



RADIUS

Systems

Above ground Polyethylene pipe support



Above ground applications using polyethylene pipe require support of a non continuous nature. Calculations for bracket supports are based on treating the pipe as a uniformly loaded beam with fixed ends.

The allowable deflection that occurs between the supports should be considered by the client, but industry guidance for Polyethylene pipe quotes a maximum mid span deflection of 6.5mm. The creep effects of the viscoelastic material mean some deflection is inevitable. Ultimately the deflection levels should be agreed between the designer and the adopting authority.

Radius Systems recommended Black PE100 pipe material is used for above ground applications, as it contains a minimum 2% finely divided carbon which provides resistance to UV degradation. In accordance with BS EN 12201-2, 'any other pipe colour should be protected from UV degradation'.

Simple beam deflection analysis is applied to calculate the amount of deflection expected on horizontally installed pipes, the bracket spacing table below provides the centre to centre spacing to meet deflection guidance.

The type of bracket used and its fixture, should be fit for purpose and follow these considerations: -

- The bracket width should be equal to half the outside diameter of the pipe.
- Brackets should be lined with a low friction material such as PTFE, rubber is often used but is a high friction material and can often be displaced if the bracket is over-tightened around the pipe.
- Polyethylene is itself suitable as a liner material.
- The brackets should allow movement, expansion and contraction of the pipe due to thermal effects.
- The bracket design should include some rounding profile at the edges to prevent point loading, where deflection occurs.

The following tables have been calculated assuming a flexural modulus of 160MPa at an ambient temperature of 23°C. Where the pipe is exposed to low temperatures, consideration should be given to insulating the pipe to prevent freezing.

Radius Systems can advise on other pipe sizes and deflection levels which may be agreed by the installer and adopting authority.

Above ground pipe spacing for pipe containing potable water.

Pipe Diameter	Maximum support spacing based on Mid span deflection of 6.5mm		
	SDR 21.0	SDR 17.0	SDR 11
90	-	1130	1230
110	-	1250	1360
125	-	1330	1450
160	-	1500	1640
180	-	1600	1740
200	-	1680	1830
225	1710	1790	1950
250	1800	1880	2050
280	1910	2000	2180
315	2020	2110	2300
355	2150	2250	2450
400	2500	2280	2170
500	2800	2550	2430

All Dimensions in mm