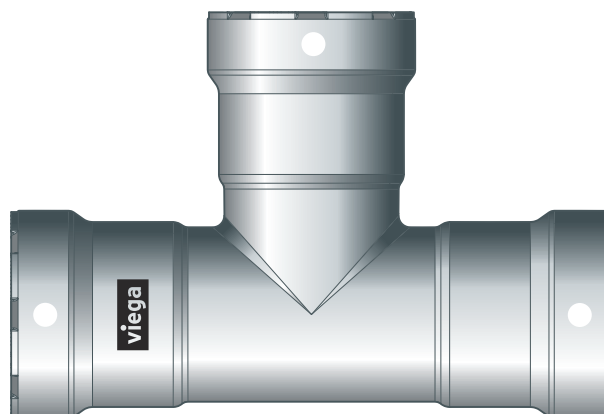


# Instructions for Use

## Megapress S



Press connector system made of non-alloy steel for thick-walled steel pipes

**System**  
Megapress S

**Year built (from)**  
09/2018



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# 1 About these instructions for use

Trade mark rights exist for this document; for further information, go to [viega.com/legal](http://viega.com/legal).

## 1.1 Target groups

The information in this manual is directed at heating and sanitary professionals and trained personnel.

Individuals without the abovementioned training or qualification are not permitted to mount, install and, if required, maintain this product. This restriction does not extend to possible operating instructions.

The installation of Viega products must take place in accordance with the general rules of engineering and the Viega instructions for use.

## 1.2 Labelling of notes

Warning and advisory texts are set aside from the remainder of the text and are labelled with the relevant pictographs.



### **DANGER!**

This symbol warns of possible life-threatening injury.



### **WARNING!**

This symbol warns of possible serious injury.



### **CAUTION!**

This symbol warns of possible injury.



### **NOTICE!**

This symbol warns of possible damage to property.



This symbol gives additional information and hints.

### 1.3 About this translated version

This instruction for use contains important information about the choice of product or system, assembly and commissioning as well as intended use and, if required, maintenance measures. The information about the products, their properties and application technology are based on the current standards in Europe (e.g. EN) and/or in Germany (e.g. DIN/DVGW).

Some passages in the text may refer to technical codes in Europe/Germany. These should serve as recommendations in the absence of corresponding national regulations. The relevant national laws, standards, regulations, directives and other technical provisions take priority over the German/European directives specified in this manual: The information herein is not binding for other countries and regions; as said above, they should be understood as a recommendation.

## 2 Product information



### These instructions for use contain videos

Some assembly and action steps are shown using the example of a piping system other than the one described here, but are equally applicable.

### 2.1 Standards and regulations

The following standards and regulations apply to Germany / Europe and are provided as a support feature.

#### Regulations from section: Application areas

| Scope / Notice   | Regulations applicable in Germany |
|--|-----------------------------------|
| No application for fuel gases  | DVGW G 260                        |
| Planning, setup, operation and maintenance of fire extinguishing systems | DIN 14462                         |
| Use in local and district heating systems                                | AGFW FW 524                       |

#### Regulations from section: Media

| Scope / Notice   | Regulations applicable in Germany        |
|--|--|
| Suitability for heating water for pump hot water heating systems | VDI-Richtlinie 2035, Sheet 1 and Sheet 2 |

**Regulations from section: Pipes**

| Scope / Notice   | Regulations applicable in Germany |
|--|-----------------------------------|
| Differentiation of pipe types and pipe series                | DIN EN 10255                      |
| Requirements in steel pipes - Boiler pipe quality            | DIN EN 10220                      |
| Requirements in steel pipes - Boiler pipe quality            | DIN EN 10216-1                    |
| Requirements in steel pipes - Boiler pipe quality            | DIN EN 10217-1                    |
| External protective coatings (galvanisation) for steel pipes | DIN EN 10240                      |
| Fixing distance between the pipe clamps                      | VdS CEA 4001                      |

**Regulations from section: Sealing elements**

| Scope / Notice  | Regulations applicable in Germany |
|---|-----------------------------------|
| Area of application of the FKM sealing element<br>■ Heating                 | DIN EN 12828                      |
| Area of application of the FKM sealing element<br>■ Local and district heat | AGFW FW 524                       |

**Regulations from section: Storage**

| Scope / Notice                    | Regulations applicable in Germany |
|-----------------------------------|-----------------------------------|
| Requirements for material storage | DIN EN 806-4, Chapter 4.2         |

**Regulations from section: Notes on mounting**

| Scope / Notice   | Regulations applicable in Germany |
|--|-----------------------------------|
| Requirements and notes for fire extinguisher and sprinkler systems       | VdS-Anerkennung G 414021          |
| Permissible pressures, nominal widths and application conditions         | VdS 2100-26-2: 2012-04, Table A.1 |
| Fixing distances<br>Fire risk classes                                    | VdS CEA 4001, Section 15.2        |
| Minimum pipe wall thickness for nominal widths up to and including DN 50 | VdS CEA 4001, table 15.01         |
| External protective coatings (galvanisation) for steel pipes             | DIN EN 10240                      |

**Regulations from section: Establishing a flange connection**

| Scope / Notice  | Regulations applicable in Germany |
|---|-----------------------------------|
| Qualification of personnel for the assembly of flange connections | VDI-Richtlinie 2290               |
| Determination of tightening torques                               | DIN EN 1591-1                     |

**Regulations from section: Leakage test**

| Scope / Notice  | Regulations applicable in Germany   |
|---|---|
| Test on a system that is finished but not yet covered | DIN EN 806-4  |
| Leakage test for water installations                  | ZVSHK-Merkblatt:<br>"Dichtheitsprüfungen von Trinkwasserinstallationen mit Druckluft, Inertgas oder Wasser" |
| Pressure test in sprinkler units                      | VdS CEA 4001, Chapter 17  |
| Requirements for filling and top-up water             | VDI 2035  |

## 2.2 Intended use



Agree the use of the system for areas of application and media other than those described with Viega.

### 2.2.1 Areas of application

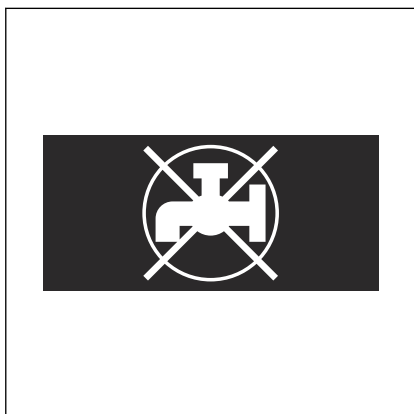


Fig. 1: "Non-potable water"

The system is intended for use in industrial, heating and cooling systems and is a replacement for welded, threaded and rolled-groove connections for new installations and repairs. The system is not suitable for use in potable water installations. For this reason, the press connectors are labelled with a black symbol "Not potable water".

Do not use the piping system for fuel gases, see ↪ 'Regulations from section: Application areas' on page 5.

The press connector system is designed for nominal pressure PN 16.

Use is possible in the following areas among others:

- Closed heating and cooling circuits
- Sprinkler systems
- Fire extinguishing systems, see ↪ 'Regulations from section: Application areas' on page 5
- Compressed air systems
- Systems for technical gases (on request)
- Local and district heating systems after entry into the building, see ↪ 'Regulations from section: Application areas' on page 5

For information on areas of application of the sealing elements, see ↪ Chapter 2.3.4 'Sealing elements' on page 16.

### 2.2.2 Media

The system is suitable for the following media, amongst others:

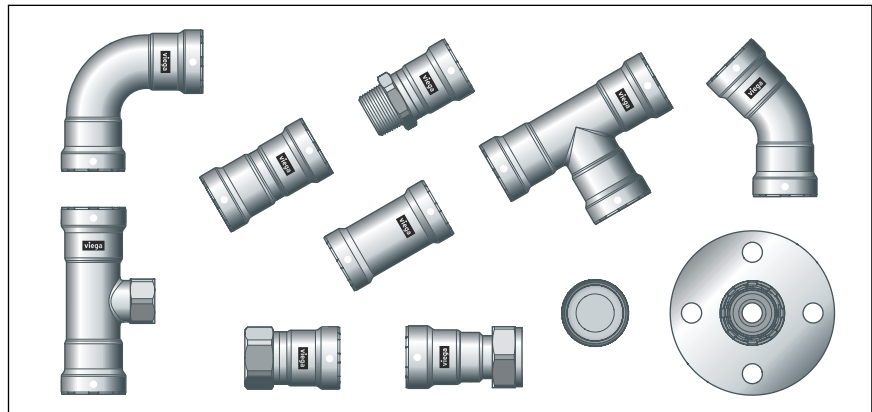
For the applicable directives, see ↪ 'Regulations from section: Media' on page 5.

- Heating water for closed pump hot water heating systems
- Compressed air (dry) in compliance with the specification of the sealing elements being used
- Anti-freeze, cooling brines up to a concentration of 50 %
- technical gases (on request)

## 2.3 Product description

### 2.3.1 Overview

The piping system consists of press connectors for thick-walled steel pipes and the corresponding press tools.



**Fig. 2: Megapress S press connectors**

The system components are available in the following dimensions:  
 $D\frac{3}{8}$  (DN10),  $D\frac{1}{2}$  (DN15),  $D\frac{3}{4}$  (DN20), D1 (DN25),  $D1\frac{1}{4}$  (DN32),  
 $D1\frac{1}{2}$  (DN40), D2 (DN50).

### 2.3.2 Pipes

Megapress S press connectors may be used with the following seamless (S) or longitudinal welded (W) steel pipes:

- Black
- Galvanised
- Industrially painted
- Powder coated

The steel pipes must correspond to the applicable regulations, see  
 ↗ *'Regulations from section: Pipes'* on page 6



If the pipe has been coated, the maximum external diameter mentioned in the table must not be exceeded.

#### Pipe overview – threaded pipe quality

The standard differentiates between heavy pipe series H and medium pipe series M or between pipe type L, L 1 and L 2. Seamless pipes and pipes welded along the longitudinal seam belong to the different pipe series and pipe types, see ↗ *'Regulations from section: Pipes'* on page 6.

