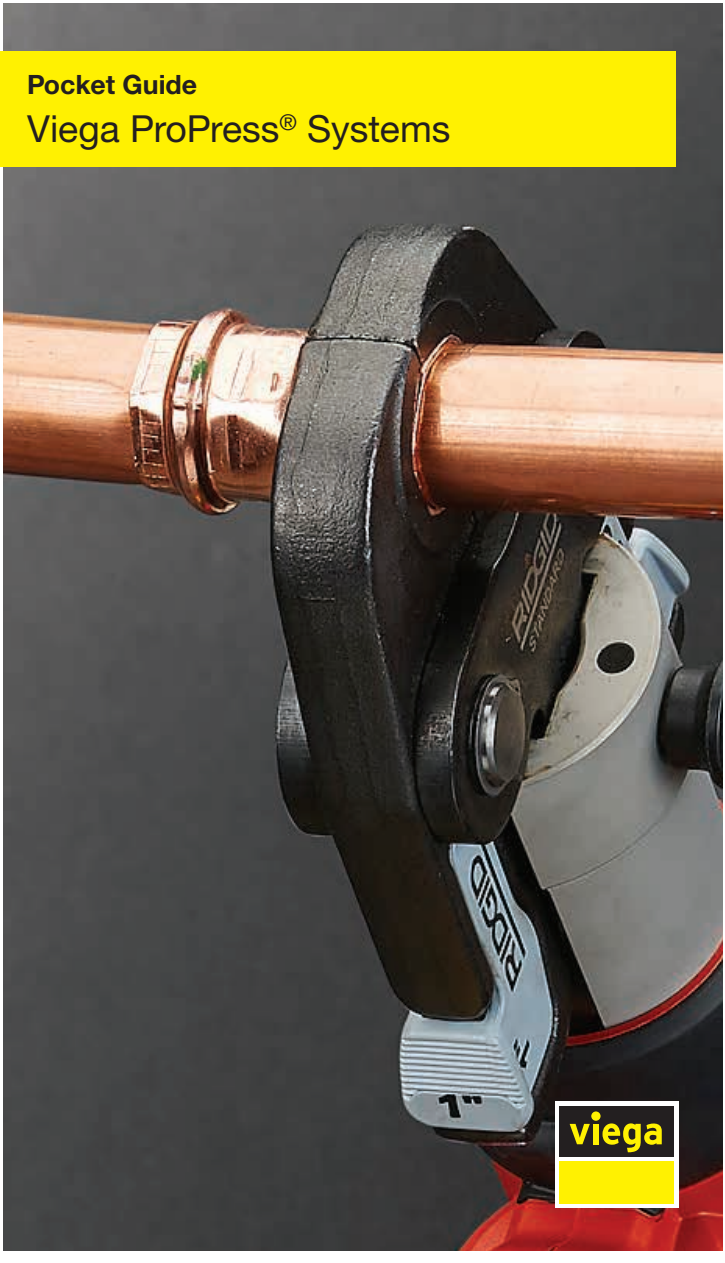
Pocket Guide

Viega ProPress® Systems



viega

Viega.

Connected in quality.

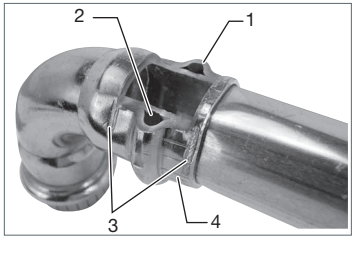
Building on Tradition

Founded 120 years ago, Viega is a privately owned, international group of companies. In the United States, Canada, Mexico, and Latin America, Viega specializes in plumbing, heating, and pipe joining technologies. The values of Viega's founder, Franz-Anselm Viegener, are just as present today as they were when he started the company in 1899. Courage, passion, and innovative spirit are still the basics of Viega's foundation.

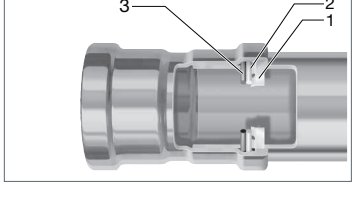
ProPress 2½" to 4" formerly ProPress XL-C®.

At Viega, safety is priority.

Safe, certain, and secure, Viega fittings are designed for peace of mind.



1. In all ProPress ½" to 2" fittings, Viega's unique Smart Connect® technology helps installers ensure that they have pressed all connections.
2. The EPDM sealing element is suitable for many applications.
3. Viega's distinctive hexagonal pressing pattern bonds the fitting and tube and provides the mechanical strength for the connection.
4. Cylindrical guides help installers ensure proper insertion of the tube and protect the sealing element.



1. In ProPress 2½" to 4" fittings, the 420 stainless steel grip ring's teeth bite into the tube and lock the fitting securely in place.
2. A PBT (Polybutylene Terephthalate) separator ring protects the sealing element from damage by creating a physical separation during installation and later during pressing.
3. The EPDM sealing element ensures water-tight or air-tight connections.

Table of Contents

This document is subject to updates. For the most current Viega technical literature please visit www.viega.us.

Viega products are designed to be installed by licensed and trained plumbing and mechanical professionals who are familiar with Viega products and their installation. **Installation by non-professionals may void Viega LLC's warranty.**

DANGER!
Read and understand all instructions for installing Viega ProPress fittings. Failure to follow all instructions may result in extensive property damage, serious injury, or death.

Viega ProPress Systems

Viega ProPress systems are state-of-the-art press fitting systems that provide economical and reliable installations for the commercial, industrial, and residential markets.

