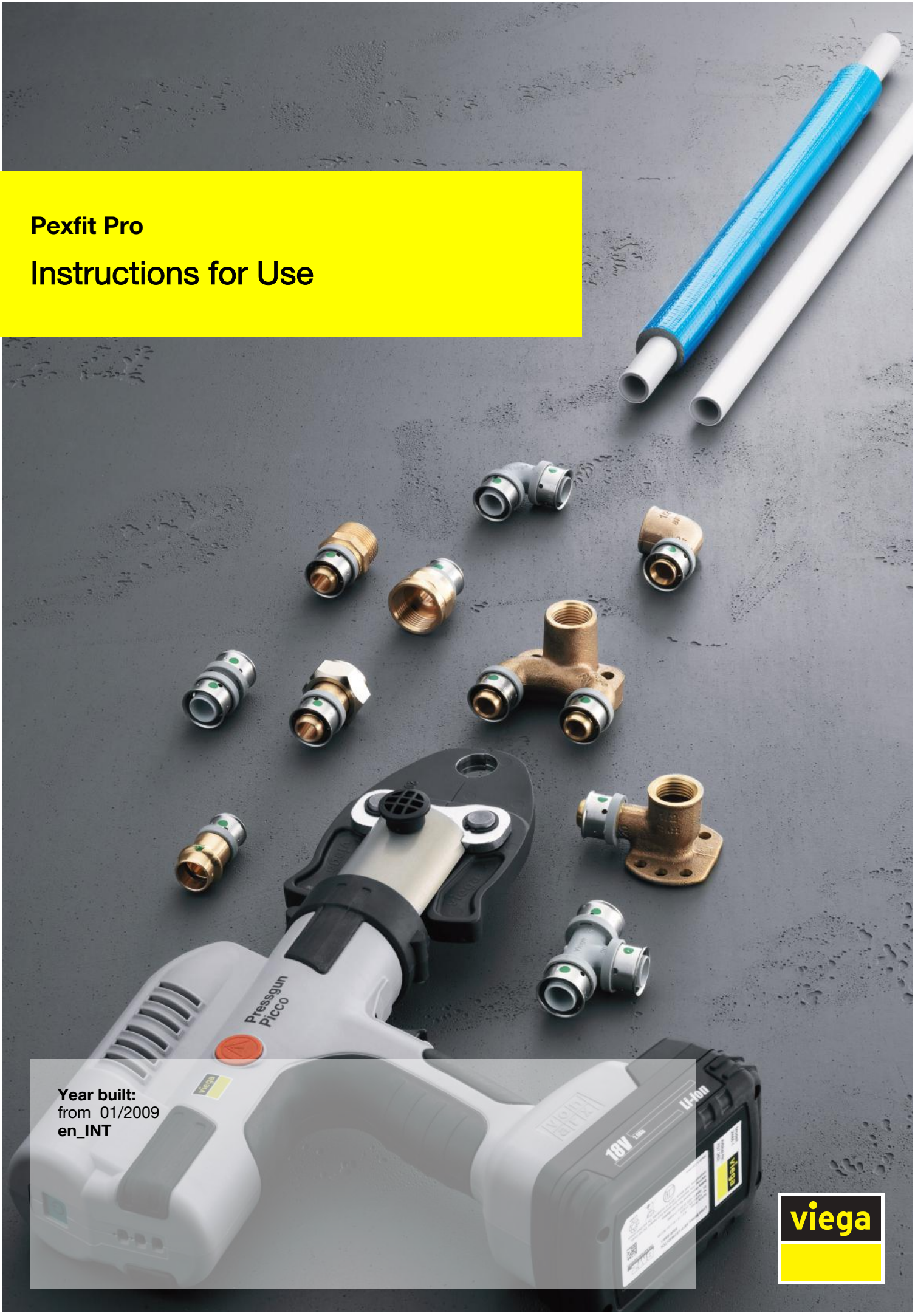
Pexfit Pro

Instructions for Use



Year built:
from 01/2009
en_INT

viega

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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

2.1 Standards and regulations

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

Regulations from section: Fields of application

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

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
Operation and maintenance of drinking water installations	DIN EN 806-5

2.2 Intended use

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

2.2.1 Areas of use

Use is possible in the following areas among others:

- Pexfit Pro multilayer pipe (dimensionally stable with external oxygen seal coat)
  - Drinking water installations
  - Heating systems
  - Compressed air systems

Drinking water installation

For planning, execution, operation and maintenance of potable water installations, observe the applicable regulations, see *„Regulations from section: Fields of application“ on page 6*.

