

## Uponor INOX

EN Technical information



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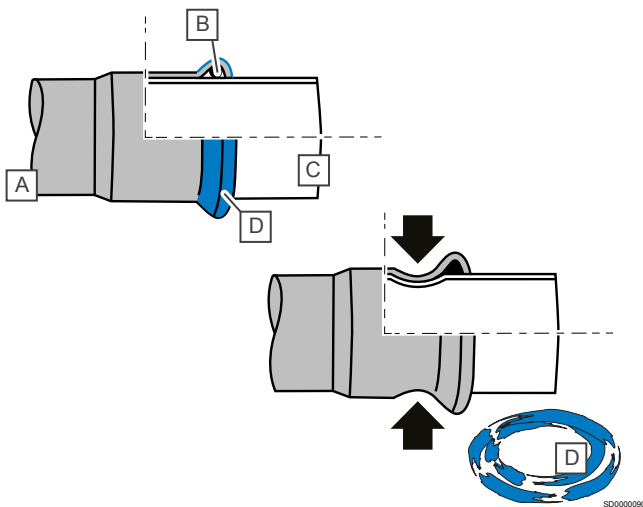
# 1 System description

The stainless steel press fitting system Uponor INOX is the ideal solution to distribute drinking water, since stainless steel guarantees a high level of hygiene and significant resistance to corrosion.

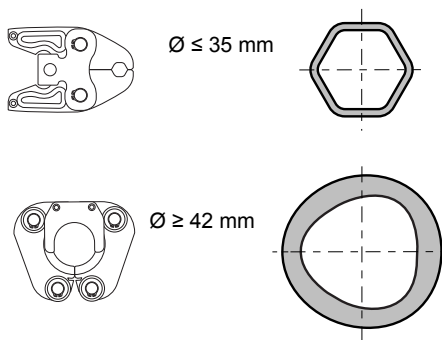
Joints produced in this way are extremely strong, but flexible enough to withstand the stresses resulting from initial installation and those that occur in normal operating conditions like vibrations and thermal expansion etc.

Press fitted pipe joints are fast, easy and risk-free.

Pressing produces two deformations. The first one compresses the o-ring in the shaped chamber and guarantees that the pipe is hermetically sealed. The second deformation of both fitting and pipe, creates a mechanical joint, resistant to slipping and rotation. The result of the operation is "definitive", since it is no longer possible to separate the components and return to the original condition.



Item	Description
A	Press fitting
B	O-ring
C	Pipe
D	"Press-check" sleeve



The drawings are exaggerated.

The resulting polygonal pressing profile varies according to the diameter, being hexagonal or similar to a triangular shape, but in any case creating a homogenous joint.

## 1.1 Faulty pressing visual indicators

Experience tells us that the absolute majority of leaks in the press fitting system are down to failure in the process, either not pressing at all or incorrectly. Finding those pressings is made easy and effective with the "leak-path" o-ring and the "press-check" sleeve.

The unpressed o-ring leaves multiple paths for water/air and leaks are visual/audible. Also well visible is any intact foil sleeve on the fitting indicating a missed pressing. After a successful pressing the sleeve is torn and can also be checked by touch if necessary.

## 1.2 Components

The following components make up the Uponor INOX system:

### Press fittings

**Note**

Detailed information about the range of components, dimensions etc is available in the price list.

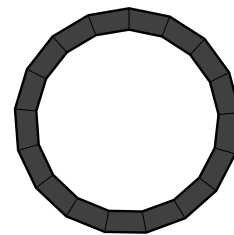
The press fittings are made of austenitic stainless steel 1.4404 (X2CrNiMo 17-12-2, AISI 316L) and the diameter ranges from 15 to 54 mm.

At every pressable end of the fitting is a shaped seat, which holds the o-ring and guides the pressing tool.

The foil ring serves as indicator whether a pressing was conducted.

- Foil undamaged - The fitting was not pressed.
- Foil torn - The fitting was pressed.

### O-ring



If the fitting is not pressed, the particular profile of the o-ring identifies the irregular condition, both during the seal test and visually/audibly, through leaking of water or air. This characteristic is commonly known as "unpress - untight". After the fitting has been pressed, the o-ring easily closes all the flows, ensuring the hermetic seal as with the traditional type.

### Pipes

Pipes are available in diameters 15 - 54 mm.

See the chapter "Technical data" for more information.

# 2 Planning/design

## 2.1 General information

### Corrosion resistance

**Caution!**

Avoid chloride-containing insulating materials, sealants or plastic tapes. Use only insulating materials or insulating tubes with a mass fraction of max. 0.05% of water-soluble chloride ions.

Use only insulating materials or insulating tubes with a mass fraction of max. 0.05% of water-soluble chloride ions.

### Internal corrosion

Drinking water does not affect stainless steel in any way and the used AISI 316L material guarantees perfect hygiene.

### Interstitial or drilling corrosion

In stainless steel, interstitial or drilling corrosion may only occur in extremely aggressive environments when the concentration of chloride is significantly higher than 250 mg/l (limit tolerated by current laws).

Other circumstances may lead to similarly aggressive conditions:

- After draining the system the slow evaporation of water left behind can raise the chloride levels. Circulate dry air through the system to ensure the system is completely dry.
- Only use Teflon tapes without chlorine, hemp with chloride free sealant paste or sealing tapes without chloride.
- Be aware of for example electric heating cables close by. External sources can increase the water temperature in the pipe. It should not permanently exceed 60 °C with a temporary max. of 70 °C. Otherwise it can change the structure of the stainless steel and lead to intercrystalline corrosion.

