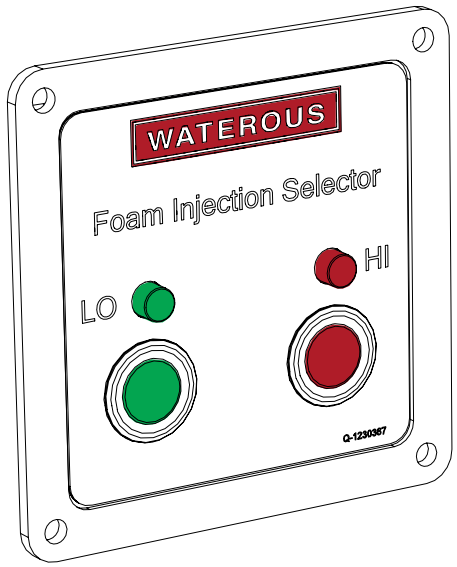
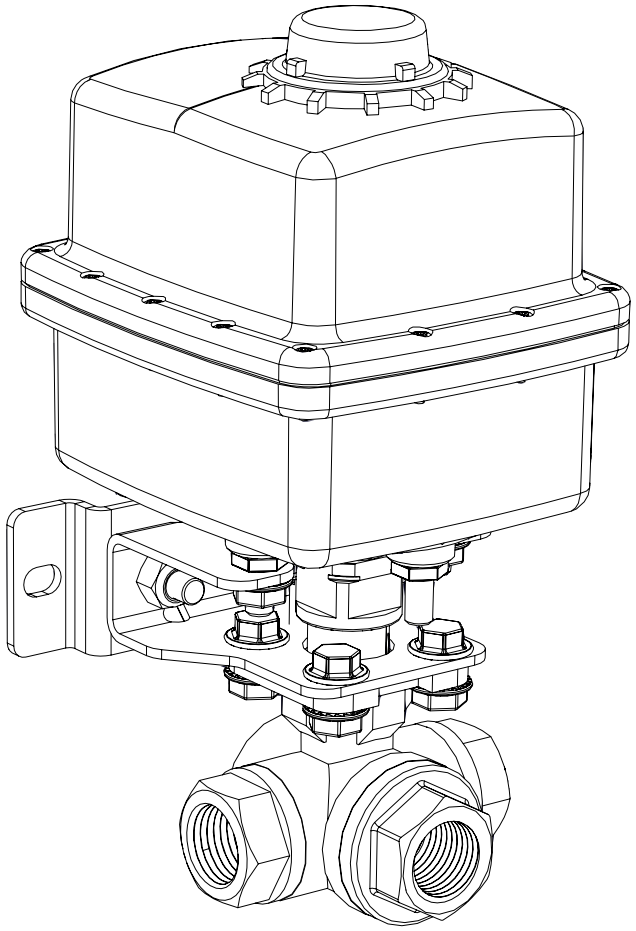
WATEROUS

Form Number F-2818 Issue Date Jan 12, 2018

Dual Foam Injection Kit

Installation, Operation, and Maintenance Instructions





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Safety Precautions

- Read and understand all associated documentation before you begin the installation.
- Read and understand all the notices and safety precautions.
- Be aware that these instructions are only guidelines and are not meant to be definitive. Contact Waterous when you have questions about installing, or operating the equipment.
- Do not install the equipment if you are not familiar with the tools and skills needed to safely perform required procedures—proper installation is the responsibility of the purchaser.
- Do not operate any equipment when safety guards are removed.
- Do not modify the equipment
- Regularly check for leaks, worn, or deteriorated parts.

NOTICE

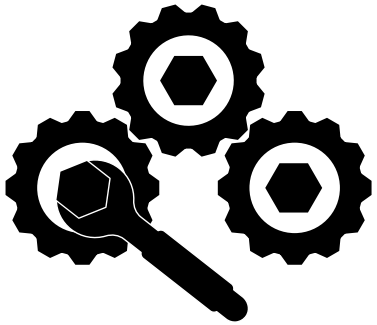
Before Operation

- **Read and understand all the instructions provided.**
- **Check all fluid levels and replenish if necessary.**
- **Remove the all shipping plugs and install the operation plugs or caps.**

NOTICE

Modification

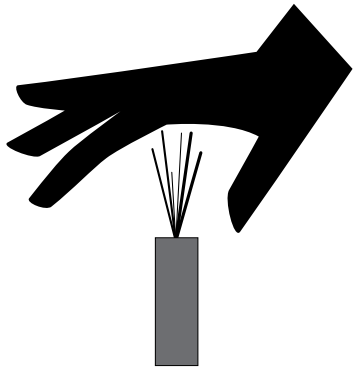
- **Modifying the equipment can damage components and void your warranty.**
- **Do not modify the system or any of its components.**



WARNING

High Pressure

- **Liquid ejected at high pressure can cause serious injury.**
- **Drain the pump after use and before servicing.**



Use this document to install, operate, and maintain your Waterous equipment. Understand the following conditions before continuing with the document:

- The instructions may refer to options or equipment that you may not have purchased with your system.
- The illustrations in this document are intended to convey concepts. Do not use the illustrations to determine physical attributes, placement, or proportion.
- Any equipment described in this document is intended to be installed by a person or persons with the necessary skills and knowledge to perform the installation.
- Any equipment described in this document is intended to be operated by a person or persons with the basic knowledge of operating similar equipment.

This document is divided into the following sections:

SAFETY

This section describes general precautions and alert symbols that are in this document.

INTRODUCTION

This section is an overview of the document.

PRODUCT OVERVIEW

This section describes the components that make-up the system.

INSTALLATION

This section describes the installation and initial setup procedures.

OPERATION

This section describes the equipment operation.

SERVICE PARTS

This section describes the service parts.

Using this Document

Use the guidelines below when viewing this document.

Viewing the Document Electronically

- View this document in landscape orientation.
- Use the table of contents to navigate directly to that section.
- Text **with this appearance** is linked to a reference.

Printing the Document

- The document is viewed the best when printed in color.
- The *print on both sides* and *flip on long edge* features can provide the best results.
- Use a 3-ring binder to store the document.

Product Overview

The dual foam injection kit adds foam injection capability to a second waterway in your apparatus. In typical applications, it creates a high pressure/low volume output that supplements an existing low pressure/high volume output. During operation, high or low pressure port injection is selected though the foam injection selector.

Selector Panel

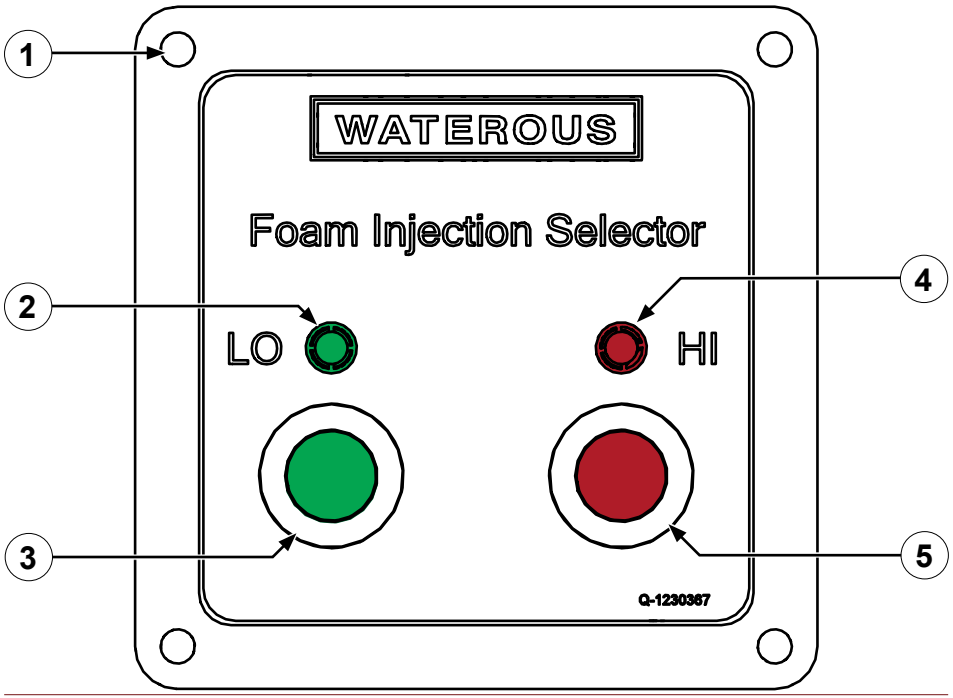


Figure 1

	Feature	Description
1	Mounting hole	This secures the panel to the apparatus.
2	Low pressure LED	This indicates the low pressure is enabled.
3	Low pressure button	This activates the low pressure injector.
4	High pressure LED	This indicates the high pressure is enabled.
5	High pressure button	This activates the high pressure injector.

