DYNEX
High Pressure Hydraulics

# WATER-BASED FLUID AND PORT SPECIFICATIONS

## WATER-BASED FLUID RECOMMENDATIONS

PF1300 & PF4300 Series pumps are compatible with a variety of water-based fluids. These models are specifically designed for use with subsea production control fluids.

Some pump models may require reduced operating pressures depending on the type of fluid specified.

To best assure compatibility under your specific system parameters, complete a *Pump Application Worksheet* on the Dynex website.

## OPTIMUM INLET CONDITIONS

Pump inlet strainer: 150 µ nominal

While finer filtration levels than these are desirable and will result in longer component life, restricting flow to the pump inlet should be avoided. Minimum recommended inlet conditions must be maintained.

### Hydraulic Fluid Viscosity①

| Pump Models | Operating | | | | Start-up | |
|---|---|---|---|---|---|---|
| | Minimum | | Maximum | | | |
| | SUS | cSt | SUS | cSt | SUS | cSt |
| PF1300-11 | 32 | 1,5 | 927 | 200 | 927 | 200 |
| PF4300-22 | 32 | 1,5 | 927 | 200 | 927 | 200 |

① *Variations of system conditions such as temperature, speed, dehydration, etc. can result in reduced output and/or greater inlet pressure requirements. Contact the Sales department.*

## COMPATIBLE FLUIDS

Dynex pumps for water-based fluids have operated successfully with many fluids. Because of the wide range of fluid characteristics, contact the Sales department for a review of your application. Below is list of fluids that have proven to be compatible with these pumps:

- **Castrol** – Transaqua HC 10, HT, HT2
- **Houghton** – Aqualink HT804F, 300F
- **McDermid** – Oceanic HW443, HW540, HW740

## FLUID CLEANLINESS

Minimum: NAS 1638 Class 9
ISO 4406 20/18/15

Optimal: NAS 1638 Class 6
ISO 4406 19/15/12

If a system component fails resulting in fluid contamination, it is important to drain and clean the reservoir, all lines, filter screens and all components. Refill with new fluid.

## INSTALLATION AND OPERATION

Refer to *Checkball Pumps Service, Installation and Operating Instructions* for general installation and operating recommendations.

That document includes information on mounting, shaft loading, sizing inlet pipe and hose, air bleed procedures and initial start-up. Guidelines for maintenance, repair and trouble-shooting are also included.

### Minimum Inlet Pressure①②

| Pump Models | Operating Speed | | | | | |
|---|---|---|---|---|---|---|
| | 1200 rpm | | 1500 rpm | | 1800 rpm | |
| | psi | bar | psi | bar | psi | bar |
| All PF1300 Models | 0 | 0 | 0 | 0 | 0 | 0 |
| PF4303, PF4305, and PF4306 | 0 | 0 | 0 | 0 | 0 | 0 |
| PF4304 and PF4308 | 0 | 0 | 0 | 0 | 5 (.5) | 0,4 (0,03) |
| PF4309 | 0 | 0 | 5 (0) | 0,4 (0) | 10 (1) | 0,7 (0,07) |
| PF4310 and PF4312 | 0 | 0 | 5 (0) | 0,4 (0) | 15 (2) | 1,0 (0,14) |

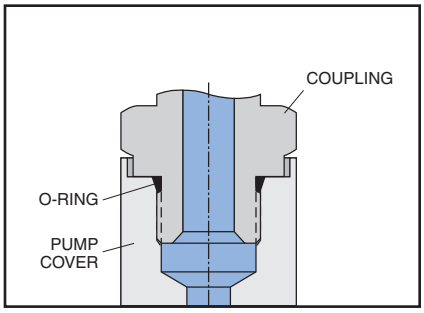
① *Values shown are based on fluid viscosity of 33 SUS (1,9 cSt) and related to 1 atmosphere (29.92" Hg).*
② *Values in parentheses are for "Q" option.*

## OUTLET PORT CONFIGURATIONS

Dynex pumps are available with outlet ports suitable for use at various pressure ranges. Refer to the appropriate *Specification Table* or *Typical Model Code* to specify the required port.

Contact the fitting manufacturer to ensure the selected fittings are rated for the maximum pump operating pressure.

