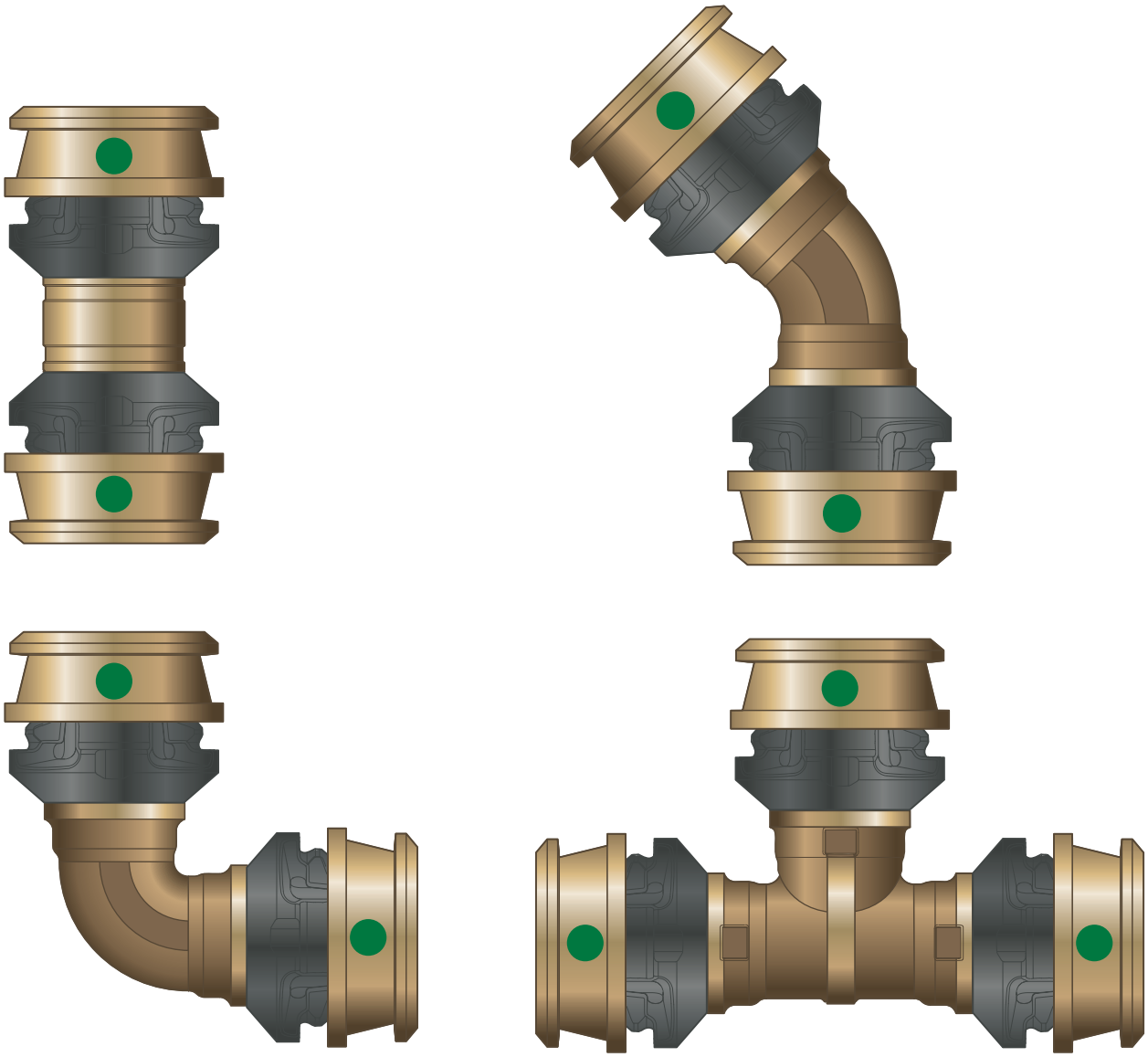
AU

Instructions for Use

Raxofix



Raxofix pipes with press connectors made of gunmetal/silicon bronze

System
Raxofix

Year built (from)
02/2010

Table of contents

1 **About these instructions for use** 3

1.1 Target groups 3
1.2 Labelling of notes 3
1.3 About this translated version 4

2 **Product information** 5

2.1 Standards and regulations 5
2.2 Intended use 7
2.2.1 Areas of application 7
2.2.2 Media 8

2.3 Product description 8
2.3.1 Overview 8
2.3.2 Pipes 9
2.3.3 Press connectors 13
2.3.4 Markings on components 13
2.3.5 Mixed installations 13

