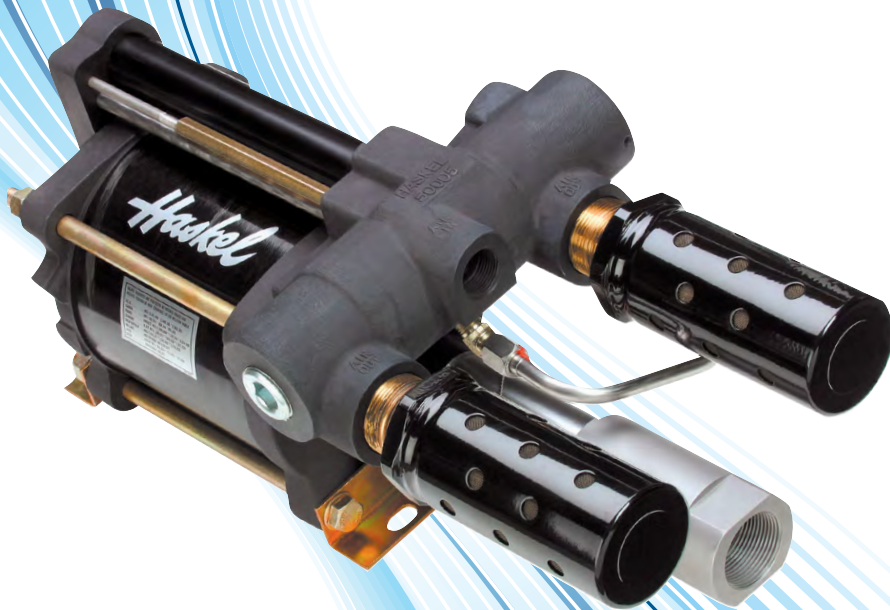


Haskel®

an Accudyne Industries brand

Pressure on Demand

Pneumatic Driven Liquid Pumps





High Pressure

Haskel pneumatic driven liquid pumps are designed to provide a safe, reliable and economical, source of hydraulic pressure.

This brochure introduces our pneumatic driven liquid pump range. Visit our website at www.haskel.com for more information or to locate a distributor.

Why Use Haskel Pneumatic Driven Pumps?

Our pumps offer many advantages over electrically driven pumps:

- Safe pneumatic operation – no heat, flame or spark risk
- Up to 100,000 psi (7000 bar) capability
- Infinitely variable cycling speed
- Stall feature at pre-determined pressure to hold that pressure without consuming power
- Problem-free stop/start applications
- Easily automated – many modification and control options
- Suitable for most liquids and liquefied gases
- Alternative gas drive options – sour gas, natural gas, boil off gases, nitrogen
- No need for air line lubrication – saves costs and prevents contamination
- Robust, reliable, compact and easy to maintain proven design
- Unbalanced cycling spool provides immediate response to pressure changes
- Also available in standard, or custom built power pac configurations
- Excellent worldwide service for spares and repairs
- ATEX approved
- CE certified

Applications include:

- Pressure testing
- Work holding/power clamping
- Jacking/lifting
- Valve actuator control
- Hydraulic cylinder actuation
- Press safety overload devices
- Roller tensioning
- Metering
- Precision lubrication and spraying
- Liquefied gas transfer



Pressure and Flow on Demand

This guide will help you to pre-select the pump ideally suited for your application. If you have specific questions, however, we urge you to provide Haskel with the operational details of your application. We will recommend a model and any corresponding accessories.

Output Horsepower Ratings

The pumps are categorized on their horsepower ratings (see pages 6-7). These are approximate and peak at 100 psi (7 bar), assuming adequate drive, pressure and volume. Peak horsepower is at about 75% nominal ratio x drive pressure, i.e. 100:1 pump @ 100 psi air drive peaks at $100 \times 100 = 10000 \times 0.75$ psi = 7500 psi (517 bar) hydraulic pressure.

Operation

The pumps automatically reciprocate on a differential piston principle. A large piston driven by relatively low pressure drive acts directly upon a smaller hydraulic piston.

The nominal ratio between piston sizes is indicated in the model coding and approximates to the maximum working pressure. The actual ratio is about 15% above nominal so that the pump continues to cycle when drive pressure equals nominal ratio. Initially, the pump will cycle at maximum speed acting as a transfer pump to pressurize downstream.

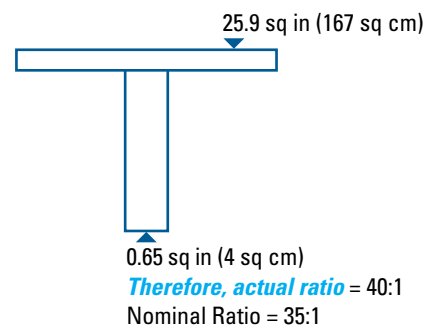
It will cycle at a slower rate as the fluid meets resistance until it stalls at maximum output pressure. When a pressure drop downstream occurs, it will recycle as necessary in an effort to maintain maximum pressure. Stall pressure is achieved when the outlet pressure rises and offers more resistance to the reciprocating differential piston assembly. The piston assembly then stalls when the forces balance, e.g. when drive pressure x drive piston area equals outlet (stall) pressure x driven hydraulic plunger area. The pump design is sensitive to very small pressure drops due to the low frictional resistance of the large diameter drive piston and hydraulic piston seals.

Double and Triple Air Head Pumps

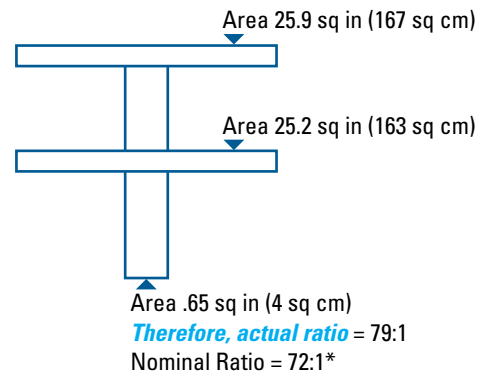
Performance can be extended for the 1.5 hp pumps by stacking air pistons without changing the hydraulic piston. Haskel multi-head pumps consume less air than competitive single head pumps of the same area, as only one head is pressurized on the return stroke; e.g., on a 1.5 hp pump additional heads can raise performance to 2 hp.

Double air head pumps are identified by the last digit 2 in the pump model number. Thus, a nominal 50:1 ratio pump with two air heads is described as a 52. Similarly, a triple air head pump is identified with a last digit 3. Thus, a 900 ratio pump with three air heads is described as a 903.

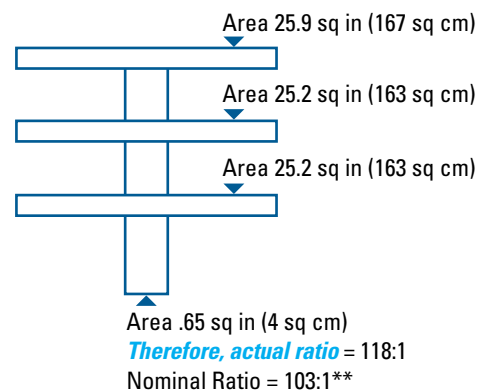
Single Drive Head Pump



Double Air Head Pump



Triple Air Head Pump

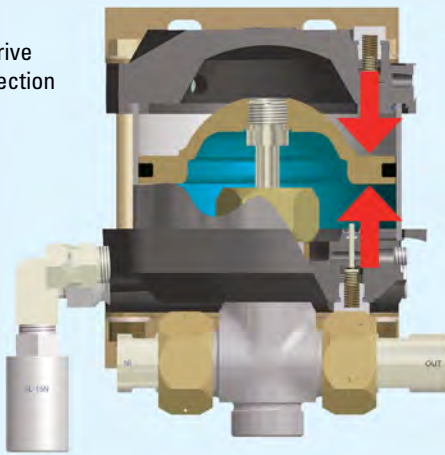


Nominal Ratio

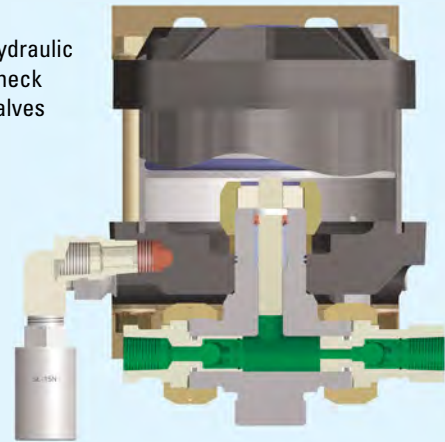
* (2) Indicates Double Drive Piston

** (3) Indicates Triple Drive Piston

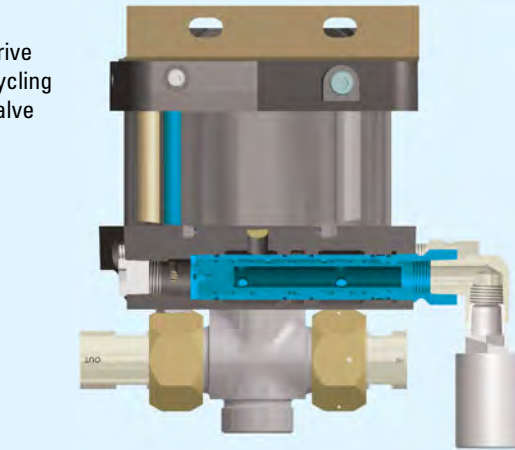
1. Drive Section



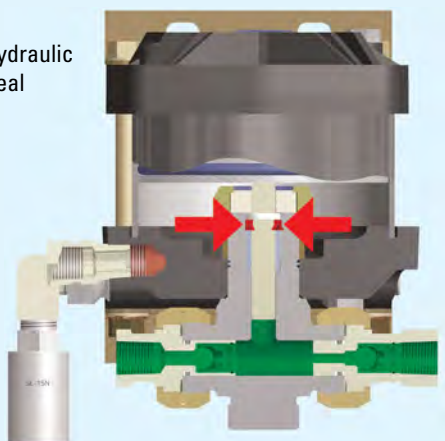
2. Hydraulic Check Valves



3. Drive Cycling Valve



4. Hydraulic Seal



Anatomy of a Pneumatic Driven Pump

1. Drive Section

The piston, complete with "O" ring seal, operates in an epoxy filled, fiberglass wound barrel, the diameter of which is constant throughout a given series of pumps. Drive media forces the piston down on the compression stroke and raises it on the suction stroke (M series have a spring return). The piston is pre-lubricated during assembly and therefore no air line lubricator is necessary.

2. Hydraulic Section/Check Valves

The drive piston is linked and connected to the hydraulic plunger/piston in the hydraulic section. Outlet flow and pressure are determined by the area of the hydraulic piston head, its nominal ratio with the drive piston head, and drive pressure. On the down stroke, liquid in the hydraulic section is forced under compression through the outlet check valve. Fresh liquid is induced via the inlet check valve on the return stroke. These check valves control the flow of liquid through the hydraulic section. They are spring-loaded and have a very low cracking pressure, allowing maximum opening on the induction stroke. The pressure of hydraulic fluid on the down stroke closes the inlet check valve and acts against the spring to open the outlet check valve.

3. Drive Cycling Valve

This is a pilot-operated, unbalanced, lightweight spool, which directs drive pressure, first to the top of the drive piston, and then to the underside to reciprocate the piston (cycle). It actuates via pilot valves at the top and the bottom of the stroke, which causes the unbalanced spool to shift and reciprocate the piston.

4. Hydraulic Seal/Check Valves

This is one of the few wear parts. Its function is to allow the hydraulic piston to reciprocate without passing fluid into the drive section. The liquid, its pressure and its temperature determine seal specification. A distance piece can be incorporated between drive and hydraulic sections for complete contamination-free operation on most Haskel pumps.



WETTED MATERIALS OF CONSTRUCTION AND SERVICES

| | MODEL | SERVICES (refer to pg. 17) | WETTED MATERIALS | | NON METALLICS |
|------------|---|-------------------------------|--------------------------------------|---|------------------------------|
| | | | PUMP SECTION | PLUNGERS | |
| .33 hp | M | 1 | Cad plated steel, Aluminum & SS | 416 SS | Urethane, PTFE, Buna |
| | MS | 1, 2 | All SS | 316 SS | UHMWPE, PTFE, Buna |
| | 29723 | 1, 2, 3, 5, 6 | Separation - All SS | Hard Chrome Plated 15.5PH SS + Dichronite | UHMWPE, PTFE, Ryton |
| | MDSTV | 1, 2, 3, 4, 5, 6 | Stainless Steel and Aluminum | 303 Stainless Steel | Viton, PTFE |
| .75hp | 4B-14 thru -37 | 1, 2 | Aluminum | Aluminum(Hard coated) | UHMWPE, Buna |
| | 4B-55 thru -100 | 1, 2 | 303 SS | 440 C. SS | UHMWPE, Buna |
| 1.5 hp | AW | 1 | Nickel Plated Steel & SS | 440C SS | Urethane, Buna N, PTFE |
| | ASF | 1, 2 | All SS | 440C SS | UHMWPE, Buna, PTFE, Ryton |
| | DSF | 1, 2, 3, 5, 6 | Separation - All SS | 4400C SS Hard Chrome Plated | UHMWPE, Viton, PTFE, Ryton |
| | HF | 1 | Nickel Plated Steel & SS | Stellite 15-5PH SS | UHMWPE, Buna N |
| | HSF | 1, 2 | All SS | Stellite 15-5PH SS | UHMWPE, Buna N |
| | DSHF | 1, 2, 5, 6 | Separation - All SS | Stellite 15-5PH SS | UHMWPE, Buna N |
| | ATV | 1, 2 | Aluminum, Bronze & SS | 15.5PH SS | PTFE, Viton |
| | DTV | 1, 2, 5 | Separation - Aluminum, Bronze & SS | 15.5PH SS | PTFE, Viton |
| | DSTV-1.5 | 1, 2, 3, 4, 5, 6 | Separation - All SS | 17.4PH SS | PTFE, Viton |
| | DSTV | 1, 2, 3, 4, 5 | Separation - All SS | 440C SS Hard Chrome Plated | PTFE, Viton |
| DTN | 1, 2, 5 | Stainless Steel, Aluminum | 300 Series SS | Neopreen, PTFE | |
| 2 thru 3hp | AW | 1 | Nickel Plated Steel & SS | 440C SS | Urethane, Buna N, PTFE |
| | AFD | 1 | Nickel Plated Steel & SS | 416 SS | UHMWPE, Buna, PTFE, Ryton |
| | DFD | 1, 3, 5 | Nickel Plated Steel & SS | 416 SS | UHMWPE, Viton, PTFE, Rtyon |
| | ASFD | 1, 2 | All SS | 15.5PH SS | UHMWPE, Viton, PTFE, Rtyon |
| | ASF | 1, 2 | All SS | 440C SS | UHMWPE, Viton, PTFE, Rtyon |
| | DSFD | 1, 2, 3, 5, 6 | Separation - All SS | 15.5PH SS | UHMWPE, Viton, PTFE, Rtyon |
| | DSF | 1, 2, 3, 5, 6 | Separation - All SS | 440C SS Hard chrome plated | UHMWPE, Viton, PTFE, Rtyon |
| | HF | 1 | Nickel Plated Steel & SS | Stellite 15-5PH SS* | UHMWPE, Buna N |
| | HSF | 1, 2 | All SS | Stellite 15-5PH SS* | UHMWPE, Buna N |
| | DSHF | 1, 2, 5, 6 | Separation - All SS | Stellite 15-5PH SS* | UHMWPE, Buna N |
| | DSXHF | 1, 2, 5, 6 | Separation - All SS | Stellite 15-5PH SS | UHMWPE, Buna N |
| | DSXHW | 1, 2 | Separation - All SS | Stellite 15-5PH SS | Urethane, PTFE |
| | DSTV-1.5 | 1, 2, 3, 4, 5, 6 | Separation - All SS | 17.4PH SS | PTFE, Viton |
| | DSTV | 1, 2, 3, 4, 5 | Separation - All SS | 440C SS Hard chrome plated | PTFE, Viton |
| | *Except -202 ratio is chrome plated 440 SS | | | | |
| 6 hp | GW | 1 | Nickel Plated Steel, SS & Bronze | Hard chrome plated 15.5PH SS | Urethane, Buna N, PTFE |
| | GSF | 1, 2 | All SS & Bronze | Hard chrome plated 15.5PH SS | UHMWPE, Viton, PTFE, Ryton |
| | DGSF | 1, 2, 3, 5, 6 | Separation- All SS & Bronze | Hard chrome plated 15.5PH SS | UHMWPE, Viton, PTFE, Ryton |
| | DGSTV | 1, 2, 3, 4, 5 | Separation- All SS & Bronze | Hard chrome plated 15.5PH SS | Viton, PTFE, Ryton |
| | GWD | 1 | Nickel Plated Steel & SS | 15.5PH SS Hard chrome plate optional | Urethane, Buna N, PTFE |
| | GSFD | 1, 2 | All SS & Bronze | 15.5PH SS Hard chrome plate optional | UHMWPE, Buena N, PTFE, Ryton |
| | DGFD | 1, 3, 5 | Separation- Nickel Plated Steel & SS | 15.5PH SS hard chrome plate optional | UHMWPE, Viton, PTFE, Ryton |
| | DGSFD | 1, 2, 3, 4, 5, 6 | Separation- All SS & Bronze | 15.5PH SS Hard chrome plate optional | UHMWPE, Viton, PTFE, Ryton |
| | DGSTVD | 1, 2, 3, 4, 5 | Separation- All SS & Bronze | 17.4PH SS Hard chrome plate optional | PTFE, Viton |
| 8 hp | 8SFD | 1, 2 | All SS & Bronze* | Hard chrome plated 15.5PH SS | UHMWPE, Viton, PTFE, Ryton |
| | 8DSFD | 1, 2, 3, 5, 6 | Separation- All SS & Bronze | 15.5PH SS Hard chrome | UHMWPE, Viton, PTFE, Ryton |
| | 8DSTD | 1, 2, 3, 4, 5, 6 | Separation- All SS & Bronze | 15.5PH SS Hard chrome | PTFE, Viton |
| | 8HSFD | 1, 2 | All SS & Bronze* | 17.4PH SS | UHMWPE, Viton, PTFE, Ryton |
| | 8DSTVD | 1, 2, 3, 5, 6 | All SS & Bronze* | 15-5 PH SS Hard chrome | Viton, PTFE |
| | 8SFD2 | 1, 2, 6 | All SS & Bronze* | 15-5 PH SS Hard chrome | PTFE, Viton, UHMWPE |
| 10 hp | D14STD-125 | 1, 2, 3, 4, 5A | All SS & Bronze | Hard chrome plated 440C SS | PTFE, Viton |
| | D14STD-315 | 1, 2, 3, 4, 5A | All SS & Bronze | Hard chrome plated 440C SS | PTFE, Viton |
| | D14SFD-125 | 1, 2, 3, 5A, 6 | All SS & Bronze | Tungston Carbide Coated 15.5PH SS | UHMWPE, Viton, PTFE, Ryton |
| | D14SFD-315 | 1, 2, 3, 5A, 6 | All SS & Bronze | Tungston Carbide Coated 15.5PH SS | UHMWPE, Viton, PTFE, Ryton |

