

## GEAR & CENTRIFUGAL PUMPS for the Chemical Industry



### Sealed & Mag-Drive Pumps – 316 SS, Alloy-C, Alloy-20 & Titanium

For over 35 years, Liquiflo pumps have handled thousands of difficult chemicals



METERING

TRANSFER

CIRCULATION

INJECTION

For more than 35 years, Liquiflo has manufactured High-Alloy Gear Pumps, specifically designed to meet the demanding needs of the chemical processing industry. Liquiflo Gear Pumps handle flows from 0.1 to 55 GPM and differential pressures up to 350 PSI.

Liquiflo will custom engineer special pumps to suit your specific needs.

#### WHY USE GEAR PUMPS?

Gear Pumps are positive displacement pumps that are frequently used for metering and transferring both thin and viscous fluids at differential pressures higher than are typically achievable with centrifugal pumps.

Gear pumps are a viable alternative to Diaphragm pumps because they do not pulse or require an expensive air source to operate. For metering applications, they do not require pulsation dampeners or other ancillary equipment. In continuous duty applications, they generally last longer than Diaphragm, Progressive Cavity or Peristaltic pumps, which require frequent part replacements, such as diaphragms, stators, rotors or hoses.

#### Attributes & Advantages of Gear Pumps

- ◆ Typically used for low-flow and high-pressure applications
- ◆ Virtually no pulsations - ideal for metering applications
- ◆ Require less auxiliary equipment than Diaphragm pumps (pulsation dampeners, air compressors, dryers, etc.)
- ◆ Flow accuracies of 0.5–2.0% are achievable
- ◆ Easy to maintain - Repair kits are available which contain all components to completely and easily rebuild all Liquiflo gear pumps to like-new condition
- ◆ Self-priming
- ◆ Low NPSHR



#### SEALED GEAR PUMPS

Liquiflo's **universal front housings** will accommodate packing, as well as single or double mechanical seal configurations.

**Packing** is suitable and an economical choice for non-hazardous liquids.

**Single Mechanical Seals** are used when leakage needs to be minimized. Single seals have a viscosity limit of approximately 5,000 cP and temperature limit of 500 °F.

**Double Mechanical Seals** require a flushing system and are typically used when pumping liquids that are viscous, crystallize on contact with air or are very hazardous.

#### MAG-DRIVE (sealless) GEAR PUMPS

With **no dynamic seals to leak or replace**, Mag-drive pumps provide a simple and secure solution to sealing toxic, noxious, crystallizing or most other hazardous fluids. Mag-drive pumps:

- ◆ are typically less expensive than double-sealed arrangements
- ◆ eliminate cooling loops required on double-sealed arrangements
- ◆ eliminate the need to dispose of barrier fluids
- ◆ require less maintenance than mechanically-sealed pumps since there are no seals to replace

#### REPLACEMENT CARTRIDGE for Mag-Drive Pumps

An alternative to using a repair kit when repairing a Mag-drive pump is to use a **Replacement Cartridge**. A Cartridge is a complete Mag-drive pump less the outer magnet and pedestal. Using the replacement cartridge is the quickest and most convenient way to replace a pump that requires maintenance.



Replacement Cartridge is available for H & 3-Series Mag-drive pumps.

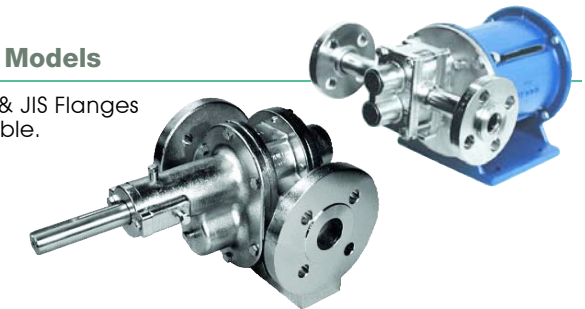
#### Mounting Configurations

The **Close-Coupled** configuration is the most common mounting method since it automatically guarantees pump and motor alignment. Misalignment is one of the most common causes of premature pump failure.