Viega ProPress are copper and Zero Lead bronze fittings and valves in copper tube size (CTS) ranging from ½" to 4". The fittings require no soldering or brazing and are installed with electro-hydraulic press tools (battery-powered or corded press tools).

The fittings feature a green dot representing Smart Connect technology with an EPDM sealing element suitable for many applications. Viega's unique Smart Connect technology helps installers ensure that they have pressed all connections.

Viega ProPress systems can help reduce installation time up to 60 percent compared to traditional methods of pipe joining. Soldering and brazing copper can be messy and time consuming, and connections are not always reliable. With Viega press technology, installers can make consistent, secure press connections in less than seven seconds without flame or heavy equipment.

For applications ranging from potable water to inert gases, Viega ProPress fittings can be customized for a wide variety of applications in industrial, commercial, or residential projects.

Smart Connect Technology – Security Under Pressure

Locating unpressed connections is an important step in the pressure testing process. Viega ProPress includes Smart Connect technology, providing quick and easy identification of unpressed connections during a pressure test.

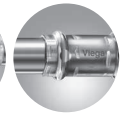
Smart Connect technology is an integral part of the design of the fitting, providing a path for liquids and/or gases from inside the system past the sealing element of an unpressed connection. When pressed according to our Product Instructions, the fluid path is altered, creating a leak-proof, reliable connection.

Unpressed connections are located by pressurizing the system with air or water. When testing with water the proper pressure range is 15 to 85 psi. Pressure testing with air can be dangerous at high pressures. When testing with compressed air the proper pressure range is ½ to 45 psi. Following a successful Smart Connect test, the system may be pressure tested up to 600 psi maximum for water and 200 psi maximum for air if required by local code requirements.

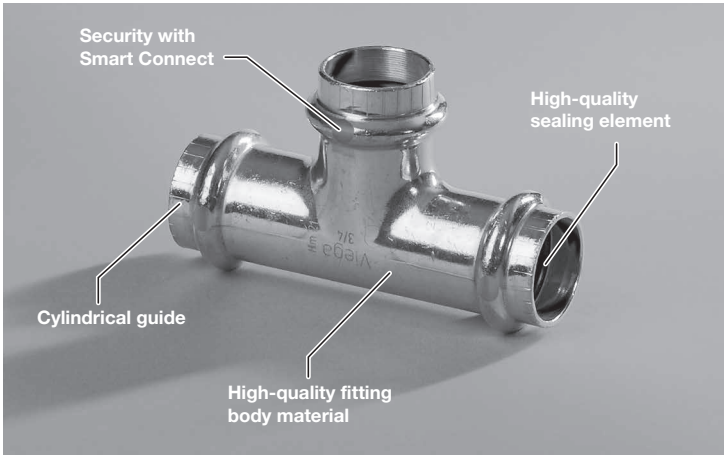
Testing for unpressed connections using Smart Connect is not a replacement for pressure testing requirements of local codes and standards.

1 Identify an unpressed connection during pressure testing when air or water flows past the sealing element.

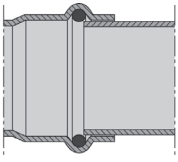
2 Upon identification, use the press tool to press the fitting, making a secure, leak-proof connection.



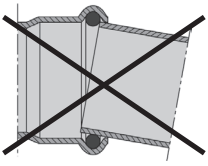
3 Viega ProPress connections are fast, flameless, and reliable.



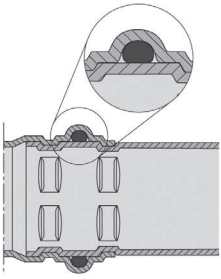
Cylindrical Guides



All Viega ProPress fittings are designed with cylindrical guides to keep the tube straight and protect the sealing element during assembly.



Fittings that do not have cylindrical guides risk making an unsecure connection and leave the sealing element vulnerable to damage prior to pressing.



Fittings are radially pressed around the sealing element in a single step.

Viega ProPress Fitting Systems

Viega ProPress may only be pressed onto copper tube in accordance with ASTM B88 or B75. When pressing onto B88 copper tube types, K, L, and M may be used. Tempers O60 and O50, known as "soft copper", are limited to nominal sizes ½" to 1¼". Temper H58, known as "hard copper", may be used with nominal sizes ½" to 4".

When pressing onto B75 copper tube, additional considerations apply.
See *Viega ProPress Copper Tube Compatibility Tech Data*, page 7.

Viega ProPress fittings are available in elbows, couplings, reducers, tees, reducing tees, threaded adapters, unions, caps, and flanges.

Components
- Alloy: Copper alloy - UNS C12200, Zero Lead silicon bronze alloy - C87710 (cast) or C8770 (machined)
- EPDM sealing element
- 420 stainless steel grip ring for 2½" to 4" fittings
- PBT separator ring for 2½" to 4" fittings

Operating Parameters
- Operating Pressure: 300 psi maximum
- Test Pressure: 600 psi maximum
- Operating Temperature: 0°F to 250°F

Listings and Certificates
- NSF/ANSI 61
- NSF/ANSI 372
- IAPMO PS-117
- UL/ANSI 213
- FM Class 1920
- ICC-ES LC1002
- ABS
- CSA Low Lead Content
- ASME B16.51, B31.1, B31.3, B31.9
- NFPA 13, 13D, 13R

Compliant with:
- ASME B31
- ASTM B75
- ASTM B88
- IAPMO National Standard Plumbing Code (NSPC)
- IAPMO Uniform Mechanical Code (UMC)
- IAPMO Uniform Plumbing Code (UPC)
- ICC International Mechanical Code (IMC)
- ICC International Plumbing Code (IPC)
- ICC International Residential Code (IRC)
- NFPA 13, 13D, and 13R

Approved Applications:
- Hot and cold potable water
- Rainwater/gray water
- Fire sprinkler (175 psi maximum)
- Chilled water
- Hydronic heating (with glycol)
- Low pressure steam (15 psi maximum) with FKM sealing element swap
- Residential steam (5 psi maximum)
- Ethanol
- Compressed air
- Non-medical gases
- Vacuum (29.2" Hg maximum @ 68°F)

ProPress fittings are approved for installations in both above- and below-ground applications. Per code, local inspector approval must be obtained prior to installation below ground.