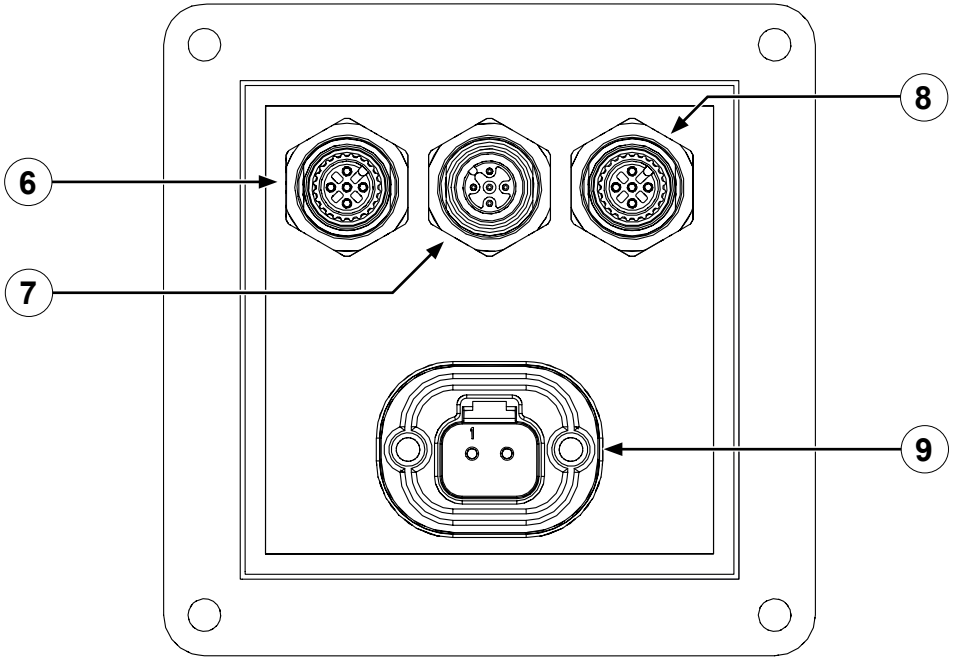


Figure 2

	Feature	Description
6	High pressure connector	This connects to the high pressure flowmeter.
7	Flow sensor connector	This connects to the foam pump control box.
8	Low pressure connector	This connects to the low pressure flowmeter.
9	Electric valve connector	This connects to the electric valve.

Electric valve

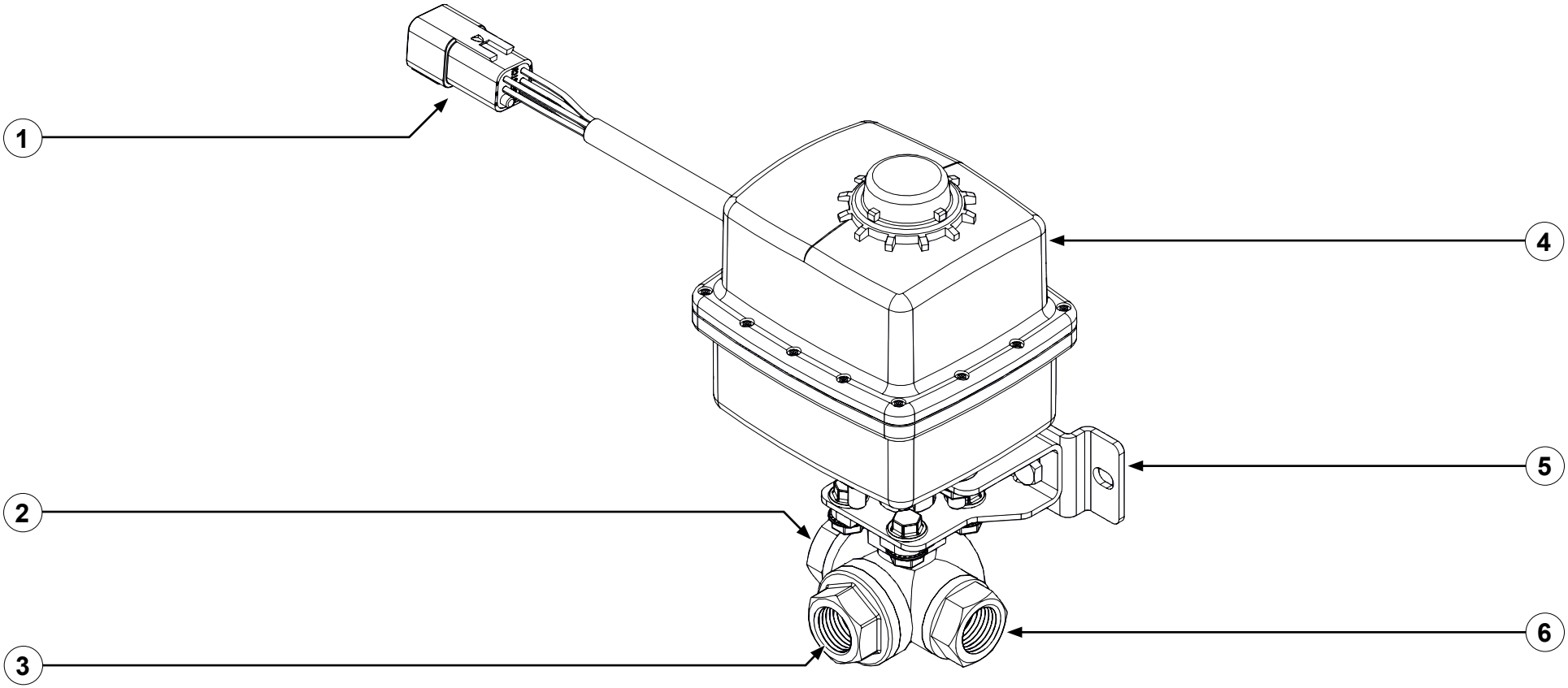


Figure 3

	Feature	Description
1	Valve wire harness	This connects the valve to the selector panel.
2	Low pressure port	This port is connected to the low pressure injector.
3	Concentrate supply port	This port is connected to the foam proportioner.
4	Electric valve actuator	This operates the valve.
5	Mounting bracket	This mounts the valve to the apparatus.
6	High pressure port	This port is connected to the high pressure injector.

Flowmeter

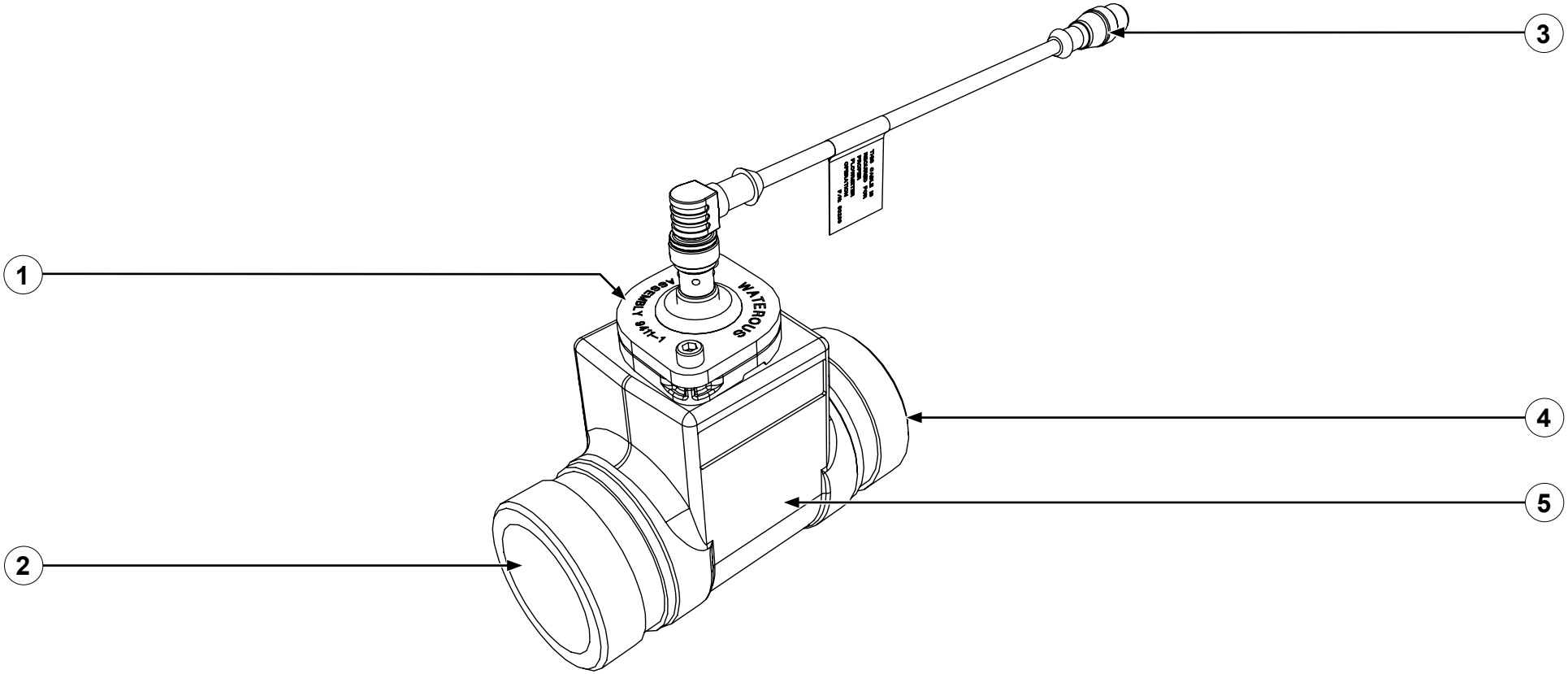


Figure 4

	Feature	Description
1	Flowmeter	This measures the flow in the waterway.
2	Tee inlet/outlet	This connects as an inlet or outlet in the waterway.
3	Flowmeter cable	This connects the flowmeter to the control panel.
4	Tee inlet/outlet	This connects as an inlet or outlet in the waterway.
5	Flowmeter tee	This is the fitting that houses the flowmeter.