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 22*.

Installation surroundings

The system is only intended for installation inside buildings.

Use of the system outside or in special surroundings must be agreed with the Viega Service Center.

2.2.2 Media

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

- Pexfit Pro multilayer pipe (dimensionally stable with external oxygen seal coat)
  - Drinking water
  - Rainwater
  - Heating water
  - Compressed air

Operating conditions

Operating temperature max.

- Sanitary installations: T_D 70 °C
- Heating installations: T_D 80 °C

Maximum operating pressure

- Sanitary installations: 1.0 MPa (10 bar)
- Heating installations: 1.0 MPa (10 bar)

2.3 Product description

2.3.1 Overview

The piping system consists of various pipes and press connectors.

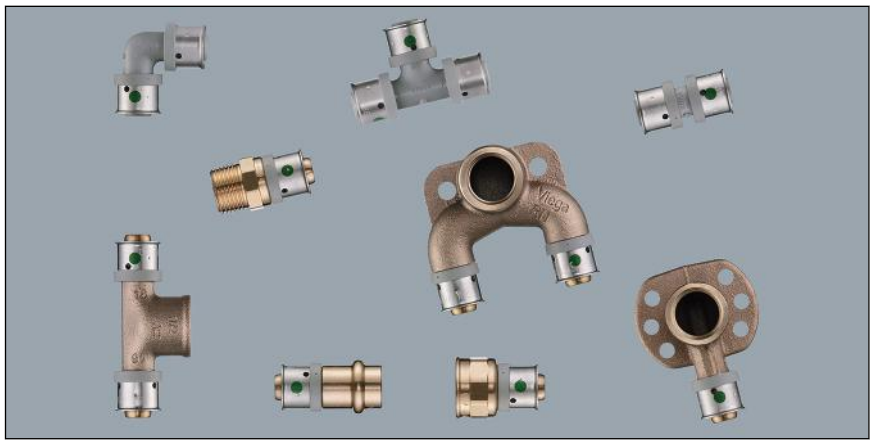


Fig. 1: Pexfit Pro press connectors

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

Pexfit Pro press connectors (elbows, T-pieces, couplings and manifolds) in the dimensions 16–25 are made of PPSU. All threaded connectors and components in the dimensions 32–63 are made of gunmetal.

2.3.2 Pipes

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

Pexfit Pro-PE-Xc/Al/PE-Xc
dimensionally stable
with external oxygen seal coat
d 16, 20, 25, 32, 40, 50, 63

Pexfit Pro-PE-Xc/Al/PE-Xc

Type of pipe	d	Areas of use
Pipe in rods	16, 20, 25, 32, 40, 50, 63	Drinking water and heating installations
Pipe without protective pipe	16, 20, 25, 32	Drinking water and heating installations
Pipe with protective pipe (black, blue, red)	16, 20, 25	Drinking water and heating installations
Pipe with 6 mm surrounding insulation (blue)	16, 20	Drinking water and heating installations
Pipe with 9 mm surrounding insulation (blue)	25	Drinking water and heating installations

Pexfit Pro PERT/Al/PERT
dimensionally stable
with external oxygen seal coat
d 16, 20

Pexfit Pro PERT/Al/PERT

Type of pipe	d	Areas of use
Pipe without protective pipe	16, 20	Drinking water and heating installations
Pipe with protective pipe (black)	16, 20	Drinking water and heating installations
Pipe with 6 mm surrounding insulation (blue)	16, 20	Drinking water and heating installations

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 distance to 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 intervals:

Interval between the pipe clamps

d x s [mm]	Horizontal Multilayer pipe [m]	Vertical Multilayer pipe [m]
16 x 2.0	1.00	1.30
20 x 2.3	1.00	1.30
25 x 2.8	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

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 equalised 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 expansion with pipe lengths L = 20 m and ΔT = 50 K [mm]
Pexfit Pro multi-layer pipe	0.03	30

Length expansion and expansion bend length

Calculation example multilayer pipe:

- **Given:** Temperature difference $\Delta\vartheta$ = 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} = 480 mm.

