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Model DPV-1 Dry Pipe Valve, DN100 & DN150
Model ACC-1 Dry Pipe Valve Accelerator
European Conformity Valve Trim, 16 Bar

SECTIONS

TABLES

FIGURES

Valve Trim is illustrated in Figures 8 thru 15. Refer the Table B on Page 5 for types of trim and corresponding figure and page number.

General Description

DRY PIPE VALVE

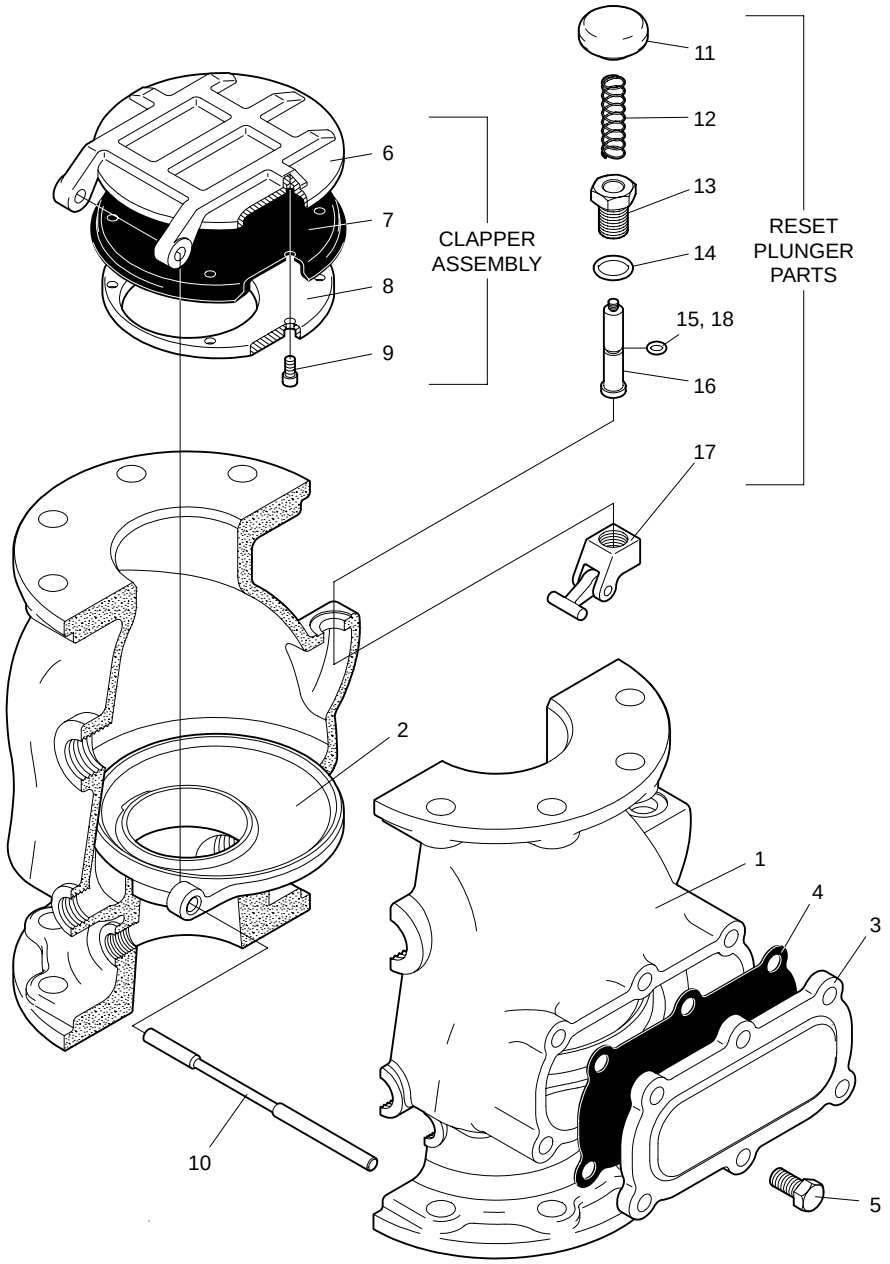
The DN100 and DN150, Model DPV-1 Dry Pipe Valves are differential valves used to automatically control the flow of water into a dry pipe fire protection sprinkler systems upon operation of one or more automatic sprinklers. The DPV-1 also provides for actuation of fire alarms upon system operation. The Model DPV-1 features are as follows:

- External reset.
- 16 bar pressure rating.
- Unique offset single clapper design enabling a simple compact valve to minimize installation labor.
- Ductile iron construction to ensure a lightweight valve to minimize shipping cost.
- A variety of inlet and outlet connections.
- Simple reset procedure through the elimination of priming water.

Dry pipe sprinkler systems are used in unheated warehouses, parking garages, store windows, attic spaces, loading docks, and other areas exposed to freezing temperatures, where water filled pipe cannot be utilized. When set for service, the dry pipe sprinkler system is pressurized with air (or nitrogen). The loss of pressure through an operated automatic sprinkler in response to heat from a fire permits the DPV-1 Dry Pipe Valve to open and allow a flow of water into the sprinkler system piping. Table A establishes the minimum required system air pressure that includes a safety factor to help prevent false operations that occur due to water supply fluctuations.

ACCELERATOR

The optional Model ACC-1 Accelerator



NO.	DESCRIPTION	QTY.	REF.
1	Valve Body	1	NR
2	Air and Water Seat	1	NR
3	Handhole Cover	1	NR
4	Handhole Cover Gasket	1	See (b)
5	1/2-13 UNC x 1" Hex Head Cap Screw	6	CH
6	Clapper	1	See (a)
7	Clapper Facing	1	See (a) or (b)
8	Clapper Facing Retaining Plate	1	See (a)
9	1/4-20 UNC x 1/2" Socket Head Cap Screw	7	See (a)
10	Clapper Hinge Pin	1	See (a)
11	Reset Knob	1	See (c)
12	Reset Spring	1	See (c)
13	Reset Bushing	1	See (c)
14	Reset Bushing O-Ring.	1	See (b) or (c)
15	Reset Plunger O-Ring	1	See (b) or (c)
16	Reset Plunger	1	See (c)
17	Reset Latch Subassembly	1	See (c)
18	Dow Corning FS3452 Flourosilicone Grease, 1.5 g	1	See (b) or (c)

NR: Not Replaceable
CH: Common Hardware

REPLACEMENT PARTS		
NO.	DESCRIPTION	P/N
(a)	Clapper Assembly Includes Items: 6 through 10	92-309-2-403
(b)	Repair Parts Kit Includes Items: 4, 7, 14, 15, 18	92-309-1-404
(c)	Reset Plunger Parts Kit Includes Items: 11 through 18	92-309-1-405

FIGURE 1A
DN100 MODEL DPV-1 DRY PIPE VALVE
— ASSEMBLY —

NO.	DESCRIPTION	QTY.	REF.
1	Valve Body	1	NR
2	Air and Water Seat	1	NR
3	Water Seal O-Ring	1	NR
4	Air Seal O-Ring	1	NR

NO.	DESCRIPTION	QTY.	REF.
5	3/8-16 UNC x 1" Socket Head Cap Screw	8	NR
6	Handhole Cover	1	NR
7	Handhole Cover Gasket	1	See (d)

NO.	DESCRIPTION	QTY.	REF.
8	5/8-11 UNC x 1" Hex Head Cap Screw	6	CH
9	Clapper	1	See (a)
10	Clapper Facing	1	See (a) or (b)
11	Clapper Facing Retaining Plate	1	See (a)
12	1/4-20 UNC x 1/2" Socket Head Cap Screw	9	See (a)
13	Clapper Hinge Pin	1	See (a)
14	Reset Knob	1	See (c)
15	Reset Spring	1	See (c)
16	Reset Bushing	1	See (c)
17	Reset Bushing O-Ring	1	See (b) or (c)
18	Reset Plunger O-Ring	1	See (b) or (c)
19	Reset Plunger	1	See (c)
20	Reset Latch Subassembly	1	See (c)
21	Dow Corning FS3452 Flourosilicone Grease, 1.5 g	1	See (b) or (c)

NR: Not Replaceable
CH: Common Hardware

REPLACEMENT PARTS		
NO.	DESCRIPTION	P/N
(a)	Clapper Assembly Includes Items: 9 through 13	92-309-2-603
(b)	Repair Parts Kit Includes Items: 7, 10, 17, 18, 21	92-309-1-604
(c)	Reset Plunger Parts Kit Includes Items: 14 through 21	92-309-1-405

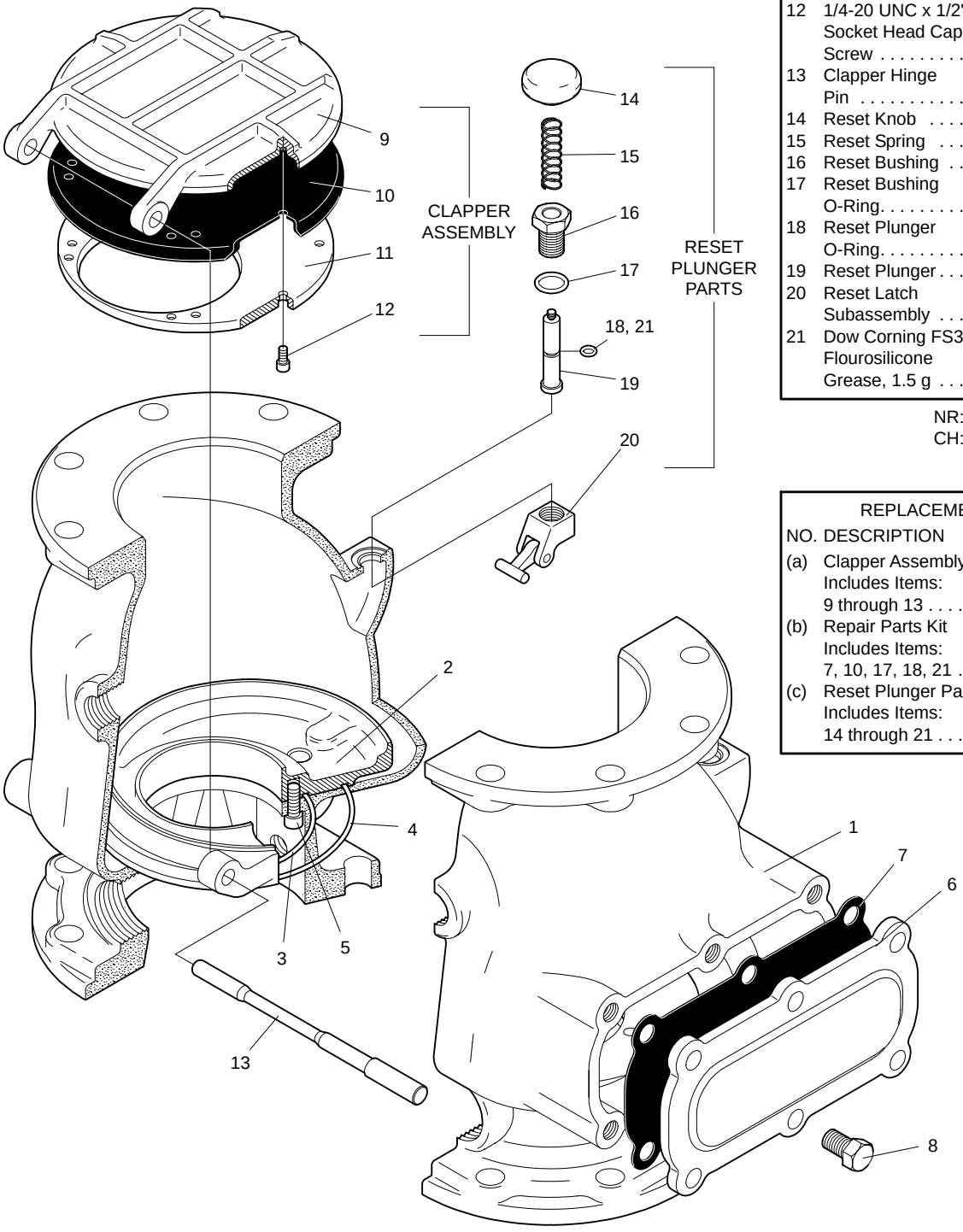


FIGURE 1B
DN150 MODEL DPV-1 DRY PIPE VALVE
— ASSEMBLY —

Maximum Water Supply Pressure, bar	System Air Pressure Range, bar
1,4	0,7
4,1	1,0 - 1,6
5,5	1,4 - 1,9
6,9	1,7 - 2,3
8,3	2,1 - 2,6
10,0	2,4 - 3,0
11,4	2,8 - 3,3
12,8	3,1 - 3,7
14,1	3,4 - 4,0
15,5	3,8 - 4,3
16,0	4,1 - 4,6

TABLE A
SYSTEM AIR PRESSURE REQUIREMENTS

is a quick opening device that is intended to reduce the time for valve operation following the operation of one or more automatic sprinklers. The Model ACC-1 Accelerator automatically adjusts to both small and slow changes in system pressure, but trips when there is a rapid and steady drop in pressure (as in the case of a sprinkler operation). Upon tripping, the Accelerator transmits system air pressure to the intermediate chamber of the Model DPV-1 Dry Pipe Valve. This neutralizes the differential pressure holding the Model DPV-1 Dry Pipe Valve closed and permits it to open.

