

Diverting Valve

Three-Way Diverting Valves can be used for temperature control in many heating and snowmelting applications.

Features

- Includes solder tailpieces (1-1/4" and 1-1/2" models use same valve body with different tailpieces)
- Pre-installed high limit kit
- Compatible with most Viega actuators
 Three Position 18003

 Proportional Acuator 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)

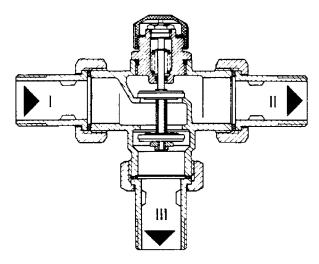
Max differential pressure (tight shut-off on both end positions of valve discs):

3/4" 10.9 psi (75 kPa) 1" 7.3 psi (50 kPa) 1-1/4" 2.9 psi (20 kPa) 1-1/2" 2.9 psi (20 kPa)

Operations

Diverting Valves have one entry port and two exit ports (see diagram to the right). Depending upon the position of the valve stem, flow is diverted from one exit port to the other.

Valve Cross Section



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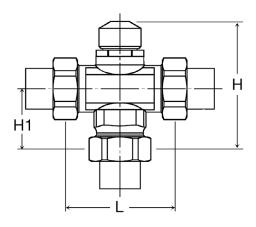
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Pressure Drop / Dimensions

Pressure drop values and dimensions for Viega diverting valves may be determined from the chart below. 1-1/4" and 1-1/2" models share the same valve body, so the pressure drop for these models is the same.

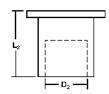


Stock Code	Size	Type	L (in)	H (in)	H1 (in)	Weight (lbs)	Cv Rating	Flow (gpm)	Heat Capacity (BTU/H)	Pressure Drop (psi)	Pressure Drop (ft of head)
20001	3/4"	Solder	3.15	3.94	1.85	2.2	5.3	5 6	50,000 60,000	0.9 1.3	2.0 2.9
20002	1"	Solder	3.54	4.06	1.97	3	7.6	7 9	70,000 90,000	0.8 1.4	2.0 3.2
20003	1-1/4"	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	1-1/2"	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

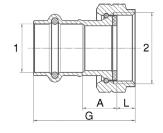
Tailpiece Dimensions

Soldered Tailpiece



Size	D ₂ (in)	L2 (in)
3/4"	0.875	0.91
1"	1.125	1.18
1-1/4"	1.375	1.57
1-1/2"	1.625	1.26

ProPress Tailpiece



Stock Code	Size	A (in)	L (in)	G (in)
	1 2			
77764	1" x 1-1/4" BSP	0.72	0.41	2.04

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Make - Up Water

Draw Off (Purge

Stalnless Manlfold w/

Circulator

Spring check

Mixing Station

Diaphram Type Expansion Tank

Piping Schematic of Basic Heating Control with Mixing Station and 3 Manifolds in Parallel

NOTES: Piping

Primary Loop Pump (P1)

- This drawing shows system piping concept only. Installer is responsible for all equipment & detailing required by local codes
- Size header piping for maximum flow velocity of 2 ft. / sec.

- Install isolating flanges or isolating valves on all circulators.
- Install purging valve(s) on all circuits.
- Set differential pressure bypass valve to gelia r οι αιδαιραμίου συστείτ with all components may be required depending on control strategy (i.e. constant circulation). Differential pressure bypass valve prevents flow noise under partial load conditions (some zone valves closed) Set differential pressure bypass valve to delta P of distribution system with all zones open + 1 psi
 - All closely spaced tees shall be within 4 pipe diameter center to center spacing Install a minimum of 12 diameters of straight pipe upstream of all circulators and check valves All other piping should be sized for a maximum flow velocity of 4 ft. / sec Install minimum of 6 pipe diameters of straight pipe upstream and downstream of all closely spaced tees

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Wiring Schematic of Basic Heating Control with Mixing Station and 3 Manifolds in Parallel

.7 .6 Other configurations are possible, but all space heating zone circulators must turn off when DHW mode is on or heat source DHW priority relay must be rated to handle full amperage load of zone circulator relay center to earth ground. Use 18 AWG copper wiring for all sensor wiring. Sensors should be located 12"

120 VAC coil operated by Viega Control.

This drawing shows system wiring concept only installer is responsible for all equipment & detailing required by local codes. All wiring shall be in conformance with the latest edition of the National Electrical Code.

