

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Please Read Application And Notes, If Any, Attached

PERMIT ISSUED
Permit Number: 060965
JUN 30 2006
CITY OF PORTLAND

This is to certify that GVF PROPERTIES LLC / B State Fire Protection

has permission to Install a fire suppression system for kitchen hood

AT 34 WHARF ST 032 V016001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of this State and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and when permission procured before this building or part thereof is lashed or enclosed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

- Fire Dept.
Health Dept
Appeal Board
Other Department Name

Handwritten signature and date 6/30/06
Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 06-0965	Issue Date: JUN 27 2006	CBL: 032 V016001
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Location of Construction: 34 WHARF ST	Owner Name: GVF PROPERTIES LLC	Owner Address: 287 MAIN ST STE 403	Phone: 7819355936
Business Name:	Contractor Name: Bay State Fire Protection	Contractor Address: P O Box 294 Woburn	Phone: 7819355936
Lessee/Buyer's Name	Phone:	Permit Type: Fire Suppression System	Zone:

Past Use: Commercial	Proposed Use: Commercial Install a fire suppression system for kitchen hood	Permit Fee: \$48.00	Cost of Work: \$2,100.00	CEO District: 1
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Proposed Project Description: Install a fire suppression system for kitchen hood	<b>FIRE DEPT:</b> <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied TO UPPA 96	<b>INSPECTION:</b> Use Group: N/A Type: 6/30/06 Signature: [Signature]
Signature: [Signature]		Signature: [Signature]
PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____		

Permit Taken By: dmartin	Date Applied For: 06/27/2006	<b>Zoning Approval</b>
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1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: _____	<b>Zoning Appeal</b> <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date: _____	<b>Historic Preservation</b> <input type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: _____
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**CERTIFICATION**

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE



# General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

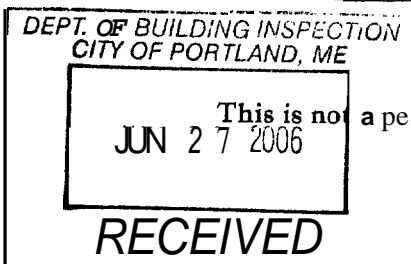
Total Square Footage of Proposed Structure			Square Footage of Lot		
Tax Assessor's Chart, Block & Lot		Owner:		Telephone:	
Chart#	Block#	Lot#	GOF Properties LLC 287 Main St, Ste 403 Newiston, ME.		
32	V	116	Applicant name, address & telephone:		Work: \$ 2100.00
			Bay State Fire Protection P.O. Box 294 Woburn, MA. 01801		Fee: \$ 48
					C of O Fee: \$
Project description: Install @ Kiddle Fire Suppression System for kitchen hood and grease producing Appliances.					
Contractor's name, address & telephone:					
Who should we contact when the permit is ready: Bay State Fire Protection					
Mailing address:			Phone: 781-935-5534		

Please submit all of the information outlined in the Commercial Application Checklist. Failure to do so **will** result in the automatic denial of **your** permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information visit us on-line at [www.portlandmaine.gov](http://www.portlandmaine.gov), stop by the Building Inspections office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant: <u>Dev. W. Jones</u>	Date: <u>6-27-06</u>
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**City of Portland, Maine - Building or Use Permit**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

<b>Permit No:</b> 06-0965	<b>Date Applied For:</b> 06/27/2006	<b>CBL:</b> 032 V016001
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<b>Location of Construction:</b> 34 WHARF ST	<b>Owner Name:</b> GVF PROPERTIES LLC	<b>Owner Address:</b> 287 MAIN ST STE 403	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Bay State Fire Protection	<b>Contractor Address:</b> P O Box 294 Woburn	<b>Phone</b> (781)935-5936
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Suppression System	

Commercial Install a fire suppression system for kitchen hood	Install a fire suppression system for kitchen hood
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<b>Dept:</b> Building	<b>Status:</b> Approved with Conditions	<b>Reviewer:</b> Mike Nugent	<b>Approval Date:</b> 06/30/2006
<b>Note:</b> 1) Must comply with NFPA regs.			<b>Ok to Issue:</b> <input type="checkbox"/>
<b>Dept:</b> Fire	<b>Status:</b> Approved with Conditions	<b>Reviewer:</b> Cptn Greg Cass	<b>Approval Date:</b> 06/29/2006
<b>Note:</b> 1) System shall be designed and installed in compliance with NFPA 96 A compliance letter is required.			<b>Ok to Issue:</b> <input checked="" type="checkbox"/>

