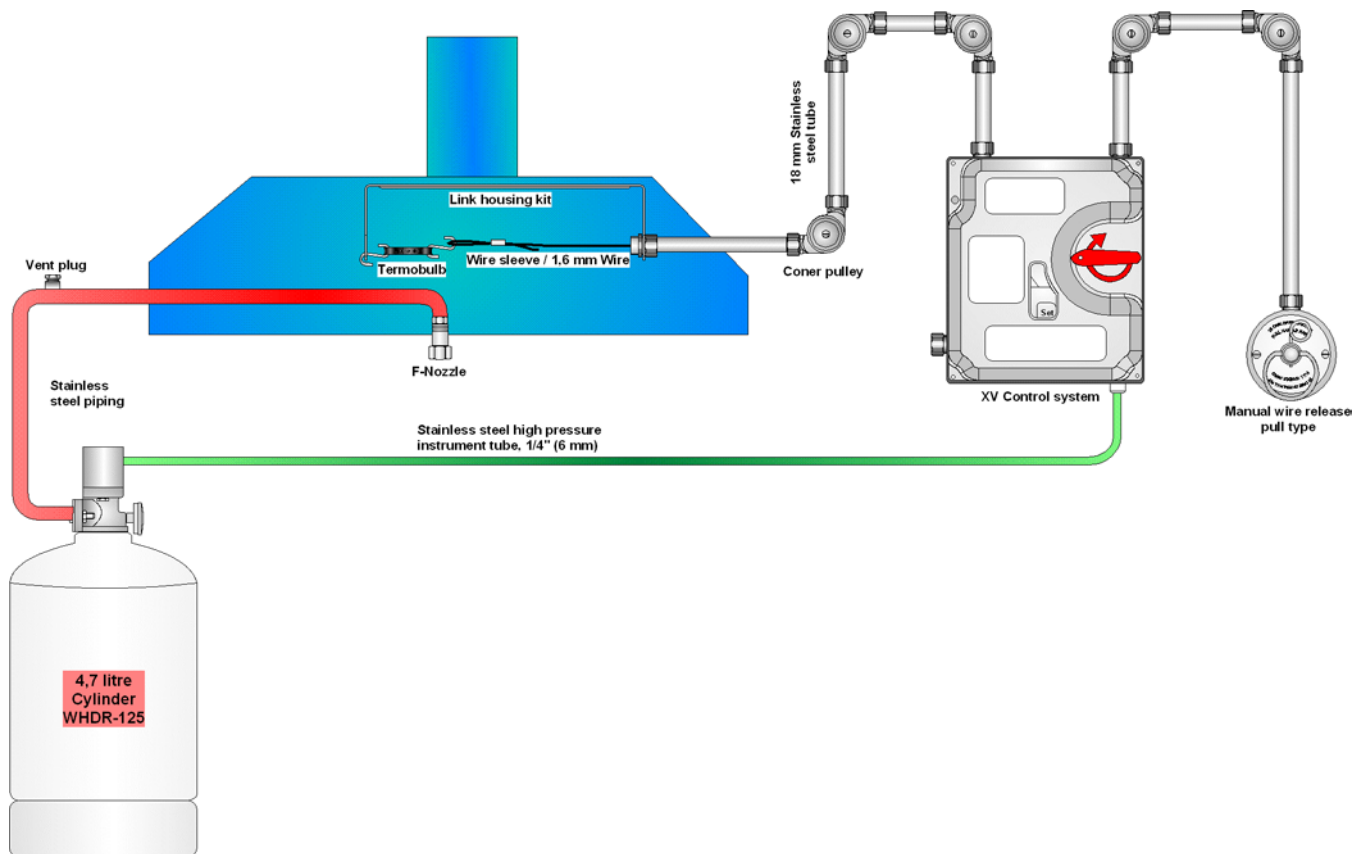


WET CHEMICAL SYSTEM – INSTALLATION MANUAL



CHAPTER 4 INSTALLATION

4-1 INTRODUCTION

This chapter is intended for system installers. It outlines the steps needed to install the Kidde® Wet Chemical Fire Suppression System.

4-2 GENERAL INSTALLATION REQUIREMENTS

All components shall be installed in accordance with the appropriate NFPA standard:

- Extinguishing system per NFPA 17A and NFPA 96
- Detection and alarm-control units (other than detectors) per NFPA 72,
- Electrical connections per NFPA 70,
- This Design, Installation, Operation, and Maintenance Manual (DIOM) (P/N 87-122000-001), and
- Local Authority Having Jurisdiction (AHJ).

Only factory trained and authorized personnel are permitted to install or maintain Kidde Fire Systems Wet Chemical fire suppression systems.

4-3 INSTALLATION OF SUPPRESSION

1. Install the mounting brackets to hold the Cylinder and Valve Assembly. For wall mounting, see Paragraph 4-3.1. For floor mounting, see Paragraph 4-3.2.
2. Mount the Cylinder and Valve Assembly on mounting brackets.
3. Install agent distribution piping.
4. Install nozzles.

4-3.1 Wall Mounting Bracket Installation, P/N 60-9197430-000, 60-9197263-000, 60-9197414-000, 60-9197415-000, 87-100013-001

The Wall Mounting Bracket is to be mounted vertically (plumb) with the Cylinder and Valve Assembly in the upright position. The mounting location shall be in a clean, dry and protected area where the ambient temperature is between 0°F (-18°C) and 120°F (49°C) and sufficiently away from the hazard(s) so as not to be exposed to process or fire temperatures in excess of 120°F (49°C). The bracket must be mounted in such a way that no part of the assembly stands in water or other liquid. The Cylinder and Valve Assembly should be mounted at least 4 inches (102 mm) above the floor.

1. Determine the Wall Mounting Bracket mounting locations and mark the mounting holes for each bracket. When mounting to a wall stud, use the two in-line vertical holes in the bracket back. If mounting to a hood, use the two horizontal holes in the bracket back. Before drilling the mounting holes, be sure that the mounting surface will support the loads identified in Table 4-2.

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- Drill three holes for each Mounting Bracket and attach the bracket to the mounting surface with three (3) 3/8-inch diameter bolts or screws of suitable length and type. Use of other approved hardware is permitted.

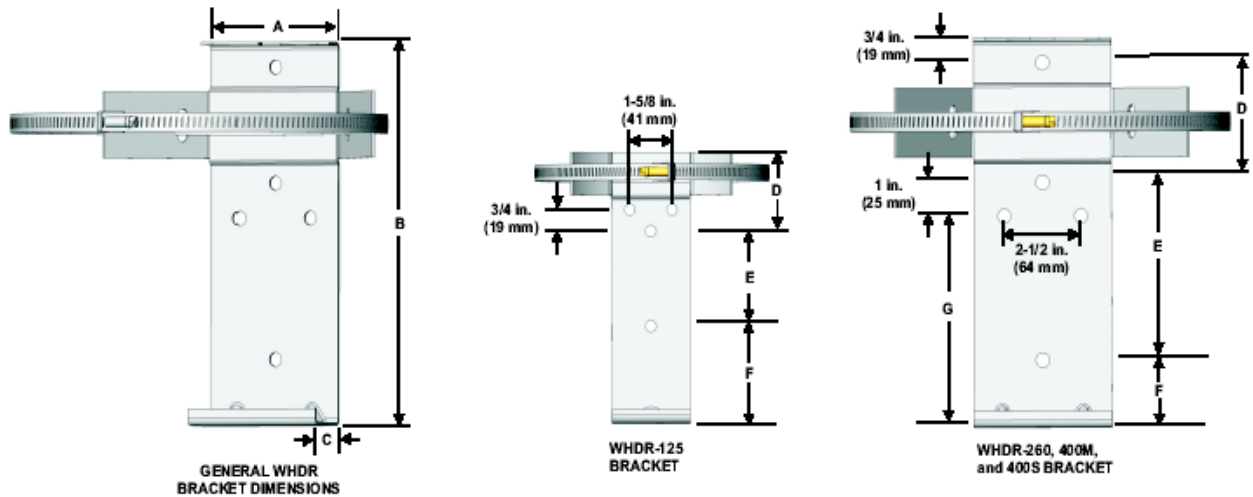


Figure 4-1. Wall Mounting Bracket

Table 4-1. Wall Mounting Bracket Specifications

Wall Mounting Bracket P/N	Model	Dimensions						
		A	B	C	D	E	F	G
60-9197430-000	WHDR-125 WHDR-5EU	3 in. (76 mm)	9-3/8 in. (238 mm)	1-3/8 in. (35 mm)	2 in. (51 mm)	3-1/4 in. (83 mm)	3-3/8 in. (86 mm)	—
60-9197263-000	WHDR-260 WHDR-10EU	4-1/2 in. (114 mm)	12 in. (305 mm)	2-1/2 in. (64 mm)	3-1/2 in. (89 mm)	3-3/4 in. (95 mm)	3 in. (76 mm)	5-1/4 in. (133 mm)
60-9197414-000	WHDR-400M WHDRM15EU	4-1/2 in. (114 mm)	20-1/2 in. (521 mm)	2-1/2 in. (64 mm)	3-1/2 in. (89 mm)	13-1/4 in. (337 mm)	2 in. (51 mm)	11-1/4 in. (286 mm)
60-9197415-000	WHDR-400S WHDR-S15EU	4-1/2 in. (114 mm)	11-1/2 in. (290 mm)	2 in. (51 mm)	3-1/2 in. (89 mm)	3-3/4 in. (95 mm)	4-1/4 in. (108 mm)	4-1/4 in. (108 mm)
87-100013-001	WHDR-600 WHDR-400 WHDR-23EU	See Figure 4-2						

Table 4-2. Wall Mounting Bracket Wall Support Load

Wall Mounting Bracket P/N	Model	Wall Support Load
60-9197430-000	WHDR-125	43 lb. (19.4 kg)
60-9197263-000	WHDR-260	80 lb. (36 kg)
60-9197414-000	WHDR-400M	132 lb. (60 kg)
60-9197415-000	WHDR-400S	132 lb. (60 kg)
87-100013-001	WHDR-600 and WHDR-400	225 lb. (102 kg)

4-3.3 Cylinder and Valve Assembly Installation

Upon removal of each Cylinder and Valve Assembly from its shipping carton, carefully check the following:

1. Ensure that the Anti-Recoil Plate and the Valve Protection Plate are secured to the valve.

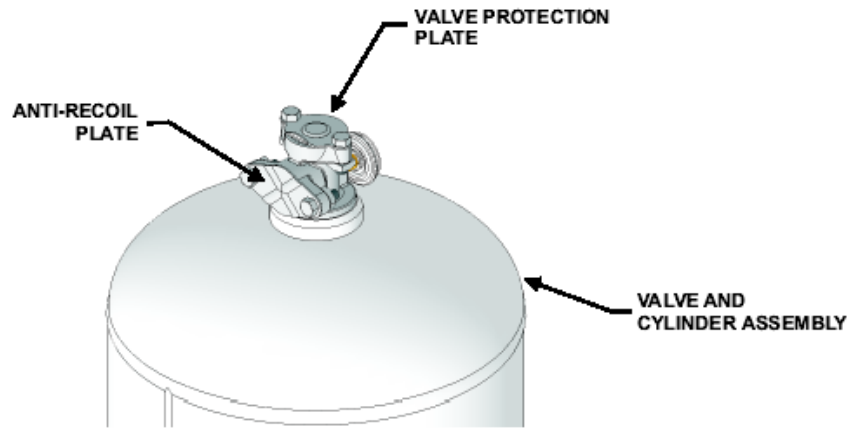


Figure 4-4. Anti-Recoil and Valve Protection Plates



WARNING

The Anti-Recoil Plate must remain installed on the valve outlet at all times except when the cylinder is mounted to a properly secured mounting bracket. The Protection Cap must remain on the valve until the System Valve Actuator (SVA) is installed. Refer to the Safety Summary for more information on pressurized cylinders.

2. Check that the cylinder pressure is within the acceptable range shown on the pressure gauge. If not, replace with a properly charged cylinder.
3. Inspect the Cylinder and Valve Assembly for any signs of damage such as dents, nicks or scratches. Refer to Compressed Gas Association (CGA) pamphlet C-6 for cylinder inspection procedures.
4. Place each Cylinder and Valve Assembly on its bracket shelf, tighten the cylinder strap and check the mounting for proper fit. Make any necessary final adjustments.

4-3.4 Installing the Discharge Adapter Kit, P/N 844908

1. Remove the cylinder Anti-Recoil Plate. **Do not discard.**
2. Lubricate the O-ring with a light coating of Parker Super-O-Lube. Do not grease the bonded seal on valve check. Place the O-ring in the groove near the inlet end of the Discharge Adapter.
3. Insert the Discharge Adapter through the hole in the flange plate (see Figure 4-5).
4. Install the Discharge Adapter into the valve outlet.
5. Install the two 5/16-18 x 1-inch bolts through the cylinder valve and flange adapter and tighten.

Each Cylinder and Valve Assembly must be installed in an upright position using the Mounting Bracket specified in Table 4-1 and Table 4-3. Each Cylinder and Valve Assembly will also utilize a Discharge Adapter Kit (P/N 844908).

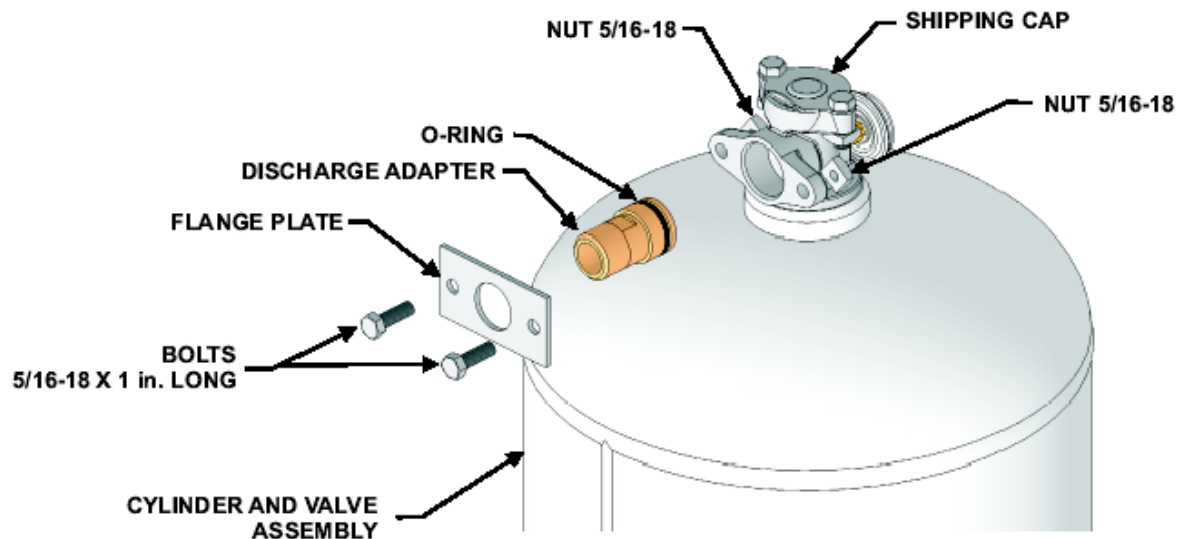


Figure 4-5. Installing the Discharge Adapter Kit, P/N 844908

4-3.5 Installation of Pipe/Tubing and Fittings

4-3.5.1 AGENT DISTRIBUTION PIPING

Note: If a Pressure Operated Release (P/N 60-9189412-000) is to be used, refer to Paragraph 4-3.5.3. If a Pressure Switch (P/N 60-9197023-000) is to be used, refer to Paragraph 4-3.5.2.

Install the agent distribution piping as defined in Chapter 3, or enclosures being protected.

Note: Use of bushings is permitted.



Do not exceed the maximum pipe lengths, equivalent pipe lengths or pipe fitting parameters as defined in Chapter 3 or the system may not operate as intended.

Piping may be Schedule 40, black steel, or stainless steel. All fittings shall be a minimum of 150 lb. class. Examples of acceptable fitting materials include malleable iron, ductile iron or stainless steel compression or stainless steel flare types. Couplings and unions may be used where necessary, and reducing bushings or reducing tees can be used for changes in pipe diameter. Refer to NFPA 17A, latest edition.



Galvanized pipe and fittings are not permitted.

Pipe hangers or pipe clamps shall be used for support as required. Refer to local plumbing codes for piping requirements.



Do not use water or oxygen to blow out piping. Moisture will cause blockage. The use of oxygen is very dangerous as the possible presence of even a minute quantity of oil may cause an explosion, thereby causing death, serious personal injury and/or property damage.

Before installing the agent distribution piping, ensure that the inside of the pipe is clean and free of obstructions. Piping shall be reamed and cleaned before assembly. After the piping is installed, it must be blown clean with dry air or nitrogen. Pipe thread compound or tape shall not be used. Refer to NFPA 17A, latest edition.

Avoid low points or "traps" in the pipe work that would allow liquid to accumulate. In addition, all pipe should pitch toward the cylinder or toward a nozzle so that liquid can drain after a discharge or after flushing.

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When using stainless steel tubing, the following minimum bend radii must be maintained:

Table 4-4. Tubing Radius

.035 Wall Stainless Steel Tubing	Minimum Bend Radius, R
3/8 in. (9.5 mm)	15/16 in. (24 mm)
1/2 in. (13 mm)	1-1/4 in. (32 mm)
5/8 in. (16 mm)	1-1/2 in. (38 mm)
7/8 in. (22 mm)	2 in. (51 mm)
1 in. (25 mm)	3 in. (76 mm)

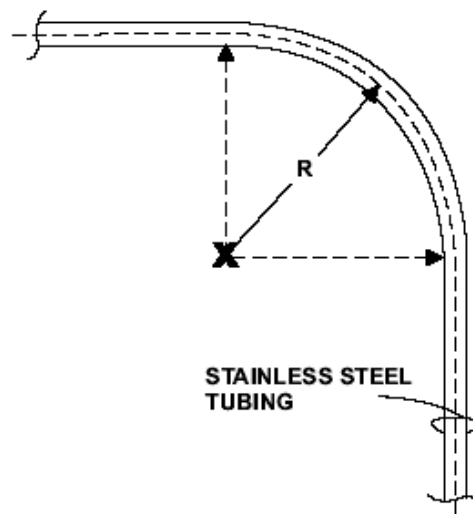


Figure 4-6. Stainless Steel Tubing

4-3.5.4 VENT PLUG, P/N 60-9196984-000

The vent plug has a 1/2-inch (13 mm) NPT and can be installed in the outlet or the run of the tee in the discharge pipe. In all systems requiring multiple cylinder systems, only one vent plug is required. The vent plug must always point up or horizontally, never down, to assure that it will remain open during discharge.

Note: It is necessary to use a bushing with the vent plug when installing the vent plug in a tee larger than 1/2-inch (13 mm).

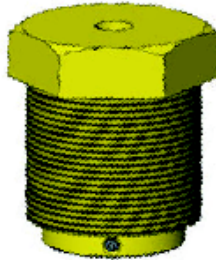


Figure 4-9. Vent Plug, P/N 60-9196984-000

4-3.6 Installing Nozzles



Do not use teflon tape or pipe compound when installing nozzles. Refer to NFPA 17A.



The nozzles are made of brass. Use a 13/16 open-end or adjustable wrench and tighten until snug. Do not overtighten.

Note: Ensure nozzle caps are installed on the nozzles. Do not overtighten or foil seals will be damaged.

4-4 INSTALLATION OF CONTROLS

4-4.1 XV Control System Installation

Remove the XV Control System from its shipping carton.



Use care when removing the knockouts as you can damage the XV Control System enclosure.



Ensure that the knockout pieces of the mounting holes do not remain inside the XV Control System (P/N 87-120099-001) enclosure. Failure to remove these could cause malfunction of the mechanism.

Identify the knockouts that will be used for cable connections to the XV Control System enclosure. It is easiest if these knockouts are removed before mounting the XV Control System enclosure. Refer to Figure 4-10 for knockout designations.

Note: If using more than the three EMT connectors supplied with the XV Control System, you must use EMT Connector and O-Ring Kit, P/N 87-120058-001.

