGHT**®

**PUMP** PRODUCT LINE

DIVISION OF: BAKER MANUFACTURING COMPANY, LLC.

## HAIGHT PUMP

# GEARED TO LAST

"Either write something worth reading or do something worth writing."

—Benjamin Franklin

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# CUSTOM BUILT SOLUTIONS

Today's complex processing environments demand greater integration of equipment and application. Since 1932, Haight® has been recognized as the leading innovator and manufacturer of rotary gear, positive displacement pumps custom built for your operational needs and cost requirements.

As part of the Baker Manufacturing family, Haight has extensive metallurgical expertise, premier research and development capabilities, access to a high-tech foundry, and deep technical knowledge of pump applications.



**Haight is committed to providing reliable, versatile, and quiet products designed to meet your needs.**



**External Gear Pump**



**Internal Gear Pump**



**Bed Plate Assemblies**



**Custom Gear Pump**



**Centrifugal Pumps**



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# FROM THE MARKET LEADER

Fewer parts mean reduced wear, less maintenance, longer life, compact size and reduced noise.

## Variety of Settings

Bolt on reversible relief valve

## Mounting Options

Pipe plug inserts provide access for mounting optional gauges and tank return feature

## Geared to Last

Patented Haight gear and rotor for more efficient positive displacement pumping

## Rugged Design

Top quality ductile iron bodies with iron bearings

## Superior Flow

Three-tooth contact for smoother discharge. Extra deep gear mesh greatly reduces noise, avoids trapping

**With the Haight gear within a gear design, both rotating parts are hydraulically balanced along the shaft axis, so there is no need to adjust end plates.**

The internal gear design does not subject the rotating members to overhung load problems, allows for fluid feed on both sides of the gears and functions as an internal gear reducer, slowing down the large rotating gear. These features result in reduced wear, less maintenance, compact size and lower noise.

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# HOW IT WORKS

## HAIGHT'S GEAR WITHIN A GEAR PRINCIPLE

**The most reliable of today's internal gear pumps are based on the gear within a gear principle pioneered Haight in 1932.**

### Design Benefits

#### Lower initial investment

Haight pumps operate at standard motor speeds, eliminating the need for expensive gear boxes, even for heavier fluids

#### Less maintenance

Save time with fewer parts, no thrust bearings and end plates to maintain

#### Easier to install

Smaller than conventional gear pumps designs, Haight close-coupled motor mounting eliminates pump and motor alignment problems, and reduces bedplate installation costs

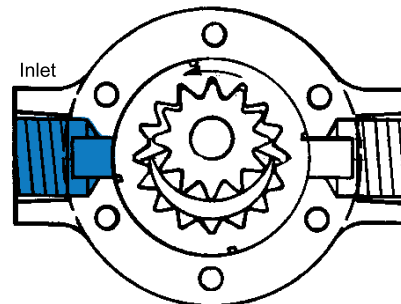
#### Extended life

The rotor is rotating at a fraction of the motor speed which reduces wear and noise, and improves fluid flow into the gears

#### Superior flow

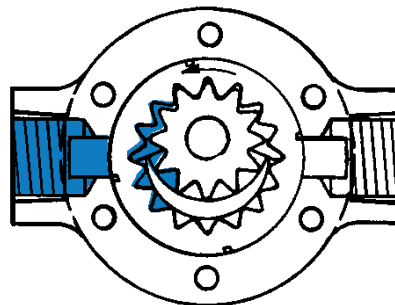
True, three tooth engagement between the rotor and pinion provides superior flow characteristics

1.



The liquid being pumped (dark blue) Enters the pump through the inlet (suction) port. In this example, the inlet (suction) port is on the left.

2.



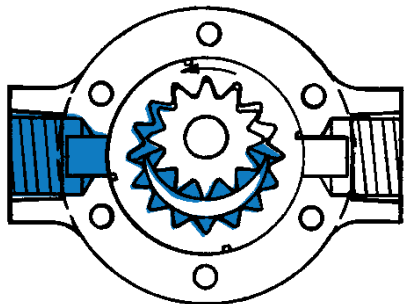
As the inner (pinion) and outer (rotor) gears rotate, the liquid flows around both sides of the rotor into the gears. The crescent divides this flow and serves as a positive seal between the inlet (suction) and outlet (discharge) ports.



# INNOVATIVE PUMP SOLUTIONS SINCE 1932

The smaller, inner drive gear (pinion), and shaft assembly are supported by bearings on both sides of the pinion to resist movement, unlike other designs. The larger gear (rotor) is hydraulically balanced within the pump housing, finding its optimal position, naturally.

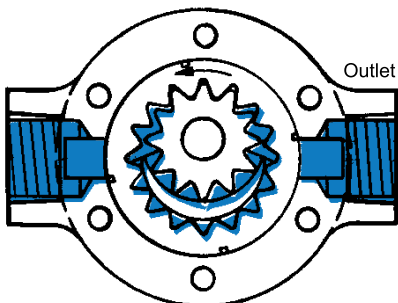
3.



In this illustration, the pump is almost completely filled with the liquid which is about to be discharged through the outlet (discharge) port on the right. Note that the exclusive Haight three-tooth gear contact assures smooth discharge flow.



4.



The pump is now completely filled. The liquid being pumped flows in through the inlet (suction) port, moves through the pump, and leaves through the outlet (discharge) port in a continuous flow.



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# DISTINGUISHING PUMP PUMP CHARACTERISTICS

## Standard Pump Attributes

Haight pumps are self-priming and will develop up to 27" of vacuum. NOTE: depending upon actual application conditions, it is sound engineering practice to keep vacuum to a minimum.

Although suction conditions are a factor in determining pump speed, normally for liquids with viscosity's over 10,000 SSU, reduced speeds and larger line sizes are recommended to avoid cavitation and diminished pump capacity.

<b>Capacity Range</b>	<b>1 gpm to 240 gpm</b>
<b>Viscosity Range</b>	<b>32 SSU to 500,000 SSU</b>
<b>Pressure Range</b>	
Non Lubricating	<b>100 PSI</b>
Lubricating	<b>650 PSI*</b>
<b>Temperature Range</b>	<b>-80 F to 620 F*</b>

### **\*High temperature/high pressure applications**

Consult factory for temps over 300°F and pressure over 200 psi.

## Bolt-On Relief Valve (Optional)

The bolt-on relief valve can easily be added in the field without the need for special tooling. The relief valve can function in either a return to suction mode or return to tank mode. Offered with several different spring tensions, the relief valve operates smoothly and effectively over a broad range of setting values.

## Duralon® Liner (Optional)

Self-lubricating, corrosion and moisture resistant barrier to eliminate metal to metal contact improving pump longevity.

"The U.S. Constitution doesn't guarantee happiness, only the pursuit of it. You have to catch up with it yourself."

—Benjamin Franklin



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# CONFIGURATIONS STANDARD & OPTIONAL

## Bearings **Gramix iron bearings are standard.** Options:

<b>DU® Metal-Polymer</b>	Used mainly in higher pressure (above 100 psi) or modestly lubricated applications.
<b>Carbon Graphite</b>	Used in high temperature, solvent or acid pumping applications which make standard bearing incompatible.
<b>Bronze</b>	Used Primarily in low pressure (below 150 psi) applications; self-lubricating and cost effective.

## Seals **Buna-N lip seal is standard.** Options:

<b>Viton® Lip Seals</b>	Viton is typically used for processes which are not compatible with Buna®. These include temperatures above 300°F and for diesel fuel applications.
<b>Neoprene Lip Seals</b>	Neoprene is commonly used for refrigerant/oil pumping applications.
<b>Teflon® Lip Seals</b>	Teflon seals are commonly used for a more chemically inert seal requirement or for hot oils up to 400°F.
<b>Teflon® Packing Seals</b>	Used in high temperatures and liquids which make Viton or Buna-N® seals incompatible.
<b>Grafoil® Packing Seals</b>	Suitable for use with heat transfer (up to 585°F) applications.
<b>Type 21 Mechanical Seals</b>	Available with Buna-N, Viton or Neoprene elastomers.
<b>Type 9 Mechanical Seals</b>	Available with Teflon or Kalraz® seals in high temperature applications.
<b>Type 2 or Type 2B Mechanical Seals</b>	Used in high pressure (above 250 psi) applications, available in Viton, Buna or Neoprene elastomers.

## Mounting Configurations **Bedplate, close-coupled, and hub mount are standard configurations.** Options:

<b>Outboard Ball Bearing</b>	Used to provide extra stability for belt drive or PTO assemblies.
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**Additional options and custom design orders available. Contact us for details.**

## Rotor Gears **Ductile iron is standard.** Options:

<b>Delrin®</b>	Used in non-lubricating liquids or sacrificial abrasive fluid applications when noise reduction is desired.
<b>Teflon</b>	Used in highly corrosive applications which make Delrin® incompatible.
<b>Ni-Resistant #2</b>	Used in mildly corrosive liquid applications.

“Never leave that till tomorrow which you can do today.”

