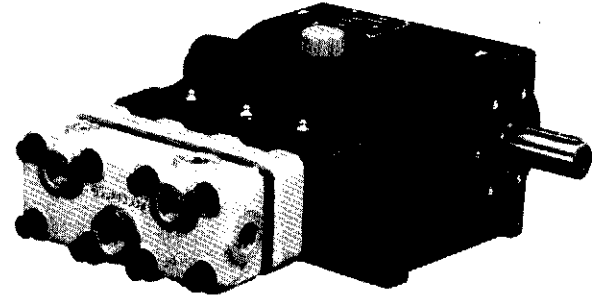


APPLICATIONS

HDN Series pumps are designed to pump aggressive liquids at high pressures for a wide range of industrial applications which include portable and stationary high pressure cleaning systems, hydrostatic test units and reverse osmosis systems.

FEATURES

- Heavy cast iron crankcase
- Stainless steel manifolds
- Self-adjusting shaft bearings with double roller rim
- Forged steel connecting rods with anti-friction bearings
- Double projection, gas-nitride, hardened steel crankshaft
- Stainless steel valves
- Ceramic-coated stainless steel plungers



PERFORMANCE DATA

RPM	HDN 18	HDN 20	HDN 22	HDN 25	HDN 30	FLOW
500	3.9	4.9	5.9	7.8	10.9	GPM
600	4.7	5.9	7.1	9.4	13.0	GPM
750	5.9	7.4	8.9	11.7	16.3	GPM
1000	7.9	9.8	11.9	15.6	N.A.	GPM
MAX PSI	7250	5800	4650	3600	2600	
HORSEPOWER FORMULA			RPM FORMULA			
$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{REQUIRED BRAKE H.P.}$			$\frac{\text{RATED RPM} \times \text{DESIRED GPM}}{\text{RATED GPM}} = \text{PUMP RPM}$			

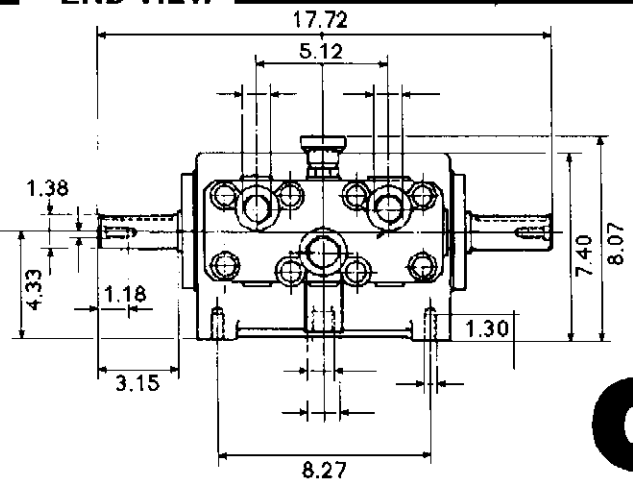
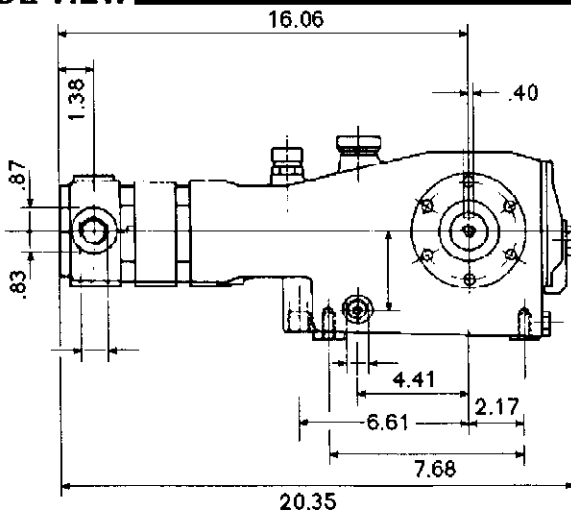
- Volumes 7.9 - 16.3 GPM
- Discharge Pressure 2600 - 7250 PSI
- Max. Inlet Pressure Flooded to 45 PSI Max.
- Fluid Temperature 150°F Max.*
- Crankcase Capacity 64 oz.
- Inlet Fitting 1 in. NPT F
- DischargePort 3/4 in. BGT
- Discharge Fitting 3/4 in. NPT F
- Shaft Diameter 35 mm
- Weight 145 lbs.
- Dimensions 20.3 in. L x 17.7 in. W x 8.0 in. H

Performance data stated at 100% volumetric efficiency. Based on inlet water conditions, pump volumetric efficiency is 95% or greater.