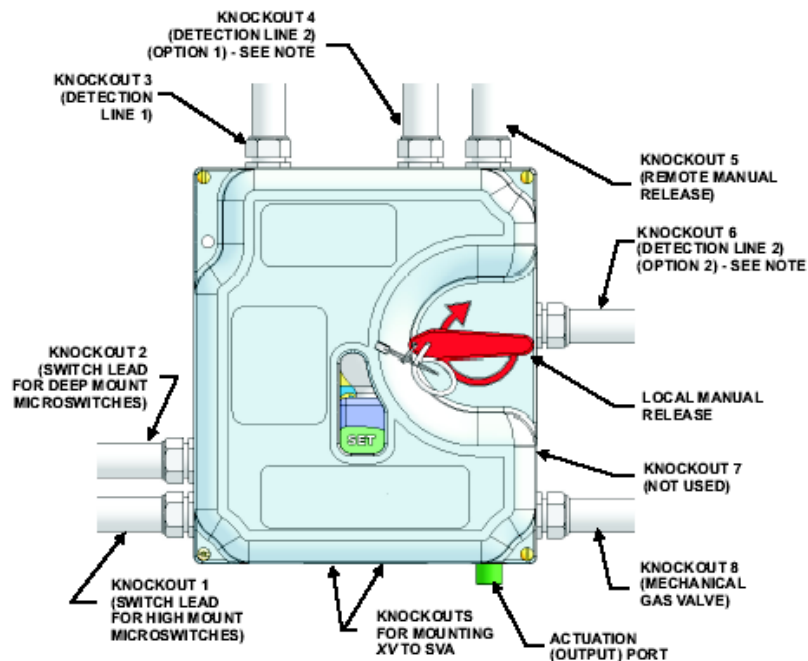


Figure 4-10. Pipe Connection Knockout Designations

Note: If using Detection Line 2, select Detection Line 2 (Option 1) **OR** Detection Line 2 (Option 2). You **cannot** use both Detection Line 2 knockouts.

Note: The knockouts are an integral part of the housing. Ensure that only required knockouts are broken out. Planning ahead and opening only the knockouts necessary for the system will help in keeping the box sealed from dirt, grease, water and other contaminants.

- If wall mounting, refer to Paragraph 4-4.1.1.
- If cylinder mounting, Paragraph 4-4.1.2.

4-4.1.1

INSTALLING THE XV CONTROL SYSTEM (WALL MOUNT)

1. With the XV Control System cover removed, lay the box on its back. Locate the four mounting holes in the housing. Position the box so that the mounting holes are not flat on the work surface and break out the knockouts. See Figure 4-11 for location of mounting holes.

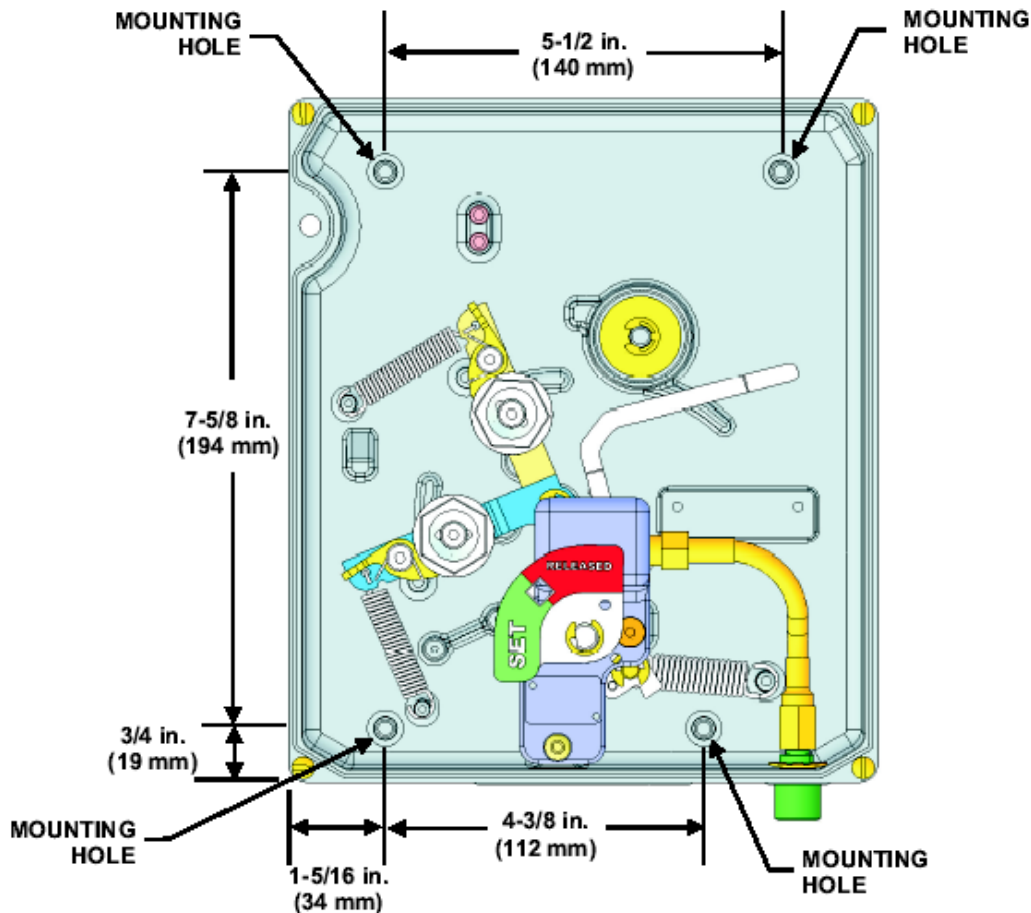


Figure 4-11. Location of Mounting Holes (Housing)

2. Using 1/4-20 x 3-inch long toggle bolts or equivalent hangers, mount the box to the wall making sure it is level. Attach the conduit fittings and other fittings to the box. Run cables and wiring as normal, within the parameters of the XV Control System. See Paragraph 4-7.1.4.1 for cable parameters.
3. Locate the System Valve Actuators (SVA).
4. Ensure the Spring Loaded Plunger of the SVA is in the 'Set' position. See Figure 4-12.

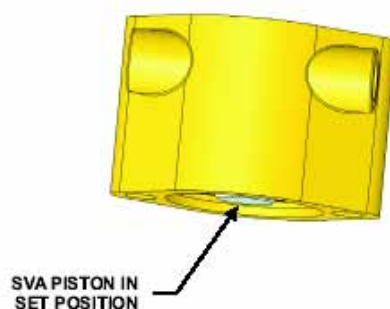


Figure 4-12. SVA in 'Set' Position

5. Remove the Valve Protection Plate from the top of the cylinder valve.
6. Install the SVAs onto each cylinder valve (the spring loaded plunger facing cylinder valve). Do not tighten them as they will be removed at a later time.
7. Install 1/8-inch NPT pipe plug (P/N 877810) on last SVA (end of line).
8. Install 1/8 NPT (M) x 1/4 copper tubing adapters. Compression type adapters are permissible.
9. Measure and install the 1/4 O.D. x 0.031 wall thickness copper tubing. A 2-1/2 inch (64 mm) loop between each cylinder and on the inlet tubing is recommended, but not required. See Figure 4-13. Ensure that each connection is secure.

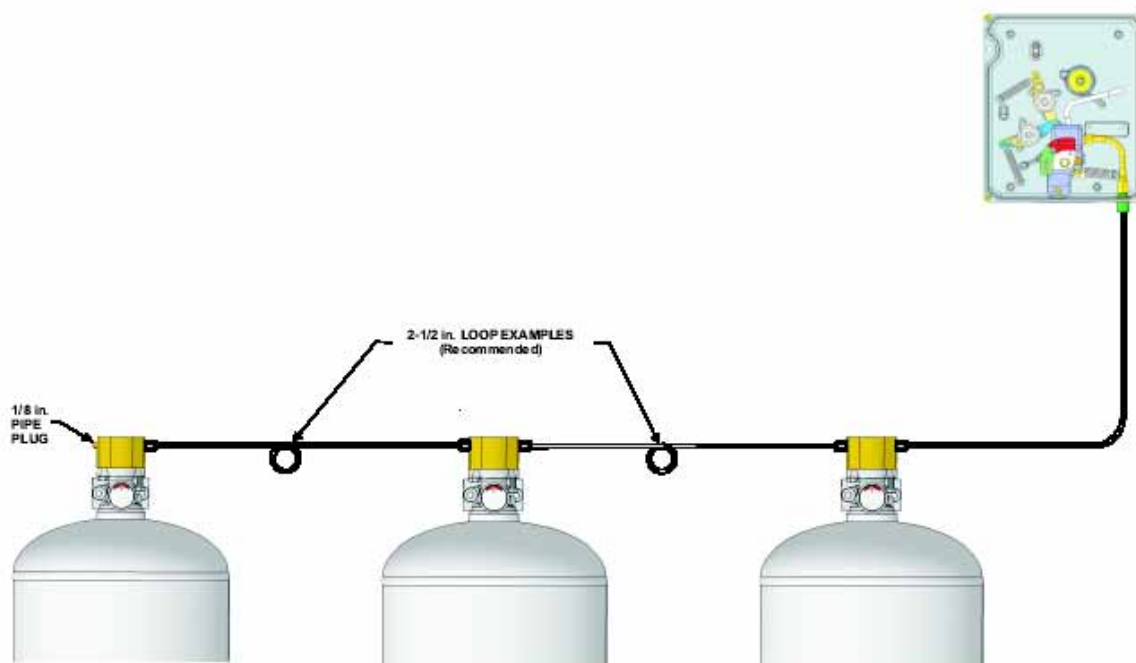


Figure 4-13. Example of Copper Tubing Loop Method

10. Remove the SVAs from the cylinder valves and re-install the Valve Protection Plates.

4-4.1.4 MECHANICAL DETECTION INSTALLATION

4-4.1.4.1 Installing Detection Components

1. Drill holes as necessary for installation of the Quick Seal Adapters (P/N 2649930X) or Compression Seal Adapters (P/N 2650460X).
2. Mount the detector brackets as required.



Be sure mounting penetrations are liquid tight.

3. Install conduit from the XV Control System detector conduit knockout(s) (top or right side of the XV Control System) to the detector brackets using Corner Pulleys (P/N 844648) at all changes in direction.
4. Remove screws and covers from the Corner Pulleys and set aside for reuse later.

Note: No bends or offsets are permitted in conduit lines. Be sure the system is adequately supported.

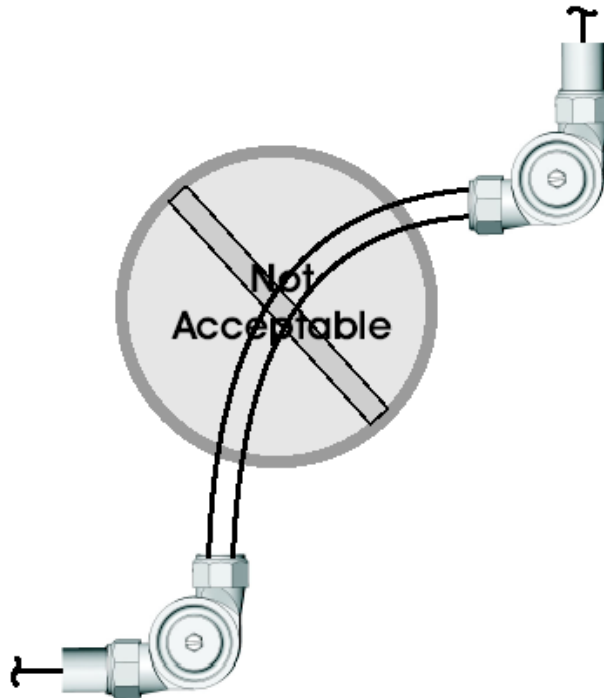


Figure 4-21. Unacceptable Cable Configuration

5. Run the 1/16-inch Control Cable from the various system devices, through 1/2-inch EMT conduit, to the XV Control System.
6. Install detectors of proper rating as described in Paragraph 3-2.4. To install detectors, use the following steps. Always start detector installation at the last detector (see Figures 4-22 and 4-23).

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7. To install detectors, create a cable loop using a Crimp Sleeve (P/N 214951), and Crimp Tool (P/N 253538).

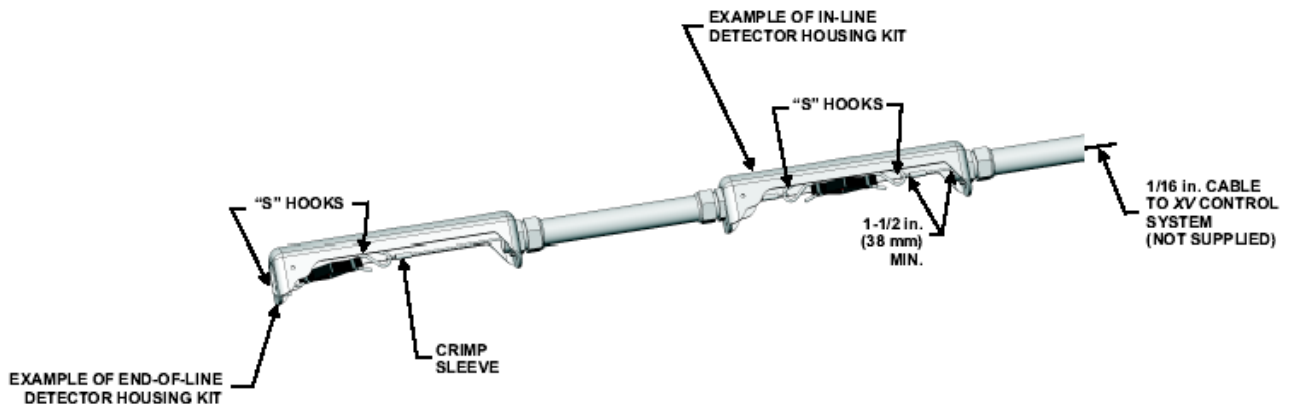


Figure 4-22. Detector Housing Kit Installation, P/N 804548



Use of a crimp tool besides P/N 253538 can cause malfunction and/or unwanted discharge of the system.

Note: In order to ensure the crimp sleeve is secure, the cable must always be looped so that there are two lengths of cable inside the Crimp Sleeve before crimping. Cable must not be spliced anywhere along its length.

8. Place the Crimp Tool on the end of the sleeve. Ensure the flat of the sleeve rests in the saddle of the Crimp Tool jaw. Secure the sleeve in the tool carefully to ensure the sleeve does not shift in the saddle before pressing.
9. Squeeze the handles of the Crimp Tool until the tool releases itself. The tooth of the jaw is pressing on the wall of the sleeve without cracking the malleable copper. The first crimp is complete.
10. Remove the crimp from the tool.
11. Put the Crimp Tool onto the other end of the sleeve. The sleeve shall be 180° turned in the tool from the first crimp.

Note: This is pressing the loop end of the sleeve (opposite that of the first press).

12. Squeeze the handles of the Crimp Tool until the tool releases itself. The tooth of the jaw is pressing on the wall of the sleeve without cracking the malleable copper. The second crimp is complete.
13. Remove the crimp from the tool.



To ensure proper system operation, each detector must be installed so that at least 1-1/2 inches of cable movement toward the XV Control System is maintained.

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14. Attach an "S" hook (P/N 87-9189413-000) to the end of the last detector mounting bracket.
15. Attach proper detector onto the "S" hook.
16. Attach 1/16-inch cable to the hook at the other end of the detector, forming a cable loop held in place by a Crimp Sleeve.

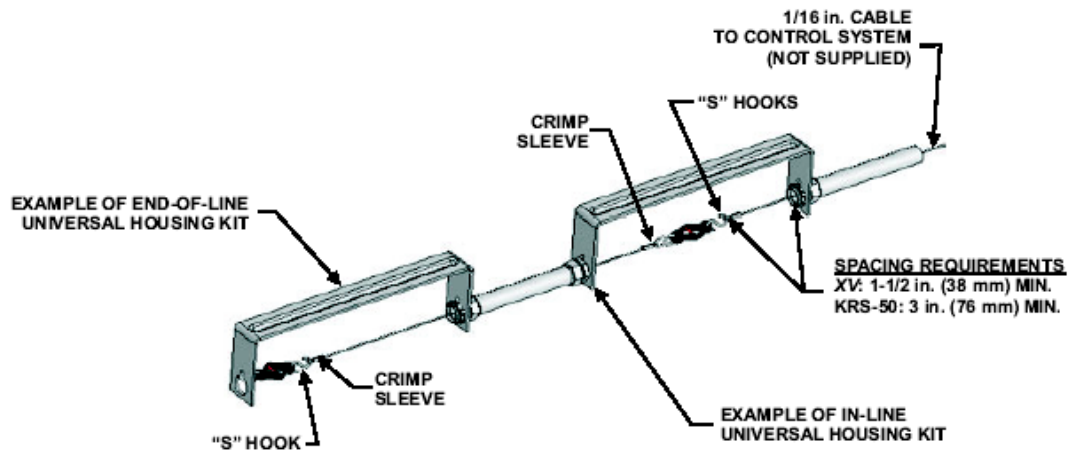


Figure 4-23. Universal Link Housing Installation

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4-4.1.4.3 Cabling Detection Line 1 Only — Includes Lockout of Detection Line 2

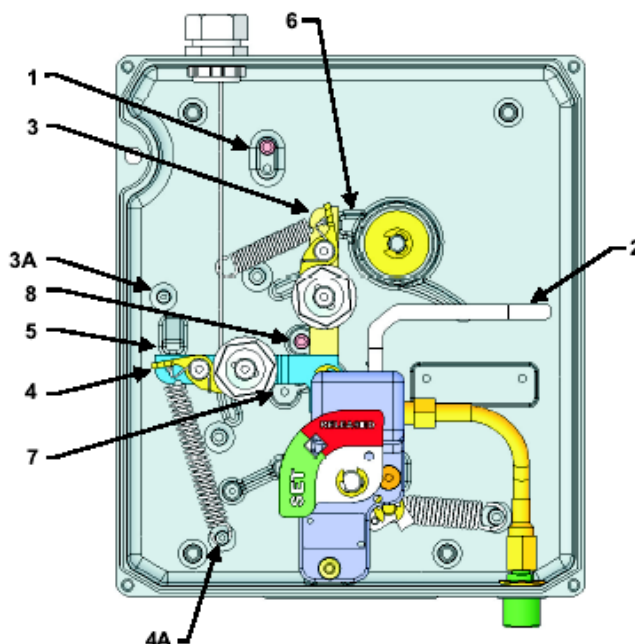


Figure 4-26. XV with Detection Line 2 Locked Out

Table 4-6. Cabling Detection Line 1 Only

Item	Description
1	Lockout screw pad (shown with one red lockout screw removed)
2	Actuation Latch
3	Spring and beam for Detection Line 2 (locked out)
3A	Spring Post for Detection Line 2 (spring removed)
4	Spring and beam for Detection Line 1 (set with cable)
4A	Spring Post for Detection Line 1
5	Beam Stop for Detection Line 1
6	Beam Stop for Detection Line 2
7	Lockout pad for Detection Line 1 (not used, line set)
8	Lockout pad for Detection Line 2 (red lockout screw inserted)

1. Ensure that nothing is armed or set in the XV.
2. With the XV completely disarmed, remove the spring from its respective post (item 3A, Detection Line 2). It is permissible to remove the spring from the detection beam.
3. Push the detection beam (item 3) against its respective beam stop (item 6).
4. Using a 9/64-inch allen key (hex) remove one of the red lockout screws from storage pad (item 1) and carefully thread into lockout pad (item 8).

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4-4.1.5 ATTACHING MICROSWITCHES, P/N 87-120039-001

4-4.1.5.1 High Mounted Microswitch

The High Mounted Microswitch mounts with the paddle(s) facing up into the Cam/Flag. When in the 'Set' position, the Cam/Flag pushes down on the paddle(s) of the microswitch. When the Cam/Flag is released, the microswitch(es) release and change position (see Figure 4-29 for mounting, and Figure 4-32 for wiring diagram).

The microswitches are best mounted when the system is in the 'Released' position. Two pairs of #4 screws are included with each microswitch kit: 5/8-inch long and 1-inch long x 3/32-inch Allen Key.

If mounting a single switch, use the 5/8-inch screws. If mounting two switches, use the 1-inch long screws.

After mounting the microswitch, turn the Cam/Flag to the 'Set' position to ensure the paddles move far enough down to change the phase of the microswitch. Use the included pigtail assembly to connect the microswitch to the circuit being monitored.

See Figure 4-34 to see the terminal type microswitch positions when the XV Control System is in the Set and Released states.

Note: It is recommended that the pigtails be threaded into the port before attempting to plug it onto the microswitch contacts. All splices and connections should be made in a separate approved electrical box connected by EMT or other approved conduit. See NFPA 70 and 72 for proper wiring guidelines.

