bonfix®

PRESS STEEL GALVANISED

UP TO 54 MM PRESS-FITTED WITH M OR V-PROFILE!

SUPERIOR PRICING & QUALITY **20 YEAR WARRANTY** **12 MM - 108 MM**

PRODUCT CATALOGUE

UK 016

PRODUCT CATALOGUE

Press steel galvanised

 **Straight coupling** 2 x press	 **Straight coupling with abutment** 2 x press	 **Reduced coupling** 2 x press	 **Push-in coupling** press x push-in	 **Straight coupling** press x conical male
 **Straight coupling** press x long female	 **Push-in coupling** Conical male x push-in	 **Push-in coupling** Long female x push-in	 **Stop end** 1 x press	 **Elbow 45°** 2 x press
 **Elbow 90°** 2 x press	 **Push-in elbow 45°** push-in x press	 **Push-in elbow 90°** Push-in x press	 **Push-in elbow 90°** 2 x push-in	 **Elbow 90°** Long female x press
 **Elbow 45°** press x conical male	 **Elbow 90°** long female x press	 **Tee coupling** 3 x press	 **Tee coupling, reduced** 3 x press	 **Tee coupling** press x long female x press

 **Back plate flange coupling PN 10/16** 1 x press	 **Buckle coupling** flat seal, press x female	 **3-piece coupling** flat seal press x male	 **3-piece coupling** 2 x press	 **Cross-over single** 2 x push-in
 **Cross-over pair, double** 2 x push-in	 **Cross-over coupling** 4 x press	 **Cross-over elbow, short** press x push-in	 **Cross-over elbow, short** 2 x push-in	 **Cross-over elbow** 2 x press

BONFIX STEEL GALVANISED PRESS FITTINGS

The press fittings are made of unalloyed steel, material code 1.0034 (E 195) with a zinc-galvanised plating. Several fittings are constructed of Cu-DHP (CW024A) as per EN 12449, compliant with EN 1254-1 with a zinc plating and a copper alloy in conformity with EN 1982. The fitting is provided with a black EPDM sealing ring.

BONFIX steel galvanised press fittings are provided with a thread in conformity with EN 10226 and ISO 7/1 (metal to metal sealed connection) with R / Rp coupling, whereby R stands for “conical external thread” and Rp for “parallel internal thread”. (See illustrated press fittings catalogue).

BONFIX steel galvanised press fittings with black EPDM sealing ring

Application area	Size/pressure/marking	Sealing ring	Tools
• Heating • Treated water • Cooling water • Dry compressed air* • Industry • Sprinkler**	d = 12 – 108 mm maximum 16 bar	EPDM Colour: black Max. permanent temperature: -30 °C to +120 °C (peak loads up to +150 °C)	d = 12 – 54 mm choice of press fitting tools and tongs or chains d = 64 – 108 mm press-fit with M-profile only

Materials:
Fittings: Material Code 1.0034 (E 195) compliant with EN 10305; zinc-plated in compliance with DIN 50961, strength ZW 7 -. 15 micron
BONFIX steel galvanised press fittings can be used for heating and compressed air if applied in a closed, dry, oil-free system*.

** Residual oil content with EPDM up to class 5 max.*

*** Contact BONFIX for installation instructions.*

PIPES

BONFIX steel galvanised press fittings must be installed only in combination with BONFIX-approved steel galvanised pipe, material code 1.0034 (E 195) and compliant with industry norm EN 10305. Contact BONFIX for a list of sales outlets.

EXTERNAL CORROSION PROTECTION

The corrosion resistance of BONFIX steel galvanised press fittings generally will require some form of external corrosion protection. Depending on the ambient atmosphere and/or temperature of the medium an external, a diffusion-proof insulation system may still be required to prevent corrosion from outside. Where the atmosphere is likely to contain aggressive substances and the system is exposed to condensation, the external surface of the pipes requires special attention.

BONFIX LEAK BEFORE PRESSED (LBP) FUNCTION

BONFIX stainless steel press fittings are supplied with a Leak Before Pressed (LBP) function when used in combination with BONFIX pipes. Fittings supplied with an LBP function always leak water during the prescribed pressure test BEFORE they are pressed. This way it can be quickly established if there are any unfinished pressings. After having been correctly fitted and pressed, the press fittings are air and watertight.

