



HAIGHT GEAR PUMPS

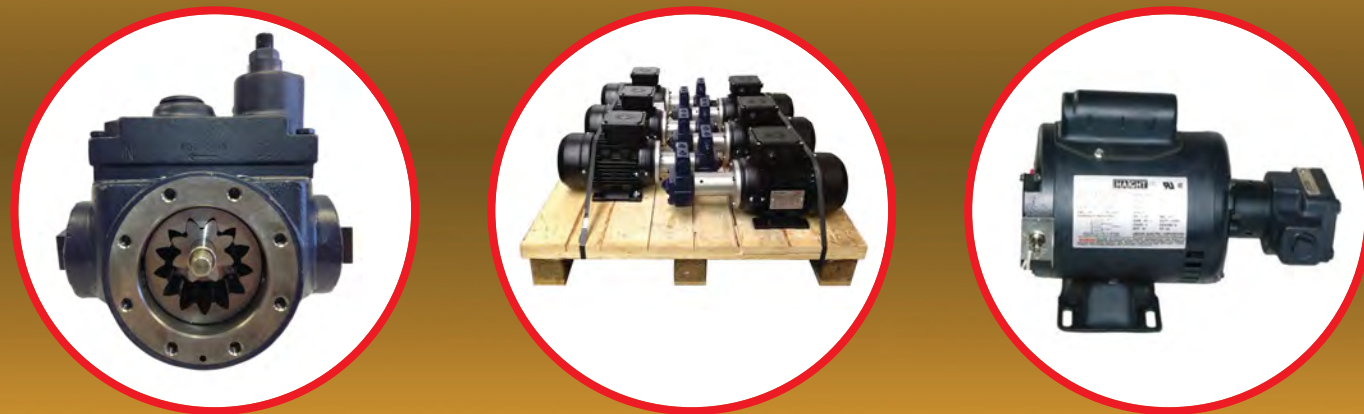


Pumps that perform



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HAIGHT – MANUFACTURED IN THE USA



The Haight range from Applied Pumps combines pioneering technology with the option of a customised solution to meet your precise operational and cost requirements.

Thanks to Haight's gear-within-a-gear technology, these heavy duty, positive displacement rotary gear pumps are amongst the most reliable on the market, with fewer parts and exceptional strength.

The internal gear design also functions extremely well at standard motor speeds in close-coupled mounting arrangements, eliminating misalignment problems and the need for a gear reducer.



NEXT-DAY DELIVERY

from our Chesterfield facility for
flow rates from 3 lpm to 120 lpm

Fewer parts mean reduced wear, less maintenance, compact size and lower noise

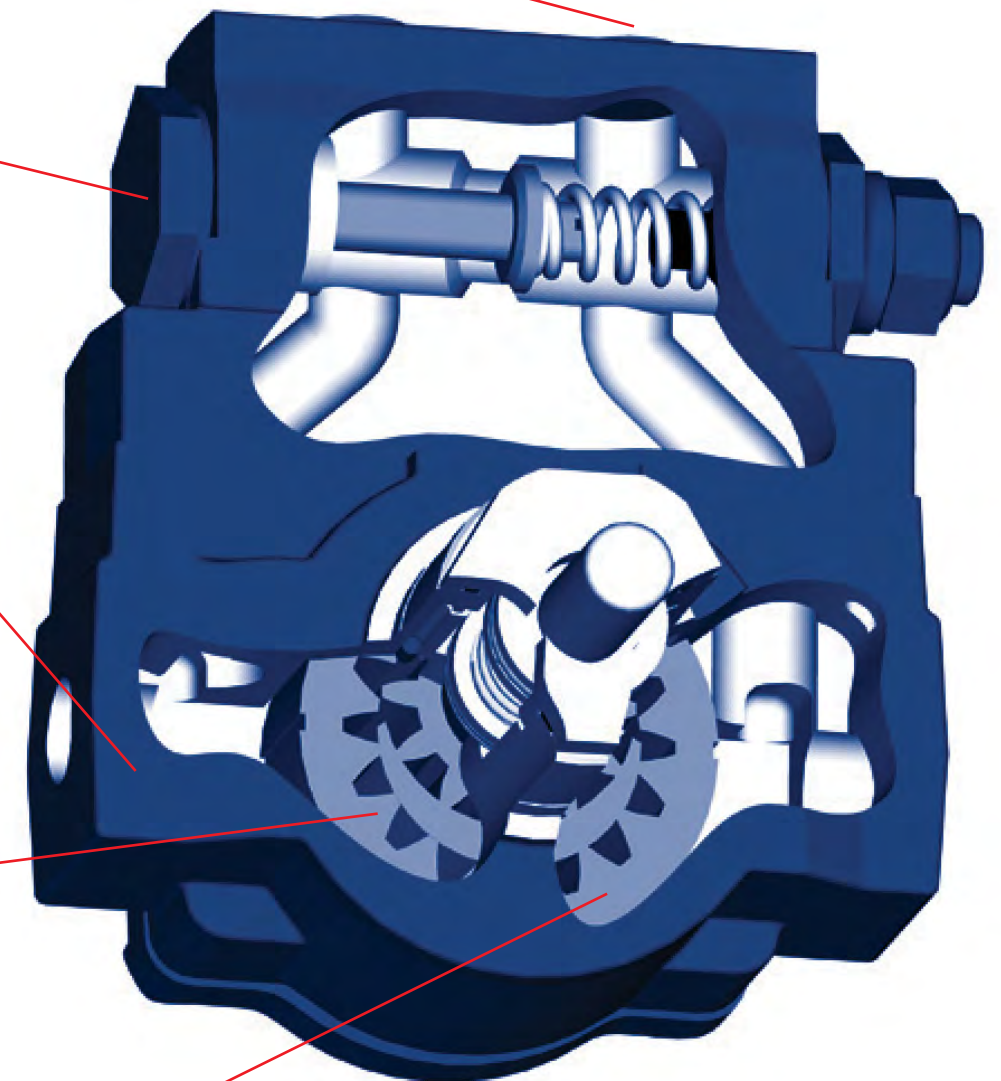
Pipe plug inserts provide easy access for mounting optional gauges and tank return feature

Bolt on reversible relief valve

Top quality ductile iron bodies with iron bearings

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

Patented Haight gear rotor for more efficient positive displacement pumping



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.

