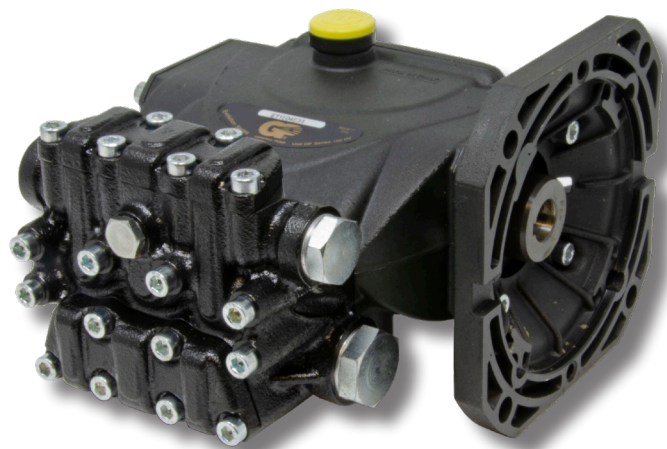


**FEATURES**

- “HR” anti-corrosion surface treatment on manifold
- New generation seal package
- High temp seals
- Dust protection chamber
- Solid ceramic plungers
- Oversized plunger guide
- Optimized inlet and outlet valves
- Oversized crankcase
- Hollow shaft, flanged for direct couple to electric motors (NEMA56C)

**SPECIFICATIONS**

Pump Model	ET1509E17H	ET1505E34H
Maximum Volume	2.1 GPM	2.1 GPM
Maximum Discharge Pressure	2,610 PSI	
Horsepower	3.7 EBHP	
Maximum Pump Speed	1700 RPM	3400 RPM
Maximum Inlet Pressure	125 PSI	
Plunger Bore (in / mm)	.591 in./15 mm	
Plunger Stroke (in / mm)	.370 in./9.4 mm	.197 in./5 mm
Oil Capacity	8.5 oz.	
Maximum Fluid Temperature	185° F	
Inlet Port Thread	1/2"-14 BSP-F	
Discharge Port Thread	3/8"-19 BSP-F	
Shaft Diameter	5/8" Hollow	
Weight	11.0 lbs.	
Dimensions - Nominal	7.3" x 7.4" x 5.5"	



# Instructions and Recommendations for the Installation of *ET Series Pumps*

Maximum temperature of the water through the pump is 165° F (73° C).

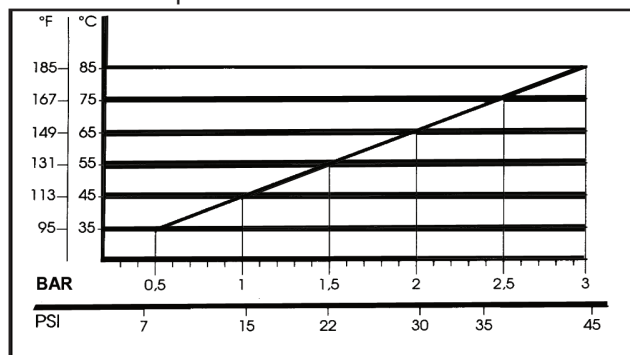
In order to obtain maximum performance in terms of duration of seals and valves, it is necessary to respect a few simple rules, as follows:

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

The higher the inlet pressure, the longer the life of the wet end of the pump.

When working at 185° F (85° C), the minimum feed pressure - measured directly in the inlet port of the pump when it is working - is 45 psi (3 bar).

The minimum feed pressure according to the different temperatures are:



Naturally, if the application allows for feeding the pump with 45 psi (3 bar) even at low temperatures (for example: 115° F/45° C the life of the wet end of the pump will be even longer.

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

Also, follow the suggestions below:

- 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.
- 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).

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).

- 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**.

