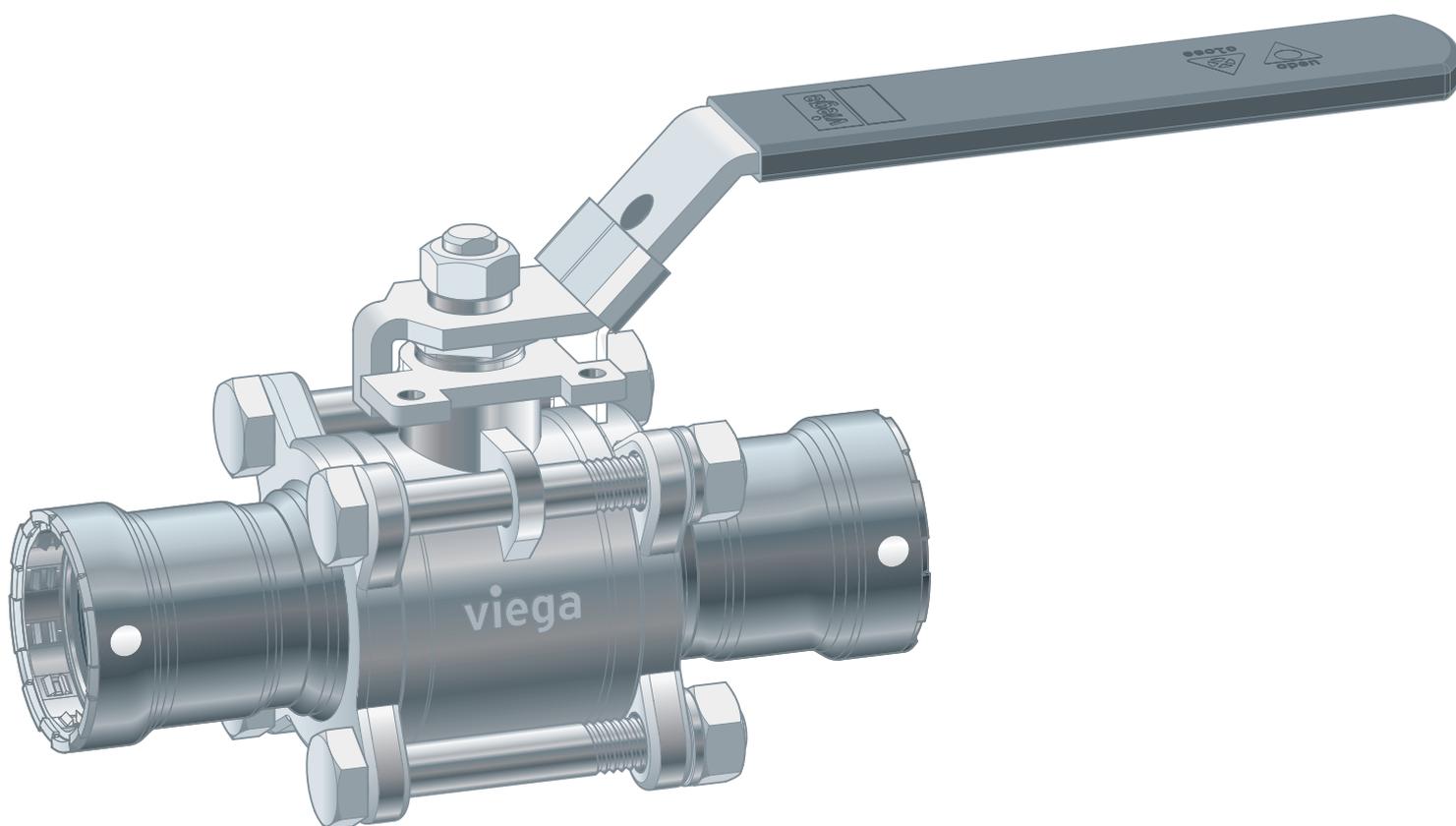


## Instructions for Use

# Easytop ball valve Megapress S press connections, 3-part



Three-part ball valve for the press connector system made of non-alloy steel for thick-walled steel pipes

**Model**  
4375.8

**Year built (from)**  
10/2019

**viega**

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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

### 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

#### 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

#### Regulations from section: Sealing elements

Scope / Notice	Regulations applicable in Germany
Area of application of the FKM sealing element ■ Heating	DIN EN 12828

### Regulations from section: Marking on components

Scope / Notice	Regulations applicable in Germany
Designation noise class I	DIN EN 1213

### 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
External protective coatings (galvanisation) for steel pipes	DIN EN 10240

### 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: "Dichtheitsprüfungen von Trinkwasserinstallationen mit Druckluft, Inertgas oder Wasser"
Requirements for filling and top-up water	VDI 2035

## 2.2 Intended use



Coordinate the use of the model for areas of use and media other than those described with the Viega Service Center.

A ball valve is a fitting that is able to shut-off and open individual pipeline sections through a 90° movement. The ball valve is not a control fitting and cannot be used for regulating volumetric flows. The ball must not be in an intermediate position.



**NOTICE!**

Opening and closing the ball valve quickly can cause pressure shocks in the system.

- Always open and close the ball valve slowly.

**2.2.1 Areas of application**

Use is possible in the following areas among others:

- Industrial and plant engineering
- Closed heating and cooling circuits
- Compressed air systems
- Systems for technical gases (on request)

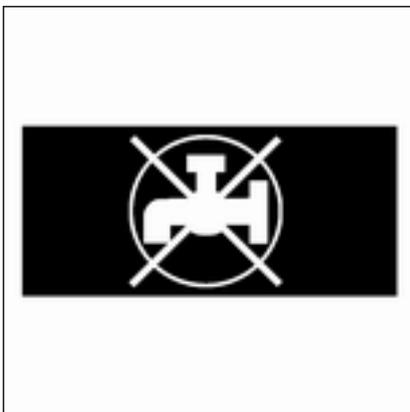


Fig. 1: "Non-potable water"

The ball valve is not suitable for use in potable water installations. For this reason, the press connectors are labelled with a black symbol "Not potable water".

**2.2.2 Media**

The ball valve is also suitable for the following media, amongst others:

For the applicable directives, see ↗ *'Regulations from section: Media' on page 6.*

- 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)

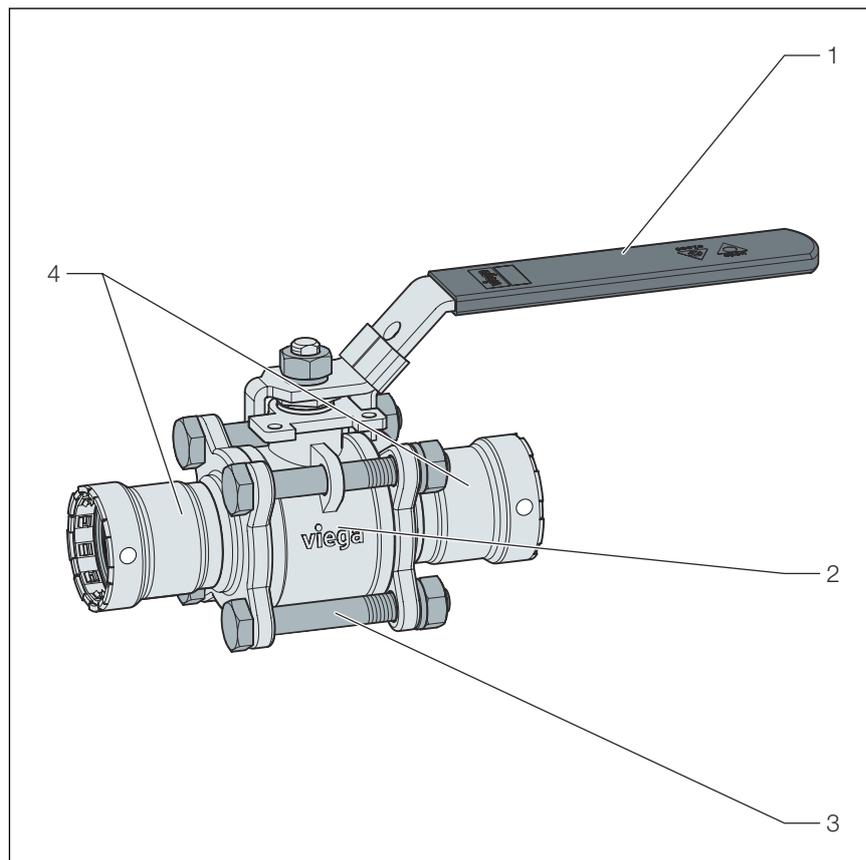
**2.3 Product description**

**2.3.1 Overview**

The model is equipped as follows:

