

Submittal Package

viega

ProRadiant

Date: _____

Project: _____

Engineer: _____

Contractor: _____

Submitted by: _____

Approved by **Date**

Approved by **Date**

Submittal Package



- | | | | |
|-------------------------------------|--------------------------------|---------------------------------|--|
| <input type="checkbox"/> 100% Water | <input type="checkbox"/> 5/16" | <input type="checkbox"/> 1" | <input type="checkbox"/> In-Slab |
| <input type="checkbox"/> 30% Glycol | <input type="checkbox"/> 3/8" | <input type="checkbox"/> 1 1/4" | <input type="checkbox"/> Thin-Slab |
| <input type="checkbox"/> 40% Glycol | <input type="checkbox"/> 1/2" | <input type="checkbox"/> 1 1/2" | <input type="checkbox"/> Snowmelt - Concrete |
| <input type="checkbox"/> 50% Glycol | <input type="checkbox"/> 5/8" | <input type="checkbox"/> 2" | <input type="checkbox"/> Snowmelt - Asphalt |
| <input type="checkbox"/> Propylene | <input type="checkbox"/> 3/4" | | <input type="checkbox"/> Snowmelt - Pavers |
| <input type="checkbox"/> Ethylene | | | <input type="checkbox"/> Other _____ |

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ViegaPEX Barrier Tubing


Scope

This specification designates the requirements for ViegaPEX Barrier cross-linked polyethylene (PEX) tubing for use in hydronic heating and cooling systems. ViegaPEX Barrier includes an oxygen barrier layer that helps restrict the passage of oxygen through the wall of the tubing. All ViegaPEX is manufactured and tested to the requirements of ASTM F876, F877, CSA B137.5 and is CTS-OD (copper tube size outer dimension controlled) with an SDR - (standard dimension ratio) 9 wall thickness. ViegaPEX Barrier is compatible with both ViegaPEX Press fittings and F1807 PEX Crimp fittings. Viega has no control over the quality of other manufacturers, therefore, we do not extend any warranty to those components that are not supplied by Viega.

Materials

ViegaPEX Barrier tubing is produced from cross-linkable, high density polyethylene resin. This cross-linkable resin is produced by grafting organo-silane molecules onto a base polyethylene chain. A catalyst that initiates the cross-linking process is blended with the resin before extrusion. Cross-linking is conducted after extrusion by exposing the tubing to heat and moisture (steam). ViegaPEX Barrier includes four (4) layers. The first layer is cross-linked, high density polyethylene. The second layer is an adhesive for the third layer, the ethylene vinyl alcohol layer (EVOH oxygen barrier). The fourth layer is another thin layer of polyethylene, applied on the outside to protect the EVOH layer from damage. EVOH is highly resistant to the passage of oxygen.

Marking and Certification

Tubing is marked with manufacturer, ViegaPEX Barrier, nominal size, rating, codes and standards, approvals, date, material code and location of production (i.e., xxxxFT Viega ViegaPEX Barrier ½" SDR-9 CTS PEX5306 100 PSI @ 180F [cNSF@us-pw-rfh ASTM F876/F877 CSA B137.5] FS/SD 25/50 CAN/ULC S102.2  ICC ES-PMG™-1015/1038 HUD MR 1276 Date Code Material Code MADE IN THE USA 0005FT. Tubing is third party tested to the requirements of the stated ASTM and CSA standards. Tubing

includes incremental footage markings to assist with loop layout. ViegaPEX Barrier tubing is certified to NSF 61 and 14 for use as part of, or connected to a potable water system.

Recommended Uses

Install ViegaPEX Barrier in accordance with installation manuals provided by manufacturer and applicable code requirements. Water or air can be used to pressure test the system. Please follow manufacturer's requirements on pressure and length of time. ViegaPEX Barrier comes with a 6 month UV protection. For information on the suitability for other applications, contact your Viega representative.

Handling and Installation

ViegaPEX Barrier tubing is recommended for hydronic heating, cooling and snow melting systems using water or a water/glycol mix as the heat transfer media. Tubing may be installed in concrete, gypsum based lightweight concrete, sand, asphalt (in accordance with special guidelines) in or under wood flooring or behind wallboard or plaster. ViegaPEX Barrier may also be used as transfer lines for baseboard heating systems with a maximum operating temperature of 200°F @ 80 psi.

Hanger Spacing

Slab Applications

Where ViegaPEX Barrier tubing is installed horizontally in slab applications, the tubing shall be fastened every 2' and 3 times at each U-turn.

Hydronic Piping Applications

Where ViegaPEX Barrier tubing is used for fluid transfer piping outside of a slab, the tubing shall be fastened horizontally at intervals of 32" and vertically at intervals of 48".

Fastener Makeup

In situations where the fastener will attach directly to the tubing, plastic or plastic coated fasteners that allow the tubing to move slightly as it expands and contracts shall be used.

Note: These are manufacturers suggestions, local code should be followed in areas where something different is specified.

Property	ASTM Test Method	Typical Values	
		English Units	SI Units
Density	D 792	-	0.952 g/cc
Melt Index ¹	D 1238	-	0.7g/10 min
Flexural Modulus ²	D 638	150,000 psi	1000 MN/m ²
Tensile Strength @ Yield (2 in/min)	D 638	3,900 psi	26 MN/m ²
Coefficient of Linear Thermal Expansion @ 68°F	D 696	9.2 x 10 ⁻⁵ /°F	1.4 x 10 ⁻⁴ /°C
Hydrostatic Design Basis @ 73°F (23°C)	D 2837	1,250 psi	8.6 MPA
Hydrostatic Design Basis @ 180°F (82°C)	D 2837	800 psi	5.5 MPA
Vicat Softening Point	D 1525	255°F	124°C
Thermal Conductivity	D 177	2.7 Btu/hr/ft ² /°F	1.1 x 10 ⁻³ cal/sec/cm ² C

1. Before Cross-linking

2. 73°F

Viega LLC, 100 N. Broadway, 6th Floor • Wichita, KS 67202 • Ph: 800-976-9819 • Fax: 316-425-7618

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Quality Assurance

ViegaPEX Barrier tubing is manufactured and tested to the requirements of ASTM F876, F877 and CSA B137.5. The degree of cross-linking of finished tubing is determined by method ASTM D2765.

Certifications

NSF-pw - Tested for health effects to ANSI/NSF standard 61 and performance to ANSI/NSF standard 14.

NSF-rfh - Products meet all applicable performance requirements for a pressure rated floor heating application specified in NSF/ANSI Standard 14.

PEX 5306 - Tested and listed to the NSF-pw (CL5) Chlorine resistance rating for an end use condition of 100% @ 140°F per ASTM F876, which is the highest Chlorine resistance rating available through ASTM. When the product is marked with the PEX 5306 NSF-pw (CL5) designation, it affirms the product is approved for use in continuous domestic hot water circulation systems with up to 140°F water temperatures.



- IAPMO Certified



- ICC ES-PMG™ 1015 Hydronic Piping



- NSF certified to CSA B137.5 (Canadian Standards Association)



- Certified to ASTM E84 and CAN/ULC S102.2 FS/SD (25/50) (US & Canadian plenum rating)
- Certified to UL 263 & CAN/ULC S101 (US & Canadian Assembly Rating)

Tube Spacing

When the tube spacing is less than the minimum recommended bending dimension, the loops ends should be swept out to at least the dimensions shown.

Otherwise, if tube spacing is equal or greater than "X", a standard loop may be used.



Dimension X

Tubing Size	With the Coil
5/16"	7"
3/8"	8"
1/2"	10"
5/8"	12"
3/4"	14"
1"	18"
1 1/4"	22"
1 1/2"	26"
2"	34"

Minimum bend radius: 8 x O.D.

SDR-9 PEX Tubing ASTM F876/F877/CTS-OD SDR-9

Tubing Size	O.D.	Wall Thickness	Nom. I.D.	Weight Per Ft	Vol. (gal.)/ 100 Ft
5/16"	.430±.003	.064+.010	0.292	.0340	0.34
3/8"	.500±.003	.070+.010	0.350	.0413	0.50
1/2"	.625±.004	.070+.010	0.475	.0535	0.92
5/8"	.750±.004	.083+.010	0.574	.0752	1.34
3/4"	.875±.004	.097+.010	0.671	.1023	1.82
1"	1.125±.005	.125+.010	0.862	.1689	3.04
1 1/4"	1.375±.005	.153+.015	1.053	.2523	4.52
1 1/2"	1.625±.006	.181+.019	1.243	.3536	6.30
2"	2.125±.006	.236+.024	1.629	.6026	10.8

NOTE: Dimensions are in English units. Tolerances shown are ASTM requirements. ViegaPEX is manufactured within these specifications.

ViegaPEX Barrier tubing is available in both straight lengths and coils.

ViegaPEX Barrier Oxygen Permeation

All sizes have less than 0.1 gram/m³/day

Note: ViegaPEX Barrier tubing meets DIN 4726 requirements for oxygen tight pipes.

Pressure Drop Table Expressed as psi/ft. SIZE

GPM	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"
.1	.002	.001							
.2	.009	.004	.001						
.3	.018	.008	.002	.001					
.4	.031	.013	.003	.001					
.5	.047	.020	.004	.002					
.6	.066	.027	.006	.003	.001				
.7	.088	.036	.008	.003	.002				
.8		.047	.011	.004	.002				
.9		.058	.013	.005	.002				
1		.070	.016	.007	.003	.001			
1.5			.034	.014	.006	.002			
2			.058	.024	.011	.003			
3				.050	.023	.007			
4				.085	.039	.011			
6				.181	.082	.024			
8					.140	.041			
10					.211	.062	.023		
12					.296	.087	.032		
14							.042		
16							.053	.022	
18							.065	.027	
20							.078	.033	
22							.093	.039	
24							.108	.045	
26								.052	
28								.060	
30								.067	
32								.075	.021
34									.023
36									.026
38									.028
40									.031
45									.038
50									.046
55									.055
60									.064
65									.075
70									.085
75									.097

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FostaPEX High Density Cross-linked Polyethylene (PEX)

Scope

This material specification designates the requirements for Viega FostaPEX multilayer pressure pipe for hot and cold water distribution tubing and hydronic radiant heating applications. All FostaPEX tubing has a fully dimensioned inner PEX core to the copper tube size dimension (CTS), SDR-9 wall thickness and meets the respective requirements of ASTM Standard F876 and F877.

Materials

The multi-layered construction of the FostaPEX tubing is made from one full dimensional inner PEX core with an aluminum and outer PE layer surrounding it. This construction allows the inner layer alone to meet all temperature and pressure requirements of the system. Using the prep tool to remove the outer layers allows the use of the standard Viega PEX Press fitting system.

Marking and Certification

All FostaPEX tubing is marked with the name Viega as the manufacturer, nominal size, plastic tubing material designation code PEX 5306, Chlorine resistance rating NSF-pw (CL5), design pressure and temperature ratings, relevant ASTM standards, manufacturing date and production code, as well as the NSF-pw stamps indicating third-party certification by NSF International for meeting and exceeding performance and toxicological standards, as well as achieving the highest chlorine resistance rating in the PEX industry. NSF conducts random on-site inspections of Viega manufacturing facilities and independently tests FostaPEX tubing for compliance with physical, performance and toxicological standards. FostaPEX is also certified to meet the Uniform Plumbing Code, IAPMO UPC®, CSA (Canadian Standards Association) B137.5, the ICC (International Code Council) Evaluation Service, and HUD (Housing and Urban Development).

Recommended Uses

FostaPEX tubing is intended and recommended for use in hot and cold potable water distribution systems and hydronic radiant heating and cooling systems. Like ViegaPEX Barrier, which has a barrier layer that resists the passage of oxygen through the wall of the tubing, the aluminum layer in FostaPEX offers even higher resistance to oxygen permeation in radiant heating applications. FostaPEX tubing can also be used in water service applications and is virtually impermeable to any soil contaminants. Design temperature and pressure ratings for FostaPEX are 160 psi @ 73°F, 100 psi @ 180°F, and 80 psi @ 200°F. For information on the suitability for other hot and cold water applications not listed here, consult with your Viega representative.

Handling and Installation

FostaPEX cross-linked polyethylene tubing is tough yet flexible. The aluminum layer allows tubing to be bent into position and remain in position when released. However, use of these materials in hot and cold water distribution systems must be in accordance with good plumbing practices, applicable code requirements, and current installation practices available from Viega. FostaPEX is manufactured to meet written national standards. Contact a Viega representative or the applicable code enforcement bureau for information about approvals for specific applications.

Property	ASTM Test Method	Typical Values	
		English Units	SI Units
Density	D 792	–	0.944 g/cc
Melt Index ¹ (190° C/2.16 kg)	D 1238	–	8.5g/10 min
Coefficient of Linear Thermal Expansion @ 68° F	D 696	1.3x10 ⁻⁵ in/in/°F	2.4x10 ⁻⁵ mm/mm/°C
Hydrostatic Design Basis @ 73°F (23°C)	D 2837	1250 psi	8.6 MPa
Hydrostatic Design Basis @ 180°F (82°C)	D 2837	800 psi	5.5 MPa

1. Before Cross-linking

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Quality Assurance

When the product is marked with the ASTM F876 designation, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and has been found to meet the specified requirements.

Certifications

NSF-pw - Tested for health effects to ANSI/NSF standard 61 and performance to ANSI/NSF standard 14.

PEX 5306 - Tested and listed to the NSF-pw (CL5) Chlorine resistance rating for an end use condition of 100% @ 140°F per ASTM F876, which is the highest Chlorine resistance rating available through ASTM. When the product is marked with the PEX 5306 NSF-pw (CL5) designation, it affirms the product is approved for use in continuous domestic hot water circulation systems with up to 140°F water temperatures and has a maximum UV rating of 6 months. This UV rating is based on the product's inner PEX layer, but when combined with its outer aluminum and PE layers, it has an extended UV rating.



- IAPMO Certified



- ICC ES-PMG™ 1038/1015 plumbing and heating systems



- NSF certified to CSA B137.5 (Canadian Standards Association)



- Certified to UL 263 & CAN/ULC S101 (US & Canadian fire resistance ratings)

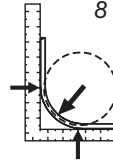


- Certified to ASTM E84 and CAN/ULC S102.2 FS/SD (25/50) (U.S. & Canadian plenum rating)

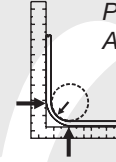
HUD (Housing and Urban Development) - MR 1276

Minimum Bend Radius

CORRECT:
8 x O.D.



INCORRECT:
PIPE FLATTENS AT THE BEND



Note: FostaPEX tubing may be bent to a minimum of 3.5 x O.D. with use of a Viega pipe bender.

Minimum Burst Pressure (PSI) Per ASTM F876/F877

SIZE	73°F (23°C)	180°F (82°C)
1/2"	480	215
5/8"	475	200
3/4"	475	210
1"	475	210

Thermal Conductivity

SIZE	BTU/(Ft*hr*°F)	W(m*°K)
1/2"	.484	.838
5/8"	.516	.892
3/4"	.547	.946
1"	.711	1.230

SDR-9 PEX Tubing ASTM F876/F877/CTS-OD SDR-9

Part No	Tubing Size	Wall O.D.	Nom. Thickness	I.D.	Weight Per Ft	Volume(Gal.) Per 100 Ft
35020	1/2"	0.625±.004	0.070+.010	0.475	.0600	0.92
35030	5/8"	0.750±.004	0.083+.010	0.574	.0900	1.34
35040	3/4"	0.875±.004	0.097+.010	0.671	.1200	1.82
35060	1"	1.125±.005	0.125+.013	0.863	.2000	3.04

NOTE: Dimensions are in English units. Tolerances shown are ASTM requirements. Viega FostaPEX is manufactured within these specifications. (These dimensions do not reflect the outer aluminum and PE layers.)

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Climate Panel

Climate panels are a plywood dry mass radiant panel system designed to be attached to the subfloor. Once attached the climate panel will accept $\frac{5}{16}$ " ViegaPEX® Barrier tubing.

The panels are constructed of CCX fir plywood with an aluminum heat transfer sheet underneath for even heat distribution and high performance output. U-turn strips allow tubing to be turned around at each end of the room to connect with the next row of panels.

Specifications

Plywood

Product Designation:

CANPly Exterior/Interior Plywood

Nominal Thickness: $\frac{1}{2}$ "

Manufacturing Standard:

PS1-95 US

CSA 0121-M 1978 Canada

CANPly standards and policy

Grade: Sheathing (CCX by PS 1-95)

Glue

Bordens 2022 Phenol

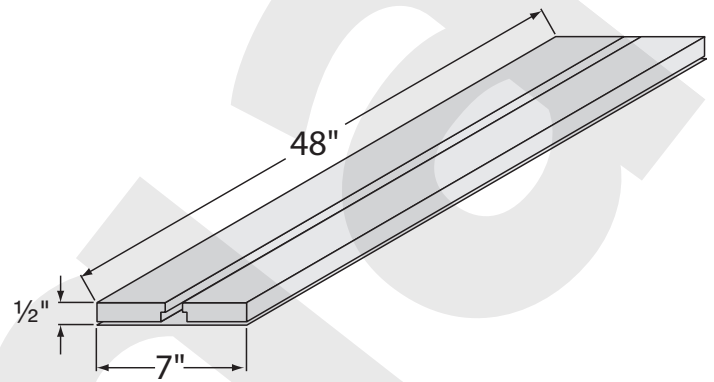
Formaldehyde

Resin

Exterior Bond Type

Aluminum

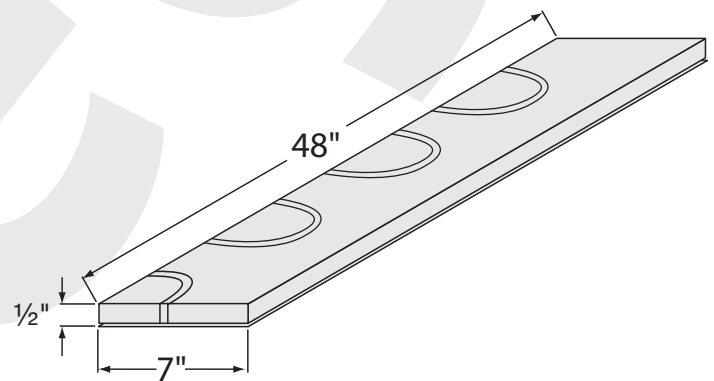
0.012" thick



Dimensions

Climate Panel Nominal

7" x 48" x $\frac{1}{2}$ "



Dimensions

U-Turn Nominal

7" x 48" x $\frac{1}{2}$ "

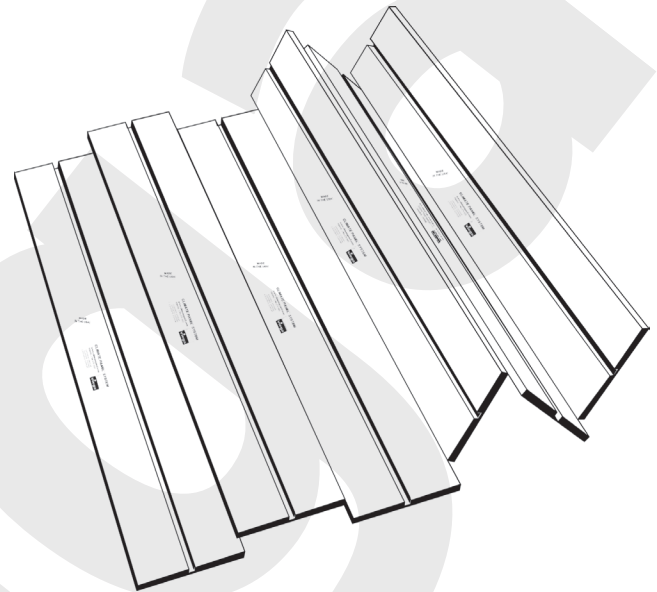
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Assembled Climate Panel

Assembled climate panels are a plywood dry mass radiant panel system designed to be attached to the subfloor. Once attached the climate panel will accept 5/16" ViegaPEX Barrier tubing. However they differ from standard climate panels in that six panels are attached in a hinged accordion manner allowing the installation of six panels at once.

Assembled climate panels are constructed of CCX fir plywood with an aluminum heat transfer sheet underneath for even heat distribution and high performance output. U-turn strips allow tubing to be turned around at each end of the room to be connect with the next row of panels.



Specifications

Plywood

Product Designation:
CANPly Exterior/Interior Plywood

Nominal thickness: 1/2"

Manufacturing Standard:
PS1-95 US
CSA 0121-M1978 Canada
CANPly Standards and policy

Grade:
Sheathing (CCX by PS1-95)

Dimensions:
7" spacing: 48" x 41"
Stock code: 14025
2" Stagger between panels

Glue

Bordens 2022 Phenol
Formaldehyde
Resin
Exterior Bond Type

Hinging Tape

2" Fiberglass reinforced

Aluminum

0.012" thick

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Multi-run

A multi-run climate panel set consists of five multi-run climate panels and six multi-run access pieces. This set is designed to supply a room that is approximately 350 sq. ft., or three circuits (these circuits are based on 250 ft. lengths of $\frac{5}{16}$ " tubing with 15 ft. supply and return leaders included). The set does not include multi-run nineties, regular climate panels, assembled climate panel or u-turn strips.

Specifications

Plywood

Product Designation:
CANPLY Exterior/Interior Plywood

Nominal thickness: $\frac{1}{2}$ "

Manufacturing Standard:
PS1-95 US
CSA 0121-M1978 Canada
CANPLY Standards and policy

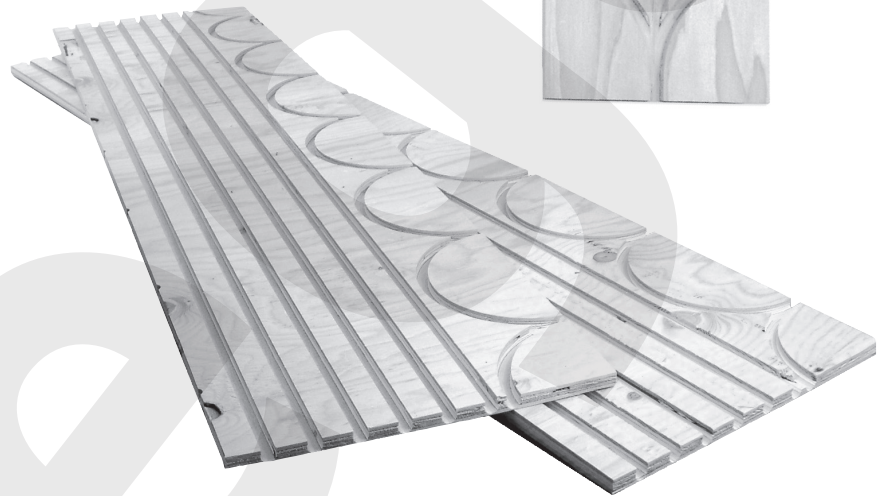
Grade:
Sheathing (CCX by ps1-95)

Glue

Bordens 2022 Phenol
Formaldehyde
Resin
Exterior Bond Type

Dimensions

Multi-run 90: 11.81" x 11.81"
Multi-run Climate Panel: 48" x 11.81"
Multi-run Access pieces: 11.81" x 6.80"



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Groove Tube Silicone

Description

Viega Groove Tube silicone is a single-component, moisture-cured silicone rubber. An acetoxysilicone that reacts with atmospheric moisture to form a strong, durable sealant, Groove Tube silicone is easy to use, solvent-free and remains flexible over a wide temperature range.

Applications

When fully cured, Groove Tube silicone develops excellent adhesion onto most nonporous substrates such as glass, aluminum, ceramic tile, fiberglass and glazed brick.

Standards

Federal Specifications: TT-S-001543A - Non-sag, Class ATT-S-00230C - Type II, Class A USDA Status. Groove Tube silicone may be used in federally inspected meat and poultry plants provided they are installed in a sanitary manner and the FSIS inspector is notified. FDA Status: When fully cured and washed, Groove Tube silicone contains those ingredients which conform to the FDA requirements as published in the Code of Federal Regulations.

Availability

Groove Tube silicone is available in 10.3 ounce cartridges that fit any standard caulking gun. These cartridges are available in packages of 24 (stock code #14005).

Storage and Precautions

Groove Tube silicone has a shelf-life of twelve (12) months from date of manufacture, as indicated by the lot number, when stored in the original, unopened container at or below 75°F. Consult and obey all applicable local, state, and federal regulations for disposal of solvent and silicone waste. For additional information consult product M.S.D.S. Not recommended for surfaces that are to be painted. The acetic acid liberated during cure may react unfavorably with concrete and other masonry materials. Viega believes that the information provided is a true and accurate description of the typical characteristics of the aforementioned product; however, it is the responsibility of the individual user to thoroughly test the product in their specific application to determine performance, efficacy, and safety.

Product Specifications and Properties

The values outlined reflect testing that was conducted on laboratory prepared specimens; actual results may vary. The information provided in the tables below is not intended for use in preparing specifications. Please consult manufacturer for additional information.

Physical Property	Test Method	Performance Range
Appearance		Aluminum, paste
Skin Over Time	3/8" @ 50% RH & 77°F	5-7 minutes
Through Cure	3/8" @ 50% RH & 77°F	7 days

Physical Property	Test Method	Performance Range
Specific Gravity		1.03
Tensile Strength	ASTM D412	200 psi
Elongation	ASTM D412	600%
Tear Resistance	ASTM D624	28
Shore Hardness	ASTM D2240	18
Service Temperature		-62°F to 400°F

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Rapid Grid

Rapid Grid is an insulated grid system for use on radiant heating and snowmelt applications. It is commonly used under concrete, but can also be used under thin slab gypsum, asphalt and paver systems. When installed properly it will provide an insulating value as well as a vapor barrier. Ensure that compression rating is suitable for application.

Material

High impact polystyrene

Compatible Tubing

$\frac{3}{8}$ " , $\frac{1}{2}$ " and $\frac{5}{8}$ " ViegaPex Barrier tubing
 $\frac{1}{2}$ " Viega FostaPex tubing

Compressive Strength

25 psi / 3600 psf

R- Value

R- 10 (2" thick insulation)

Dimensions

Each panel is 4' wide x 2' deep
 $2\frac{7}{8}$ " thick

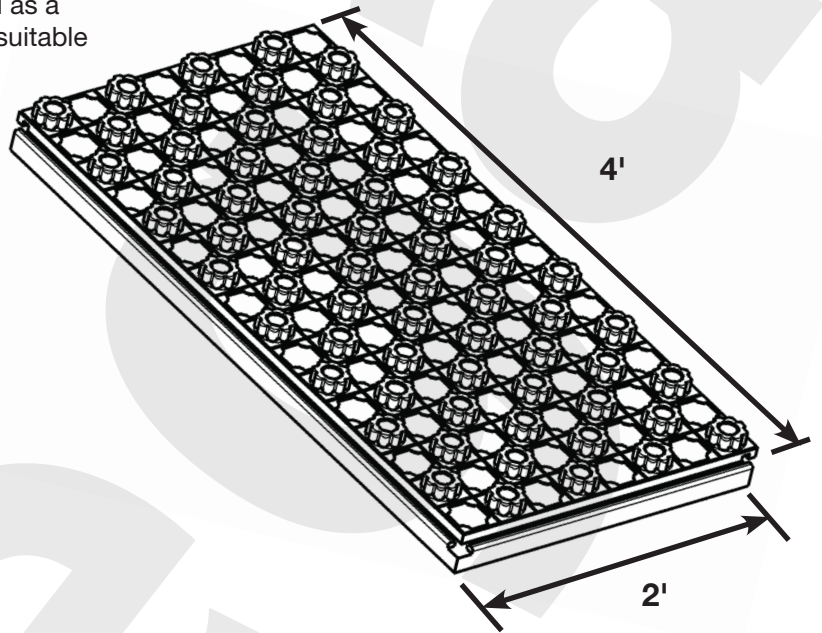
Packaging

8 panels (64 ft²) per package
Package weight – 25 lbs.
Package dimensions 25" x 49" x 20"

Spacing

Multiples of 3" (6", 9", 12"....)

Note: For minimum slab thickness refer to local code



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Climate Trak

Application

Climate Traks are used for radiant heating applications in both new construction and retrofit applications.

The product is designed to strongly grip the PEX tubing without air gaps or the need for sealant/adhesives, ensuring high heat conduction. Climate Traks are fastened tightly to the underside of subfloor for maximum system performance.

Technical Data

Available for $\frac{3}{8}$ " or $\frac{1}{2}$ " ViegaPEX Barrier tubing, in 4 foot or 8 foot lengths

Pre-drilled holes for attachment to subfloor (10 holes per 4 foot Trak, 20 holes per 8 foot Trak)

Material

Extruded aluminum

Weight

$\frac{3}{8}$ " plates:

stock code # 15209

4 foot length 1.07 lbs.

stock code # 15207

8 foot length 2.14 lbs.

$\frac{1}{2}$ " plates:

stock code # 15210

4 foot length 1.16 lbs.

stock code # 15208

8 foot length 2.32 lbs.