—Benjamin Franklin

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# GEAR PUMPS BY MATERIAL

	Industries & Applications	Liquids Pumped <sup>(2)</sup>	Features
Standard Iron	<b>Petroleum Products</b> <ul style="list-style-type: none"> <li>Machine Manufacturing</li> <li>Machine Tools</li> <li>Crane</li> <li>Speed Reducers</li> <li>Hydraulic Equipment</li> <li>Lubrication Systems</li> <li>Diesel Engines</li> <li>Food Processing</li> <li>Restaurant Equipment</li> <li>Misc. Chemical</li> <li>Soap &amp; Detergent Products</li> <li>Drug</li> <li>Building &amp; Highway Contractors</li> <li>Paper Products</li> <li>Automotive</li> <li>Shipbuilding</li> <li>Beverage</li> <li>Aircraft</li> <li>Mining</li> <li>Misc. Manufacturers</li> <li>Primary Metal</li> <li>Electrical Equipment &amp; Supplies</li> </ul>	<ul style="list-style-type: none"> <li>Fuel Oils*</li> <li>Hydrocarbons</li> <li>Lube Oils</li> <li>Syrups</li> <li>Diesel Fuel</li> <li>Coolants</li> <li>Cooking Oils*</li> <li>Wire Drawing</li> <li>Compounds</li> <li>Hydraulic Fluids</li> <li>Quench Oils</li> <li>Heat Transfer Oils*</li> <li>Tar*</li> <li>Ethylene Glycol</li> <li>Varnish*</li> <li>Wax*</li> <li>Vegetable Oils</li> <li>Detergents</li> <li>Lacquer*</li> <li>Soaps</li> <li>Calibration Fluids</li> <li>Glycerin</li> <li>Molasses</li> <li>Transformer Oil</li> <li>Ammonia</li> <li>Anhydrous Ammonia</li> </ul>	<b>Normal use:</b> Cast iron casing and cover components: steel shaft and pinion gear High tensile iron rotor Self-lubricating iron bearings Buna-N lip seals.
Standard Iron	<b>Building &amp; Highway Contractors</b> <ul style="list-style-type: none"> <li>Textile Mill Products</li> <li>Misc. Converted Paper Products</li> <li>Chemical</li> <li>Plastics and Synthetics</li> <li>Drug-Pharmaceuticals</li> <li>Allied Products (Mfg. of paints, varnishes, lacquers &amp; enamels)</li> <li>Misc. Chemical</li> <li>Soaps &amp; Cleaners</li> <li>Machine Manufacturing</li> <li>Beverage</li> </ul>	<ul style="list-style-type: none"> <li>Acetone*</li> <li>Turpentine*</li> <li>Alcohols (Most Grades)</li> <li>Asphalt*</li> <li>Jet Fuels</li> <li>Asphalt Emulsions*</li> <li>Edm Oils</li> <li>Brines*</li> <li>Kerosene, Caustics (Sodium Hydroxide)*</li> <li>Methyl Ethyl Ketone*</li> <li>Benzene*</li> <li>Methanol</li> <li>Gasoline</li> <li>Mineral Spirits (Naphthas)</li> <li>Heptane, Solvents*</li> <li>Hexane</li> <li>Styrene*</li> <li>Xylene*</li> <li>Isopropyl Acetate*</li> <li>Ethylene Acetate*</li> <li>Paper Coatings*</li> <li>Toluene*</li> </ul>	<b>Wear resistant:</b> <sup>(1)</sup> All metal parts in contact with the liquid are hardened by a superior new nitriding process that makes metals tougher. Seals and bearings are the same as standard iron construction.
Corrosion Resistant	<b>Food processing</b> <ul style="list-style-type: none"> <li>Chemical</li> <li>Pharmaceutical</li> <li>Textile</li> <li>Plastic</li> <li>Tanning</li> <li>Soap</li> <li>Rubber</li> <li>Photographic</li> <li>Synthetic Fiber</li> <li>Plating</li> </ul>	<b>Acids</b> <ul style="list-style-type: none"> <li>Concentrated Sulfuric</li> <li>Nitric</li> <li>Diluted Phosphoric</li> <li>Chromic Aqueous</li> <li>Citric Aqueous</li> <li>Acetic</li> <li>Essential Oils</li> <li>Syrups</li> <li>Chemicals</li> <li>Vegetable Oils</li> <li>Ammonium Sulfate</li> <li>Corrosive Wax</li> <li>Brines</li> <li>Sodium Bicarbonate</li> <li>Sodium Hydroxide</li> <li>Plating Solutions.</li> </ul>	316 stainless steel construction Delrin™ rotor, carbon graphite bearings.

\*Although standard or hardened iron construction is used for these liquids, we normally recommend alternate seals or bearings due to temperature extremes or liquid compatibility. See listing of alternative seals and bearings on page 6. (1) Normally recommended for abrasive applications or for liquid with little or no lubricity. (2) Liquids listed above do not include all of those that Haight pumps have been used for, rather, it is a selection of liquids taken from various applications where such pumps are normally used.



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# GEAR PUMPS BY SYSTEM

	Typical Applications	Applications Specific Adaptations
<b>Refrigeration Systems</b>	<ul style="list-style-type: none"> <li>• High pressure compressor lubrication</li> <li>• Liquefied refrigerant circulation</li> </ul>	<ul style="list-style-type: none"> <li>• Custom mounting</li> <li>• Contaminated lubricants</li> <li>• High inlet pressures</li> <li>• High pressure/thin fluid conditions</li> <li>• Custom seal configurations</li> </ul>
<b>Lubrication Systems</b>	<ul style="list-style-type: none"> <li>• Shipboard systems</li> <li>• Power transmission systems</li> <li>• Conveyor systems</li> <li>• Generator systems</li> <li>• Compressors</li> <li>• CNC machinery</li> <li>• Forming machinery</li> <li>• Lubricant cooling systems</li> </ul>	<ul style="list-style-type: none"> <li>• Corrosion resistant designs</li> <li>• Custom mounting</li> <li>• Special direct drive designs</li> <li>• Double pump designs</li> </ul>
<b>Filtration Systems</b>	<ul style="list-style-type: none"> <li>• Electric transformers</li> <li>• Cooking oil</li> <li>• Fuels</li> <li>• Hydraulic fluids</li> <li>• Lubrication products</li> <li>• Machine tool coolants</li> <li>• Process stream by-products</li> </ul>	<ul style="list-style-type: none"> <li>• High inlet vacuum designs</li> <li>• Special seals</li> <li>• Hardened and corrosion resistant construction</li> <li>• High temperature designs</li> <li>• Special pump designs</li> </ul>
<b>Fueling</b>	<ul style="list-style-type: none"> <li>• Aircraft refueling systems</li> <li>• Portable refueling systems</li> <li>• Engine or remote mounted fuel systems</li> </ul>	<ul style="list-style-type: none"> <li>• Direct drive</li> <li>• DC drive</li> <li>• Pneumatic drive</li> <li>• Hydraulic drive</li> <li>• Custom mounting</li> <li>• Special sealing designs</li> </ul>
<b>Injection Systems</b>	<ul style="list-style-type: none"> <li>• Expandable foams</li> <li>• Resins</li> <li>• Hot tar</li> <li>• Thin film lubrication for metal forming</li> <li>• Agricultural chemicals</li> <li>• Animal feed supplements</li> </ul>	<ul style="list-style-type: none"> <li>• Custom mounting designs</li> <li>• Hardened and corrosion resistant designs</li> <li>• High temperature conditions</li> <li>• Tractor and truck mounted PTO drives</li> </ul>
<b>Marine</b>	<ul style="list-style-type: none"> <li>• Main engine and drive train lubrication</li> <li>• Loading and unloading fuel &amp; lubrication products</li> <li>• Salt water wash-down systems</li> <li>• Winch lubrication</li> <li>• Fish processing waste</li> <li>• Bilge scavenging pumps</li> <li>• Aircraft/helicopter refueling systems</li> </ul>	<ul style="list-style-type: none"> <li>• Custom mounting and drive designs</li> <li>• Corrosion resistant materials</li> <li>• Spark resistant construction</li> </ul>
<b>Power Transmissions</b>	<ul style="list-style-type: none"> <li>• Gear box bearing and gear lubrication</li> <li>• Transmission lubrication</li> <li>• Drive shaft bearing lubrication</li> <li>• Lubricant cooling systems</li> <li>• Lubricant filtration</li> </ul>	<ul style="list-style-type: none"> <li>• Custom mounting and drive designs</li> </ul>
<b>Thermal Processing</b>	<ul style="list-style-type: none"> <li>• Gear box bearing and gear lubrication</li> <li>• Transmission lubrication</li> <li>• Drive shaft bearing lubrication</li> <li>• Lubricant cooling systems</li> <li>• Lubricant filtration</li> </ul>	<ul style="list-style-type: none"> <li>• Special construction features for elevated temperature operations</li> </ul>
<b>API Type Application</b>	<ul style="list-style-type: none"> <li>• Tank battery circulation</li> <li>• Sampling systems</li> <li>• LAC systems</li> <li>• Intermediate pressure pipeline transfer</li> </ul>	



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# SERIES DIU

## DUCTILE IRON UNIVERSAL PUMPS

The Ductile Iron Universal Pump design combines the innovation of our UniverSeal shaft seal, the rugged simplicity of Haight's proven gear within a gear internal gear configuration, with the flexibility of a bolt-on integral relief valve assembly. This combination of pump features offers you unsurpassed flexibility to adapt your pumps to changing system requirements.