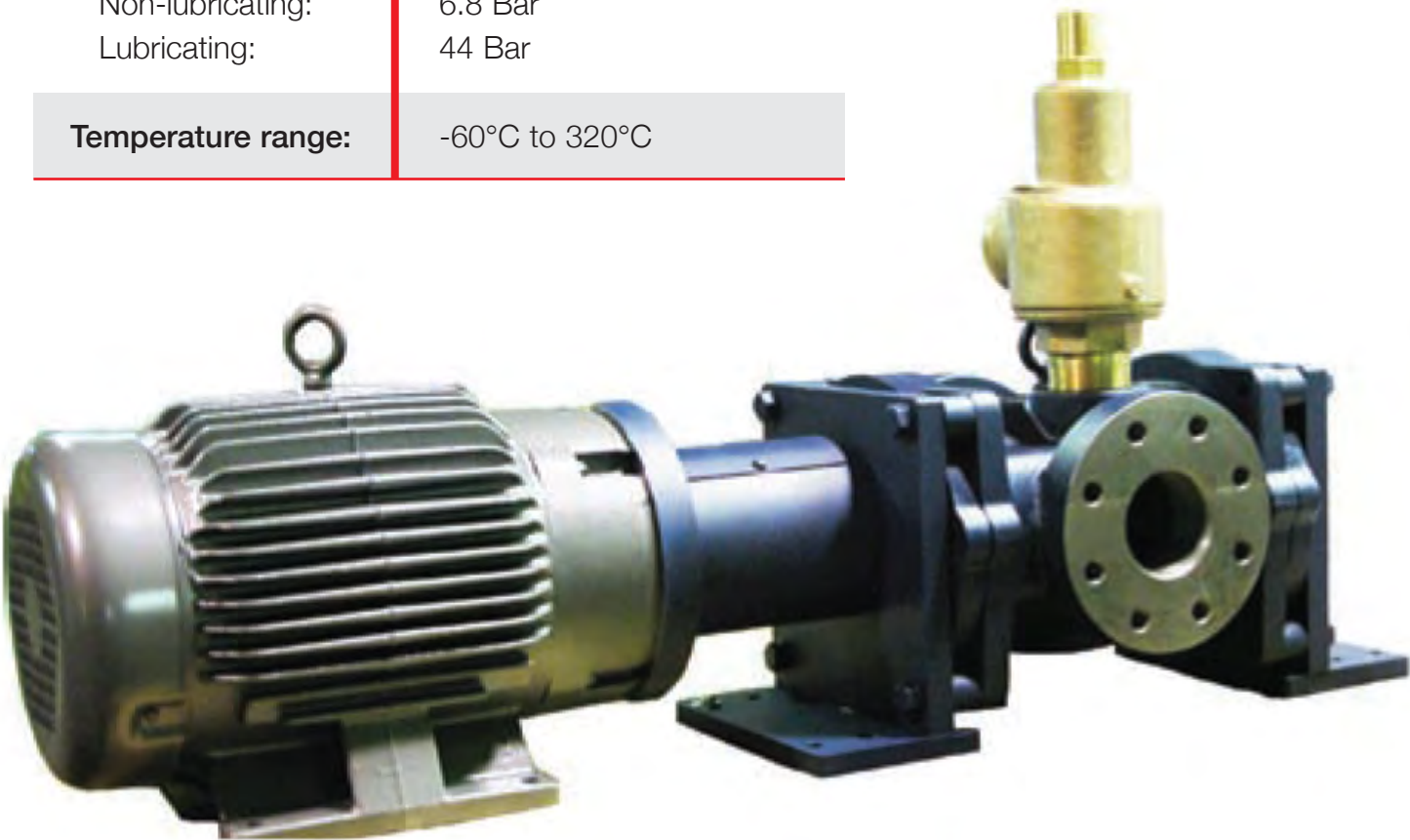
OVER 70 YEARS OF INNOVATION

Standard pump attributes

Haight pumps are self-priming and will develop up to 27” of vacuum. Please note that, depending on the actual application conditions, it is good engineering practice to keep vacuum to a minimum.

Although suction conditions are a factor in determining pump speed, for liquids with a viscosity of over 500 cPoise, reduced speeds and larger line sizes are normally recommended to avoid cavitation and diminishing pump capacity.

| | |
|--------------------|----------------------------|
| Capacity range: | 3 L/min to 900 L/min |
| Viscosity range: | 1 cPoise to 100,000 cPoise |
| Pressure range | |
| Non-lubricating: | 6.8 Bar |
| Lubricating: | 44 Bar |
| Temperature range: | -60°C to 320°C |



Standard configurations and options available

BEARINGS

Grammix iron bearings are standard

Options

DU

Used mainly for higher pressures (above 7 Bar) or where little lubrication is available.

Carbon graphite

Standard bearings in corrosion resistant pumps. Used in standard construction for higher temperatures, solvents, or acid pumping when standard bearings aren't compatible.

Bronze

Cost effective self-lubricating material for pressures below 10 Bar.

SEALS

Viton Type 21 mechanical seal is our standard.

Options

Lip seals

Viton, EPR, Neoprene and Teflon

Teflon packing seal

Used for higher temperatures and liquids which are not compatible with either Viton or Buna-N.

Grafoil packing seal

Suitable for use with heat transfer fluids to 305°C.

Mechanical seals

Type 21 with Buna-N, Viton, EPR or neoprene elastomers. Type 9 available with Teflon or Kalraz sealing elements for high temperature. Type 2 or Type 2B available for pressures exceeding 17 Bar.

MOUNTING CONFIGURATIONS

Bedplate, close-coupled and hub-mount are standard configurations. Special designs on request.

Outboard ball bearing

Used to provide extra stability for belt drive or PTO assemblies.

ROTOR GEARS

Cast iron rotor is standard.

Options

Delrin

Used with non-lubricating liquids, where noise reduction is desirable, or with abrasive fluids such as a sacrificial member.

Teflon

Alternative material for highly corrosive liquids which are not compatible with Delrin.

Ni-Resist#2

Used in standard construction with mildly corrosive liquids.

Optional Duralon liner

High temperature pressure applications require substantially more documentation than normal applications (205°C and/or 10 Bar). Haight has a number of possible solutions to meet your specific requirements, which can easily be added to our ductile iron universal pump design.

Applications

Lubrication Systems

- Power transmissions, gearboxes
- Turbines
- Conveyors
- Generators
- Engines
- Compressors
- CNC machinery
- Cooling systems

Filtration Systems

- Transformers
- Cooking oil
- Fuels
- Hydraulic fluids
- Lubrication oils
- Machine tool coolants

Injection Systems

- Foams, resins & adhesives
- Hot tar & bitumen
- Animal feed

Fuel Systems

- Vehicle refuelling
- Locomotive refuelling
- Aircraft refuelling
- Portable systems
- Engine
- Emergency power generation

Thermal Processing

- High temperature circulation
- High temperature filtration
- Battery cooling

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 pump users unsurpassed flexibility to adapt their pumps to changing system requirements.

Ductile Iron Universal Relief Valve - the relief valve assembly can be added at any time, in the field, with no special tools. The valve can function in either the return to suction mode, or return to tank mode. Available with three different tension springs, the relief valve operates smoothly and effectively over a broad range of setting values.

"Gear within a gear" Internal gear design - For nearly seventy years, this design has demonstrated it's effectiveness in handling a broad range of applications while operating at standard motor speeds, and reducing wear. Both of these operating characteristics play an important role in minimizing overall capital investment, and operating expenses.

Our UniverSeal shaft seal configuration represents a significant advance in 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 special tools.

All UniverSeal Shaft Seal Pumps feature:

- 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.

Series DIU - Round Hub

Sizes 1, 3, 5, 6, 7, 8 & 9

Haight offers seven sizes of pumps in the round hub DIU Series. All sizes 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 ideally suited to close-coupled mounting, or direct mounting to the motor.