Dimensions

$\frac{3}{8}$ " plates:

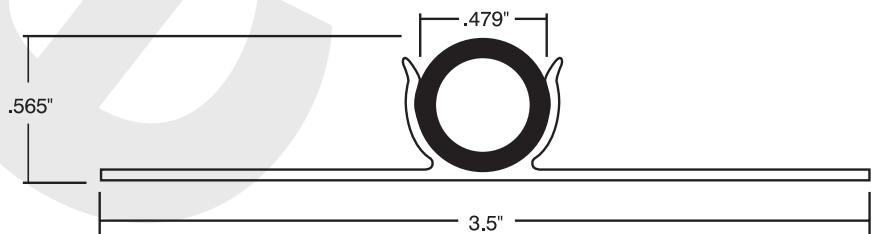
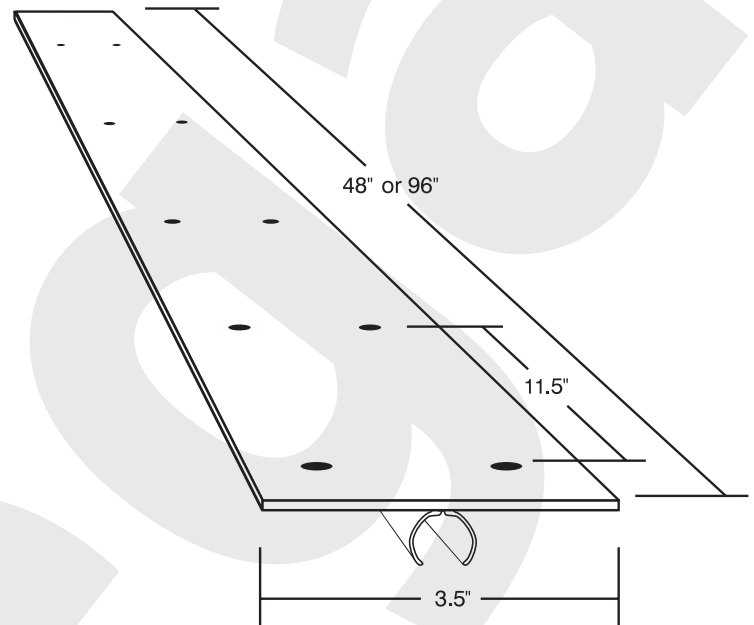
3.5" x 48" x 0.515"

3.5" x 96" x 0.515"

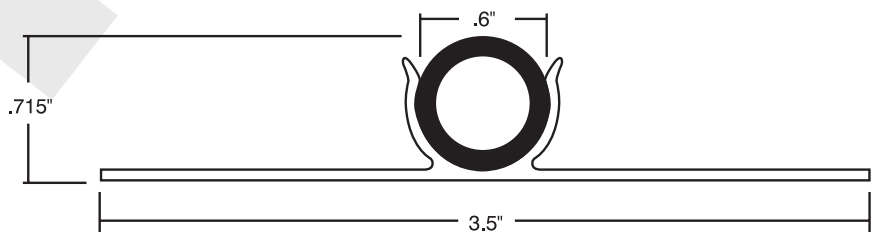
$\frac{1}{2}$ " plates:

3.5" x 48" x 0.605"

3.5" x 96" x 0.605"



Climate Trak $\frac{3}{8}$ " Tubing



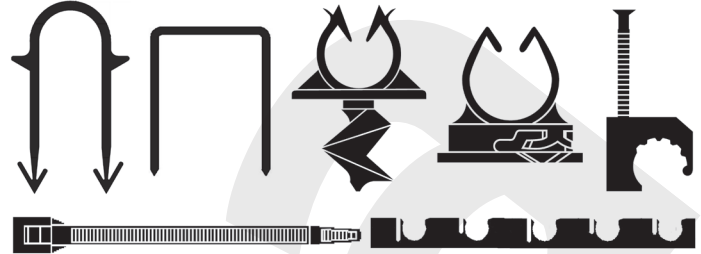
Climate Trak $\frac{1}{2}$ " Tubing

Submittal Package



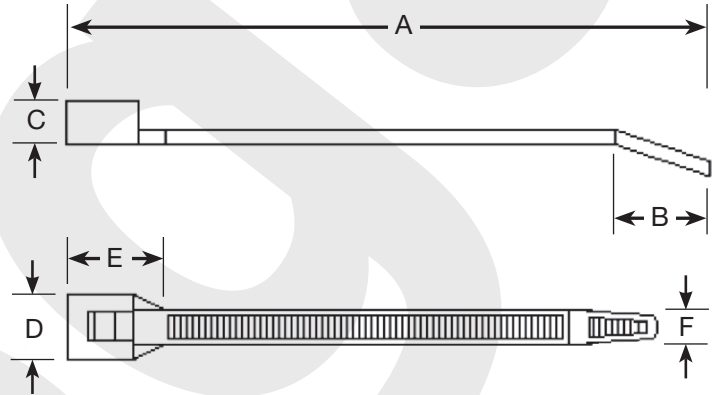
Tubing Fasteners

Viega offers several different types of fasteners for attaching ViegaPEX® Barrier tubing to different surfaces. Whether attaching to foam board, rebar, wire mesh, concrete or wood Viega has the fastener needed. Below you will find technical information relating to each.



Zip Ties

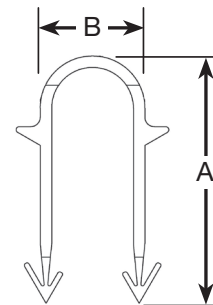
- Part Number: 15304
- Normal Uses: Attaching ViegaPEX Barrier tubing to rebar and wire mesh
- Tubing Compatibilities: All sizes of ViegaPEX Barrier tubing
- Material Makeup: Nylon
- Tensile Strength: 75 lbs
- Package Quantity: 100 zip ties



Part Number	A	B	C	D	E	F
15304	8.0"	0.70"	0.22"	0.31"	0.40"	0.17"

Foam Staples

- Part Number: 15312, 15313
- Normal Uses: Attaching ViegaPEX Barrier tubing to rigid foam board insulation
- Tubing Compatibilities: 3/8", 1/2" 5/8" ViegaPEX Barrier tubing
- Material Makeup: Plastic
- Package Quantity: 300 staples
- Associated Tools: Foam Staple Gun part number 21432. Also compatible with older straight handle foam staple gun.



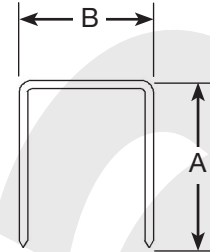
Part Number	A	B	Use with
15313	1 1/2"	1"	1" thick foam panels
15312	2 1/2"	1"	1 1/2" thick or thicker foam panels

Submittal Package



Pneumatic Staples

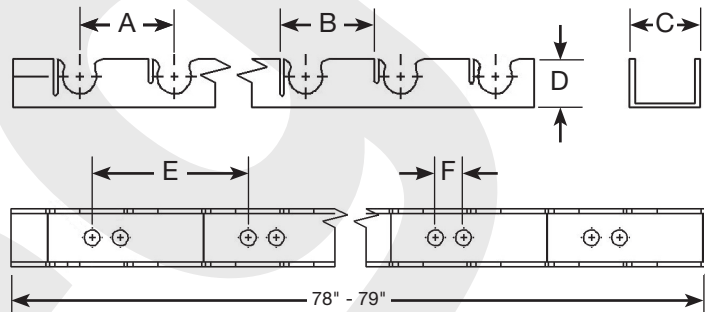
Part Number: 21431
 Normal Uses: Attaching ViegaPEX Barrier tubing to wood subfloor
 Tubing Compatibilities: 3/8", 1/2", 5/8" ViegaPEX Barrier tubing
 Material Makeup: 16 Ga. Galvanized staple
 Package quantity: 10,000 staples
 Associated tools: Pneumatic Staple gun part number 21430



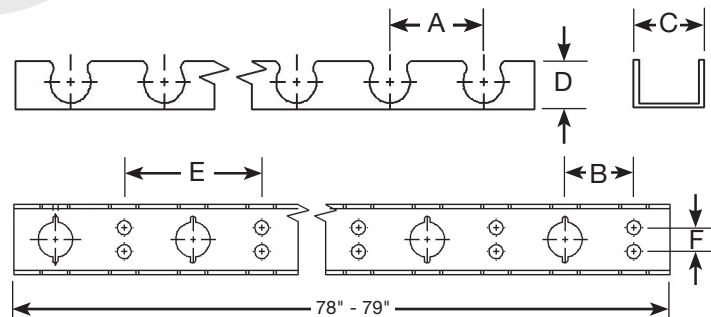
Part Number	A	B
21431	1.0"	1.25"

U-Channel:

Part Number: 15310, 15311, 15314
 Normal Uses: Attaching ViegaPEX Barrier tubing to concrete or other flat surfaces
 Tubing Compatibilities: 1/2", 5/8", 3/4" ViegaPEX tubing
 Material Makeup: Plastic
 Package Quantity: 16 U-channel strips



Part Number	Length of strip	Barrier Tube Dimension	A	B	C	D	E	F
15310	6.5'	1/2"	2.0"	2.0"	1.50"	1.0"	4.0"	.71"
15311	6.5'	5/8"	2.0"	2.0"	1.50"	1.0"	4.0"	.71"



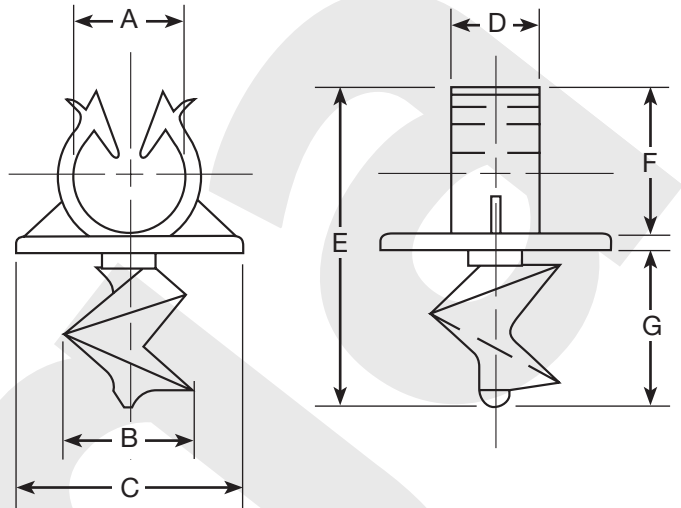
Part Number	Length of strip	Barrier Tube Dimension	A	B	C	D	E	F
15314	6.5'	3/4"	2.0"	2.0"	2.0"	1.0"	4.0"	0.67"

Submittal Package

viega

Plastic Foam Board Clips

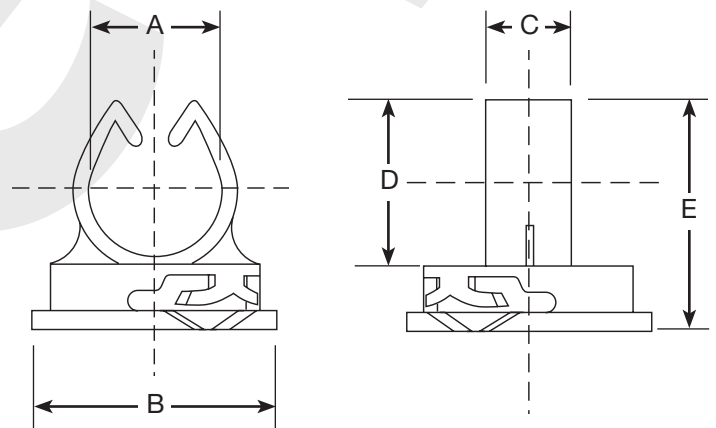
Part Number: 15302
 Normal Uses: Attaching ViegaPEX Barrier tubing to rigid foam board insulation
 Tubing Compatibilities: 1/2", 5/8" ViegaPEX Barrier tubing
 Material Makeup: Plastic
 Package Quantity: 100 clips



Part Number	A	B	C	D	E	F	G
15302	0.75"	.875"	1.50"	0.56"	2.0"	1.0"	1.0"

Wire Mesh Clip

Part number: 15301
 Normal Uses: Attaching ViegaPEX Barrier tubing to wire mesh
 Tubing Compatibilities: 1/2", 5/8" ViegaPEX Barrier tubing
 Material Makeup: Plastic
 For wire diameter: 1/8" to 3/16"
 Package Quantity: 100 clips



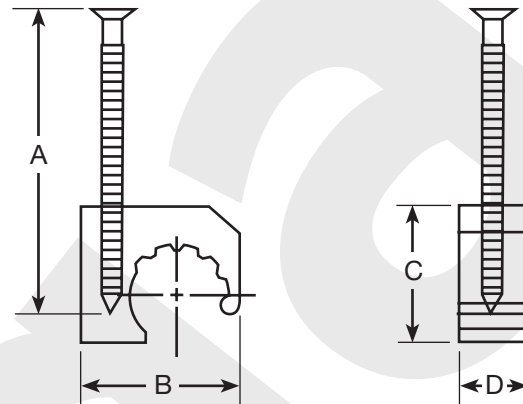
Part Number	A	B	C	D	E
15301	0.75"	1.625"	0.56"	1.0"	1.5"

Submittal Package



J-clamp

Part Numbers: 52000, 52020, 52040, 52060
 Normal Uses: Attaching ViegaPEX Barrier tubing to wood surfaces
 Tubing Compatibilities: 3/8", 1/2", 3/4", 1"
 Material Make up: Plastic clip with ring shank steel nail
 Package Quantity: 100 J-clamps



Part Number	PEX Tubing Size	A	B	C	D
52000	3/8"	1.60"	0.90"	0.80"	0.40"
52020	1/2"	1.60"	1.10"	0.90"	0.40"
52040	3/4"	2.13"	1.30"	1.20"	0.42"
52060	1"	2.38"	1.70"	1.50"	0.50"

Submittal Package

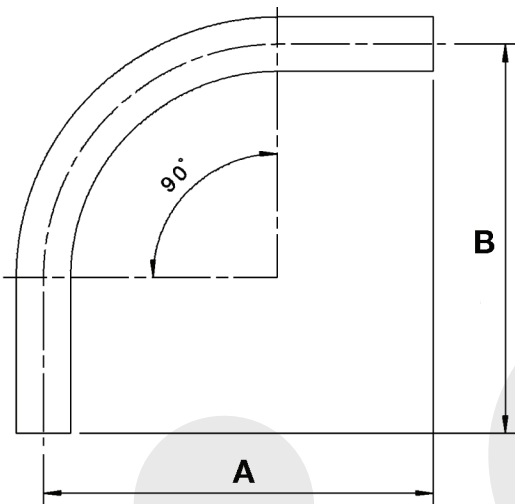


Bend Supports

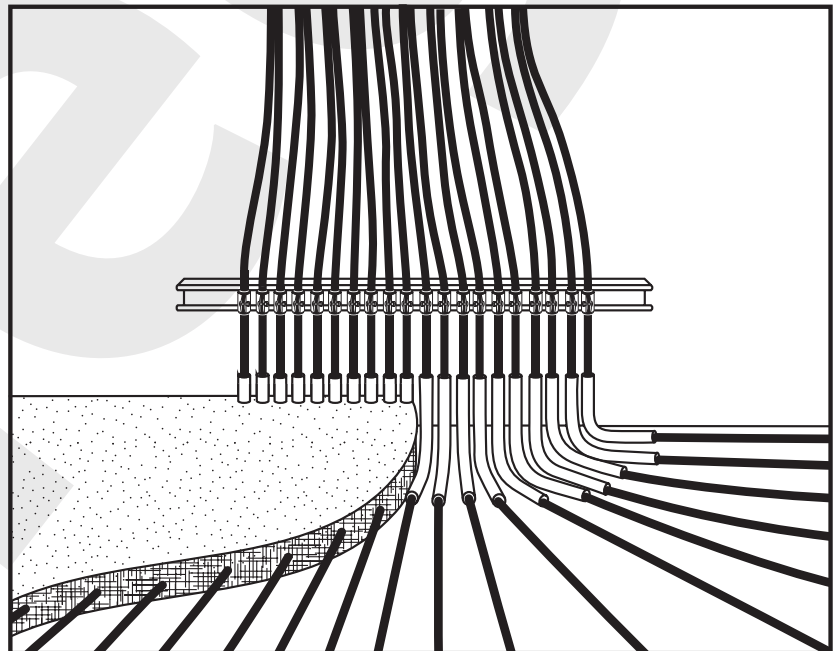
Viega's plastic slab bend supports are used to provide protection and support to PEX tubing as it transitions from a thermal mass.

Plastic bend supports are made from hard PVC and are available in the sizes outlined in the chart below.

Dimensional Information



Part No	PEX Size	A (in)	B (in)	I.D. (in)	O.D. (in)
15106	3/8"	6.4	6.4	0.8	0.9
15107	1/2"	7.9	7.9	1.0	1.1
15108	5/8" & 3/4"	7.5	7.5	1.5	1.6
15111	1"	10	10	1.6	1.9



Submittal Package

viega

Climate Mat

Scope

This specification designates the requirements for Viega Climate Mat for use in hydronic radiant heating, cooling and snow melting systems. Climate Mats are prefabricated tubing circuit assemblies delivered in cylindrical rolls engineered for rapid installation on site.

Materials

ViegaPEX Barrier tubing is used in the construction of Viega's Climate Mat. For detailed information about the tubing, refer to Viega's Tech Data Sheet for ViegaPEX Barrier tubing. In addition to ViegaPEX Barrier, Climate Mat assembly components include circuit tubing spacer strips with fastening clips and a temporary shipping header. The spacer strips and fastening clips are constructed of plastic. The shipping header itself is constructed of ViegaPEX, PolyAlloy fittings and a Schrader-type air valve. Pre installed protective sleeves near the shipping header shield the ViegaPEX Barrier tubing where it exits a concrete slab. The supply and return tubes of each circuit in the Climate Mat are color coded with a red or blue indicator sleeve.

Recommended Uses

Viega Climate Mat is recommended for hydronic radiant heating, cooling and snow melting systems utilizing water or a water/glycol mix as the thermal transfer media. Climate Mats may be installed in concrete, gypsum based lightweight concrete or over compacted gravel. Climate Mats are designed to be used in large open areas in commercial or industrial concrete slabs.

Design and Order Process

Viega Climate Mat is made to order for each project. The production lead time for an entire Climate Mat project is approximately 4 weeks. Lead time for Climate Mats exceeding a length of 150 feet may be extended. To receive a material list price quote for a Climate Mat project, an electronic floor plan drawing shall be provided to Viega Design Services outlining the area intended for Climate Mat installation. As a function of the design process, each Climate Mat project will receive a project number and each Climate Mat location will be clearly identified on the design drawing layout.

Quality Assurance

ViegaPEX Barrier used in Climate Mat is manufactured and tested to the requirements of ASTM F876 and F877. The degree of cross-linking of finished tubing is determined by method ASTM D2765.

Handling and Installation

Install Viega Climate Mats in accordance with installation manuals provided by manufacturer and applicable building code requirements. Climate Mats are pressurized to 20 psi in factory and shipped under pressure to the final destination. Each Climate Mat is manufactured with a Schrader-type air valve in the shipping header allowing the installer to quickly determine if any damage to the circuit tubing occurred during transit using a simple tire gauge. The shipping header can be used to execute a proper pressure test at 100 psi as described in Viega's installation manuals or in accordance with local building codes. Water or air can be used to pressure test the system. Climate Mats come with 6 month UV protection. For information on the suitability for other applications, contact your Viega representative.

Submittal Package

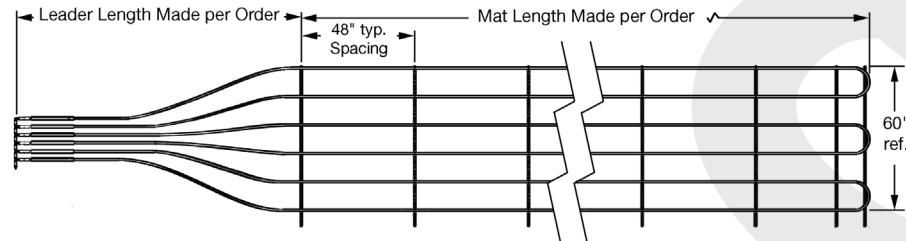


Climate Mat Configurations and Dimensions

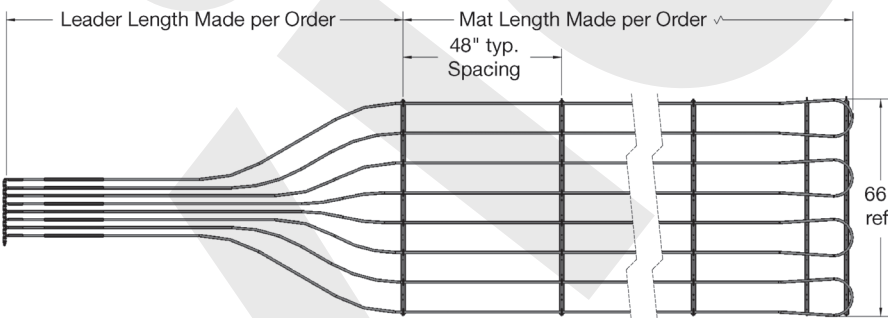
Climate Mats with 1/2" ViegaPEX Barrier Tubing

Stock Codes, Configuration Options, Dimensional Drawings

Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18152	Climate Mat, 5 ft	1/2" ViegaPEX Barrier, 12" O.C., 3 Loops / 3 Circuits	40-168	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.5	1.9	4.7	See Note

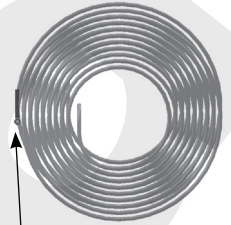


Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18151	Climate Mat, 6 ft	1/2" ViegaPEX Barrier, 9" O.C., 4 Loops / 4 Circuits	72-168	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.7	2.3	6.3	See Note

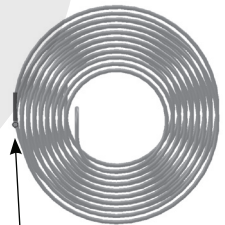
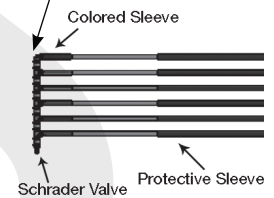


NOTE:
Total weight = Shipping Header Weight + Climate Mat Weight + Leader Weight

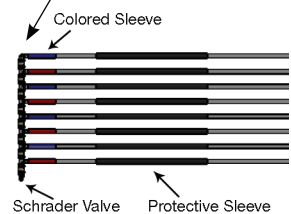
WHERE:
Climate Mat Weight = (Mat Length Made per Order / 4) x (Climate Mat Weight per 4 feet)
Leader Weight = (Leader Length Made per Order / 10) x (Leader Weight per 10 feet)



Shipping Header



Shipping Header



Climate Mat Height

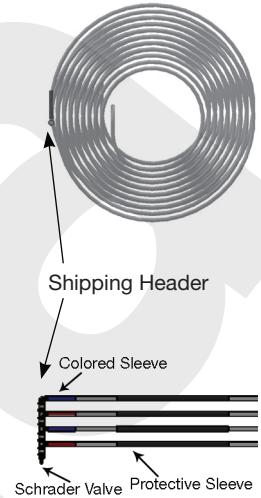
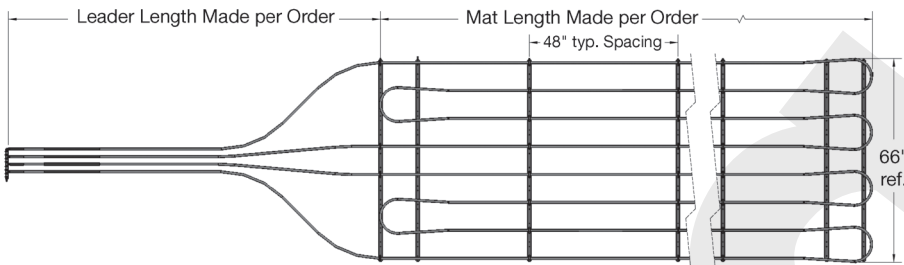
1/2" Mats



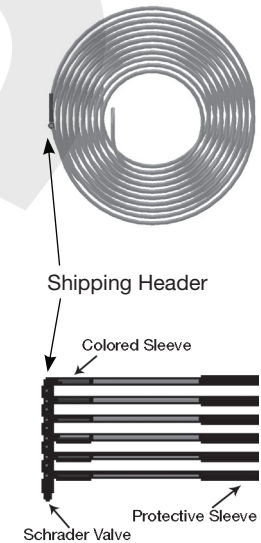
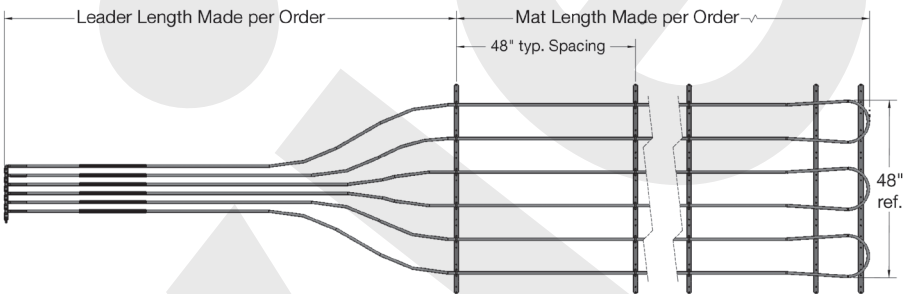
Submittal Package



Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18156	Climate Mat, 6 ft	1/2" ViegaPEX Barrier, 9" O.C., 4 Loops / 2 Circuits	40-72	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.4	2.4	3.2	See Note

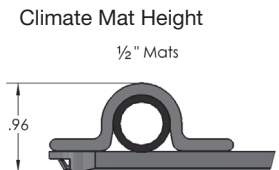


Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18158	Climate Mat, 5 ft	1/2" ViegaPEX Barrier, 9" O.C., 3 Loops / 3 Circuits	72-168	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.5	1.9	4.7	See Note



NOTE:
 Total weight = Shipping Header Weight + Climate Mat Weight + Leader Weight

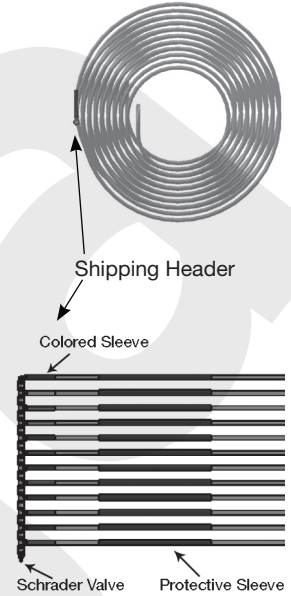
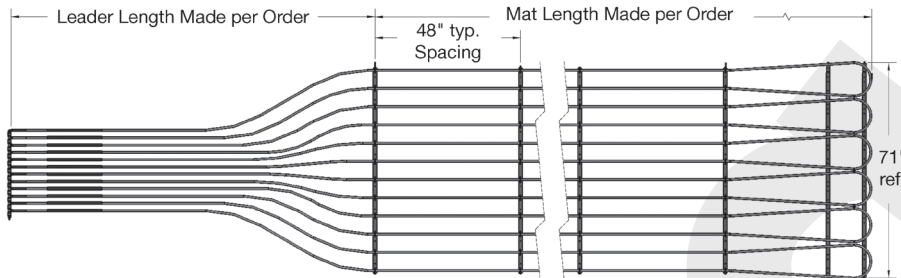
WHERE:
 Climate Mat Weight = (Mat Length Made per Order / 4) x (Climate Mat Weight per 4 feet)
 Leader Weight = (Leader Length Made per Order / 10) x (Leader Weight per 10 feet)



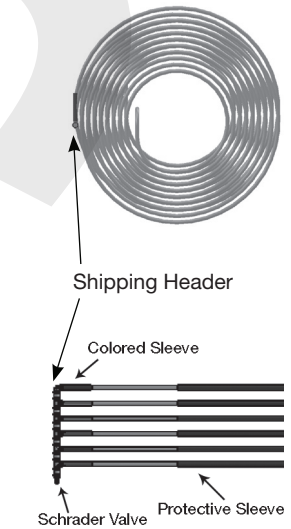
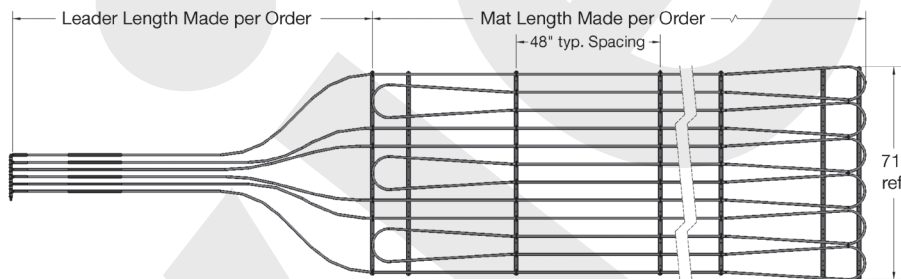
Submittal Package



Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18150	Climate Mat, 6 ft	½" ViegaPEX Barrier, 6" O.C., 6 Loops / 6 Circuits	72-168	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	1.0	3.3	9.5	See Note



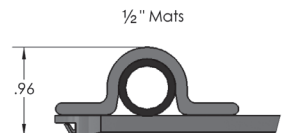
Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18154	Climate Mat, 6 ft	½" ViegaPEX Barrier, 6" O.C., 6 Loops / 3 Circuits	40-72	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.5	3.4	4.7	See Note



NOTE:
Total weight = Shipping Header Weight + Climate Mat Weight + Leader Weight

WHERE:
Climate Mat Weight = (Mat Length Made per Order / 4) x (Climate Mat Weight per 4 feet)
Leader Weight = (Leader Length Made per Order / 10) x (Leader Weight per 10 feet)

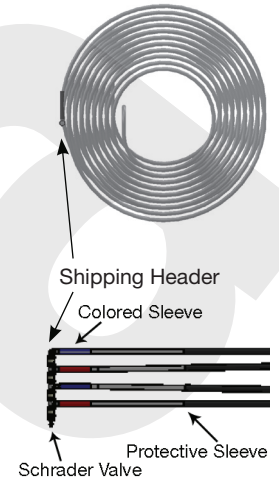
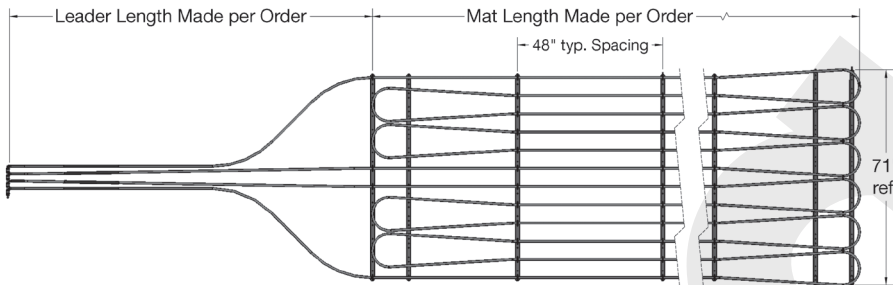
Climate Mat Height



Submittal Package



Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18155	Climate Mat, 6 ft	1/2" ViegaPEX Barrier, 6" O.C., 6 Loops / 2 Circuits	12-40	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.4	3.6	3.2	See Note