2.4 Information for use 14
2.4.1 Chemical resistance 14

3 **Handling** 16

3.1 Storage 16
3.2 Assembly information 16
3.2.1 Mounting instructions 16
3.2.2 Space requirements and intervals 16
3.2.3 Required tools 18

3.3 Assembly 19
3.3.1 Bending pipes 19
3.3.2 Cutting pipes to length 19
3.3.3 Pressing the connection 22
3.3.4 Leakage test 22

3.4 Maintenance 23
3.5 Disposal 23

1 About these instructions for use

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. National regulations can be found on the website specific to your country at *viega.com.au/standards*.

This product complies with the lead-free requirements of the National construction code Volume 2.

Regulations from section: Application areas

Scope / Notice	Regulations applicable in Germany
Planning, execution, operation and maintenance of potable-water installations	DIN EN 1717
Planning, execution, operation and maintenance of potable-water installations	DIN 1988
Planning, execution, operation and maintenance of potable-water installations	VDI/DVGW 6023
Planning, execution, operation and maintenance of potable-water installations	Trinkwasserverordnung (TrinkwV)

Regulations from section: Pipes

Scope / Notice	Regulations applicable in Germany
Potable water pipelines, cold: ■ Pipe with protective pipe (grey), *see line 4 and 5* ■ Pipe with 9 mm surrounding insulation (grey), *see line 1* ■ Pipe with 13 mm surrounding insulation (grey), *see line 2 and 6* ■ Pipe with 26 mm surrounding insulation (grey), *see line 3*	DIN 1988–200, Table 8
Potable water pipelines, warm: ■ Pipe with protective pipe (grey), *see line 6* ■ Pipe with 13 mm surrounding insulation (grey), *see line 5* ■ Pipe with 26 mm surrounding insulation (grey), *see line 1*	DIN 1988–200, Table 9
Heating systems: ■ Pipe with 9 mm surrounding insulation (grey), ■ Pipe with 13 mm surrounding insulation (grey), ■ Pipe with 26 mm surrounding insulation (grey), Heating systems in floor construction: ■ Pipe with eccentric heat insulation (grey),	GEG (Appendix 8 to sections 69, 70 and 71, paragraph (1))

Regulations from section: Storage

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

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"

Regulations from section: Maintenance

Scope / Notice	Regulations applicable in Germany
Operation and maintenance of potable-water installations	DIN EN 806-5

2.2 Intended use

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

The expression "SC-Contur" appearing in the instructions for use means "Smart Connect Feature".

2.2.1 Areas of application

Use is possible in the following areas among others:

- Raxofix multi-layer pipe (dimensionally stable with oxygen barrier layer)
  - Potable water installations
  - Compressed air systems
- Raxofix-PE-X pipes (flexible without oxygen barrier layer)
  - Potable water installations: silver grey pipe
  - Potable water hot: red pipe
  - Rainwater: green pipe
  - Recycled water of groups A and A+: lilac pipe

Potable water installation

Observe the applicable directives for planning, installation, operation and maintenance of potable water installations, see *Chapter 2.1 'Standards and regulations' on page 5*.

Maintenance

Inform your customer or the operator of the potable water installation that the system has to be maintained on a regular basis, see *Chapter 3.4 'Maintenance' on page 23*.

2.2.2 Media

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

- Raxofix multi-layer pipe (dimensionally stable with oxygen barrier layer)
  - Potable water
  - Compressed air
- Raxofix-PE-X pipes (flexible without oxygen barrier layer)
  - Potable water cold / potable water hot: silver grey pipe
  - Potable water hot: red pipe
  - Rainwater: green pipe
  - Recycled water of groups A and A+: lilac pipe

Operating conditions

Max. operating temperatures

- Sanitary installations: T_D 70 °C

Operating pressure max.