Performance and Specification Overview

| Max Air | Air Head | Power | Pump Model Code | Ratio Dash no. | Actual Area Ratio | Maximum Rated Output Pressure | | | | Displacement/Cycle | | Maximum Flow | | | | |
|---|----------------|---------|--------------------|--------------------------|-------------------|-------------------------------|-------|--------------|-------|--------------------|-------|--------------|-------|-------|------|------|
| | | | | | | Continuous | | Intermittent | | cu in | ml | cu in/min | l/min | | | |
| | | | | | | psi | bar | psi | bar | | | | | | | |
| 125 psi/8.6 bar | Single | 0.33 hp | M, MDSTV | -5 | 5.6 | 625 | 43 | 625 | 43 | 0.83 | 13.6 | 506 | 8.30 | | | |
| | | | M, MS | -7 | 7.8 | 900 | 62 | 900 | 62 | 0.60 | 9.8 | 366 | 6.00 | | | |
| | | | M, MS, 29723 | -12 | 14 | 1500 | 103 | 1500 | 103 | 0.36 | 5.9 | 234 | 3.83 | | | |
| | | | | -21 | 25 | 2600 | 179 | 2600 | 179 | 0.20 | 3.3 | 130 | 2.13 | | | |
| | | | | -36 | 41 | 4500 | 310 | 4500 | 310 | 0.12 | 2.0 | 78 | 1.28 | | | |
| | | | | -71 | 82 | 8800 | 607 | 8800 | 607 | 0.06 | 1.0 | 39 | 0.64 | | | |
| | | | M, MS | -110 | 126 | 13500 | 931 | 13500 | 931 | 0.039 | 0.60 | 25 | 0.42 | | | |
| | | | M, MS | -188 | 217 | 15000 | 1034 | 15000 | 1034 | 0.023 | 0.40 | 18 | 0.29 | | | |
| | | | 29723 | -188 | 217 | 10000 | 1034 | 10000 | 1034 | 0.023 | 0.40 | 18 | 0.29 | | | |
| | | | MS | -220 | 220 | 20000 | 1380 | 25000 | 1723 | 0.021 | 0.34 | 14 | 0.22 | | | |
| 100 psi/7 bar | Single | 0.75 hp | 4B | -14 | 16 | 1500 | 103 | 1500 | 103 | 0.9 | 14.7 | 428 | 7.01 | | | |
| | | | | -30 | 34 | 3200 | 221 | 3200 | 221 | 0.43 | 7.0 | 204 | 3.35 | | | |
| | | | | -37 | 42 | 3800 | 262 | 3800 | 262 | 0.35 | 5.7 | 166 | 2.72 | | | |
| | | | | -55 | 63 | 6000 | 414 | 6000 | 414 | 0.22 | 3.6 | 105 | 1.71 | | | |
| | | | | -100 | 114 | 10600 | 731 | 10600 | 731 | 0.13 | 2.0 | 62 | 1.01 | | | |
| | | | | 150 psi/10.5 bar | Single | 1.5 hp | DSTV | -1.5 | 1.6 | 240 | 17 | 300 | 21 | 31.90 | 513 | 5104 |
| ATV, DTN, DTV | -4 | 4.6 | 690 | | | | | 48 | 1200 | 83 | 20.00 | 328 | 3200 | 52.4 | | |
| AW, ASF, DSF, DSTV | -B10 | 11.5 | 1600 | | | | 110 | 1600 | 110 | 4.05 | 66.4 | 1215 | 19.9 | | | |
| | -B15 | 17 | 2400 | | | | 165 | 2400 | 165 | 2.70 | 44.3 | 810 | 13.3 | | | |
| | -25 | 29 | 4000 | | | | 276 | 4000 | 276 | 1.62 | 26.6 | 486 | 8.0 | | | |
| | -35 | 40 | 5700 | | | | 393 | 5700 | 393 | 1.16 | 19.0 | 348 | 5.7 | | | |
| | -60 | 69 | 9800 | | | | 676 | 9800 | 676 | 0.67 | 11.0 | 201 | 3.3 | | | |
| | -100 | 115 | 15000 | | | | 1034 | 16500 | 1138 | 0.41 | 6.7 | 123 | 2.0 | | | |
| HF, HSF, DSHF | -150 | 173 | 15000 | | | | 1034 | 20000 | 1379 | 0.27 | 4.5 | 81 | 1.3 | | | |
| | -151 | 173 | 25000 | | | | 1724 | 25000 | 1724 | 0.27 | 4.5 | 81 | 1.3 | | | |
| | -225 | 260 | 30000 | | | | 2069 | 37000 | 2552 | 0.18 | 3.0 | 41 | 0.7 | | | |
| | -300 | 345 | 30000 | | | | 2069 | 50000 | 3448 | 0.14 | 2.3 | 32 | 0.5 | | | |
| HF | -450 | 533 | 45000 | | | | 3103 | 45000 | 3103 | 0.0 | 1.5 | 20 | 0.3 | | | |
| 150 psi/10.5 bar | Double | 2 hp | ATV | | | | -8 | 9.2 | 850 | 59 | 1200 | 83 | 20 | 328 | 3200 | 52.4 |
| | | | | -B22 | 23 | 3200 | 221 | 3200 | 221 | 4.05 | 66.4 | 1215 | 19.9 | | | |
| | | | AW, ASF, DSF, DSTV | -B32 | 34 | 4800 | 331 | 4800 | 331 | 2.70 | 44.3 | 810 | 13.3 | | | |
| | | | | -52 | 57 | 5000 | 345 | 8000 | 552 | 1.62 | 26.6 | 488 | 8.0 | | | |
| | | | | -72 | 80 | 11000 | 759 | 11000 | 759 | 1.16 | 19.0 | 348 | 5.7 | | | |
| | | | | -122 | 138 | 15000 | 1034 | 19000 | 1310 | 0.67 | 11.0 | 201 | 3.3 | | | |
| | | | HF, HSF, DSHF | -202 | 230 | 30000 | 2069 | 33000 | 2276 | 0.41 | 6.7 | 92 | 1.5 | | | |
| | | | | -302 | 346 | 30000 | 2069 | 50000 | 3448 | 0.27 | 4.5 | 61 | 1.0 | | | |
| | | | DSXHF | -452 | 520 | 30000 | 2069 | 70000 | 4828 | 0.18 | 3.0 | 41 | 0.7 | | | |
| | | | | -602 | 690 | 30000 | 2069 | 75000 | 5172 | 0.14 | 2.3 | 32 | 0.5 | | | |
| 100 psi/7 bar | Triple | 2 hp | DXHF, DSXHF | -683 | 780 | 30000 | 2069 | 70000 | 4828 | 0.18 | 3.0 | 25 | 0.41 | | | |
| | | | | -903 | 1038 | 30000 | 2069 | 75000 | 5172 | 0.14 | 2.3 | 20 | 0.33 | | | |
| | | | DSXHW | -1373 | 1575 | 30000 | 2069 | 100000 | 6897 | 0.086 | 1.4 | 12 | 0.197 | | | |
| 150 psi/10.5 bar | Single | 3 hp | ASFD | -10 | 11.5 | 1600 | 110 | 1600 | 110 | 8.10 | 133 | 1823 | 29.9 | | | |
| | | | | -15 | 17 | 2400 | 165 | 2400 | 165 | 5.40 | 89 | 1215 | 19.9 | | | |
| | | | | -25 | 29 | 4000 | 276 | 4000 | 276 | 3.24 | 53.6 | 729 | 11.9 | | | |
| | | | | -35 | 40 | 5700 | 393 | 5700 | 393 | 2.32 | 38.0 | 522 | 8.6 | | | |
| | | | | -60 | 69 | 9800 | 676 | 9800 | 676 | 1.34 | 22.0 | 302 | 4.9 | | | |
| | | | | -100 | 115 | 15000 | 1034 | 16500 | 1138 | 0.82 | 13.4 | 185 | 3.0 | | | |
| | | | | -150 | 173 | 15000 | 1034 | 20000 | 1379 | 0.54 | 9.0 | 122 | 2.0 | | | |
| | | | | -202 | 230 | 30000 | 2069 | 33000 | 2276 | 0.82 | 13.4 | 144 | 2.4 | | | |
| | | | | GWD, GSFD, DGSFD, DGSTVD | -12 | 14.8 | 1850 | 128 | 4000 | 276 | 15.9 | 260 | 5009 | 82.1 | | |
| | | | | | -35 | 40.3 | 4375 | 302 | 4375 | 302 | 6.0 | 98 | 1890 | 31.0 | | |
| | | | | | -60 | 69 | 7500 | 517 | 7500 | 517 | 3.5 | 57 | 1103 | 18.1 | | |
| | | | | | -100 | 115 | 8000 | 552 | 10000 | 690 | 2.1 | 34 | 662 | 10.8 | | |
| | | | | 125 psi/8.6 bar | 8 hp | 8SFD, 8DSFD, 8DSTVD | -25 | 27.5 | 3575 | 246 | 4000 | 276 | 14.0 | 229 | 2660 | 43.5 |
| | | | | | | | 8SFD | -40 | 43.5 | 6000 | 414 | 6000 | 414 | 8.90 | 145 | 1691 |
| -65 | 73 | 10000 | 690 | | | | 10000 | 690 | 5.40 | 88 | 1026 | 17.0 | | | | |
| 8DSFD | -100 | 112 | 10000 | | | | 690 | 10000 | 690 | 3.52 | 58 | 669 | 11.0 | | | |
| 8HSFD | -225 | 253 | 25000 | | | | 1724 | 25000 | 1724 | 1.56 | 26 | 296 | 5.0 | | | |
| 8SFD2 (Double Air Drive Piston Models) | -55 | 55 | 5500 | | | | 379 | 7200 | 497 | 14.14 | 232 | 1900 | 31.1 | | | |
| | -88 | 88 | 8800 | | | | 607 | 10000 | 690 | 8.84 | 145 | 1182 | 19.36 | | | |
| -224 | 225 | 25000 | 1724 | 25000 | 1724 | 3.53 | 58 | 476 | 7.6 | | | | | | | |
| 10 hp | D14STD, D14SFD | -125 | 138 | 16000 | 1103 | 16000 | 1103 | 8.80 | 144.2 | 704 | 11.5 | | | | | |
| | | -315 | 347 | 36000 | 2483 | 36000 | 2483 | 3.50 | 57.4 | 280 | 4.6 | | | | | |