**Ductile Iron Universal Relief Valve** - The relief valve assembly can be added at any time, even in the field without special tools. The valve can function in either the return to suction mode, or return to tank mode. Available with a variety of tension springs, the relief valve operates smoothly and effectively over a broad range of setting values.

**Gear within a Gear Internal Gear Design** - Since 1932, this design has demonstrated its effectiveness in handling a broad range of applications while operating at standard motor speeds, and reducing wear.

**Minimize your overall capital investment and on-going operating expenses with innovative Haight design.**

## UniverSeal

### Advanced Gear Pump Design

The UniverSeal incorporates standard, easily available seal components with a readily adaptable pump geometry. The pump can be easily converted in the field from lip to mechanical to packed gland shaft seal type without even disconnecting the piping. Flow direction in the pump can also be changed without disrupting the attached piping, or needing special tools.



### Benefits

- **Reduce maintenance expenses** - simple, quick seal changes
- **Less production disruption and downtime** - perform maintenance in place rather than in the shop
- **Reduce maintenance inventory** - one pump can be adapted to meet many application requirements
- **Provide future adaptability** - easily change the pump as your needs change
- Reduce replacement parts costs, no special custom design parts
- Interchangeable with existing Haight pumps without modification
- Pumps specified with an integral relief valve can be quickly and easily changed to perform in either suction return, or tank return mode. The relief valve can be readily changed to operate in either clockwise or counterclockwise flow direction.



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# SERIES DIU

## ROUND HUB — SIZE 1, 3, 5, 6, 7, 8 & 9 GPM MODELS

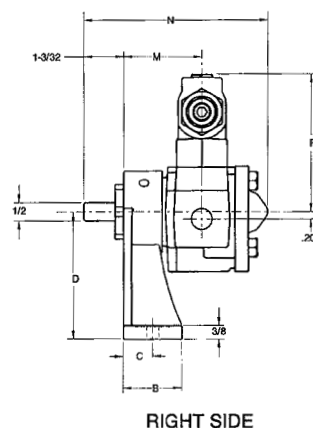
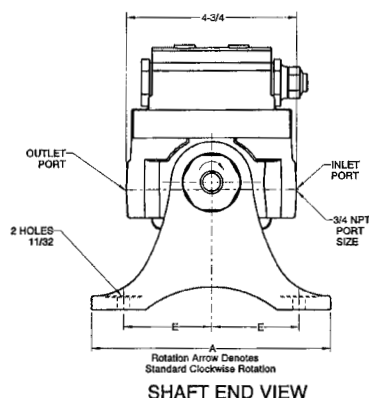
Round hub Series DIU pumps are available with an optional bolt-on relief valve which can function in either the return to suction or return to tank mode.

Compact rugged, and easy to maintain, these pumps are ideal for close-coupled mounting or direct mounting to the motor.



### Features

- Operation at standard motor speeds, meant for direct drive, designed for continuous 4 pole 1800 rpm motor speed operation.
- Involute gear design offers excellent suction characteristics, minimizes noise and reduces internal bypassing
- Various bearings, seals and rotor materials available which allow effective operation up to 620°F and 600 psi.
- Universal seal design that can be changed in the field.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors, or with a bedplate mount.
- Designed for operation in clockwise, counterclockwise, or bi-rotational; manufactured to be easily changed in field. Fabricated from the selection of one of three iron harness ratings.
- All pumps made to order.
- Magnetic couplings available.



		A	B	C	D	E	M	N	P
Bracket	W48	3 1/8	1 7/16	23/32	3	1			
	E56	6 1/2	1 5/8	13/16	3 1/2	2 7/16			
Pumps with Relief Valve	1-3UR						2 1/4	5 1/8	3 3/4
	5UR						2 1/4	5 1/8	3 3/4
	6EUR						2 3/16	5 25/32	4 1/8
	7EUR						2 3/16	5 25/32	4 1/8
	8EUR						2 3/16	5 25/32	4 1/8
	9EUR						2 3/16	5 25/32	4 1/8

“He that can have patience can have what he will.”

—Benjamin Franklin

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# SERIES DIU

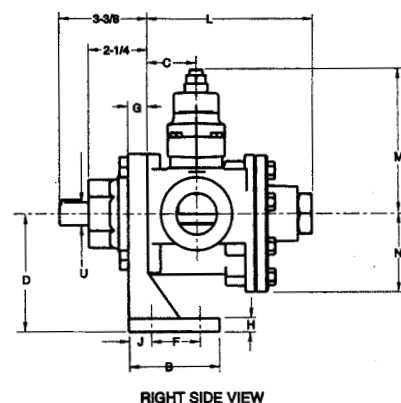
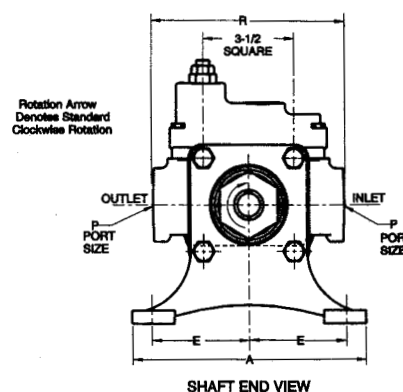
## SQUARE FLANGE — SIZE 10, 15, 20, 24, 30 & 40 GPM MODELS

Compact, rugged, and easy to maintain ductile iron housing, square flange Series DIU pumps are ideal for close-coupled mounting to the motor or footed mounting. Haight's bolt-on footed brackets match standard NEMA motor height, eliminating pump or motor shimming. Each bracket size is designed to align the pump and motor shaft heights without shim blocks.

Available bolt-on relief valve can function in either a return to suction or return to tank mode.

### Features

- Operation at standard motor speeds, meant for direct drive, designed for continuous 4 pole 1800 rpm motor speed operation.
- Involute gear design offers excellent suction characteristics, minimizes noise and reduces internal bypassing
- Various bearings, seals and rotor materials available which allow effective operation up to 620°F and 600 psi.
- Universal seal design that can be changed in the field.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors, or with a bedplate mount.
- Designed for operation in clockwise, counterclockwise, or bi-rotational; manufactured to be easily changed in field. Fabricated from the selection of one of three iron harness ratings.
- All pumps made to order.
- Magnetic couplings available.



### Pump

With R.V.	W/O R.V.	P NPT	R	U	C	L	M with R.V.	M w/o R.V.	P
10UR	10U	1	7	5/8	1 15/32	6 3/16	4 1/16	2 1/4	2 3/4
15UR	15U	1 1/4	7	5/8	1 15/32	6 3/16	4 1/16	2 1/4	2 3/4
20UR	20U	1 1/4	7	5/8	1 15/32	6 3/16	4 1/16	2 1/4	2 3/4
24UR	24U	1 1/2	7 3/8	7/8	1 29/32	6 5/16	4 1/16	2 1/4	3
30UR	30U	1 1/2	7 3/8	7/8	1 29/32	6 5/16	4 1/16	2 1/4	3
40UR	40U	1 1/2	7 3/8	7/8	1 29/32	6 5/16	4 1/16	2 1/4	3

### Bracket

SIZE	D	A	B	E	F	H	G	J
H140	3 1/2	7	2 1/8	2 3/4	0	1/2	5/8	1 1/2
H182	4 1/2	9	3 1/2	3 3/4	1 7/8	1/2	3/4	7/8
H213	5 1/2	10	3 1/2	4 1/4	1 7/8	1/2	3/4	7/8
H254	6 1/2	12	4 5/8	5	1 1/2	11/16	3/4	1 1/16



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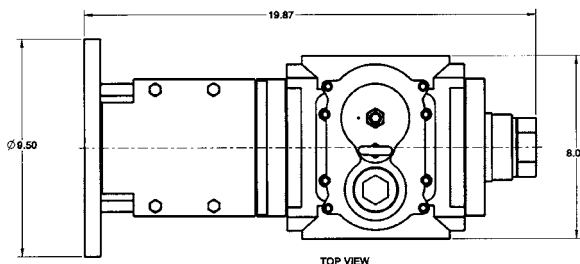
# SERIES DIU

## DOUBLE PUMPS — SIZE 44, 54, 60, 70 & 80 GPM MODELS

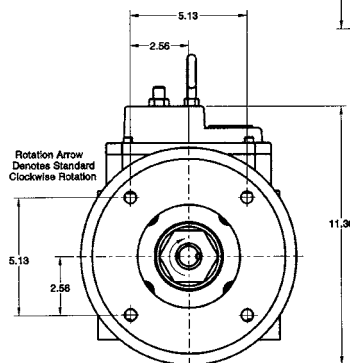
Choose from five sizes and a variety of optional seal, bearing and rotor materials when ordering the Double Pump series. The Double Pump Series offers exceptionally compact design, plus low shear and noise characteristics. Compact, rugged and simple, these pumps are ideal for close-coupled mounting, which eliminates the need for expensive gear boxes, and prevents coupling alignment problems.