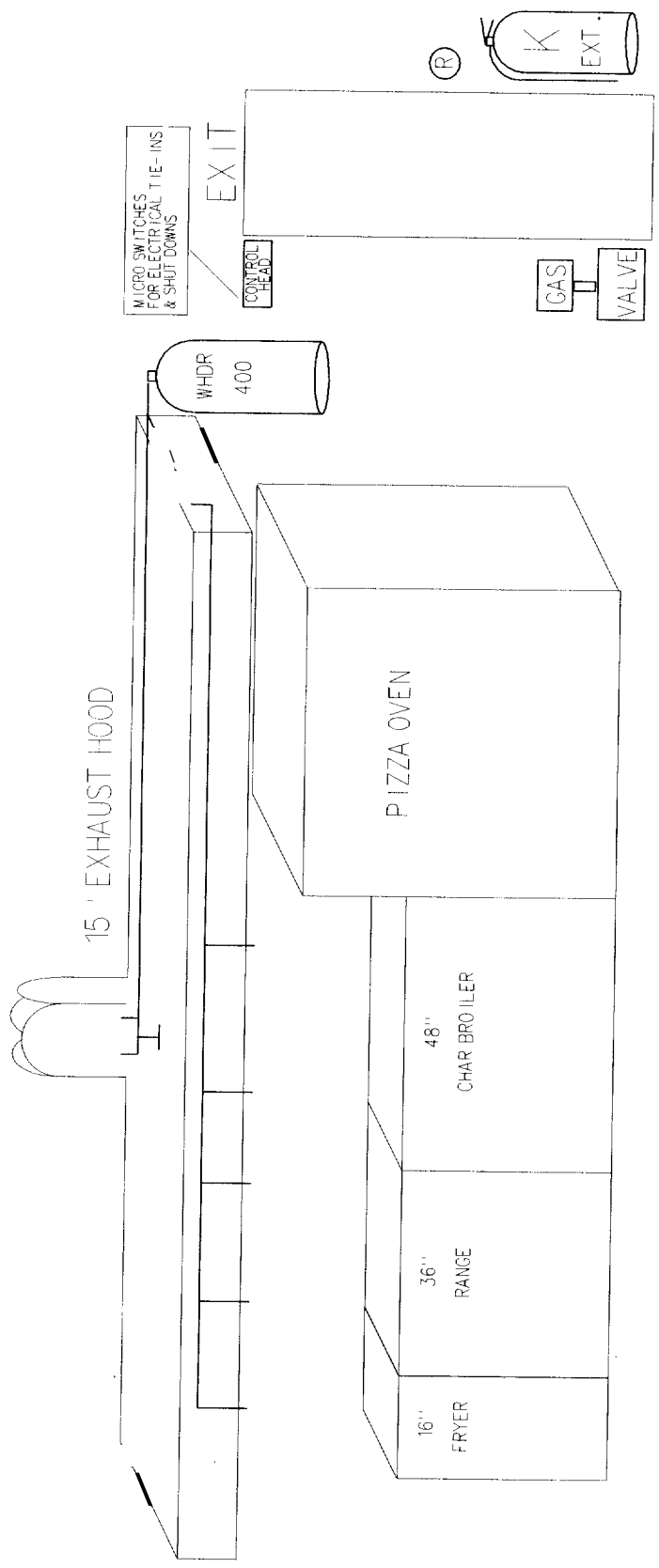
Fire: r ion tem nstalled By

GNOLIA REST.  
WHARF ST.  
RTLAND, ME



SYSTEM INFO:  
KIDDE WHDR 400 = 12 FLOWS  
APPLIANCES = 8 FLOWS  
PLENUM = 2 FLOWS  
DUCT = 2 FLOWS

Bay State Fire Protection Corp.  
161 R Merrimac Street  
Woburn, MA  
781-935-5536  
MA Lic. # 102



## 2-1 Cylinders

### Cylinders

KIDDE systems have available five different cylinder sizes: WHDR-125 [1.25 gallon (4.7L)] , WHDR-260 [2.6 gallon (9.5L)], WHDR-400L [4 gallon (15 L)], WHDR-400S [4 gallon short (15L)] and WHDR-600 [6 gallon (22.7L)].

Each cylinder is pressurized with nitrogen or air to 175 psig (1205 kPa), at 70°F (21°C).

Note: It is recommended that cylinders be stored upright.

