



# >B< Press Stainless Steel



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## Key Features

Conex Bänninger >B< Press Stainless Steel is a versatile press fitting system for, hot and cold drinking water, heating, low pressure steam, cooling and rainwater applications providing a secure, life long, leak-proof joint.

>B< Press Stainless Steel fittings are quick to fit, providing a low cost installation solution. The slimline design gives an aesthetically pleasing finish with a secure, permanent joint that can't be tampered with.

>B< Press Stainless Steel fittings are Watermark approved and certified to AS3688.



### Designed for Australia

Developed in partnership with Reece, Conex and Rothenberger to meet specific needs of Australian plumbers.



### Tool Service Support

To ensure optimal performance, your Rothenberger press tools can be serviced through the Reece Tool Service Department.



### Extensive testing

>B< Press fittings undergo rigorous internal testing to ensure they meet Australian standards and piping tolerances.



### Training and Certification

Reece supports you with training and certification as well as expert advice whenever you need it.

### Flame free

Flame free installation takes away risk of fire on site.



### Reliable simplicity

Simple, quick and reliable installation provides low installed cost.



### Performance

Corrosion resistant and with a design life of 50 years, >B< Press can be relied on to perform long after installation.



### Permanent joint

Secure, permanent joint crimped both sides of deep set O-ring ensures fitting cannot be tampered with.



### Practical by design

Lead-in edge aids installation and helps protect O-ring from damage or displacement.



### Leak Indicator

The unique pressing indicator in the O-ring shows leaks at low pressures when fittings are not pressed.



# 1. General

>B< Press Stainless Steel is a quick and simple to install flame-free fitting, manufactured using high quality hygienic stainless steel material, suitable for multiple applications. >B< Press Stainless Steel is designed with a unique and innovative 3-point press system to ensure a leak-free, secure and permanent joint.

## 1.1 Approvals and Certification

**IAPMO R&T OCEANA**  
1040 Dandenong Road, Carnegie VIC 3163 AUSTRALIA



IAPMO R&T Oceana is a product certification body which inspects and arranges for the independent laboratory testing of samples taken from the manufacturer's stock or from the market or a combination of both, to verify compliance of the requirements of applicable Standards and Specifications. This activity is coupled with periodic surveillance of the manufacturer's factory and any major subcontractor's site/s as well as the assessment of the manufacturer's Quality Assurance System. This certification is subject to the conditions set forth in the characteristics below and is not to be construed as any recommendation, assurance or guarantee by IAPMO R&T Oceana of the product acceptance by Authorities Having Jurisdiction.

## WATERMARK LICENCE

WaterMark Level 1

*IAPMO R&T Oceana hereby grants to:*

**Conex Universal Limited**

95 Vantage Point, The Pensnett Estate, Kingswinford, West Midlands, UNITED KINGDOM, DY6 7FT

the right to use the WaterMark in accordance with the "Procedures for Certification of Plumbing and Drainage Products - WaterMark Technical Specification" and the Plumbing Code of Australia only in respect of the certified product as described in the attached WaterMark Schedule. The Licence is granted subject to the rules governing the Watermark Certification Scheme and the Terms and Conditions for WaterMark Certification.

*Evaluated to:*

**AS 3688 Water Supply - Metallic fittings and end connectors**

*Manufacturer:*

**Refer to Licence Holder**

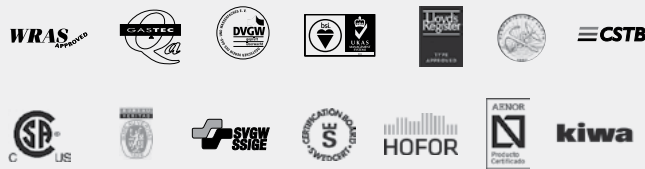
<b>Licence No.:</b> WM-022197 <small>(Certificate of Certification No.: IAPMO-WM-022197-102-R02)</small>	<b>Certified Date:</b> 17 November 2011
<b>Issue Date:</b> 12 June 2018	<b>Expiry Date:</b> 16 November 2021

  
\_\_\_\_\_  
Chief Executive Officer of the IAPMO Group

This WaterMark certification is for the period indicated herein and is void after the date shown above. Any change in material, manufacturing process, marking or design without having first obtained the approval of IAPMO R&T Oceana, or any evidence of non-compliance with applicable Standards, Specifications or of inferior workmanship, may be deemed sufficient cause for revocation of this certification. Reproduction of or reference to this certificate for advertising purposes may be made only by specific written permission of IAPMO R&T Oceana. Any alteration of this certificate could be grounds for revocation of this certification.

## Certification

Conex Bänninger is an ISO 9000 Quality assured company. In addition to Watermark approvals in Australia, Conex Bänninger has approvals from numerous national and international bodies including DVGW, KIWA, GASTEC, WRAS and AENOR, plus many well-known others.



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## 1.2 Materials

>B< Press Stainless Steel fittings are made from solution-treated molybdenum-steel 316L (EN 10088 ref: 1.4401). These fittings are type tested in accordance with AS 3688 and certified under the Watermark scheme.

## 1.3 Threads

All of our >B< Press threaded fittings comply with EN 10226-1 (ISO 7-1) and are 'thread sealing' (mating conical male thread R / cylindrical female thread Rp).

## 1.4 Sealing Elements

High quality black elastomer EPDM with a hardness of 70 Shore is used for the sealing elements (O-rings) of our >B< Press Stainless Steel fittings. The sealing elements we use comply with the requirements of AS/NZS 4020 for use within drinking water systems.

EPDM (ethylene propylene diene monomer) is a synthetic, peroxide-cured rubber. It is age, ozone and chemical resistant with high elasticity, and excellent cold and heat behaviour.

## 1.5 Processing and Assembly

When using >B< Press Stainless Steel fittings, the application parameters in chapter 2 must be observed. >B< Press Stainless Steel fittings can be used with all stainless steel tubes that comply with AS 5200.053 Series 2.

The use of different materials in a drinking water system must comply with the appropriate codes of practice.

In the design and creation of tube systems the standard engineering practices for drinking water installations must be adhered to and observed.

## 1.6 Storage and Handling

For the storage and transportation of >B< Press Stainless Steel tubes and fittings, it is advisable to leave the fittings in the packaging to conserve the lubrication of the O-rings prior to installations.

Please store in a cool and dry place to protect the fittings from contamination, damage and dirt.

## 1.7 Tube Compatibility

>B< Press Stainless Steel fittings can be used on stainless steel tubes manufactured to AS 5200.053 Series 2.

## 1.8 Electrical Continuity

>B< Press Stainless Steel fittings maintain earth continuity without the need for additional continuity straps.

## 1.9 Recommended Water Velocities

Please note the maximum allowances for water velocities are per the relevant national standards and codes, which includes AS/NZS 3500.