**Threaded pipe quality – heavy series H and medium series M**

| Thread size [inch] | Nominal width [DN] | Nominal external diameter [mm] | Min. external diameter incl. coating [mm] | Max. external diameter incl. coating [mm] | Wall thickness heavy series H [mm] | Wall thickness medium series M [mm] |
|--------------------|--------------------|--------------------------------|---|---|------------------------------------|-------------------------------------|
| 3/8                | 10                 | 17.2                           | 16.7                                      | 17.5                                      | 2.9                                | 2.3                                 |
| 1/2                | 15                 | 21.3                           | 21.0                                      | 21.8                                      | 3.2                                | 2.6                                 |
| 3/4                | 20                 | 26.9                           | 26.5                                      | 27.3                                      | 3.2                                | 2.6                                 |
| 1                  | 25                 | 33.7                           | 33.3                                      | 34.2                                      | 4.0                                | 3.2                                 |
| 1 1/4              | 32                 | 42.4                           | 42.0                                      | 42.9                                      | 4.0                                | 3.2                                 |
| 1 1/2              | 40                 | 48.3                           | 47.9                                      | 48.8                                      | 4.0                                | 3.2                                 |
| 2                  | 50                 | 60.3                           | 59.7                                      | 60.8                                      | 4.5                                | 3.6                                 |

**Threaded pipe quality – pipe type L and pipe type L 1**

| Thread size [inch] | Nominal width [DN] | Nominal external diameter [mm] | Min. external diameter incl. coating [mm] | Max. external diameter incl. coating [mm] | Wall thickness [mm] |
|--------------------|--------------------|--------------------------------|---|---|---------------------|
| 3/8                | 10                 | 17.2                           | 16.7                                      | 17.4                                      | 2.0                 |
| 1/2                | 15                 | 21.3                           | 21.0                                      | 21.7                                      | 2.3                 |
| 3/4                | 20                 | 26.9                           | 26.4                                      | 27.1                                      | 2.3                 |
| 1                  | 25                 | 33.7                           | 33.2                                      | 34.0                                      | 2.9                 |
| 1 1/4              | 32                 | 42.4                           | 41.9                                      | 42.7                                      | 2.9                 |
| 1 1/2              | 40                 | 48.3                           | 47.8                                      | 48.6                                      | 2.9                 |
| 2                  | 50                 | 60.3                           | 59.6                                      | 60.7                                      | 3.2                 |

**Threaded pipe quality – pipe type L 2**

| Thread size [inch] | Nominal width [DN] | Nominal external diameter [mm] | Min. external diameter incl. coating [mm] | Max. external diameter incl. coating [mm] | Wall thickness [mm] |
|--------------------|--------------------|--------------------------------|---|---|---------------------|
| 3/8                | 10                 | 17.2                           | 16.7                                      | 17.1                                      | 1.8                 |
| 1/2                | 15                 | 21.3                           | 21.0                                      | 21.4                                      | 2.0                 |
| 3/4                | 20                 | 26.9                           | 26.4                                      | 26.9                                      | 2.3                 |
| 1                  | 25                 | 33.7                           | 33.2                                      | 33.8                                      | 2.6                 |
| 1 1/4              | 32                 | 42.4                           | 41.9                                      | 42.5                                      | 2.6                 |
| 1 1/2              | 40                 | 48.3                           | 47.8                                      | 48.4                                      | 2.9                 |
| 2                  | 50                 | 60.3                           | 59.6                                      | 60.2                                      | 2.9                 |

## Pipe overview – boiler pipe quality

The standards differentiate between pipe series 1, 2 and 3. They recommend using installation pipe series 1 as pipe series 2 and 3 are either not or not always available in practice. Pipe series 1 includes seamless pipes and pipes welded along the longitudinal seam, see ↗ 'Regulations from section: Pipes' on page 6.

### Boiler pipe quality – pipe series 1

| Thread size<br>[Inch] | Nominal width<br>[DN] | Nominal external diameter<br>[mm] | Min. external diameter<br>incl. coating<br>[mm] | Max. external diameter<br>incl. coating<br>[mm] | Possible pipe wall thickness<br>for seam-<br>less pipes <sup>1)</sup><br>[mm] | Possible pipe wall thick-<br>ness for pipes welded<br>along the longitudinal<br>seam <sup>1)</sup><br>[mm] |
|-----------------------|-----------------------|-----------------------------------|---|---|---|--|
| 3/8                   | 10                    | 17.2                              | 16.7  | 17.7  | 1.8–4.5   | 1.4–4.0  |
| 1/2                   | 15                    | 21.3                              | 20.8  | 21.8  | 2.0–5.0   | 1.4–4.5  |
| 3/4                   | 20                    | 26.9                              | 26.4  | 27.4  | 2.0–8.0   | 1.4–5.0  |
| 1                     | 25                    | 33.7                              | 33.2  | 34.2  | 2.3–8.8   | 1.4–8.0  |
| 1 1/4                 | 32                    | 42.4                              | 41.9  | 42.9  | 2.6–10.0  | 1.4–8.8  |
| 1 1/2                 | 40                    | 48.3                              | 47.8  | 48.8  | 2.6–12.5  | 1.4–8.8  |
| 2                     | 50                    | 60.3                              | 59.7  | 60.9  | 2.9–16.0  | 1.4–10.0   |

<sup>1)</sup> see ↗ 'Regulations from section: Pipes' on page 6

## Laying and fixing pipes

Only pipe clamps with chloride-free sound insulating inlays should be used to secure the pipes.

Observe the general rules of fixing technology:

- Do not use fixed pipelines as a support for other pipelines and components.
- Do not use pipe hooks.
- Observe the expansion direction: Plan fixed and gliding points.

### Distance between the pipe clamps

| Ø<br>external<br>[mm] | Nominal width<br>[inch] | Fixing distance<br>between<br>the pipe clamps<br>[m] pursuant<br>to manufacturer's<br>information | Fixing distance<br>between<br>the pipe clamps<br>[m] <sup>1)</sup> |
|-----------------------|-------------------------|---|--|
| 17.2                  | 3/8                     | 2.25  | –  |
| 21.3                  | 1/2                     | 2.75  | –  |

<sup>1)</sup> see ↗ 'Regulations from section: Pipes' on page 6

| Ø external [mm] | Nominal width [inch] | Fixing distance between the pipe clamps [m] pursuant to manufacturer's information | Fixing distance between the pipe clamps [m] <sup>1)</sup> |
|-----------------|----------------------|--|---|
| 26.9            | ¾                    | 3.00   | 4.00  |
| 33.7            | 1                    | 3.50   | 4.00  |
| 42.4            | 1¼                   | 3.75   | 4.00  |
| 48.3            | 1½                   | 4.25   | 4.00  |
| 60.3            | 2                    | 4.75   | 4.00  |

<sup>1)</sup> see ↗ 'Regulations from section: Pipes' on page 6

## Length expansion

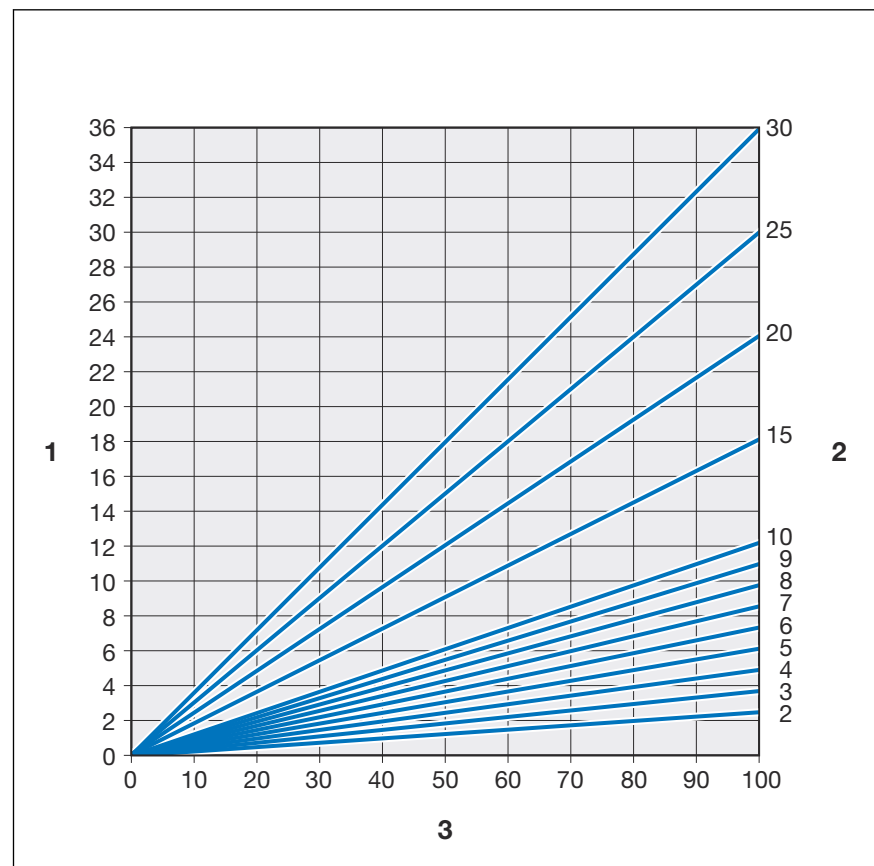
Pipelines expand with heat. Heat expansion is dependent on the material. Changes in length lead to tension within the installation. These tensions must be compensated for with suitable measures.

The following are effective:

- Fixed and gliding points
- Expansion equalisation joints (expansion bends)
- Compensators

### Heat expansion co-efficients of various pipe materials

| Material | Heat expansion co-efficient $\alpha$ [mm/mK] | Example: Length expansion with pipe lengths $L = 20$ m and $\Delta T = 50$ K [mm] |
|----------|--|---|
| Steel    | 0.0120                                       | 12.0  |



**Fig. 3: Length expansion steel pipes**

- 1 - Length expansion  $\vec{\Delta}l$  [mm]
- 2 - Pipe length  $\vec{l}_0$  [m]
- 3 - Temperature difference  $\vec{\Delta}\theta$  [K]

The length expansion  $\Delta l$  can be taken from the diagram or can be calculated using the following formula:

$$\Delta l = \alpha \text{ [mm/mK]} \times L \text{ [m]} \times \Delta\theta \text{ [K]}$$