### SAE Straight Thread Ports



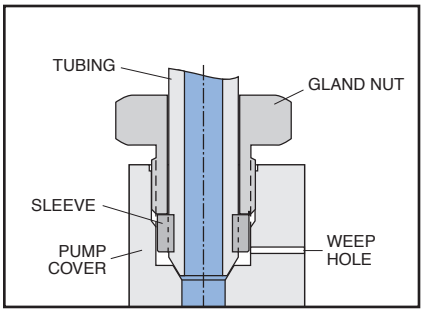

*Typical SAE Straight Thread port connection*

The Straight Thread connection (SAE J1926/1) is sometimes referred to as an SAE O-ring Boss, or ORB. The port consists of a machined spotface surface, a tapered seal cavity and a straight thread port.

The fitting forms a seal by compressing the o-ring in the seal cavity with the underside of the flanged wrench flat. Some adjustable fittings, such as elbows and tees, use a locknut with a captive backup washer for compression.

SAE Straight Thread ports are not recommended for operation above 8000 psi (560 bar). Also, the maximum pressure of pumps with No. 12 SAE outlet ports may be limited by the pressure rating of the available fitting. Contact the fitting manufacturer for ratings.

### Coned and Threaded Ports



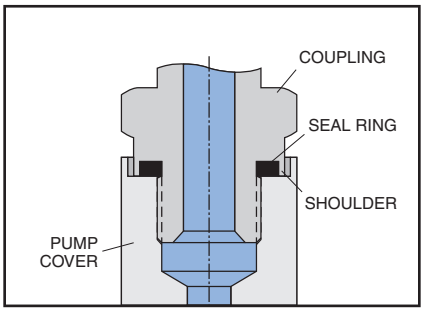

*Typical Coned and Threaded port connection*

High-pressure pumps are available with coned and threaded outlet ports, which use Autoclave Medium Pressure, Butech M/P, or equivalent fittings.

These fittings provide a metal-to-metal seal with an interference fit, not requiring an o-ring. The gland nut holds the sleeve and tubing against the cone surface.

A weep hole, visible on the outside of the pump cover, acts as an indicator of any abnormal leakage caused by system conditions (i.e., excessive pressure).

### British Standard Pipe Parallel Ports




*Typical British Standard Pipe (Parallel) port connection*

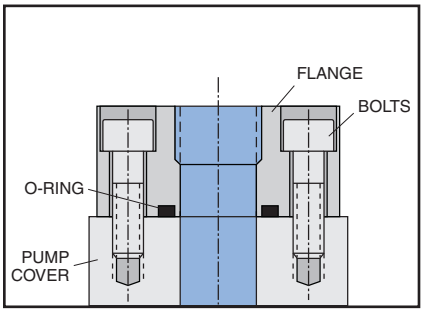
High-pressure pumps are available with flat face ports with British Standard Pipe Parallel (BSPP) threads (BS 2779 or ISO 228), ideal for use on some European applications.

The fitting forms a seal by compressing a flat elastomer ring on a machined spotface surface. There are several sealing methods for these ports.

The recommended fitting has a recessed seal cavity formed by a shoulder on the underside of the flanged wrench flat (Voss "Peflex", Form B Shoulder Seal; or Parker Type E, "EOlastic" Seal; or equivalent).

BSPP ports are not recommended for operation above 10 000 psi (700 bar). Contact the fitting manufacturer to ensure the selected fittings are rated for the maximum pump operating pressure.

### SAE 4-Bolt Flange Ports




*Typical SAE 4-Bolt Flange port connection*

Flange connections are often used for higher flows requiring larger diameter tubing. The port consists of an unthreaded port with four bolt holes in a rectangular pattern on a machined face around the port (SAE J518).

A typical fitting consists of a flanged block with a welded tube and a captive flange with bolt holes. A seal is formed by an o-ring in the groove on the underside mounting surface of the flange head. As the flange bolts are alternately tightened, the o-ring is compressed between the flange head and the machined face on the pump.

To make mounting easier in tight spaces a two-piece split-flange is often used.

*Specifications shown were in effect when printed. Since errors or omissions are possible, contact your Sales representative or the Sales department for the most current specifications before ordering. Dynex reserves the right to discontinue products or change designs at any time without incurring any obligation.*

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