



FEATURES

- Features patented "high tech" packings:
 - dynamic low-pressure seal retainer
 - superior low-pressure seal
 - innovative intermediate ring
 - superior high-pressure seal
- Ceramic plungers
- Patent-pending inlet/outlet valve seal
- Patent-pending inlet/outlet valve cage
- Nickel-plated inlet/outlet valve plugs
- Nickel-plated forged brass manifold
- Heavy-duty tapered roller bearings
- Specifically designed to handle rigorous duty cycles, high temperatures and chemicals
- Ideal for use in carpet cleaning and other high pressure cleaning applications



SPECIFICATIONS

Pump Model	HTS2210S	HTS2212S	HTS2215S
Max Volume	4.0 GPM	4.75 GPM	4.0/5.0 GPM
Max Pressure	2300 PSI		
Max RPM	1450 RPM		950/1200 RPM
Inlet Pressures	Flooded to 70 PSI		
Max Fluid Temperature	185° F		
Bore (in / mm)	.866 in. / 22 mm		
Stroke (in / mm)	.394 in. / 10 mm	.472 in. / 12 mm	.591 in. / 15 mm
Oil Capacity	40.6 oz.		
Inlet Port Thread	1/2"-14 BSP-F		
Discharge Port Thread	3/8"-19 BSP-F		
Shaft Diameter	.945 in. / 24 mm		
Weight	32 lbs.		
Dimensions - Nominal	12.4" x 10.0" x 6.9"		



Instructions and Recommendations for the Installation of *HT Series Pumps*

The high-temperature pumps of the HT series have been designed for use in applications where the water must be preheated, such as in car wash, food and pharmaceutical industries.

Maximum temperature of the water through the pump is 185°F (85°C).

In order to obtain maximum performance in terms of duration of seals and valves, it is necessary to respect a few simple rules, as follows:

- 1) **In order to avoid damage caused by cavitation, the pump must be pressure fed.**

Note: Contact General Pump's technical sales department for guidance when operating the pump outside of the related inlet specs.

- 2) **The plumbing which feeds the pump must be of a diameter at least equal to the inlet port.**

Also, follow the suggestions below:

- a) Make the plumbing as short and straight as possible, preferably in an upward direction to facilitate the expulsion of eventual air bubbles naturally if compatible with the requirements of the system.
- b) It is always useful to put a filter at the inlet with capacity of 4 to 5 times the flow of the pump, for example for a 4 gpm (15 l/min) pump, put a filter from 16 to 20 gpm (60-75 l/min). The mesh size suitable for this application is 0.016" (.4 mm).
- c) It is extremely important to put a pressure switch on the suction port of the pump, and in any case downstream from the filter, so that it can stop the pump should the feed pressure drop by 20% due to the filter clogging or failure of the feed pump, etc.

3) Change of oil

We recommend the **first oil change after the first 50 hours**, with the **pump stopped** and the **oil still warm**.

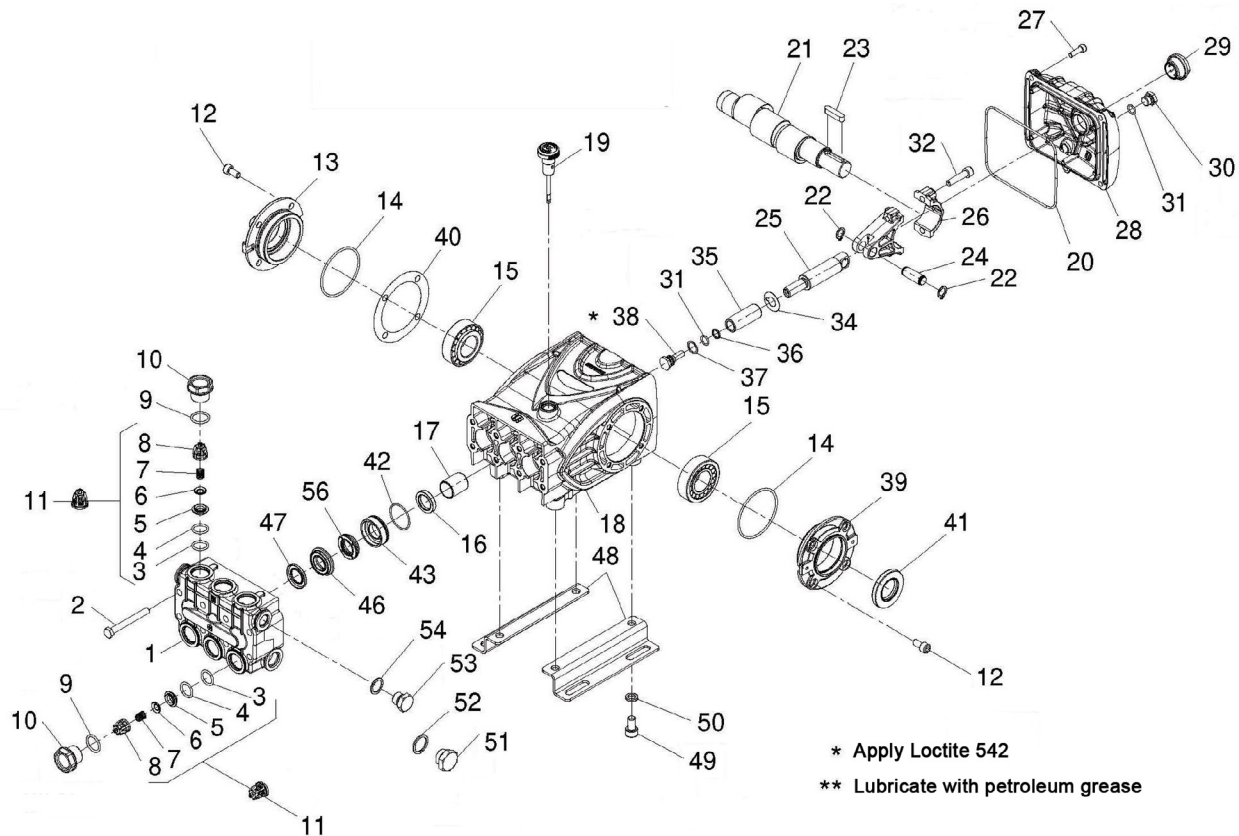
This change is not recommended because the oil has lost its properties, but rather to eliminate the impurities that have gotten into the oil during the running-in phase. If these impurities are not removed, but are allowed to remain in the oil, they *may cause premature wear* to the moving parts and the oil seals. **After this initial change, the oil can then be changed every three months or 300 hours of operation thereafter.**

