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DRISCOPEX[®] HDPE PE3608/PE4710 HDPE PIPE

Weatherability and Above Ground Service

Weatherability and Ultra-violet (UV) Protection

To protect against ultraviolet degradation, Driscoplex[®] HDPE pipes contain a minimum 2% carbon black. Driscoplex HDPE is suitable for use where there is direct, long-term exposure to sunlight. This includes above ground, surface and suspended piping applications. Exposure to the sun increases operating temperatures, especially during summer months and may require utilizing elevated temperature service ratings.

Thermal Considerations

Operating service temperatures for Driscoplex[®] HDPE pipe series may be as low as -30°F or 140°F. In above ground applications service temperatures may affect the allowable design parameters. The possible effects of expansion and contraction on the piping, along with the effect of temperature on pressure should be important design considerations.

Rerating For Elevated Temperature Service

Service Temperature, °F (°C)	≤80	100	120	140
Temperature Rerating Factor	1.0	0.78	0.63	0.5

A straight line interpolation between temperatures may be used for equivalent rerating factor at actual service temperature.



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Thermal Effects

Polyethylene has a higher coefficient of thermal expansion and contraction than most other piping materials. The forces generated by thermal stresses are much lower due to polyethylene's lower modulus of elasticity and the material's ability to relieve stresses. Temperature change will result in a dimensional change or an increase in stress depending on the method of installation.

In response to changing temperatures, unrestrained pipe will undergo a length change. However, anchored or end restrained pipe will develop longitudinal stresses instead of undergoing a change in length. The stresses will be tensile for decrease in temperature and compressive for an increase in temperature.

The linear coefficient of thermal expansion and contraction is 1.0×10^{-4} (in/in/°F).

The circumferential coefficient of thermal expansion and contraction is 0.5×10^{-4} (in/in/°F).

Thermal expansion and contraction in a polyethylene piping system may be controlled in several ways.

- Anchor and Guide the pipe.
- Burying the Pipe. Buried pipe is well restrained by soil friction along its length.
- Expansion Joints
- Conventional Expansion Loops

In heat transfer applications the coefficient of Thermal Conductivity for Driscopex® HDPE pipes is: 2.1-3.5 (BTU x In. / H x Ft² x °F).