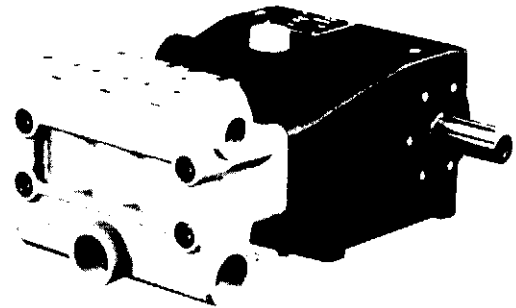


APPLICATIONS

KL Series pumps are designed for a wide variety of industrial applications which include portable and stationary cleaning systems, multi-nozzle installations such as touchless vehicle washes, conveyor cleaning systems and sewer and pipe cleaning equipment.

FEATURES

- Heavy cast iron crankcase
- Nickel-treated nodular cast iron manifold
- Optional aluminium bronze or 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	KL 30	KL 33	KL 36	KL 40	KL 45	KL 50	FLOW
500	11.1	13.5	16.1	19.9	25.0	28.9	GPM
600	13.3	16.2	19.3	23.9	30.1	34.6	GPM
700	15.5	18.9	22.5	27.8	35.1	40.4	GPM
750	16.6	20.3	24.2	29.8	37.5	43.3	GPM
800	17.8	21.6	25.8	31.8	40.1	NA	GPM
850	18.9	23.0	27.4	33.8	NA	NA	GPM
1000	22.2	27.0	32.2	NA	NA	NA	GPM
MAX PSI	2600	2150	1750	1600	1450	1160	
HORSEPOWER FORMULA				RPM FORMULA			
$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{REQUIRED BRAKE H.P.}$				$\frac{\text{RATED RPM} \times \text{DESIRED GPM}}{\text{RATED GPM}} = \text{PUMP RPM}$			

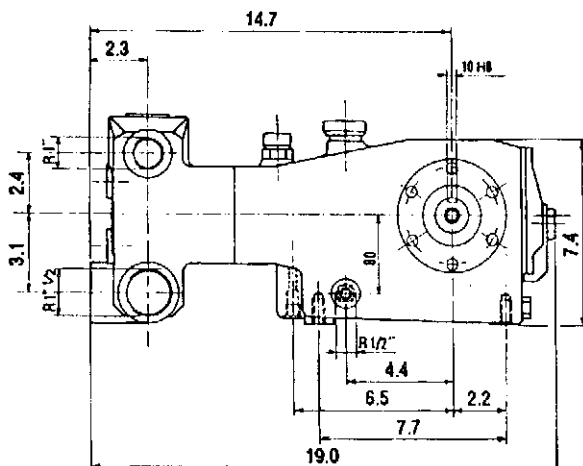
SPECIFICATIONS

Volumes	22.2 - 43.3 GPM
Discharge Pressure	1160 - 2600 PSI
Max. Inlet Pressure	Flooded to 45 PSI Max.
Fluid Temperature	150°F Max.*
Crankcase Capacity	64 oz.
Inlet Fitting	1-1/2 in. NPT F
Discharge Port	1 in. NPT
Discharge Fitting	1 in. NPT M
Shaft Diameter	35 mm
Weight	155 lbs.
Dimensions	19.0 in. L x 17.7 in. W x 8.4 in. H

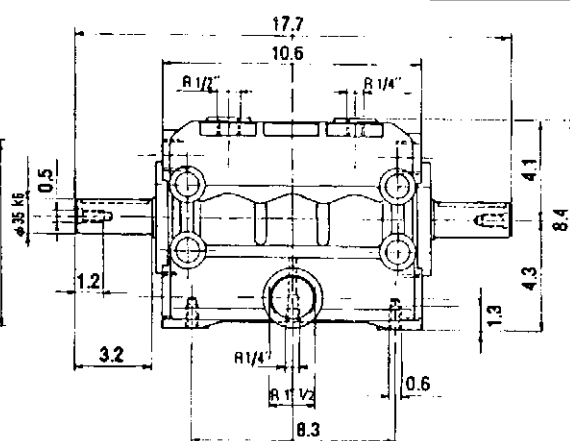
*See Fluid Temperature Section

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

SIDE VIEW



END VIEW





DESIGN CRITERIA

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

PUMP SELECTION - CONTINUOUS DUTY

Most KL 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 27.0 GPM @ 1450 PSI. According to the catalogue, the KL 33 operated at 1000 RPM would be the proper pump for intermittent duty. For continuous duty select the KL Series pump that allows for the most reduction in crankshaft speed. The KL 45 operated at 538 RPM will deliver the desired performance on a continuous-duty basis. The KL 45 was selected instead of the KL 50, because the KL 50 would have to be operated at 436 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.