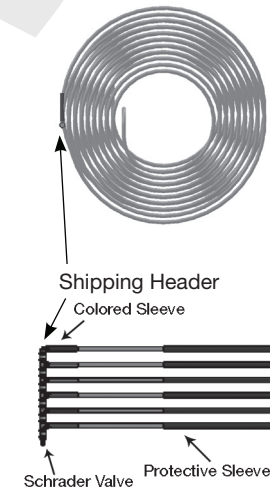
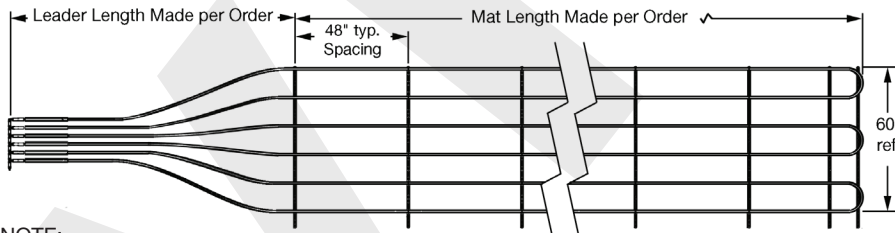
Climate Mat Height
1/2" Mats



Climate Mats with 5/8" ViegaPEX Barrier Tubing

Stock Codes, Configuration Options, Dimensional Drawings

Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18159	Climate Mat, 5 ft	5/8" ViegaPEX Barrier, 12" O.C., 3 Loops / 3 Circuits	40-220	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.6	2.2	6	See Note



Climate Mat Height
5/8" Mats



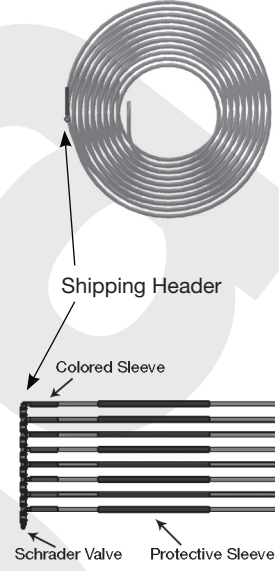
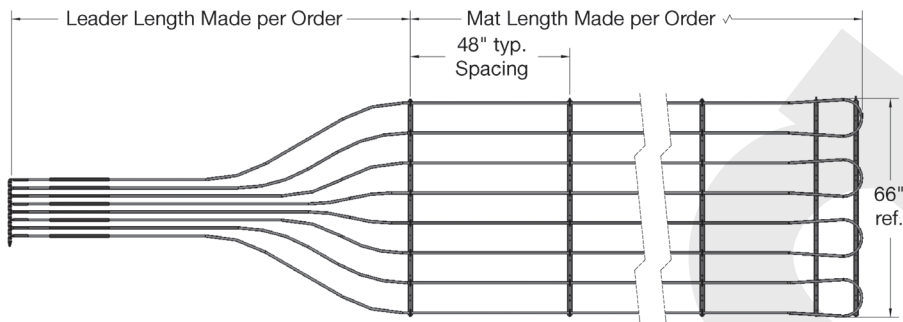
NOTE:
Total weight = Shipping Header Weight + Climate Mat Weight + Leader Weight

WHERE:
Climate Mat Weight = (Mat Length Made per Order / 4) x (Climate Mat Weight per 4 feet)
Leader Weight = (Leader Length Made per Order / 10) x (Leader Weight per 10 feet)

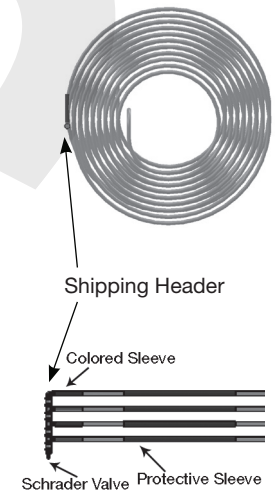
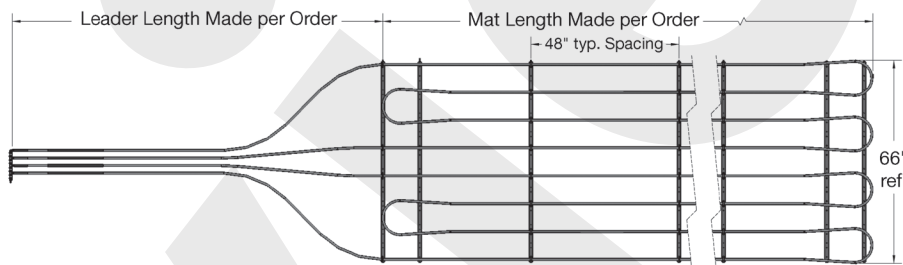
Submittal Package



Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18160	Climate Mat, 6 ft	5/8" ViegaPEX Barrier, 9" O.C., 4 Loops / 4 Circuits	92-220	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.7	3.0	7.9	See Note

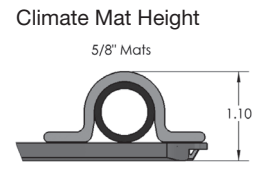


Stock Code	Description	Dimension	Climate Mat Length (ft)	Leader Length (ft)
18157	Climate Mat, 6 ft	5/8" ViegaPEX Barrier, 9" O.C., 4 Loops / 2 Circuits	40-92	10, 20, 30
Approx. Weight	Shipping Header (lbs)	Climate Mat per 4 ft (lbs)	Leader per 10 ft (lbs)	Total (lbs)
	0.4	3.1	4.0	See Note



NOTE:
 Total weight = Shipping Header Weight + Climate Mat Weight + Leader Weight

WHERE:
 Climate Mat Weight = (Mat Length Made per Order / 4) x (Climate Mat Weight per 4 feet)
 Leader Weight = (Leader Length Made per Order / 10) x (Leader Weight per 10 feet)



Submittal Package

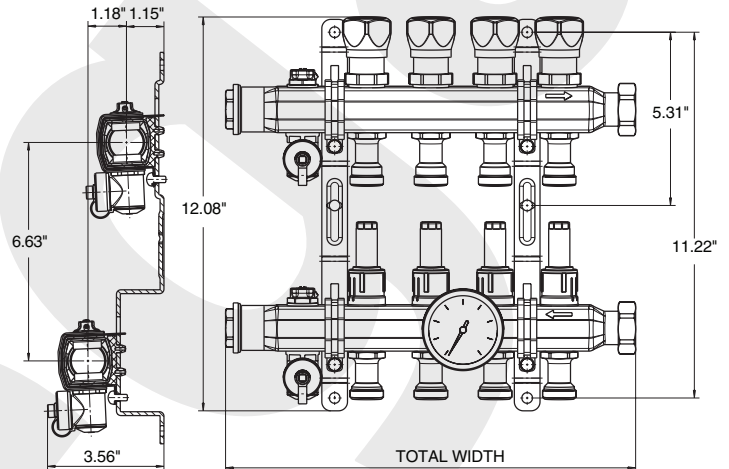
viega

Stainless Manifold Shut Off / Balancing / Flow Meters

Product Description

Stainless manifolds are to be used in closed loop hydronic heating, cooling and snow melting systems. These preassembled 1¼" diameter stainless supply and return manifolds come attached to two 6⅝" spacing brackets for compact remote mounting. This stainless manifold provides shut off and balancing valves with flow meters for each circuit. Each flow meter/balancing valve allows graduated flow setting up to 2 gpm, maximum 18 gpm per manifold. The air bleeder and purge valves are connected and factory tested. 1¼" Union connections, 1" NPT removable end caps. SVC Circuit connection fittings are sold separately.

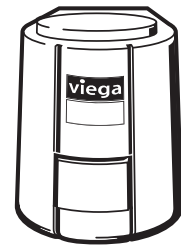
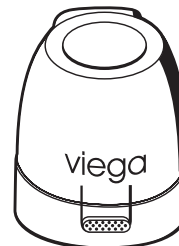
Dimensions			
Manifold	Width Just Manifold	Width With Ball Valve Set and Adapter Fitting	Width With Ball Valve Set and Fittings For Flow Through
2 outlets	10.2	12.96"	16.95"
3 outlets	10.2"	12.96"	16.95"
4 outlets	12.2"	16.95"	18.95"
5 outlets	14.1"	18.85"	20.85"
6 outlets	16.1"	20.85"	22.85"
7 outlets	18.1"	22.85"	24.85"
8 outlets	20.0"	24.75"	26.75"
9 outlets	22.0"	26.75"	28.75"
10 outlets	24.0"	28.75"	30.75"
11 outlets	25.9"	30.65"	32.65"
12 outlets	27.9"	32.65"	34.65"
Height		12.1"	
Depth		3.6"	
Depth with ball valve set handles		4.26"	



* When extending the manifold, Viega requires using thread sealant paste on the 1" NPT manifold end connection.

The return manifold is fitted with shut off valves which are suitable to receive optional 24V powerheads for control over each circuit via thermostat.

Note: Use part number: 15061, 15070, 15064 and 15069 with this manifold



Technical Data

- 1¼" 304 Stainless Header Stock
- Factory installed air bleeder
- Mounting brackets
- Max. operating temperature: 180°F
Short periods of 200°F
- Max. operating pressure: 100 psi
- Return Valve $C_V = 2.98$
- Supply Valve $C_V = 1.30$

Submittal Package

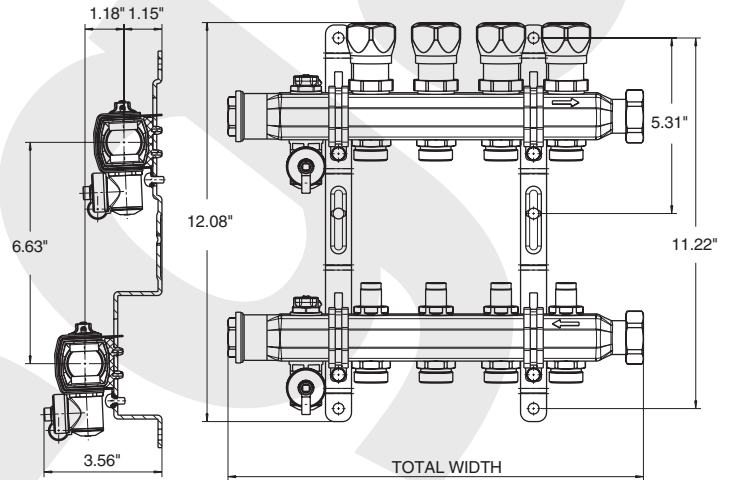


Stainless Manifold Shut Off / Balancing

Product Description

Stainless manifolds are to be used in closed loop hydronic heating, cooling and snow melting systems. These preassembled 1 1/4" diameter stainless supply and return manifolds come attached to two 6 5/8" spacing brackets for compact remote mounting. This stainless manifold provides shut off and balancing valves for each circuit. Manifolds used with flow rates up to 2 gpm per circuit, maximum of 18 gpm per manifold. The air bleeder and purge valve are connected and factory tested. 1 1/4" Union connection, 1" NPT removable end caps. SVC Circuit connection fittings are sold separately.

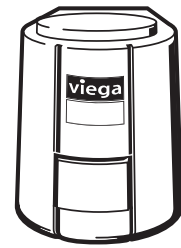
Dimensions			
Manifold	Width Just Manifold	Width With Ball Valve Set and Adapter Fitting	Width With Ball Valve Set and Fittings For Flow Through
2 outlets	8.21"	12.96"	14.96"
3 outlets	10.2"	14.95"	16.95"
4 outlets	12.2"	16.95"	18.95"
5 outlets	14.1"	18.85"	20.85"
6 outlets	16.1"	20.85"	22.85"
7 outlets	18.1"	22.85"	24.85"
8 outlets	20.0"	24.75"	26.75"
9 outlets	22.0"	26.75"	28.75"
10 outlets	24.0"	28.75"	30.75"
11 outlets	25.9"	30.65"	32.65"
12 outlets	27.9"	32.65"	34.65"
Height		12.1"	
Depth		3.6"	
Depth with ball valve set handles		4.26"	



* When extending the manifold, Viega requires using thread sealant paste on the 1" NPT manifold end connection.

The return manifold is fitted with shut off valves which are suitable to receive optional 24V powerheads for control over each circuit via thermostat.

Note: Use part number: 15061, 15070, 15064 and 15069 with this manifold



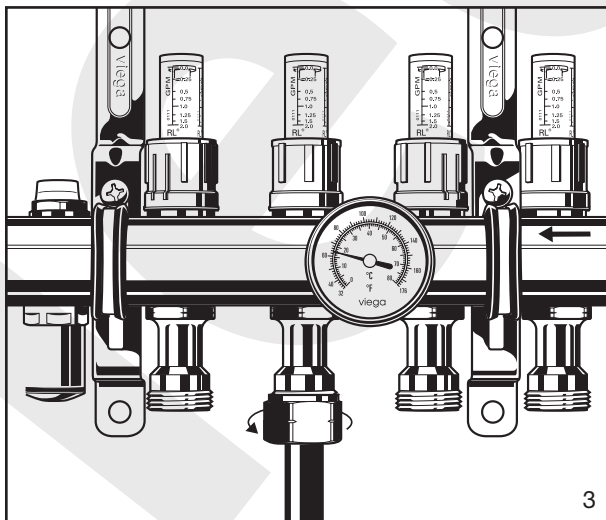
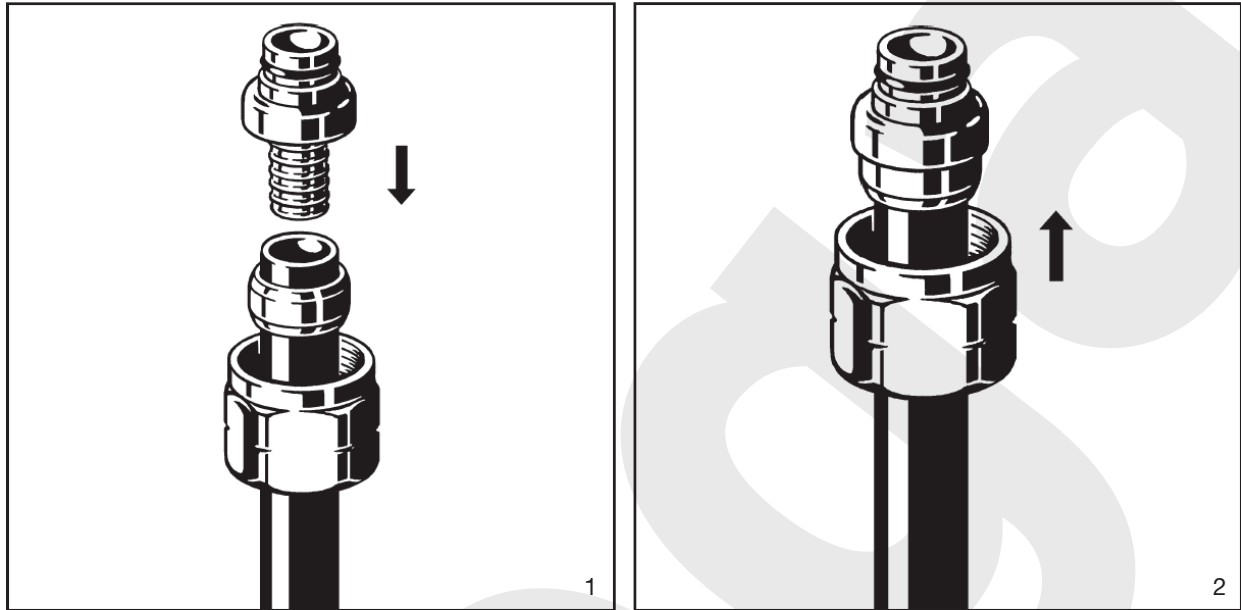
Technical Data

- 1 1/4" 304 Stainless Header Stock
- Factory installed air bleeder
- Mounting brackets
- Max. operating temperature: 180°F
Short periods of 200°F
- Max. operating pressure: 100 psi
- Return Valve $C_V = 2.98$
- Supply Valve $C_V = 3.35$

Submittal Package

viega

SVC Compression PEX Adapter $5/16'' - 5/8''$

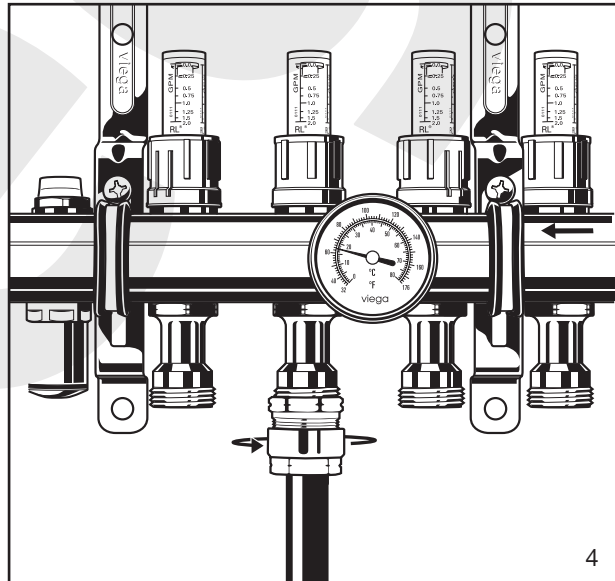
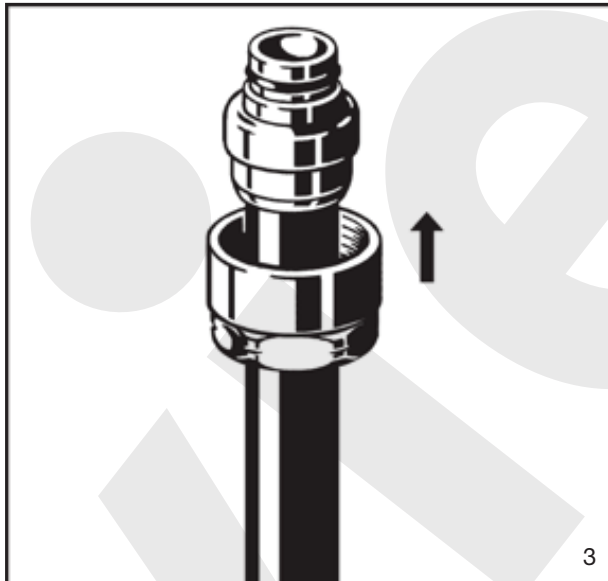
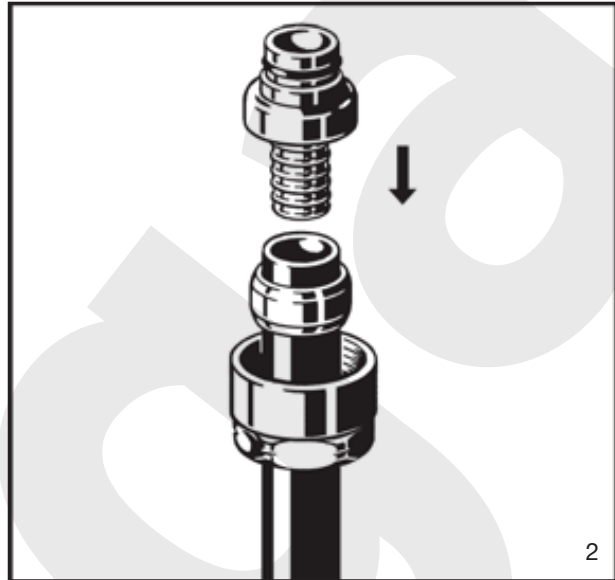
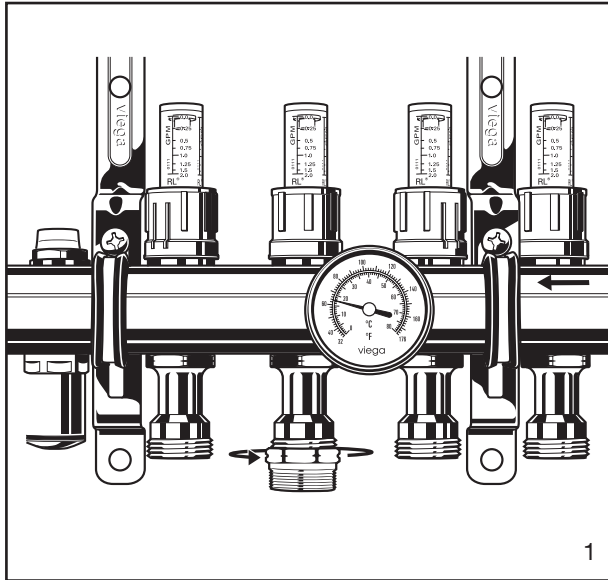


1. Square off tubing to proper length. Slide compression nut up tubing and slip brass ferrule over tubing.
2. Slide tubing over end of SVC adapter, pushing it on fully until tubing is flush with shoulder of fitting.
3. Insert SVC adapter into seat (manifold or other fitting) and tighten compression nut with wrench. Re-tighten compression nut slightly after 30 mins.

Submittal Package

viEGA

SVC Compression PEX Adapter $\frac{3}{4}$ "

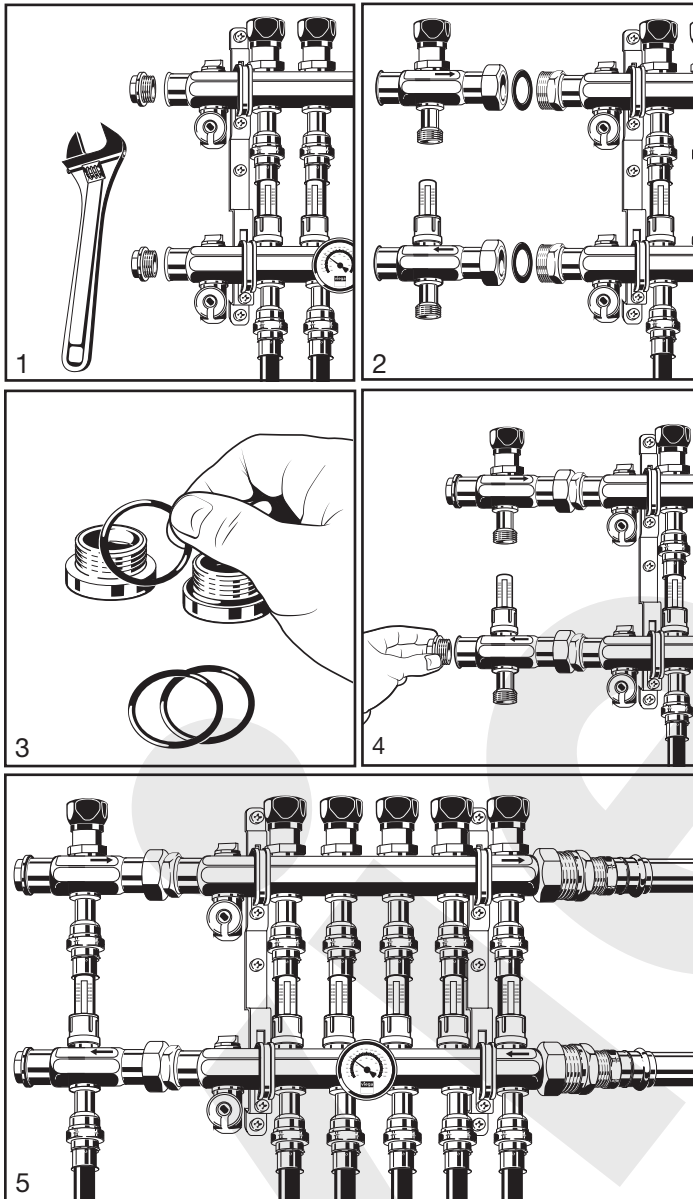


1. Tighten threaded adapter onto seat (manifold or other fitting).
2. Square off tubing to proper length. Slide compression nut up tubing and slip brass ferrule over tubing.
3. Slide tubing over end of SVC adapter, pushing it on fully until tubing is flush with shoulder of fitting.
4. Insert SVC adapter into seat (manifold or other fitting) and tighten compression nut with wrench. Re-tighten compression nut slightly after 30 mins.

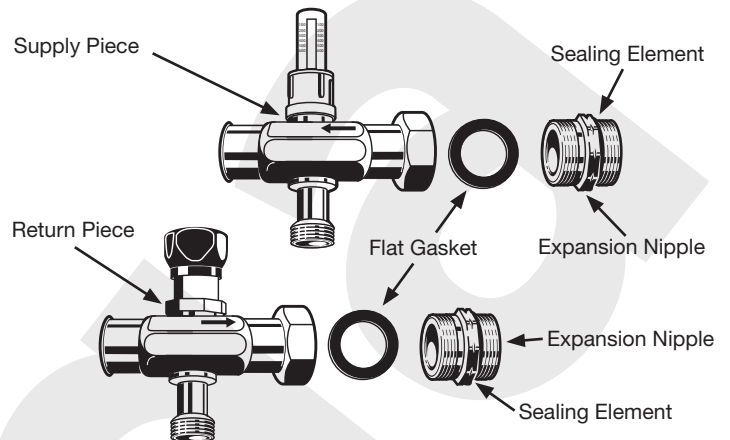
Submittal Package

viega

Manifold Expansion Set



NOTE: Manifold expansion sets will add 6" to the overall length of the manifold once connected.



Viega manifold expansion sets are intended to be used to expand our 1¼" stainless manifolds by one circuit. There are two types available: shutoff/balancing/flow meters and shutoff/balancing. Follow the instructions below for connecting a Viega manifold expansion set:

1. Turn off the power to the heat source, close the water supply valve and drain water from system/manifold. With the water drained from the manifold, use a smooth flat jaw wrench to remove the 1" end caps from the supply and return manifold.

2. Insert and tighten the 1" side of the expansion nipple into the manifold, do this for both the supply/return manifold (torque to 23 ft/lbs). No thread sealant is necessary on the expansion nipple as the sealing element actually makes the seal. Place the flat gasket on the 1¼" side of the expansion nipple and attach the corresponding expansion set to the appropriate manifold using the 1¼" union nut, keeping in mind there is a supply and return manifold and a supply and return expansion piece.

Tighten the union nut from the expansion set onto the 1¼" thread of the expansion nipple (torque to 23 ft/lbs). No thread sealant is necessary on the expansion nipple as the flat gasket actually makes the seal.

3. Remove the existing sealing elements from the end caps and replace with new sealing elements packaged with the manifold expansion set.

4. Re-install the 1" end plug into the end of the expansion set (torque to 23 ft/lbs), no thread sealant is necessary as it is the sealing element built into the end cap that makes the connection water tight.

5. Attach ViegaPEX Barrier / FostaPEX tubing to the circuit connection on the manifold expansion set using the appropriate Viega SVC adapter.

Make sure all connections are tight and pressurize the system to 100 psi, or 1.5 times working pressure, for a minimum of 1 hour.

Once testing is complete the system can be refilled, purged and returned into service.

Submittal Package

viega

Manifold Ball Valve Set

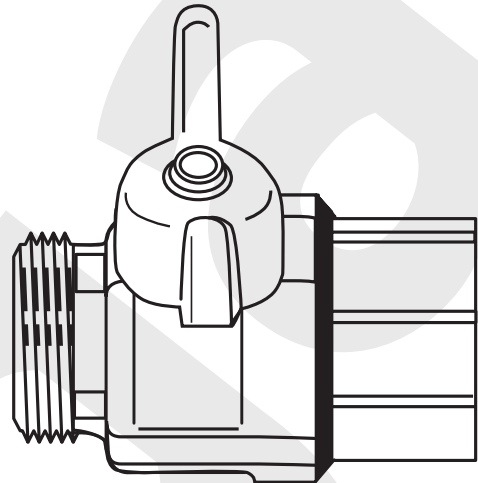
Viega's manifold ball valve sets are typically installed in conjunction with 1¼" stainless manifolds. These valve sets offer a fast and effective way to isolate manifolds from boiler piping.

Features

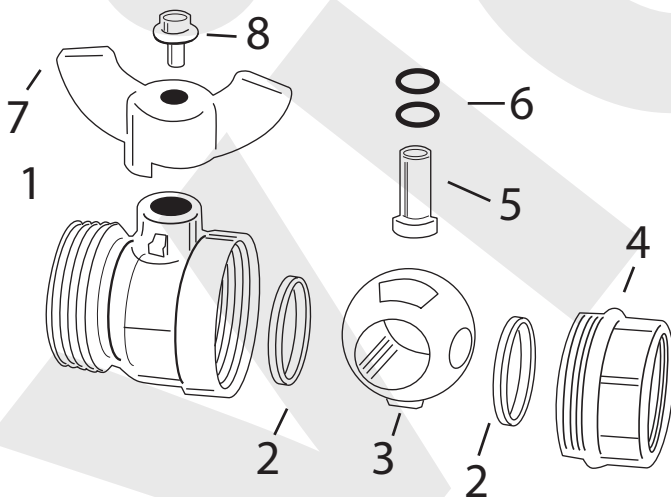
- Flat sealing face for use with 1¼" stainless steel manifolds
- Chrome plated ball
- Blow out proof stem
- Full port valve
- Max pressure 100 psi
- Max temp 200°F
- 1¼" M NPT x 1" F NPT
- Double O-ring Stem Seal
- Each set includes two valves, one with red handle, one with blue handle

Expanded View Key

1. Forged brass nickel plated body
2. PTFE Seat Ring
3. Chrome Plated Ball
4. Forged Brass Nickel Plated Body End
5. Brass Stem
6. Buna Nitrile O-rings
7. Painted Aluminum Handle
8. Zinc plated Handle Screw



stock code # 15056



Submittal Package

viega



Copper Manifold - Valved

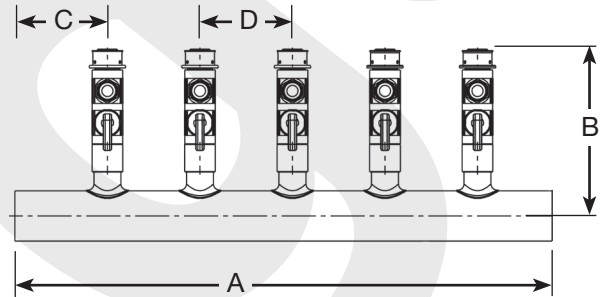
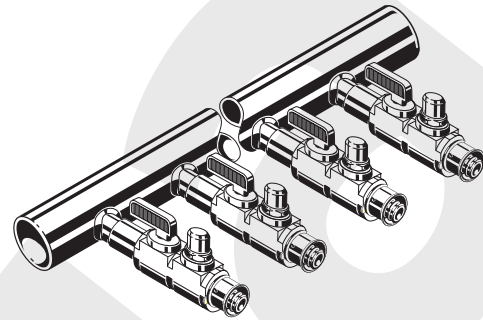
Applications

Commonly used in commercial heating, cooling and snow-ice melting applications, Viega® valved copper manifolds are available in 2" and 1-1/2". They are available with shut-off valves or shut-off balancing valves, and are made out of Type "L" copper. Viega's copper manifolds are copper (male) headers that are designed to utilize Viega's ProPress® fittings on the header inlet and outlet to connect to primary loop (boiler loop).