| Typical Performance using 100 psi (7 bar) Air drive | | | | | | | |
|---|------|-------------|-------|-----------------|------|-------------|-------|
| Outlet Pressure | | Outlet Flow | | Outlet Pressure | | Outlet Flow | |
| psi | bar | cu in/min | l/min | psi | bar | cu in/min | l/min |
| 225 | 15.5 | 500 | 8.20 | 415 | 29 | 249 | 4.09 |
| 300 | 21 | 350 | 5.70 | 600 | 41 | 160 | 2.6 |
| 700 | 48 | 200 | 3.28 | 1125 | 78 | 100 | 1.64 |
| 1500 | 103 | 90 | 1.48 | 2000 | 138 | 48.9 | 0.8 |
| 1700 | 117 | 70 | 1.15 | 3100 | 214 | 39.6 | 0.65 |
| 2450 | 169 | tbd | tbd | 4500 | 310 | tbd | tbd |
| 3000 | 207 | 40 | 0.64 | 6000 | 414 | 19 | 0.31 |
| 7500 | 517 | 20 | 0.33 | 10000 | 690 | 8.5 | 0.14 |
| 5000 | 345 | 18 | 0.30 | 10000 | 690 | 14 | 0.23 |
| 5000 | 345 | 18 | 0.30 | 10000 | 690 | 14 | 0.23 |
| 7500 | 517 | 15 | 0.24 | 15000 | 1034 | 12 | 0.2 |
| 700 | 48 | 400 | 6.55 | 1450 | 100 | 61 | 1.00 |
| 1500 | 103 | 200 | 3.28 | 3000 | 207 | 62 | 1.00 |
| 1750 | 121 | 170 | 2.78 | 3500 | 241 | 82 | 1.33 |
| 2000 | 138 | 110 | 1.80 | 5000 | 345 | 66 | 1.08 |
| 5000 | 345 | 57 | 0.93 | 10000 | 690 | 26 | 0.43 |
| 50 | 3 | 5000 | 81.9 | 150 | 10 | 1000 | 16.4 |
| 100 | 7 | 1953 | 32 | 400 | 28 | 750 | 12.3 |
| 400 | 28 | 1000 | 16.4 | 990 | 68 | 500 | 8.19 |
| 750 | 52 | 598 | 9.8 | 1600 | 110 | 200 | 3.28 |
| 1000 | 69 | 403 | 6.6 | 2500 | 172 | 195 | 3.2 |
| 2000 | 138 | 350 | 4.1 | 3600 | 248 | 98 | 1.6 |
| 3000 | 207 | 152 | 2.5 | 6200 | 427 | 50 | 0.82 |
| 4000 | 276 | 100 | 1.64 | 10000 | 690 | 24.4 | 0.4 |
| 7000 | 483 | 59.7 | 0.98 | 15000 | 1034 | 29.9 | 0.49 |
| 7000 | 483 | 59.7 | 0.98 | 15000 | 1034 | 29.9 | 0.49 |
| 7500 | 517 | 39.6 | 0.65 | 24000 | 1655 | 9.8 | 0.16 |
| 15000 | 1034 | 29.9 | 0.49 | 27000 | 1862 | 20.1 | 0.33 |
| 36000 | 2483 | 14.6 | 0.24 | 45000 | 3103 | 9.2 | 0.15 |

| | | | | | | | |
|-------|------|------|------|-------|------|------|------|
| 200 | 14 | 1953 | 32 | 800 | 28 | 750 | 12.3 |
| 400 | 28 | 799 | 13.1 | 2100 | 145 | 200 | 3.28 |
| 700 | 48 | 500 | 8.2 | 3000 | 207 | 152 | 2.50 |
| 1900 | 131 | 299 | 4.9 | 5000 | 345 | 98 | 1.60 |
| 2000 | 138 | 226 | 3.7 | 7500 | 517 | 50 | 0.82 |
| 4000 | 276 | 122 | 2.0 | 12000 | 828 | 40.2 | 0.66 |
| 7000 | 483 | 91.5 | 1.5 | 20000 | 1379 | 20.1 | 0.33 |
| 10000 | 690 | 45.2 | 0.7 | 30000 | 2069 | 15.2 | 0.25 |
| 10000 | 690 | 34.8 | 0.6 | 40000 | 2759 | 15.2 | 0.25 |
| 15000 | 1034 | 24.4 | 0.4 | 50000 | 3448 | 12.2 | 0.2 |

| | | | | | | | |
|-------|------|------|------|-------|------|-----|------|
| 15000 | 1034 | 19.5 | 0.32 | 60000 | 4138 | 4.9 | 0.08 |
| 15000 | 1034 | 15.9 | 0.26 | 70000 | 4828 | 5.5 | 0.09 |
| 16000 | 1103 | 9.2 | 0.15 | 90000 | 6207 | 3.1 | 0.05 |

| | | | | | | | |
|------|----|-----|-----|------|-----|-----|-----|
| 1000 | 69 | 348 | 5.7 | 5500 | 379 | 152 | 2.5 |
|------|----|-----|-----|------|-----|-----|-----|

| | | | | | | | |
|-------|------|------|------|-------|------|-----|------|
| 500 | 34 | 1520 | 24.9 | 1000 | 69 | 380 | 6.22 |
| 750 | 52 | 1030 | 16.9 | 1500 | 103 | 260 | 4.26 |
| 1000 | 69 | 662 | 10.9 | 2500 | 172 | 162 | 2.66 |
| 1500 | 1034 | 465 | 7.6 | 3500 | 248 | 100 | 1.64 |
| 3000 | 138 | 248 | 4.1 | 6000 | 414 | 56 | 0.92 |
| 5000 | 345 | 151 | 2.5 | 10000 | 690 | 41 | 0.67 |
| 7500 | 517 | 103 | 2.0 | 15000 | 1034 | 27 | 0.44 |
| 10000 | 690 | 63 | 1.0 | 20000 | 1379 | 47 | 0.77 |

| | | | | | | | |
|------|-----|------|-----|-------|-----|------|-----|
| 200 | 14 | 5004 | 82 | 1200 | 83 | 1454 | 24 |
| 1000 | 69 | 1770 | 29 | 3500 | 241 | 600 | 9.8 |
| 2000 | 138 | 976 | 16 | 5500 | 379 | 397 | 6.5 |
| 2000 | 138 | 573 | 9.4 | 10000 | 690 | 195 | 3.2 |

| | | | | | | | |
|-------|-----|------|------|-------|------|-----|------|
| 1000 | 69 | 2400 | 39.3 | 2500 | 172 | 280 | 4.6 |
| 2000 | 138 | 1420 | 23.2 | 4000 | 276 | 200 | 3.27 |
| 3000 | 207 | 880 | 14.4 | 6000 | 414 | 310 | 5.08 |
| 5000 | 345 | 555 | 9.1 | 10000 | 690 | 163 | 2.67 |
| 10000 | 690 | 270 | 4.4 | 20000 | 1379 | 144 | 2.36 |
| 2500 | 172 | 1230 | 20.1 | 4000 | 276 | 675 | 11 |
| 4000 | 276 | 850 | 13.9 | 5000 | 345 | 800 | 13.1 |
| 10000 | 690 | 315 | 5.2 | 18500 | 1276 | 140 | 2.3 |

| | | | | | | | |
|-------|------|-----|-----|-------|------|------|-----|
| 8000 | 552 | 488 | 8.0 | 12000 | 828 | 195 | 3.2 |
| 15000 | 1034 | 238 | 3.9 | 30000 | 2069 | 79.3 | 1.3 |

Pump Selection Information

All Haskel pumps are identified by letters coding the type of pump, followed by a number indicating the practical working ratio of the drive area to the hydraulic plunger area. These letters are explained in the chart below.

Pump Model Letter Coding

| | |
|-------------------|---|
| M | .875" stroke .33 hp miniature pump series |
| S | Stainless steel hydraulic piston and body |
| 29723 | .33 hp Chemical Pump |
| D (Prefix) | Pump incorporates a Distance Piece |
| D (Suffix) | Double Acting pump |
| 4B | 1" stroke .75 hp pump series (bottom inlet only) |
| A | 2" stroke 1.5 + 2 hp pump series |
| H | 2" stroke 1.5 + 2 hp High Pressure pump series |
| XH | 2" stroke 1.5 + 2 hp Extreme High Pressure pump series |
| G | 4.5" stroke 6 hp pump series |
| B | 4.5" stroke 8 hp pump or booster series |
| 14 | 4" stroke 10 hp pump series |
| W | Polyurethane U-cup dynamic seal |
| F | UHMWPE (Ultra-high Molecular Weight Polyethylene Dynamic Seal |
| T | Reinforced Teflon® dynamic seal |
| V | Viton® o-ring static seal |



Guidelines for 24/7 Continuous Duty Applications for Maximizing Seal Life Performance

| Pump Series | Maximum Cycles per Minute |
|---|---------------------------|
| 0.3 hp | 90 cpm |
| 0.75 hp | 80 cpm |
| 1.5, 2.0 and 2.2 hp (Single and Double Drive Piston) | 60 cpm |
| 2.0 hp (Triple Drive Piston) | 60 cpm |
| 3.0 hp | 60 cpm |
| 6.0 hp | 40 cpm |
| 8.0 hp | 40 cpm |
| 10.0 hp | 40 cpm |

.33 hp (.25 kW) M Series Pump Models



Key Features

- Choice of 6 models, 9 ratios, 27 possible combinations
- Flows to 2 gpm (7.5 l/min)
- Choice of wetted materials
- Single air head
- Drive pressure 25 to 125 psi (1.8 to 9 bar)
- Pressures to 25,000 psi (1724 bar)
- All Hydraulic fluids, water (plain or DI), solvents, mild chemicals, liquefied gases

Optional Modifications

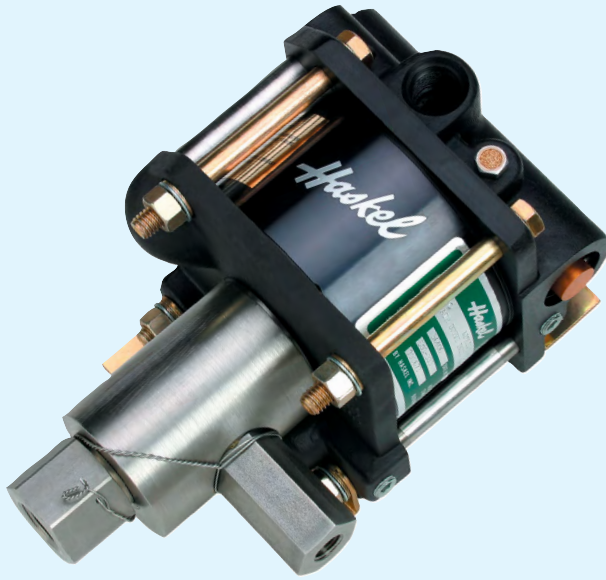
| Number | Description |
|---------|--|
| -HP | Hand pump attachment (with handle). Provides manual operation of pump for precision pressure control or use without air power |
| 26220-2 | Hand pump attachment kit. |
| 29002 | Viton air drive. |
| 51331 | EPR seals for liquid section for 29723-XX ratio pumps. |
| 51788 | Piped exhaust – standard. Provides connection ports for drive and pilot exhausts. Enables under tank top mounting and/or natural gas drive. |
| 51794 | Piped exhaust – sour gas. With hand pump (HP). |
| 51794-2 | Piped exhaust – sour gas. Without hand pump (HP). |
| 53175 | Level II cleaning. |
| 53304 | High pressure outlet port. Fits ¼" O.D. high pressure threaded and coned tube. |
| 53935 | Low temperature drive. Enables operation down to 5°F. Some sacrifice of seal life at normal temperature. M or MS series. |
| 57905 | No return spring. Provides improved fill on suction stroke pumping liquefied gases by utilizing the inlet pressure. Only available on M and MS series. |
| 59888 | Cycle timer installed. |
| 80103 | Noise reduction kit fitted. |
| 82367 | SS trim for 1/3 hp drive |

| Model | Nominal Ratio | Maximum Working Pressure <small>Consult chart on page 6 for more information regarding continuous/intermittent pressures.</small> | Displacement per Cycle |
|---------------|---------------|--|------------------------|
| M, MDSTV | -5 | 625 psi (43 bar) | .83 cu in (13.6 ml) |
| M, MS | -7 | 900 psi (62 bar) | .6 cu in (9.8 ml) |
| | -12 | 1500 psi (103 bar) | .36 cu in (5.9 ml) |
| M, MS, 29723* | -21 | 2600 psi (179 bar) | .2 cu in (3.3 ml) |
| | -36 | 4500 psi (310 bar) | .12 cu in (2.0 ml) |
| | -71 | 8800 psi (607 bar) | .06 cu in (1.0 ml) |
| | -110 | 13500 psi (931 bar) | .039 cu in (0.6 ml) |
| | -188 | 15000 psi (1034 bar) | .023 cu in (.4 ml) |
| MS | -220 | 25000 psi (1723 bar) | .021 cu in (.34 ml) |

*Note: 29723 series rated to 10,000 psi (690 bar) maximum (ratios -110 and -188)

*For service codes, see page 17.
For weights and dimensions, see page 18.*

.75 hp (.56 kW) Pump Models



| Model | Nominal Ratio | Maximum Working Pressure | Displacement per Cycle |
|-------|---------------|---|------------------------|
| | | Consult chart on page 6 for more information regarding continuous/intermittent pressures. | |
| 4B | -14 | 1500 psi (103 bar) | .9 cu in (14.8 ml) |
| | -30 | 3200 psi (221 bar) | .43 cu in (7.1 ml) |
| | -37 | 3800 psi (262 bar) | .35 cu in (5.7 ml) |
| | -55 | 6000 psi (414 bar) | .22 cu in (3.6 ml) |
| | -100 | 10600 psi (731 bar) | .13 cu in (2.1 ml) |

For service codes, see page 17.
For weights and dimensions, see page 18.

Key Features

- One model available in 5 ratios
- Output pressures to 10,000 psi (690 bar)
- Flows to 1.5 gpm (5.7 l/min)
- Choice of wetted materials
- Single air head
- Drive pressure 3 psi to 100 psi (.2 to 7 bar)

Optional Modifications

| Number | Description |
|--------|--|
| 57639 | Low drive air pressure. Allows user to regulate drive air to as low as 3 psi (.2 bar). |
| 59354 | Noise reduction kit fitted. |
| 81575 | Changes the "F" seal to a "W" seal. Recommend for use with water. |
| 82104 | Viton air drive. |



1.5 hp (1.12 kW) Pump Models



Key Features

- Choice of 10 models, 13 ratios, 50 possible combinations
- Choice of wetted materials
- Output pressures to 50,000 psi (3448 bar)
- Single air head
- Flows to 22 gpm (83.0 l/min)
- Drive pressure 3 to 150 ps (.2 to 10 bar)

Optional Modifications

| Number | Description |
|--------|---|
| 16821 | Low air pressure control feature. For operating at air pressures as low as 3 to 4 psi (.2 to .3 bar). Includes 28881 modification. 45 psi minimum pilot air required. |
| 16831 | Low temperature modification. For special sealing in air drive for operating temperatures from as low as -20°F up to normal +120°F. |
| 16834 | Exhaust adapter. With back pressure balance piston. |
| 27964 | Interconnecting inlet-outlet tubing. ½" female for 4:1 ratio series pumps (ATV-4 or DTV-4). |
| 28000 | Threaded vent (or purge) ports on standard distance piece. Except 1.5:1 ratio. |
| 28881 | Air pilot modification. 1/8" NPT. Allows remote start/stop of pump. |
| 29376 | Three-way cycling spool. For 1.5 hp and 2 hp single acting pumps, for use with CO2 |
| 29702 | Single stroke modification. |
| 51050 | Extreme service cycling modification. Not recommended for long stall periods. |
| 51056 | Exhaust/pilot vent combination. |
| 51331 | EPR (Ethylene propylene) static seals in wetted section. Applies to distance piece pumps only. |
| 51345 | Sour gas drive provision to N.A.C.E. specifications. 1.5 hp to 2.2 hp distance piece pumps only, single air head and double air head. |
| 52788 | Viton seals air drive. |
| 53925 | Severe Arctic low temperature service. -25, -35, -60, -100, -150, -151, -225, -300, -450 ratios. |
| 54885 | Rotate pump body 90° from standard. |
| 54935 | SS trim for 5/3 air drive. |
| 55516 | Polyurethane ("W") seal. For F or TV series pumps, except high output models. |
| 59353 | Noise reduction kit fitted. Not available on AFD, DFD, ASFD or DSFD. |
| 82460 | HNBR seals in air drive section. |

| Model | Nominal Ratio | Maximum Working Pressure <small>Consult chart on page 6 for more information regarding continuous/intermittent pressures.</small> | Displacement per Cycle |
|--|---------------|--|------------------------|
| DSTV ⁽¹⁾ | -1.5 | 160 psi (11 bar) | 31.9 cu in (513.0 ml) |
| ATV, DTV ^{(1) (2)} DTN ⁽¹⁾ | -4 | 1200 psi (83 bar) | 20.0 cu in (328.0 ml) |
| AW, ASF, DSF, DSTV | -B10 | 1600 psi (110 bar) | 4 cu in (66.4 ml) |
| | -B15 | 2400 psi (165 bar) | 2.7 cu in (44.3 ml) |
| | -25 | 4000 psi (276 bar) | 1.6 cu in (26.6 ml) |
| | -35 | 5700 psi (393 bar) | 1.2 cu in (19 ml) |
| | -60 | 9800 psi (676 bar) | .7 cu in (11 ml) |
| ATV | -8 | 850 psi (59 bar) | 20 cu in (328.0 ml) |
| AW, ASF, DSF, DSTV | -100 | 16500 psi (1138 bar) | .4 cu in (6.7 ml) |
| | -150 | 20000 psi (1375 bar) | .28 cu in (4.5 ml) |
| HF, HSF, DSHF | -151 | 25000 psi (1724 bar) | .28 cu in (4.5 ml) |
| | -225 | 37000 psi (2551 bar) | .18 cu in (3.0 ml) |
| | -300 | 50000 psi (3448 bar) | .14 cu in (2.3 ml) |
| HF | -450 | 45000 psi (3403 bar) | .09 cu in (1.5 ml) |

- (1) These series are "Lift" pumps and maximum outlet pressure is (air drive x pump ratio) + inlet pressure
 (2) DTV has poppet checks

**For service codes, see page 17.
 For weights and dimensions, see page 20.**

1.5 hp (1.12 kW) High Output Flow Pumps

Available in a choice of 4 models, these high output, low ratio pumps are capable of pressures to 1200 psi (82 bar) and flow rates of up to 22 gpm (83 l/min). These are “lift” pumps whereby the outlet pressure equals the air drive x the pump ratio plus the inlet pressure.