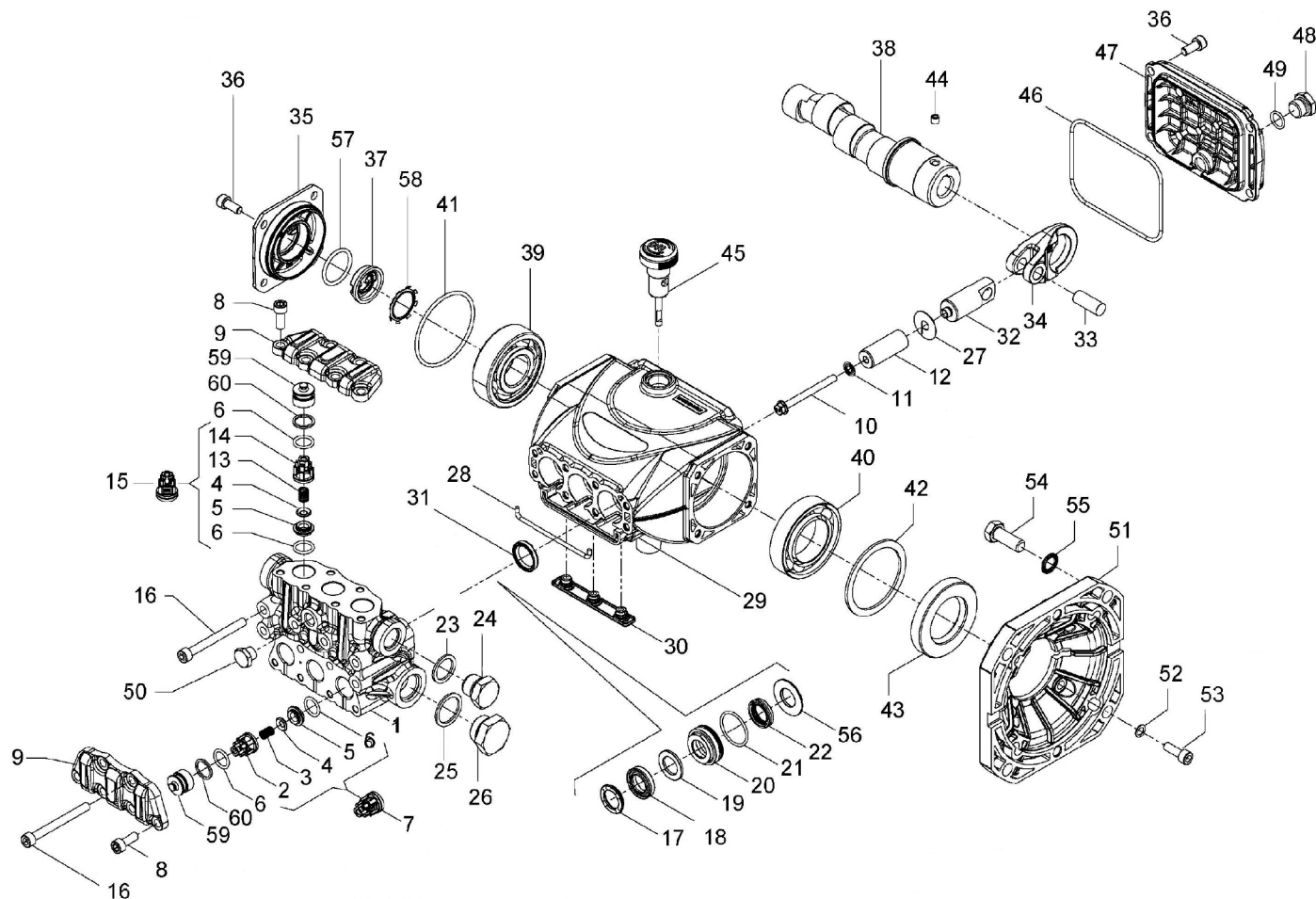
This change is not recommended because the oil has lost its properties, but rather to eliminate the impurities that have gotten into the oil during the running-in phase. If these impurities are not removed, but are allowed to remain in the oil, they *may cause premature wear* to the moving parts and 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 SAE15W40	
General Pump	Series 100
BP	VISCO 2000
CASTROL	CWX
MOBIL	SUPER
SHELL	HELIX SUPER
TOTAL	QUARTZ 4000-5000