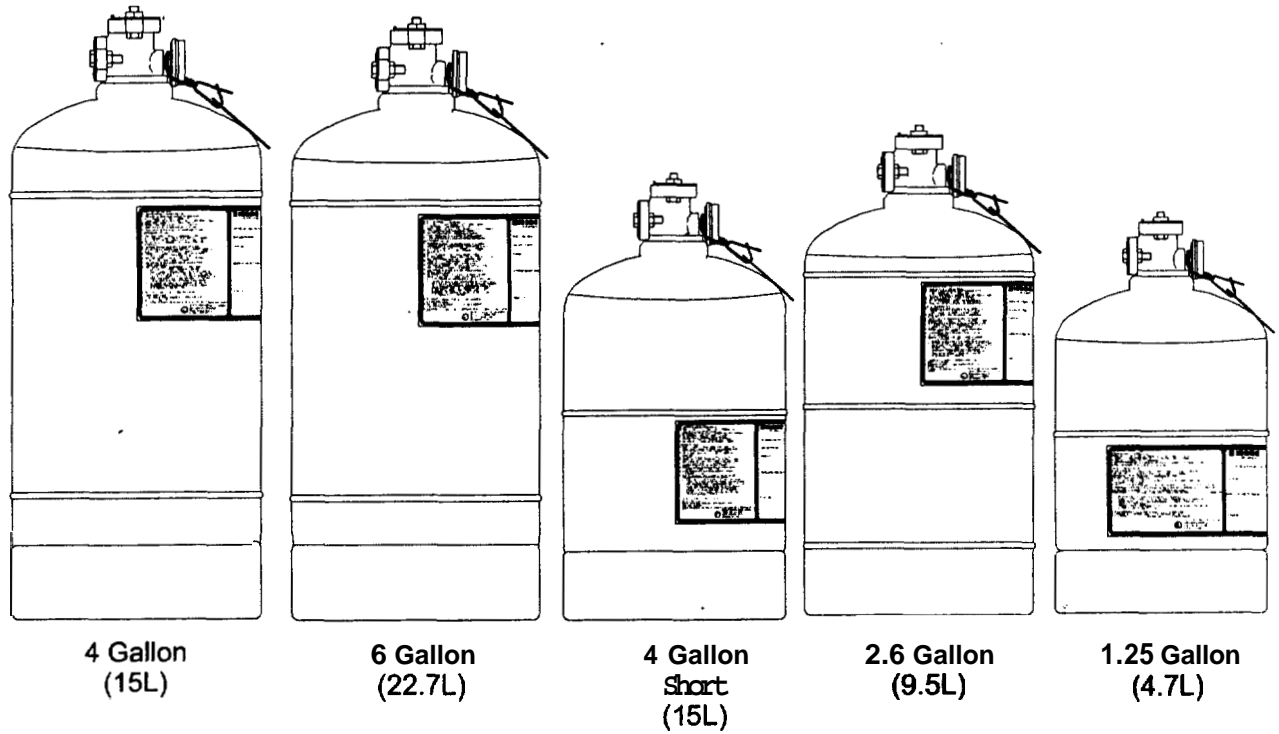


Figure 2-1. Cylinder

Table 2-1. Cylinder Specification

Cylinder Size	Part No.	Charged Weight Lbs	Diameter inches	Height to Center of Discharge Port Inches	Overall Height Inches	Overall Height With Mech, Elec or Tandem Control Head Inches	Overall Height With Pressure Op Control Head Inches
WHDR-125 1.25 Gallon (4.7L)	87-120001-001	28.5 (12.9 Kgs)	7-5/8 (19.4 cm)	14 (35.6 cm)	15-3/8 (39 cm)	21 (53.3 cm)	16-3/4 (42.5 cm)
WHDR-260 2.6 Gallon (9.5L)	87-120002-001	53 (24 Kgs)	9 (23 cm)	19-5/8 (49.8 cm)	21 (53.5 cm)	26-5/8 (67.6 cm)	22-3/8 (61.3 cm)
WHDR-400S 4 Gallon (15L)	87-120003-001	80 (36.3 Kgs)	12 (30.5 cm)	17-5/8 (44.8 cm)	19 (48.3 cm)	24-5/8 (62.5 cm)	20-3/8 (51.7 cm)
WHDR-400L 4 Gallon (15L)	87-120004-001	88 (40 Kgs)	9 (23 cm)	33-3/4 (85.7 cm)	35-1/8 (89.2 cm)	40-3/4 (103.5 cm)	36-1/2 (92.7 cm)
WHDR-600 6 Gallon (22.7L)	87-120005-001	110 (50 Kgs)	10 (25.4 cm)	33-7/8 (86 cm)	35-1/4 (89.5 cm)	40-7/8 (104 cm)	36-5/8 (93 cm)

## 2-2 Temperature vs. Pressure

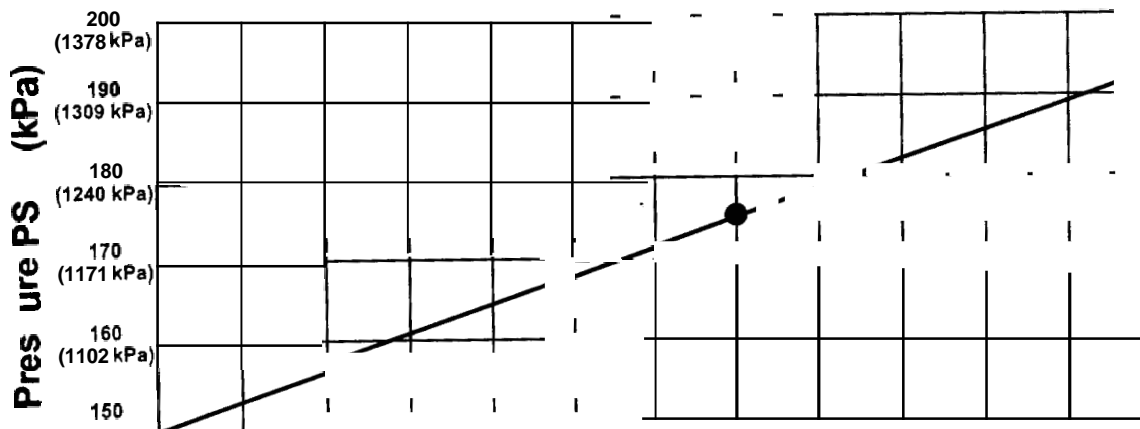


Figure 2-2. Cylinder Pressure

If the ambient temperature is not 70°F (21°C), the pressure of the cylinder will vary in accordance with Figure 2-2. For example, if a cylinder was stored in an ambient temperature of 0°F (-18°C), the pressure gauge should read

150 psig (1033 kPa), which is the lower edge of the green zone on the gauge. Conversely, at 120°F (49°C) ambient, the pressure gauge should read 193 psig (1330 kPa), the upper edge of the green zone on the gauge.