**Base Mounted** configurations are available from the factory for all Liquiflo gear pumps.

#### Flanged Models

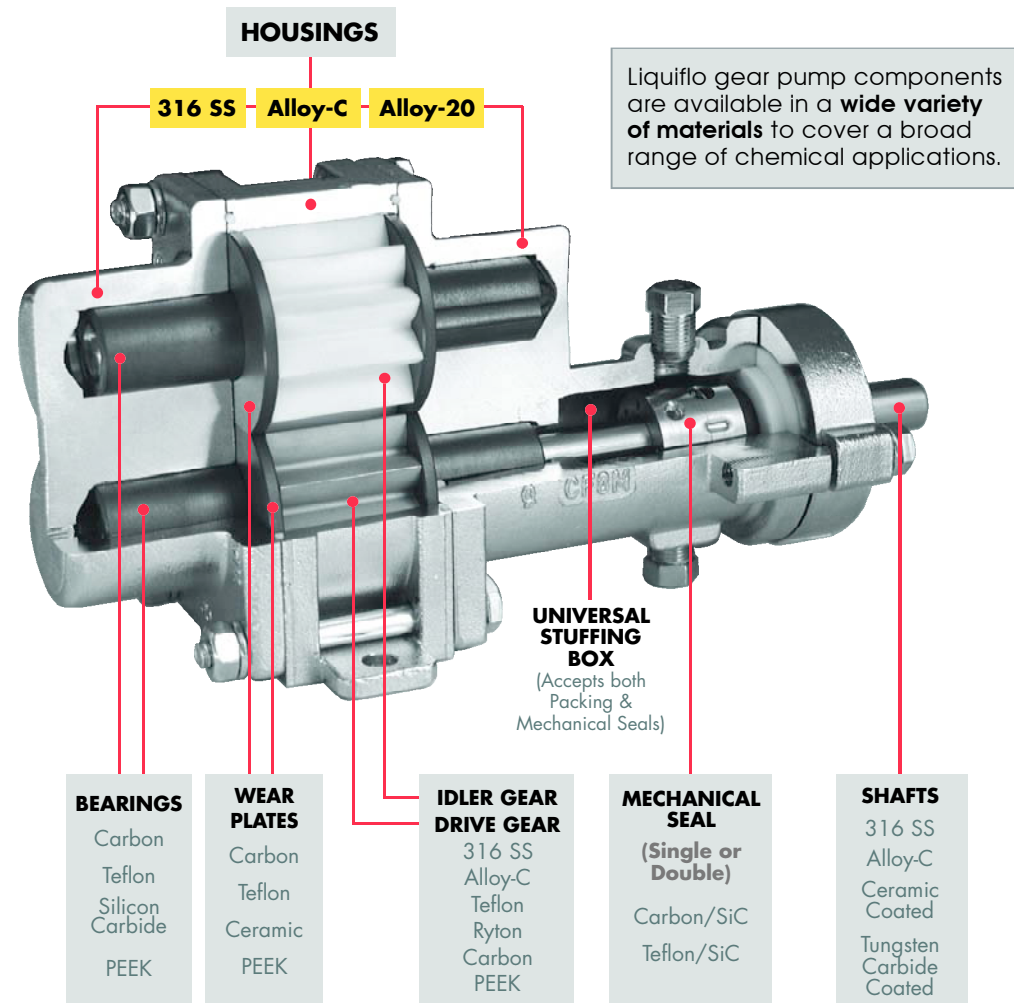
ANSI, DIN & JIS Flanges are available.



#### Clamp-on Temperature Control Jacket

**Temperature Control Jackets** can maintain the pump at either elevated or reduced temperatures. These are commonly used when pumping liquids that solidify or become very viscous when the temperature decreases.





The **H-Series Gear Pumps** were designed as an upgrade to Liquiflo's original 3-Series. With similar outside dimensions and capacities, the H-Series incorporates larger diameter shafts and bearings, allowing them to handle higher pressures with extended service life. H-Series pumps are rated at **225 PSI\* differential pressure**. The 3-Series are rated at 100 PSI. Both series are available in Sealed and Mag-Drive versions. **We recommend the H-Series for all new applications as well as an upgrade to any existing 3-Series installations.**

\* 300 PSI possible on some models. Contact factory.

