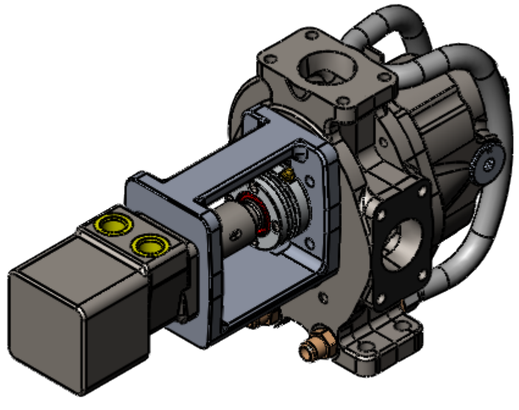
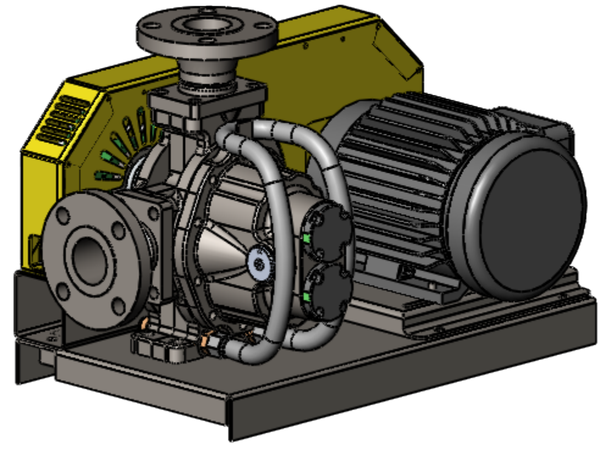


BearCat Pumps

Delta Pump Manual, 2020



Index (Click link for quick access)

General Safety Precautions

- This manual should be read entirely prior to the commencement of installation and operation.
- Only qualified personnel should install, operate and maintain this pump and associated equipment.
- Check pump for specific safety warnings/labels.
- Prior to start-up, ensure complete cleanliness and integrity of the system in which the pump is installed.
- In most cases the relief valve is factory set during performance test. In cases where the type of duty is not known (such as distributors or stock orders) or where the components containing the relief valve come from pre-tested stock batches, it is not possible to factory set the relief valve. In this case it is the installer's responsibility to set the relief valve in accordance with the specific application.
- Pumps with heat tracing or jacketing necessary to prevent solidification of the product should be brought up to working temperature prior to start-up.
- All electrical work must be done in accordance with the manufacturers recommended procedures by qualified personnel.
- Ensure all guards are securely in place before operating the equipment. Do not remove guards at any time during operation.
- For pumps operating under 'flooded' suction, when venting the pump through a plug or valve, care should be taken not to completely remove vent plugs or completely open any vent as this could result in liquid being discharged from the openings under pressure.
- Prior to start-up, ensure that the system valves and associated equipment are correctly set.
- Wear appropriate safety atire including long sleeves, face shield, and gloves, whenever starting or operating the pump.

Start-up and Relief Valve

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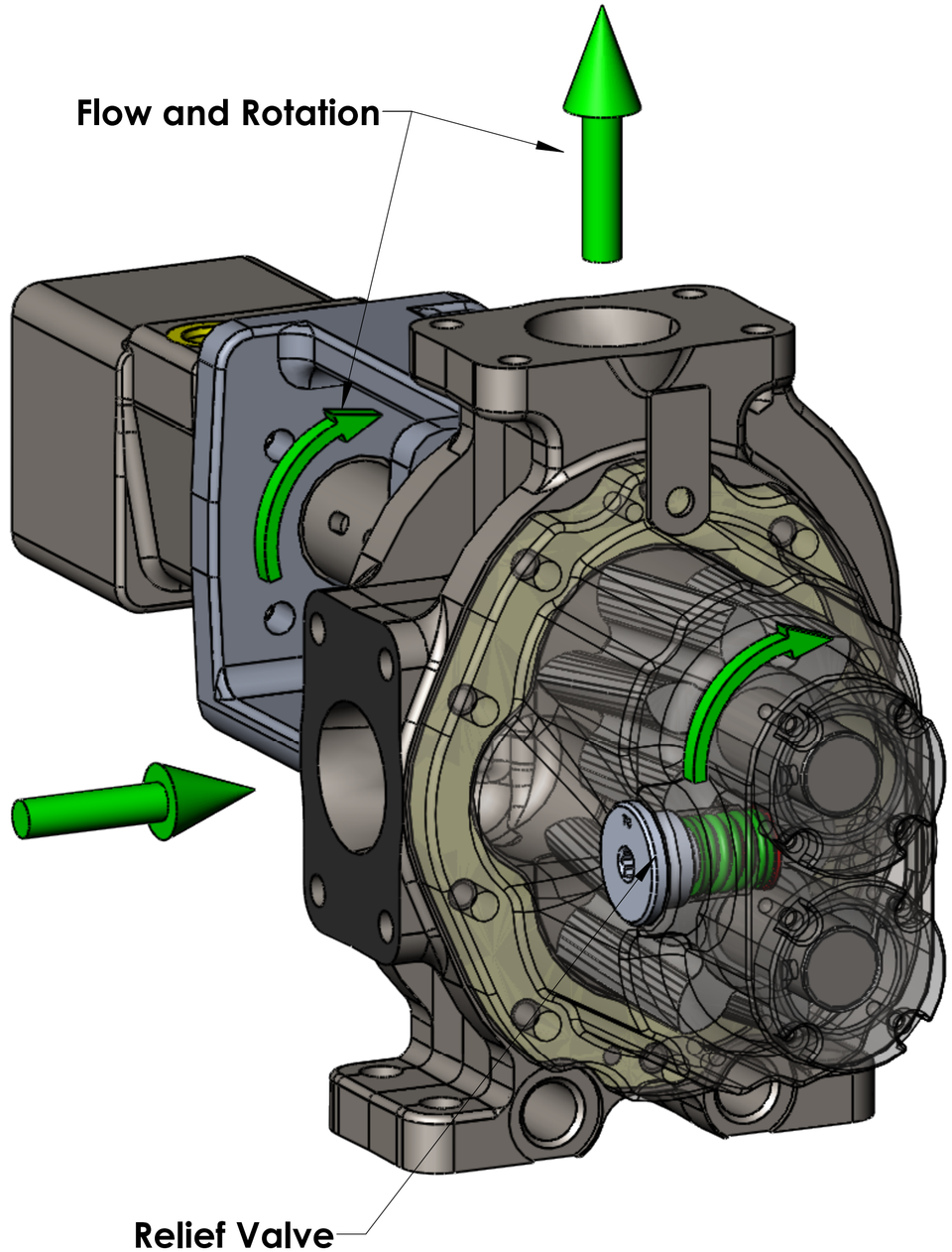
Start-up Procedure

1. Pump should turn freely by hand.
2. Ensure all guards are in place.
3. Gradually open valves and check for leaks before starting.
4. If possible, add some of the liquid directly to the pump. This helps lubricate and prime during the first start-up.
5. Check the rotation by flicking starter 'ON' then 'OFF'. (Correct rotation shown in diagram)
6. Start pump slowly - check for leaks - gradually increase speed.



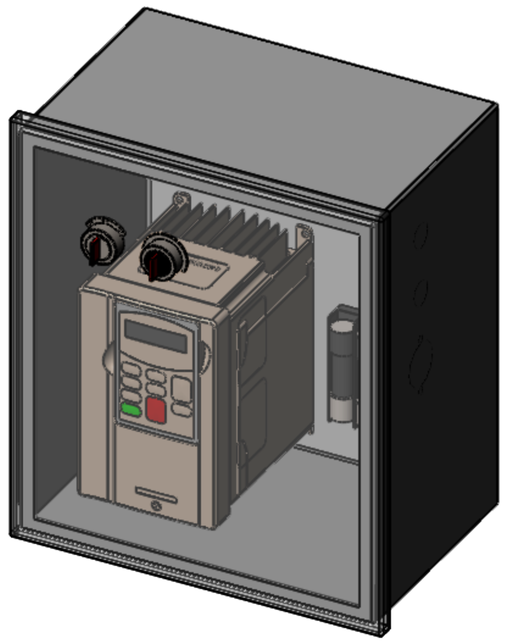
Relief Valve Operation:

The pump can be built with an optional relief valve. The valve is built in the end housing as shown in the diagram.

If discharge pressure exceeds the acceptable limit, the fluid will compress the poppet valve, allowing the fluid to return to the vacuum side of the pump.

Flow Speed Control

RETURN HOME

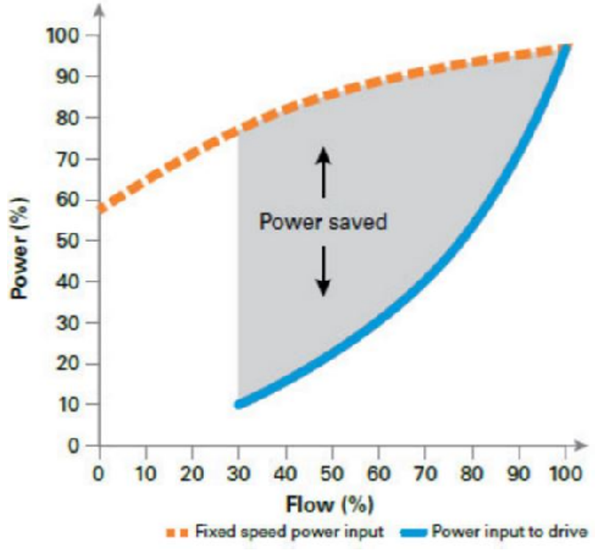


Flow Speed Control:

Pump speed control, either in the form of a Variable Frequency Drive (VFD) or hydraulic control valve is a valuable feature. Many factors can contribute to a situation where pump speed would need to be decreased for cautionary reason, or increased for efficiency gains. These controls have other built in features such as motor protection and pressure control. They also provide valuable information when trouble shooting. Without control, one is left with limited options when problems occur. This can lead to damage, shortened life, or compromised safety.