- Sanitary installations: 1000 kPa (10 bar)
- Heating installations: 1000 kPa (10 bar)

2.3 Product description

2.3.1 Overview

The piping system consists of press connectors in combination with PE-X pipes and multi-layer pipes and the corresponding press tools.

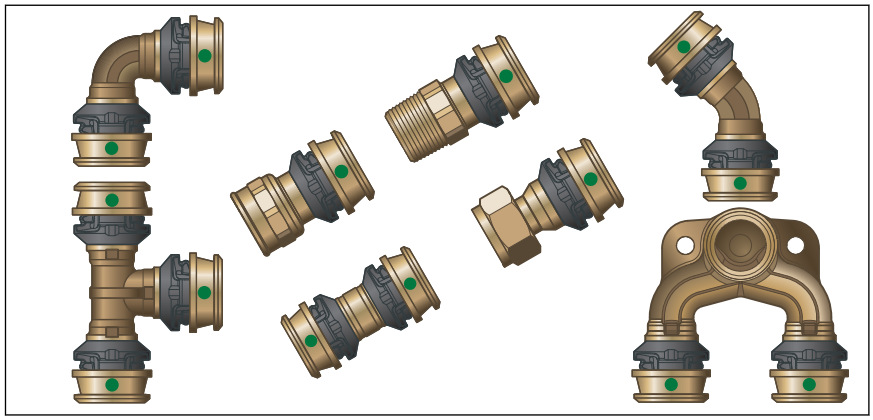


Fig. 1: Raxofix press connectors

The system components are available in the following dimensions:
d 16 / 20 / 25 / 32 / 40 / 50 / 63.

2.3.2 Pipes

Raxofix multi-layer pipes, with or without protective pipe, with various thicknesses of insulation are available in coiled bundles. Dimensionally stable multi-layer pipes are also available in 5 m lengths. The following pipes are available from the system described:

Raxofix multi-layer pipe	PE-X pipe
Dimensionally stable	Flexible
With oxygen barrier layer	Without oxygen barrier layer
d 16, 20, 25, 32, 40, 50, 63	d 16, 20

Raxofix multi-layer pipe (dimensionally stable with oxygen barrier layer)

Type of pipe	d	Areas of application
Pipe in lengths	16, 20, 25, 32, 40, 50, 63	Potable water installations
Pipe without protective pipe	16, 20, 25, 32	Potable water installations
Pipe with protective pipe (grey)	16, 20	Potable water installations[1)]
Pipe with 6 mm surrounding insulation (grey)	16, 20	Potable water installations
Pipe with 9 mm surrounding insulation (grey)	16, 20, 25	Potable water and heating installations[1)]

[1)] see *Chapter 2.1 'Standards and regulations' on page 5*

Type of pipe	d	Areas of application
Pipe with 13 mm surrounding insulation (grey)	16, 20	Potable water and heating installations[1)]
Pipe with 26 mm surrounding insulation (grey)	16, 20	Potable water and heating installations[1)]

[1)] see *Chapter 2.1 'Standards and regulations' on page 5*

Raxofix PE-X pipe (flexible without oxygen barrier layer)

Type of pipe	d	Areas of application
Pipe without protective pipe	16, 20	Potable water installations

[1)] see *Chapter 2.1 'Standards and regulations' on page 5*

Laying and fixing pipes

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

For fastening the pipes on Prevista Dry Plus rail systems, Viega recommends the use of the Prevista Dry Plus piping support (model 8416). The piping support is suitable for plastic pipelines with dimensions d16 to 20.

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 distance to press connectors.
- Observe the expansion direction: Plan fixed and gliding points.

Make sure to affix the pipelines in such a way as to de-couple them from the installation body, so that they cannot transfer any structure-borne sound, resulting from thermal expansion or possible pressure surges, onto the installation body or other components.