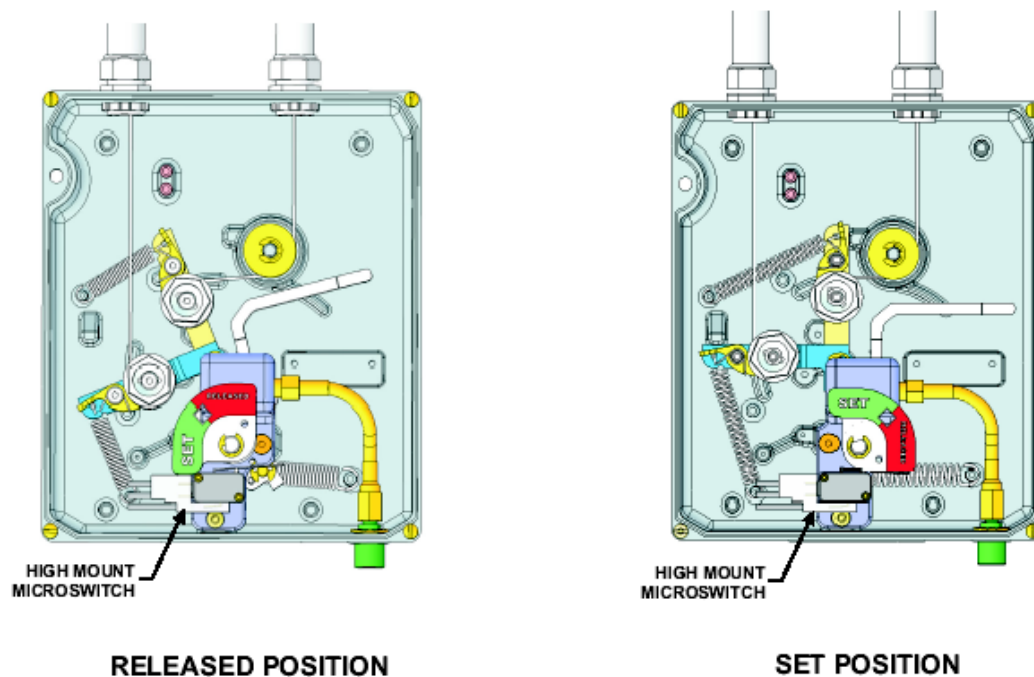


Figure 4-29. High Mount Microswitch, 'Released' and 'Set' Positions

4-4.1.5.2 Deep Mounted Microswitch



When setting the Cam/Flag, make sure the trigger pin turns under the microswitch paddle(s) and pushes up to set the microswitch. If the trigger pin is "above" or between the paddle and the microswitch, the microswitch will not change position upon actuation of the XV Control System which could result in system malfunction.

The Deep Mounted Microswitch mounts with the paddle(s) facing down, away from the Cam/Flag and trigger. When in the 'Set' position, the trigger pin pushes up on the paddle(s) of the microswitch. When the Cam/Flag is released, the microswitch(es) release and changes position. See Figure 4-30 for mounting information. See Figure 4-32 for wiring diagram.

The microswitches should be mounted when the system is in the 'Released' position. Two pairs of #4 screws are included with each microswitch kit: 5/8-inch long and 1-inch long x 3/32-inch Allen Key.

If mounting a single microswitch, use the 5/8-inch screws. If mounting two microswitches, use the 1-inch long screws.

After mounting the microswitch, turn the Cam/Flag to the 'Set' position to ensure the paddles move far enough up to change the position of the microswitch. Use the included pigtail assembly to connect the Microswitch to the circuit being monitored.

See Figure 4-34 to see the terminal type microswitch positions when the XV Control System is in the Set and Released states.

Note: It is recommended that the pigtails be threaded into the port before attempting to plug it onto the microswitch contacts. All splices and connections should be made in a separate electrical junction box connected by EMT or other approved conduit. See NFPA 70 and 72 for proper wiring guidelines. Mounting the microswitch with the pigtails attached and inserted into the outlet is recommended.

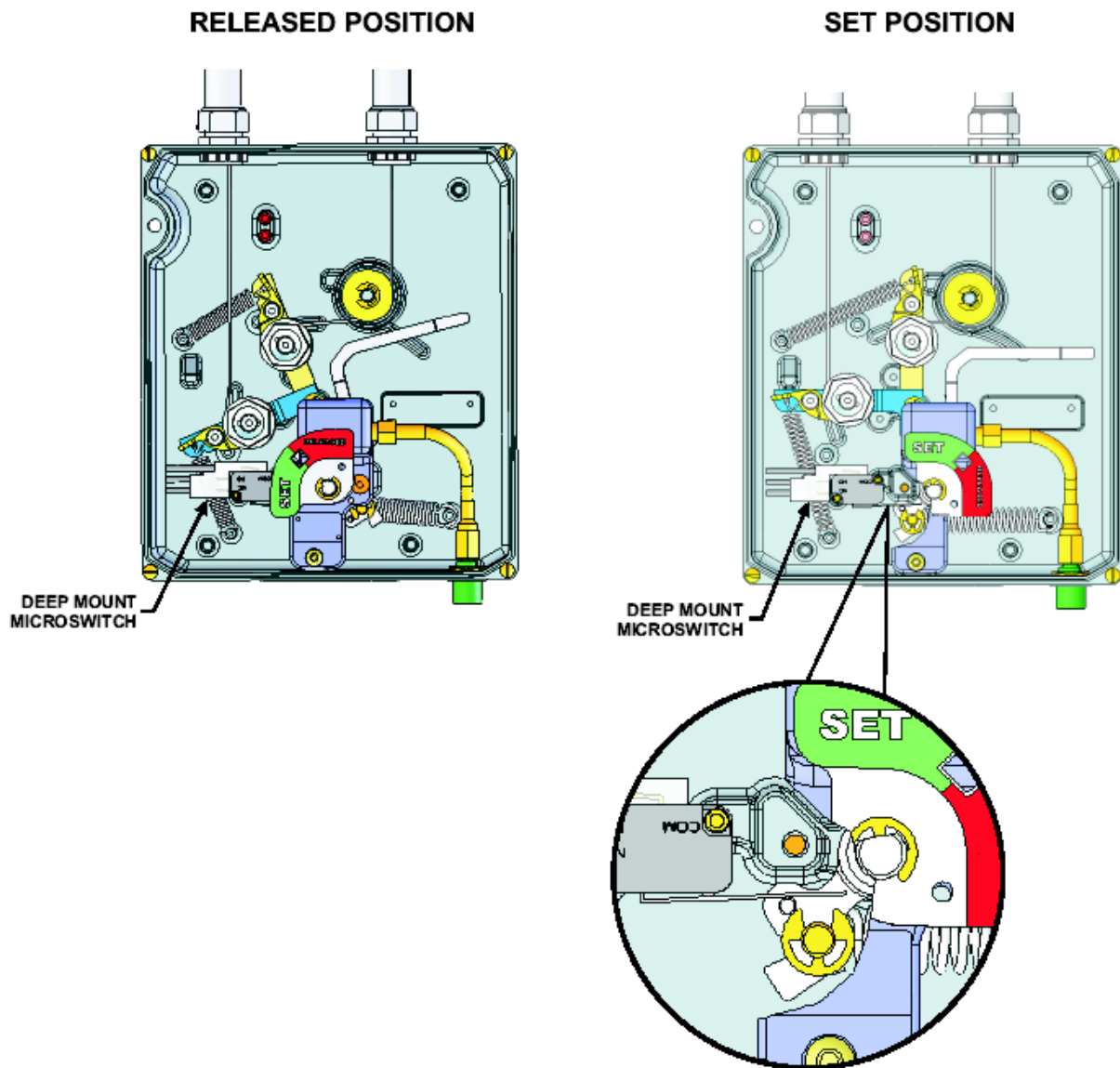


Figure 4-30. Deep Mount Microswitch, 'Released' and 'Set' Positions

4-4.1.6

WIRING MICROSWITCHES

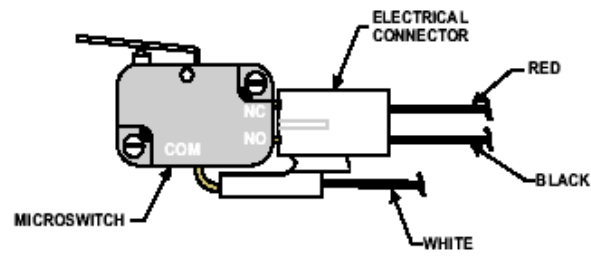
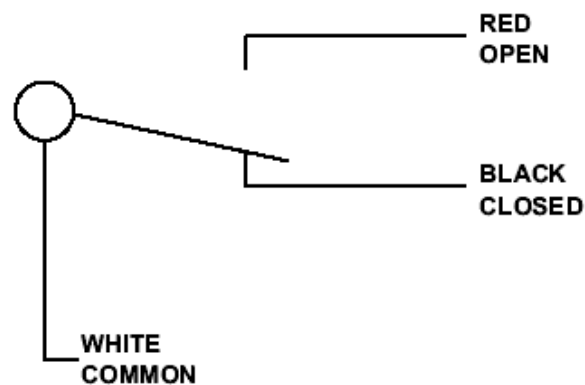


Figure 4-31. Microswitch Kit, P/N 87-120039-001

Table 4-9. Electrical Ratings for Microswitch Kit, P/N 87-120039-001

125/250 Vac	20.5 Amps
250 Vac	1.5 HP
125 Vac	1/2 HP



**SWITCH POSITION WHEN XV CAM/FLAG
IS IN 'SET' (ARMED) POSITION**

Figure 4-32. Position of Switch in Set Position

4-4.4 Optional Equipment Installation

4-4.4.1 INSTALLING REMOTE MANUAL RELEASE, P/N 875572 (XV ONLY)

The Remote Manual Release is equipped with a safety pin and seal wire which must be removed to permit installation of the control cable from the XV Control System.

Note: The Remote Manual Release is optional if the XV Control System (local manual release) is in a clearly visible, easily accessible, unobstructed location. If it is not, a Remote Manual Release must be used for mechanical systems.

Install the Remote Manual Release as outlined in Steps 1 through 6 (see Figure 4-50).

1. Mount the Remote Manual Release at a means of egress, on a clear, unobstructed exit location no more than 42-inches from the floor.

The cable can enter the handle from the side hole in the snap-out cover or from the rear of the handle. If the cable is to enter from the rear, perform alternate Steps 1-a and 1-b, otherwise, proceed to Step 2.

- a. Drill a hole in the wall opposite the position of the Remote Manual Release handle plug (when mounted).
- b. Attach a 1/2-inch EMT adapter to the hole in the wall.

2. Mount the back plate to the wall using mounting hardware of required length.
3. Remove the Corner Pulley covers to aid in installing the 1/16-inch steel cable through the system.
4. Feed the 1/16-inch steel cable through the Remote Manual Release through 1/2-inch conduit or EMT to the XV Control System. Use Corner Pulleys (P/N 844648) for all changes in direction. Leave at least 12-inches of 1/16-inch steel cable coming out of the Remote Manual Release.

Note: The Remote Manual Release cable attaches to the latch of the XV Control System. The Remote Manual Release uses Port 5 of the XV Control System.

5. There is a through hole in the end of the actuation latch. Carefully feed the control cable through the hole in the actuation latch.

Note: It is important that the control cable slips easily through the hole in the end of the actuation latch. The actuation latch must be able to operate without interference from the control cable. Later, the movement of the actuation latch assembly will be tested before completing the setting of the XV Control System. Approximately 1-1/4 inches (32 mm) of control cable (with crimp end not included) should be left under the actuation latch, when in the 'Released' position.

6. Slip a Crimp Sleeve (P/N 214951) over the end of the control cable.
7. Making a loop, slip the end back through the Crimp Sleeve.
8. Use the Crimping Tool (P/N 253538) to fasten the Crimp Sleeve to the control cable.
9. Cut the loop off of the crimped cable assembly. Cut any loose ends off as close to the Crimp Sleeve as possible.
10. If a second Remote Manual Release is required, use the Tee Pulley assembly (P/N 843791).

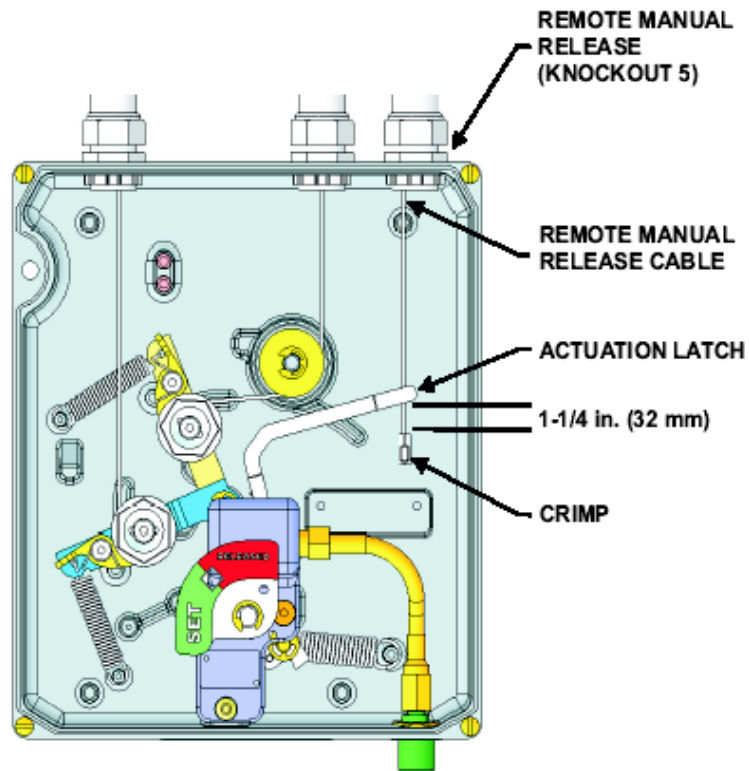


Figure 4-50. Remote Manual Release with Detection Lines 1 and 2 Locked Out

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4-4.4.1.1 Attaching Remote Manual Release

Note: You can use two Remote Manual Releases with a Tee Pulley (P/N 843791) going to the XV Control System.

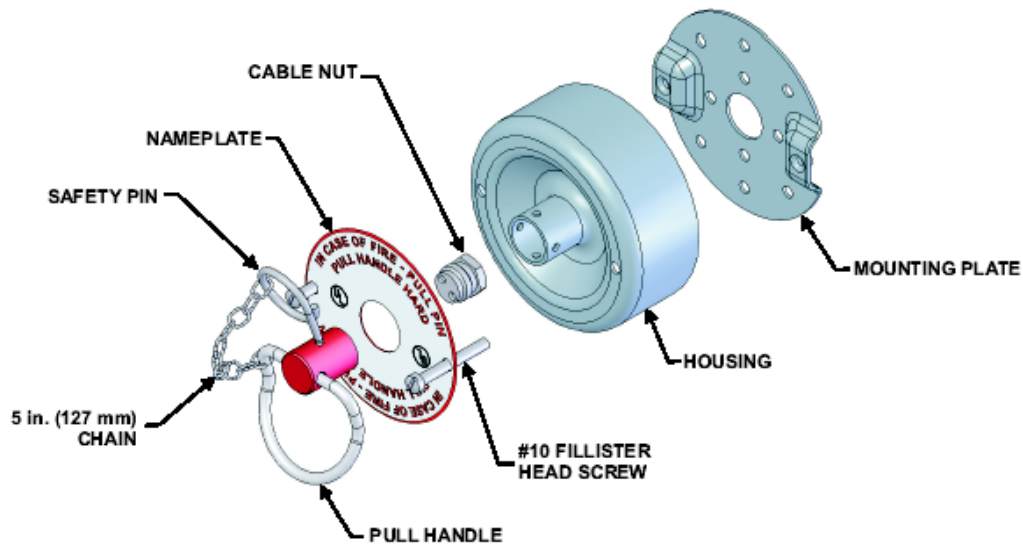


Figure 4-51. Exploded View of the Remote Manual Release

1. Attach a length of 1/16-inch steel cable to the Remote Manual Release handle, as follows (refer to Figure 4-52):
 - a. Unscrew the cable nut from the Remote Manual Release plug.
 - b. Thread the cable through the cable nut hex-head end at least 3-4 inches from the entry of the Remote Manual Release box. Return the cable through the other hole of the cable nut hex-head.
 - c. Screw the cable nut into the Remote Manual Release handle plug until tight. Insert the Remote Manual Release handle plug in the hole in the Remote Manual Release handle assembly.
 - d. Cut excess slack where it emerges from the second hole in the hex-head end of the cable nut.
 - e. Line up the holes in the Remote Manual Release handle and the Remote Manual Release handle plug and insert the safety pin to hold the plug in place. Loosely wrap the seal wire around the release handle to lock.

2. Attach the cover with nameplate to the mounting plate using the 2 screws provided.
3. Reattach Corner Pulley covers.

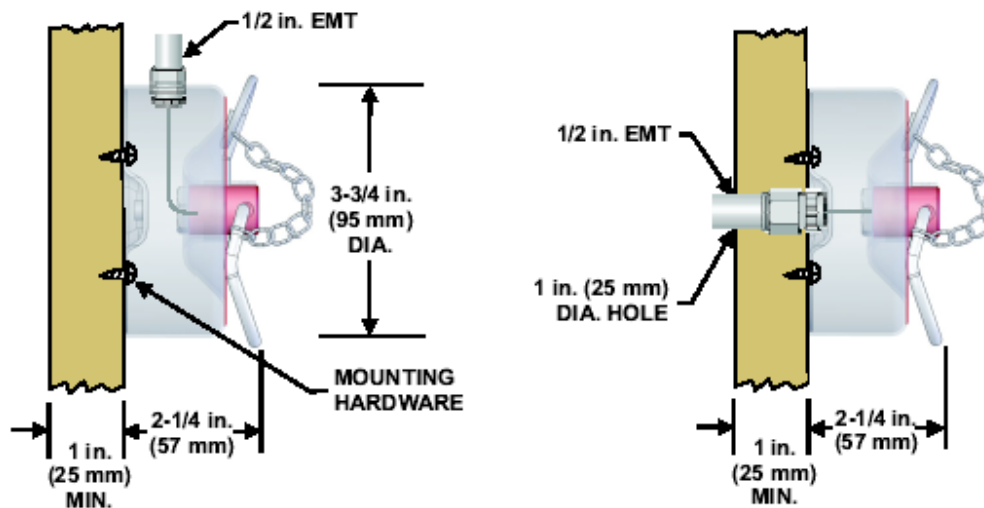


Figure 4-52. Installing the Remote Manual Release, P/N 875572

4-6 COMMISSIONING THE SYSTEM - XV CONTROL SYSTEM

Perform the "Post-Installation Checkout" on page 4-68.

4-6.1 Arming the System

Set the detection beams by turning the ratchet spools counterclockwise (see Figure 4-67).

Tighten the line until the beam reaches the Stop. **Do not overtighten.**

Note: In long cable lines (over 125 ft. [38 m]) there will be stretch in the control cable and in the loops for the detectors. It is important to ensure the control cable is tight without over tightening.



The actuation latch must be in the horizontal position. If it is in any position other than horizontal, the system could malfunction.

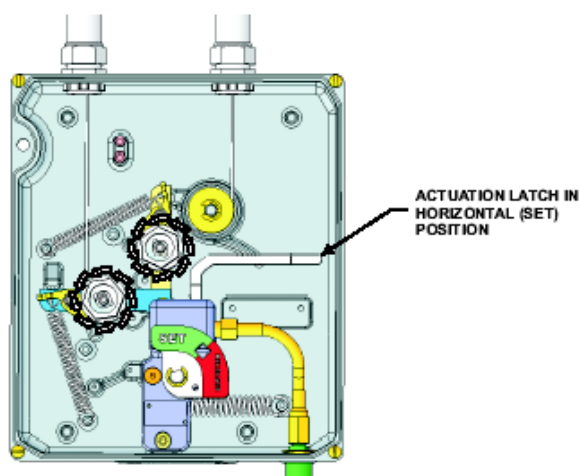
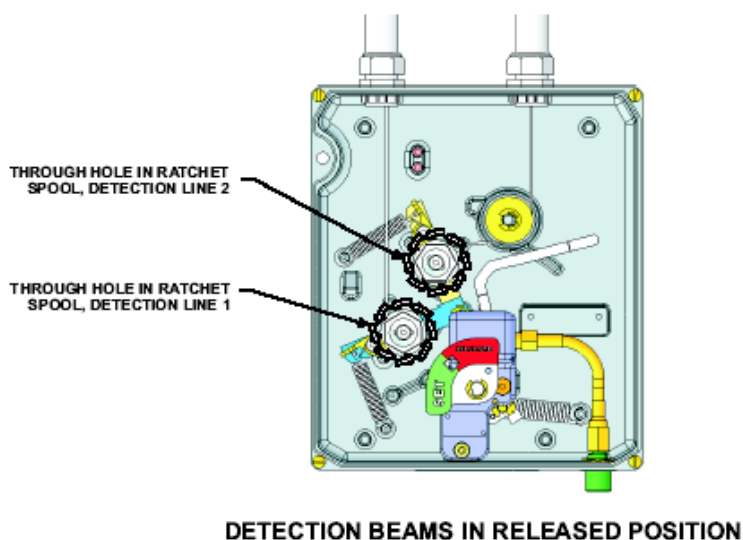


Figure 4-67. Setting the Detection Beams

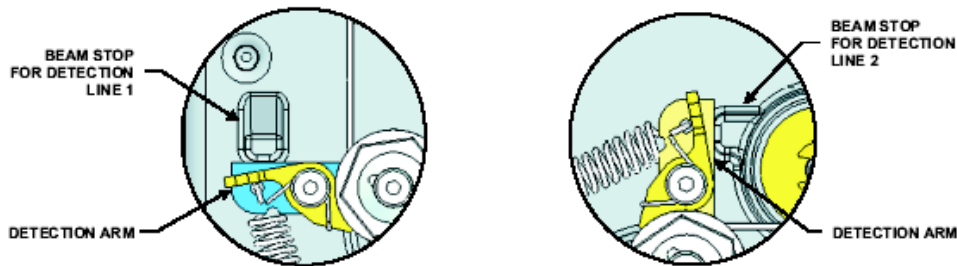


Figure 4-68. Detection Beam Stops



If the Remote Manual Release control cable is interfering with the free movement of the actuation latch, it might require re-cabling. If there is something else interfering with the free movement of the actuation latch, take appropriate corrective action. If it is determined that the interference is due to a mechanical fault of the XV Control System, it must be replaced and returned to the factory.

