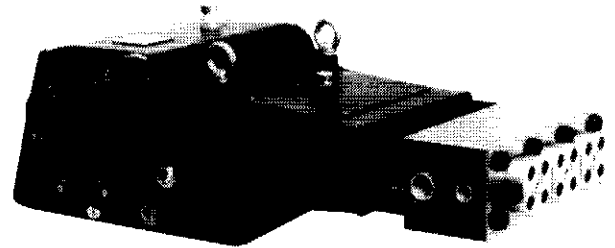


## APPLICATIONS

SH Series pumps are designed for a wide variety of industrial applications which include portable and stationary high-pressure cleaning systems, hydrostatic test units, sewer and pipe cleaning equipment and water reclamation systems.

## FEATURES

- Built-in gear reducer (2.95 or 3.39 ratio)
- Heavy cast iron crankcase
- 300 Series corrosion-resistant stainless steel manifold
- Self-adjusting shaft bearings with double roller rim
- Double projection, gas-nitride, hardened steel crankshaft
- Die cast steel connecting rods with tri-metal bearings
- Stainless steel valves
- Solid ceramic plungers



## PERFORMANCE DATA

MODEL	Volume, GPM		Pressure PSI	Power HP
	1750 RPM	1500 RPM		
SH 20	11.6	11.4	20,300	158
SH 22	14.0	13.7	17,400	163
SH 24	16.6	16.4	13,750	154
SH 26	19.5	19.2	11,600	152
SH 28	22.7	22.3	10,150	155
SH 30	26.0	25.6	8,700	152

HORSEPOWER FORMULA		RPM FORMULA	
$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{REQUIRED BRAKE H.P.}$		$\frac{\text{RATED RPM} \times \text{DESIRED GPM}}{\text{RATED GPM}} = \text{PUMP RPM}$	

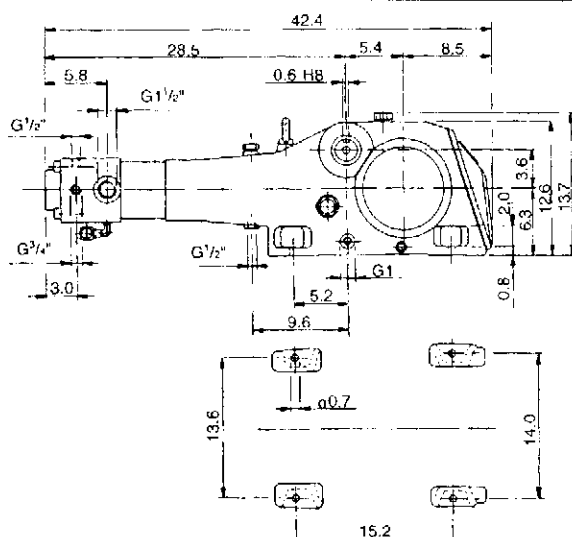
Performance data stated at 100% volumetric efficiency. Based on inlet water conditions, pump volumetric efficiency is 95% or greater.

## SPECIFICATIONS

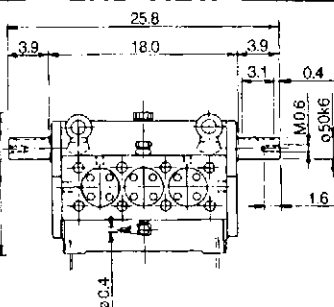
Volumes	11.3 - 25.6 GPM
Discharge Pressure	8700 - 20,300 PSI Max.
Max. Inlet Pressure	30 PSI to 145 PSI Max.
Fluid Temperature	85°F Max.*
Crankcase Capacity	473 oz.
Inlet	1.5 in. BGT
Discharge Port	3/4 in. BGT
Shaft Diameter	50 mm
Weight	838 lbs.
Dimensions	42.4 in. L x 25.8 in. W x 13.7 in. H

\*See Fluid Temperature Section

## SIDE VIEW



## END VIEW





## **DESIGN CRITERIA**

General Industrial SH Series Triplex Plunger Pumps with internal gear reduction 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, SH Series Pumps with gear box 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 SH Industrial Pumps with gear box are positive displacement pumps and require the use of a properly designed pressure relief mechanism in the discharge plumbing. **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 SH Series pumps with gear box offers a wide range of flow, pressure and drive options. Pump performances indicated for the SH Series Pumps with gear box (RPM, GPM, PSI, fluid temperature) are the designed maximum for pumps operated on a **normal intermittent duty cycle**.