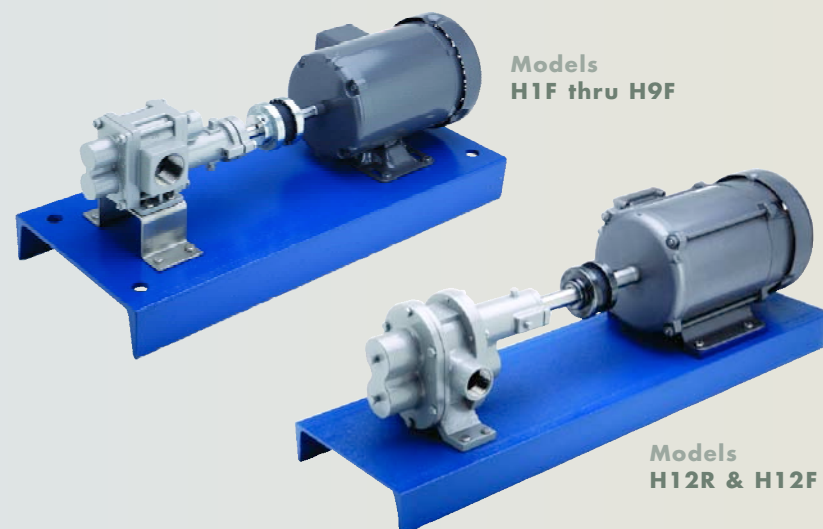
H-Series	H1F	H3F	H5R	H5F	H7N	H7R	H7F	H9R	H9F	H12R	H12F	
3-Series	31F	33F	35R	35F		37R	37F	39R	39F	312R	312F	314F
<b>Port Connections</b>												
<b>NPT/BSPT</b> (in.)	1/4	1/4	1/2	1/2	3/4	3/4	3/4	1	1 1/4	1 1/4	1 1/4	—
<b>ANSI 150# RF Flanges</b> (in.)	1/2	1/2	1/2	1/2	3/4	3/4	3/4	1	1 1/4	1 1/2	1 1/2	2 1/2
<b>DIN PN 16 Flanges</b> (mm)	10	10	15	15	20	20	20	25	32	40	40	65
<b>Max Flow Rate</b>												
<b>GPM</b>	<b>0.5</b>	<b>1.4</b>	<b>2.4</b>	<b>3.4</b>	<b>5.4</b>	<b>8.6</b>	<b>10.7</b>	<b>15</b>	<b>21.5</b>	<b>22</b>	<b>29</b>	<b>58</b>
<b>(LPM)</b>	(1.9)	(5.3)	(9.1)	(13)	(20.4)	(32.5)	(40.5)	(57)	(81.4)	(83)	(110)	(220)
<b>Max Differential Pressure†</b>												
<b>PSI</b>	225	225	225	225	225	225	225	225	225	225	225	100
<b>(Bar)</b>	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(6.9)
<b>Max Discharge Pressure</b>												
<b>PSI</b>	300	300	300	300	225	225	225	225	225	270	270	270
<b>(Bar)</b>	(20.7)	(20.7)	(20.7)	(20.7)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(18.6)	(18.6)	(18.6)
<b>Maximum Temperature</b>												
<b>°F</b>	500	500	500	500	500	500	500	500	500	500	500	500
<b>(°C)</b>	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)
<b>Maximum Speed</b>												
<b>RPM</b>	1750	1750	1750	1750	1750	1750	1750	1750	1750	1150	1150	1150
<b>NPSHR @ Maximum Speed</b>												
<b>ft</b>	3	2	2	2	5.2	5.2	5.2	4	3	5	5	3
<b>(m)</b>	(0.9)	(0.6)	(0.6)	(0.6)	(1.6)	(1.6)	(1.6)	(1.2)	(0.9)	(1.5)	(1.5)	(0.9)
<b>Pump Weight: (lbs)</b>												
<b>Sealed (pump only)*</b>	2.5	2.5	3.5	3.5	6.5	6.5	6.5	8	10	52	52	67
<b>Close-Coupled Sealed**</b>	23	23	24	24	29	29	29	34	36	77	77	92
<b>Close-Coupled Mag-Drive**</b>	31	31	32	32	36	36	36	38	40	95	95	110

† 3-Series have Max Differential Pressure of 100 PSI. \* For long-coupled configuration. \*\* Excluding motor & base.