## 1.10 Warranty

A 25 year warranty covers against faults caused by defective manufacture of the fittings. It does not cover faults arising from incorrect installation.

The warranty does not cover any faults arising from competitor fittings used on the same installation nor faults caused by damaged >B< Press fittings (through excessive pressure, for example) where competitor fittings created non-compliant conditions. All >B< Press fittings must be installed by a licensed plumber.

## 2: Areas of Application

Conex Bänninger >B< Press Stainless Steel fittings are suitable for use in the following applications: hot and cold drinking water, heating, low pressure steam, cooling and rainwater systems.

Application	Comments	Pressure kPa	Temperature °C
Hot and cold potable water	Australian Watermark approved. Watermark certification for all plumbing products is restricted to 1400kPa at 95°C	1600	110
Fire services	Capable of the required test pressure of 1700kPa or 1.5 times the design pressure as specified by AS 2419.1	1600	110
Rainwater	n/a	1600	Ambient
Pump circulated hot water systems	Compliant with EN 12828	1600	110
Chilled water	n/a	1000	5
Steam	Low pressure steam equipment	≤100	120
Industrial and process water	Treated, softened, partially and fully desalinated water and water treated by reverse osmosis	1000	95
		1600	25
Vacuum lines for non-medical purposes	n/a	-80	Ambient
Compressed air (Oil-free)	Compressed air classes 1 - 3 in accordance with ISO 8573-1 1000 30	1000	30

**Not suitable for: Aromatic, aliphatic and chlorinated hydrocarbons, turpentine, petroleum and mineral oils.**



## 3. Thermal Expansion

### 3.1 Effects of Expansion

The coefficient of linear expansion for stainless steel is  $16.0 \times 10^{-6}$  per °C. For example, a 10m length of stainless steel tube, irrespective of its size, wall thickness or temper, will increase in length by 9.6mm with a temperature rise of 60°C. Tubes installed on hot water services must be free to accommodate this expansion; otherwise stresses will build up in the pipework, which may lead to joints being pulled apart and/or tubes fracturing. Clearly the magnitude and frequency of such changes in length will determine the life of the joint or failure of the tube.

Table 3.2 shows the amount of tube expansion for a given temperature rise. In the case of tube in domestic hot water and heating installations the limited size of rooms and hence straight tube runs, together with the many bends and offsets that normally occur, will result in thermal movement being accommodated automatically. However, where long straight tube runs, exceeding 10m, are encountered, allowance for expansion should be made.

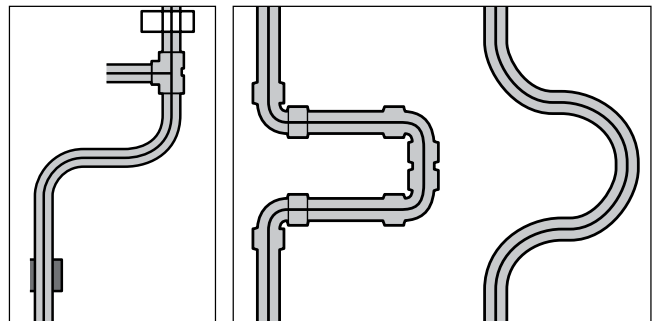
A quick, economic and effective way of accommodating thermal expansion is to simply incorporate the horseshoe or compensating bend to the system design.

Where stainless steel tubes pass through walls, floors and ceilings, they should be able to move as a result of expansion and contraction. This can be arranged by passing the tube through a sleeve or length of larger diameter tube fixed through the whole thickness of the wall, floor or ceiling, or by means of flexible joints on either side of the wall.

Short stubs to and from radiators, connected to relatively long straight runs should also be avoided. This can usually be achieved by introducing an expansion loop, thereby increasing the length of pipework fixed between the flow/return legs and the radiator connection. However, expansion accommodation techniques such as the use of loops and horseshoes may not be sufficient to accommodate large expansions and in such cases the use of the bellows type couplers may be necessary.

### 3.2 Expansion Devices

Table 3.2



By change of direction Horseshoe or compensating bend

Thermal expansion (mm) of stainless steel tube as a function of tube length and temperature difference.

The table below shows the increase in length due to thermal expansion as a function of change in temperature  $\Delta t$  and the length of the tube at the lower temperature, irrespective of temper or wall thickness.

Tube Length m	Temperature difference $\Delta t$ °C							
	$\Delta t=30^\circ$	$\Delta t=40^\circ$	$\Delta t=50^\circ$	$\Delta t=60^\circ$	$\Delta t=70^\circ$	$\Delta t=80^\circ$	$\Delta t=90^\circ$	$\Delta t=100^\circ$
0.1	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.16
0.2	0.10	0.13	0.16	0.19	0.22	0.26	0.30	0.32
0.3	0.14	0.20	0.24	0.30	0.34	0.40	0.43	0.50
0.4	0.20	0.26	0.32	0.40	0.45	0.50	0.60	0.64
0.5	0.24	0.30	0.40	0.50	0.56	0.64	0.72	0.80
0.6	0.30	0.40	0.50	0.58	0.67	0.77	0.86	0.96
0.7	0.34	0.45	0.56	0.67	0.80	0.90	1.01	1.12
0.8	0.40	0.50	0.64	0.77	0.90	1.02	1.15	1.30
0.9	0.43	0.57	0.72	0.86	1.01	1.15	1.30	1.44
1.0	0.50	0.64	0.80	0.96	1.12	1.30	1.44	1.60
2.0	0.96	1.30	1.60	1.92	2.24	2.60	2.90	3.20
3.0	1.44	1.92	2.40	2.90	3.40	3.84	4.32	4.80
4.0	1.92	2.60	3.20	3.80	4.50	5.12	5.76	6.40
5.0	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00
10.0	4.80	6.40	8.00	9.60	11.20	12.80	14.40	16.00
15.0	7.20	9.60	12.00	14.40	16.80	19.20	21.60	24.00
20.0	9.60	12.80	16.00	19.20	22.40	25.60	28.80	32.00
25.0	12.00	16.00	20.00	24.00	28.00	32.00	36.00	40.00

## 4. Corrosion Resistance

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### 4.1 Internal Corrosion

Within a stainless steel pipework system a passive layer, mostly formed from chromic oxide is created upon contact with oxygen or oxygenated water (i.e. drinking water). This layer restricts corrosion from occurring and provides high levels of hygiene, durability and water quality.

If there are chloride levels above those deemed acceptable, a breakdown of the passive layer may occur allowing corrosion to occur in the form of, pitting, crevice or stress corrosion. The established view is that crevice corrosion rarely occurs on grade 316 steel where the concentrations of chloride are under 1000ppm in supply and waste water systems.

