Tech Note 18:
Threads & Sealing Methods

TN.18

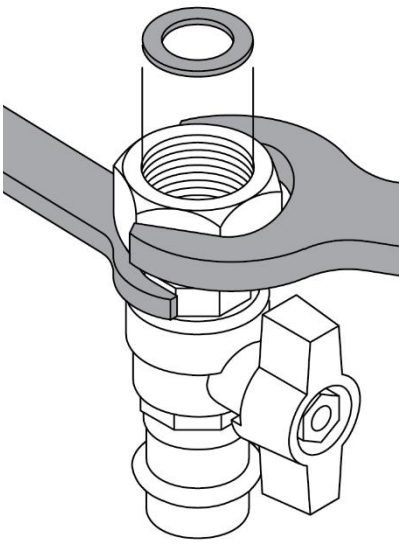
Applicable Products
- AusPress Stainless Press-Fit, diameters 15 to 168.3mm.
- AusPress Copper Press-Fit, diameters DN15 to 100.
- AusPress CuNiFe Press-Fit, diameters 15 to 108mm.

Glossary:
- PTFE = Polytetrafluoroethylene
- BSP = British Standard Pipe; 11.0 threads/inch, 55° tooth angle.
- NPT = National Pipe Thread (US); 11.5 threads/inch, 60° tooth angle.

Thread Types
AusPress predominantly use BSP threads for fittings, with NPT also recognised. Note the two different thread types are not interchangeable or compatible.

Name	Standard	Thread	Form	Designation	Compatibility	
					BSPP	NPT
BSP	ISO 7.1	Parallel (BSPP)	Male (MI)	R	Ok, thread sealant required.	Not compatible.
			Female (FI)	Rp or G		
		Tapered (BSPT)	Male (MI)	R	Ok, thread-tight joint, thread sealant recommended.	Not compatible.
			Female (FI)	Rc		
NPT	ASME B1.20.1	Tapered	External	MNPT	Not compatible.	Ok, thread sealant required.
			Internal	FNPT		

Tightening and Loosening Threaded Fittings
When working a threaded fitting, support the fitting using the wrenching flat to tighten and prevent torsional forces being applied to the press joint.



Threads should not “bottom-out” when using tapered forms; parallel threads are recommended to be marked with a suitable insertion depth of threads to ensure the minimum number of threads are engaged to bind a sealed joint.

Galling: Stainless fittings can gall (bind) due to the damage or removal of the protective oxide layer inherent to the material caused by excessive friction of thread-on-thread; over-tightening, debris or dirt, cross-threading all contribute. Avoid galling by keeping threads clean and lubricating the thread with a PTFE based lubricant or PTFE thread tape.

Heat: Any heat applied to the tread area for loosening threads sealed with adhesive must avoid heating any adjacent rubber ring seals in the press-fitting socket, directly or indirectly.

Union and Loose Nut Fittings
Flat face union fittings are supplied with a loose nut and a flat face gasket seal. When the nut is loosened or the fitting is disassembled, the gasket seal is recommended to be replaced each time. These fittings are not suitable for steam or gas-based media.

Thread Sealant Options

- Thread Tapes: AusPress recommend using a PTFE 'Teflon' thread sealant tape for the male ends of both BSP and NPT thread types. Ensure the tape type selected is suitable and approved for the application, such as natural gas. Avoid over-wrapping and/or bunching.

  Note hemp and other wicking type materials are not approved for use with AusPress fittings. Please confirm product specifications to technical@auspress.com.au for confirmation on alternative products.

- Adhesive Pastes & Liquids: Adhesive pastes & liquids can be used however, consideration must be made for the compatibility with the fitting material (ie stainless) and the technical specifications of the adhesive product by the manufacturer.

Further Reading
The Australian Stainless Steel Development Association (ASSDA) have information on galling with Technical FAQ #5: https://www.assda.asn.au/images/PDFs/faq%20no5%20galling.pdf

The following table is a summary comparing known brands and products with a focus on stainless steel suitability:

Brand & Product	Type	Strength Class	Thread Size Limit	316 S/S Suitable	Primer	Cure Strength				Approvals	
						1hr	24hr	72hr	Full	Potable Water	Gas
Loctite 577	Paste	Medium	Y	Y	N		85% (45%)	95% (50%)	168 hrs	DVGW	AGA
Loctite 248	Semi-Solid	Medium	Not tested	Y	N-7649		90% (55%)	99% (55%)	72 hrs	-	-
Loctite 262	Liquid	Medium to High	Not tested	Y	N-7649		60% (30%)	99% (45%)	72+ hrs	-	-
Loxeal 58-10	Liquid	Medium		Y	Cleaner 10	40% (20%)	99% (50%)	99% (50%)	36 hrs	-	-
Loxeal 58-11	Liquid	Medium		Y	Cleaner 10	5% (5%)	75% (50%)	99% (65%)	168 hrs	WRAS **WM**	DVGW AGA
Loxeal 83-50	Liquid	High	Up to 3/4"	Y	Cleaner 10	8% (15%)	90% (50%)	95% (50%)	168 hrs	WRAS	DVGW
Loxeal 85-86	Liquid	High	Up to 2”	Y	Cleaner 10		75% (35%)	99% (45%)	168 hrs	WRAS	DVGW
Loxeal 86-21	Paste	High	Up to 2”	Y	Cleaner 10	Func	90%	99%	36 hrs	-	-
Weiconlock AN 305-11	Paste	Medium	Up to 3”	Y					10 hrs	DVGW	DVGW
Weiconlock AN 305-72	Paste	Medium		Y					10 hrs	DVGW	DVGW AGA
Weiconlock AN 305-77	Paste	Medium	Up to 3”	Y	Cleaner S	15%	99% (55%)	99% (55%)	6 hrs	DVGW	DVGW AGA WRAS
Weiconlock AN 302-60	Paste	High	Up to 3/4"	Y	Cleaner S	15%	99% (55%)	99% (55%)	12 hrs	-	-
Weiconlock AN 305-86	Paste	High	Up to 2”	Y					24 hrs	-	-

Y= Yes. N= No. Func= Functional. Values at 22°C working temperature. No data does not indicate acceptable.
AGA= Australia Gas Association; DVGW= German Technical & Scientific Association for Gas & Water;
WM= WaterMark; WRAS= Water Regulations Approval Scheme (UK)

Note: Testing is often in comparison with ‘steel’ for strength shown in brackets (%) above. Confirm with manufacturer for current recommended installation and product data sheet before use.