## H-Series Sealed Pumps - Long-Coupled

(shown base-mounted without coupling guard)

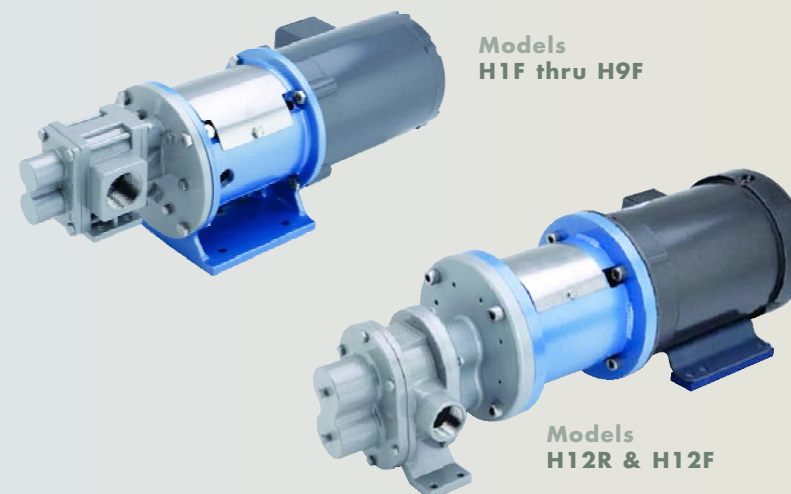
These pumps are available as individual units or mounted on heavy duty Epoxy-painted Steel or Stainless Steel base plates. Several drive and mounting options are also available such as Variable Speed Drives (VFD, SCR, PWM, etc.), standard motors with gear reducers, or air motors. All base-mounted units are factory aligned and include a flexible coupling and coupling guard.



## H-Series Sealed Pumps - Close-Coupled

(shown close-coupled to C-face motor)

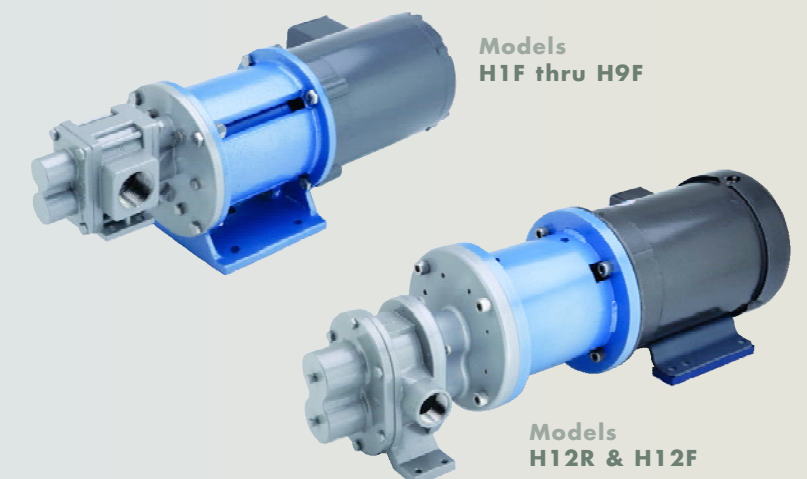
The close-coupled configuration is the most common arrangement for sealed pumps. It makes installation easy by eliminating the need to align the pump shaft to the motor shaft in the field. **Perfect pump-motor alignment and positioning is guaranteed** by the precision-machined mounting bracket. Close-coupled sealed pumps include a Cast Iron mounting bracket and flexible drive coupling ready to mate to a motor of your choice. The removable door on the mounting bracket allows for easy accessibility to the coupling or seal area of pump for servicing or seal replacement. These pumps can also be furnished from the factory with any type of motor, variable speed drive or gear reducer.



## H-Series Magnetic Drive Pumps

(shown close-coupled to C-face motor)

The Mag-drive pump is the ultimate method for handling hazardous liquids since it eliminates the need for dynamic seals which are the most common source of leaks in standard sealed pumps. **Mag-drive pumps come standard in close-coupled configuration** with mounting bracket and outer magnet that will attach to the motor frame size specified when ordering. These pumps can also be furnished from the factory with any type of motor, variable speed drive or gear reducer.



## 2-Series Mini Gear Pump

The **2-Series Mini-Pump** is a low-flow external gear pump that is completely field repairable. With a ruggedly designed 316 Stainless Steel body and several material options for shafts, gears, wear plates and bearings, these pumps can be used in a wide variety of services.