It has also been proved that crevice and pitting corrosion increases with temperature, however for drinking water systems everyday temperatures and chloride levels should not be a problem. Please note the NHMRC/ARMCANZ guidelines (Australian Drinking water guidelines). On the other hand borehole water may have increased levels of chlorine meaning more care should be taken to make sure levels are within the tolerable range.

#### 4.1.1 Disinfection and Sterilisation

For the sterilisation process, chlorine of concentrations up to 25ppm during a 24 hour period is acceptable, providing that the lines are

comprehensively flushed with fresh water and that residual chlorine is restricted to <1ppm. It is recommended that this is verified by analysis.

### 4.2 External Corrosion

External corrosion of stainless steel pipework is likely to occur when exposed to high levels of chloride. >B< Press Stainless Steel fittings should not be installed in this situation. However, if there are parts of the system where this is unavoidable, appropriate precautions must be taken to minimise the risk.

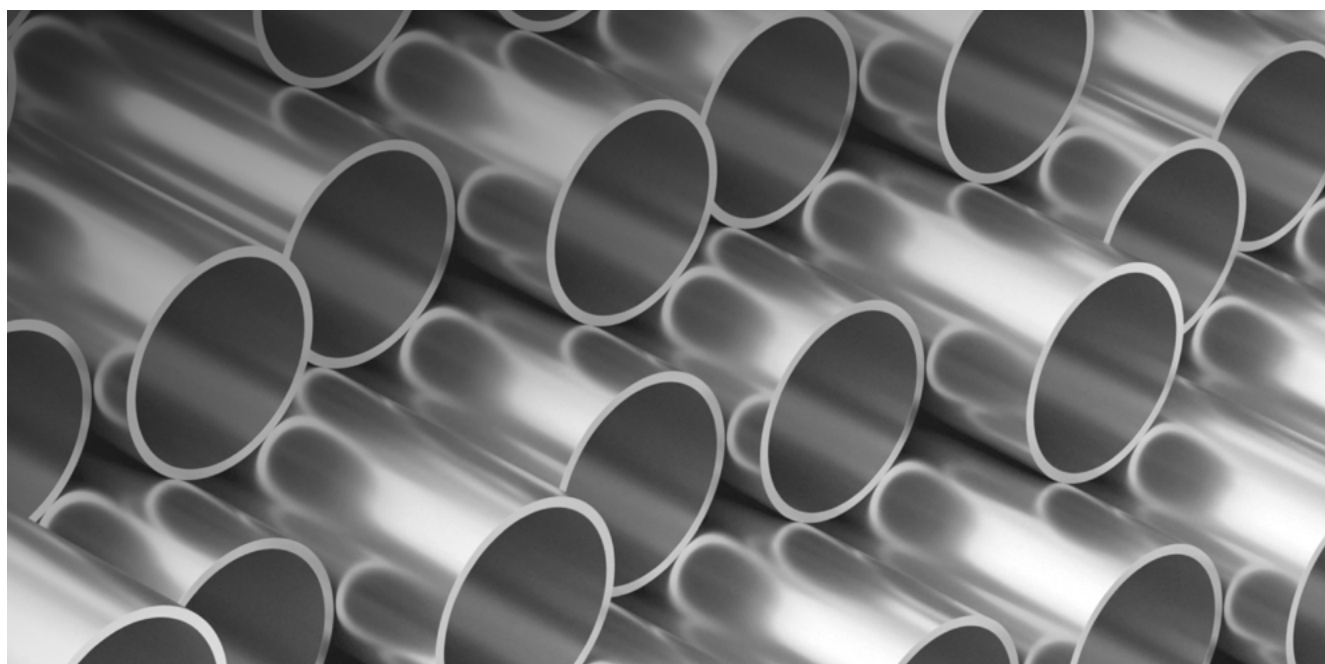
### 4.3 Thermal Insulation

The thermal insulations of tubes should be implemented in accordance with national codes and standards including AS 4426.

### 4.4 Connecting to other materials

Stainless steel, copper and copper alloys can easily be combined without the risk of corrosion.

Please note carbon steel should not be directly connected to stainless steel as this will cause corrosion. A spacer connector of brass material should be used to separate the two dissimilar materials by at least 50mm. Flow of water should be in the direction from carbon steel to stainless steel and not visa versa.





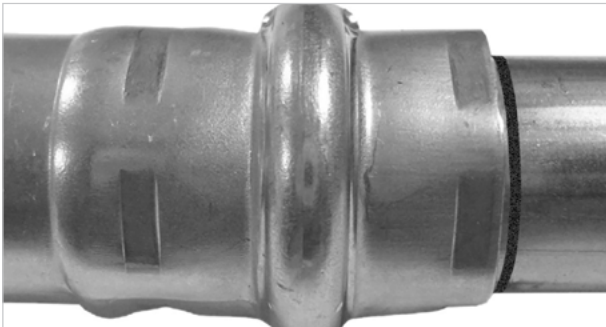
## 5. Fitting Construction

>B< Press Stainless Steel fittings are made with a 3-point pressing contour. The design incorporates a cylindrical press on the seal plus two hexagonal presses, one either side of the bead.

This 3-point press feature enables a quick and safe installation process. To fit correctly it is important to ensure that the tube is parallel to the fitting before contact with the O-ring. This reduces the chance of damage to the O-ring during assembly.

All our >B< Press Stainless Steel fittings have a 'unique pressing indicator' that detects un-pressed connections.

>B< Press Stainless Steel fittings are specifically designed with a high-quality EPDM seal, with a specially designed section in two positions, which allows leakage if the joint has not been pressed.



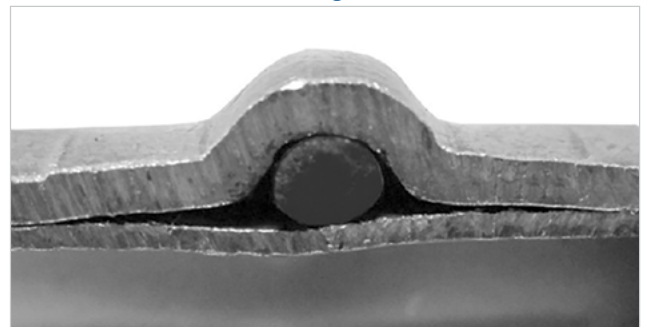
The joint will leak at a pressure between 10 to 600 kPa. Any unpressed joints can be identified during the test phase and corrected saving valuable time. There is no need to drain down as the pressing operation can be carried out whilst the water is still in the system. When the fitting is pressed, the O-ring material compresses to form a permanent, leak free joint.

For a guaranteed leak free joint please use our approved and recommended pressing jaws. See section 6.

>B< Press Stainless Steel fittings are installed with a mechanical press tool. A compatible >B< profile jaw to fit each size of fitting is required. When force is exerted through the press tool the jaw closes to make a permanent joint.