The Model ACC-1 Accelerator has a unique, positive action, internal anti-flood device and a ball float which combine to prevent water and water borne debris from entering the more sensitive operating areas of the accelerator. The anti-flood device seals and latches immediately upon operation of the Model ACC-1 Accelerator without waiting for a pressure build-up in the intermediate chamber of the dry pipe valve. The latching feature keeps the anti-flood device sealed, even while the system is being drained. The ball float seals the pilot chamber inlet port if there is an inadvertent trip of the dry pipe valve, due for example, to an air compressor failure combined with a slow loss in system air pressure due to a leak.

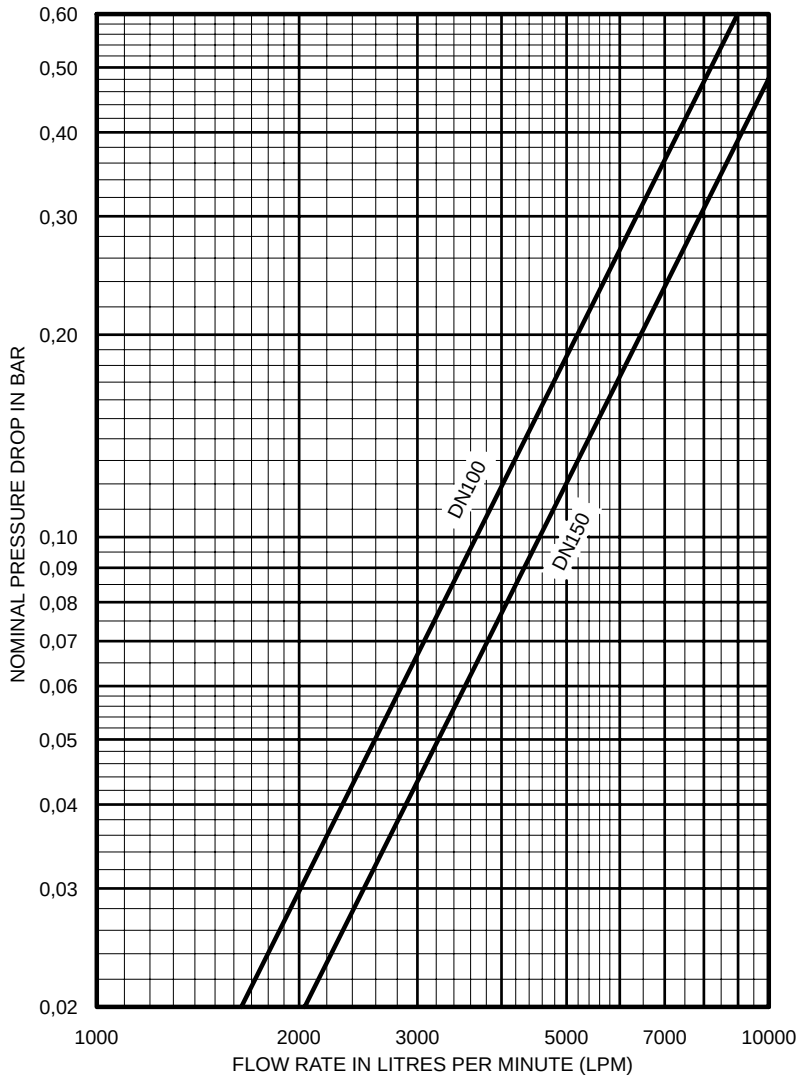


FIGURE 2
DN100 and DN150 MODEL DPV-1 DRY PIPE VALVE
— NOMINAL PRESSURE LOSS VERSUS FLOW —

WARNING

The Model DPV-1 Dry Pipe Valves and Model ACC-1 Dry Pipe Valve Accelerator described herein must be installed and maintained in compliance with this document in addition to the standards recognized by the Approval agency, in addition to any other authorities having jurisdiction. ***Failure to do so may impair the performance of these devices.***

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted with any questions.

Technical Data

Approvals:
The DN100 and DN150 Model DPV-1 Dry Pipe Valves with or without Model ACC-1 Dry Pipe Valve Accelerator are FM, LPCB, VDS, and CE Approved with European Conformity Valve Trim (Ref. Figures 8 thru 15).

Dry Pipe Valve:
The DN100 and DN150, Model DPV-1 Dry Pipe Valves are for vertical installations (flow going up), and they are rated for use at a maximum service pressure of 16 bar. The nominal pressure loss versus flow is shown in Figure 2, and the valve take-out dimensions are shown in Figure 3.

Flanged connections are drilled per ISO 2084 (PN10/16) or ANSI B16.1 (Class 125). The grooved outlet connections, as applicable, are cut in accordance with standard groove specifications for steel pipe. They are suitable for use with grooved end pipe couplings that are listed or approved for fire protection system service.

Threaded port connections are per ISO 7/1 to readily accept the trim arrangement detailed in Figures 8 -15.

Components of the DN100 DPV-1 Valve are shown in Figure 1A, and components of the DN150 DPV-1 Valve are shown in Figure 1B. The Body and Handhole Cover are ductile iron. The Handhole Cover Gasket is neoprene, and the Clapper Facing is EPDM. The Air/Water Seat Ring is brass, the Clapper is copper, and both the Clapper Retaining Plate and Latch are bronze. The Hinge Pin is aluminum bronze, and the fasteners for the Handhole Cover are carbon steel.

Valve Trim:
The Valve Trim is illustrated in Figures 8 and 15 (Ref. Table B). The Valve Trim forms a part of the laboratory approval of the DPV-1 Valve and is necessary for the proper operation of the DPV-1 Valve. Each package of trim includes the following items:

- Water Supply Pressure Gauge
- System Air Pressure Gauge
- Main Drain Valve
- Low Body Drain Valve
- Alarm Test Valve
- Automatic Drain Valve
- Provision For An Optional Accelerator

Valve Size		Alarm Test Valve		Accelerator		Figure Number	Page Number
DN100	DN150	Three-Way	Standard	Yes	No		
✓		✓			✓	8	13
	✓	✓			✓	9	14
✓			✓		✓	10	15
	✓		✓		✓	11	16
✓		✓		✓		12	17
	✓	✓		✓		13	18
✓			✓	✓		14	19
	✓		✓	✓		15	20

TABLE B
REFERENCE FOR CORRESPONDING
FIGURE NUMBER AND PAGE NUMBER
— EUROPEAN CONFORMITY VALVE TRIM —

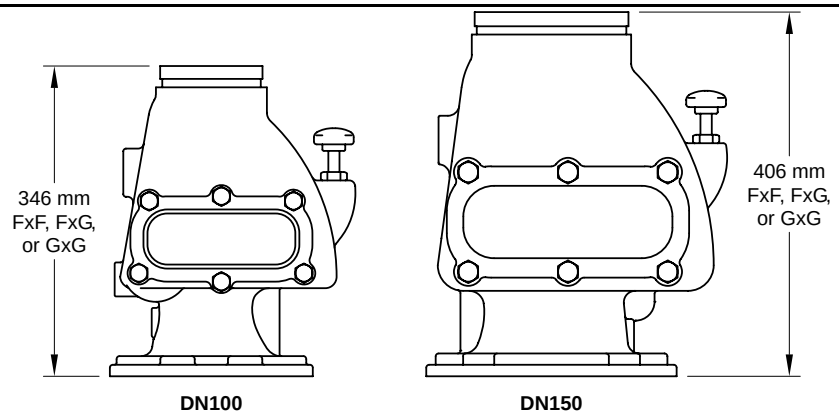


FIGURE 3
DN100 and DN150 MODEL DPV-1 DRY PIPE VALVE
— TAKE-OUT DIMENSIONS —

Air Supply:
Table A shows the system air pressure requirements as a function of the water supply pressure. The air (or nitrogen) pressure in the sprinkler system is recommended to be automatically maintained by using one of the following pressure maintenance devices, as appropriate:

- Model AMD-1 Air Maintenance Device (pressure reducing type).
- Model AMD-2 Air Maintenance Device (compressor control type).
- Model AMD-3 Nitrogen Maintenance Device (high pressure reducing type).

Quick Opening Device:
As an option, the Model DPV-1 Dry Pipe Valve may be acquired with the Model ACC-1 Mechanical Dry Pipe Valve Accelerator (Ref. Figure 4) The ACC-1 is used to reduce the time to valve actuation following the operation of one or more automatic sprinklers.

Patents:

U.S.A. Patent No. 6,557,645 and 4,570,719.

NO.	DESCRIPTION	QTY.	P/N
1	Base	1	NR
2	Cover	1	NR
3	Upper Diaphragm Plate	1	See (c)
4	Pivot Plate Assembly	1	See (b)
a	Spirol Pin	1	
b	Pivot Plate	1	
5	Plunger	1	See (a)
a	Pan Hd. Machine Screw	1	
b	Upper Diaphragm Retaining Ring	2	
c	Upper Diaphragm	1	
d	Jam Nut	1	
6	Exhaust Valve	1	See (a)
a	Upper Plug	1	
b	Washer	1	
c	Lower Diaphragm	1	
d	Lower Plug	1	
e	O-Ring*	1	
f	O-Ring Retainer	1	
g	Exhaust Valve Screw	1	
7	Rd. Head Machine Screw, 1/4"-20 UNC x 5/8"	6	See (c)
8	Cover Gasket	1	See (a)
9	Vent Plug	1	See (c)
10	O-Ring*	1	See (a)
11	Restriction	1	See (a)
12	Restriction Access Plug	1	See (c)
13	Pan Hd. Machine Screw, No. 10-32 UNF x 5/8"	4	See (b)
14	Cotter Pin	1	See (b)
15	Lever	1	See (b)
16	Retaining Ring	1	See (b)
17	Anti-Flood Valve	1	See (b)
18	Relief Valve	1	See (b)
19	Spring	1	See (b)
20	Relief Valve Seat	1	See (b)
21	O-Ring*	1	See (b)
22	Seal Washer	1	See (b)
23	Latch	1	See (a)
24	Fillerster Hd. Machine Screw, 1/4"-20 UNC x 1-1/2"	8	See (c)
25	Plug Seat	1	See (c)
26	O-Ring*	1	See (c)
27	O-Ring*	1	See (a)
28	Reset Knob	1	See (c)
29	Anti-Flood Seat Assembly w/Ball Float	1	See (b)
a	Insert	1	
b	Seal	1	
c	Guide	1	
d	Ball	1	
e	Clip	1	
f	O-Ring*	1	

* Requires thin film of FS3452 Fluorosilicone Grease

(a) Repair Parts Kit (a) Includes Items 5, 6, 8, 10, 11, 23, 27 & 1.5 grams of FS3452 — 92-311-1-116

(b) Replacement Parts Kit (b) Includes Items 4, 13-22, 29 & 1.5 grams of FS3452 — 92-311-1-117

(c) Replacement Parts Kit (c) Includes Items 3, 7, 9, 12, 24-26, 28, & 1.5 grams of FS3452 — 92-311-1-118