*See Fluid Temperature Section

SIDE VIEW

END VIEW





DESIGN CRITERIA

General Industrial HDN Series Triplex Plunger Pumps are designed and manufactured to pump water and other liquids of similar viscosity compatible with the construction materials used in the pump.

Durable by design, HDN Series Pumps are ideal for a wide variety of high-pressure applications including intermittent or continuous duty high-pressure cleaning and water sandblasting.

Optimum pump performance can only be achieved if the entire fluid system is designed and built using properly sized plumbing and accessories. General HDN Industrial Pumps are positive displacement pumps and require the use of a properly designed pressure relief mechanism in the discharge plumbing of any system using these pumps. **Failure to install a relief mechanism could result in personal injury or damage to the system.**

General Pump, Inc. does not assume any liability or responsibility for the design and operation of a customer's high-pressure system.

PUMP SELECTION - NORMAL DUTY

The General Industrial HDN Series offers a wide range of flow, pressure and drive options. Pump performances indicated for the HDN Series (RPM, GPM, PSI, fluid temperature) are the designed maximum for pumps operated on a **normal intermittent duty cycle.**

PUMP SELECTION - CONTINUOUS DUTY

Most HDN Pumps can be re-rated for continuous duty by reducing the pump RPM by 25% minimum and by installing a feed pump capable of delivering two times the operating flow rate at 45 PSI maximum. In selecting a pump for continuous duty, optimal performance is accomplished by using the largest plunger diameter practical and reducing the RPM to deliver the desired flow. **Do not exceed the maximum rated discharge pressure of this pump.**

Example: Customer requirement is 9.8 GPM @ 5800 PSI. According to the catalogue, the HDN 20 operated at 1000 RPM would be the proper pump for intermittent duty. For continuous duty select the HDN Series pump that allows for the most reduction in crankshaft speed. The HDN 25 operated at 640 rpm will deliver the desired performance on a continuous duty basis. The HDN 25 was selected instead of the HDN 30, because the HDN 30 would have to be operated at 460 RPM to produce the desired flow (too slow for proper lubrication).

Proper splash lubrication requires a 500 RPM minimum internal crankshaft speed.

PUMP INSTALLATION

When designing a system, **keep the inlet plumbing as simple as possible using a minimum amount of fittings or elbows with no elbows within 12" of pump inlet.**

Pump life is considerably influenced by the condition of the fluid supplied to the inlet of the pump. **Inlet plumbing should be flexible reinforced hose, 1.5 to 2 times larger than the specified inlet port size.** Inlet and discharge fittings are furnished with each pump.