Be careful not to allow the control cable to become entangled with any other parts in the system. If it does, perform the following steps.

1. Using a 7/8-inch socket (or equivalent), slightly turn the ratchet spool counterclockwise. Do not turn so far that it will click into the next step. Using the thumb release on the pawl, release the ratchet and allow it to turn backwards. The beam will move back to the 'Released' position.

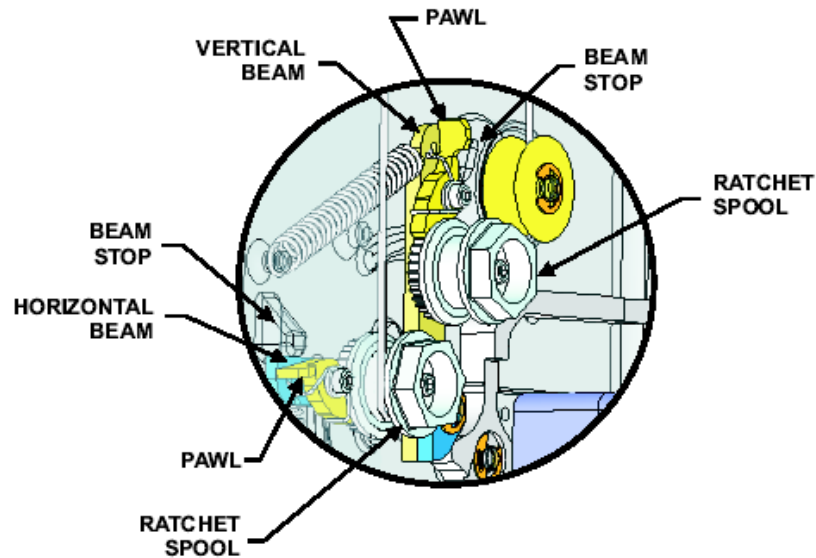


Figure 4-69. View of Ratchet Spool and Pawl

2. Untangle the control cable and guide it onto the spool while ratcheting. Once there is tension, there should be no more entanglement.

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

When the two tensioned lines are set, the actuation latch will automatically fall into a horizontal position.

Twist the Cam/Flag 90° clockwise until it clicks into place. The actuation latch will move up, then reset into the horizontal position (see Figure 4-72). Install Keeper Pin (P/N 60-9197108-000) in the Cam/Flag.

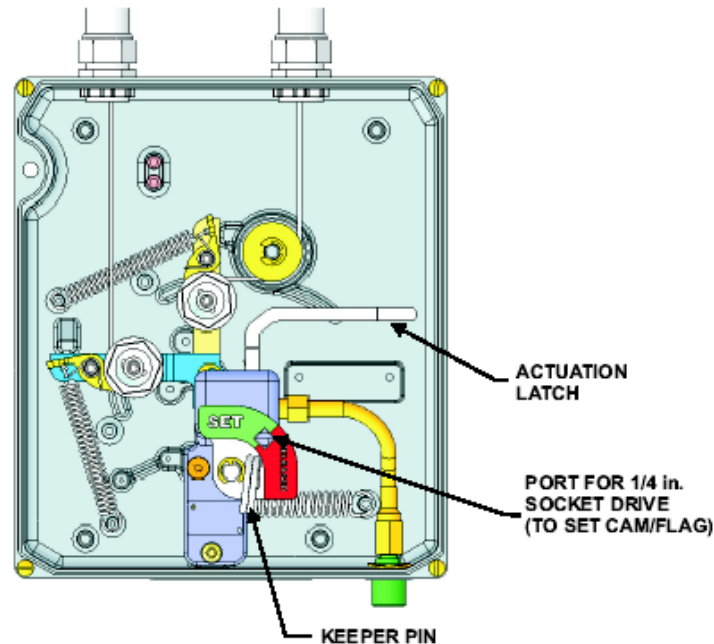


Figure 4-72. Latch Shown in "Set" Position

4-6.1.1 CHECKING MICROSWITCHES

Check to ensure that the microswitches are set. The Cam/Flag should hold down the High Mount Microswitch paddles. The trigger pin should hold up the Deep Mounted Microswitches. Gently push the microswitch paddles toward the body of the microswitches. If there is a “click,” the microswitch is not adjusted properly in the XV Control System. Make appropriate adjustments.



The trigger pin on the Deep Mounted Microswitches must be underneath the paddle(s) of the microswitch. If the paddle is under the trigger pin, the microswitch will not change position upon actuation of the XV Control System and the paddle(s) might be bent or broken upon such actuation.

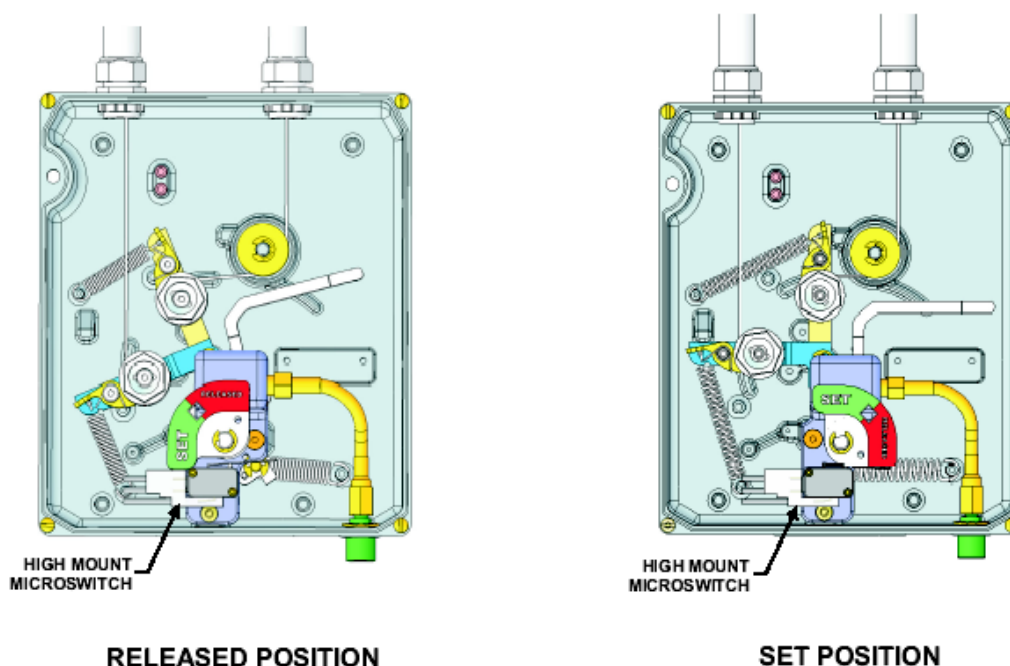


Figure 4-73. High Mount Microswitch, 'Released' and 'Set' Positions

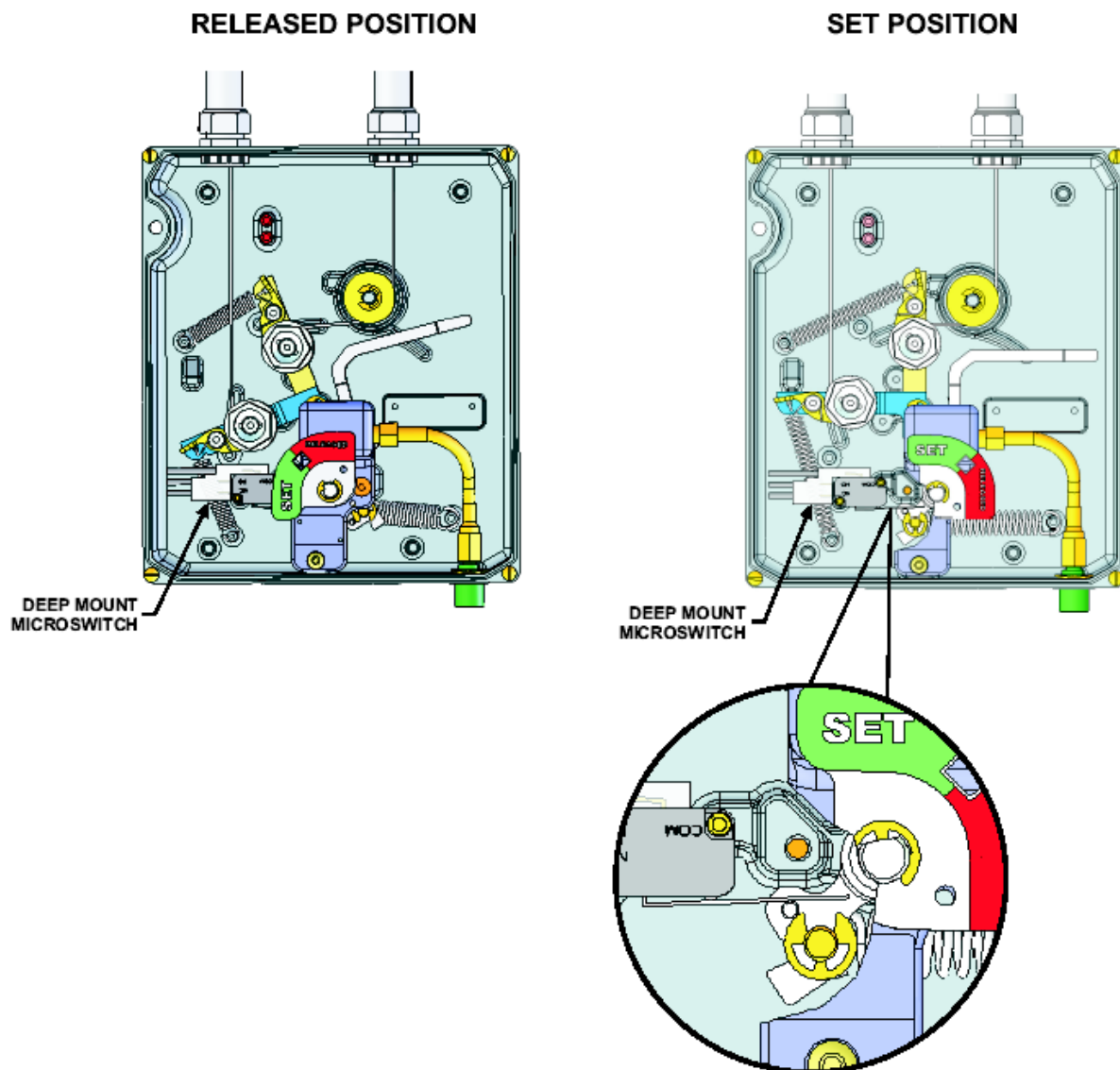


Figure 4-74. Deep Mount Microswitch, 'Released' and 'Set' Positions

4-6.2 Functional Testing of the XV Control System System

Perform the "Post-Installation Checkout" on page 4-68.

4-6.2.1 TEST MECHANICAL LINK LINES FOR THE XV CONTROL SYSTEM (IF APPLICABLE)

To test the mechanical detector lines, perform the following steps.



The mechanical detector lines are under tension. Wearing safety glasses and gloves is required during this process.

Before cutting a detector, ensure the System Nitrogen Cartridge is not installed in the XV Control System and the Keeper Pin is in place in the Cam/Flag.

1. Remove the Keeper Pin (P/N 60-9197108-000) from the Cam/Flag.
2. Go to the far end of the detection line. Cut the detector.
3. Check to ensure the rotation of detection spool and beam assembly as intended.
4. Check to ensure the Cam/Flag has rotated to the 'Release' position.
5. Check the microswitches to ensure that they have changed phase as intended.
6. Check the gas valve line to ensure that it has moved freely and that the gas valve has closed. Verify that all gas fired appliances have shut down, including the pilot lights.
7. Check each detector and bracket to ensure the travel distance of the cable. Make sure the line has operated without interference at any place in the system.
8. Replace detector that was cut.
9. Reset detector line.
10. Check and ensure the actuation latch is reset back to the horizontal position. Reset the Cam/Flag.
11. Insert Keeper Pin into Cam/Flag.
12. Reset all electrical shut-offs.

Repeat steps 1 through 12 for second detection line, if applicable.

4-6.2.2

TEST REMOTE MANUAL RELEASE, P/N 875572 (IF APPLICABLE)



Before testing the Remote Manual Release, ensure the System Nitrogen Cartridge is not installed in the XV Control System and remove the Keeper Pin from the Cam/Flag.

1. Operate the Remote Manual Release by pulling the safety pin located on the release handle and then pulling on the handle.
2. Observe the length of control cable that comes out of the Remote Manual Release. It should be between 3 and 4 inches (76 and 102 mm).
3. Insert the release handle back into the Remote Manual Release.



It is important that the control cable slips easily through the hole in the end of the actuation latch. The actuation latch must be able to operate without interference from the control cable. Be sure to test the movement of the actuation latch assembly before completing the setting of the XV Control System. 1-1/4 inch (32 mm) to 1-1/2 inch (38 mm) of control cable (with crimp end not included) should be left under the actuation latch, when in the 'Released' position.

4. Go to the XV Control System and check to ensure the Crimp Sleeve is against the bottom of the actuation latch and the actuation latch is pulled up at approximately two o'clock position and Cam/Flag is in the 'Release' position.
5. Pull 1-1/2-inches of control cable back into the XV Control System.

4-6.3

Actuation Test For the XV Control System

1. After ensuring that the system is in the 'Set' position and the Keeper Pin is in place, locate the Test Cartridge (P/N 87-120044-001). Carefully install the cartridge into the valve assembly of the XV Control System. Tighten until cartridge is snug (see Figure 4-76). It is permissible to perform this test with the System Cartridge.



Do not attempt to push the piercing pin down. Pushing the piercing pin too far can cause the O-ring to move out of the valve bore. This could cause the O-ring to chip or break upon actuation of the system. Inserting the System Nitrogen Cartridge will push the piercing pin down to the proper location in the valve bore.

Note: Do not use a wrench or other tool to tighten the cartridge. Hand tightening is sufficient. If leakage is observed, check the condition of the flat gasket in the valve bore.

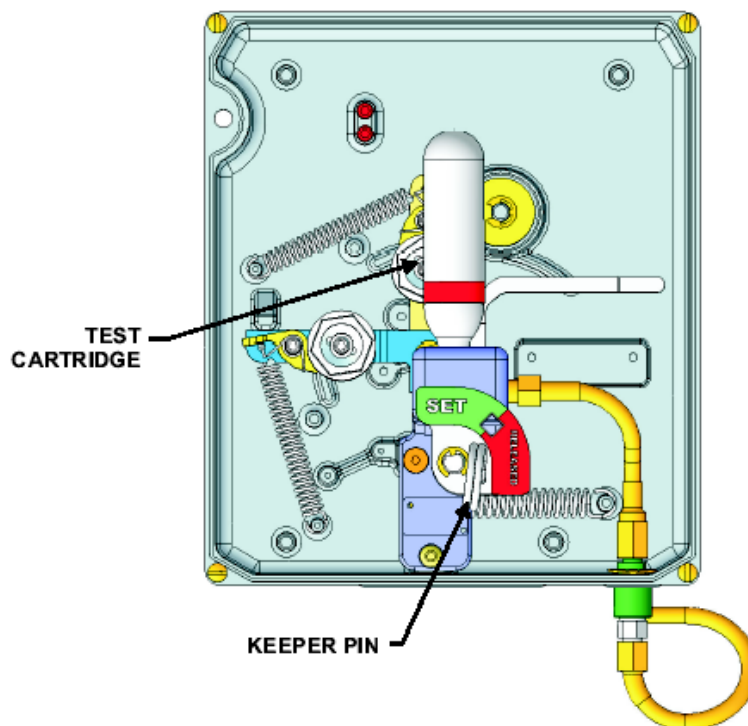


Figure 4-76. XV Control System, Test Cartridge Placement

2. Locate the cover of the XV Control System. Ensure that the local manual handle is set and that the Safety Pin is inserted (see Figure 4-77). The handle should be locked in the set position. If the handle can turn, adjust until the pin can be inserted all the way through the handle into the body of the cover.

Note: Installation of a tamper wire seal can prevent the pin from slipping out.

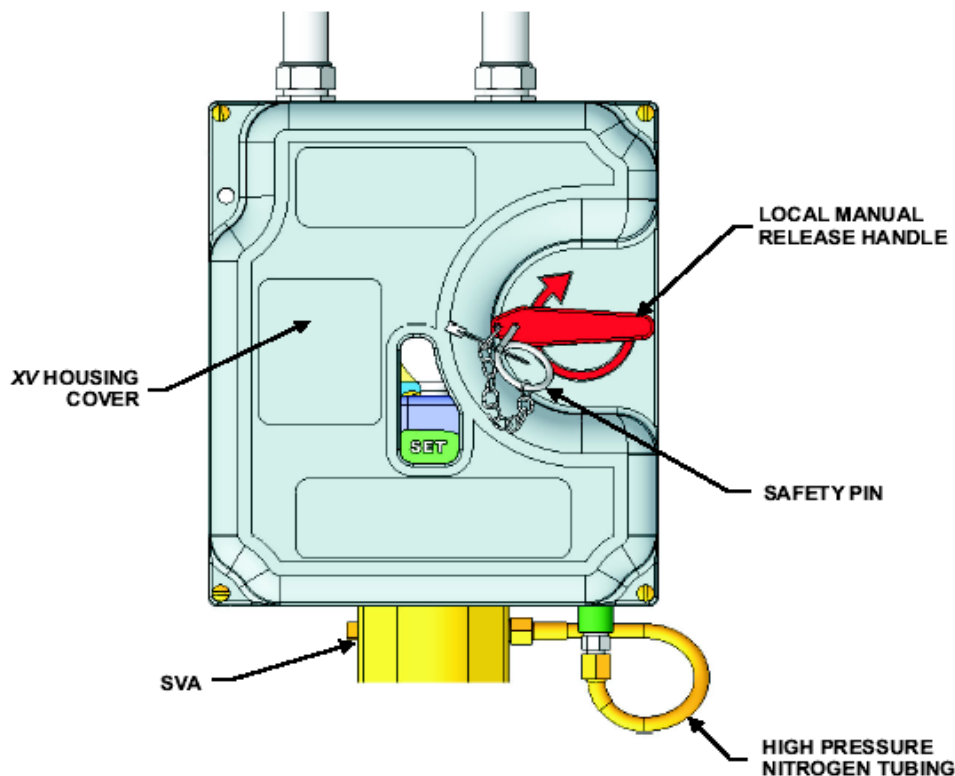


Figure 4-77. XV Control System, Cover Attached

3. Remove the Keeper Pin from the XV Control System Cam/Flag. Carefully install the cover onto the XV Control System enclosure. The cover has a tongue that fits into the groove of the XV Control System enclosure. Center the cover over the XV Control System enclosure and fit the tongue and groove together.



While the cover is resting on the XV Control System enclosure, moving it upward could engage the local manual release with the latch, causing the XV Control System to release. Keep the cover as centered as possible while performing this step.

4. Fasten the cover to the XV Control System enclosure with the captive screws. Turn the captive screws until snug.

Note: The Valve Protection Plates should remain on the top of the Cylinder and Valve Assemblies until directed to remove it.

5. Pull the safety pin and turn the handle in the direction of the arrow about 1/8-turn. The system will fire, pressurizing the actuating lines.

Note: Do not loosen any of the fittings on the actuating lines at this time.

6. Inspect the actuating lines and SVAs for leakage. Each SVA piston must be in the released position (down) and locked. Check each piston to ensure that it is fully extended and the spring-loaded plunger is extended.

Note: If any leakage is observed, appropriate steps must be taken to implement corrective action. However, pressure should be bled off before any action is implemented on the actuating lines.



The system uses high pressure. Safety goggles or glasses must be worn.

All pressure must be released from the actuation lines before resetting the Cam/Flag. Failure to do so will cause the head of the piercing pin to protrude out of the valve bore, exposing the O-ring. This could result in the O-ring being damaged, thereby causing malfunction or non-function of the system as designed. Always ensure that the pressure has been released before resetting the Cam/Flag.

7. After ensuring there is no leakage, loosen the swivel fitting located at the bottom right side of the XV Control System (see Figure 4-78). Allow the pressure to vent slowly. When the pressure is completely vented, disconnect the fitting and remove the cover.



To avoid accidental discharge later in the service sequence, it is important to completely disconnect the fitting outside the XV Control System.