Check Valve and Wiring Harnesses

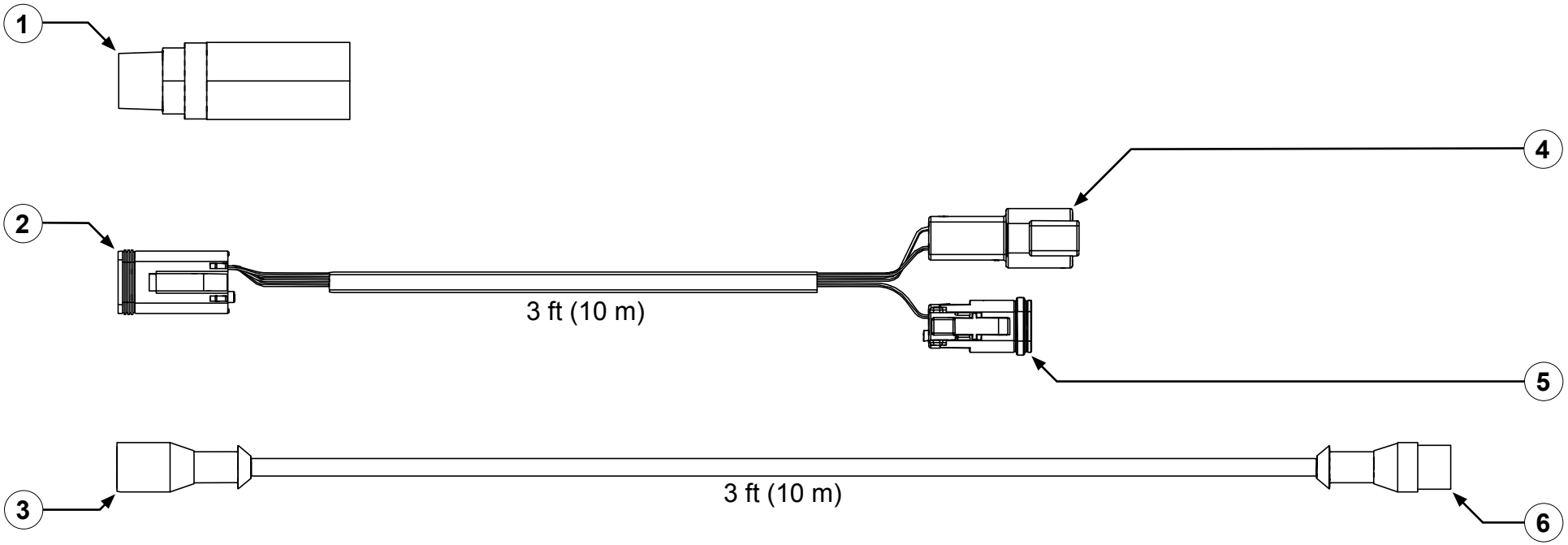


Figure 5

	Feature	Description
1	Check valve	This is installed to the injector fitting to prevent concentrate back flow.
2	Wire harness—valve connector	This plugs into the electric valve wire harness.
3	Extension cable—5-pin male connector	This plugs into the foam pump control box.
4	Wire harness—power connector	This plugs into the apparatus power source.
5	Wire harness—control connector	This plugs into the control panel.
6	Extension cable—5-pin female connector	This plugs into the control panel.

Installation Overview

This equipment is intended to be installed by a person or persons with the basic knowledge of installing similar equipment. Contact Waterous with questions about installing the equipment. The installation may require the following tasks and abilities:

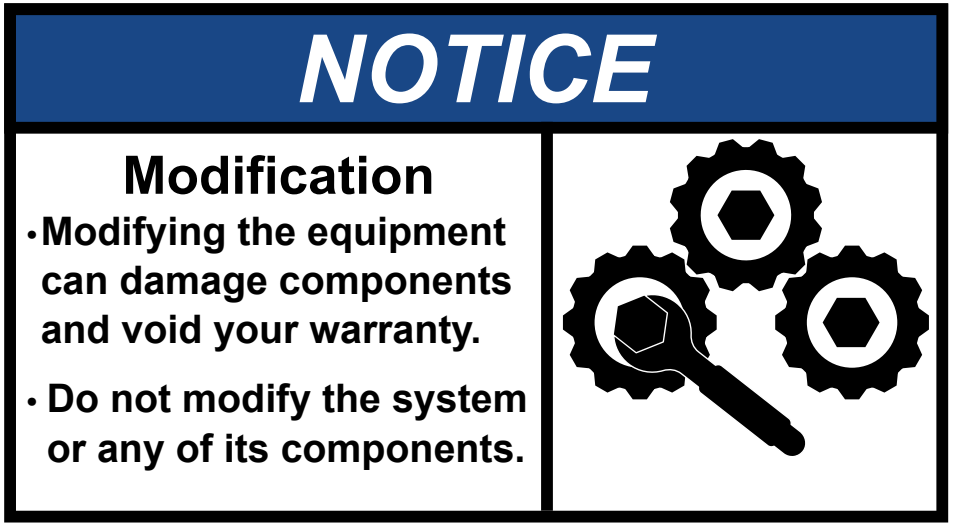
- Locating, drilling, and cutting features into the apparatus
- Connecting hoses and fittings
- Routing and securing hoses
- Routing and securing wiring
- Programming and final testing

Preparing for the Installation

Read and understand the installation instructions before installing the equipment. Prepare a suitable, well-lit area, and gather all the necessary tools before you install the equipment.

Modifying the Equipment

This equipment is intended to operate as designed. Do not remove, modify, or change the components in the system. Doing so will void the warranty. Contact Waterous for more information.



Do not modify the system or any components. Doing so will void your warranty.

Determining the Electric Valve Location

Use the following guidelines to determine a location to mount the electric valve:

- Consider the hose and cable routing.
- Consider accessibility for maintenance.
- Install the electric valve where it has minimal exposure to excessive dirt, road debris, and heat buildup.

Determining the Selector Panel Location

Use the following guidelines to determine a location to mount the control panel:

- Consider the cable and wire harness routing.
- Consider accessibility for maintenance.
- A minimum space of 5 inches (127 mm) behind the panel is recommended to allow an adequate cable bend radius.

Determining Hose Routing

Use the following guidelines when routing the hoses:

- Route the hose in a straight line whenever possible.
- Do not pinch or kink the hose.
- Do not secure the hose to moving parts.
- Do not secure the hose near excessive heat.

Determining Cable Routing

Use the following guidelines when routing the cables and wire harnesses:

- Route the cable in a straight line whenever possible.
- Allow room for an adequate bend radius.
- Do not secure the cables or wire harness to moving parts.
- Do not secure the cables or wire harness near excessive heat.

