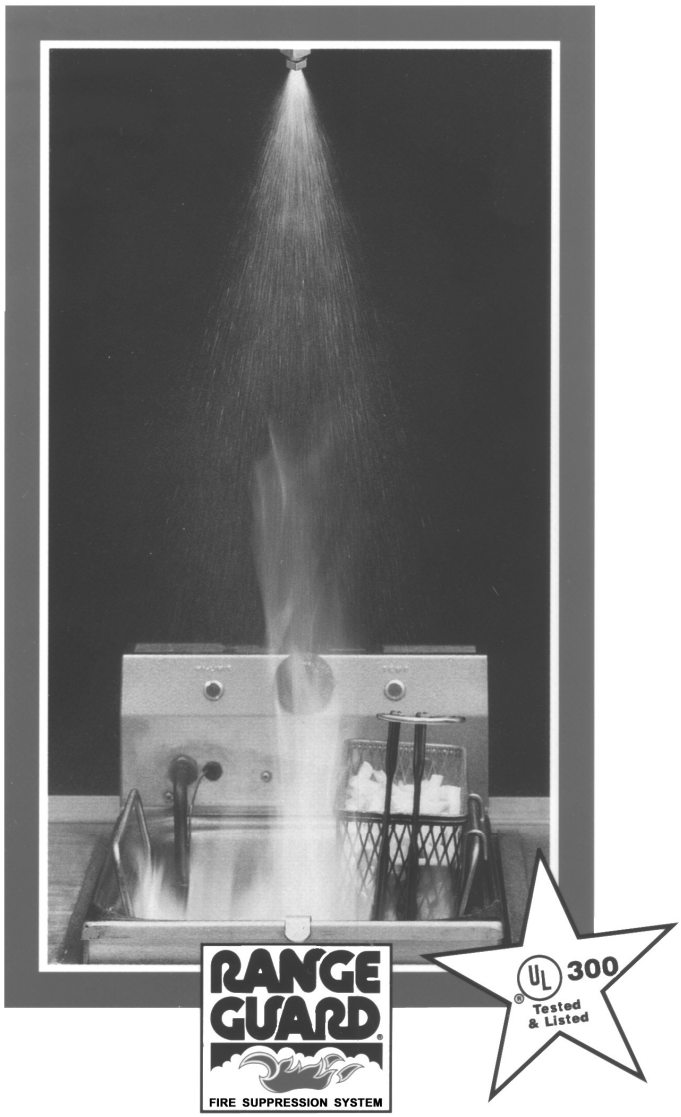
Design, Installation, Operation and Maintenance Manual



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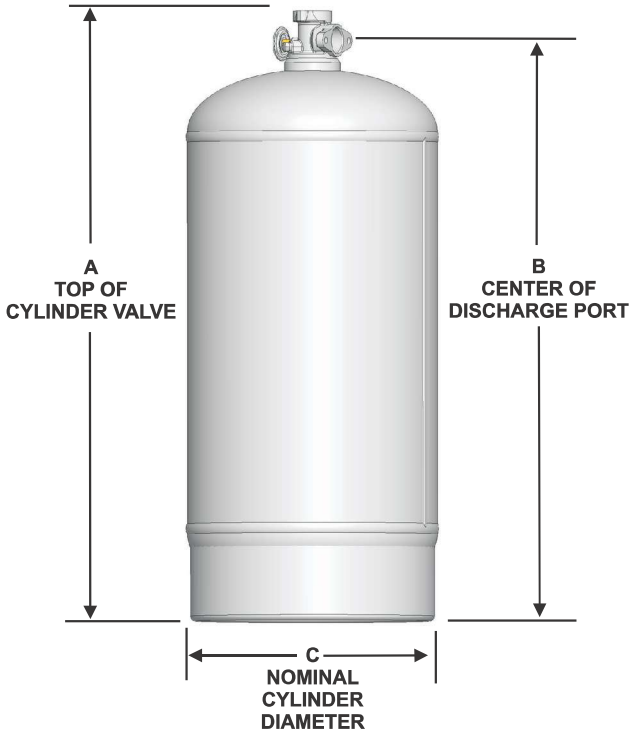


Figure 2-1. Dimensions of Cylinder and Valve Assembly, P/N B-12XXXX

Refer to Figure 5-26 for Cylinder Valve details.

Table 2-1. Cylinder and Valve Assembly Specifications

Cylinder and Valve Assembly Part Number	Model	Maximum Flow Number	Dimensions		
			A	B	C
B120001	RG-1.25G	4	15-1/4 in. (387 mm)	13-3/4 in. (349 mm)	8 in. (203 mm)
B120002	RG-2.5G	8	21 in. (534 mm)	19-5/8 in. (498 mm)	9 in. (230 mm)
B120003	RG-4GS	12	19 in. (483 mm)	17-1/2 in. (444 mm)	12-1/4 in. (311 mm)
B120006	RG-4GM	12	24-3/8 in. (619 mm)	23 in. (584 mm)	10 in. (254 mm)
B120005	RG-6G	18	35-1/8 in. (892 mm)	33-3/4 in. (857 mm)	10 in. (254 mm)

2.1.1 CYLINDER BRACKETS

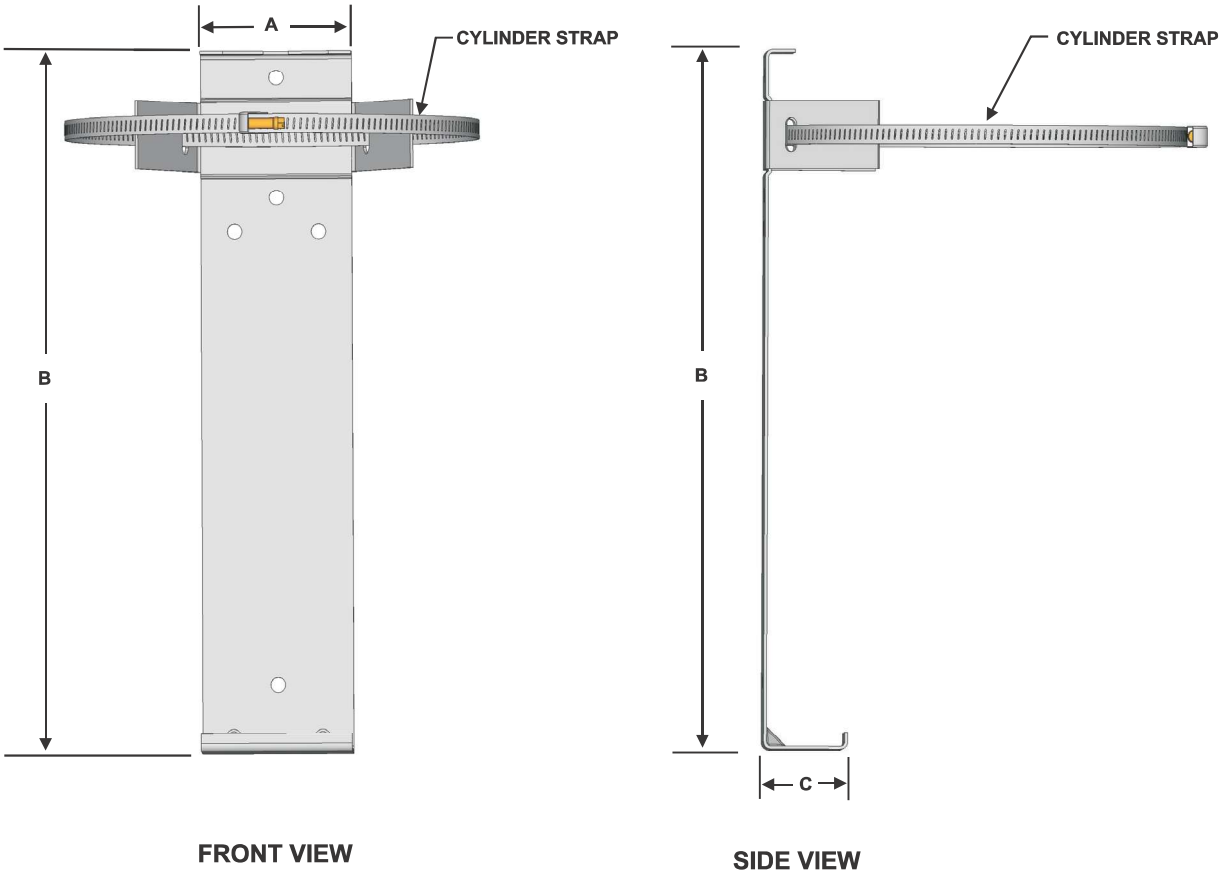


Figure 2-2. Mounting Brackets

Table 2-2. Mounting Bracket Dimensions

Part No.	Model	Dimensions		
		A	B	C
9197430	RG-1.25G	3 in. (76 mm)	9-3/8 in. (238 mm)	1-3/8 in. (35 mm)
9197263	RG-2.5G	4-1/2 in. (114 mm)	12 in. (305 mm)	2-1/2 in. (64 mm)
9197414	RG-4GM	4-1/2 in. (114 mm)	20-1/2 in. (521 mm)	2-1/2 in. (64 mm)
9197415	RG-4GS	4-1/2 in. (114 mm)	11-1/2 in. (290 mm)	2 in. (51 mm)

DISCHARGE ADAPTER KIT, P/N 844908

The Discharge Adapter provides a means to connect agent distribution pipe to all Range Guard Wet Chemical Cylinder and Valve Assemblies.

The Discharge Adapter Kit consists of a 3/4-inch NPT adapter and a steel flange plate (Figure 2-5).

Note: The nuts and bolts used to secure the Anti-Recoil Plate to the discharge valve should be retained and used for mounting the Discharge Adapter to the valve outlet.

The Discharge Adapter can also be used as a recharge adapter to pressurize the cylinder with nitrogen after filling with wet chemical.

Note: This part must be ordered separately. It is not included with the Cylinder and Valve Assembly.

