Tech Note 20:
Brackets & Supports

TN.20

Related Documents:
- Tech Note TN.27 Expansion & Contraction
- Tech Note TN.33 Bimetallic Corrosion

Support (Bracket) Spacing

Above ground pipework is to be supported sufficiently to resist the live and dead loads of the installation, for both supply services (such as potable water) and drainage lines (such as trade waste).

It is recommended the installation design refers to relevant Australian Standard(s) to ensure compliance (as some applications require supports at lesser spans such as flammable liquids) and a qualified engineer's assessment for fixing and support suitability. Applicable standards may include:

- AS/NZS 3500.1 - Plumbing & Drainage – Water Services, Table 5.7.4
- AS/NZS 3500.2 - Plumbing & Drainage – Sanitary Plumbing & Drainage, Table 9.1
- AS/NZS 3500.4 - Plumbing & Drainage – Heated Water Services, Table 4.1
- AS 2441 - Installation of Fire Hose Reels
- AS 2419.1 - Fire Hydrant Installations for Buildings, Table 8.7.7 & Table 10.6
- AS 4118.2.1 - Fire Sprinkler Systems Piping – General
- AS 5601.1 – Gas Installations, Section 5.8
- AS 4041 - Pressure Piping, Figure 1.1 & Table 3.28.2
- AS 4289 - Oxygen and Acetylene Gas Reticulation Systems, Table 5.1
- AS 1530.4 - Methods for Fire Tests on Building Materials, Part 4: Elements of Construction

Recommended general use *maximum* span spacings in metres (m) for AusPress products:

AusPress Press-Fit

Diameter (OD)	Wet	Dry	Thread Rod	
			1x	2+
15 - 22	1.5	1.5	M10	M10
28	2.0	2.0	M10	M10
35 & 42	2.5	2.5	M10	M10
54	3.0	3.0	M10	M10
66.7 - 88.9	3.0	3.0	M12	M10
108 - 139.7	3.0	4.0	M16	M10
168.3	3.0	4.0	M20	M10

Notes:
- Install independent supports for thrust forces and heavy inline items; valves.
- Values are for vertical and horizontal.
- Ensure supports prevent axial/pull forces on press joints, especially on vertical runs and changes of direction.
- Thread Rod: 1x indicates a single vertical rod (min Grade 4.6). 2+ indicates a dual-rod configuration utilising either a double-ear clip bracket or an approved horizontal support channel (strut).

AusPress Drainage

Diameter (OD)	Stainless		KG2000 & Skolan		Thread Rod	
	Graded	Vertical	Graded	Vertical	1x	2+
50 - 58	2.2	3.0	0.5	1.5	M10	M10
75 - 78	2.5	3.0	0.8	2.0	M12	M10
90 - 110	2.8	3.0	1.0	2.0	M12	M10
160	3.3	3.0	1.5	2.0	M16	M10
200 - 315	3.0	3.0	Contact AusPress			
400 - 630	Beyond scope of AS 3500.2, consult an Engineer.					

Notes:
- Presume water filled scenario, 1-1.5mm deflection allowed.
- Vertically support additionally under each socket and/or branch and within 200mm of the pipe end (ie at ground level of a downpipe).
- Provide supports <1m from change in directions, close to joining socket and directly under all suspended P-Trap fittings.
- Install independent supports for thrust forces and heavy inline items; valves.
- Joint clamps available where risk of joint separation is possible in suspended situations.
- Thread Rod: 1x indicates a single vertical rod (min Grade 4.6). 2+ indicates a dual-rod configuration utilising either a double-ear clip bracket or an approved horizontal support channel (strut).

Design Considerations

- Span distance – Refer to the relevant standard for the application for the maximum span centres to evenly support the pipework (horizontally and vertically). Presume drainage is full (blocked) weight for calcs. Additional inline fittings such as valves require additional bracketing to support independently. For multi-storey applications, an engineered bracket is recommended at designed floor intervals to support long vertical runs of pressurised pipework;
- Bracket Materials – Confirm compatibility of all materials in direct contact with the pipework (eg pipe blocks and insulative spacers) or separate with an inert material (such as rubber);
- Live Loads – these can be from unintended loads (people hanging from overhead pipework, earthquake), vibration and filling loads; Appropriate supports are to be installed at change of direction and/or branch connections for thrust forces; for suspended drainage joint clamps are recommended in addition;
- Bracket Position – Brackets and supports are to avoid clamping over the sockets of the fittings. Set back a minimum the 50mm from the fitting end on the 'pipe' part. 300mm back from any change of direction, suspended branch, flange face or valve. Under the socket for vertical installations. Axial Expansion Bellow fittings require specific spacing requirements, documented in Tech Note TN.27 Expansion & Contraction.
- Movement (longitudinal) – Expansion and contraction to be allowed for with using fixed and sliding bracket types and correct placement (see Tech Note TN.27);
- Impact Loads – Protect the pipework (and supports) from possible impact damage (eg vehicles) with physical barriers and protective placement of pipework;
- Possible Blockages – Support the pipework allowing for additional weight and pressures, use Joint Clamps where pull-apart joins could create a hazard;
- Cleanliness – Select a bracket type, material and design to facilitate easier cleaning and minimise surfaces and joins for hygienic environments, avoid bird-friendly perches;
- Noise – Select a bracket system for support and sound absorbance.
- Insulation & Coatings – Ensure lagging and wrap materials are compatible. Refer to our Tech Note TN.04 for more information.
- Fire Resistance – Brackets to AS 2419 requiring a structural FRL are to be tested to AS 1530.4 (ie resist 500°C). Stainless drainage and press-fit are considered fire-resistant.
- Vacuum & Siphonic – Although operating with negative (vacuum) pressures, it is recommended each stainless drainage joint is fitted additionally with a joint clamp.

Supporting Loads

Position brackets correctly to protect the join of both drainage and press-fit sockets. In the suspended vertical installations pictured below, red arrows show direction support is required, red shading for thrust load region, dashed are recommended joint clamp locations (drainage only).