Model DSTV-1.5 has a maximum air drive of 150 psi (10 bar) and is capable of pressures up to 160 psi (11 bar). The model ATV, DTN-4 and DTV-4 work on a maximum air drive of 150 psi (10 bar) and have a maximum intermittent pressure rating of 1200 psi (83 bar). A noise reduction modification is available for applications where noise level is an issue.

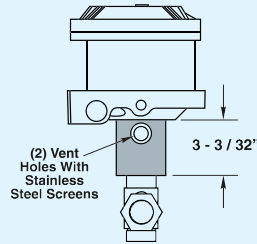
Distance Piece (Separation)

Pumps with prefix “D” in the model number have aluminum distance piece between the air drive and pump section (except DSTV-1.5).

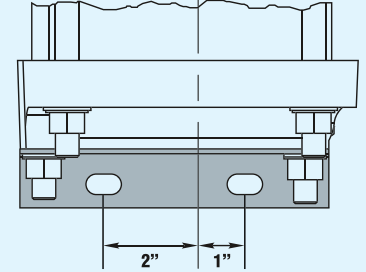
Mounting Brackets

All series mounting brackets have 7/16” holes (slots) for 3/8” bolts. Upper mounting brackets are not furnished as standard on single air head non-distance piece units.

Dimensional Data



Mounting Brackets



2 & 2.2 hp (1.49 & 1.64 kW) Pump Models



Key Features

- Choice of 16 models, 13 ratios, 46 possible combinations
- Output pressures to 100000 psi (7000 bar)
- Flows to 5 gpm (15 l/min)
- Choice of wetted materials
- Double and triple air heads
- Drive pressure 3 to 100 psi (.2 to 7 bar)

When using high pressure ratio pumps the reliability of the XH models (-452 through -1373) will be improved with an air driven supercharge pump, not only to simplify priming but to reduce fatigue stresses. The higher the supercharge, the better the results. Also install a relief valve to protect the lower pressure pump from potential back pressure. Supercharging of the -1373 model is recommended. This approach will ensure a reasonable life for the seals and other wear components.

| Model | Nominal Ratio | Maximum Working Pressure <small>Consult chart on page 6 for more information regarding continuous/intermittent pressures.</small> | Displacement per Cycle |
|----------------------|---------------|--|------------------------|
| AW, ASF, DSF, DSTV | -B22 | 3200 psi (221 bar) | 4 cu in (66.4 ml) |
| | -B32 | 4800 psi (331 bar) | 2.7 cu in (44.3 ml) |
| | -52 | 8000 psi (552 bar) | 1.6 cu in (26.6 ml) |
| | -72 | 11000 psi (758 bar) | 1.2 cu in (19 ml) |
| | -122 | 19000 psi (1310 bar) | .7 cu in (11 ml) |
| HF, HSF, DSHF | -202 | 33000 psi (2275 bar) | .4 cu in (6.7 ml) |
| | -302 | 50000 psi (3448 bar) | .28 cu in (4.5 ml) |
| DSXHF | -452 | 70000 psi (4827 bar) | .18 cu in (3.0 ml) |
| | -602 | 75000 psi (5171 bar) | .14 cu in (2.3 ml) |
| DSXHF | -683 | 70000 psi (4827 bar) | .18 cu in (3.0 ml) |
| | -903 | 75000 psi (5171 bar) | .14 cu in (2.3 ml) |
| DSXHW | -1373 | 100000 psi (6895 bar) | .09 cu in (1.4 ml) |
| AFD, DSFD, DFD, ASFD | -B60 | 6500 psi (448 bar) | 1.3 cu in (22 ml) |
| | | | |

*For service codes, see page 17.
For weights and dimensions, see page 20.*

3 hp (2.24 kW) Pump Models



Key Features

- One model available in 8 ratios
- Output pressures to 33000 psi (2275 bar)
- Flow rates to 8 gpm (30 l/min)
- Single air head
- Drive pressure 3 to 150 psi (.2 to 10 bar)

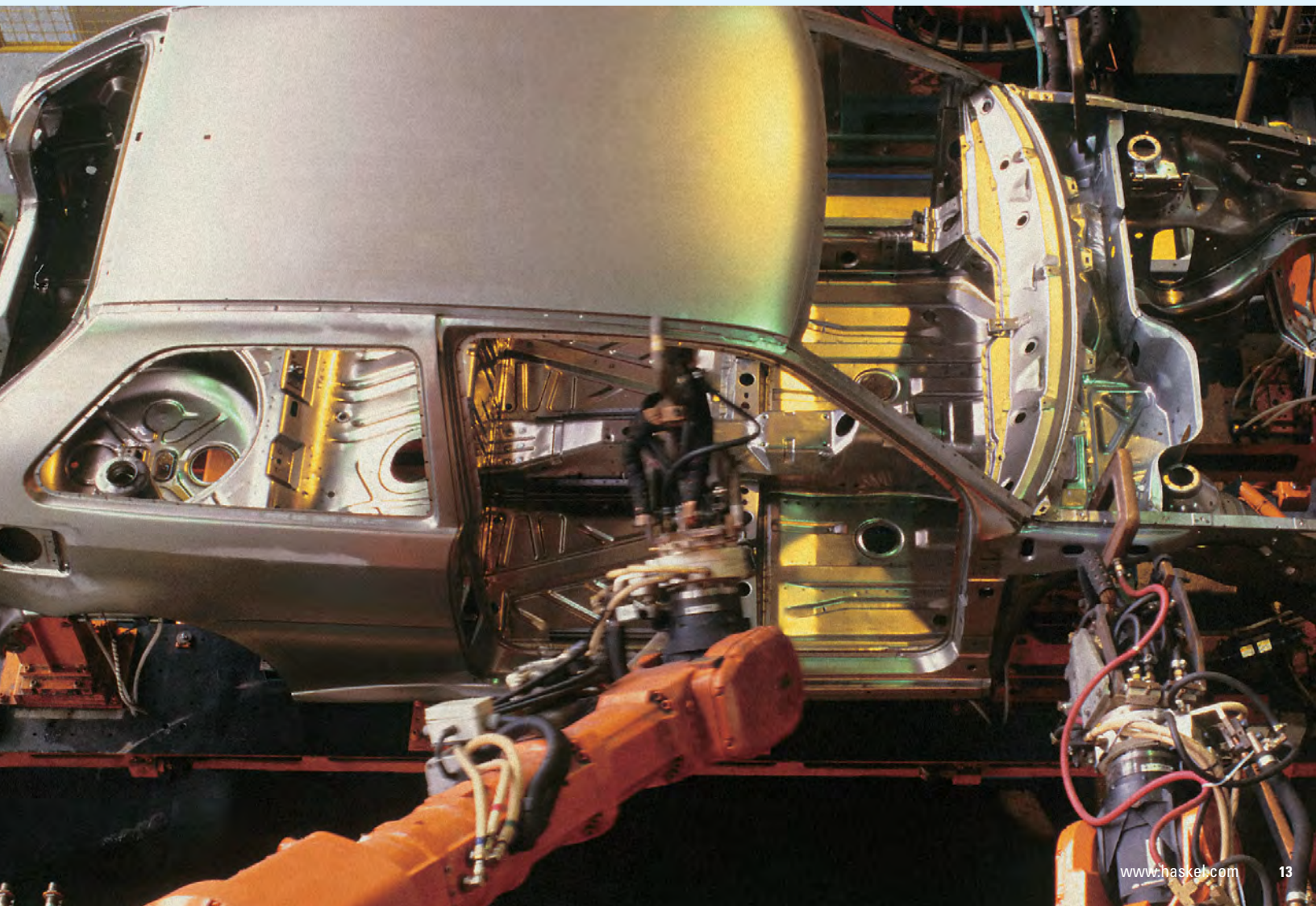
*For service codes, see page 17.
For weights and dimensions, see page 20.*

| Model | Nominal Ratio | Maximum Working Pressure <small>Consult chart on page 6 for more information regarding continuous/intermittent pressures.</small> | Displacement per Cycle |
|-------|---------------|--|------------------------|
| ASFD | 10 | 1600 psi (110 bar) | 8.1 cu in (132.8 ml) |
| | 15 | 2400 psi (165 bar) | 5.4 cu in (88.6 ml) |
| | 25 | 4000 psi (276 bar) | 3.3 cu in (53.2 ml) |
| | 35 | 5700 psi (393 bar) | 2.3 cu in (38 ml) |
| | 60 | 9800 psi (676 bar) | 1.3 cu in (22 ml) |
| | 100 | 16500 psi (1138 bar) | .8 cu in (13.4 ml) |
| | 150 | 20000 psi (1379 bar) | .6 cu in (9 ml) |
| | 202 | 33000 psi (2275 bar) | .8 cu in (13.4 ml) |

*For service codes, see page 17.
For weights and dimensions, see page 21.*

Optional Modifications (for 2 hp, 2.2 hp and 3 hp pump models)

| Number | Description |
|---------|---|
| 16821 | Assures reliable drive operation with pressures low as 3 psi as long as 20 psi or more is provided to the separate 1/8" NPT port. |
| 16831 | Low temperature modification. For special sealing in air drive for operating temperatures from as low as -20°F up to normal +120°F. |
| 16834 | Exhaust adapter. With back pressure balance piston. |
| 29376 | Three-way cycling spool. For 1.5 hp and 2 hp single acting pumps. |
| 51050 | Extreme service cycling modification. Not recommended for long stall periods. |
| 51056 | Exhaust/pilot vent combination. |
| 51331 | EPR (Ethylene propylene) static seals in wetted section. Applies to distance piece pumps only. |
| 51345 | Sour gas drive provision to N.A.C.E. specifications. 1.5 hp to 2.2 hp distance piece pumps only, single air head and double air head. |
| 52788 | Viton seals. Air drive only – 1.5 hp to 2.2 hp pumps only. |
| 53925-4 | Severe Arctic low temperature service. -10, -15, -22, -32 |
| 54885 | Rotate pump body 90° from standard. Except 3 hp pump. |
| 54935 | SS trim for 5/3 air drive. |
| 55516 | Polyurethane ("W") seal. For F or TV series pumps, except high output models. |
| 59353 | Noise reduction kit fitted. Not available on AFD, DFD, ASFD or DSFD. |
| 55465 | Ceramic Plunger -60 Ratio. |
| 55516 | Polyurethane "W" seal in "F" series pumps-except high output models. |
| 59353 | Noise reduction kit fitted. Not available on AFD, DFD, ASFD or DSFD. |
| 59888 | Cycle timer installed. |
| 82460 | HNBR Seals in air drive section. |



6 hp (4.47 kW) Pump Models



Key Features

- Choice of 10 models, 4 ratios, 20 possible combinations
- Output pressures to 10,000 psi (690 bar)
- Flow rates to 21 gpm (80 l/min)
- Choice of wetted materials
- Single air head – double acting
- Drive pressure 3 to 125 psi (.2 to 9 bar)
- All hydraulic fluids, water (plain or DI), solvents

| Model | Nominal Ratio | Maximum Working Pressure <small>Consult chart on page 6 for more information regarding continuous/intermittent pressures.</small> | Displacement per Cycle |
|--|--------------------|--|---|
| GWD, GSFD, DGSFD ⁽¹⁾ , DGSTVD ⁽¹⁾ | -12 | 4000 psi (276 bar) | 15.9 cu in (260 ml) |
| GW, GSF, DGSF, DGSTV | -35 -60 -100 | 4375 psi (302 bar) 7500 psi (517 bar) 10000 psi (690 bar) | 6.0 cu in (98 ml) 3.5 cu in (57 ml) 2.1 cu in (34.5 ml) |

(1) Double Acting "Lift" Pumps

*For service codes, see page 17.
For weights and dimensions, see page 22.*

Incorporating 10 models, this heavy duty range of double acting pumps provide pressures up to 10,000 psi (690 bar) and flow rates up to 4 gpm (15 l/min).

Designed to operate with air drive pressures between 40 and 125 psi (2.8 and 9 bar). For drive pressures 3 to 40 psi (.2 to 2.8 bar), order 51875-1 mod.

8 hp (5.97 kW) Pump Models



Key Features

- Choice of 9 models, 8 ratios, 9 possible combinations
- Pressures to 30,000 psi (2068 bar)
- Flow rates to 11.5 gpm (44 l/min)
- All hydraulic fluids, water (plain or DI), solvents, liquefied gases
- Choice of wetted materials
- Single air head – double acting
- Drive pressure 3 to 125 psi (.2 to 9 bar)

| Model | Nominal Ratio | Maximum Working Pressure <small>Consult chart on page 6 for more information regarding continuous/intermittent pressures.</small> | Displacement per Cycle |
|----------------------------------|---------------------|--|---|
| 8SFD, 8DSFD, 8DSTVD 8FD | -25 ⁽¹⁾ | 4000 psi (276 bar) | 14 cu in (229 ml) |
| 8SFD | -40 -65 | 6000 psi (408 bar) 10000 psi (690 bar) | 9 cu in (145.3 ml) 5.4 cu in (88.2 ml) |
| 8DSFD | -100 ⁽¹⁾ | 10000 psi (690 bar) | 3.5 cu in (57.5 ml) |
| 8SFD2 ⁽¹⁾ | -55 -88 -224 | 7200 psi (496 bar) 10000 psi (786 bar) 29000 psi (1724 bar) | 14 cu in (229 ml) 8.83 cu in (144 ml) 3.5 cu in (57 ml) |
| 8HSFD | -225 ⁽¹⁾ | 25000 psi (1724 bar) | 1.6 cu in (25.5 ml) |

(1) Double Acting "Lift" Pumps

*For service codes, see page 17.
For weights and dimensions, see page 21.*

10 hp (7.46 kW) Pump Models



Key Features

- Choice of 4 models, 4 ratios, 4 possible combinations
- Pressures to 36000 psi (2500 bar)
- Flow rates to 3 gpm (11 l/min)
- Drive pressure 3 to 125 psi (.2 to 9 bar)
- All hydraulic fluids, water (plain or DI), solvents, liquefied gases
- Choice of wetted materials

Optional Modifications (for 6 hp, 8 hp and 10 hp pump)

| Number | Description |
|--------|--|
| 29125 | External pilot modification – for 6 hp thru 10 hp pumps. |
| 87410 | Low air pressure control – for 6 hp thru 10 hp pumps. |
| 54030 | Sour gas air drive provision to NACE spec. 6 hp distance piece pumps only. |
| 54936 | Exhaust/pilot vent combiner. |
| 57002 | Viton seals – air drive only – 6 hp |
| 57944 | Viton seals – air drive only – 8 hp |
| 59888 | Cycle timer installed. |

| Model | Nominal Ratio | Maximum Working Pressure | Displacement per Cycle |
|--------|--------------------|---|------------------------|
| | | Consult chart on page 6 for more information regarding continuous/intermittent pressures. | |
| D14STD | 125 ⁽¹⁾ | 16000 psi (1103 bar) | 8.8 cu in (144.2 ml) |
| | 315 ⁽¹⁾ | 36000 psi (2482 bar) | 3.5 cu in (57.4 ml) |
| D14SFD | 125 ⁽¹⁾ | 16000 psi (1103 bar) | 8.8 cu in (144.2 ml) |
| | 315 ⁽¹⁾ | 36000 psi (2482 bar) | 3.5 cu in (57.4 ml) |

(1) Double Acting "Lift" Pumps

For service codes, see page 17.
For weights and dimensions, see page 21.