Observe the following fixing distances:

Distance between the pipe clamps

d x s [mm]	Raxofix multi-layer pipes (dimensionally stable with oxygen barrier layer) [m]		Raxofix-PE-X pipes (flexible without oxygen barrier layer) [m]	
	Horizontal	Vertical	Horizontal	Vertical
16 x 2.2	1.00	1.30	0.55	0.75
20 x 2.8	1.00	1.30	0.60	0.80
25 x 2.7	1.50	1.95	-	-
32 x 3.2	2.00	2.60	-	-
40 x 3.5	2.00	2.60	-	-
50 x 4.0	2.50	3.25	-	-
63 x 4.5	2.50	3.25	-	-

These distances are manufacturer's specifications. Observe the national regulations for the relevant applications.

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)

Heat expansion co-efficients of various pipe materials

Material	Heat expansion co-efficient α [mm/mK]	Example: Length extension with pipe length L = 20 m and Δϑ = 50 K [mm]
Raxofix multi-layer pipe (dimension-ally stable with oxygen barrier layer)	0.03	30
Raxofix PE-X pipe (flexible without oxygen bar-rier layer)	0.17	170

Length expansion and expansion bend length

Calculation example Raxofix PE-X pipe (flexible without oxygen barrier layer):

- **Given:** Temperature difference Δϑ = 50 K;
  Pipe length L = 8 m; Pipe ⌀ = 20 mm
- **Required:** Expansion bend length L_{BS}
- **Calculation:**
  - Beginning in the left-hand diagram: From 50 K temperature difference on the x-axis up to the characteristic line for the 8 m pipe length.
  - Connect the intersection horizontally with the right-hand diagram up to the intersection of the characteristic line for pipe diameter 20 mm.
- **Result:** Read the value from the x-axis: L_{BS} = 430 mm.

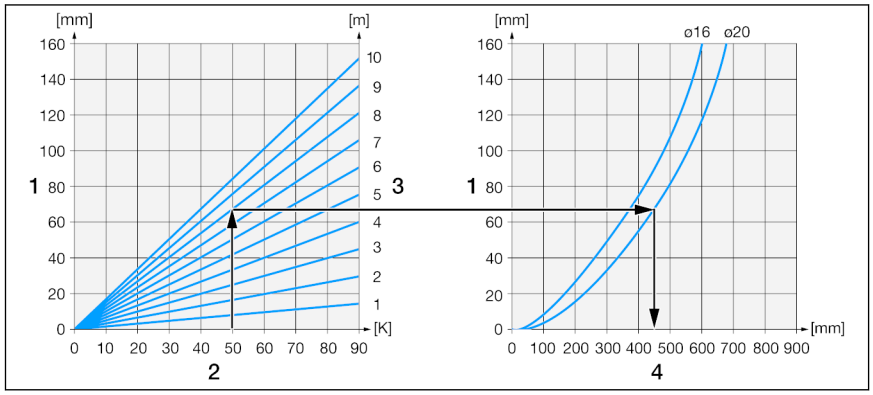
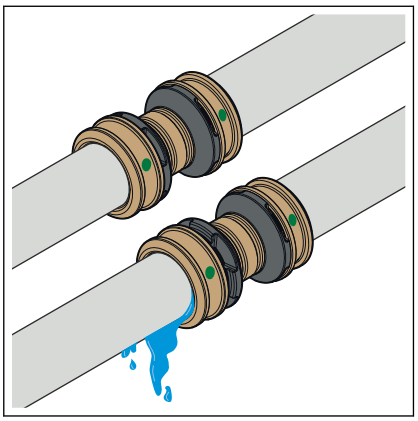


Fig. 2: Raxofix PE-X pipe (flexible without oxygen barrier layer) – expansion bend length

1 - Length expansion Δl [mm]
2 - Temperature difference Δϑ [K]
3 - Pipe length L [m]
4 - Expansion bend length L_{BS} [mm]

2.3.3 Press connectors



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)