Dimensions—Control Panel

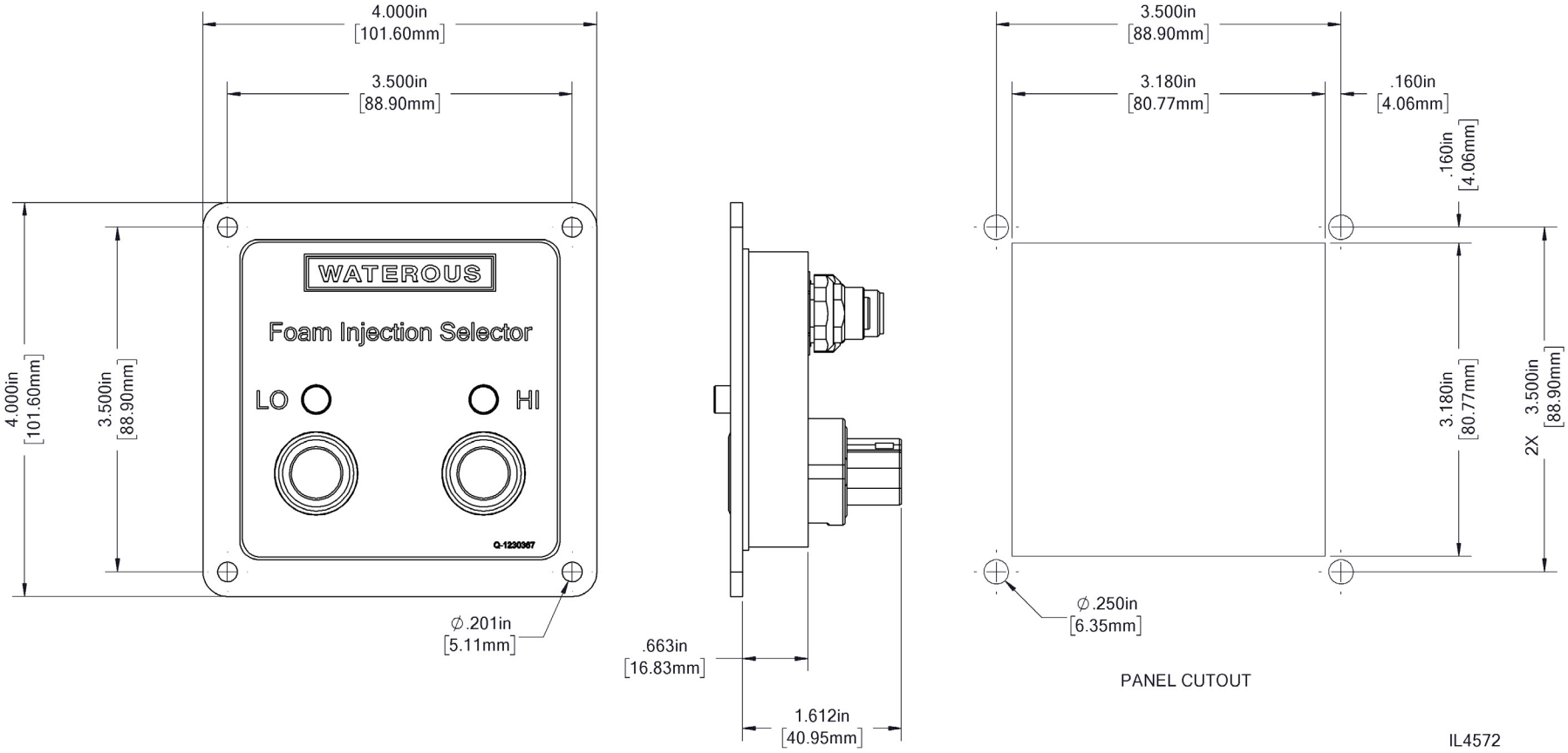


Figure 6

Dimensions—Electric Valve

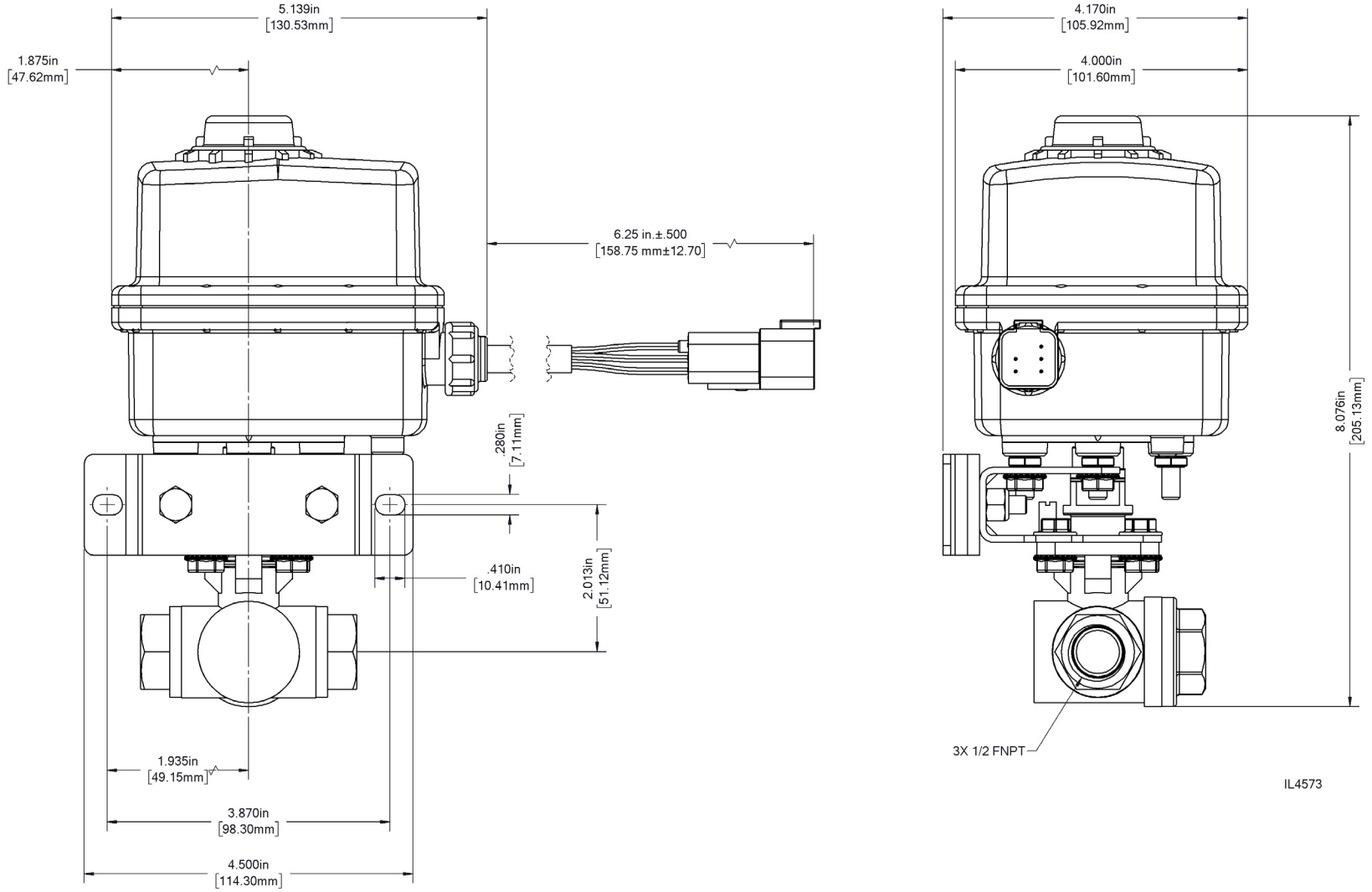


Figure 7

Dimensions—1-1/2 Inch NPT 2 Inch Victaulic Flowmeter Tee

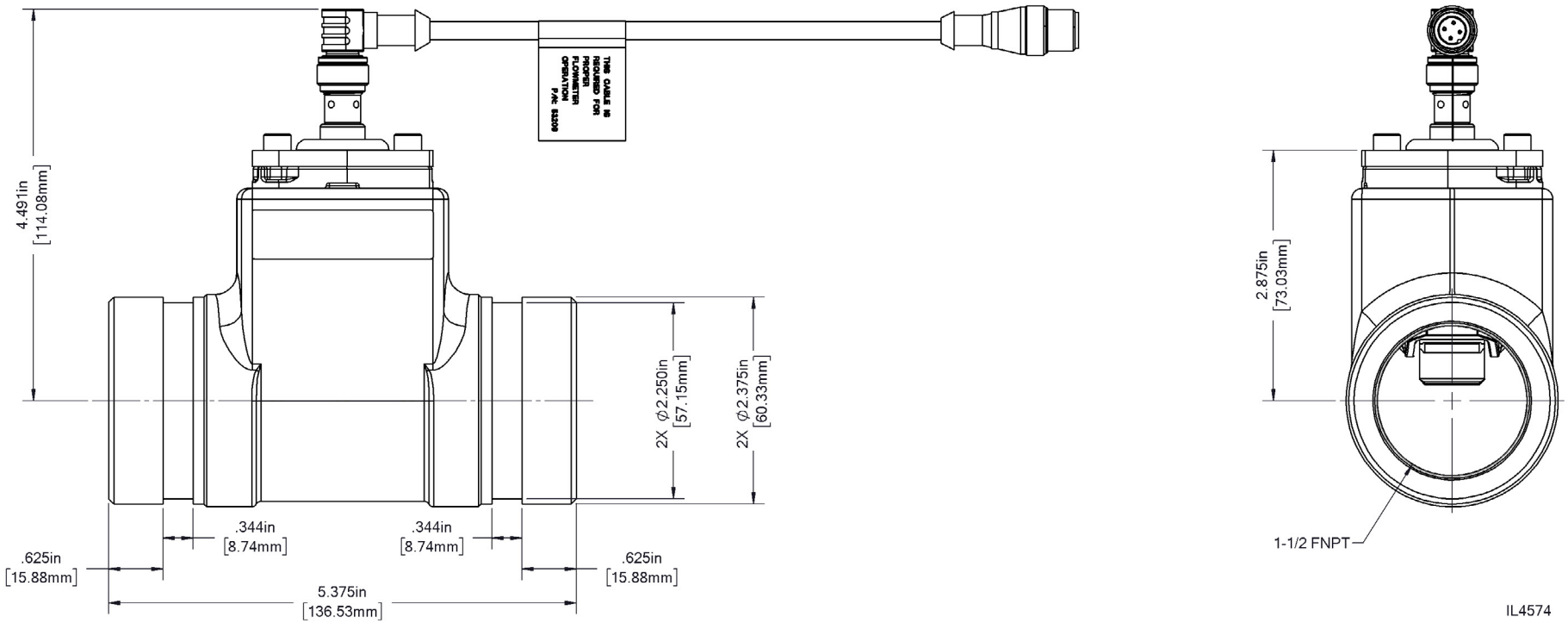


Figure 8

Electronic and Plumbing Connections

Note: *The illustrations are intended to convey concept to guide you through the installation. Your application may differ visually from the illustration. Contact Waterous for more information.*