### Bimetallic corrosion (mixed installation)

Stainless steel is resistant to corrosion, even in systems where it is in contact with non-ferrous metals (bronze, copper and brass), regardless of the direction of the water flow. If however, it is in direct contact with carbon steel, bimetallic corrosion can occur. This risk can be reduced by inserting a non-ferrous joint between the two metals, or it can be completely eliminated by using non-ferrous spacers of least 50 mm in length.

Do not join carbon steel and stainless steel pipes/fittings in one system.

### External corrosion

**Caution!**

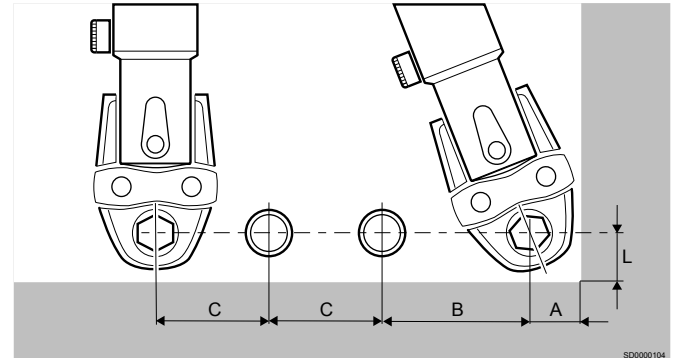
Do not use felt sheathing or sheathing of similar materials as it may hold moisture for a long time and can lead to corrosion.

Avoid laying pipes in direct contact with the ground, cement or sea water.

Prolonged contact with high concentrations with chloride or its compounds (for example galvanic situations or covered swimming pools) can lead to corrosion. In these cases, we recommend covering the pipes with a closed-cell coating, taking care to apply waterproof glue to the cutting and junction points. Alternatively, protective anti-corrosion tape or paints can be used.

## 2.2 Fitting the system

### Minimum space allowance for pressing



Ø Pipe [mm]	Press jaws M					Press chain M	
	15	18	22	28	35	42	54
A [mm]	30	30	35	45	45	76	85
B [mm]	75	80	80	80	85	120	125
C [mm]	55	60	75	75	76	120	125
L [mm]	30	30	45	45	45	80	90

Valid for press jaws 15 - 32 mm, item no. 1119189 - 1119193

Valid for press chains 42 - 54 mm, item no. 1119194 - 1119195

### Minimum distance pressfittings

Ø Pipe [mm]	d <sub>min</sub> [mm]
15	10
18	10
22	10
28	10
35	10
42	20
54	20

Two pressfittings too close together can compromise the seal of the joints. Note the minimum distances.

### Fixation

**Caution!**

Fixing collars must be placed at an adequate distance from each other.

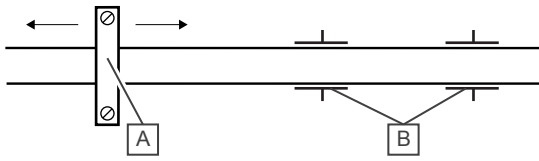
If the collars are too close together pipe expansion cannot be absorbed. This might cause dangerous tensions and damage. Too far apart the fixing collars can increase vibration and amplify noise.

Pipe diameter [mm]	15 / 18	22 / 28	35 / 42 / 54
Distance between fixed collars [m]	1.5	2.5	3.5

The pipe support collars serve two purposes. They keep the pipe system in its correct position and they direct the expansion caused by temperature fluctuations.

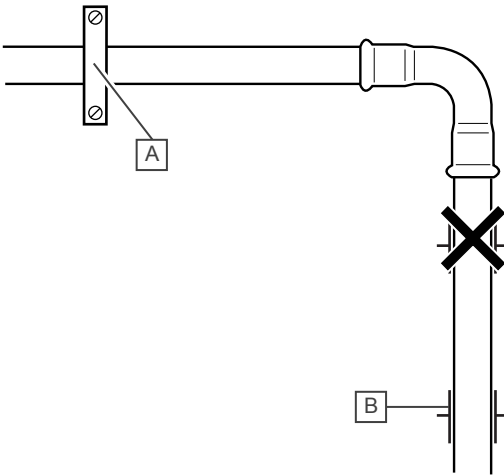
There are two types of collars:

- fixed, which lock pipes firmly (A)
- sliding, which allow axial movement (B)

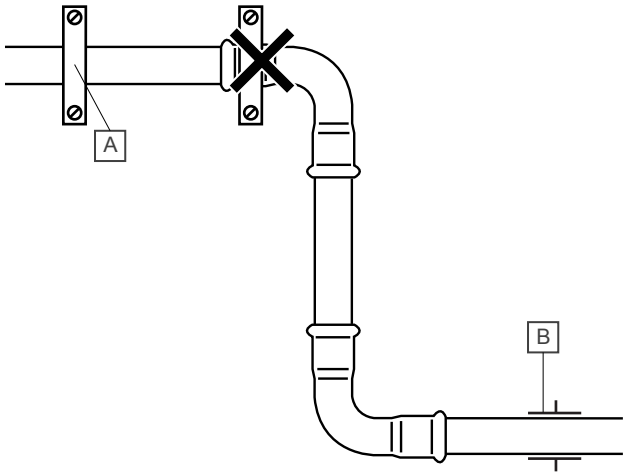


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A pipe with no changes of direction or expansion compensators must have only one fixed collar (A). In case of long pipes place this collar towards the centre of the section to allow expansion in both directions. This solution is particularly suitable for vertical pipes that pass through many floors because it decreases stress on the branches. Cautiously use sliding collars (B) for additional support, making sure they do not restrict the axial pipe movement.