Special instruction for corrosion prevention in BONFIX steel galvanised system installations.

Where any of the following situations may impact the system over a longer period of time **the fitter is required to insulate the system.**

- Impact of moisture contained in the atmosphere and / or building materials.
- Impact of corrosion-inducing particles in the atmosphere and / or building materials.
- In any of the above cases, the fitter is required to apply and additional, water-proof an non-porous anticorrosion coating as prescribed in Worksheet AGI Q 151.

Our recommendation:

Where a steel-galvanised system is installed in a top floor or damp environment, appropriate measures must be taken to prevent damage to external surfaces due to the long term influence of moisture.

Where it is not possible to guarantee effective exclusion of the above or where economic factors preclude this, BONFIX recommends the use of BONFIX RVS press fittings.

LENGHTWISE EXPANSION OF PIPES

Heat-conducting pipes expand at different rates, depending on the construction material and temperature variations. Where a pipe is constrained from expanding under thermal influence the resultant mechanical stressed may exceed specified tolerances, causing damage to the pipe (usually fractures due to metal fatigue). This can be prevented by allowing the pipe sufficient room to expand.

Base material	Heat-expansion coefficient $\alpha[\ 10^{-6}\ K^{-1}\ ]$ 20 to 100 °C	$\Delta\ell$ [mm] für ℓ_0 = 10m ΔT = 50 K
Stainless steel	16,5	8,3
Copper	16,6	8,3
Galvanised steel pipe	12,0	6,0
Layered pipe	23,0	11,0

Heat coefficient of various materials. $\Delta\ell = \alpha \cdot \ell_0 \cdot \Delta T$

To compensate for heat-induced variation in pipe length as specified above per construction material, the flexibility in the pipe system can be used. This is achieved by installing a sufficient number of soft-yielding bends at the corners in the pipe system. Holding brackets must be installed in such places as to allow for a sufficient rate of expansion.

Basic principle: always leave sufficient room for expansion between two fixed points.

If the pipe system does not have sufficient room to allow for expansion, a provision must be installed with the aid of special components, e.g. flexible metal compensators. Where sufficient space is available a U-pipe compensator can be installed.

With built-in installation work heat expansion must be freely allowed by wrapping pipes with a sufficiently thick chloride-free, elastic insulation material. Unless a fixed point has been prepared, ceiling ducts especially must be padded with care and precision.

ASSEMBLY INSTRUCTIONS

The minimum required spacing and clearance of pipes with respect to walls, corners and wall recesses can be determined on the basis of the diagrams and tables below.

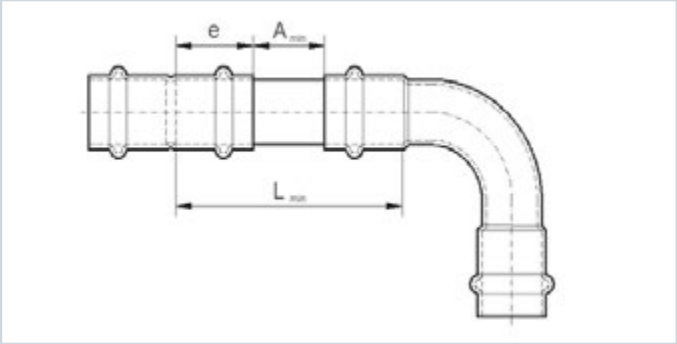

figure 1:
Minimum spacing between two press points (see table below)

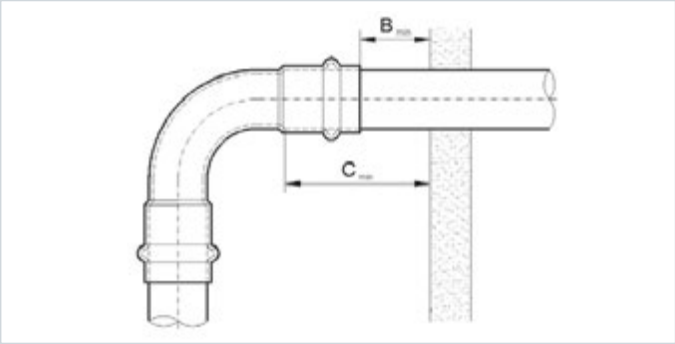

figure 2:
Minimum clearance from wall (see next table)