Specifications

Copper Manifolds & Valves

Copper: Type "L" ASTM B88
 Min Temp: 36°F
 Max Temp: 250°F
 Max Pressure: 200 psi
 Maximum Glycol Mix: 50%



Copper Manifold	Maximum Flow in gpm
1"	13
1-1/2"	35
2"	45

Valve Size	Approximate Cv Rating
1/2"	3.0
5/8"	6.0
3/4"	6.0

Copper Manifolds with Shut-Off / Balancing Valves

Part Number	Dimensions	Length with end cap and ball valve	A	B	C	D
17204	2" CM X 5/8" PEX Press - 12	51.25"	39"	5.72"	3.0"	3.0"
17205	2" CM x 3/4" PEX Press - 12	51.25"	39"	5.64"	3.0"	3.0"
17223	1-1/2" CM x 5/8" PEX Press - 12	50.0"	39"	5.48"	3.0"	3.0"
17224	1-1/2" CM X 3/4" PEX Press - 12	50.0"	39"	5.40"	3.0"	3.0"

Copper Manifolds with Shut-Off Valves

Part Number	Dimensions	Length with end cap and ball valve	A	B	C	D
17202	2" CM X 5/8" PEX Press - 12	51.25"	39"	4.70"	3.0"	3.0"
17203	2" CM x 3/4" PEX Press - 12	51.25"	39"	4.62"	3.0"	3.0"
17221	1-1/2" CM x 5/8" PEX Press - 12	50.0"	39"	4.46"	3.0"	3.0"
17222	1-1/2" CM X 3/4" PEX Press - 12	50.0"	39"	4.38"	3.0"	3.0"

Submittal Package

viega

Shut-Off / Balancing Valves

Applications

Shut-off / balancing valves are available in copper (female) x Viega® PEX Press only. These shut-off / balancing valves are commonly used to connect radiant heating, cooling, and snow-ice melting tubing to Viega valveless copper manifolds or other copper to PEX Press connections.

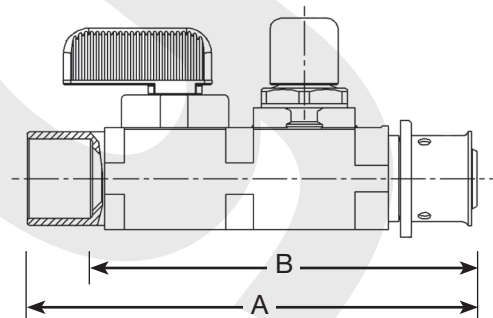
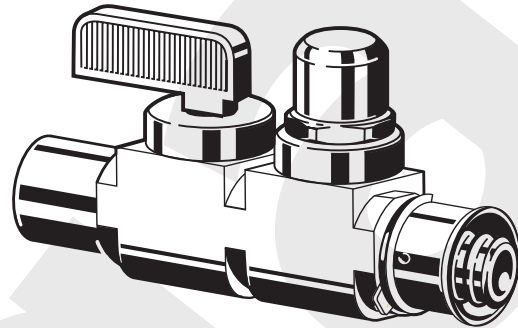
Specifications

Min Temp: 36°F
 Max Temp: 250°F
 Max Pressure: 200 psi
 Maximum Glycol Mix: 50%

Valve Size	Approximate Cv Rating
1/2"	3.0
5/8"	6.0
3/4"	6.0

$$\frac{\text{Circuit Length (ft)}}{\text{Longest Circuit (ft)}} \times 10 = \text{\# of Turns for Balancing*}$$

* The number of full 360° turns open from a fully closed position



Part Number	Valve	Description	A	B
17263	Shut-Off / Balancing	1/2" PEX Press x 1/2" Copper (female)	3.59"	3.08"
17264	Shut-Off / Balancing	5/8" PEX Press x 3/4" Copper (female)	4.06"	3.30"
17265	Shut-Off / Balancing	3/4" PEX Press x 3/4" Copper (female)	4.98"	3.22"

Submittal Package

viega

Shut-off Valve - PEX Press

Applications

Viega® shut-off valves are available in copper (female) x Viega PEX Press only. These shut-off valves are commonly used to connect radiant heating, cooling and snow-ice melting tubing to Viega valveless copper manifolds or other copper to PEX Press connections.

Features

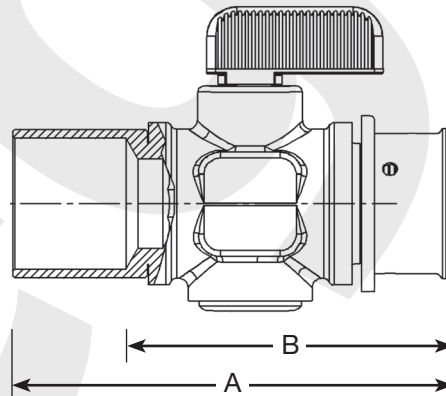
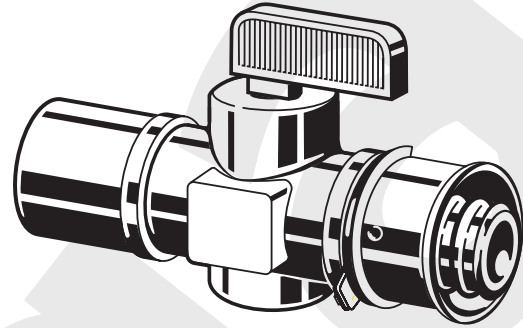
- Viega PEX Press connections
- Compact size
- ¼ turn ball valve
- Available individually or pre-assembled on Viega's 1-½" and 2" copper manifolds

Materials

- Brass body
- Plated or coated zinc handles
- Teflon, Viton, EPDM seals

Specifications

Min Temp: 36°F
 Max Temp: 250°F
 Max Pressure: 200 psi
 Max Glycol Mix: 50%



Valve Size	Approximate Cv Rating
½"	3.0
⅝"	6.0
¾"	6.0

Part Number	Valve	Description	A	B
17260	Shut-off	½" PEX Press x ½" Copper (female)	2.23"	1.73"
17261	Shut-off	⅝" PEX Press x ¾" Copper (female)	3.03"	2.27"
17262	Shut-off	¾" PEX Press x ¾" Copper (female)	2.95"	2.19"

Installation

1. Prepare valve for soldering (always solder valves prior to connecting PEX tubing).
2. Open Ball Valve handle (parallel to flow).
3. Solder valve.
4. Allow valve to cool prior to connecting PEX tubing.

Submittal Package

viega

Copper Manifold - Valveless

Applications

Viega valveless copper manifolds are commonly used in commercial heating, cooling and snow melting applications. Viega valveless manifolds are made from type "L" copper tubing and are available in 2", 1½" and 1" configurations. The 2", 1½" and twelve circuit 1" manifolds are copper male headers that are designed to utilize Viega ProPress or solder fitting connections. 1" valveless manifolds in 2, 3 and 4 outlet are available with copper female inlet and copper male outlet connections.

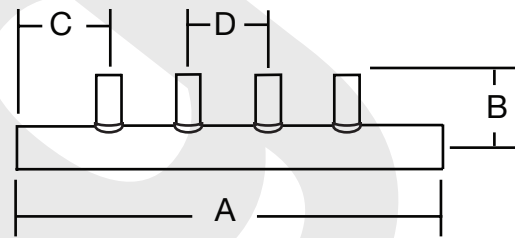
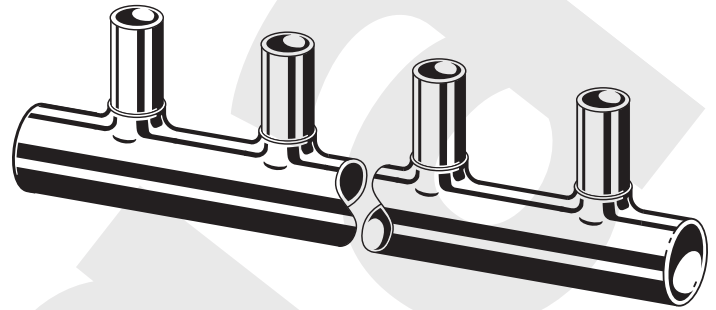
Features

- 2", 1½" and 12 circuit 1" manifolds are copper male headers
- 1" Copper manifolds 2, 3 and 4 outlet are Copper (female) x Copper (male) Headers
- Copper (male) outlets
- Type "L" Copper Tube
- All copper (male) connections are suitable for ProPress or solder attachment

Specifications

Copper: Type "L" ASTM B88
 Min Temp: 36°F
 Max Temp: 250°F
 Max pressure: 200 psi
 Maximum Glycol Mix: 50%

1" Copper Manifolds max. flow: 13 gpm
 1½" Copper Manifolds max. flow: 32 gpm
 2" Copper Manifolds max. flow: 45 gpm



Part Number	Dimensions	Length with end cap and ball valve	A	B	C	D
17100	2" CM x ¾" CM - 18	69.25"	57"	2.38"	3.0"	3.0"
17120	1½" CM x ¾" CM - 18	68.0"	57"	2.13"	3.0"	3.0"
17143	1" CM x CM, ½" CM - 12	35.25"	26"	1.95"	2.0"	2.0"
17140	1" CF x CM, x ½" CM - 2	16.0"	6.75"	1.95"	2.38"	2.0"
17141	1" CF x CM, x ½" CM - 3	18.0"	8.75"	1.95"	2.38"	2.0"
17142	1" CF x CM, ½" CM - 4	20.0"	10.75"	1.95"	2.38"	2.0"

Valves and Adapter Options for Valveless- Copper Manifolds

Part No.	Valve Type	Connection Type	Part No.	Connection Type
17263	Shut-Off Balancing	½" PEX Press x ½" Copper female	92026	½" PEX Press x ¾" Copper female adapter
17264	Shut-Off Balancing	⅝" PEX Press x ¾" Copper female	82031	⅝" PEX Press x ¾" Copper female adapter
17265	Shut-Off Balancing	¾" PEX Press x ¾" Copper female	92041	¾" PEX Press x ¾" Copper female adapter
17260	Shut-Off	½" PEX Press x ½" Copper female	99626	½" PEX Press x ¾" Copper female adapter
17261	Shut-Off	⅝" PEX Press x ¾" Copper female	99640	¾" PEX Press x ¾" Copper female adapter
17262	Shut-Off	¾" PEX Press x ¾" Copper female		

Submittal Package

viega

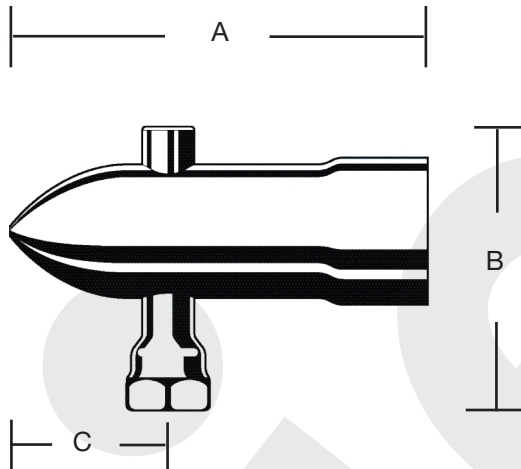
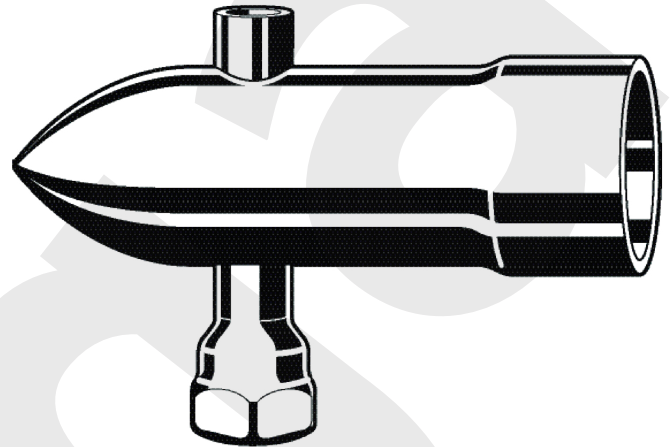
Copper Manifold End Cap

Applications

Copper Manifold End Caps have two F NPT adapters, one is 1/2" for a draw-off (purge valve). The other is 1/8" for an automatic air vent (bottle vent). Made of Type "L" copper.

Specifications

Copper: Type "L" ASTM B88
Min Temp: 36°F
Max Temp: 250°F
Max pressure: 200 psi.
Maximum Glycol Mix: 50%



Stock Code	Size	A	B	C
17144	1"	5.0	3.1	2.0
17125	1½"	5.25	3.3	2.0
17106	2"	5.4	4.0	2.8

Submittal Package

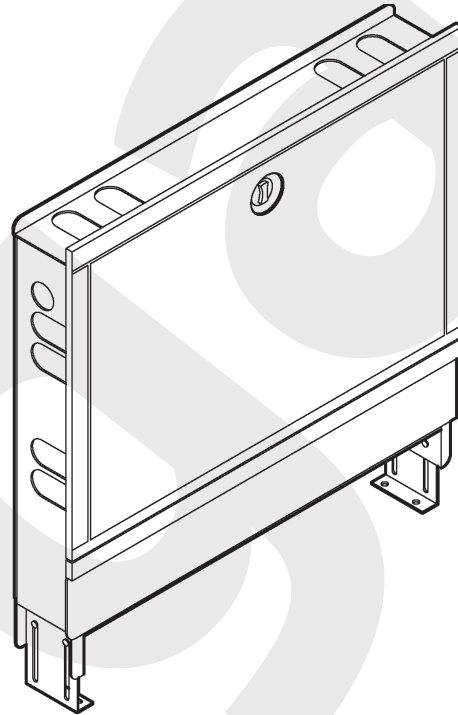


Manifold Cabinet

Viega's manifold cabinet is designed to house our 1/4" stainless steel manifolds and 1" copper manifolds. The Viega manifold cabinet may also be used with zone controls and powerheads in some applications. See the charts below for dimensional information.

Product Overview

- Recess mount
- Adjustable wall depth (4 1/2" - 6")
- 20 Gauge galvanized sheet metal construction (1mm)
- Epoxy polyester powder coating
- Open bottom makes tubing connections easy
- Available with standard knob or optional lock and key (lock and key stock code: 15217)
- Adjustable legs (0 - 7")
- When using part number 15802 the use of two locks is necessary



Manifold Cabinet Dimensions		
Part Number	Outside Dimension W x H x D	Inside Dimension W x H x D
15800	22 5/8" x 28" x 4 1/2"	21" x 28" x 4 1/2"
15801	28 3/8" x 28" x 4 1/2"	27" x 28" x 4 1/2"
15802	46" x 28" x 4 1/2"	45" x 28" x 4 1/2"

Note: Legs are adjustable up to 7". Heights above are figured with no leg extension.

1/4" Stainless Steel Manifold Dimensional Information							
Part Number	Interior box width	Exterior box width	1/4" stainless steel manifold with no accessories	1/4" stainless steel manifold with ball valve set	1/4" stainless steel manifold with ball valve set and adapters for flow through	1/4" stainless steel Manifold with no Accessories and Zone Control	1/4" stainless steel manifold with ball valve set and Zone Control
15800	21"	22 5/8"	2-6 outlet manifold	2-5 outlet manifold	2-4 outlet manifold	2 outlet manifold	N/A
15801	27"	28 3/8"	2-9 outlet manifold	2-8 outlet manifold	2-7 outlet manifold	2-4 outlet manifold	2-3 outlet manifold
15802	45"	46"	2-12 outlet manifold	2-12 outlet manifold	2-12 outlet manifold	2-12 outlet manifold	2-12 outlet manifold

Note: If use of a zone control is necessary, hold the manifold to one side and install the zone control vertically on the other side of the manifold cabinet. Use of a zone control in the manifold cabinet is not compatible with flow through applications.

1" Copper Manifold Dimensional Information				
Part Number	Interior box width	Exterior box width	1" Copper manifold No Accessories	1" copper manifold with ProPress ball valve and end cap
15800	21"	22 5/8"	2,3,4 outlet manifold	N/A
15801	27"	28 3/8"	2,3,4 outlet manifold	2,3,4 outlet manifold
15802	45"	46"	2,3,4 and 12 outlet manifold	2,3,4 and 12 outlet manifold

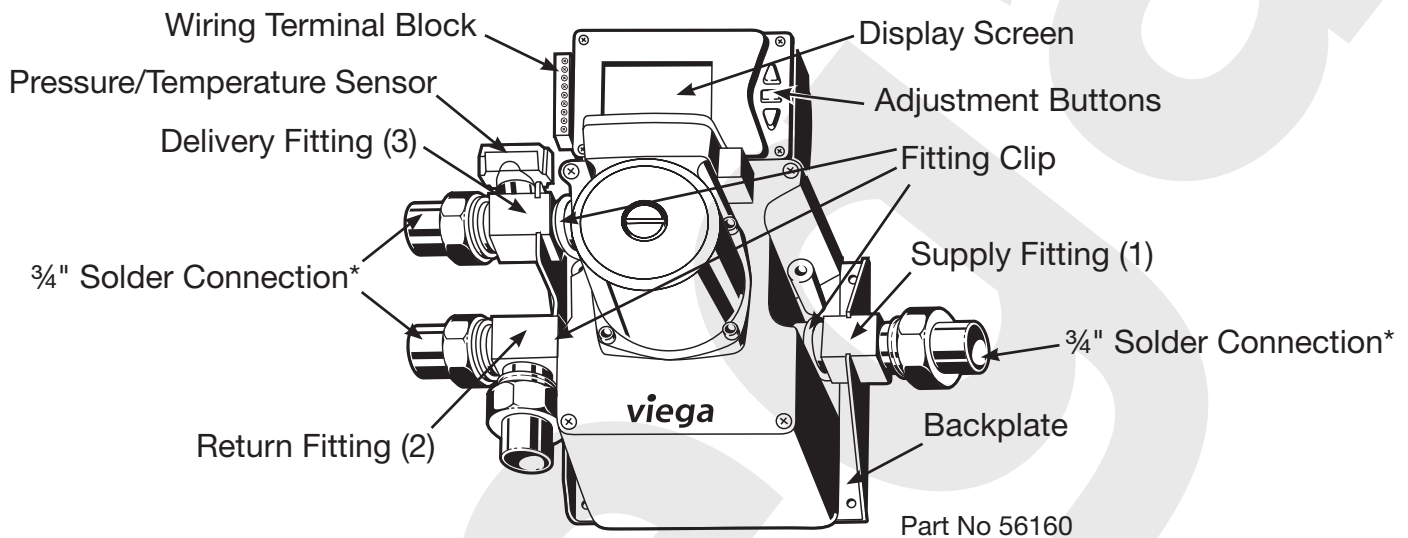
Note: Copper manifolds are available in 2,3,4, and 12 outlet configurations. Manifold brackets are sold separately for copper manifolds.

Submittal Package

viega

Hydronic Mixing Block

The Hydronic Mixing Block is a mixing device and boiler control, with a built in circulator and system controller. The block can provide either a fixed or reset water temperature via start/stop or constant fluid circulation.



* ProPress tailpieces may be used in place of solder connections. ProPress tailpieces are available for sale separately.



Only suitably qualified individuals with formal training in electrical and HVAC controls should attempt the installation of this equipment. Incorrect wiring and installation will affect the warranty provided with this unit. Wiring must be completed in accordance with the codes and practices applicable to the jurisdiction for the actual installation.



The Hydronic Mixing Block is a microprocessor based controller and as such is not to be regarded as a safety (limit) control. Please consult and install the heating or cooling appliance in accordance with the manufacturer's recommendations.

Submittal Package

viega

Technical Data

Input Voltage/Current

120 VAC \pm 10% 60 Hz, 2A

Sensors

(2) 10k Ω - 1 boiler sensor, 1 outdoor sensor
Sensor wiring may be extended up to 500'
Use 18 gauge wire when extending

Boiler Relay

24VAC 1.0 MAX AMPS

Circulator Relay

24VAC 1.0 MAX AMPS

Microprocessor

8 Bit, 32 MHz

Fluid

Water
Propylene or Ethylene glycol to 50% concentration

Temperature

Maximum Temperature: 203°F

Pressure

Maximum Working Pressure: 45 psi
Maximum Test Pressure: 100 psi

Weight

10 lbs.

Dimensions

12.18"W x 10"H x 6.7"D

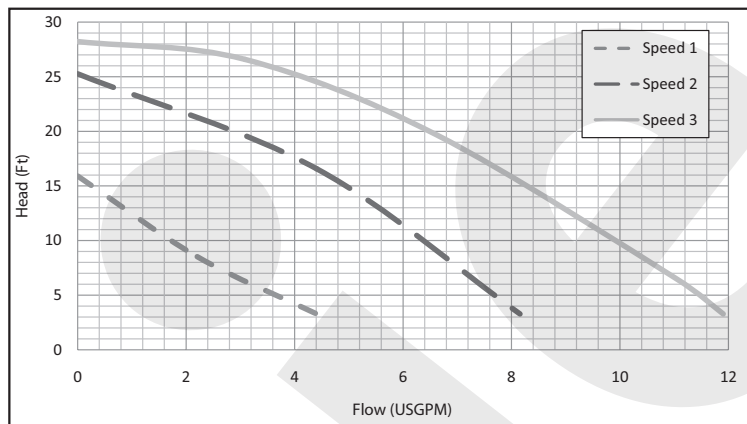
ETL Listings

Meets CSA C22.2 No. 24
Meets UL Standard 873
ETL Control No. 3068143

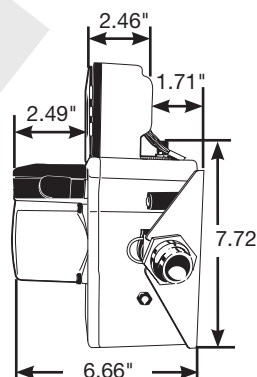
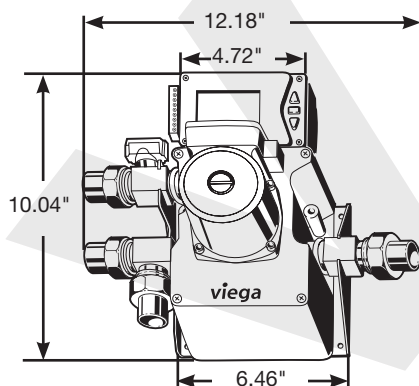
Part No

56160

Pump Curve for Hydronic Mixing Block



Dimensions



Submittal Package



Enhanced Mixing Station

The Viega® enhanced mixing station provides fluid temperature modulation when connected to a variety of heat sources. The station is equipped with an ECM motor circulator that has a permanent magnet motor design. This allows for 50% energy savings and higher starting torque. The circulator has seven different settings which allow the user flexibility in optimizing system performance. Boiler connections can be made with ProPress, PEX Press or copper (male pipe end) for soldering. A built-in sensor well allows for easy mounting of the supply temperature sensor for the basic heating control. The ball valve handles come labeled for supply and return making piping identification easy.

Enhanced Mixing Station Specifications

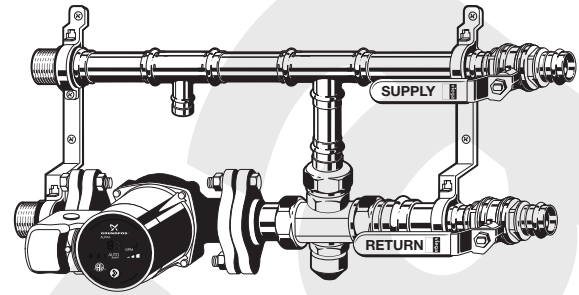
Copper: Type "L" ASTM B88
 Min Temp: 36°F
 Max Temp: 230°F
 Max Pressure: 100 psi
 Max Glycol Mix: 50% @ 36°F (2°C).
 Supply voltage: 1x115V +/-10%, 60Hz.

Circulator Specifications

Inlet pressure:

Liquid Temperature	Min. Inlet Pressure
167°F (75°C)	0.75 psi (0.05 bar)
194°F (90°C)	4.06 psi (0.28 bar)
230°F (110°C)	15.7 psi (1.08 bar)

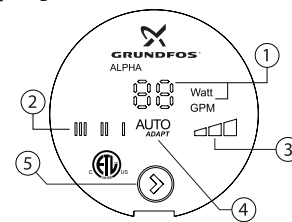
To avoid condensation in the control box and stator, the liquid temperature must always be higher than the ambient temperature.



Approximate power usage:

Speed Setting		Min.	Max.
High fixed speed		39W	45W
Medium fixed speed		15W	30W
Low fixed speed		5W	8W
Constant pressure	▱	8W	45W
Constant pressure	▱	14W	45W
Constant pressure	▱	22W	45W
AutoADAPT	AUTO ADAPT	5W	45W

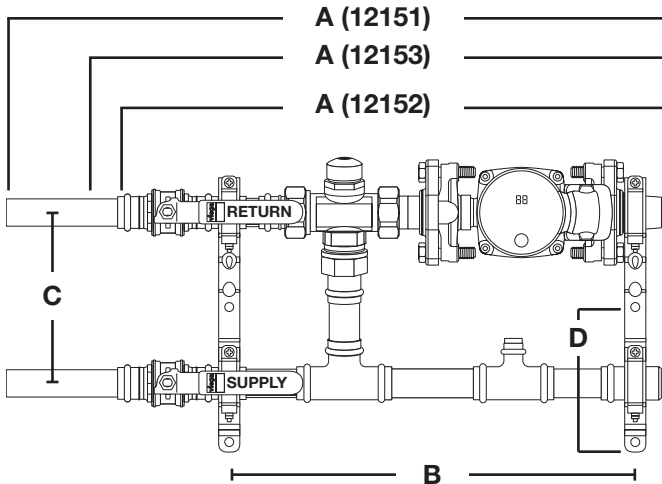
Control Display



Pos. Description

- 1 LED showing Watt or flow indicator
- 2 LED indicating fixed speed
- 3 LED indicating constant pressure
- 4 LED AutoADAPT
- 5 Push-button for selection of pump setting

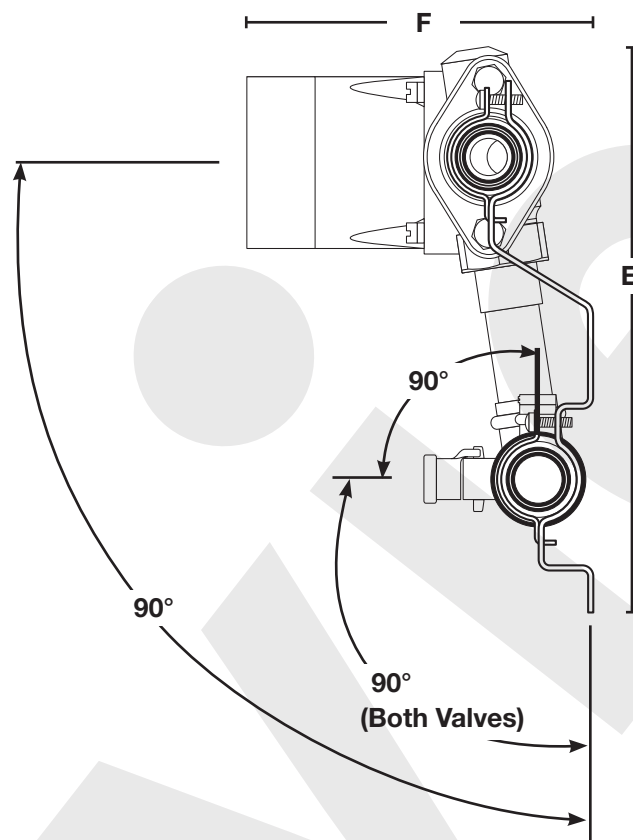
Submittal Package



# Outlets	Dimensions*	
	Mixing Station + Stainless Manifold	
1 outlet	N/A	
2 outlets	28.84"	
3 outlets	30.84"	
4 outlets	32.84"	
5 outlets	34.74"	
6 outlets	36.74"	
7 outlets	38.74"	
8 outlets	40.64"	
9 outlets	42.64"	
10 outlets	44.64"	
11 outlets	46.54"	
12 outlets	48.54"	

* Dimensions based off part number 12152
 * When using part number 12153 add .86"
 * When using part number 12151 add 3.92"

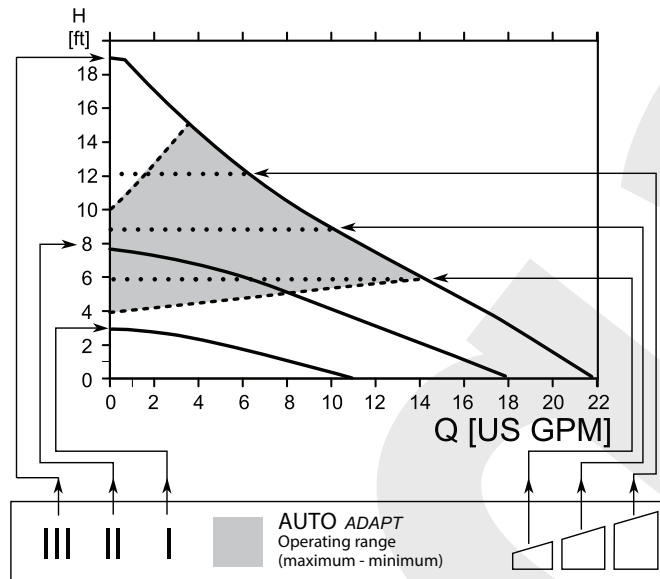
Part Number	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)
12151	24.67	16	6.69	5.31	11.72	7.39
12153	21.61	16	6.69	5.31	11.72	7.39
12152	20.63	16	6.69	5.31	11.72	7.39



Submittal Package



Performance* and Operation Mode Selection



*Hydraulic performance without check valve

Pos.	Description
➤	<ul style="list-style-type: none"> • Push-button for selection of pump setting • Every time the push-button is pressed, the circulator setting is changed
	<p>High Fixed Speed</p>
III	<ul style="list-style-type: none"> • Runs at a constant speed and consequently on a constant curve. In Speed III, the pump is set on the maximum curve under all operating conditions. Quick Vent of the pump can be achieved by setting the pump to Speed III for a short period.
	<p>Medium Fixed Speed</p>
II	<ul style="list-style-type: none"> • Runs at a constant speed and consequently on a constant curve. In Speed II, the pump is set on the medium curve under all operating conditions.
	<p>Low Fixed Speed</p>
I	<ul style="list-style-type: none"> • Runs at a constant speed and consequently on a constant curve. In Speed I, the pump is set on the minimum curve under all operating conditions.
	<p>Constant Pressure I</p>
▢	<ul style="list-style-type: none"> • The duty point of the pump will move left and right along the lowest constant-pressure curve depending on water demand in the system. The pump head (pressure) is kept constant, irrespective of the water demand.
	<p>Constant Pressure II</p>
▢	<ul style="list-style-type: none"> • The duty point of the pump will move left and right along the middle constant-pressure curve depending on water demand in the system. The pump head (pressure) is kept constant, irrespective of the water demand.
	<p>Constant Pressure III</p>
▢	<ul style="list-style-type: none"> • The duty point of the pump will move left and right along the highest constant-pressure curve depending on water demand in the system. The pump head (pressure) is kept constant, irrespective of the water demand.
	<p>AutoADAPT (Factory Setting)</p>
	<ul style="list-style-type: none"> • This function controls the pump performance automatically within the defined performance range (shaded area). AutoADAPT will adjust the pump performance to system demands over time.