Smart Connect Technology
ProPress fittings are manufactured with Viega's unique Smart Connect technology. Designed into the fitting itself, Viega Smart Connect technology allows identification of an unpressed fitting during pressure testing.

The use of the system for applications other than those listed or outside of these parameters must be approved by the Viega Technical Services Department.

Viega ProPress Copper Tube Compatibility

Description
Viega ProPress may only be pressed onto copper tube in accordance with ASTM B88 or B75.

When pressing onto B88 copper tube, types K, L, and M may be used. Tempers O60 and O50, known as soft copper, are limited to nominal sizes ½" to 1¼". Temper H58, known as hard copper, may be used with nominal sizes ½" to 4".

When pressing onto B75 copper tube, the tube dimensions must be in accordance with the tables below. Only tempers H58, O60, and O50 may be used with ProPress.

It is the responsibility of the system designer to understand all applicable codes and standards. B75 tubing may not conform to code compliance in all areas or under all Viega listings. These standards may include but are not limited to ASME B16.51.

B75 Annealed Tube Dimensions Compatible with ProPress

B75 O60 Soft Anneal and O50 Light Anneal				
Nominal (in)	OD (in)	TOL_{OD} (in)	Wall Max (in)	Wall Min (in)
½	0.625	0.0025	0.054	0.025
¾	0.875	0.0030	0.071	0.029
1	1.125	0.0035	0.071	0.031
1¼	1.375	0.0040	0.071	0.038

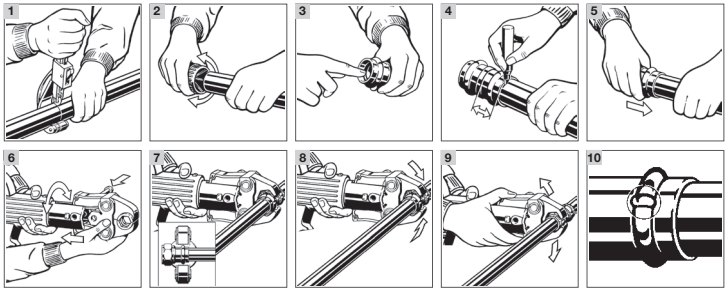
B75 Drawn Tube Dimensions Compatible with ProPress

B75 H58 Drawn (General)				
Nominal (in)	OD (in)	TOL_{OD} (in)	Wall Max (in)	Wall Min (in)
½	0.625	0.0010	0.054	0.025
¾	0.875	0.0010	0.071	0.029
1	1.125	0.0015	0.071	0.031
1¼	1.375	0.0015	0.071	0.038
1½	1.625	0.0020	0.079	0.044
2	2.125	0.0020	0.091	0.052
2½	2.625	0.0020	0.105	0.059
3	3.125	0.0020	0.120	0.065
4	4.125	0.0020	0.147	0.085

It is the responsibility of the installer or any other parties to adhere to all applicable local rules and regulations governing the nature of the installation.

Viega ProPress ½" to 2" Fittings

For Hard Copper Tubing in ½" to 2" and Soft Copper Tubing in ½" to 1¼"



1 Cut the tube square using a displacement-type cutter or fine-toothed steel saw. Note: Cut tubing a minimum of four inches away from the contact area of the vise to prevent possible damage to the tubing in the press area.

2 Deburr inside and outside of the tube to the proper insertion depths to prevent cutting of the sealing element.

3 Check the sealing element for correct fit. Do not use oils or lubricants.

For applications requiring Viega ProPress with FKM or HNBR sealing elements, remove the factory-installed EPDM sealing element and replace with an FKM or HNBR sealing element. See *Changing Sealing Elements Product Instructions*, page 10.

4 Mark the proper insertion depth on the outside of the tube (see table below). Improper insertion depth may result in improper seal.

Minimum Insertion Depth for ProPress

Tube Size	½"	¾"	1"	1¼"	1½"	2"
Insertion Depth	¾"	⅞"	⅞"	1"	1 7/16"	1 9/16"

Copper tubing must be free of surface imperfections, including metal stamped print lines, before a ProPress fitting is installed.

5 While turning slightly, slide press fitting onto the tube to the marked insertion depth. End of tubing must contact stop.

6 Insert appropriate Viega ProPress jaw into the press tool and push in, holding pin until it locks in place.

7 Open the jaw and place at right angle on the fitting. Visually check insertion depth using mark on tubing.

WARNING!
Keep extremities and foreign objects away from press tool during pressing operation to prevent injury or incomplete press.