Incorporating two basic models, this heavy duty range of double acting pumps provide pressures up to 36000 psi (2482 bar) and output flow rate up to 3 gpm (11 l/min).

Operating from a maximum air drive pressure of 125 psi (9 bar), these pumps are designed for medium to high pressure service with minimum maintenance.

These large, slow speed pumps approach a seal life as high as 5 times that of many smaller pumps and this advantage becomes ever greater in heavy duty service involving water, or other liquids with negligible lubricity.



Power System Specialists

World safety standards and quality demands are rising. Component manufacturers are required to provide test certification and product quality assurance which can only be determined using the types of systems which Haskel can provide. Typically, we have built systems for production and field testing the proof, leak, and burst aspects of hoses, cylinders, and valves.

These systems can be portable, mobile, or static test rigs. We also offer a range of standard pressure packs used for power jacking, clamping, and other applications where reliable power is needed.

Selecting Your Accessories

Haskel can either provide accessories separately or supply them fitted to form a complete package suited to your application. Additionally, Haskel can fit customer nominated accessories. Our accessories catalog is available and our technical support team is always ready to advise you on the most suitable choice of accessories for your application.

- Air pilot switches
- Air pilot valves
- Regulating relief valves
- Directional control and release valves
- Hydraulic accumulators, gas receivers and storage cylinders
- High pressure valves, fittings and tubing
- Plenum chambers
- Port adapters
- Gauge snubbers
- Filters
- Stainless steel check valves
- Intensifiers with integral checks for cycling
- Capillary type gauge snubbers

Please ask for your copy of our latest accessories brochure.



Quality and After-Sale Service

Haskel meets the requirements of international quality assurance ISO 9001.

Build quality is matched by an innovative design and problem solving ability which stems from years of years of experience. Our representatives around the world are carefully chosen and trained to help you arrive at a correct product choice, and to offer a maintenance and parts service that is second to none.



Liquids Compatible with Haskel Pumps

To assist in easier pump selection, we have classified various popular liquids in groups and assigned to each group a service code. These service code numbers are featured in the chart to the right and are designated for each pump series. Seals and other wetted materials can be supplied to suit your preferred liquid. For advice, please contact our technical services personnel at 818-843-4000.

Services

Service Codes

- 1** Petroleum-based oils, kerosene, ethylene glycol, water with 5% soluble oil.
 - 2** Plain water, diesel fuel.
 - 3** Most phosphate ester-based fire-resistant hydraulic fluids, e.g. Pydraul, Lindol, Cellulube, Fyrquel, and Houghtosafe 1120 and petroleum-based solvents compatible with UHMWPE (Ultra-high Molecular Weight Polyethylene) dynamic seals and Viton static seals.
 - 4** Petroleum-based solvents, e.g. aromatic hydrocarbons (benzene, toluene, xylene, hylene, etc.); chlorinated solvents (trichlorethylene, carbon tetrachloride, chlorobenzine, etc.); mercaptans, Dowtherm A, fluoronated solvents (fluorobenzene, fluorochlorethylene, etc.); Dowtherm E, plus all of Group 3 and some mildly corrosive acids compatible with wetted materials. See note 5A for service with methyl-ethyl-ketone, methyl acetone, diacetone, alcohol and freon 22.
 - 5** Skydrol and Aerosafe hydraulic fluid; acetone and some alcohols (ethyl, methyl, and isopropyl).
- 5A.** Also suitable for these fluids if Viton static seals are replaced with EPR; specify modification number 51331 (no extra charge); e.g., 51331-MDTV-5. Most phosphate ester-based fluids solidify at approximately 30000 psi.
- 6** Deionized water; demineralized water.

Note: Dynamic seal life with non-lubricating fluids will understandably be less than with lubricating types.

Operating Temperatures

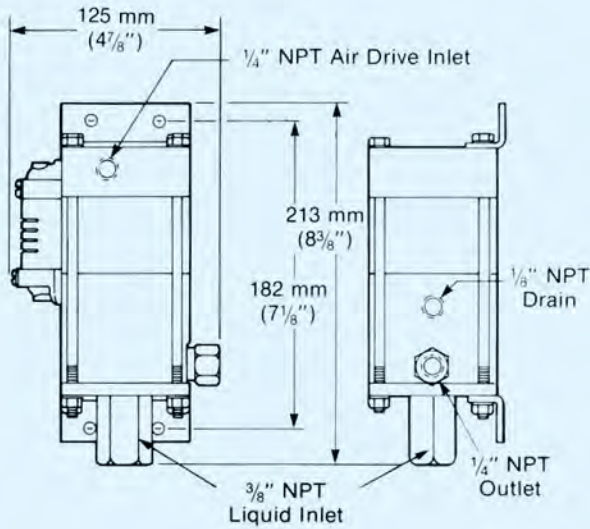
Drive Section

-4° (25°F) to +65°C (150°F) (low temperature seals are available for Arctic operation).

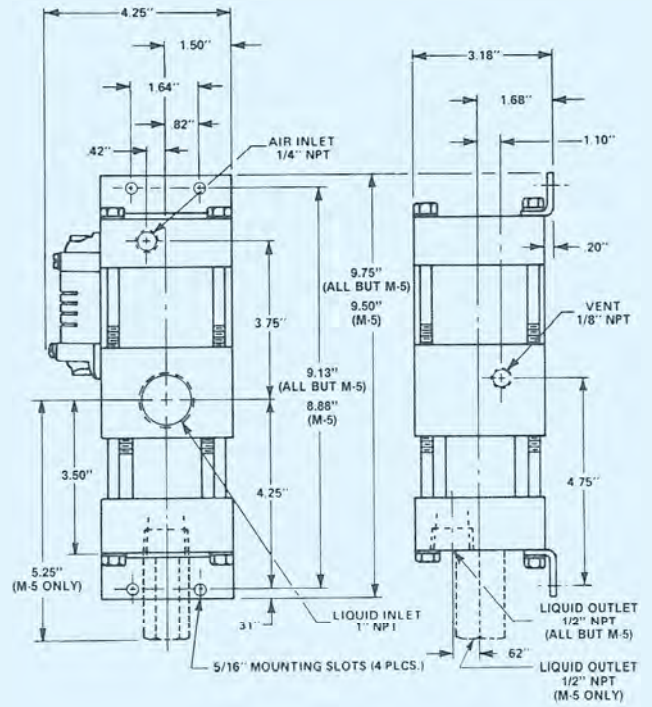
Liquid Section

For reasonable seal life, high temperature should be limited to 54° C (130° F), for F and W seal models, 135° C (275° F) for T and TV models (with distance piece).

| | | Services | | | | | |
|-----------------|----------------|----------|---|---|---|---|---|
| hp | Model | 1 | 2 | 3 | 4 | 5 | 6 |
| .33 | M | • | | | | | |
| | MS | • | • | | | | • |
| | MDSTV | • | • | • | • | • | • |
| | 29723 | • | • | • | | • | • |
| .75 | 4B -14 to -37 | • | • | | | | • |
| | 4B -55 to -100 | • | • | | | | • |
| 1.5 2 2.2 | AW | • | | | | | |
| | ASF | • | • | | | | • |
| | DSF | • | • | • | | • | • |
| | HF | • | • | | | | |
| | HSF | • | • | | | | • |
| | DSHF | • | • | | | • | • |
| | DSTV | • | • | • | • | • | • |
| | ATV | • | • | • | | | • |
| | DTV | • | • | | | • | • |
| | DSTV-1.5 | • | • | • | • | • | • |
| | AFD | • | | • | | | |
| | DFD | • | | • | | • | |
| | ASFD | • | • | | | | • |
| | DSFD | • | • | • | | • | • |
| DSXHF | • | • | | | • | • | |
| DSXHW | • | • | | | | • | |
| 3 | ASFD | • | • | | | | • |
| 6 | GW | • | | | | | • |
| | GSF | • | • | | | | • |
| | DGSF | • | • | • | | • | • |
| | DGSTV | • | • | • | • | • | • |
| | GWD | • | | | | | |
| | GSFD | • | • | • | | • | • |
| | DGFD | • | | • | | • | |
| | DGSFD | • | • | • | • | • | • |
| DGSTVD | • | • | • | • | • | • | |
| 8 | 8FD | • | | | | | • |
| | 8SFD | • | • | • | • | • | • |
| | 8SFD2 | • | • | • | • | • | • |
| | 8DSFD | • | • | • | | • | • |
| | 8DSTVD | • | • | • | | • | • |
| | 8HSFD | • | • | • | • | • | • |
| 10 | D14STD-125 | • | • | • | • | • | • |
| | D14STD-315 | • | • | • | • | • | • |
| | D14SFD-125 | • | • | • | • | • | • |
| | D14SFD-315 | • | • | • | | • | • |

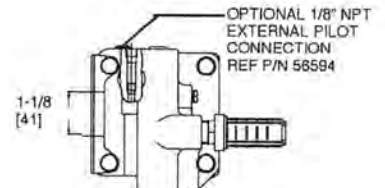
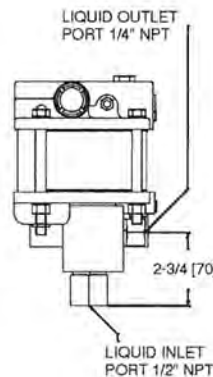
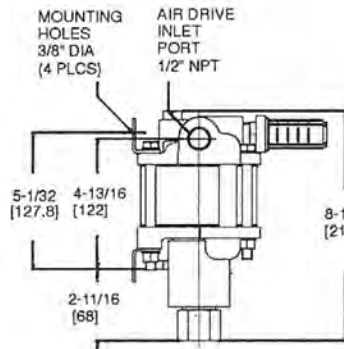
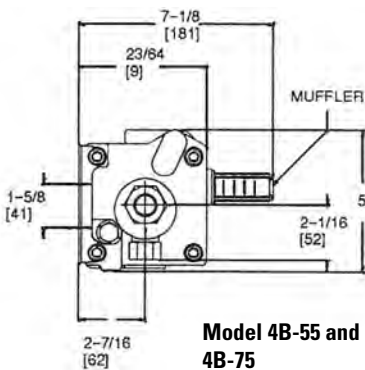
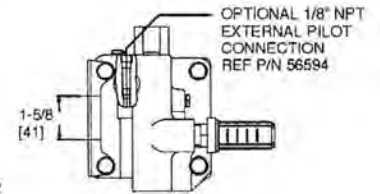
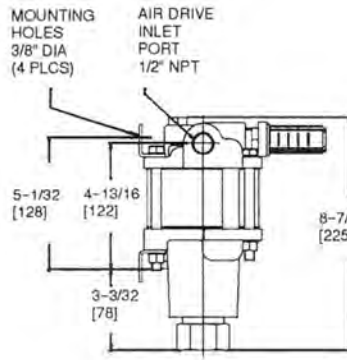
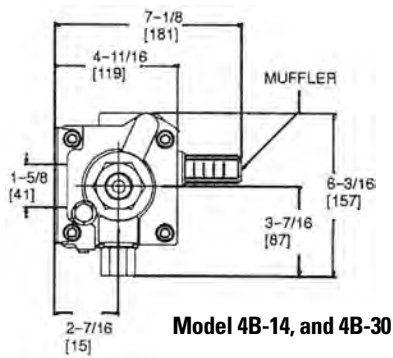


29723-21, 29723-36, 29723-71, 29723-110
approx. weight 6.5 lbs (3 kg)

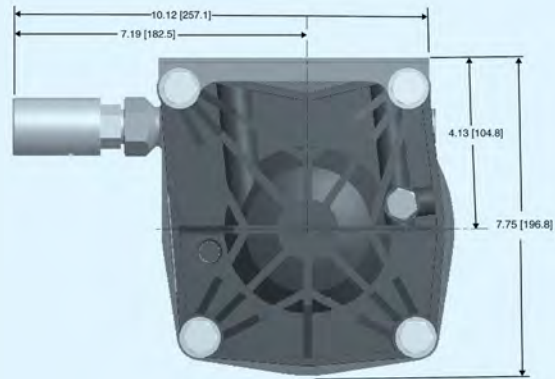
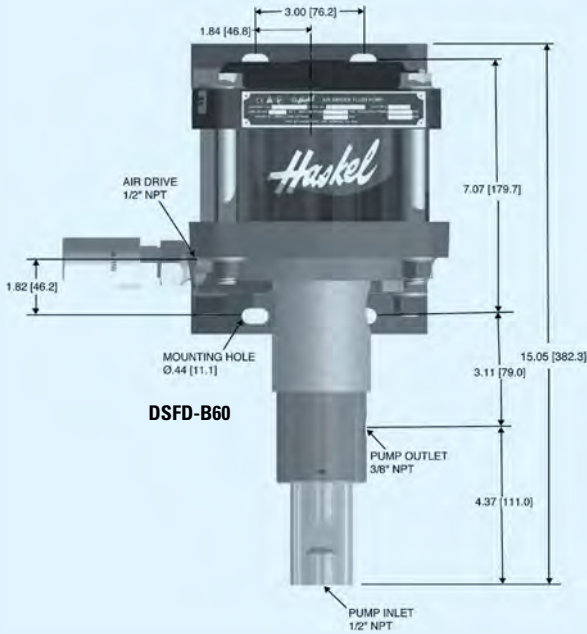


MDSTV-5, MDTV
Approx weight 15 1/2 lbs (7 kg)