NR: Not Replaceable

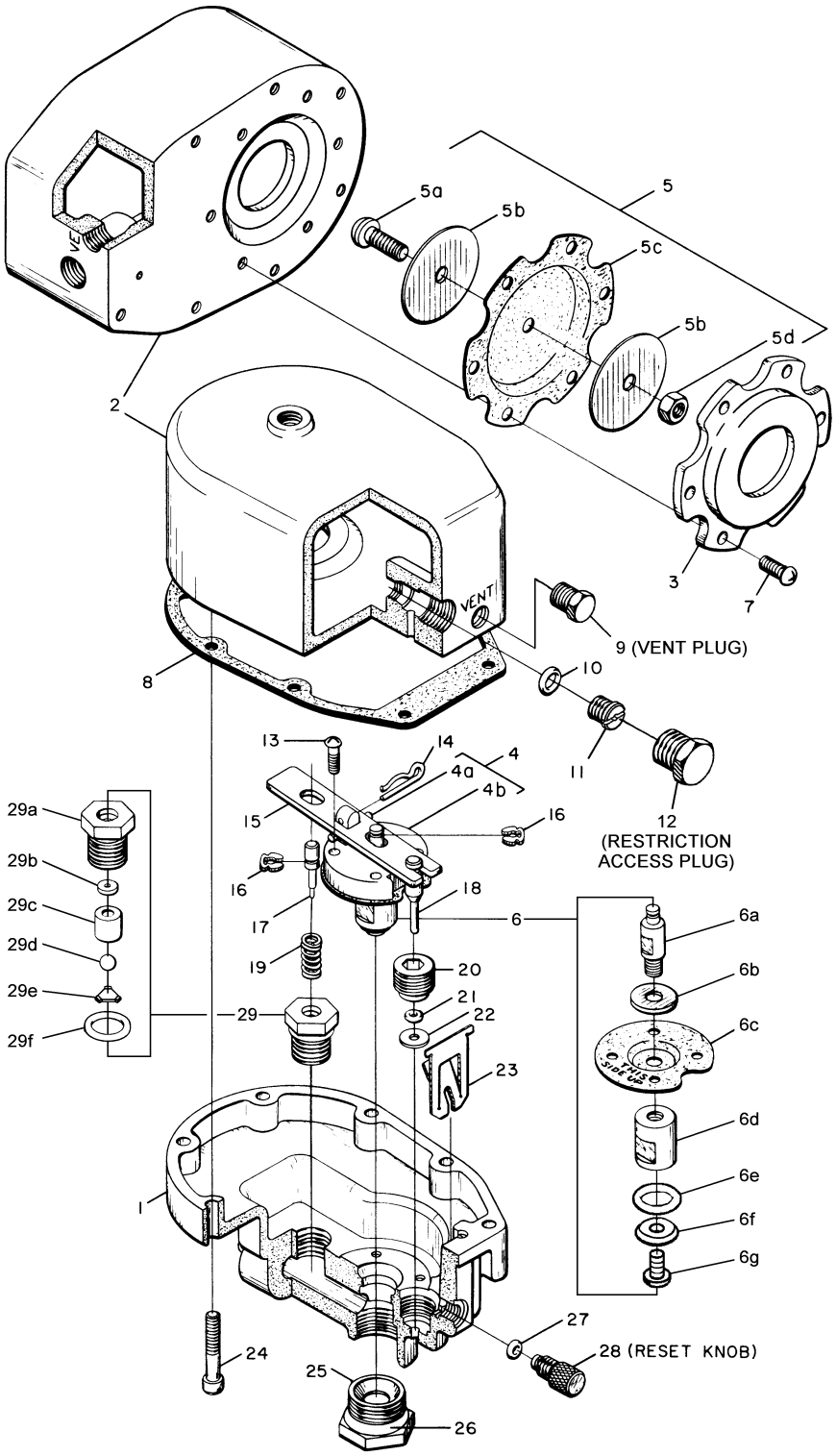


FIGURE 4
MODEL ACC-1 ACCELERATOR ASSEMBLY

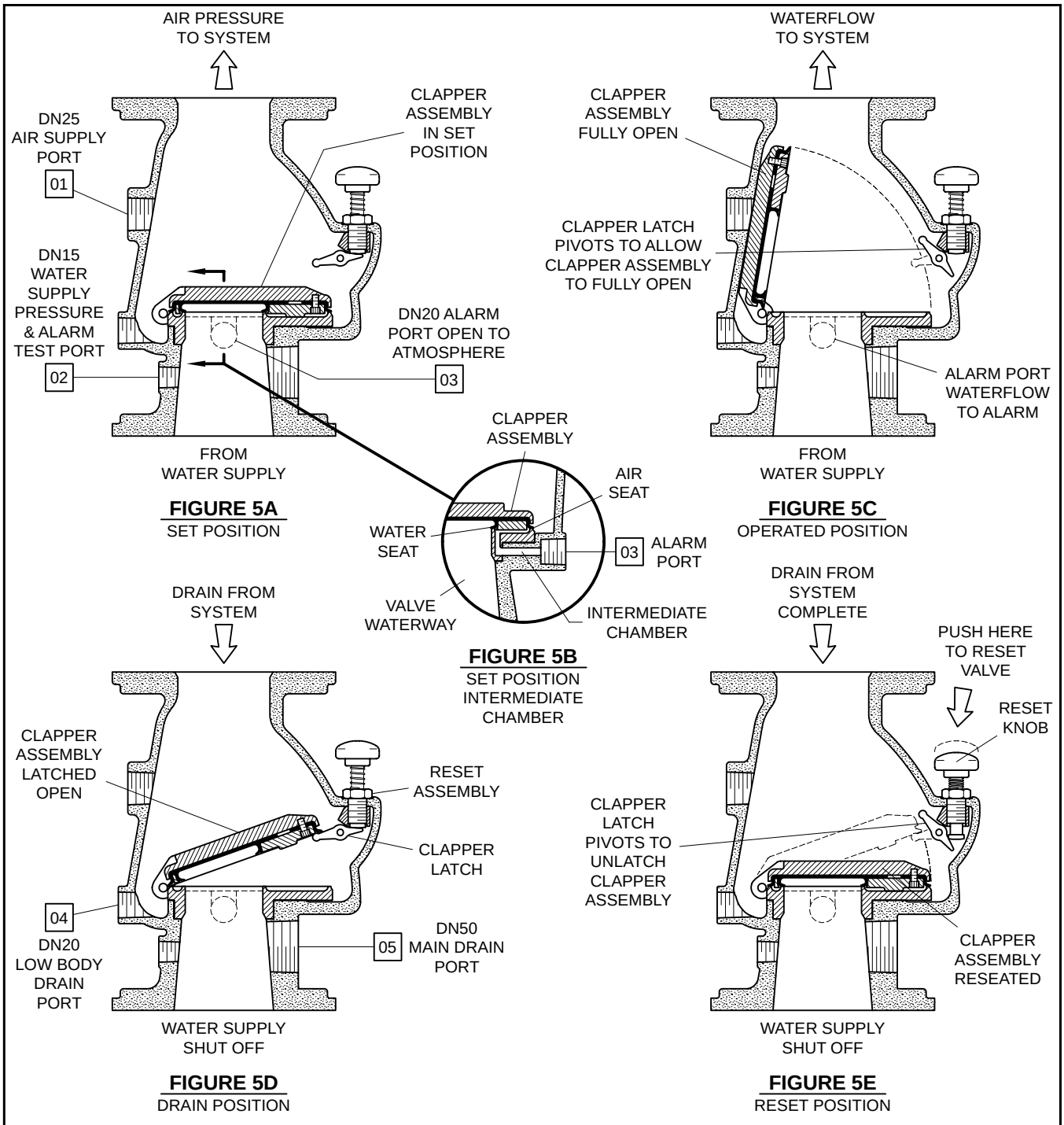


FIGURE 5
MODEL DPV-1 DRY PIPE VALVE (DN100 SHOWN)
— SET AND OPEN POSITIONS —

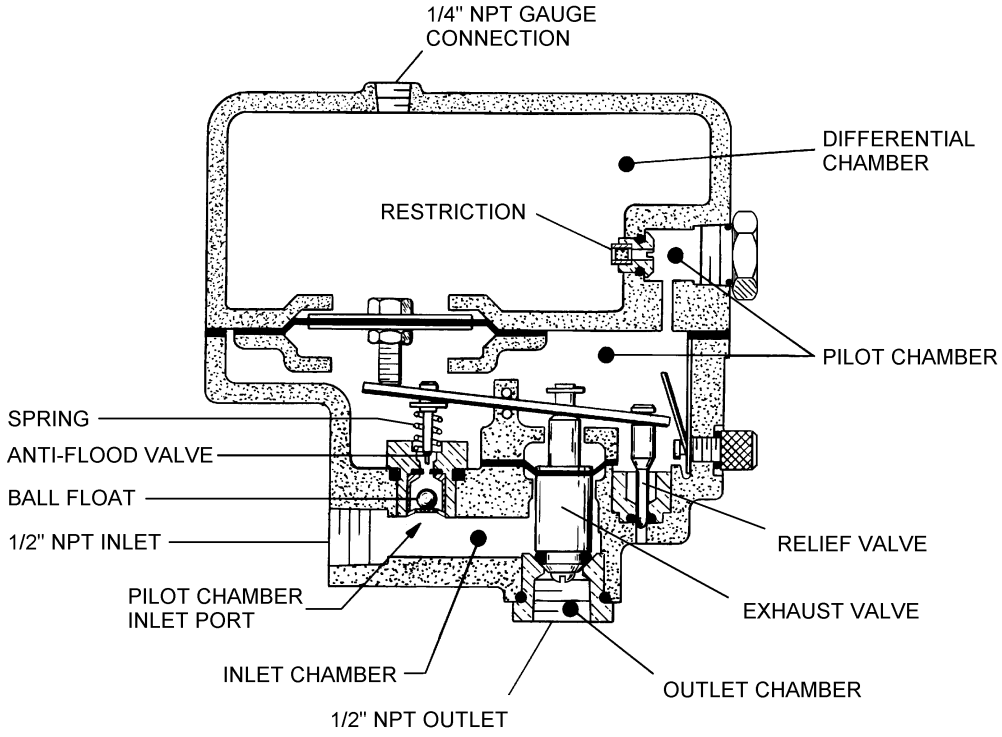


FIGURE 6
MODEL ACC-1 ACCELERATOR IN SET POSITION

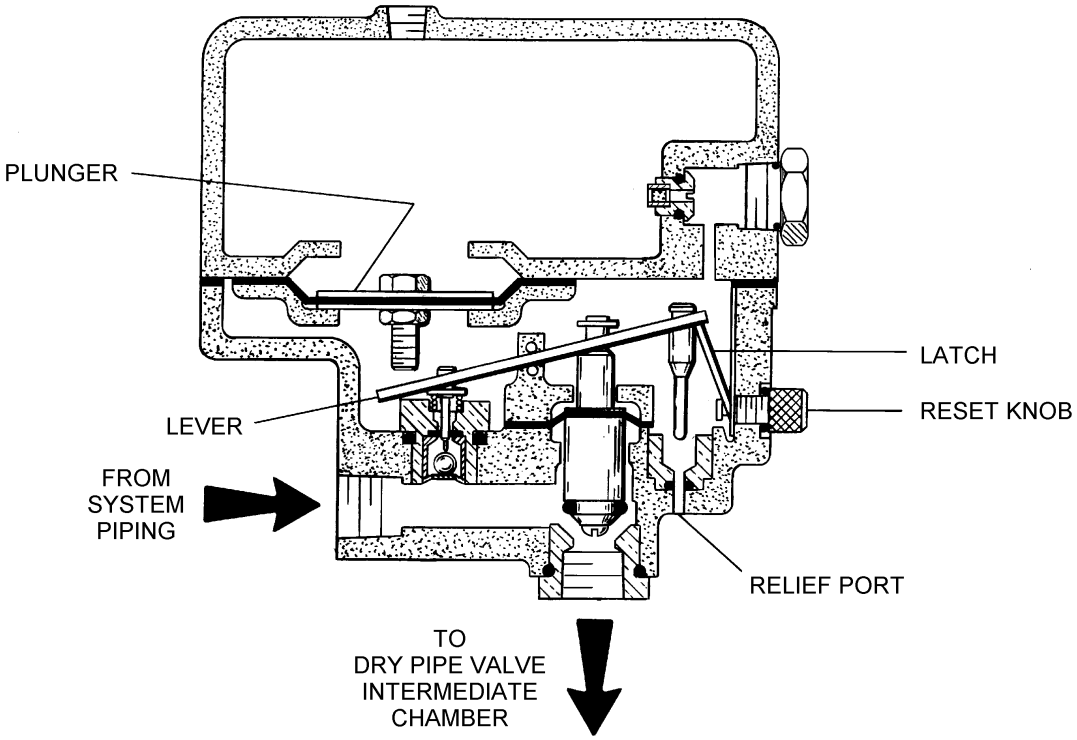


FIGURE 7
MODEL ACC-1 ACCELERATOR IN TRIPPED POSITION

Operating Principles

DRY PIPE VALVE

The Model DPV-1 Dry Pipe Valve is a differential type valve that utilizes a substantially lower system (air or nitrogen) pressure than the supply (water) pressure, to maintain the set position shown in Figure 5A. The differential nature of the DPV-1 is based on the area difference between the air seat and the water seat in combination with the ratio of the radial difference from the Hinge Pin to the center of the Water Seat and the Hinge Pin to the center of the Air Seat. The difference is such that the DPV-1 has a nominal trip ratio of 5,5:1 (water to air).

Table A establishes the minimum required system air pressure that includes a safety factor to help prevent false operations that occur due to water supply fluctuations.

The Intermediate Chamber of the DPV-1 is formed by the area between the Air Seat and Water Seat as shown in Figure 5B. The Intermediate Chamber normally remains at atmospheric pressure through the Alarm Port connection and the valve trim to the normally open Automatic Drain Valve (Ref. Figures 8 thru 15). Having the Intermediate Chamber, Figure 5B, open to atmosphere is critical to the DPV-1 Valve remaining set, otherwise the full resulting pressure of the system air pressure on top of the Clapper Assembly cannot be realized. For example, if the system air pressure is 1,7 bar and there was 1,0 bar pressure trapped in the Intermediate Chamber, the resulting pressure across the top of the Clapper would only be 0,7 bar. This pressure would be insufficient to hold the Clapper Assembly closed against a water supply pressure of 6,9 bar.

When one or more automatic sprinklers operate in response to a fire, air pressure within the system piping is relieved through the open sprinklers. When the air pressure is sufficiently reduced, the water pressure overcomes the differential holding the Clapper Assembly closed and the Clapper Assembly swings clear of the water seat, as shown in Figure 5C, This action permits water flow into the system piping and subsequently to be discharged from any open sprinklers. Also, with the Clapper Assembly open, the intermediate chamber is pressurized and water flows through the alarm port (Ref. Figure 5B) at the rear of the DPV-1 Valve. As the flow through the alarm port exceeds the drain capacity of the Automatic Drain Valve, the alarm line is pressurized to actuate system water flow alarms.

After a valve actuation and upon subsequent closing of a system main control valve to stop water flow, the Clapper Assembly will latch open as shown in Figure 5D. Latching open of the DPV-1 will permit complete draining of the system (including any loose scale) through the main drain port.

During the valve resetting procedure and after the system is completely drained, the external reset knob can be easily depressed to externally unlatch the Clapper Assembly as shown in Figure 5E. As such, the Clapper Assembly is returned to its normal set position to facilitate setting of the dry pipe sprinkler system, without having to remove the Handhole Cover.

ACCELERATOR

The Inlet Chamber of the Accelerator, (Ref. Figure 6), is pressurized via its connection to the system. The Pilot Chamber is, in turn, pressurized through its inlet port which is formed by the annular opening around the lower tip of the Anti-Flood Valve. As the Pilot Chamber increases in pressure, the Differential Chamber is pressurized through the Restriction.

The Accelerator is in its set position while it is being pressurized as well as after the Inlet, Pilot Chamber and Differential Chamber pressures have equalized. When in the Set position, the Outlet Chamber is sealed off by the Exhaust Valve which is held against its seat by a combination of the Spring pushing up against the Lever and the net downward force exerted by the pressure in the Pilot Chamber.