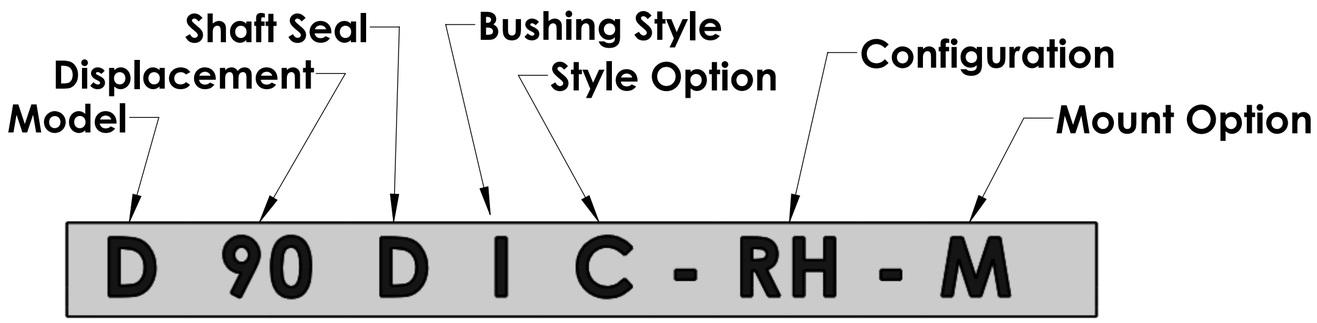
Energy Savings from a VFD

The graph to the right shows the energy comparison of *Fixed Speed** with a VFD. Initially, fixed speed would certainly be the least expensive. However, energy savings should be considered during the cost analysis. At some point this alone would cover the cost.



*Fixed Speed; Not everyone will choose some type of speed control. As a cautionary measure, we advise all fixed drive systems start at a reduced speed. This should be as much as 50% below the pumps maximum. At initial start-up, this slower speed is more forgiving when conditions are not as expected.

Model Number



Model
- D - Complete Pump
- R - Rebuild Kit

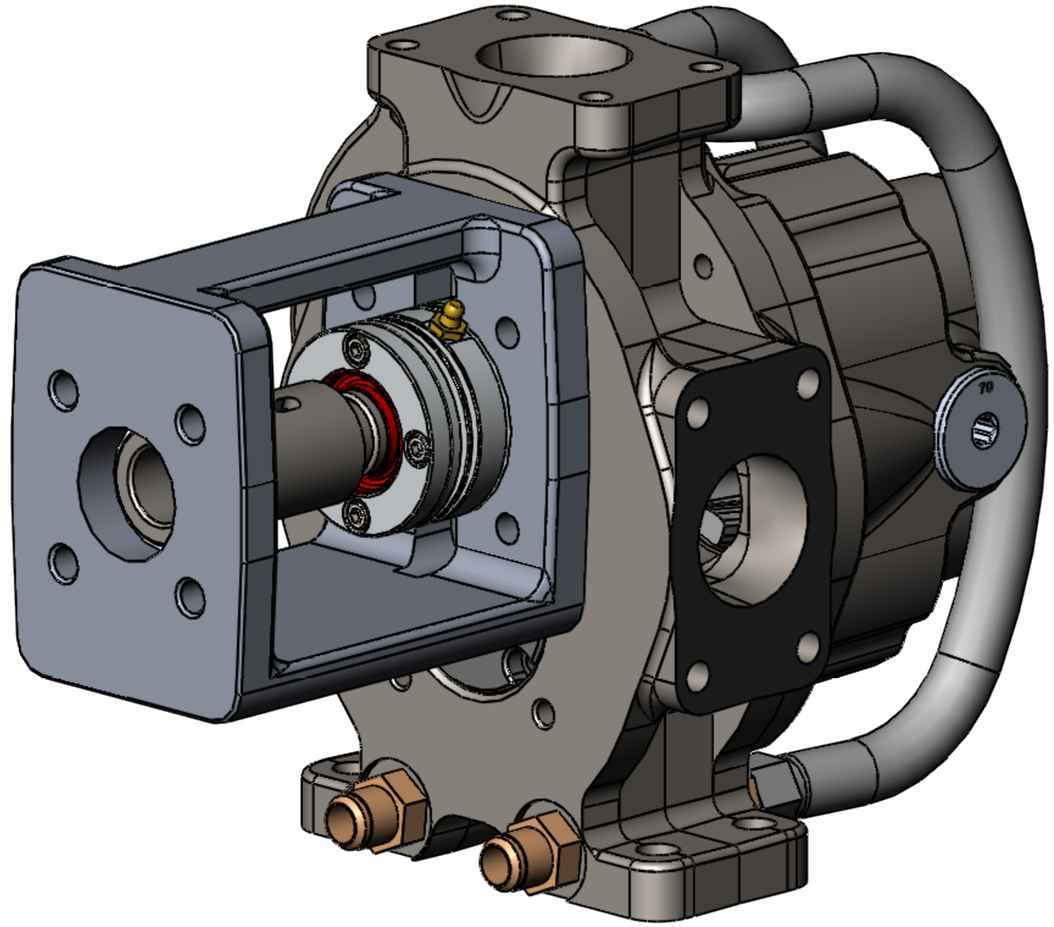
Displacement
- 90 = .09 Gal/Rev

Shaft Seal
- M = Single Seal Modified
- D = Double Seal Bearing

Bushing Style
- I = Iron Bushing (thru hardened)
- H = Extended Drive Bushing

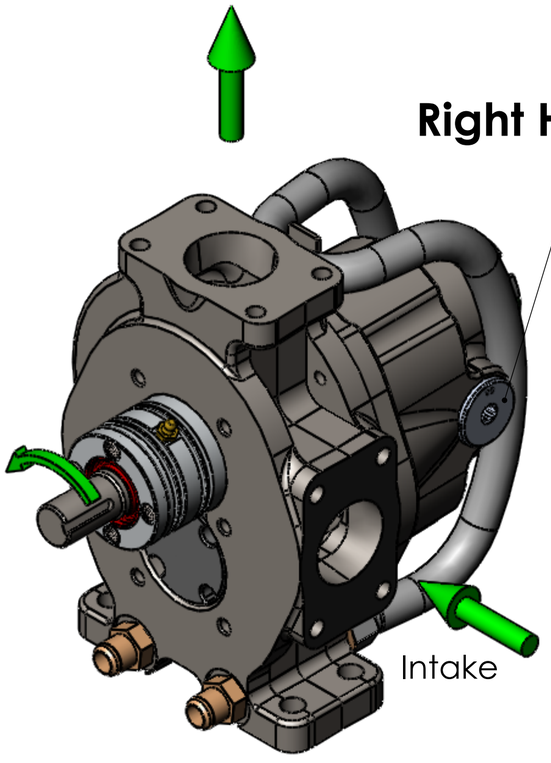
Style Option
- A = Non Heated, No Relief
- B = Non Heated, #70 Relief
- C = Heated, #70 Relief
- M = Meter Tip, Heated, No RV

Motor Mount Option
- A = Base - Pillow Block
- M = Face - Hydraulic 4F-17
- N = Face - Hydraulic SAE-AA
- P = Meter Encoder

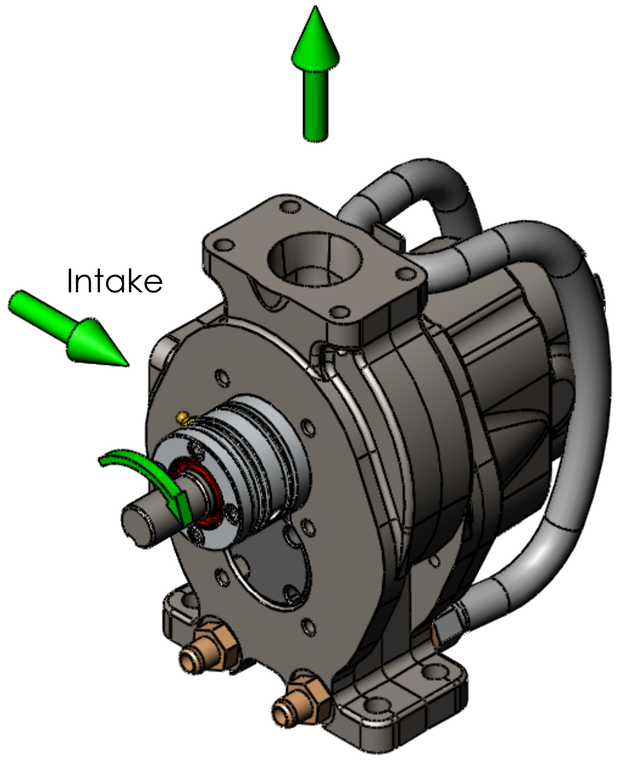


Configuration and Flow

Right High (RH)