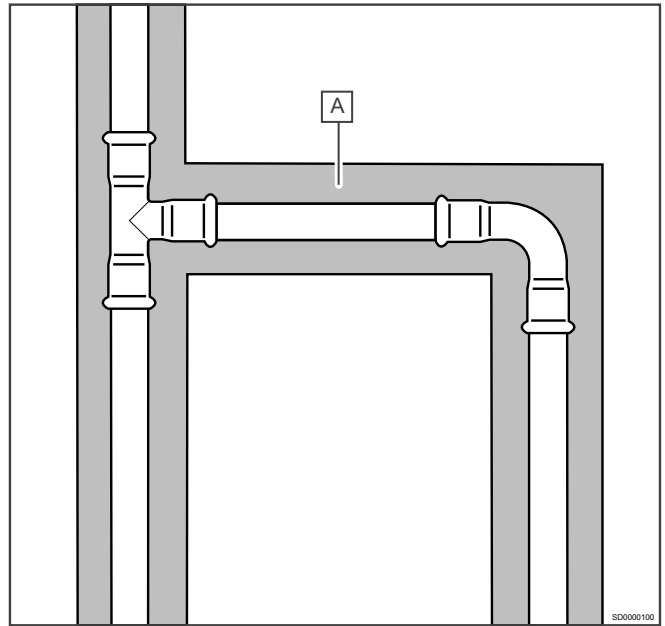
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Never place a fixed collar on a fitting.

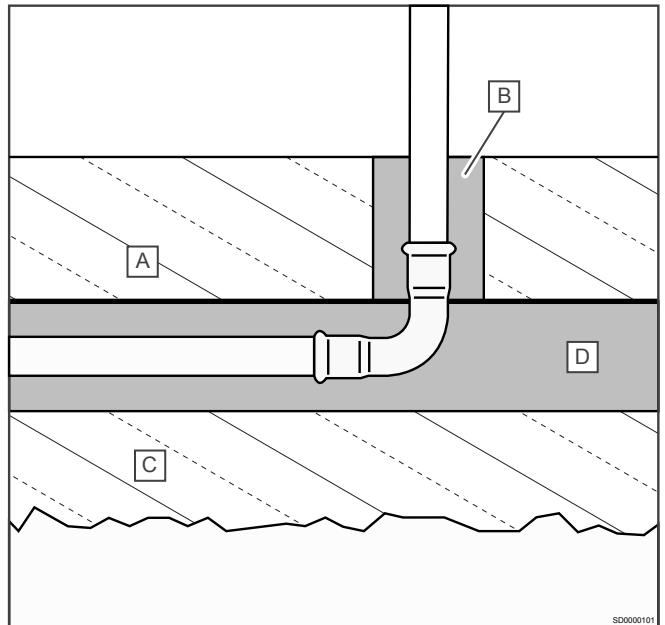
## Chased pipe



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Chased pipes must not be in direct contact with the plaster, but wrapped in a pad of elastic material, such as glass wool or plasticfoam (A). Thus fitted, soundproofing requirements can also be satisfied, but always refer to local guidelines and regulations.

## Pipe under floating floor



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Item	Description
A	Floating floor
B	Elastic insulation material
C	Massive floor
D	Insulation layer

Under a floating floor, pipes run through the insulation layer and can expand freely. Vertical channels must be wrapped in elastic insulating materials. The same type of wrapping must be applied to pipes passing through walls and ceilings.

## Pipe expansion

Metal pipes can expand or shrink in length depending on material and temperature, which must be considered when planning the installation.

Follow these three rules to ensure good results:

- leave sufficient room for expansion
- use expansion compensators where necessary
- position both fixed and sliding collars correctly

When laying pipework, differentiate between:

- Visible pipes where expansion is absorbed by the run itself, provided they are laid correctly.
- Chased pipes, which can not have direct contact to plaster. A wrap of glass wool or plastic foam for example prevents that and can also satisfy soundproofing requirements.
- Pipes under floating floors are laid under the insulation layer and can expand freely. Vertical channels must be coated in elastic insulating materials. The same type of coating must be applied to pipes passing through walls and ceilings.

The following formula is used to calculate longitudinal expansion:

$$\Delta L = \alpha \times L \times \Delta T$$

$\Delta L$  is the expansion in mm

$\alpha$  is the coefficient of expansion of the material expressed in mm/(m x K)

L is the length of the pipe in m

$\Delta T$  is the permitted temperature difference in K

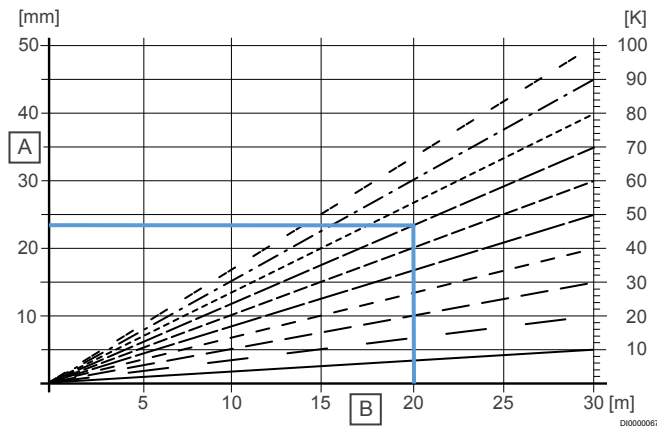
The coefficient of stainless steel expansion is  $\alpha = 0.0165 \text{ mm}/(\text{m} \times \text{K})$ .

