

Standard ratings above are based on the continuous duty pump rating of 40 strokes per minute. Provisional rating at 48 strokes is for operation at or below 300 psi mud pressure in Standard Pressure Mono model, or 400 psi in the High-Pressure Mono model w/ oil temperatures between 100 and 165 degrees Fahrenheit.

Fluid end expendable parts are Gardner Denver clone parts - liners and pistons are the same as those in a 7½" x 10" Gardner Denver as are the rod and liner packings; valves and seats are the same as those in a 5½" x 10" GD. In each model, we offer a standard pressure version (rated for 350 psi continuous / 550 psi intermittent mud pressures) a high-pressure version (rated for 500 psi continuous / 800 psi intermittent mud pressures), and extra pressure version rated for up to 1500 psi mud pressures. The hydraulic system requirements are as follows:

- 20 gpm hydraulic oil per pump cylinder for standard pressure model - standard duty rating; (1 cylinder in the mono pump, 2 in the duplex, 3 in the triplex); 24 gpm for provisional duty rating - Mono model only
- 30 gpm hydraulic oil per pump cylinder for the high-pressure model - standard duty rating; (1 cylinder on the mono pump, 2 cylinders on the duplex, 3 on the triplex); 36 gpm for provisional duty rating - Mono model only
- Calculation of hydraulic oil pressure required for the Standard Pressure model operation is as follows: 8 times the fluid end discharge pressure plus 300 psi. Example: 275 psi mud x 8 = 2200, add 300 = 2500 psi oil pressure.
- Calculation of hydraulic oil pressure required for the High-Pressure model operation is as follows: 500 psi plus 5.5 times the fluid end pressure on the high-pressure model. Example: 450 psi mud x 5.5 = 2200, add 500 = 2975 psi oil pressure. Note: although the oil pressure is higher on the standard pressure model for a given mud pressure, it is only operating at 2/3 the oil flow rate as the high-pressure model so the horsepower required for a given flow and pressure is about the same for either model.
- Hydraulic oil pressure for Extra Pressure models depends on what liner the pump is configured with. Please call (903) 725-6978 to inquire for your applications.
- Horsepower required for either model for a given amount pumped at a given pressure is the same and depends of course on flow rate and pressure but can be estimated as follows: mud gpm x mud psi divided by 1200 = horsepower required. Example: to pump 150 gpm at 250 psi (requires a mono pump) = 150 x 250 divided by 1200 = 31.25hp required. For 275 gpm at 450 psi (requires a duplex) = 275 x 450 divided by 1200 = 103.13 hp required.

The above simple rule-of-thumb formulas are for approximation; you should allow 10% or more as a safety margin. Gasoline engines should have twice the engine horsepower as the calculated load at operating RPM. Diesel engines should have 20% more horsepower than the calculated load at operating RPM. Hydraulic oil cooling can be accomplished easily and inexpensively by making a heat exchanger around the mud line. A 1½" to 2" larger pipe put around the mud line as a "jacket" makes a very efficient heat exchanger by routing the return hydraulic oil from the mud pump through this cooler (between the mud line and outer jacket pipe) before returning to the hydraulic oil reservoir. We recommend about an eight-foot long heat exchanger. Centerline Manufacturing can engineer, supply and install your hydraulic pump(s) and system, or will be glad to consult with your installer to assist in engineering your hydraulic system.