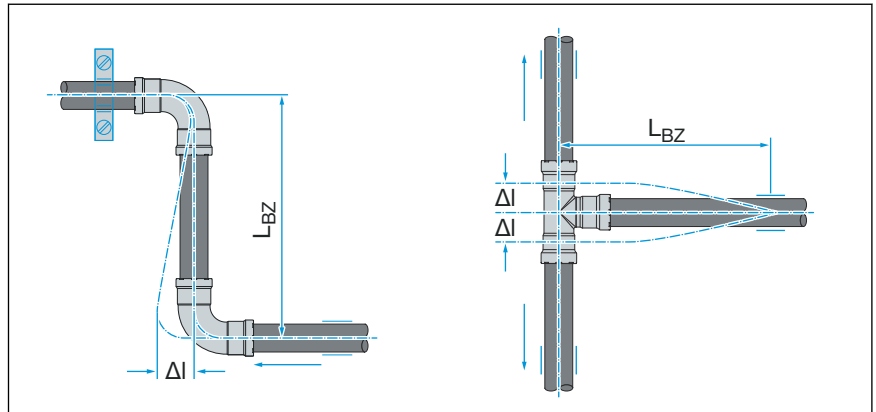


Fig. 4: Z-shaped and T-shaped expansion bends

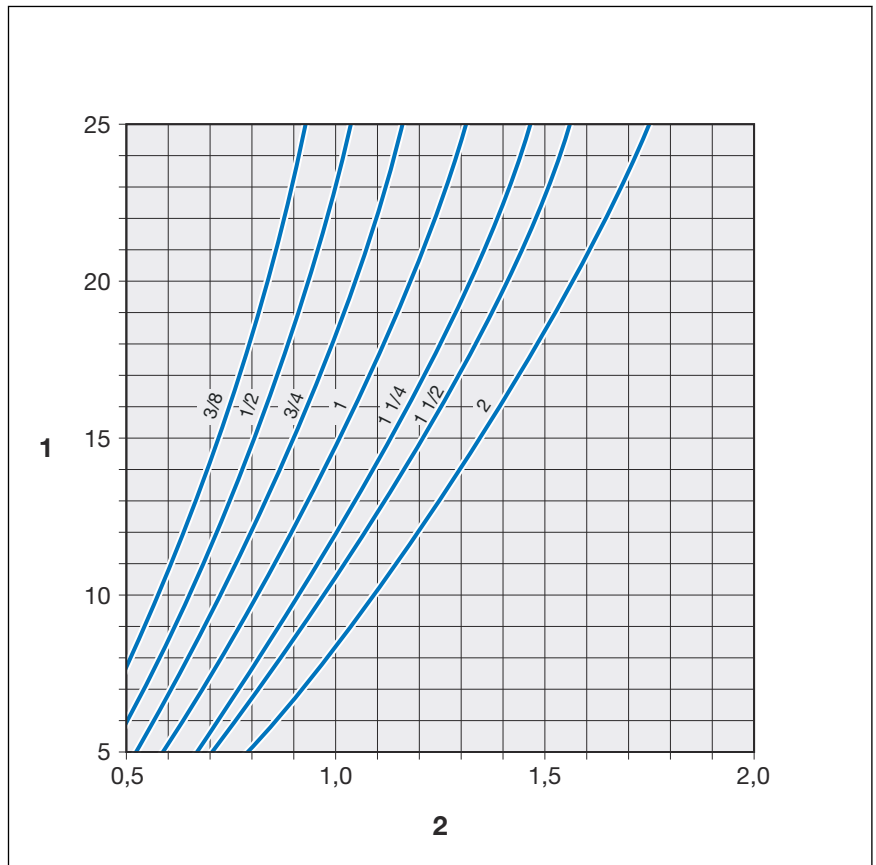


Fig. 5: Z- and T-shaped expansion bends for Megapress S 3/8 to 2 inches

- 1 - Expansion compensation  $\rightarrow \Delta l$  [mm]
- 2 - Pipe bend length  $\rightarrow L_{BZ}$  [m]

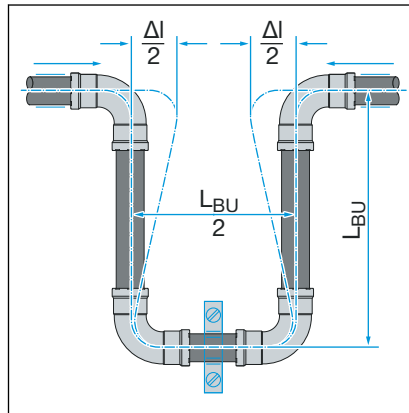


Fig. 6: U-shaped expansion bend

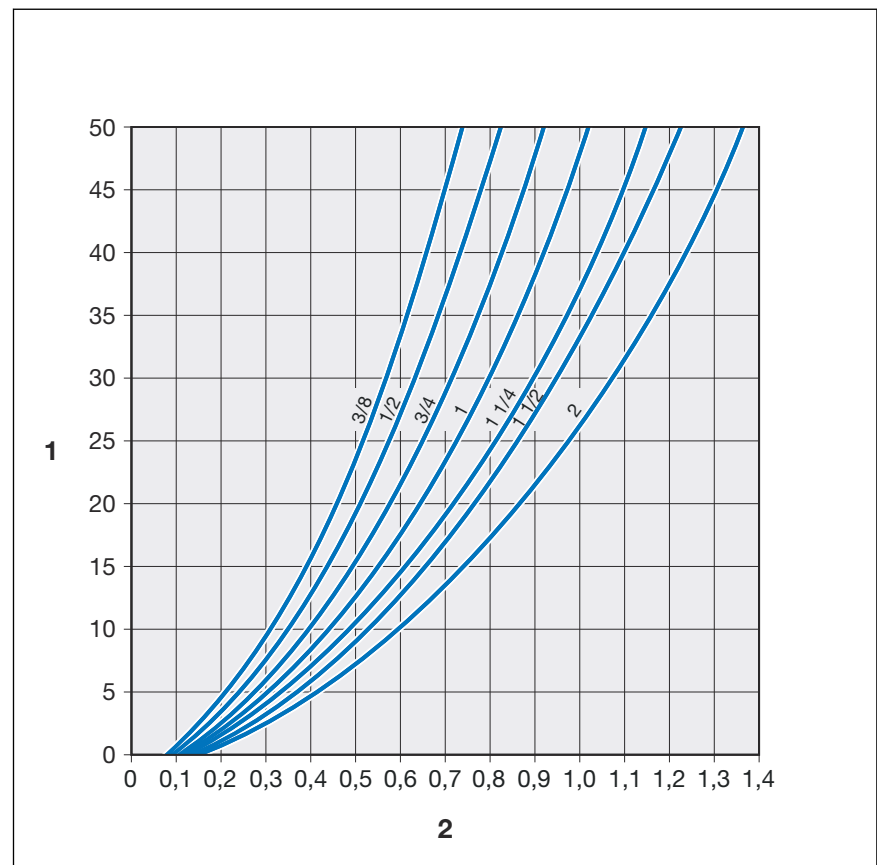


Fig. 7: U-shaped expansion bend for Megapress S  $\frac{3}{8}$  to 2 inches

- 1 - Expansion compensation  $\rightarrow \Delta l$  [mm]
- 2 - Pipe bend length  $\rightarrow L_{BZ}$  [m]

### 2.3.3 Press connectors

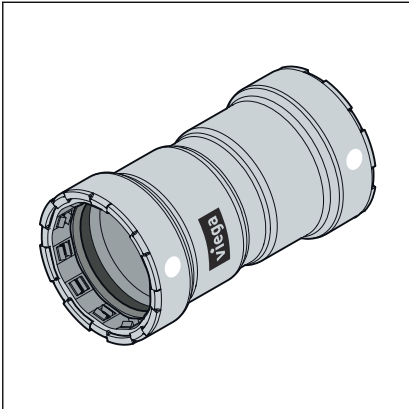


Fig. 8: Megapress S press connectors

Press connectors are available in a number of shapes. An overview of the press connectors suitable for the system can be found in the catalogue.

The Megapress S press connectors consist of non-alloy steel (material 1.0308) and have an external 3–5 µm zinc-nickel coating. There is a cutting ring, a separator ring, and a round sealing element in the bead of the press connector. The cutting ring cuts into the pipe during pressing and ensures a force-fit connection.

During installation, and later during the pressing, the separator ring protects the sealing element from damage from the cutting ring.

#### SC-Contur

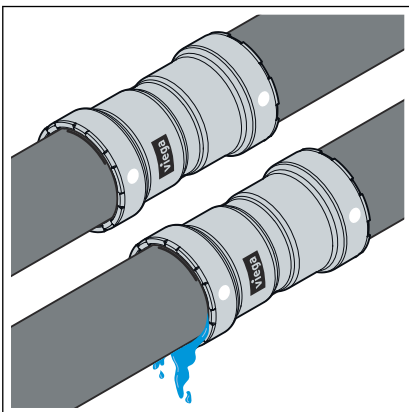


Fig. 9: SC-Contur

Viega press connectors are equipped with the SC-Contur. SC-Contur is a safety mechanism certified by the DVGW and ensures that the press connector leaks in an unpressed state. In this way, inadvertently unpressed connections are noticed during a leakage test.

Viega guarantees that accidentally unpressed connections become visible during a leakage test:

- with the wet leakage test in the pressure range from 0.1–0.65 MPa (1.0–6.5 bar)
- with dry leakage test in the pressure range from 22 hPa–0.3 MPa (22 mbar–3.0 bar)

### 2.3.4 Sealing elements

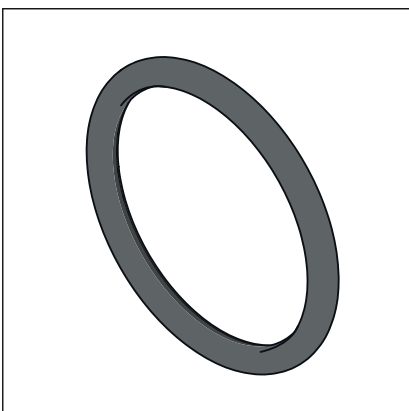


Fig. 10: FKM round sealing element

Megapress S press connectors are factory-fitted with round sealing elements made of FKM.

**Area of use of the FKM round sealing element**

| Area of application                        | Heating  | Local and district heat  | Solar installations | Compressed air        |
|--|--|--|---------------------|-----------------------|
| Use  | Pump hot water heating system  | Direct connections and primary circuits of indirectly connected systems (only in the building)   | Solar circuit       | all pipeline sections |
| Operating temperature [T <sub>max.</sub> ] | -5–140 °C  | According to the applicable regulations <sup>2)</sup><br>T <sub>max.</sub> : 140 °C  | <sup>1)</sup>       | 60 °C                 |
| Operating pressure [P <sub>max.</sub> ]    | 1.6 MPa (16 bar)   | 1.6 MPa (16 bar)   | 0.6 MPa (6 bar)     | 1.6 MPa (16 bar)      |
| Comments                                   | pursuant to the applicable regulations <sup>2)</sup><br>T <sub>max.</sub> : 105 °C | Deviating network parameters <sup>1)</sup><br>Observe the technical connection conditions (TAB) of the responsible district heating supplier | —                   | <sup>3)</sup><br>dry  |

<sup>1)</sup> Consultation with Viega required

<sup>2)</sup> see ↗ ‘Regulations from section: Sealing elements’ on page 6

<sup>3)</sup> See also document “Areas of application for metal installation systems” on the Viega website



The sealing materials of the press connector system are subject to thermal ageing, which depends on the media temperature and the service life. The higher the media temperature, the faster the thermal ageing of the sealing material progresses. In the case of special operating conditions such as industrial heat recovery systems, it is necessary to compare the specifications of the equipment manufacturer with the specifications of the press connector system.

