

Tech Note 20: Brackets & Supports

TN.20

Related Documents:

- Tech Note TN.04 Insulation & Stainless Steel
- Tech Note TN.24 Fire Services with Press-Fit
- 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 design of the installation refers to the 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. Such standards include but not limited to:

- AS/NZS 3500.1 - Plumbing & Drainage – Water Services, Table 5.2
- 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 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

The tables below list the recommended *maximum* span centres in metres (m) for AusPress products for general applications:

AusPress Press-Fit		
Diameter (OD)	Stainless, Copper & CuNiFe	Threaded Rod (hanging)
15 & 22	1.5	M10
28 & 35	2.0	M10
42	2.5	M10
54	3.0	M10
66.7 - 108	3.0	M12
168.3	3.0	M16

Notes:

- Suitable supports must be installed for thrust forces.
- Values for both vertical and horizontal installations.
- Provide suitable support(s) to ensure no pull force is applied to any press socket joint, particularly at change of directions and vertical situations.

AusPress Drainage					
Diameter (OD)	Stainless		KG2000 (PP-MD)		Threaded Rod (vertical)
	Graded	Vertical	Graded	Vertical	
50	2.2	3.0	-	-	M10
75	2.5	3.0	-	-	M12
110	2.8	3.0	1.0	2.0	M12
160	3.3	3.0	1.5	2.0	M16
200 - 315	3.0	3.0	Contact AusPress		
400 - 630	-	-	Contact AusPress		

Notes:

- Graded= Spans allow for 1-1.5mm bending of water filled pipe.
- Vertical= Support additionally under each socket and/or inlet and within 200mm of the end (ie ground level of a downpipe).
- AS 3500 is limited to DN300. Engineer assessment and confirmation is recommended.
- Threaded rod values presume full pipe weight with water.
- Provide supports <1m from change in directions, close to joining socket and directly under all suspended P-Trap fittings.

Design Considerations

Suitable bracket supports can be achieved through a variety of methods, with the following considerations to be addressed:

- Span distance: There are several standards that nominate the maximum span centres to evenly support the pipework (horizontally and vertically). For multistorey applications, an engineered bracket is recommended at designed floor intervals to support long vertical runs of pressurised pipework;
- Support Material – Bracket material (including pipe blocks) to be compatible in contact with the pipe material or separated with an inert material (such as rubber);
- Support Live Loads – these can be from unintended loads (people hanging from overhead pipework), vibration and filling loads;
- 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.
- Movement (longitudinal) – Expansion and contraction to be allowed for with using fixed and sliding bracket types and correct placement (see Tech Note TN.27);
- Thrust Loads – Appropriate supports are to be installed at change of direction and/or branch connections;
- Impact Loads – Protect the pipework (and supports) from possible impact damage 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 joints will create a hazard;
- Cleanliness – Select a bracket design and material to facilitate easier cleaning and minimise surfaces and joints for hygienic environments;
- 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 – Consideration to performance in a fire, including vertical and horizontal penetrations through fire compartments. Refer to our Tech Note TN.24 for more information. Brackets requiring a structural FRL to be tested to AS 1530.4 (AS 2419 requires 500°C resist).

Supporting Loads

Position brackets correctly to protect the join of both drainage and press-fit sockets. Drainage sockets can be fitted with a Joint Clamp product to increase the resistance too. In the suspended vertical installations pictured below, red arrows show direction support is required, red shading for thrust load region.