### Example:

The thermal expansion of a 20-meter stainless steel pipe, subjected to a temperature variation of 70 K (e.g. from -20° to +50°C) is the following:

$$\Delta L = 0.0165 \text{ mm}/(\text{m} \times \text{K}) \times 20 \text{ m} \times 70 \text{ K} = 23.1 \text{ mm}$$

The graph provides a more practical/effective way to determine the thermal expansion, according to the pipe length and the temperature variation.



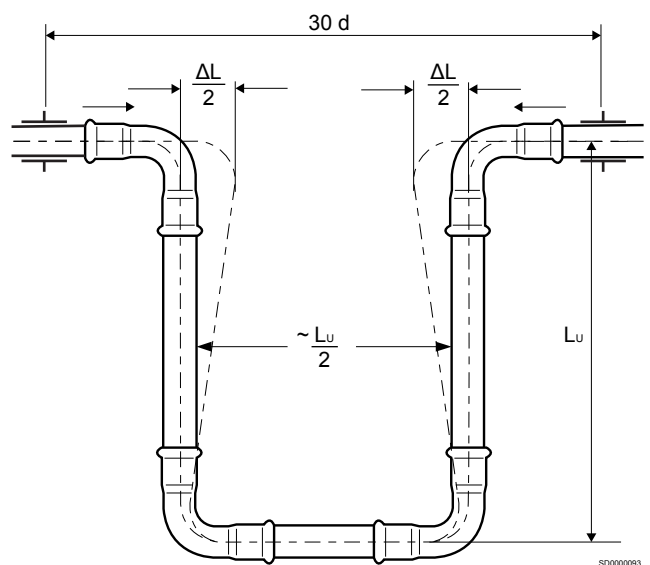
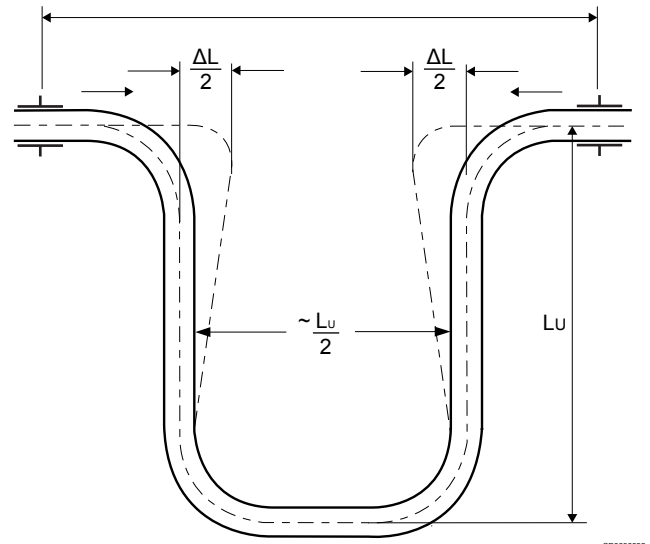
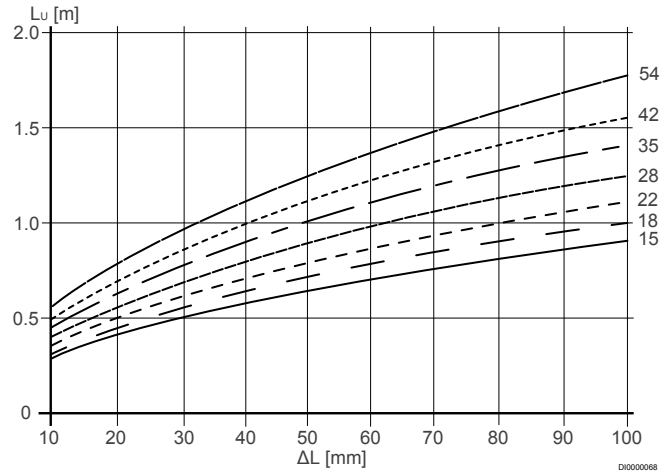
Item	Description
A	Expansion [mm]
B	Pipe length [m]