## **PUMP SELECTION - CONTINUOUS DUTY**

SH pumps with gear box can be re-rated for continuous duty by reducing the pump RPM 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.**

**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.

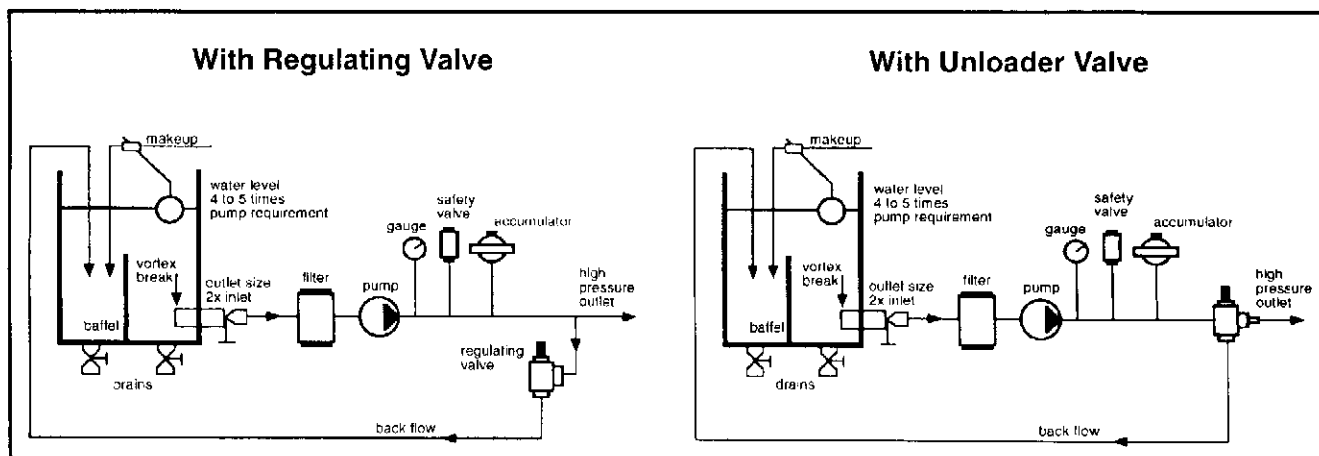
It is critical to provide airtight inlet plumbing sized to deliver an adequate volume of settled fluid to the pump (**minimum 2 times the operating flow rate**). This is best accomplished with a pressurized feed at 30-147 PSI.

**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. (See diagram.)



Typical Installation diagram:



## FLUID TEMPERATURE

SH Series Pumps with gear box are rated for 85°F maximum fluid temperature. 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 gauge inlet of the pump. **The inlet filter capacity must be a minimum of three times the rated output of the pump.** Filter media of 10 to 30 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.

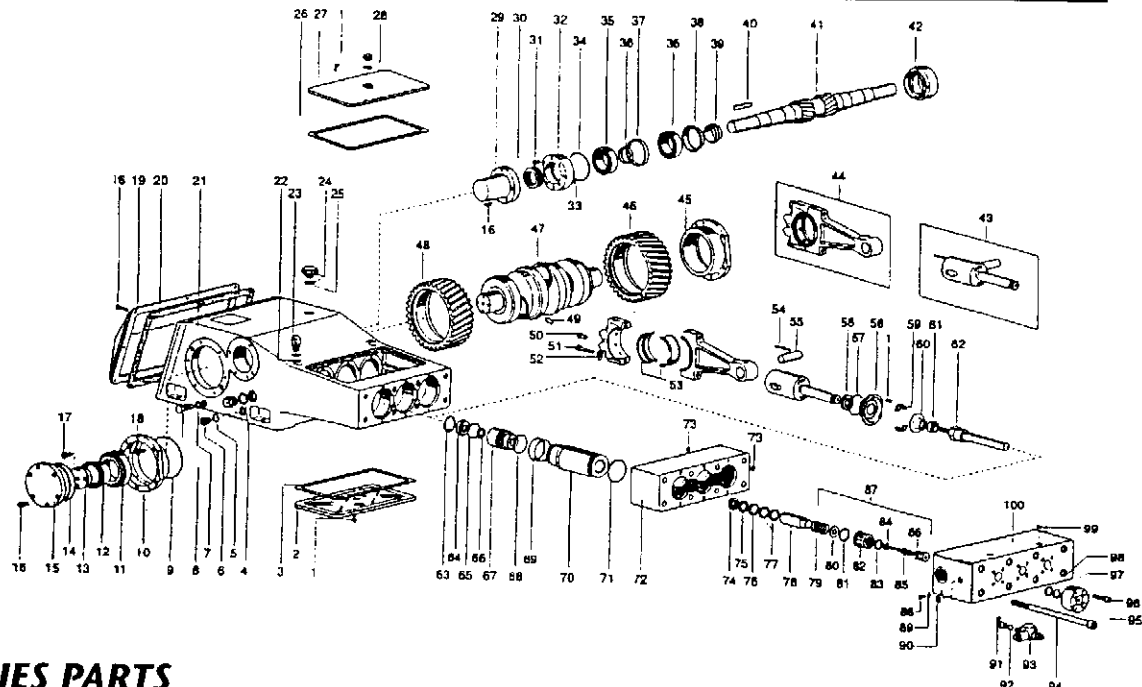
Crankcase oil should be checked frequently and changed as follows: Initial oil change between the first 50 and 100 hours of operation; then after each successive 500 hours of operation. Use General Pump Oil P/N 100217.