Patented >B< Press O-ring



>B< Press contour section

### 5.1 Commissioning of >B< Press Stainless Steel Installations

After installation, it is essential to flush the system with water to remove dust and debris in accordance with AS/NZS 3500.

Stainless steel tubes can be disinfected with hydrogen peroxide H<sub>2</sub>O<sub>2</sub>, although disinfection with chlorine is possible providing correct guidelines are used. For more details please visit [www.conexbanninger.com](http://www.conexbanninger.com)

Stainless steel piping must be protected from external contact with chloride-containing building materials and other aggressive media. In such cases, subsequent corrosion protection in accordance with EN 12068 should be provided. Please note it is advised that corrosion protection binding and/or exposure to class A or B heat-shrinkable tubing guidelines must be adhered to.

## 6. Tools 15-54mm

Conex Bänninger recommends the use of Rothenberger press tools.

### Romax® Compact TT

Applications sizes: 15-28mm >B< Press Stainless Steel Fittings



- Compact, lightweight, twin cylinder design – optimised for one hand operation.
- CFT® - Technology for constant axial 19kN shearing force.
- Safety latch to ensure jaw cannot come out during operation.
- Easy to use LED status indication – flashing red when battery charge is low and will lock the machine, remains ON when tool has reached 40,000 cycles of use and requires servicing.
- Simple & safe operation design – hold start button – tool automatically stops once press cycle is complete.
- Safety yellow button – press to release pressure and stop press cycle.
- Convenient 40,000 cycle interval between service requirements.
- Head positioning up to 270° rotation – easy fitting in difficult locations.
- Li-Ion battery technology – long lasting operation between charges.
- Patented AIRCOOLED charging technology

#### Specifications Romax compact TT

Battery Voltage – 18V

Battery capacity – 2Ah and 4 Ah

Max Piston Force – 19kN

Pressing time – 3 seconds

Dimensions (LxWxH) – 8cm x 14.3cm x 33.6cm

Weight (Less Jaws) – 2.5kg

Working Range:

- S/S Systems 15 – 28mm

Typical A-rate noise level – 71dB(A)

Battery re-charge time periods

- 2Ah = 40 minutes
- 4Ah = 80 minutes

# Romax® 4000

Applications sizes: 15 – 54mm >B< Press Stainless Steel Fittings



- Ergonomically designed and better weight distribution compared to the 3000 – reducing fatigue during extended use.
- Wide application range.
- Fast pressing – automatic cycle complete in 4 seconds.
- Easy to use LED status indication – flashing red when battery charge is low and will lock the machine, remains ON when tool has reached 40,000 cycles of use and requires servicing.
- Bright white - light LED's to illuminate work space during pressing cycle.
- Simple and safe operation design – hold start button – tool automatically stops once press cycle is complete.
- Safety yellow button – press to release pressure and stop press cycle.
- Long 40,000 cycle interval between service requirements.
- Head positioning up to 270° rotation – easy fitting in difficult locations.
- Li-Ion battery technology – long lasting operation between charges.

## Specifications Romax 4000

Battery voltage – 18V
Battery capacity – 2Ah and 4Ah
Rated power consumption – 540 Watts
Max piston force – 32kN
Pressing time – 4 secs (nominal)
Dimensions (LxWxH) – 447x125x75mm
Weight (less jaws) – 3.54 kg
Working Range: S/S Systems 15 – 54mm
Typical A-rate noise level – 71dB(A)
Battery re-charge time periods <ul style="list-style-type: none"><li>• 2Ah = 40 minutes</li><li>• 4Ah = 80 minutes</li></ul>

## 6.1 Critical operating instructions - Tool and Jaw

Only operate the Rothenberger press tool and jaws as per instructions in your 'User Operating Manual, Instructions for Use'. Proper usage includes compliance with the operating manual, inspection and servicing conditions and adherence to all relevant safety regulations. The equipment must only be used by qualified trades persons that have a trained understanding on how to use the press tool and jaw system properly. Failure to do so will lead to safety risk, poor workmanship, and incorrect use of the press and jaw that is not covered under warranty. Only use Rothenberger press tools and jaws with compatible press fittings that have been tested and approved by Rothenberger and associated fitting and pipe manufacturers (>B< Press).

- Always start with a safety check, reminding yourself of the yellow emergency stop button to deactivate a press cycle.
- Charge battery fully before first use for optimal number of 'presses per charge'.
- LED flashes red to indicate when you have a flat battery.
- Insert battery correctly until it clicks into place and LED light flashes briefly to indicate contact made.
- Insert press jaw and close bolt down correctly. Only use the correct jaw to fitting combination.
- Open the jaw by squeezing from the base of the jaw NOT the front tip (it can crush your fingers!).
- Place jaw squarely on fitting. Align with bead.
- Engage the start button for a full press cycle. Activate the press tool and jaw only on a fitting.
- Take the time to ensure the correct pipe preparation – cut pipe square, deburr, remove sharp edges and mark insertion depth. These pipe prep steps are critical for a correct press and quality workmanship.
- Follow all installation instructions supplied by the fitting and pipe manufacturers. Imperfect pipe joints must only be pressed again using a new fitting, DO NOT re-press the same fitting.
- During the press cycle, visually check that the press jaw fully closes at the end of the press cycle.
- After pressing, check the installation with appropriate testing equipment and ensure it is leak proof.

## 6.2 Maintenance Instructions

**Tools – Always clean, grease and store in a dry case**

Rothenberger tool is one of the lightest and most ergonomic designed tools that delivers the most consistent press force (CFT® - Constant Force Technology) with regular maintenance and service it generates up to 1.9 tonnes (Romax Compact) and 3.2 tonnes (Romax 3000) of force in your hand, so it requires regular care and maintenance.

- Clean, grease the piston ram and drive rolls ALWAYS after every use to maintain performance especially the internal guide rail OR all the 'moving metallic parts'.



- Watch heavy water areas. Do not expose power tools to rain or wet conditions. Always store in case.
- Ensure the jaw locking bolt is closed correctly by fully inserting the bolt through the jaw and rotating the bolt arm down 180 degrees.



- Please note, the bolt is only secured when fully inserted and rotated into the downward position.
- Clean contact points on battery and only store battery in a charged state, plus it's always ready for use.



- Do not force the press tool – it will do the job better and safer at the rate for which it was designed.
- Accidents are caused by poorly maintained press tools and jaws. Take the time to maintain properly.

### 6.3 Press Jaws – Cleaning and Storage

- Jaws must ALWAYS be cleaned after every use. Keep the inside jaw profile free of any grease and grit.
- Jaws must be maintained with liquid lubricant spray. Always store in case.



### 6.4 Servicing and Warranty - Tool and Jaw

Rothenberger prides itself on leading edge design, the highest quality, and leading after-sale service support. With ownership of your Rothenberger tool comes our commitment to support you. We

want to help you 'look after your tool', so you don't compromise your reputation. Only have your press and jaws inspected and serviced by a qualified Rothenberger Service Centre for high performance and safety.