- valve casing made of stainless steel
- stainless steel ball
- Ball seal made of Teflon®
- maintenance-free selector shaft

- dual-sided Megapress S press connection for thick-walled steel pipes with SC-Contur
- sealing elements made of FKM
- L-shaped actuating lever made of metal
- Position indication open/closed
- lockable



**Fig. 2: three-part ball valve**

- 1 - L-shaped actuating lever made of metal
- 2 - middle part
- 3 - stud bolts
- 4 - Megapress S press connection

The ball valve is available in the following dimensions: 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]
½	15	21.3	21.0	21.8	3.2	2.6
¾	20	26.9	26.5	27.3	3.2	2.6
1	25	33.7	33.3	34.2	4.0	3.2
1¼	32	42.4	42.0	42.9	4.0	3.2
1½	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]
½	15	21.3	21.0	21.7	2.3
¾	20	26.9	26.4	27.1	2.3
1	25	33.7	33.2	34.0	2.9
1¼	32	42.4	41.9	42.7	2.9
1½	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]
½	15	21.3	21.0	21.4	2.0
¾	20	26.9	26.4	26.9	2.3

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]
1	25	33.7	33.2	33.8	2.6
1¼	32	42.4	41.9	42.5	2.6
1½	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 [Inch]	Nominal width [DN]	Nominal external diameter [mm]	Min. external diameter incl. coating [mm]	Max. external diameter incl. coating [mm]	Possible pipe wall thickness for seamless pipes <sup>1)</sup> [mm]	Possible pipe wall thickness for pipes welded along the longitudinal seam <sup>1)</sup> [mm]
½	15	21.3	20.8	21.8	2.0–5.0	1.4–4.5
¾	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
1¼	32	42.4	41.9	42.9	2.6–10.0	1.4–8.8
1½	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**

<b>Ø external [mm]</b>	<b>Nominal width [DN]</b>	<b>Nominal width [inch]</b>	<b>Fixing distance between the pipe clamps [m] pursuant to manufacturer's information</b>
21.3	15	½	2.75
26.9	20	¾	3.00
33.7	25	1	3.50
42.4	32	1¼	3.75
48.3	40	1½	4.25
60.3	50	2	4.75

## Length expansion

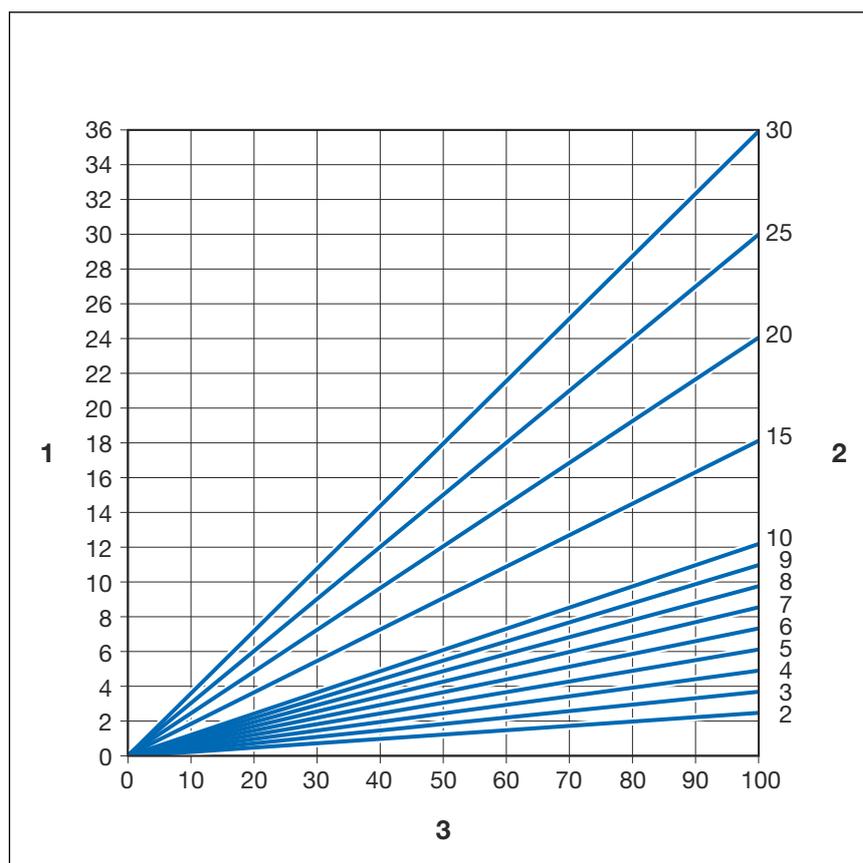
Pipelines expand with heat. Heat expansion is dependent on the material. Changes in length lead to tension within the installation. These tensions must be compensated for with suitable measures.

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:

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

### 2.3.3 Press connectors

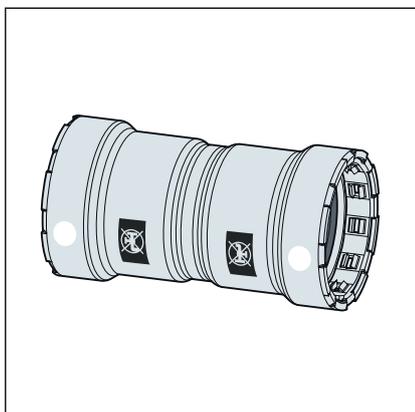


Fig. 4: Megapress S press connectors

The Megapress S press connections of the ball valve consist of non-alloy steel (material 1.0308) and have an external high-quality 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

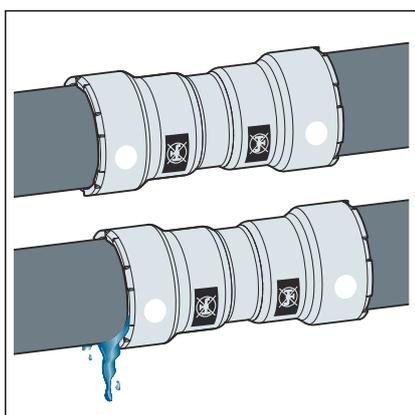


Fig. 5: SC-Contur

Viega press connectors are equipped with the SC-Contur. The SC-Contur is a safety technology that is certified by the DVGW and ensures that the press connector is guaranteed to be leaky 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

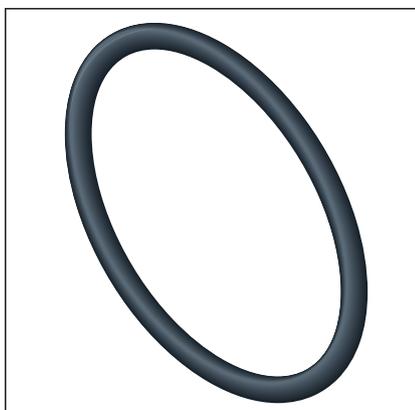


Fig. 6: FKM round sealing element

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

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

Area of application	Heating	Solar installations	Compressed air	Technical gases
Use	Pump hot water heating system	Solar circuit	all pipeline sections	all pipeline sections
Operating temperature [T <sub>max.</sub> ]	-5 °C–140 °C	1)	60 °C	—
Operating pressure [P <sub>max.</sub> ]	1.6 MPa (16 bar)	0.6 MPa (6 bar)	1.6 MPa (16 bar)	—
Comments	T <sub>max.</sub> : 105 °C <sup>2)</sup> with radiator connections T <sub>max.</sub> : 95 °C	for flat collectors	dry	1)

<sup>1)</sup> Consultation with the Viega Service Center required.