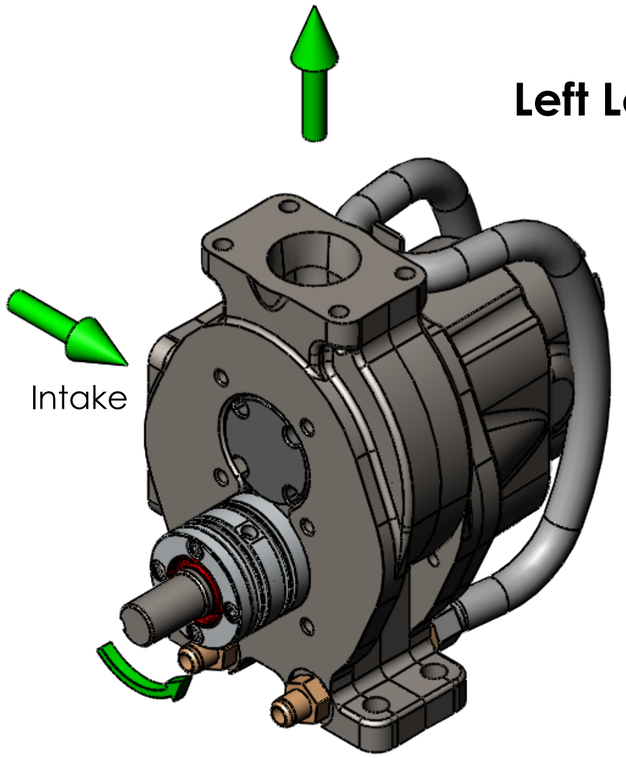


Left High (LH)



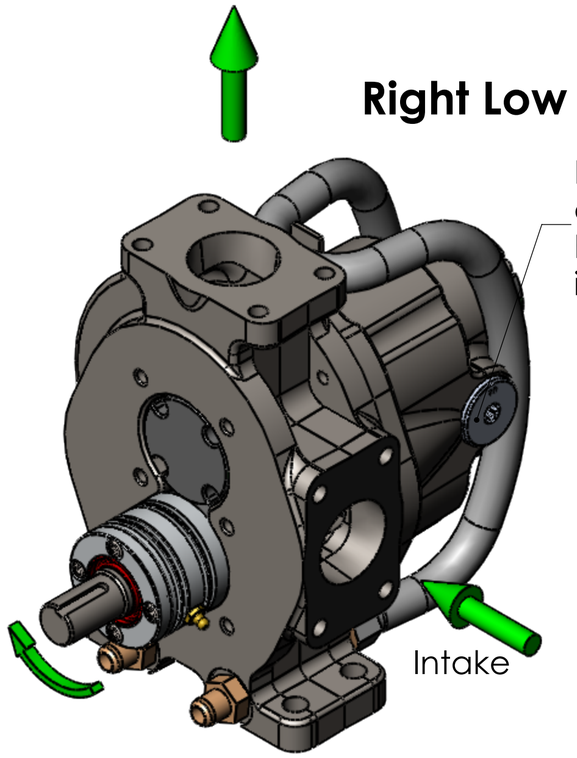
Relief Cap and Bushing Flats orient to intake side (behind pump as pictured)

Left Low (LL)



Relief Cap and Bushing Flats orient to intake side (behind pump as pictured)

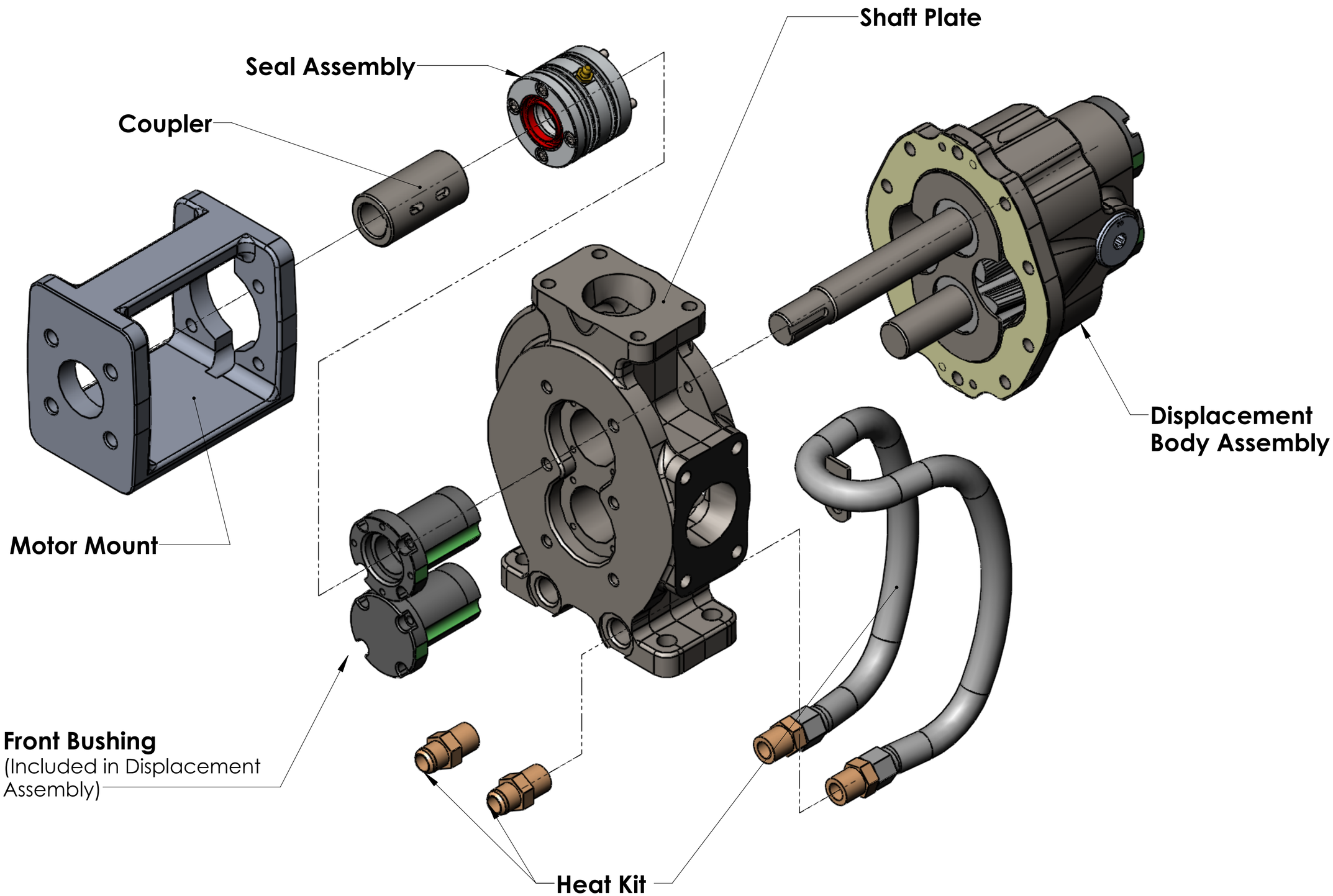
Right Low (RL)