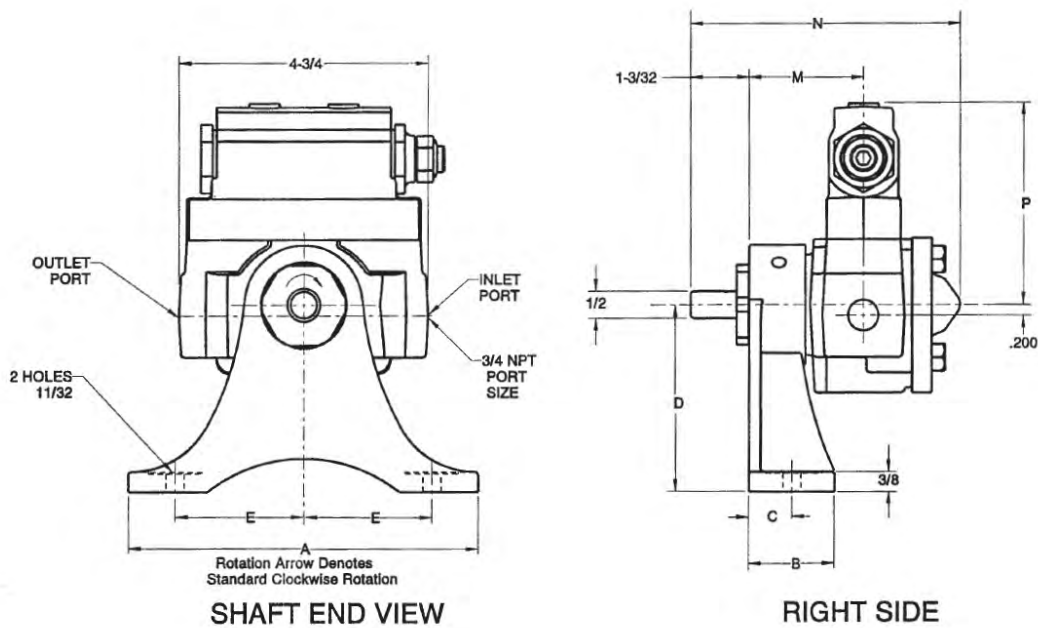
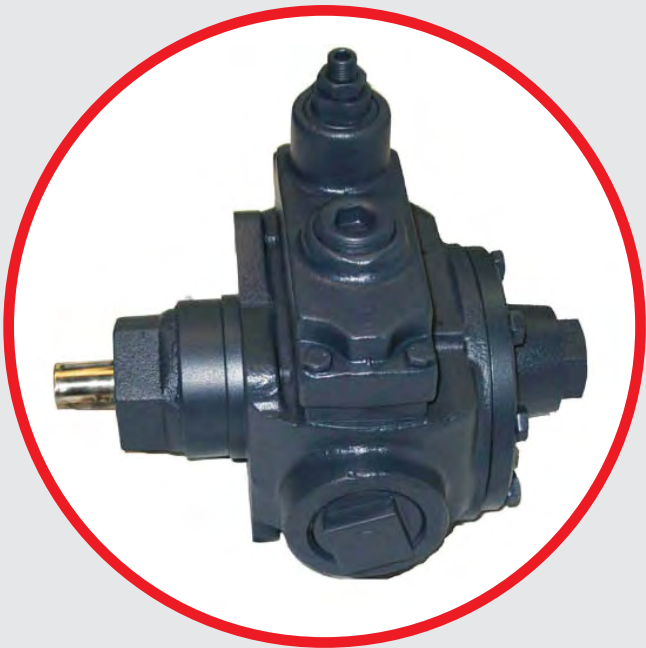
Dimensions are in inches

| Bracket | A | B | C | D | E |
|---------|-------|--------|--------|-------|--------|
| W48 | 3 1/4 | 1 1/16 | 2 3/32 | 3 | 1 |
| E56 | 6 1/2 | 1 3/8 | 1 3/16 | 3 1/2 | 2 1/16 |

Series DIU Round Hub Pump features:

- Operate at standard motor speeds, eliminating the need for pulleys/gear reducers
- Involute gear design offers excellent suction characteristics, minimizes noise and reduces internal bypassing
- Self-lubricating gramix iron bearings
- Easy to maintain Buna-N lip seals. Installed in the UniverSeal design for simple and quick replacement, or change to alternate seal style.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors or bedplate mounting.
- Optional bearing, rotor and seal materials which allow effective operation up to 325°C and 40 Bar.

| Pumps w/ relief valve | M | N | P | |
|-----------------------|---|--------|---------|--------|
| 1-3U | | 2 1/4 | 5 1/8 | 3 3/4 |
| 5U | | 2 1/4 | 5 1/8 | 3 3/4 |
| 6U | | 2 3/16 | 5 3/4 | 4 1/16 |
| 6EU | | 2 3/16 | 5 25/32 | 4 1/8 |
| 7EU | | 2 3/16 | 5 25/32 | 4 1/8 |
| 8U | | 2 3/16 | 5 1/16 | 4 1/16 |
| 8EU | | 2 3/16 | 5 25/32 | 4 1/8 |
| 9EU | | 2 3/16 | 5 25/32 | 4 1/8 |



Series DIU - Square Flange

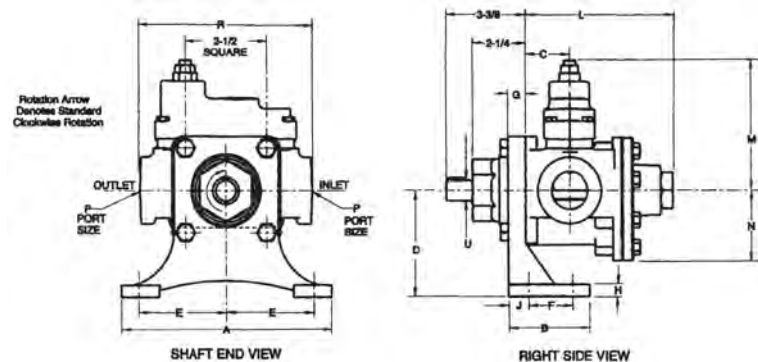
Size 10, 15, 20, 24, 30, & 40

Haight offers six sizes of pumps in the square flange DIU-Series. All sizes are available with a bolt-on Relief Valve which can function in either a return to suction, or return to tank mode. All DIU-Series pumps are interchangeable with earlier D & DR Series pumps.

Compact, rugged, and easy to maintain, these pumps are ideally suited to close-coupled mounting to the motor or footed mounting. Haight Pumps 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.

All Series DIU Square Flange Pumps feature:

- Standard motor speeds, eliminating the need for pulleys or gear reducers.
- Involute gear design to minimize noise.
- Self-lubricating gramox iron bearings.
- Easy to maintain Buna-N lip seals, installed in the UniverSeal design for simple and quick replacements or change to an alternate shaft seal type.
- Optional mounting brackets which are designed for in-line mounting with standard NEMA frame size motors.
- Optional bearing and seal materials which allow effective operation up to 330°C and 40 Bar.
- Simple field conversion on relief valve models to tank return mode.
- Field reversible seal vent.