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

### 2.3.5 Technical data

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

Operating temperature [T <sub>max.</sub> ]	140 °C
Operating pressure [P <sub>max.</sub> ]	1.6 MPa (16 bar)

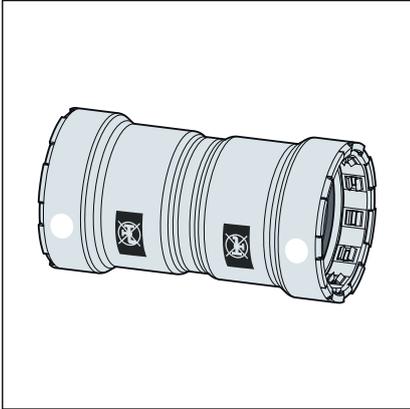
### 2.3.6 Marks on components

#### Marking at the ball valve

- Noise class I pursuant to applicable regulations, see ↗ 'Regulations from section: Marking on components' on page 7
- Dimension
- Position indicator on the actuating lever

#### Markings on press connections

The press connections 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. 7: White dot and 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 ball valve is not suitable for use in potable water installations.

## 2.4 Information for use

### 2.4.1 Corrosion

A zinc-nickel coating protects Megapress S press connections 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 7*

- Store components in the original box until immediately before assembly.
- 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.

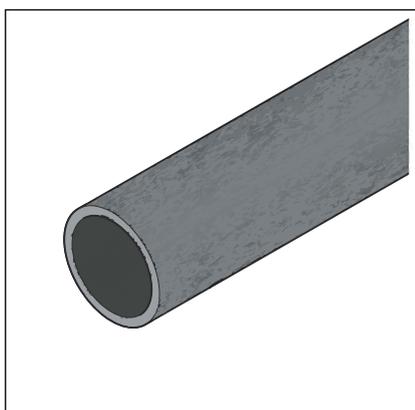
## Preparation of the pipes

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:

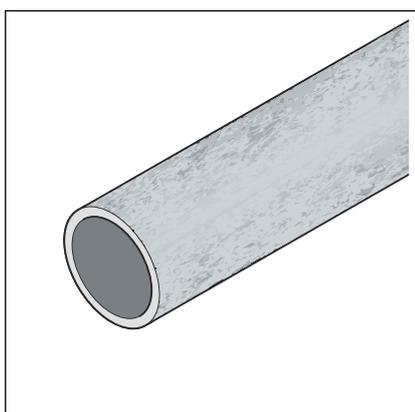


### NOTICE!

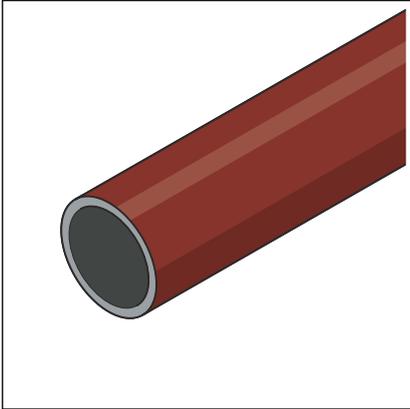
Always check the quality of the pipe surface on the complete pipe circumference. For permanently installed existing pipes, for example, Viega recommends the use of a mirror to be able to check the surface quality on the complete pipe circumference.



Black uncoated pipes

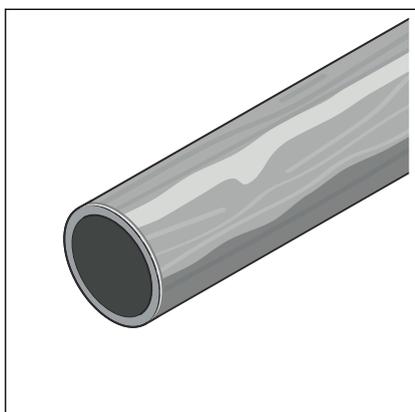


Galvanised pipes, for galvanisation see ↗ *'Regulations from section: Notes on mounting'* on page 7 (maximum external diameter in acc. with ↗ *Chapter 2.3.2 'Pipes'* on page 9)



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

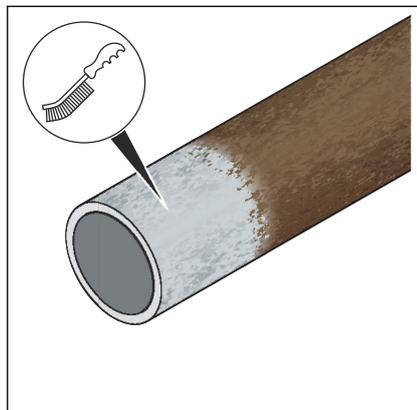


**NOTICE!**  
**Leaky press connection**

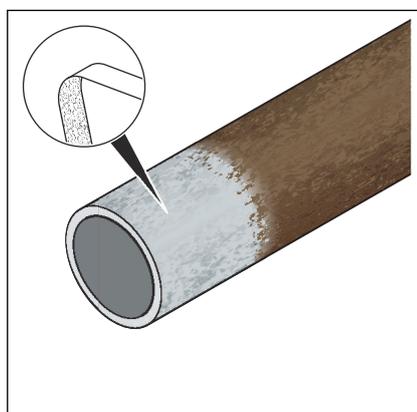
Pressings on the embossed pipe marking may cause leaking.

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

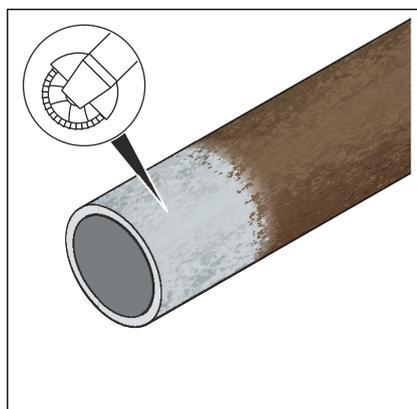
The following are examples of suitable tools for the work:



► Wire brush



► Cleaning fleece or sanding paper (grain > 80)



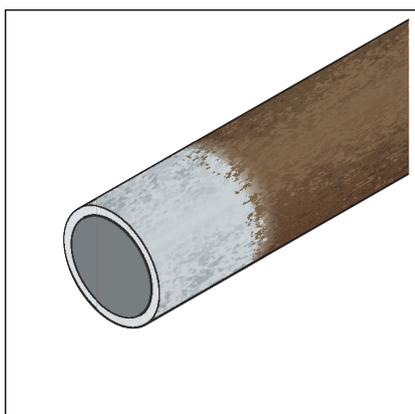
► Angle grinder with serrated washer

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.