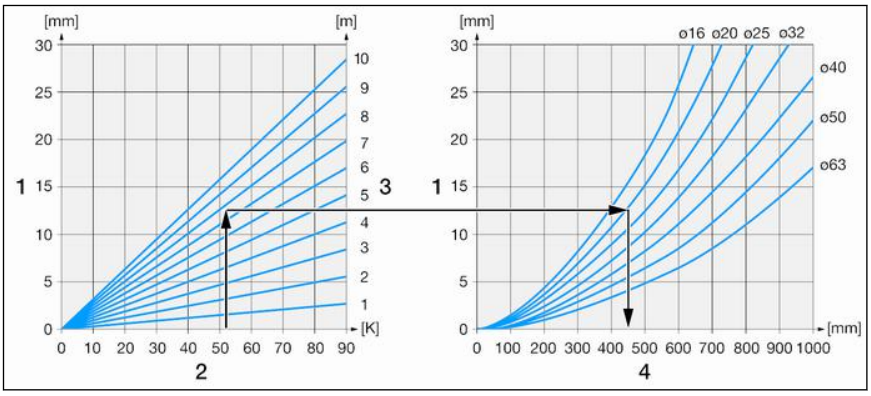


Fig. 2: Multilayer pipe – expansion bend length

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

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 press connectors of the Pexfit Pro system consist of the following materials:

- Gunmetal/silicon bronze
- PPSU

Fig. 3: Press connectors

SC-Contur

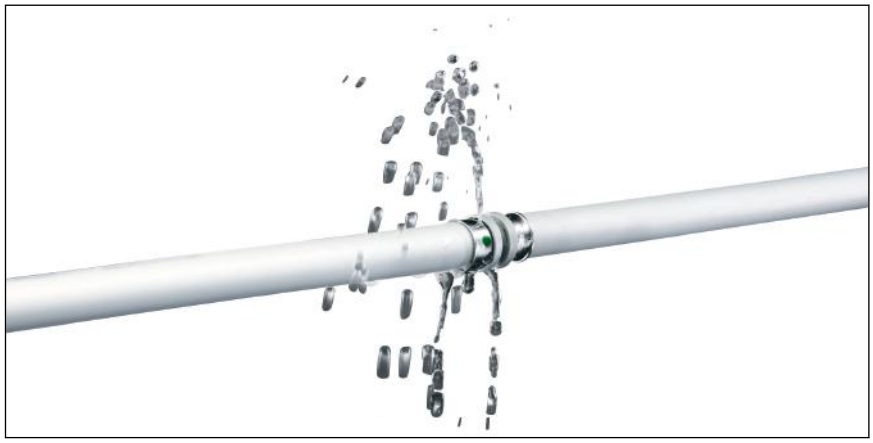


Fig. 4: SC-Contur

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 connector is guaranteed to be leaky in an unpressed state. In this way, inadvertently unpressed connections are noticed immediately when filling the system.

Viega ensures that inadvertently unpressed connections during installation become visible when the system is filled.

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

Fig. 5: Marking

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

2.3.5 Mixed installations

Permitted mixed installations

Pexfit Pro connectors may be connected with Viega pipes from the Pexfit Pro system.

Installation of Pexfit Pro pipes with old Pexfit Fosta connectors is not permitted.

Please contact the Viega Service Center for questions on this subject.

