



## **PolyPipe®: The Single Source for Total System Solutions**

Moving fluids through pipe in the oil field demands the utmost in flexibility, reliability and performance. That is why PolyPipe® is the best choice for the energy business. Our high-density polyethylene (HDPE) pipe provides superior flow characteristics, extended life and durability and reduced maintenance than traditional piping materials, anywhere in the oil patch.

We offer a wide selection of HDPE pipe to meet your needs for any oil field application. As a leader in the pressure rated pipe industry, PolyPipe® features a network of sales offices and distribution centers across the U.S. and around the world. PolyPipe® has six U.S. manufacturing facilities that are regionally located to assure timely, accurate delivery to any location you require.

PolyPipe® has products specifically for the oil and gas industry for gas gathering, crude transmission, water lines and auxiliary lines. PolyPipe® also manufactures products in accordance with the American Petroleum Institute (API) specification 15LE.

### **TYPICAL APPLICATIONS**

- Gas Gathering
- Crude Oil Flow
- Water Flood
- Saltwater Disposal
- Supply Water
- Fuel Transfer
- Main Lines

PE3408/3608/4710 Extra High Molecular Weight (EHMW) Black Pipe - a premium quality, high density, extra high molecular weight, polyethylene pipe specifically designed for the rigors of the oil field. It is produced from PE3408/3608 or PE3408/PE3608 resin containing not less than two percent (2%) carbon black for superior resistance to UV degradation. This pipe offers outstanding environmental stress crack resistance (ESCR), the best chemical resistance of any polyethylene pipe and high impact resistance. PolyPipe® oil field products are available in diameters from 1/2" CTS to 6" IPS coiled and straight lengths from 1/2" through 65" IPS.

### **Fluid Flow**

PolyPipe® has an extremely smooth surface resulting in a very low coefficient of friction and a minimal loss of head pressure due to frictional losses. This, combined with excellent corrosion and abrasion properties, results in excellent flow characteristics throughout the life of the pipe.

For pressurized systems, a Hazen-Williams "C" factor of 150 is used.

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## **Gas Flow**

The flow formula for smooth pipe should be used to compute the gas flow rate through PolyPipe®. It has been found that the Mueller formula for smooth wall pipe describes the flow characteristics of PolyPipe®.

## **Bending Radius**

An inherent advantage of PolyPipe® is its flexibility and resiliency. The minimum bending radius is based upon the Dimension Ratio (DR) of the pipe. This radius is determined by multiplying the outside diameter of the pipe by the radius factor for the corresponding DR.

When pipe is used in pressure applications, the longitudinal stress created by the sum of the bending radius, internal pressure and other stress loads on the pipe should not exceed the material's design stress rating. Severe but acceptable bends in polyethylene pipelines should be buried or properly restrained.

## **Design Pressure Rating**

The pressure rating of PolyPipe® is determined in accordance with the Plastics Pipe Institute (PPI) recommended hydrostatic design basis (HDB) for the material, the physical dimensions of the pipe and the appropriate design and service factors.

## **Weatherability**

Black PE pipe has a minimum of 2% finely dispersed carbon black; the most effective additive for protecting polyethylene from the effects of weathering.

HDPE PE3408/3608/4710 black PolyPipe® is suitable for long term above ground storage with a 50 year maximum storage time. Further, these products are suitable for long-term service in above ground applications.

# **PolyPipe®: The Advantage in the Field**

## **Cost Effective**

Significant cost savings should be expected over traditional pipe materials (steel, fiberglass, PVC) within the same design parameter. Savings accrue both on the initial product cost and by improved installation efficiency.

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## **Ease of Handling and Installation**

PolyPipe® weighs less than one-fourth of comparable steel pipe. Significant savings can be realized in transportation, handling and installation.

Pipe diameters up to 6" IPS can be coiled for ease of handling and storing.

PolyPipe® is quickly and easily joined and installed by using the heat fusion method or special polyethylene mechanical fittings. Heat fusion produces a solid, leakproof joint as strong as the pipe itself.

## **Water Hammer and Pressure Surge**

The momentum, or inertia, of a moving column of liquid has inherent characteristics that must be dealt with in a piping system. When liquid flow is stopped suddenly, as by a quick closing valve, the inertia is converted into a shock wave or high pressure surge. The faster the liquid velocity and the longer the line, the greater the shock load. Controlled dissipation of this energy is a design feature and a significant advantage of polyethylene pipe.

For additional information about PolyPipe® products and their application and installation for oil & gas gathering systems, contact our Engineering Department at 940-668-4419.

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