### Features

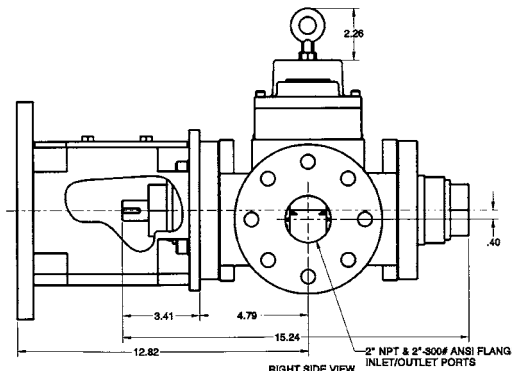
- Operation at standard motor speeds, meant for direct drive, designed for continuous 4 pole 1800 rpm motor speed operation.
- Involute gear design offers excellent suction characteristics, minimizes noise and reduces internal bypassing
- Various bearings, seals and rotor materials available which allow effective operation up to 620°F and 600 psi.
- 300# ANSI flange and 2" NPT inlet/discharge points.
- Universal seal design that can be changed in the field.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors, or with a bedplate mount.
- Designed for operation in clockwise, counterclockwise, or bi-rotational; manufactured to be easily changed in field. Fabricated from the selection of one of three iron harness ratings.
- All pumps made to order.
- Magnetic couplings available.



TOP VIEW



SHAFT END VIEW



RIGHT SIDE VIEW

Note: 2210 Bracket Will Accept:  
 \*162 Frame Motors-Long Coupling Required  
 \*254 Frame Motors-Optional SP215 Adapter Ring Required

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# SERIES DIU

## DOUBLE PUMPS — SIZE 120, 180 & 240 GPM MODELS

Large flow Double Pumps series is designed to handle flow rates from 120-240 gpm



### Features

- Operation at standard motor speeds, meant for direct drive, designed for continuous 4 pole 1800 rpm motor speed operation.
- Involute gear design offers excellent suction characteristics, minimizes noise and reduces internal bypassing
- Various bearings, seals and rotor materials available which allow effective operation up to 620°F and 600 psi.
- 3" ASNI Flange; inlet and discharge ports.
- Universal seal design that can be changed in the field.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors, or with a bedplate mount.
- Designed for operation in clockwise, counterclockwise, or bi-rotational; manufactured to be easily changed in field. Fabricated from the selection of one of three iron harness ratings.
- All pumps made to order.
- Magnetic couplings available.

### Standard Construction Features

- Ductile iron housing
- Steel shaft and pinion gears
- Iron rotor and carbon graphite bearings
- Buna-N lip seals and elastomers

### Options

- Alternate shaft seal and O-ring elastomer materials – neoprene, silicone, Teflon or Viton
- Lip seals
- Type 21, 2B, and 2 mechanical seals
- Venting options include: clockwise, counter-clockwise, and bi-rotational
- Duralon liner
- Thread in relief valve available - additional plumbing is required on installation.

### Applications

- **Petroleum Products**  
(fuel transfer/bulk transfer)
- **Lubrication Systems**
- **Food Processing**
- **Soap**
- **Detergent Products**
- **Paper Products**
- **Ship Building**
- **Mining**



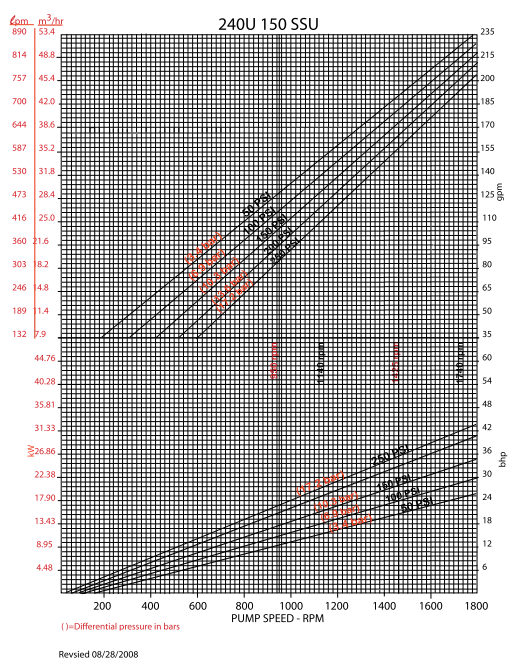
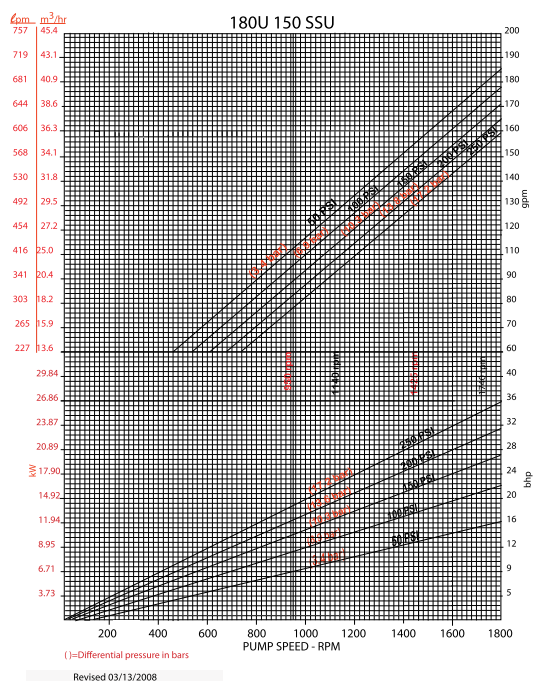
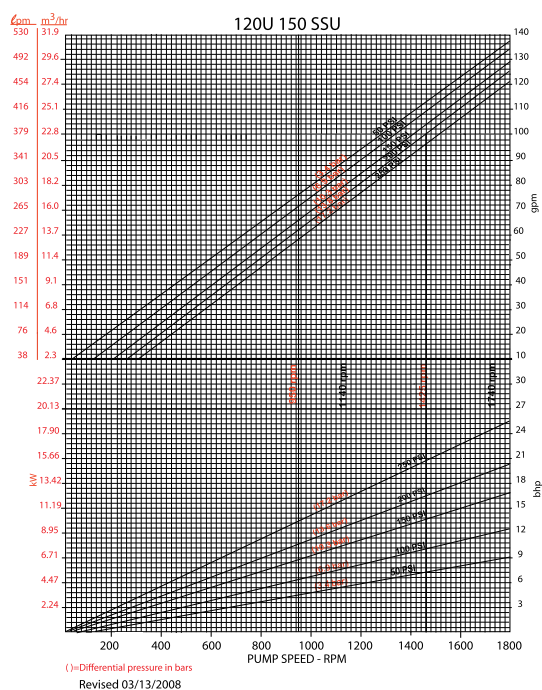
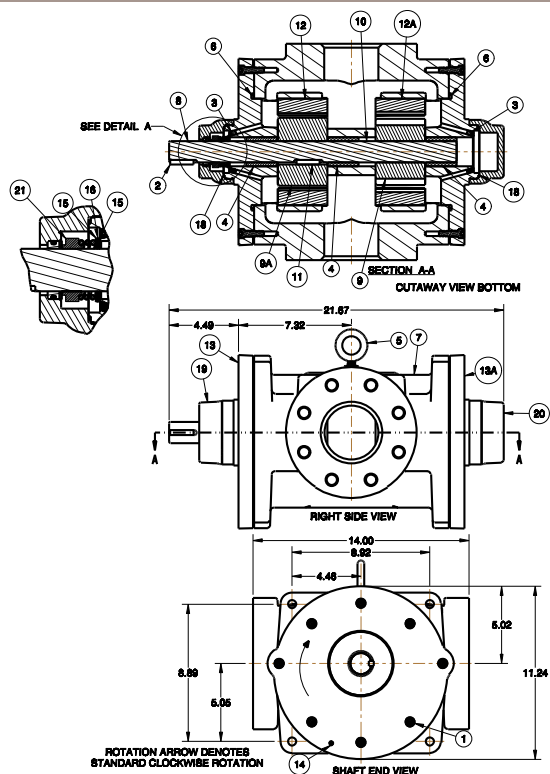
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## BRT



Performance curves for reference only.

“When you’re finished changing, you’re finished.”

—Benjamin Franklin

**Need  
another size  
or flow rate?**

**Contact us to  
custom build  
what you need.**

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The logo for Byrne Rice and Turner, Inc. is a circular emblem. It features the company name "Byrne Rice and Turner, INC." in a stylized, cursive script. The text is arranged with "Byrne" at the top, "Rice" in the middle, and "and Turner" at the bottom, with "INC." in a smaller, sans-serif font to the right of "Turner". The logo is set against a background of concentric circles, suggesting a globe or a target. The colors are primarily green and white, with a blue and white striped background behind the logo.