**PARTS LIST**

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	53122115	Manifold, Ø 15	1	24.	98210050	Plug, 3/8"x13	1	44.	99179000	Screw M6x06	1
2.	36211951	Inlet Valve Guide	3	25.	96751400	Washer, Ø 21.5x27x1.5	1	45.	98210800	Oil Dipstick G 3/8"x45	1
3.	94732600	Spring, Ø 6x12	3	26.	98218700	Plug, 1/2"x10	1	46.	90391700	O-ring, Ø88.57x2.62	1
4.	36211272	Valve, Spherical	6	27.	96699000	Gasket, Ø 7.5x23x0.5	3	47.	53160022	Rear Cover	1
5.	36211366	Valve Seat	6	28.	53210382	Gasket, Ø3x85	1	48.	98204250	Plug, 3/8"x9	1
6.	90367400	O-ring, Ø12x2	6	29.	53010022	Crankcase	1	49.	701013	O-ring, Ø 10.82x1.78	1
7.	36722401	Valve Assembly	3	30.	58210451	Drip Cover	1	50.	98196800	Plug, 1/8"x8	1
8.	99185400	Screw, M6x16	10	31.	90159300	Oil Seal, Ø 18x24x4	3	51.	10034422	Flange for Electric Motor	1
9.	53211815	Valve Cover	2	32.	53050066	Piston Guide	3	52.	96693800	Washer Ø6.4x10x0.7	4
10.	99169000	Plunger Bolt, M5x55	3	33.	97733800	Piston Pin, Ø 10x26.5	3	53.	99186700	Screw M6x18	4
11.	96690500	Washer, Ø 5x11.5x0.4	3	34.	53030022	Connecting Rod	3	54.	99334500	Screw 3/8"x16	4
12.	53040009	Plunger, Ø 15x38.5	3	35.	53150022	Side Cover Housing	1	55.	96710400	Washer Ø 10.5x16x1	4
13.	94733300	Spring, Ø 6.2x10.4	3	36.	99183700	Screw M6x14	8	56.	53210670	Support Ring, Ø 15	3
14.	36211151	Outlet Valve Cage Guide	3	37.	53210851	Oil Level Indicator	8	57.	90385900	O-ring Ø 25.07x2.62	1
15.	36719301	Complete Outlet Valve	3	38.	60022465	Crankshaft, Ø 5	1	58.	90067100	Stop Ring	1
16.	99199600	Screw, M6x70	8		60023465	Crankshaft, Ø 9.4	1	59.	53211970	Inlet/Outlet Valve Cap	6
17.	63101051	Head Ring, Ø 15	3			(ET1505E34H)		60.	90509300	Stop Ring, Ø 16.4x13.2x1.3	6
18.	710031	Packing, Ø 15, HP (K312H)	3			(ET1509E17H)					
19.	90508990	Anti-ext. Ring, Ø15x24x2	3	39.	91832800	Bearing Ø15-18	1				
20.	53210170	Support Ring, Ø 15	3	40.	91846400	Bearing Ø15-18	1				
21.	90360400	O-ring, Ø25.12x1.78	3	41.	90389800	O-ring, Ø56.82x2.62	1				
22.	710030	Packing, Ø15, LP (K312H)	3	42.	60210189	Spacer	1				
23.	96738000	Washer, Ø17.5x23x1.5	1	43.	90167500	Stop Ring Ø35x62x10	1				

\* 53150001 Oil Level Indicator Assembled W/O Screws and O-ring

**REPAIR KITS**

KIT NO.	K309	K311	Ø 15			
			K312	K312H* (Hot Kit)	K313	K313H* (Hot Kit)
ITEM NO'S INCLUDED IN KIT	2, 3, 4, 5, 6, 13, 14, (7), (15)	31	17, 18, 19, 21, 22	18, 22	17, 18, 19, 20, 21, 22, 56	17, 18, 19, 20, 21, 22, 56
NUMBER OF ASSY'S IN KIT	6	3	3	3	1	3
NO. OF CYLINDERS KIT SERVICES	3	3	3	3	1	3