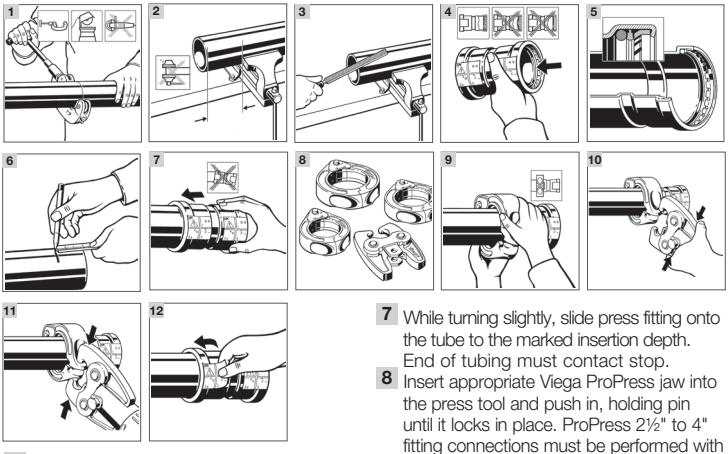
8 Hold trigger on press tool until press jaws have fully engaged the fitting. Jaws will automatically release after a full press is made.

9 After pressing, open the jaw and remove the press tool.

10 Pressure testing with Smart Connect: Unpressed connections are located by pressurizing the system with air or water. When testing with water, the proper pressure range is 15 psi to 85 psi. When testing with compressed air, the proper pressure range is ½ psi to 45 psi maximum. If testing with compressed air, use an approved leak-detect solution. Following a successful pressure test, the system may be pressure tested up to 200 psi with air or up to 600 psi with water.

Viega ProPress 2½" to 4" Fittings

For Hard Copper Tubing in 2½" to 4"



1 Cut tubing at right angles using displacement-type cutter or fine-toothed steel saw.

2 Keep end of tubing a minimum of 4" away from the contact area of the vise to prevent possible damage to the tubing in the press area.

3 Remove burr from inside and outside of tubing to prevent cutting sealing element.

4 Check seal and grip ring for correct fit. Ensure sealing element is free of cuts and damage. Do not use oils or lubricants.

For applications requiring Viega ProPress with FKM or HNBR sealing elements, remove the factory-installed EPDM sealing element and replace with an FKM or HNBR sealing element. See *Changing Sealing Elements Product Instructions*, page 10.

5 Illustration demonstrates proper fit of grip ring, separation ring, and sealing element.

6 Mark proper insertion depth as indicated by the ProPress 2½" to 4" Insertion Depth Chart.

ProPress 2½" to 4" Insertion Depth			
Tube Size	2½"	3"	4"
Insertion Depth	1 11/16"	1 15/16"	2⅜"

7 While turning slightly, slide press fitting onto the tube to the marked insertion depth. End of tubing must contact stop.

8 Insert appropriate Viega ProPress jaw into the press tool and push in, holding pin until it locks in place. ProPress 2½" to 4" fitting connections must be performed with ProPress XL-C rings and V2 actuator.

CAUTION!
Use only rings that are compatible with ProPress 2½" to 4" fittings.

9 Open the XL-C ring and place at right angles on the fitting. Ensure that the XL-C ring is engaged on the fitting bead.

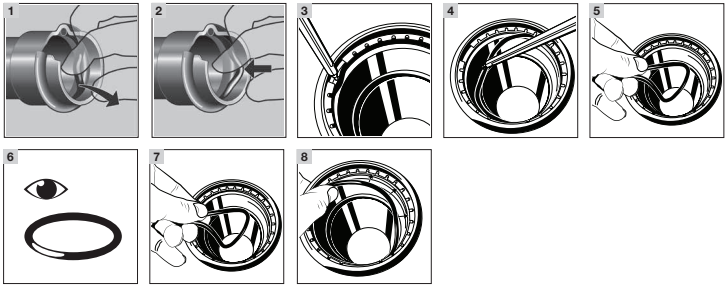
10 Open the V2 actuator and connect the V2 actuator to the XL-C ring. Visually check insertion depth using mark on tubing.

11 Hold trigger until the V2 actuator has fully engaged the XL-C ring. Release V2 actuator from XL-C ring and then remove the XL-C ring from the fitting.

12 Remove tag from fitting, indicating press has been performed.

Note: Pressure testing with Smart Connect: Unpressed connections are located by pressurizing the system with air or water. When testing with water, the proper pressure range is 15 psi to 85 psi. When testing with compressed air, the proper pressure range is ½ psi to 45 psi maximum. If testing with compressed air, use an approved leak-detect solution. Following a successful pressure test, the system may be pressure tested up to 200 psi with air or up to 600 psi with water.

Changing Sealing Elements



Changing Sealing Elements

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WARNING!
Do not use sharp objects to remove the sealing element as this may damage the seal.

To change sealing elements for ½" to 2" fittings follow steps 1 and 2. For 2½" to 4" fittings follow steps 3 through 10.

½" to 2" Fittings

1 Remove the sealing element from the bead using a blunt object such as a finger or an O-ring pick.
2 Insert new, undamaged sealing element into the bead. Check to make sure that the whole sealing element is in the bead.

2½" to 4" Fittings

3 Insert o-ring pick between sealing element and separator ring.
4 Use o-ring pick to push the sealing element into the fitting below the grip ring.
5 Carefully reach past the grip ring, pinch and remove the sealing element from the fitting.

WARNING!
Grip ring is extremely sharp, use gloves or extreme caution when reaching into fitting.

CAUTION!
If reusing the sealing element ensure the sealing element does not make contact with grip ring as this can cause damage.

6 Visually inspect replacement sealing element. Ensure there are no defects, scratches, or burrs, is free of debris, and is coated with lubricant.
7 Pinch the sealing element and place it fully inside the fitting, below the separator and grip rings.
8 Carefully pull the sealing element up into the channel below the separator ring. Ensure proper, concentric seating of grip ring, separator ring and sealing element before installation.