## SERIES US

### STAINLESS STEEL — SIZE 6, 7, 8, 9, 10, 15 & 20 GPM MODELS

Haight combined its versatile DUI Ductile Iron Universal Series pump design with stainless steel and corrosion resistant materials to meet your ever-changing process needs.



#### Features

- Gear within a gear design for quiet operation
- Built In gear reduction, fully supported, through-shaft design, utilizes standard motor speeds
- UniverSeal built in shaft seal flexibility
- Only two moving parts reduces maintenance and wear
- Closed coupled or foot mounted bracket designs
- Readily accepts magnetic drive option
- 6 gpm - 9 gpm models; 3/4" inlet/discharge ports
- 10 gpm - 20 gpm models; inlet/discharge ports accept 1", 1.25" and 1.5" NPT and 150# flange connections
- 100 psi discharge pressure capability
- Non-metallic rotor eliminates galling problems, even with thin fluids including water
- 10 gpm, 15 gpm, and 20 gpm models; integral relief valve with "no leak" adjustment, and tank return operation capability

#### Standard Construction Features

- 316L, (CF3M) Stainless Steel housing for maximum corrosion resistance
- Waukesha 88® pinion gear and 440C hardened, polished shaft assembly
- Delrin AF rotor gear
- Carbon graphite shaft sleeve bearings
- Viton elastomers

#### Options

- Alternate shaft seal and O-ring elastomer materials — Neoprene, Silicone, Teflon or Kalraz®
- PTFE Teflon rotor gear
- Vespel shaft sleeve bearings
- 10 gpm - 20 gpm; 316L integral relief valve up to 100 psi
- Magnetic couplings available on all models

#### Applications

- **Chemical Processing**
- **Pharmaceutical**
- **Wastewater Treatment**
- **Textile**
- **Plastic**
- **Tanning**
- **Soap**
- **Rubber**
- **Photographic**
- **Plating**
- **Injection and Transfer of Acidic, Corrosive Fluids and Solvents**



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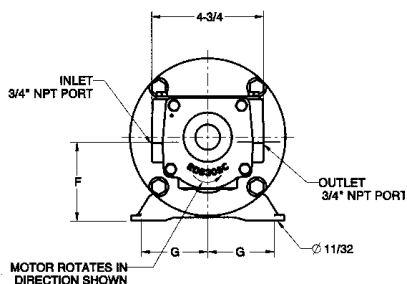
# SERIES US

## STAINLESS STEEL — Z56RO BRACKET & Z56SO BRACKET

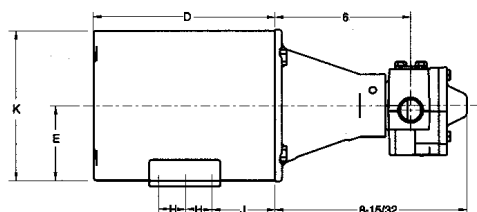
### Z56RO Bracket 6-9 gpm Universal Stainless Series Round Hub Pumps

Frame	D	E	F	G	H	J	K
58	9 3/4	1 1/2	3 5/16	2 7/16	1 1/2	2 9/16	6 3/4
143	10	1 1/2	3 5/16	2 3/4	2	2 3/4	6 13/16

Front



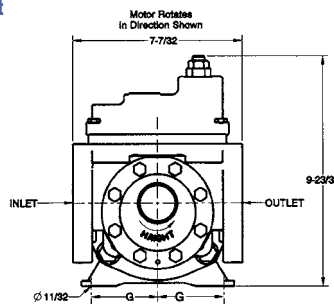
Left Side



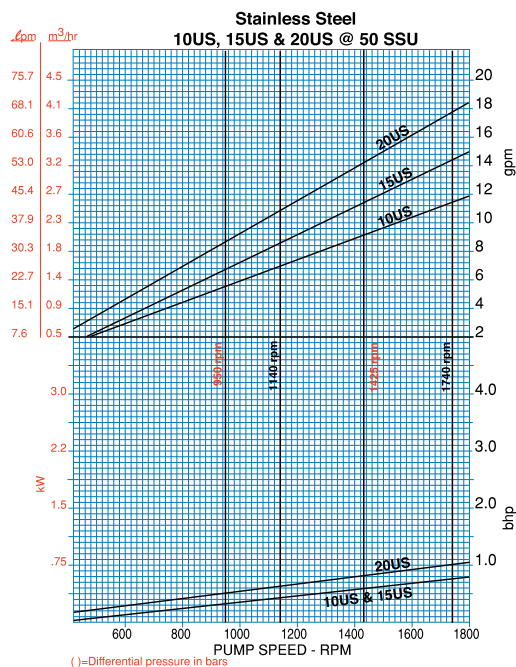
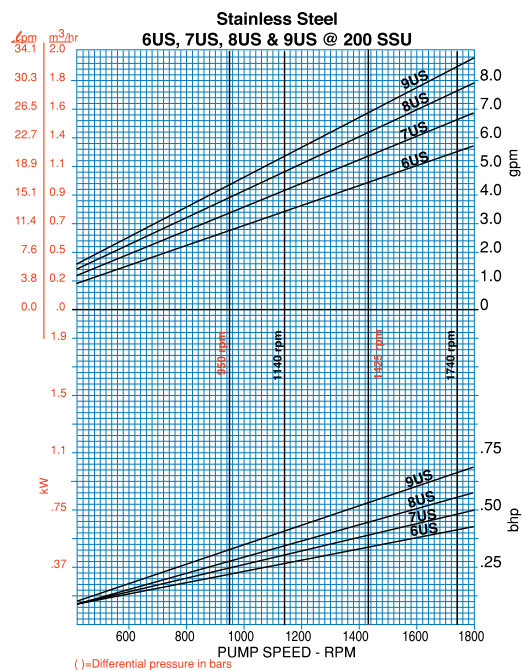
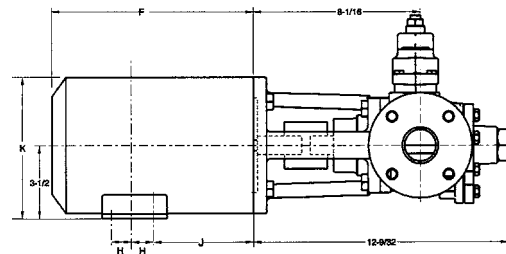
### Z56SO Bracket 10-40 gpm Square Flanged Pumps

Frame	F	G	H	J	K
56	9 3/4	2 7/16	1 1/2	2 9/16	6 3/4
143	10	2 3/4	2 1/2	2 3/4	6 13/16

Front



Left Side



Additional brackets for close coupled mountings are available for motor frames up to 256TC.

Performance curves for reference only.

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# SERIES UB

## BRONZE — SIZES 24–240 GPM MODELS

Haight combined its versatile DUI Ductile Iron Universal Series pump design with bronze and corrosion resistant materials to meet your ever-changing process needs.



### Features

- Operation at standard motor speeds, meant for direct drive, designed for continuous 4 pole 1800 rpm motor speed operation.
- Involute gear design offers excellent suction characteristics, minimizes noise and reduces internal bypassing
- Various bearings, seals and rotor materials available which allow effective operation up to 620°F and 600 psi.
- Universal seal design that can be changed in the field.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors, or with a bedplate mount.
- Designed for operation in clockwise, counterclockwise, or bi-rotational; manufactured to be easily changed in field. Fabricated from the selection of one of three iron harness ratings.
- Inlet/discharge ports accept 1.5" NPT and 150# flange connections (24-40 gpm) and 2" NPT, 150# & 300# Flange Connections (44-80 gpm), 300# 3" Flange 250 PSI discharge pressure capability.

### Standard Construction Features

- 863 Bronze housing for maximum corrosion resistance
- Bronze C905 pinion gear and 440C hardened, polished shaft assembly
- Bronze C905 rotor gear
- Carbon graphite shaft sleeve bearings
- Viton elastomers

### Options

- Alternate shaft seal and O-ring elastomer materials – neoprene, silicone, Teflon or Kalraz, Buna-N
- PTFE Teflon rotor gear, Delrin
- Teflon or Vespel shaft sleeve bearings
- Magnetic drive available on all models

### Applications

- **Chemical Processing**
- **Pharmaceutical**
- **Wastewater Treatment**
- **Textile**
- **Plastic**
- **Tanning**
- **Soap**
- **Rubber**
- **Photographic**
- **Plating**
- **Marine**



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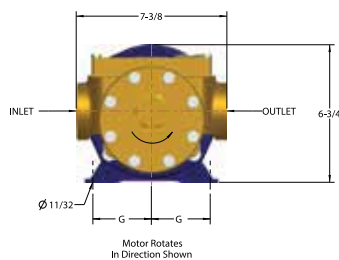
# SERIES UB