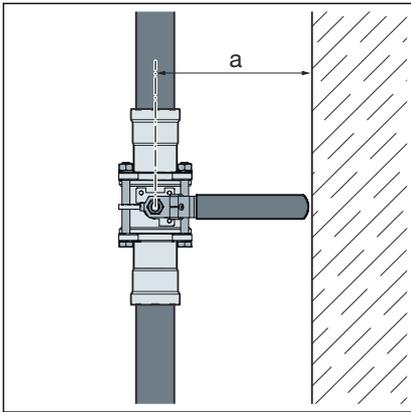
- Only allow electrical work to be carried out by qualified electricians.
- Always integrate the metal piping system into the potential equalisation.



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

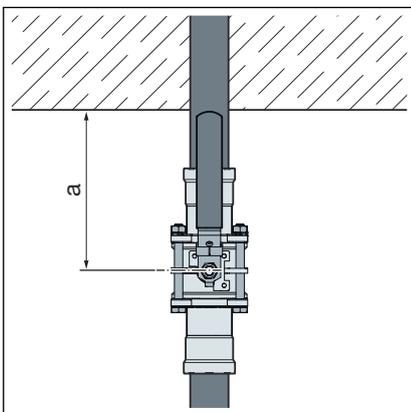
### 3.3.3 Space requirements and intervals

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



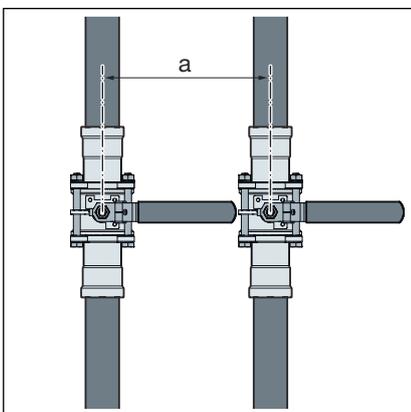
**Horizontal space requirement for the actuating lever**

Size [inch]	a [mm]
1/2	150
3/4	
1	195
1 1/4	
1 1/2	
2	



**Vertical space requirement for the actuating lever**

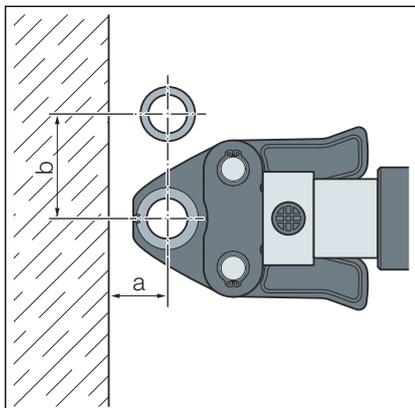
Size [inch]	a [mm]
1/2	150
3/4	
1	195
1 1/4	
1 1/2	
2	



**Minimum distances between two ball valves**

Size [inch]	a [mm]
1/2	180
3/4	180
1	230
1 1/4	235
1 1/2	240
2	240

### Pressing between pipelines

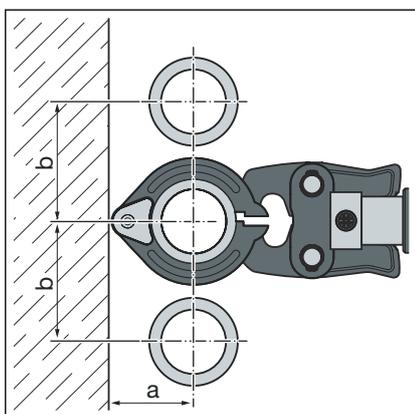


Space requirement type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6B, 6 Plus

D	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
a [mm]	30	30	35	45
b [mm]	70	70	80	95

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

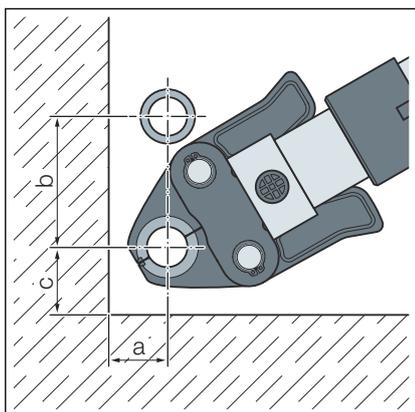
D	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
a [mm]	30	30	35
b [mm]	70	70	80



Space requirement press rings D $\frac{1}{2}$ -2

D	$\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
a [mm]	60	65	95	105	105
b [mm]	75	85	125	135	140

### Pressing between pipe and wall

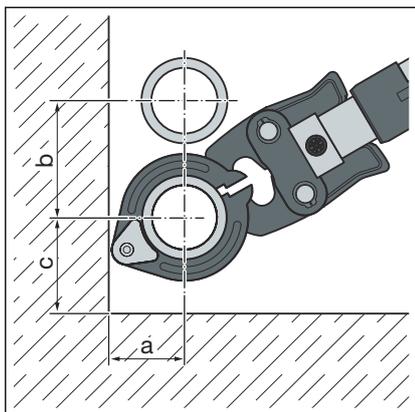


Space requirement PT1, type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6B, 6 Plus

D	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	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, 6 Plus

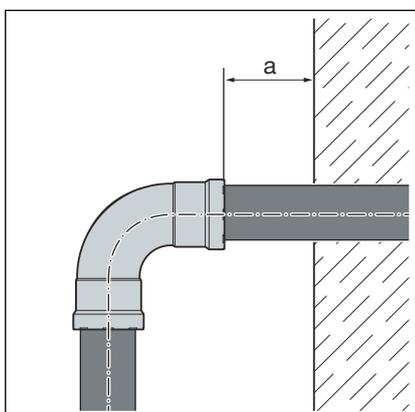
D	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
a [mm]	60	60	65
b [mm]	75	75	85
c [mm]	80	80	80



**Space requirement press rings D $\frac{1}{2}$ -2**

D	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2
a [mm]	60	65	95	105	105
b [mm]	75	85	125	135	140
c [mm]	80	80	80	80	80

**Wall distance**



**Minimum distance with press jaws D $\frac{3}{4}$ -1**

Press machine	$a_{min}$ [mm]
Type 2 (PT2)	50
Type PT3-EH	
Type PT3-AH	
Pressgun 4E / 4B	
Pressgun 5	
Pressgun 6 / 6B / 6 Plus	50
Picco / Pressgun Picco	
Pressgun Picco 6, 6Plus	

**Minimum distance with press rings D $\frac{1}{2}$ -2**

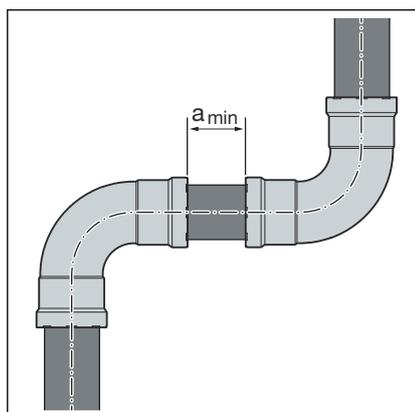
Press machine	$a_{min}$ [mm]
Type 2 (PT2)	20
Type PT3-EH	
Type PT3-AH	
Pressgun 4E / 4B	
Pressgun 5	
Pressgun 6 / 6B / 6 Plus	20
Picco / Pressgun Picco	
Pressgun Picco 6, 6Plus	

## 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 without an interval, 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 press connection may leak.