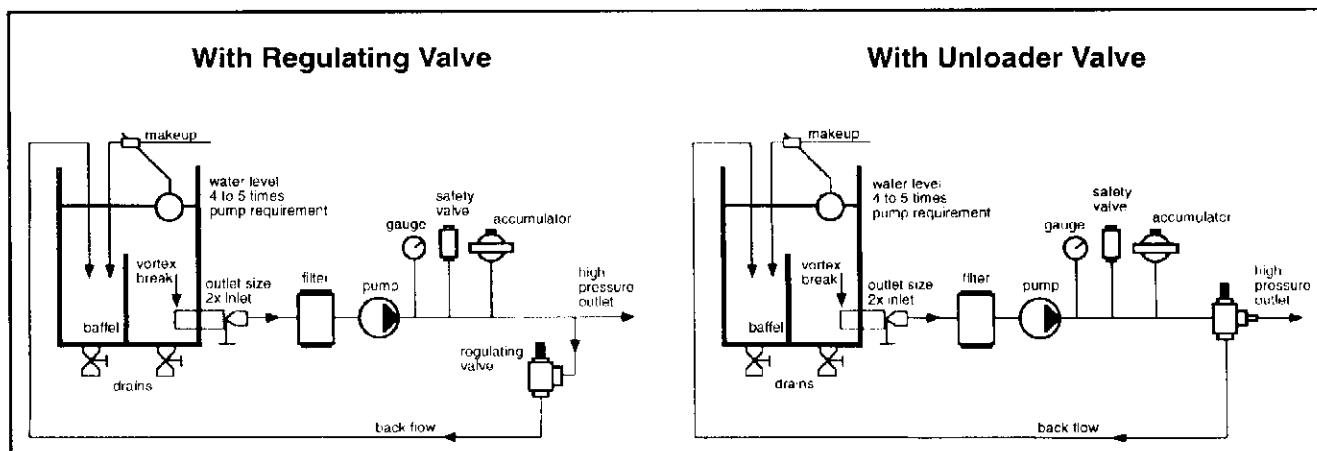
It is critical to provide airtight inlet plumbing sized to deliver an adequate volume of settled fluid to the pump (**minimum 2 times the operating flow rate**). This is best accomplished with a pressurized feed at 30-45 PSI or a flooded inlet.

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

KL 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.

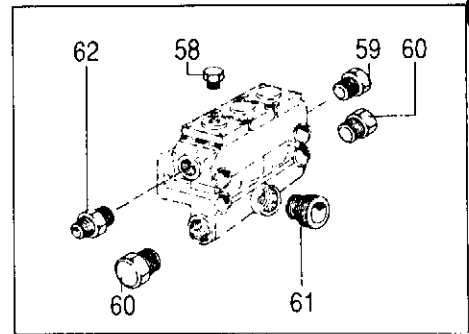
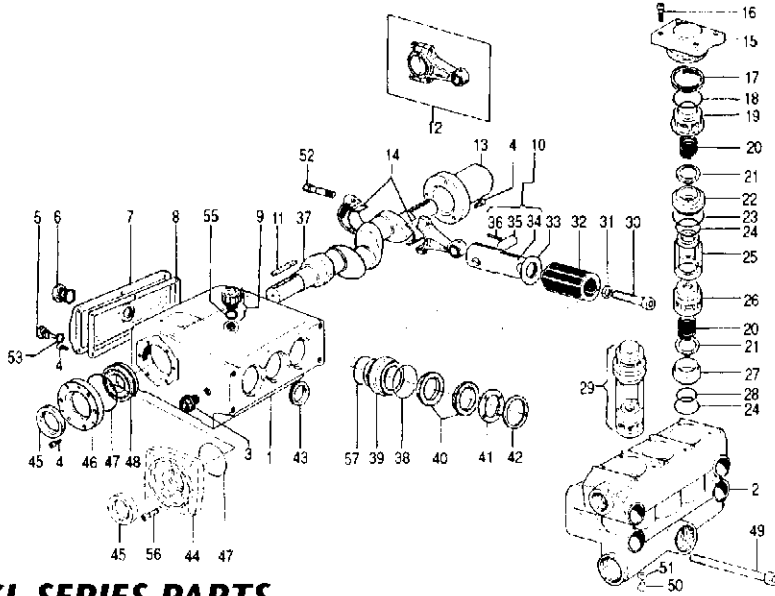
Crankcase oil (Pennzoil RO 220 or equivalent) should be checked frequently and changed as follows: Initial oil change between the first 50 and 100 hours of operation; then after each successive 500 hours of operation.

START-UP

Check oil prior to start-up. Make sure water supply is turned on. **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.