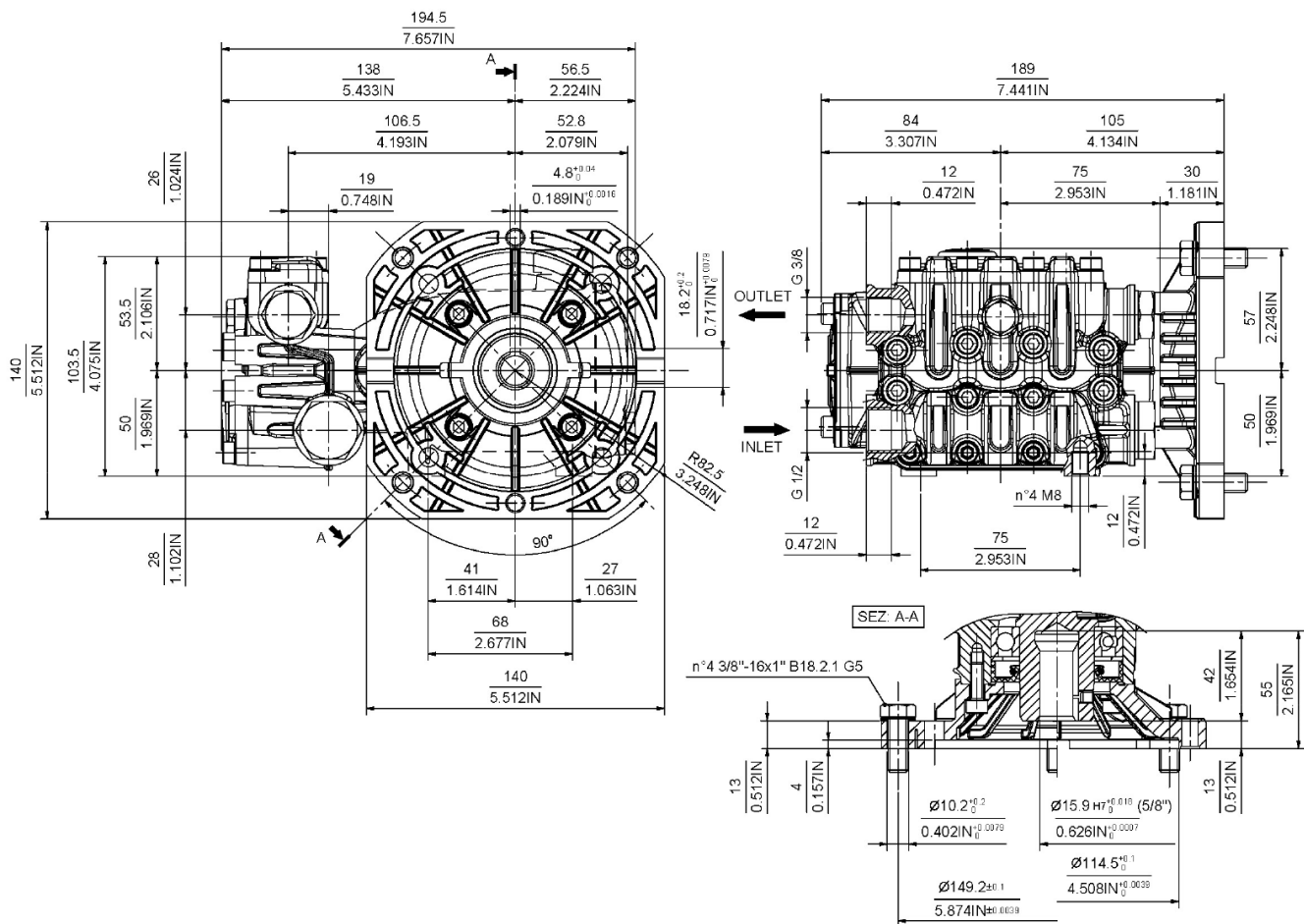
\* Note: Seal tools included

**TORQUE SPECS\***

Position	Ft.-Lbs.	Nm.
8	8.9	12
10	4.4	6
16	8.9	12
24**	30	40
26	30	40
36	7.4	10
48	14.8	20
50**	9.6	13
53	7.3	10

\*Decrease torque by 20% if threads are lubricated.

\*\*Use Loctite 542 Red

**DIMENSIONS**


**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.