Longitudinal expansion in stainless steel pipes

## Compensating expansion

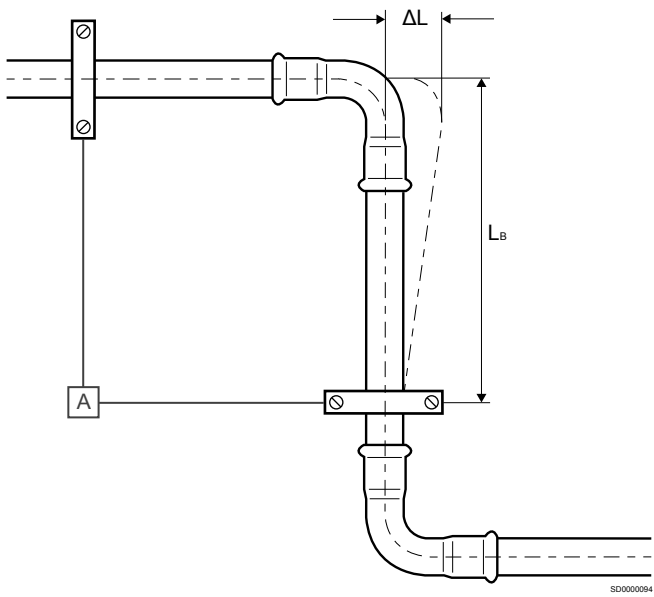
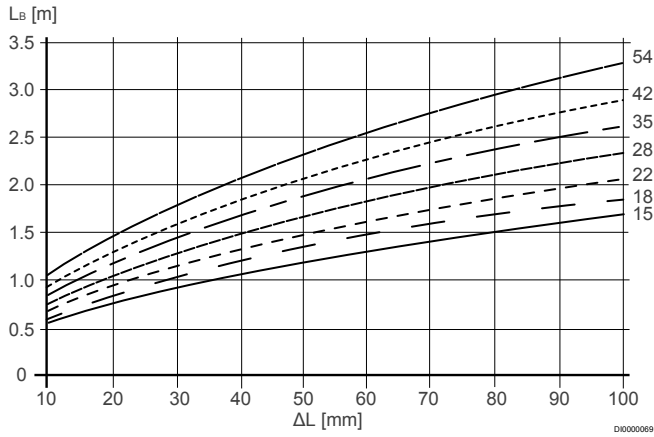
### U-shaped compensator

Determine the compensation length with an U-shaped compensator for the estimated expansion.

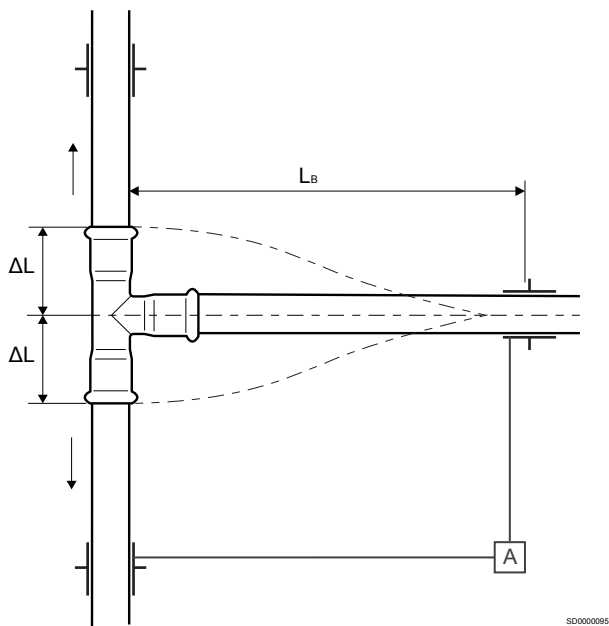


## Z-shaped compensator

Determine the compensation length with an Z-shaped compensator for the estimated expansion.







## T-shaped branch



The diagram for Z-compensators also applies here.

# 3 Prepare for installation

## 3.1 Transport, storage and withdrawal

	<b>Caution!</b> Take suitable precautions to avoid damage and contamination through dirt and humidity during the transport and storage of pipes and fittings.  Pay attention to temperature variations that may cause condensation.
	<b>Caution!</b> Avoid putting heavy materials on fittings and throwing fittings. Either may cause deformations and damage to threads, decreasing their seal capacity.
	<b>Caution!</b> Avoid contact between stainless steel and carbon steel.
	<b>Caution!</b> The withdrawal of pipes must be done individually and without dragging to avoid scratches.


## 3.2 Uponor press tools

The Uponor system concept is based on the perfect interaction of all individual system components. Everything fits together and has been tested and approved for the respective area of application. Uponor pressing tools are an integral part of the Uponor declaration of liability and enable safe and uncomplicated fitting assembly.

### Tools for fitting assembly

- Proven press machines and press jaws from renowned manufacturers
- Pressing machines optionally powered by battery or 230 V
- Part of the Uponor declaration of liability

### Recommendations for Uponor press jaws/chains

	<b>Note</b> An inspection of the press jaws/chains must be performed every 12 months when used in drinking water installations.
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All Uponor tools are subject to an inspection cycle, described in the operating instructions.

Uponor pressing jaws and pressing chains are specially designed for use in conjunction with the Uponor UP 110 (1083612) and UP 75 battery-powered pressing machines and the Uponor UP 75 EL (1007082) electric pressing machine.



# 4 Installation

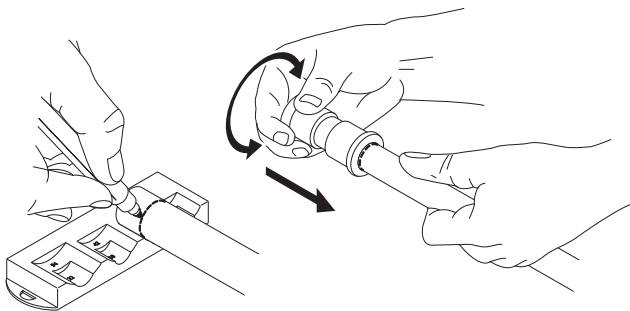
## 4.1 General information

	<p><b>Caution!</b></p> <p>This is an electrically conductive system!</p> <p>Potential equalisational parts of metal water pipe must be included in the main potential equalisation of a building. This work must be carried out by trained personel.</p>
	<p><b>Caution!</b></p> <p>When using electrical trace heating the temperature of the inner pipe wall must not exceed 60 °C. The installation instructions of the trace heating's manufacturer must be followed.</p>
	<p><b>Note</b></p> <p>Bend Uponor INOX system pipes only cold and with standard bending tools. For suitability of the bending tool and determination of the bending radii, follow the instructions of the bending tool manufacturer. Bending radius: Bend with bending tool <math>r &gt; 3.5 \times d</math> (<math>d \leq 28</math> mm)</p>