Dimensions are in inches

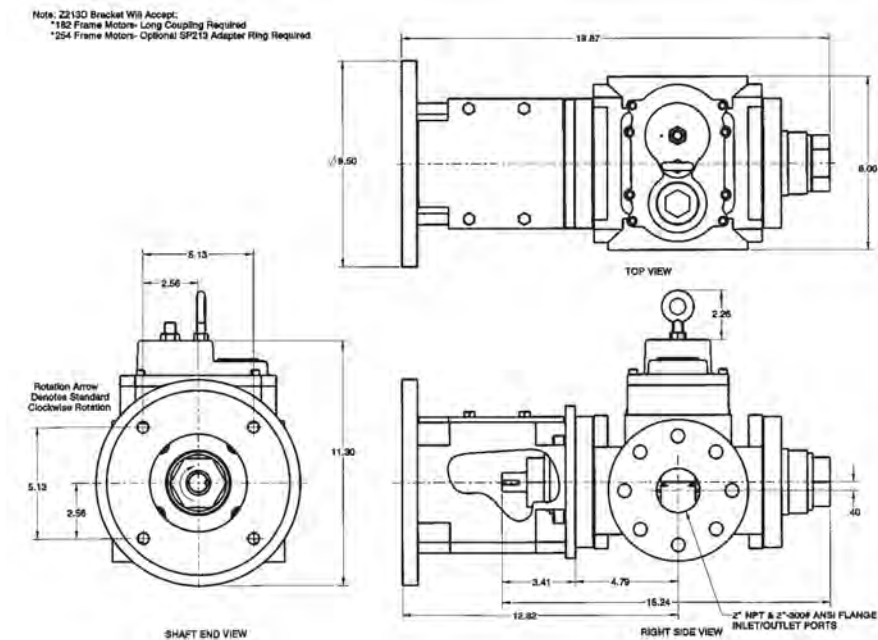
| With R.V. | W/O R.V. | P NPT | R | U | C | L | M With R.V. | M W/O R.V. | N |
|-----------|----------|----------------|----------------|---------------|------------------|-----------------|-----------------|----------------|----------------|
| 10U | 10U | 1 | 7 | $\frac{5}{8}$ | $1\frac{15}{16}$ | $6\frac{3}{16}$ | $4\frac{1}{16}$ | $2\frac{1}{4}$ | $2\frac{3}{4}$ |
| 15U | 15U | $1\frac{1}{4}$ | 7 | $\frac{5}{8}$ | $1\frac{15}{16}$ | $6\frac{3}{16}$ | $4\frac{1}{16}$ | $2\frac{1}{4}$ | $2\frac{3}{4}$ |
| 20U | 20U | $1\frac{1}{4}$ | 7 | $\frac{5}{8}$ | $1\frac{15}{16}$ | $6\frac{3}{16}$ | $4\frac{1}{16}$ | $2\frac{1}{4}$ | $2\frac{3}{4}$ |
| 24U | 24U | $1\frac{1}{2}$ | $7\frac{1}{8}$ | $\frac{7}{8}$ | $1\frac{29}{32}$ | $6\frac{5}{16}$ | $4\frac{1}{16}$ | $2\frac{1}{4}$ | 3 |
| 30U | 30U | $1\frac{1}{2}$ | $7\frac{1}{8}$ | $\frac{7}{8}$ | $1\frac{29}{32}$ | $6\frac{5}{16}$ | $4\frac{1}{16}$ | $2\frac{1}{4}$ | 3 |
| 40U | 40U | $1\frac{1}{2}$ | $7\frac{1}{8}$ | $\frac{7}{8}$ | $1\frac{29}{32}$ | $6\frac{5}{16}$ | $4\frac{1}{16}$ | $2\frac{1}{4}$ | 3 |



Series DIU - Double Pumps

Size 44, 54, 60, 70, & 80

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



All Series DIU, Double Pumps feature:

- Operation at standard motor speeds, eliminating the need for pulleys and gear reducers.
- Involute gear design to reduce noise.
- Easy to maintain Buna-N lip seals, installed in the UniverSeal design for simple and quick replacements or change to an alternate shaft seal type.
- Close-coupled mounting to eliminate motor and pump difficulty.
- 300# ANSI flange and NPT inlet/outlet connection.
- Reversible flow, plus field convertible seal venting.
- Ductile 65 construction.

Series DIU - Double Pumps

Size 120, 180, & 240

Haight Pump is proud to announce the new large flow DIU series pumps. The “Universal” design has been extended to handle flow rates from 450 L/min to 900 L/min. Flexible, quick, and incredibly reliable; everything you have come to expect from Haight Pump.

Key Features:

- 3 sizes ranging from 450 L/min to 900 L/min
- Built in Shaft Seal Flexibility
- Less moving Parts reduces Maintenance and Wear
- Close Coupled design eliminates shaft misalignment and related failures
- 17 Bar Discharge Pressure Capability
- 300# ANSI Flange; Inlet & Outlet Ports
- “Gear within a Gear” design for quiet operation
- Direct Drive - speeds to 1800 RPM

Standard Construction Features:

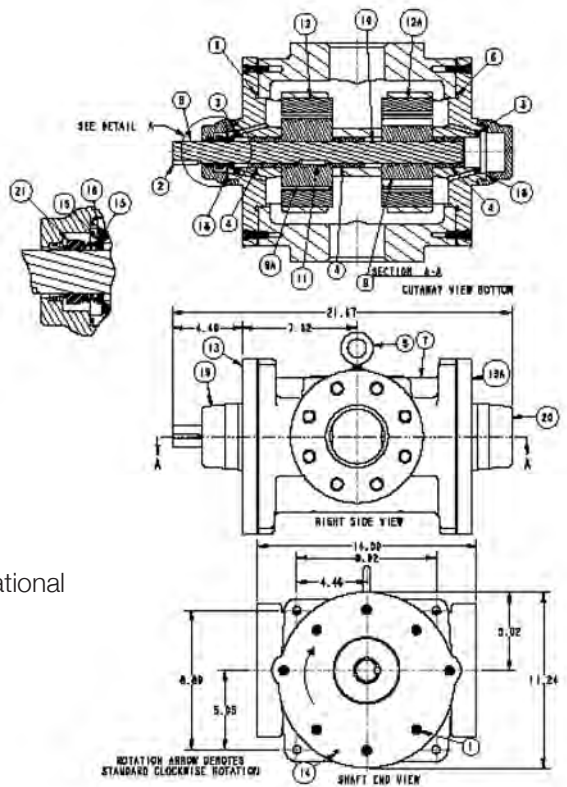
- Ductile Iron Housing
- Steel Shaft and Pinion Gears
- Iron Rotor and Bearings
- Buna N Lip Seals and Elastomers

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
- Optional Relief Valve

Applications:

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



Stainless Steel Series

Sizes 6, 7, 8, 9, 10, 15 & 20

Haight have combined our versatile DIU Ductile Iron Universal Series pump design with stainless steel and corrosion resistant materials to meet the needs of our customers ever changing process systems.