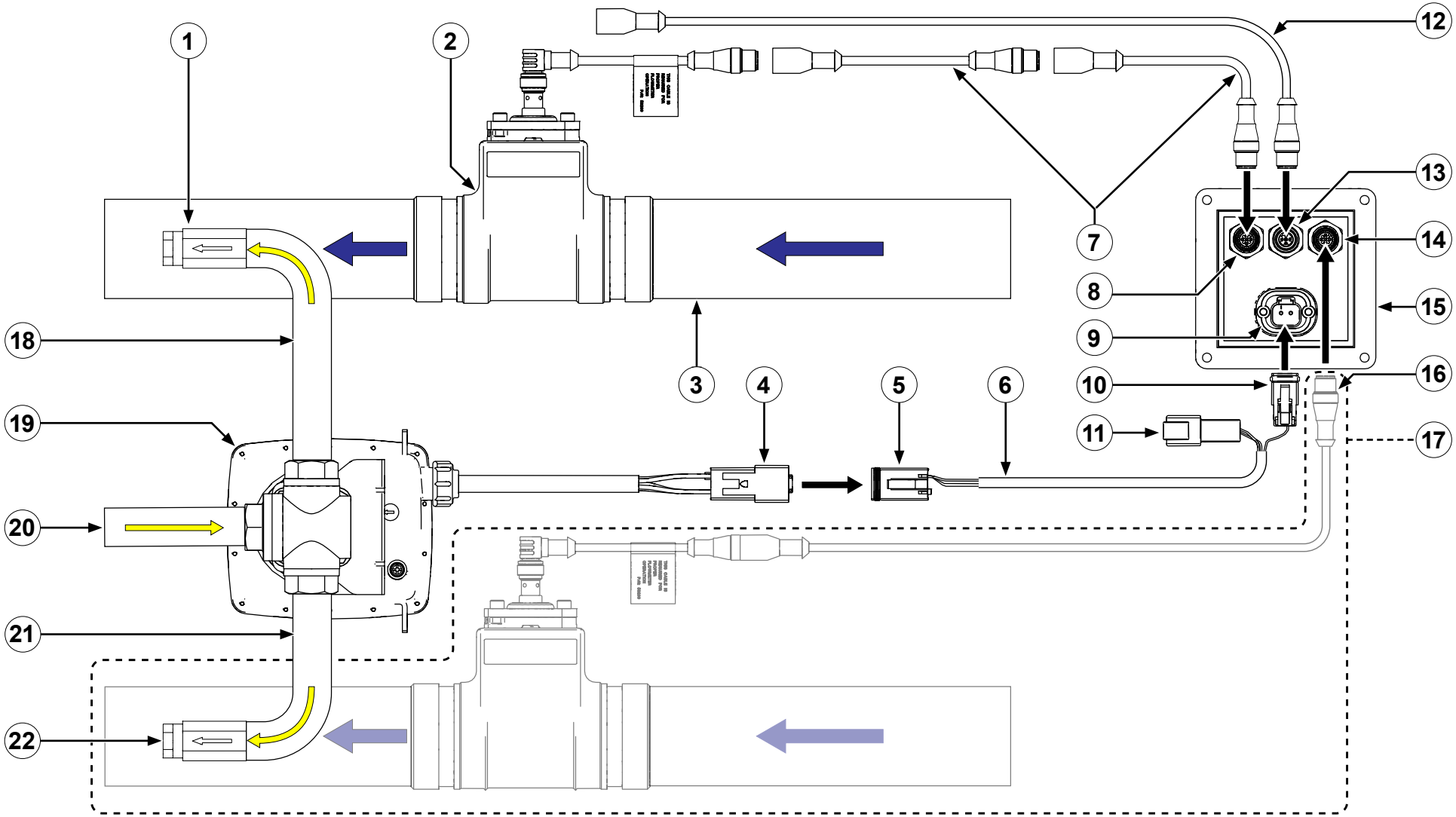
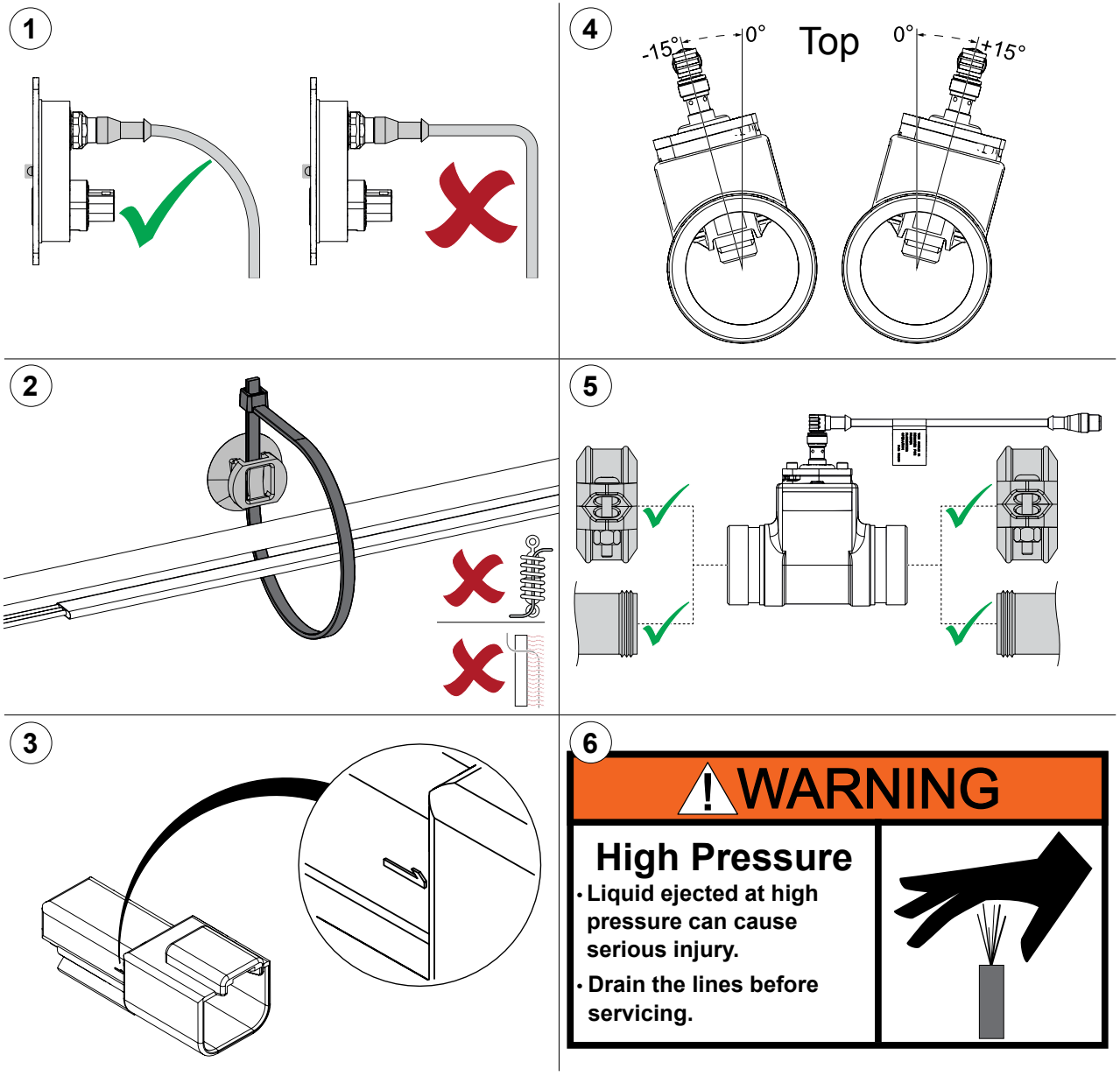


Figure 9

Electronic and Plumbing Connections

	Feature	Description
1	High pressure check valve	This check valve is installed on the high pressure foam injector. It prevents concentrate back flow.
2	Flowmeter tee	This measures the flow in the waterway.
3	Waterway	This is the plumbing in the apparatus that flows water or solution to the hoses.
4	Electric valve connector	This connector plugs into the selector panel wire harness connector.
5	Control panel wire harness connector	This connector plugs into the electric valve connector.
6	Electric valve wire harness—10 ft (3 m)	This wire harness connects the valve to the selector panel and power supply.
7	Flowmeter extension cables—10 ft (3 m)	This cable or cables connect the high pressure flowmeter to the selector panel.
8	High pressure flowmeter connector	This is the high pressure flowmeter connector on the selector panel.
9	Electric valve connector	This is the electric valve wire harness connector on the selector panel.
10	Electric valve wire harness connector	This connector plugs the electric valve wire harness connector on the selector panel.
11	Power supply to electric valve connector	This connector plugs into the apparatus power connector that is provided by the manufacturer.
12	Foam pump cable—10 ft (3 m)	This cable connects the foam pump to the selector panel and provides power to the selector panel.
13	Foam pump connector	This is the foam pump connector on the selector panel
14	Low pressure flowmeter connector	This is the low pressure flow meter connector on the selector panel.
15	Foam injection selector panel	This controls the electric valve.
16	Low pressure flowmeter connector	This connector plugs into the low pressure connector on to the selector panel.
17	Existing components	These components are part of the existing concentrate injection system—Not included with the kit.
18	High pressure concentrate supply	This port supplies concentrate to the high pressure injector.
19	Electric valve	This routes the concentrate between 2 ports.
20	Concentrate from foam pump	This port is connected to the foam pump output.
21	Low pressure concentrate supply	This port supplies concentrate to the low pressure injector.
22	Low pressure check valve	This check valve is installed on the low pressure foam injector. It prevents concentrate back flow.

Following Best Practices



Use the illustrations to guide you to a successful install. Use industry best practices and common sense when you install the components. Contact Waterous for more information.

1 Do not create a small bend radius. Use the following formula as a guide:

cable diameter X 10 = bend radius

Example: A cable diameter of 0.25 inch (6.35 mm) has a minimum bend radius of 2-1/2 inches (63.5 mm).

2 Use cable ties, or similar, to secure the cables and wire harnesses.

- Do not secure the cables or wire harness to moving parts.
- Do not secure the cables or wire harness near excessive heat.
- Do not secure data and signal wires with power wires.

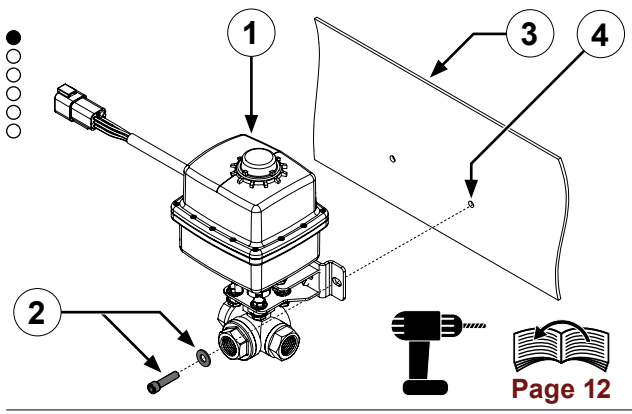
3 Locate the pin identifier to determine pin locations.

