

Tech Note 24: Fire Services with AusPress Press-Fit

TN.24

AusPress Stainless & Copper Press-Fit Systems are well suited for fire services, offering considerable benefits over alternative systems, such as roll groove and threaded, with faster installation time, reduced (dead) weight of pipework to lift and supporting compliance.



Applicable Products:

- AusPress Stainless Press-Fit, diameters 28 – 168.3mm.
- AusPress Copper Press-Fit, diameters DN25 – 100.

Related Documents:

- Tech Note TN.07 Underground, Concrete & Press-Fit.
- Tech Note TN.20 Brackets & Supports.
- Tech Note TN.25 Flange Pressure-Temperature Rating Summary.
- Tech Note TN.30 Flow Rates & Pressure Loss (Press-Fit).

Applicable Standards & Approvals

Authority	Standards	Notes
 ActivFire (CSIRO)	AS 2419.1 AS 3688 AS 4118.2.1 AS 5200.053	Approved as conforming to the requirements of standards for fire hydrant systems (AS 2419.1) and fire sprinkler systems (AS 4118.2.1): <ul style="list-style-type: none"> - Stainless – approved. - Copper – deemed to comply.
 WaterMark	AS 3688 AS 5200.053	Approved as conforming to the requirements of standards for use with potable water systems: <ul style="list-style-type: none"> - Stainless – approved. - Copper – approved.

Standard Stainless Press-Fit Product Specification

AusPress Stainless Press-fit system, supplied in 316 stainless steel. Fittings M-Profile with standard EPDM ring seal fitted. Tube to be annealed, metric sizes to AS 5200.053 Series 2. Installation by a qualified person(s) in accordance to AS 3500 and AusPress recommendations. Installation tool selection to suit M-Profile metric sizes and press a join rated to or exceeding the required system working and test pressures.

Standard Copper Press-Fit Product Specification

AusPress Copper Press-fit system. Fittings V-Profile with standard EPDM ring seal fitted. Copper pipe shall be Type A or B to AS 1432 and AS 3500.1. Installation by a qualified person(s) in accordance to AS 3500 and AusPress recommendations. Installation tool selection to suit V-Profile Australian copper sizes and press a join rated to or exceeding the required system working and test pressures.

Applicable Standards & Approval Compliance		AusPress Stainless		AusPress Copper	
		Tube	Fitting	Tube	Fitting
Tube Diameter (min):		28 to 168.3mm		DN25 to 100	
Australian Standard Compliance	AS 3688	N/A	WaterMark approved	N/A	WaterMark approved
	AS 2441	28mm min diameter for fire hose reel connections.		Deemed to comply for fire hose reel connections.	
	AS 2919.1	ActivFire approval for fire hydrant connections.		Deemed to comply for fire hydrant connections.	
	AS 4118.2.1	ActivFire approval for fire sprinkler system connections.		Deemed to comply fire sprinkler system connections.	
	AS 5200.053	WaterMark approved	N/A	N/A	N/A
	AS 1432	N/A	N/A	Use Type A or B only.	N/A
Connection/Joint Type		Press-fit joint method acceptable (AS 2419.1, Clause 9.5.4.2)			
Installed Above Ground	Fire sprinkler protected ^μ	Suitable		Suitable	
	No sprinkler protection	Suitable ^α		System to be protected by FRL - /60/60 materials (ie wrap)	
Installed Below Ground [‡]	General Soil	Installed to AS 4809, install detectable warning tape.		316 stainless complies, install detectable warning tape.	
	Aggressive Soil	Double wrap petroleum tape to AS 2419.1, Clause 9.8.3.			
Pressure Rating	Working	2,400 kPa*		1,600 kPa*	
	Test (1.5x working)	1,700 min; 3,600 max kPa*		1,700 min; 2,400 max kPa*	
[‡] Refer to AusPress Tech Note TN.07 Underground & Stainless Steel. [*] AS 4118.2.1, Table 4.1 refers to higher maximum pressures than press-fit can reach. In the case of higher pressure, the lesser of the two is to be used. ^α Although stainless is considered fire resistant, it is up to the fire engineer to confirm if addition protection measures are required. ^μ Sprinklers to be designed and installed to AS 2118. N/A Not applicable.					

Installing

The process to install AusPress press-fit follows the standard recommended installation procedures as per our installation & commissioning recommendations. Product training by AusPress is recommended, particularly for installers unfamiliar with working with stainless and/or press-fit as a joining method.

Installing stainless press-fit for fire services requires no additional process or methods. Copper press-fit installed for fire hydrant supply in areas exposed to heat risk without fire sprinklers complying with AS 2118, will require a wrap or other suitable protection to provide the copper pipework fire protection to an FRL - /60/60 (AS 2419.1 Clause 8.5.2).

Design Considerations

Although each installation should be designed for purpose and rated by a qualified and registered Fire Services Engineer, several considerations shall be given assessment:

- Pressure Rating – AusPress stainless press-fit is rated to a working pressure of 1,600 or 2,500 kPa depending on the installation tool used. Higher pressures may be accommodated on written approval from AusPress.
- Fire Resistance – Stainless has a “A1” rating and as such, requires no specific treatment to resist the impacts of fire as a non-combustible material. This material also does not cause the spread of fire. The average building fire is 1,000°C; stainless steel melts ~1,400°C.
- Fire Suppression Media – Majority of installations use potable water to Australian Drinking Water Guidelines (ADWG) which is suitable. Alternative medias such as foams and additives should be assessed by AusPress for their suitability before specifying.
- Penetrations – Where the system passes through a fire wall or fire compartment, fire collars are not required. Penetrations through fire walls and floors require the gap of any aperture to be filled with a fire rated and low chloride mortar, mastic or fibre fill. We stock escutcheon cover plates for a neat finish as requested by some Fire Engineers.
- Mixed Materials - Stainless cannot be connected to the galvanised steel pipework, directly or indirectly, with the risk bi-metallic corrosion between the differing metals. This effect can also occur with other dissimilar metals in contact as pipes, brackets or structure. Differing materials need to be separated or the less noble material (in the case of galvanised steel) will corrode. Refer to Tech Note TN.33 Bimetallic Corrosion for more information.
- Mixed Systems – We supply stainless roll groove to press-fit adaptors, bolted flange adaptors in various standards (types), plus threaded BSP male and female fittings as standard stocked products to connect onto existing systems.
- Existing Service Pipework – Systems should be thoroughly flushed to remove stagnant water and debris from the system before connecting new. Inline strainers to be considered to prevent debris from other materials from settling within the stainless system.
- Bracketing – The system will be supported with suitable brackets (type and material) for live and dead loads, including thrust loads on bends and the bottom of risers. Refer to our Tech Note TN.20 for more information.
- Bolted Flanges – Depending on the flange standard (type) such as Table E or ANSI, these may have a lesser rating than what the press-fit join is rated to. Refer to our Tech Note TN.25 for more information.
- Maintenance – the exterior surface shall be inspected on a scheduled programme checking for any issues. Frequency will depend on the environment and exposure. Refer Tech Note TN.29 and for marine locations Tech Note TN.11.

Further Information

For additional or specific information, please contact technical@auspress.com.au