## BRONZE — Z56RO BRACKET & Z213D BRACKET

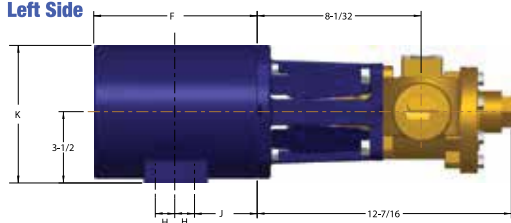
### Z56RO Bracket 24-40 gpm Squared Flanged Bronze Pump

Frame	F	G	H	J	K
56	9 3/4	2 7/16	1 1/2	2 9/16	6 3/4
143	10	2 3/4	2	2 3/4	6 13/16
	10	2 3/4	2 1/2	2 3/4	6 3/4

Front

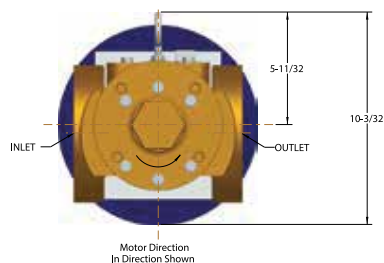


Left Side

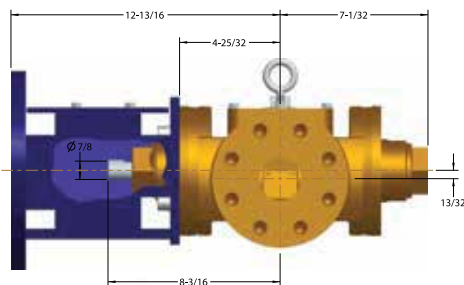


### Z213D Bracket 44-80 gpm Bronze Pump

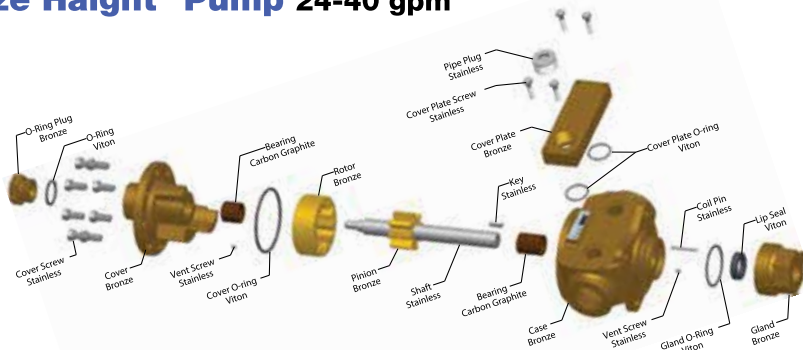
Front



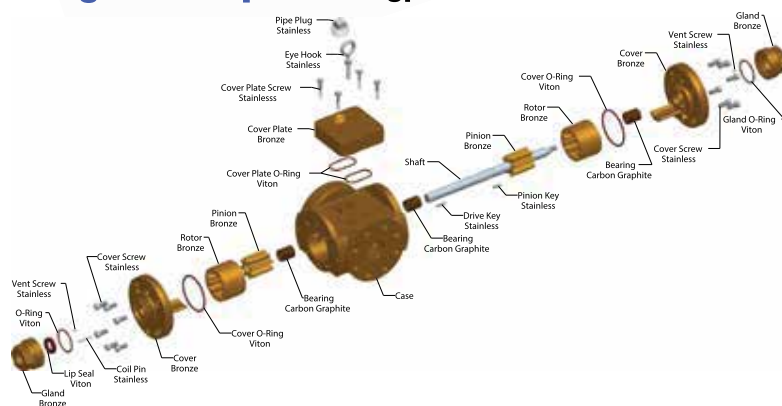
Left Side



### Bronze Haight® Pump 24-40 gpm



### Bronze Haight® Pump 44-240 gpm



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# CLOSE COUPLED MOUNTING FOR HAIGHT PUMP SERIES DIU

**Designed for compactness, close coupled mounts require less space and lower overall height, making it easier to use in small spaces.**

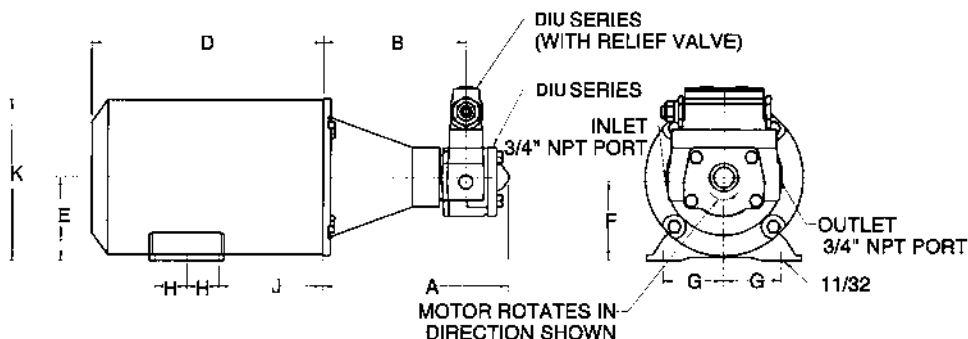
Close coupled mounts are designed for compactness, requiring less space and lower overall height, permitting use where space is at a premium. Mounts may be used with all NEMA "C" faced motors as shown in the drawings and charts below.

## Available motor enclosures:

- Open drip-proof
- Totally enclosed
- Washdown duty
- Explosion-proof

The "Z" brackets utilize footed motors, "Y" brackets (not shown) utilize footless motors. Pump, bracket, coupling and electric motor can be furnished. Open Drip-proof, totally enclosed, wash-down duty and explosion-proof motor enclosures are available.

## Z56RO Bracket 1 - 9 gpm Pumps - 56-145 Frame Footed Motor



		A	B	D	E	F	G	H	J	K
MODEL	1UR	7 <sup>13</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>							
	3UR	7 <sup>13</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>							
	5UR	8	6 <sup>1</sup> / <sub>16</sub>							
	6UR	8 <sup>5</sup> / <sub>16</sub>	6							
	8UR	8 <sup>7</sup> / <sub>16</sub>	6							
	6EUR	8 <sup>9</sup> / <sub>16</sub>	6							
	7EUR	8 <sup>9</sup> / <sub>16</sub>	6							
	8EUR	8 <sup>9</sup> / <sub>16</sub>	6							
	9EUR	8 <sup>9</sup> / <sub>16</sub>	6							
FRAME	56			9 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	2 <sup>9</sup> / <sub>19</sub>	6 <sup>3</sup> / <sub>4</sub>
	143			10	3 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	2	2 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>
	145			10	3 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>

"D" Dimension will vary with motor enclosure

"Whatever is begun in anger ends in shame."

—Benjamin Franklin



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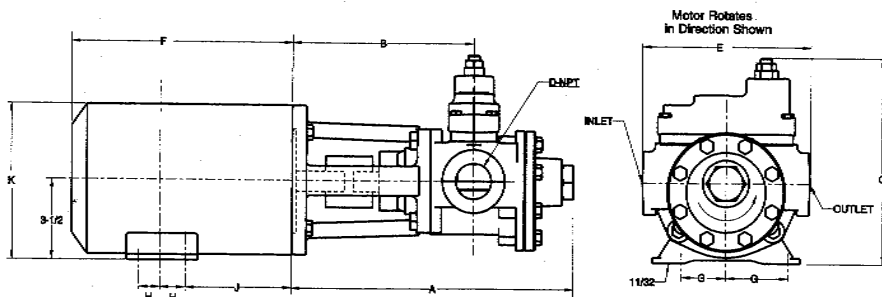
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# CLOSE COUPLED MOUNTING

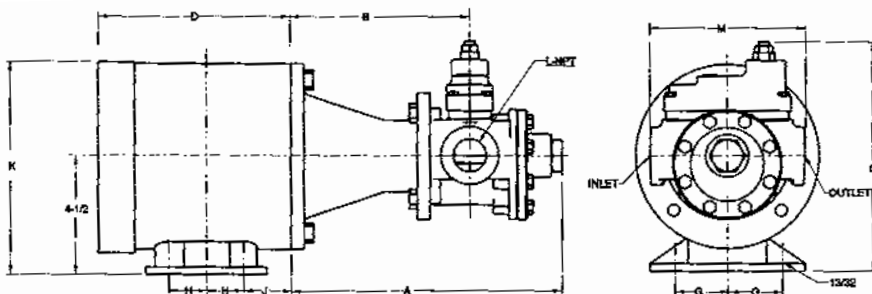
## Z56SO BRACKET & Z182S BRACKET

### Z56SO Bracket 10 - 40 gpm Pumps - Footed Motor



		A	B	C	D	E	F	G	H	J	K
MODEL	10U	12 <sup>5</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	8 <sup>31</sup> / <sub>32</sub>	1	7					
	15U	12 <sup>5</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	8 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>4</sub>	7					
	20U	12 <sup>5</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	8 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>4</sub>	7					
	24U	12 <sup>7</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>32</sub>	8 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>8</sub>					
	30U	12 <sup>7</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>32</sub>	8 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>8</sub>					
	40U	12 <sup>7</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>32</sub>	8 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>8</sub>					
FRAME	56						9 <sup>3</sup> / <sub>4</sub>	2 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	2 <sup>9</sup> / <sub>19</sub>	6 <sup>3</sup> / <sub>4</sub>
	143						10	2 <sup>3</sup> / <sub>4</sub>	2	2 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>
	145						10	2 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>16</sub>

### Z182S Bracket 10-40 gpm Pumps for 182/184 Frame Footed Motors



		A	B	C	L	M	D	G	H	J	K
MODEL	10UR	12 <sup>7</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	9 <sup>31</sup> / <sub>32</sub>	1	7					
	15UR	12 <sup>7</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	9 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>4</sub>	7					
	20UR	12 <sup>7</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	9 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>4</sub>	7					
	24UR	13	8 <sup>9</sup> / <sub>16</sub>	9 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>8</sub>					
	30UR	13	8 <sup>9</sup> / <sub>16</sub>	9 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>8</sub>					
	40UR	13	8 <sup>9</sup> / <sub>16</sub>	9 <sup>31</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>8</sub>					
	182						•	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>
	184						•	3 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>

\*D Varies with Frame Used

“When in doubt, don’t.”