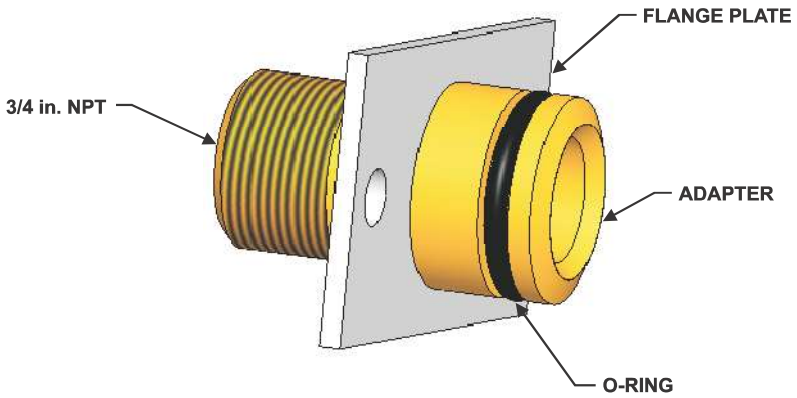


Figure 2-5. Discharge Adapter Kit, P/N 844908

DISCHARGE NOZZLES

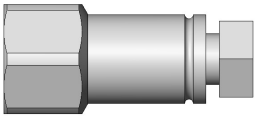
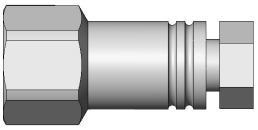
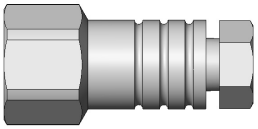
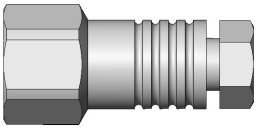
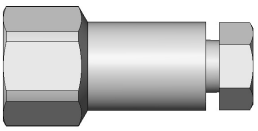
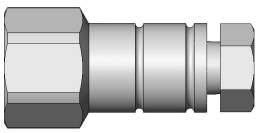
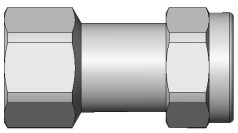
There are essentially seven types of nozzles in the Range Guard wet chemical system. They are:

- ADP
- F
- DM
- R
- GRW
- LPF
- LPR

Each nozzle has:

- Stainless steel internal strainer and nickel-chrome plated brass body
- Special foil seal over the discharge orifice to prevent grease from depositing in the orifice and plugging the nozzle
- Grooved rings on the body define the nozzle type (Refer to Table 2-5)

Table 2-5. Range Guard Nozzles

Nozzle Type	Part Number	Flow Number	Grooves	
ADP Nozzle	B120011	1	1	
F Nozzle	B120012	2	2	
GRW Nozzle	B120013	1	3	
R Nozzle	B120014	1	4	
DM Nozzle	B120015	3	0	
LPF Nozzle	B120022	2	1 & 4	
LPR Nozzle	B120024	1	Disc & Core	

LPR Nozzle, P/N B120024

LPR nozzles are used for the following hazard:

- Ranges

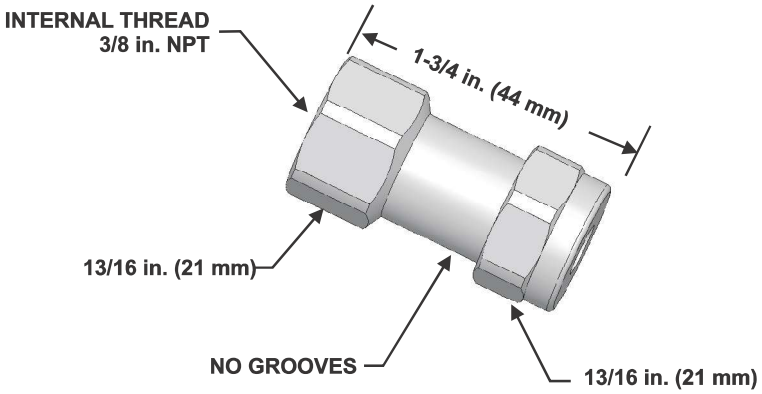


Figure 2-12. LPR Nozzle, P/N B120024

2-1.1.3.8 Swivel Adapter, P/N B120021

The swivel adapter may be used conjunction with any nozzle.

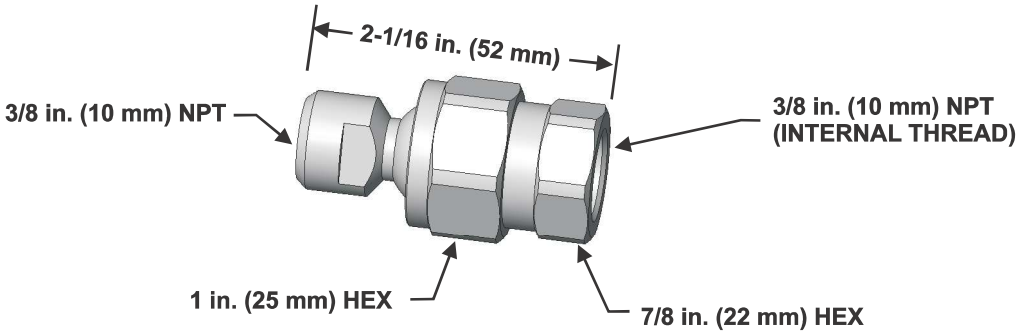


Figure 2-13. Swivel Adapter, P/N B120021

CONTROLS

2-2.1 UNIVERSAL CONTROL HEAD (UCH) Control System, P/N B120099

The UCH Control System, P/N B120099, is used for actuating the Range Guard Cylinder and Valve Assembly. The UCH Control System can be attached to the System Valve Actuator, P/N B120042 for direct cylinder mounting, or to a wall for remote mounting. Knockouts are provided to accommodate either type of mounting. The controller can be operated with:

- Automatic mechanical detection (fusible-links and thermo-bulb links),
- Automatic electrical operation, and
- Remote and local manual operation.

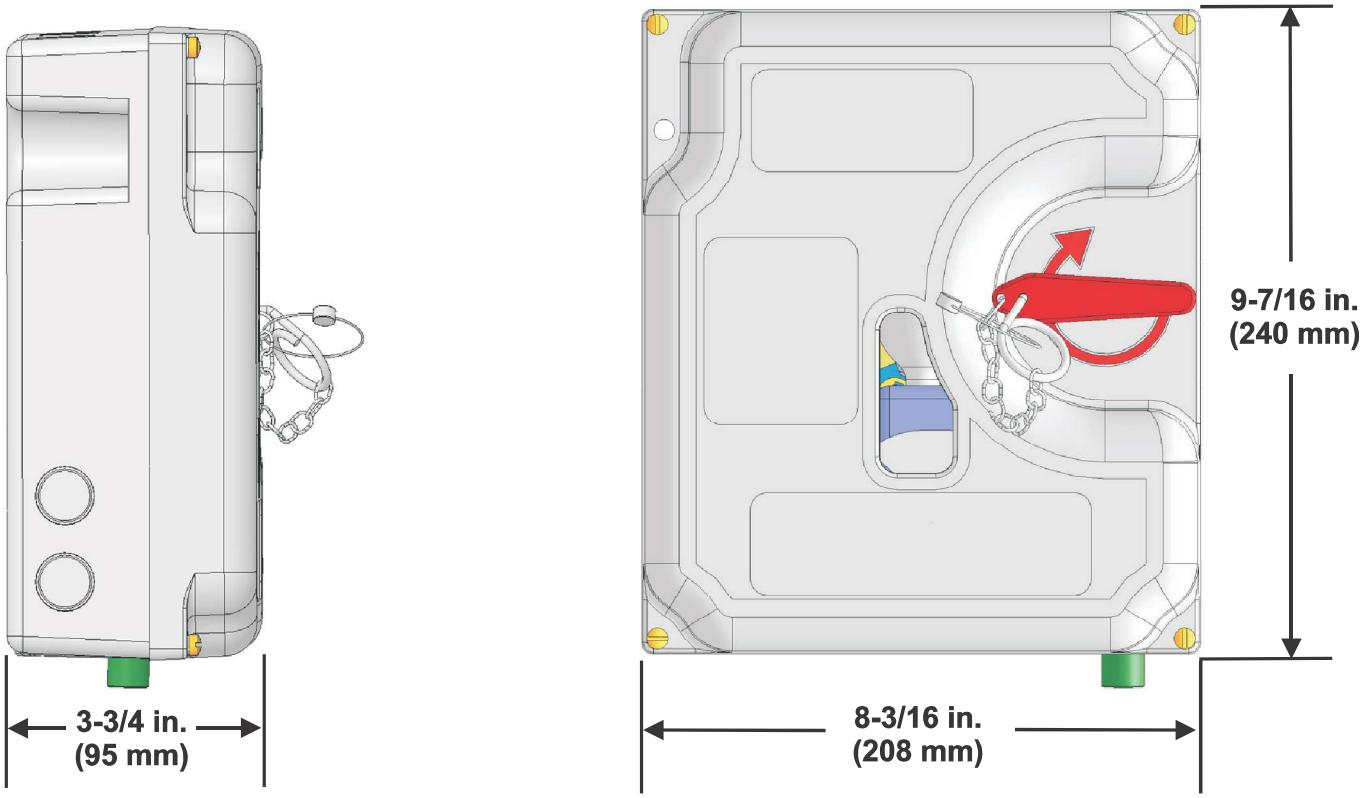


Figure 2-14. UCH Control System, P/N B120099

SYSTEM NITROGEN CARTRIDGE, P/N B120043

The UCH Control System uses a nitrogen cartridge for actuating the wet chemical cylinders and is charged with dry nitrogen (see Figure 2-15). The cartridge is mounted inside the UCH Control System to protect it from tampering and provides the date of manufacturing and space (gray band) for recording the installation date.