Before using the press connector system outside the described areas of application or if in doubt about the correct material selection, please contact Viega.

**2.3.5 Technical data**

Observe the following operating conditions for the installation of the system:

|                                      |                  |
|--------------------------------------|------------------|
| Operating temperature [ $T_{\max}$ ] | 140 °C           |
| Operating pressure [ $P_{\max}$ ]    | 1.6 MPa (16 bar) |

### 2.3.6 Marks on components

The press connectors are marked with a coloured dot. The dot identifies the SC-Contur where the test medium would escape in the case of an inadvertently unpressed connection.

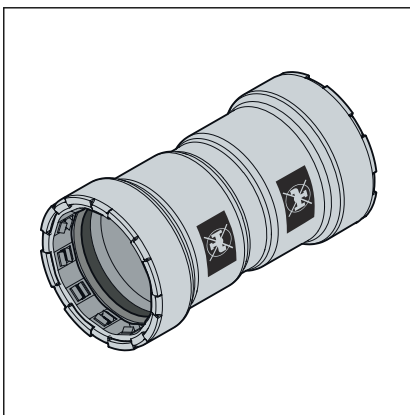


Fig. 11: Inscription "Not suitable for potable water"

The white dot indicates that the press connection is equipped with the FKM round sealing element and with the SC-Contur.

The black rectangle serves as a warning "Not suitable for potable water".

The rectangle is to be found in the following places:

- On the press end of the press connector
- On the flange of the flange adapter

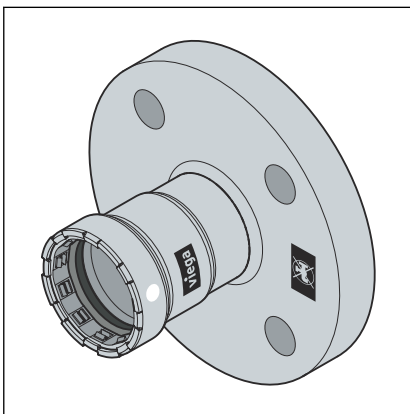


Fig. 12: White dot and inscription "Not suitable for potable water"

## 2.4 Information for use

### 2.4.1 Corrosion

A zinc-nickel coating protects Megapress S press connectors against external corrosion, e. g. in the case of arising condensation water in cooling systems.



Pipes must be equipped with suitable corrosion protection.

Pipes and press connectors must be insulated according to the general rules of engineering.

Observe the manufacturer's information.

## 3 Handling

### 3.1 Transport

Observe the following when transporting pipes:

- Do not pull the pipes over the sill. The surface could be damaged.
- Secure pipes during transportation. Pipes may become bent due to shifting.
- Do not damage the protective caps on the pipe ends and do not remove them until immediately before mounting. Damaged pipe ends must not be pressed.



In addition, observe the instructions provided by the pipe manufacturer.

### 3.2 Storage

For storage, comply with the requirements specified in the applicable regulations, see ↗ *'Regulations from section: Storage' on page 6:*

- Store components in a clean and dry place.
- Do not store the components directly on the floor.
- Provide at least three points of support for the storage of pipes.
- Where possible, store different sizes separately.  
Store small sizes on top of larger sizes if separate storage is not possible.
- Store pipes of different materials separately to prevent contact corrosion.



In addition, observe the instructions provided by the pipe manufacturer.

### 3.3 Assembly information

#### 3.3.1 Mounting instructions

System components may, in some cases, become damaged through transportation and storage.

- Only use original parts in perfect condition.
- Damaged parts must be replaced. Do not attempt to repair them.
- Store products in a clean and dry place.

- Check the installation pipes for suitable surface properties and the min./max. external diameter.
- Do not press on embossed pipe markings.
- Pipes and press connectors must be insulated pursuant to the general rules of engineering.

### Fire extinguisher and sprinkler systems

The following requirements must be observed:

- For the applicable directives, see ↗ *'Regulations from section: Notes on mounting'* on page 7
- Compliance with the data from the following table



For sprinkler systems in compliance with VdS, only black, galvanised, or powder-coated steel pipes according to the specifications for VdS approval may be used.

For nominal widths up to and including DN 50, the minimum pipe wall thickness of 2.6 mm and the maximum wall thickness of 3.3 mm are applicable. For the distances and arrangement (fixing intervals) for steel pipes according to current regulations, see ↗ *'Regulations from section: Notes on mounting'* on page 7.

### Permissible pressures, nominal widths and application conditions

|                                |   |
|--------------------------------|---|
| Permitted pressure             | 1.6 MPa (16 bar)  |
| Nominal widths                 | D <sup>3/4</sup> -2   |
| Pipe wall thickness            | min. 2.6 mm; max 3.3 mm   |
| Area of use (pipeline network) | <p>Wet sprinkler units:</p> <ul style="list-style-type: none"> <li>■ Piping network downstream of the alarm valve station</li> </ul> <p>Dry sprinkler units:</p> <ul style="list-style-type: none"> <li>■ Piping network downstream of the alarm valve station</li> </ul> |
| Fixing intervals               | 1)  |
| Firefighting water additive    | Generally not permitted; exceptions only with the manufacturer's permission and prior agreement of the VdS  |

1) see ↗ *'Regulations from section: Notes on mounting'* on page 7

The following fire hazard classes are covered by Megapress S:

- Fire hazard class LH (light hazard)
- Fire hazard class OH 1-4 (ordinary hazard)
- Fire hazard class HHP 1-4 (extra hazard, production risks)
- Fire hazard class HHS 1-4 (extra hazard, storage risks)

See ↗ *'Regulations from section: Notes on mounting'* on page 7.

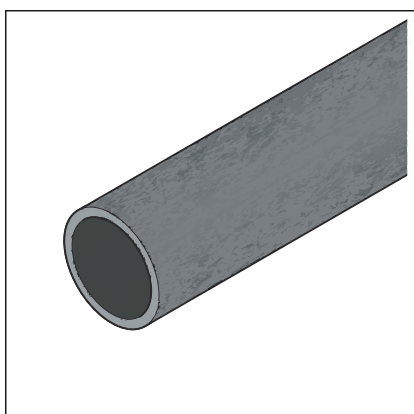
## Preparation of the pipes

As long as they are free from dirt, smooth, firm, even and undamaged, the following pipe surfaces are suitable for the production of press connections without further treatment:

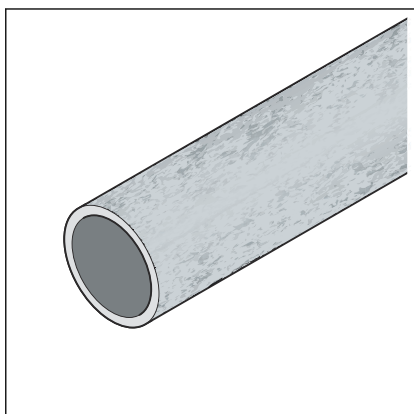


### NOTICE!

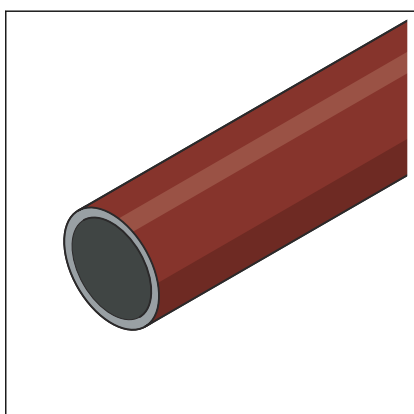
Always check the quality of the pipe surface on the complete pipe circumference. For permanently installed existing pipes, for example, Viega recommends the use of a mirror to be able to check the surface quality on the complete pipe circumference.



Black uncoated pipes

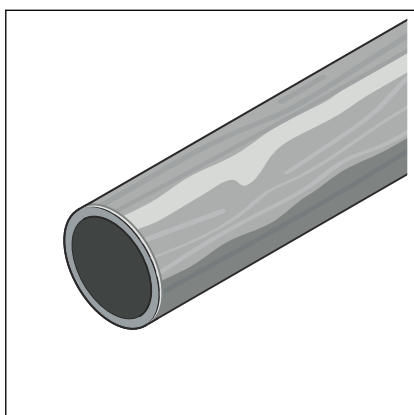


Galvanised pipes, for galvanisation see ↗ *'Regulations from section: Notes on mounting'* on page 7 (maximum external diameter in acc. with ↗ *Chapter 2.3.2 'Pipes'* on page 9)



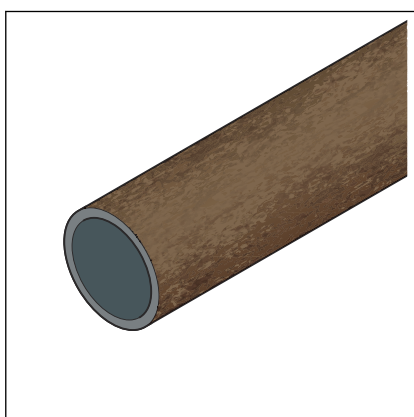
Industrially painted or powder-coated pipes (maximum external diameter in acc. with ↗ *'Regulations from section: Notes on mounting'* on page 7)

Pipe surfaces must be treated around the press connection if they exhibit the following characteristics:

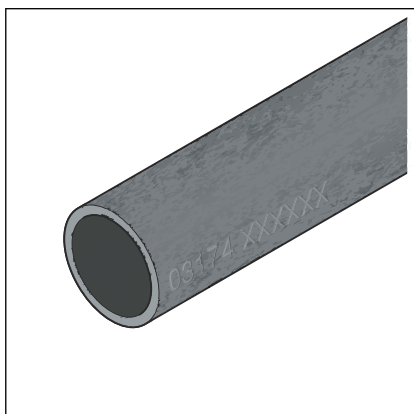


Uneven, manually applied layers of paint

Exceeding the maximum external diameter due to coating that has been applied, see [Chapter 2.3.2 'Pipes' on page 9](#).



Bumps, damage, grooves, corrosion or loose adhesions

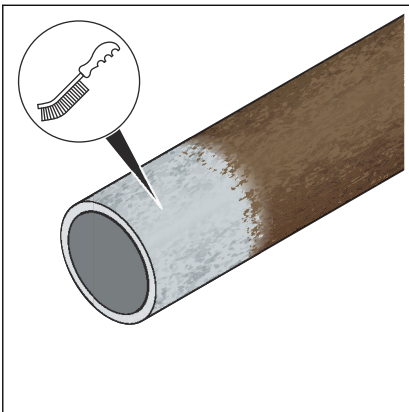


**NOTICE!**  
**Leaky press connection**

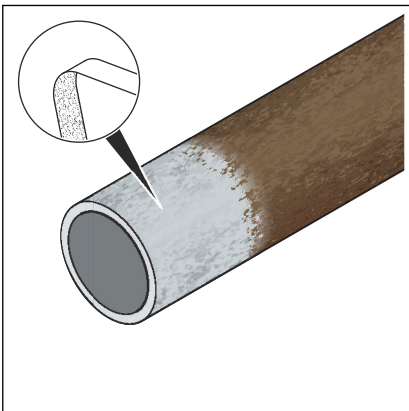
Pressings on the embossed pipe marking may cause leaking.