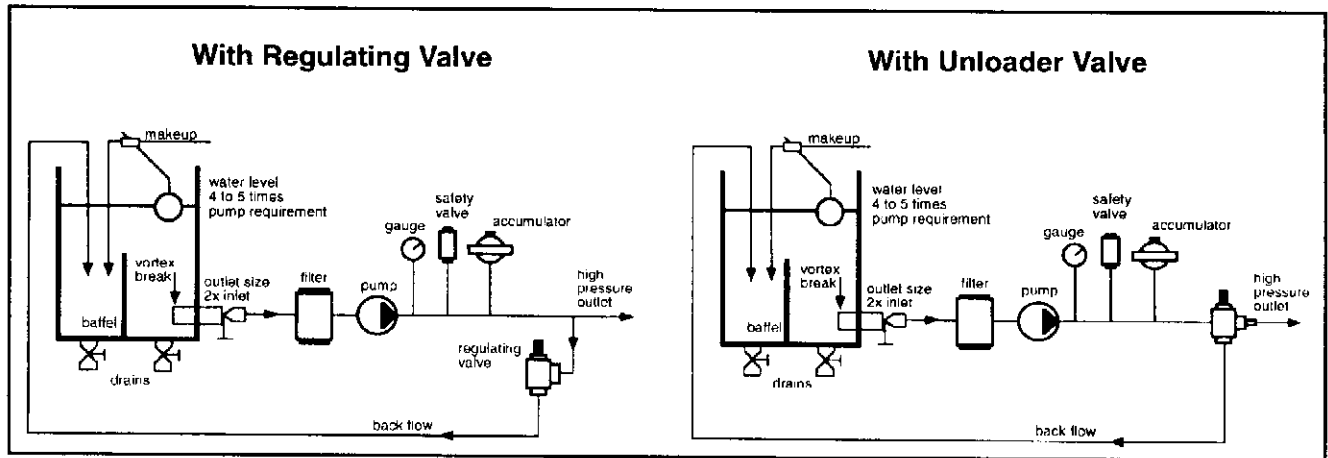
It is critical to provide airtight inlet plumbing sized to deliver an adequate volume of settled fluid to the pump (**minimum 2 times the operating flow rate**). This is best accomplished with a pressurized feed at 30-45 PSI or a flooded inlet.

Do not let pump self prime.

When using an inlet holding tank (float tank), size it according to the maximum rated output of the pump. Provide a **minimum of 5 times the operating flow rate (a 10 GPM pump requires a 50 GPM tank)**. The feed tank should contain sufficient baffling to eliminate air bubbles and turbulence. Feed tanks should be mounted so the water level in the tank is always higher than the feed lines and the inlet port of the pump (flooded inlet). Diffusers should be installed on all return lines to the tank.



Typical Installation diagram:



FLUID TEMPERATURE

HDN Series Pumps are rated for 150°F maximum fluid temperature. However, **when operating with fluid temperatures exceeding 110°F, a pressurized inlet is required.** Install a feed pump capable of delivering two times the operating flow rate at 45 PSI maximum, and follow continuous duty parameters.

FILTERS

Install an inlet filter on all systems. The filter should be positioned as close as possible to the inlet of the pump. **The inlet filter capacity must be a minimum of three times the rated output of the pump.** Filter media of 50 to 80 microns is recommended for most systems.

PUMP MOUNTING

The pump must be mounted in a horizontal position on a rigid base in a manner to permit drainage of crankcase oil. The pump should be flat with no more than a 5 degree incline. Pumps can be operated using pulley or direct drive. **Observe the specified pump rotation indicated by the arrows on the crankcase.** General Industrial Pumps are splash lubricated. By observing the proper rotation and crankshaft speed (500 RPM minimum), the crank mechanism puts oil in circulation through internal crankcase grooves so the connecting rods, bearings, piston guides and other surfaces requiring lubrication receive proper coverage.

Crankcase oil (Pennzoil RO 220 or equivalent) should be checked frequently and changed as follows: Initial oil change between the first 50 and 100 hours of operation; then after each successive 500 hours of operation.

