



DESIGN-FLOW® High Density Polyethylene Pipe

Calculation of Fusion Pressure for Hydraulic Fusion Machines

When calculating the recommended interfacial (hydraulic) pressure for the pressure gauge, the manufacturer for the specific machine in use should be consulted. In order to calculate the required hydraulic gauge pressure the machines effective hydraulic piston area must be known.

CALCULATION:

$$\text{Hydraulic Gauge Pressure (psi)} = \frac{.785 \times (\text{OD}^2 - \text{ID}^2) \times \text{IP.} + \text{Drag Factor}}{\text{Piston Area}}$$

Where: OD = Pipe outside diameter (in)
 ID = Pipe inside diameter (in)
 IP = Interfacial pressure required (75 psi)
 Piston Area = Total hydraulic piston area (in²)
 *Drag Factor = Hydraulic fusion pressure required to move the carriage holding the pipe. 30 psi is generally accepted as a minimum.

* The drag factor is an important parameter easily overlooked. If two long pieces of pipe are being fused, the drag factor can easily reach several hundred psi.