Maximum current rating of Basic and Advance Heating Control Relay is 10 Amps, Basic and Advance Snow Melting Control Relay is 5 Amps, Maximum current rating of Zone Control Relays is 5 Amps, if circulator draw exceeds this use pilot relay with

conduit. If using shielded cable, the shield wire should be connected to the Com or Com Sen terminal on the control and not electromagnetic interference (EMI), shielded cable or twisted pair should be used or the wires can be run in a grounded metal Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong source of Consult with control / boiler manufacturer for limitations and installation instructions

Power Supply 120 V AC 0 (0 0 6 0 7 BROWN 9 ္က ည 8 9 C 9 Basic Heating 10 = 0 2 Out Control 13 9

> EGEND: Basic Heating Control P2 = Mixed Temperature Circulator S3 = Inside Sensor S2 = Outside Senso S1 = Mix Sensor P1 = Primary Loop Line Voltage Low Voltage

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down stream of mixing point



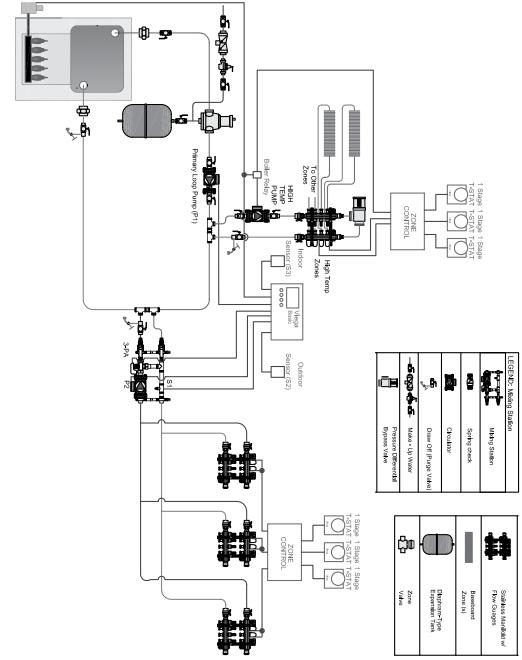
Piping Schematic of Basic Heating Control with Mixing Station, 3 Manifolds in Parallel and High Temp with Powerheads and Boiler Relay

- 11. Not all components may be required depending on control strategy (i.e. constant circulation) **NOTES: Piping**
 - Differential pressure bypass valve prevents flow noise under partial load conditions (some zone valves closed).

 - All closely spaced tees shall be within 4 pipe diameter center to center spacing. Install minimum of 6 pipe diameters of straight pipe upstream and downstream of all closely spaced tees.

Set differential pressure bypass valve to delta P of distribution system with all zones open + 1

All other piping should be sized for a maximum flow velocity of 4 ft. / sec. Size header piping for maximum flow velocity of 2 ft. / sec. This drawing shows system piping concept only. Installer is responsible for all equipment & detailing required by local codes Install purging valve(s) on all circuits. Install isolating flanges or isolating valves on all circulators Install a minimum of 12 diameters of straight pipe upstream of all circulators and check valves



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Wiring Schematic of Basic Heating Control with Mixing Station, 3 Manifolds in Parallel and High Temp with Powerheads and Boiler Relay

Consult with control / boiler manufacturer for limitations and installation instructions Other configurations are possible, but all space heating zone circulators must turn off when DHW mode is on or heat source DHW priority relay must be rated to handle full amperage load of zone circulator relay center electromagnetic interference (EMI), shielded cable or twisted pair should be used or the wires can be run in a grounded meta Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong source of to earth ground. Use 18 AWG copper wiring for all sensor wiring. Sensors should be located 12" down stream of mixing point conduit. If using 120 VAC coil operated by Viega Control.

needs to be sized for multiple loads.

Maximum current rating of Basic and Advance Heating Control Relay is 10 Amps, Basic and Advance Snow Melting Control Relay is 5 Amps, Maximum current rating of Zone Control Relays is 5 Amps, if circulator draw exceeds this use pilot relay with

1. This drawing shows system wiring concept only installer is responsible for all equipment & detailing required by local codes All wiring shall be in conformance with the latest edition of the National Electrical Code.

ower Supply High Temp Pump 0 0 Sys ω 0 O 0 0 0 0 0 8 WHITE 0 Basic Heating 0 $\stackrel{\rightharpoonup}{=}$ 0 12 0 Contro 3 0

S1 = Mix Sensor S2 = Outside Sensor S3 = Inside Sensor P2 = Mixed Temperature Primary Loop Circulator Line Voltage Low Voltage Sensors

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shielded cable, the shield wire should be connected to the Com or Com Sen terminal on the control and not



Piping Schematic of Basic Snow Melt Control with Non-Electric Control

- This drawing shows system piping concept only. Installer is responsible for all equipment & detailing required by local codes
 - All other piping should be sized for a maximum flow velocity of 4 ft. / sec. Size header piping for maximum flow velocity of 2 ft. / sec.