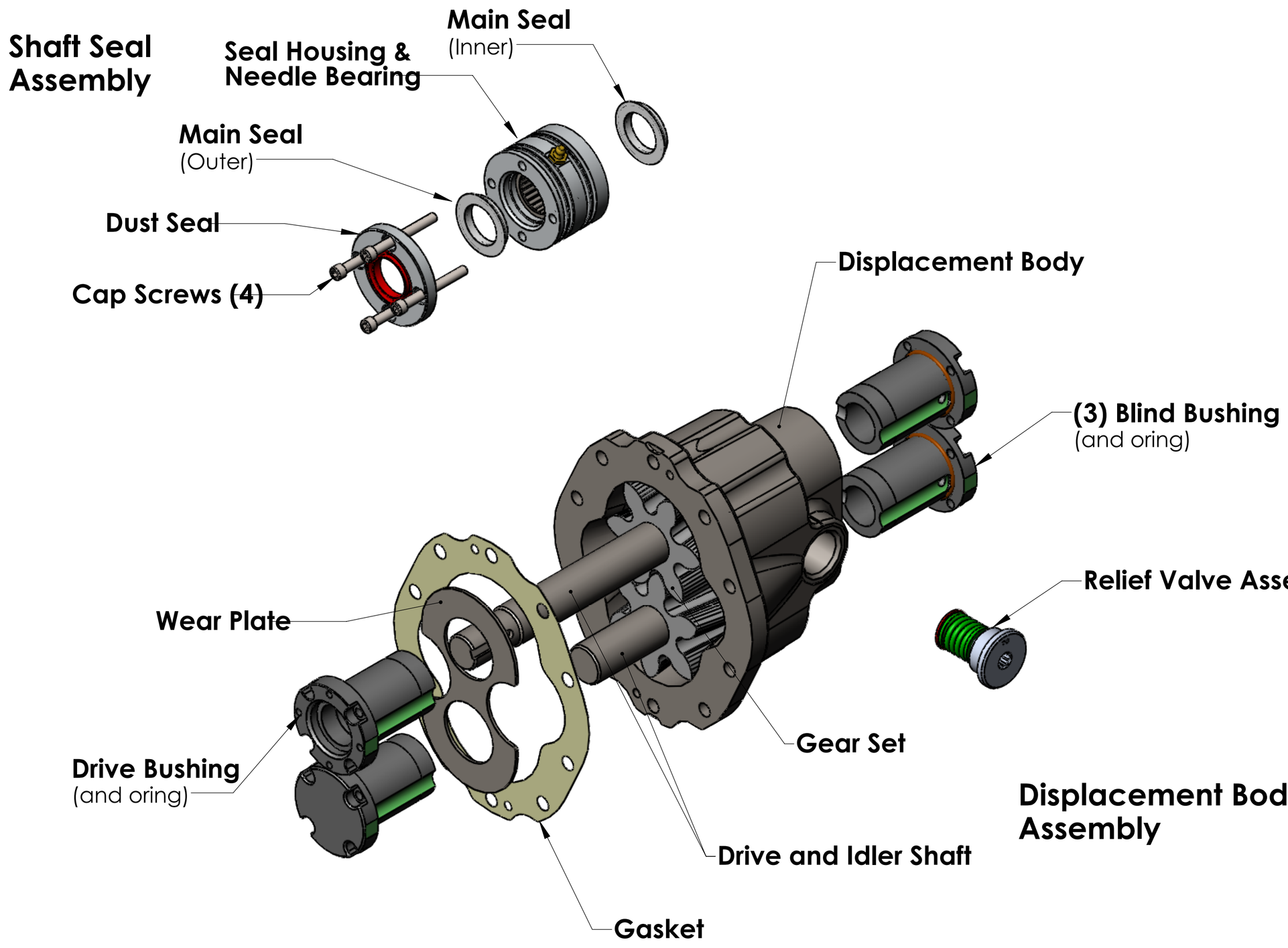
Parts Diagram

RETURN HOME

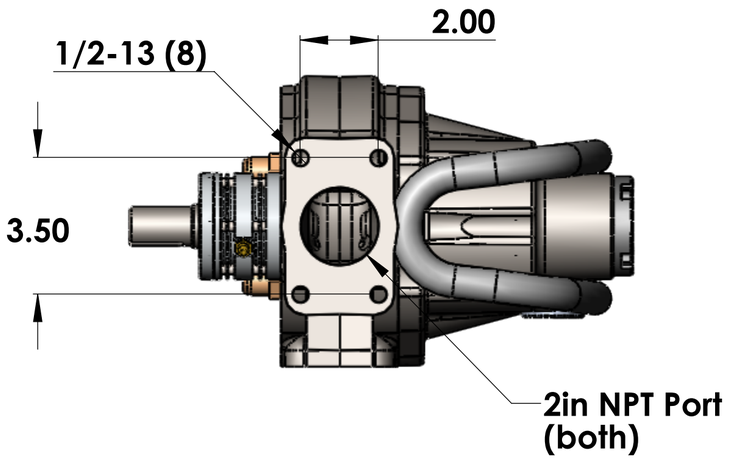
Please provide the complete model number when ordering parts.