- Quick Fix™ is the Rothenberger 'After Sales and Service' repair process across Australia and New Zealand.
- Comprehensive spare parts are readily available locally to support your Rothenberger tool and jaws.
- Jaws will also be checked at the annual service interval for any damage, defects and general wear and tear that could affect the press performance or safety.

### 6.5 Warranty Coverage

- After 1 year or 10,000 presses (Romax Compact) or 20,000 presses (Romax 3000), the LED lights up red after each press.
- A press cycle count will be made as part of your annual tool and jaw servicing and report.
- If a serial number sticker is damaged the warranty will be null and void.
- The warranty does not cover damage caused by incorrect use of the equipment.
- Tool 3 years, only with regular 1 year or cycle count servicing (like servicing your car!).
- Battery 12 months, jaws 12 months.

### 6.6 Service and Warranty Process – Quick Fix™

- Return your Rothenberger press tool and jaw set to your local branch or call Rothenberger Customer Service (Toll Free) on 1800 186 657.
- Your details and serial number of your tool will be logged for a service and pick up quickly arranged.
- Expect 3-5 days (parts dependant) for your service and tools returned to you, or your local branch.
- Live status updates will be emailed and sent via text message to you and your local branch.
- Any additional repair work beyond the normal annual service will be quoted prior to commencement.



## 7. Loss Coefficients

Symbol	Designation	$\zeta$	Application	
			DW	H
	Angle or elbow reference value in accordance with DIN 1988 T3	0,70	X	X
	Angle 90° r/d (r/d = 1,2 with fittings complying with DIN EN 1254)	$\begin{matrix} = 0,5 & 1,0 \\ = 1,0 & 0,35 \\ = 2,0 & 0,20 \\ = 3,0 & 0,15 \end{matrix}$	$\begin{matrix} X \\ X \\ X \\ X \end{matrix}$	$\begin{matrix} X \\ X \\ X \\ X \end{matrix}$
	Angle $\beta = 90^\circ$ $\beta = 60^\circ$ $\beta = 45^\circ$	$\begin{matrix} 1,3 \\ 0,8 \\ 0,4 \end{matrix}$	$\begin{matrix} X \\ X \\ X \end{matrix}$	$\begin{matrix} X \\ X \\ X \end{matrix}$
	Crossover	0,5	X	X
	Branch, square flow separation	1,3	X	X
	Flow merging	0,9	X	X
	Clearance at flow merging	0,3	X	X
	Clearance at flow merging	0,6	X	X
	Counter-flow at flow merging	3,0	X	X
	Counter-flow at flow separation	1,5	X	X

Symbol	Designation	$\zeta$	Application	
			DW	H
	Distributor outlet	0,5	X	X
	Collective inlet	1,0	X	X
	Reservoir outlet	0,5	X	
	Inlet	1,0	X	X
	Reducer	0,4	X	X
	Constriction $\beta$ - constant =	$\begin{matrix} 30^\circ & 0,02 \\ 45^\circ & 0,04 \\ 60^\circ & 0,07 \end{matrix}$	$\begin{matrix} X \\ X \\ X \end{matrix}$	$\begin{matrix} X \\ X \\ X \end{matrix}$
	Expansion $\beta$ - constant =	$\begin{matrix} 10^\circ & 0,10 \\ 20^\circ & 0,15 \\ 30^\circ & 0,20 \\ 40^\circ & 0,20 \end{matrix}$	$\begin{matrix} X \\ X \\ X \\ X \end{matrix}$	$\begin{matrix} X \\ X \\ X \\ X \end{matrix}$
	Expansion bends	1,0	X	X
	Compensator	2,0	X	X
	Compensator	2,0	X	X



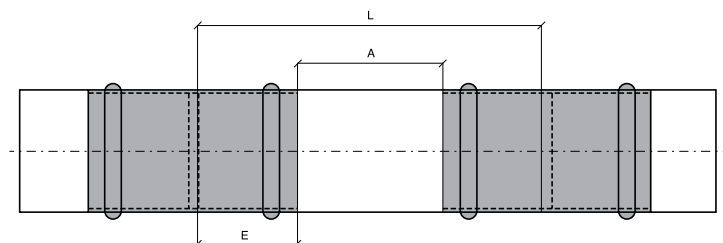
Symbol	Designation	$\zeta$	Application	
			DW	H
	Branch, curved flow separation	0,9	X	X
	Flow merging	0,4	X	X
	Clearance at flow separation	0,3	X	X
	Clearance at flow merging	0,2	X	X
	Angle valves DN 10 DN 15 DN 20 to DN 50 DN 65 to DN 100	7,0 4,0 2,0 3,5 4,0	X X X X X	X X X X X
	Diaphragm valves DN 15 DN 20 DN 25 to DN 32 DN 40 to DN 100	10,0 8,5 7,0 6,0 5,0	X X X X X	X X X X X
	Shutter valves Piston valves Ball valves DN 10 to DN 15 DN 20 to DN 25 DN 32 to DN 150	1,0 0,5 0,3	X X X	X X X
	Radiator valves	4,0		X
	Control valve	2,0		X
	Pressure regulator fully open	30,0		X

Symbol	Designation	$\zeta$	Application	
			DW	H
	Shut-off valve Straight seat valve DN 15 DN 20 DN 25 DN 32 DN 40 to DN 100	10,0 8,5 7,0 6,0 5,0	X X X X X	X X X X X
	Angle seat valve DN 15 DN 20 DN 25 to DN 50 DN 65	3,5 2,5 2,0 0,7	X X X X	X X X X
	Return flow inhibitor DN 15 to DN 20 DN 25 to DN 40 DN 50 DN 65 to DN 100	7,7 4,3 3,8 2,5	X X X X	
	Control valve with return flow inhibitor DN 20 DN 25 to DN 50	6,0 5,0	X X	
	Valve tapping sleeve DN 25 to DN 80	5,0	X	
	Boiler	2,5		X
	Heating radiator	2,5		X
	Panel radiator	3,0		X

## 8. Installation Requirements

### 8.1 Installation Dimensions

Due to the reforming of the tube profile when pressed, it is advised that a minimum distance is allowed between each fitting.