#### Minimum distance with press jaws D $\frac{3}{8}$ –1

D [inch]	$a_{\min}$ [mm]
$\frac{3}{8}$	5
$\frac{1}{2}$	
$\frac{3}{4}$	
1	

#### Minimum distance with press rings D $\frac{1}{2}$ –2

D [inch]	$a_{\min}$ [mm]
$\frac{1}{2}$	15
$\frac{3}{4}$	
$1\frac{1}{4}$	
$1\frac{1}{2}$	
2	

## Z dimensions

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

### 3.3.4 Required tools



### NOTICE!

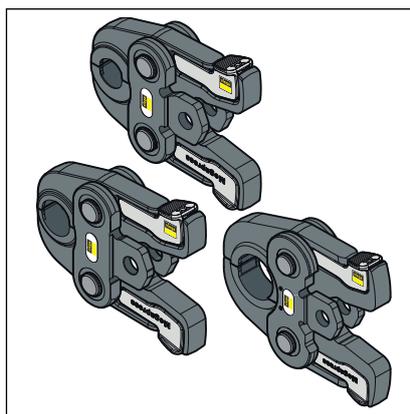
Megapress S press connectors may be pressed only with Megapress press rings and jaws. Press rings and press jaws of the metal Viega press connector systems Profi-press, Sanpress, Sanpress Inox and Prestabo cannot be used.

**Possible combinations of press machines and press jaws**

Press machines	Press jaws	Press rings	Set
Type 2 (PT2) PT3 EH / AH Pressgun 4 / 5 Pressgun 6 / 6 Plus	DN10–DN25 model 4299.9	DN15 model 4296.1, with hinged adapter jaw Z1 model 2296.2  DN 32 to DN 50 model 4296.1, with hinged adapter jaw Z2 model 2296.2	Press jaws DN 15 to DN 25, press rings DN 32 to DN 50, hinged adapter jaw Z2 model 4299.61
Type 2 (PT2) PT3 EH Pressgun 4 / 5 Pressgun 6 / 6 Plus	—	DN65 to DN100 model 4296.1XL, with Pressgun Press Booster model 4296.4XL	Press ring DN65 and Pressgun Press Booster model 4296.2XL  Press rings DN 80 and DN 100 model 4296.5XL
Picco Pressgun Picco Pressgun 6 / 6 Plus	DN10 and DN15 model 4284.9	DN15 model 4296.1, with hinged adapter jaw P1 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 chapsaw with low cutting speed
- Deburrer or half-round file and coloured pen for marking
- Press machine with constant pressing force
- Press jaw ( $D\frac{3}{8}$ –1) or press ring ( $D\frac{1}{2}$ – 2) with corresponding hinged adapter jaw, suitable for the pipe diameter and with suitable profile



**Fig. 8: Megapress press jaws**

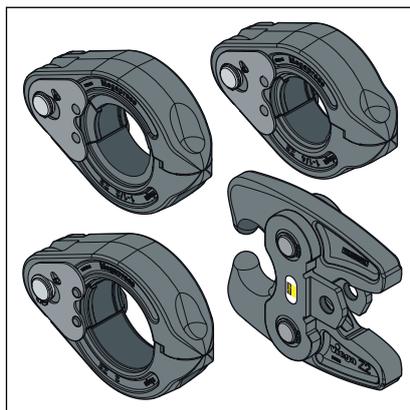


Fig. 9: Megapress press rings with hinged adapter jaw



**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



**Important instruction**

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 ↪ *'Regulations from section: Sealing elements' on page 6*. 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 sealing elements in press connections

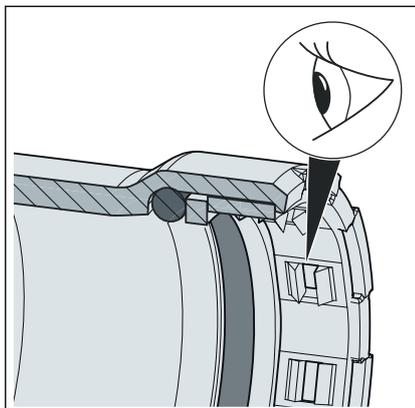


Fig. 10: Cutting ring



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

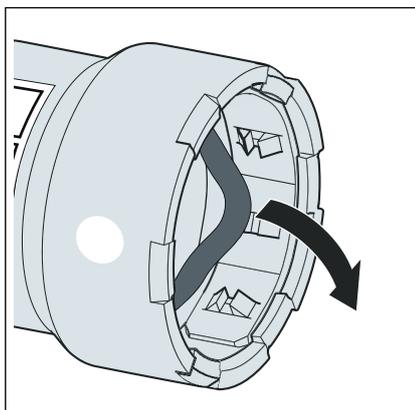
There is a sharp-edged cutting ring above the sealing element (see arrow). There is a risk of injury (cutting) when replacing the sealing element.

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

#### Removing the sealing element

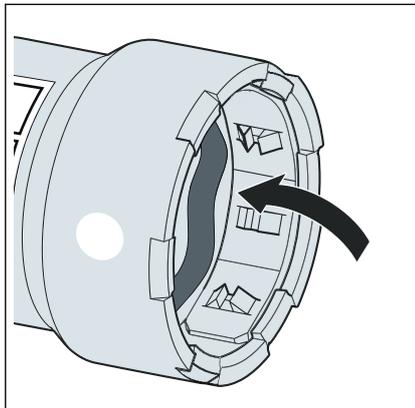


Do not use pointed or sharp-edged objects to remove the sealing element. They may damage the sealing element or the bead.

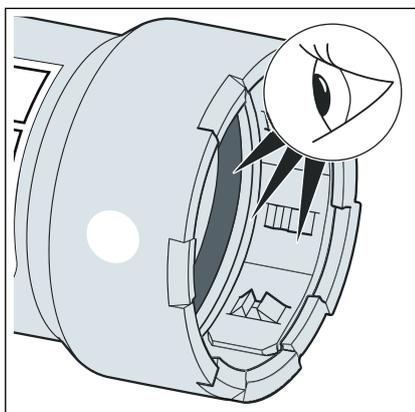


- Remove the sealing element from the bead. Proceed carefully to avoid damaging the sealing element seat.

### 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 Shortening the pipes



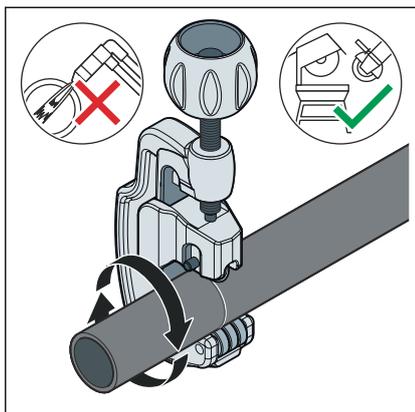
#### **NOTICE!** **Leaky press connections due to damaged material**

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 26.



- Cut the pipe at a right angle using a pipe cutter, angle grinder or fine-toothed hacksaw.

Avoid grooves on the pipe surface.

### 3.4.3 Deburring the pipes

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

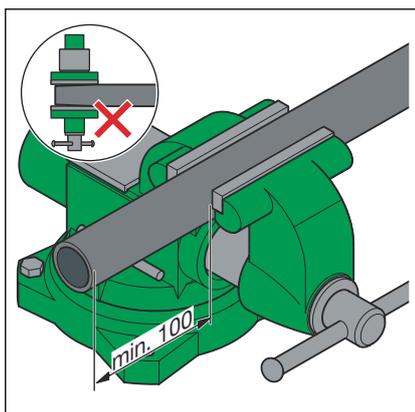
Deburring prevents the sealing element being damaged or the that the press connector cants when mounted. Viega recommends using a deburrer.