Submittal Package



Base Mixing Station

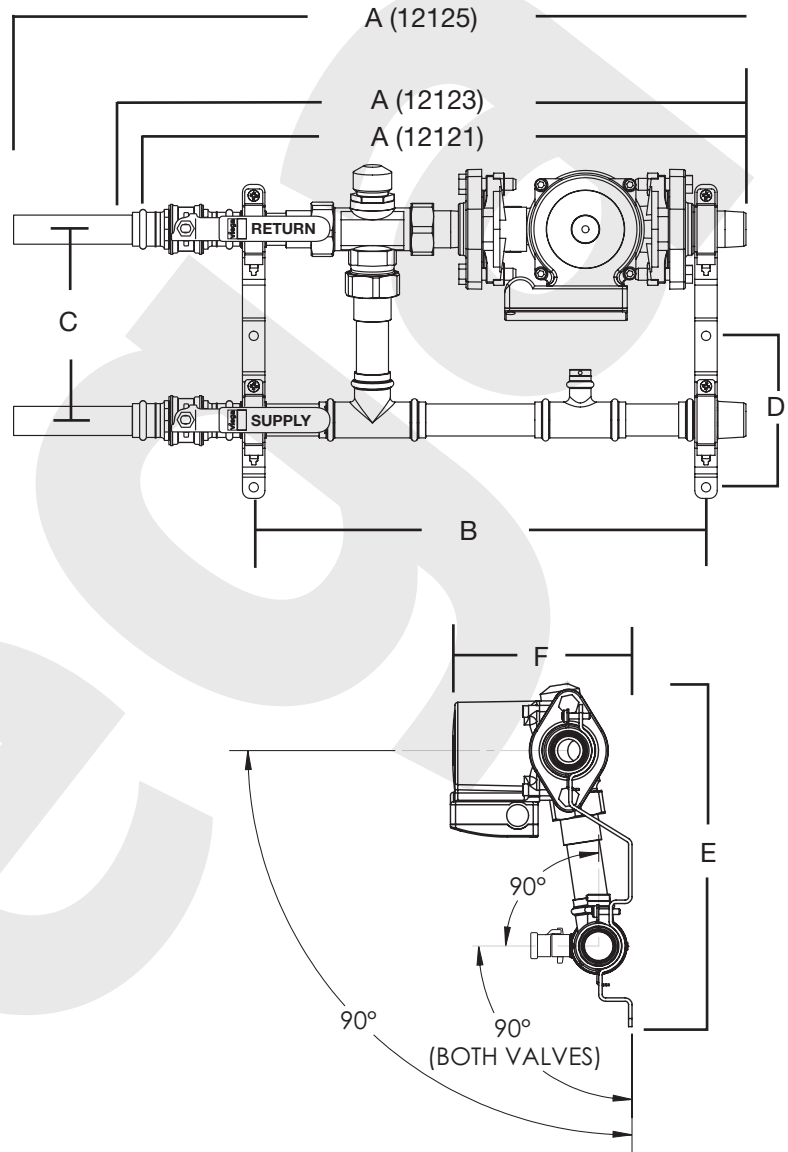
The Viega® mixing station provides supply water temperature modulation when connected to a variety of heat sources such as conventional or condensing boilers, water heaters, or geothermal heat pumps. Stations are available with a high head 3 speed circulator. Boiler connections can be made with ProPress, PEX Press adapters, or copper (male) for soldering. A built-in sensor well allows easy mounting of the supply temperature sensor for the basic heating control. The ball valve handles come labeled for supply and return making piping identification easy.

Features

- Ready to hang, factory tested
- Ideal for direct connect or remote locations
- Can be manually or electronically adjusted
- Versatile boiler side connections
- Compatible with most heat sources

Specifications

Copper: Type "L" ASTM B88
 Min Temp: 36°F
 Max Temp: 180°F
 Max Pressure: 100 psi
 Maximum Glycol Mix: 50%



Part Number	A(in)	B(in)	C(in)	D(in)	E(in)	F(in)
12121	20.63	16	6.69	5.31	11.72	6.98
12123	21.61	16	6.69	5.31	11.72	6.98
12125	24.67	16	6.69	5.31	11.72	6.98

Submittal Package



Technical Data

3-Speed High Head Circulator Pump

Flow Range: 0 to 34 U.S. GPM

Head Range: 0 to 30 feet

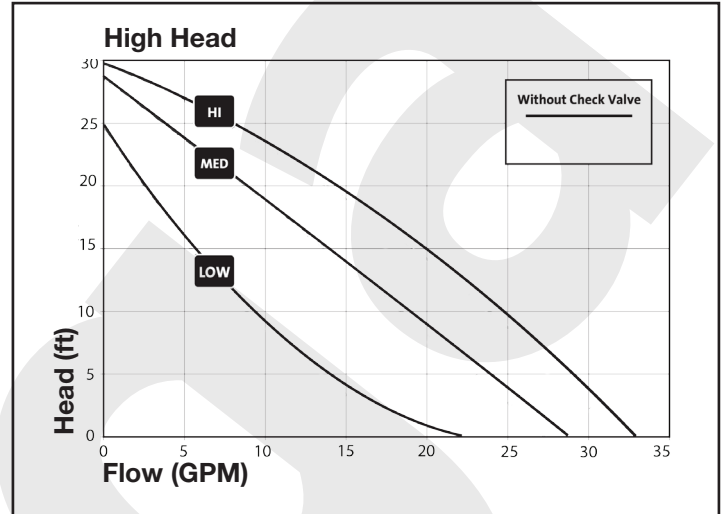
Motor: 2-Pole, Single-Phase, 120V

Maximum fluid temperature: 230°F (110°C)

Minimum fluid temperature: 36°F (2°C)

Maximum working pressure: 145 PSI

Part Number	SPEED	AMPS	WATTS	HP
12127	HI	1.8	197	1/6
	MED	1.5	179	1/6
	LOW	1.3	150	1/6



Dimensions

# Outlets	Mixing Station + Stainless Manifold
1 outlets	N/A
2 outlets	28.84"*
3 outlets	30.84"*
4 outlets	32.84"*
5 outlets	34.74"*
6 outlets	36.74"*
7 outlets	38.74"*
8 outlets	40.64"*
9 outlets	42.64"*
10 outlets	44.64"*
11 outlets	46.54"*
12 outlets	48.54"*

*Dimensions based off part number 12121
 *When using part number 12123, add 0.86"
 *When using part number 12125, add 3.92"

Materials

Description	Part Number
ProPress 1" Ball Valves (2)	24010
ProPress 1" Tee	77412
ProPress 1" x 1/2" Tee	77432
ProPress 1" C x M NPT	79245
Sensor Well Set	12128
3 Speed Circulator Pump	12127 (high)
Diverting Valve	20002
Strap On Temp. Gauge	15055
1" PEX Press x 1" Copper (male)	97560

Submittal Package



Three Way Mixing Valve 3/4" - 2"

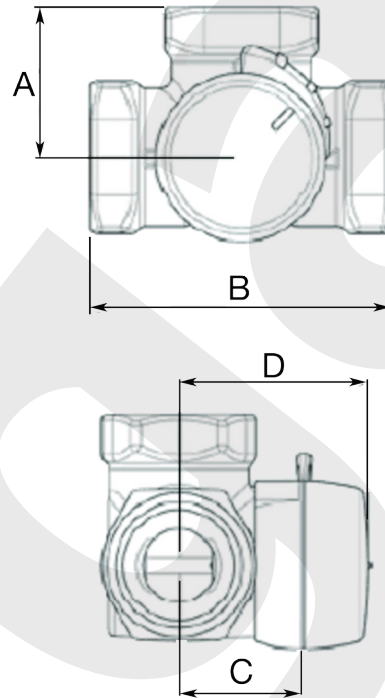
Three way mixing valves regulate fluid temperature to the system from the heat source. These valves are ideal for mixing fluid to control temperature in heating, cooling, and snow ice melting applications. The valves can be controlled both manually or automatically with the use of actuator (Stock Code 20042)

Features

- Compact and lightweight
- Versatile for numerous piping configurations
- Dezincification resistant brass (CW 602N)
- Simple adjustable scale indicating valve position
- Adjustable valve position scale

Specifications

Fluid temperature limits: 14°F- 230°F
 Max operating pressure: 145 psi
 Max differential pressure: 14.5 psi
 Max glycol mixture: 50%
 Materials: brass valve body (CW 602N)
 PPS composite shaft and bushing EPDM O-Ring



Stock Code	Size	Type	A (in)	B (in)	C (in)	D (in)	Weight (lbs)	CV Value	Flow (gpm)	Heat Capacity (BTU/H)	Pressure drop (psi)	Pressure Drop (ft of head)		
20080	3/4"	NPT	1.42	2.83	1.26	1.97	0.95	7.3	5 7	50,000 70,000	0.7 1.0	1.6 2.2		
20081	1"		1.61	3.23	1.34	1.54	1.54	11.7	12 17	120,000 170,000	1.0 2.1	2.4 4.8		
20082	1 1/4"		1.85	3.70	1.46	2.09	2.09	18.7	19 24	190,000 240,000	1.0 1.6	2.3 3.7		
20083	1 1/2"		2.09	4.17	1.73	3.7	3.7	29.3	29 34 38	290,000 340,000 380,000	1.0 1.2 1.7	2.2 2.7 3.8		
			20084	2"	2.36	4.72	1.81	5.07	5.07	46.8	47	470,000	1.0	2.3
											53	530,000	1.1	2.8
59	590,000										1.3	2.9		
										65	650,000	1.9	4.4	

Note: Heat capacity is based on water at a ΔT of 20°F. The fluid used to calculate pressure drop across the valve is water @ 100°F

Submittal Package

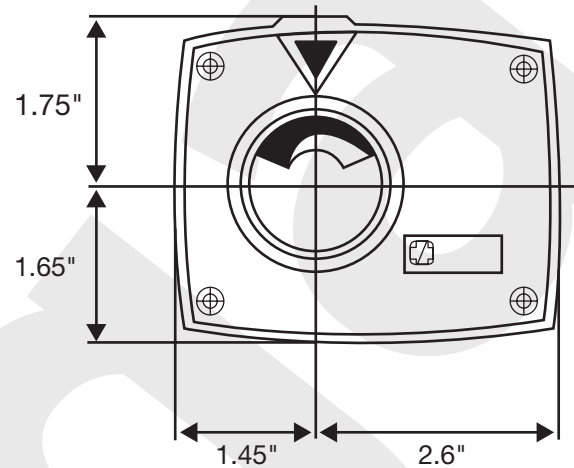
viega

Mixing Valve Actuator

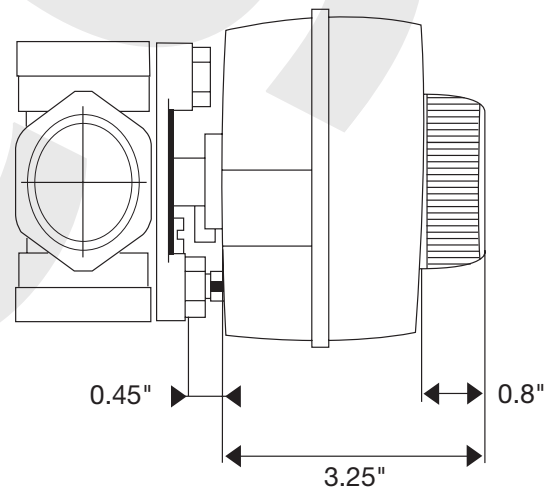
The Actuator is designed to provide electronic temperature control for Viega's Mixing Valves in heating, cooling, and snow-ice melting applications. The actuator is designed to fit and modulate all of Viega's Mixing Valves 3/4" - 2". Operated by a 24V signal from the Viega Basic Heating Control or Advanced Snow Melt Control.

Specifications

Power Supply:	24 VAC
Power Consumption:	1.5 VA
Torque:	45 in. lb.
Signal / Runtime for 90° rotation:	1.7 min. (102 sec.)
Weight:	1 lb.
Ambient Temp. Limits:	5 to 131°F



Stock Code # 20042



Submittal Package

viega

Diverting Valve

Three-way diverting valves can be used for temperature control in many heating and snowmelting applications.

Features

- Includes solder tailpieces (1¼" and 1½" models use same valve body with different tailpieces)
- Pre-installed high limit kit
- Compatible with most Viega actuators
Three Position - 18003
Proportional Actuator - 0-10v 18025
Non-electric Models - 16101, 16102, 16104, 16105, 16115

Specifications

Materials:

Bronze valve body
Brass and corrosion-resistant steel internal components
EPDM rubber seals

Actuator threads: M30 x 1.0

Max working temp.: 242°F (120°C)

Max working pressure: 145 psi (10 bar)

Max differential pressure (tight shut-off on both end positions of valve discs):

¾" 10.9 psi (75 kPa)

1" 7.3 psi (50 kPa)

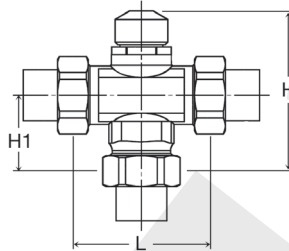
1¼" 2.9 psi (20 kPa)

1½" 2.9 psi (20 kPa)

Pressure Drop

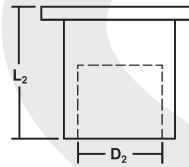
Pressure drop values for Viega diverting valves may be determined from the chart at right below. 1¼" and 1½" models share the same valve body, so the pressure drop for these models is the same.

Dimensions



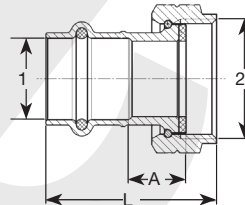
Part No.	Size	L (in)	H (in)	H1 (in)
20001	¾"	3.15	3.94	1.85
20002	1"	3.54	4.06	1.97
20003	1¼"	4.53	4.65	2.52
20041	1½"	4.53	4.65	2.52

Soldered Tailpiece



Size	D2 (in)	L2 (in)
¾"	0.875	0.91
1"	1.125	1.18
1¼"	1.375	1.57
1½"	1.625	1.26

ProPress Tailpiece



Diverting Valve Part No.	Tailpiece Part No.	Size		A (in)	L (in)
		1	2		
20001	79805	¾"	1" BSP	0.63	1.87
20002	79815	1"	1¼" BSP	0.72	2.04

Part No.	Size	Type	L (in)	H (in)	H1 (in)	Weight (lbs)	Cv Rating	Flow (gpm)	Heat Capacity (BTU/H)	Pressure Drop (psi)	Pressure Drop (ft of head)
20001	¾"	Solder	3.15	3.94	1.85	2.2	5.3	5 6	50,000 60,000	0.9 1.3	2.0 2.9
20002	1"	Solder	3.54	4.06	1.97	3	7.6	7 9	70,000 90,000	0.8 1.4	2.0 3.2
20003	1¼"	Solder	4.53	4.65	2.52	6.1	11.1	10 12	100,000 120,000	0.8 1.4	1.9 2.7
20041	1½"	Solder	4.53	4.65	2.52	6.1	11.1	13 14	130,000 140,000	1.4 1.6	3.2 3.7

Note: Heat capacity is based on water at a ΔT of 20°F. The fluid used to calculate pressure drop across the valve is water @ 100°F

Submittal Package

viega

3 Position Actuator for Stations

Applications

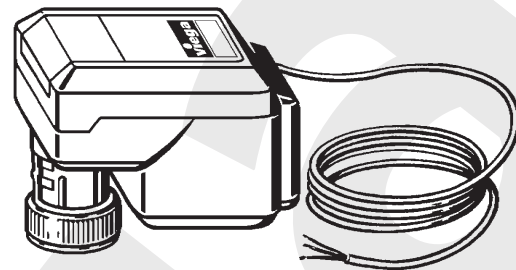
The Three Position Actuator for Stations is designed to provide floating action control of viega Mixing Stations, Enhanced Mixing Stations and diverting valves. The actuator is used in electronic temperature control systems which use hot and/or cold water as the controlled medium in radiant heating systems, snowmelting, or other temperature mixing applications. The actuator is designed for operation by any 24V floating signal controller such as the Basic Heating Control.

Features

- Small size allows installation where space is limited
- Maintenance free actuator in plastic housing
- Synchronous motor
- Magnetic coupling for torque limitation independent of voltage
- Suitable for 3-position modulating control (floating) without proportional feedback
- No tools required for mounting

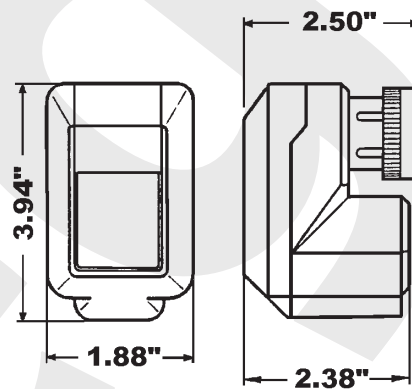
Specifications

Power supply:	24 VAC, 50/60 Hz
Power consumption:	0.7 VA
Control mode:	3-position (floating)
Stroke:	0.25 inches
Running time:	150 sec at 50 Hz 120 sec at 60 Hz (70 sec for full valve travel)
Stem force:	40 lbs
Connecting cable:	5 ft
Ambient Temp.:	Limits: 32 - 140°F
Weight:	0.33 lbs
Mounting thread:	M30 x 1.0

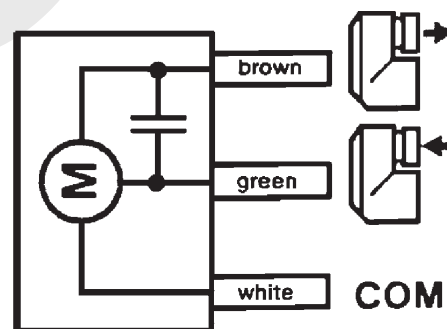


stock code # 18003

Dimensions



Wiring Diagram



Green wire: open valve (warmer water)
Brown wire: close valve (cooler water)
White wire: ground

Submittal Package

viega

Proportional Actuator For Mixing Station (0-10 V)

Applications

The actuator is used in electronic temperature control systems which use hot and/or cold water as the controlled medium in radiant heating systems, snow melting, or other temperature mixing applications.

The actuator is designed for operation by a 0-10 V DC controller such as a DDC system. This actuator will not work with Viega controls such as the Basic or Advanced Snow Melt Control.

Features

- Small size allows installation where space is limited
- Maintenance free actuator in plastic housing
- Suitable for 0-10 V DC control (i.e. DDC systems)
- No tools required for mounting
- Threaded adapter included for attachment to Viega Mixing Station or diverting valves
- Exercising function

Specifications

Power supply: 24 V AC

Power consumption: 2.5 W operating consumption

Control signal: Proportional 0-10 V DC

Stroke: 0.2 inch

Running time:

75 seconds

(45 seconds for full valve travel)

Stem force: 20 lbs.

Connecting cable: 5 ft.

Weight: 0.5 lbs.

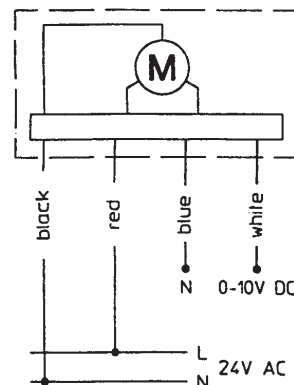
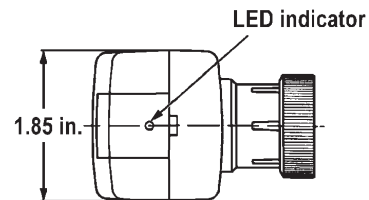
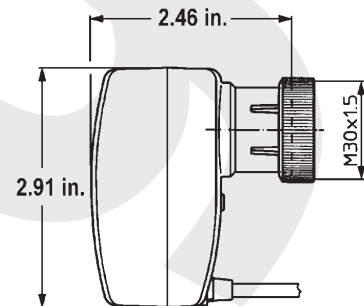
Mounting thread (actuator): M30 x 1.5

Mounting thread (adapter): M30 x 1.0

Ambient Temperature Limits: 32°F - 122°F



Stock code #18025



Submittal Package

viega

Bronze Zero Lead PEX Press Fittings with Attached Stainless Steel Press Sleeves for ViegaPEX, ViegaPEX Ultra, ViegaPEX Barrier and FostaPEX SDR-9 Cross-linked Polyethylene (PEX)

Scope

This product specification designates the requirements for PureFlow bronze zero lead PEX Press fittings with attached stainless steel press sleeves and tool locator ring to be used as connections for ViegaPEX, ViegaPEX Ultra, ViegaPEX Barrier, and FostaPEX tubing in $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ " and 2" sizes as available. The connections are to be completed with the aid of a PureFlow PEX Press Hand Tool or PureFlow PEX Press Power Tool.

Materials

PureFlow bronze zero lead PEX Press fittings are cast and machined from extruded (C87700) or forged (C87710) zero lead bronze. This gives the fitting high-corrosion and stress-crack resistance. All PureFlow bronze zero lead PEX Press fittings are precision-made to tight tolerances for a consistent fit with ViegaPEX tubing. All bronze zero lead PureFlow PEX Press fittings meet the rigorous requirements of ANSI/NSF-61 Annex G for lead extraction and meet California AB 1953 no lead requirements. "Zero Lead" identifies Viega products meeting the lead free requirements of California and Vermont law, effective January 1, 2010, as tested and listed against NSF-61, Annex G.

The stainless steel press sleeves incorporate three (3) view holes and are manufactured from 304 stainless steel that will not corrode, maintaining a clean appearance for the lifetime of the system. The tool locator rings are color-coded to match their appropriately sized PEX Press hand tools and are manufactured out of recycled plastic. (Stainless steel locator rings are used for solder adapters.)

Marking and Certification

PureFlow bronze zero lead PEX Press fittings with attached stainless steel sleeves are manufactured and certified to the requirements of ASTM F877. PureFlow bronze zero lead PEX Press fittings and sleeves are marked with the size, manufacturer's mark and required marking(s) of third-party certification organizations.

Fittings also meet the requirements of ANSI/NSF-61 Annex G for health effects and are suitable for contact with potable water. NSF International and other certification organizations conduct random on-site inspections of manufacturing facilities and independently test PureFlow bronze zero lead PEX Press fittings for compliance with physical, performance and toxicological standards.

Recommended Uses

PureFlow bronze zero lead PEX Press fittings with attached stainless steel press sleeves are intended and recommended for use in potable water distribution systems with ViegaPEX, ViegaPEX Ultra and FostaPEX tubing, and for hydronic heating, snow melt and cooling systems with ViegaPEX Barrier and FostaPEX tubing meeting the requirements of ASTM F876 and multipurpose residential fire sprinkler systems per NFPA 13D with ViegaPEX Ultra Black (sizes $\frac{3}{4}$ " to 2") meeting the requirements of ASTM F876 and UL 1821 (130 psi @ 120°F). Maximum design temperature and pressure ratings are 160 psi @ 73°F, 100 psi @ 180°F and 80 psi @ 200°F. PureFlow bronze zero lead PEX Press fitting system components are available only from Viega and are not interchangeable with components and tubing from other suppliers. For information on other hot and cold applications not listed here, consult with your Viega representative.

Handling and Installation

PureFlow bronze zero lead PEX Press fittings are cast and machined from a solid bronze alloy and precision-made to tight tolerances. Use of these materials in hot and cold water distribution systems must be in accordance with good plumbing practices, applicable code requirements, and current installation practices available from Viega. Contact a Viega representative or the applicable code enforcement bureau for information about approvals for specific applications.

Submittal Package



Quality Assurance

When the product is marked with the ASTM F877 designation, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and has been found to meet the specified requirements.

Certifications

cNSF®us pw-G

- Zero lead listing meeting California AB 1953 and Vermont ACT 193
- NSF International Performance and Health Effects (Standards 14 & 61)
- NSF certified to CSA B137.5 (Canadian Standards Association)

NSF Certified to NSF-U.P. Code

- approved for Uniform Plumbing Code, listed to ASTM F877



- IAPMO Certified



- ANSI/NSF 61-G



- ICC ES-PMG™ 1038/1015 plumbing and heating systems



- UL certified to UL 1821 listing (130 psi @ 120°F) for use in multipurpose residential fire sprinkler systems per NFPA 13D.¹

Note: all fittings may not be listed with each organization shown.

Friction Loss

PureFlow Bronze Zero Lead PEX Press Fittings (Equivalent Length of Tubing in Feet)

SIZE	COUPLING	90° ELBOW	TEE RUN	TEE BRANCH
3/8"	2.9	9.2	2.9	9.4
1/2"	2	9.4	2.2	10.4
3/4"	1	8	1	9
1"	1	10	2	10
1 1/4"	2	11	2	11
1 1/2"	2	13	2	12
2"	1	19	2	18

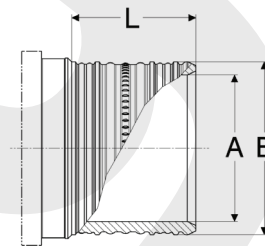
This information is based on tubing nominal flow rate.
(@ 8 fps flow velocity)

1. 3/4" through 2" fittings only
2. Tool locator rings must be left on the fitting in their factory assembled orientation (as shown above) prior to making a proper PEX Press connection. Press connections made with the tool locator ring removed or in the wrong orientation may result in an incorrect press.

PureFlow Bronze Zero Lead PEX Press Fittings Typical Fitting Insert Dimensions

SIZE	A	B	L
5/16"	0.169	0.281±.002	0.496
3/8"	0.236	0.344±.002	0.496
1/2"	0.362	0.473±.002	0.496
5/8"	0.457	0.571±.002	0.496
3/4"	0.559	0.667±.003	0.496
1"	0.728	0.858±.004	0.618
1 1/4"	0.957	1.047±.004	0.866
1 1/2"	1.083	1.232±.004	0.866
2"	1.417	1.606±.004	1.260

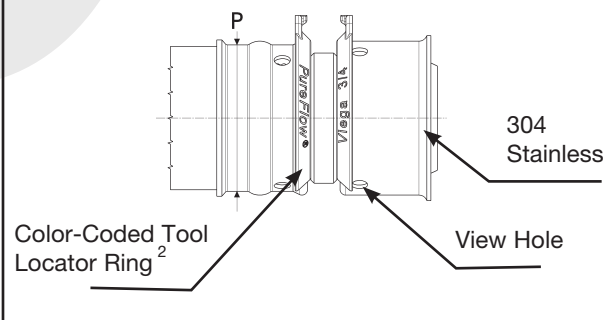
NOTE: Dimensions are in English units. Tolerances shown are Viega requirements. Viega Bronze Zero Lead PEX Press fittings are manufactured within these specifications.



(number of ribs may vary per fitting size)

Attached Stainless Sleeve, Pressed

A pressed fitting has jaw witness marks (P) indicating the connection has been properly made.



Submittal Package

viega

Viega PureFlow PEX Press Polymer Fittings with Attached Stainless Steel Press Sleeves for ViegaPEX, ViegaPEX Ultra, ViegaPEX Barrier and FostaPEX SDR-9 Cross-linked Polyethylene (PEX)

Scope

This product specification designates the requirements for Viega PureFlow PEX Press Polymer fittings with the Smart Connect feature and attached stainless steel press sleeves with tool locator ring to be used as connections for ViegaPEX, ViegaPEX Ultra, ViegaPEX Barrier, and FostaPEX tubing in 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2" sizes as available. The connections are to be completed with the aid of a Viega PureFlow PEX Press Hand Tool or Viega PureFlow PEX Press Power Tool.

Materials

Viega PureFlow PEX Press Polymer fittings are molded from Radel® R polymer. All Viega PureFlow PEX Press fittings are precision-made to tight tolerances for a consistent fit with ViegaPEX tubing, exhibit excellent resistance to the corrosive effects of water and are well suited for hot water applications. All Viega PureFlow PEX Press Polymer fittings meet California AB 1953 no lead requirements. "Zero Lead" identifies Viega products meeting the lead free requirements of California and Vermont law, effective January 1, 2010, as tested and listed against NSF-61, Annex G.

The stainless steel press sleeves incorporate three (3) view holes and are manufactured from 304 stainless steel that will not corrode, maintaining a clean appearance for the lifetime of the system. The tool locator rings are color-coded to match their appropriately sized PEX Press hand tools and are what hold the PEX press sleeve to the fitting, allowing it to be removed and/or replaced in the unlikely event the sleeve is damaged during handling or shipping (replacement sleeves and locator rings available separately).

Marking and Certification

Viega PureFlow PEX Press Polymer fittings with attached stainless steel sleeves are manufactured and certified to the requirements of ASTM F877. Viega PureFlow PEX Press Polymer fittings and sleeves are marked with the size, manufacturer's mark and required marking(s) of

third-party certification organizations. Fittings also meet the requirements of ANSI/NSF-61 for health effects and are suitable for contact with potable water. NSF International and other certification organizations conduct random on-site inspections of manufacturing facilities and independently test PureFlow PEX Press Polymer fittings for compliance with physical, performance and toxicological standards.

Recommended Uses

Viega PureFlow PEX Press Polymer fittings with attached stainless steel press sleeves are intended and recommended for use in potable water distribution systems with ViegaPEX, ViegaPEX Ultra and FostaPEX tubing, and for hydronic heating, snow melt and cooling systems with ViegaPEX Barrier and FostaPEX tubing meeting the requirements of ASTM F876. Viega PureFlow PEX Press Polymer fitting system components are available only from Viega and are not interchangeable with components and tubing from other suppliers. For information on other hot and cold applications not listed here, consult with your Viega representative.