Standard Construction and Key Features:

- Closed coupled or foot mounted bracket designs
- Readily accepts magnetic drive option
- Inlet/outlet ports accept 1”, 1.25” and 1.5” NPT and 150# flange connections
- 17 Bar discharge pressure capability
- Non-Metallic Rotor eliminates galling problems, even with thin fluids including water
- Integral relief valve with “No Leak” adjustment, and tank return operation capability
- 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
- Teflon or Vespel shaft sleeve bearings
- 316L integral relief valve up to 15 Bar
- Magnetic drive and barrier seal available on all models

Bronze Series

Sizes 24-240

Haight® Pump is proud to introduce the first installment in our newest addition to the Haight® product family of Pumps That Perform, continuing a 70 year old tradition of supplying our customers with Rugged, Reliable, and Innovative Pumps. We’ve combined our versatile Ductile Iron Universal Series pump design with bronze and corrosion resistant materials to meet the needs of our customers ever changing process systems.

Standard Construction and Key Features:

- Inlet/Outlet Ports accept 1.5” NPT and 150# Flange Connections (24-40gpm) and 2” NPT, 150#& 300# Flange Connections (44-80gpm)
- 17 Bar Discharge Pressure Capability
- Non-Metallic Rotor eliminates galling problems, even with thin fluids including water
- Integral Relief Valve with “No Leak” Adjustment, and Tank Return Operation Capability
- 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®
- PTFE Teflon Rotor Gear
- Teflon or Vespel Shaft Sleeve Bearings
- 863 Bronze Integral Relief Valve up to 15 Bar
- Magnetic Drive Available on all Models

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. Series X pumps feature compactness, positive displacement, through drive and no casing is required.

The Series X Skeleton pump shown is an example of the Haight Pump Division'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 nonstandard design. They will then translate your needs into a positive displacement pump to meet your requirements.



Flange Mounted Pumps

Ideal for use on diesel engines, fuel oil boosters, gear reducers, or for lubricating oil pumps on engines and compressors. Flange mounted pumps are 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. When your project plans call for a custom-built positive displacement pump, Haight can analyse your needs and design a pump to meet them.



E - Series

The E - Series pumps are an economical, high performance modification of our proven D-Series model. These pumps are particularly well suited for use in direct drive, hub mounted configurations where size, weight, and cost are crucial performance criteria in an application. The rugged simplicity of the E - Series is proven thousands of times every year in high temperature applications throughout the world. Available with limited option selection, contact your local distributor for additional information.



X - Series

A proven selection of different internal gear designs, each optimized for specific operating characteristics, all NSF approved.

- More efficient (less amp draw)
- Motor variations with US, CSA, or CE approval to meet application specifications - RoHS Compliant
- Performs at or slightly above competitors pump and is more debris tolerant
- No bearings to fail, alignment issues, or tolerance stacking
- Easily serviced with illustrated instructions



Dual Pumps

Dual Pumps on a common shaft are available in 15 possible flow combinations, up to 8gpm flow capacity, for each pump. Dual pump designs save valuable space and cost for system designers.



Encased, Flange Mounted, Reversible Pumps:

These custom pumps provide an enclosed gear set coupled with flange mounted, direct drive design features. System designers save space, weight, and cost by incorporating the pump into their system. The durable and simple internal gear design has been proven to be a reliable system component for nearly 70 years



3D CAD rendered drawing

G - Series

The G - Series pumps are an affordable, high performance design series which utilizes the dynamic crescent, Gerotor gear configuration.

This internal gear configuration offers 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 D and E series pumps.



Haight's unique “gear within a gear” pumping principle

The most reliable of today's internal gear pumps are based on the “gear within a gear” principle pioneered Haight Pumps, nearly seventy years ago. While the differences may seem insignificant at first glance, the benefits for the end user are substantial.

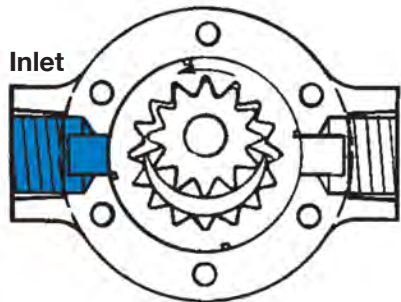
The smaller, inner drive gear (pinion), and shaft assembly are supported by bearings on both sides of the pinion to resist movement, unlike other designs. The larger gear (rotor) is hydraulically balanced within the pump housing, finding its optimal position, naturally. The user benefits in several important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

- Lower initial investment, Haight pumps operate at standard motor speeds, thus eliminating the need for expensive gear boxes, even for heavier fluids
- Fewer parts and adjustments means less maintenance time, no thrust bearings and end plates to maintain

- Close-coupled motor mounting eliminates pump and motor alignment problems, bedplate installation costs, and they use less space than conventional gear pumps designs
- Because the rotor is rotating at a fraction of the motor speed, wear and noise are reduced, and fluid flow into the gears is more effective. This keeps the pump head size and resulting cost, to a minimum while simultaneously extending the service life of the pump.
- True, three tooth engagement between the rotor and pinion provides superior flow characteristics
- Greater freedom to select the best rotor, pinion, and shaft materials for the individual customer application, without extravagant cost.

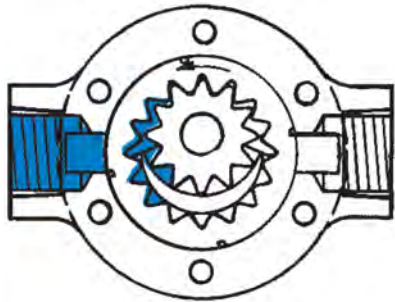
Simple idea, great results!

1



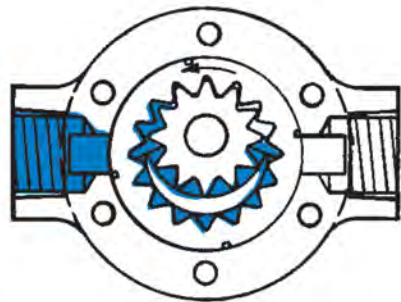
The liquid being pumped (dark blue) enters the pump through the inlet (suction) port. In this example, the inlet (suction) port is on the left.

2



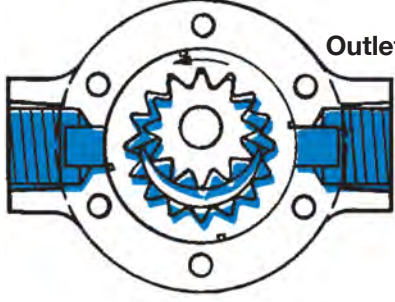
As the inner (pinion) and outer (rotor) gears rotate, the liquid flows around both sides of the rotor into the gears. The crescent divides this flow and serves as a positive seal between the inlet (suction) and outlet (discharge) ports.