- Do not carry out pressings on the embossed pipe marking.

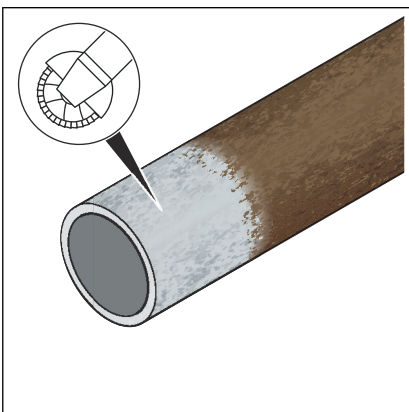
The following are examples of suitable tools for the work:



► Wire brush



► Cleaning fleece or sanding paper (grain > 80)



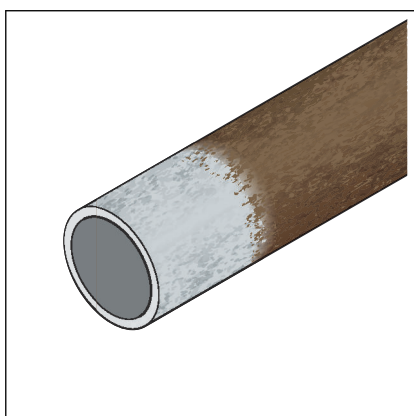
► Angle grinder with serrated washer

After the treatment, the quality of the pipe surface should be as shown in the following graphic:



#### NOTICE!

Always check the quality of the pipe surface on the complete pipe circumference. For permanently installed existing pipes, for example, Viega recommends the use of a mirror to be able to check the surface quality on the complete pipe circumference.



The external diameter of the installation pipe must not fall below the minimum value, see ↗ *Chapter 2.3.2 'Pipes' on page 9.*

In systems where complete corrosion protection is required (e. g. cooling systems), those parts of the previously processed pipe surface that are uncovered after pressing must subsequently be equipped with suitable corrosion protection.

### 3.3.2 Potential equalisation



#### DANGER!

##### Danger due to electrical current

An electric shock can lead to burns and serious injury and even death.

Because all metallic piping systems conduct electricity, unintentional contact with a live part can lead to the whole piping system and components connected to it (e. g. radiators) becoming energised.

- Only allow electrical work to be carried out by qualified electricians.
- Always integrate the metal piping system into the potential equalisation.

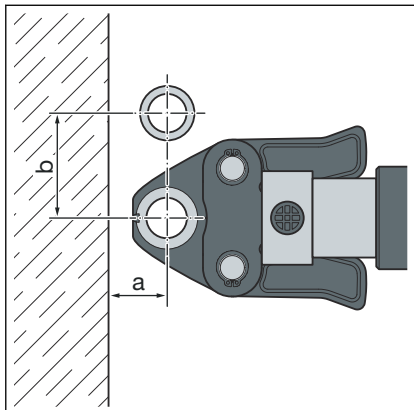


It is the fitter of the electrical system who is responsible for ensuring that the potential equalisation is tested and secured.

### 3.3.3 Space requirements and intervals

The minimum distance to welding seams and bending points must be  $3 \times D$  – however at least 100 mm.

**Pressing between pipelines**

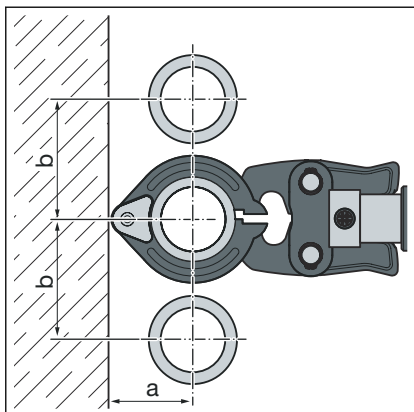


Space required Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 B, 6 Plus

| D      | ¾  | ½  | ¾  | 1  |
|--------|----|----|----|----|
| a [mm] | 30 | 30 | 35 | 45 |
| b [mm] | 70 | 70 | 80 | 95 |

Space requirement Picco, Pressgun Picco, Pressgun Picco 6, Pressgun Picco 6 Plus

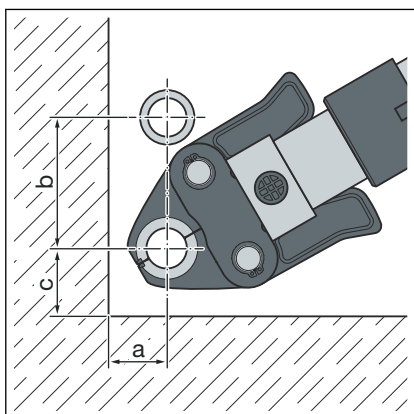
| D      | ¾  | ½  | ¾  |
|--------|----|----|----|
| a [mm] | 30 | 30 | 35 |
| b [mm] | 70 | 70 | 80 |



Space requirement press rings D¾-2

| D      | ¾  | ½  | ¾  | 1   | 1¼  | 1½  | 2   |
|--------|----|----|----|-----|-----|-----|-----|
| a [mm] | 60 | 60 | 75 | 75  | 95  | 105 | 105 |
| b [mm] | 75 | 75 | 85 | 100 | 125 | 135 | 140 |

**Pressing between pipe and wall**

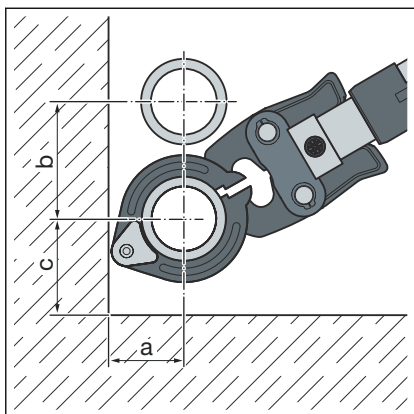


Space required PT1, Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 B, 6 Plus

| D      | ¾  | ½  | ¾  | 1   |
|--------|----|----|----|-----|
| a [mm] | 35 | 35 | 40 | 50  |
| b [mm] | 80 | 80 | 90 | 105 |
| c [mm] | 50 | 50 | 55 | 65  |

Space requirement Picco, Pressgun Picco, Pressgun Picco 6, Pressgun Picco 6 Plus

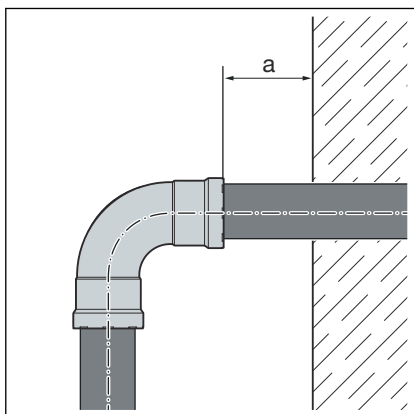
| D      | ¾  | ½  | ¾  |
|--------|----|----|----|
| a [mm] | 60 | 60 | 65 |
| b [mm] | 75 | 75 | 85 |
| c [mm] | 80 | 80 | 80 |



**Space requirement press rings D $\frac{3}{8}$ -2**

| D      | $\frac{3}{8}$ | $\frac{1}{2}$ | $\frac{3}{4}$ | 1   | 1 $\frac{1}{4}$ | 1 $\frac{1}{2}$ | 2   |
|--------|---------------|---------------|---------------|-----|-----------------|-----------------|-----|
| a [mm] | 60            | 60            | 75            | 75  | 95              | 105             | 105 |
| b [mm] | 75            | 75            | 85            | 100 | 125             | 135             | 140 |
| c [mm] | 80            | 80            | 80            | 80  | 80              | 80              | 80  |

**Wall distance**



**Minimum distance with press jaws D $\frac{3}{8}$ -1**

| Press machine                            | a <sub>min</sub> [mm] |
|--|-----------------------|
| Type 2 (PT2)                             | 50                    |
| Type PT3-EH                              |                       |
| Type PT3-AH                              |                       |
| Pressgun 4E / 4B                         |                       |
| Pressgun 5                               |                       |
| Pressgun 6 / 6 Plus                      | 50                    |
| Picco / Pressgun Picco                   |                       |
| Pressgun Picco 6 / Pressgun Picco 6 Plus |                       |

**Minimum distance with press rings D $\frac{3}{8}$ -2**

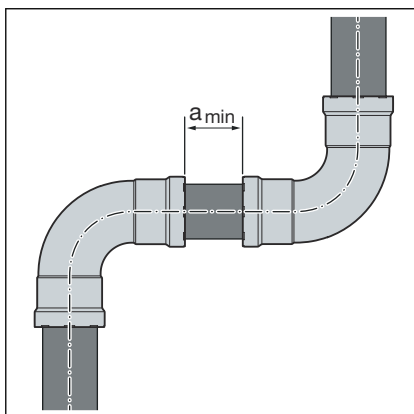
| Press machine                            | a <sub>min</sub> [mm] |
|--|-----------------------|
| Type 2 (PT2)                             | 20                    |
| Type PT3-EH                              |                       |
| Type PT3-AH                              |                       |
| Pressgun 4E / 4B                         |                       |
| Pressgun 5                               |                       |
| Pressgun 6 / 6 Plus                      | 20                    |
| Picco / Pressgun Picco                   |                       |
| Pressgun Picco 6 / Pressgun Picco 6 Plus |                       |

**Interval between the pressings**



**NOTICE!**  
**Leaking press connections due to pipes being too short!**

If two press connectors are to be mounted onto a pipe at a short distance apart, the pipe must not be too short. If the pipe is not inserted up to the prescribed insertion depth in the press connector during pressing, the connection may become leaky.



**Minimum distance with press jaws D%–1**

| D [inch] | a <sub>min</sub> [mm] |
|----------|-----------------------|
| 3/8      | 5                     |
| 1/2      |                       |
| 3/4      |                       |
| 1        |                       |

**Minimum distance with press rings D%–2**

| D [inch] | a <sub>min</sub> [mm] |
|----------|-----------------------|
| 3/8      | 15                    |
| 1/2      |                       |
| 3/4      |                       |
| 1        |                       |
| 1 1/4    |                       |
| 1 1/2    |                       |
| 2        |                       |

**Z dimensions**

For the Z dimensions, refer to the respective product page in the online catalogue.