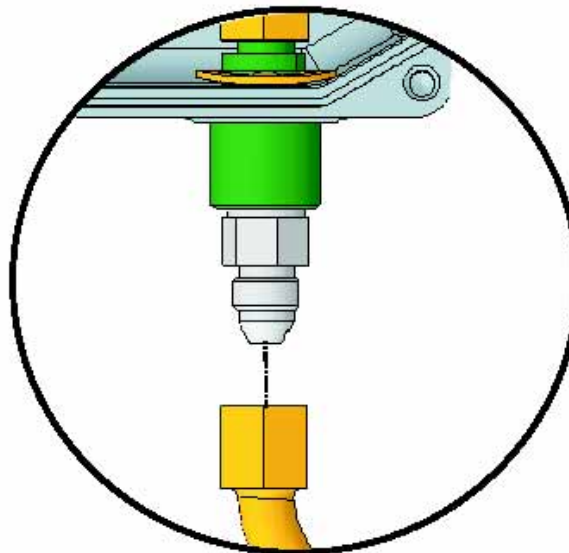


Figure 4-78. Fitting on Outside of XV Control System

8. Remove the spent cartridge used for the functional test.

9. Discard the spent cartridge in an appropriate manner. Check to ensure the detection lines are set. Refer to Paragraph 4-6.3.1.

10. Reset the Cam/Flag and reinstall the Keeper Pin into the Cam/Flag.

Note: Ensure the microswitches are setting properly. Check the Deep Mount Microswitches to ensure the trigger pin is under the paddles of the microswitches and is pushing them up. Check the High Mount Microswitches to ensure the Cam/Flag is pushing down on the paddles.

11. Install the Safety Pin into the local manual release handle of the cover assembly. Install a tamper indicator through the Safety Pin and around the handle.

12. Reset all of the SVAs. Push the spring-loaded plunger in while pushing the piston into the body of each SVA.

13. Carefully remove the Valve Protection Plate from the cylinder valves and install the SVA to each cylinder. Secure with the bolts included. Ensure that each SVA is securely tightened.



A System Nitrogen Cartridge is required for final system set up. Using any other cartridge could cause malfunction or non-function of the system.

Note: Check the condition of the flat gasket in the valve bore. Do not use a wrench or other tool to tighten the cartridge. Hand tightening is sufficient.

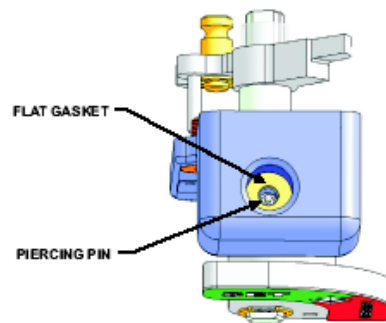


Figure 4-79. Valve Body with Flat Gasket

14. When all SVAs are secured, locate the System Nitrogen Cartridge (P/N 87-120043-001). In the area provided, write the date of installation of the cartridge. Carefully install the System Nitrogen Cartridge into the valve assembly of the XV Control System. Hand-tighten until it is snug.

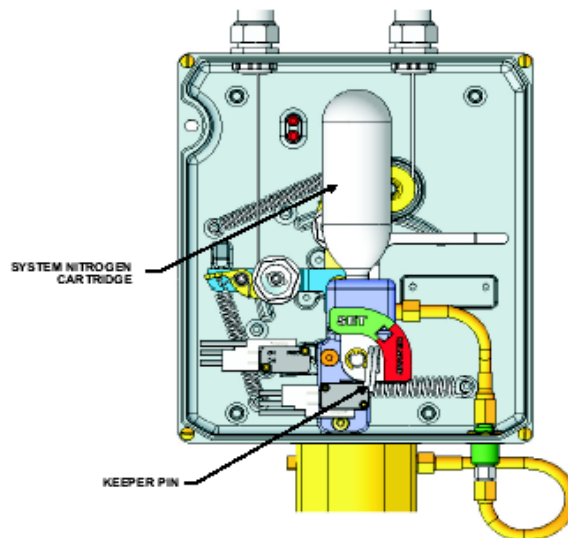


Figure 4-80. XV with System Nitrogen Cartridge Installed

15. Locate the cover of the assembly. Ensure the tamper seal remains intact in the safety pin.
16. Remove the Keeper Pin from the Cam/Flag.
17. Carefully install the cover onto the XV Control System enclosure. The cover has a tongue that fits into the groove of the XV Control System enclosure. Center the cover over the XV Control System enclosure and fit the tongue and groove together.



While the cover is resting on the XV Control System enclosure, moving it upward could engage the local manual release with the actuation latch, causing the XV Control System to release. Keep the cover as centered as possible while performing this step.

18. Fasten the cover to the XV Control System enclosure with the captive screws. Turn the captive screws until snug.



Securing the High Pressure Nitrogen Tubing onto the XV Control System will complete the setup of the Kidde System. System discharge could occur if the system has not been properly set.

19. Secure the High Pressure Nitrogen Tubing back onto the bottom of the XV Control System. Ensure that the fit is properly snug to prevent leakage. Refer to Figure 4-81.
20. Apply labels to the cover of the XV Control System.

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

3-3.3.21 TILT SKILLETS (BRAISING PANS)\

Table 3-24. F Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	24 in. x 24 in. (610 mm x 610 mm)
Nozzle Aim	Midpoint of hazard area and placed so it does not interfere with appliance operation
Nozzle Location — At the front perimeter line of the appliance	27-1/2 in. (699 mm) Min. 46 in. (1168 mm) Max. Note: Appliance cover cannot interfere with distribution of agent from the nozzle.

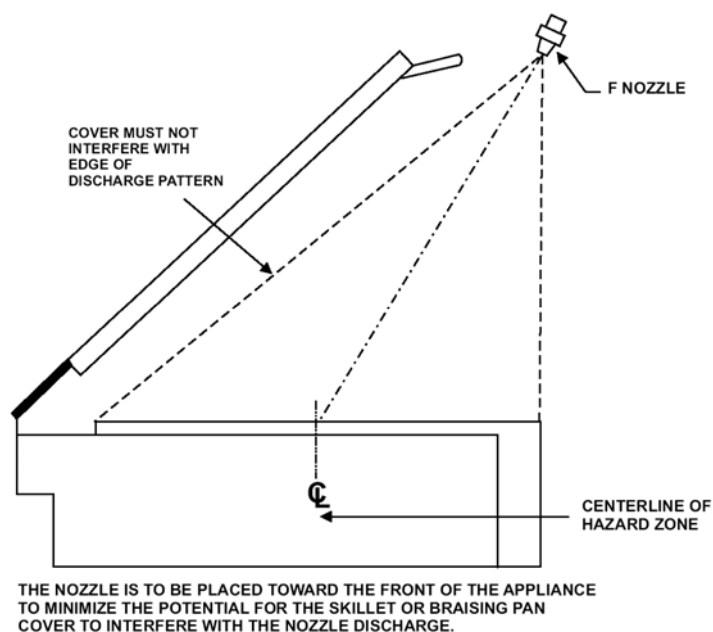


Figure 3-22. Tilt Skillet (Braising Pan)

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

3-3.3.1 SINGLE VAT DEEP FAT FRYER WITH DRIP BOARDS

Table 3-2. F Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	18 in. x 18 in. (457 mm x 457 mm)
Appliance Area (with drip board)	18 in. x 23 in. (457 mm x 584 mm)
Nozzle Aim	Midpoint of hazard area at an angle of 45° or more from the horizontal
Nozzle Location (from top of appliance)	27 in. (686 mm) Min. 45 in. (1143 mm) Max.

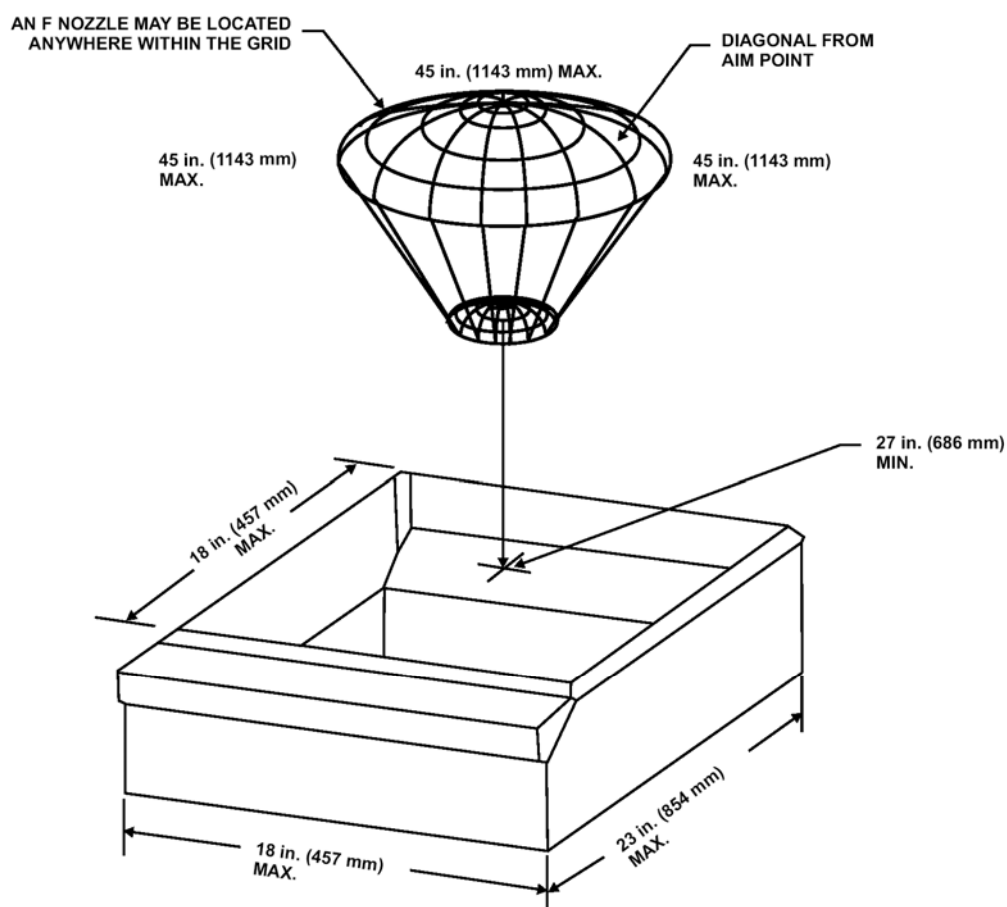


Figure 3-2. Single Vat Deep Fat Fryer

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

3-3.3.2 SPLIT VAT DEEP FAT FRYER

Table 3-3. F Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	
- Without a Drip Board	14 in. x 15 in. (356 mm x 381 mm)
- With a Drip Board	14 in. x 21 in. (356 mm x 533 mm)
Nozzle Aim	Midpoint of hazard area at an angle of 45° or more from the horizontal
Nozzle Location (from top of appliance)	27 in. (686 mm) Min. 45 in. (1143 mm) Max.

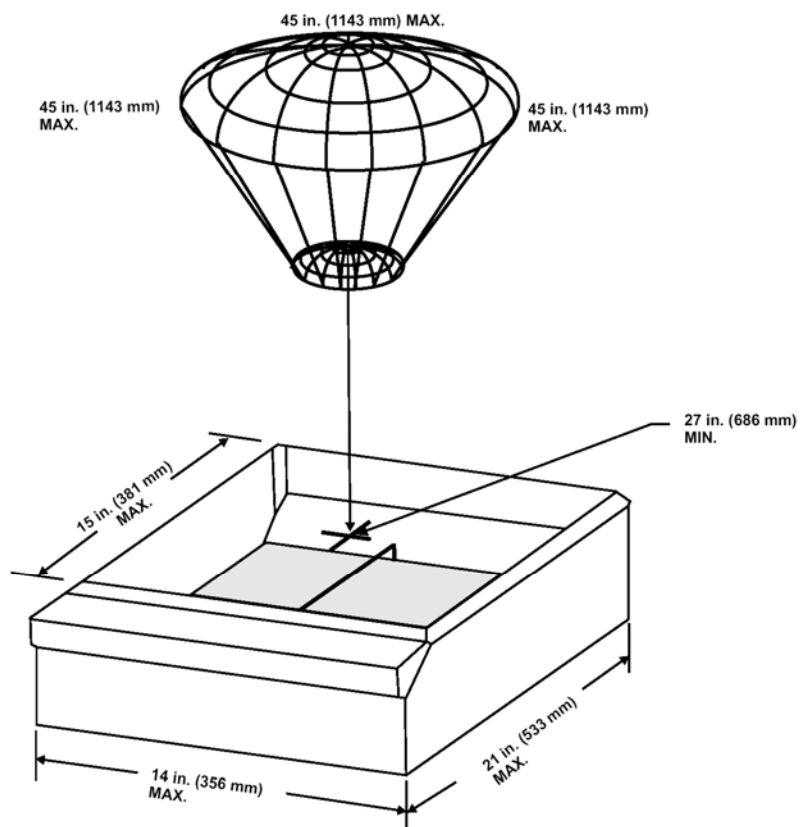


Figure 3-3. Split Vat Deep Fat Fryer

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

3-3.3.3 14 in. X 14 in. (356 mm X 356 mm) DEEP FAT FRYER

Table 3-4. F Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	14 in. x 14 in. (356 mm x 356 mm)
Maximum Appliance Area	14 in. x 24-1/2 in. (356 mm x 622 mm)
Nozzle Aim	Midpoint of hazard area at an angle of 45° or more from the horizontal
Nozzle Location (from top of appliance)	27-1/2 in. (686 mm) Min. 45 in. (1143 mm) Max.

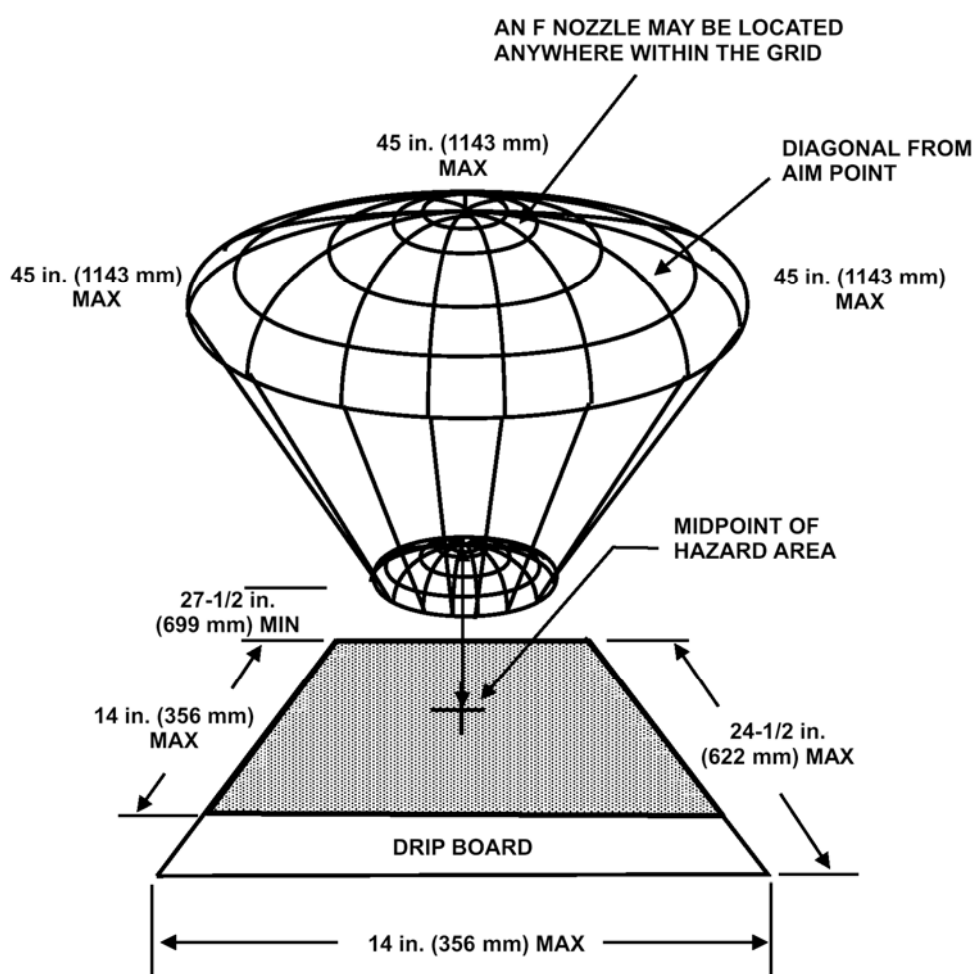


Figure 3-4. Nozzle Placement

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

3-3.3.4 SINGLE VAT DEEP FAT FRYER (WITH DRIPBOARDS LESS THAN 1 IN. [25 MM])

Table 3-5. F Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	24 in. x 24 in. (610 mm x 610 mm)
Appliance Area (with drip board)	24 in. x 25 in. (610 mm x 635 mm)
Nozzle Aim	Midpoint of hazard area
Nozzle Location (at any point on or within the perimeter of the hazard area)	27-1/2 in. (699 mm) Min. 46 in. (1168 mm) Max.

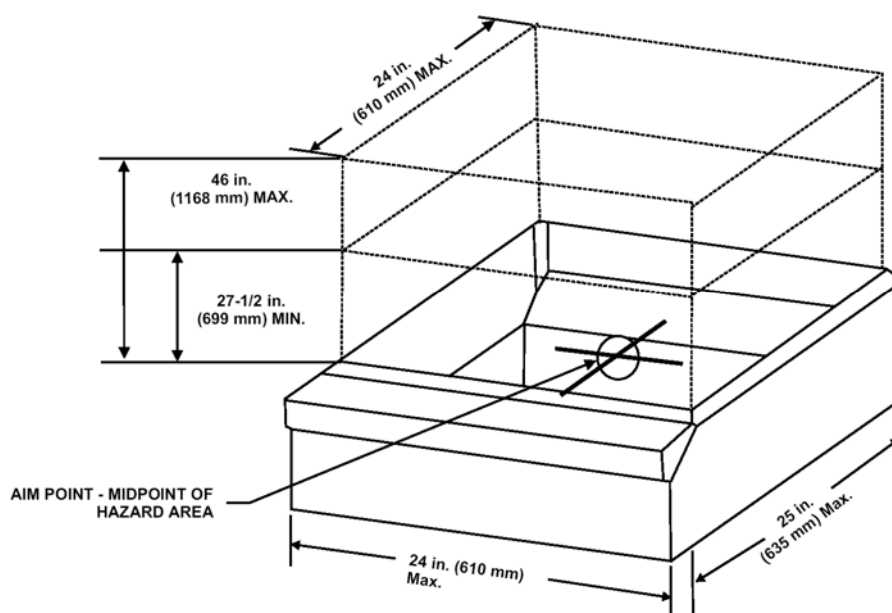


Figure 3-5. Single Vat Deep Fat Fryer (with Dripboards less than 1 in. (25mm))

WET CHEMICAL SYSTEM – INSTALLATION MANUAL

3-3.3.5

SPLIT VAT FRYER (LOW PROXIMITY APPLICATION)

Table 3-6. ADP Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	14 in. x 15 in. (356 mm x 381 mm)
Appliance Area (with drip board)	14 in. x 21 in. (356 mm x 533 mm)
Nozzle Aim	Midpoint of hazard area
Nozzle Location (at any point on or within the perimeter of the hazard area)	16 in. (406 mm) Min. 27 in. (686 mm) Max.