4 Installing or operating the flowmeter at an angle greater than 15˚ causes inaccurate readings.

5 Flowmeter coupling—Installer supplied 2 inch victaulic, or 1-1/2 inch NPT connector.

6 Drain the lines to relieve pressure before servicing.

Installing and Connecting the Electric Valve



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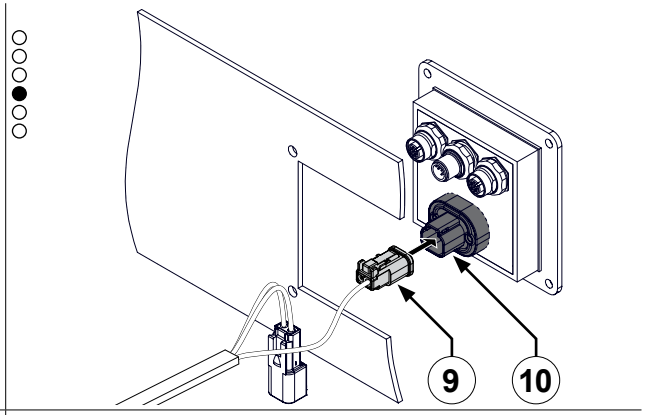

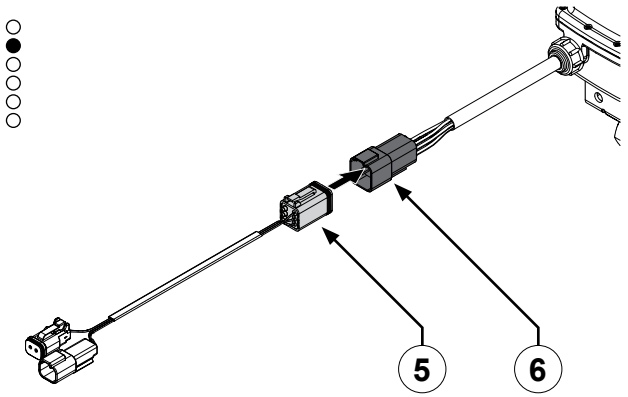

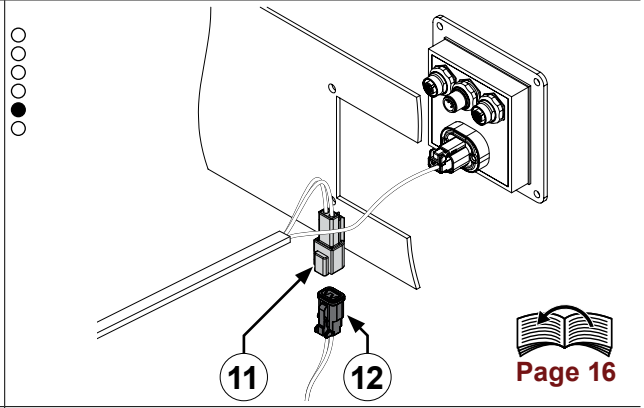

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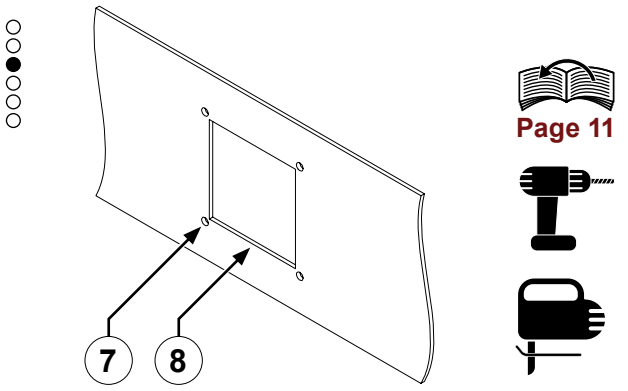
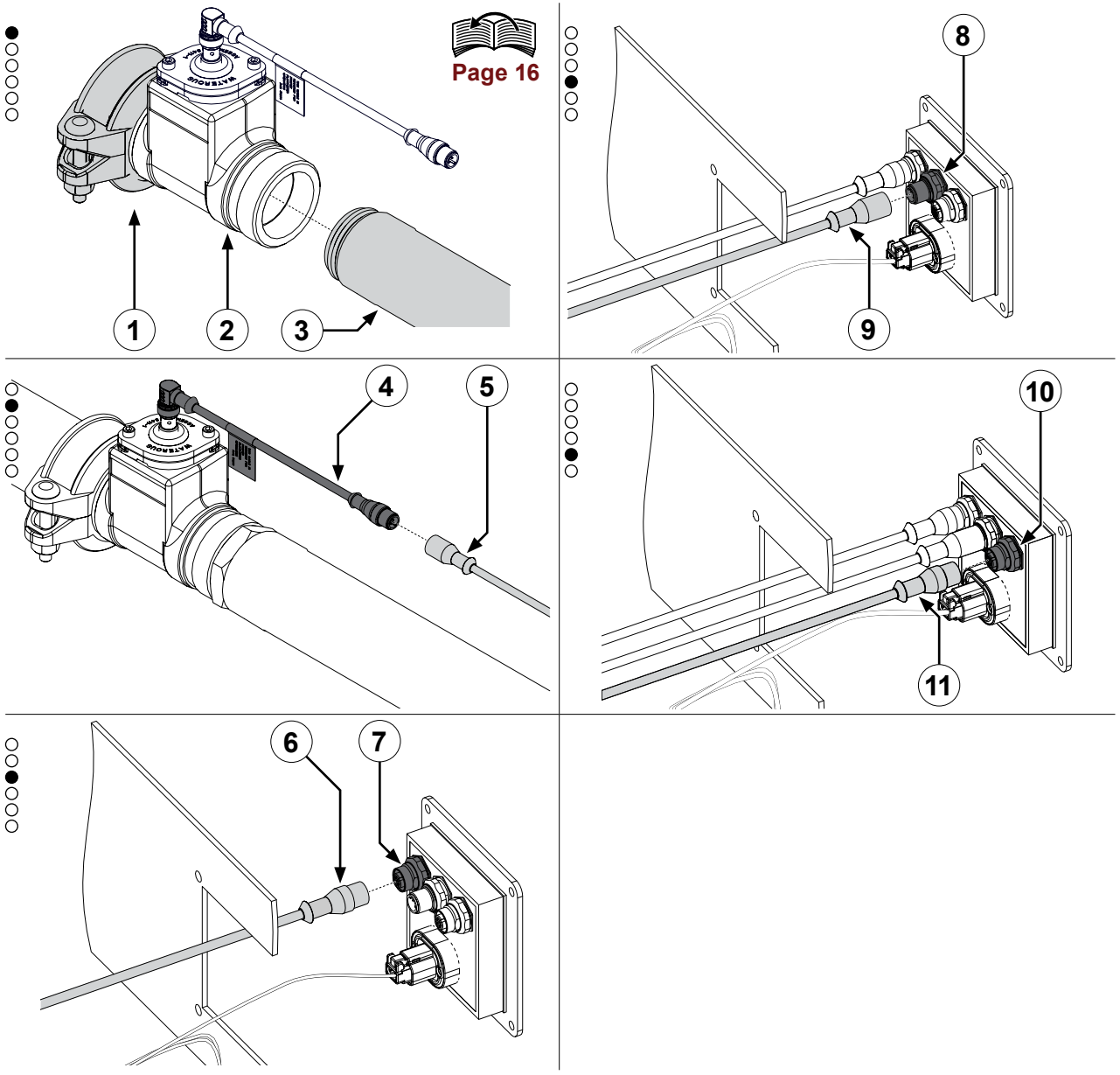


Page 11

Use the illustrations to install the valve assembly and connect the wire harness to the selector panel and power supply. Refer to: **"Electronic and Plumbing Connections" on page 14** for more information.

1	Valve assembly
2	Mounting hardware—Installer supplied
3	Mounting location
4	Mounting holes—Installer located and drilled. Refer to: **"Determining the Electric Valve Location" on page 10** and **Figure 7**
5	Control panel wire harness connector
6	Electric valve connector
7	Mounting holes—Installer located and drilled. Refer to: **"Determining the Selector Panel Location" on page 10** and **"Figure 6" on page 11**
8	Panel cutout—Installer located and cut. Refer to: **"Determining the Selector Panel Location" on page 10** and **"Figure 6" on page 11**
9	Electric valve wire harness connector
10	Electric valve connector
11	Power supply to electric valve connector
12	Power supply connector—Installer supplied Deutsch DT06-2S. Refer to: **"Following Best Practices" on page 16**. Pin outs: • Pin 1=+12 V or +24 V • Pin 2=ground

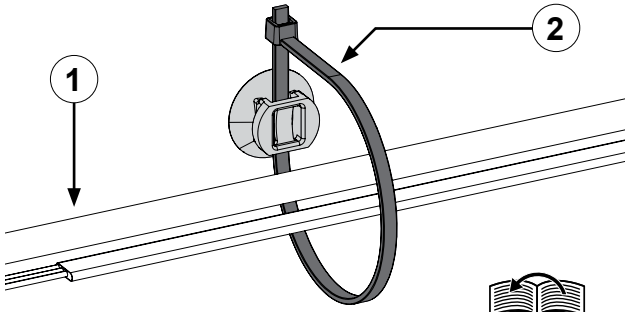
Installing the High Pressure Flowmeter Tee



Use the illustrations to install the flowmeter tee into the waterway and to connect the new and existing flowmeter to the selector panel. Refer to: **"Electronic and Plumbing Connections" on page 14** for more information.

1	Output connector—Installer supplied. Refer to: **"Following Best Practices" on page 16**.
2	Flowmeter Tee
3	Input connector—Installer supplied. Refer to: **"Following Best Practices" on page 16**.
4	Cable from flowmeter
5	Extension cable
6	Extension cable—Connected to flowmeter
7	High pressure flowmeter connector
8	Foam pump connector
9	Existing cable from foam pump control box.
10	Low pressure flowmeter connector
11	Existing cable from existing flowmeter.