Size	Nominal External Ø Tube	Minimum distance	Minimum tube length	Insertion depth
	mm	A - mm	L - mm	E - mm
15	15	10	54	22
22	22	20	66	23
28	28	20	68	24
35	35	25	79	28
42	42	30	102	36
54	54	35	116	41

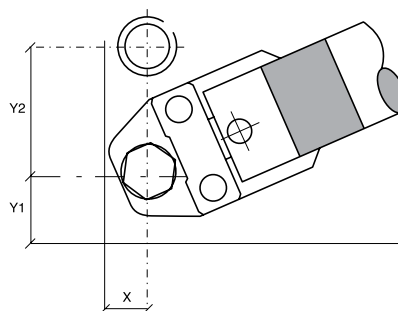
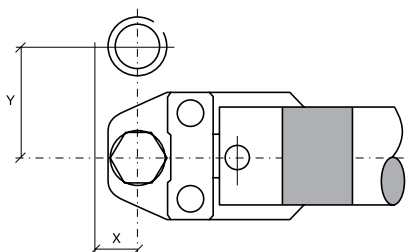
### 8.2 Tube Dimensions

**Table 1** - AS 5200.053 Series 2.

Dimensions of light gauge stainless steel tubes - Series 2

Specified outside diameter D	Specified wall thickness T	Tolerance on T
Size mm	mm	mm
15,0	1,0	± 0,10
18,0	1,0	± 0,10
22,0	1,2	± 0,10
28,0	1,2	± 0,10
35,0	1,5	± 0,10
42,0	1,5	± 0,10
54,0	1,5	± 0,10

### 8.3 Minimum Tool Access



Space required for the pressing process between tubes		
External tube	X	Y
Size mm	mm	mm
15	26	53
22	26	56
28	33	69
35	33	73
42	75	115
54	85	120

Space required for the pressing process between tubes			
External tube	X	Y1	Y2
Size mm	mm	mm	mm
15	31	45	73
22	31	45	76
28	38	55	80
35	38	55	85
42	75	75	115
54	85	85	140

## 9. Tube Preparation

Correct tube preparation is essential for problem free installation, just follow these straightforward guidelines.

Incorrect tube preparation can damage the O-ring and cause the fittings to leak.

Note: Grinding wheels and hacksaws are not suitable for cutting the tube. If the tube ends become distorted, remove the damaged section using the appropriate cutting method.

When preparing tube ensure that the tube is correctly supported and eye protection is worn.

If using power tools, great care must be taken. Refer to manufacturer instructions before use.

### Sizes 15mm-54mm

#### 9.1 Tube Cutting

Cut the tube square using a rotary tube cutter. We recommend using the Rothenberger stainless steel tube cutter, a suitable tube cutting machine with the correct cutting wheel.



Cut tube ends should be clean and free from scratches with no sharp edges.



Domed



Sharp edge

#### 9.2 Tube Deburring

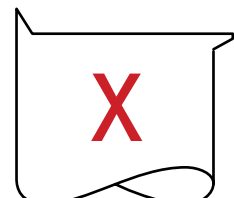
Make sure that the internal and external tube end are free from burrs or sharp edges.



If a deburrer is not available then a fine file can be used to remove the sharp edges.



Chamfer



Burrs

## 10. Installation Guide

It is advisable to leave the fittings in the packaging prior to final installation to protect them from contamination and to conserve the lubrication of the O-rings. Please note the space required for pressing tools (see section 8).

To install >B< Press Stainless Steel fittings, a Rothenberger Romax mechanical tool with a compatible sized jaw to fit is required (see section 6). When force is exerted through the press tool a permanent joint is made and the fitting cannot be disassembled or reused.

Hot bending of stainless steel tubes is not allowed as it will adversely affect the composition of the stainless steel, compromising performance.

Stainless tubes up to and including 28mm must be cold bent with suitable bending tools. Larger size tubes are not to be bent. A bending radius, measured in the neutral axis of the bend, of at least  $R = 3.5D$  is to be maintained, where R is the radius and D is the tube diameter.

It is to be ensured that, after bending, a sufficiently long, straight cylindrical tube piece is available for further processing.

### 10.1 Cutting the tube to length



We recommend you use a Rothenberger stainless steel tube cutter. It is important to ensure that the tube is cut completely square. Tube ends should be clean and free from scratches not less than the socket length. Check the tube has retained its shape.

**NOTE:** The tube cutter shall not have been used for cutting carbon steel/

### 10.4 Mark the insertion depth



The tube must be fully inserted into the fitting until it reaches the tube stop in order to make a perfect joint. Marking insertion depth will ensure that any tube movement is detected, which is especially important if the joints are to be pressed at a later time.

**NOTE:** Do not measure the socket depth but push the tube into the fitting then mark the tube.

### 10.2 Removing the burrs



**ferrous metals.** Failure to ensure this may result in a corrosion failure point.

Make sure that the internal and external tube end is free from burrs or sharp edges by using a deburring tool to prevent damage to the O-ring. Then wipe the tube end clean to avoid damaging the O-ring on tube insertion.

### 10.5 Assembling the tube and fitting



To assemble the joint, the tube must be inserted into the fitting up to the tube stop. (Use the mark on the tube which was made earlier as reference). The pressing operation should only be undertaken when the tube reaches the tube stop (see section 8).

### 10.3 Checking the fitting



Inspect the fitting, checking the O-ring(s) are present and correctly seated and that the fitting is the correct size for the tube.







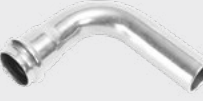






### 10.6 Complete the joint with the press tool


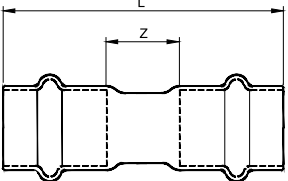



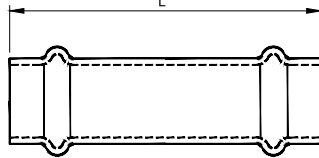
Ensure that the correct size jaw for the fitting is inserted into the tool. The jaws must be placed square on the fitting. Depress the trigger/button to begin the compression cycle of the tool. This is complete when the mouth of the fitting is fully enclosed by the jaws. Now release the jaws from around the fitting. (For further information refer to complete Romax instructions.)


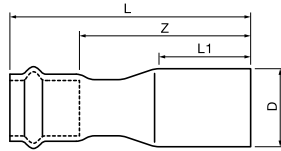
**NOTE:** The >B< Press Stainless Steel joint is complete after one complete compression cycle of the tool. Do not crimp any >B< Press Stainless Steel fitting more than once.