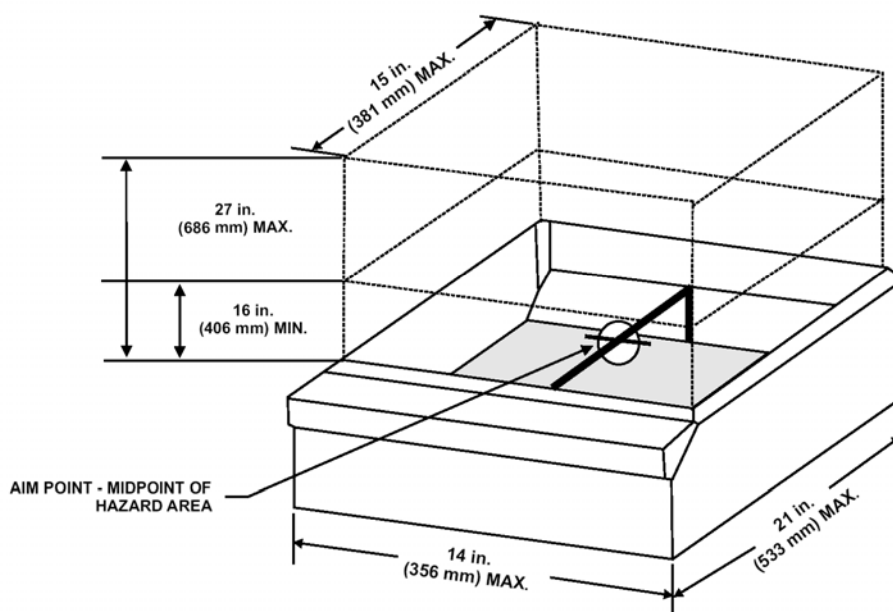
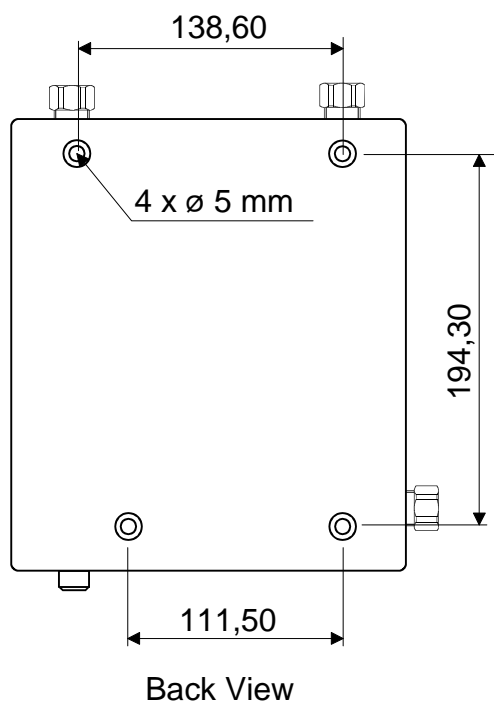
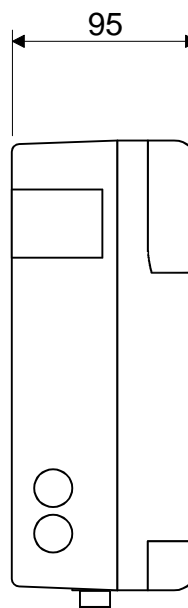
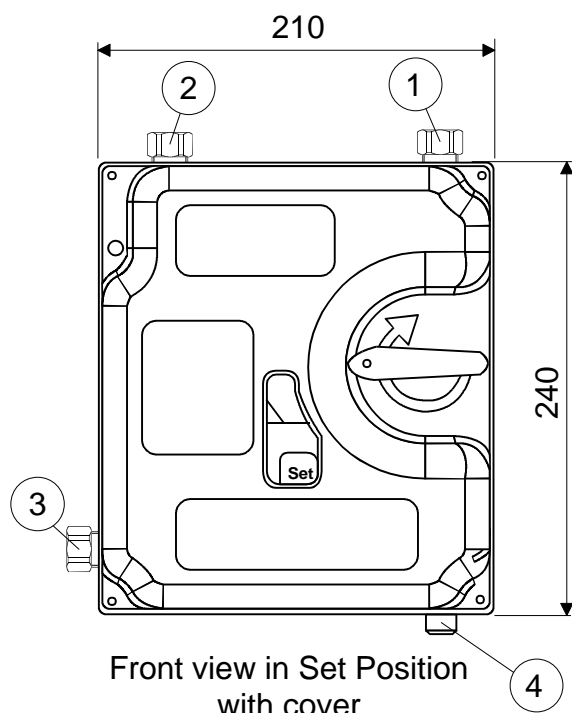


Figure 3-6. Split Vat Fryer (Low Proximity Application)



The XV Control System is supplied with:

- 1 Off 188110 Actuator pneumatic
- 1 Off 188900 Nitrogen cartridge
- 1 Off 188910 Nitrogen test cartridge
- 1 Off 188475 EMT Connector Kit
- 2 Off 188920 Microswitch Kit

Item	Description
4	1/8" NPT Port for pneumatic actuation
3	PG16 cable gland, port for cable to micro switch
2	1/2" EMT Connector, port for termobulb wire release
1	1/2" EMT Connector, port for manual wire release

Weight: 5,9 Kg
Actuation: Nitrogen cartridge
Finish: Natural

Material:

Cast Aluminium

Data Sheet No.

188300-PDS-A-001

Kidde Wet Chemical System

XV Control System
External view

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Autronica Fire and Security AS

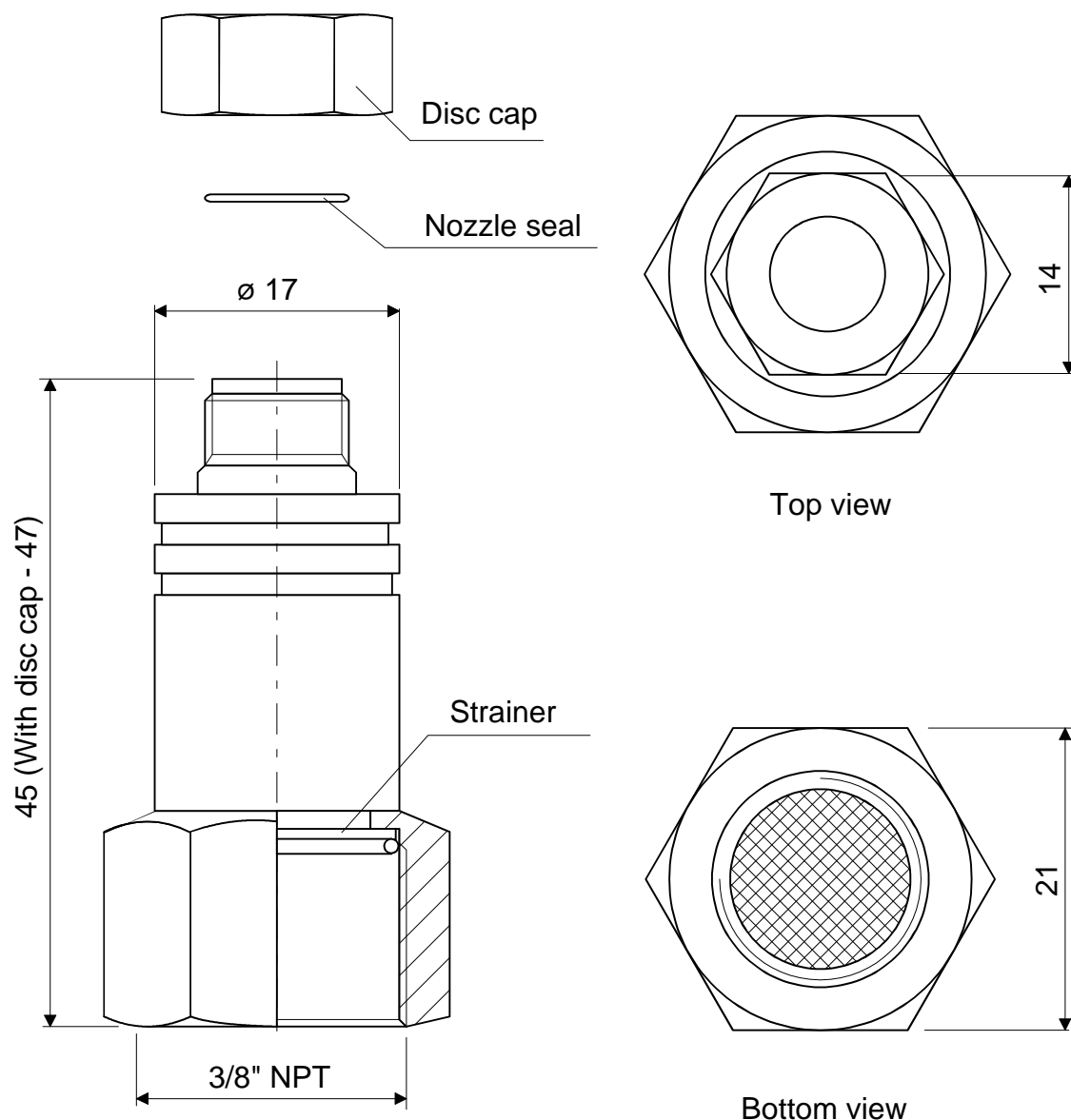
Division Maritime

Industriveien 7, 3430 Spikkestad, Norway



Phone: + 47 31 29 55 00, Fax: + 47 31 29 55 01

e-post: info@autronicafire.no

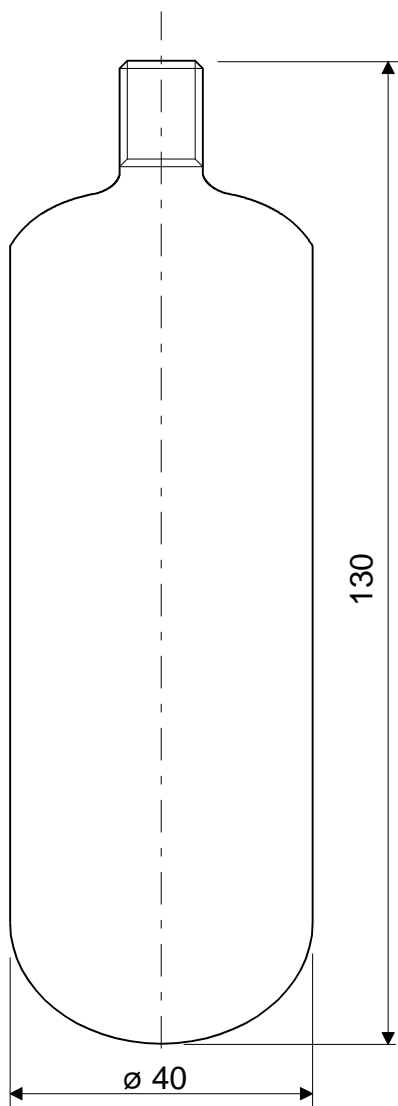




Material housing: Brass, nickle plated
 Material strainer: Stainless steel
 Weight: 0,06 Kg
 Flow factor: 2

Material:	Kidde Wet Chemical System	Autronica Fire and Security AS Division Maritime Industriveien 7, 3430 Spikkestad, Norway Phone: + 47 31 29 55 00, Fax: + 47 31 29 55 01 e-post: info@autronicafire.no
Brass		
Data Sheet No.	Nozzle type "F"	 
188350-PDS-A		

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**NOTE:**

For testing, use test cartridge, part number 188910

Material: Steel

Weight: 0,15 Kg

Pressure: 186 Bar

Material:

Kidde Wet Chemical System

Autronica Fire and Security AS

Division Maritime

Industriveien 7, 3430 Spikkestad, Norway

Phone: + 47 31 29 55 00, Fax: + 47 31 29 55 01

e-post: info@autronicafire.no

Data Sheet No.

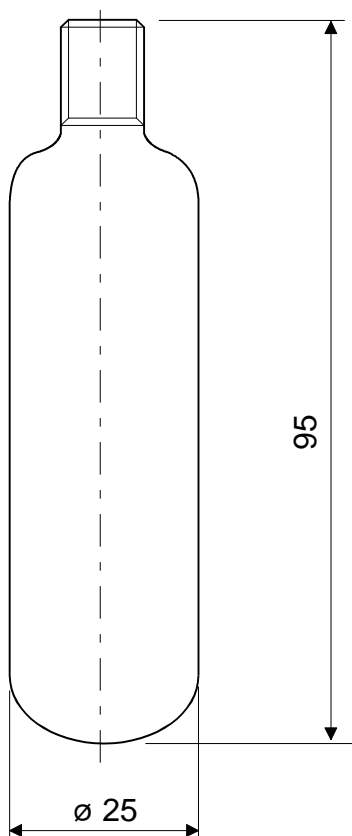
Nitrogen cartridge

XV Contro system



188900-PDS-A

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**NOTE:**

Replace immediately after successful testing
with system cartridge, part number 188900

Material: Steel

Weight: 0,07 Kg

Pressure: 186 Bar

Material:

Data Sheet No.

188910-PDS-A

Kidde Wet Chemical System

Nitrogen test cartridge
XV Contro system

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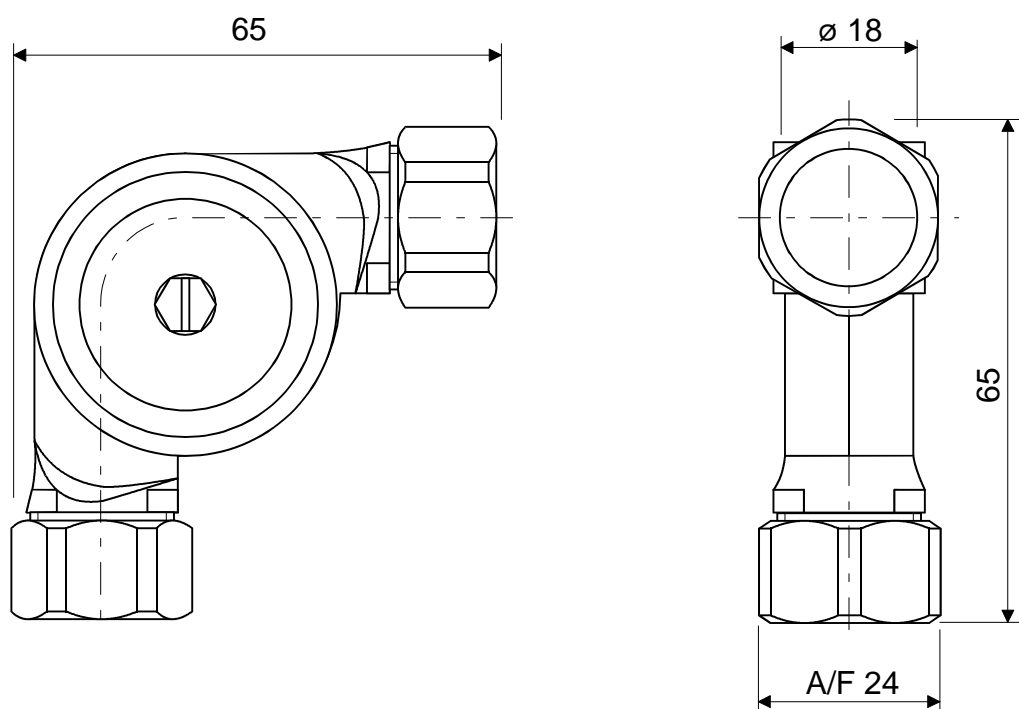
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Phone: + 47 31 29 55 00, Fax: + 47 31 29 55 01

e-post: info@autronicafire.no





Material housing: Cast aluminium
Material pulley wheel: Steel ball bearing
End connections: 18 mm compression coupling
Weight: 0,10 Kg

Material:

Cast aluminium

Data Sheet No.

188600-PDS-A

Kidde Wet Chemical System

Corner pulley

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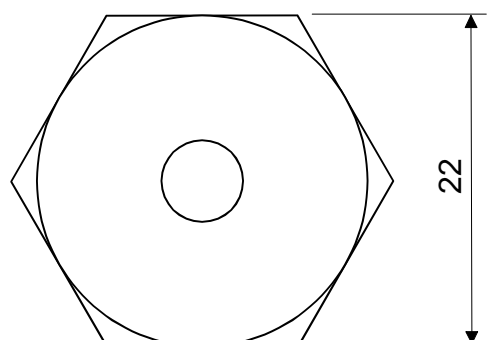
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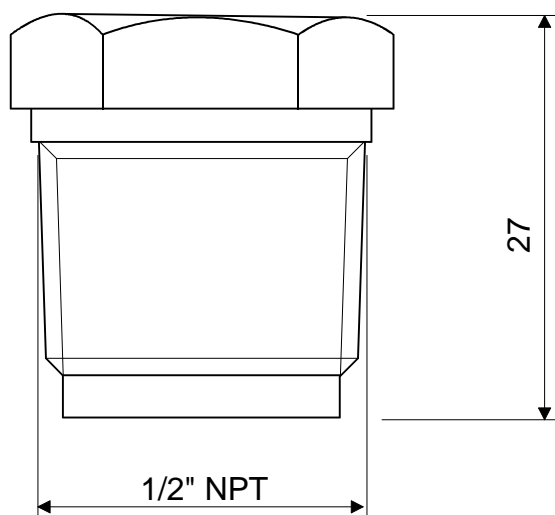
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e-post: info@autronicafire.no

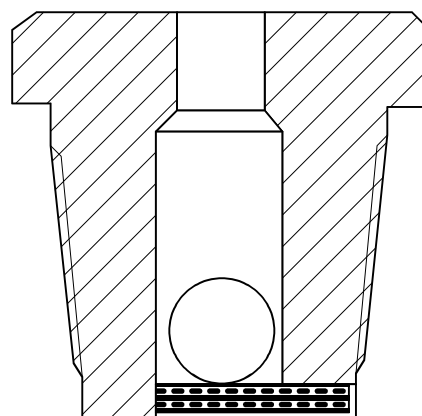




Top view



Side view



Section

NOTE:

To be mounted nearby the cylinder,
facing either upwards or against the bulkhead.

Material: Brass

Weight: 0,050 Kg

Material:

Brass

Data Sheet No.

188150-PDS-A

Kidde Wet Chemical System

Vent plug 1/2" NPT

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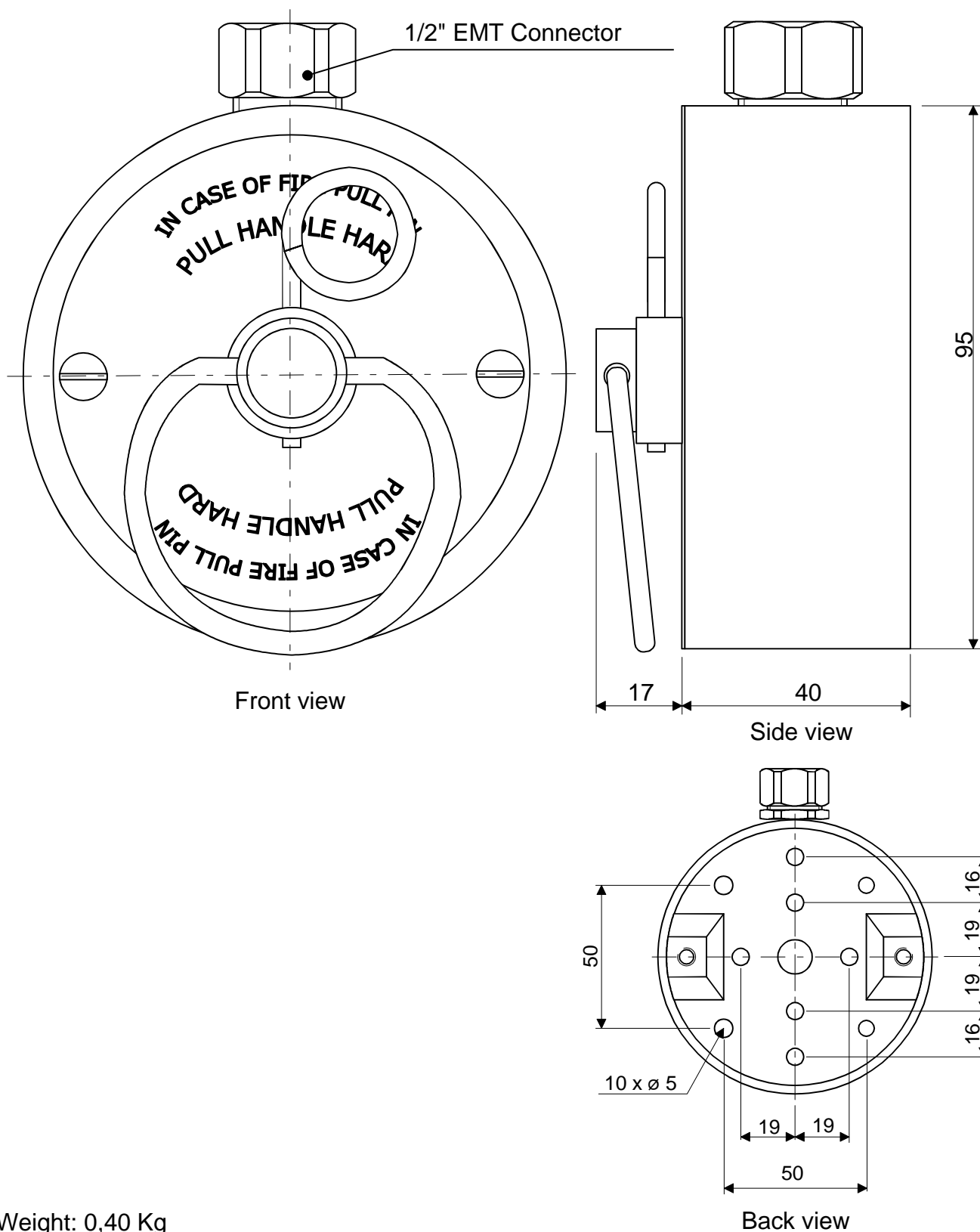
Division Maritime

Industriveien 7, 3430 Spikkestad, Norway

Phone: + 47 31 29 55 00, Fax: + 47 31 29 55 01

e-post: info@autronicafire.no





Weight: 0,40 Kg

Material:

Aluminium

Data Sheet No.