## START-UP

Check oil prior to start-up, and open all inlet and discharge valves. **Always start the pump in a zero pressure condition. Never 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.



### SH SERIES PARTS

Pos.	Code	Description	Qty.	Pos.	Code	Description	Qty.	Pos.	Code	Description	Qty.
1	F871115102	Screw, TCEI M 6x14	14	58	F0634000330	Oil Seal Cover	3	F080500270	Pressure Packing SH 24	6	
2	F040400050	Lower Cover	1	59	F030000040	Bush	3	F080500240	Pressure Packing SH 26	6	
3	F080600030	Lower Cover Gasket	1	60	F041200010	Wiper	3	F080500230	Pressure Packing SH 28	6	
4	F801053012	Oil Level Indicator G 1"	2	61	F031200040	Wiper Spacer	3	F080500210	Pressure Packing SH 30	6	
5	F872043008	Aluminum Washer Dia. 1"	2	62	F124200220	Plunger SH 20	3	78	F031500060	Packing Bush SH 20	3
6	F821203056	Plug G 1"	2		F124200230	Plunger SH 22	3	F031500070	Packing Bush SH 22	3	
7	F872043002	Aluminum Washer Dia. 1/2"	2		F124200240	Plunger SH 24	3	F031500110	Packing Bush SH 24	3	
8	F801057002	Magnetic Plug G 1/2"	2		F124200250	Plunger SH 26	3	F031500100	Packing Bush SH 26	3	
9	F881010133	O-Ring, Dia. 183.82x2.62	2		F124200260	Plunger SH 28	3	F031500090	Packing Bush SH 28	3	
10	F010100070	Bearing Holder (left)	1		F124200270	Plunger SH 30	3	F031500080	Packing Bush SH 30	3	
11	F811111017	Roller Bearing 22218 CCK	2	63	F872071530	Stop Ring, Dia. 52 Incox SH 20-22-24	3	79	F090200180	Suction Valve Spring SH 20-22-24	3
12	F030000020	Bearing Bushing	2		F872071533	Stop Ring, Dia. 58 Incox SH 26-28-30	3	F090200200	Suction Valve Spring SH 26-28-30	3	
13	F030000010	Flange	2	64	F031300170	Seal Support SH 20	3	80	F082200230	Suction Valve Plate SH 20-22-24	3
14	F881010132	O-Ring, Dia. 152.07x2.62	2		F031300180	Seal Support SH 22	3	F082200270	Suction Valve Plate SH 26-28-30	3	
15	F063400280	Bearing Cover	2		F031300210	Seal Support SH 24	3	81	F080500170	Valve Seal Gasket Suct. Side SH 20-22-24	3
16	F871121103	Screw, TCEI M 8x20	23		F031300220	Seal Support SH 26	3	F080500200	Valve Seal Gasket Suct. Side SH 26-28-30	3	
17	F871131102	Screw, TCEI M 12x25	8		F031300200	Seal Support SH 28	3	82	F0812000570	Valve Seat SH 20-22-24	3
18	F871125106	Screw, TCEI M 10x30	12		F031300190	Seal Support SH 30	3	F081200650	Valve Seat SH 26-28-30	3	
19	F063400240	Back Cover	1	65	F881010122	O-Ring, Dia. 47.30x2.62 SH 20-22-24	3	83	F080500160	Valve Seat Gasket (delivery side)	3
20	F080600010	Back Cover Gasket	1		F881010142	O-Ring, Dia. 52.07x2.62 SH 26-28-30	3	84	F082200220	Delivery Valve Plate SH 20-22-24	3
21	F060100160	Pump Body	1	66	F881030003	Seal SH 20	3	F082200260	Delivery Valve Plate SH 26-28-30	3	
22	F030000030	Eyebolt Spacer	2-4		F881030010	Seal SH 22	3	F090200170	Delivery Valve Spring SH 20-22-24	3	
23	F872026003	Eyebolt M 16	2		F881030040	Seal SH 24	3	F090200210	Delivery Valve Spring SH 26-28-30	3	
24	F801054027	Fill Plug G 1"	1		F881030041	Seal SH 26	3	86	F021300390	Delivery Valve Guide	3
25	F881010116	O-Ring, Dia. 29.82x2.62	1		F881030012	Seal SH 28	3	87	F208006710	Valve Assembly SH 20-22-24	3
26	F080600020	Upper Cover Gasket	1		F881030013	Seal SH 30	3	F208006720	Valve Assembly SH 26-28-30	3	