## 4.2 Overview installation steps

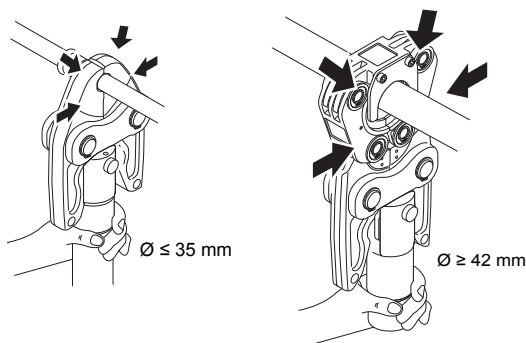
	<p><b>Note</b></p> <p>Installation must be performed by a competent person in accordance with local standards and regulations.</p>
	<p><b>Note</b></p> <p>Follow the instructions given here and additional instructions provided with the components and tools or downloaded from <a href="http://www.uponor.com">www.uponor.com</a>.</p>

1. Mark the depth of the fitting on the pipe to ensure full insertion.



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2. Press the fitting onto the pipe with the appropriate tool and visually check the result.



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## 4.3 Leak test

	<p><b>Note</b></p> <p><b>Legal notice:</b></p> <p>Pressure tests are ancillary services under a work contract and part of the Contractor's contractual performance, even if not explicitly mentioned in the description of services.</p> <p>According to current standards a pressure test must be carried out before the system is put into operation.</p>
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Like all drinking water distribution systems, the Uponor system must be pressure tested in accordance with DIN EN 806-4.

Ensure before the pressure test that all components of the installation are freely accessible and visible, for example to locate incorrectly installed fittings.

A pressure test with compressed air or inert gases is recommended if the system is to remain unfilled. This might be the case when regular water replacement cannot be guaranteed after seven days at the latest.

The leak test must be documented by the responsible specialist in a leak test report, taking into account the materials used. The tightness of the system must be verified and confirmed.

This report is available at the Uponor services download center.



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## Leak test with compressed air or inert gases

	<p><b>Note</b></p> <p>Always consider current local standards and regulations.</p>
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After a leak test with water, residual water can remain in some sections of the system despite thorough draining. This prolonged stagnation is an ideal breeding ground for bacteria. For this reason, leak testing with compressed air or inert gases is recommended, especially in buildings with high hygiene requirements such as hospitals, retirement homes or sport facilities. Then flush and fill the system with filtered tap water shortly before commissioning.

A pressure test with oil-free compressed air or inert gases (usually nitrogen or carbon dioxide) is carried out in two steps, the tightness test and the load test.

Visually inspect all pipe connections before the leak test.

The manometer used in the test must have a corresponding accuracy of 1 mbar in the indication range for the pressure to be measured. Subject the system to a test pressure of 150 mbar (150 hPa). For a system volume of up to 100 litres, the test time must be at least 120 minutes. Extended the required time by 20 minutes per additional 100 litres.

No leakage must occur at the connectors during the test.

For the load test increase the pressure to max. 3 bar (for pipe outer diameter  $\leq 54$  mm) or max. 1 bar (for pipe outer diameter  $> 54$  mm). For a system volume of up to 100 litres, the test time must be at least 10 minutes.

## 4.4 Flushing of Uponor drinking water distribution

### Note

Uponor tap water lines must be flushed with the local supply pressure and in accordance with DIN EN 806-4, Section 6.2.2, unless a different flushing procedure is contractually agreed or required.

The tap water used for flushing must be filtered (filter according to DIN EN 13443-1).

Flushing must only take place immediately before the actual start-up.

To ensure unrestricted operational safety, the flushing process must remove contaminants and assembly residues from the internal surfaces of the pipes and system components. It secures tap water quality and prevents corrosion damage as well as malfunctions of valves or equipment.

The flushing process must be documented by the responsible specialist in a flushing protocol.

The protocol is available at the Uponor services download center.



## Flushing

Within one storey, fully open the tapping points, starting at the tapping point furthest from the riser. After a flushing time of 5 minutes at the last opened flushing point, close the taps one after the other in reverse order.

### Conditions:

- The tap water used for flushing has to be filtered.
- Maintenance fittings (floor shut-offs, preliminary shut-offs) have to be fully open.
- Sensitive fittings and apparatus need to be removed and replaced by adapters or bridged by flexible lines.
- Aerators and flow limiters need to be removed.

After flushing with water all built-in strainers and strainers in front of valves have to be cleaned.