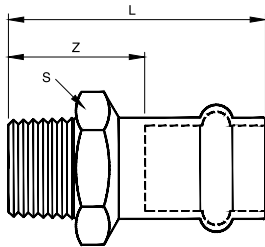
# 11. Product Range


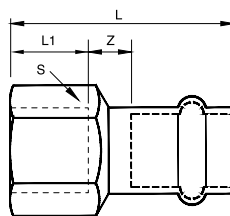
<b>Straight Connector</b>	<b>Slip Coupling</b>	<b>Fitting Reducer</b>	<b>Male Coupling</b>	<b>Female Coupling</b>
				
<b>90° Elbow</b>	<b>90° Elbow - Male and Female</b>	<b>45° Elbow</b>	<b>45° Elbow - Male and Female</b>	<b>90° Elbow - Male</b>
				
<b>Tee</b>	<b>Reducing Tee</b>	<b>End Cap</b>		
				


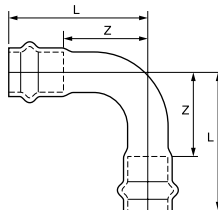
Straight Connector		Dimension			
		D1	L	Z	Product code
		15	54	10	1117978
		22	56	10	1117980
		28	58	10	1117981
		35	66	10	1117982
		42	87	15	1117983
		54	98	16	1117984


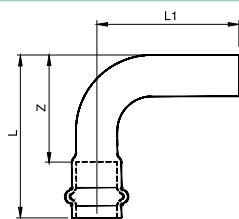
Slip Coupling		Dimension		
		D1	L	Product code
		15	80	1117863
		22	85	1117865
		28	95	1117866
		35	105	1117867
		42	120	1117868
		54	135	1117869


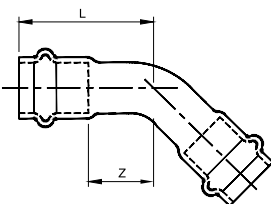
Fitting Reducer		Dimension					
		D1	L	L1	Z	D	Product code
		22 x 15	70	30	48	22	1117965
		28 x 15	77	31	55	28	1117967
		28 x 22	90	34	67	28	1117969
		35 x 28	72	34	48	35	1117972
		42 x 35	85	44	58	42	1117974

Male Coupling		Dimension				
		D1 - R	L	Z	S	Product code
		15 x 1/2"	54	32	22	1117841
		22 x 1/2"	56	32	22	1117844
		22 x 3/4"	57	34	28	1117845
		22 x 1"	60	37	36	1117846
		28 x 3/4"	58	34	28	1117847
		28 x 1"	61	37	36	1117848
		35 x 1 1/4"	71	41	43	1117849
		42 x 1 1/2"	79	44	50	1117850
		54 x 2"	92	51	62	1117851

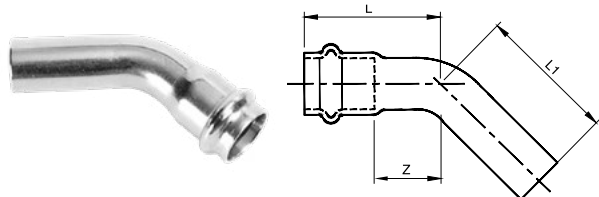
Female Coupling		Dimension					
		D1 - Rp	L	L1	Z	S	Product code
		15 x 1/2"	50	15	26	13	1117852
		22 x 1/2"	51	15	26	13	1117855
		22 x 3/4"	53	16	31	14	1117856
		22 x 1"	57	19	39	15	1117857
		28 x 3/4"	53	16	31	13	1117858
		28 x 1"	58	19	39	15	1117859
		35 x 1 1/4"	67	21	48	17	1117860
		42 x 1 1/2"	77	21	55	20	1117861
		54 x 2"	88	26	67	20	1117862

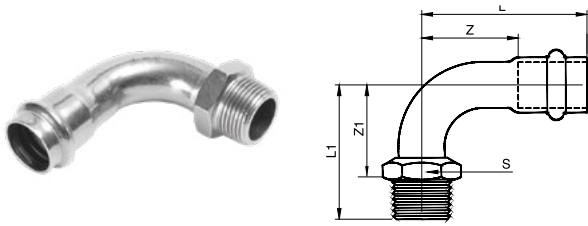
90° Elbow		Dimension			
		D1	L	Z	Product code
		15	46	24	1117904
		22	55	32	1117906
		28	66	42	1117907
		35	78	51	1117908
		42	100	64	1117909
		54	120	79	1117910

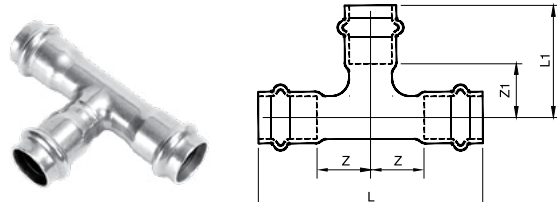
90° Elbow - Male and Female		Dimension				
		D1	L	L1	Z	Product code
		15	46	53	24	1117897
		18	50	57	28	1117898
		22	55	63	32	1117899
		28	66	74	42	1117900
		35	78	85	51	1117901
		42	100	108	64	1117902
		54	120	125	79	1117903

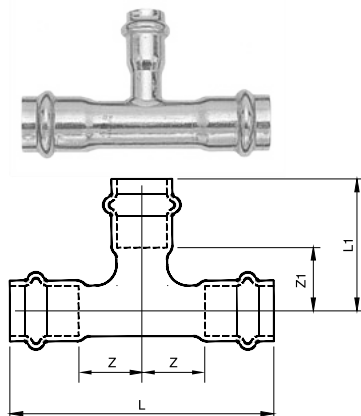
45° Elbow		Dimension			
		D1	L	Z	Product code
		15	35	13	1117925
		22	40	17	1117927
		28	45	21	1117928
		35	52	25	1117929
		42	70	34	1117930
		54	80	39	1117931

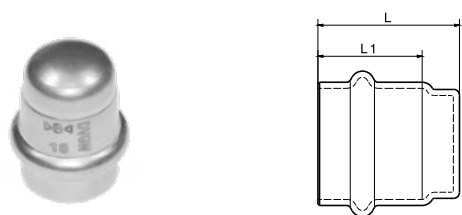


45° Elbow - Male and Female		Dimension				
	D1	L	L1	Z	Product code	
	15	35	42	13	1117918	
	22	40	47	17	1117920	
	28	45	53	21	1117921	
	35	52	59	25	1117922	
	42	70	74	34	1117923	
	54	80	86	39	1117924	

90° Elbow - Male		Dimension					
	D1 - R	L	L1	Z	Z1	S	Product code
	15 x 1/2"	46	47	24	34	22	1117800
	22 x 3/4"	55	56	32	41	28	1117803
	28 x 1"	66	66	42	49	36	1117804
	35 x 1 1/4"	78	78	51	59	43	1117805
	42 x 1 1/2"	100	86	64	67	50	1117806
	54 x 2"	120	107	79	83	62	1117807

Tee		Dimension				
	D1	L	Z	L1	Z1	Product code
	15	82	22	39	14	1117940
	22	88	24	45	19	1117945
	28	96	28	50	22	1117949
	35	111	31	56	25	1117954
	42	134	36	71	30	1117958
	54	159	41	82	36	1117963