27	F040400030	Upper Cover	1	67	F022200030	Packing Support SH 20	3	88	F821203100	Plug G 1/3" Incox	4
28	F801056002	Breather Cap G 1/2"	1		F022200040	Packing Support SH 22	3	89	F872042000	Aluminum Washer, Dia. 1/8"	4
29	F040400070	Crankshaft End Cap	1		F022200080	Packing Support SH 24	3	90	F0832000310	Conical Seal G 3/4"	2
30	F881080026	Oil Seal, Dia. 55x75x10	2		F022200070	Packing Support SH 26	3	91	F821100005	Elbow G 3/8"	1
31	F871121105	Screw, TCEI M 8x30	8		F022200060	Packing Support SH 28	3	92	F872043001	Aluminum Washer, Dia. 3/8"	1
32	F063400300	Bearing Cover (left)	1		F022200050	Packing Support SH 30	3	93	F821100050	Throttling Plug G 3/8"	1
33	F881010003	O-Ring, Dia 8.73x1.78	2	68	F881010126	O-Ring, Dia. 63.17x2.62 SH 20-22-24	3	94	F871151330	Screw, TCEI M 20x300 - Spec.	8
34	F881010130	O-Ring, Dia. 94.92x2.62	2		F881010141	O-Ring, Dia. 66.35x2.62 SH 26-28-30	3	95	F063200150	Valve Cover	3
35	F811101019	Roller Bearing - NJ 2211	4	69	F881010142	O-Ring, Dia. 75.87x2.62	6	96	F871135303	Screw, TCEI M 14x45 - Spec.	12
36	F031000020	Roller Bearing Spacer (inn.)	2	70	F062200490	Cylinder SH 20-22-24	3	97	F010500050	Ring	3
37	F031000010	Roller Bearing Spacer (ext.)	2		F062200510	Cylinder SH 26-28-30	3	98	F881010207	O-Ring, Dia. 28.17x3.53	3
38	F061000000	Lubrication Bushing	2	71	F881010143	O-Ring, Dia. 82.22x2.62	3	99	F083200210	Conical Seal, Dia. 1/2"	2
39	F031400000	Lubrication Cone	2	72	F064400020	Cover Spacer	1	100	F064200270	Manifold	1
40	F872097013	Key	1	73	F881010100	O-Ring, Dia. 9.19x2.62	12				
41	F052000020	Pinion Shaft 1500 rpm (Z=20)	1	74	F021300340	Packing Bushing SH 20	3				
42	F052000160	Pinion Shaft 1750 rpm (Z=18)	1		F021300350	Packing Bushing SH 22	3				
43	F063400310	Bearing Cover (right)	1		F021300430	Packing Bushing SH 24	3				
44	F250001070	Piston Complete	3		F021300420	Packing Bushing SH 26	3				
45	F250000030	Con Rod Assembly	3		F021300410	Packing Bushing SH 28	3				
46	F010100080	Bearing Holder (right)	1		F021300400	Packing Bushing SH 30	3				
47	F052000140	Gear 1500 rpm (Z=61) R. toot.	1	75	F010500110	Antiextrusion Ring SH 20	3				
48	F052000060	Gear 1750 rpm (Z=61) R. toot.	1		F010500100	Antiextrusion Ring SH 22	3				
49	F052000000	Crankshaft	1		F010500090	Antiextrusion Ring SH 24	3				
50	F052000000	Gear 1500 rpm (Z=59) L. toot.	1		F010500080	Antiextrusion Ring SH 26	3				
51	F052000150	Gear 1750 rpm (Z=61) L. toot.	1		F010500070	Antiextrusion Ring SH 28	3				
52	F002000000	Crankshaft Pin	2		F010500060	Antiextrusion Ring SH 30	3				
53	F034000000	Con Rod Pin	3	76	F080500140	Back Packing SH 20	3				
54	F035000070	Con Rod Screw	6		F080500180	Back Packing SH 22	3				
55	F872067006	Washer, Dia. 12	6		F080500290	Back Packing SH 24	3				
56	F023300000	Brass Bearing	3		F080500260	Back Packing SH 26	3				
57	F872142015	Retainer Pin, Dia. 5x36	3		F080500250	Back Packing SH 28	3				
58	F071000050	Wrist Pin, Dia. 35	3		F080500220	Back Packing SH 30	3				
59	F881081001	Oil Seal, Dia. 35x47x8.5 - Spec.	3	77	F080500150	Pressure Packing SH 20	6				
60	F881010128	O-Ring, Dia. 72.68x2.62	3		F080500190	Pressure Packing SH 22	6				

### TORQUE SPECS

Position	Ft./lbs.
51	54
62	72
94	398
96	144
16	15
17	50
18	30
1	7
31	15