—Benjamin Franklin

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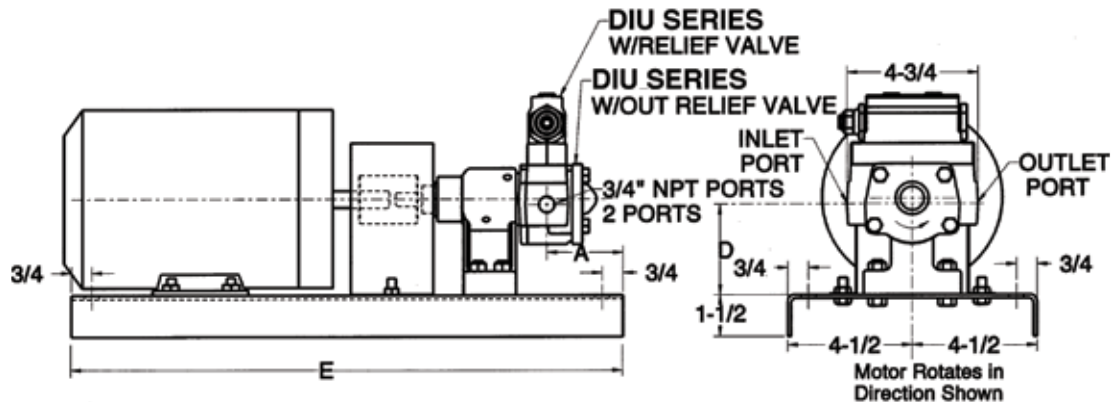
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# BED PLATE ASSEMBLIES FOR HAIGHT PUMP SERIES DIU

- Designed specifically for mounting on bedplate or machinery plates.
- Motor height or close couple brackets eliminate the need for mounting blocks.
- Include flexible couplings, mounting bracket, coupling guard, and rigid steel bedplate.
- Meets a wide variety of requirements, works with Haight pumps of all sizes.



\*Consult factory for drawings

BEDPLATE	FRAME	A	J	K
1-5U		2 13/16		
6 & 8 U		2 3/4		
6 - 9 EU		2 3/4		
	S56B	48	3	20
		56, 143, 145	3 1/2	
	S140B	182, 184	3 1/2	24

“Beware of little expenses. A small leak will sink a great ship.”

—Benjamin Franklin



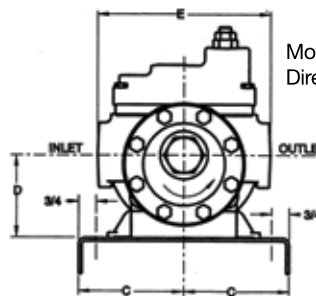
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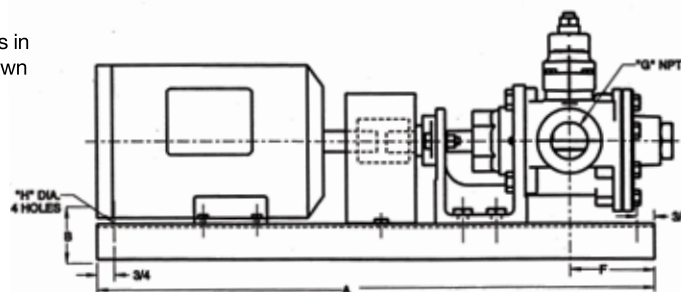
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# BED PLATE ASSEMBLIES FOR HAIGHT PUMP SERIES DIU



Motor Rotates in  
Direction Shown



## Model 10U

BEDPLATE	FRAME	A	B	C	D	E	F	G	H
S140B	56, 143, 145	24	1 1/2	4 1/2	3 1/2	7	3 7/8	1	17/32
S180B	182, 184	26	1 5/8	5 1/2	4 1/2	7	3 7/8	1	21/32
S213B	213, 215	30	1 5/8	5 1/2	5 1/4	7	3 7/8	1	21/32

## Model 15U - 20U

BEDPLATE	FRAME	A	B	C	D	E	F	G	H
S140B	56, 143, 145	24	1 1/2	4 1/2	3 1/2	7	3 7/8	1 1/4	17/32
S180B	182, 184	26	1 5/8	5 1/2	4 1/2	7	3 7/8	1 1/4	21/32
S213B	213, 215	30	1 5/8	5 1/2	5 1/4	7	3 7/8	1 1/4	21/32

## Model 24U - 40U

BEDPLATE	FRAME	A	B	C	D	E	F	G	H
S140B	56, 143, 145	24	1 1/2	4 1/2	3 1/2	7 3/8	3 5/8	1 1/2	17/32
S180B	182, 184	26	1 5/8	5 1/2	4 1/2	7 3/8	3 5/8	1 1/2	21/32
S213B	213, 215	30	1 5/8	5 1/2	5 1/4	7 3/8	3 5/8	1 1/2	21/32

"He that is good for making excuses is seldom good for anything else."

—Benjamin Franklin

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# UNIQUE PUMP CONFIGURATIONS

## DEVELOPED FOR OEM CUSTOMER APPLICATIONS



### Series X Skeleton Pumps

These custom-designed pumps are ideal for built-in lubrication applications on air compressors, gear boxes, engines, and other rotating equipment when a casing is not required. Series X pumps feature compactness, positive displacement and through drive and no casing is required.

The Series X Skeleton pump shown is an example of the Haight's ability to meet a customer's job specifications and production requirements. Haight engineers will meet with you to determine your specific needs for a non-standard design. They will then translate your needs into a positive displacement pump to meet your requirements.



### Flange Mounted Pumps

For use on diesel engines, fuel oil boosters, gear reducers, or for lubricating oil pumps on engines and compressors.

Compact, lightweight and designed to mount directly on your equipment.

The flange mounted pump shown was developed for us with a gear reducer. Haight engineers later applied this design principle to fit other customer requirements.



### E - Series

For use in direct drive, hub mounted configurations where size, weight, and cost are crucial performance criteria in an application.

Economical, high performance hot oil pump.

Rugged design, proven to work in high temperature applications throughout the world.

Available with limited option selection, contact your local distributor for additional information.

"Early to bed and early to rise makes a man healthy, wealthy and wise."

—Benjamin Franklin



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**HAIGHT** PUMP<sup>®</sup>  
DIVISION OF: BAKER MANUFACTURING COMPANY, LLC.

# UNIQUE PUMP CONFIGURATIONS

## DEVELOPED FOR OEM CUSTOMER APPLICATIONS



### X - Series

Expanding on Haight's long history of hot oil pumping expertise, the X – Series NSF certified hot oil pump is designed for your toughest applications. An external gear pump is a drop-in replacement for our competitor's pump. Simple, rugged, and efficient, the X – series is an ideal pump for your hot oil filtration designs.



### Dual Pumps

Save valuable space and cost for system designers with dual pump designs on a common shaft.

Choose from 85 possible flow combinations, up to 40 GPM flow capacity for each pump.



### Encased, Flange Mounted, Reversible Pumps

These custom pumps provide an enclosed gear set coupled with flange mounted, direct drive design features.

Save space, weight, and cost by incorporating this pump into your system.



### G - Series

Affordable, high performance design series.

Utilizes the dynamic crescent, Gerotor gear configuration that provides exceptional suction capability, and compact size at a competitive price.

Currently available in two sizes, with limited options, these pumps are physically interchangeable with existing U and E series pumps.

“By failing to prepare, you are preparing to fail.”

—Benjamin Franklin

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# MARINE & INDUSTRIAL CENTRIFUGAL PUMPS — HK, HZ & HR SERIES

- Heavy-wall construction with tight manufacturing tolerances.
- High-efficiency design with fully-shrouded, dynamically-balanced impellers.
- Close-coupled on JM, 56J, IEC frame motors.
- The standard seal is a T21 single mechanical with ceramic seat, carbon rotating element, Buna elastomers and 304SS metallics. Various other seal options are available.
- ABS (American Bureau of Shipping) type approval available.
- Capacities from 5-3,000 gpm, 1-690 m<sup>3</sup>/h.
- Bearing frame mounting available.