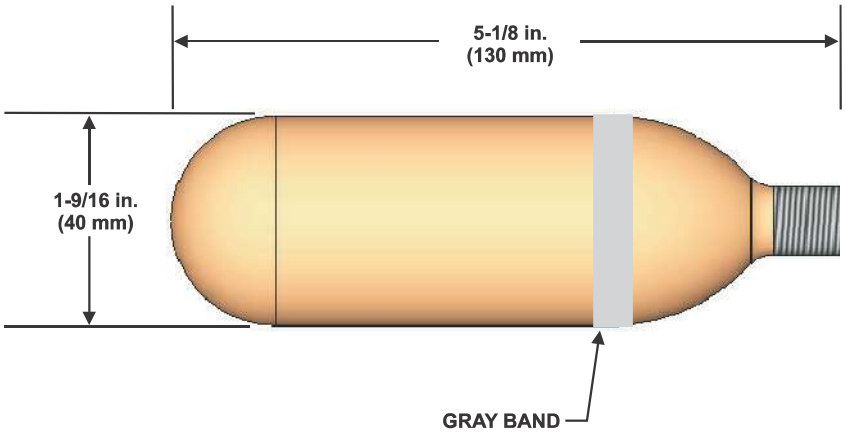


Figure 2-15. System Nitrogen Cartridge, P/N B120043

2-2.1.2 TEST CARTRIDGE, P/N B120044

The Test Cartridge is used for testing of the Badger Wet Chemical System. The cartridge has a red band and labeled “TEST CARTRIDGE” as shown in Figure 2-16.

Note: The System Nitrogen Cartridge P/N B120043 is required for actuation and full discharge or "puff" tests.

CAUTION

The Test Cartridge (P/N B120044) must be removed and the System Nitrogen Cartridge (P/N B120043) must be installed at the completion of any work done on the system. Failure to do so will result in malfunction of the system.

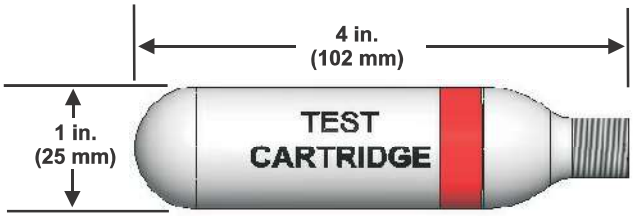


Figure 2-16. Test Cartridge, P/N B120044

SYSTEM VALVE ACTUATOR (SVA), P/N B120042

A System Valve Actuator (SVA) is mounted to every wet chemical cylinder valve assembly (see Figure 2-17). The SVA has ports for low profile tubing runs, and is also equipped with a spring loaded plunger that locks the piston in the discharged position, ensuring complete discharge of the cylinder(s) contents.

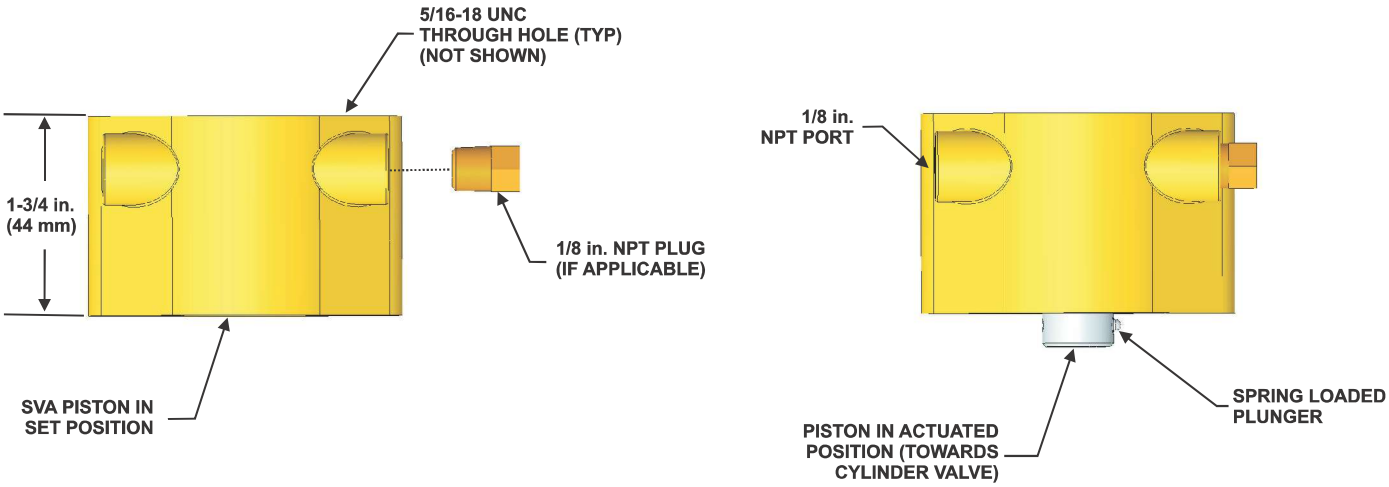


Figure 2-17. System Valve Actuator (SVA), P/N B120042

HIGH-PRESSURE NITROGEN TUBING, P/N B120045

WARNING

The braided High-Pressure Nitrogen Tubing, is required on all installations in which the UCH Control System is mounted to a wet chemical cylinder. Use of another hose in such an installation could result in death or serious personal injury and/or malfunction of the system.

The High-Pressure Nitrogen Tubing is used to connect the UCH Control System to the SVA (see Figure 2-18). A 1/8-inch NPT (male) x 3/8-24 JIC Adapter is included with the High Pressure Nitrogen Tubing.

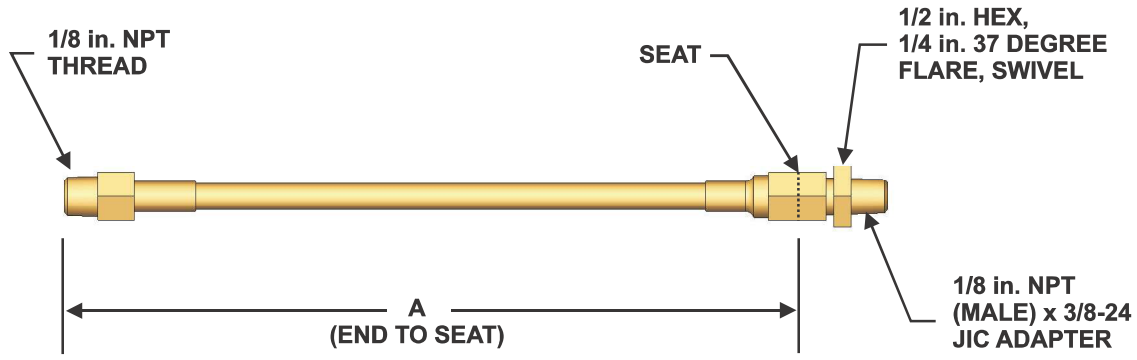


Figure 2-18. External Tubing for UCH Control System, P/N B120045

Table 2-6. External Tubing for UCH Control System

Part Number	Length "A"
B120045-001	7-1/2 in. (191 mm)
B120045-002	24 in. (610 mm)
B120045-003	60 in. (1524 mm)

MICROSWITCH KIT, P/N B120039, B120039-501 (FOR UCH)

The Microswitch Kit is a single pole, double-throw switch (see Figure 2-20 and Table 2-7). Included in the kit is the microswitch, pigtail assembly and four mounting screws (two short and two long).

Note: Microswitch Kit P/N B120039-501 includes pigtail assembly with white stripes.

The wire leads are 24-inches (610 mm) in length. Four Microswitch Kits can be mounted in the UCH Control System. There are two mounting locations to accommodate the four Microswitch kits (two stacked at each mounting location), with EMT ports for each mounting location. This allows for the use of two electrical junction boxes for separation of signal lines and AC lines.

These are used when it is necessary to open or close electrical circuits. The following are examples, but not limited to:

- Electric appliance shutdown
- Make up air shutdown
- Electric gas valve shutdown
- Shuntbreaker/relay

Electrical appliances usually have a higher amp rating than the switches. In this case, such appliances shall not be wired directly to the microswitch. A magnetic contactor or relay must be used.

To wire the microswitch for UCH, refer to Figure 4-30.

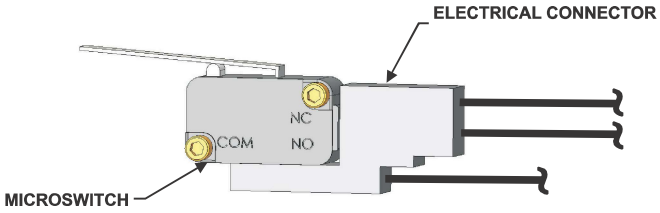


Figure 2-20. Microswitch Kit, P/N B120039

Table 2-7. Microswitch Electrical Ratings

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

TERMINAL TYPE MICROSWITCH KIT, P/N B120047 (FOR UCH)

The Microswitch Kit is a single pole, double-throw switch (see Figure 2-21).

Note: Use the Terminal Type Microswitch when using the UCH Control System for alarm and release functions.

Four Microswitch Kits can be mounted in the UCH Control System. There are two mounting locations to accommodate the four Microswitch kits (two stacked at each mounting location), with EMT ports for each mounting location. This allows for the use of two electrical junction boxes for separation of signal lines and AC lines.

Microswitch to be used for

- Alarm initiationTrip a magnetic contactor to turn off the electrically operated cooking appliance
- Solenoid release

Electrical appliances usually have a higher amp rating than the switches. In this case, such appliances shall not be wired directly to the microswitch. A magnetic contactor or relay must be used.

To wire the microswitch for UCH, refer to Figure 4-35 and Figure 4-36.

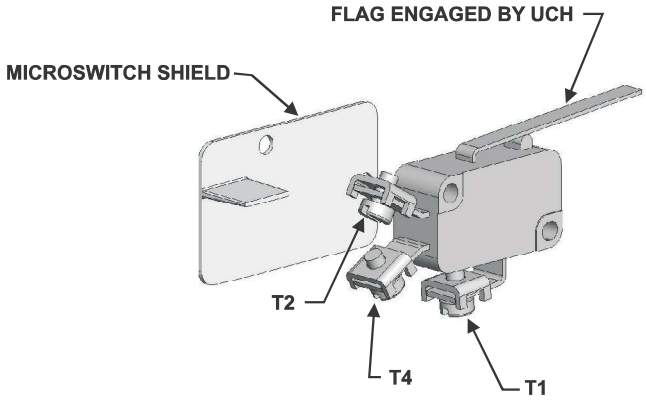


Figure 2-21. Terminal Type Microswitch, P/N B120047

Table 2-8. Terminal Type Microswitch Electrical Ratings

250 Vac	15 Amps
250 Vac	1/2 HP
125 Vac	1/2 HP

Automatic Detectors and Accessories

2-2.3.1 DETECTOR HOUSING KIT, P/N 804548 (UCH ONLY)

The Detector Housing Kit, shown in Figure 2-27, consists of the following:

Table 2-11. Detector Housing Kit, P/N 804548

Item	Quantity
7-9/16 in. (192 mm) Detector Housing	1
1/2-inch EMT Connectors	2
Crimp Sleeves	4
"S" Hook	1

These items are used to attach the detectors to the 1/16-inch cable leading to the UCH Control System. The Detector Housing can be configured as an End-of-Line or In-Line bracket.