### FEATURES:

- ◆ 316 Stainless Steel Construction
- ◆ Available in 2 sizes
- ◆ Flow rates from 1 to 60 GPH
- ◆ Differential pressures up to 225 PSI
- ◆ Viscosities from 0.3 to 5,000 cP
- ◆ Low NPSHR
- ◆ Magnetic-Drive
- ◆ Close-Coupled
- ◆ Compact Design
- ◆ Repair Kits available



## 4-Series Gear Pump

Liquiflo's **4-Series** pumps are low-flow magnetically-driven gear pumps. The 4-Series housings are manufactured from Bar Stock in 316 Stainless Steel, Alloy-C or Titanium. With several material options for shafts, gears, wear plates and bearings, these pumps can be used in a wide variety of chemical processing applications.

### FEATURES:

- ◆ 316 SS, Alloy-C or Titanium Construction
- ◆ Available in 4 sizes
- ◆ Flow rates from 0.1 to 3.5 GPM
- ◆ Differential pressures up to 100 PSI
- ◆ Viscosities from 0.3 to 5,000 cP
- ◆ Low NPSHR
- ◆ Magnetic-Drive
- ◆ Close-Coupled
- ◆ Parallel Ports
- ◆ Repair Kits available



## Max™ Series High-Pressure Gear Pump

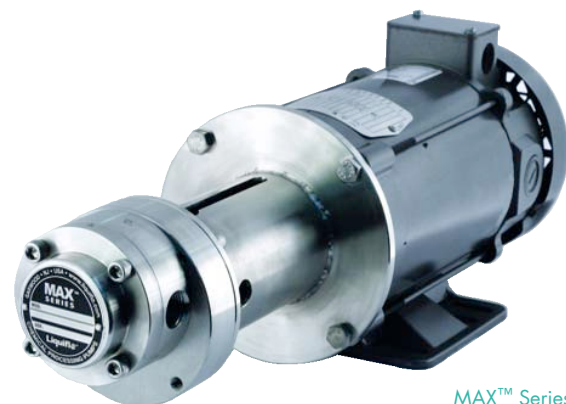
The **Liquiflo MAX™ Series Gear Pumps** will handle differential pressures to 350 PSI and flows to 20 GPM. Its unique, durable design assures extended life even in high-pressure pumping applications where other gear pumps could fail. The Max™ Series pump features newly designed Helical gears for smoother and quieter operation.

### Solid 316 SS or Titanium Body

The **MAX™ Series** heavy duty shaft and bearing design make it last even when operating at high differential pressures for extended lengths of time. Its solid construction and heavy duty bolts will minimize pump distortion caused by piping misalignment. The pump mounting bracket is made of corrosion resistant 316 Stainless Steel or sturdy Cast Iron.

### FEATURES:

- ◆ 316 SS or Titanium Construction
- ◆ Available in 9 sizes
- ◆ Flow rates up to 20 GPM
- ◆ Differential pressures up to 350 PSI
- ◆ Viscosities from 0.3 to 100,000 cP
- ◆ Low NPSHR
- ◆ Sealed or Magnetic-Drive
- ◆ Close-coupled
- ◆ Temperature Control Jackets available
- ◆ Repair Kits available



## Liquiflo Centry® Series

- Sealed or Mag-Drive
- 316 Stainless Steel Construction
- Flows Up to 150 GPM
- Heads Up to 100 Feet
- Close-Coupled



Centry® Series Mag-Drive Centrifugal Pump



Centry® Series Sealed Centrifugal Pump

The Liquiflo **Centry® Series** Centrifugal Pumps were exclusively designed for chemical, agricultural, general industrial, or specific OEM applications. Both economically priced and ruggedly constructed, these pumps are made from heavy-walled investment cast 316 SS. Compared to other manufacturers' products, the extra corrosion allowance offered by our Centry Series pumps will add years of service life even when pumping harsh and corrosive chemicals.

In general purpose applications, they promise unequaled performance and years of trouble-free operation. The back pullout design allows for quick and easy maintenance since the volute can be kept in line while the internal components of the pump are replaced or repaired. The Centry Series pumps are available with either Mechanical Seal or Magnetic-Drive.