Handling and Installation

Viega PureFlow PEX Press Polymer fittings are corrosion and impact resistant. However, they are still softer than metals and must be protected from UV exposure and volatile organic compounds (VOC's) which can damage them. Use of these materials in hot and cold water distribution system must be in accordance with good plumbing practices, applicable code requirements, and current installation practices available from Viega. Contact a Viega representative or the applicable code enforcement bureau for information about approvals for specific applications.

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Quality Assurance

When the product is marked with the ASTM F877 designation, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and has been found to meet the specified requirements.

Certifications

cNSF@us pw

- NSF International Performance and Health Effects (Standards 14 & 61)
- NSF certified to CSA B137.5 (Canadian Standards Association)

NSF Certified to NSF-U.P. Code

- approved for Uniform Plumbing Code, listed to ASTM F876 / F877



- ICC ES-PMG™ 1038 / 1015 plumbing and heating systems

Friction Loss

Viega PureFlow PEX Press Polymer Fittings (Equivalent Length of PEX Tubing in Feet)

SIZE	COUPLING	90° ELBOW	TEE RUN	TEE BRANCH
3/8"	4.5	14.3	6.5	14.7
1/2"	2.6	12.6	3.9	14.0
3/4"	2.1	12.5	3.1	14.0
1"	2.5	14.5	3.5	16.0
1 1/4"	3.1	17.5	4.0	18.4
1 1/2"	3.7	22.4	5.3	25.1

This information is based on tubing nominal flow rate.
(@ 8 fps flow velocity)

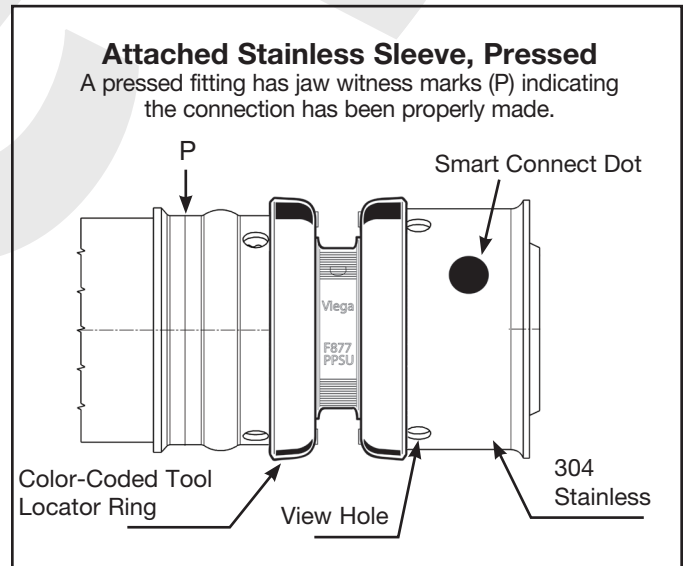
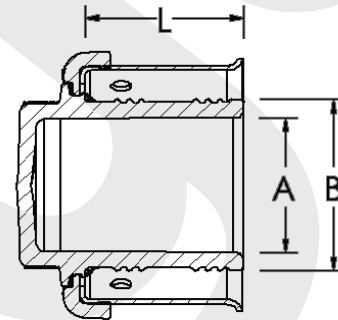
Smart Connect Feature

Viega PureFlow PEX Press Polymer includes the Smart Connect feature providing quick easy identification of unpressed connections during the pressure testing process. Unpressed connections are located by pressurizing the system to 0.5 PSI to 100 PSI. The Smart Connect feature is an integral part of the fitting design assuring leakage of an unpressed connection. Once the fitting is pressed it will create a leak-proof, permanent connection.

Viega PureFlow PEX Press Polymer Fittings Typical Fitting Insert Dimensions

SIZE	A	B	Tolerances	L
3/8"	0.207	0.343	+/- .004	0.595
1/2"	0.315	0.472	+/- .004	0.595
3/4"	0.486	0.661	+/- .004	0.595
1"	0.667	0.855	+/- .004	0.752
1 1/4"	0.819	1.037	+/- .004	1.091
1 1/2"	0.952	1.226	+/- .004	1.091

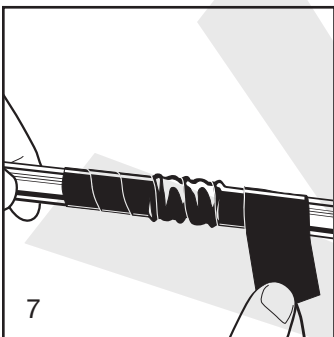
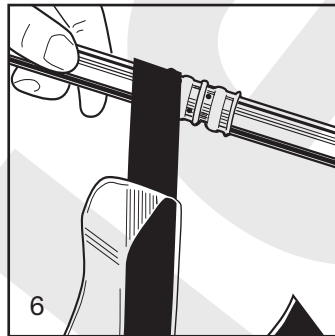
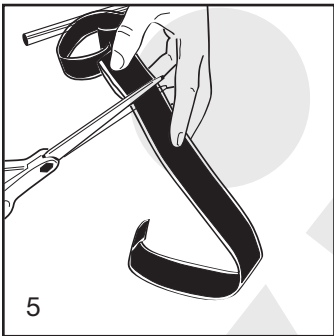
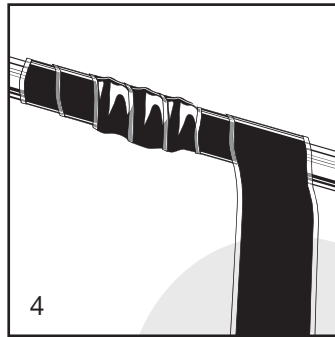
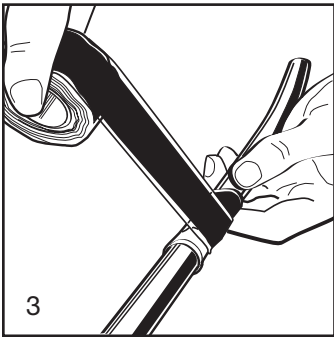
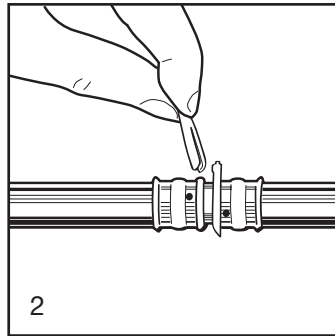
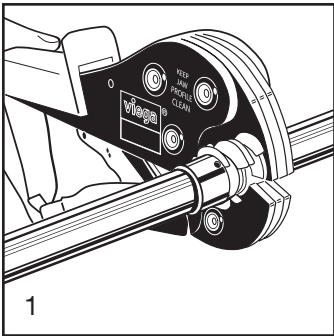
NOTE: Dimensions are in English units. Tolerances shown are Viega requirements. Viega PEX Press Polymer fittings are manufactured within these specifications.



Submittal Package

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ViegaPEX Repair Coupling Wrap



Repair coupling wrap (tape) is a self sealing, silicone based product designed to protect Viega PEX Press fittings from the corrosive nature of concrete. After making an in-slab fitting connection, protect the fitting with fitting wrap prior to embedding it in concrete.

1. Press fitting as per Viega's PEX Press Product Instructions.
2. If using a fitting with removable tool locator rings, remove them, otherwise they will remain in place.
3. Leave the protective film in place as you measure the amount of tape required to completely wrap and seal the fitting.
4. Measure by completely covering the fitting with tape. Overlap each row by $\frac{1}{2}$ " and run the wrap out over the end of the fitting and onto the tubing by 1" minimum.
5. Cut required length of tape.
6. Carefully wrap fitting with tape, removing protective film as fitting is wrapped.
7. Ensure that the fitting is completely covered.

Note: The fitting wrap will bond within two minutes and create a permanent bond within 24 hours. The concrete pour will not affect the sealant's bonding process.

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Basic Heating Control

The Viega Basic Heating Control is designed to control the supply water temperature to a hydronic system in order to provide outdoor reset operation. The Basic Heating Control uses a floating action actuator mounted on a diverting or mixing valve to regulate the supply water temperature. The control has a Liquid Crystal Display (LCD) to view system status and operating information.

Functions include:

- User comfort adjustment to increase or decrease building space temperature
- Advanced settings to fine-tune building requirements
- Optional indoor sensor for room air temperature control (Stock Code 16016)
- Test sequence to ensure proper component operation
- 120 VAC power supply
- Powered system circulator pump output
- CSA C US certified (approved to applicable UL standards)

Technical Information

Control

Microprocessor PID control; this is not a safety (limit) control

Packaged Weight

3.1 lbs. (1420 g) Enclosure black PVC plastic

Dimensions

6⁵/₈" H x 7⁹/₁₆" W x 2¹³/₁₆" D (170 x 193 x 72 mm)

Approvals

CSA C US, meets ICES & FCC regulations for EMI/RFI

Ambient Conditions

Indoor use only, 32 to 102°F (0 to 39°C), <90% RH non-condensing

Power Supply

120 VAC +/- 10% 50/60 Hz 1300 VA

Floating Output

24 VAC 0.34 A 8 VA

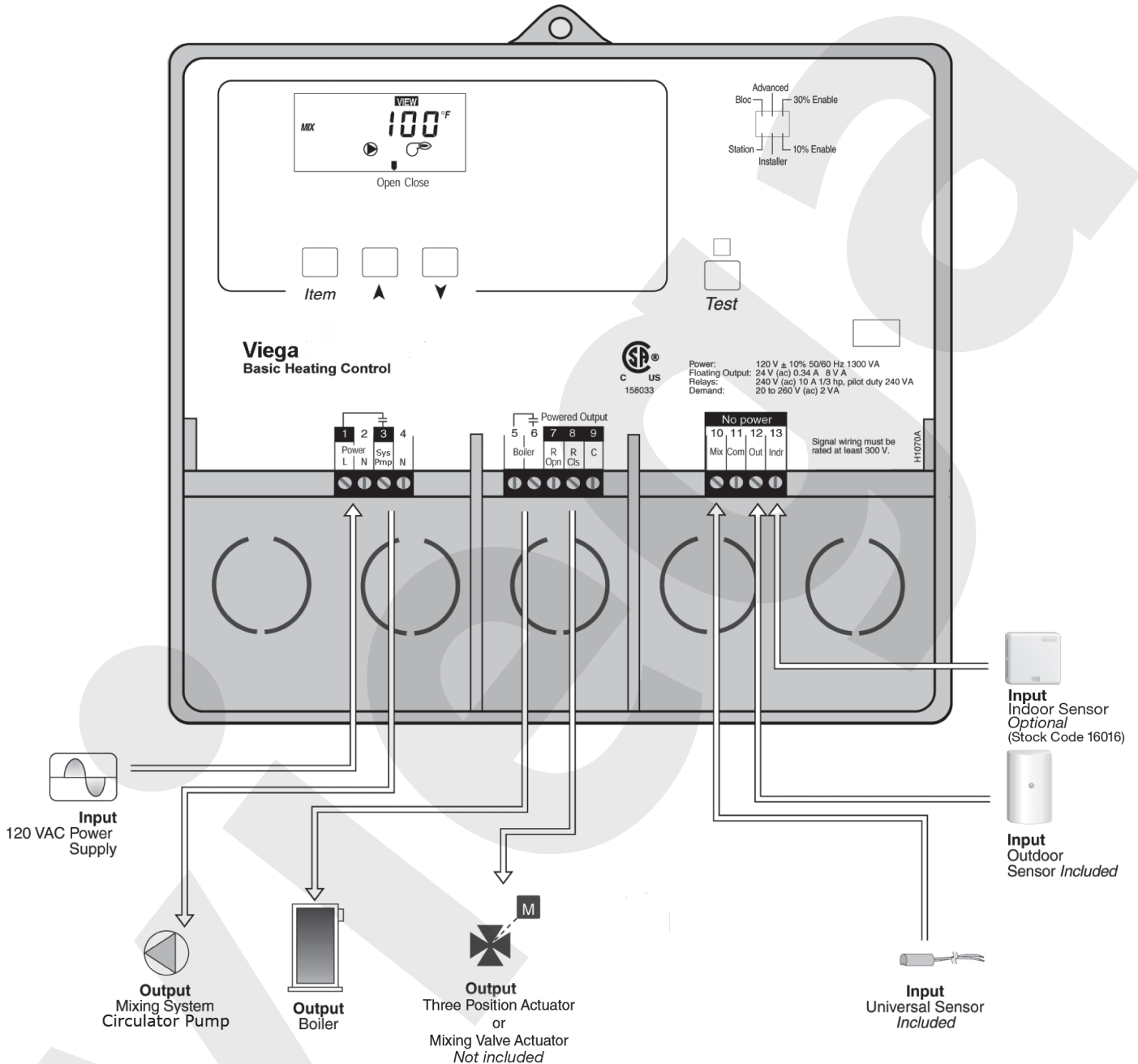
Relays

240 VAC 10 A 1/3 hp, pilot duty 240 VA

Sensors

NTC thermistor

Submittal Package

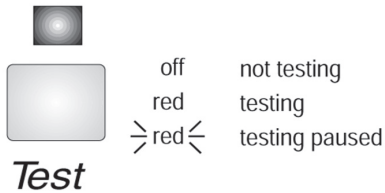


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Testing the Control

The Basic Heating Control has a built-in test routine that is used to test the main control functions. The Basic Heating Control continually monitors the sensors and displays an error message whenever a fault is found. See the following pages for a list of the Basic Heating Control's error messages and possible causes. When the **Test** button is pressed, the test light is turned on. The individual outputs and relays are tested in the following test sequence.



Test Sequence

Each step in the test sequence lasts 10 seconds.

During the test routine, the test sequence may be paused by pressing the **Test** button. If the **Test** button is not pressed again for 5 minutes while the test sequence is paused, the control exits the entire test routine. If the test sequence is paused, the **Test** button can be pressed again to advance to the next step. This can also be used to rapidly advance through the test sequence. To reach the desired step, repeatedly press and release the **Test** button until the appropriate device and segment in the display turn on.

Testing Sensors

A good quality test meter capable of measuring up to 5,000k Ω (1k Ω = 1000 Ω) is required to measure the sensor resistance. In addition to this, the actual temperature must be measured with a good quality digital thermometer. If a thermometer is not available, a second sensor can be placed alongside the one to be tested and the readings compared.

First measure the temperature using the thermometer and then measure the resistance of the sensor at the control. The wires from the sensor must not be connected to the control while the test is performed. Using the chart below, estimate the temperature measured by the sensor. The sensor and thermometer readings should be close. If the test meter reads a

very high resistance, there may be a broken wire, a poor wiring connection, or a defective sensor. If the resistance is very low, the wiring may be shorted, there may be moisture in the sensor, or the sensor may be defective. To test for a defective sensor, measure the resistance directly at the sensor location.

Example: If outdoor temperature is 70° F the resistance should be 11,883.

Do not apply voltage to a sensor at any time as damage to the sensor may result.

Measured resistance should be within +/- 5% to what is listed below.

Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω
-50	-46	490,813	90	32	7,334
-45	-43	405,710	95	35	6,532
-40	-40	336,606	100	38	5,828
-35	-37	280,279	105	41	5,210
-30	-34	234,196	110	43	4,665
-25	-32	196,358	115	46	4,184
-20	-29	165,180	120	49	3,760
-15	-26	139,402	125	52	3,383
-10	-23	118,018	130	54	3,050
-5	-21	100,221	135	57	2,754
0	-18	85,362	140	60	2,490
5	-15	72,918	145	63	2,255
10	-12	62,465	150	66	2,045
15	-9	53,658	155	68	1,857
20	-7	46,218	160	71	1,689
25	-4	39,913	165	74	1,538
30	-1	34,558	170	77	1,403
35	2	29,996	175	79	1,281
40	4	26,099	180	82	1,172
45	7	22,763	185	85	1,073
50	10	19,900	190	88	983
55	13	17,436	195	91	903
60	16	15,311	200	93	829
65	18	13,474	205	96	763
70	21	11,883	210	99	703
75	24	10,501	215	102	648
80	27	9,299	220	104	598
85	29	8,250	225	107	553

Submittal Package

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Outdoor Sensor

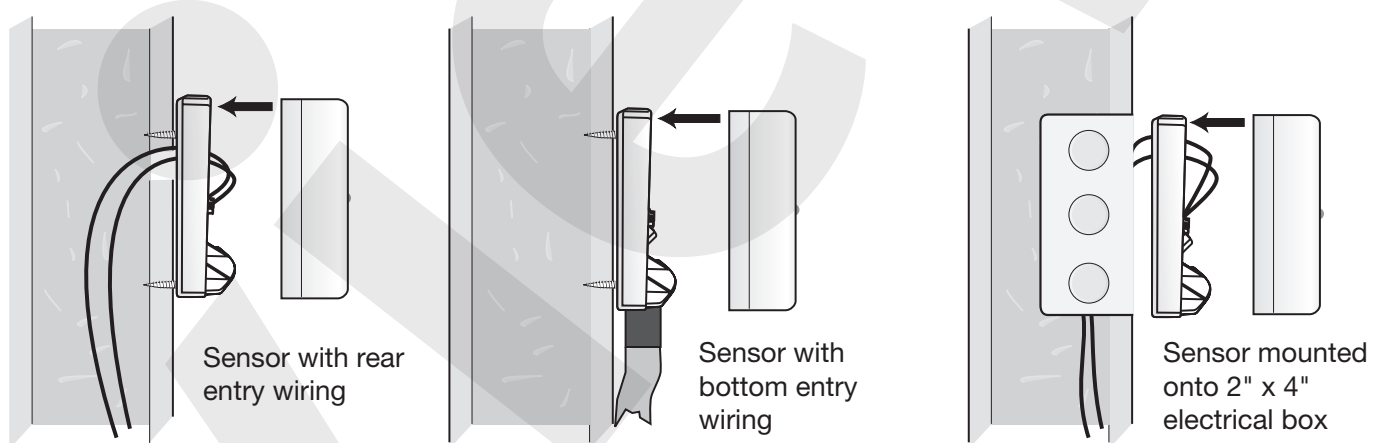
The Viega Outdoor Sensor includes a 10 k Ω thermistor which provides an accurate measurement of the outdoor temperature. The Outdoor Sensor is protected by a white U.V. resistant PVC plastic enclosure. These sensors will work with all Viega heating controls requiring an Outdoor Sensor (Hydronic Mixing Block, Basic Heating Control, Advanced Heating Control and the Advanced Snow Melt Control).

Installation

Mounting the Sensor

NOTE: The temperature sensor (thermistor) comes attached to the Outdoor Sensor enclosure.

1. Remove the screw and pull the front cover off the sensor enclosure.
2. The Outdoor Sensor can either be mounted directly onto a wall or a 2" x 4" electrical box. When the Outdoor Sensor is wall mounted, the wiring should enter through the back or bottom of the enclosure. Do not mount the Outdoor Sensor with the conduit knockout facing upwards as rain could enter the enclosure and damage the sensor.
3. In order to prevent heat transmitted through the wall from affecting the sensor reading, it may be necessary to install an insulating barrier behind the enclosure.
4. The Outdoor Sensor should be mounted on a wall which best represents the heat load on the building (a northern wall for most buildings and a southern facing wall for buildings with large south facing glass areas). The Outdoor Sensor should not be exposed to heat sources such as ventilation or window openings.
5. The Outdoor Sensor should be installed at an elevation above the ground that will prevent accidental damage or tampering.



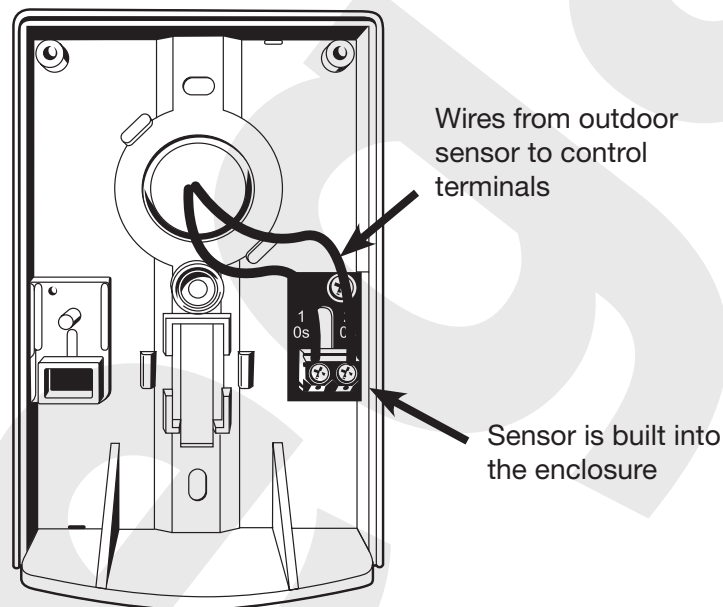
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Wiring and Testing the Sensor

1. Connect 18 AWG or similar wire to the two terminals provided in the enclosure and run the wires from the Outdoor Sensor to the control. Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong sources of electromagnetic interference (EMI), shielded cable or \ twisted pair should be used or the wires can be run in a grounded metal conduit. If using shielded cable, \ the shield wire should be connected to the Com terminal on the control and not to earth ground.
2. Follow the sensor testing instruction in this product instruction and connect the wires to the control.
3. Replace the front cover of the sensor enclosure

Note: Maximum wire length from control to sensor is 500 ft.



Sensor Testing Instructions

A good quality test meter capable of measuring up to 5,000 k Ω (1 k Ω = 1000 Ω) is required to measure the sensor resistance. In addition to this, the actual temperature must be measured with either a good quality digital thermometer, or if a thermometer is not available, a second sensor can be placed alongside the one to be tested and the readings compared.

1. Measure the temperature using the thermometer and then measure the resistance of the sensor at the control. The wires from the sensor must not be connected to the control while the test is performed.
2. Using the chart on the following page, estimate the temperature measured by the sensor. The sensor and thermometer readings should be close.
3. If the test meter reads a very high resistance, there may be a broken wire, a poor wiring connection or a defective sensor. If the resistance is very low, the wiring may be shorted, there may be moisture in the sensor or the sensor may be defective.
4. To test for a defective sensor, measure the resistance directly at the sensor location.

Do not apply voltage to a sensor at any time as damage to the sensor may result.

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Resistance Table

Temperature		Resistance	Temperature		Resistance	Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω	°F	°C	Ω	°F	°C	Ω
-50	-46	490,813	20	-7	46,218	90	32	7,334	160	71	1,689
-45	-43	405,710	25	-4	39,913	95	35	6,532	165	74	1,538
-40	-40	336,606	30	-1	34,558	100	38	5,828	170	77	1,403
-35	-37	280,279	35	2	29,996	105	41	5,210	175	79	1,281
-30	-34	234,196	40	4	26,099	110	43	4,665	180	82	1,172
-25	-32	196,358	45	7	22,763	115	46	4,184	185	85	1,073
-20	-29	165,180	50	10	19,900	120	49	3,760	190	88	983
-15	-26	139,402	55	13	17,436	125	52	3,383	195	91	903
-10	-23	118,018	60	16	15,311	130	54	3,050	200	93	829
-5	-21	100,221	65	18	13,474	135	57	2,754	205	96	763
0	-18	85,362	70	21	11,883	140	60	2,490	210	99	703
5	-15	72,918	75	24	10,501	145	63	2,255	215	102	648
10	-12	62,465	80	27	9,299	150	66	2,045	220	104	598
15	-9	53,658	85	29	8,250	155	68	1,857	225	107	553

Technical Data

Outdoor Sensor

Packaged weight: 0.35 lb. (160 g), Enclosure E, white PVC plastic

Dimensions: 4½" H x 2⅞" W x 1½" D (73 mm x 114 mm x 38 mm)

Approvals: CSA C US, UL listed

Operating range: -60 to 140°F (-50 to 60°C)

Sensor: NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C), β=3892t

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Multiple Outdoor Sensor

The Multiple Outdoor Sensor is an optional outdoor sensor module which allows up to four controls to share one outdoor sensor enclosure. The multiple Outdoor Sensor Module will work with all Viega Heating Controls that use the Outdoor Sensor (Hydronic Mixing Block, Basic Heating Control, Advanced Heating Control and the Advanced Snow Melt Control).

Features

The Multiple Outdoor Sensor module includes three 10k Ω thermistors which provide an accurate measurement of outdoor temperature. Each sensor has two terminals for wiring. The module is attached inside the outdoor sensor enclosure included with the control, and allows for four separate sensors to be combined into a single enclosure mounted on the exterior of the building.

Specifications

Packaged weight: 0.13lb. (60g)
Dimensions: 2 $\frac{1}{8}$ " H x $\frac{9}{16}$ " W x $\frac{9}{16}$ " D
Operating Range: -60 to 140°F (-50 to 60°C)
Sensor: NTC thermistor, 10k Ω @ 77°F (25°C +/- 0.2°C), β =3892

Installation

The Multiple Outdoor Sensor module is designed to mount in the Outdoor Sensor enclosure as shown in the diagram.

Remove the screw from the center of the Outdoor Sensor and pull the front cover off the enclosure.

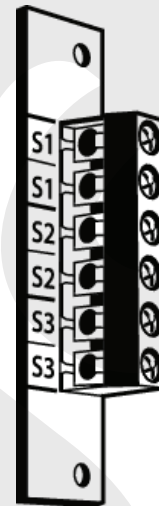
The Multiple Outdoor Sensor module is mounted into the Outdoor Sensor enclosure. Using the two screws provided, fasten the module in the top left hand corner of the Outdoor Sensor enclosure as indicated in the illustration to the right.

Connect two conductor 18 AWG or similar wire between the terminals S1 and S1 and the outdoor sensor terminals on one Heating Control. Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong sources of electromagnetic interference, shielded cable or twisted pair should be used or the wires can be run in a grounded metal conduit. If using shielded cable, the shield wire should be connected to the Com terminal on the control and not to earth ground.

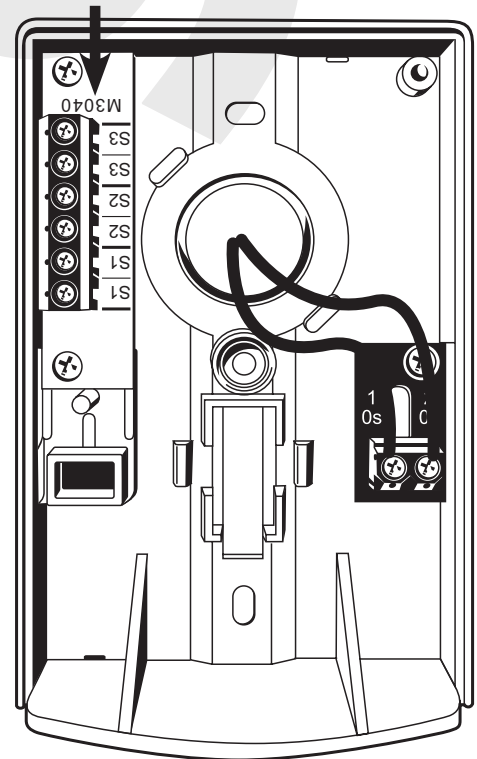
Repeat the above steps for the second (S2 and S2) and third (S3 and S3) sensors.

(Os1 and Os2) for fourth sensor on the right side of the enclosure

Note: Maximum wire length from control to sensor is 500 ft.



Mounting location for Multiple Outdoor Sensor module



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Testing

A good quality test meter capable of measuring up to 5,000 k Ω (1k Ω = 1000 Ω) is required to measure the sensor resistance. In addition to this, the actual temperature must be measured with either a good quality digital thermometer, or if one is not available, a second sensor may be placed alongside the one to be tested and the readings compared.

First measure the temperature using the thermometer and then measure the resistance of the sensor at the control. The wires from the sensor must not be connected to the control while the test is being performed. Using the chart below, estimate the temperature

measured by the sensor. The sensor and the thermometer readings should be close. If the test meter reads a very high resistance, there may be a broken wire, a poor wiring connection, or a defective sensor. If the resistance is very low, the wiring may be shorted, there may be moisture in the sensor, or the sensor may be defective. To test for a defective sensor, measure the resistance directly at the sensor location with the wires disconnected.

Do not apply voltage to a sensor at any time as damage to the sensor may result.

Temperature		Resistance	Temperature		Resistance	Temperature		Resistance	Temperature		Resistance
$^{\circ}\text{F}$	$^{\circ}\text{C}$	Ω	$^{\circ}\text{F}$	$^{\circ}\text{C}$	Ω	$^{\circ}\text{F}$	$^{\circ}\text{C}$	Ω	$^{\circ}\text{F}$	$^{\circ}\text{C}$	Ω
-50	-46	490,813	20	-7	46,218	90	32	7,334	160	71	1,689
-45	-43	405,710	25	-4	39,913	95	35	6,532	165	74	1,538
-40	-40	336,606	30	-1	34,558	100	38	5,828	170	77	1,403
-35	-37	280,279	35	2	29,996	105	41	5,210	175	79	1,281
-30	-34	234,196	40	4	26,099	110	43	4,665	180	82	1,172
-25	-32	196,358	45	7	22,763	115	46	4,184	185	85	1,073
-20	-29	165,180	50	10	19,900	120	49	3,760	190	88	983
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-10	-23	118,018	60	16	15,311	130	54	3,050	200	93	829
-5	-21	100,221	65	18	13,474	135	57	2,754	205	96	763
0	-18	85,362	70	21	11,883	140	60	2,490	210	99	703
5	-15	72,918	75	24	10,501	145	63	2,255	215	102	648
10	-12	62,465	80	27	9,299	150	66	2,045	220	104	598
15	-9	53,658	85	29	8,250	155	68	1,857	225	107	553

Submittal Package

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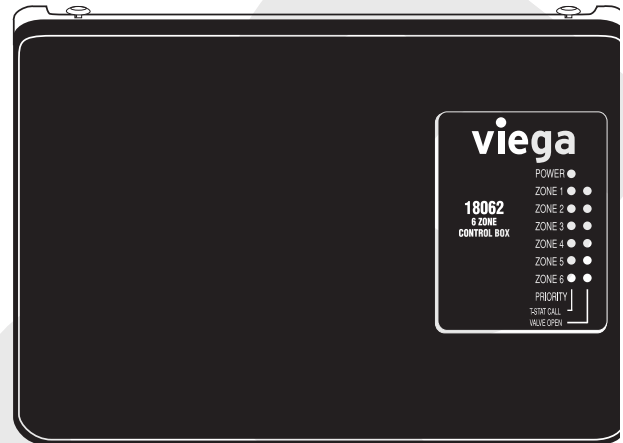


Zone Control

The Viega Zone Control is a wiring and switching center for individual and / or multi- room control. The Zone Control simplifies wiring between Thermostats and Powerheads. LED lights on housing indicate individual zone heat demand. Available as a 4 or 6 zone, both with priority. Zone Control includes optional circulator activation function and built in transformer.