Reducing Tee		Dimension				
	D1	L	Z	L1	Z1	Product code
	22 x 15 x 22	88	21	41	19	1117943
	28 x 15 x 28	96	24	54	32	1117946
	28 x 22 x 28	96	24	44	21	1117948
	35 x 15 x 35	111	27	57	35	1117950
	35 x 22 x 35	111	27	48	25	1117952
	35 x 28 x 35	111	27	49	25	1117953
	42 x 22 x 42	134	30	51	28	1117955
	42 x 28 x 42	134	30	52	28	1117956
	54 x 22 x 54	159	36	57	34	1117959
	54 x 28 x 54	159	36	58	34	1117960
	54 x 35 x 54	159	36	64	34	1117961
	54 x 42 x 54	159	36	77	36	1117962

End Cap		Dimension		
	D1	L	L1	Product code
	15	34	22	1117985
	22	37	23	1117987
	28	38	24	1117988
	35	43	27	1117989
	42	55	36	1117990
	54	59	41	1117991

## 12.0 Frequently Asked Questions

Q. How long has Conex Bänninger been around?

A. Since 1909.

Q. Can you rotate a >B< Press fitting once installed?

A. No, once pressed, they cannot be rotated.

Q. Can >B< Press be dismantled and reused?

A. No, this is a permanent installation.

Q. What pressure do you need to test to and for how long to show any leaks?

A. Unpressed fittings are identified by pressurising the system with a pressure range of 100 kPa to 500 kPa for water. Final testing of the system should be conducted in accordance with AS/NZS 3500.

Q. Can it be exposed to direct sunlight and heat?

A. Yes – please see table on page 4 for limitations due to pressure and temperature.

Q. Am I able to use a Viega tool to crimp the >B< Press fitting?

A. Yes, the approved tools for installation of >B< Press fittings are: Romax compact/compact TT (Rothenberger), Romax 3000/4000 (Rothenberger), Picco (Viega), PT3-AH & 4B (Viega).

Q. Does the clipping of fittings/jobs differ from a welded copper application?

A. No, the same type of clips can be used.

Q. What is the recommended space between fittings?

A. Please see 'distance between fittings' section on page 14.

Q. What are benefits >B< Press fittings?

A. Fast, simple and reliable installation.

Q. Are there any restrictions in regards to where flanges can be used?

A. Providing the selection of the sealing gasket considers the same system parameters and application, flanges may be used in all situations that other >B< Press fittings cater for.

Q. Can >B< Press handle suction or negative pressure?

A. Yes, >B< Press fittings are tested at a vacuum test pressure of - 80 kPa at ambient temperature.

Q. Can >B< Press be installed on pipes where the mains line won't shut off.

A. Yes, the fitting can be used in wet conditions and after pressing will provide a watertight joint.

Q. Do I need to lubricate the O-ring?

A. No, the O-ring is prelubricated. Additional lubricants could impact on the life of the O-ring and void the warranty. If the O-ring appears dry a small amount of water can be used to lubricate it.

Q. What applications can >B< Press Stainless Steel be used in?

A. >B< Press Stainless Steel may be used in the following applications:

- Hot and cold potable water
- Fire service
- Rainwater
- Pump circulated hot water systems
- Chilled water
- Steam
- Industrial and process water
- Vacuum lines for non medical purposes
- Compressed air (oil free)

The application parameters listed in section 2 must be complied with.

Q. Is >B< Press Stainless Steel certified for use in potable water systems?

A. Yes >B< Press Stainless Steel is Watermark certified by IAPMO R&T Oceana.

Q. What stainless steel tubes can >B< Press Stainless Steel be used with?

A. >B< Press Stainless Steel fittings can be used with all stainless steel tubes that comply with AS 5200.053 Series 2.

Q. Is Conex Bänninger >B< Press Stainless Steel the same as >B< Press Inox?

A. Yes, in markets other than Australia, >B< Press Stainless Steel is trademarked and known as >B< Press Inox.

Q. What other materials can be connected with stainless steel system?

A. Stainless steel, copper and copper alloys can be combined without the risk of corrosion. Please note carbon steel should not be directly connected to stainless steel as this will cause corrosion. A spacer connector of brass material should be used to separate the two dissimilar materials by at least 50mm. Flow of water should be in the direction from carbon steel to stainless steel and not vice versa.

Q. What is the warranty on >B< Press Stainless Steel fittings?

A. The product has a 25 year limited warranty. Please refer to section 1.10 for details.



Q. What material is the O-ring made of?

A. The O-ring is manufactured from a high quality black elastomer EPDM with a hardness of 70 Shore. The O-rings comply with the requirements of AS/NZS 4020 for use within drinking water systems.

Q. How can un-pressed joints be identified?

A. All >B< Press Stainless Steel fittings have a 'unique pressing indicator' that enables identification of un-pressed connections. The EPDM seal has a specially designed section in two positions to allow leakage if the joint has not been pressed. The joint will leak at a pressure between 10 to 600 kPa.

Q. Are there any storage issues?

A. Fittings should be stored in a cool dry place in their original packaging. This protects the fittings from contamination, damage and dirt and conserves the lubrication on the O-rings prior to installation.

Q. If a fitting leaks on installation, can you weld the fitting rather than cutting out the joint and having to replace missing tube?

A. No, if a fitting that has been pressed is leaking, the fitting must be cut out and replaced. You should not attempt to weld the fitting as you will melt the O-ring destroying the sealing element.

Q. Are there concerns with internal corrosion in stainless steel pipework?

A. Within a stainless steel pipework system a passive layer, mostly formed from chromic oxide is created upon contact with oxygen or oxygenated water (i.e. drinking water). This layer restricts corrosion from occurring and provides high levels of hygiene, durability and water quality. For information relating to chloride levels and corrosion please refer to section 4.1.

Q. Are there any concerns with external corrosion in stainless steel pipework?

A. External corrosion of stainless steel pipework is likely to occur when exposed to high levels of chloride. >B< Press Stainless Steel fittings should not be installed in this situation. However, if there are parts of the system where this is unavoidable, appropriate precautions must be taken to minimise the risk.

Q. How do you know when the tool needs to be serviced?

A. The red status indication LED will be permanently on when the Rothenberger Romax 3000 has completed 20,000 cycles and is due for service. There are white LED's on the Romax 4000 that flash after every cycle once 40,000 press cycles have been complete, indicating a service is due.

Q. Is >B< Press Stainless Steel suitable for medical gas applications?

A. No, >B< Press Stainless Steel is not suitable for medical gas applications.

Q. Can you press a fitting more than once?

A. No, >B< Press Stainless Steel fittings can be pressed only once.

Q. When pressed on small size fittings, particularly elbows a small amount of rotational movement can be induced to the joint. Will this affect the security of the joint?

A. No, some rotational movement is quite acceptable, the joint will not leak nor will it come apart under the pressure loading and during system operation. Some joint movement is good as it will allow for expansion and contraction in the pipe-work system.



For more information visit  
[www.conexbanninger.com.au](http://www.conexbanninger.com.au)

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