### 3.3.4 Required tools



#### NOTICE!

Megapress S press connectors may be pressed only with Megapress press rings and press jaws. Press rings and press jaws of the metal Viega press connector systems Profipress, Sanpress, Sanpress Inox and Prestabo cannot be used.

#### Possible combinations of press machines and press jaws

| Press machines   | Press jaws                    | Press rings   | Set   |
|--|-------------------------------|---|---|
| Type 2 (PT2)<br>PT3 EH/AH<br>Pressgun 4E / 4B<br>Pressgun 5<br>Pressgun 6 / 6 B / 6 Plus | DN10 to DN25<br>model 4299.9  | DN15 model 4296.1, with<br>hinged adapter jaw Z1<br>model 2296.2<br><br>DN32 to DN50<br>model 4296.1, with<br>hinged adapter jaw Z2<br>model 2296.2 | Press jaws DN15 to<br>DN25, press rings DN32<br>to DN50, hinged adapter<br>jaw Z2 model 4299.61                     |
| Type 2 (PT2)<br>PT3 EH<br>Pressgun 4E / 4B<br>Pressgun 5<br>Pressgun 6 Plus              | —                             | DN65 to DN100<br>model 4296.1XL, with<br>Pressgun Press Booster<br>model 4296.4XL   | Press ring DN65 and<br>Pressgun Press Booster<br>model 4296.2XL<br><br>Press rings DN80 and<br>DN100 model 4296.5XL |
| Picco<br>Pressgun Picco<br>Pressgun Picco 6 / 6 Plus                                     | DN10 and DN15<br>model 4284.9 | DN15 model 4296.1, with<br>hinged adapter jaw P1<br>model 2496.1  | —   |

The following tools are required for production of a press connection:

- Pipe cutter or a fine-toothed hacksaw  
Or angle-grinder  
Or chopsaw with low cutting speed
- Deburrer or half-round file and coloured pen for marking
- Press machine with constant pressing force
- Press jaw (D<sub>3/8</sub>-1) or press ring (D<sub>3/8</sub>- 2) with corresponding hinged adapter jaw, suitable for the pipe diameter and with suitable profile

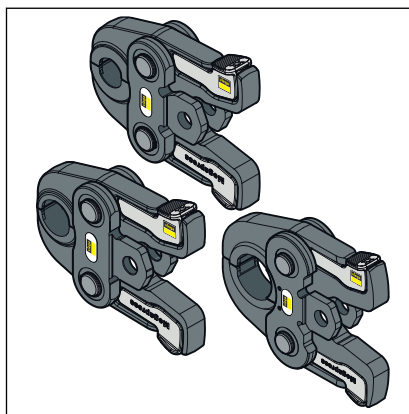


Fig. 13: Megapress press jaws

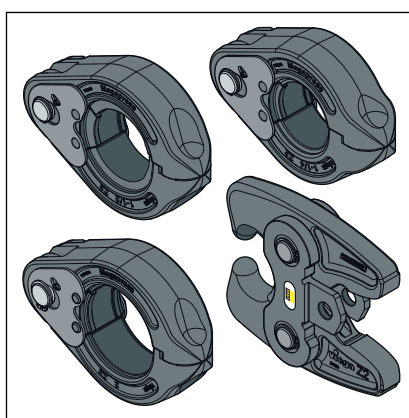


Fig. 14: Megapress press rings with hinged adapter jaw



**Viega recommends the use of Viega system tools when installing the press fittings.**

The Viega system press tools have been developed and tailored specifically for the installation of Viega press connector systems.

### 3.4 Assembly

#### Permitted exchange of sealing elements



**NOTICE!**

With their material-specific qualities, sealing elements in press connectors are adapted for use with the corresponding media and/or the areas of use of the piping systems and are generally only certified for them.

The exchange of a sealing element is generally permitted. The sealing element must be exchanged for a designated spare part for the intended application ↪ *Chapter 2.3.4 'Sealing elements' on page 16*. The use of other sealing elements is not permitted.

If the round sealing element in the press connector is obviously damaged, it should be exchanged for a Viega replacement round sealing element made of the same material.

### 3.4.1 Replacing the sealing element

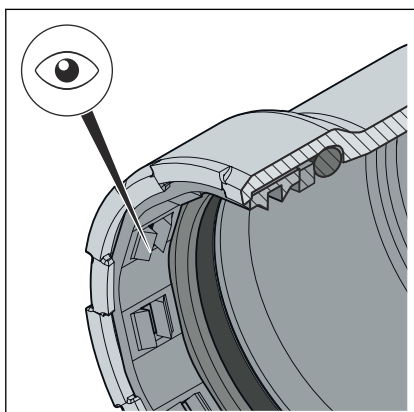


Fig. 15: Cutting ring



#### **CAUTION!** Risk of injury due to sharp edges

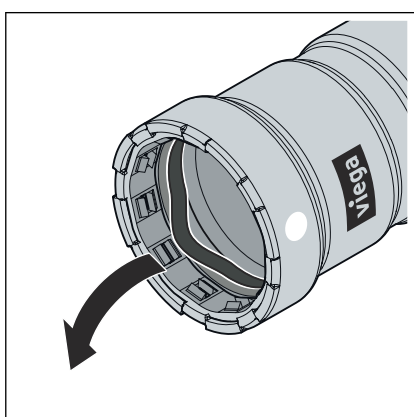
There is a sharp-edged cutting ring above the sealing element (see arrow). There is a risk of injury (cutting) when replacing the sealing element.

- Do not reach into the press connector with your bare hands.

#### Removing the sealing element

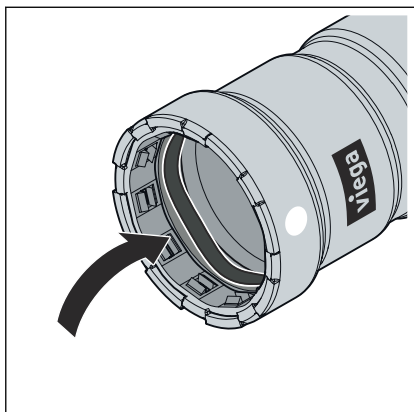


Do not use pointed or sharp-edged objects to remove the sealing element. They may damage the sealing element or the bead.

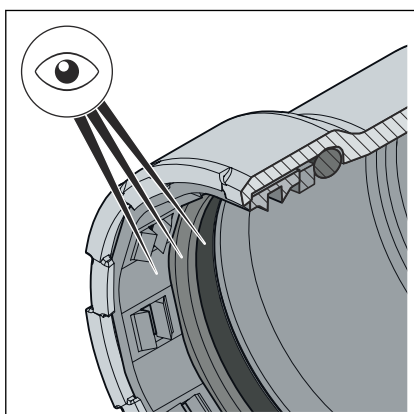


- Remove the sealing element from the bead. Proceed carefully to avoid damaging the sealing element seat.

### Inserting the sealing element



- Insert a new, undamaged sealing element into the bead.  
Make sure that the sealing element is not damaged by the cutting ring.
- Ensure that the complete sealing element is in the bead.



- The correct sealing element is in the press connector.  
FKM = matt black
- Sealing element, separator ring and cutting ring are undamaged.
- The complete sealing element, separator ring and cutting ring are in the bead.

### 3.4.2 Cutting pipes to length



**NOTICE!**  
**Leaking press connections due to damaged material!**

Press connections can become leaky due to damaged pipes or sealing elements.

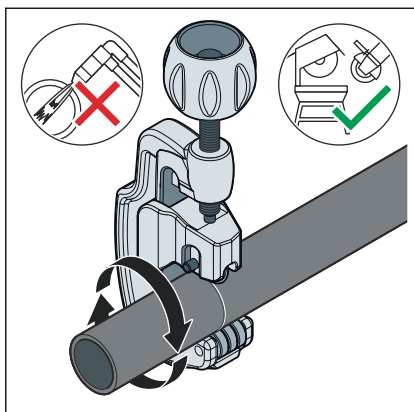
Observe the following instructions to avoid damage to pipes and sealing elements:

- Do not use flame cutters when cutting to length.
- Do not use grease or oils (e. g. cutting oil).

For information about tools, also see [🔗 Chapter 3.3.4 'Required tools'](#) on page 29.

 **Link to the video:**

*Cutting pipes to length*



- Cut the pipe at a right angle as accurately as possible using a pipe cutter, an angle grinder or a fine-toothed hacksaw to ensure a complete and even pipe insertion depth. Do not use a flame cutter.
- Avoid grooves on the pipe surface.

### 3.4.3 Deburring the pipes

The pipe ends must be thoroughly deburred internally and externally after shortening.

Deburring prevents the sealing element being damaged or the that the press connector cants when mounted. Viega recommends using a deburrer.

- $\leq D1\frac{1}{2}$  (model 2292.2)
- D2 (model 2292.4XL)

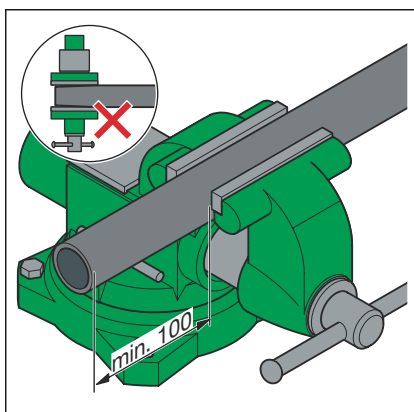


#### **NOTICE!** **Damage due to the wrong tool!**

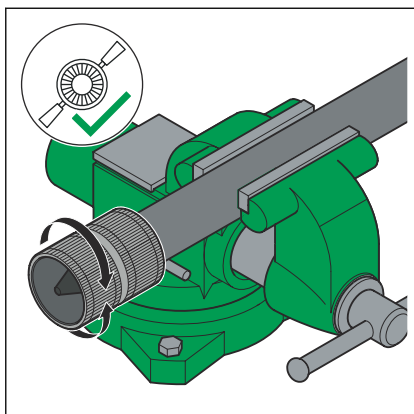
Do not use sanding disks or similar tools when deburring. The pipes could be damaged by these.

**Link to the video:**

*Deburring the pipes*

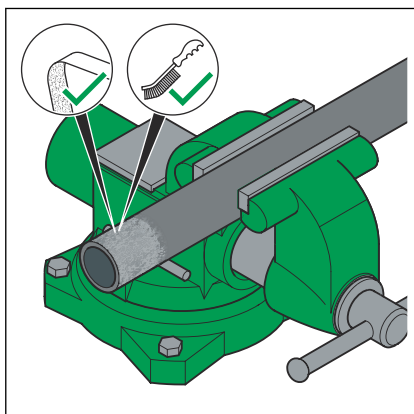


- Secure the pipe in the vice.
  - When clamping, leave an interval of at least 100 mm (a) to the pipe end.
- The pipe ends must not be bent or damaged.