# 5 Technical data

## 5.1 Uponor INOX Zeta-values

				DN 12	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
				Pipe outer diameter [mm]						
				15	18	22	28	35	42	54
TEE	Branch run at flow split	TA		1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Branch run at flow split	TD		0.2	0.2	0.2	0.1	0.1	0.1	0.1
	Branch reverse run at flow split	TG		1.1	1.1	1.1	1.1	1.1	1.1	1.2
	Branch reverse run at flow split	TVA		1.5	1.5	1.4	1.4	1.4	1.4	1.4
	Branch run at merged flow	TVD		3.0	2.9	2.8	2.7	2.7	2.6	2.6
	Branch reverse run at merged flow	TVG		4.0	3.3	3.1	3.0	2.9	2.9	2.9
BEND 90°		W90		0.5	0.4	0.4	0.3	0.3	0.3	0.3
BEND 45°		W45		0.3	0.3	0.3	0.3	0.2	0.2	0.2
REDUCER		RED			0.2	0.2	0.2	0.1	0.1	0.1
COUPLING		K		0.1	0.1	0.1	0.1	0.1	0.1	0.1

## 5.2 Pressure drop

### General

Water that flows in the pipes, gradually loses pressure, because of the different resistances it meets. These resistances are due to straight pipe resistance or single casual conditions as direction changes, section reductions, etc.

Therefore the whole pressure drop for a pipe system is calculated according to the following formula:

$$\Delta p = \Delta p_1 + \Delta p_2$$

$\Delta p$  is the total pressure drop

$\Delta p_1$  is the pressure drop due to straight lengths

$\Delta p_2$  is the pressure drop due to single localized resistances

### Straights

The following formula is used to calculate the pressure drop in straight pipes:

$$\Delta p_1 = \Sigma R \times l$$

$\Sigma R$  is the result of  $R_1 \times l_1 + R_2 \times l_2 + \dots + R_n \times l_n$

R is the unitary pressure drop expressed in mbar or in Pa/m

l is the straight pipe length in m

The following formula is used to calculate the unitary pressure drop:

$$R = \lambda \times \rho \times v^2 / (2 \times d)$$

$\lambda$  is the pipe friction coefficient

$\rho$  is the fluid density expressed in kg/m<sup>3</sup>

v is the fluid speed expressed in m/s

d is the internal pipe diameter in mm

Also refer to the following tables to determine the pressure drop in an effective way.

Nominal size	Pipe dimension - outer diameter x wall thickness							
$d_o \times s/OD \times t$ [mm]	15 x 1.0		18 x 1.0		22 x 1.2		28 x 1.2	
$d_{i/ID}$ [mm]	13.0		16.0		19.6		25.6	
Peak flow rate $V_p$ [l/s]	R [mbar/m]	v [m/s]	R [mbar/m]	v [m/s]	R [mbar/m]	v [m/s]	R [mbar/m]	v [m/s]
0.05	2.2	0.4	0.8	0.2	0.3	0.2	0.1	0.1
0.10	7.3	0.8	2.7	0.5	1.1	0.3	0.3	0.2
0.15	14.8	1.1	5.5	0.7	2.1	0.5	0.6	0.3
0.20	24.5	1.5	9.1	1.0	3.5	0.7	1.0	0.4
0.25	36.2	1.9	13.5	1.2	5.1	0.8	1.4	0.4
0.30	50.0	2.3	18.6	1.5	7.1	1.0	2.0	0.6
0.35	65.6	2.6	24.3	1.7	9.3	1.2	2.6	0.7
0.40	83.2	3.0	30.8	2.0	11.7	1.3	3.3	0.8
0.45	102.5	3.4	38.0	2.2	14.4	1.5	4.0	0.9
0.50	123.7	3.8	45.7	2.5	17.3	1.7	4.9	1.0
0.55	146.6	4.1	54.2	2.7	20.5	1.8	5.7	1.1
0.60	171.3	4.5	63.2	3.0	23.9	2.0	6.7	1.2
0.65	197.5	4.9	72.9	3.3	27.6	2.2	7.7	1.3
0.70	225.5	5.3	83.2	3.5	31.5	2.3	8.8	1.4
0.75			94.2	3.8	35.6	2.5	10.0	1.5
0.80			105.6	4.0	39.9	2.7	11.1	1.6
0.85			117.8	4.3	44.5	2.9	12.4	1.7
0.90			130.4	4.5	49.2	3.0	13.7	1.8
0.95			143.7	4.8	54.2	3.2	15.1	1.9
1.00			157.6	5.0	59.4	3.3	16.5	1.9
1.05					64.8	3.5	18.0	2.1
1.10					70.4	3.7	19.6	2.1
1.15					76.3	3.8	21.2	2.3
1.20					82.3	4.0	22.9	2.3
1.25					88.6	4.2	23.9	2.4
1.30					95.0	4.3	26.4	2.5
1.35					101.7	4.5	28.2	2.6
1.40					108.6	4.6	30.1	2.7
1.45					115.6	4.8	32.0	2.8
1.50					122.9	5.0	34.0	2.9
1.55							36.1	3.0
1.60							38.2	3.1
1.65							40.4	3.2
1.70							42.6	3.3
1.75							44.9	3.4
1.80							47.2	3.5
1.85							49.6	3.6
1.90							52.0	3.7
2.00							54.5	3.8
2.05							57.0	3.9
2.10							59.6	4.0
2.15							62.2	4.1
2.20							64.3	4.2
2.25							67.7	4.3
2.30							70.5	4.4
2.35							82.8	4.8
2.40							86.0	4.9
2.45							89.2	5.0
2.50							92.5	5.1