 - Install isolating flanges or isolating valves on all circulators. Install a minimum of 12 diameters of straight pipe upstream of all circulators and check valves All closely spaced tees shall be within 4 pipe diameter center to center spacing Install purging valve(s) on all circuits.
- Differential pressure bypass valve prevents flow noise under partial load conditions (some zone valves closed) Install minimum of 6 pipe diameters of straight pipe upstream and downstream of all closely spaced tees Set differential pressure bypass valve to delta P of distribution system with all zones open + 1 psi

11. Not all components may be required depending on control strategy (i.e. constant circulation).

图 ığı[®] Netered Balancing Valv Swing Check Valve Pressure Differential Baseboard Zone (s) Bypass Valve Diaphram-Type Expansion Tank

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Wiring Schematic of Basic Snow Melt Control with Non-Electric Control

S3 = Outdoor Sensor S2 = Mixed Supply P3 = Variable Speed Circulator S1 = Boiler Sensor P2 = System Circulato P1 = Primary Loop Maximum current rating of Basic and Advance Heating Control Relay is 10 Amps, Basic and Advance Snow Melting Control S4 = Snow Detector Other configurations are possible, but all space heating zone circulators must turn off when DHW mode is on or heat source DHW priority relay must be rated to handle full amperage load of zone circulator relay center conduit. If using shielded cable, the shield wire should be connected to the Com or Com Sen terminal on the control and not electromagnetic interference (EMI), shielded cable or twisted pair should be used or the wires can be run in a grounded meta Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong source Consult with control / boiler manufacturer for limitations and installation instructions Relay is 5 Amps, Maximum current rating of Zone Control Relays is 5 Amps, if circulator draw exceeds this use pilot relay with All wiring shall be in conformance with the latest edition of the National Electrical Code. This drawing shows system wiring concept only installer is responsible for all equipment & detailing required by local codes to earth ground. Use 18 AWG copper wiring for all sensor wiring. Sensors should be located 12" 120 VAC coil operated by Viega Control. Circulator Basic Snow Melt Control Line Voltage Low Voltage Systen Irculat (P2) down stream of mixing point ₹ ° ₹ **७००** 000 120 COM

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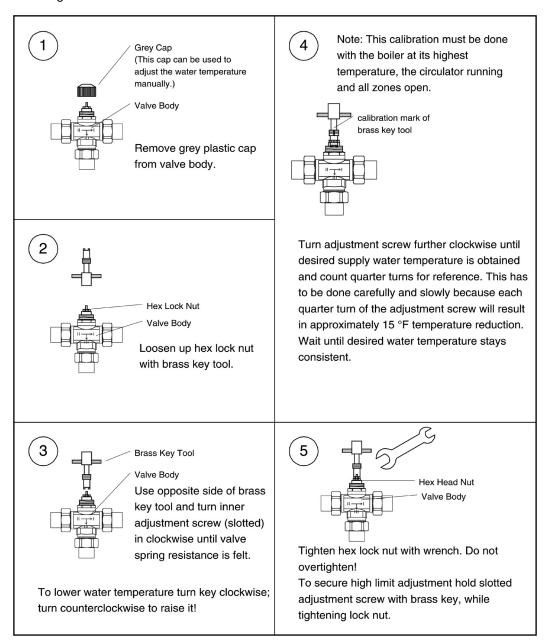
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Installation

The Diverting Valve is provided with a pre-installed temperature High Limit Kit. This kit is installed into the 3-way valve to allow a maximum supply water temperature to be set. This kit must be unscrewed when purging the system and should then be set according to the instructions below.



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TechData



Diverting Valve

Three-Way Diverting Valves can be used for temperature control in many heating and snowmelting applications.