Fig. 3: SC-Contur

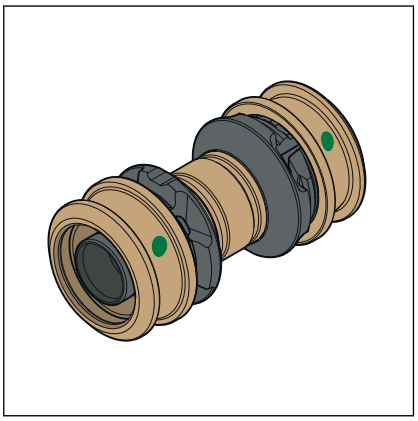
2.3.4 Markings on components

Pipe marking

The pipe markings contain important information regarding the quality and certification of the pipes. Their meaning is as follows:

- Manufacturer
- System name
- Pipe material
- Size / wall thickness
- Certification and operating temperatures

Markings on press connectors



The green dot shows that the press connector is equipped with the SC-Contur and that the system is suitable for potable water.

Fig. 4: Marking

2.3.5 Mixed installations

All Raxofix pipes may be mounted only using original accessories, Raxofix press connectors using SC-Contur and the corresponding press tools. Use with components of other plastic piping systems, such as Sanfix Fosta, for example, is not permitted.

Please contact Viega for questions on this subject.

2.4 Information for use

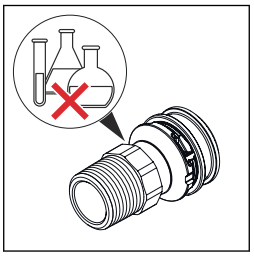
2.4.1 Chemical resistance

NOTICE!
Water damage as a result of disregarding instructions

Disregarding the instructions on chemical resistance can lead to material damage and leaks. This may lead to water damage.

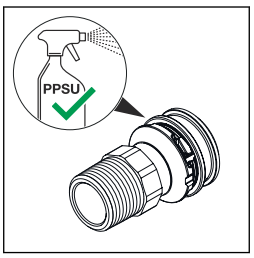
- Only use authorised substances on the components.
- Protect the components from harmful external influences.
- Observe the following table. If you are in doubt or have any questions, please contact the Viega Service Center before commencing work.

Examples of applications that can lead to damage.



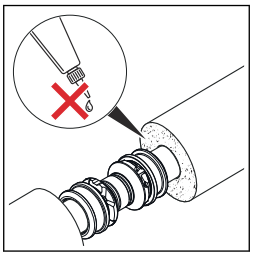
Material damage due to aggressive chemicals

- Prevent system components from coming into contact with aggressive chemicals, especially those containing solvents.



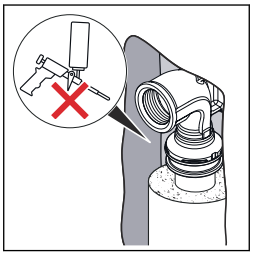
Material damage due to impermissible leakage detection agents

- Use only leakage detection agents approved by the manufacturer for use on PPSU material.
- Observe the manufacturer's instructions.



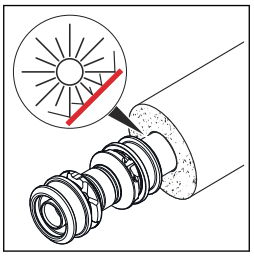
Material damage due to aggressive adhesives for bonding insulation material

- To prevent direct contact of system components with these adhesives, completely wrap the surfaces of the system components with corrosion protection tape.



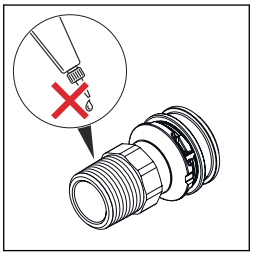
Material damage due to the use of expanding foam / PU foam

- Prevent direct contact of system components with expanding foams / PU foams.
- Protect the press connector from contact with expanding foams / PU foams.



Material damage due to UV radiation

- Protect the system components from permanent UV radiation



Material damage due to thread locker containing solvents

- Only use commercial available hemp together with thread sealing paste or certified sealing tape for potable water as sealant for threads.

3 Handling

3.1 Storage

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

- Store rods on even, clean surfaces.