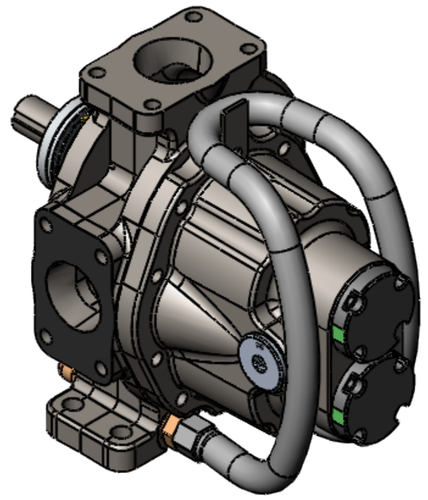


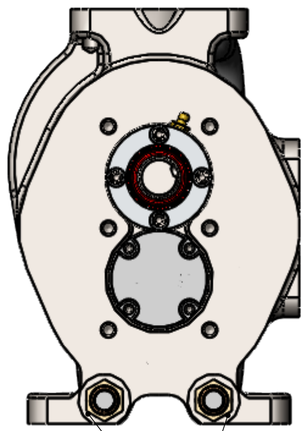
Rebuild Kits

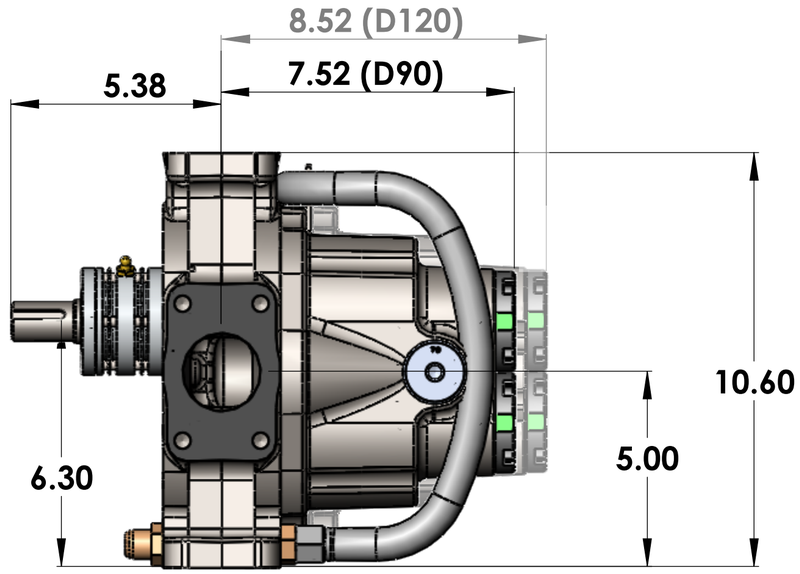


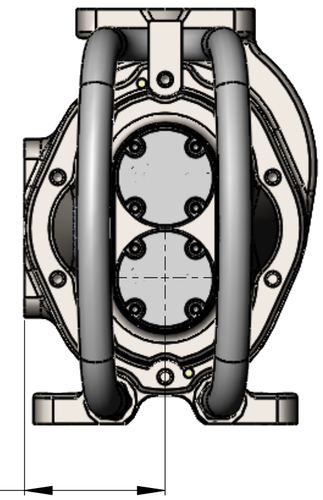
Basic Dimensions

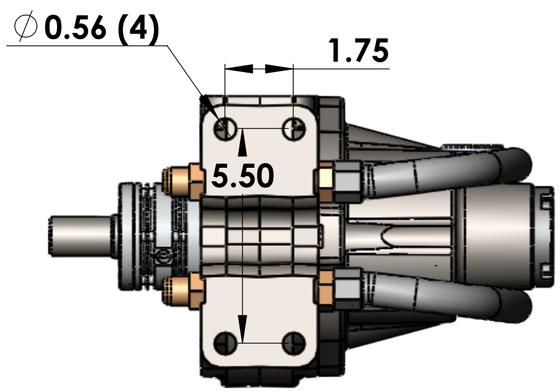






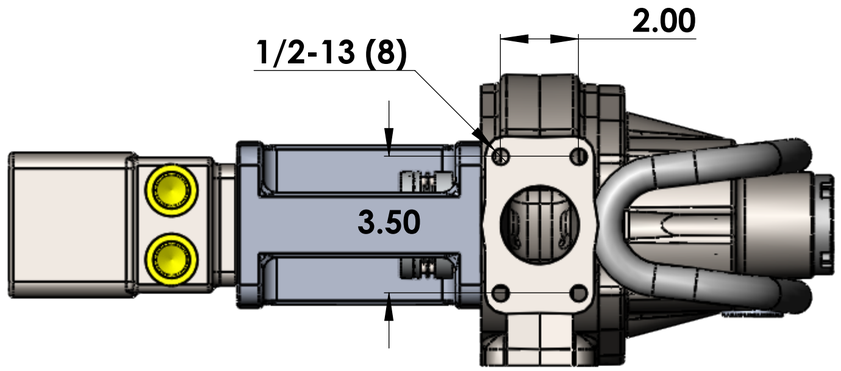


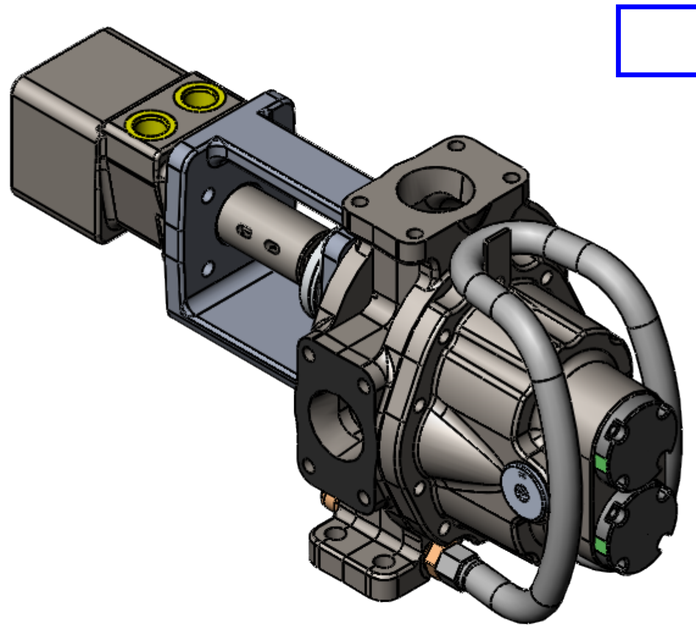


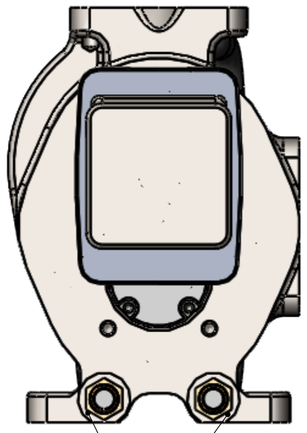


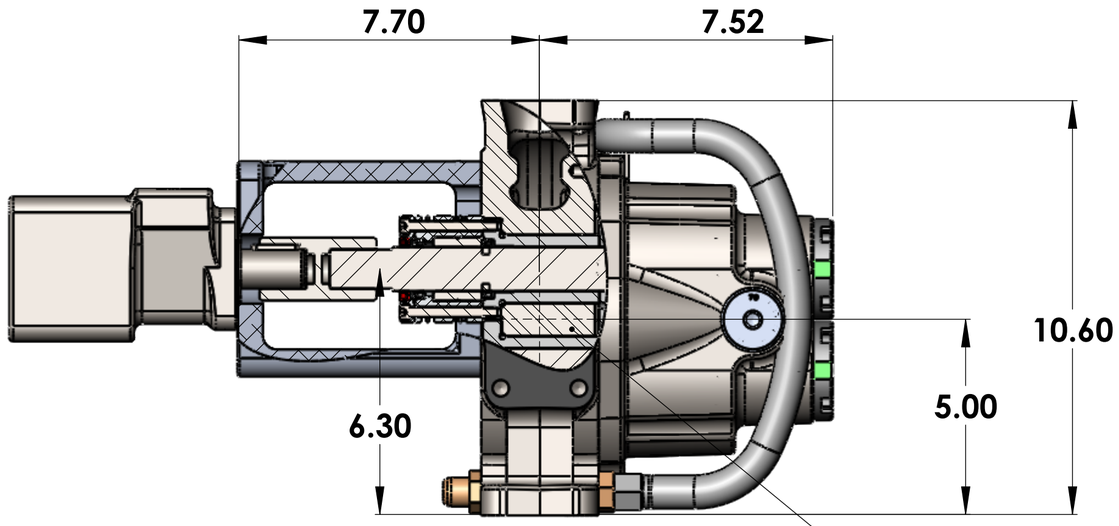
M-Mount

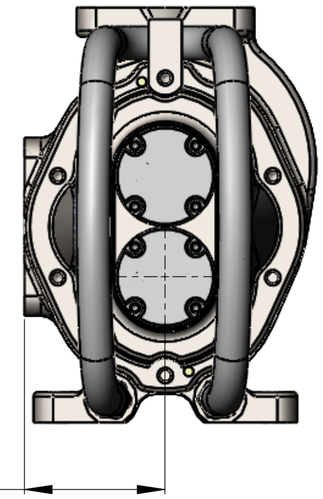
RETURN HOME



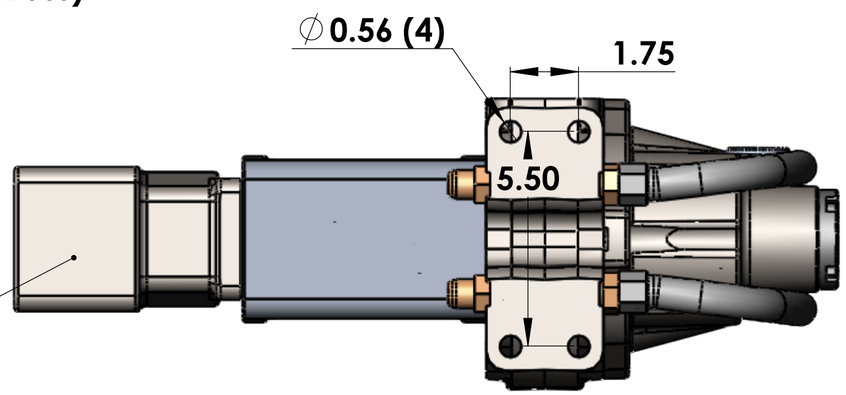








#10FB (Oring Boss)
(4-pls)



Hydraulic Motor
shown for reference
only (not included)

Belt Driven Skid

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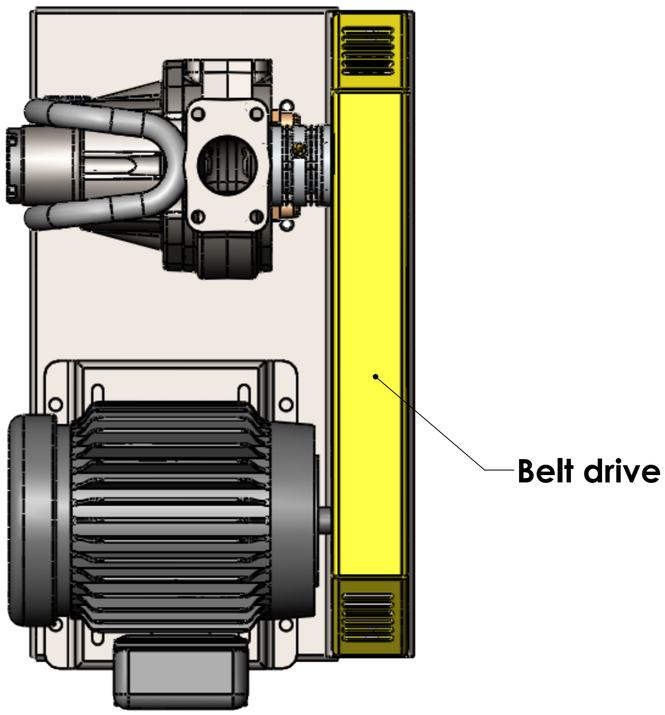
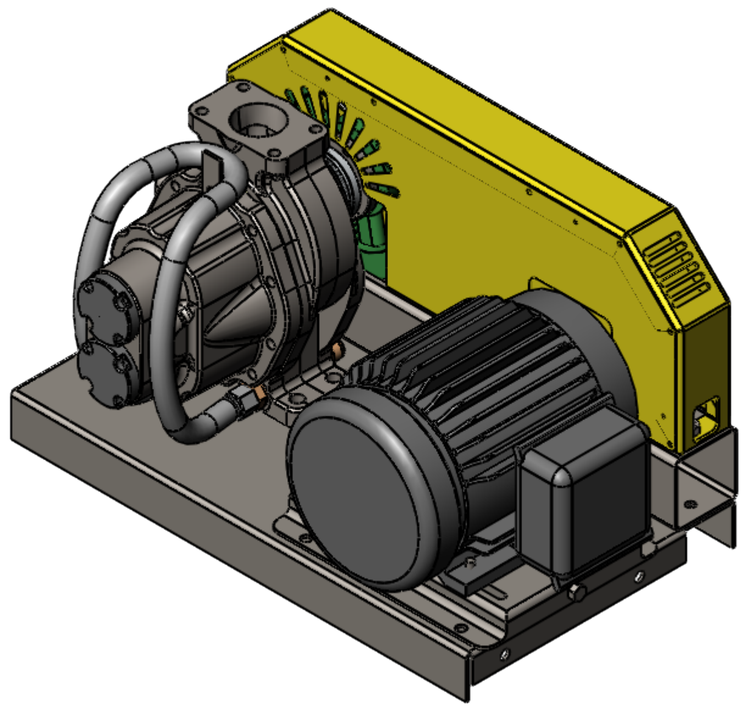
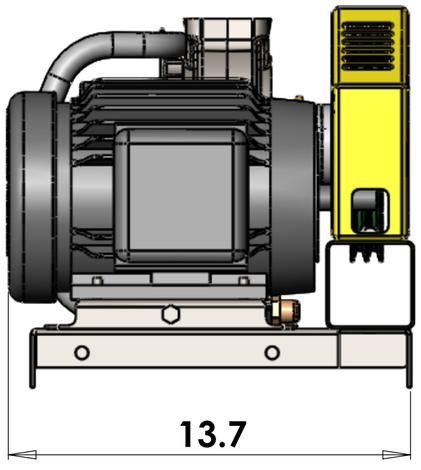
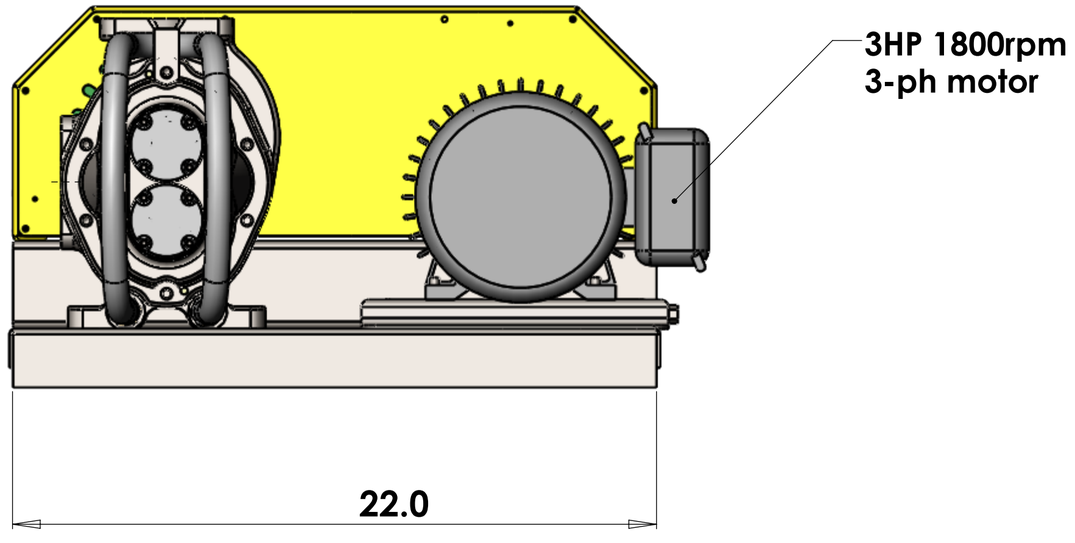