Features

- Includes solder tailpieces (1-1/4" and 1-1/2" models use same valve body with different tailpieces)
- Pre-installed high limit kit
- Compatible with most Viega actuators

Three Position - 18003

Proportional Acuator - 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

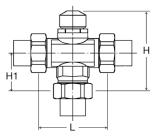
Max working temp.: 242°F (120°C)

Max working pressure: 145 psi 10 bar)

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

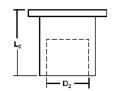
3/4" 10.9 psi (75 kPa) 1" 7.3 psi (50 kPa) 1-1/4" 2.9 psi (20 kPa) 1-1/2" 2.9 psi (20 kPa)

Dimensions



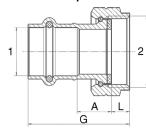
Stock Code	Size	L (in)	H (in)	H ₁ (in)
20001	3/4"	3.15	3.94	1.85
20002	1"	3.54	4.06	1.97
20003	1-1/4"	4.53	4.65	2.52
20041	1-1/2"	4.53	4.65	2.52

Soldered Tailpiece



Size	D ₂ (in)	L2 (in)
3/4"	0.875	0.91
1"	1.125	1.18
1-1/4"	1.375	1.57
1-1/2"	1.625	1.26

ProPress Tailpiece



Stock Code	Size	A (in)	L (in)	G (in)
	1 2			
77764	1" x 1-1/4" BSP	0.72	0.41	2.04

Pressure Drop

Pressure drop values for Viega diverting valves may be determined from the chart at right below. 1-1/4" and 1-1/2" models share the same valve body, so the pressure drop for these models is the same.

Stock Code	Size	Туре	L (in)	H (in)	H1 (in)	Weight (lbs)	Cv Rating	Flow (gpm)	Heat Capacity (BTU/H)	Pressure Drop (psi)	Pressure Drop (ft of head)
2001	3/4"	Solder	3.15	3.94	1.85	2.2	5.3	5 6	50,000 60,000	0.9 1.3	2.04 2.94
2002	1"	Solder	3.54	4.06	1.97	3	7.6	7 9	70,000 90,000	0.8 1.4	1.95 3.22
2003	1-1/4"	Solder	4.53	4.65	2.52	6.1	11.1	10 12	100,000 120,000	0.8 1.4	1.86 2.68
2004	1-1/2"	Solder	4.53	4.65	2.52	6.1	11.1	13 14	130,000 140,000	1.4 1.6	3.15 3.65

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

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Powerhead for Brass Manifolds

The Powerhead 18028 is a two position actuator for zone control which mounts on the return valve of the manifold. A 24V signal actuates the head to open the valve. The position of the valve is normally closed. The Powerhead may be used on all Brass 1" Viega heating manifolds. These powerheads are not compatible with Viega's 1-1/4" Stainless Steel Manifolds.

Features

- Grey cap allows for easy distinction between the brass powerhead and the Stainless Powerhead with the white cap.
- Three indicator windows allow the position of the valve to be verified (valve is open when red bar is visible in window).
- Compact design provides additional clearance for installation.
- 48 in. cable length allows most connections to be made without additional wiring.

Specifications

Operating Voltage: 24 V

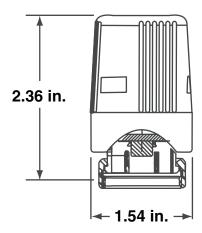
Current Consumption: Short increase to max. 2A when unit is cut in. Constant current during operation approx. 0.125 A at 24 V (3 VA).

Cable length: 48 in.

Transformer Capacity Required: Up to 8 Powerheads on a 40 VA transformer up to 15 Powerheads on a 75 VA transformer



Dimensions



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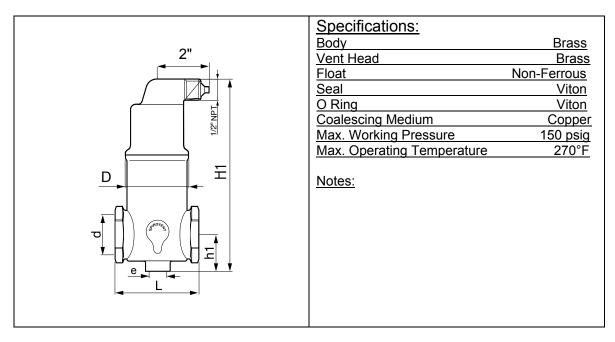
Submittal Data

VJR-1C

Spirovent® Junior Microbubble™ Eliminator

Job Name:	
Engineer:	
Contractor:	
Representative:	

Tag	Model	Flow	Size	Location



d	(Pipe Size NPT)	3/4"	1"	1 1/4"	1 ½"	2"
D	(inches)	2.6	2.6	2.6	2.6	4.0
H1	(inches)	6.0	7.0	7.8	9.1	10.8
h1	(inches)	8.0	1.4	1.5	1.6	2.3
L	(inches)	3.4	3.5	3.5	3.5	5.2
е	(inches)	1/2	1/2	1/2	1/2	1/2
Weight	(lbs)	3.0	3.5	4.0	4.5	8.5
Rec. Fl	low (gpm)	6	10	15	30	40
Model	No. VJR-	075TM	100TM	125TM	150TM	200TM

(Dimensions for reference only)