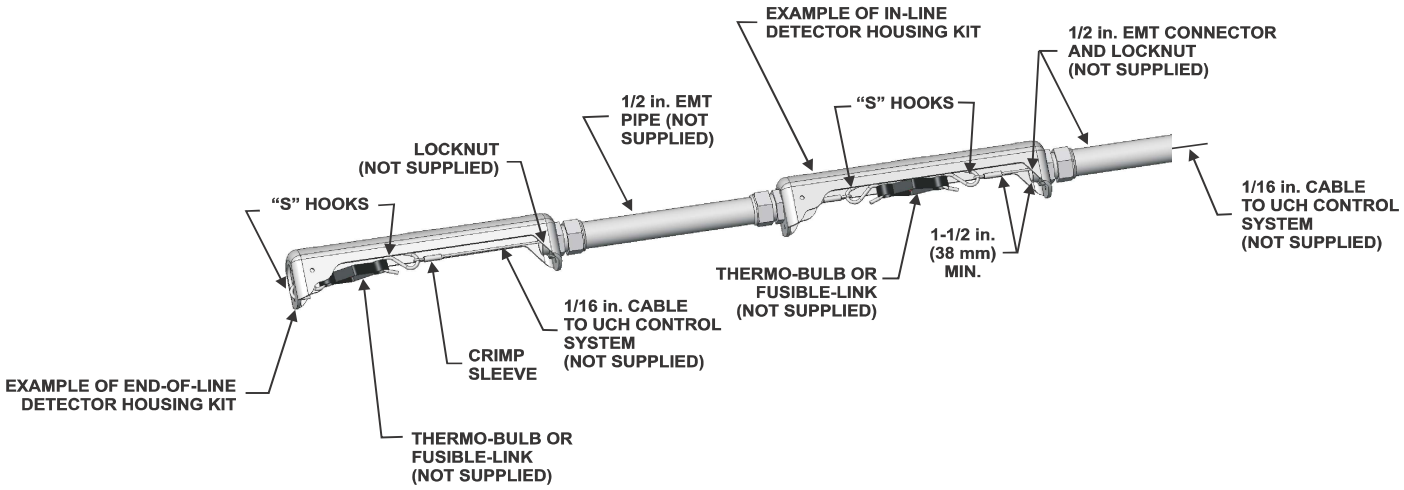


Figure 2-27. Example of End-of-line and In-line Detector Housing Kit, P/N 804548

UNIVERSAL-LINK HOUSING KIT, P/N 120064

The Universal-Link Housing Kit, shown in Figure 2-28, consists of the following:

Table 2-12. Universal Link Housing Kit, P/N 120064

Item	Quantity
11-1/2 in. (292 mm) Detector Housing	1
Crimp Sleeves	2
"S" Hooks	2

The items above are used to attach the Fusible-Link or Thermo-Bulb Links to the 1/16-inch cable leading to the UCH Control System or A+ Control Box. The Universal-Link Housing can be configured as an End-of-Line or In-Line bracket.

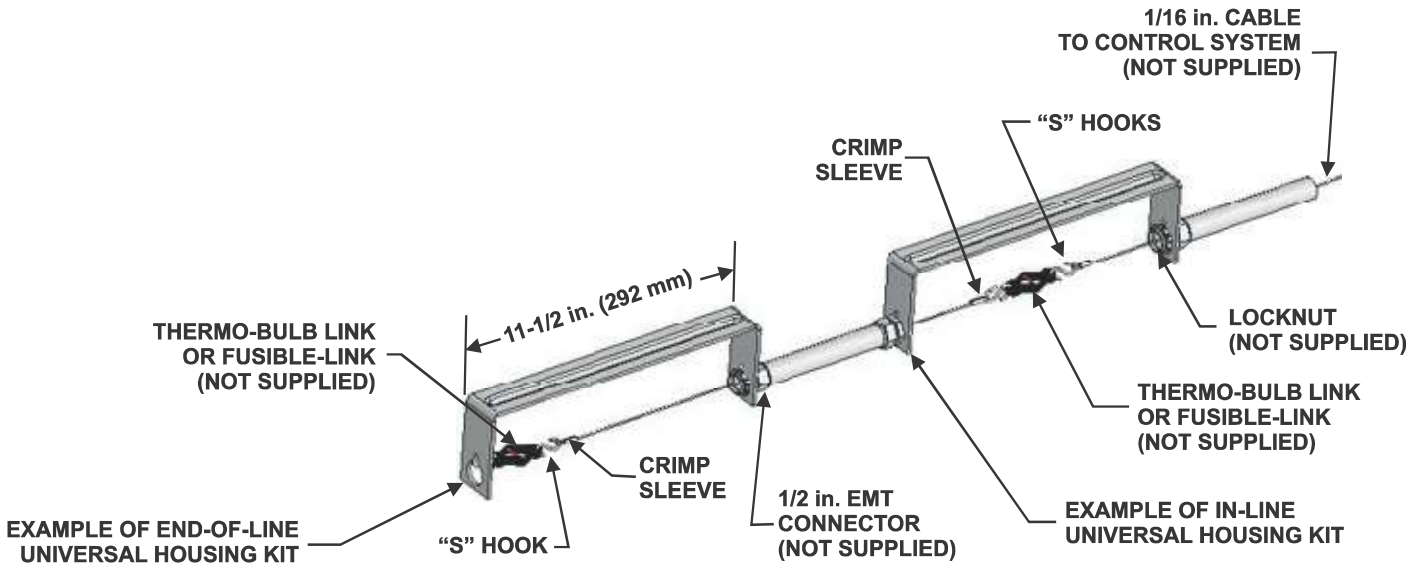


Figure 2-28. Example of End-of-line and In-line Universal Link Housing Kit, P/N 120064

FUSIBLE-LINKS, P/Ns B282661, B282662, B282664 and B282666

Fusible-Links are available in various temperature ratings with a minimum/maximum load rating of 10 lb./40 lb. (5 kg/18 kg) (see Table 2-14).

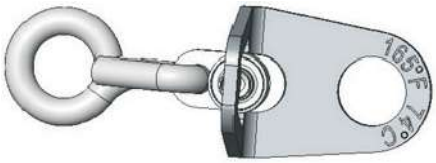


Figure 2-30. Fusible-Link, P/N B28266X

Table 2-14. Fusible-Link Temperature Ratings

Fusible-Link Rating	Maximum Exposure Temperature	Color	Part Number
165°F (74°C)	100°F (38°C)	Yellow	B282661
212°F (100°C)	150°F (65°C)	White	B282662
360°F (182°C)	300°F (149°C)	Unpainted	B282664
500°F (260°C)	440°F (226°C)	Orange	B282666

The rating temperature, which is stamped on the Fusible-Link, is the temperature at which the link will separate when new. However, continual exposure to cycling ambient temperatures may cause a degradation of the link over time.

CORNER PULLEY, P/N B844648

The Corner Pulley is used to change the direction of the control cable runs. The cable's protective conduit (1/2-inch EMT) is attached to the Corner Pulleys with the coupling nuts provided. The Corner Pulley is equipped with a ball-bearing pulley for minimum resistance to the cable travel.

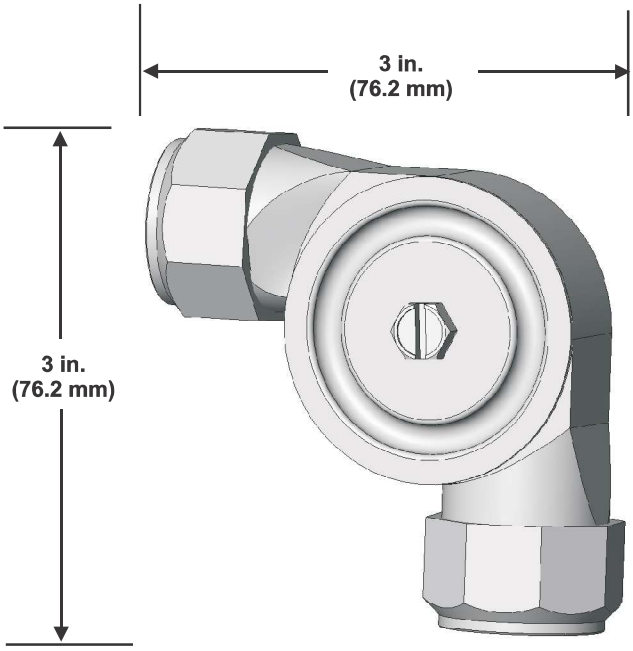


Figure 2-32. Corner Pulley, P/N B844648

Remote Manual Releases

2-2.4.1 REMOTE MANUAL RELEASE, P/N B875572 (UCH ONLY)

The Remote Manual Release, shown in Figure 2-34, is provided as a means of manually actuating the system from a remote location. The Remote Manual Release is attached to the UCH Control System with 1/16-inch control cable. To actuate the system at the Remote Manual Release, pull out the safety pin and pull hard on the handle.

Each Remote Manual Release is supplied with a separate nameplate. This nameplate must be attached to the mounting surface 1-inch above or below the Remote Manual Release.