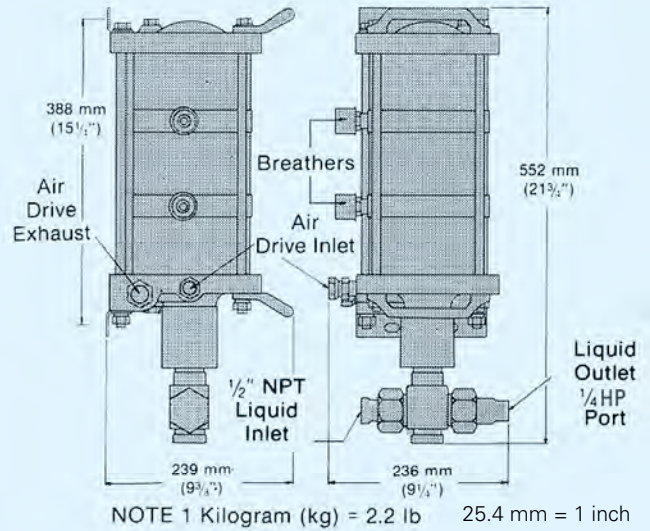
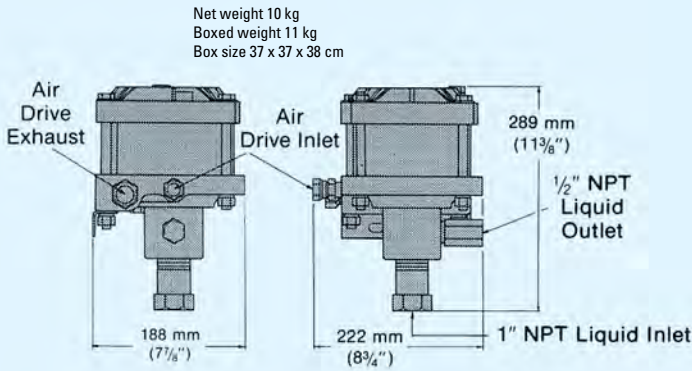
.75 hp (.56 kW) Pump Models



1.5 hp, 2 & 2.2 hp (1.12, 1.49 & 1.64 kW) Pump Models

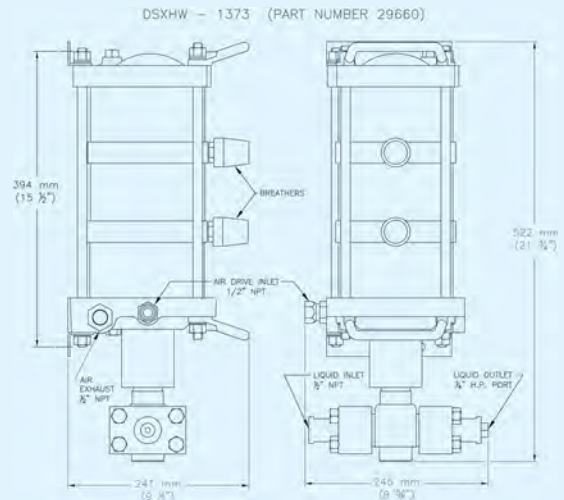
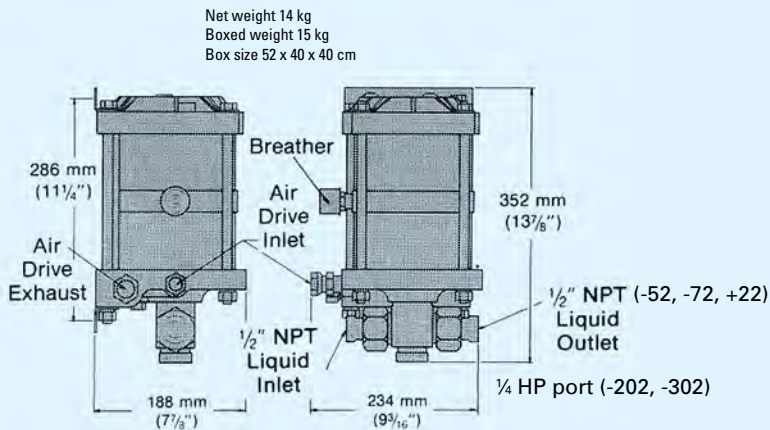


Net weight 18 kg
 Boxed weight 20 kg
 Box size 68 x 42 x 50 cm



**1.5 and 2 hp low ratio pumps;
 -B10 and -B15 ratios**

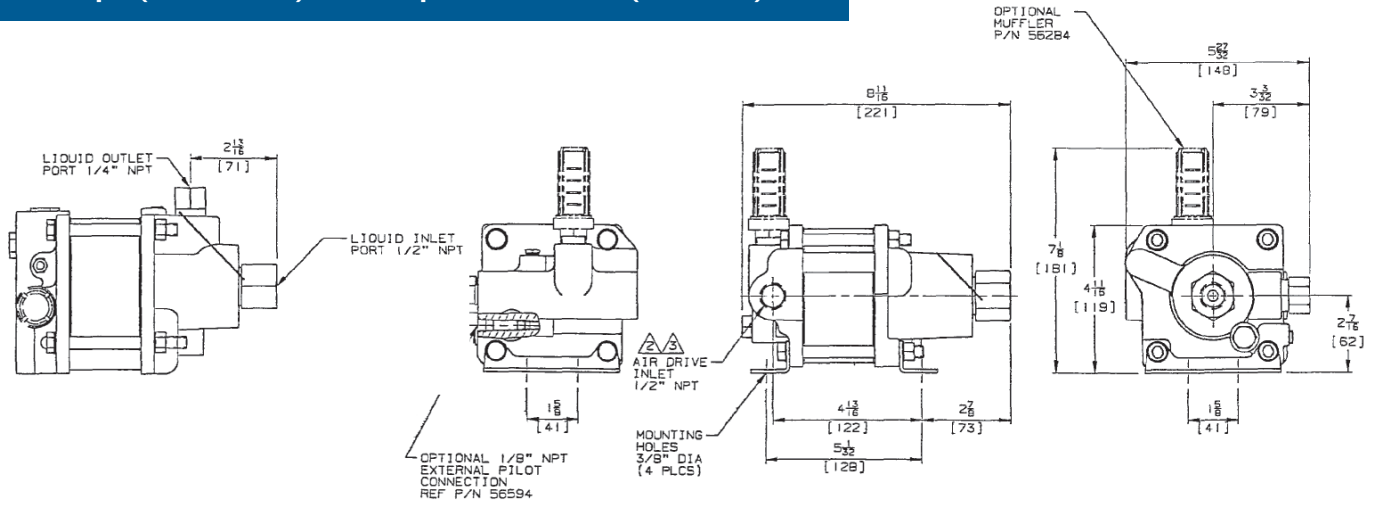
**2 hp high ratio pumps;
 -683 and -903 ratios**



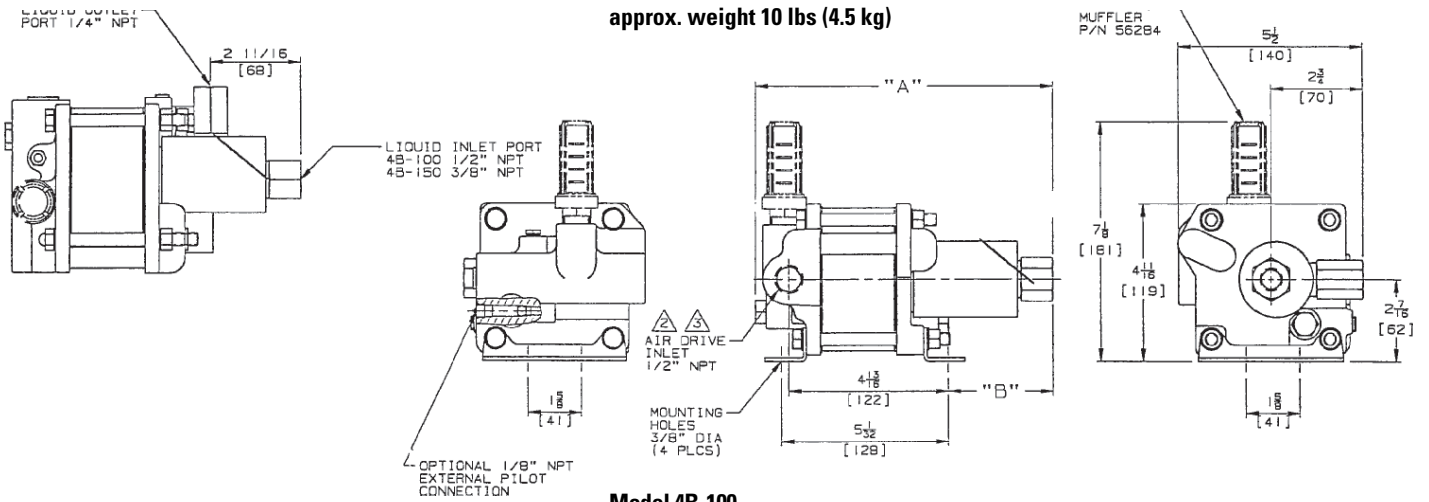
**1.5 and 2 hp medium ratio pumps;
 -52, -72, -122, -202 and -302 ratios**

**2 hp (1.49 & 1.64 kW) Pump Models;
 -1373 ratio**

.75 hp (.56 kW) Pump Models (cont.)

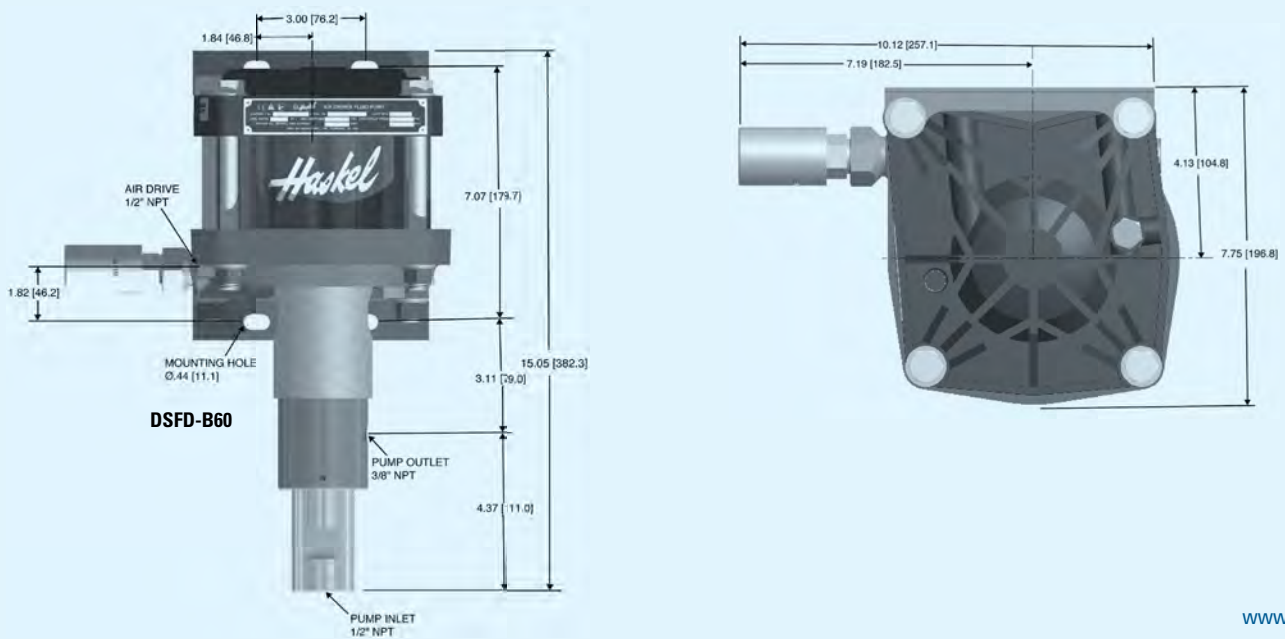


Model 4B-37
approx. weight 10 lbs (4.5 kg)



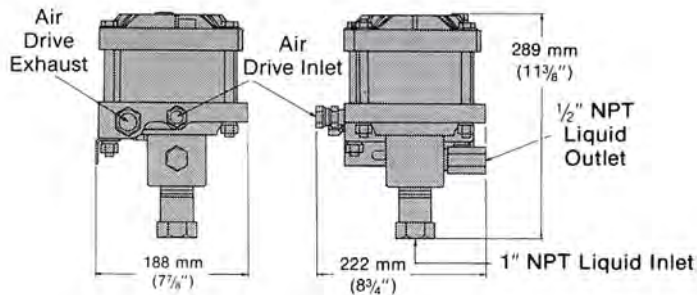
Model 4B-100
approx. weight 11 lbs (5 kg)

1.5 hp, 2&2.2 hp (1.12, 1.49 & 1.64 kW) Pump Models



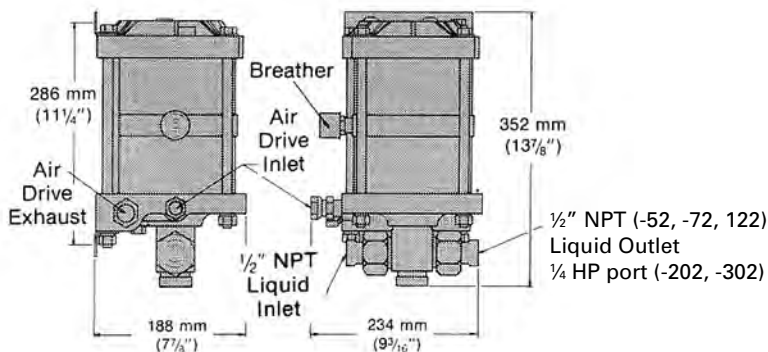
1.5 hp, 2&2.2 hp (1.12, 1.49 & 1.64 kW) Pump Models (cont.)

Net weight 10 kg
Boxed weight 11 kg
Box size 37 x 37 x 38 cm



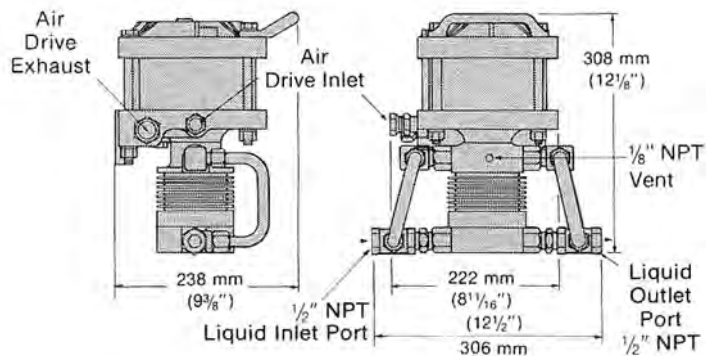
**1.5 and 2 hp low ratio pumps;
-B10 and -B15 ratios**

Net weight 14 kg
Boxed weight 15 kg
Box size 52 x 40 x 40 cm



**1.5 and 2 hp medium ratio pumps;
-52, -72, -122, -202 and -302 ratios**

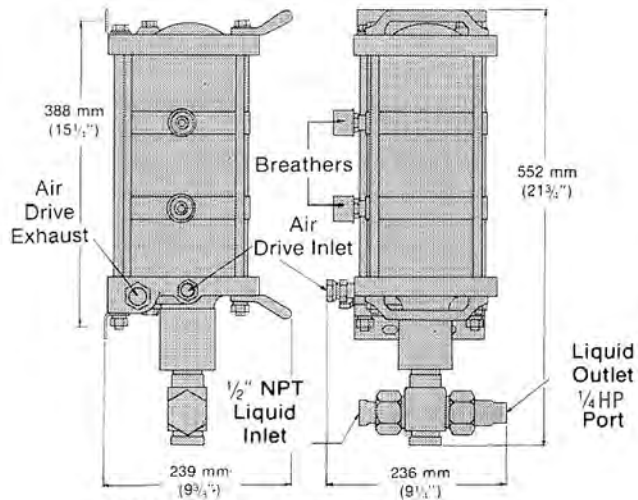
Net weight 10 kg
Boxed weight 11 kg
Box size 45 x 37 x 44 cm



ATV-4 pumps; double acting, high output

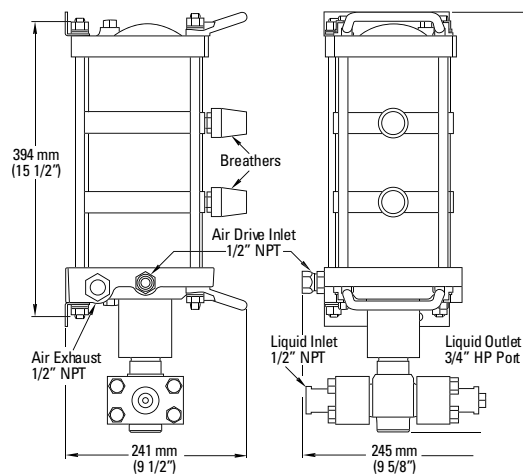
Note: For model DTV-4, add distance piece dimension from page 11.
Interconnecting inlet and outlet port tubing shown.