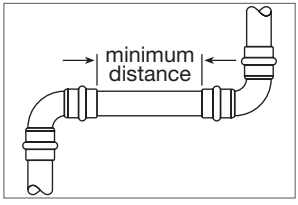
Approved Applications

Media[1]	System Operating Conditions			Product Line, Material, and Sealing Element[2] ProPress Copper		
	Comments	Max Pressure (psig)	Temperature Range (°F)	EPDM	FKM	HNBR
Water/Liquids						
Hot and cold potable water	Test pressure 600 psi	300 Fittings 250 Valves	See note [3]	✓		
Rainwater / Graywater				✓	✓	
Chilled Water	≤50% Ethylene / Propylene glycol			✓	✓	
Hydronic Heating Water	≤50% Ethylene / Propylene glycol			✓	✓	
Fire Sprinkler	NFPA 13, 13D, 13R	175	Ambient[5]	✓		
Steam	Low-pressure	15	Max 250°		✓[4]	
	Residential	5	Max 227°	✓[4]	✓[4]	
Fuels/Oils/Lubricants						
Ethanol	Pure grain alcohol	200	Ambient[5]	✓		
Lube Oil	Petroleum based		Max 150°			✓
Heating Fuel Oil		125	Max 100°			✓
Diesel Fuel						✓
Gases						
Compressed Air	Oil Concentration ≤25 mg/m³	200	Max 140°	✓	✓	✓
	Oil Concentration >25 mg/m³				✓	✓
Nitrogen - N_2				✓	✓	✓
Carbon Dioxide - CO_2	Dry			✓	✓	✓
Carbon Monoxide - CO				✓	✓	✓
Argon - Ar				✓	✓	✓
Oxygen - O_2	Non-medical Keep free of oil and grease	140	Max 140°	✓		
Hydrogen - H_2		125		✓	✓	✓
Vacuum	Minimum absolute pressure Maximum differential pressure	750µm Hg 29.2" Hg	Max 160°	✓	✓	✓
Special Media						
Acetone	Liquid	70	-14° to 104°	✓		

[1] It is recommended that all systems be clearly labeled with the media being conveyed. For further information please consult Viega Technical Services.
[2] All Viega systems must be used with the manufacturer's recommended sealing element. Contact your local Viega representative or Viega Technical Services for specific application temperature, pressure, and concentration limits.
[3] System pressure and temperature ranges depend on sealing element. Any ranges listed above will be overruled by the sealing element limits here:
[3a] EPDM temperature ranges are typically 0°F to 250°F.
[3b] FKM temperature ranges are typically 14°F to 284°F with temperature spikes (24hr) up to 356°F.
[3c] HNBR temperature ranges are typically -40°F to 180°F.
[4] System must contain adequate condensate drainage.
[5] Ambient temperatures should be taken as normal operating conditions for the applications not to exceed sealing element limitations.

Minimum Clearance Between Two Viega Press Connections

Viega ProPress		
Tubing Diameter (in)	Minimum Clearance (in)	Minimum Clearance (mm)
½	0	0
¾	0	0
1	0	0
1¼	7/16	10
1½	⅝	15
2	¾	20
2½	⅝	15
3	⅝	15
4	⅝	15



Friction Loss in Equivalent Feet of Tube

Wrought — Copper Fittings					
Size	90° Elbow	45° Elbow	Tee Branch	Tee Run	Coupling
½"	1.0	0.5	2.0	—	—
¾"	2.0	0.5	3.0	—	—
1"	2.5	1.0	4.5	—	—
1¼"	3.0	1.0	5.5	0.5	0.5
1½"	4.0	1.5	7.0	0.5	0.5
2"	5.5	2.0	9.0	0.5	0.5
2½"	7.0	2.5	12.0	0.5	0.5
3"	9.0	3.5	15.0	1.0	1.0
4"	12.5	5.0	21.0	1.0	1.0

Cast — Zero Lead Bronze Fittings			
Size	90° Elbow	Tee Run	Tee Branch
½"	1	½	2
¾"	2	½	3
1"	4	½	5
1¼"	5	1	7
1½"	8	1	9
2"	11	2	12

Sealing Element Description

EPDM Sealing Element

ProPress fittings are manufactured with an EPDM sealing element installed at the factory. The EPDM sealing element is used mainly for potable water, hydronic heating, fire sprinkler, and compressed air installations.

Definition: EPDM
Ethylene-Propylene-Diene-Monomer, gloss black in color

Operating Temperature: 0°F to 250°F

The EPDM sealing element is a synthetically manufactured and peroxidically cross-linked general-purpose elastomer with a wide range of applications. It is resistant to aging, ozone, UV, weathering, environmental influences, chemicals, and most alkaline solutions.

The EPDM sealing element is recommended for drinking water applications. It is particularly resistant to hot water, making it ideal for seals and gaskets in heating systems, fittings, and household appliances (e.g., washing machines, pumps, and dishwashers). It is not resistant to hydrocarbon solvent solutions, oils, chlorinated hydrocarbons, turpentine, and gasoline.

FKM Sealing Element

ProPress fittings may be changed from the factory-installed EPDM sealing element to an FKM sealing element. See *Changing Sealing Elements Product Instructions.* FKM is well known for its excellent resistance to petroleum products and solvents as well as exceptional high-temperature performance, which make it ideal for seals and gaskets in solar, district heating, low-pressure steam, and compressed air system.

Definition: FKM
Fluoroelastomer, dull black in color

Operating Temperature: 14°F to 284°F (with temperature spikes up to 356°F)

The FKM sealing element is a special-purpose elastomer typically installed where higher temperatures are required. It possesses excellent resistance to aging, ozone, UV, weathering, environmental influences, and oils and petroleum-based additives.