188550-PDS-A

Kidde Wet Chemical System

Manual release pull station

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Autronica Fire and Security AS

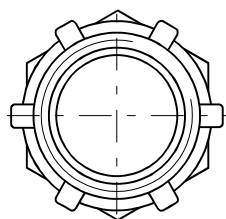
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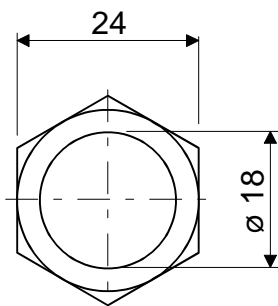
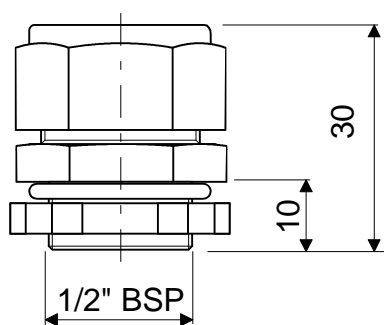
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Bottom view



Top view

Compressing nut

Compressing ring

Housing

O-Ring

Nut

Weight: 0,07 Kg

Material:

Aluminium

Data Sheet No.

188475-PDS-A

Kidde Wet Chemical System

EMT Connector 1/2"

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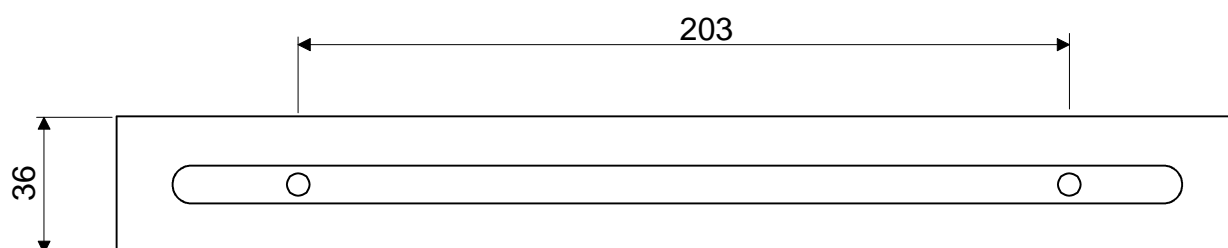
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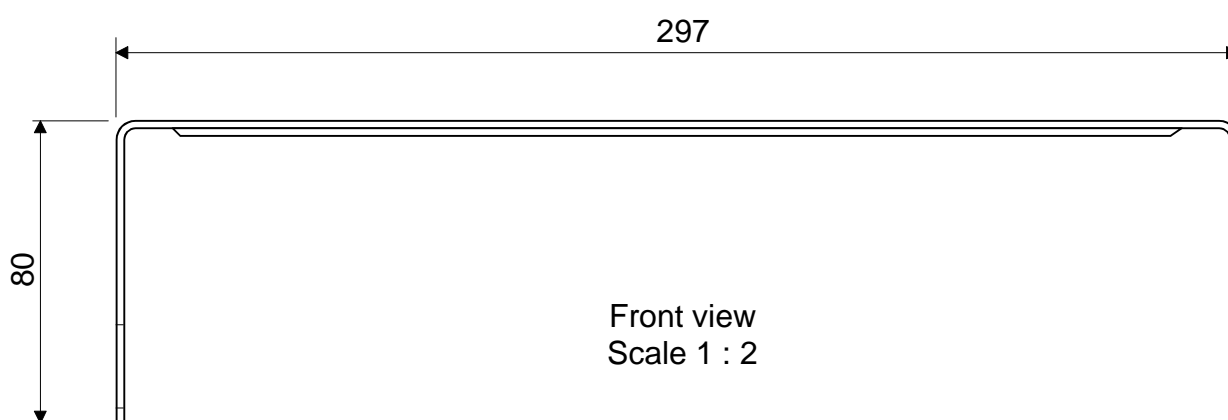
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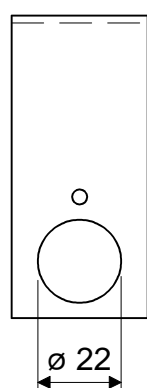




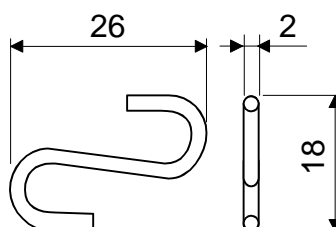
Top view
Scale 1 : 2



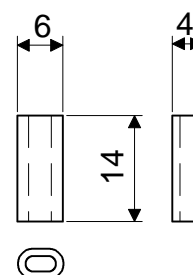
Front view
Scale 1 : 2



Side view
Scale 1 : 2



S-Hook
Scale 1 : 1



Wire crimp sleeve
Scale 1 : 1

Finish: Plated
Weight: 0,40 Kg

1 Set consist of: 1 Off Bracket
2 Off S-Hook
2 Off Wire crimp sleeve

Material:

Steel

Data Sheet No.

188450-PDS-A

Kidde Wet Chemical System

Link housing kit

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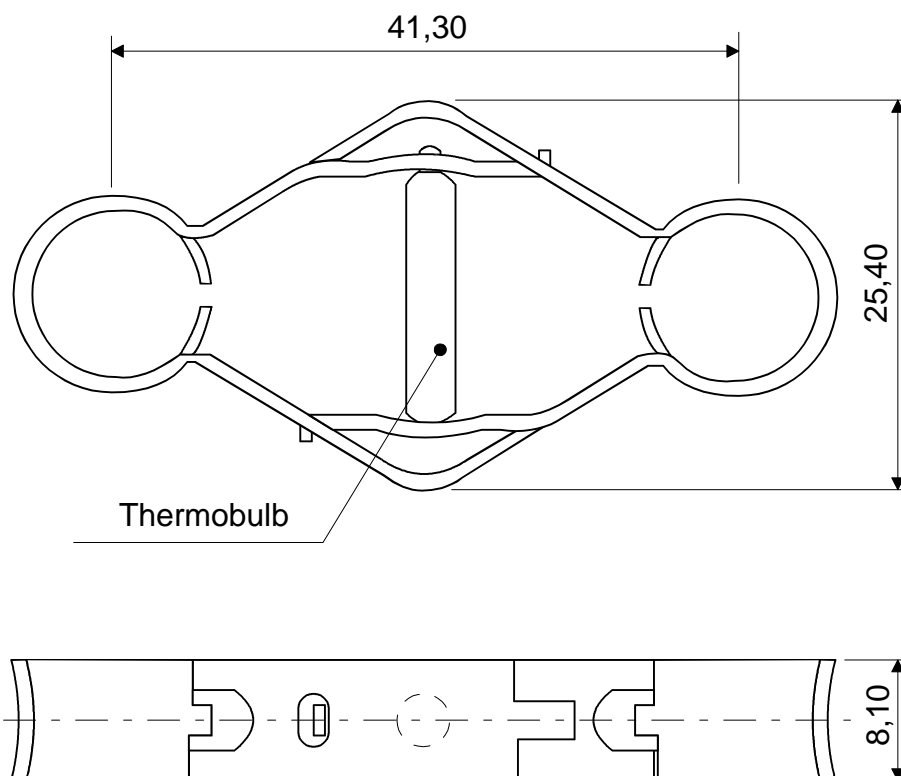
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Part number	Type	DG F	DG C	Bulb color
188500	KGR-212	212	100	Green
188502	KGR-286	286	141	Blue
188504	KGR-360	360	182	Mauve
188506	KGR-450	450	232	Black
188508	KGR-500	500	260	Black

Material:

Steel

Data Sheet No.

18850X-PDS-A

Kidde Wet Chemical System

Rapid response link
Thermobulb type

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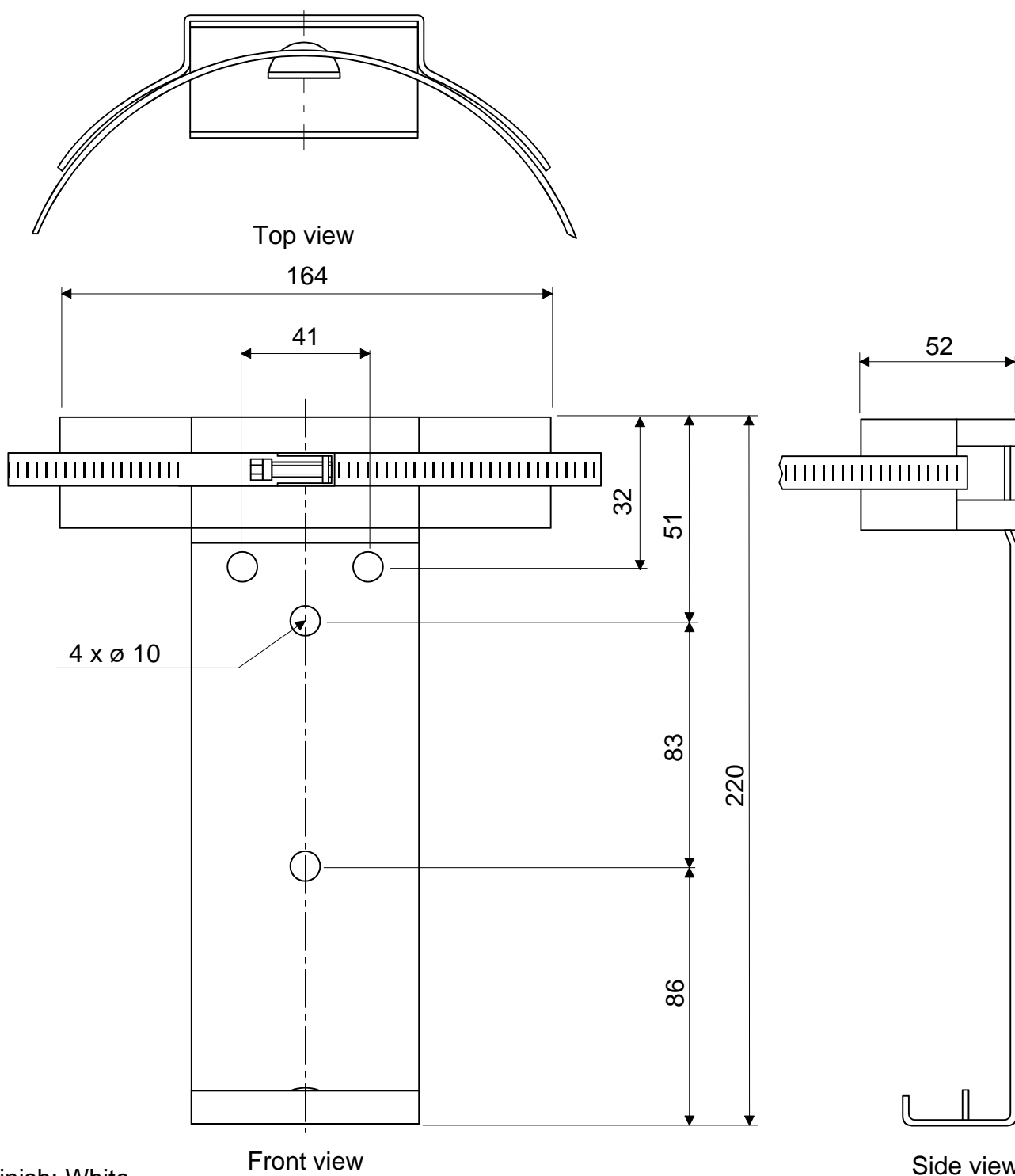
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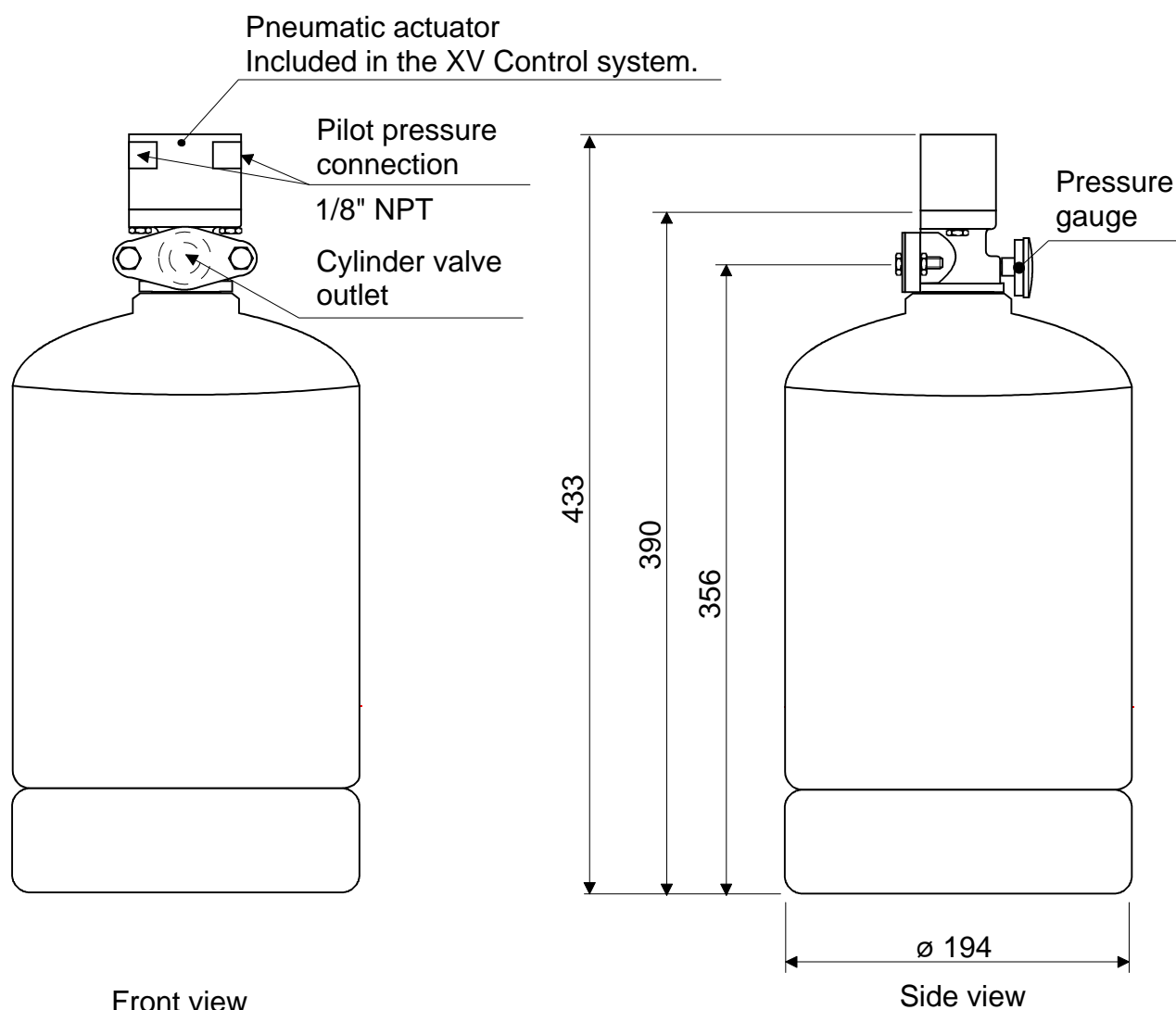
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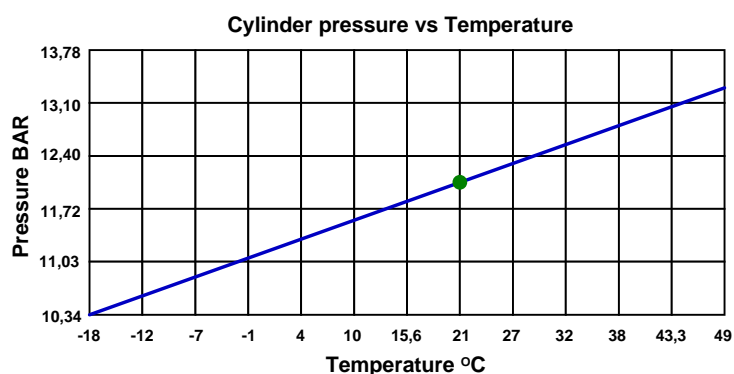


Finish: White
Strap: Stainless steel
Weight: 0,50 Kg

Material:	Kidde Wet Chemical System WHDR-125 Mounting bracket	<div>Autronica Fire and Security AS Division Maritime Industriveien 7, 3430 Spikkestad, Norway Phone: + 47 31 29 55 00, Fax: + 47 31 29 55 01 e-post: info@autronicafire.no</div> <div></div>
Steel		
Data Sheet No.	To copy or use this document without owners permission is prohibited	
188250-PDS-A		



Cylinder: Welded steel
 Finish: White
 Cylinder pressure: 12,05 Bar/21 °C
 Propellant gas: Nitrogen
 Weight: 12,9 Kg
 Capacity: 4,70 litre
 Cylinder valve: Brass, plated
 Operation: Pneumatic
 Pressure gauge: Steel



Material:

Steel

Data Sheet No.

188025-PDS-A

Kidde Wet Chemical System

Cylinder WHDR-125
with pneumatic actuator

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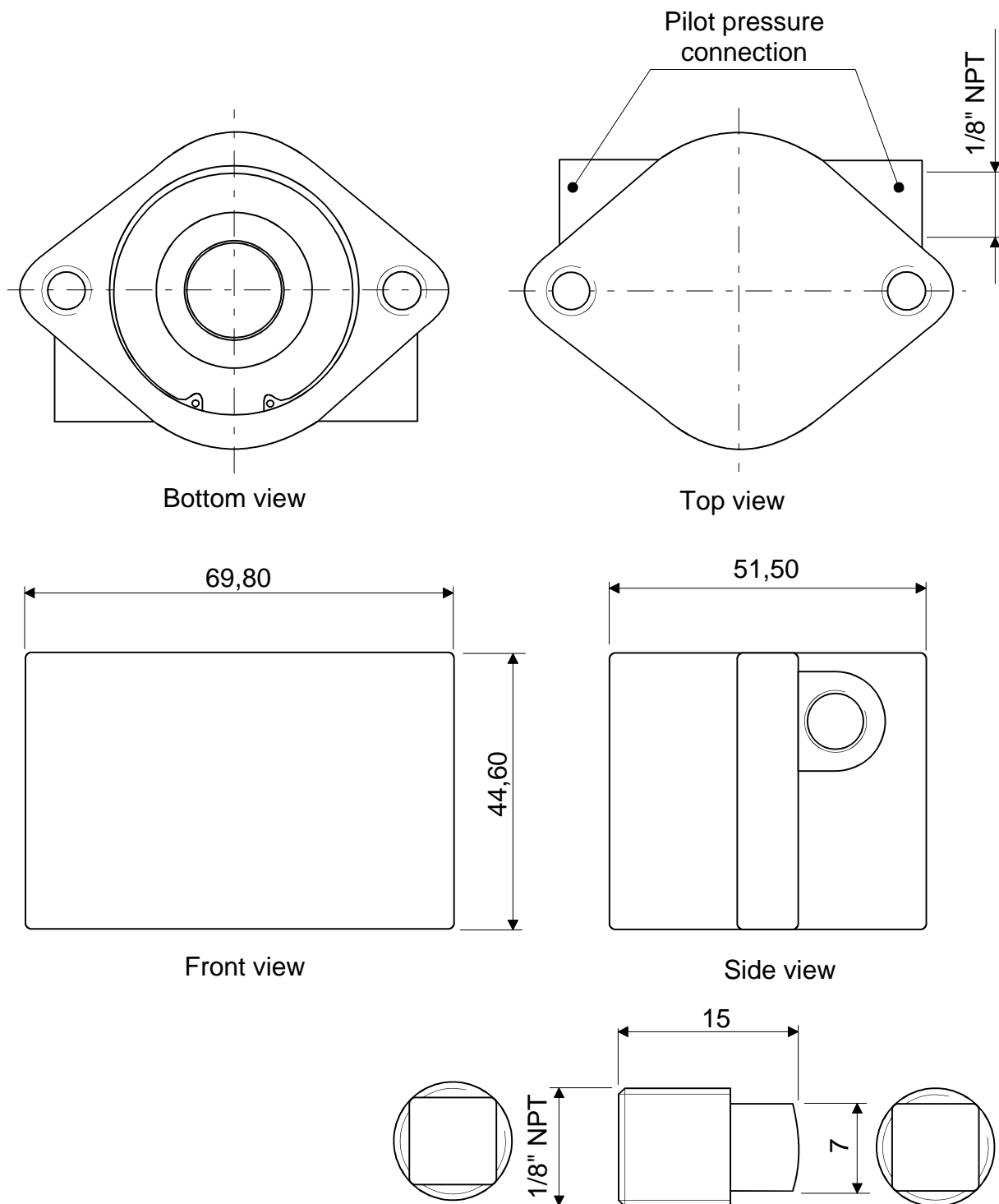
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Weight: 0,720 Kg
 Finish: Crome plated
 Operating pressure: 200 Bar
 Operating medium: Nitrogen

1/8" NPT Blind plug.
 Plug the free port on the actuator
 on the last cylinder

Material:

Brass

Data Sheet No.