External diameter pipe in mm	Nominal width DN	Push-in depth in mm e	Minimum spacing in mm			
			A_{min}	L_{min}	B_{min}	C_{min}
15	12	25	10	60	60	85
18	15	25	10	60	60	85
22	20	28	10	66	60	88
28	25	29	10	68	60	89
35	32	30	20	70	60	90
42	40	38	20	96	60	98
54	50	44	30	108	60	103
76,1	65	50	30	130	60	110
88,9	80	56	30	142	60	116
108	100	70	30	170	60	130

table 1:
Minimum distances between two press points and between wall and press point

TOLERATED BEND RADIUS

Stainless steel, copper and steel galvanised pipe can be cold-bent within specified limits using the appropriate bending equipment. The bend radius measured in the neutral fibre of the elbow, for pipe systems constructed of rustproof steel and steel galvanised pipe, must not be less than r = 3.5 x d. For copper pipe a bend radius of at least r = 3 x d must be adhered to. Important: a cylindrical pipe section of sufficient length should be available for completing the pipe system after bending.
Where the dimensions provided in the table above are exceeded, the responsibility for a perfect bending result rests with the manufacturer of the bending device. Pipe systems can be cold-bent up to a maximum pipe diameter of 28mm.

ATTACHING THE PIPE

Pipe abutments serve two purposes:
1. sealing the pipe;
2. controlling pipe expansion due to temperature fluctuation.

There are two types of collars or attachment points:
1. fixed collars to fasten the pipe without movement
2. sliding collars to allow for axial friction.

Determining the attachment points

A pipe with no change of direction or expansion compensation device must be attached at a single point only. With long pipes, we recommend installing the collar piece in the centre, to enable expansion in both directions. This is also a very effective solution with vertical pipes running through multiple floor levels, as it provides leeway for bi-directional expansion and reduces stress on the arms.
No fixed points (anchors) must be attached to fittings. Axially shifting collars can be used to avoid hazardous, fixed points.

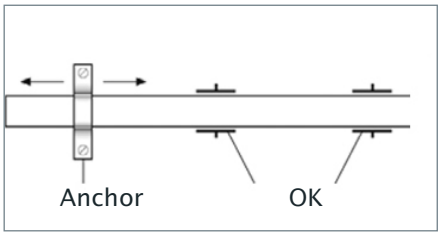

figure A:
Anchoring the pipe: straight pipe, single point of attachment only: good

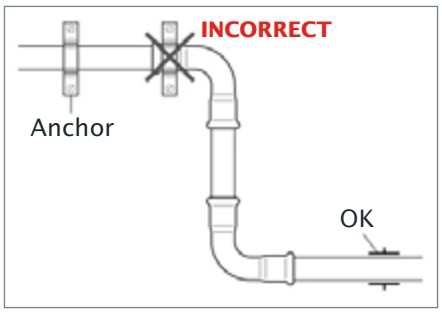

figure B:
Anchoring the pipe: fixed point on fitting: incorrect

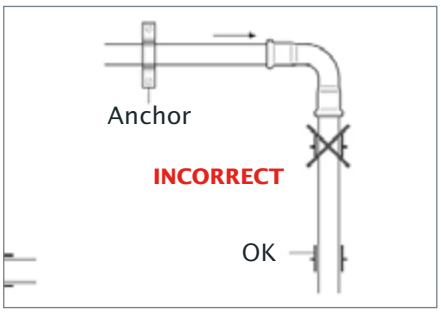

figure C:
Anchoring the pipe: sliding sleeve too close to fitting: incorrect

Minimum spacing

For correct installation of pipes, minimum spacing and clearances must be observed, depending on various factors:

1. **Spacing between anchor points**
   Anchor points must be chosen at appropriate distances. Where anchor points are too closely spaced this may impede the ability of the pipe to absorb expansion. On the other hand, where anchor points are too far apart this may result in increased vibration and or excessive noise. The table below provides recommended spacing applicable in most situations:

Horizontal en vertical:

Pipe	12	15	18	22	28	35	42	54	64	66,7	76,1	88,9	108
Distance (m)	1,25		1,5	2,0	2,25	2,75	3,0	3,5	4,0		4,25	4,75	5

2. **Clearance for operating press tool**
   Sufficient clearing space must be allowed for operating the press tool and avoiding obstacles, depending on the size of the press tool. The table above (see previous page) provides instructions for minimum required clearing space
3. **Spacing between fittings**
   Where two press fittings are installed too close together, it may be difficult to achieve a perfectly tight connection. The table (see previous page) shows the minimum required spacing between fittings.