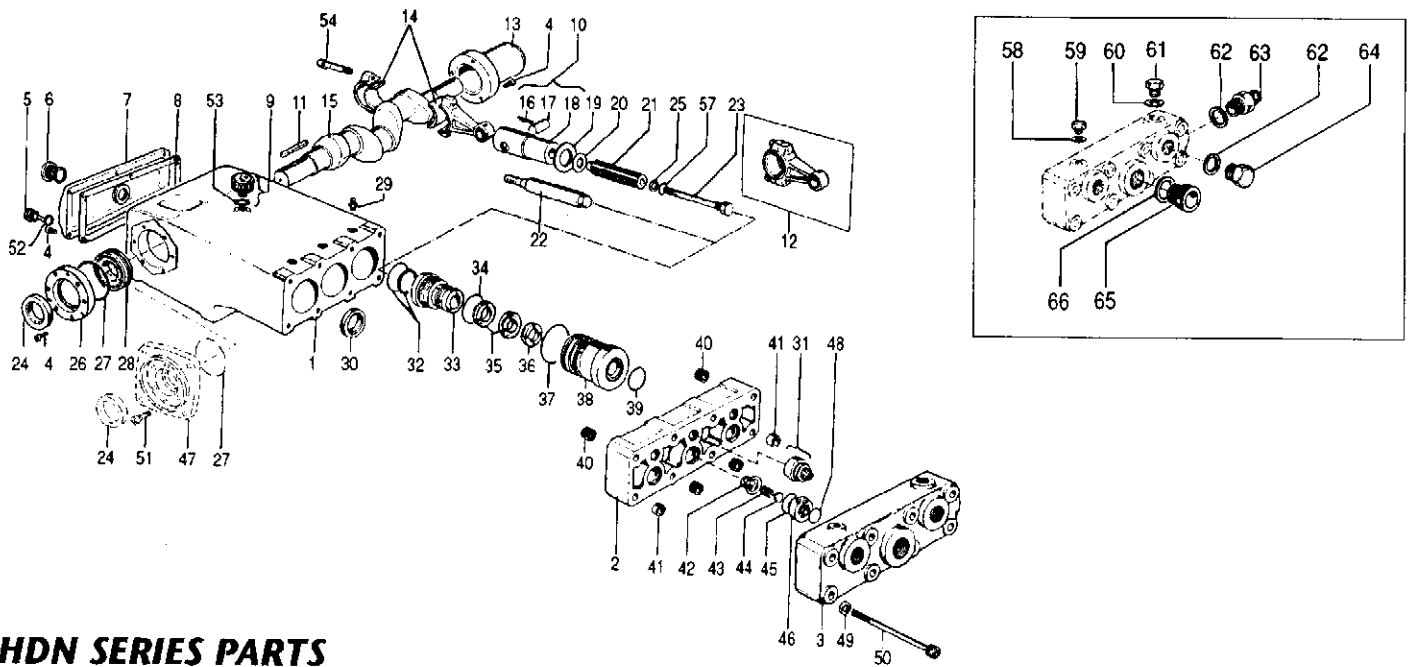
HDN Series Pumps are equipped with grease fittings (Position 29). Greasing should be done prior to initial start-up and after every 100 hours of operation. Using a hand grease gun, apply a high grade silicon grease with a penetration coefficient of 290. **Caution — Do Not Overlubricate — Stop At The First Sign Of Back Pressure To Avoid Damage To Packings.**

START-UP

Check oil prior to start-up, and open all inlet and discharge valves. **Always start the pump in a zero pressure condition. Do not let pump run dry.**

WARRANTY

General Pump products are warranted by the manufacturer to be free from defects in material and workmanship. Period of warranty shall be 1 year from date product is received by original buyer. Liability of manufacturer under the foregoing warranty is limited to **repair or replacement** at the option of manufacturer of that product which according to the manufacturer's investigation was deemed defective at time of shipment. Damage resulting from neglect, abuse, tampering or misapplication voids the warranty. This warranty is in lieu of all other warranties, expressed or implied, including any warranty of merchantability and or any and all other obligations or liabilities on the part of the manufacturer.