188110-PDS-A

Kidde Wet Chemical System

Actuator pneumatic for
 XV Control system

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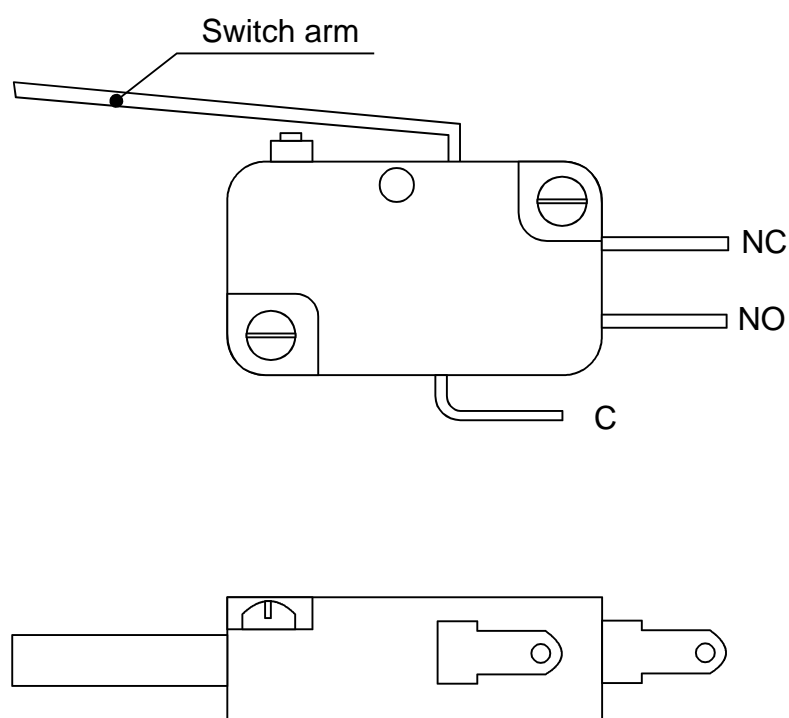
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Switch contacts: Brass
Contact rating 125/250 VAC : 20,5 Amp
Contact rating 24 VDC: 9 Amp

Material:

Plastic

Data Sheet No.

188920-PDS-A

Kidde Wet Chemical System

Switch micro SPDT
for XV Control system

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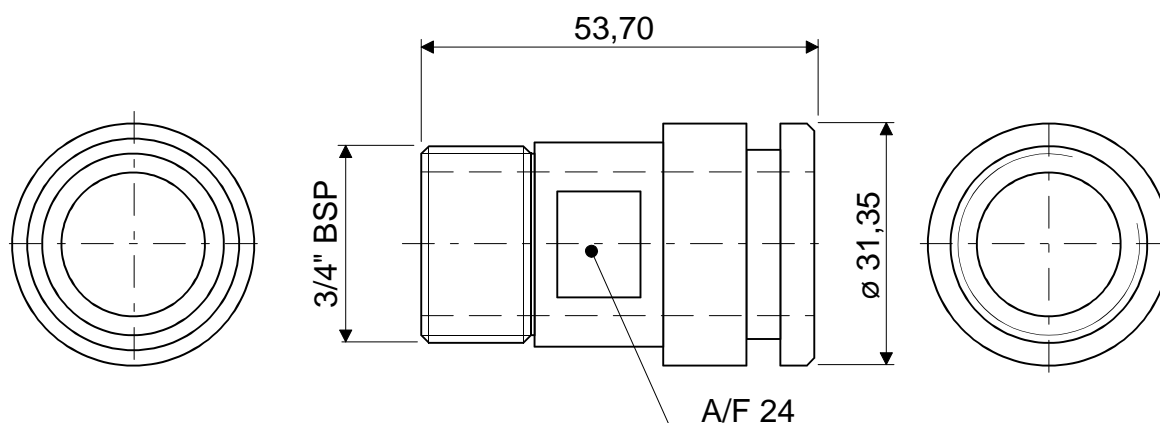
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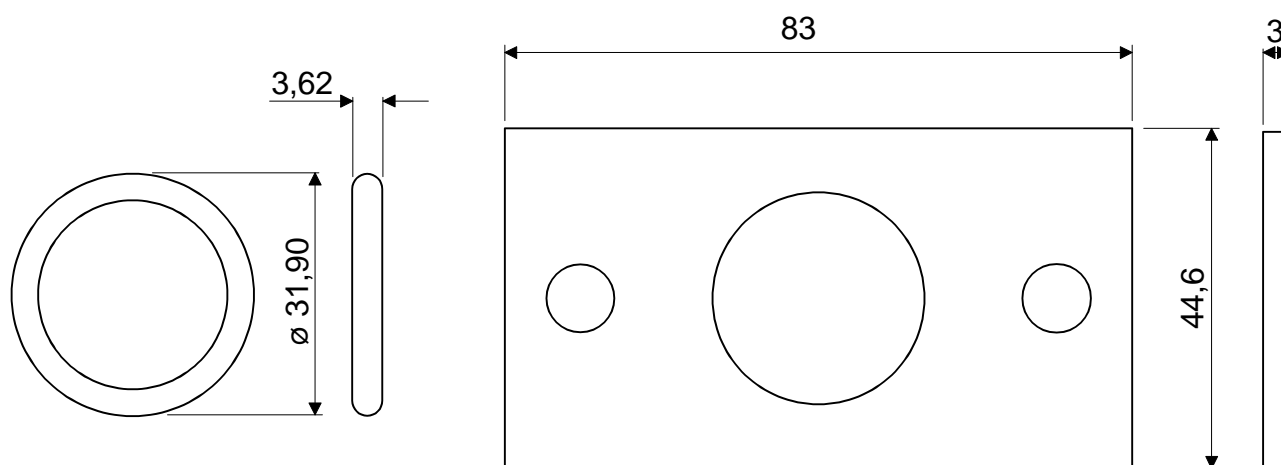
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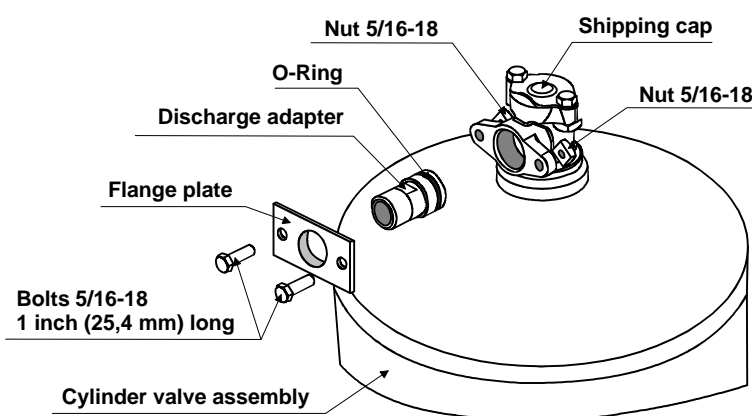
Discharge adapter



O-Ring

Flange plate

Material discharge adapter: Brass
 Material flange plate: Steel
 Finish flange plate: Plated
 Material O-Ring: Neoprene
 Weight: 0,22 Kg



Material:

Kidde Wet Chemical System

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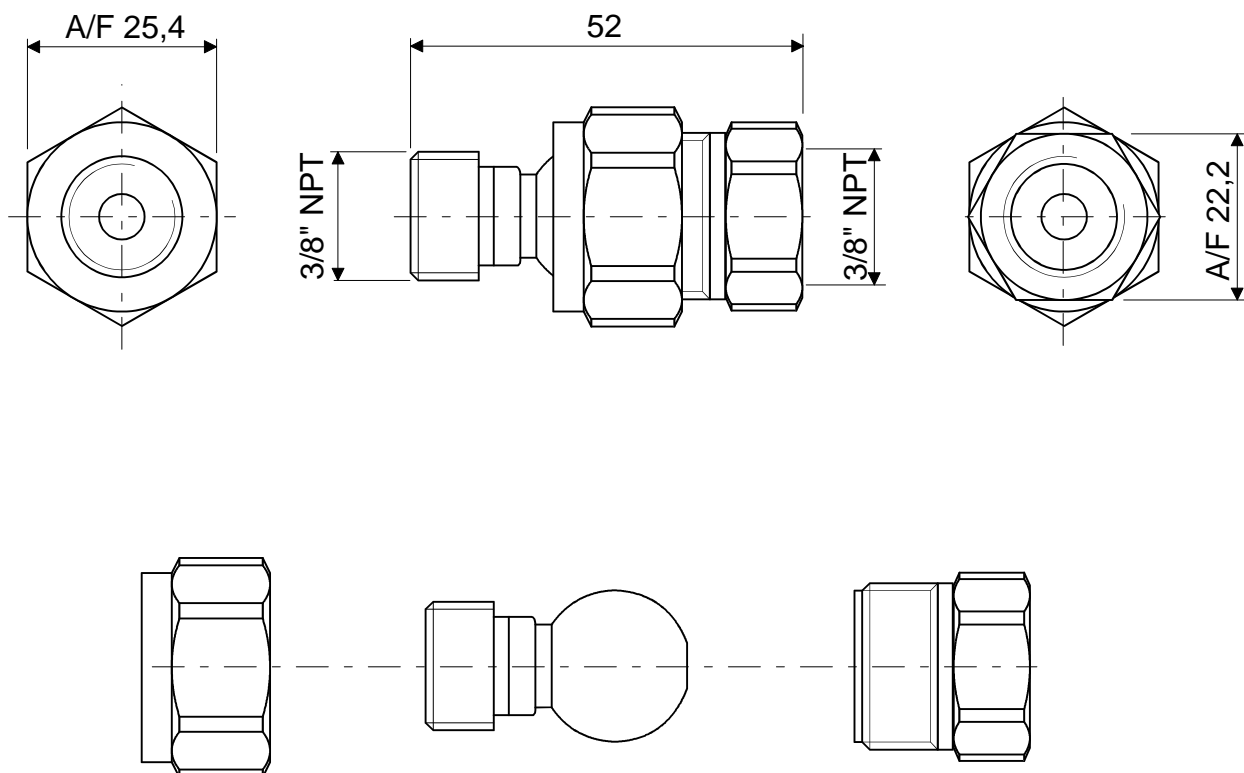
Data Sheet No.

Discharge adapter kit



188100-PDS-A

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Finish: Chrome plated
Weight: 0,10 Kg

Material:

Brass

Data Sheet No.

188400-PDS-A

Kidde Wet Chemical System

Swivel adapter 3/8"
for nozzles

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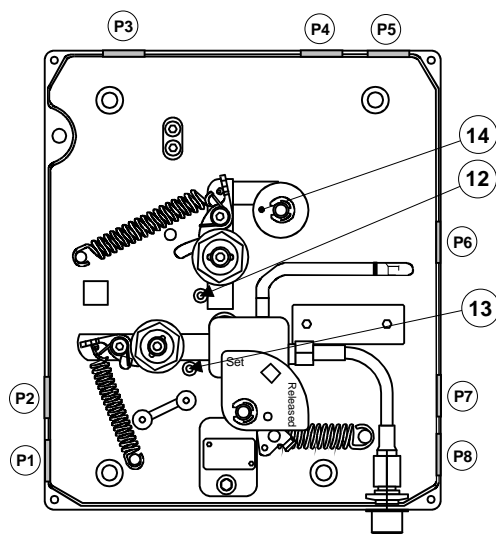
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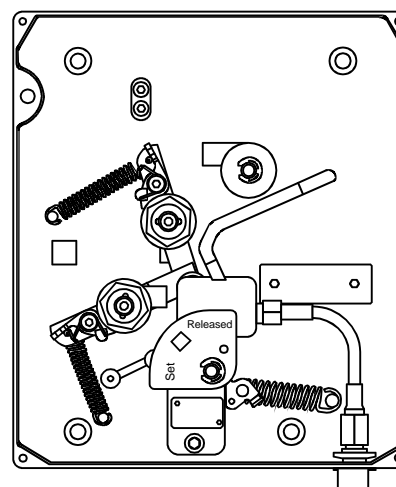
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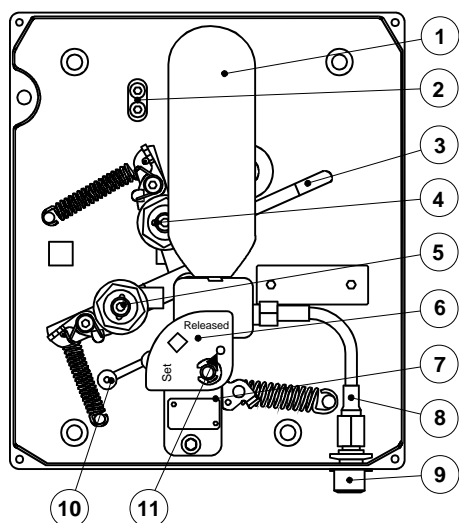




Internal view with cartridge removed, set position



Internal view with cartridge removed, released position



P1	Cable entry high mounted micro switch
P2	Cable entry low mounted micro switch
P3	Entry for wire from detection line no. 1
P4	Entry for wire from detection line no. 2 top port
P5	Entry for wire from manual pull to release station
P6	Entry for wire from detection line no. 2 side port
P7	Cable entry for electrical solenoid.
P8	Entry machanical gas valve port.

14	Pulley wheel for detection line no. 2
13	Lock-out pad for detection line no. 1
12	Lock-out pad for detection line no. 2
11	Port for lock-out pin.
10	Bracket for deep mount micro switch.
9	1/8" NPT High pressure nitrogen outlet. (DO NOT REMOVE)
8	Internal high pressure nitrogen line. (DO NOT REMOVE)
7	Micro switch high mount
6	Status / setting flag for cam.
5	Spool and ratchet for detection line no. 1
4	Spool and ratchet for detection line no. 2
3	Latch and lever for manual pull to trip (wire release)
2	Storage pad for lock-out screws
1	Nitrogen cartridge - 186 Bar at 35 dg.C
Item	Description

Weight: 5,9 Kg
Actuation: Nitrogen cartridge
Finish: Natural

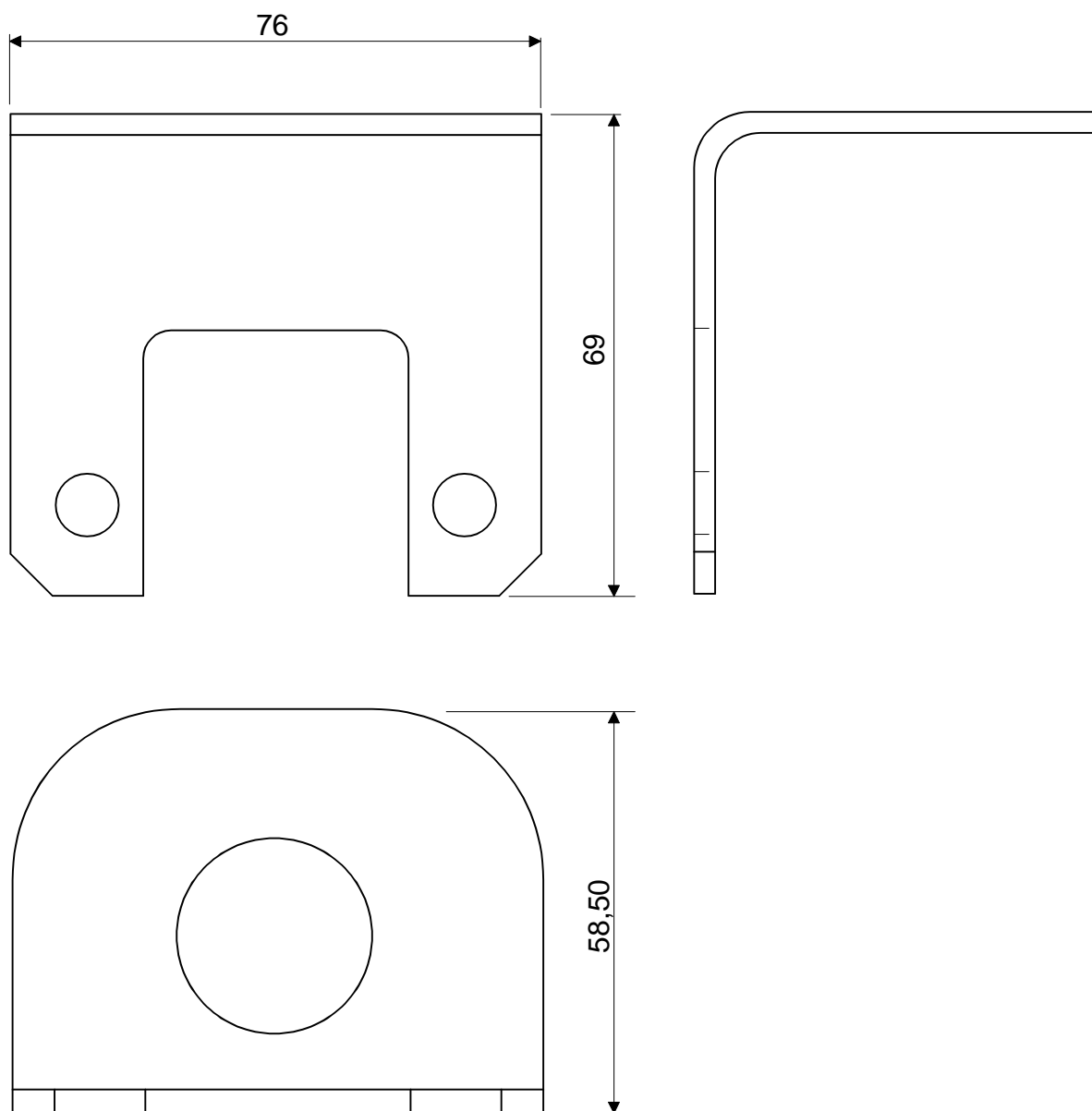
Material:
Cast Aluminium
Data Sheet No.
188300-PDS-A-002

Kidde Wet Chemical System
XV Control System
Internal view

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Finish: Chrome plated
Weight: 0,15 Kg

Material:

Steel

Data Sheet No.

188200-PDS-A

Kidde Wet Chemical System

Gauge shield

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Wet Chemical System
Important design data

Standard supply - Wet Chem

Part number	Description	Quantity
116-188025	WHDR-125 1,25 GALLON WET CHEM	1
116-188100	DISCHARGE ADAPTER KIT WET CHEM	1
116-188150	VENT PLUG WET CHEM	1
116-188200	GAUGE SHIELD WET CHEM	1
116-188250	CLAMP CYLINDER WHDR 125	1
116-188300	CONTROL SYSTEM XV WET CHEM	1
116-188350	NOZZLE F WET CHEM	2
116-188400	ADAPTER SWIVEL 3/8" FOR NOZZLE	2
116-188450	LINK HOUSING KIT WET CHEM	1
116-188550	RELEASE WIRE MANUAL REMOTE	1
116-188650	WIRE SS 1/16" (1,6 MM)	50
116-188600	CORNER PULLEY WET CHEM	8
116-188700	WIRE CRIMP SLEEVE	5
116-188475	CONNECTOR EMT / O-RING 3 SET	1
116-188504	LINK KGR-360 182 DGC MAUVE	1

Spare parts - Proposal

116-188350	NOZZLE F WET CHEM	1
116-188504	LINK KGR-360 182 DGC MAUVE	1
116-188750	S HOOK FOR WET CHEM	2
116-188800	NOZZLE SEAL REPLACEMENT	2
116-188850	DISC CAP WET CHEM	2

Additional spares

116-188110	ACTUATOR PNEUMATIC XV WET CHEM	1
116-188900	CARTRIDGE NITROGEN XV CONTROL	1
116-188910	CARTRIDGE TEST N2 XV CONTROL	1
116-188920	SWITCH MICRO KIT SPDT	1

Optional release units

116-188502	LINK KGR-286 141 DGC BLUE
116-188506	LINK KGR-450 232 DGC BLACK
116-188508	LINK KGR-500 260 DGC BLACK
116-188500	LINK KGR-212 100 DGC GREEN

Wet Chemical System

Important design data

Installation limitations

Stainless Steel Discharge Tubing

Max. volume - discharge pipe	1180 cm ³
Max. length of branch line (When two nozzles)	12,20 m
Max. elevation above cylinder outlet	3,70 m
Max. elevation branch line above supply line	1,20 m
Max. number of F-Nozzles on WHDR-125	2 pcs.
Max. equivalent length from cylinder to most remote nozzle	11,90 m
Max. equivalent length between most remote nozzle	10,00 m
Min. equivalent length between cylinder and nozzle	2,60 m

Pipe dimension	ID cm	Volume/meter	Max. meter
12 X 1 mm	1,00	78,50	15,04

Pilot tube

High pressure stainless steel pipe	6 x 1 mm
Maximum length from XV Control system to cylinder	32,00 m

Detection line 1

Stainless steel wire	1,60 mm
Maximum length	61,00 m
Maximum number of corner pulleys	50 pcs.
Maximum number of temperature bulbs	40 pcs.

Detection line 2

Tube dimension	OD 18 mm
Stainless steel wire	1,60 mm
Maximum length	61,00 m
Maximum number of corner pulleys	50 pcs.
Maximum number of temperature bulbs	40 pcs.

Manual release line

Tube dimension	OD 18 mm
Stainless steel wire	1,60 mm
Maximum length	31,00 m
Maximum number of corner pulleys	30 pcs.

Fire Suppression System