HNBR Sealing Element

ProPress press fittings may be changed from the factory-installed EPDM sealing element to an HNBR sealing element. See *Changing Sealing Elements Product Instructions.* The HNBR sealing element is used mainly for inert gas, liquid fuel, and lubricant oil. It is commonly used in fuel oil heating systems.

Definition: HNBR
Hydrogenated Nitrile Butadiene Rubber, yellow in color

Operating Temperature: -40°F to 180°F

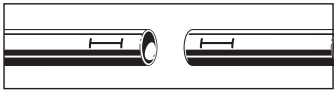
HNBR is widely known for its physical strength and retention of its properties after long-term exposure to heat, oil, and chemicals.

The unique properties of the HNBR sealing element have resulted in the wide adoption of it in automotive, industrial, and assorted performance-demanding applications (e.g., engine seals, grommets, and gaskets; fuel system seals and hoses; transmission system bonded piston seals; chevron seals, oil field packers, and rotary shaft seals.)

The HNBR sealing element is not suitable for food contact applications and cannot be installed in drinking water applications.

No-Stop Couplings

No-stop couplings and extended no-stop couplings are often used to conduct repairs. Without a stop, these couplings can slide completely onto a tube and allow a connection to be made in tighter spaces. Unlike fittings with an integrated stop that have a minimum insertion depth, no-stop couplings have minimum and maximum allowable insertion depths. The minimum and the maximum insertion depths should be marked and a line should connect the two marks.



Viega ProPress No-Stop Couplings

Tube Diameter (in)	Minimum Insertion		Maximum Insertion	
	in	mm	in	mm
½	¾	19	⅞	22
¾	⅞	23	1⅛	28
1	⅞	23	1⅛	28
1¼	1	26	1 3/16	30
1½	1 7/16	37	1 9/16	40
2	1 9/16	40	1¾	44
2½	1 11/16	43	2⅝	67
3	1 15/16	50	2 15/16	75
4	2⅜	60	3 7/16	87

Viega ProPress Extended No-Stop Couplings

Tube Diameter (in)	Minimum Insertion		Maximum Insertion	
	in	mm	in	mm
½	¾	19	2¼	57
¾	⅞	23	2⅝	67
1	⅞	23	2⅞	73
1¼	1	26	3⅛	80
1½	1 7/16	37	3 5/16	84
2	1 9/16	40	3¾	95

Soldering or Brazing

Using ProPress In Line with Existing Fittings

Maintain proper distances when installing a ProPress fitting near an existing soldered or brazed fitting.

Tube Diameter (in)	Minimum Distance from Soldered		Minimum Distance from Brazed	
	in	mm	in	mm
½	¼	7	1	26
¾	¼	7	1½	38
1	7/16	11	2	51
1¼	7/16	11	2½	64
1½	⅝	16	3	76
2	¾	19	4	102
2½	¼	7	5	127
3	¼	7	6	153
4	¼	7	8	204

Soldering or Brazing In Line with Existing ProPress Fitting

To prevent damage to the sealing element and ensure proper sealing of the soldered/brazed joint and the press connection, maintain proper soldering/ brazing distances from the fitting.

Tube Diameter (in)	Soldering Minimum Distance		Brazed Minimum Distance	
	in	mm	in	mm
½	1½	38	4½	114
¾	2¼	57	6¾	172
1	3	76	9	229
1¼	3¾	95	11¼	286
1½	4½	114	13½	343
2	6	153	18	457
2½	7½	191	22½	572
3	9	229	27	686
4	12	305	36	915

Welding

Welding Adjacent to a Press Fitting
To prevent damage to the sealing element, maintain proper welding distances from the fitting. If welding adjacent to the connection, weld a minimum of four inches away.

Welding Requirements
The installer should take precautions to keep the ProPress connection cool:
- Wrap the connection with a cold wet rag.
- Protect the connection with a weld blanket.
- Prefabricate solder connections/welded fittings prior to installing the press fitting. (Ensure tube has cooled before installing the press fitting.)
- Apply heat sink gel or spray or spot freezing.

General Installation Notes

Expansion
Thermal expansion in installed systems generates stress on tubing and appliance connectors. Compensation must be allowed for expansion and contraction that may occur within the tubing. Expansion joints or mechanical expansion compensators may be used to alleviate these stresses.

Electrical Bonding
When properly installed, ProPress fittings comply with Section 1211.15 Electrical Bonding and Grounding of the Uniform Plumbing Code.

The mechanical press provides continuous metal-to-metal contact between fitting and tube. The press ensures the continuity of the bonding through this contact.

Exposure to Freezing Temperatures
Viega ProPress systems with EPDM sealing elements can be installed in ambient temperatures down to 0°F. When the contents could freeze, tubing must be protected per acceptable engineering practices, codes, and as required by local code.

Underground Installations
Viega ProPress fitting systems with copper tubing are approved for underground installations. However, installations must meet all state and local codes, including those for underground. Proper authorization must be obtained prior to installation from the Authority Having Jurisdiction.

Concealed Spaces
The Viega ProPress fitting system has been approved for use in concealed spaces. Specific performance tests were conducted to evaluate the fittings for use in concealed spaces. Concealed tubing and fittings shall be protected from puncture threats.

Corrosion Protection
Viega ProPress fittings exposed to corrosive action, such as soil conditions or moisture, must be protected in an approved manner in accordance with NFPA 54 Section 404.8, NACE Standard RP0169-2002 Section 5, 2009 UPC Chapter 6 Section 609.3.1, 2009 UMC Chapter 13 Section 1312.1.3, or satisfying local code requirements. In addition, systems should be properly sized to minimize the risk of erosion corrosion resulting from excessive velocities.