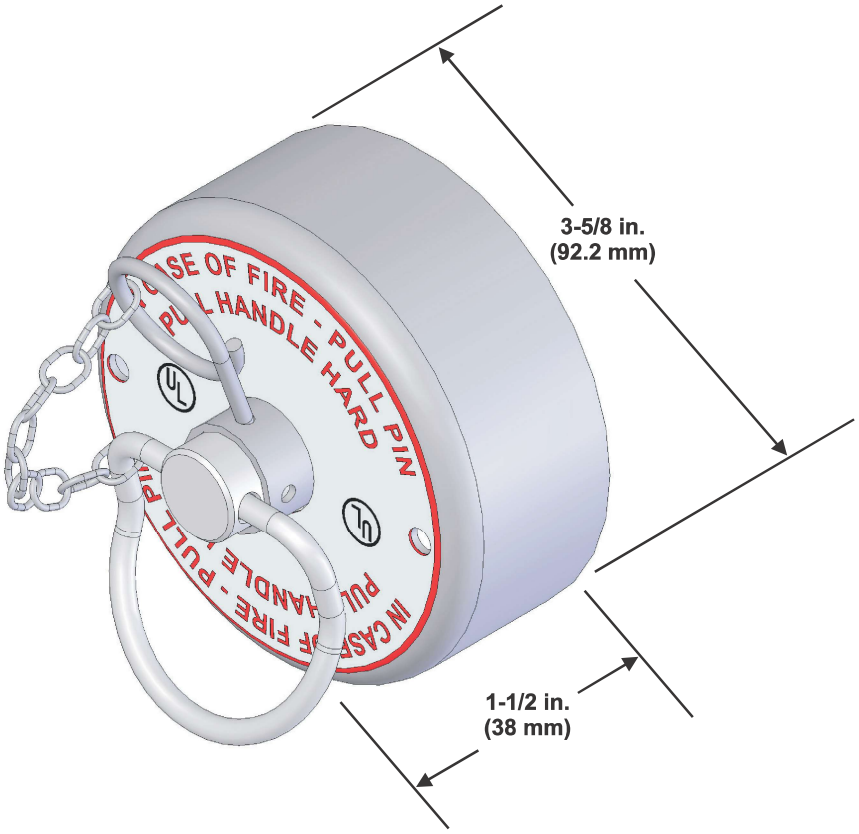


Figure 2-34. Remote Manual Release, P/N B875572

REMOTE MANUAL RELEASE PULL STATION, P/N 87-120110-001

The Remote Manual Release Pull Station, shown in Figure 2-34, is provided as a means of manually actuating the system from a remote location. The Remote Manual Release is attached to the *XV* Control System or the KRS-50 Control Box, with 1/16-inch control cable. The Remote Manual Release Pull Station is available for use in both the "un-tensioned" Pull-to-Trip and "tensioned" Release-to-Trip lines. To actuate the system at the Remote Manual Release Pull Station, pull out the safety pin and pull hard on the handle.

In the Pull-to-Trip mode (*XV* ONLY), tension will be applied to the cable, allowing the *XV* Control System to activate the Cylinder and Valve Assembly.

In the Release-to-Trip mode, removing the safety pin will release tension from the cable, allowing the *XV* Control System or KRS-50 Control Box to activate the Cylinder and Valve Assembly.

The Remote Manual Release Pull Station may be mounted in a recess or surface mount configuration. The assembly is packaged with all necessary components needed to install in either configuration. Mounting hardware is not included.

Each Remote Manual Release Pull Station is supplied with a choice of labels. The proper label must be attached to the faceplate so as to be easily read after installation. Applying the label after installation allows for vertical or horizontal mounting of the Remote Manual Release Pull Station.

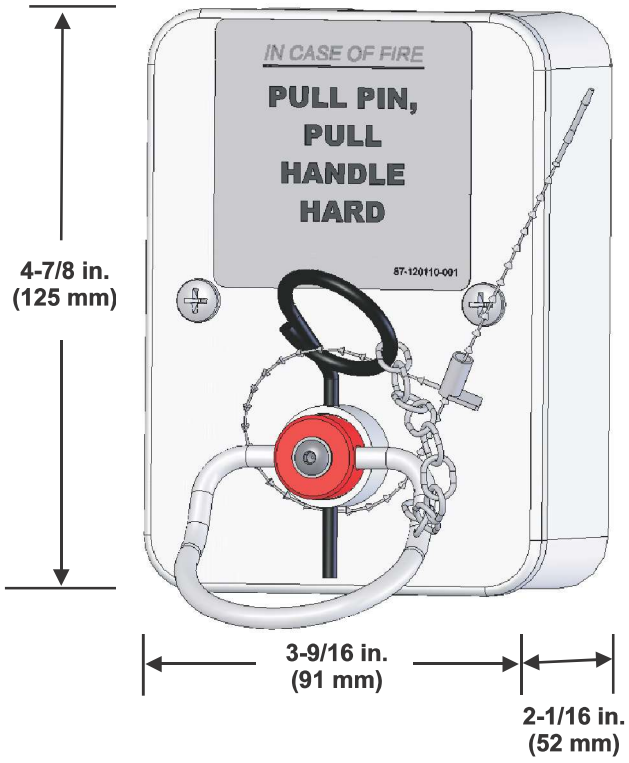


Figure 2-35. Remote Manual Release Pull Station, P/N 87-120110-001

Mechanical Gas Valve, P/N B12007X

A Mechanical Gas Valve is required on systems used to protect gas-fueled appliance(s). Upon system actuation, the control stem closes, stopping the gas flow to the appliance(s).

Note: Only Mechanical Gas Valves that are specifically UL listed and identified by part number in this manual may be used with the Range Guard system.

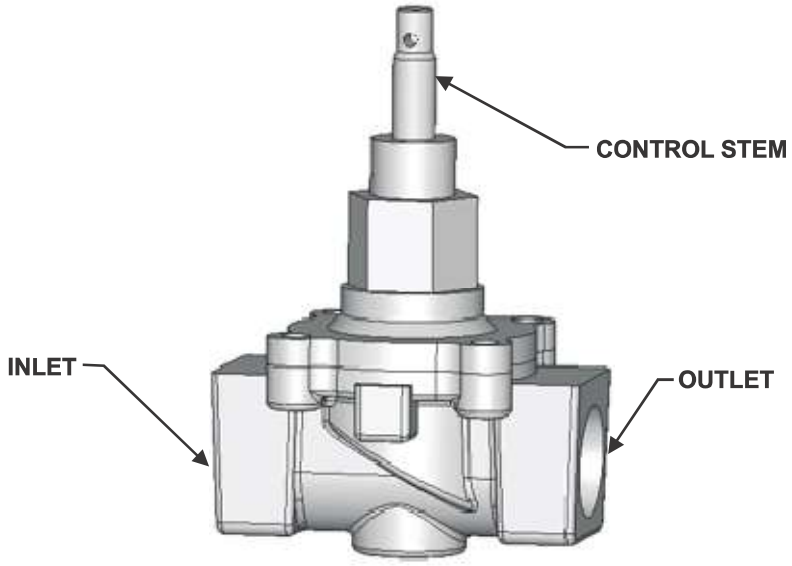


Figure 2-41. Mechanical Gas Valve, P/N B12007X

Table 2-17. Mechanical Gas Valve Sizes

Pipe Size	Part Number
3/4 in. (19 mm)	B120071
1 in. (25.4 mm)	B120072
1-1/4 in. (32 mm)	B120073
1-1/2 in. (38 mm)	B120074
2 in. (51 mm)	B120075
2-1/2 in. (64 mm)	B120076
3 in. (76 mm)	B120077

Electric Gas Valve, P/N 9197XXX

Electric Gas Valve (Figure 2-42) operates on (120V, 60 Hz) which powers a solenoid holding the valve open. This valve is controlled by a pressure switch or microswitch and the Manual Reset Relay Box. See Paragraph 2-3.5.

Upon system actuation, the valve closes, stopping the gas flow to the appliance(s). A loss of electrical power will also cause the Electric Gas Valve to close.

See Table 2-18 for a list of the electric gas valve sizes.

All Electric Gas Valves must be installed horizontally with the solenoid up.

Note: The electric gas valve and the Manual Reset Relay must be specifically UL listed for use with the Range Guard system.

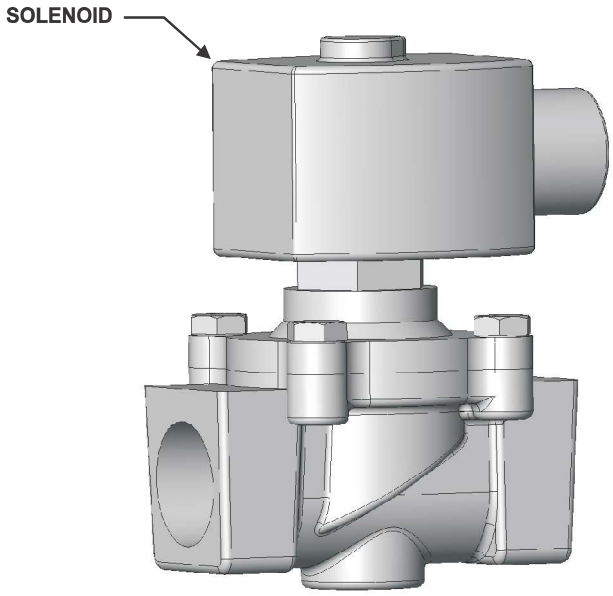


Figure 2-42. Electric Gas Valve, P/N 9197XXX

Table 2-18. Electric Gas Valve Sizes

Size	Part Number
1/2 in. (13 mm)	9197017
3/4 in. (19 mm)	9197018
1 in. (25 mm)	9197019
1-1/4 in. (32 mm)	9197020
1-1/2 in. (38 mm)	9197021
2 in. (51 mm)	9197022
2-1/2 in. (64 mm)	9197444
3 in. (76 mm)	9197445

Manual Reset Relay for Electric Gas Valve, P/N 9101735

The Manual Reset Relay Box (Figure 2-43 and Figure 2-44) provides DPDT contacts rated for 6 amps at 115 Vac and prevents immediate reopening of the Electric Gas Valve (P/N 9197XXX). Figure 2-44 shows the Manual Reset Relay Box used before 2006.

Note: The Electric Gas Valve and the Manual Reset Relay must be specifically UL listed for use with the Range Guard system.