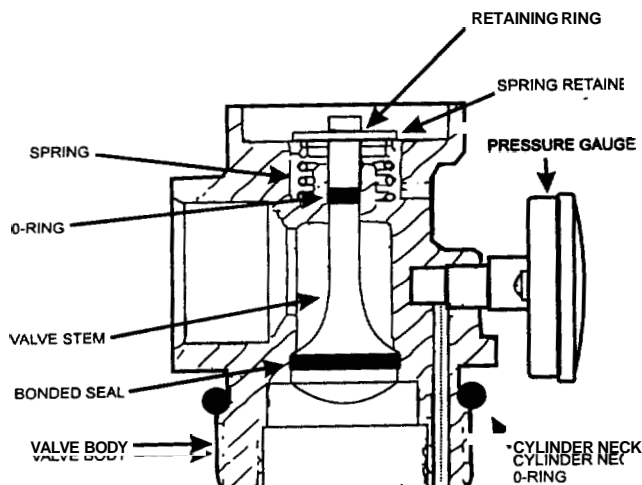


Figure 2-3. Cylinder Valve Assembly (PIN 87-120009-001)

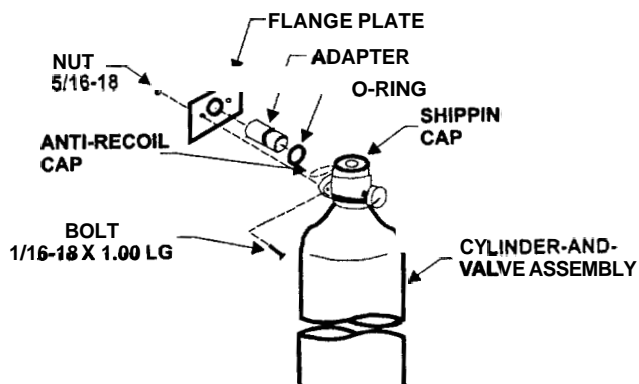


Figure 2-4. Discharge Adapter Kit Installation (PIN 844908)

## 2-10 Nozzles

### Nozzles

There are essentially five types of nozzles in the KIDDE system with offerings in a one-piece and two-piece body configuration. An Appliance Duct Plenum Nozzle or ADP nozzle; a Fryer Nozzle or F Nozzle; a Duct / Mesquite Nozzle or DM nozzle; a Range Nozzle or R nozzle; a Gas Radiant / Wok Nozzle or GRW nozzle. Each nozzle is provided with a special foil seal over the discharge orifice to prevent grease from depositing in the orifice and plugging the nozzle. Each one-piece nozzle has a 3/8" (1.0 cm) NPT female connection while each two-piece nozzle has a 3/8" (1.0 cm) NPT male connection. All nozzles are equipped with a stainless steel internal strainer and incorporate chrome plated brass bodies. Each nozzle is identified by the nozzle type stamped on the body. Each nozzle has a flow number which is a measure of its discharge or flow rate. The nozzle types, code number and flow numbers are given in Table 2-3.

In addition swivel adapter, P/N 87-120021-001 may be used conjunction with any one-piece nozzle. The ADP-S swivel nozzle may be used interchangeably only with the two-piece ADP nozzle.

Table 2-3. Nozzle Flow Points

Nozzle Type	One-Piece Nozzle, Code No.	Two-Piece Nozzle, Code No.	Flow No.
ADP Nozzle	87-120011-001	96981	1
GRW Nozzle	87-120013-001	96506	1
R Nozzle	87-120014-001	96508	1
F Nozzle (or Plenum) Nozzle*	87-120012-001	96982	2
DM Nozzle	87-120015-001	96980	3
ADP-S Nozzle	N/A	96979	1

\* Note: The "F" Nozzle in the one-piece configuration is identified as a "Plenum" nozzle in the two-piece configuration.