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



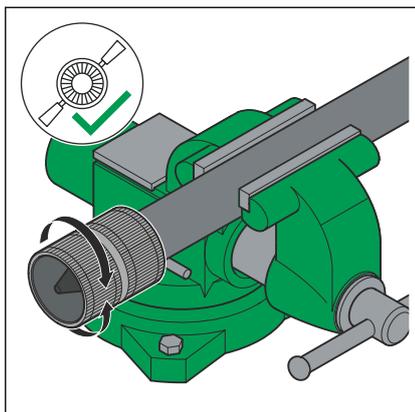
#### **NOTICE!** **Damage due to the wrong tool!**

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



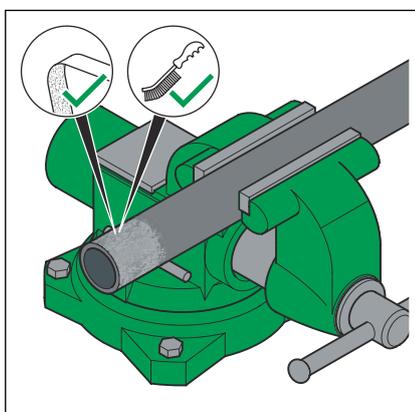
- Secure the pipe in the vice.
- When clamping, leave an interval of at least 100 mm (a) to the pipe end.

The pipe ends must not be bent or damaged.

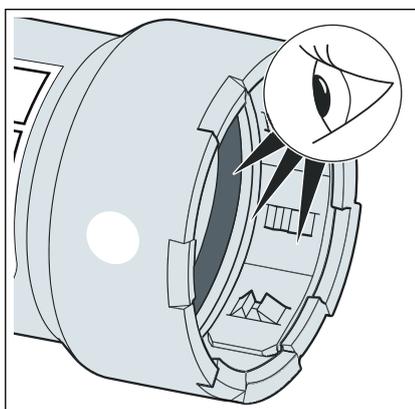


- Deburr the inside and outside of the pipe.

### 3.4.4 Pressing the connection

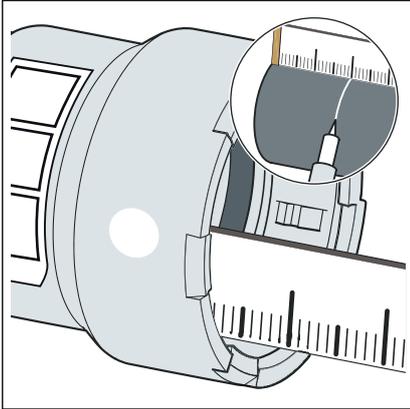


- With the help of a wire brush, cleaning fleece or sanding paper, remove loose dirt and rust particles from the pressing area.



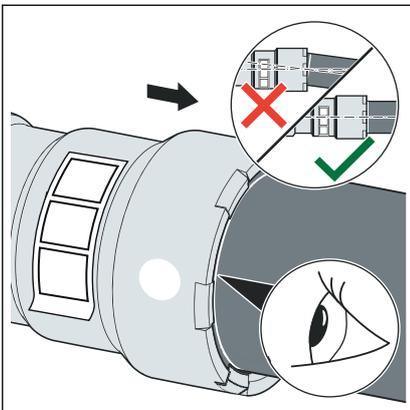
#### Requirements:

- 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.



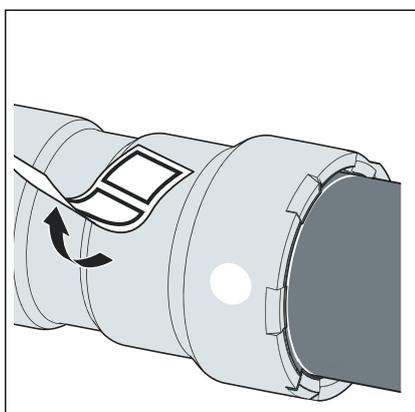
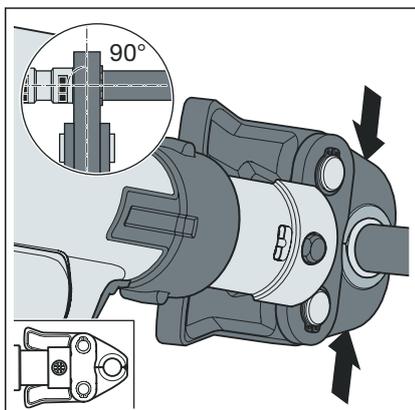
► Measure and mark the insertion depth.

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 $D \leq 1$

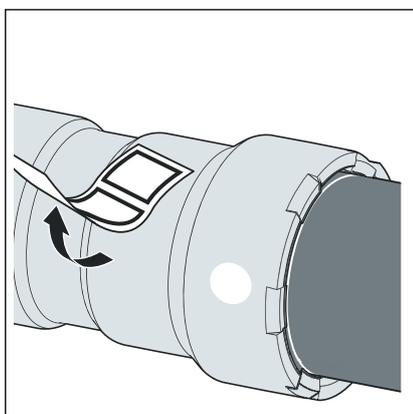
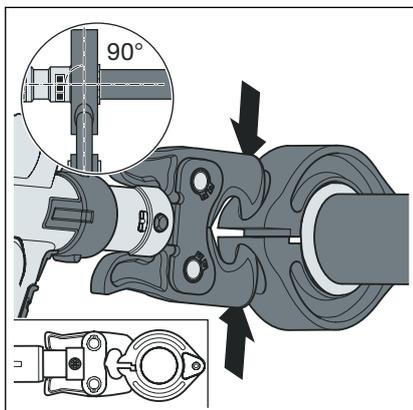


- Insert the press jaw ( $\leq D 1$ ) into the press machine and push the retaining bolt in as far as it will go.

**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 ½-2



- 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 Leakage test

The installer must perform a 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.

The leakage test pursuant to the applicable regulations must also be carried out for non-potable water installations, see ↗ *'Regulations from section: Leakage test'* on page 7.



Also check the external leak tightness at the stuffing box and at the flange connections of the ball valve. If a leak occurs, observe the information on external leak tightness, see ↗ *Chapter 3.5 'Inspection'* on page 36.

Document the result.



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

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 Inspection



Inform your customer or the operator of the installation that an annual inspection must be carried out.

### External leak tightness

- ▶ Check the leak tightness of the ball valve at the stuffing box and at the flange connections.

If the flange connection leaks, slowly tighten the stud bolts cross-wise until the leak is rectified.

If the stuffing box leaks, slowly tighten the stuffing box until the leak is rectified, see ↪ **Chapter 3.5.2 'Adjusting the stuffing box' on page 43.**

- ▶ Perform a function test after sealing.

If, once the screws are tightened, it is difficult or impossible to actuate the ball valve, replace the seals in the middle part, see ↪ **Chapter 3.5.1 'Replacing the sealing elements in the middle part' on page 37.**

### 3.5.1 Replacing the sealing elements in the middle part



To replace the sealing elements the repair set, model 4275.9XL is required, in the size corresponding to the ball valve.

