

PE Above Ground Installation

To be read in conjunction with AS/NZS 2033 and AS/NZS 3500.

General Considerations

Vinidex PE pipes may be installed above ground for pressure and non-pressure applications in both direct exposure and protected conditions.

Black PE pipes made to AS/NZS 4130 requirements may be used in direct sunlight exposure conditions without any additional protection. Where PE pipes of colours other than black are used in exposed conditions, then the pipes may need to be protected from sunlight.

Where PE pipes are installed in direct exposure conditions, then the increased PE material temperature due to exposure must be taken into account in establishing the operational pressure rating of the PE pipes. PE pipe with a white co-extruded outside layer can reduce the design temperature when compared to black pipes.

Localised temperature build-up conditions such as proximity to steam lines, radiators, or exhaust stacks must be avoided unless the PE pipes are suitably protected. Where lagging materials are used, these must be suitable for external exposure applications. PE pipes running across roofing should be supported above the roof sheeting to prevent temperature build up. See [Temperature Influences](#).

Supports

Pipe hangers, or supports, should be located evenly along the length of the PE pipeline, and additionally at localised points with heavy items such as valves, and fittings.

The supports should provide a bearing surface of 120° under the base of the pipes. The PE pipes may need to be protected from damage at the supports. This protection may be provided by a membrane of PE, PVC or rubber.

Location and type of support must take into account provision for thermal movement, if required. If the supports are to resist thermal movement, an assessment of the stress induced in pipes, fittings and supports may need to be made.

Support Spans

Support spans depend on the pipe material and dimensions, nature of flow medium, operating temperature, and arrangement of the pipes.

The spans in the Table below are consistent with AS/NZS 2033 for horizontal or graded pipes. These are based on the use of PE pipes, full of water, supported over multiple spans, and operating at 20°C for 50 years. For other service temperatures, the spans should be reduced accordingly. For pipes where the material temperature is likely to reach 60°C the pipe should be continuously supported. For vertical pipes, the support span can be doubled.

For fluids with density between 1000 kg/m³ and 1250 kg/m³, decrease spans by 4%.

For compressed air systems, the spans may be increased by up to 30%.

Support Spans (metres)

DN (m)	Maximum Support Spacing
16	0.25
20	0.3
25	0.35
32	0.38
40	0.43
50	0.45
63	0.5
75	0.6
90	0.67
125	0.75
140	0.85
160	1
200	1.1
225	1.15
250	1.25
280	1.3
≥ 355	1.5

Quick Installation Guide

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Vibration

Direct connection to sources of high frequency such as pump outlet flanges should be avoided. All fabricated fittings manufactured by cutting and welding techniques must be isolated from vibration.

Where high frequency vibration sources exist in the pipeline, the PE sections should be connected using a flexible joint such as a repair coupling, expansion joint, or wire reinforced rubber bellows joint. When used above ground such joints may need to be restrained to prevent pipe end pullout.

Expansion & Contraction

For above ground pipelines, expansion and contraction movements should be taken up by the pipeline where possible without expansion joints.

In most cases, changes in direction in the run of piping may be used to absorb length change, given that appropriate deflection legs are provided. Otherwise, compensation loops or special fittings may need to be installed. Refer to AS/NZS 2033.

For lines laid directly on the natural surface, snaking the pipe during installation and allowing the pipe to move freely in service can accommodate expansion and contraction. Where the final joint connections are made in high ambient temperature, sufficient pipe length must be allowed to permit the pipe to cool, and hence contract, without pulling out of non-end load bearing joints.



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