Installing the High Pressure Flowmeter Tee—Continued



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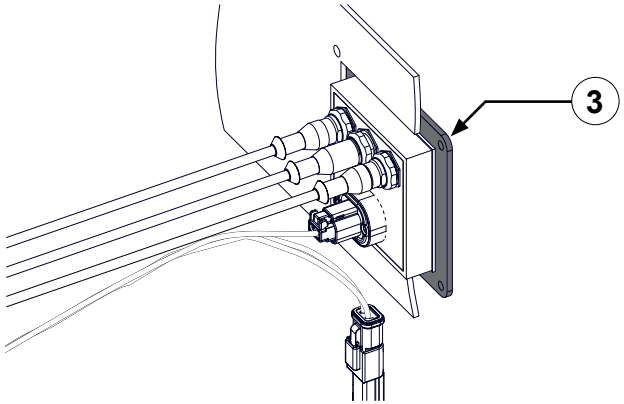
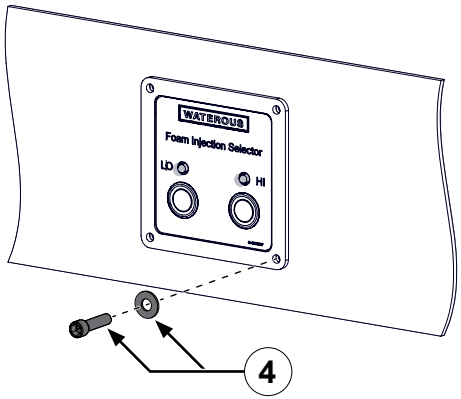
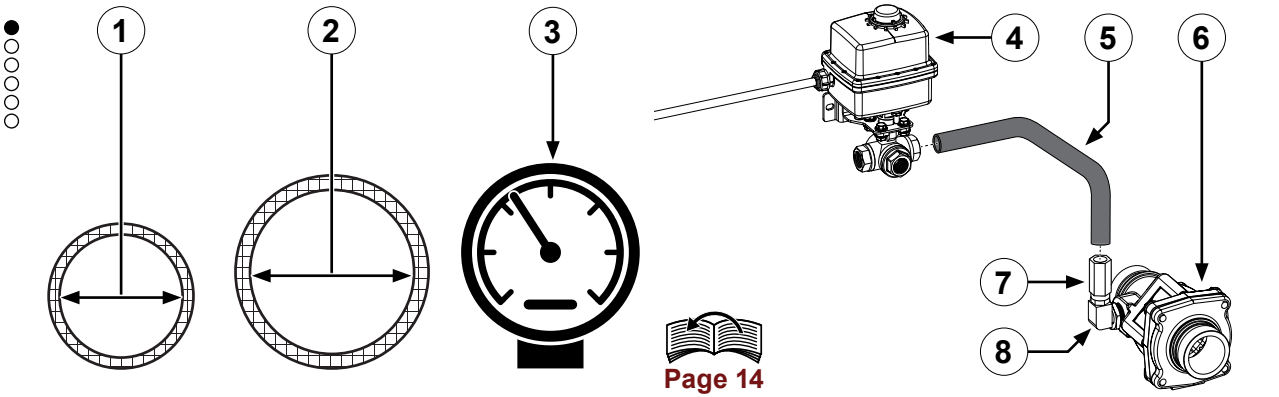




Use the illustrations to complete the high pressure flowmeter tee installation.

1	Route the wiring. Refer to: **"Following Best Practices" on page 16**.
2	Use a cable tie or similar to secure the wires to the apparatus.
3	Selector panel bezel.
4	Use the appropriate hardware to secure the panel to the apparatus—Installer supplied.

Installing the Hoses



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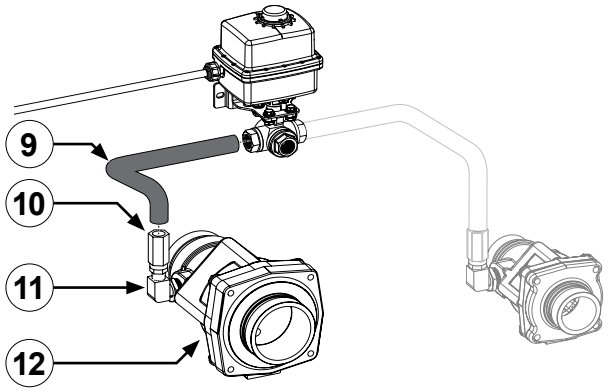
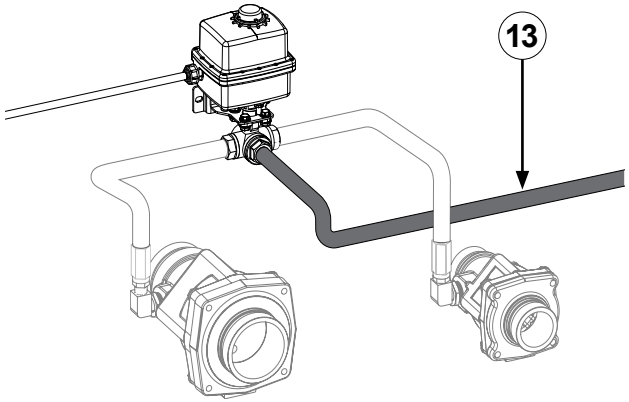
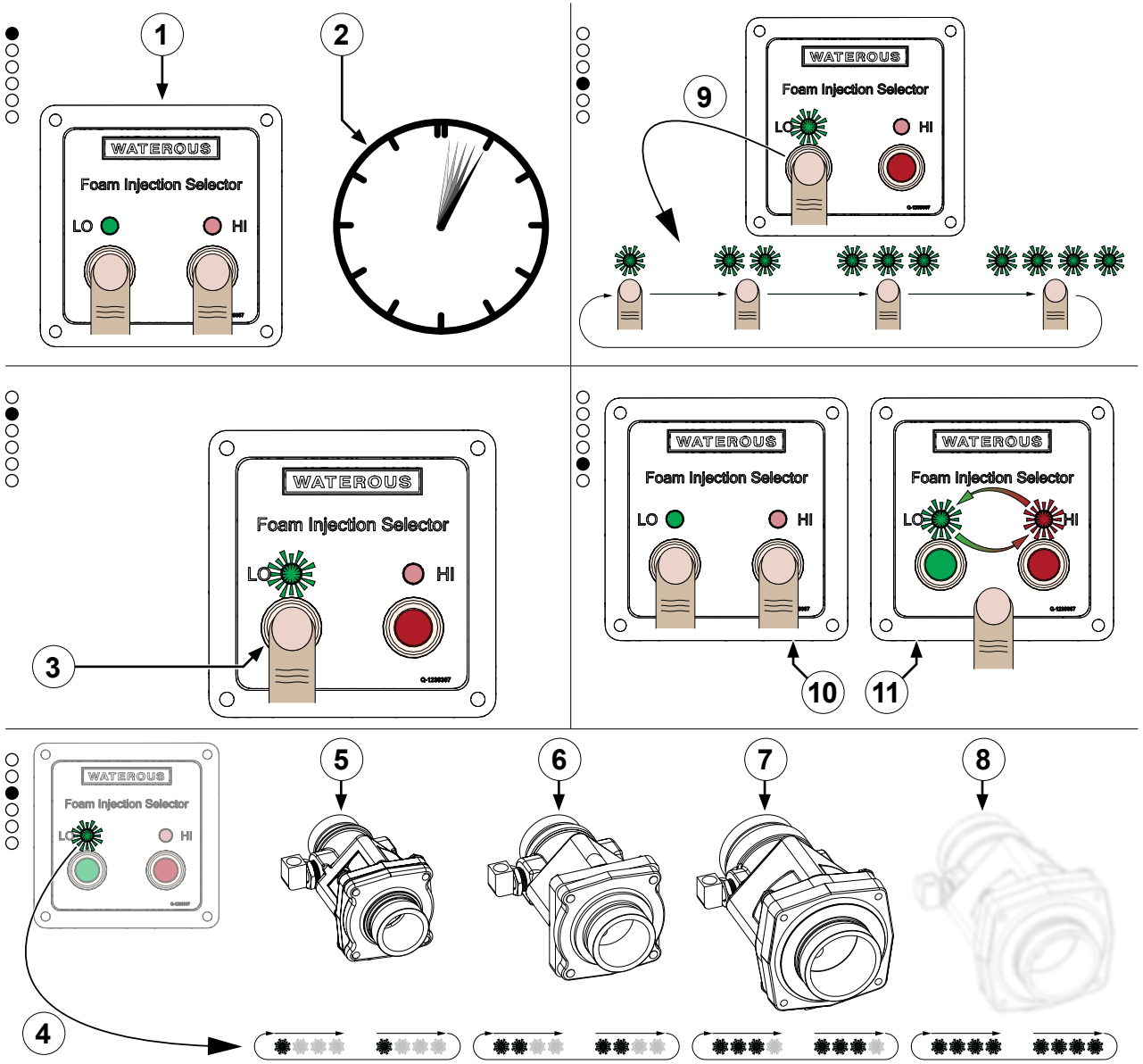




Use the illustrations to install the concentrate check valve and hose lines. Refer to: **"Electronic and Plumbing Connections" on page 14** for more information. Locally source hoses and fittings that are appropriate for your application to connect the electric valve to the foam concentrate injectors.

1	3/8 inch inner hose diameter—AQUIS 1.5 and 3.0 foam pump.
2	1/2 inch inner hose diameter—AQUIS 6.0 foam pump.
3	Minimum pressure rating—450 psi (31 bar)
4	Electric Valve
5	Foam concentrate hose—Installer provided hose connecting the high pressure supply port to the foam concentrate check valve.
6	High pressure waterway check valve
7	High pressure foam concentrate check valve
8	High pressure foam concentrate injector—Installer provided.
9	Foam concentrate hose—Installer provided hose connecting the low supply port to the low pressure foam concentrate check valve.
10	Low pressure foam concentrate check valve—Existing or installer provided.
11	Low pressure foam concentrate injector—Existing or installer provided.
12	Low pressure waterway check valve—Existing or installer provided waterway check valve or manifold.
13	Foam concentrate supply hose—Installer provided hose connecting the foam pump output and the electric valve input.