Storage outside in closed, original packaging is possible for a period of up to three months. In this instance, protect the packaging from damage due to rain or high levels of humidity or UV radiation.

3.2 Assembly information

3.2.1 Mounting instructions

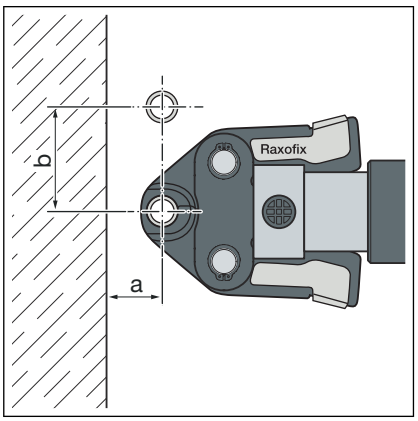
Checking system components

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

- Check all parts.
- Replace damaged components.
- Do not repair damaged components.
- Contaminated components may not be installed.

3.2.2 Space requirements and intervals

Pressing between pipelines



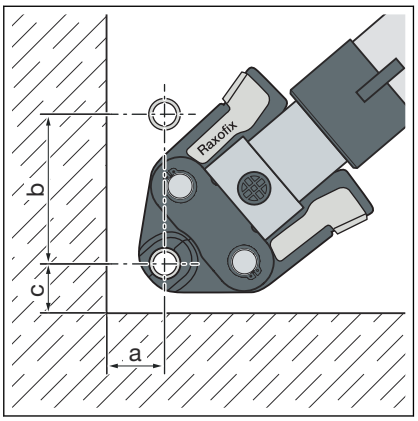
Space required Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 Plus

d	16	20	25	32	40	50	63
a [mm]	14	18	23	28	34	38	45
b [mm]	45	49	58	75	88	94	108

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

d	16	20	25	32	40
a [mm]	16	17	23	29	32
b [mm]	46	49	57	70	79

Pressing between pipe and wall



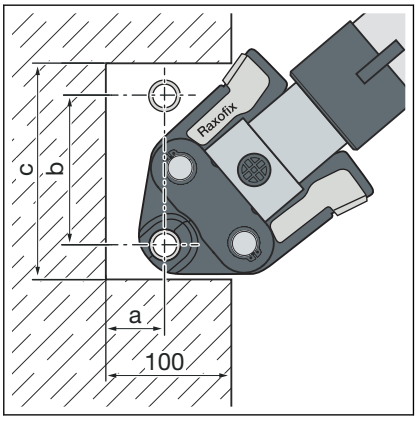
Space required Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 Plus

d	16	20	25	32	40	50	63
a [mm]	19	21	27	33	39	44	52
b [mm]	37	38	38	50	56	58	67
c [mm]	65	70	73	86	97	103	118

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

d	16	20	25	32	40
a [mm]	20	21	27	34	38
b [mm]	33	32	35	44	46
c [mm]	60	63	72	79	88

Pressing in wall slots



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

d	16	20	25	32	40	50	63
a [mm]	19	22	27	33	39	44	52
b [mm]	65	70	73	86	97	103	118
c [mm]	139	146	149	186	209	219	252

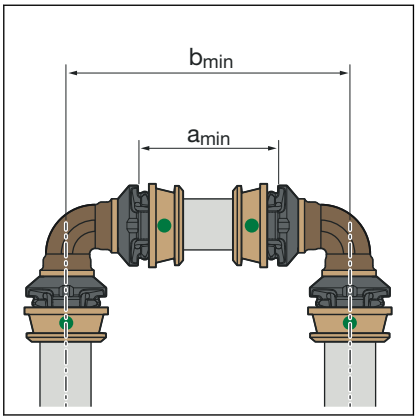
Space requirement Picco, Pressgun Picco, Pressgun Picco 6, Pressgun Picco 6 Plus

d	16	20	25	32	40
a [mm]	20	21	27	34	38
b [mm]	60	63	72	79	88
c [mm]	126	127	142	167	180