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

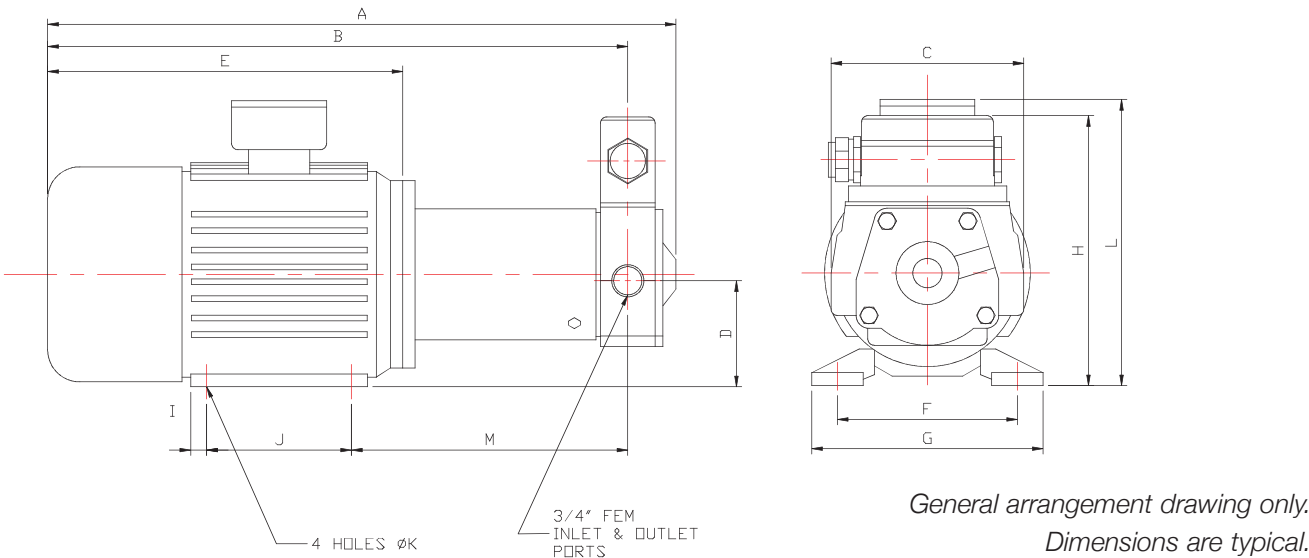


The pump is now completely filled. The liquid being pumped flows in through the inlet (suction) port, moves through the pump, and leaves through the outlet (discharge) port in a continuous flow.

Motorised Options

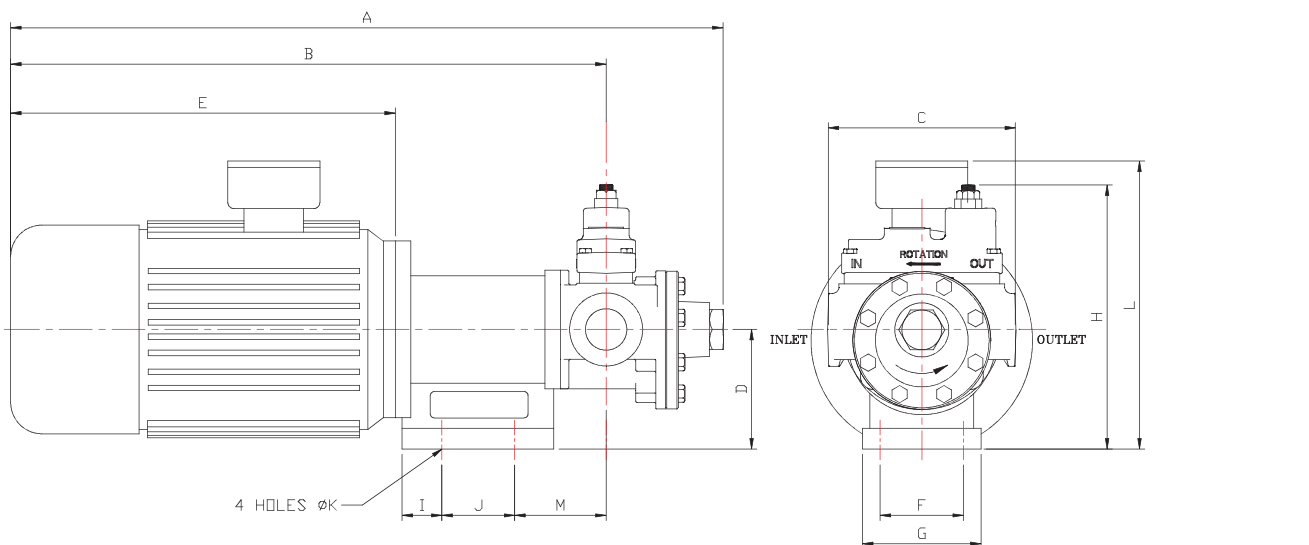
1UR - 9UR Options

| PUMP MODEL/ FRAME SIZE | DIMENSIONS (mm) | | | | | | | | | | | | |
|---------------------------|-----------------|-----|-----|----|-----|-----|-----|-----|----|-----|----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| 1UR + D71 | 391 | 361 | 120 | 66 | 221 | 112 | 136 | 222 | 10 | 90 | 7 | 178 | 172 |
| 3UR + D71 | 391 | 361 | 120 | 66 | 221 | 112 | 136 | 222 | 10 | 90 | 7 | 178 | 172 |
| 5UR + D71 | 395 | 365 | 120 | 66 | 221 | 112 | 136 | 222 | 10 | 90 | 7 | 178 | 172 |
| 6UR + D80 | 455 | 425 | 121 | 75 | 255 | 125 | 155 | 240 | 50 | 100 | 10 | 212 | 187 |
| 8UR + D80 | 457 | 429 | 121 | 75 | 255 | 125 | 155 | 240 | 50 | 100 | 10 | 212 | 187 |
| 9UR + D90 | 472 | 452 | 121 | 85 | 270 | 140 | 174 | 257 | 56 | 100 | 10 | 230 | 202 |