KL SERIES PARTS

Pos. Code	Description	Qty.	Pos. Code	Description	Qty.	Pos. Code	Description	Qty.
1	F060100120 Crankcase	1	29	F208004660 Valve Assembly KL30-33	3	F031200080	Packing Ring KL33	3
2	F064100110 Manifold KL30	1	F208004670 Valve Assembly	3	F031200090	Packing Ring KL36	3	
	F064100130 Manifold KL33	1		KL36-40-45-50		F031200100	Packing Ring KL40	3
	F064100140 Manifold KL36-40	1	30	F871131518 Plunger Bolt KL30-33-36-40	3	F031200110	Packing Ring KL45	3
	F064100170 Manifold KL45-50	1	F871131509	Plunger Bolt KL45-50	3	F881025002	Packing Ring KL50	3
3	F801053002 Oil Level Sight Glass	1	31	F872040003 Washer	3	47	F031300000 Spacer KL30	3
4	F871115153 Cap Screw	21	32	F024200090 Plunger KL30	3	F031300010	Spacer KL33	3
5	F801057001 Magnetic Plug	1	F024200100	Plunger KL33	3	F031300020	Spacer KL36-40	3
6	F801053003 Oil Level Sight Glass	1	F024200110	Plunger KL36	3	F031300030	Spacer KL45-50	3
7	F063400120 Rear Cover	1	F024200120	Plunger KL40	3	43	F881081002 Piston Guide Oil Seal	3
8	F080600000 Rear Cover Gasket	1	F024200130	Plunger KL45	3	45	F881080014 Crankshaft Oil Seal	2
9	F801054002 Oil Fill Plug	1	F024200140	Plunger KL50	3	46	F063400100 Bearing Cover	2
10	F250001020 Complete Piston	1	33	F041200000 Wiper	3	47	F881013100 O-Ring	2
11	F071000030 Key	1	34	F020000030 Piston Guide	3	48	F811110002 Bearing	2
12	F250000050 Complete Connecting Rod	3	35	F071000020 Wrist Pin	3	49	F871141119 Cap Screw	4
13	F040400010 Shaft Cover	1	36	F872138010 Retainer Pin	3	50	F084390000 Discharge Plug Alt. 1/4	3
14	F812000002 Bushing	3	37	F050000030 Crankshaft	1	51	F872043000 Washer	3
15	F063300020 Closed Valve Cover	2	38	F881010011 O-Ring KL30	3	52	F871350002 Connecting Rod Screw	6
	F063300010 Valve Cover Att. 1/4"G	1	F881010012	O-Ring Kl 33-36-40	3	53	F872043001 Washer	1
16	F871121304 Cap Screw	12	F881010013	O-Ring KL45-50	3	55	F881011173 O-Ring	1
17	F881112001 Spring Ring	3	39	F022300090 Packing Support Kl 30	3	57	F881010012 O-Ring	3
18	F881010214 O-Ring	3	F022300100	Packing Support KL33	3	58	F821201051 Plug	1
19	F021300010 Discharge Valve Guide	3	F022300110	Packing Support KL36	3	59	F821201056 Plug	1
20	F090200020 Valve Spring	6	F022300120	Packing Support Kl 40	3	60	F821201058 Plug	2
21	F082200020 Valve Disc	6	F022300130	Packing Support KL45	3	61	F821013011 Reducer	1
22	F081200030 Discharge Valve Seat	3	F022300140	Packing Support KL50	3	62	F084200180 Nipple - HV1 G1"-3/4	1
23	F881011160 O-Ring	3	40	F881020008 Packing KL30	6	F821020007	Nipple G1"	1
24	F881011157 O-Ring	6	F881020009	Packing KL33	6			
25	F070300000 Valve Spacer Kl.30-33	3	F881020010	Packing KL36	6			
	F070300020 Valve Spacer Kl36-40-45-50	3	F881020011	Packing KL40	6			
26	F021300030 Suction Valve Guide	3	F881020012	Packing KL45	6			
27	F081200020 Suction Valve Seat	3	F881020013	Packing KL50	6			
28	F881010010 O-Ring	3	41	F031200070 Packing Ring KL30	3			

REPAIR KITS

POSITIONS INCLUDED	N.PCS.	KL 30	KL 33	KL 36	KL 40	KL 45	KL 50
38, 40	3-6	KIT 442	KIT 443	KIT 444	KIT 445	KIT 446	KIT 447
39, 57	3	KIT 448	KIT 449	KIT 450	KIT 451	KIT 452	KIT 453
41	3	KIT 454	KIT 455	KIT 456	KIT 457	KIT 458	KIT 459
38, 39, 40, 41, 42, 57	1-2	KIT 460	KIT 461	KIT 462	KIT 463	KIT 464	KIT 465
19, 20, 21, 22, 23, 24, 25, 26, 27, 28, (29)	1-2	KIT 466	KIT 466	KIT 467	KIT 467	KIT 467	KIT 467
43	3	KIT 425	KIT 425	KIT 425	KIT 425	KIT 425	KIT 425
45	2	KIT 426	KIT 426	KIT 426	KIT 426	KIT 426	KIT 426
17, 18, 23, 24, 28, 31, 47, 51, 53, 55, 57	3-20	KIT 468	KIT 468	KIT 468	KIT 468	KIT 468	KIT 468

TORQUE SPECS

Position	Ft./lbs
30	36
49	144
52	18

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