Interval between the pressings

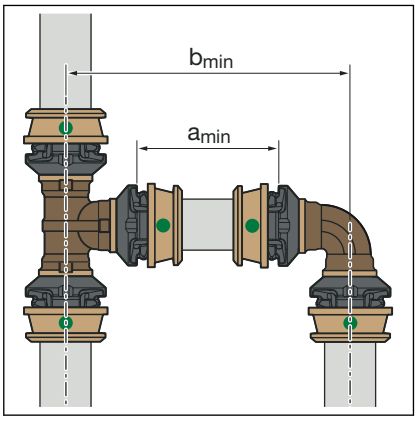
NOTICE!
Leaking press connections due to pipes being too short!

Observe the specified minimum distances for two adjacent press connectors, insufficient insertion depth can lead to leakage of the pipe.



Minimum distance between elbows

d	16	20	25	32	40	50	63
a_{min} [mm]	36	36	46	44	57	57	60
b_{min} [mm]	83	85	107	117	150	168	185



Minimum distance between elbow and T-piece

d	16	20	25	32	40	50	63
a_{min} [mm]	36	36	46	44	57	57	60
b_{min} [mm]	83	86	107	116	150	164	185

Z dimensions

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

3.2.3 Required tools

The use of original Viega tools or equivalent tools is recommended for installation.

Hand or electric saws or angle grinders are not permitted.

- Press machine with constant pressing force
- Suitable Raxofix press jaw
- Pipe shear (model 5341) for dimensions 16–25 mm
- Pipe cutters (model 2191) for dimensions 32–63 mm
- Bending tool (model 5331 or 5331.2)

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.

3.3 Assembly

Instruction video

Link to the video: *Pressing the press connector system*

3.3.1 Bending pipes

Raxofix multi-layer pipes in the dimensions 16–32 mm can be bent by hand with a bending radius of 5 x d or with a bending tool with the following radii:

Bending directly at the press connector can cause the pipe to bend.

d	Bending radius x d
16	2.0
20	2.3
25	3.0
32	3.5
40	4.0
50	4.5
63	4.5

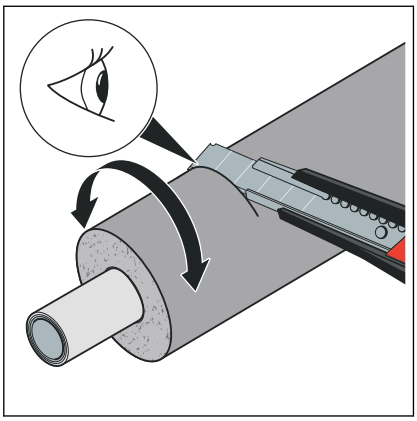
The recommended bending tools for dimensions d16 and 20 are the models 5331 and 5331.2.

Raxofix PE-Xc pipes in the dimensions 16 mm and 20 mm can be bent by hand with a bending radius of 5 x d.

3.3.2 Cutting pipes to length

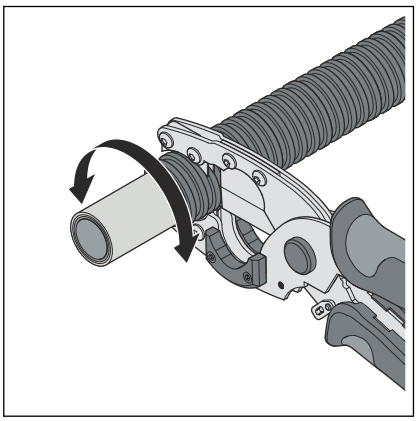
For information about tools, also see *Chapter 3.2.3 'Required tools' on page 18 further information on page 18*.

Insulated pipes

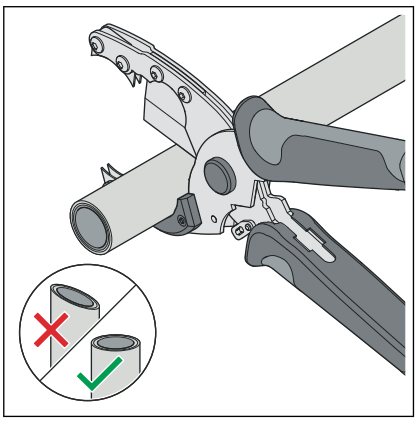


- Cut the insulation.
- Be careful not to damage the pipe.