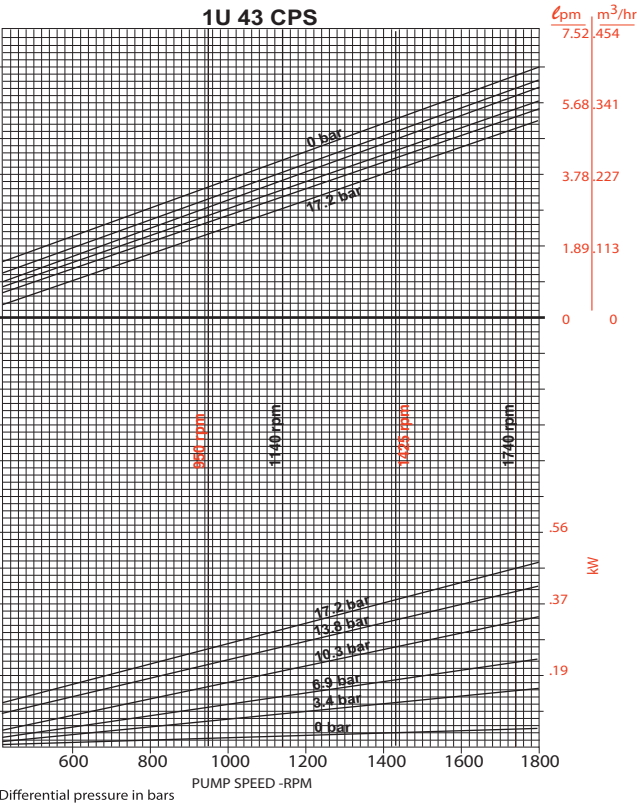
10UR - 40UR Options

| PUMP MODEL/ FRAME SIZE | DIMENSIONS (mm) | | | | | | | | | | | | |
|---------------------------|-----------------|-----|-----|----|-----|-----|-----|-----|----|-----|----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| 10UR to 40UR + D80 B14 | 391 | 361 | 120 | 66 | 221 | 112 | 136 | 222 | 10 | 90 | 7 | 178 | 172 |
| 10UR to 40UR + D90 B14 | 391 | 361 | 120 | 66 | 221 | 112 | 136 | 222 | 10 | 90 | 7 | 178 | 172 |
| 10UR to 40UR + D100 B14 | 395 | 365 | 120 | 66 | 221 | 112 | 136 | 222 | 10 | 90 | 7 | 178 | 172 |
| 10UR to 40UR + D112 B14 | 455 | 425 | 121 | 75 | 255 | 125 | 155 | 240 | 50 | 100 | 10 | 212 | 187 |



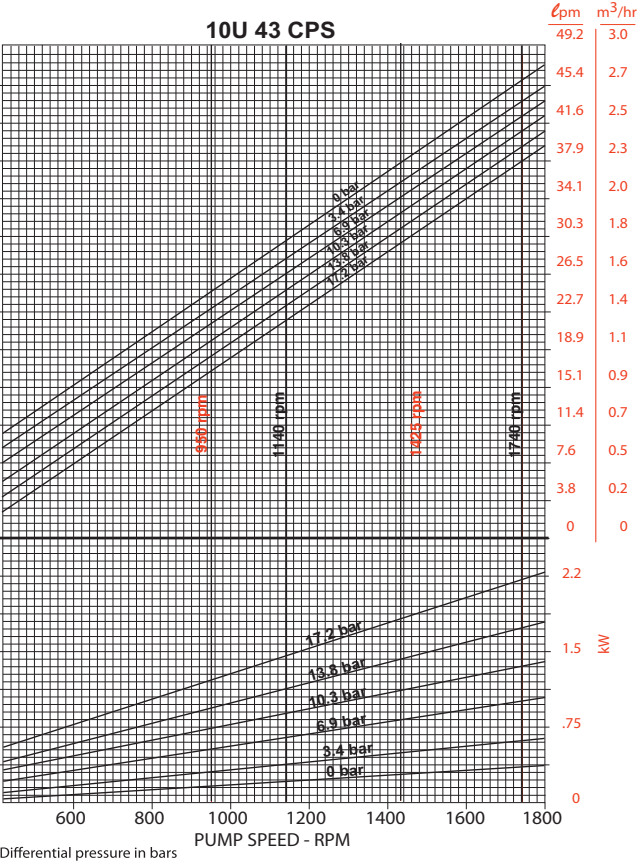
Pump Performance Curves

Centipoise (CPS) is based on Specific Gravity (SPG) equal to 1
If SPG does not equal 1, multiply CPS x SPG