Pressure Surges
- Pressure surges or transients from fast-acting valves, pump surges, and other sources that result in water hammer may cause damage to many system components, including press fittings.
- When fast-acting valves and/or pumps are incorporated into a system, the designer and installer should isolate press fittings from sharp pressure surges.

Transition Fittings – Threaded
The Viega ProPress systems can be joined with off-the-shelf threaded fittings made of non-ferrous metals. In this regard:
- The threaded connection is made first.
- The press connection is made second.

This process avoids unnecessary torsion on the press fitting.

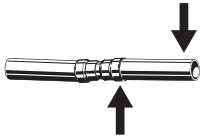
Transition Fittings – Flange
When using Viega flanges, bolt the flange end in place prior to pressing the fitting to the tube.

Rotating a Pressed Fitting
Once a ProPress fitting has been pressed, it can be rotated (not by hand), but once rotated more than five degrees, the fitting should be re-pressed to restore resistance to rotational movement. If the fitting is re-pressed, care should be taken to align the flat sides on the jaw with those on the fitting.

Deflection

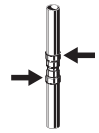
The pressing process can cause deflection (angular misalignment) to occur. When pressing Viega ProPress fittings in a system, the deformation of the fitting is constant. This allows for a consistent leak-free joint every time and is a result of the pressing technique.

Deflection occurs in the same way for every fitting. The fitting being pressed will move in the direction of the jaw or ring opening.



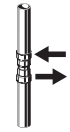
- Since the fitting will deflect toward the opening of the jaw or ring, the tube end will deflect in the opposite direction.
- By counteracting the fitting movement, one can minimize the deflection of the fitting and ultimately the tube.
- When using strut and clamps, deflection is minimized and nearly eliminated depending on clamp spacing.

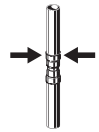
Controlling Deflection
Deflection while pressing can be minimized by utilizing the following installation practices.



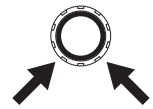
Alternate Press Directions
- Press one end of fitting.
- Make second press on other end of fitting from the opposite side.

Push-Pull Method
- Rings = Push on press tool.
- Jaws = Pull on press tool. The press tool can be feathered using the trigger as needed to apply pulling or pushing force to control deflection.





Re-Press
- Press the fitting, once on each side (that is, re-press the fitting a second time on the opposite side).
- Pressing the same connection from the opposite side will usually straighten misalignment between the tube and fitting.



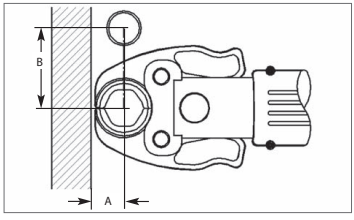
- When pressing overhead piping, it may be inconvenient to alternate sides for each press.
- The natural weight of the piping plus pressing on opposite sides at a 45-degree angle should adequately eliminate deflection.
- This technique can also be used for any horizontal piping and when working above the piping.

Tool Clearances

Minimum distances should be taken into consideration during planning in order to avoid space constraints during installation.

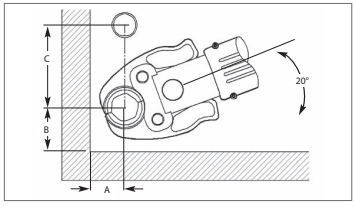
Ensure that the space required for system pressing tools is available if Viega ProPress fittings will be installed immediately upstream or downstream from wall or floor penetrations.

ProPress Standard Jaws Clearance



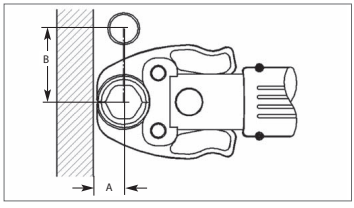
Tube Diameter	A minimum	B minimum
½"	¾"	1⅝"
¾"	⅞"	2⅛"
1"	1"	2½"
1¼"	1⅛"	2⅞"
1½"	1¾"	3½"
2"	2"	4⅜"

ProPress Standard Jaws Clearance Between Tube, Wall, and Floor



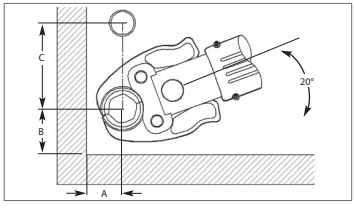
Tube Diameter	A minimum	B minimum	C minimum
½"	⅞"	1⅜"	2½"
¾"	1"	1½"	2½"
1"	1⅛"	1¾"	3"
1¼"	1¼"	2¼"	3⅛"
1½"	1⅞"	2½"	3¾"
2"	2⅛"	3⅛"	5"

ProPress Compact Jaws Clearance



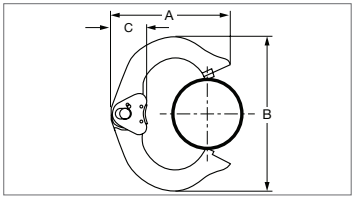
Tube Diameter	A minimum	B minimum
½"	¾"	2"
¾"	⅞"	2⅜"
1"	⅞"	2⅝"
1¼"	1⅛"	3⅛"