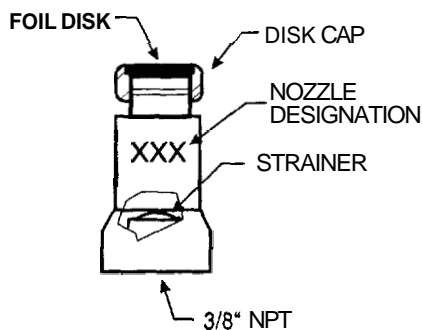


Figure 2-12. Section View for One-Piece Nozzle

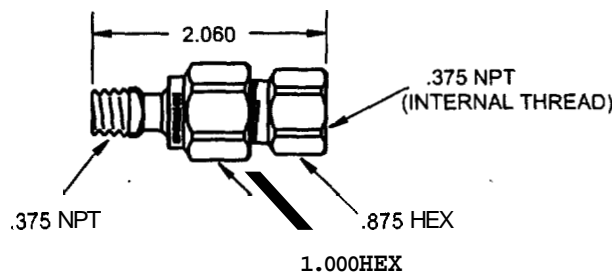


Figure 2-13. One-Piece Nozzle Swivel Adapter

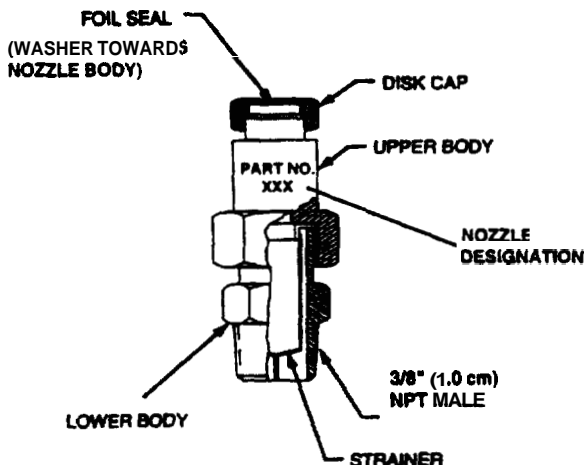


Figure 2-12a. Section View for Two-Piece Nozzle

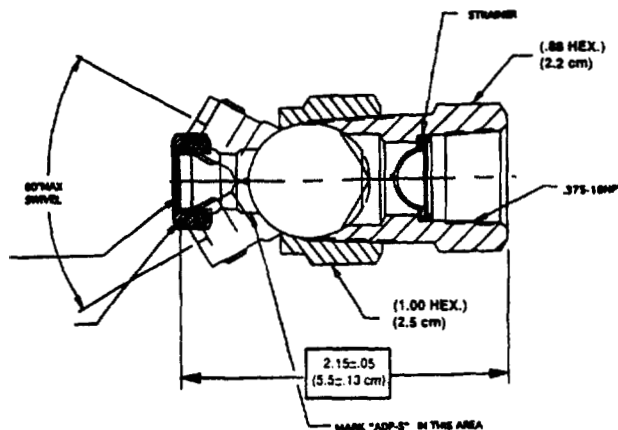


Figure 2-13a. Section View of a ADP-S Swivel Nozzle



## 2-13 Surface Mounted Remote Manual Controls

### Mechanical, Remote Manual Release, P/N 875572

The mechanical, remote manual release is provided as a means of manually actuating the system from a remote location. The mechanical, remote manual release is used only with the Mechanical or Electric Control Heads and cannot be used with the KRS-50 Control Box. The mechanical, remote manual release is attached to the primary control head with 1/16" cable. To actuate the system at the mechanical, remote manual release, pull out the ring pin and pull hard on the handle.

Each manual release is supplied with a separate nameplate. This nameplate must be attached to the mounting surface 1" above or below the pull station.

**NOTE: This Remote Manual Release is only for use with the Mechanical or Electric Control Head. This Remote Manual Release cannot be used with the KRS-IO Control Box.**

Refer to the installation section of this manual for installation limitations.

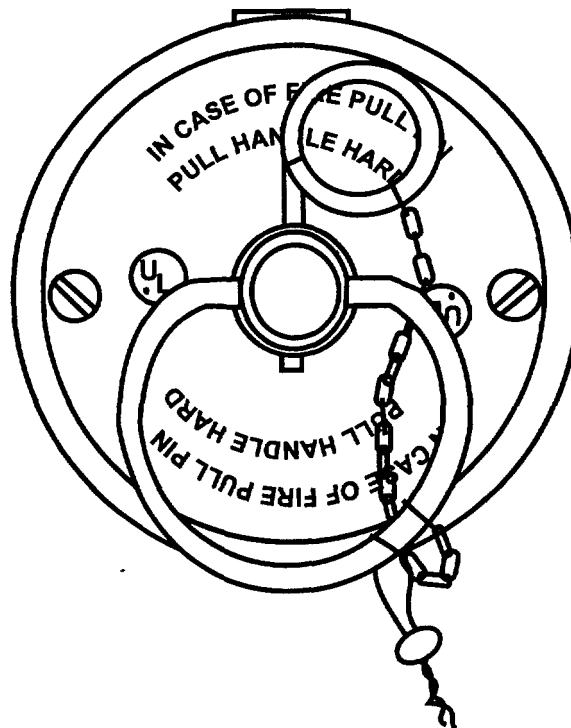


Figure 2-19. Manual Pull Station, PIN 876672

## 2-16 Corner Pulley/Vent Plug

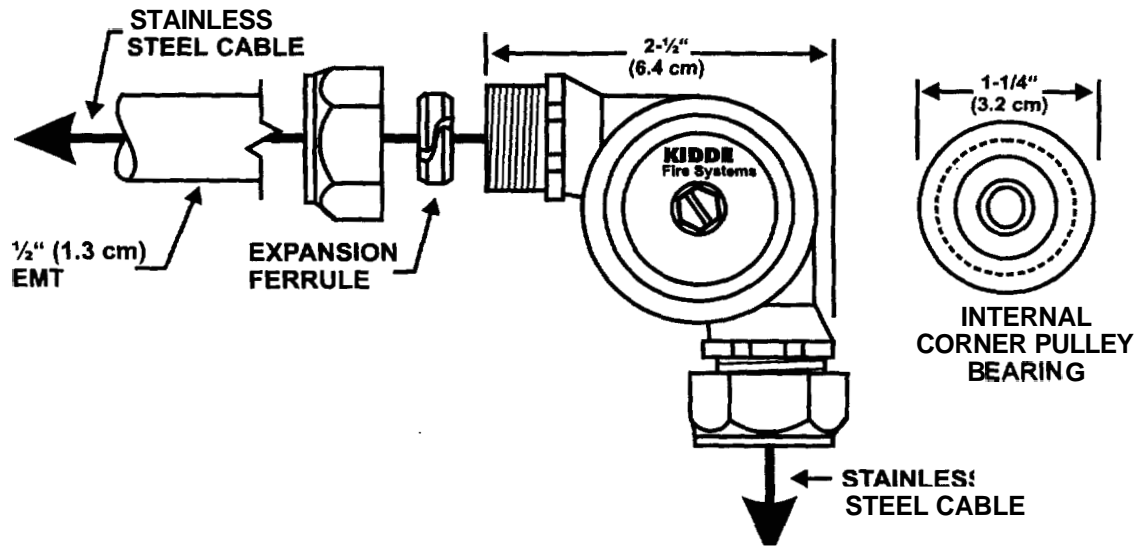


Figure 2-26. Corner Pulley 844648

### Corner Pulley and Detection Cable

The Corner Pulley can be used in both low and high temperature environments. The pulley contains steel ball bearings and the body is cast aluminum.

1/16" (.2 cm) diameter stainless steel 7x7 strand cable is used for the detection line. It is installed in 1/2" (1.3 cm) EMT.

