



Chibro Press Fit Stainless Steel Pipe and Fittings

Data Sheet

General Information

The Chibro Press Fit Pipe system permits the installation of a metal piping system in a reliable and economic way. The system allows for the pressing of various types of fittings on to various pipe sizes, without the need for any welding or threading. The fittings are pressed using a portable pressing tool slightly larger than a cordless drill, which will press all pipe sizes with head changes required. The various pipe diameters range from 15mm to 108mm (1/2" to 4") where this system has been proven to be suitable in many commercial, industrial, marine and military applications.

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Material, Sizes and Pressures

The Press Fit system comes in the following materials

1. AISI SS316L – Pipe and Fittings
2. AISI SS304 – Pipe only, to be used with SS316L Fittings
3. Copper Nickel 90/10 – Pipe and Fittings
4. Galvanised Steel – Pipe and Fittings



Working Pressures for Chibro SS316 Press Fit Piping System for Various Pipe (Tube) Sizes (for non-marine applications)						
Outside Dia.	Wall Thickness	Max. Working Pressure		Burst Pressures		Max. Vacuum
		psi	kPa	psi	kPa	
15	1	580	4,000	3,480	24,000	-0.95
18	1	580	4,000	3,480	24,000	-0.95
22	1.2	580	4,000	1,958	13,500	-0.95
28	1.2	362	2,500	1,958	13,500	-0.95
35	1.5	232	1,600	1,450	10,000	-0.95
42	1.5	232	1,600	1,450	10,000	-0.95
54	1.5	232	1,600	1,450	10,000	-0.95
76.1	2	232	1,600	957	6,600	-0.95
88.9	2	232	1,600	957	6,600	-0.95
108	2	232	1,600	957	6,600	-0.95

For Marine applications, max. working pressure is 1,600kPa for all pipe sizes.

Applications

The Chibro Press Fit system has been in use in Europe for more than 20 years and used in Australia for more than 8 years. The fluids that are suitable for this piping system are

- Hot and Cold Potable Water
- General Industrial and Demineralised Water
- Chilled Water
- Compressed Air
- Steam Condensate
- Sprinkler Systems
- Diesel, Oil, Fuels and other petroleum oil derivatives
- Broad Range of Chemicals
- Gases
- Vacuum

The SS316L Press Fit System is often a preferred system when used with aggressive fluids where SS welded pipe work can often have failures near the weld joints due to the heat affected zones. Like any piping system, the fluid to be transferred should be checked against the suitability of the piping material, working pressure, operating temperature, the appropriate O-ring and industry application. For specific fluids, please contact MEI to assist you in assessing the suitability of material and o-ring selection.



O-Ring Information and Temperature Range

The O-ring in the Press Fit piping system is used to provide a seal under pressure and vacuum. Press Fit fittings can be supplied with any one of the four types of O-ring :

Black EPDM O-ring – This O-ring is black in colour and is an ethylene propylene diene monomer (M-class) rubber. This is the standard O-ring supplied by MEI and is suitable for a wide range of applications, such as air, various grades of water, including potable water, certain chemicals and gases. This O-ring is not suitable for liquids that have petroleum or oil derivatives. This O-ring has an operating temperature range of -20°C to 120°C.



Green FKM (Viton) O-ring – This O-ring is green in colour and is a fluoroelastomer (FKM) rubber. This FKM rubber was originally developed by DuPont and given the, now well known, brand name Viton. However, these days FKM rubbers are manufactured by many other suppliers. Fluoroelastomers are more expensive than EPDM rubber partly because it provides additional heat resistance. This O-ring is used for high temperature applications, where this has an operating temperature range from -20°C to 160°C (peaking at 200°C).



Brown NBR O-ring – This O-ring is brown in colour and is a nitrile butadiene rubber (NBR). This O-ring is used for petroleum and oil based fluids as this form of rubber is generally resistant to oil, fuel, and other chemicals. Nitrile rubber is typically used in the automotive industry to make fuel and oil handling hoses, seals and grommets. This O-ring has an operating temperature range of -20°C to 100°C.