ProPress Compact Jaws Clearance Between Tube, Wall, and Floor



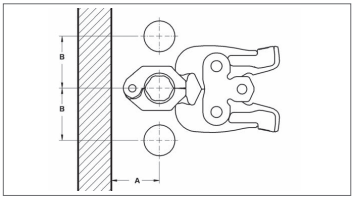
Tube Diameter	A minimum	B minimum	C minimum
½"	⅞"	1⅜"	2½"
¾"	1"	1½"	2¾"
1"	1⅛"	1⅝"	3"
1¼"	1⅝"	2⅛"	3⅜"

ProPress Rings Dimensions



Tube Diameter	A minimum	B minimum	C minimum
½"	2¼"	2⅛"	1 1/16"
¾"	2 11/16"	2⅞"	1⅛"
1"	2 15/16"	3 5/16"	1 3/16"
1¼"	3 5/16"	3⅞"	1 3/16"
1½"	3 11/16"	4 5/16"	1 3/16"
2"	4 7/16"	5 7/16"	1 3/16"

ProPress Rings with V1 Actuator Clearance

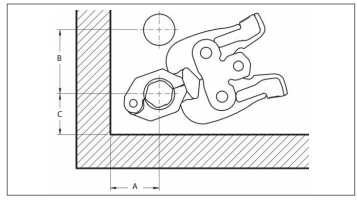


Tube Diameter	A minimum	B minimum
½"	1⅝"	2 3/16"
¾"	1¾"	2 3/16"
1"	2"	1⅝"
1¼"	2 3/16"	2 15/16"

ProPress Rings with V2 Actuator Clearance

Tube Diameter	A minimum	B minimum
1½"	2⅜"	3 5/16"
2"	2 9/16"	4⅛"

ProPress Rings with V1 Actuator Clearance Between Tube, Wall, and Floor



Tube Diameter	A minimum	B minimum	C minimum
½"	1⅝"	3 9/16"	2 5/16"
¾"	1¾"	3⅝"	2⅛"
1"	2"	3 13/16"	2 3/16"
1¼"	2 3/16"	3¾"	2⅛"

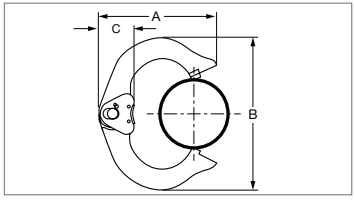
ProPress Rings with V2 Actuator Clearance Between Tube, Wall, and Floor

Tube Diameter	A minimum	B minimum	C minimum
1½"	2⅜"	5"	2 3/16"
2"	2 9/16"	4¾"	3 9/16"

ProPress Rings with C1 Actuator Clearance Between Tube, Wall, and Floor

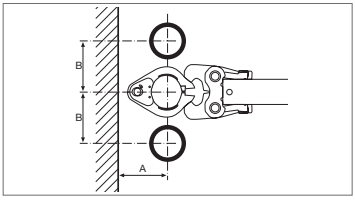
Tube Diameter	A minimum	B minimum	C minimum
½"	1⅝"	3¼"	2"
¾"	1¾"	3¼"	1⅞"
1"	2"	3¼"	1⅞"
1¼"	2 3/16"	3⅜"	1⅞"

ProPress XL-C Rings Dimensions



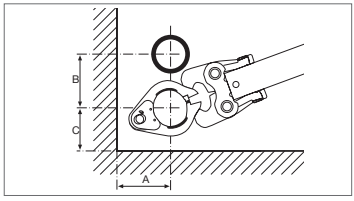
Tube Diameter	A minimum	B minimum	C minimum
2½"	6 3/16"	6 15/16"	2 7/16"
3"	7 7/16"	8 13/16"	2 7/16"
4"	8 1/16"	10 7/16"	2 7/16"

ProPress XL-C Rings Clearance



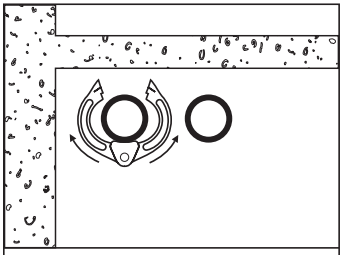
Tube Diameter	A minimum	B minimum
2½"	4⅛"	6"
3"	4⅜"	7"
4"	5"	8"

ProPress XL-C Rings Clearance Between Tube, Wall, and Floor

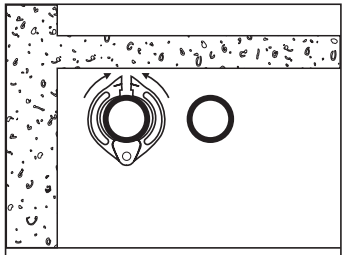


Tube Diameter	A minimum	B minimum	C minimum
2½"	4⅛	6"	4½"
3"	4⅜"	7"	4⅞"
4"	5"	8"	5¾"

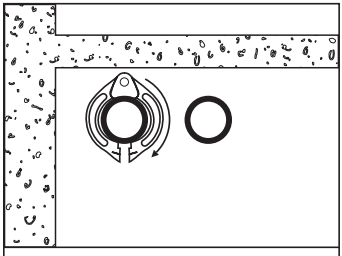
Pressing with Ring and Actuator in Tight Quarters



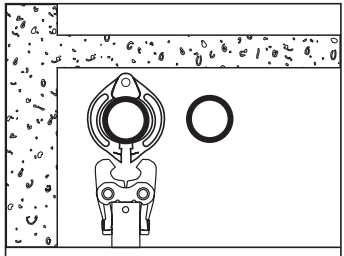
1. Wrap the actuator ring around the press fitting with the opening facing away from you.



2. Close the actuator tight around the fitting.



3. Rotate the actuator ring until the press jaw receptacle is facing toward you.



4. Properly insert press jaws and begin the press fitting procedure.

Dimensional Documentation

ProPress Fittings