

# Cynergy<sup>®</sup> Valve Installation Procedures

*½", 1", and 2" orifice, 2-way design*

## REPAIR INSTRUCTIONS

### For models:

#### ½" Valves:

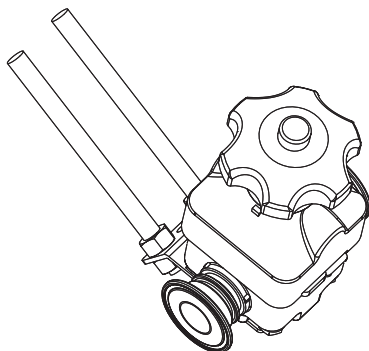
CW8-1-A-01-SA8, CW8-1-A-02-SA8,  
CW8-1-C-01-SA8, CW8-1-C-02-SA8,  
CW8-1-D-01-SA8, CW8-1-D-02-SA8,  
CW8-1-A-01-BW8, CW8-1-A-02-BW8,  
CW8-1-C-01-BW8, CW8-1-C-02-BW8,  
CW8-1-D-01-BW8, CW8-1-D-02-BW8,  
CW8-1-A-01-SB8, CW8-1-A-02-SB8,  
CW8-1-C-01-SB8, CW8-1-C-02-SB8,  
CW8-1-D-01-SB8, CW8-1-D-02-SB8

#### 1" Valves:

CW16-1-A-01-SA16, CW16-1-A-02-SA16,  
CW16-1-C-01-SA16, CW16-1-C-02-SA16,  
CW16-1-D-01-SA16, CW16-1-D-02-SA16,  
CW16-1-A-01-BW16, CW16-1-A-02-BW16,  
CW16-1-C-01-BW16, CW16-1-C-02-BW16,  
CW16-1-D-01-BW16, CW16-1-D-02-BW16

#### 2" Valves:

CW32-1-A-01-SA24, CW32-1-A-02-SA24,  
CW32-1-C-01-SA24, CW32-1-C-02-SA24,  
CW32-1-D-01-SA24, CW32-1-D-02-SA24,  
CW32-1-A-01-BW24, CW32-1-A-02-BW24,  
CW32-1-C-01-BW24, CW32-1-C-02-BW24,  
CW32-1-D-01-BW24, CW32-1-D-02-BW24  
CW32-1-A-01-SA32, CW32-1-A-02-SA32,  
CW32-1-C-01-SA32, CW32-1-C-02-SA32,  
CW32-1-D-01-SA32, CW32-1-D-02-SA3  
CW32-1-A-01-BW32, CW32-1-A-02-BW32,  
CW32-1-C-01-BW32, CW32-1-C-02-BW32,  
CW32-1-D-01-BW32, CW32-1-D-02-BW3



## SPECIFICATIONS

<b>Pneumatic supply pressure</b>	552 to 800 kPa (80 to 116 psig)		
<b>Pneumatic supply port</b>	1/8" FNPT		
<b>Drain angle</b>	<b>ORIFICE</b>	<b>PORT CONNECTION</b>	<b>DRAIN ANGLE</b>
	1/2"	1/2"	22°
	1"	1"	29°
	2"	1 1/2"	34°
	2"	2"	23°
<b>Slope orientation</b>	2% (1°)		
<b>Materials</b>	All wetted surfaces are Teflon® PFA and PTFE.		
<b>Typical flow factor</b>	<b>ORIFICE</b>	<b>PORT CONNECTION</b>	<b>C<sub>v</sub> (K<sub>v</sub>)</b>
	1/2"	1/2"	1.1 (15.7)
	1"	1"	11.3 (161.4)
	2"	1 1/2"	35.7 (509.8)
	2"	2"	43.8 (625.5)

## CYNERGY VALVE MOUNTING PROCEDURE

Entegris recommends that you support Cynergy valves independent of other piping components. To facilitate installation, a mounting kit is supplied with each Cynergy valve. The kit consists of a pre-formed stainless steel bracket and hardware. When properly installed, the bracket will orientate your Cynergy valve at the optimum angle for complete drainability. The bracket can be used with horizontal and vertical runs.