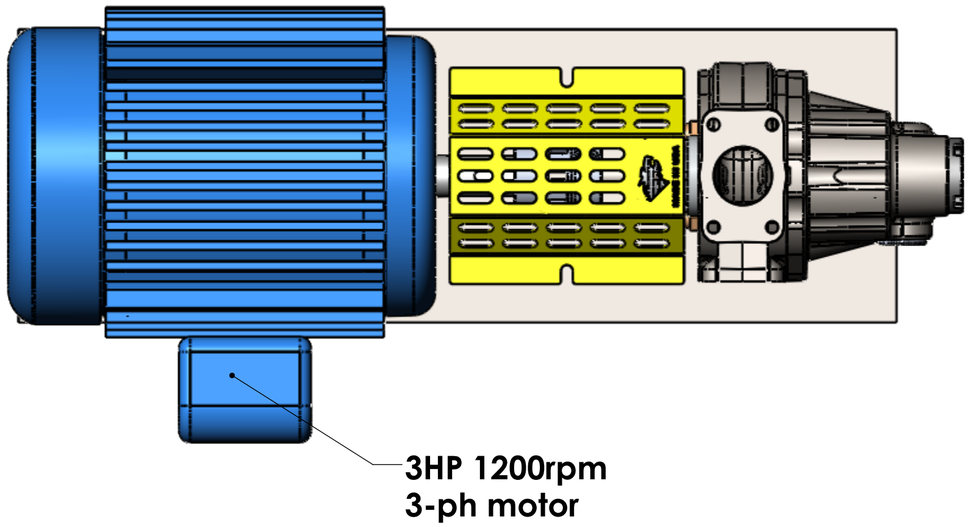


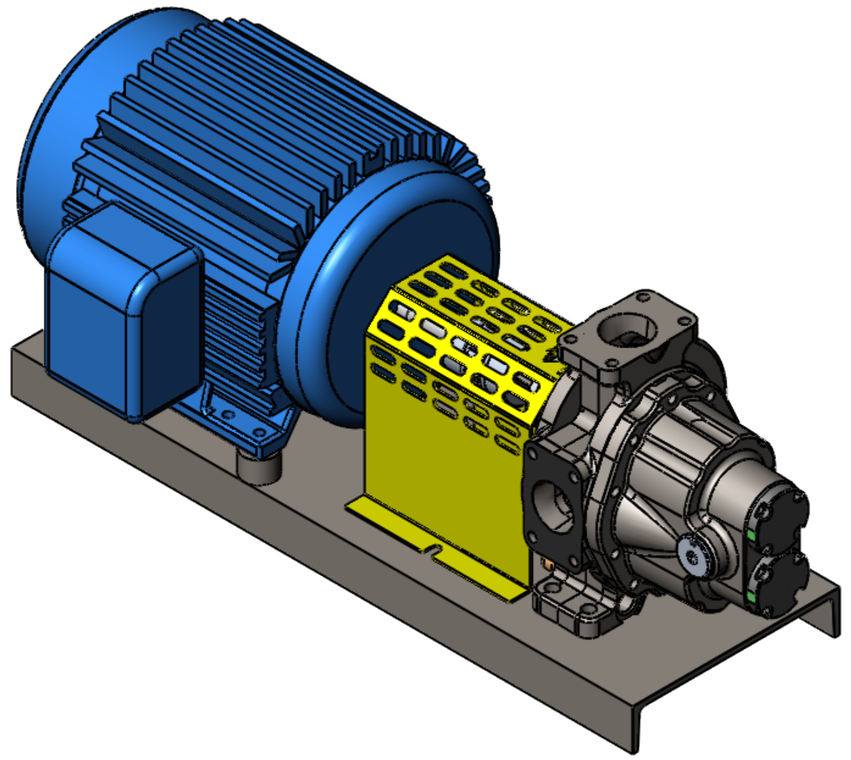


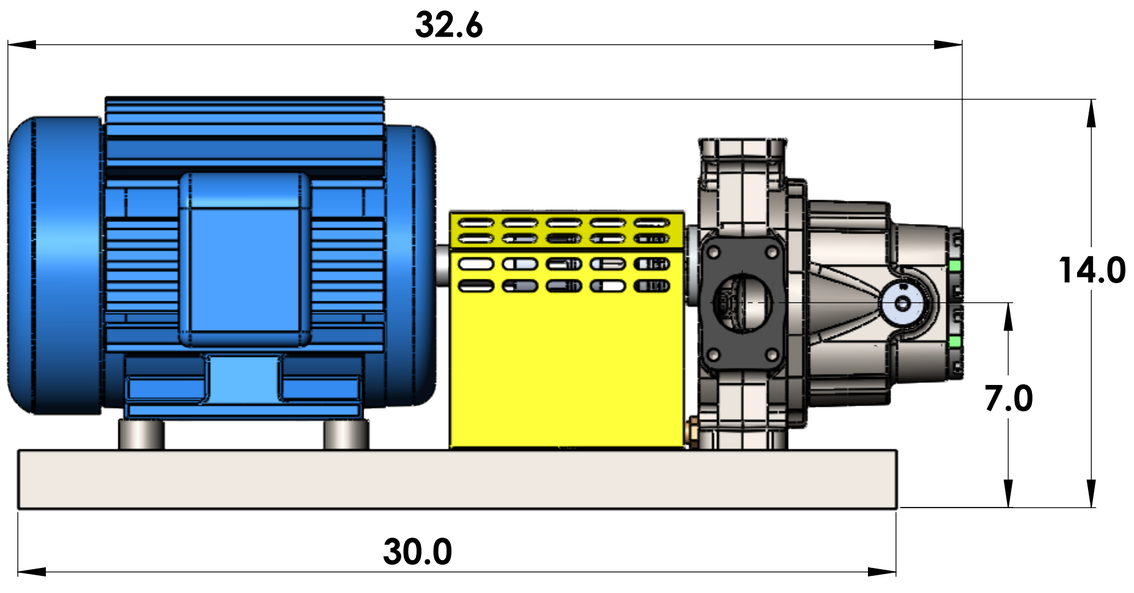


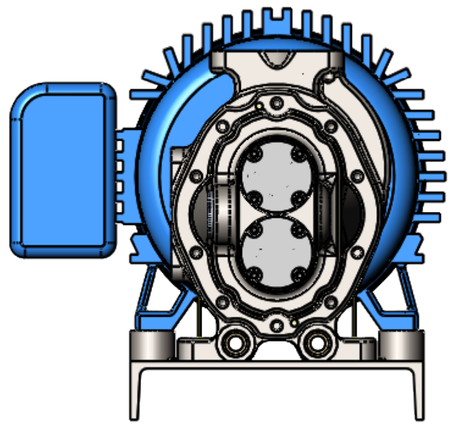
Direct Drive Electric

Direct Drive
3HP, 1200RPM Motor
(Note: Must have speed reduced
with Gearbox or VFD)