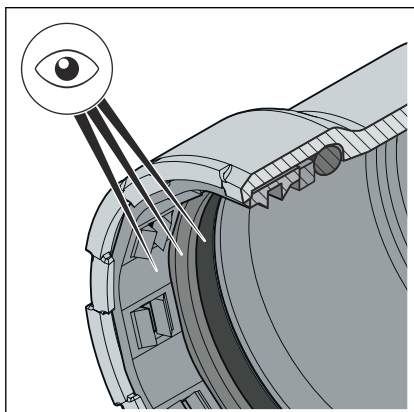


- Deburr the inside and outside of the pipe.

### 3.4.4 Pressing the connection

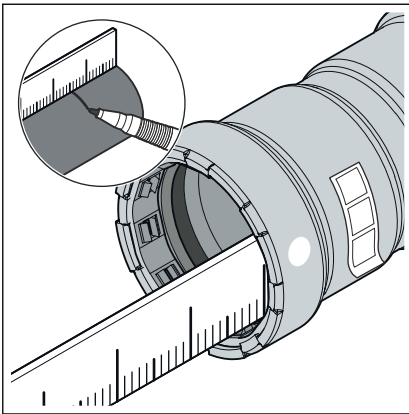


- With the help of a wire brush, cleaning fleece or sanding paper, remove loose dirt and rust particles from the pressing area.



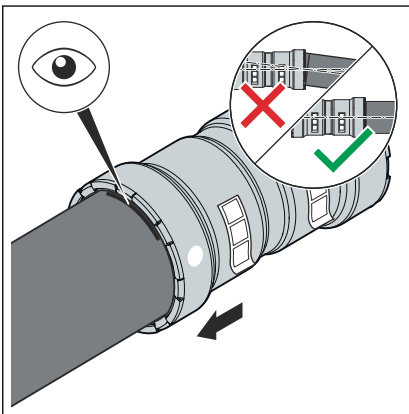
#### Requirements:

- The pipe end is not bent or damaged.
- The pipe is deburred.
- The correct sealing element is in the press connector.  
FKM = matt black
- Sealing element, separator ring and cutting ring are undamaged.
- The complete sealing element, separator ring and cutting ring are in the bead.



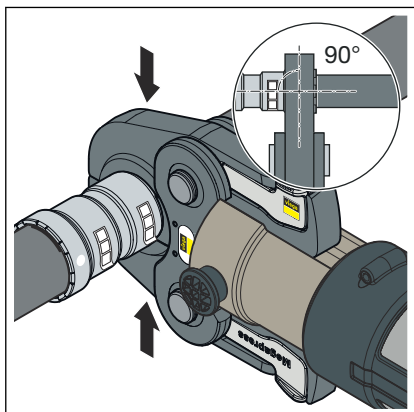
► Measure and mark the insertion depth.

| D [inch]       | Insertion depth [mm] |
|----------------|----------------------|
| $\frac{3}{8}$  | 24                   |
| $\frac{1}{2}$  | 27                   |
| $\frac{3}{4}$  | 29                   |
| 1              | 34                   |
| $1\frac{1}{4}$ | 46                   |
| $1\frac{1}{2}$ | 48                   |
| 2              | 50                   |



► Push the press connector up to the marked insertion depth on the pipe. Do not twist the press connector.

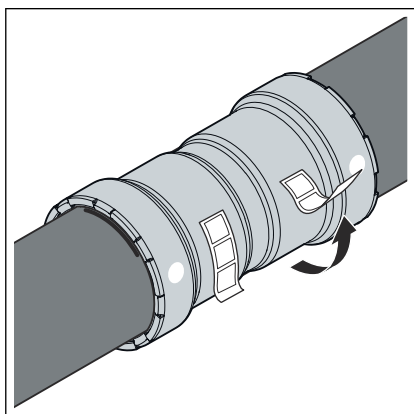
### Pressing with press jaw at $D \leq 1$



- Insert the press jaw ( $\leq D 1$ ) into the press machine and push the retaining bolt in as far as it will go.

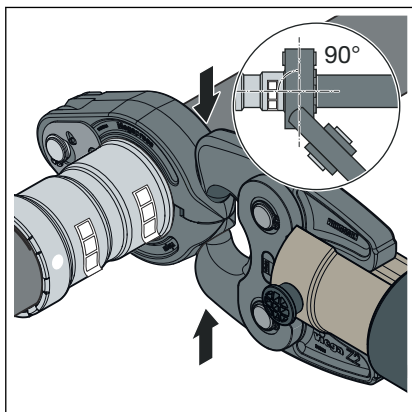
**INFO! Observe the press tool instruction manual!**

- Open the press jaw and place it at a right-angle onto the press connector.
- Check the insertion depth using the marking.
- Ensure that the press jaw is placed centrally on the bead of the press connector.
- Carry out the pressing process.
- Open and remove the press jaw.



- Remove the check label.
  - ◇ The connection is marked as having been pressed.

### Pressing with press rings with D ¾–2

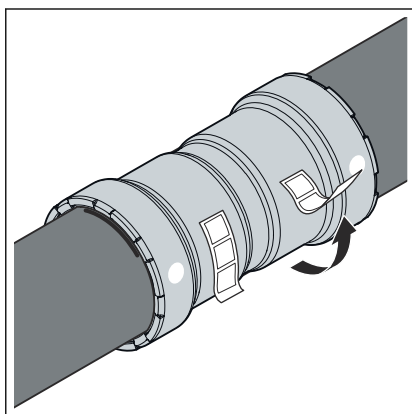


- Place the hinged adapter jaw onto the press machine and push the retaining bolt in until it clicks into place.

**INFO! Observe the press tool instruction manual!**

- Place the press ring onto the press connector. The press ring must completely cover the outside ring of the press connector.
- Position the hinged adapter jaw into the seat of the press ring.
- Check the insertion depth using the marking.
- Ensure that the press ring is placed centrally on the bead of the press connector.
- Carry out the pressing process.
- Open the hinged adapter jaw and remove the press ring.
- Remove the check label.

□ The connection is marked as having been pressed.



### 3.4.5 Flange connections

In the press connector system shown, flange connections are possible in the dimensions ¾ to 2 inches.

The assembly of flange connections may only be carried out by qualified personnel. Personnel can be qualified to assemble flange connections on the basis of applicable directives, for example; see *Regulations from section: Establishing a flange connection* on page 7.

- A corresponding training section on proper flange connection assembly in vocational training (of staff/specialist personnel) with qualified completion as well as successful regular application are considered as sufficient proof.
- Other employees without the appropriate technical training (e.g. operating personnel) who are to install flange connections must be provided with technical knowledge through training measures (theoretical and practical); this must be documented.

### washers

The advantages of using hardened washers are:

- Defined friction surface during assembly.
- Defined unevenness in calculation and thus reduction of the scattering of the tightening torque, whereby a greater hexagon screw force can be achieved mathematically.

### Flange types

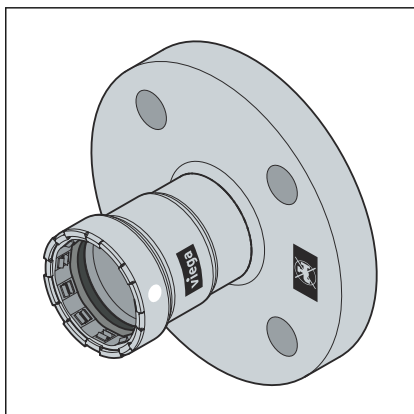


Fig. 16: Fixed flange

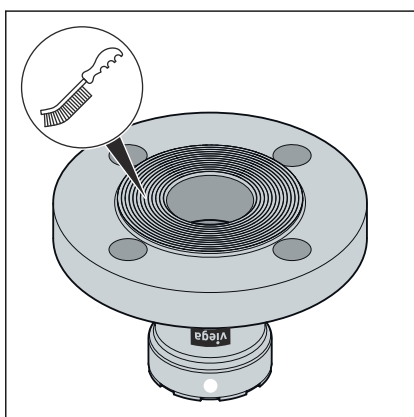
#### Fixed flange

- Steel 1.0308 with an external galvanic zinc-nickel coating
- Megapress S press connection
- Model 4359 PN 10/16: ¾ to 2 inches
- Model 4359.1 PN 6: ¾ to 2 inches
- Model 4359.6 PN 25/40: ¾ to 2 inches

### Establishing a flange connection



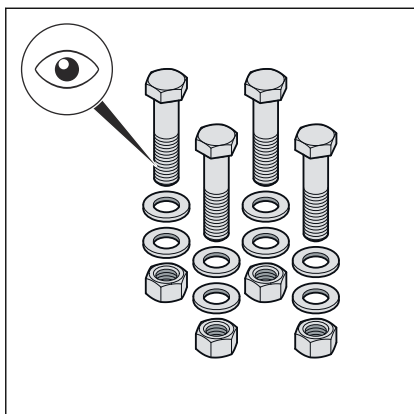
Always make the flange connection first and then the press connection.



- If necessary, remove any temporary coatings on the flange sealing surfaces without leaving any residue before assembly, using cleaning agents and a suitable wire brush.

**NOTICE!** When replacing seals, make sure to remove the old seal completely from the flange sealing surface without damaging the flange sealing surface.

- Ensure that the flange sealing surfaces are clean, undamaged and even. In particular, there must not be any radial surface damage such as grooves or impact marks.

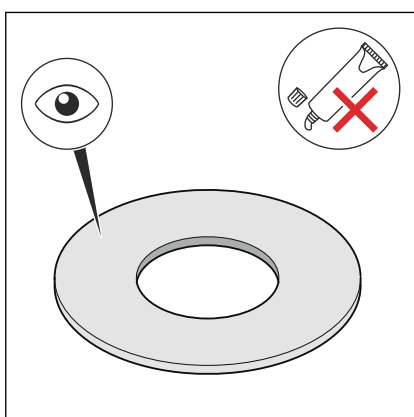


► The hexagon screws, nuts and washers must be clean and undamaged and comply with the specifications for minimum hexagon screw length and strength class, see **'Required tightening torques' on page 42.**

► The hexagon screw and nuts must be clean and undamaged.

**INFO! Viega recommends using mounting set model 2259.7, consisting of hexagon screws, nuts and washers.**

► During disassembly, replace removed hexagon screws, nuts and washers with new ones if damaged.