The guidelines below provide direction for installation. Should you encounter unique circumstances not covered here, or have questions regarding your installation, contact your Entegris representative.

## HORIZONTAL VALVE MOUNTING GUIDELINES

- Using a  $\frac{5}{16}$ " hex wrench for  $\frac{1}{2}$ " valves, and a  $\frac{7}{16}$ " hex wrench for 1" and 2" valves, and hardware (P1) provided, attach the mounting bracket (P2) to your Cynergy valve, refer to Figure 1.

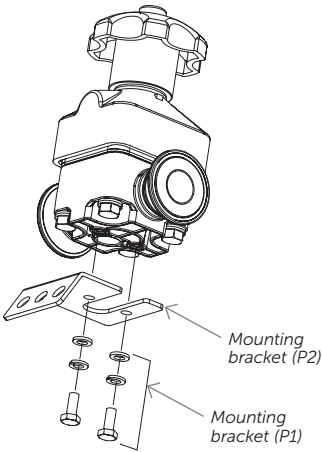


Figure 1.

**NOTE:** The mounting bracket (P2) is equipped with holes that allow you to secure it using a  $\frac{3}{8}$ " threaded rod. Using the holes provided, the bracket may also be bolted or welded directly to framework, stand-offs, walls or mounting plates.

- Mount the valve bracket assembly to the preferred structure. To ensure complete drainability, the bracket flange must be on the horizontal plane, refer to Figure 2.

### Horizontal Plane

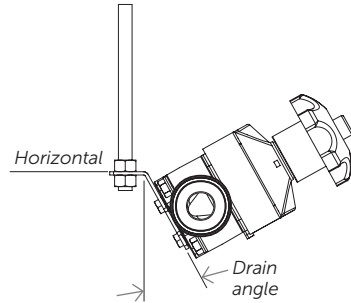


Figure 2.

- Visually verify the valve's horizontal position using the orientation indicators molded into the valve body, refer to Figure 3. Front to back orientation will be determined by the slope of the piping run.

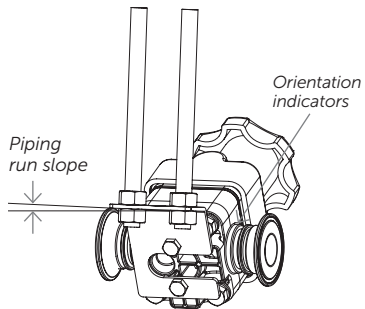
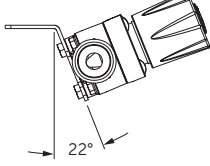


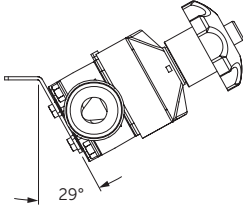
Figure 3.

The following drain angles are required for complete valve drainability:

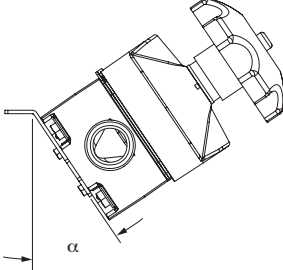
**½" Valve Drain Angle**



**1" Valve Drain Angle**



**2" Valve Drain Angle**

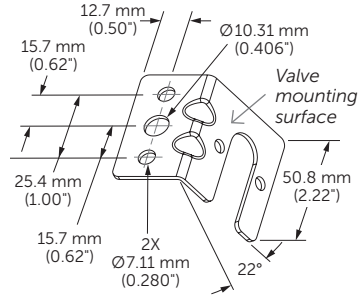


PORT CONNECTION	DRAIN ANGLE α
½"	34°
2"	23°

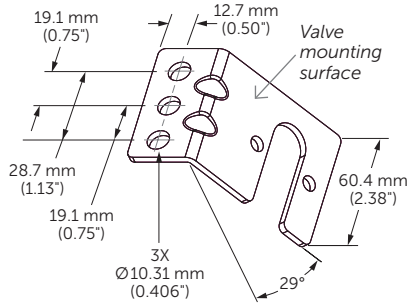
**MOUNTING BRACKET DIMENSIONAL INFORMATION**

To facilitate installation, the mounting brackets are preformed to the correct drain angle to ensure complete drainability. A mounting bracket kit is included with each valve.

