

## PUMP APPLICATION

### OPERATING PRESSURES - GENERAL

The pump design features hydrostatic bearing faces for optimum efficiency and long life. The hydrostatic balance required for these bearings means that inlet pressure must never exceed outlet pressure, even when the pump is not rotating. This is normally simple to achieve on tank pressured systems. For systems using boost pump this may be possible by using a relief valve or by placing a check valve in parallel with the pump. This is to allow a possible flow from inlet to outlet so that pressures can be balanced from inlet to outlet during start up of the pump (this valve should close as soon as outlet pressure exceeds inlet pressure).

#### WARNING

Outlet pressure from the pump must always exceed inlet pressure to the pump. Failure to comply with this instruction may lead to damage or complete failure of the pump.

#### IMPORTANT INFORMATION PLEASE READ CAREFULLY.

### OUTLET PRESSURE

If the fluid contains certain fillers, blowing agents or other additives, maximum outlet pressure may have to be limited in order to achieve reliable running and reasonable life time. For applications on fluids which include the above, or other additives please consult ROTARY POWER for further advice.

Maximum pump outlet pressures should not exceed the following in any circumstances

TDI fluid 210 Bar  
MDI, Polyol fluid 250 Bar

Minimum outlet pressure 2 Bar or a value equal to or higher than inlet pressure, whichever is greater.

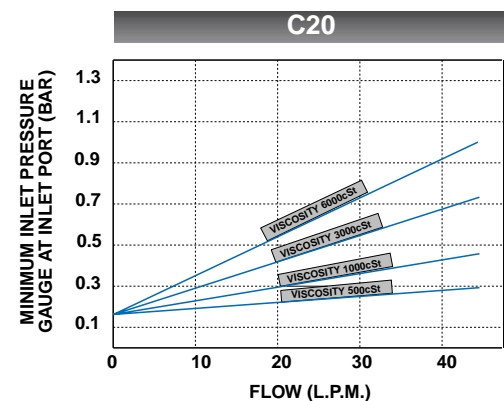
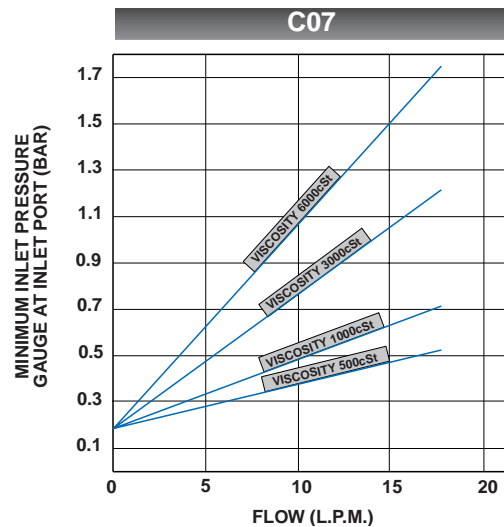
### INLET PRESSURE

To achieve the correct inlet pressure conditions, the following must be considered at the inlet port of the pump.

1. Inlet pressure must not exceed outlet pressure.
2. Inlet pressure must be high enough to keep the fluid stable in all conditions, consistent with the fluid manufacturers recommendations.
3. Inlet pressure must be high enough with more viscous fluids, to eliminate cavitation within the pump.
4. Shaft seal life is dependant upon the case pressure (also pump speed and fluid cleanliness). The lower the inlet pressure, the longer the seal life.

Therefore the correct procedure for specifying the required pressure at the inlet port of the pump is:

- A. Check requirements for the specified fluid with the fluid supplier/manufacturer.
- B. Check with the relevant chart below for the minimum inlet pressure at the inlet port for the specified fluid viscosity.
- C. Add the values from A and B above. This is the minimum boost pressure value at the pump inlet port during normal running conditions.



- D. Calculate the pressure drop through pipework and filters from the boost pump (or tank if it is a pressurised tank).
- E. Add the value from C to the value from D. This total value represents the pressure at the inlet port whilst the ROTARY POWER pump is stationary. This will typically occur during starting and stopping of the machine. This total value must at no time exceed the pressure value at the pump outlet.

### SHAFT SEAL

Shaft seal life is dependant upon many factors, some examples are :- 1. Shaft speed, 2. Fluid lubricity, 3. Fluid pressure 4. Fluid contaminant level, 5. Nature and size of fillers used.

For advice please contact ROTARY POWER.