Net weight 18 kg
Boxed weight 20 kg
Box size 68 x 42 x 50 cm



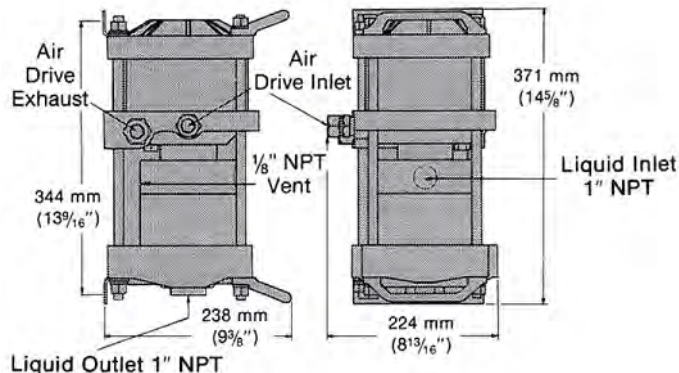
NOTE 1 Kilogram (kg) = 2.2 lb 25.4 mm = 1 inch

**2 hp high ratio pumps;
-683 and -903 ratios**

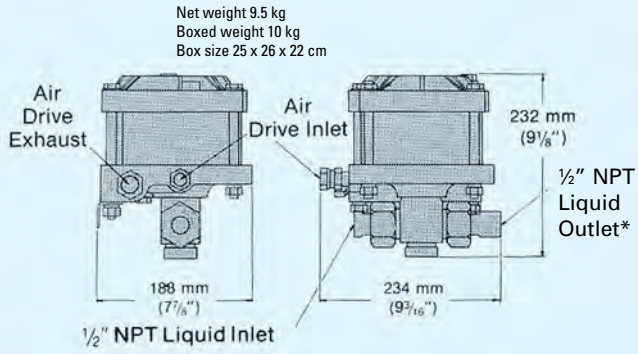


**2 hp (1.49 & 1.64 kW) pump models;
-1373 ratio**

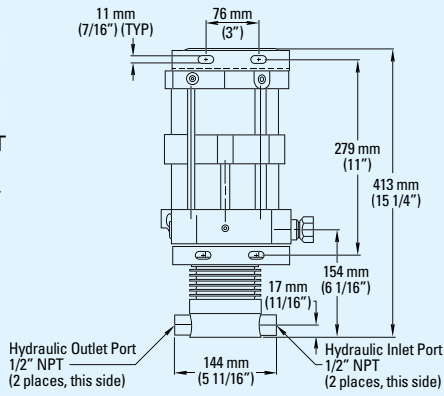
Net weight 18 kg
Boxed weight 19 kg
Box size 45 x 37 x 44 cm



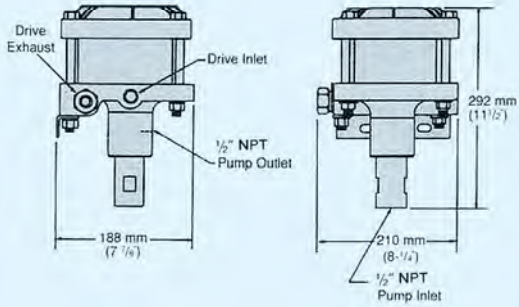
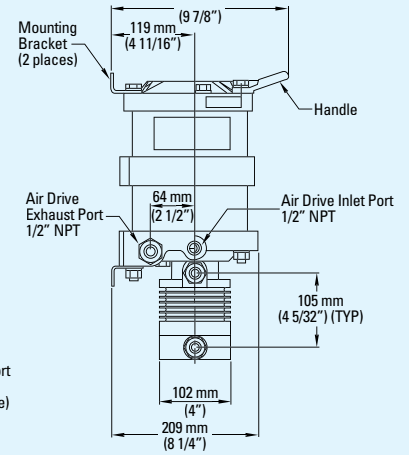
DSTV-1.5 pump; single acting, high output



**1.5 and 2 hp medium and high ratios; -25 through -150, -151*, -225*, -300* and -450* ratios
*1/4" Super Pressure Outlet Port**

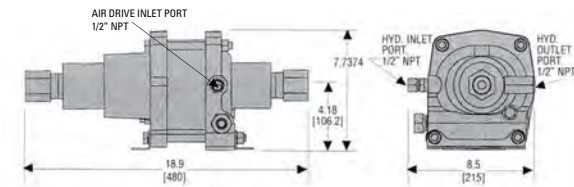


ATV-8 pumps

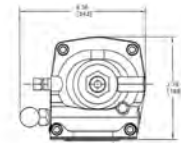
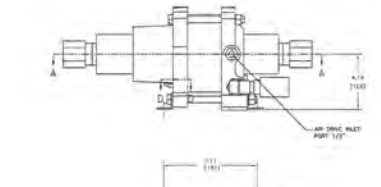
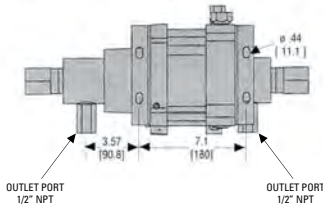


AFD or ASFD, -B60, -B100 pumps; double acting, high output

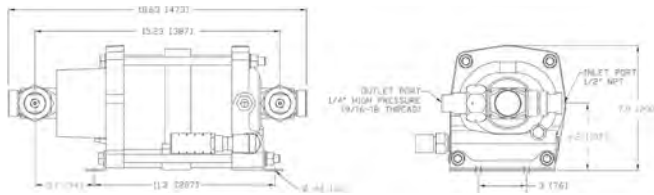
3 hp (2.24 kW) Pump Models



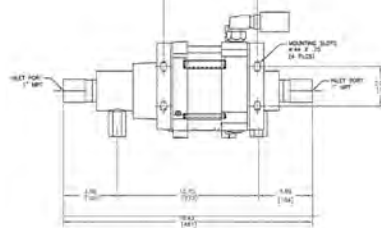
ASFD-15



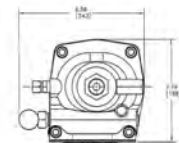
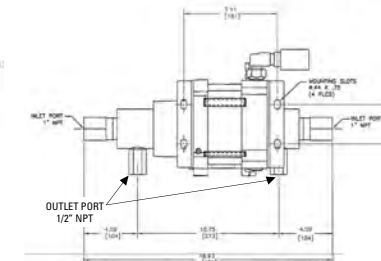
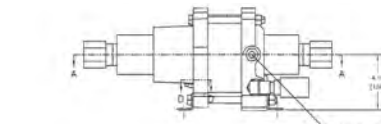
| MODEL | OUTLET PORT | INLET PORT |
|----------|----------------------|----------------|
| ASFD-25 | 1/2" NPT | 1/2" NPT |
| ASFD-35 | | |
| ASFD-60 | | |
| ASFD-100 | 3/8" MEDIUM PRESSURE | 9/16-18 THREAD |
| ASFD-150 | | |



ASFD-202



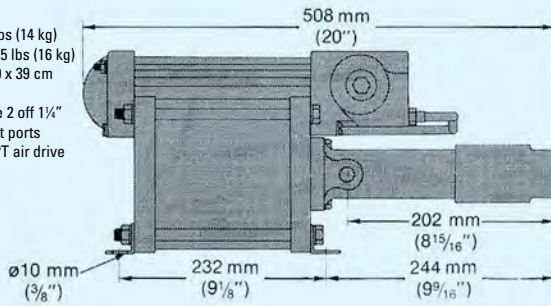
ASFD-10



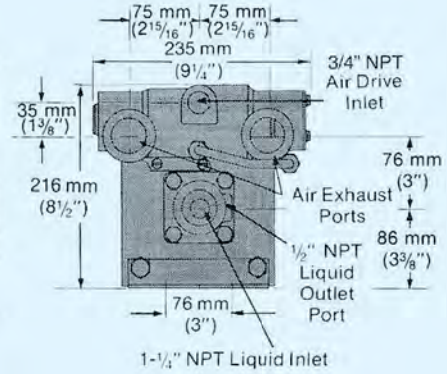
6 hp (4.47 kW) Pump Models

Net weight 31 lbs (14 kg)
 Boxed weight 35 lbs (16 kg)
 Box size 52 x 39 x 39 cm

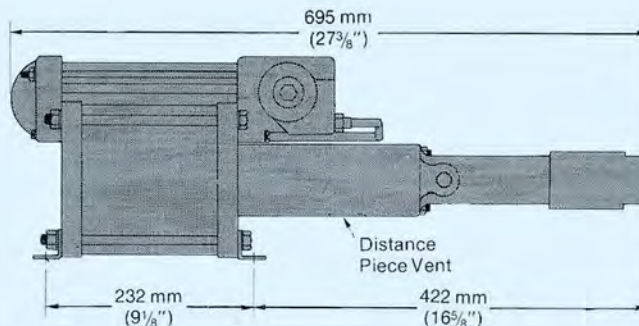
All models have 2 off 1/4" NPT air exhaust ports and 1 off 3/4" NPT air drive inlet ports.



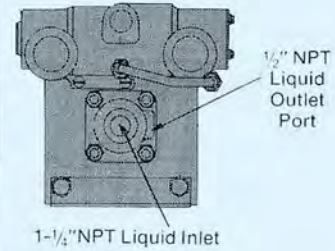
Models GW, GSF nominal ratio 35, 60 100:1



Net weight 41 lbs (18.5 kg)
 Boxed weight 48 (22 kg)
 Box size 66 x 41 x 49 cm



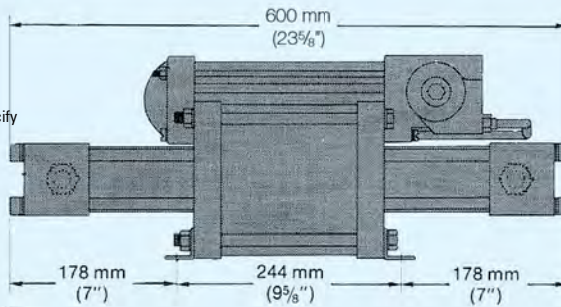
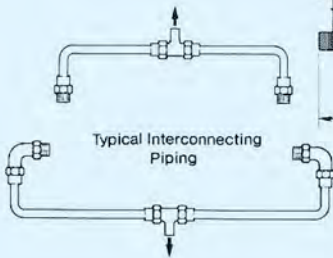
Models DGSF, DGSTV nominal ratio 35, 60 100:1



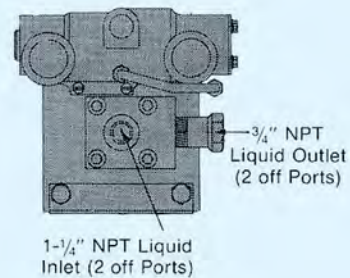
End dimensions as GW/GSF

Net weight 57 lbs (26 kg)
 Boxed weight 61 (27 kg)
 Box size 66 x 41 x 49 cm

If interconnecting piping for the two inlets and two outlets is required, specify modification 29077 with your order.



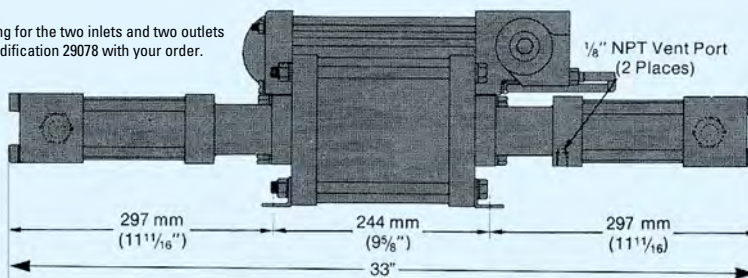
Models GWD, GSFD nominal ratio 12:1



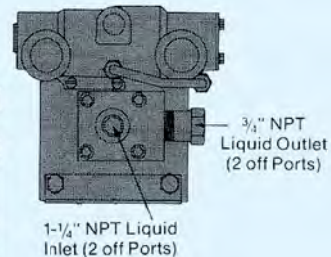
End dimensions as GW/GSF

Net weight 66 lbs (30 kg)
 Boxed weight 75 lbs (34 kg)
 Box size 91 x 51 x 39 cm

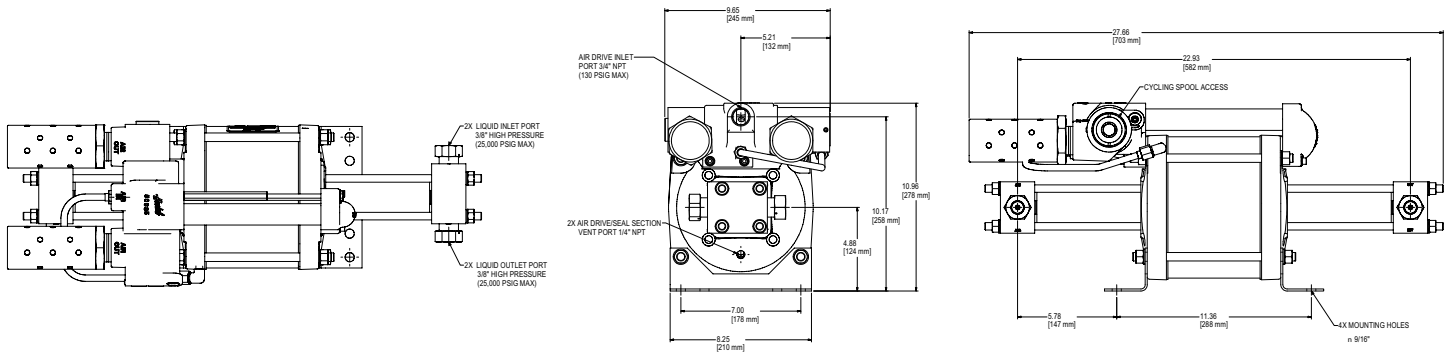
If interconnecting piping for the two inlets and two outlets is required, specify modification 29078 with your order.