INSTALLATION INSTRUCTIONS

- **Cutting the pipe**
  Cut the pipe at a perfectly square angle using a pipe cutter, cutting machine, or fine-toothed saw. Allow sufficient depth for the fitting to be fed into the connecting pipe.

- **Deburring and calibrating the pipe**
  When cut to the right length the pipe must be carefully deburred inside and out with an electric or hand-operated deburrer, calibrating device or file. It is essential to avoid damaging the sealing ring when the pipe is inserted into the fitting as this could result in a leaking connection. All burrs must be removed absolutely.

- **Checking position of sealing ring**
  Prior to installing the fittings the position of the sealing rings in their toroidal seats must be checked. If necessary, rinse with water to facilitate leading the pipe into the fitting. Also, both pipe and fitting must be checked for any metal or dirt particles. Remove any remaining metal or dirt particles.

- **Inserting pipe into fitting and marking**
  Lead pipe into fitting with a slight rotating movement until abutting the stop. To assure a perfect and secure connection mark the pipe with a felt pad at the point where it meets the fitting. This will tell you if the pipe has shifted before or after pressing. Templates are available for marking. Contact BONFIX via verkoop@bonfix.nl or (PH) 088 46 00 794.

⚠ *Important: oil, fat, glue or any such substance are not be used, in any circumstance!*

- **Fitting jaws in the press tool**
  The press machine must be fitted with either M-shaped or V-shaped jaws, corresponding with the diameter of the fitting to be installed. Refer to the manufacturer's instructions for use of the appliance and fitting directions.

- **Pressing large diameters using a clamp**
  When pressing large diameter pipe (67, 76.1, 88.9, 108 mm) we recommend securing the pipe in place with a clamp to make sure the correct positioning is achieved.

- **Pressing**
  For a successful, reliable press connection, make sure the insides of the jaws of the clamping device perfectly fit the toroidal grip of the fitting.

  The fitting is pressed by clenching the jaws of the device. This must occur in a single motion to avoid damaging the seal. **Do not** interrupt the press operation; finish the press in a smooth, single motion.

⚠ Press tools must be regularly cleaned and well maintained. The tools must be calibrated once yearly to qualify for warranty on the system.

GENERAL REQUIREMENTS

Testing the connections

When the system has been installed it must be tested for leakages. Drinking water systems and hot water systems are routinely tested by running water through the system at a pressure not less than 1.5 x normal operational pressure. If no leaks are established during the test run, we recommend cleaning the pipes thoroughly before filling the system with water. Gas systems are tested by importing air or gas into the system at a minimum pressure of 10 bar.

Sound insulation

Pipes are capable of transferring sound and noise from a variety of sources (pumps, valves, etc.). For this reason, they must be insulated with an elastic material to prevent direct contact with collars, walls etc.

Heat insulation

Hot water pipe systems must be insulated as per regulations for energy efficiency of hot water installations. The insulation material also protects from incidental physical contact.

Cold insulation

In order to prevent condensation and dripping, cold water pipes must be insulated also. Stainless steel systems must not be insulated with a material containing chloride compounds.

Frost protection

If the pipe system is exposed to the risk of freezing, the pipes must be wrapped with a sufficiently thick insulating material or protected using an anti-freeze agent to prevent leakage due to loose connections, swollen pipes and / or fractured pipes.

GUARANTEE

The use of original BONFIX press fittings together with an appropriate quality pipe and approved press tool are your guarantee of a long-life system, provided these technical instructions for design and constructing of the system are observed.

Damage and / or loss resulting from a material or manufacturing fault are fully recoverable under insurance.

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SUPERIOR IN PRICE & QUALITY

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