Specifications

	4 Zone	6 Zone
Control Input:	120/60/1vac 1.5A	120/60/1vac 3A
Control Output:	24 VAC class 2	24 VAC class 2
Transformer:	40 VA	2 x 40 VA
Fuse:	5 Amp Max	2 x 5 amp fuses
Pump End	1/6 hp, 5A	1/6 hp, 5A
Switch Rating:	@ 120 VAC	@ 120 VAC
Main / Priority End		
Switch Rating:	24 VAC, 1A	24 VAC, 1A
Powerheads:	8 per control	16 per control
Codes and Standards:	UL Approval	UL Approval



Operation

The green LED indicates that the control is powered on. When any thermostat calls for heat that corresponding yellow LED light is illuminated. A call for heat energizes the corresponding powerhead(s) and the end switch relays illuminating the red LED light.

Stock Code	Description	Width	Height	Depth
18060	4 Zone with priority	10.75"	7"	2.75"
18062	6 Zone with priority	12.25"	8"	3"

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Pump and Boiler Relay

The ViEGA LLC Pump and Boiler Relay provides power to circulators and can enable a boiler as well. Control may be provided from a ViEGA Zone Control or Thermostat.

Features

- External Indicator Lights
- Universal Replaceability
- Snap-in PC Board
- Simple Wiring
- Sealed Relays
- Fuse Protected Outputs
- 100% Factory Tested
- Contractor Friendly PC Board Layout
- Universal Zone Control and Thermostat Compatibility
- UL Approved

Specifications

Transformer Voltage: 120 VAC input

Input Voltage: 120/60/1 VAC

Maximum Combined Load: 12 Amps

Relay Connections: 1/3 hp (6FLA, 36 LRA) @ 120 vac

Thermostat Connection: 24 VAC Class 2 Output

Installation

Wiring connections must be made in accordance with all applicable electrical codes. Use copper wire only. Failure to follow this instruction can result in personal injury or death and/or property damage. 12-18 gauge wire recommended for all 120 VAC connections with 9 in. lbs. max torque, 14-22 gauge wire for thermostat connections with 9 in. lbs. max torque. 120VAC wiring must have a minimum temperature rating of 75°C.

Jumper placement:

The jumper is factory installed between terminals H and 3 to switch power on terminals 4 n/o and 4 n/c.

Dimensions

Width 4 $\frac{7}{8}$ "

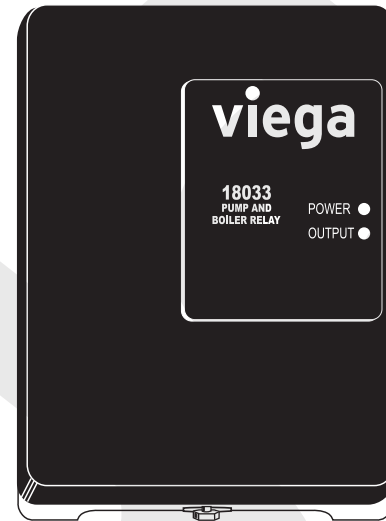
Height 5 $\frac{5}{8}$ "

Depth 2 $\frac{3}{8}$ "

Troubleshooting

The external indicator lights show full functionality of the Pump and Boiler Relay. The green light should always be on, indicating that power is connected. If the green light is out check the power connections at terminals N and H.

The red light shows a call for heat, indicating that power is being supplied to the circulator (and/or a boiler enable signal is provided).



If the Zone Control or thermostat is calling for heat but the red light is out, check the thermostat wiring. If the red light is on but the circulator is not running, check the circulator connection to the relay.

Terminal Identification:

TT	Zone Control or thermostat connection
24v COM	Common side of 24V transformer, for 3-wire thermostats
N	Neutral wire of power input (120 V)
H	Hot wire of power input (120 V)
3	Common terminal for 4 n/o and 4 n/c
4 n/o	Normally open terminal
4 n/c	Normally closed terminal
6 n/o	Normally open terminal
6 n/c	Normally closed terminal
5	Common terminal for 6 n/o and 6 n/c

Submittal Package



Non-Programmable Heat/Cool Thermostat

The Viega non-programmable heat/cool thermostat is easy to install, easy to wire and easy to program. It can be used for single stage heating and cooling projects, making it ideal for many different applications.

Technical data

- The display range of temperature. . . . 41°F to 95°F
(5°C to 35°C)
- The control range of temperature. . . . 44°F to 90°F
(7°C to 32°C)
- Loading Rate. 1 amp per terminal,
1.5 amp maximum all
terminals combined
- Wiring Specifications. Use shielded or non-
shielded 18-22 gauge
thermostat wire.
- Display accuracy. ±1°F
- Swing (cycle rate or differential) Heating is adjustable
from 0.2°F to 2.0°F
Cooling is adjustable
from 0.2°F to 2.0°F
- Power source 18 to 30 VAC, NEC
Class II, 50/60 Hz for
hardwire (common wire)
3 wire, 3 wire with
battery backup, 2 wire
with battery, Battery
power from 2 AA
alkaline batteries
- Operating ambient. 32°F to +105°F
(0°C to +41°C)
- Operating humidity 90% non-condensing
maximum
- Dimensions of thermostat 4.7"W x 4.4"H x 0.8"D



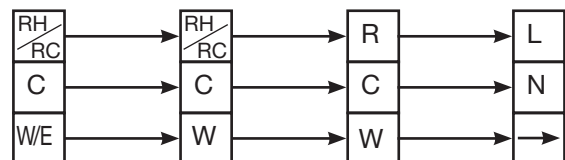
Part Number 15116

Thermostat applications guide

Description	
Gas or Oil Heat	Yes
Electric Furnace	Yes
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (with Aux. or Emergency Heat)	No
Multi-stage Systems	No
Heat Only Systems	Yes
Cool Only Systems	Yes

Viega thermostat terminal conversion

Thermostat 15118	Thermostats 15116 15117	Zone Control 18060 18062	Zone Control 18032 Thermostat 18029 Digital Thermostat 18050
RH/RC	RH/RC	R	L
C	C	C	N
WE	W	W	



Submittal Package

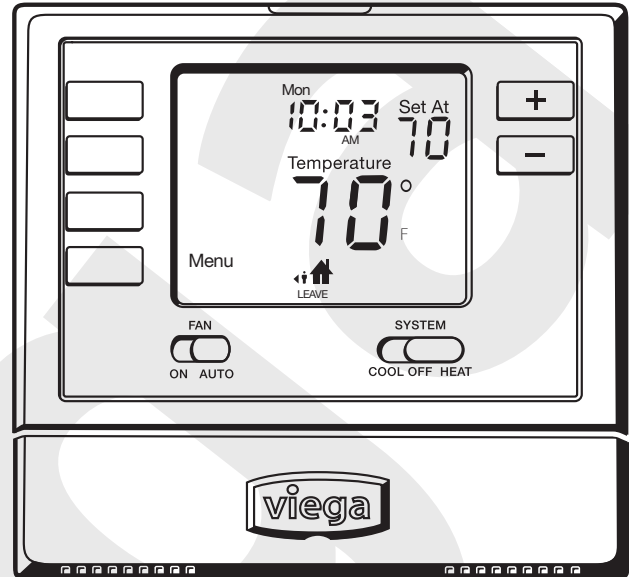


Programmable Heat/Cool Thermostat

The Viega programmable heat/cool thermostat is easy to install, easy to wire and easy to program. It can be used for single stage heating and cooling applications, making it ideal for many different applications.

Technical data

- The display range of temperature. . . . 41°F to 95°F
(5°C to 35°C)
- The control range of temperature. . . . 44°F to 90°F
(7°C to 32°C)
- Loading Rate. 1 amp per terminal,
1.5 amp maximum all
terminals combined
- Wiring Specifications. Use shielded or non-
shielded 18-22 gauge
thermostat wire.
- Display accuracy. ±1°F
- Swing (cycle rate or differential) Heating is adjustable
from 0.2°F to 2.0°F
Cooling is adjustable
from 0.2°F to 2.0°F
- Power source 18 to 30 VAC, NEC
Class II, 50/60 Hz for
hardwire (common wire)
3 wire, 3 wire with
battery backup, 2 wire
with battery, Battery
power from 2 AA
alkaline batteries
- Operating ambient. 32°F to +105°F
(0°C to +41°C)
- Operating humidity 90% non-condensing
maximum
- Dimensions of thermostat 4.7"W x 4.4"H x 0.8"D



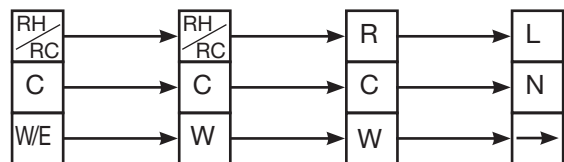
Part Number 15117

Thermostat applications guide

Description	
Gas or Oil Heat	Yes
Electric Furnace	Yes
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (with Aux. or Emergency Heat)	No
Multi-stage Systems	No
Heat Only Systems	Yes
Cool Only Systems	Yes

Viega thermostat terminal conversion

Thermostat	Thermostats	Zone Control	Zone Control
15118	15116	18060	18032
	15117	18062	Thermostat
		18050	18029



Submittal Package

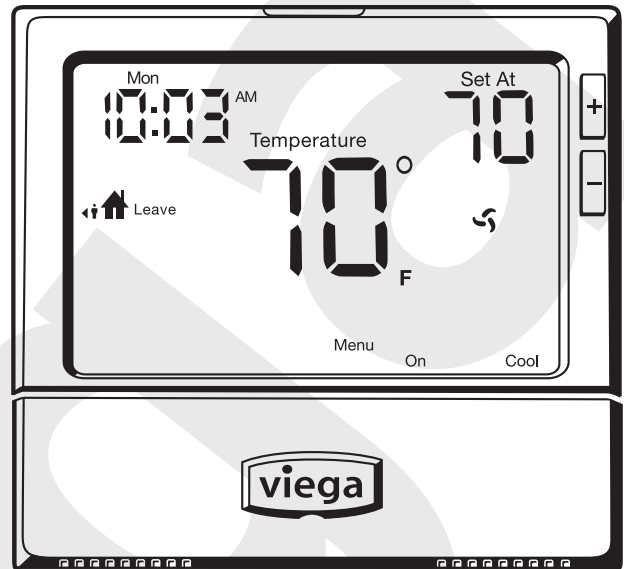


Multifunctional Heat/Cool Thermostat

The Viega multifunctional heat/cool thermostat is easy to install, easy to wire and easy to program. It can be used for three stages of heating and two stages of cooling, making it ideal for many applications.

Technical data

- The display range of temperature. . . . 41°F to 95°F
(5°C to 35°C)
- The control range of temperature. . . . 44°F to 90°F
(7°C to 32°C)
- Loading Rate. 1 amp per terminal,
1.5 amp maximum all
terminals combined
- Wiring Specifications. Use shielded or non-
shielded 18-22 gauge
thermostat wire.
- Display accuracy. ±1°F
- Swing (cycle rate or differential) Heating is adjustable
from 0.2°F to 2.0°F
Cooling is adjustable
from 0.2°F to 2.0°F
- Power source 18 to 30 VAC, NEC
Class II, 50/60 Hz for
hardwire (common wire)
3 wire, 3 wire with
battery backup, 2 wire
with battery, Battery
power from 2 AA
alkaline batteries
- Operating ambient. 32°F to +105°F
(0°C to +41°C)
- Operating humidity 90% non-condensing
maximum
- Dimensions of thermostat. 4.7"W x 4.4"H x 1.1"D



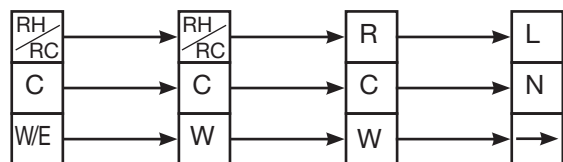
Part Number 15118

Thermostat applications guide

Description	
Gas or Oil Heat	Yes
Electric Furnace	Yes
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (with Aux. or Emergency Heat)	Yes
Multi-stage Systems	Yes
Heat Only Systems	Yes
Cool Only Systems	Yes

Viega thermostat terminal conversion

Thermostat	Thermostats	Zone Control	Zone Control
15118	15116	18060	18032
	15117	18062	Thermostat
		18050	18029



Submittal Package

viega



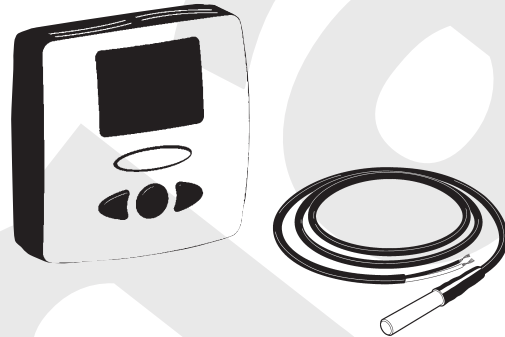
Digital Thermostat

Applications

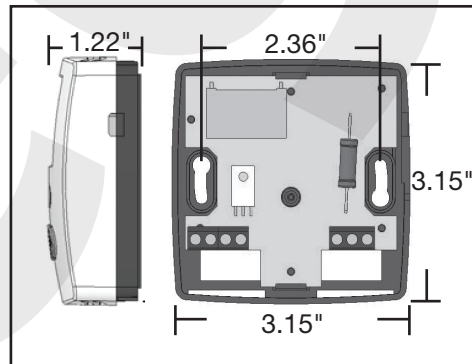
The Digital Thermostat is ideal for individual room temperature control. A user-friendly, three-button design allows for easy change of settings. Thermostat can sense either room temperature, floor temperature or both. Adjustable temperature setback function allows for energy savings. Thermostat can control up to four powerheads directly or can be connected to a zone / circulator control box. With optional floor sensor, thermostat provides floor high or low limit function for floor protection or floor warming.

Specifications

Control: Microprocessor control
Accuracy: 0.2°F
Set temperature range: 41°F - 99°F, 0.5°F increments
Environment range: 32°F - 122°F
Power supply: 24 V +/- 10% 60Hz 15 W max
Output: TRIAC output 24 VAC, 15 W max
Optional floor sensor: NTC thermistor (10K Ohms), 10' cable
Floor limiting range: 50°F - 104°F
Electrical Protection: Class II - IP30



Digital Thermostat stock code # 18050
Floor Sensor stock code # 18051



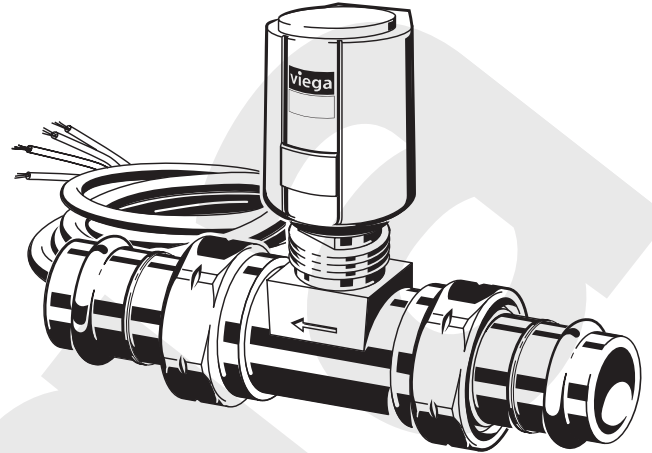
Resistance Chart for Floor Sensor	
Temperature	Resistance (kΩ)
50°F	~ 19.5kΩ
59°F	~ 15.5kΩ
68°F	~ 12.5kΩ
77°F	~ 10kΩ
86°F	~ 8kΩ

Submittal Package

viega

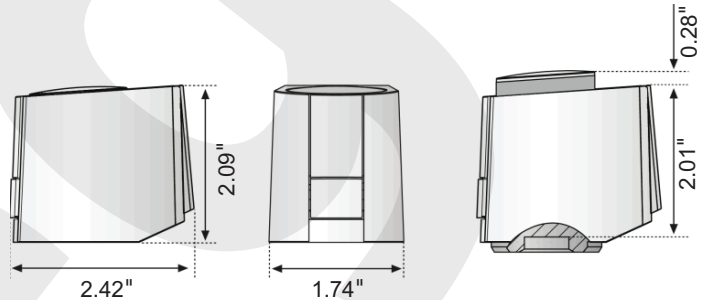
Zone Valve

Viega zone valves are used to control the flow of fluid within a hydronic heating or cooling system. They do so by opening when there is a thermostat demand, and closing when the demand has been met. Viega zone valves are available in 3/4" and 1", with three different connection types, ProPress x ProPress, ProPress x PEX Press and solder x PEX Press.



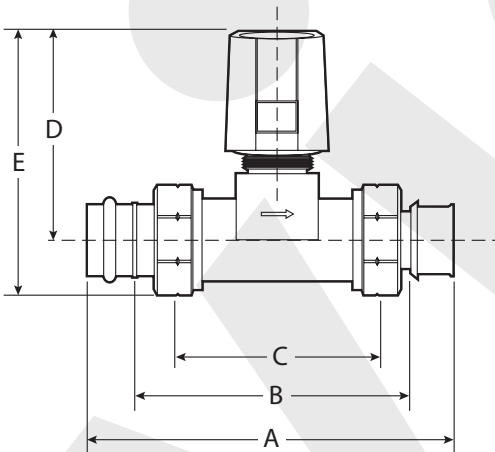
Technical Data:

Voltage:	24 Volts
Max inrush current:	300 mA, for 2 minutes
Operating power:	1w
Closing/opening time:	Approximately 3 minutes
Max pressure differential:	50 psi
Cv rating 3/4" valve:	4.0
Cv rating 1" valve:	8.5
Fluid temperature:	32°-212°F
Stem travel:	4mm
Actuating force:	21 lbs
Body material:	Low zinc bronze, alloy C84400



Dimensions

Installation Height



Zone Valve Dimensions

Part Number	Description	A	B	C	D	E
17230	3/4" Solder x PEX Press	4.70"	3.25"	2.50"	3.60"	4.25"
17231	1" Solder x PEX Press	6.25"	4.60"	3.60"	3.75"	4.60"
17232	3/4" PP X PP	5.60"	3.80"	2.50"	3.60"	4.25"
17233	1" PP X PP	6.86"	5.20"	3.60"	3.75"	4.60"
17234	3/4" PP X PEX Press	5.10"	3.80"	2.50"	3.60"	4.25"
17235	1" PP X PEX Press	6.62"	5.28"	3.60"	3.75"	4.60"

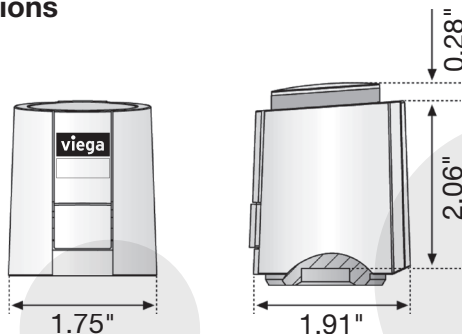
Submittal Package

viEGA

Powerhead for Stainless Manifold (24V 2-wire)



Dimensions



Applications

Powerhead part number 15070 is a two position actuator which mounts on the return valve of the stainless manifold. A 24 V signal actuates the head to open the valve. The position of the valve is normally closed.

The powerhead may be used on both 1¼" stainless shut off/balancing and stainless shut off/ balancing/flow meter manifolds.

Features

- Light gray in color, ViEGA logo on front
- Normally closed
- Water resistant
- All around function indicator
- 360° installation position
- Snap-on installation
- Valve adapter concept
- Initially-Open function
- May be installed in any position

Specifications

- Voltage: 24V
- Max Inrush Current: 300 mA for 2 minutes maximum
- Operating Power: 1W
- Closing/Opening Time: Approximately 3 minutes
- Stroke: 4 mm
- Actuating Force: 21lbs.
- Weight: 3.5 oz.
- Fluid Temperature: 32°F - 212°F
- Cable Length: 3.28'

ON/OFF Indicator

The powerhead has a cylinder on the top that will raise and expose blue when the valve is open. You will be unable to see any blue when the valve is in its normal closed position.

Initially-Open Function

The powerhead is delivered in the open position. This allows for easier installations and also allows for the installer to pressure and flow test each circuit before connecting the power.

This function is disengaged automatically after the first 6 minutes of powered use.

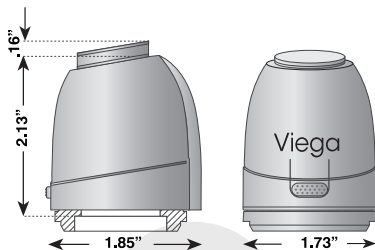
Submittal Package

viega

Powerhead for Stainless Manifold (24V 2-wire) (Previous Version)



Dimensions



Applications

The Powerhead 15061 is a two position actuator for zone control which mounts on the return valve of the Stainless Manifold. A 24 V signal actuates the head to open the valve. The position of the valve is normally closed.

The Powerhead may be used on both 1-1/4" Stainless Shut Off/Balancing and Stainless Shut Off/ Balancing/ Flow Meter Manifolds. These Powerheads will not fit 1" Brass Manifolds.

Features

- White in color, Viega logo on front
- Normally closed
- Water resistant
- All around function indicator
- 360° installation position
- Snap-on installation
- Valve adapter concept
- Initially-Open function
- 3.2 ft. connecting wire

Specifications

- Voltage: 24V
- Max Inrush Current: 250 mA for 2 minutes maximum
- Operating Current: 75 mA
- Closing/Opening Time: Approximately 3 minutes
- Stroke: 4 mm
- Actuating Force: 21lbs.
- Weight: 3.5 oz.
- Fluid Temperature: 32°F - 212°F

Installation

Remove plastic cap from return valve.

1. Thread on valve adapter hand tight. Do not use wrench or pliers.
2. Once valve adapter is screwed on, simply snap the powerhead on to the valve adapter. No tools required

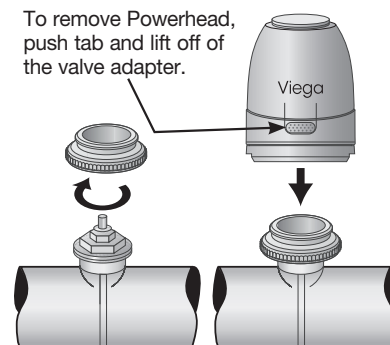
ON/OFF Indicator

The Powerhead for the Stainless Manifold has a cylinder on the top that will raise and expose blue when the valve is open. You will be unable to see any blue when the valve is in its normal closed position.

Initially-Open Function

The Powerhead is delivered in the open position. This allows for easier installations and also allows for the installer to pressure and flow test each circuit before connecting the power.

This function is disengaged automatically after the first 6 minutes of powered use.



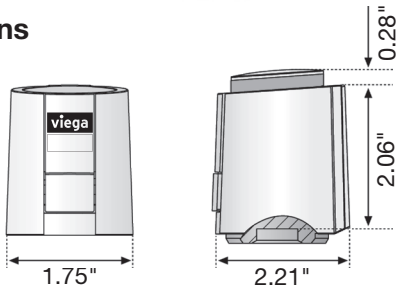
Submittal Package

viega

Powerhead for Stainless Manifold (24V 4-wire)



Dimensions



Applications

Powerhead part number 15069 is a 4-wire two position actuator which mounts on the return valve of the stainless manifold. A 24 VAC signal actuates the head to open the valve. The position of the valve is normally closed. Upon opening the valve, the integral SPST contacts close.

The powerhead may be used on both 1 1/4" stainless shut off/ balancing and stainless shut off/ balancing/flow meter manifolds.

Typical applications include circulator control when used with Viega Zone Control 18060 or 18062, boiler heat call (T-T) or control of auxiliary devices requiring end-switch contact closure.

Features

- Integrated micro switch with floating contact
- Light gray in color, Viega logo on front
- Normally closed valve position
- Water resistant
- All around function indicator
- 360° installation position
- Snap-on installation
- Valve adapter concept
- Initially-Open function
- Normally open end switch
- May be installed in any position

Specifications

- Voltage: 24VAC
- Max Inrush Current: 300 mA for 2 minutes maximum
- Operating Power: 1W
- Closing/Opening Time: Approximately 3 minutes
- Stroke: 4 mm
- Actuating Force: 21lbs.
- Weight: 5.5 oz.
- Fluid Temperature: 32°F - 212°F
- End Switch: Normally Open
- Micro Switch: 24VAC/0.5A
- Switching Point: 2mm

ON/OFF Indicator

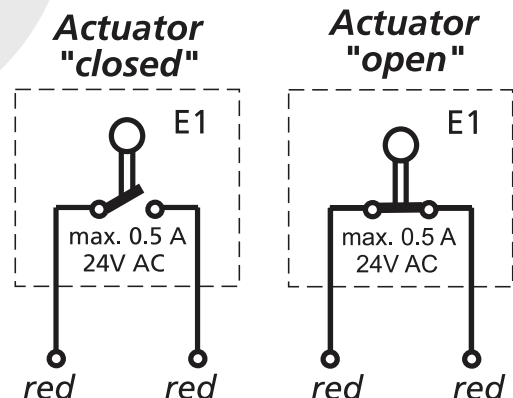
The powerhead has a cylinder on the top that will raise and expose blue when the valve is open. You will be unable to see any blue when the valve is in its normal closed position.

Initially-Open Function

The powerhead is delivered in the open position. This allows for easier installations and also allows for the installer to pressure and flow test each circuit before connecting the power.

This function is disengaged automatically after the first 6 minutes of powered use.

End Switch State



Submittal Package

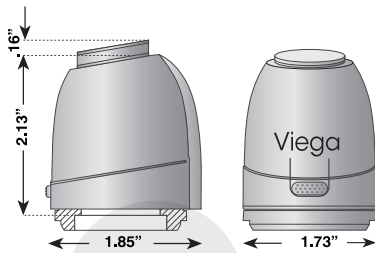


Powerhead for Stainless Manifold (24V 4-wire) (Previous Version)



Stock Code #15064

Dimensions



Applications

The Powerhead is a 4-wire two position actuator for zone control which mounts on the return valve of the Stainless Manifold. A 24 VAC signal actuates the head to open the valve. The position of the valve is normally closed. Upon opening the valve, the integral SPST contacts close.

The Powerhead may be used on both 1-1/4" Stainless Shut Off/Balancing and Stainless Shut Off/ Balancing/Flow Meter Manifolds. These Powerheads will not fit 1" Brass Manifolds.

Typical applications include circulator control when used with Viega Zone Control 18060 or 18062, boiler heat call (T-T) or control of auxiliary devices requiring end-switch contact closure.

Features

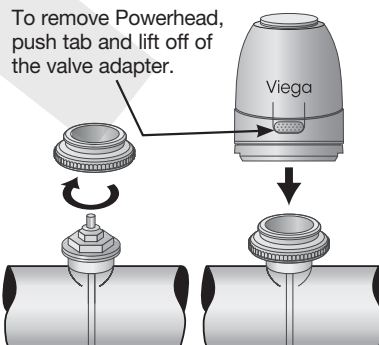
- Integrated micro switch with floating contact
- White in color, Viega logo on front
- Normally closed valve position
- Water resistant
- All around function indicator
- 360° installation position
- Snap-on installation
- Valve adapter concept
- Initially-Open function
- 3.2 ft. connecting wire
- Normally open end switch

Specifications

- Voltage: 24VAC
- Max Inrush Current: 250 mA for 2 minutes maximum
- Operating Current: 75 mA
- Closing/Opening Time: Approximately 3 minutes
- Stroke: 4 mm
- Actuating Force: 21lbs.
- Weight: 5.5 oz.
- Fluid Temperature: 32°F - 212°F
- End Switch: Normally Open
- Micro Switch: 24VAC/0.5A
- Switching Point: 2mm

Installation

- Remove plastic cap from return valve.
1. Thread on valve adapter hand tight. Do not use wrench or pliers.
 2. Once valve adapter is screwed on, simply snap the powerhead on to the valve adapter. No tools required.



ON/OFF Indicator

The Powerhead for the Stainless Manifold has a cylinder on the top that will raise and expose blue when the valve is open. You will be unable to see any blue when the valve is in its normal closed position.

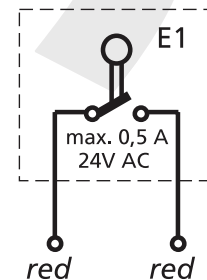
Initially-Open Function

The Powerhead is delivered in the open position. This allows for easier installations and also allows for the installer to pressure and flow test each circuit before connecting the power.

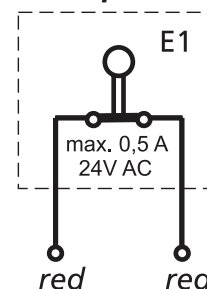
This function is disengaged automatically after the first 6 minutes of powered use.

End Switch State

Actuator "closed"



Actuator "open"



Submittal Package

viega

Powerhead for 1¼" Stainless Manifold (0-10V)

The Viega 0-10V powerhead is a thermo-electric powerhead that mounts on the return valve of a Viega 1¼" stainless manifold. A 24-volt signal powers the unit open while controlled by a 0-10V DC signal, usually from either a thermostat or a central DDC building management system. This powerhead is compatible with 1¼" stainless manifolds of either shutoff/balancing or shutoff/balancing flow meter types.

Extending the connecting cable

The powerhead cable may be extended, the length is dependent on the number of powerheads and the gauge of the wire used. The chart below lists recommendations for extending the powerhead cable.

Length powerhead can be extended (ft)			
# of 0-10V Powerheads	20 AWG	18 AWG	16 AWG
1	134'	200'	269'
2	67'	100'	134'
3	44'	67'	89'
4	33'	50'	67'
5	26'	40'	53'
6	22'	33'	44'

NOTE: If your project requires something outside of what is suggested above please use the information below for your calculations.

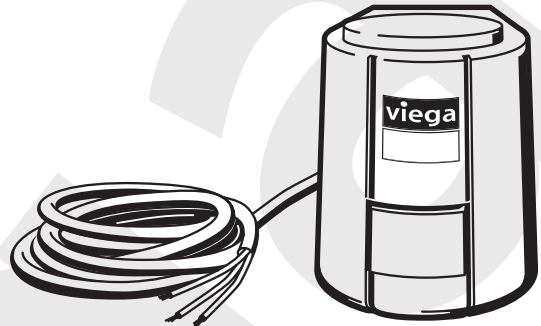
$$L = C \times A/N$$

L= Maximum cable run length

C= Constant (269)

A= Conductor cross section (from chart below)

N= Number of powerheads



Part Number 15068

Conductor Cross Section (MM)	Substitute this American Wire Gauge
0.5	20
0.75	18
1.0	16
1.5	14
2.5	12

Transformer

The table below shows how many 0-10V powerheads can be connected to each Viega transformer.