Both small and slow changes in system pressure are accommodated by flow through the Restriction. When, however, there is a rapid and steady drop in system (i.e., Inlet and Pilot Chamber) pressure, the pressure in the Differential Chamber reduces at a substantially lower rate. This condition creates a net downward force on the Plunger which rotates the Lever. As the Lever is rotated (Ref. Figure 7), the Relief Valve is raised out of the Relief Port and the Anti-Flood Valve is depressed downward into the Pilot Chamber Inlet Port, venting the Pilot Chamber.

The system pressure in the Inlet Chamber then forces (raises) the Exhaust Valve off its seat. This continues the rotation of the Lever into the tripped (latched) position (Ref. Figure 7). As the Exhaust Valve is raised off its seat, system pressure is transmitted to the intermediate chamber of the dry pipe valve which neutralizes the differential pressure holding the valve closed.

Water and any water borne debris such as silt is prevented from entering the Pilot Chamber by virtue of the Anti-Flood Valve having sealed off its inlet port.

After the accelerator/dry pipe valve has tripped and the sprinkler system has been drained, the piping from the system to the Accelerator must also be drained and the Accelerator reset/inspected according to the instructions given in the Valve Setting Procedure section.

The rate-of-flow through the Restriction has been set such that the Model ACC-1 Accelerator provides the maximum practical sensitivity to a loss in system pressure due to a sprinkler operation while still being capable of automatically compensating for normal variations in system pressure such as are caused by environmental temperature changes. A test for verifying that the rate-of-flow through the Restriction is within the range for optimum Accelerator performance is given in the Valve Setting Procedure section.

Installation

NOTES

Proper operation of the Model DPV-1 Dry Pipe Valve depends upon its trim being installed in accordance with Figures 8 thru 15, as applicable. Alteration of the trim may prevent the DPV-1 Valve from functioning properly, as well as void approvals and the manufacturer's warranties.

Failure to latch open the Clapper Assembly prior to a system hydrostatic test may result in damage to the Clapper Assembly.

The DPV-1 Valve must be installed in a readily visible and accessible location.

The DPV-1 Valve and associated trim must be maintained at a minimum temperature of 4°C.

Heat tracing of the DPV-1 Valve or its associated trim is not permitted. Heat tracing can result in the formation of hardened mineral deposits that are capable of preventing proper operation.

The Model DPV-1 Dry Pipe Valve is to be installed in accordance with the following criteria:

Step 1. When trimming valves in the field (i.e., other than valves provided with factory assembled trim), all nipples, fittings, and devices must be clean and free of scale and burrs before installation. Use pipe thread sealant sparingly on male pipe threads only.

Step 2. The DPV-1 Valve must be trimmed in accordance with Figures 8 thru 15.

Step 3. Care must be taken to make sure that check valves, strainers, globe valves, etc. are installed with the flow arrows in the proper direction.

Step 4. Suitable provision must be made for disposal of drain water. Drainage water must be directed such that it will not cause accidental damage to property or danger to persons.

Step 5. Installation of an Air Maintenance Device, as described in the Technical Data Section, is recommended.

Step 6. An Inspector's Test Connection must be provided on the system piping at the most remote location from the Model DPV-1 Valve.

Step 7. Conduit and electrical connections are to be made in accordance with the requirements of the authority having jurisdiction.

Step 8. Before a system hydrostatic test is performed in accordance with the standards recognized by the Approval agency, in addition to any other authorities having jurisdiction, the Clapper Assembly is to be manually latched open (Ref. Fig. 4D); the Automatic Drain Valve (Ref. Figures 8 thru 15) is to be temporarily plugged, and the Handhole Cover Bolts are to be tightened using a cross-draw sequence.

Valve Setting Procedure

Steps 1 through 12 are to be performed when initially setting the Model DPV-1 Dry Pipe Valve; after an operational test of the fire protection system; or, after system operation due to a fire.

Determine which of Figures 8 through 15 is applicable for your given riser arrangement, and then proceed as follows:

Step 1. Close the Main Control Valve, and close the Air Supply Control Valve. *If the DPV-1 is equipped with a Dry Pipe Valve Accelerator, close the Accelerator Control Valve.*

Step 2. Open the Main Drain Valve and all auxiliary drains in the system. Close the auxiliary drain valves after water ceases to discharge. Leave the Main Drain Valve open.

Step 3. As applicable, place the Three-way Alarm Control Valve in the open position.

Step 4. Verify that the Automatic Drain Valve has stopped draining to determine the DPV-1 Valve is completely drained.

Step 5. As necessary, replace all sprinklers that have operated. Replacement sprinklers must be of the same type and temperature rating as those which have operated.

NOTE

In order to prevent the possibility of a subsequent operation of an overheated solder type sprinkler, any solder type sprinklers which were possibly exposed to a temperature greater than their maximum rated ambient must be replaced.

Step 6. Push down on the Reset Knob (Fig. 5E) to allow the Clapper Assembly to reseat.

Step 7. Pressurize the system with air (or nitrogen) to 0,7 bar, and then individually open all auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Close each drain valve as soon as water ceases to discharge. Also partially open the Low Body Drain Valve in the valve trim to assure that the riser is completely drained. Close the Low Body Drain Valve as soon as water ceases to discharge.

Step 8. Refer to Table A and then restore the system to the normal system air pressure as necessary to hold the DPV-1 Valve closed.

Step 9. Verify that there is not any air discharging from the Automatic Drain Valve.

The absence of air discharging from the Automatic Drain Valve is an indication of a properly set air seat within the DPV-1 Valve. If air is discharging, refer to the Care and Maintenance section under Automatic Drain Valve Inspection to determine/correct the cause of the leakage problem.

Step 10. If the DPV-1 is equipped with a Dry Pipe Valve Accelerator, reset the Dry Pipe Valve Accelerator in accordance with Steps 10A thru 10H. Otherwise, proceed to Step 11.

Step 10A. While holding the plunger of the Automatic Drain Valve depressed, open the Accelerator Control Valve one-quarter turn and allow the water in the Accelerator piping to blow out. After water spray stops discharging, close the Accelerator Control Valve and then release the plunger.

Step 10B. Slowly remove the Vent Plug located in the front of the Accelerator Cover and bleed off any residual air pressure in the Differential Chamber.

Step 10C. Unscrew (counter-clockwise rotation) the knurled Reset Knob at the front of the Accelerator until it resists further turning. A click, which is the sound of the Lever snapping back into the Set Position, may be heard. Screw the Reset Knob back in until it is finger tight.

NOTE

Do not wrench on the reset Knob, since damage may result. The Reset Knob will turn with finger torque only.

Step 10D. Replace the Vent Plug.

Step 10E. Verify that the system air pressure has returned to normal.

Step 10F. Using a watch, note the time for the pressure in the Differential Chamber of the Accelerator to increase to 0,7 bar after the Accelerator Control Valve is opened. The

Pressure, bar	Minimum, sec.	Maximum, sec.
1,4	24	160
1,7	18	116
2,1	15	92
2,8	10	60
3,5	8	48
4,1	6	36

TABLE C
DIFFERENTIAL CHAMBER FILL TIMES TO 0,7 BAR

time should be within the range of values indicated in Table C for optimum performance of the Accelerator.

NOTE

If the time to pressurize the Differential Chamber to 0,7 bar is not within the range of values given in the Table C, then the Accelerator Control Valve should be closed and the corrective procedure described in the Care and Maintenance Section followed.

Step 10G. When the air pressure in the Differential Chamber of the Accelerator is equal to that in the system, then the Accelerator is set and ready for service.

Step 10H. Close the Accelerator Control Valve and then slowly open the Low Body Drain Valve in the trim, to bleed off any excess water trapped above the dry pipe valve clapper. Reclose the Low Body Drain Valve, return system pressure to its normal value, and then re-open the Accelerator Control Valve.

Step 11. Partially open the Main Control Valve. Slowly close the Main Drain Valve as soon as water discharges from the drain connection.

Verify that there is not any water discharging from the Automatic Drain Valve.

The absence of water discharging from the Automatic Drain Valve is an indication of a properly set water seat within the DPV-1 Valve. If water is discharging, refer to the Care and Maintenance section under the Automatic Drain Valve Inspection to determine/correct the cause of the leakage problem.

If there are no leaks, the DPV-1 Valve is ready to be placed in service and the Main Control Valve must then be fully opened.

NOTE

After setting a fire protection system, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

Step 12. Once a week after a valve is reset following an operational test or system operation, the Low Body Drain Valve (and any low point drain valves) should be partially opened (and then subsequently closed) to relieve drain-back water. Continue this procedure until drain-back water is no longer present.

Care and Maintenance

The following procedures and inspections should be performed as indicated, in addition to any specific requirements of any authority having jurisdiction. Impairments must be immediately corrected.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service.

NOTES

The operational test procedure and waterflow pressure alarm test procedure will result in operation of the associated alarms. Consequently, notification must first be given to the owner and the fire department, central station, or other signal station to which the alarms are connected.

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection systems must first be obtained from the proper authorities and all personnel who may be affected by this decision must be notified.

Annual Operation Test Procedure
Proper operation of the DPV-1 Valve (i.e., opening of the DPV-1 Valve during a fire condition) should be verified at least once a year as follows:

Step 1. If water must be prevented from flowing beyond the riser, perform the following steps.

- Close the Main Control Valve.
- Open the Main Drain Valve.
- Open the Main Control Valve one turn beyond the position at which water just begins to flow from the Main Drain Valve.
- Close the Main Drain Valve.

Step 2. Open the system's Inspector's Test Connection.

Step 3. Verify that the DPV-1 Valve has operated, as indicated by the flow of water into the system and that all waterflow alarms operate properly.

Step 4. Close the system's Main Control Valve.

Step 5. Reset the DPV-1 Valve in accordance with the Valve Setting Procedure.

NOTE

It is recommended that the inside of the valve be inspected at this time and prior to resetting the DPV-1 Valve. Refer to the Self Closing Drain Valve Inspection sub-section Steps 2 through 5 for instructions with regard to the inspection of the Clapper Facing.

Periodic Waterflow Alarm Test Procedure
Testing of the system waterflow alarms should be performed periodically based on the requirements of the authority having jurisdiction. To test the waterflow alarm, place the Three-way Alarm Test Valve in the "Test" position or open the Standard Alarm Test Valve, as applicable, which will allow a flow of water to the Waterflow Pressure Alarm Switch and/or Water Motor Alarm. Upon satisfactory completion of the test, place the Three-way Alarm Test Valve in the "Open" position or close the Standard Alarm Test Valve, as applicable.

Water Pressure Inspection
The Water Pressure Gauge is to be inspected periodically based on the requirements of the authority having jurisdiction to ensure that normal system water pressure is being maintained.

Air Pressure Inspection
The Air Pressure Gauge is to be inspected periodically based on the requirements of the authority having ju-

risdiction to ensure that normal system air pressure is being maintained.

Automatic Drain Valve Inspection
The Automatic Drain Valve should be inspected periodically based on the requirements of the authority having jurisdiction by depressing the plunger and checking to ensure that the Automatic Drain Valve is not discharging water and/or air. A discharge of water and/or air is an indication that the air and/or water seats are leaking, which could subsequently cause a false operation should the intermediate chamber become inadvertently pressurized.

If leakage is present, take the DPV-1 Valve out of service (i.e., close the main control valve, open the main drain valve, close the air supply control valve, remove the Dry Pipe Valve Accelerator from service, as applicable, by closing the Accelerator Control Valve, and open the Inspector's Test Connection to relieve the system air pressure to 0 psig as indicated on the System Air Pressure Gauge), and then after removing the Handhole Cover, perform the following steps:

Step 1. Make sure that the Seat Ring is clean and free of any nicks or significant scratches.

Step 2. Remove the Clapper Assembly from the valve by first pulling out the Hinge Pin.

Step 3. Disassemble the Clapper Facing Retainer from the Clapper so that the Clapper Facing can be removed and inspected. Make sure that the Clapper Facing does not show signs of compression set, damage, etc. Replace the Clapper Facing if there is any signs of wear.

Step 4. Clean the Clapper Facing, Clapper, and Clapper Facing Retainer, and then reassemble the Clapper Assembly.

Step 5. Reinstall the Clapper Assembly with its Hinge Pin and then reinstall the Handhole Cover.

Accelerator Inspection Procedure
It is recommended that the Accelerator be inspected periodically based on the requirements of the authority having jurisdiction to determine proper operation of the Accelerator without having to trip the dry pipe valve. This procedure must also be used whenever flooding the system would expose the water to freezing conditions.

NOTE
Refer to Technical Data Sheet TFP1112 for guidance with regard to trouble shooting of the Model ACC-1 Dry Pipe Valve Accelerator.

Step 1. Verify that the Reset Knob is screwed in.

Step 2. Close the system's main control valve and open the main drain valve to relieve the supply pressure to the dry pipe valve.

Step 3. Verify that the Accelerator Control Valve is open.

S**tep 4.** Open the Inspector's Test Connection. Verify that the time to Accelerator trip is essentially the same as in previous tests. A momentary burst of air from the Automatic Drain Valve indicates that the Accelerator has tripped.

NOTE
As the system pressure is decreasing, check for any sign of water being discharged from the Accelerator Relief Port.

Step 5. Depress the plunger of the Automatic Drain Valve. A steady stream of exhausting air indicates that the Accelerator has properly latched in the Tripped position.

Step 6. Close the Accelerator Control Valve and the Inspector's Test Connection.

Step 9. After the system automatically restores itself to its normal air pressure, reset the Accelerator and Dry Pipe Valve in accordance with the Valve Setting Procedure Steps 10 and 11.

Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with the standards recognized by the Approval agency, as well as the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP's sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFBP was informed about the possibility of such damages, and in no event shall TFBP's liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	1
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 4"	1
11	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
12	923431012; Air pressure gauge; 300 psi; 1/4" npt	1
13	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
14	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
15	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
16	AP100E4; pipe nipple; stainless steel 316; size 3/4"; length 100 mm	1
17	AP120I2; pipe nipple; steel; size 2"; length 120 mm; galvanized	1
18	AP180D4; pipe nipple; stainless steel 316; size 1/2"; length 180 mm	1
19	AP80D4; pipe nipple; stainless steel 316; size 1/2"; length 80 mm	1

NO.	DESCRIPTION	QTY.
20	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	4
21	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
22	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
23	ETDMCON; Adapter elbow; brass; thread DN15 male x compr.15 mm; nickel pl.	1
24	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	4
25	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	2
26	K00128; Alarm test/shut off valve; PN40; 1/2"; BSP; 3 way	1
27	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
28	PTDN; Plug; brass; thread DN15 male; nickel plated	2
29	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	2
30	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	1
31	RTEMDFN; Adapter reduce; brass; thread DN20 male x DN15 fem.; n.	1
32	TTDDDFN; adapter tee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	2
33	TTDDMDFN; adapter tee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
34	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
35	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
36	WS00000082; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN100	1

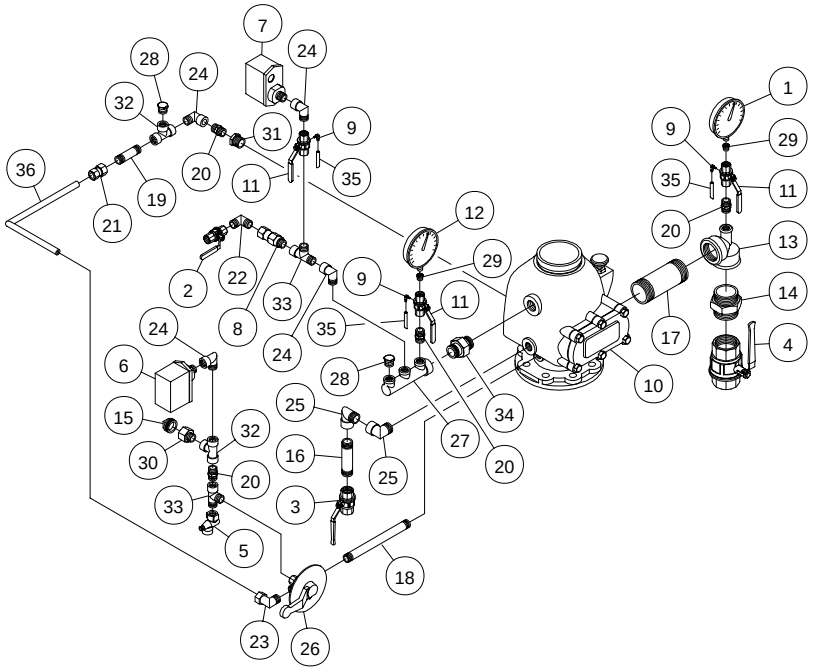


FIGURE 8
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with THREE-WAY ALARM TEST VALVE without ACC-1 ACCELERATOR
— DN100 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	1
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 6"	1
11	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
12	923431012; Air pressure gauge; 300 psi; 1/4" npt	1
13	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
14	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
15	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
16	AP100D4; pipe nipple; stainless steel 316; size 1/2"; length 100 mm	1
17	AP100I2; pipe nipple; steel; size 2"; length 100 mm; galvanized	1
18	AP120E4; pipe nipple; stainless steel 316; size 3/4"; length 120 mm	1
19	AP180D4; pipe nipple; stainless steel 316; size 1/2"; length 180 mm	1
20	AP60D4; pipe nipple; stainless steel 316; size 1/2"; length 60 mm	1

NO.	DESCRIPTION	QTY.
21	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	2
22	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
23	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
24	ETDMCON; Adapter elbow; brass; thread DN15 male x compr.15 mm; nickel pl.	1
25	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	4
26	ETEEMN; Adapter elbow; brass; thread DN20 male x DN20 male; nickel pl.	1
27	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	1
28	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
29	PTDN; Plug; brass; thread DN15 male; nickel plated	2
30	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	2
31	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	2
32	TTDDDFN; adaptertee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	2
33	TTDDMDFN; adaptertee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
34	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
35	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
36	WS00000088; Nickel pl. copp. tube 15 x 1 mm type D for DPV-1 DN150	1
37	WS00000095; Alarm test/shut off valve; PN40; 1/2"; BSP; 3 way	1

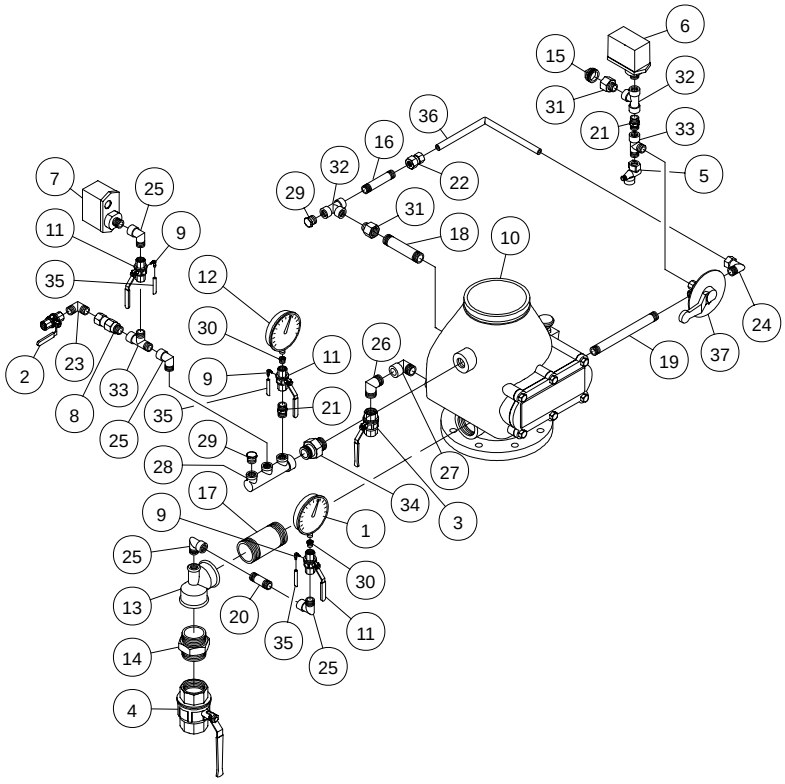


FIGURE 9
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with THREE-WAY ALARM TEST VALVE
without ACC-1 ACCELERATOR
— DN150 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	2
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 4"	1
11	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
12	920321002; Fitting anti flood; 3/32"	1
13	923431012; Air pressure gauge; 300 psi; 1/4" npt	1
14	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
15	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
16	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
17	AP100D4; pipe nipple; stainless steel 316; size 1/2"; length 100 mm	1
18	AP100E4; pipe nipple; stainless steel 316; size 3/4"; length 100 mm	1
19	AP120I2; pipe nipple; steel; size 2"; length 120 mm; galvanized	1
20	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	3
21	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1

NO.	DESCRIPTION	QTY.
22	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	1
23	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
24	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	1
25	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	3
26	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	2
27	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
28	PTDN; Plug; brass; thread DN15 male; nickel plated	2
29	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	4
30	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	1
31	RTEMDFN; Adapter reduce; brass; thread DN20 male x DN15 fem.; n.	1
32	TTDDDFN; adapter tee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	1
33	TTDDMDFN; adapter tee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
34	TTDMDDFN; adapter tee; brass; thread DN15 male x DN15 fem x DN15 fem; nickel pl.	3
35	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
36	V923221002; Check valve brass; NPT 1/2" male/male; seat buna-n	1
37	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
38	WS00000008; Copper pipe 6 mm; length 1 meter	1
39	WS00000082; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN100	1

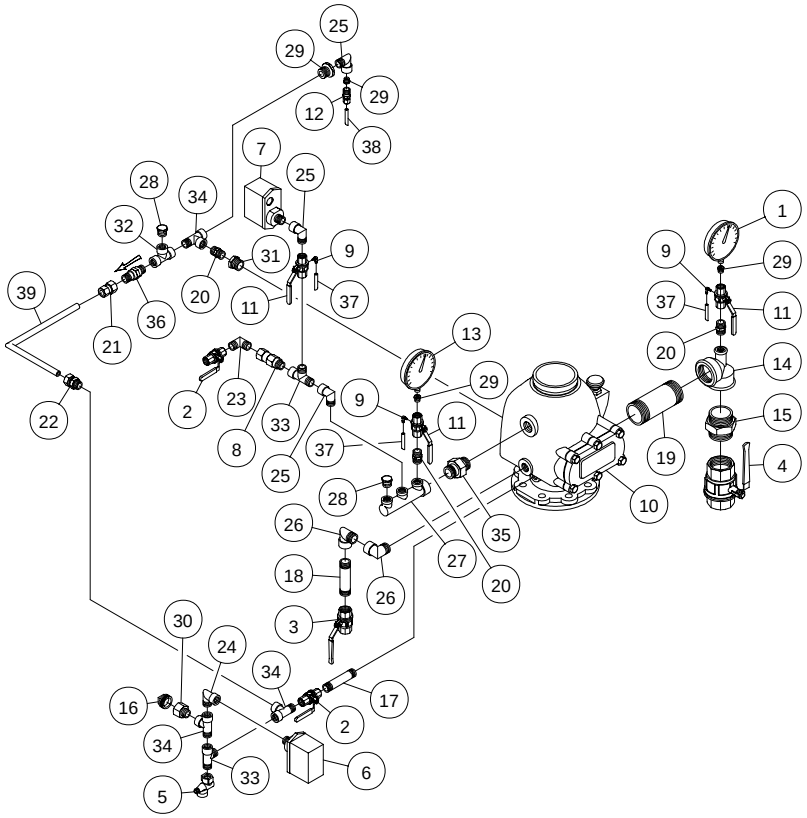


FIGURE 10
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with STANDARD ALARM TEST VALVE
without ACC-1 ACCELERATOR
— DN100 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	2
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 6"	1
11	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
12	920321002; Fitting anti flood; 3/32"	1
13	923431012; Air pressure gauge; 300 psi; 1/4" npt	1
14	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
15	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
16	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
17	AP100I2; pipe nipple; steel; size 2"; length 100 mm; galvanized	1
18	AP120D4; pipe nipple; stainless steel 316; size 1/2"; length 120 mm	1
19	AP120E4; pipe nipple; stainless steel 316; size 3/4"; length 120 mm	1
20	AP60D4; pipe nipple; stainless steel 316; size 1/2"; length 60 mm	1
21	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	1

NO.	DESCRIPTION	QTY.
22	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
23	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	1
24	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
25	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	4
26	ETEEMN; Adapter elbow; brass; thread DN20 male x DN20 male; nickel pl.	1
27	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	1
28	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
29	PTDN; Plug; brass; thread DN15 male; nickel plated	3
30	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	3
31	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	2
32	TTDDDFN; adaptertee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	1
33	TTDDMDFN; adaptertee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
34	TTDMDDFN; adaptertee; brass; thread DN15 male x DN15 fem x DN15 fem; nickel pl.	4
35	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
36	V923221002; Check valve brass; NPT 1/2" male/male; seat buna-n	1
37	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
38	WS00000008; Copper pipe 6 mm; length 1 meter	1
39	WS00000088; Nickel pl. copp. tube 15 x 1 mm type D for DPV-1 DN150	1

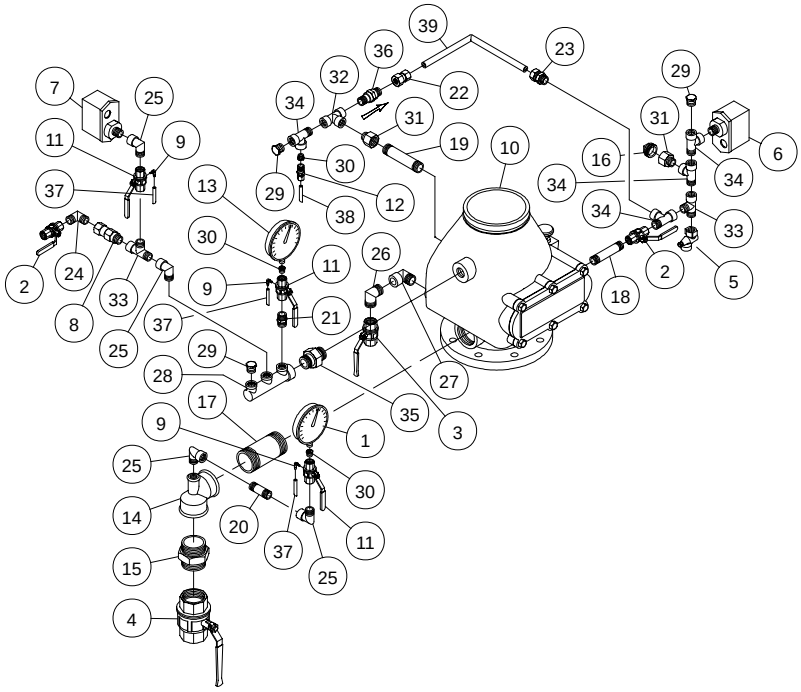


FIGURE 11
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with STANDARD ALARM TEST VALVE
without ACC-1 ACCELERATOR
— DN150 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	2
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 4"	1
11	523111001; Accelerator; ACC-1	1
12	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
13	923431012; Air pressure gauge; 300 psi; 1/4" npt	2
14	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
15	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
16	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
17	AP100E4; pipe nipple; stainless steel 316; size 3/4"; length 100 mm	1
18	AP120I2; pipe nipple; steel; size 2"; length 120 mm; galvanized	1
19	AP180D4; pipe nipple; stainless steel 316; size 1/2"; length 180 mm	1
20	AP60D4; pipe nipple; stainless steel 316; size 1/2"; length 60 mm	1
21	AP80D4; pipe nipple; stainless steel 316; size 1/2"; length 80 mm	1
22	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	4
23	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
24	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	3
25	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
26	ETDMCON; Adapter elbow; brass; thread DN15 male x compr.15 mm; nickel pl.	2
27	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	5
28	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	2
29	K00128; Alarm test/shut off valve; PN40; 1/2"; BSP; 3 way	1
30	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
31	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	2
32	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	1
33	RTEMDFN; Adapter reduce; brass; thread DN20 male x DN15 fem.; n.	1
34	TTDDDFN; adapter tee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	2
35	TTDDMDFN; adapter tee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
36	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
37	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
38	WS00000082; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN100	1
39	WS00000083; Nickel pl. copp. tube 15 x 1 mm type C for DPV-1 DN100	1
40	WS00000086; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN150	1