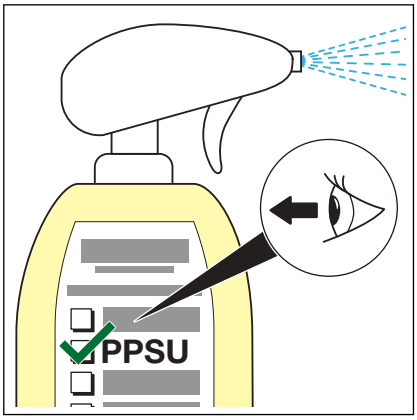
2.4 Information for use

2.4.1 Chemical resistance

NOTICE!
Damage to material due to aggressive chemicals

Aggressive chemicals, especially those containing solvents, may cause material damage and leaks. This may lead to water damage.

– Prevent contact between the system components and aggressive chemicals.



NOTICE!
Material damage due to impermissible leakage detection agents

Impermissible leakage detection agents may cause material damage and leaks. This may lead to water damage.

– Use only leakage detection agents approved by the manufacturer for use on PPSU material.
– Observe the manufacturer's notes on processing.

3 Handling

3.1 Storage

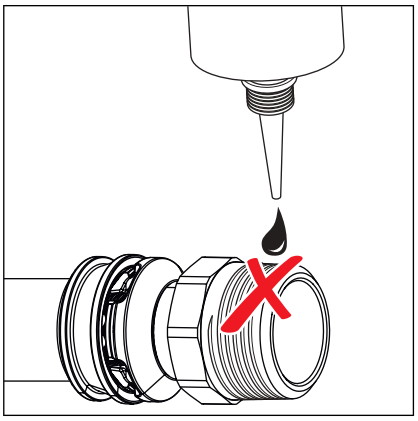
For storage, comply with the requirements specified in the applicable regulations, see „*Regulations from section: Storage*“ *on page 6*:

- 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.

3.2 Assembly information

3.2.1 Mounting instructions



NOTICE!
Material damage due to thread locker containing solvents!

Thread lockers containing solvents can lead to material damage and leaks in plastic parts of pipe connections. This may lead to water damage.

- As a sealant, only use commercially available hemp together with thread sealing paste or certified sealing tape for potable water.
- Please contact the Viega Service Center if you have any questions.

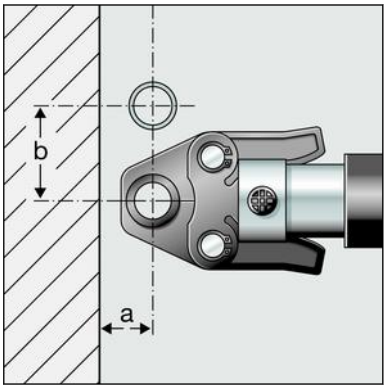
Checking system components

System components may, in some cases, 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



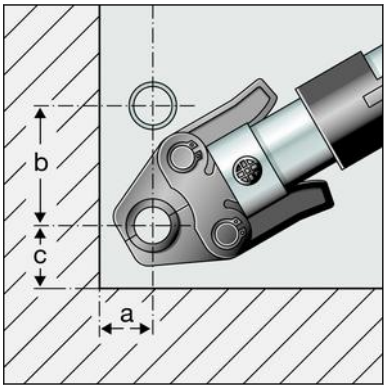
Space requirement type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5

d	16	20	25	32	40	50	63
a [mm]	15	16	23	21	28	40	56
b [mm]	45	45	58	65	70	85	125

Space requirement Picco, Pressgun Picco

d	16	20	25	32
a [mm]	15	15	20	25
b [mm]	48	50	55	70

Pressing between pipe and wall



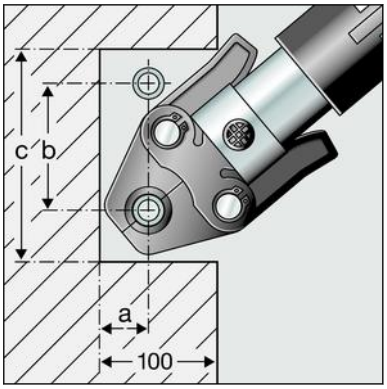
Space requirement type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5

d	16	20	25	32	40	50	63
a [mm]	20	20	25	30	35	40	54
b [mm]	76	76	80	90	92	95	140
c [mm]	25	25	35	35	43	55	61

Space requirement Picco, Pressgun Picco

d	16	20	25	32
a [mm]	20	21	25	30
b [mm]	70	74	75	80
c [mm]	28	28	35	40

Pressing in wall slots



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

d	16	20	25	32	40	50	63
a [mm]	20	20	25	30	35	40	54
b [mm]	90	90	90	95	92	95	140
c [mm]	140	140	140	155	178	205	262

Space requirement Picco, Pressgun Picco

d	16	20	25	32
a [mm]	20	21	25	30
b [mm]	80	80	80	80
c [mm]	120	120	120	160

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.