### Vent Plug

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

The 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.**

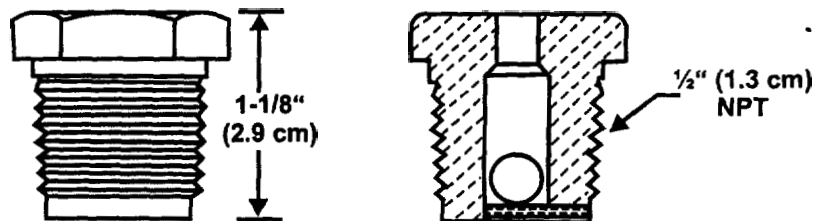


Figure 2-26. Vent Plug 9196984

## 2-18 Mechanical Gas Valve

### Mechanical Gas Valve

The Listed valve has a spring, normally urging it into the closed position, and a control stem with which the valve may be held open against the force of the spring.

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

Mechanical Gas Valves must be operated using either a Pneumatic Release, directly off the discharge lever on the KRS-50 Control Box or directly off the actuating cam on the Mechanical, Electric or Tandem Control Head. There is no other method for closing Mechanical Gas Valves. When using a Pneumatic Release or KRS-50 Control Box a maximum of

16 corner pulleys and 50 feet (15.2 m) of cable are to be used with Mechanical Gas Valves. When using Mechanical, Electric or Tandem Control Head a maximum of 30 corner pulleys and 100 feet (30.4 m) of cable are to be used with Mechanical Gas Valves.

When using a Mechanical, Electric or Tandem Control Head a cable block (included with valve) is required.

Refer to page installation section of this manual for installation limitations.

**CAUTION: TEE PULLEYS CAN NOT BE USED TO OPERATE DUAL GAS VALVES.**

Mechanical Gas Valves are available in the following sizes:

Size	Part Number
3/4" (1.9 cm)	87-100001-001
1" (2.5 cm)	87-100001-002
1-1/4" (3.2 cm)	87-100001-003
1-1/2" (3.8 cm)	87-100001-004
2" (5.1 cm)	87-100001-005
2-1/2" (6.4 cm)	87-100001-006
3" (7.6 cm)	87-100001-007

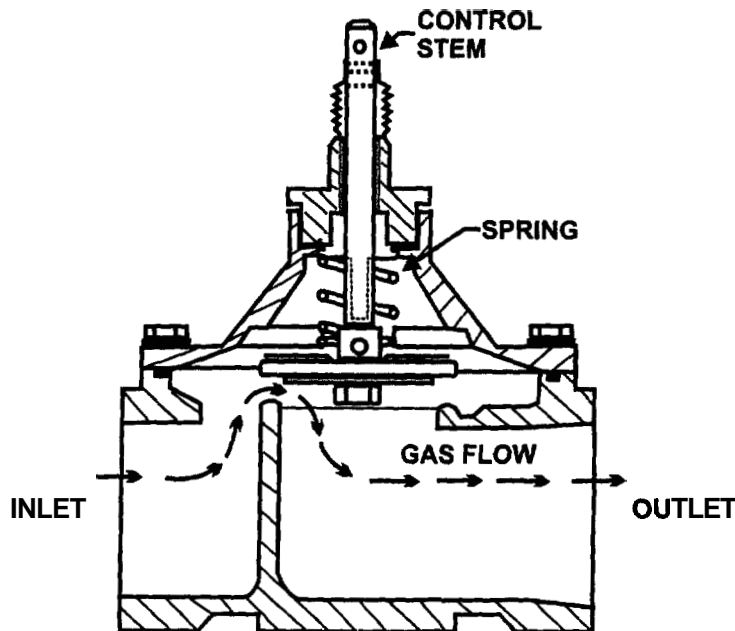


Figure 2-28. Mechanical Gas Valve

### 3-14 Designing for Plenum Protection

A single ADP nozzle will protect a single filter or "V" filter bank plenum with the following maximum dimensions:

Plenum Length	10 Feet (3.0 m)
Plenum Width	4 Feet (1.2 m)

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. (3.0 m). The hood shall not exceed a width of 4 ft. (1.2 m).

A plenum with either a single filter bank or "V" filter bank and a length of 10 ft. (3.0 m) or less may be protected by one ADP nozzle. The nozzle shall be located at one end of the plenum. 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 in pairs at the midpoint of the plenum with their discharges directed at the ends of the plenum or installed at each end of the plenum with the discharges directed at the midpoint. Installation of a pair of nozzles back to back on a tee in any combination is permissible.

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.

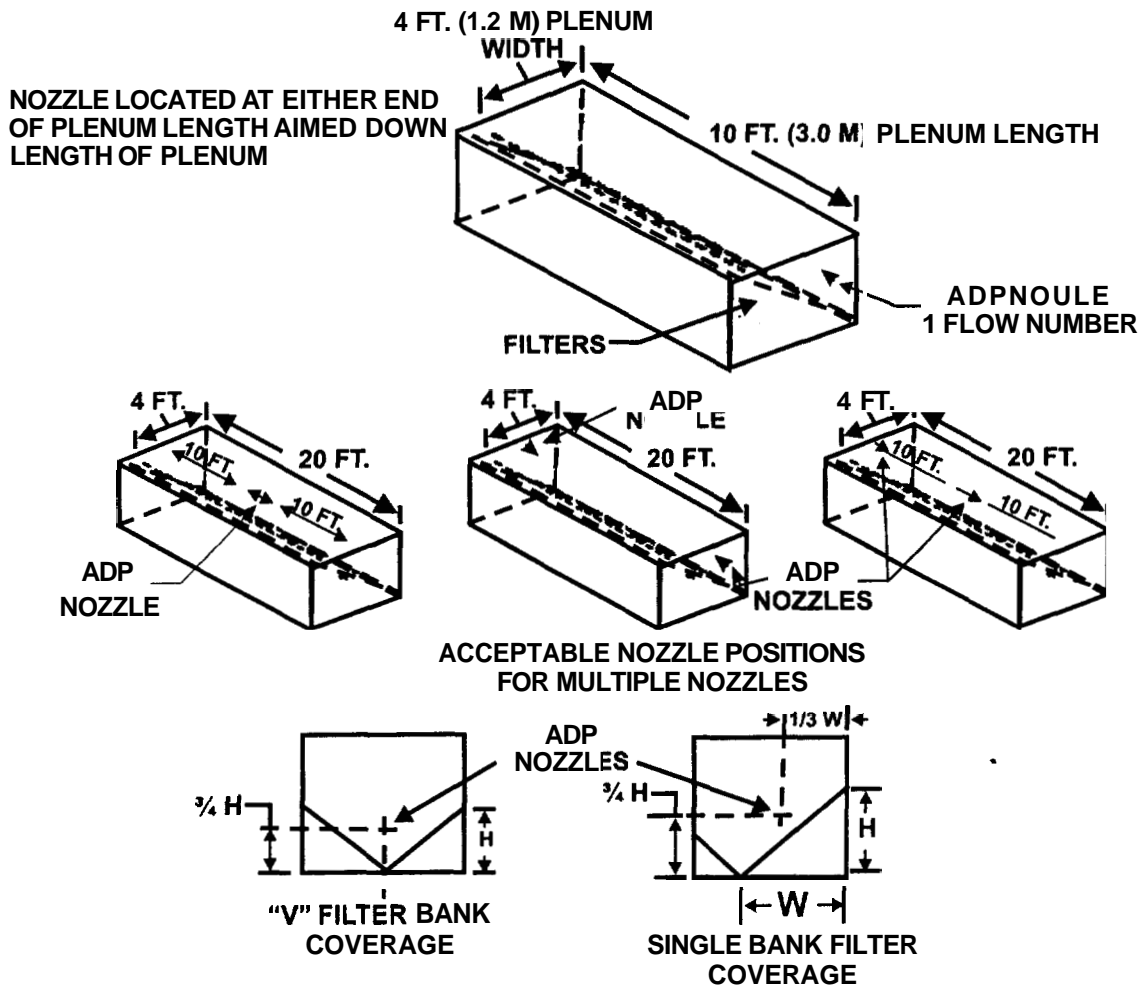
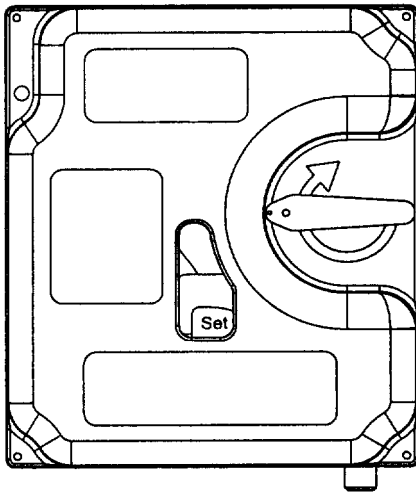


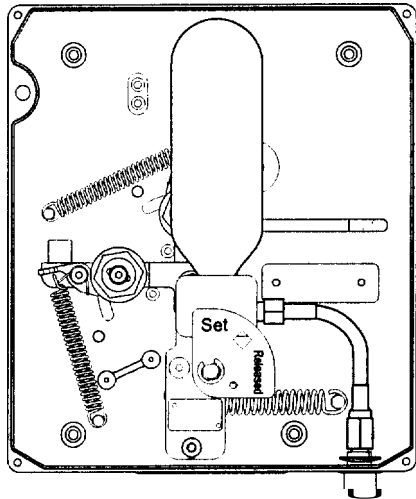
Figure 3-28. Plenum Protection

AD6-2 COMPONENTS

AD6-2.1 XVControl System



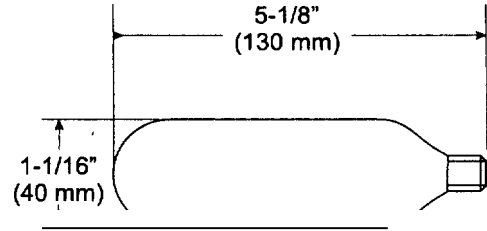
FigureAD6-2. Control System in Set Position w/Cover



FigureAD6-3. Control System in 'Set' Position without Cover

AD6-2.2 System Nitroaen Cartridge.  
P/N 87-120043-001

The XVControl System uses a nitrogen cartridge for actuating the WHDR system cylinders. The nitrogen cartridge (P/N 87-120043-001) is charged with 2700 PSIG at 95°F (186.16 bar at 35°C) dry nitrogen. It installs in front of the control mechanism to help protect it from tampering while the cartridge is installed. See ParagraphAD6-3 for installation details and parameters.



FigureAD6-4. Nitrogen Cartridge for XVControl System (P/N 87-120043-001)

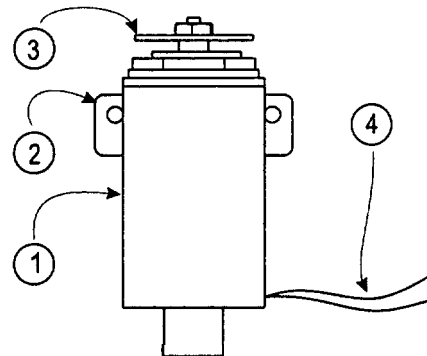
**CAUTION**

The Test Cartridge, PIN 87-120044-001, must be removed and the System Nitrogen Cartridge, PIN 87-120043-001, must be installed at the completion of any work done on the system. Failure to do so will result in malfunction of the system.