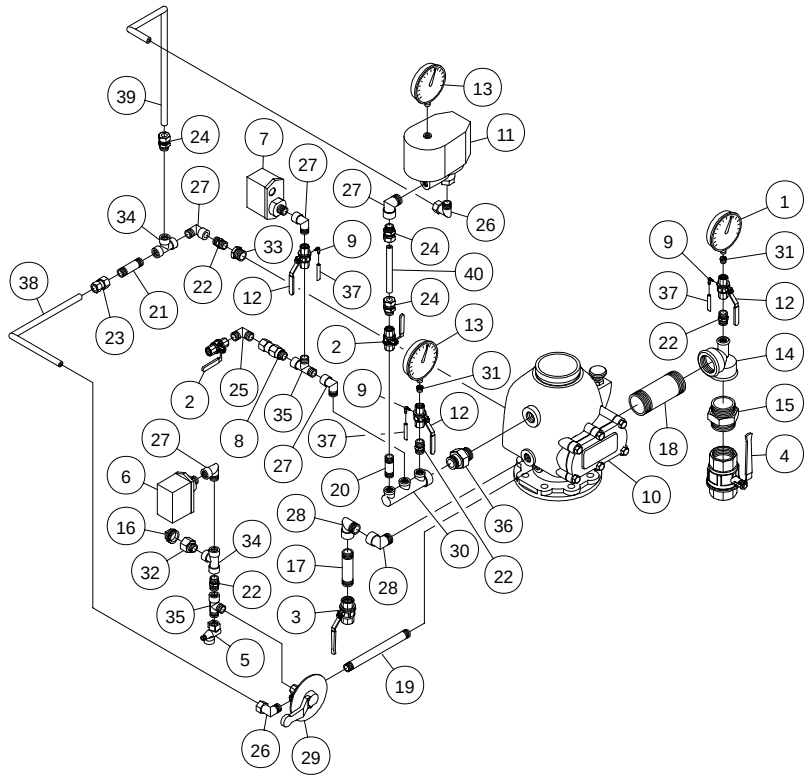


FIGURE 12
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with THREE-WAY ALARM TEST VALVE
with ACC-1 ACCELERATOR
— DN100 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	2
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 6"	1
11	523111001; Accelerator; ACC-1	1
12	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
13	923431012; Air pressure gauge; 300 psi; 1/4" npt	2
14	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
15	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
16	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
17	AP100D4; pipe nipple; stainless steel 316; size 1/2"; length 100 mm	1
18	AP100I2; pipe nipple; steel; size 2"; length 100 mm; galvanized	1
19	AP120E4; pipe nipple; stainless steel 316; size 3/4"; length 120 mm	1
20	AP180D4; pipe nipple; stainless steel 316; size 1/2"; length 180 mm	1
21	AP60D4; pipe nipple; stainless steel 316; size 1/2"; length 60 mm	2
22	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	2

NO.	DESCRIPTION	QTY.
23	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
24	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	3
25	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
26	ETDMCON; Adapter elbow; brass; thread DN15 male x compr.15 mm; nickel pl.	2
27	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	5
28	ETEEMN; Adapter elbow; brass; thread DN20 male x DN20 male; nickel pl.	1
29	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	1
30	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
31	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	2
32	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	2
33	TTDDDFN; adaptertee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	2
34	TTDDMDFN; adaptertee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
35	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
36	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
37	WS00000086; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN150	1
38	WS00000087; Nickel pl. copp. tube 15 x 1 mm type C for DPV-1 DN150	1
39	WS00000088; Nickel pl. copp. tube 15 x 1 mm type D for DPV-1 DN150	1
40	WS00000095; Alarm test/shut off valve; PN40; 1/2"; BSP; 3 way	1

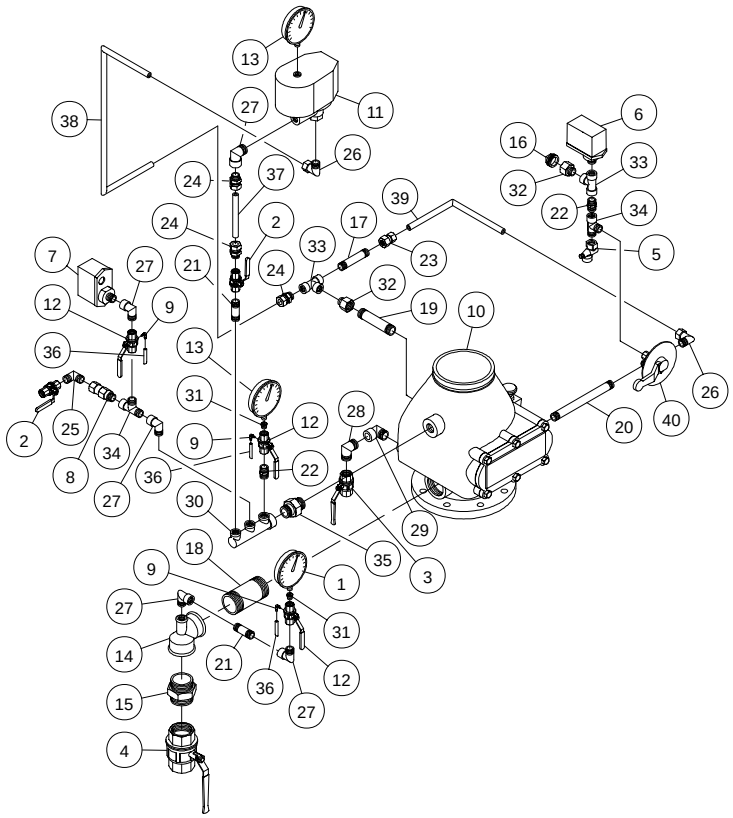


FIGURE 13
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with THREE-WAY ALARM TEST VALVE
with ACC-1 ACCELERATOR
— DN150 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	3
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 4"	1
11	523111001; Accelerator; ACC-1	1
12	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
13	920321002; Fitting anti flood; 3/32"	1
14	923431012; Air pressure gauge; 300 psi; 1/4" npt	2
15	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
16	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
17	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
18	AP100D4; pipe nipple; stainless steel 316; size 1/2"; length 100 mm	1
19	AP100E4; pipe nipple; stainless steel 316; size 3/4"; length 100 mm	1
20	AP120I2; pipe nipple; steel; size 2"; length 120 mm; galvanized	1
21	AP60D4; pipe nipple; stainless steel 316; size 1/2"; length 60 mm	2
22	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	3
23	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
24	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	1

NO.	DESCRIPTION	QTY.
25	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	3
26	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
27	ETDMCON; Adapter elbow; brass; thread DN15 male x compr.15 mm; nickel pl.	1
28	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	1
29	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	4
30	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	2
31	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
32	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	4
33	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	1
34	RTEMDFN; Adapter reduce; brass; thread DN20 male x DN15 fem.; n.	1
35	TTDDDFN; adapter tee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	1
36	TTDDMDFN; adapter tee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
37	TTDMDDFN; adapter tee; brass; thread DN15 male x DN15 fem x DN15 fem; nickel pl.	3
38	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
39	V923221002; Check valve brass; NPT 1/2" male/male; seat buna-n	1
40	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
41	WS00000008; Copper pipe 6 mm; length 1 meter	1
42	WS00000082; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN100	1
43	WS00000083; Nickel pl. copp. tube 15 x 1 mm type C for DPV-1 DN100	1
44	WS00000086; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN150	1

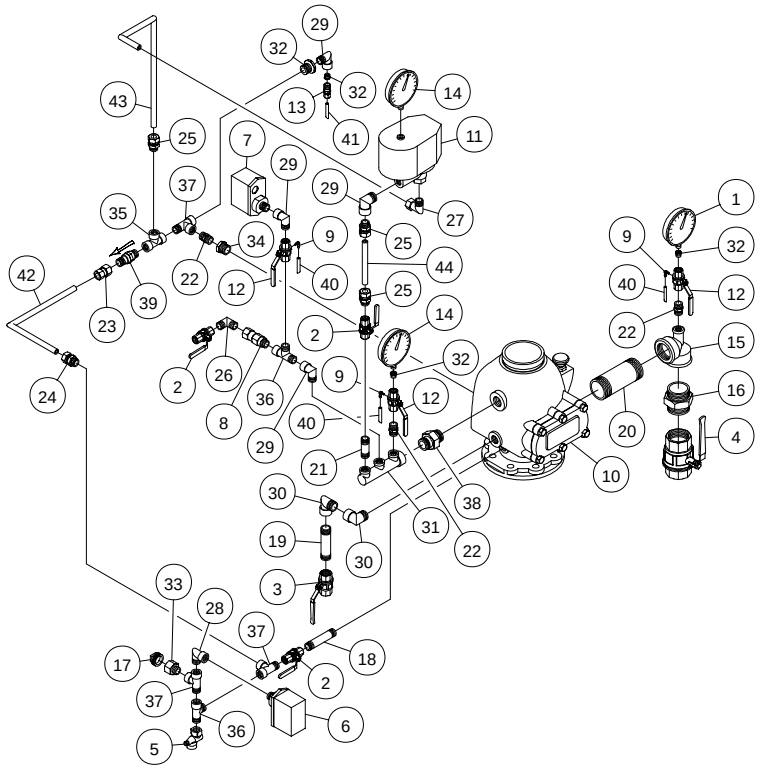


FIGURE 14
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with STANDARD ALARM TEST VALVE
with ACC-1 ACCELERATOR
— DN100 —

NO.	DESCRIPTION	QTY.
1	025500013; Water gauge; 1/4" npt; 300 psi	1
2	1610000210; Ball valve; brass; full bore; 1/2" BSP; PN30; kv=16.3; pr	3
3	1610000270; Ball valve; brass; full bore; 3/4" BSP; PN30; kv=29.5; pr	1
4	1610000600; Ball valve; brass; full bore; 2" BSP; PN25; kv=265; ur	1
5	2162156; Automatic drain valve; 1/2"; oper: k=25 & non oper: k=5	1
6	260; Alarm pressure switch	1
7	262; Low pressure switch	1
8	305105; Check valve brass thread; DN15 male x DN15 fem.; nickel plated	1
9	406012; Elbow 3 mm x m5	3
10	Dry pipe valve; DPV-1; ductile iron; 6"	1
11	523111001; Accelerator; ACC-1	1
12	59304FO; Ball valve; size 1/2"; full bore; PN40; venthole threaded	3
13	920321002; Fitting anti flood; 3/32"	1
14	923431012; Air pressure gauge; 300 psi; 1/4" npt	2
15	A130RIID2; malleable fitt.; reducing tee; BSP thread 2" x 2"	1
16	A280I2; malleable fitting; nipple male; BSP thread; size 2"; galvanized	1
17	A291E2; malleable fitting; plug male; BSP thread; size 3/4"; galvanized	1
18	AP100I2; pipe nipple; steel; size 2"; length 100 mm; galvanized	1
19	AP120D4; pipe nipple; stainless steel 316; size 1/2"; length 120 mm	1
20	AP120E4; pipe nipple; stainless steel 316; size 3/4"; length 120 mm	1
21	AP60D4; pipe nipple; stainless steel 316; size 1/2"; length 60 mm	2
22	ATDDMN; Adapter fitting; brass; thread DN15 x DN15 male; nickel pl.	1
23	ATDFCON; Adapter fitting; brass; thread DN15 fem. x compr.15 mm; n.	1
24	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	1