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

Hand or electric saws or angle grinders are not permitted.

- press machine with constant pressing force
- suitable Pexfit Pro press jaws for plastic piping systems (model 2799.7 or 2784.7)
- hand press tool (model 2782.5) for dimensions 16–25 mm
- 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)
- calibrating tool suitable for the pipe size:
  - 16 / 20 / 25 mm (model 4739.1)
  - 32 / 40 mm (model 2739.3)
  - 50 / 63 mm (model 2139.2)

Fig. 6: Pressgun 5 with press jaw

Recommended Viega press machines:

- Pressgun 5
- Pressgun Picco
- Pressgun 4E / 4B
- Picco
- Type PT3-AH
- Type PT3-H / EH
- Type 2 (PT2)

3.3 Assembly

3.3.1 Bending pipes

NOTICE!
Product damage due to use of metal internal bending springs

The use of metal internal bending springs can lead to damage to the pipe surface and to the introduction of contaminations into the installation.

– Do not use metal internal bending springs.
– Viega recommends using the Viega internal bending tool made of plastic (model 5331.2).

Pexfit Pro multilayer 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:

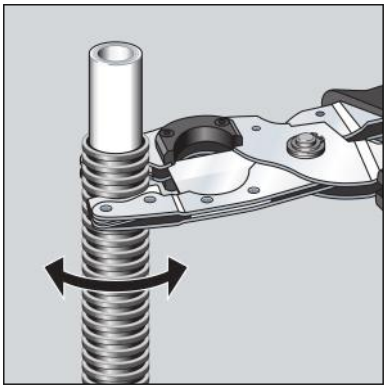
d	Bending radius x d
16	2.0
20	2.3
25	3.0
32	3.5
40	4.0
50	4.5
63	4.5

The recommended bending tools for dimensions d 16 and 20 are the models 5331 and 5331.2.

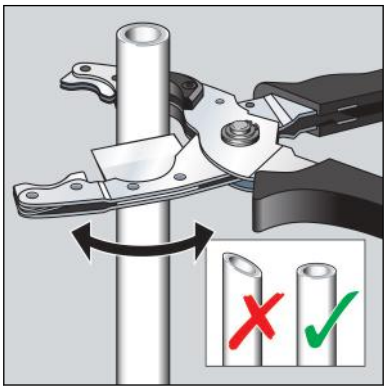
3.3.2 Shortening the pipes

For information about tools, also see *Chapter 3.2.3 „Required tools“ on page 17*.

Dimensions 16–25 mm



- Cut the protective pipe to length using the protective pipe cutter (model 5341).

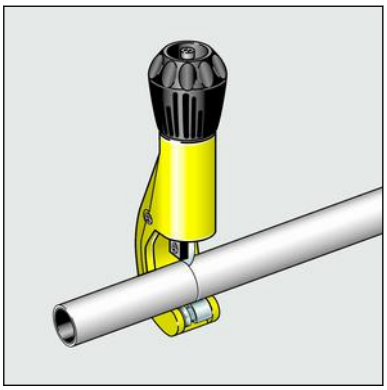


- Cut the pipe to length using a pipe shear.

  Replace worn blades (model 5341.6 or 2040-404).

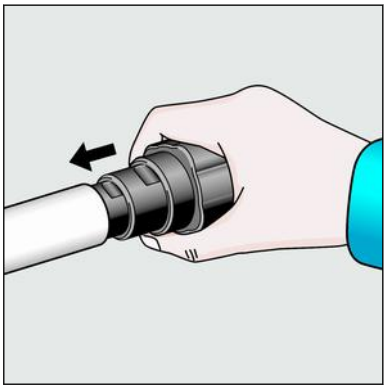
  Make sure that the cut surface is clean and straight.