Figure 2-43. Manual Reset Relay Box, P/N 9101735

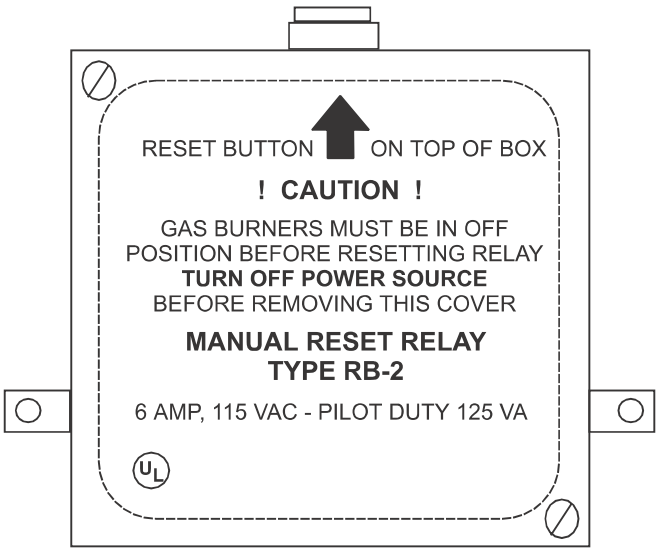


Figure 2-44. Manual Reset Relay Box, P/N 9101735 (Used Before 2006)

EMT and O-Ring Connector Kit, P/N B120058

If using more than the three EMT connectors supplied with the UCH Control System, you must use EMT Connector and O-Ring Connector Kit.

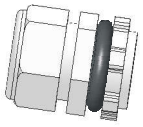


Figure 2-45. EMT and O-Ring Connector Kit, P/N B120058

2-3.7 1/16-inch Control Cable, P/N 219649

The Control Cable used in the system is stainless-steel, 1/16-inch O.D., 7x7 stranded cable. The control cable runs from the various system devices, through 1/2-inch EMT conduit, to the UCH or A+ Control System.

Table 2-19. 1/16-inch Control Cable

Part Number	Description
219649	1/16, 7x7 Cable, Stainless Steel, Reel of 500 ft. (152 m)

2-3.8 Crimp Sleeve, P/N 214951

In order to ensure that a 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.

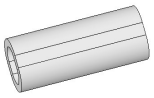


Figure 2-46. Crimp Sleeve, P/N 214951

Table 2-20. Crimp Sleeve

Part Number	Description
214951	Cable Crimp Sleeve (order in package of 50 only)
9197288	Cable Crimp Sleeve (package of 50 of 214951)

"S" Hooks, P/N 9189413

"S" Hooks are used to attach the Fusible-Link to the 1/16-inch. cable leading to the UCH Control System.

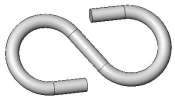


Figure 2-47. "S" Hook, P/N 9189413

Table 2-21. "S" Hook

Part Number	Description
9189413	"S" Hook (order in package of 50 only)
9187287	"S" Hook (package of 50 of 9189413)

2-3.10 Crimping Tool, P/N 253538

The Crimping Tool (P/N 253538), shown in Figure 2-48, is used in conjunction with Crimp Sleeves. Wherever the system 1/16-inch Control Cable must be looped or terminated, the Crimp Sleeves and Crimping Tool must be used.

Note: Splicing of the 1/16-inch Control Cable is not permitted. Other Crimping Tools are not authorized.

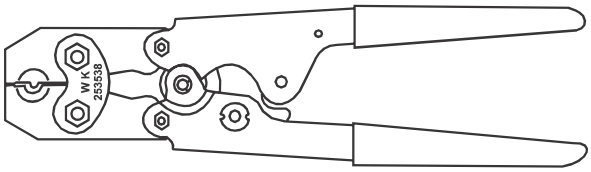


Figure 2-48. Crimping Tool, P/N 253538

1/2-inch Vent Plug, P/N 9196984

A 1/2-inch Vent Plug is used in the discharge piping near a Range Guard cylinder to prevent pressure build-up in the discharge pipe system, caused by heat, from rupturing the foil seals on each nozzle.

The 1/2-inch Vent Plug is to be installed in the discharge piping so that it faces the ceiling or the wall.

CAUTION

NEVER INSTALL IT FACING DOWN OR AT THE FLOOR.

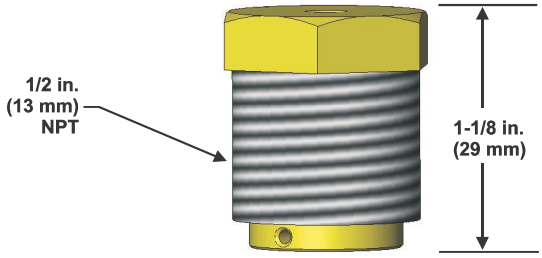


Figure 2-49. 1/2-inch Vent Plug, P/N 9196984

2-3.12 Keeper Pin, P/N 9197108

The Keeper Pin (P/N 9197108) is used to prevent actuation while installing the system.

Figure 2-50. Keeper Pin, P/N 9197108

2-3.13 System Recharge

For recharge purposes, select the size of the Karbaloy agent recharge container (see Table 2-22) that fits the cylinder.

Table 2-22. Wet Chemical Agent

Part Number	Wet Chemical
9197428	RG-1.25G Karbaloy Recharge Container
9197257	RG-2.5G Karbaloyl Recharge Container
9196991	RG-4GS/RG-4GM Karbaloy Recharge Container
9196783	RG-6G Karbaloy Recharge Container

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

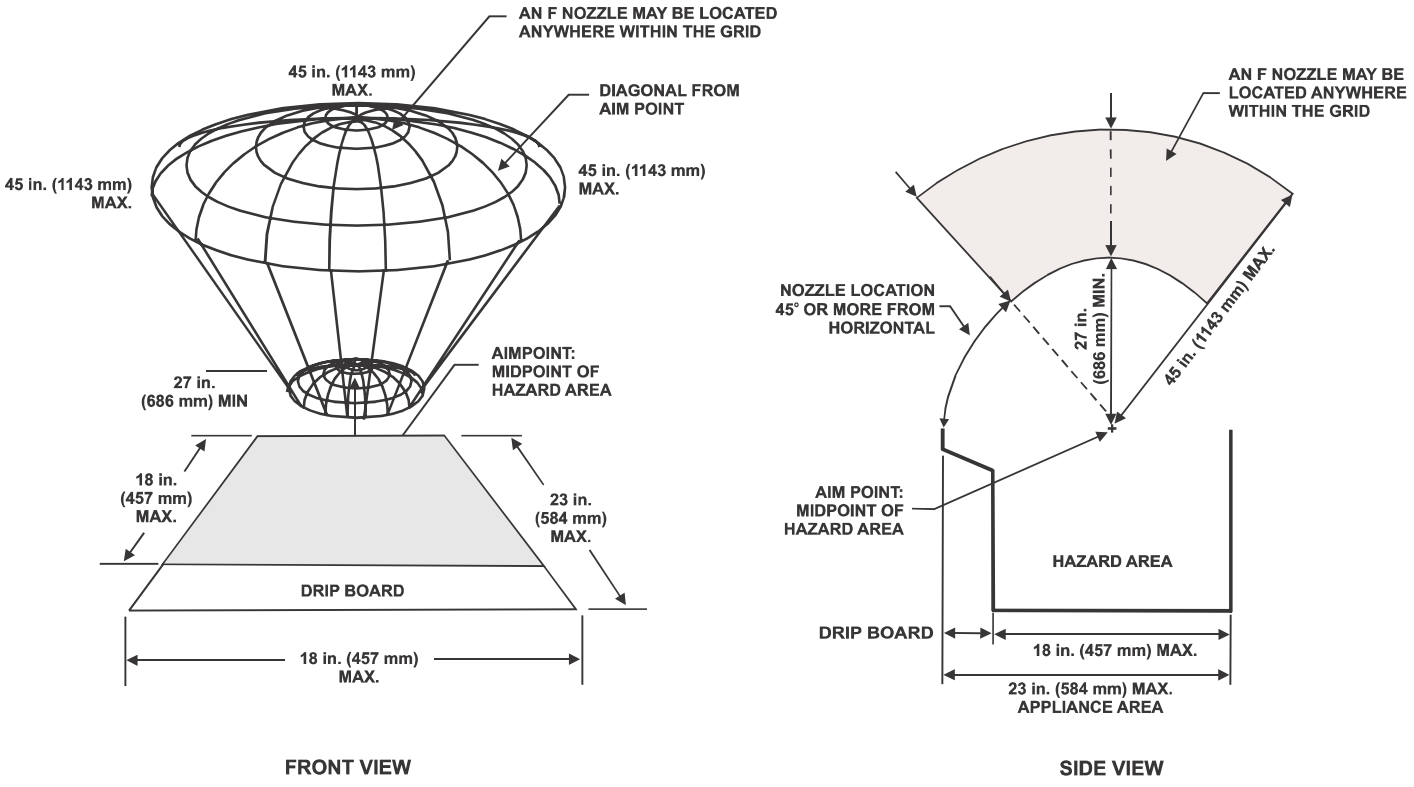


Figure 3-2. Single Vat Deep Fat Fryer

Split Vat Deep Fat Fryer

Table 3-4. F Nozzle Coverage Area

Items	Parameters
Maximum Hazard Area	14 in. x 15 in. (356 mm x 381 mm)
Maximum Appliance Area (with drip board)	14 in. x 21 in. (356 mm x 533 mm)
Nozzle Aim	Midpoint of module area per nozzle
Nozzle Location (at an angle of 45° or more from the horizontal above each module)	27 in. (686 mm) Min. 45 in. (1143 mm) Max.

