READ ME FIRST

➢ Important Pre-Startup Instructions

The following must be checked to ensure proper operation and to maintain the equipment warranty.

➢ Hydraulic Oil:

- ☐ This pump does NOT ship with hydraulic oil. Fill the tank with only the approved oils specified on page 2.
- ☐ Oil from a new drum does NOT meet cleanliness requirements of the hydraulic system. It is important to use an oil transfer pump that will force the oil through a filter into the reservoir.
- ☐ Make sure all shutoff valves are OPEN before starting the pump, if present. Failure to open the valves will result in pump failure.
- ☐ Purge all air from the pump by successively pressing the start and stop buttons on the console to jog the pump. Repeat this 4 or 5 times until oil pressure picks up.

➢ Water Plumbing:

- ☐ Supply piping must be sized to meet the flow and pressure requirements summarized on page 2.
- ☐ Thoroughly purge all supply plumbing prior to connection.
- ☐ **Cooling Water –** Ensure the cooling water inlet is properly sized to provide 35psi (2.4 bar) and meet the flow requirements on page 2. Discharge cooling water can be routed to the drain or to a customer supplied water chiller.
- ☐ **Cutting Water –** Inlet water must meet the minimum water quality standards summarized on page 2. Poor water quality will drastically shorten component life and void the warranty. A minimum of 35psi (2.4 bar) is required at the flow requirement on page 2 under maximum facility usage. Size the piping per the flow requirements graph on page 2.
- ☐ **Bleed Down Drain Water –** Discharge water from the safety bleed down valve is wastewater and must be routed to an appropriate location.

➢ High Pressure Cutting Water Outlet:

- ☐ High pressure tubing and fittings must be properly rated and sized. Tubing must be installed without torsional or bending stresses and proper supports and guides must be provided.
- ☐ BLUE GOOP anti-seize compound must be applied to the threads and contact surfaces of ALL stainless steel components prior to assembly. Failure to lubricate components will result in galling, rendering the components useless.
- ☐ It is essential that all burrs be carefully removed and the tubing sections purged with clean compressed air prior to assembly.
- ☐ Purge high pressure tubing under high pressure operating conditions, using a large inexpensive orifice. Contamination can be released when the tubing expands under pressure, resulting in clogging and early orifice failures.
- ☐ WARNING: Do not run the machine with active HP water or oil leaks. This will cause serious damage and will void the warranty.

➢ Electrical Connection:

- ☐ Install properly sized power drops and supply circuit protection with inverse time delay circuit breakers or fused disconnects. Take into account startup inrush current, wire length, wire type, and the number of wires in a conduit when calculating the power drops per local code requirements.
- ☐ Startup amperage can be calculated based on the Full Load Amps (FLA) detailed on page 2.
    - Standard Start (Across the line) = 7 X FLA
    - Wye-Delta / Soft Starter = 3 X FLA
- ☐ Service voltage and ampacity must meet requirements detailed on page 2.
- ☐ Voltage fluctuations in excess of +/- 10% of nominal voltage may damage the machine.
- ☐ Do not run the motor backward. Incorrect rotation will damage the hydraulic pump.

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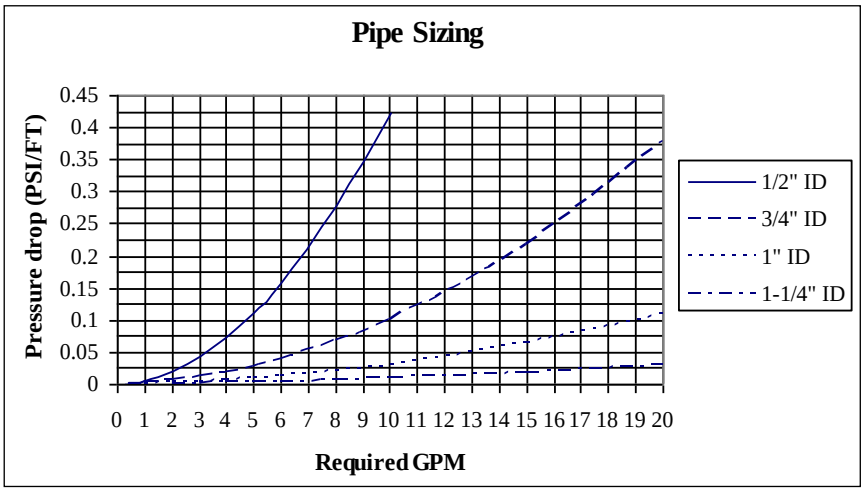
➢ Flow Requirements:

- The following graph illustrates the pressure drop for four different pipe sizes. The graph can be used to calculate minimum source water pressure. Enter the graph at the required GPM and note the pressure drop figures for the different pipe sizes.
  - Multiply the pressure drop (PSI/FT) by the length in feet of each pipe size used from the water source to the intensifier. Add the values together for a total pressure drop value.
  - Add 35 to the total pressure drop to determine the minimum flowing, source water pressure required to provide adequate supply to the intensifier.
  - Cutting water and cooling water capacity should be calculated separately. Note that the cutting water requirements represent instantaneous, not average, demand.



Maximum Water Consumption

Motor HP	Cooling Water	Cutting Water
10	1.0 (3.8)	1.0 (3.8)
15	1.0 (3.8)	1.0 (3.8)
30	2.0 (7.5)	1.5 (5.6)
50	3.0 (11.4)	2.5 (9.5)
100	5.0 (19.0)	5.0 (19.0)
	gpm (L/min)	

Power Requirements
Full Load Amps
(Circuit Breaker Amps)

Motor HP	208 VAC	230 VAC	380 VAC	400 VAC	460 VAC	575 VAC
10	28 (35)	25 (35)	15 (20)	14 (20)	12 (20)	10 (20)
15	41 (50)	36 (50)	22 (30)	21 (30)	18 (25)	17 (25)
30	80 (125)	72 (100)	44 (60)	43 (60)	36 (50)	30 (40)
50	136 (175)	125 (150)	75 (100)	68 (100)	60 (80)	50 (70)
100	242 (350)	218 (300)	138 (200)	124 (175)	109 (175)	99 (125)

Water Quality Standards

Constituent (mg/l)	Minimum	Better	Best
Alkalinity	50	25	10
Calcium	25	5	0.5
Chloride	100	15	1
Free Chlorine	1	0.5	0.05
Iron	0.2	0.1	0.01
Magnesium as Mg	0.5	0.1	0.1
Manganese as Mn	0.1	0.05	0.02
Nitrate	25	25	10
Silica	15	10	1
Sodium	50	10	1
Sulfate	25	25	1
TDS	350	100	50
Total Hardness	25	10	1
pH	6.5-8.5	6.5-8.5	6.5-8.5
Turbidity (NTU)	5	5	1

Approved Hydraulic Oil

Chevron Rando HD 46
Conoco Megaflow AW 46
Mobile DTE-25 Medium
Shell Telus S2 M 46
Agip Arnica 46

Hydraulic Oil Capacity

Model	Gallons (L)
SMP-10/15	25 (95)
SMP-30	35 (132)
SMP-50	50 (189)
Advantage	80 (302)