Dimensions 32–63 mm



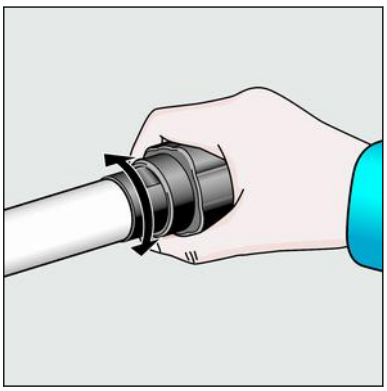
- Cut the pipe to length using a pipe cutter (model 2191).

3.3.3 Calibrating the pipes



- Using the calibrating tool, prepare pipe ends ≥ 25 mm and deformed pipe ends before pressing.

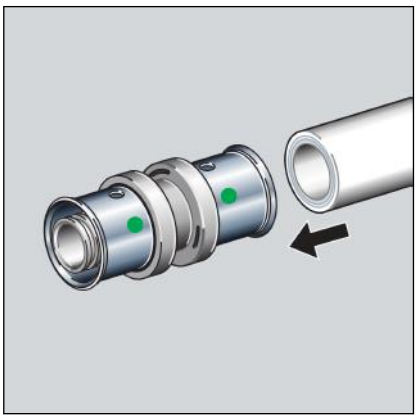
  Push the calibrating tool in as far as it will go.



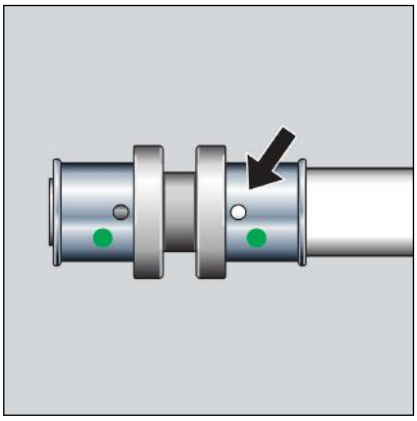
- Calibrate the pipe with turning movements.

  ⇨ Pipe is calibrated.

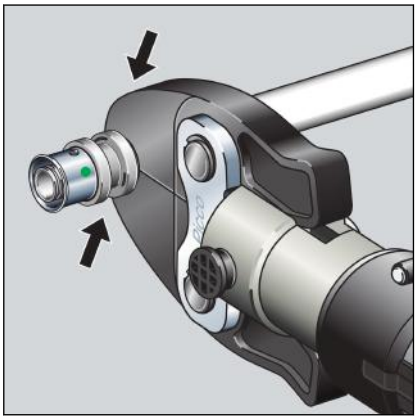
3.3.4 Pressing the connection



- 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.

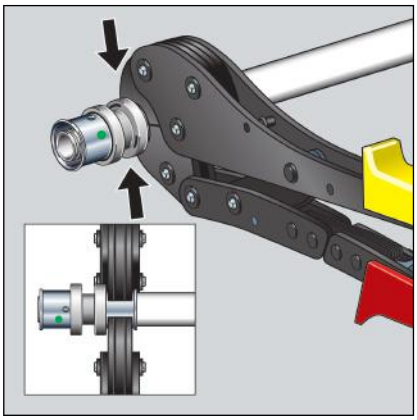


- Open the press jaw and place at a right-angle onto the connector.

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

- Carry out the pressing process.
  - ⇨ Connection is pressed.

Alternatively: Press the connection with hand tool



- Open the hand press tool and place it at a right-angle onto the connector.

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

- Carry out the pressing process.
  - ⇨ Connection is pressed.

3.3.5 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.

This test is carried out on a system that is finished but not yet covered.

Observe the applicable regulations, see *„Regulations from section: Leakage test“ on page 6*.

Leakage test should even be carried in acc. with the general rules of engineering for non-potable water installations.

Document the result.

3.4 Maintenance

Observe the applicable regulations for the operation and maintenance of drinking water installations, see *„Regulations from section: Maintenance“ on page 6*.

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.