Transformer sizing

Part Number	Rating	Number of powerheads per transformer
18008	40 VA	6
18020	75 VA	12

NOTE: The table above is figured based on 6 W per powerhead.

Submittal Package

viega

Advanced Snow Melt Control

The Viega Advanced Snow Melt Control provides full automatic snow and ice-detection in open air spaces such as driveways, parking areas, ramps, stairs, and flat roofs. The control operates a variable speed injection pump or a floating action actuator to provide both boiler and slab protection. Viega's Advanced Snow Melt control is equipped with one Snow/Ice Sensor which measures the slab temperature, sensor surface temperature and sensor surface moisture level. The control has a Liquid Crystal Display (LCD) to view system status and operating information.

Functions include:

- Slab protection for the snow melting system
- Remote display and adjustment capabilities
- Boiler protection
- Test sequence to ensure proper component operation
- Manual override
- Pump exercising
- Warm Weather Shut Down (WWSD)
- Viscosity compensation
- Cold Weather Cut Out (CWCO)
- CSA C US Certified (approved to applicable UL standards)

Technical Information

Control

Microprocessor PID control; this is not a safety (limit) control

Packaged Weight

3.1 lb. (1400 g), Enclosure A, black PVC plastic

Dimensions

6⁵/₈" H x 7⁹/₁₆" W x 2¹³/₁₆" D (170 x 193 x 72 mm)

Approvals

CSA C US, meets ICES & FCC regulations for EMI/RFI

Ambient Conditions

Indoor use only, 32 to 104°F (0 to 40°C), <90% RH non-condensing

Power Supply

115 V ± 10% 50/60 Hz 600 VA

Relays

230 V(AC) 5 A 8 1/3 hp, pilot duty 240 VA

Variable Pump

230 V(AC) 2.4 A 1/6 hp, fuse T2.5 A 250 VA

Demand

20 to 260 V(AC) 2 VA

Sensors

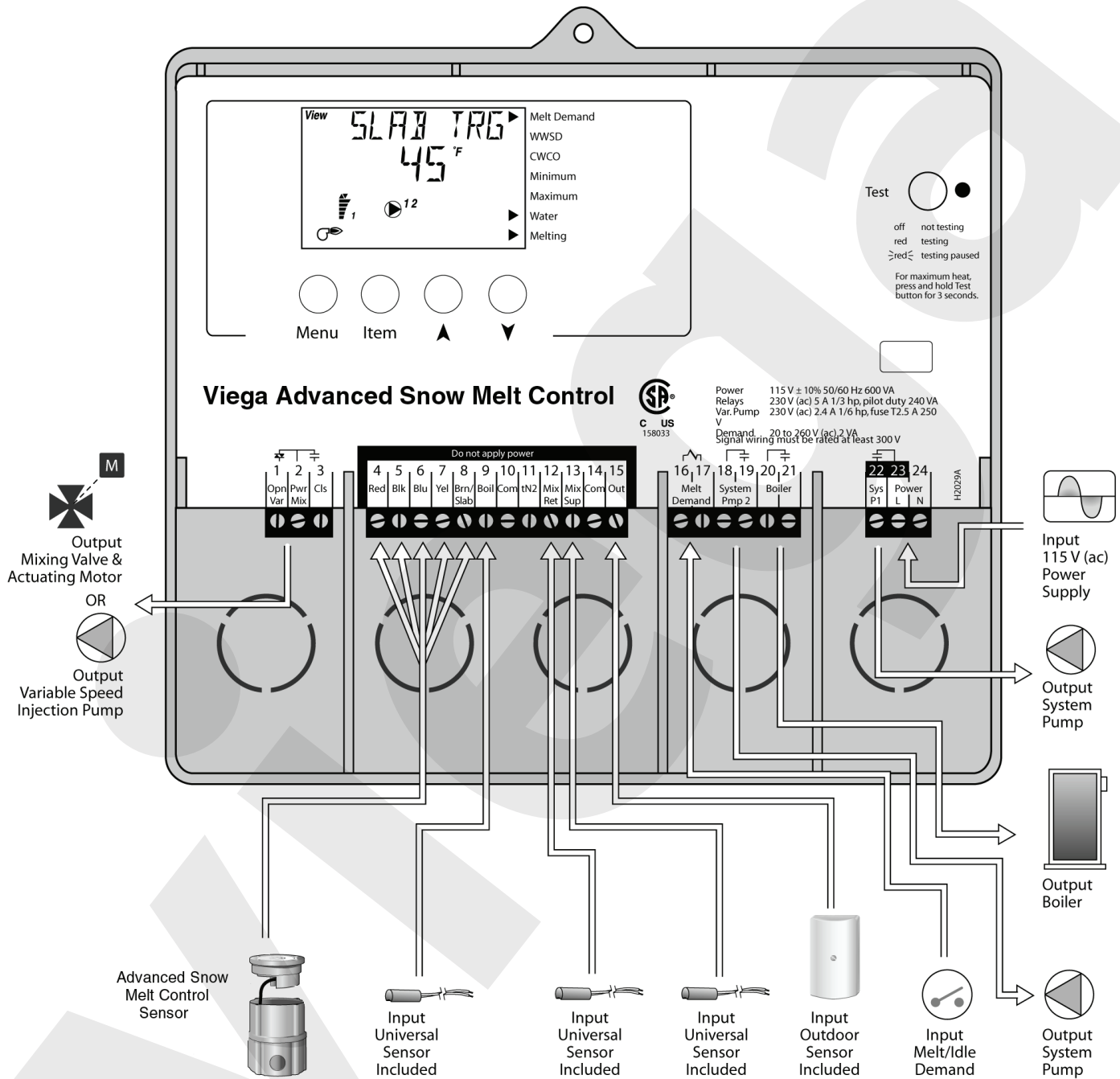
NTC thermistor, 10k Ω 77°F (25°C ± 0.2°C) β=3892

Outdoor Sensor (Viega #16017)

Universal Sensor (Viega #16018)

Advanced Snow Melt Control Sensor (Viega #17016) and Housing (Viega #17017)

Submittal Package



Submittal Package

viega

Advanced Snow Melt Control Sensor

Electrical Connections

The Snow Melt Sensor cable has 5 wires: Red, Black, Blue, Yellow, and Brown. The wires connect to the respective Red, Black, Blue, Yellow and Brown terminals on the Advanced Snow Melt Control.

Test the Sensor

When performing these tests:

- The sensor head should be installed in the slab.
- The five cable wires at the control should be disconnected (unplug terminal plug).
- Use a good quality electrical testing meter with an ohm scale range of 0 to 2,000,000 Ohms. The sensor has two 10k Ohm thermistors. One reads slab surface temperature, and the other checks sensor heater temperature. If the sensor has been disconnected from the control for an hour or more, the readings for both thermistors should be very close.
- Using the ohmmeter and standard testing practices, measure the resistance between: (a) the yellow and black sensor wires (sensor temperature), and (b) the brown and black sensor wires (slab temperature). The table lists the expected resistance values at various sensor temperatures.
- Measure the resistance between the blue and black wires. When the sensor surface is dry, the reading should be 2,000,000 Ohms. When the sensor surface is wet it should be between 10,000 and 300,000 Ohms.
- Measure the resistance between the red and black wires of the heating element. This reading should be close to 50 Ohms.

Temperature		Resistance	Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω	°F	°C	Ω
-49	-45	472,000	5	-15	72,900	59	15	15,700
-40	-40	337,000	14	-10	55,300	68	20	12,500
-31	-35	243,000	23	-5	42,300	77	25	10,000
-22	-30	177,000	32	0	32,600	86	30	8,060
-13	-25	130,000	41	5	25,400	95	35	6,530
-4	-20	97,000	50	10	19,900	104	40	5,330

Submittal Package

viega

Basic Digital Setpoint Control II

Applications

The Viega Basic Digital Setpoint Control II is a general purpose temperature control with a wide range of applications in the HVAC industry. This control provides two isolated SPDT relay contacts. The two relays are controlled by a watertight sensor. Included with the Basic Digital Setpoint Control. This control is commonly used as basic heating and/or cooling system control for commercial and residential slab application.

Features

- Setpoint Control for Heating and Cooling
- Simple installation and programming
- Large digital LCD display
- Reliable, economical
- Two relay outputs with individual Setpoint capability
- Watertight Sensor included

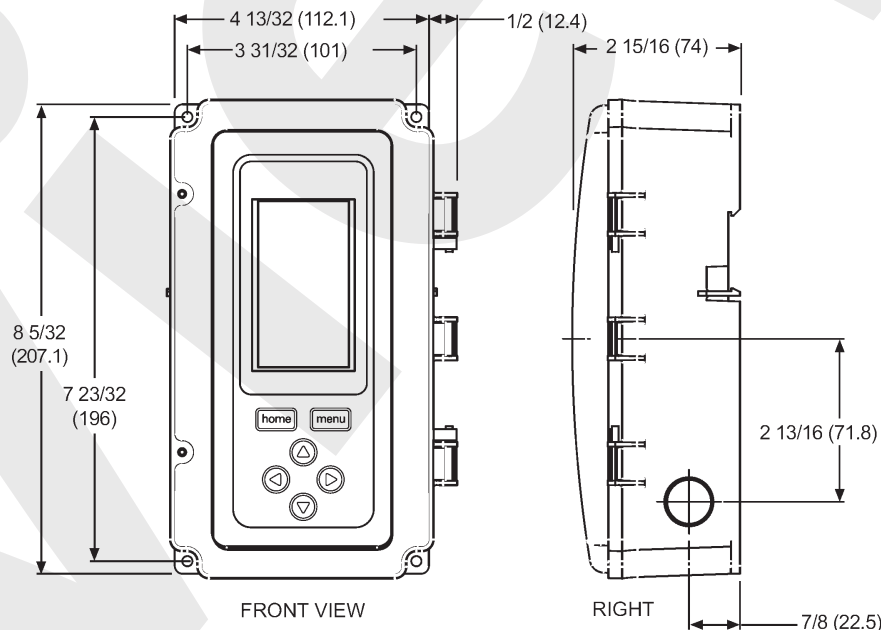
Specifications

*Digital Setpoint Control II
with watertight sensor (17029)
Watertight Sensor (17031)*

Digital Setpoint Control II

Input: 24V, 120V, 240V
Output: 2 SPDT dry contacts,
1/2 hp @ 120 VAC
9.8 FLA, 58.8 LRA
Sensor: 6' Resistor, extendable up 100'
Setpoint: -40 - 248°F range
Differential: 1 - 150°F range
Accuracy: +/- 1°F
Environment: -40 - 140°F, 5 - 95% rH,
non-condensing
Power draw: 8 VA
Dimensions: 4.91 x 8.16 x 2.37 in.

Digital Setpoint Control II



Submittal Package

viega

3-Speed Circulator Pumps (Low, High Head)

Applications

Viega® offers two 3-speed, wet rotor, direct drive in-line circulator pumps designed for residential and light commercial applications. These circulators are quiet and maintenance free, making them ideal to use in primary and / or secondary loop piping.

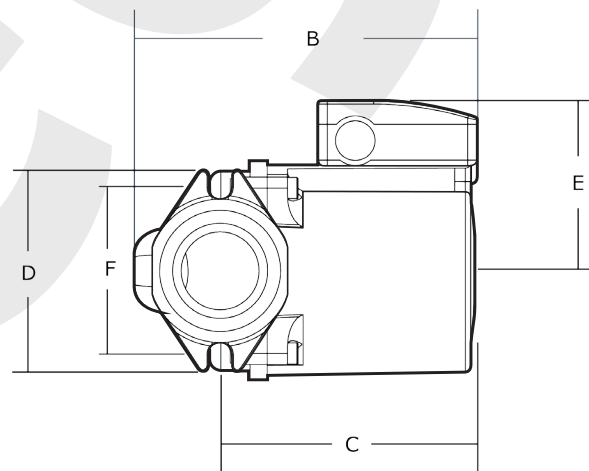
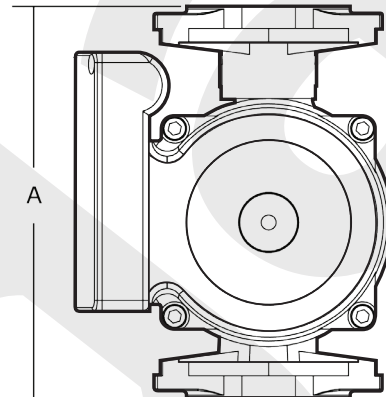
Specifications

Low Head

Flow range: 0 - 17.5 US GPM
 Head range: 0 - 19 feet
 Voltage: 115 Volts, 60 Hz
 Motor: 2 pole, single phase
 Maximum fluid temperature: 230°F
 Minimum fluid temperature: 36°F
 Maximum working pressure: 145 psi
 Maximum glycol mix: 50%

High Head

Flow range: 0 - 34 US GPM
 Head range: 0 - 30 feet
 Voltage: 115 Volts, 60 Hz
 Motor: 2 pole, single phase
 Maximum fluid temperature: 230°F
 Minimum fluid temperature: 36°F
 Maximum working pressure: 145 psi
 Maximum glycol mix: 50%



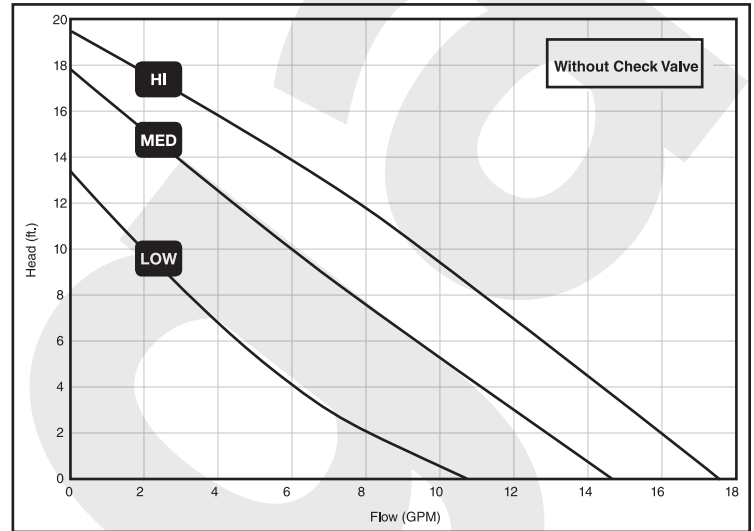
Part Number	A	B	C	D	E	F
Low Head 12126	6½"	5¼"	4"	4 ³ / ₁₆ "	3"	3 ⁵ / ₃₂ "
High Head 12127	6½"	6"	4 ⁷ / ₈ "	3 ⁷ / ₈ "	3 ⁷ / ₁₆ "	3 ⁵ / ₃₂ "

Submittal Package

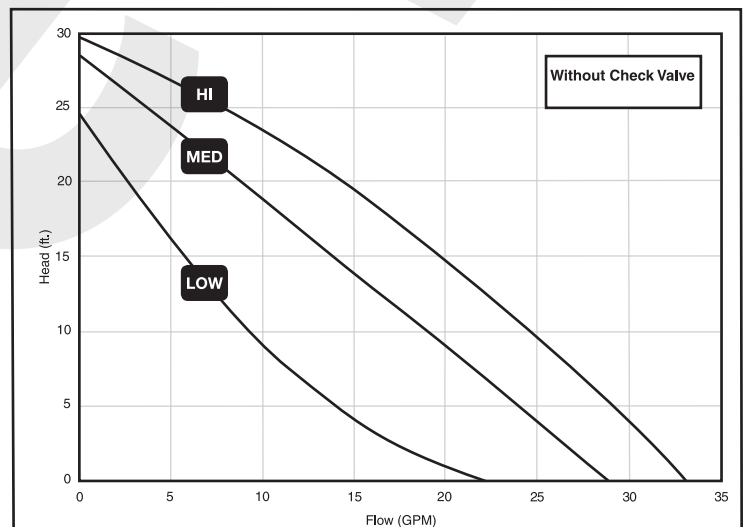
viega



Part Number	Speed	Amps	Watts	HP
12126	HI	0.75	87	1/25
	MED	0.66	80	1/25
	LOW	0.55	60	1/25



Part Number	Speed	Amps	Watts	HP
12127	HI	1.8	197	1/6
	MED	1.5	179	1/6
	LOW	1.3	150	1/6



Submittal Package

viega

Spring Check Valves

Applications

The Viega spring check valves can be used to eliminate gravity circulation and backflow. Its compact design makes installation easy.

Features

- Vertical or horizontal mounting
- Extremely compact
- Low pressure drop

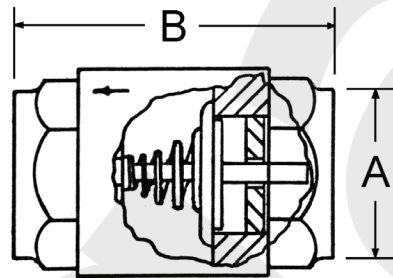
Specifications

- Solid brass construction
- Internal stainless steel spring
- Internal high temp plastic disk check
- Max. operating temp: 220°F
- Max. operating pressure: 150 psi
- F NPT Connections

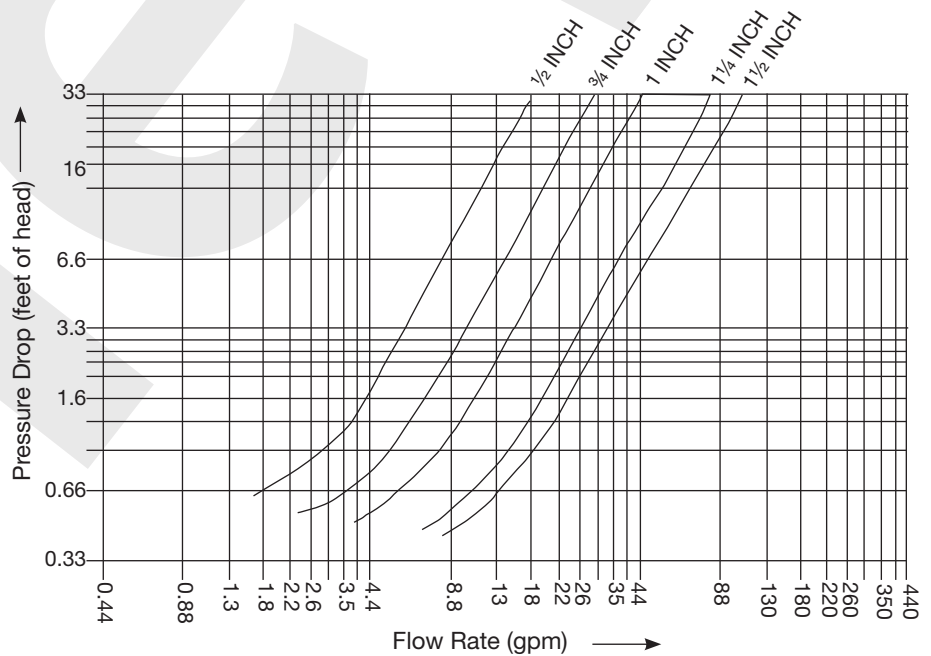
Installation

SP series spring check valves can be installed in any orientation. Both ends have standard F NPT pipe threads. Flow direction is marked on valve body.

Dimensional Information



Part Number	A	B
20201	½" F NPT	1.875"
20202	¾" F NPT	2.125"
20203	1" F NPT	2.25"
20204	1¼" F NPT	2.50"
20205	1½" F NPT	2.75"



Submittal Package



Heat Exchanger

Specifications

Plate Material: 316L Stainless Steel
 Braze Material: Copper
 Max. Working Temp: 350°F
 Min. Working Temp: -320°F
 Max. Working Pressure: 450 psi
 UL Listed

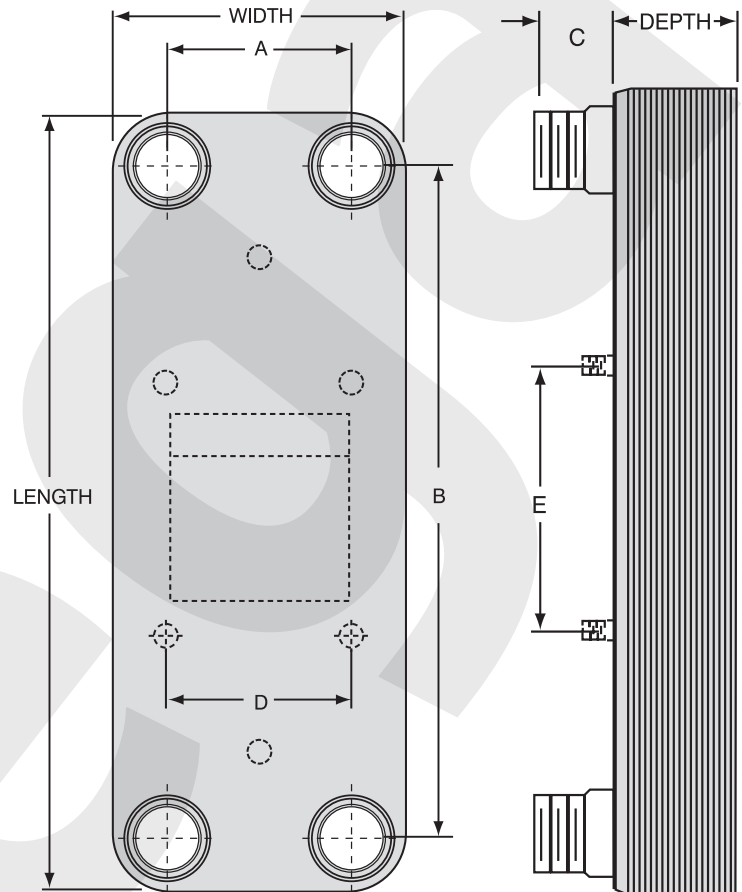
For use in radiant heating and snowmelting.

Heat exchanger may be installed in vertical or horizontal position.

Heat exchanger must be piped in counterflow arrangement.

A water strainer **MUST** be installed in the water inlet circuit unless there is one present as an integral part of the heat source (16-20 mesh minimum, 20-40 mesh recommended).

Water quality should be maintained at a pH of 7.4 (6.5 to 8.0).



For snow melt system, 100°F in - 130°F out (40% Propylene Glycol) connected to boiler, 180°F supply - 150°F return													
Stock Code	Description (width x height, # of plates)	BTU/H	Boiler (Gpm)	Boiler Pressure Drop (psi)	Snow Melt (Gpm)	Snow Melt Pressure Drop (psi)	Connection Type	A	B	C	D	E	Depth
22006	5" x 12", 16 plate	125,000	8.6	2.9	9	3.1	¾" MNPT	2.7"	9.9"	.79"	2.5"	3.5"	1.8"
22007	5" x 12", 36 plate	250,000	17.2	2.2	18.8	2.7	1" MNPT	2.7"	9.9"	.98"	2.5"	3.5"	3.6"
22008	5" x 12", 70 plate	500,000	34.4	2.8	36.1	3.6	1¼" MNPT	2.7"	9.9"	.98"	2.5"	3.5"	6.7"

Submittal Package

viega

Drum and Base Decoiler For ViegaPEX Barrier Tubing Coils

Applications

The Viega drum and base decoiler is designed to handle large ViegaPex barrier tubing coils from 5/16" - 3/4".

The easy to install Decoiler comes shipped in three pieces: A) Base Station, B) Flanges, C) Core

Features and Benefits

- Fits all ViegaPEX Barrier coils, sizes 5/16" - 3/4"
- Designed to handle weight of larger coils
- Minimizes tubing waste when installing multiple circuit jobs
- Easy to use with a sturdy design



Tubing Size	Coil Length
5/16"	4,000'
3/8"	2,400'
1/2"	2,000'
5/8"	1,500'
3/4"	800'
3/4"	1000'

Part Number	Part Description
21310	Drum and Base Decoiler for ViegaPEX Barrier Coils

Submittal Package

viega

Compact Decoiler

Applications

The Compact Decoiler is to be used to distribute PEX tubing with little effort by the installer. This product is to be used only with smaller ViegaPEX Barrier coils (see table 1.1).

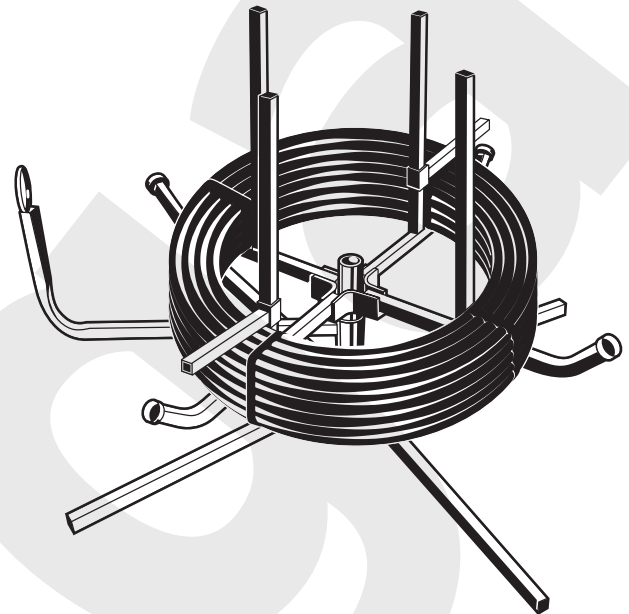
Dimensions

Height = 28 inches
Width = 56 inches
Weight = 34 lbs.

Tubing Compatibility

Tubing Size	Coil Length
5/16"	250 ft.
5/16"	1000 ft.
3/8"	300 ft.
3/8"	1200 ft.
1/2"	250 ft.
1/2"	300 ft.
1/2"	400 ft.
1/2"	500 ft.
1/2"	1000 ft.
1/2"	1200 ft.
5/8"	500 ft.
3/4"	150 ft.
3/4"	300 ft.
3/4"	500 ft.

Table 1.1



Decoiler includes:

- 4 coil I.D. support arms
- 2 retaining arms (4 wingnuts attached)
- Tubing guide arm
- Coil carousel with 4 retracting arms
- Base stand with 4 retracting legs

Submittal Package

viEGA

GeoFusion High Density Polyethylene Socket Heat Fusion Fittings For Water Source Earth-Coupled Heat Pump Systems

Scope

This product specification designates the requirements for GeoFusion high density polyethylene (HDPE) socket heat fusion fittings to be used as connections for Iron Pipe Size outside diameter (IPS-OD) controlled HDPE pipe in $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", and 2" sizes.

Materials

GeoFusion HDPE socket heat fusion fittings are manufactured from a bimodal polyethylene resin PE4710 with a cell classification, PE345564C per ASTM D-3350. This high performance resin exhibits enhanced performance properties including superior Slow Crack Growth (SCG) resistance plus improved tensile strength and modulus.

GeoFusion socket fusion by metallic adapter fittings are manufactured using machined components of brass alloy B360 per ASTM B-16.

Fitting Identification

When identifying a fitting there is a certain order to how the fitting should be read. This is done so that there is consistency in the industry.

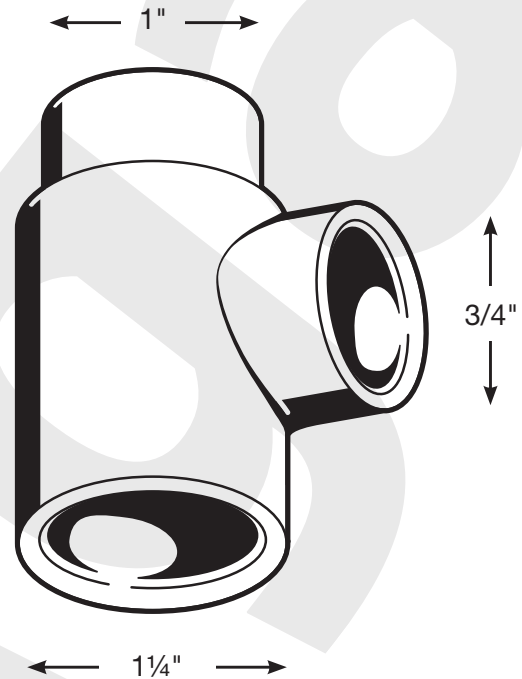
When identifying an elbow:

- Read the larger size first, then the smaller size

If identifying a tee fitting:

- The fitting should be read as: run x run x branch
- If the run of the fitting is different sizes, identify the largest size first. For example, the fitting on the right would be identified as: $1\frac{1}{4}$ " x 1" x $\frac{3}{4}$ "

See illustration above.



Recommended Uses

GeoFusion socket heat fusion fittings are intended and recommended for use in open or closed loop, water source earth coupled heat pump systems installed with IPS-OD, HDPE pipe manufactured to a minimum pressure rating of SDR11 or Schedule 40.

Submittal Package

viega

Handling and Installation

GeoFusion socket heat fusion fittings shall be installed in accordance with industry accepted and approved procedures and applicable code requirements. Prior to installation, GeoFusion socket heat fusion fittings should be stored in a clean, dry location.

Abbreviation	Definition
NPT	National Pipe Thread
MNPT	Male National Pipe Thread
FNPT	Female National Pipe Thread
MNT	Male Nominal Thread
FNT	Female Nominal Thread
IPS	Iron Pipe Size
STUB	Connection end that is the same size as pipe OD, similar to a street fitting
FEM	Hub end, it will accept the male end of a pipe or fitting
SWIVEL	Fitting connection that attaches with a nut that has an integral flat gasket to make the seal

HDPE Fusion Cycle and Handling Time

It is important to follow and understand the instruction that come with your socket fusion tool. The integrity of your system will depend on how well the fitting connections are made. It is very important the heating and handling times be followed. Each tool manufacturer will provide charts outlining heating and handling times. In the absence of a manufacturer's chart the table below can be used as a guide.

HDPE Fusion Cycle Holding Time Chart			
Size	Heating Cycle	Holding Time	Curing Time Before Handling
¾" IPS	8-10 seconds	30 seconds	20 minutes
1" IPS	10-14 seconds	30 seconds	20 minutes
1¼" IPS	12-15 seconds	30 seconds	20 minutes
1½" IPS	15-18 seconds	40 seconds	20 minutes
2" IPS	18-22 seconds	40 seconds	30 minutes

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