HDN SERIES PARTS

Pos. Code	Description	Qty.	Pos. Code	Description	Qty.	Pos. Code	Description	Qty.
1	F060100070 Crankcase	1	25	F872040101 Washer HDN20-22-25-30	12	F062300170	HDN22 Cylinder	3
2	F064200050 Collector	1	26	F063400680 Bearing Cover	2	F062300180	HDN25 Cylinder	3
3	F064200070 ManHold	1	27	F881013100 O-Ring	2	F062300190	HDN30 Cylinder	3
4	F871115603 Cap Screw	21	28	F8 11110002 Bearing	2	39	F881010211 O-Ring	3
5	F801057001 Magnetic Plug	1	29	F801077503 Grease Fitting	3	40	F043500010 Rubber Screw Protector	12
6	F801053003 Oil Level Sight Eye	1	30	F881081002 Piston Guide Oil Seal	3	41	F031200060 Spacer	4
7	F063400650 Rear Cover	1	31	F208004400 Suction/Discharge Valve Assembly	6	42	F021200010 Valve Guide	6
8	F080600000 Rear Cover Gasket	1	32	F881061006 HDN18 Scraper	3	43	F090200010 Valve Spring	6
9	F801054002 Oil Fill Plug	1	33	F881061007 HDN20 Scraper	3	44	F082200010 Valve Disc	6
10	F250001010 Complete Piston Assembly HDN20-22-25-30	3	34	F881061008 HDN22 Scraper	3	45	F881011155 O-Ring	6
	F250001050 Complete Piston Assembly HDN18	3	35	F881061009 HDN25 Scraper	3	46	F081200010 Valve Seat	6
11	F071000030 Key	1	36	F881061011 HDN30 Scraper	3	48	F881011151 O-Ring	6
12	F250000050 Complete Connecting Rod	3	37	F022300740 HDN18 Packing Support	3	49	F030000160 Washer	8
13	F040400120 Shaft Cover	1	38	F022300640 HDN20 Packing Support	3	50	F035000050 Screw	8
14	F812000002 Bushing	3	39	F022300650 HDN22 Packing Support	3	52	F030300000 Aluminum Washer	1
15	F050000030 Crankshaft	1	40	F022300660 HDN25 Packing Support	3	53	F88 1011173 O-Ring	1
16	F872138010 Retainer Pin	3	41	F022300670 HDN30 Packing Support	3	54	F871350002 Screw	6
17	F071000020 Wrist Pin	3	42	F881010120 O-Ring	3	57	F881011100 O-Ring HDN20-22-25-30	3
18	F020000020 Piston Guide HDN20-22-25-30	3	43	F881020000 HDN18 Packing	6	58	F030300080 Washer	1
19	F020000060 PistonGuide HDN18	3	44	F881020001 HDN20 Packing	6	59	F084200150 Plug	1
20	F041200000 Wiper	3	45	F881020003 HDN22 Packing	6	60	F030300010 Washer	1
21	F010200010 Spacer HDN20-22-25-30	3	46	F881020005 HDN25 Packing	6	61	F084200140 Plug	1
	F010200000 Spacer HDN18	3	47	F881020006 HDN30 Packing	6	62	F030300020 Washer	3
	F024200520 HDN20 Plunger	3	48	F031200380 HDN18 Packing Ring	3	63	F084200170 Nipple	1
	F024200530 HDN22 Plunger	3	49	F031200390 HDN20 Packing Ring	3	64	F084200130 Plug	2
	F024200540 HDN25 Plunger	3	50	F031200400 HDN22 Packing Ring	3	65	F821013002 Reducer	1
	F024200550 HDN30 Plunger	3	51	F031200410 HDN25 Packing Ring	3	66	F872043008 Aluminum Washer	1
22	F124200190 HDN18 Plunger	3	52	F031200420 HDN30 Packing Ring	3			
23	F035200070 Plunger Screw HDN20-22-25-30	3	53	F881010124 O-Ring	3			
24	F881080014 Crankshaft Oil Seal	2	54	F881010124 O-Ring	3			
			55	F062300220 HDN18 Cylinder	3			
			56	F062300160 HDN20 Cylinder	3			

REPAIR KITS

POSITIONS INCLUDED	N.PCS.	HDN 18	HDN 20	HDN 22	HDN 25	HDN 30
32, 35	3-6	KIT 488	KIT 428	KIT 429	KIT 430	KIT 431
33, 34	3	KIT 506	KIT 566	KIT 567	KIT 568	KIT 569
36	3	KIT 552	KIT 553	KIT 554	KIT 555	KIT 556
32, 33, 34, 35, 36	3-6	KIT 544	KIT 570	KIT 571	KIT 572	KIT 573
25, 27, 37, 39, 45, 48, 53, 57	3-20				575	
27, 37, 39, 45, 48, 52, 53	3-20	KIT 574				
42, 43, 44, 45, 46, 48, (31)	1				440	
30	3				425	
24	2				426	

TORQUE SPECS

Position	Ft./lbs.
23	36
50	144
54	18

GENERAL PUMP INCORPORATED

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