Programming the Selector Panel



Use the illustrations to program the K-factor and the default power-up channel.

Note: *The illustrations describe how to program the low pressure k-factor. Use the same technique program the high pressure k-factor.*

1	Press both buttons simultaneously.
2	Hold the buttons for 5 seconds.
3	Press the channel to program—Low pressure channel programming is illustrated.
4	Observe the number of blinks.
5	1 blink=1-1/2 inch NPT x 2 inch victaulic
6	2 blinks=2 inch NPT x 2-1/2 inch victaulic
7	3 blinks=2 1/2 inch NPT x 3 inch victaulic
8	4 blinks=custom equipment. Contact Waterous for more information.
9	Press the button to cycle through the programming options. Stop at the desired number of blinks.
10	Press both buttons simultaneously to exit the programming mode.
11	The LEDs alter blinking. Press the button to select the default power-up channel and to complete the programming.

Operating the Selector Panel

Use the selector panel to select between the low pressure/high volume **(Figure 10)** waterline, or the low volume/high pressure **(Figure 11)** waterline. The illuminated LED indicates the enabled port on the electric valve.

Selecting the Output

1. Press the Lo button to direct the foam concentrate into the low pressure/ high volume outlet **(Figure 10)**.

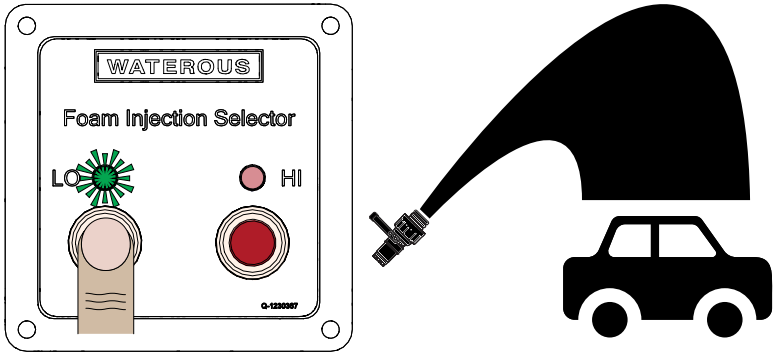


Figure 10

2. Press the Hi button to direct the foam concentrate into the low volume/high pressure outlet **(Figure 11)**.

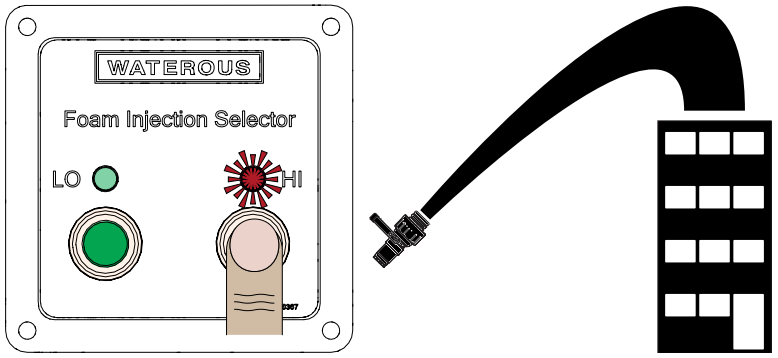


Figure 11

After Operation

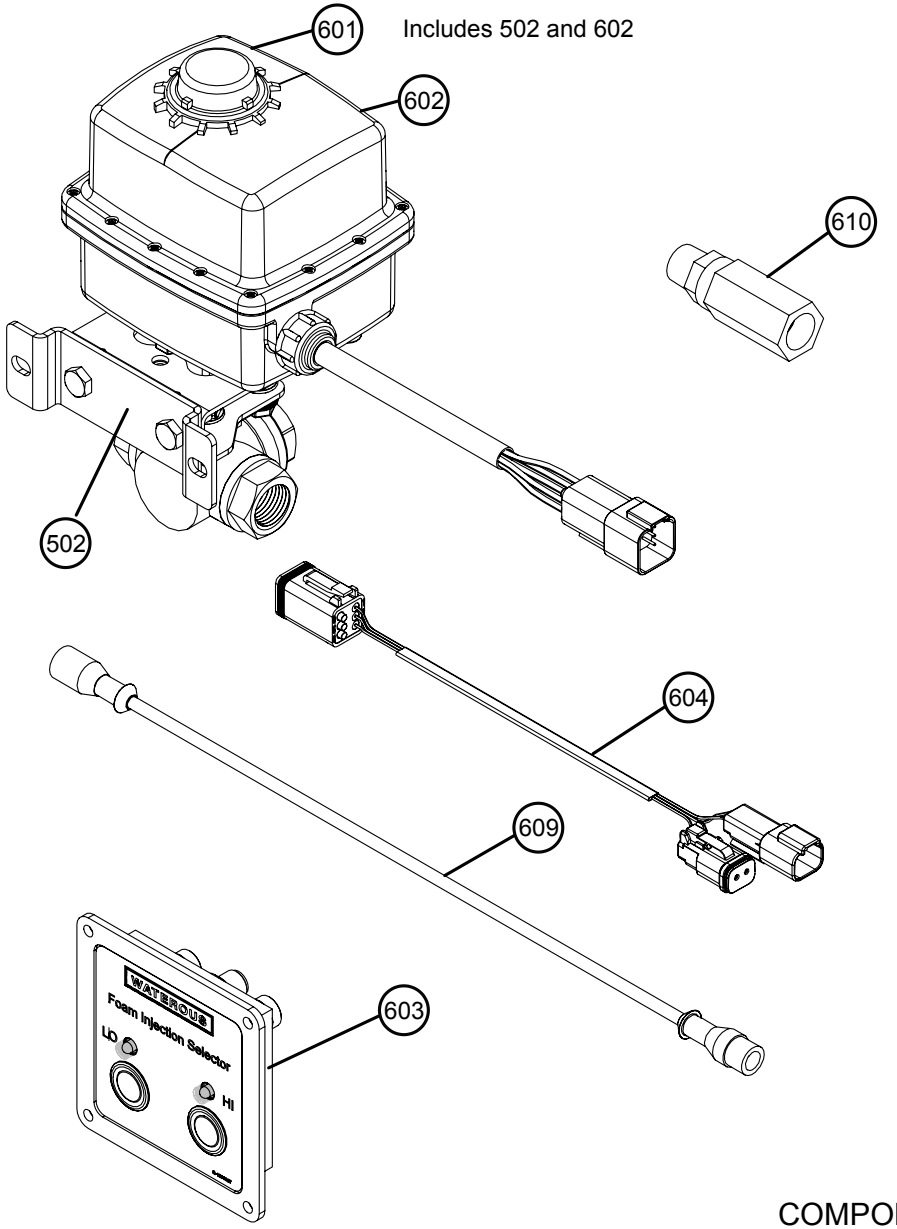
Depending on your region, concentrate type, and other factors, it is important to perform various after operation procedures.

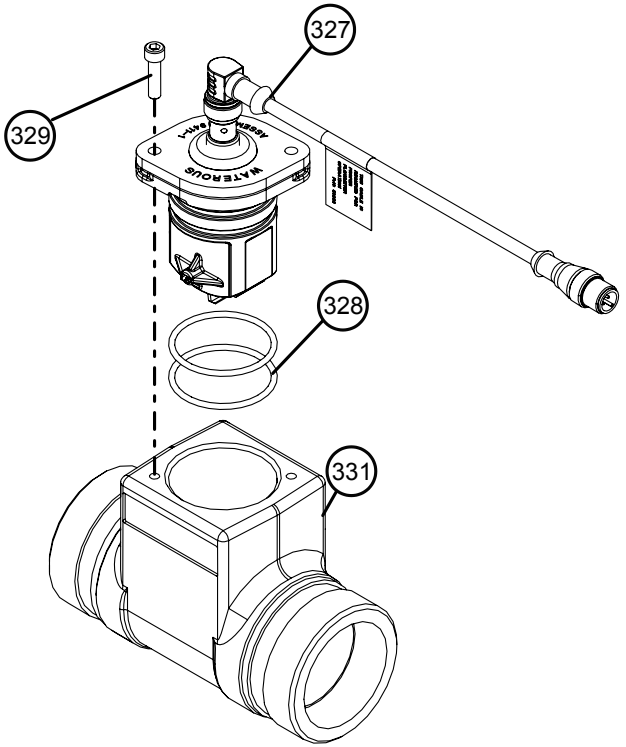
Flushing the System

You must flush the system under certain conditions. The environment, the concentrate used, and other factors determine if or when you need to flush the system. Refer to the apparatus and/or concentrate manufacturer's documentation to determine a system-flush protocol.

Draining the System

Follow the instructions from the apparatus manufacturer to drain the valve. Contact Waterous for more information.





600

Includes 327-331, 601 and 603-610

COMPONENTS

REF NO.	DESCRIPTION
327	Flowmeter Subassembly (Includes 328-329)
328	O-Ring, 1-1/2 x 1-11/16 in.
329	Screw-Socket Head, No. 10-32 x 3/4 in.
331	Flowmeter Tee
502	Valve Mounting Bracket
600	Complete Kit (Includes 327-331 and 601-610)
601	Electric Vave Subassembly (Includes 502 and 602)
602	Electric Valve, 3 Port
603	Control Panel
604	Wiring Harness
609	Flowmeter Cable, 3 Meters
610	Valve-Check, 3/8 NPT

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