Please note: If the pump works in conditions with high humidity and with sharp temperature changes, it is possible that condensation will appear inside the crankcase, which mixing with the oil can change its properties. This is easy to see because the oil changes to a white, milky color.

If the pump does not have excessive water leaking from the packings, and the oil becomes milky, the oil has to be changed more frequently. The percentage of water in the oil must not exceed 20%.

Use oil per the following chart:

CHART OF COMPATIBLE OILS	
GENERAL PUMP	SERIES 220
BP	ENERGOL HLP 220
CASTROL	Hyspin VG220, Magna 220
MOBIL	DTE OIL BB
SHELL	TELLUS C 220
TOTAL	CORTIS 220


PARTS LIST

No.	Part No.	Description	Qty.	No.	Part No.	Description	Qty.	No.	Part No.	Description	Qty.
1	47120941	Manifold, Ni. Plt.	1	19.	98210600	Oil Dip Stick	1	36.	90506700	Ring, Back-up	3
2.	99320600	Screw, M8 x 70	8	20.	90392200	O-ring, Cover	1	37.	96728000	Washer	3
3.	90510500	Anti-extrusion ring	6		47021935	Crankshaft, HTS2210S	1	38.	47219566	Screw, Plunger	3
4.	90340000	O-ring, Ø17.13 x 2.62	8	21.	47021835	Crankshaft, HTS2212S	1	39.	47151022	Cover, Crankcase	3
5.	36200366	Seat, Valve	6		47022435	Crankshaft, HTS2215S	1	40.	97567800	Shim	2
6.	36200176	Plate, Valve	6	22.	90055700	Ring, Snap	6	41.	90164800	Seal, Oil	1
7.	94737600	Spring	6	23.	640048	Key	1	42.	90361600	O-ring	3
8.	36200251	Guide, Valve	6	24.	97738000	Pin, Wrist	3	43.	47080570	Retainer, packing, 22 mm	3
9.	90384700	O-ring, Ø20.29 x 2.62	6	25.	47050466	Guide, Plunger	3	46.	47216970	Intermed. Ring, 22 mm	3
10.	98222000	Cap	6	26.	47030001	Connecting Rod	3	47.	90270400	Restop Ring, 22 mm	3
	98222200	Cap, Ni. Plt (TSS2021)	6	27.	99188400	Screw, M6x20	5	48.	47200074	Pump Feet	2
11.	36703201	Valve Assembly	6	28.	47160622	Cover, Crankcase	1	49.	99364400	Screw, M10 x 18	4
12.	99303900	Screw, M8 x 16	8	29.	47221301	Oil Indicator	1	50.	96710600	Washer, M10.2	4
13.	47150122	Cover, Crankcase	1	30.	98204250	Plug	1	51.	98217600	Cap	1
14.	9039300	O-ring, Ø67.95 x 2.62	2	31.	90358500	O-ring, 10.82 x 1.78	4	52.	96751400	Washer, M21.5	1
15.	640047	Bearing, Roller	2	32.	99309900	Screw, M8 x 35	6	53.	98210000	Cap	1
16.	90162500	Seal, Oil, Ø22 x 32 x 2.5	3	34.	96728600	Washer, M14	3	54.	96738000	Washer, M17.5	1
17.	90912600	Bushing, Ø22 x 25 x 30	3	35.	47040409	Plunger, 20 mm	3	56.	90271000	Seal, Low Press, 22 mm	3
18.	47010822	Crankcase	1								