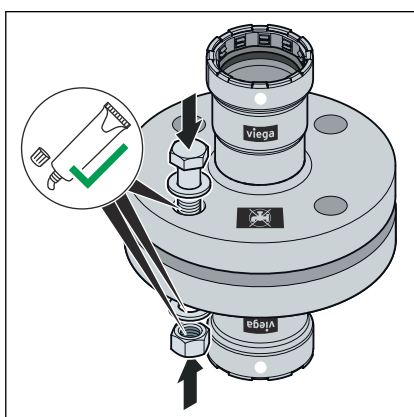
► The seal must be clean, undamaged and dry. Do not use adhesives and assembly pastes for seals.

**INFO! Viega recommends using the seal model 2259.9 from AFM 34/2.**

► Do not reuse used seals.

► Do not use seals with kinks as they pose a safety risk.

► Ensure that seals are free from faults and defects and that the manufacturer's specifications are complied with.

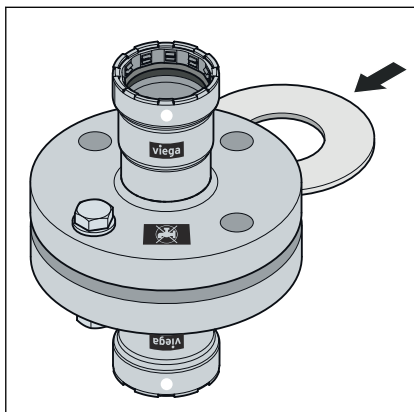


► Lubricate the following flange elements with suitable lubricant:

- Hexagon screw thread
- Washer
- Nut support

**NOTICE! Observe the manufacturer's information on the application and temperature range of the lubricant.**

### Install and centre the sealing element

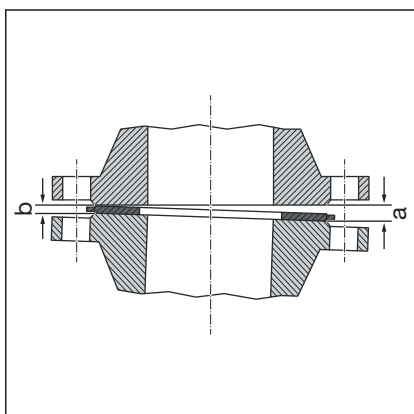


The correct assembly of flange connections requires parallel aligned flange blades without an offset centre that allow the sealing element to be inserted in the correct position without damage.

- Press the sealing surfaces far enough apart so that the seal can be inserted without force and without damage.

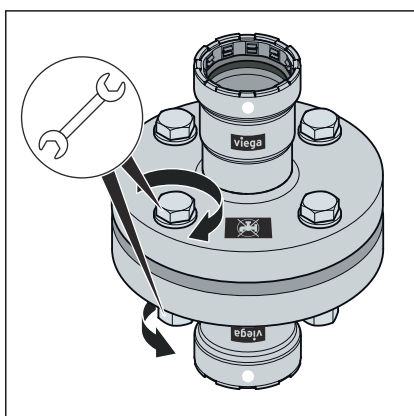
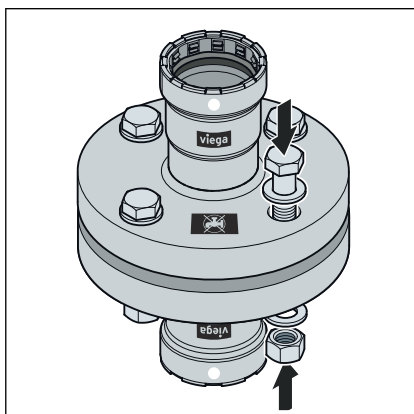
The gap (out-of-parallelism of the sealing surfaces) before tightening the hexagon screws is not critical if the permissible gap is not exceeded.

| DN    | Permissible gap a-b [mm] |
|-------|--------------------------|
| 15–25 | 0.4                      |
| 32–50 | 0.6                      |

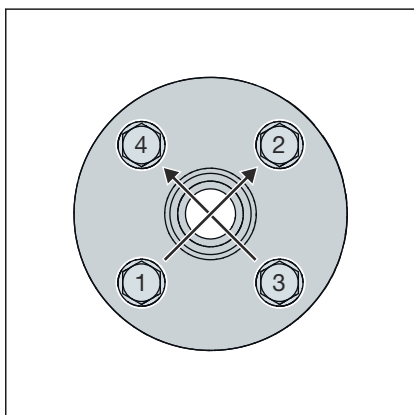


- Remove the gap from the gaping side (a).
- In case of doubt, tighten the flanges without inserting a seal by tightening the hexagon screws to achieve parallelism and a sealing surface distance of approx. 10 % of the nominal torque.
- ⊐ The gap is not permissible if the flange position cannot be achieved without great effort.

## Systematics for tightening hexagon screws



## Suit order



- The order in which the hexagon screws and nuts are tightened has a significant influence on the force distribution acting on the seal (surface pressure). Incorrect tightening leads to a high dispersion of the pretensioning forces and can result in the required minimum surface pressure not being reached and even in leaks.
- After tightening the nut, at least two but no more than five threads should protrude from the end of the hexagon screw.
- Prepare the hexagon screws by hand, observing the following:
  - Install the hexagon screws so that all the hexagon screw heads are on one flange side.
  - For horizontally arranged flanges, insert the hexagon screws from above.
  - Replace stiff hexagon screws with easy-running ones.
- The simultaneous use of several tightening tools is possible.
- Tighten all hexagon screws crosswise with 30 % of the nominal tightening torque.
- Tighten all hexagon screws as described in step 1 with 60 % of the nominal tightening torque.
- Tighten all hexagon screws as described in step 1 with 100 % of the nominal tightening torque.
- Tighten all hexagon screws again with the full nominal tightening torque. Repeat this process until the nuts can no longer be turned when the full tightening torque is applied.

## Required tightening torques

### Tightening torques for Megapress S flange adapters PN 6

| Model  | DN | Article number       | Thread | Min. req. tightening torque [Nm] | Max. perm. tightening torque [Nm] | Hexagon screw length [mm] | Strength class |
|--------|----|----------------------|--------|----------------------------------|-----------------------------------|---------------------------|----------------|
| 4359.1 | 20 | 777 647 <sup>1</sup> | M12    | 20                               | 47                                | 50                        | 8.8            |
|        | 25 | 770 808 <sup>1</sup> |        | 25                               | 47                                |                           |                |
|        | 32 | 770 815 <sup>1</sup> |        | 37                               | 82                                |                           |                |
|        | 40 | 770 822 <sup>1</sup> |        | 47                               | 82                                |                           |                |
|        | 50 | 770 839 <sup>1</sup> |        | 55                               | 82                                |                           |                |

The specifications for meeting the requirements of tightness class L0,01 (TA Luft) were calculated according to the applicable standard and apply exclusively when using Viega articles; see also ↪ 'Regulations from section: Establishing a flange connection' on page 7.

<sup>1</sup> For use with mounting set article number 651251

### Tightening torques for Megapress S flange adapters PN 10/16

| Model | DN | Article number       | Thread | Min. req. tightening torque [Nm] | Max. perm. tightening torque [Nm] | Hexagon screw length [mm] | Strength class |
|-------|----|----------------------|--------|----------------------------------|-----------------------------------|---------------------------|----------------|
| 4359  | 20 | 777 654 <sup>1</sup> | M12    | 41                               | 82                                | 65                        | 8.8            |
|       | 25 | 770 846 <sup>1</sup> |        | 54                               | 82                                |                           |                |
|       | 32 | 770 853 <sup>2</sup> | M16    | 78                               | 202                               | 70                        |                |
|       | 40 | 770 860 <sup>2</sup> |        | 90                               | 202                               |                           |                |
|       | 50 | 770 877 <sup>2</sup> |        | 102                              | 202                               |                           |                |

The specifications for meeting the requirements of tightness class L0,01 (TA Luft) were calculated according to the applicable standard and apply exclusively when using Viega articles; see also ↪ 'Regulations from section: Establishing a flange connection' on page 7.

<sup>1</sup> For use with mounting set article number 494056

<sup>2</sup> For use with mounting set article number 494063

### Tightening torques for Megapress S flange adapters PN 25/40

| Model  | DN | Article number       | Thread | Min. req. tightening torque [Nm] | Max. perm. tightening torque [Nm] | Hexagon screw length [mm] | Strength class |
|--------|----|----------------------|--------|----------------------------------|-----------------------------------|---------------------------|----------------|
| 4359.6 | 20 | 777 661 <sup>1</sup> | M12    | 42                               | 82                                | 65                        | 8.8            |
|        | 25 | 770 884 <sup>1</sup> |        | 54                               | 82                                |                           |                |
|        | 32 | 770 891 <sup>2</sup> | M16    | 80                               | 202                               | 70                        |                |
|        | 40 | 770 907 <sup>2</sup> |        | 91                               | 202                               |                           |                |
|        | 50 | 770 914 <sup>2</sup> |        | 109                              | 202                               |                           |                |

The specifications for meeting the requirements of tightness class L0,01 (TA Luft) were calculated according to the applicable standard and apply exclusively when using Viega articles; see also ↪ 'Regulations from section: Establishing a flange connection' on page 7.

<sup>1</sup> For use with mounting set article number 494056

<sup>2</sup> For use with mounting set article number 494063

### Disconnecting the flange adapter

Before starting to disassemble an existing flange connection, get approval and a work permit from the responsible company, if necessary, observing the following:

- The system section must be depressurised and completely flushed.
- Secure built-in or attached parts that are not held separately before loosening the flange connection. This also applies to fastening systems such as spring hangers and supports.
- Start loosening hexagon screws or nuts on the side facing away from the body, loosen the remaining hexagon screws slightly and only disassemble completely when you have ensured that the piping system does not present a risk. If a pipeline is under tension, there is a risk of the pipeline rupturing.
- Loosen the hexagon screws or nuts crosswise in at least two passes.
- Close open ends of strands with dummy plugs.
- Transport disassembled pipelines only in closed condition.
- When replacing seals, make sure to remove the old seal completely from the flange sealing surface without damaging the flange sealing surface.

### 3.4.6 Leakage test


 Link to the video:


*Leakage test*

The installer must perform a leakage test before commissioning.

The installer must perform a leakage test (load and leakage test) before commissioning.

Carry out this test on a system that is finished but not covered yet.


Observe the applicable regulations, see  *'Regulations from section: Leakage test' on page 7.*

Also carry out the leak test for non-potable water installations in accordance with the applicable guidelines, see  *'Regulations from section: Leakage test' on page 7.*

Document the result.



To prevent corrosion after the leakage test has been performed with water, the system must remain full.

For the filling and top-up water, comply with the requirements specified in the applicable regulations, see  *'Regulations from section: Leakage test' on page 7.*

## 3.5 Disposal

Separate the product and packaging materials (e. g. paper, metal, plastic or non-ferrous metals) and dispose of in accordance with valid national legal requirements.



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