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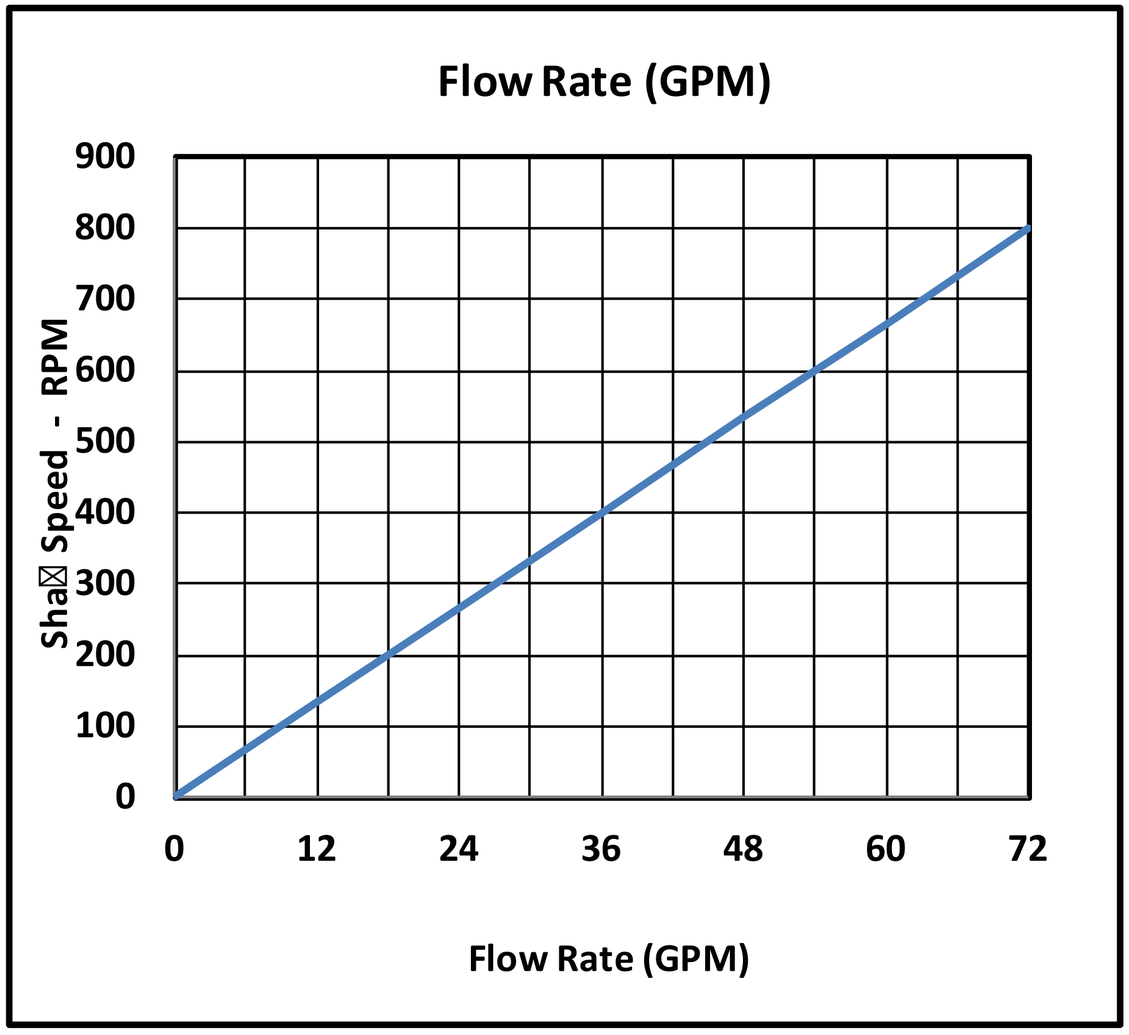
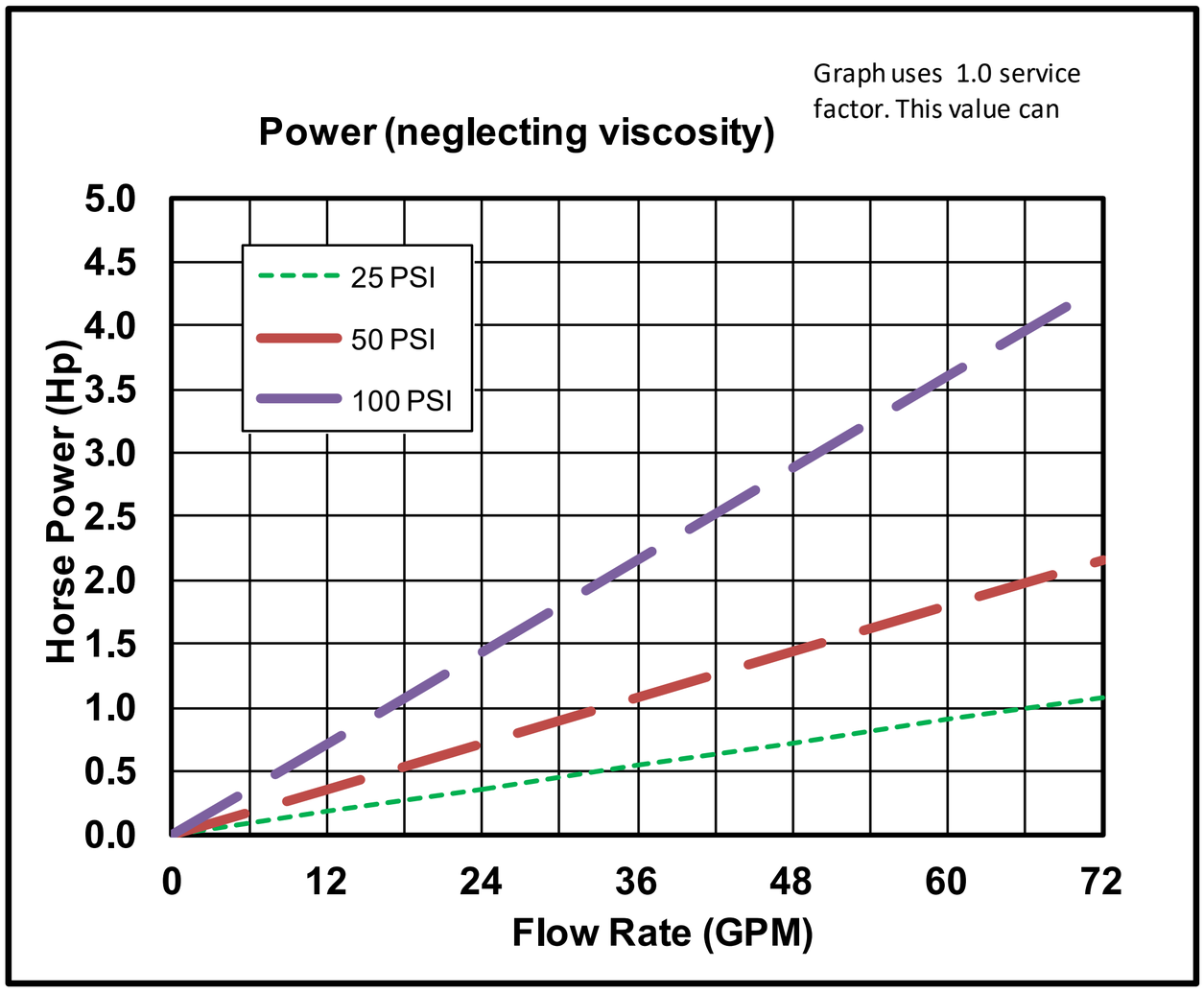
BearCat Pumps, Performance Curves

Pump Model	**90**
Max RPM	800
Max GPM	72
Port Size	2in FPT





AC Electric Skids

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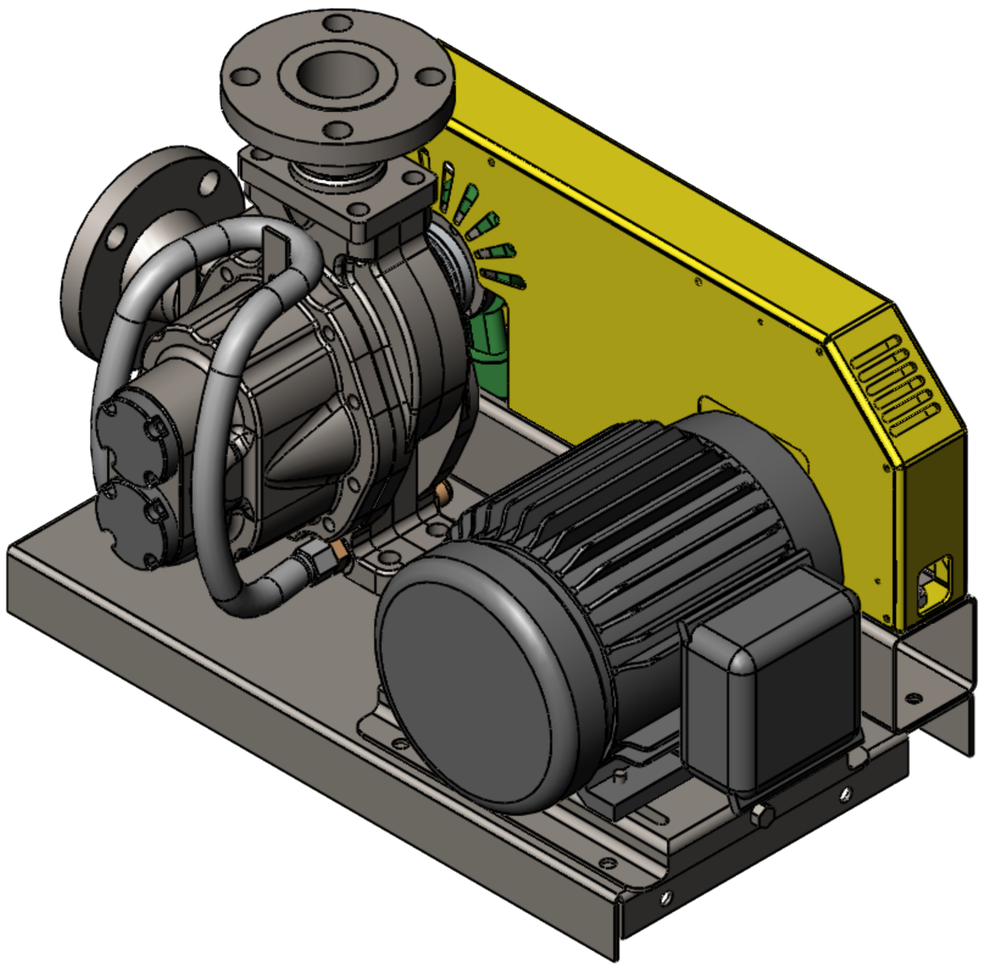
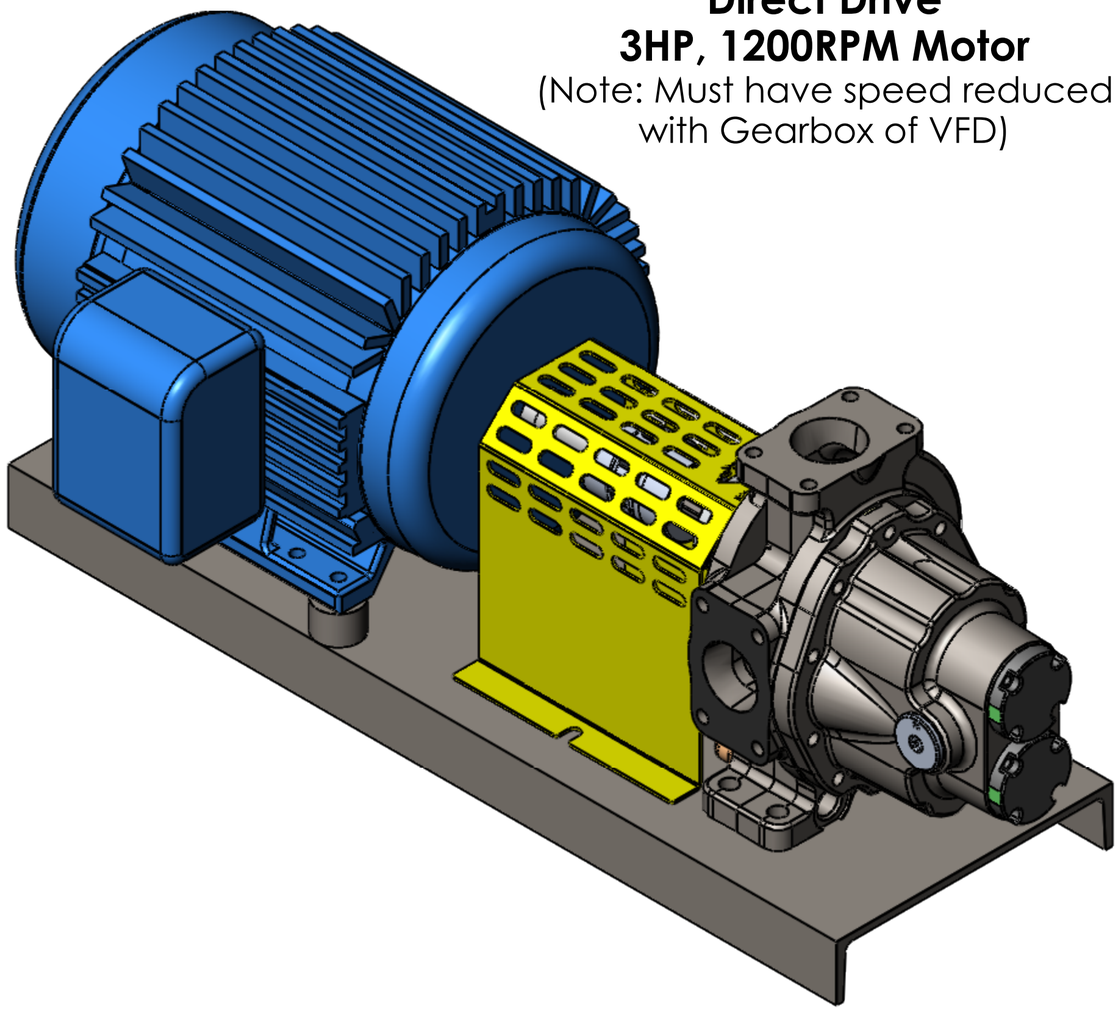
AC Belt Skid with 2in SAE Flanges
3HP, 55GPM, 450F