NO.	DESCRIPTION	QTY.
25	ATDMCON; Adapter fitting; brass; thread DN15 male x compr.15 mm; n.	3
26	ETDDMN; Adapter elbow; brass; thread DN15 male x DN15 male; nickel pl.	1
27	ETDMCON; Adapter elbow; brass; thread DN15 male x compr.15 mm; nickel pl.	1
28	ETDMDFN; Adapter elbow; brass; thread DN15 male x DN15fem.; nickel pl.	5
29	ETEEMN; Adapter elbow; brass; thread DN20 male x DN20 male; nickel pl.	1
30	ETEMEFN; Adapter elbow; brass; thread DN20 male x DN20 fem.; nickel pl.	1
31	MANIF3WAY; Manifold; threaded; nickel plated brass; DN25 x DN15	1
32	PTDN; Plug; brass; thread DN15 male; nickel plated	1
33	RTDMBFN; Adapter reduce; brass; thread DN15 male x DN8 fem.; nickel pl.	3
34	RTDMEFN; Adapter reduce; brass; thread DN15 male x DN20 fem.; n.	2
35	TTDDDFN; adaptertee; brass; thread DN15 fem x DN15 fem x DN15 fem; nickel pl.	1
36	TTDDMDFN; adaptertee; brass; thread DN15 male x DN15 male x DN15 fem; n.	2
37	TTDMDDFN; adaptertee; brass; thread DN15 male x DN15 fem x DN15 fem; nickel pl.	4
38	UTFFMN; Adapter union; brass; thread DN25 x DN25 male; nickel plated	1
39	V923221002; Check valve brass; NPT 1/2" male/male; seat buna-n	1
40	WS00000004; Pressure relief hose; 3 x 6 length 1.2 m; transparent	3
41	WS00000008; Copper pipe 6 mm; length 1 meter	1
42	WS00000086; Nickel pl.c opp. tube 15 x 1 mm type B for DPV-1 DN150	1
43	WS00000087; Nickel pl. copp. tube 15 x 1 mm type C for DPV-1 DN150	1
44	WS00000088; Nickel pl. copp. tube 15 x 1 mm type D for DPV-1 DN150	1

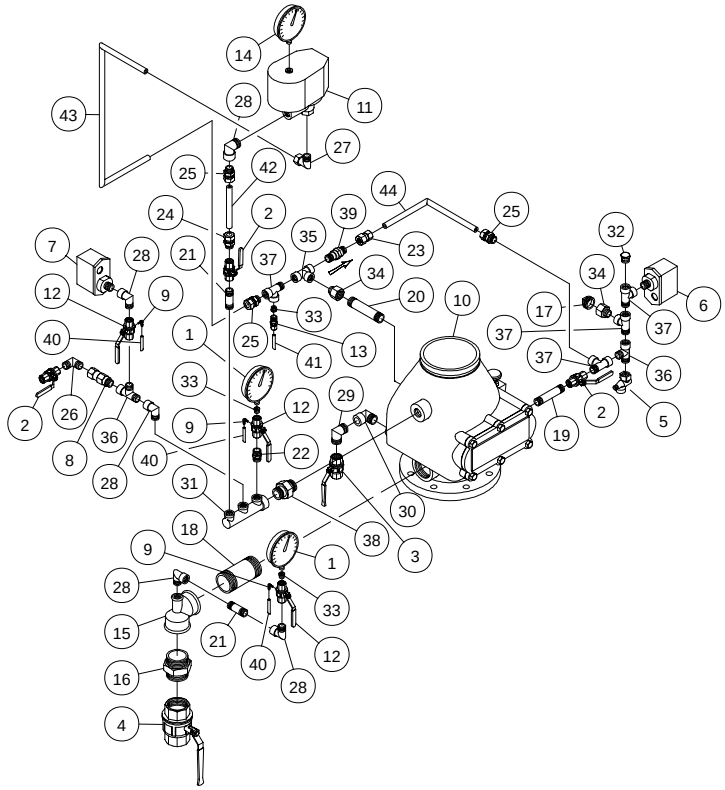


FIGURE 15
EUROPEAN CONFORMITY
DPV-1 DRY PIPE VALVE TRIM with STANDARD ALARM TEST VALVE
with ACC-1 ACCELERATOR
— DN150 —

Ordering Procedure

Model DPV-1 Dry Pipe Valve with Assembled European Conformity Valve Trim
Specify: Fully Assembled Model DPV-1 Dry Pipe Valve with European Conformity Valve Trim, P/N (Table D).

Accessories
Specify: ("description") and P/N.

- "Supervisory Switch" for accelerator control valve, P/N CEDPV1ASS.
- "Supervisory Switch" for water motor alarm control valve, P/N CEDPV1ASS.
- "Air Pressure Relief Valve set at 3,1 bar", P/N 92-343-1-020.
- "Model WMA-1 Water Motor Alarm with Red Finish Gong", P/N 52-630-2-021.
- "A thru Z" Labels for attaching to valve trim components, P/N WS00000033.

P/N XX X XX XX X XX

DRY PIPE VALVE	
27	Flanged/Flanged, PN10/16
28	Flanged/Grooved, PN10/16
29	Flanged/Flanged, ANSI
2A	Flanged/Grooved, ANSI
2B	Grooved/Grooved

STOP VALVE	
00	TO BE ORDERED SEPARATELY

SWITCH	
0	NONE
1	PS10-1A

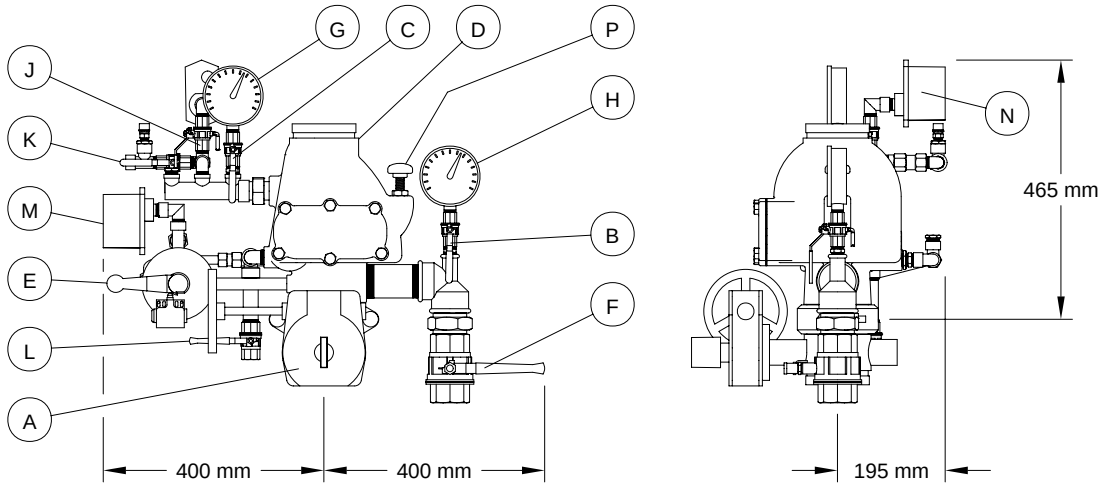
SIZE	
4	4"
6	6" (168,3 mm)
7	6" (165,1 mm)

ACCESSORIES	
00	NONE
01	European Conformity Trim with: - Accelerator - Accelerator control valve
49	European Conformity Trim with: - Low pressure switch PS40-1A - No accelerator - No accelerator control valve
50	European Conformity Trim with: - Low pressure switch PS40-1A - Accelerator - Accelerator control valve

TRIM	
88	EUR/FM w/3-way Alarm Control Valve
89	EUR/FM w/Std. Alarm Test Valve

TABLE D
MODEL DPV-1 DRY PIPE VALVE
WITH EUROPEAN CONFORMITY VALVE TRIM
— FULLY ASSEMBLED —

Appendix A of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN100, Three-Way Alarm Test, Without Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The three-way alarm control valve (E) is in the open position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- The air supply control valve (K) is open.
- System air pressure gauge (G) reads downstream air pressure.
- Water supply pressure gauge (H) reads the upstream water pressure.

II. Operation

When one or more sprinklers are activated, air pressure is reduced downstream of the dry pipe valve. When the air pressure is sufficiently reduced, the water pressure overcomes the differential holding the dry pipe valve closed and the dry pipe valve opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows through the alarm port at the rear of the dry pipe valve to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), close the air supply control valve (K), and place the three-way alarm control valve (E) in the closed position.

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Place the three-way alarm control valve (E) in the open position.

Step 3. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 4. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 5. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 6. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 7. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 8. Fully open the main control valve (A) and lock it open.

Step 9. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

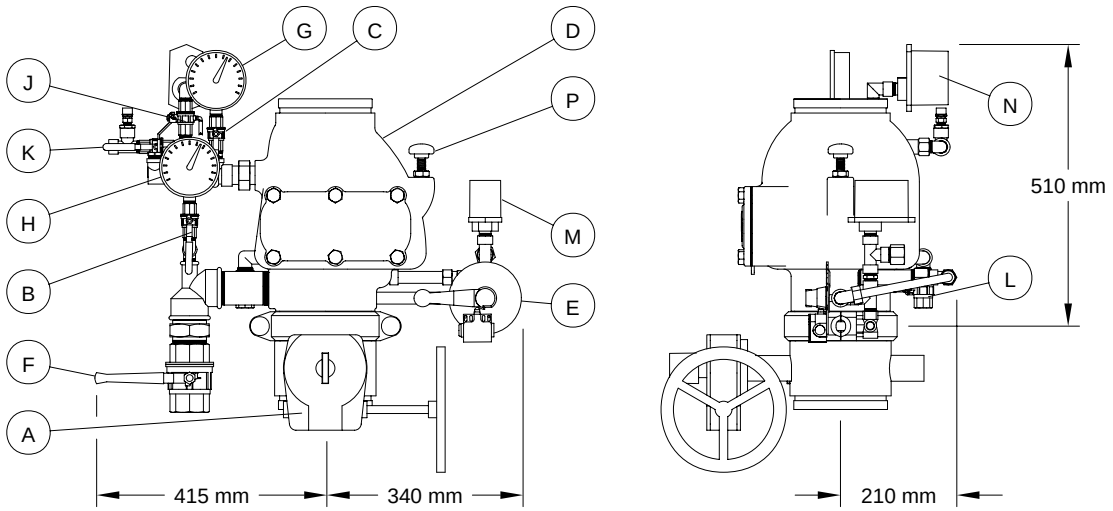
Step 1. Place the three-way alarm control valve (E) in the test position, verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Place the three-way alarm control valve (E) in the open position and verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix B of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN150, Three-Way Alarm Test, Without Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The three-way alarm control valve (E) is in the open position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- The air supply control valve (K) is open.
- System air pressure gauge (G) reads downstream air pressure.
- Water supply pressure gauge (H) reads the upstream water pressure.

II. Operation

When one or more sprinklers are activated, air pressure is reduced downstream of the dry pipe valve. When the air pressure is sufficiently reduced, the water pressure overcomes the differential holding the dry pipe valve closed and the dry pipe valve opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows through the alarm port at the rear of the dry pipe valve to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), close the air supply control valve (K), and place the three-way alarm control valve (E) in the closed position.

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Place the three-way alarm control valve (E) in the open position.

Step 3. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 4. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 5. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 6. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 7. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 8. Fully open the main control valve (A) and lock it open.

Step 9. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

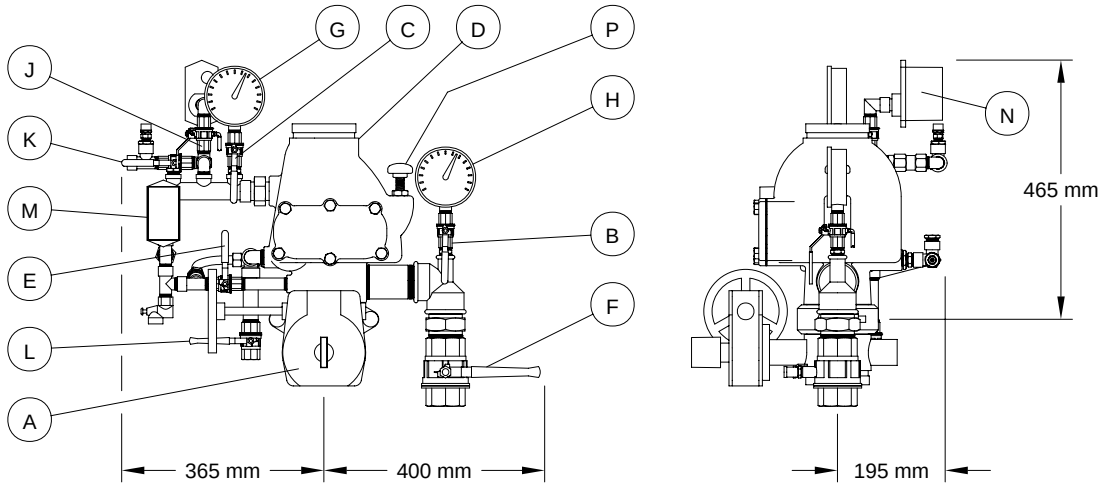
Step 1. Place the three-way alarm control valve (E) in the test position, verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Place the three-way alarm control valve (E) in the open position and verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix C of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN100, Standard Alarm Test, Without Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The alarm test valve (E) is in the closed position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- The air supply control valve (K) is open.
- System air pressure gauge (G) reads downstream air pressure.
- Water supply pressure gauge (H) reads the upstream water pressure.

II. Operation

When one or more sprinklers are activated, air pressure is reduced downstream of the dry pipe valve. When the air pressure is sufficiently reduced, the water pressure overcomes the differential holding the dry pipe valve closed and the dry pipe valve opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows through the alarm port at the rear of the dry pipe valve to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), and close the air supply control valve (K).

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 3. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 4. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 5. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 6. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 7. Fully open the main control valve (A) and lock it open.