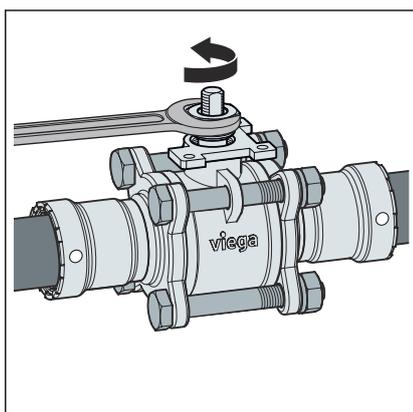
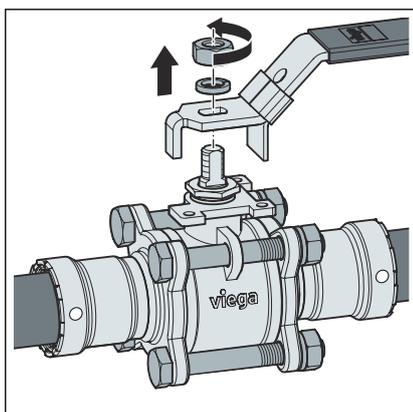


#### NOTICE!

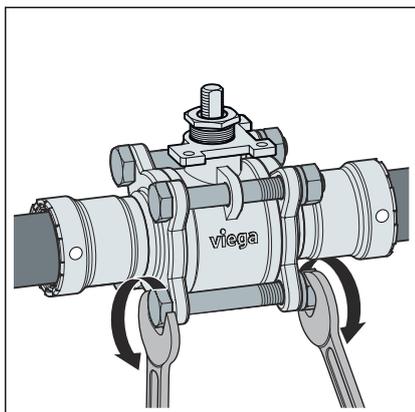
After disassembly, store the internal components such that they are protected from dirt and damage.

Check the internal components for dirt and damage prior to assembly. Clean the components as and when required.

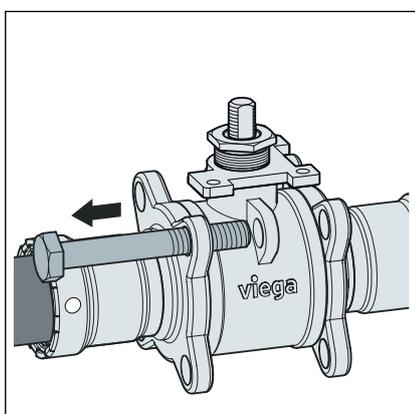
- Shut-off the supply line, secure to prevent unauthorised opening and drain the pipeline section.
- Open the ball valve.
- Remove the handle.



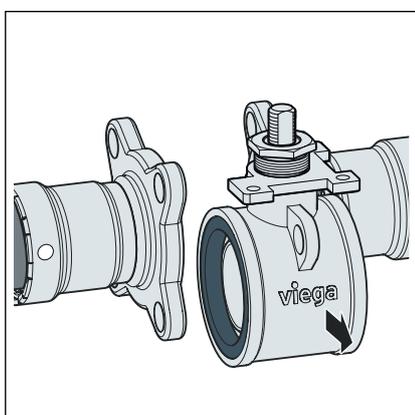
- Loosen the stuffing box with a fork spanner.



► Loosen the flange connections.

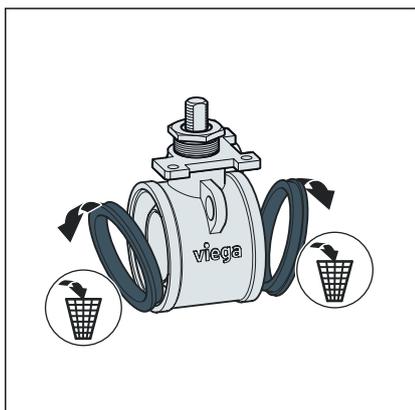


► Remove the stud bolts.

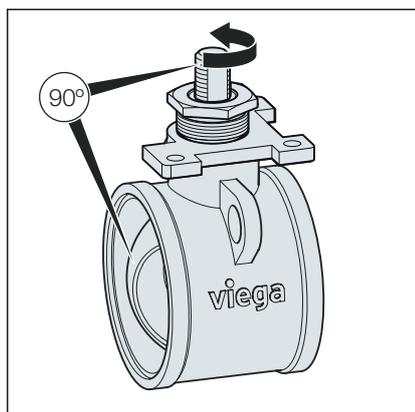


► Remove the middle part of the ball valve sideways.

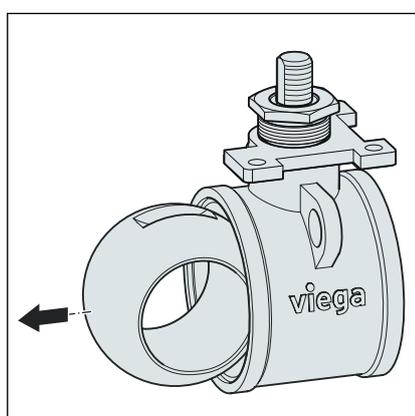
**NOTICE!** To ensure the ball valve functions after replacement of the seals, the middle part must then be mounted in the same position as before the disassembly.



► Remove and dispose of the old PTFE seals.

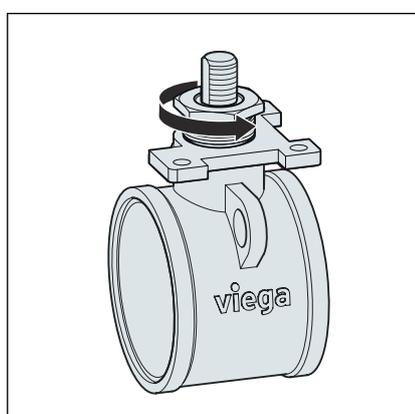


► Turn the ball valve by 90°.

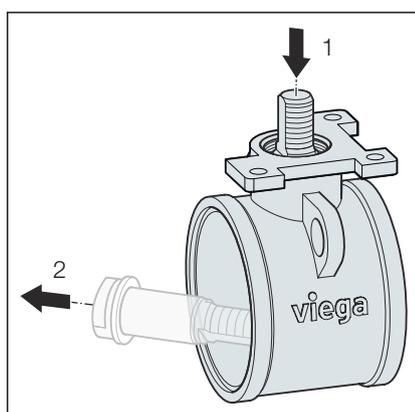


► Remove the ball.

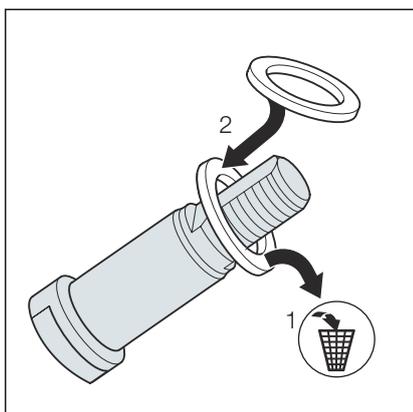
► Clean the ball.



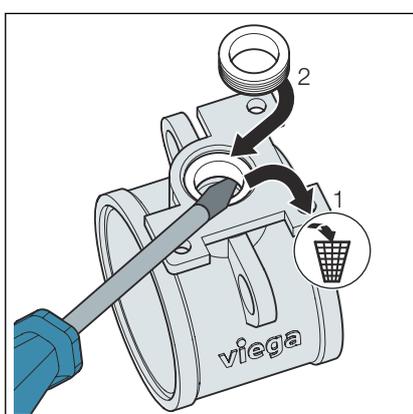
► Unscrew the stuffing box.



► Push out the selector shaft from top to bottom.

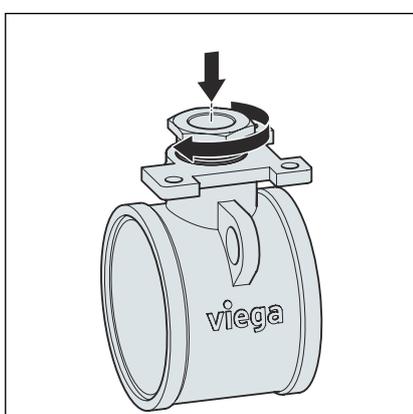


- Replace the selector shaft seal.
- Dispose of the old seal.