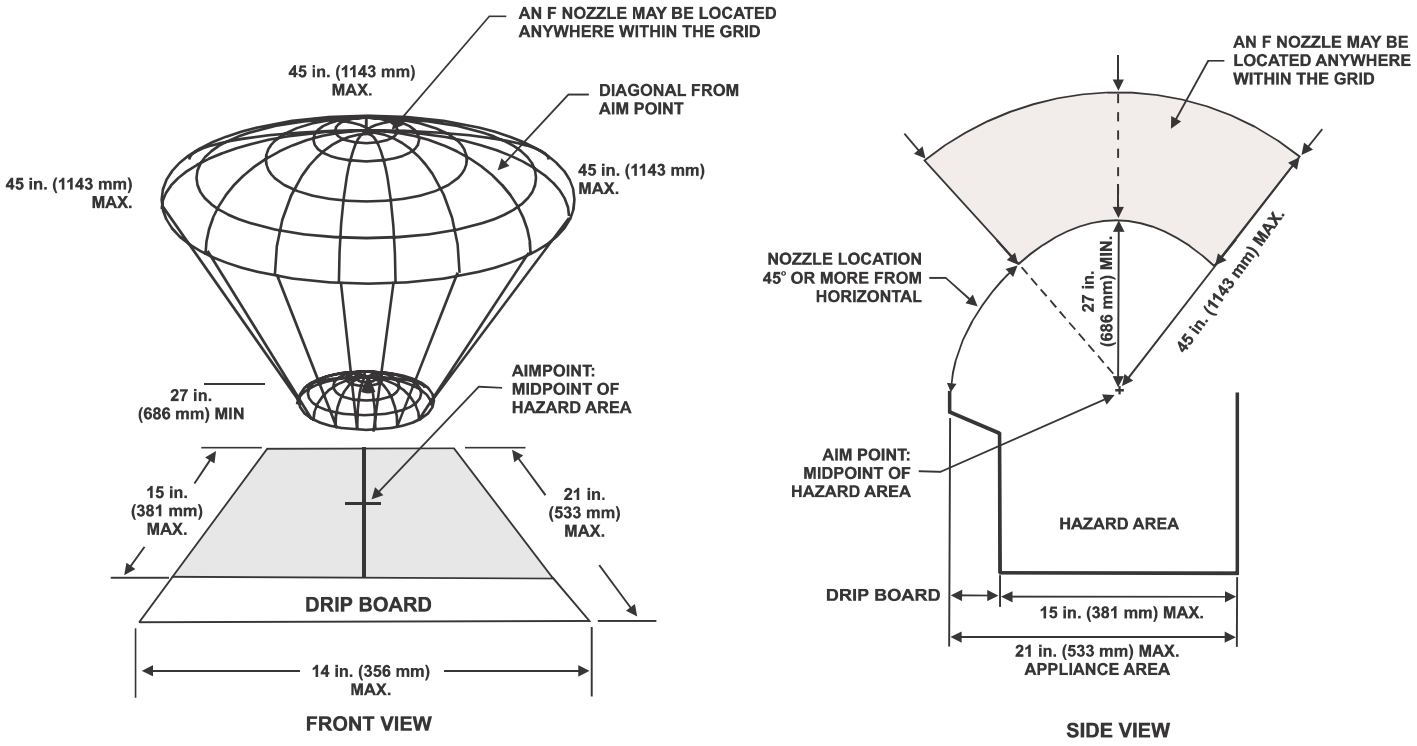


Figure 3-4. Split Vat Deep Fat Fryer

3-4.10 Two Burner Ranges

Table 3-14. R Nozzle Coverage Area — Two Burner Range

Items	Parameters
Maximum Hazard Length	28 in. (711 mm)
Nozzle Aim	Midpoint of hazard area
Nozzle Location - Anywhere within the area of a circle generated by a 9 in. (229 mm) radius about the midpoint **Note:** Shape of burner not important.	20 in. (508 mm) Min. 42 in. (1067 mm) Max.

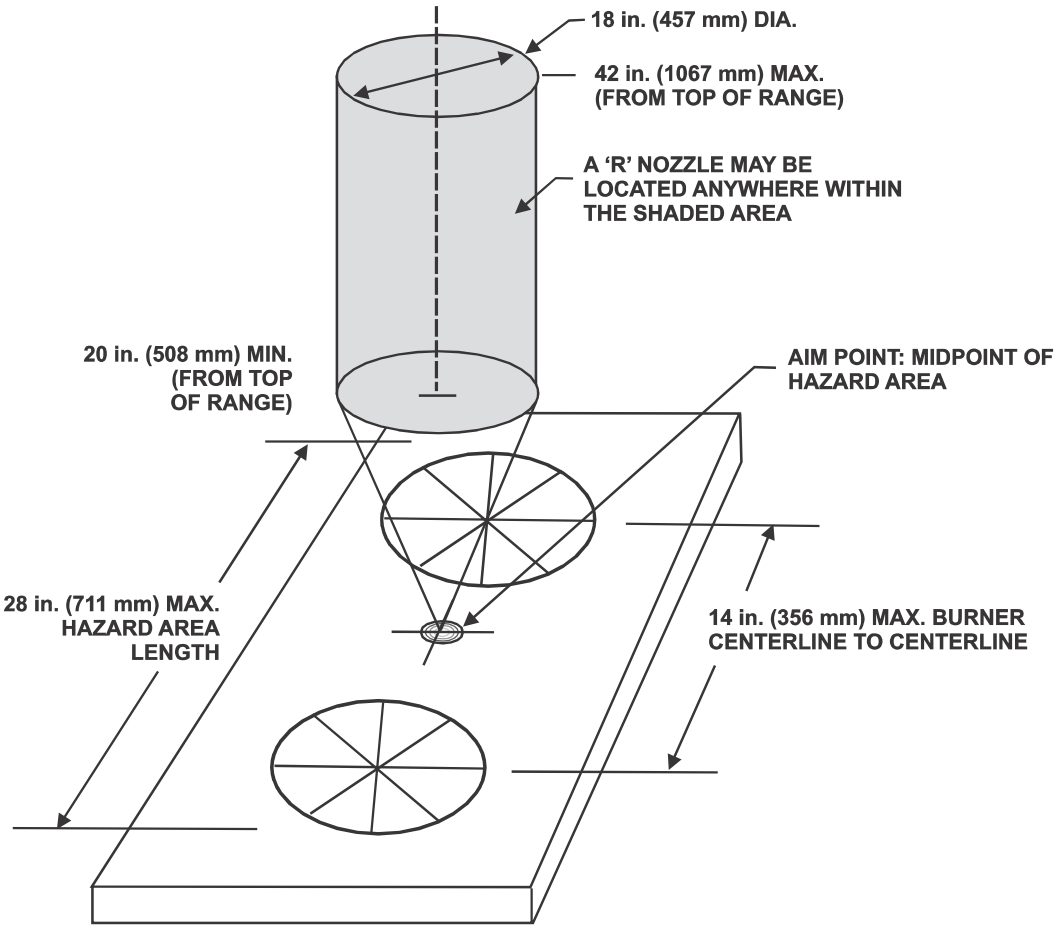


Figure 3-11. R Nozzle Coverage for a 2-Burner Range

Single Burner Range

Table 3-15. R Nozzle Coverage Area — Single Burner Range

Items	Parameters
Nozzle Aim	7 in. (178 mm) from center of burner
Nozzle Location — Anywhere within the area of a circle generated by a 9 in. (229 mm) radius about the aim point. **Note:** Shape of burner not important.	20 in. (508 mm) Min. 42 in. (1067 mm) Max.

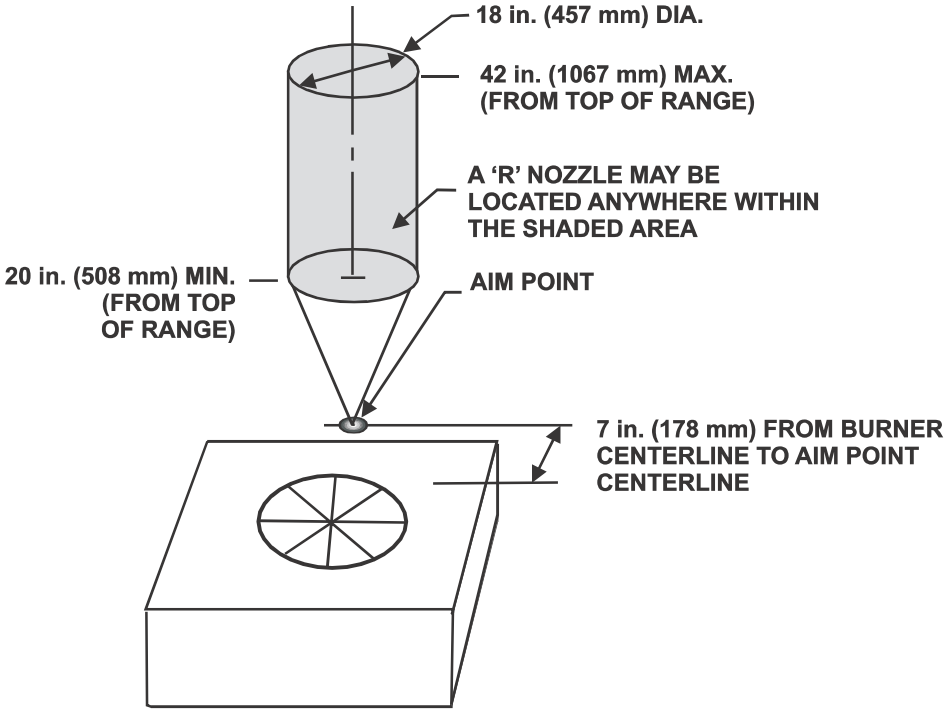


Figure 3-12. R Nozzle Coverage for a 1-Burner Range

Tilt SkilletS (Braising Pans)

Table 3-28. 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.