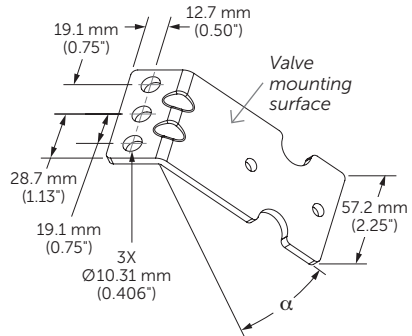
**½" Orifice Valve Mounting Bracket with ½" Port Connection**



**1" Orifice Valve Mounting Bracket with 1" Port Connection**



**2" Orifice Valve Mounting Bracket with ½" or 2" Port Connection**



PORT CONNECTION	DRAIN ANGLE α
½"	34°
2"	23°

## VERTICAL VALVE MOUNTING GUIDELINES

Cynergy valves are fully drainable in a vertical orientation. Bracket flange orientation is not critical. Mount bracket to valve as indicated in the *Horizontal Valve Mounting Guidelines*, Step 1.

## OTHER GUIDELINES

1. Cynergy valve mounting brackets are made from 304 stainless steel and can be subjected to standard metal working practices, i.e., cutting, drilling, filing and welding. Use these techniques to customize the brackets for your specific installation. Modify the brackets without the valve attached or valve damage may result.
2. If used in conjunction with Cynergy tube racks, independently support the tube racks as recommended in the *Cynergy Tube Rack Installation Guidelines*, (P/N 01-000106).

## CYNERGY CLAMP CONNECTION ASSEMBLY PROCEDURES

1. Clean the Cynergy clamp fitting face with isopropyl alcohol (IPA) to remove surface contaminants and particles.
2. Select the recommended sanitary gasket and clamp specified in Table 1.
3. Place the appropriate gasket between the two sanitary flanges, refer to Figure 4.
4. While holding the flanges together, place the clamp around them and secure the clamp. Tighten the clamp to the torque specification shown in Table.

**NOTE: Laboratory testing of the Cynergy clamp fittings shows performance reliability is dependent on the type of clamp and gasket used. Entegris strongly recommends the use of Tri-Clamp® three-piece clamps for 1", 1½", and 2" sizes, and Tri-Clamp two-piece clamps for ¼", ½", and ¾" sizes. Entegris also recommends the use of EPDM sanitary gaskets by Tri-Clover® or Newman with Entegris' Cynergy clamp fittings.**

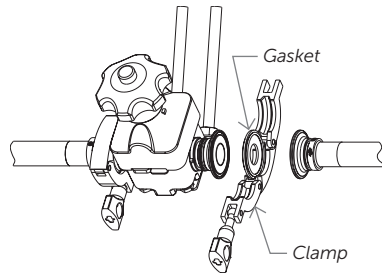


Figure 4.

Table 1.

Cynergy clamp connection size	PART NUMBER		Tri-Clamp torque
	Tri-Clover EPDM gasket	Tri-Clamp clamp	
1/2"	42MP-E-1/2	13MHHS-3/4-S	1.7 N•m (15 in•lbs)
1"	40MP-E-1	13MHHS-1 1/2-S	2.8 N•m (25 in•lbs)
1 1/2"	40MP-E-1 1/2	13MHHS-1 1/2-S	2.8 N•m (25 in•lbs)
2"	40MP-E-2	13MHHS-2-S	2.8 N•m (25 in•lb)

## CYNERGY BEADLESS WELDING PROCEDURE

The automated Weld-in-Place™ Equipment enables trained individuals to construct Cynergy fluid handling systems on site. An all-Teflon PFA installation can be welded in place, allowing for a system that is fully drainable and CIP/SIP capable. The equipment provides continuous monitoring of the weld process and collects data required for validation. The equipment is available for lease or sale. Refer to the *Cynergy Weld-in-Place Equipment Operations Manual*, (P/N 01-009702) for welding instructions.

### FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](http://entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

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