## Applications

- **Commercial saltwater applications**
- **Reverse osmosis**
- **On-board vessels**
- **Engine cooling, condenser cooling, refrigeration and fire pumps**
- **Effluent wastewater, brackish water**



## HK Series

Nickel Aluminum Bronze  
316 stainless steel  
Duplex 2205

- Pressure up to 150 psi, 10 bar
- Temperatures up to 225°F, 105°C
- Multiple seal options



## HZ Series

Nickel Aluminum Bronze  
316 stainless steel  
Duplex 2205

- Pressure up to 175 psi, 12 bar
- Temperatures up to 250°F, 105°C
- Multiple seal options
- Internal seal flush
- Replaceable wear rings



## HR Series

Nickel Aluminum Bronze  
316 stainless steel

- Self-priming up to 25 ft, 7.6m
- Pressure up to 175 psi, 12 bar
- Temperatures up to 225°F, 105°C
- Multiple seal options



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# MARINE & INDUSTRIAL AVAILABLE ALLOYS

Haight offers pumps in nickel aluminum bronze, 316 stainless steel, and Duplex 2205 stainless steel construction. All three alloys are in stock and available for delivery within 10 days. Haight Pump application engineers will help select the right alloy for the application.



HK series pump boosts pressure a on 1500 ROWPU system

## Nickel Aluminum Bronze HZ, HK,& HR

- Corrosion /erosion resistance to saltwater is far superior to stainless steel or standard bronzes.
- Cost effective material for saltwater, brackish water, and wastewater.
- The U.S. Navy has been using CDA958 in saltwater applications for over 40 years.
- Haight Pump's HZ, HK, and HR series pumps have been used on most of the U.S. Army's reverse osmosis systems since the 1980's.

## 316 stainless steel HZ, HK, & HR

- High resistance to corrosion from many chemical solutions.
- The material of choice in food and beverage processing applications.

## Duplex 2205 HZ & HK

- Recommended for saltwater applications with higher salinity (over 35,000 ppm), higher temperatures, and high concentration of hydrogen sulfides (such as pumping from a deep seawater well).
- Superior resistance to effects of cavitation.
- Strong resistance to wear from abrasive media such as diatomaceous earth or ethanol.

## Reverse Osmosis & Desalinization

Haight pumps are commonly used in difficult applications in wastewater and desalinization industries.



HZ, HK, & HR series pumps are also available in specialty alloys such as Hastalloy C, Alloy 20, & 316L stainless steel.

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# HAC SERIES

## INDUSTRIAL STAINLESS STEEL PUMPS — HAC, HAC+ & HIC+ SERIES

HAC/HAC+ pumps are in compliance with 3-A Sanitary Standards, Inc. and offer these additional advantages:

- Low cost
- AC parts are 100% interchangeable with other brands
- 316L stainless steel construction
- Stainless steel adapters are standard
- Optional NPT or flange connections
- 10 day delivery

### Applications - HAC/HAC+

- **Bottled Water**
- **Poultry Industry**
  - **Marinade Solutions**
  - **Red Water Chillers**
- **Carbonated Beverages**
- **Juice**
- **Dairy**
- **Pharmaceutical**

### Applications - HIC+

- **Hot Water**
- **Cold Water**
- **Glycol**
- **Light Chemicals**
- **Water With Particles**

### HAC Series Sanitary

HAC pumps are in compliance with 3-A Sanitary Standards, Inc. and offer these additional advantages:

- Low cost
- HAC parts are 100% interchangeable with other leading brands
- 316L stainless steel construction
- Stainless steel adapters are standard
- Optional NPT or flange connections



“God helps those who help themselves.”

—Benjamin Franklin



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# HAC SERIES

## INDUSTRIAL STAINLESS STEEL PUMPS

### HAC+ Series Sanitary

HAC+ pumps are the first significant improvement in the traditional "HC Series" style of pumps in over a quarter of a century. These pumps offer an improved shaft design comparable to more expensive sanitary pumps, while retaining the hydraulic characteristics and external dimensions of the HAC product line.

- Clamped stub shaft and threaded impeller nut provide more stable performance
- External dimensions are the same as HAC pumps - no need to change piping
- Hydraulic performance is identical to the HAC pumps
- Casing, backplate, adapter, and seals are interchangeable



### Bearing Frame HAC/HAC+/HIC+ Pumps

- Dual deep groove ball bearings
- Cast iron bearing frame
- Dimensions are not equivalent to Tri-Clover SP-Series bearing frame
- D, DG, E, and Type 21 seals only, the bearing frame does not accommodate commercial double mechanical seals
- Casing, backplate, adapter, and seals are interchangeable



### HIC+ Series Industrial

HIC+ pumps are based on the HAC+ design, but intended for non-sanitary applications.

- Pumps are constructed of 316L stainless steel
- Glass beaded finish with standard NPT connections and flanges optional
- Type 21 mechanical seal with multiple material options
- External dimensions are the same as the HAC/HAC+ pumps
- Hydraulic performance is identical to HAC/HAC+ pumps
- Every HIC+ pump includes a standard stainless adapter



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# HAC SERIES

## INDUSTRIAL STAINLESS STEEL PUMPS

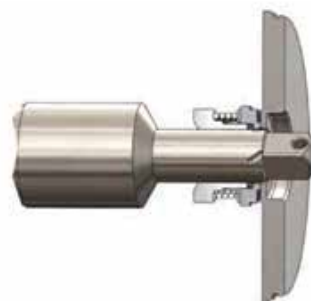
### Type D External Balanced Seal

Well suited for multi-purpose use, this seal is designed to give long service life. Typical applications include:

- Dairy products
- Tomatoes
- Beverages

**Applicable for:** acid cleaning solutions and detergents.

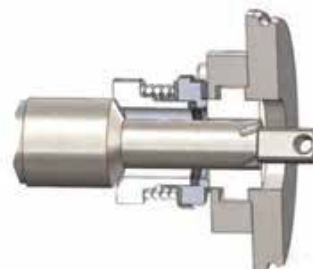
**Seal materials:** External balanced seal. Carbon/stainless steel



### Type DG Seal/Seat

This long lasting seal assembly utilizes standard Type D rotating seal components plus choice of silicon carbide, ceramic or tungsten carbide stationary seal seat. For maximum corrosion resistance in pure water applications with abrasive or non-lubricating products. Stationary seat is reversible for quick changeover if one side is damaged. The standard seal material is silicon carbide.

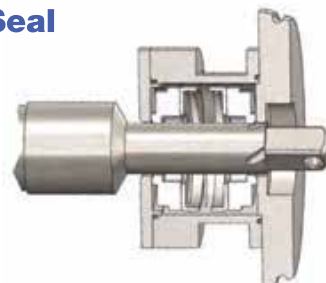
**Seal materials:** External balanced seal with replaceable stationary seat. Carbon/silicon carbide, carbon/ceramic, carbon/tungsten carbide.



### Type E Water Cooled Balanced Double Seal

This water cooled balanced double seal can be pressurized to contain coolants or sealants which can be piped directly to drain. It is used in slurries, heavy duty vacuum applications (to 28"Hg), tacky products or products at temperatures up to 212°F.

**Seal materials:** Water cooled balanced double seal. Carbon/stainless steel.



### John Crane Type 21 Industrial Seal

Single internal mechanical seal assembly. Standard combination is ceramic versus carbon seal faces with buna elastomer, other combinations are available. CIP supply and return for non-3-A or USDA applications.



HAIGHT PUMP MODELS HAC/HAC+/HIC+	COMPETITOR MODEL	INLET	OUTLET	MAXIMUM IMPELLER
HAC/HAC+/HIC+114	C114	1.5"	1.5"	4"
HAC/HAC+/HIC+214	C214	2.0"	1.5"	4"
HAC/HAC+/HIC+216	C216	2.0"	1.5"	6"
HAC/HAC+/HIC+316	C316	2.5"	1.5"	6"
HAC/HAC+/HIC+218	C218	2.0"	1.5"	8"
HAC/HAC+/HIC+318	C318	3.0"	1.5"	8"
HAC/HAC+/HIC+328	C328	3.0"	2.0"	8"
HAC/HAC+/HIC+428	C428	4.0"	2.0"	8"
HAC/HAC+/HIC+4410	NOT AVAILABLE	4.0"	4.0"	10"
HAC/HAC+/HIC+6410	NOT AVAILABLE	6.0"	4.0"	10"

**Construction materials:** All models are made of 316L stainless steel



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## ORDERING/QUOTATION INFORMATION

We pride ourselves on outstanding product quality, excellent lead times, and exceptional customer service. To serve you quickly and efficiently, please provide the pump model number and quotation reference number.

### Consider the following factors when determining your pump requirements:

- Liquids you will be pumping
- Flow rate
- Operating pressure
- Suction conditions
- Temperature
- Duty cycle
- Seal type
- Bearing information
- Operating speed
- Pump rotation
- Port position
- Alternative rotor
- Special instructions



“Honesty is the best policy.”

—Benjamin Franklin

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