REPAIR KITS

TORQUE SPECS*

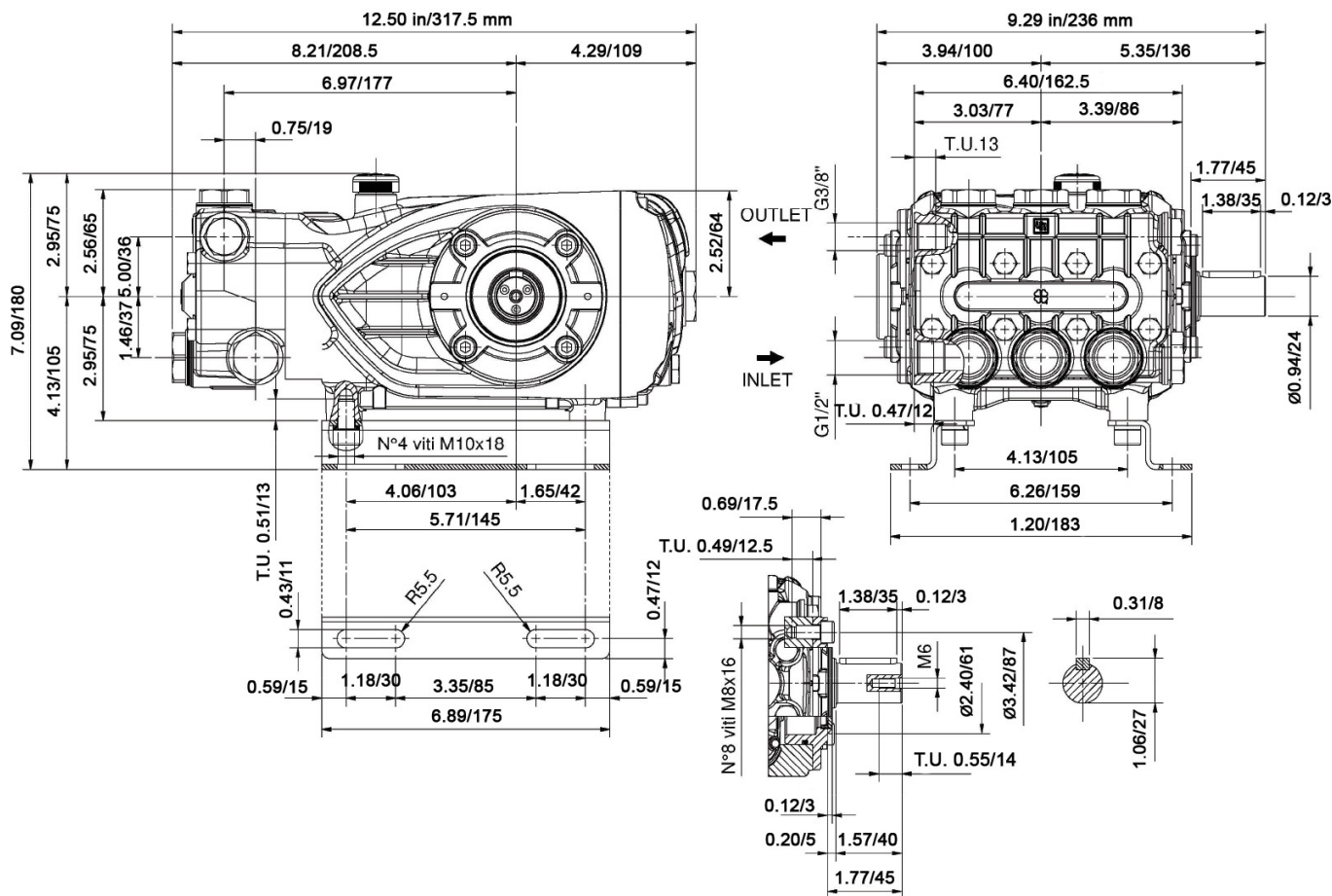
KIT NO.	K02	K03	K05	K06	K201	K202	K203
ITEM NO'S INCLUDED IN KIT	16	41	9, 10	31,34, 36, 37,38	4, 5, 6 7, 8, (11)	47, 56	42, 43, 46, 47, 56
NUMBER OF ASSY'S IN KIT	3	2	6	3	6	3	1
NO. OF CYLINDERS KIT SERVICES	3	-	3	3	3	3	1

Pos.	Ft/lb	N-M
2	22.1	30
10	95.9	130
12	14.7	20
27	7.3	10
29	8.8	12
30	14.7	20
32	14.7	20
38**	14.7	20
49	29.4	40
51	29.4	40
53	29.4	40

*Decrease torque by 20% if threads are lubricated.

****Use Loctite 542**

DIMENSIONS



WARNINGS

WARNING: High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices properly could result in personal injury or damage to pump or property. GP does not assume any liability or responsibility for the operation of the user's high pressure system.



WARNING: This product can expose you to chemicals including lead, which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov