DESIGN-FLOW® **High Density Polyethylene Pipe**

Calculation of Fusion Gage Pressure for Hydraulic Fusion Machines

When calculating the recommended hydraulic pressure shown on the pressure gage, the manufacturer for the specific machine in use should be consulted. In order to calculate the required hydraulic gage pressure the fusion machine effective hydraulic piston area must be known.

CALCULATION:

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

Where:

OD	=	Pipe outside diameter (in)
ID	=	Pipe inside diameter (in)
IP	=	Interfacial pressure required (75 psi)
Piston Area	=	Total hydraulic piston area ($in^{2)}$
*Drag Factor	=	Hydraulic gage pressure required to move the pipe and carriage / clamp. 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 much higher pressures.