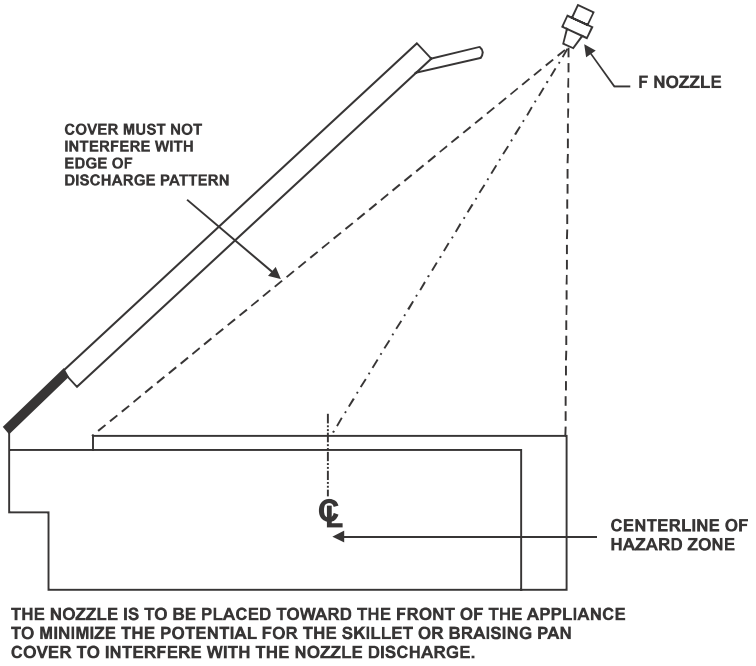


Figure 3-24. Tilt Skillet (Braising Pan)

VENTILATION

3-6.1 Plenums

Table 3-29. Plenum Protection

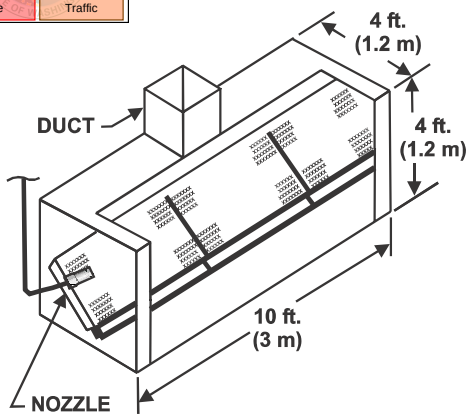
Items	Parameters	ADP Nozzle
No Filter [1]	10 ft. x 4 ft. (3 m x 1.2 m) Max.	1 - located at one end of the plenum
"V" Filter	10 ft. x 4 ft. (3 m x 1.2 m) 20 ft. x 4 ft. (6 m x 1.2 m)	1 - located at one end of the plenum 2 - located at end of plenum pointing inwards
Single Bank Filter	10 ft. x 4 ft. (3 m x 1.2 m) 20 ft. x 4 ft. (6 m x 1.2 m)	1 - located at one end of the plenum 2 - located at end of plenum pointing inwards

[1] When no filters are present, the nozzle protecting the plenum is used to discharge the wet chemical on the underside of the hood. In this case, the hood may not exceed a length of 10 ft. (3 m) or a width of 4 ft (1.2 m).

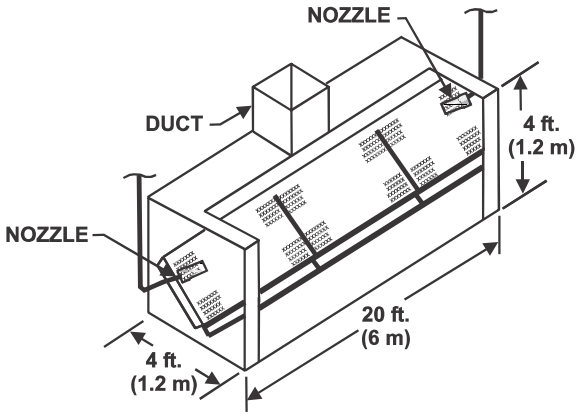
Longer plenums may be similarly protected with a single ADP nozzle being used for each 10 ft. (3.0 m) of plenum length and each 4 ft. (1.2 m) of plenum width.

ADP nozzles may be used in combinations (see Figure 3-28). Multiples may be installed facing in the same direction, and/or at the ends of the plenum pointing in. Each nozzle shall provide a maximum of 10 ft. (3 m) of coverage.

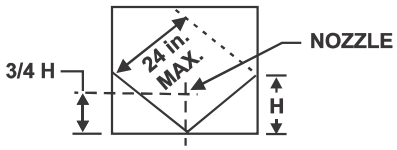
ADP nozzles must be centrally located in the plenum with their discharge directed along the length of the plenum and located in relation to the filters as shown in Figure 3-28. Refer to Figure 3-28 for filter height.



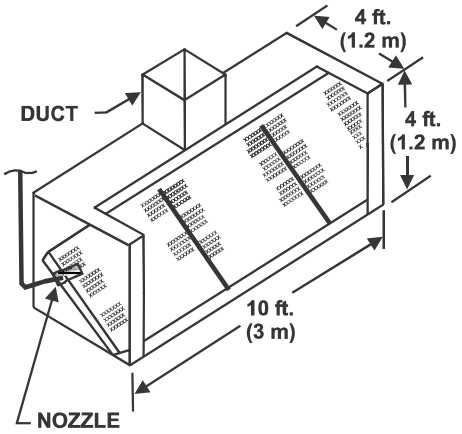
"V" FILTER BANK COVERAGE
10 ft. (3 m) PLENUM



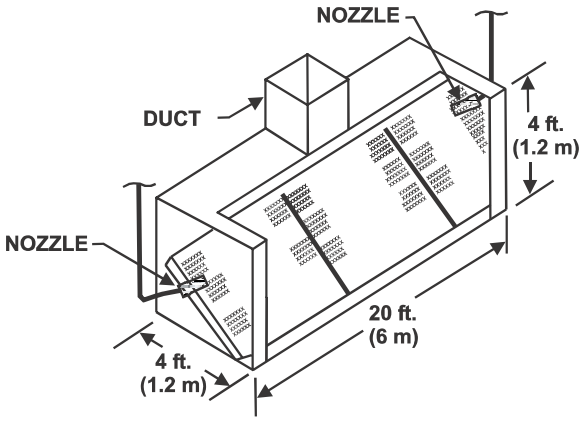
"V" FILTER BANK COVERAGE
20 ft. (6 m) PLENUM



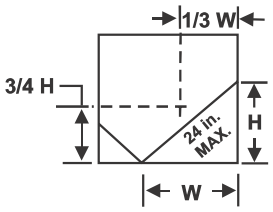
"V" FILTER BANK
COVERAGE (END VIEW)



SINGLE FILTER BANK COVERAGE
10 ft. (3 m) PLENUM



SINGLE FILTER BANK COVERAGE
20 ft. (6 m) PLENUM



SINGLE BANK FILTER
COVERAGE (END VIEW)

Figure 3-28. ADP Protection Nozzle, P/N B120011

Ducts 50 to 100 inches in Perimeter

Two ADP nozzles, P/N B120011, pointing in the same direction are required for protection of ducts with perimeters greater than 50 inches and less than or equal to 100 inches. Ducts can be of unlimited length (refer to Figure 3-30).

For other option of ducts up to 75 perimeter inches (See Figure 3-32).

Note: All Range Guard systems are listed by UL and ULC for use with the exhaust fan either on or off when the system is discharged.

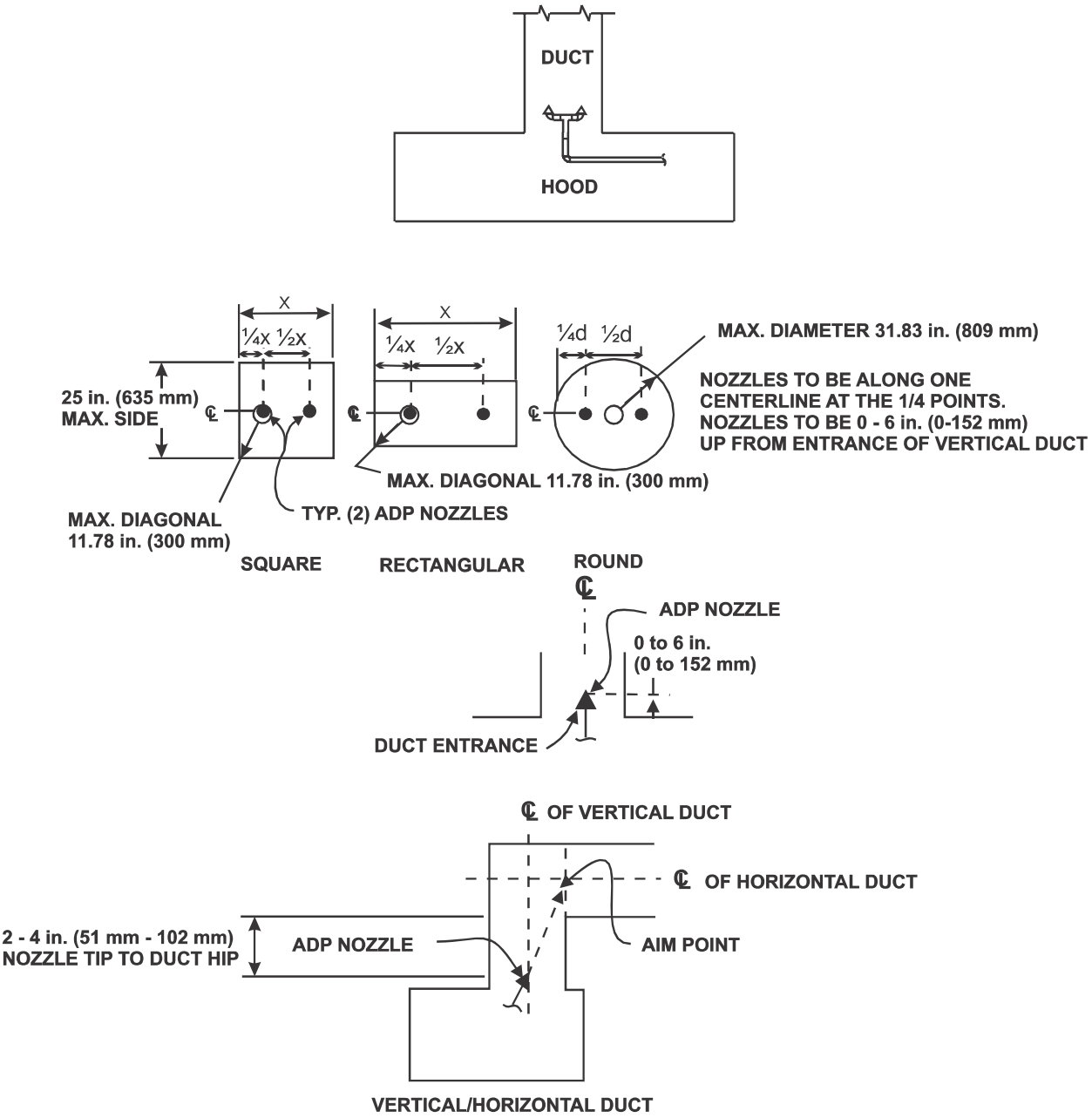


Figure 3-30. Duct Protection Using Two ADP Nozzles, P/N B120011