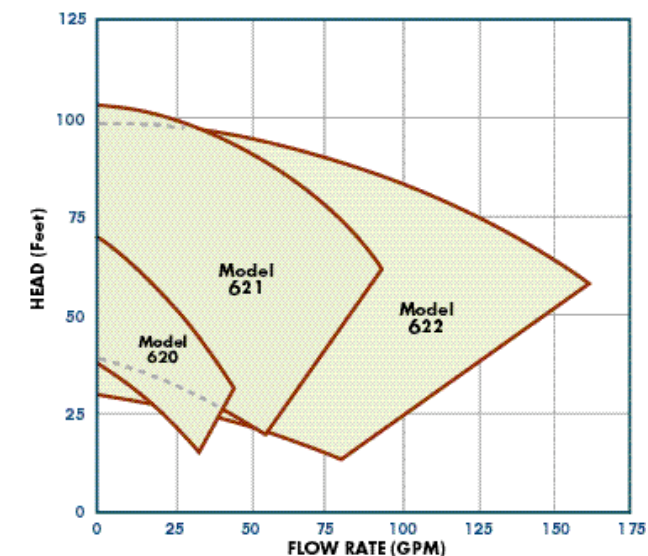
### Rugged Construction

**Centry® Series** pumps are extremely durable and well-suited for aggressive chemical applications. Their oversized shafts reduce L<sup>3</sup>/D<sup>4</sup> ratio minimizing unwanted shaft vibrations which extend the life of the seal and bearings.

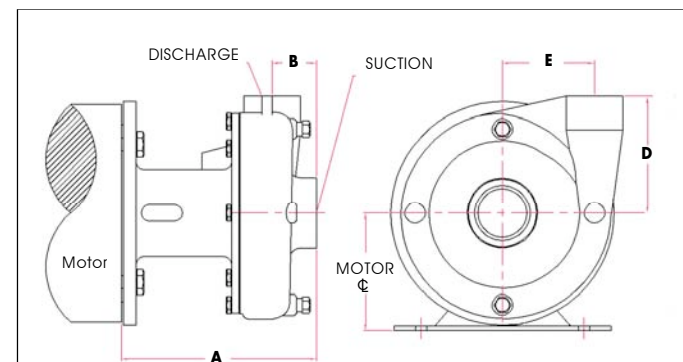
### Models Available

MODEL	SIZE * (inches)	MAX FLOW	MAX HEAD
620	1 x 3/4 x 3 3/4	45 GPM	65 Ft
621	1 1/4 x 1 x 5	90 GPM	100 Ft
622	2 x 1 1/2 x 5	150 GPM	95 Ft

\* Suction Port Size x Discharge Port Size x Impeller Diameter



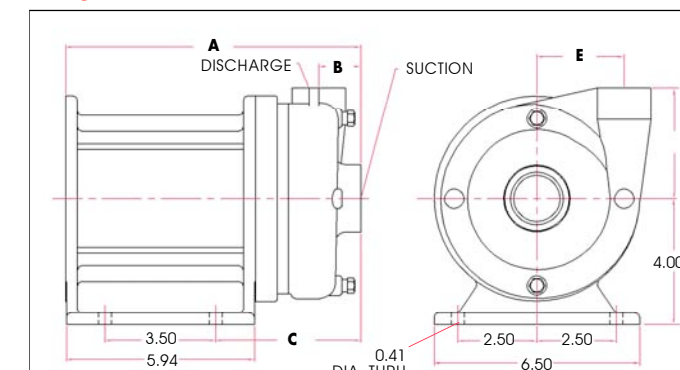
### SEALED



Model	Suction	Discharge	A	B	D	E
620	1"	3/4"	6.56	1.31	2.75	2.25
621	1 1/4"	1"	5.83	1.32	3.50	2.75
622	2"	1 1/2"	6.70	2.12	3.82	3.12

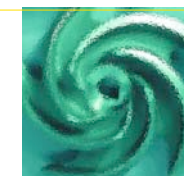
Note: Drawing for Reference Only

### MAG-DRIVE



Model	Suction	Discharge	A	B	C	D	E
620	1"	3/4"	8.87	1.31	4.125	2.75	2.25
621	1 1/4"	1"	9.33	1.32	4.58	3.50	2.75
622	2"	1 1/2"	10.20	2.12	5.45	3.82	3.12

Note: Drawing for Reference Only



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