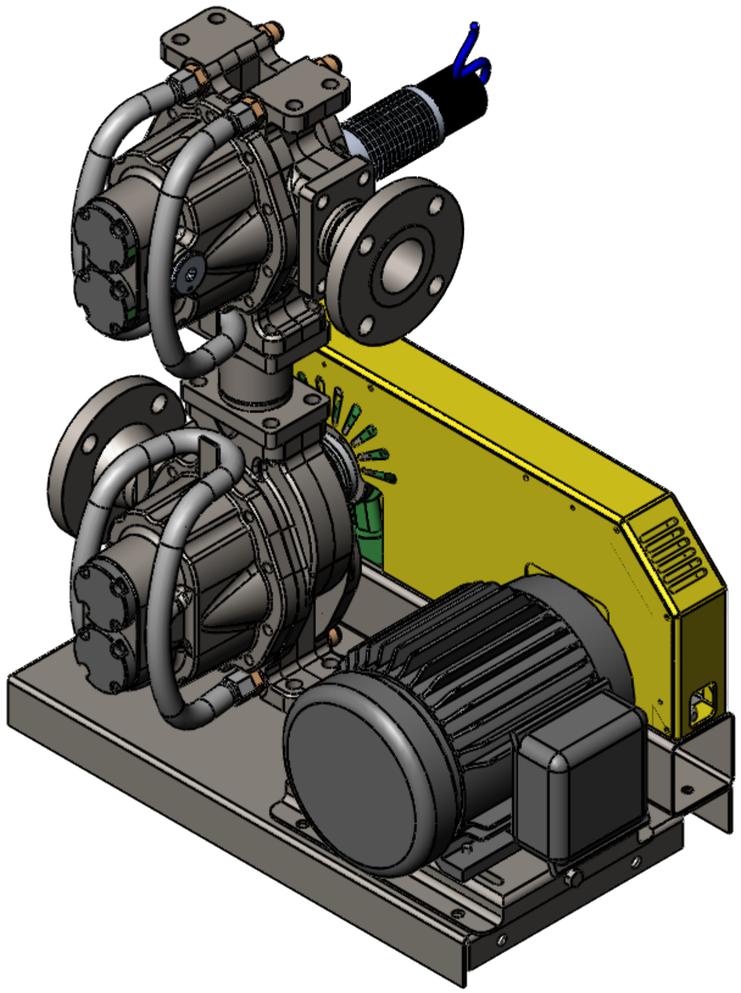


Direct Drive
3HP, 1200RPM Motor
(Note: Must have speed reduced with Gearbox of VFD)

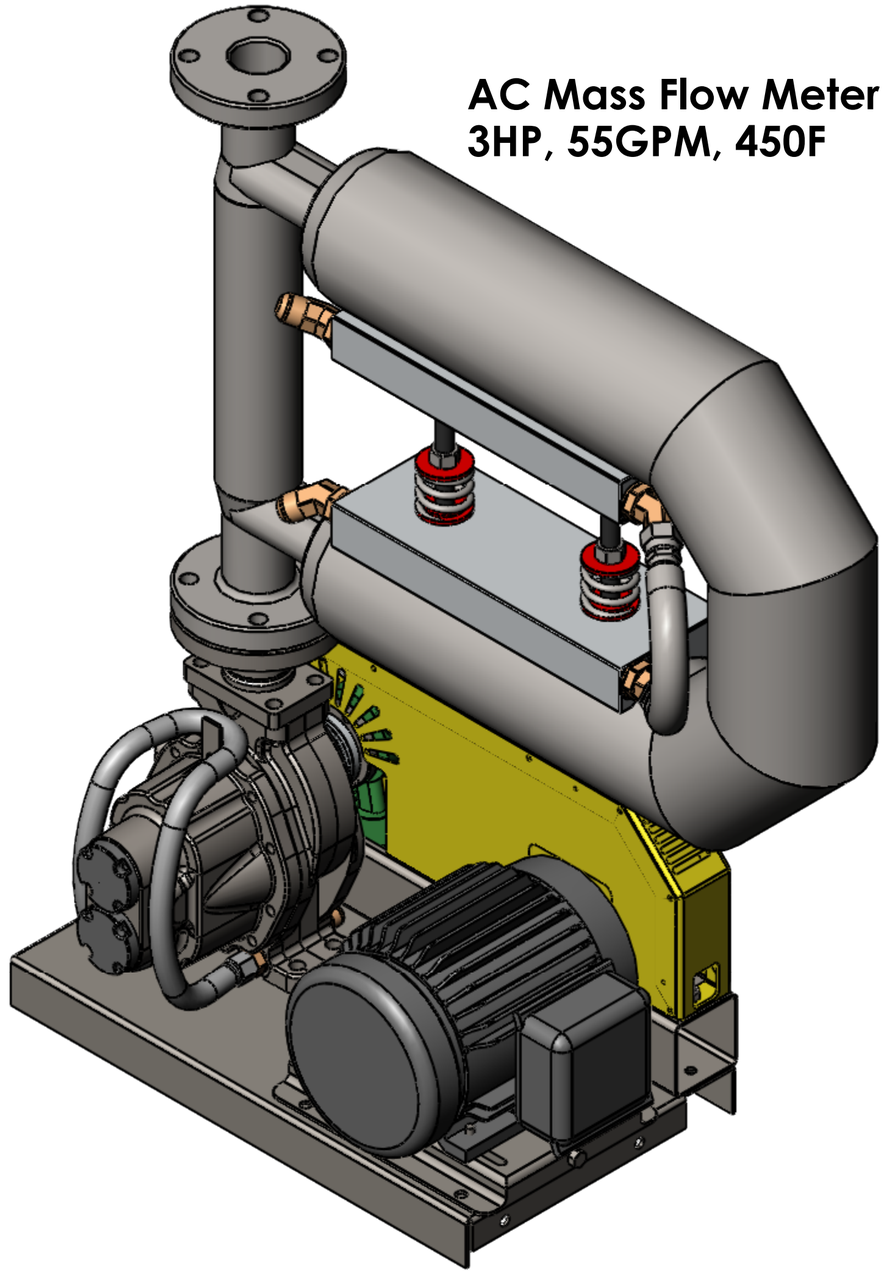


Belt Driven Meter Skids

AC Gear Meter Skid
3HP, 55GPM, 450F



AC Mass Flow Meter Skid
3HP, 55GPM, 450F



Hydraulic Systems

4-Bolt, 4F-17 Motor Face