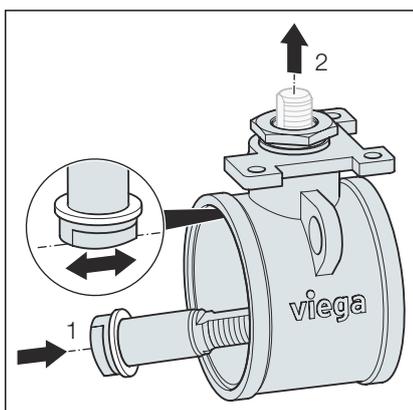


**NOTICE!** The seal cannot be removed without being destroyed. Before you remove it, check whether a spare seal is available.

- Remove the seal using a suitable tool and replace.
- Dispose of the old seal.

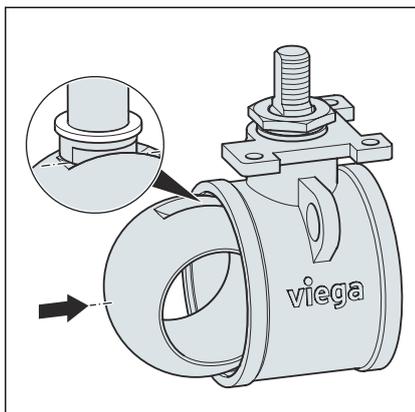


- Tighten the stuffing box by hand.

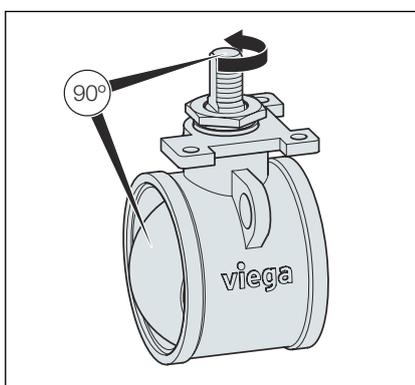


- Insert the selector shaft with the new seal from below.

**INFO!** The shaft must be pointing in the flow direction.

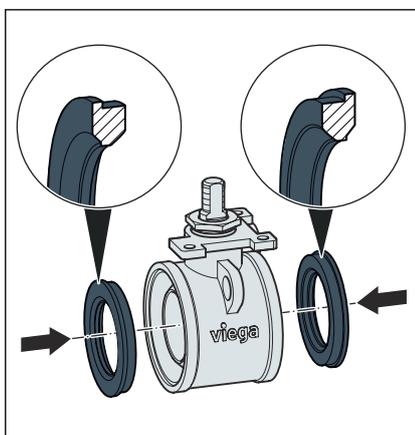


➤ Re-insert the cleaned ball.



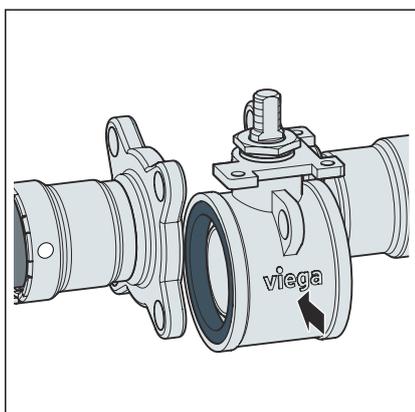
➤ Turn the ball by 90° (open ball valve).

➤ Tighten the stuffing box using a spanner.



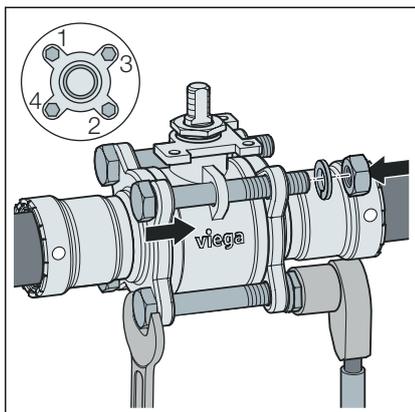
➤ Insert the new PTFE seals into the middle part.

**NOTICE!** Be sure to insert both seals.



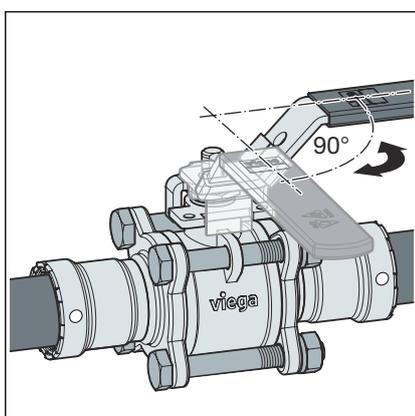
➤ Insert the middle part.

**NOTICE!** To guarantee the ball valve functions correctly, the middle part has to be assembled in the position it was in during disassembly.

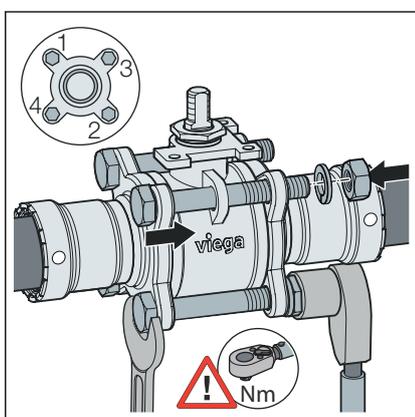


- Insert the stud bolts and tighten by hand crosswise.

**NOTICE!** Be sure to insert the washers.



- Loosely mount the handle.
- To centre the seals and the insert, turn the ball by 90° (shut-off closed).
- Check whether flange and middle part are aligned.
- Turn back the ball by 90° (shut-off open).
- Remove the handle again.



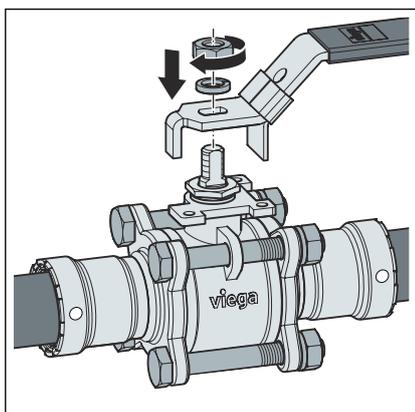
- Tighten the stud bolts crosswise.

Observe the maximum torque when tightening.

**NOTICE!**

#### Torques

Size (inch)	1/2	3/4	1	1 1/4	1 1/2	2
max. torque (Nm)	10	20	20	30	30	30



- Mount the handle.

**NOTICE!** To guarantee the ball valve functions correctly, the actuating lever must be assembled in the position it was in during disassembly. Test the 90° rotation function after assembly.

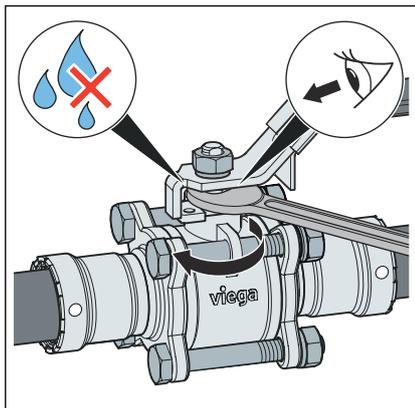
- Fit the spring washer and tighten the nut with a fork spanner. Note the spanner width.

- Perform a leakage test after replacing the middle part.

If the stuffing box leaks: Carefully tighten the stuffing box until the leak is rectified, see [Chapter 3.5.2 'Adjusting the stuffing box'](#) on page 43.

If the flange leaks: Tighten the bolts crosswise until the leak is rectified.

### 3.5.2 Adjusting the stuffing box



- Place the open-end spanner on the stuffing box.
- Carefully tighten the stuffing box until no leak occurs.
- Test the actuation torque of the ball valve.

### 3.6 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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INT • 2022-09 • VPN220185