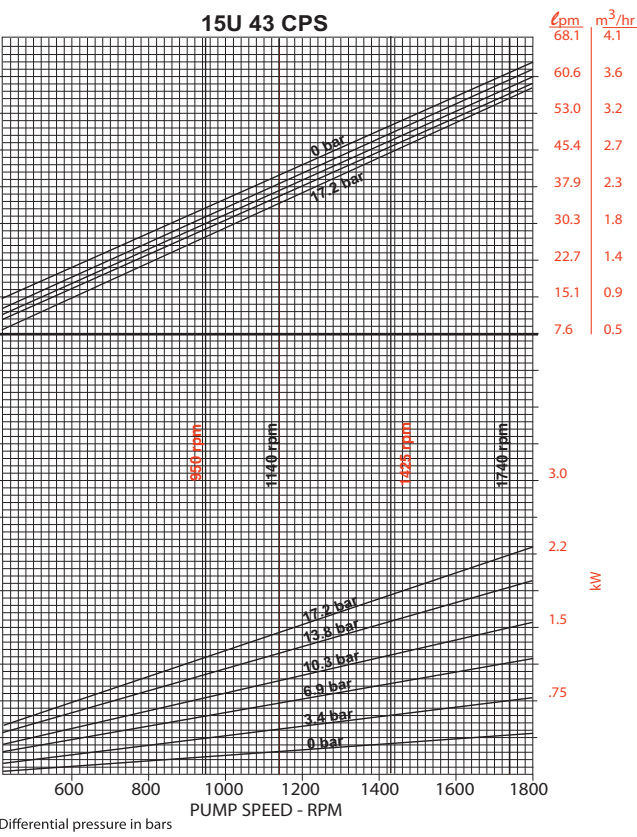


Pump Performance Curves

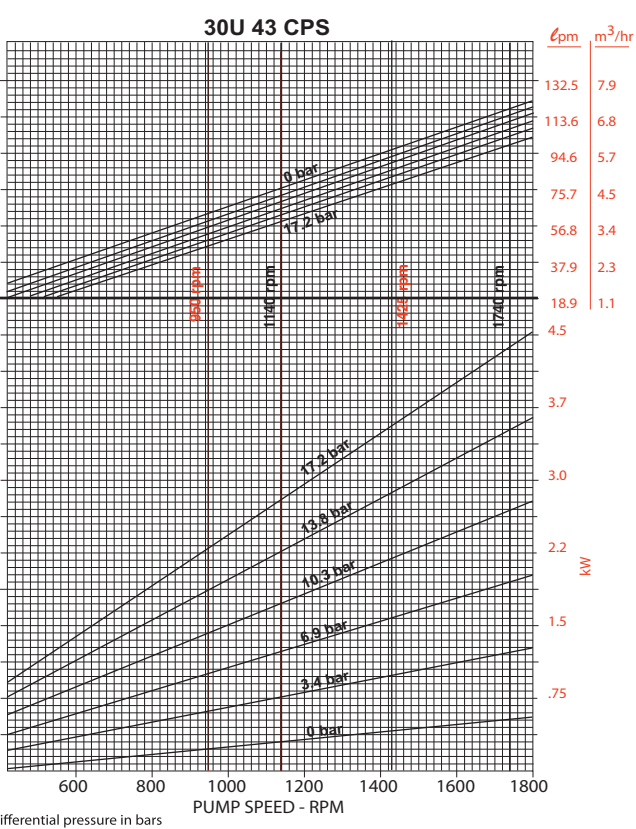
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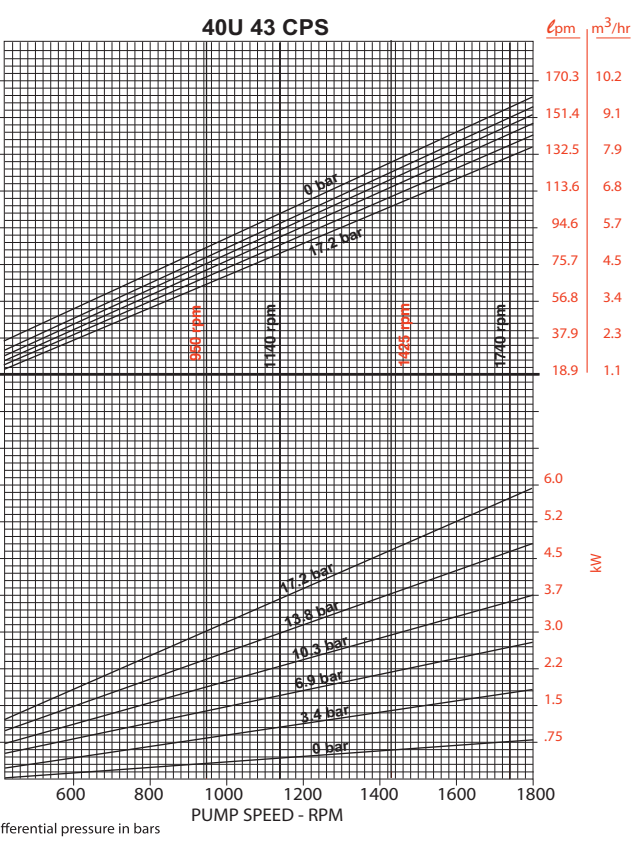
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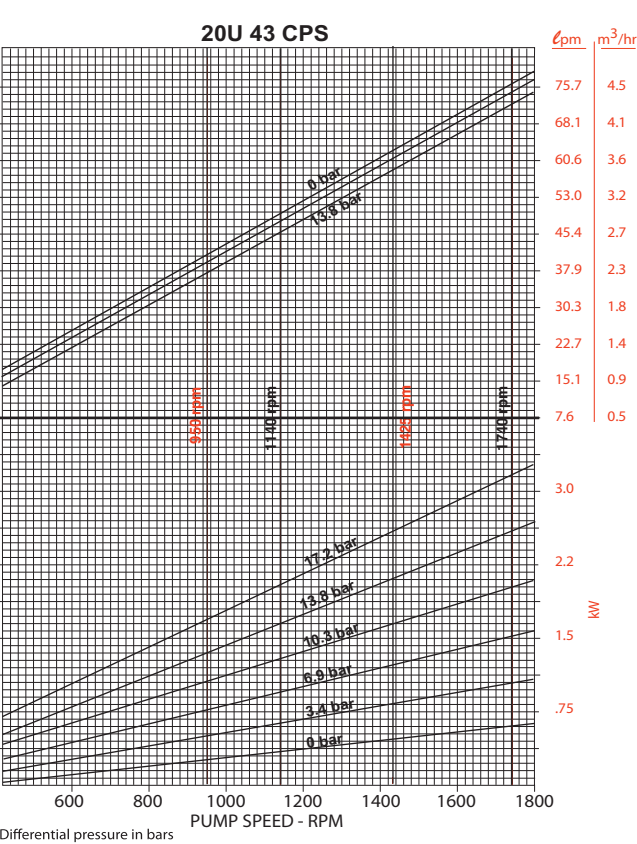
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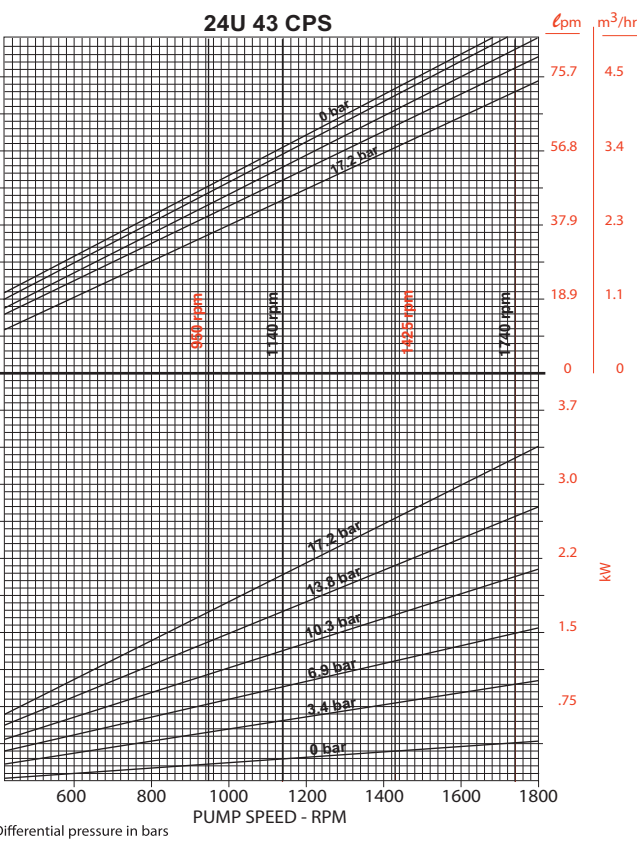
Centipoise (CPS) is based on Specific Gravity (SPG) equal to 1
If SPG does not equal 1, multiply CPS x SPG



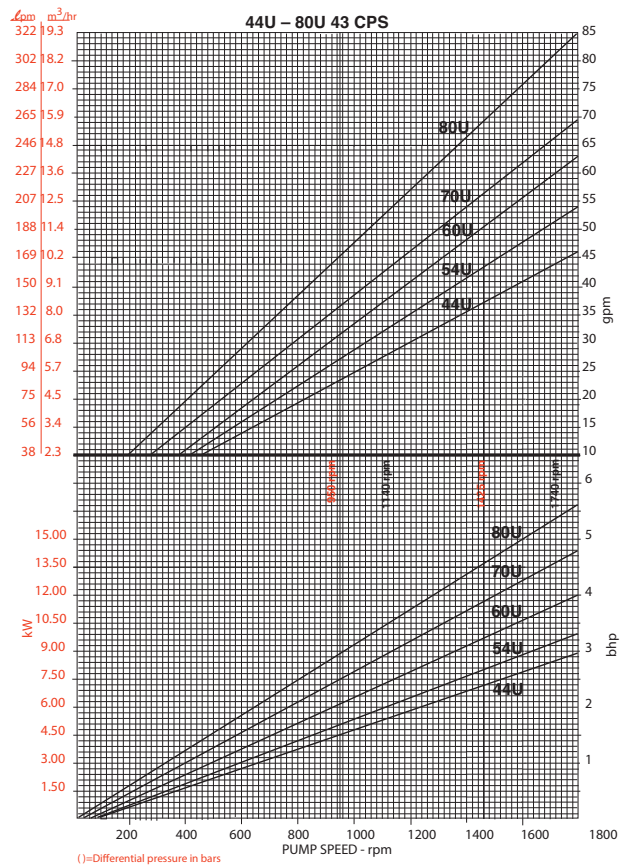
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Performance curves for different viscosities are available upon request. For technical assistance please call our sales office on 01246 260102.