Nominal size	Pipe outer diameter x wall thickness					
$d_o \times s/OD \times t$ [mm]	35 x 1.5		42 x 1.5		54 x 1.5	
$d_{i/ID}$ [mm]	32		39		51	
Peak flow rate $V_p$ [l/s]	R [mbar/m]	v [m/s]	R [mbar/m]	v [m/s]	R [mbar/m]	v [m/s]
0.2	0.3	0.2	0.1	0.2	0	0.1
0.4	1.1	0.5	0.4	0.3	0.1	0.2
0.6	2.3	0.7	0.9	0.5	0.3	0.3
0.8	3.8	1.0	1.5	0.7	0.4	0.4
1.0	5.7	1.2	2.2	0.8	0.6	0.5
1.2	7.9	1.5	3.1	1.0	0.8	0.6
1.4	10.3	1.7	4.0	1.2	1.1	0.7
1.6	13.1	2.0	5.1	1.3	1.4	0.8
1.8	16.2	2.2	6.3	1.5	1.7	0.9
2.0	19.5	2.5	7.6	1.7	2.1	1.0
2.2	23.1	2.7	9.0	1.8	2.5	1.1
2.4	27.1	3.0	10.5	2.0	2.9	1.2
2.6	31.2	3.2	12.1	2.2	3.3	1.3
2.8	35.7	3.5	13.8	2.3	3.8	1.4
3.0	40.4	3.7	15.6	2.5	4.3	1.5
3.2	45.4	4.0	17.5	2.7	4.8	1.6
3.4	50.6	4.2	19.5	2.9	5.4	1.7
3.6	56.1	4.5	21.7	3.0	6.0	1.8
3.8	61.9	4.7	23.9	3.2	6.6	1.9
4.0	67.9	5.0	26.2	3.4	7.2	2.0
4.2	74.1	5.2	28.6	3.5	7.9	2.1
4.4			31.1	3.7	8.6	2.2
4.6			33.7	3.9	9.3	2.3
4.8			36.3	4.0	10.0	2.4
5.0			39.1	4.2	10.8	2.5
5.2			42.1	4.4	11.6	2.6
5.4			45.0	4.5	12.4	2.7
5.6			48.0	4.7	13.2	2.7
5.8			51.1	4.9	14.1	2.8
6.0			54.4	5.0	14.9	2.9
6.2					15.9	3.0
6.4					16.9	3.1
6.6					17.8	3.2
6.8					18.7	3.3
7.0					19.7	3.4
7.2					20.7	3.5
7.4					21.8	3.6
7.6					22.9	3.7
7.8					24.0	3.8
8.0					25.1	3.9
8.2					26.3	4.0
8.4					27.4	4.1
8.6					28.6	4.2
8.8					29.9	4.3
9.0					31.1	4.4
9.2					32.4	4.5
9.4					33.7	4.6
9.6					35.0	4.7
9.8					36.3	4.8
10.0					37.6	4.9

## 5.3 Uponor INOX Pipes

Description	Value
Material	Austenitic stainless steel 1.4404 (X2CrNiMo 17-12-2, AISI 316L)
Tensile strength	490 - 690 N/mm <sup>2</sup>
Yield resistance	≥ 190 N/mm <sup>2</sup>
Longitudinal lengthening	≥ 40 %
Bending radius	≥ 3.5 x d (≤ 28 mm)
Pipe roughness	0.0015 mm
Thermal conductivity	15 W/(m x K)
Linear expansion coefficient	0.0165 mm/(m x K)

Outer diameter x Wall thickness d x s [mm]	Inner diameter [mm]	DN	Water volume [l/m]	Weight empty [kg/m]	Weight with water 10°C [kg/m]
15.0 x 1.0	13.0	12	0.133	0.351	0.484
18.0 x 1.0	16.0	15	0.201	0.426	0.627
22.0 x 1.2	19.6	20	0.302	0.625	0.927
28.0 x 1.2	25.6	25	0.514	0.805	1.319
35.0 x 1.5	32.0	32	0.804	1.258	2.062
42.0 x 1,5	39.0	40	1.195	1.521	2.716
54.0 x 1.5	51.0	50	2.043	1.972	4.015

Pipe length: 6000 mm

## 5.4 O-rings



Item	Value
Material	EPDM black
Diameter	15 - 54 mm
Temperature range	-20 - +120 °C
Pressure	maximum 16 bar
Maximum related depression	-0.8 bar (absolute pressure: 0.2 bar)

## 5.5 Approvals and conformity

Uponor INOX press system is certified for drinking water applications according to the following standards and guidelines with its respective (operative) limits and tolerances.

- DVGW W 534
- DVGW GW 541
- DVGW W 270
- Kiwa BRL-K774
- Kiwa BRL-K762

## Mixed installation

	<p><b>Note</b></p> <p><b>Uponor Declaration of Warranty:</b></p> <p>To get the registration form, please contact the local Uponor unit.</p>
	<p><b>Note</b></p> <p>Components from the different Uponor systems may only be mixed with one another if Uponor expressly indicates this option.</p>

Opinions and interpretations vary relating to mixed installations and different information exists in the marketplace regarding unrestricted compatibility with our products, so, as a precautionary measure, the company states the following: the company offers no guarantee regarding the compatibility of the relevant third party products with our products.

Documentation available to Uponor from dealers/third-party manufacturers state that it is not apparent that the compatibility claimed by them is covered by a full warranty.

In cases of mixed installations, the 10-year Uponor Declaration of Warranty will not generally be issued for Uponor components. The legal warranty period will still apply.

## Transition couplings



Direct transition to Uponor composite pipe is possible using the Uponor S-Press coupling on stainless steel/CU M.

RP0000225

# Uponor

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Production: Uponor/DCO

Uponor reserves the right to make changes, without prior notification,  
to the specification of incorporated components in line with its policy of  
continuous improvement and development.



[www.uponor.com](http://www.uponor.com)