Yellow HNBR O-ring – This O-ring is yellow in colour and is a hydrogenated nitrile butadiene rubber (HNBR). This O-ring is used for certain gases. This O-ring has an operating temperature range from -10°C to 70°C.



The information above is generic and for specific applications please consult with MEI as one needs to consider the fluid, operating pressure, operating temperature and industry application to ensure satisfactory usage over the life of the installation.



Certificates and Approvals

The Chibro Press Fit system has been approved for potable water piping systems in Europe and in Australia. The Australian Watermark certificates are for pipes and tubes to AS5200.053-2008, Licence Number 40081 and for fittings to AS 3688-2005, Licence Number 40082.

The Chibro system is also approved for the marine industry by the following Classification Societies

Type Approval Certificates for Chibro SS316L Press Fit Piping and Fittings

- Det Norske Veritas (DNV)
- Lloyd's Register (LR)
- Bureau Veritas (BV)
- Germanischer Lloyd (GL)
- American Bureau of Shipping (ABS)
- Registro Italiano Navale (RINA)

Australian Watermark Certificate – The Chibro Press Fit Pipe and Fittings are approved to be used for potable hot and cold water, having obtained the Australian Watermark Certificates.

- WaterMark licence number 40081 – ATS 5200.053-2008 – Technical Specification for plumbing and drainage products – SS pipes and tubes for pressure applications.
- WaterMark licence number 40082 – AS 3688-2005 – Water Supply : Metallic fittings and end connectors.

The Chibro Press Fit Product also has many other potable water approvals and other certificates throughout Europe and other regions.

Fire Resistance Test – A Press Fit sample of SS316L 54mm OD was subjected to 800°C for 30 minutes with test pressure at 5 bar. The specimen was then subjected to 32 bar for 5 minutes, with no leakage detected. Test was conducted and witnessed by Lloyd's (LR), DNV, BV and GL.

The cutout sample image on the right showing the o-ring encapsulated in its housing after pressing, helps to better understand why the press fit system is a proven, reliable, leak free system, even after 800°C, and at test pressure of 32 bar.



Shock and Vibration Tests – Press Fit samples were tested, while under pressure, under low frequency vibrations and shock tests to internationally recognised military standards. The accelerometers in the shock test recorded acceleration up to 680 m/s² (g forces up to 68 times). Both tests passed and hence the use of Chibro Press Fit in European Navies, the Royal Australian Navy, as well as the 2009 build of the UK RN Aircraft Carriers.

The Certificates and Approvals gained above demonstrate that the Chibro Press Fit piping system is reliable under demanding service conditions to maintain pressure and not leak. Certificates can be forwarded on request.



Available Fittings

The Chibro Press Fit Piping system comes with all various fittings one would need for a piping installation. Some of the fittings available are

- Pipe (Tube)
- Joining Sleeves
- Elbows (90°, 60°, 45°, 30°, 15° also come in options of FF and MF)
- Pre-formed Pipework
- Reducers
- Tees
- Reduced Tees
- Tee with Threaded Branch (BSP thread)
- Adapters or Toe Nipples (BSP and some NPT)
- Adapters, Angled, 90 degrees (BSP)
- Nipples (or Threaded Bushes) (BSP)
- Unions (BSP)
- End Plugs
- Flanges - PN 10/16
- Flanges - ANSI
- Stub Ends for Loose Flanges
- Valves - Ball Valve
- Valves - Non Return Valve
- Valves - Ball Valve with Hose Connection
- Valves - Stop Valves

Joining to other Piping systems

The Chibro Press Fit system provides the capability for an installer to join from existing pipework to Press Fit piping and vice versa. The Press Fit system also permits the use of other types of valves, flanges, and other fittings to be joined to the Press Fit Piping system. The Chibro system being a European system, the sizes are in metric, where Australia predominantly uses Imperial sizes. The method of overcoming this difference in sizes is shown below.

The three joining options are

1. Thread to thread, or
2. Using a Straub coupling to join different pipe sizes, where the Metal Grip Straub coupling is rated up to 67 bar, or
3. Flange to Flange.