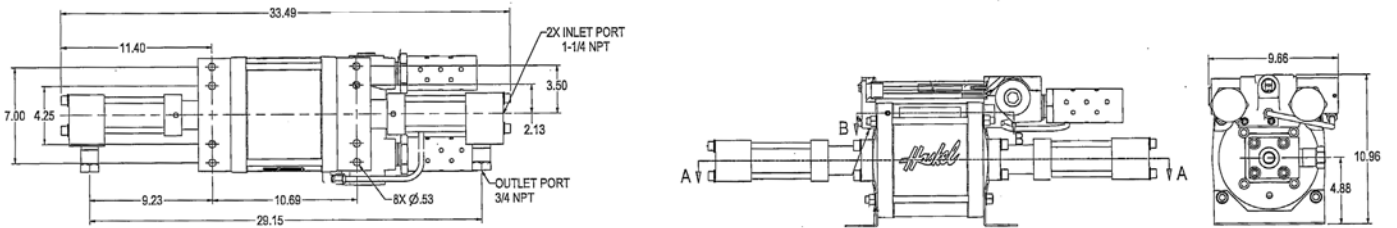
Models DGSFD, DGSTV nominal ratio 12:1



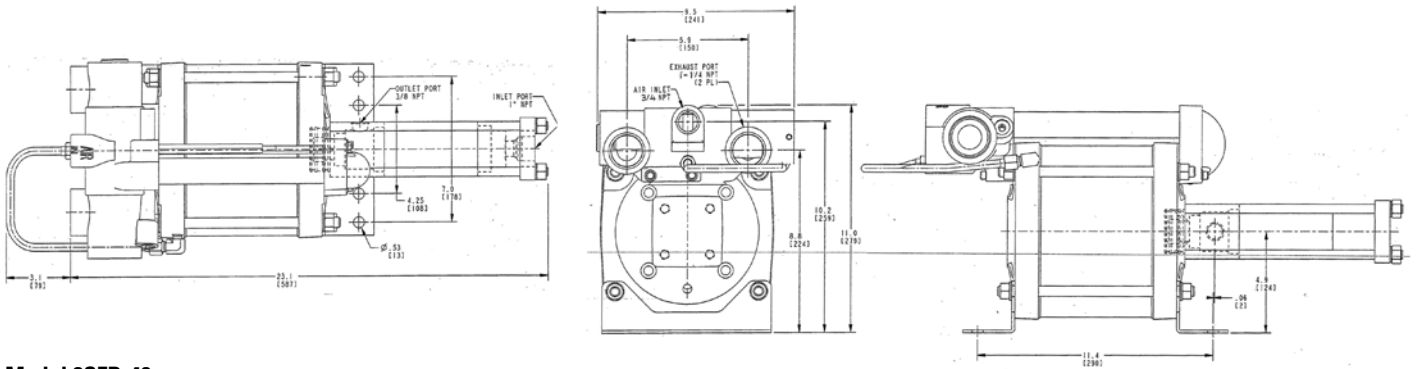
8 hp (5.97 kW) Pump Models



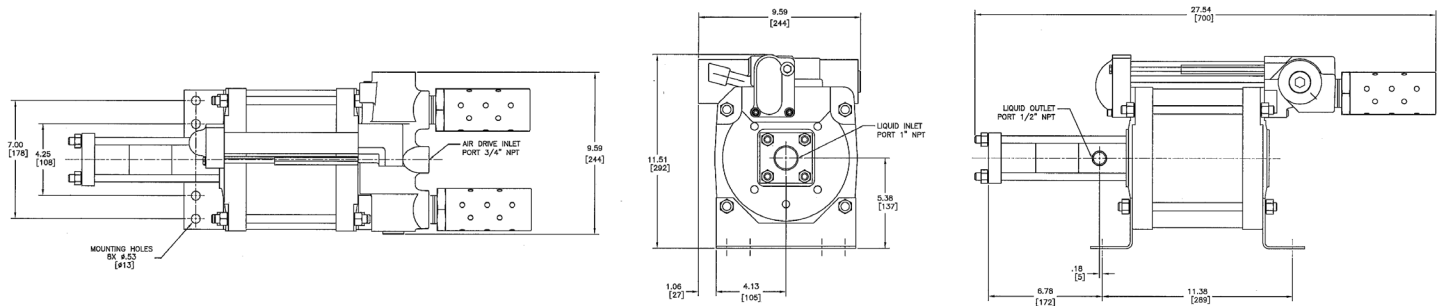
Model 8HSFD-25
Inlet, Outlet ports 3/8" HP



Models 8SFD-25 & 8DSTVD-25

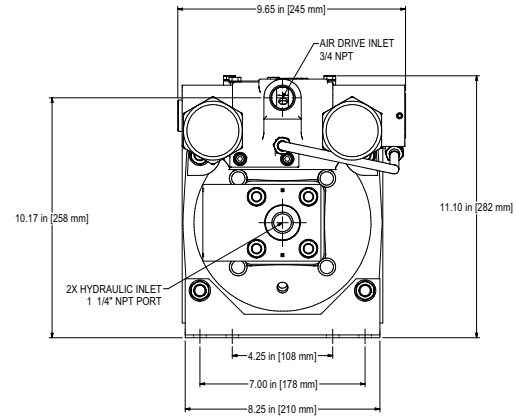
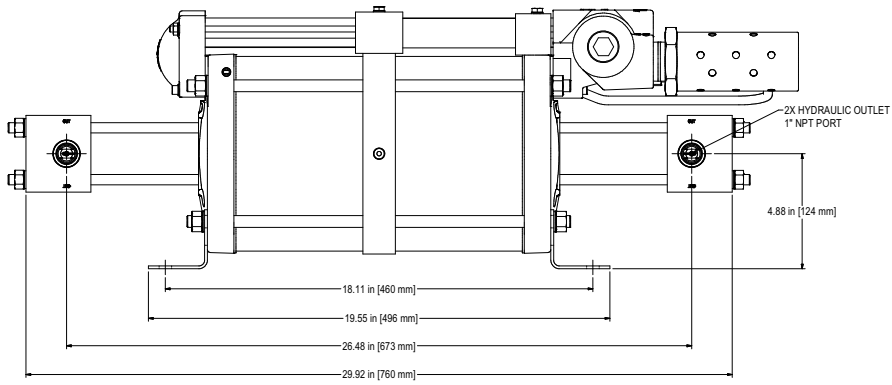
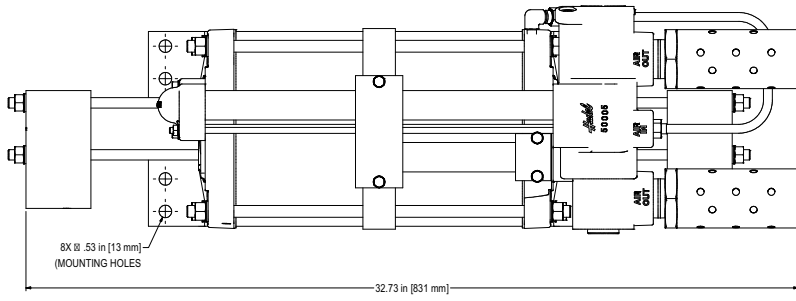


Model 8SFD-40

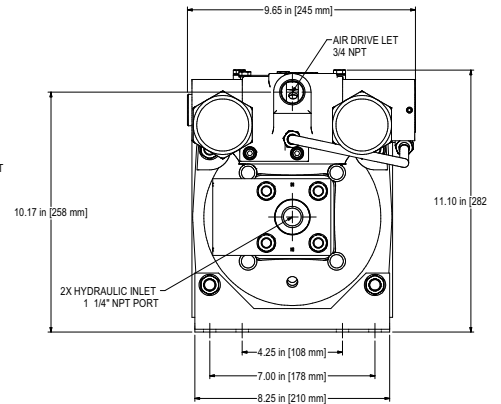
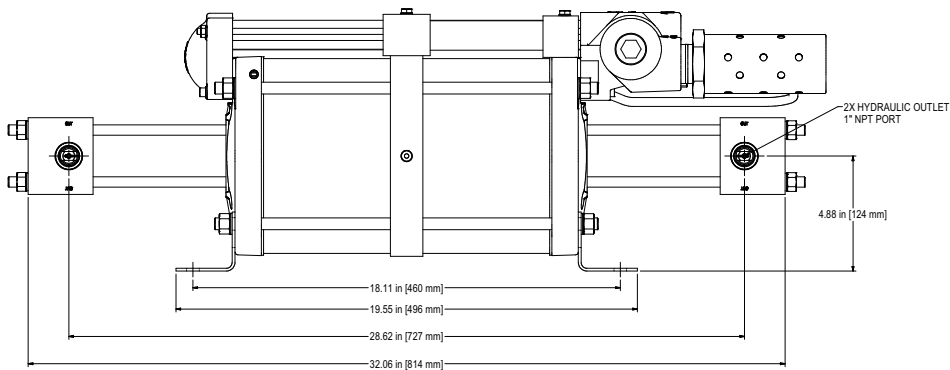
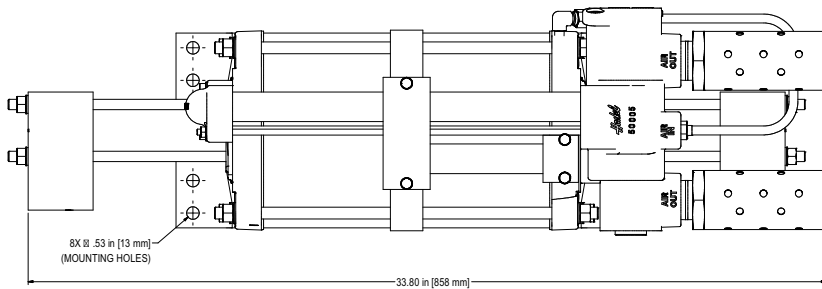


Model 8SFD-65

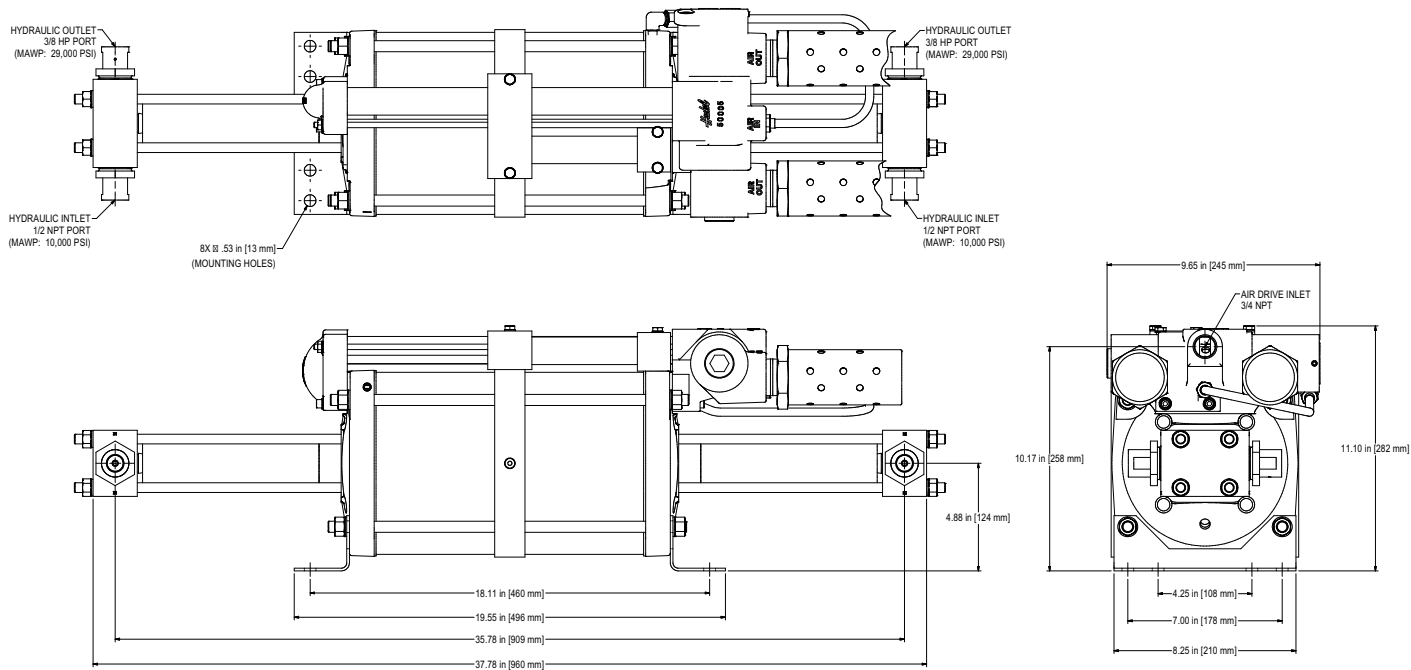
8 hp (5.97 kW) Pump Models (cont.)



Model 8SFD2-55

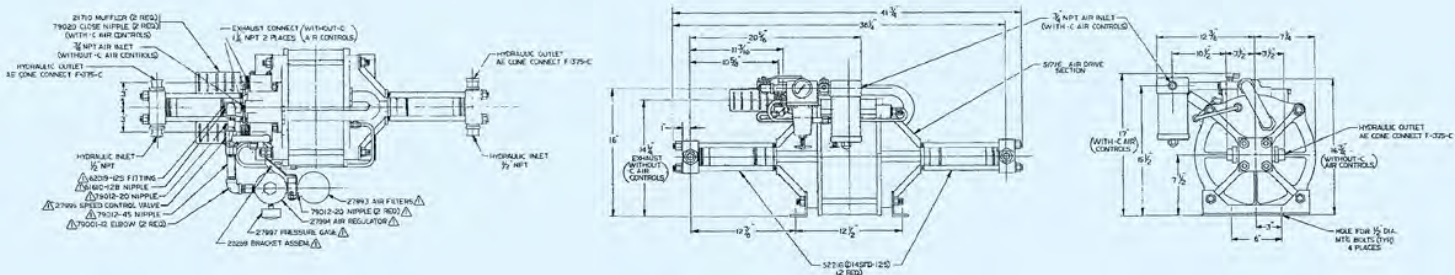


Model 8SFD2-88

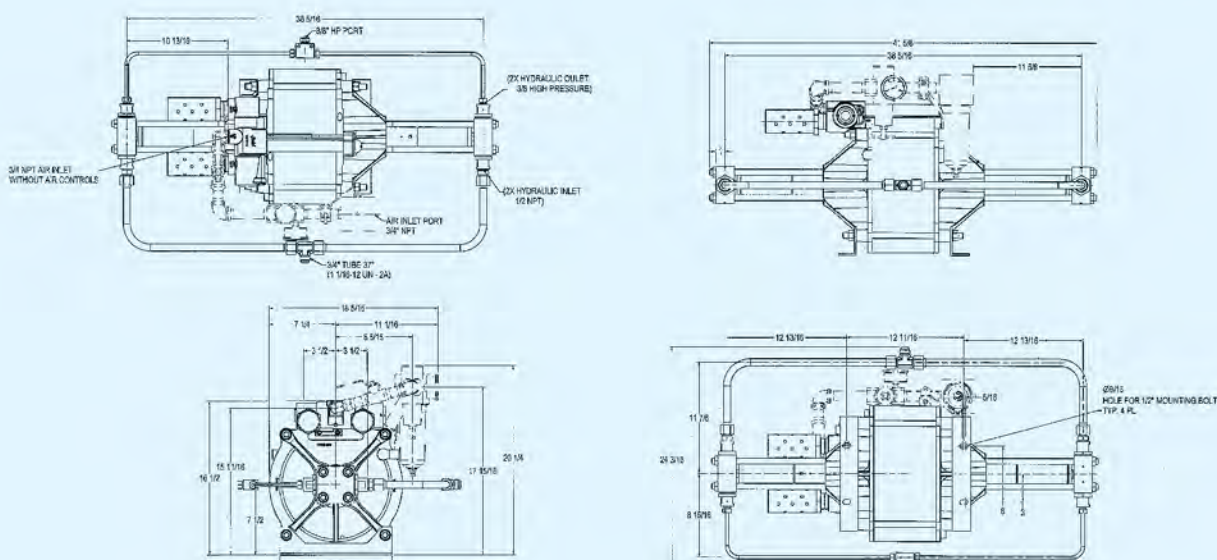


Model 8SFD2-224

10 hp (7.46 kW) Pump Models



Model D14STD-125



Model D14STD-315

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LP-GL 04/17
Printed in USA