Dimensions 16–25 mm



- Cut the protective pipe to length using the protective pipe cutter (model 5341).
- Be careful not to damage the pipe.

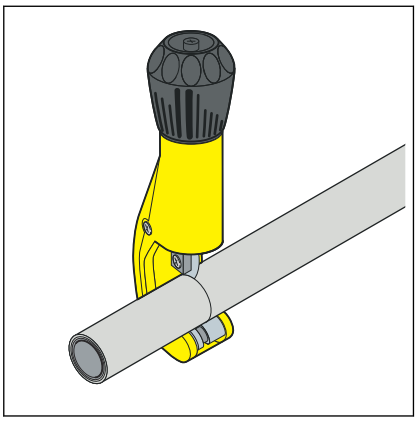


- Cut the pipe to length using pipe shears.

  Replace worn blades (model 5341.6).

  Make sure that the cut surface is clean and straight.

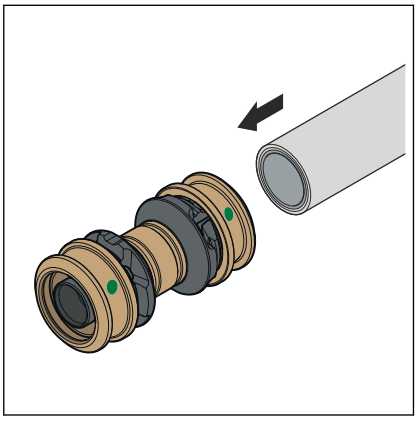
Dimensions 32–63 mm



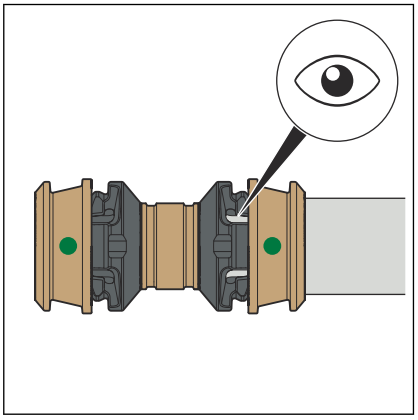
- Cut the pipe to length using a pipe cutter (model 2191).

3.3.3 Pressing the connection

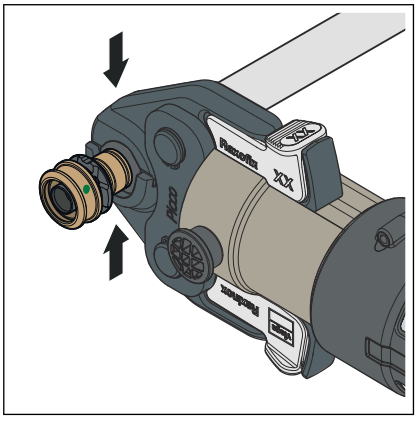
You will find information regarding the intervals in the Raxofix system instructions for use.



- Push the pipe into the press connector until the pipe end is visible in the inspection window.



- Check the insertion depth in the inspection window.



- Open the press jaw and place it at a right-angle onto the press connector. Carry out the pressing process.

  Observe the intervals in section *Chapter 3.2.2 'Space requirements and intervals' on page 16*.

  ▷ Connection is pressed.

3.3.4 Leakage test

NOTICE!
Also refer to the information for use on leakage detection agents, see *Chapter 2.4.1 'Chemical resistance' on page 14*.

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 directives, see *Chapter 2.1 'Standards and regulations' on page 5*.

Also carry out the leakage test for non-potable water installations in accordance with the applicable directives, see *Chapter 2.1 'Standards and regulations' on page 5*.

Document the result.

3.4 Maintenance

Observe the applicable guidelines for the operation and maintenance of potable water installations, see *'Regulations from section: Maintenance' 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.

Viega Pty Limited
support@viega.com.au
viega.com.au

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