**Note:** For semi-annual functional tests, it is permissible to use Test Cartridge, PIN 87-120044-001. For full discharge or "puff" tests, it is required that the System Cartridge, P/N 87-120043-001, be used.

AD6-2.3 Electric Actuation Kit. PIN 83-100034-001

An optional Electrical Actuation Kit, PIN 83-100034-001, can be installed into the XV Control System, just under the latch. The actuator operates directly on the latch to operate the system. This installation allows simultaneous usage of mechanical detection lines, or the lines can be locked out. The kit includes two mounting bolts and the bracket and push plate mounted onto the actuator body.



FigureAD6-5. Electric Actuation Assembly

Table AD6-2. Electric Actuation Parts

Number	Description
1	Actuator Body (coil is 24 Vdc)
2	Mounting Bracket, Do Not Remove
3	Push Plate, Do Not Remove
4	24 inch (610 mm) Electrical Leads

Note: A UL Listed control panel unit for releasing the device service shall be provided for use with the XV Control System.

**CAUTION**

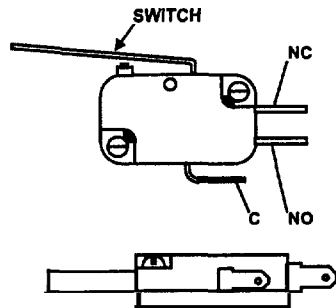
Where electric detection and/or actuation is provided, supervision shall be provided in accordance with NFPA 17A. Alarms and Indicators, along with a supervisory power source, shall be provided in accordance with NFPA 72, National Fire Alarm Code. Electrical wiring and equipment shall be provided in accordance with NFPA 70, National Electric Code or the request of the Authority Having Jurisdiction (AHJ).

AD6-2.4 SPDT Microswitch Kit. PIN 87-120039-001

The Microswitch Kit, PIN 87-120039-001, is a single pole, double-throw switch.

Included in this kit is the switch, pigtail assembly and four mounting screws (two short and two long).

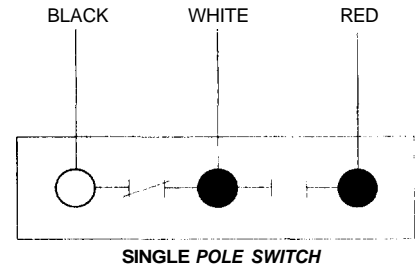
The wire leads are 24 in. (610 mm) in length. Four (4) SPDT switch kits can be mounted in the control system. There are two mounting locations to accommodate the four switch kits (two stacked at each mounting location), with EMT ports for each mounting location. This allows using two electrical junction boxes for separation of signal lines and AC lines.



FigureAD6-6. Microswitch Kit, PIN 87-120039-001, for XV Control System

Table AD6-3. Electrical Ratings

125/1250 Vac	20.5 Amps
250 Vac	1.5 HP
125 Vac	1/2 HP
24 Vdc	9 Amps
30 Vdc	6 Amps
110 Vdc	0.4 Amps



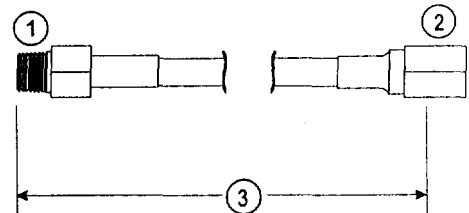
FigureAD6-7. Microswitch Wiring Diagram for XV Control System

AD6-2.5 Jjiah-Pressure Nitroaen Tube Assembly. PIN 87-120045-001

The High-pressure Nitrogen Tube Assembly is used when the XV Control System is mounted onto a cylinder. This is an outside braided tubing that is meant to loop around one time in this configuration.

**CAUTION**

This braided tube, PIN 87-120045-001, is required on all installations in which the control system is mounted to an agent cylinder. Failure to use this hose in such an installation could result in injury and/or malfunction of the system.



FigureAD6-8. External Tubing for XV Control System

Table AD6-4. External Tubing Parts (see FigureAD6-8)

Number	Description
1	1/8 NPT Thread
2	7/8 hex, 114 37 degree flare, swivel
3	Length end of thread to seat: 7-1/2 inches (190 mm)

## WET CHEMICAL INSTRUCTION MANUAL

### AD6-2.6 System Valve Actuator. PIN 87-120042-001

A System Valve Actuator (SVA) is used on every cylinder of the system. 1/4-inch tubing or hose is used to connect from the Control System to each System Valve Actuator. It has inlet and outlet ports for low profile tubing runs. The System Valve Actuator (P/N 87-120042-001) has a spring loaded plunger that locks the piston in the discharged position, ensuring complete discharge of the cylinder(s). See Paragraph AD6-3 for tubing parameters and limitations. See Figure AD6-11 for cylinder heights with System Valve Actuator.

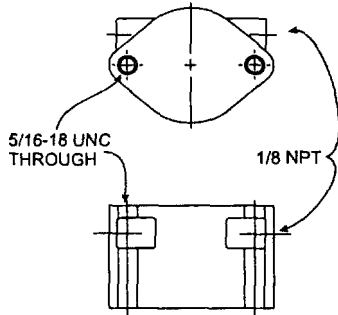


Figure AD6-9. System Valve Actuator for XV Control System