Step 8. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

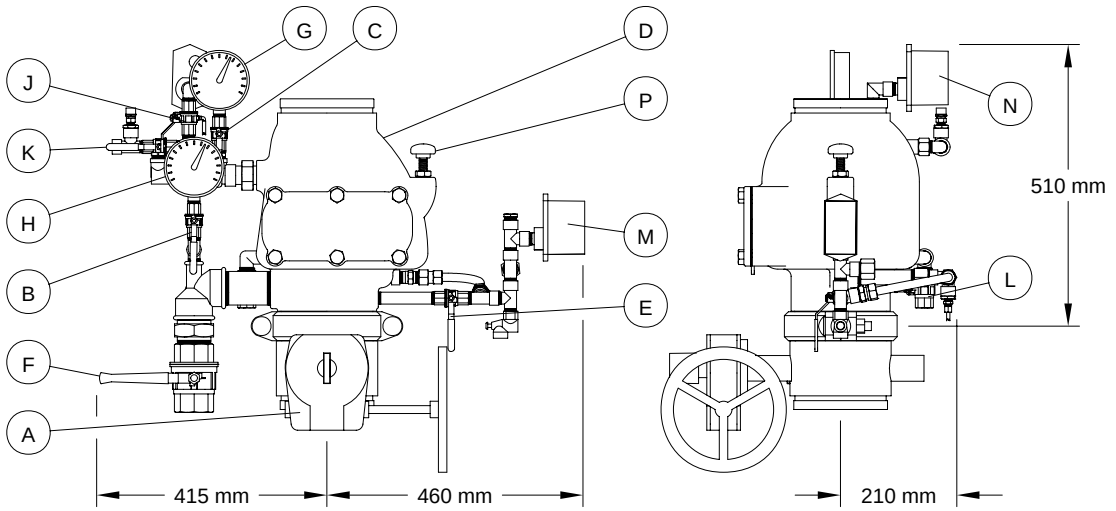
Step 1. Open the alarm test valve (E), verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Close the alarm test valve (E), verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix D of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN150, Standard Alarm Test, Without Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The alarm test valve (E) is in the closed position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- The air supply control valve (K) is open.
- System air pressure gauge (G) reads downstream air pressure.
- Water supply pressure gauge (H) reads the upstream water pressure.

II. Operation

When one or more sprinklers are activated, air pressure is reduced downstream of the dry pipe valve. When the air pressure is sufficiently reduced, the water pressure overcomes the differential holding the dry pipe valve closed and the dry pipe valve opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows through the alarm port at the rear of the dry pipe valve to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), and close the air supply control valve (K).

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 3. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 4. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 5. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 6. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 7. Fully open the main control valve (A) and lock it open.

Step 8. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

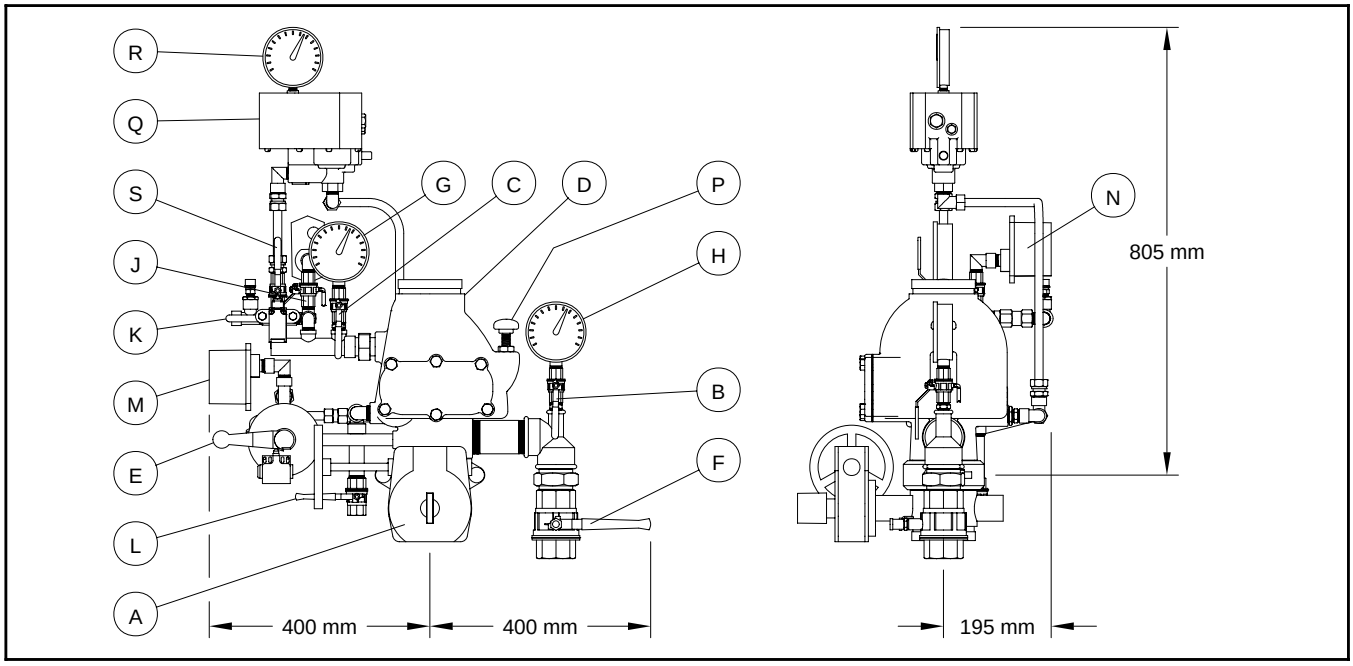
Step 1. Open the alarm test valve (E), verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Close the alarm test valve (E), verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix E of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN100, Three-Way Alarm Test, With Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked, and the accelerator control valve (S) and air supply control valve (K) are open.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The three-way alarm control valve (E) is in the open position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- System air pressure gauge (G) reads downstream air pressure, water supply pressure gauge (H) reads the upstream water pressure, and accelerator air pressure gauge (R) reads the accelerator pressure.

II. Operation

When one or more sprinklers are activated, the accelerator operates to permit system air pressure into the dry pipe valve intermediate chamber. Doing so will immediately overcome the ability of the system air pressure to hold the dry pipe valve closed without having to wait for a system air pressure to decay to approximately 20% of the water supply. The dry pipe valve immediately opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), close the air supply control valve (K), close the accelerator control valve (R), and place the three-way alarm control valve (E) in the closed position.

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Place the three-way alarm control valve (E) in the open position.

Step 3. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 4. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 5. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 6. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 7. Reset accelerator (Q) using the instruction on its resetting label.

Step 8. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 9. Fully open the main control valve (A) and lock it open.

Step 10. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

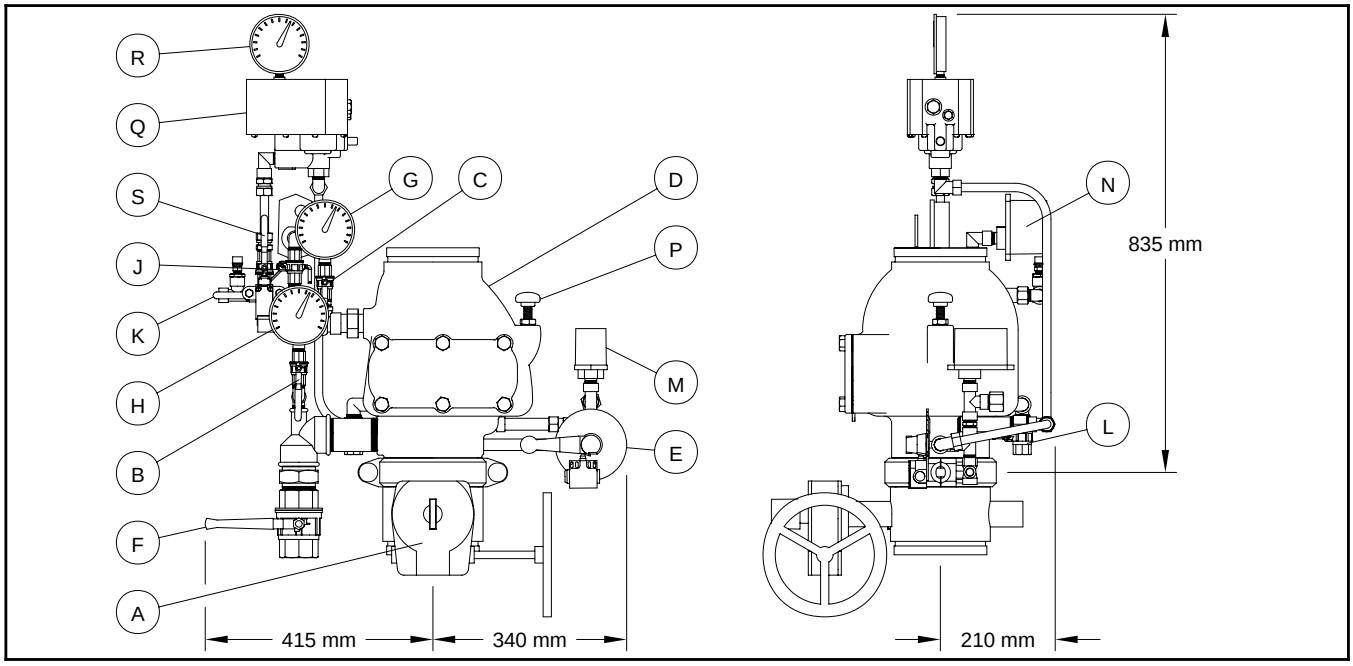
Step 1. the three-way alarm control valve (E) in the test position, verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Place the three-way alarm control valve (E) in the open position and verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix F of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN150, Three-Way Alarm Test, With Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked, and the accelerator control valve (S) and air supply control valve (K) are open.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The three-way alarm control valve (E) is in the open position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- System air pressure gauge (G) reads downstream air pressure, water supply pressure gauge (H) reads the upstream water pressure, and accelerator air pressure gauge (R) reads the accelerator pressure.

II. Operation

When one or more sprinklers are activated, the accelerator operates to permit system air pressure into the dry pipe valve intermediate chamber. Doing so will immediately overcome the ability of the system air pressure to hold the dry pipe valve closed without having to wait for a system air pressure to decay to approximately 20% of the water supply. The dry pipe valve immediately opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), close the air supply control valve (K), close the accelerator control valve (R), and place the three-way alarm control valve (E) in the closed position.

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Place the three-way alarm control valve (E) in the open position.

Step 3. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 4. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 5. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 6. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 7. Reset accelerator (Q) using the instruction on its resetting label.

Step 8. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 9. Fully open the main control valve (A) and lock it open.

Step 10. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

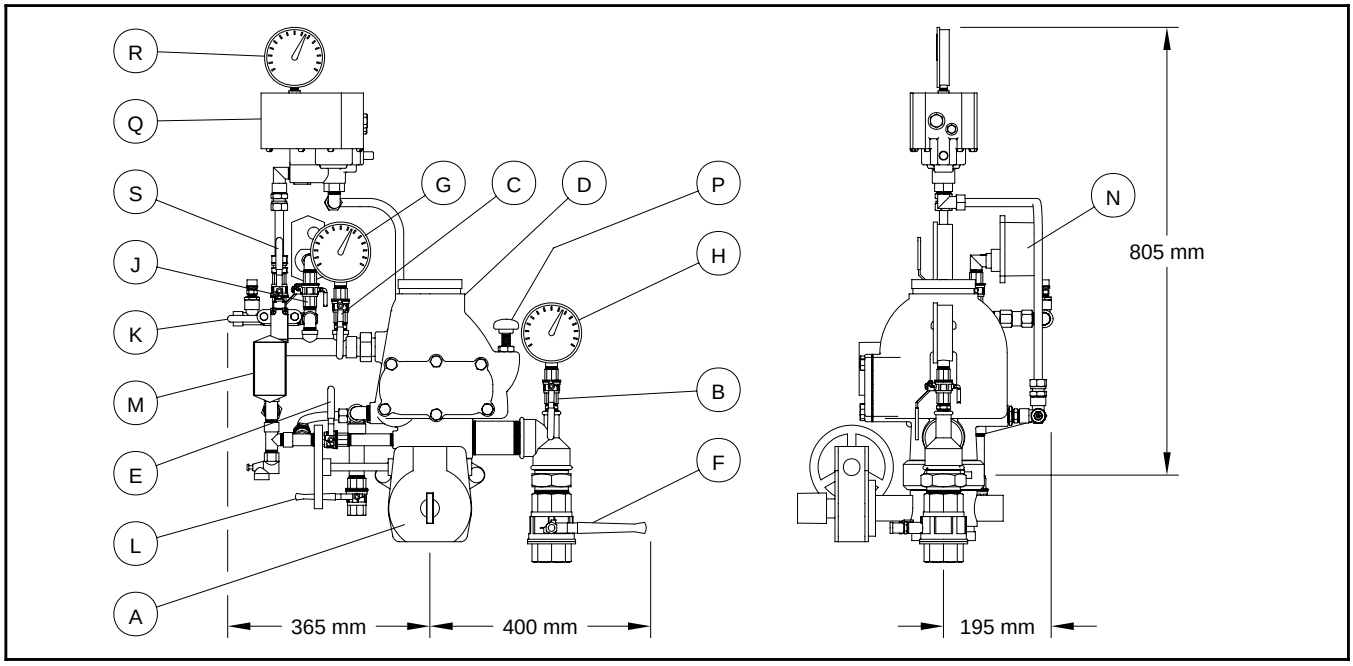
Step 1. Place the three-way alarm control valve (E) in the test position, verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Place the three-way alarm control valve (E) in the open position and verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix G of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN100, Standard Alarm Test, With Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked, and the accelerator control valve (S) and air supply control valve (K) are open.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The alarm test valve (E) is in the closed position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- System air pressure gauge (G) reads downstream air pressure, water supply pressure gauge (H) reads the upstream water pressure, and accelerator air pressure gauge (R) reads the accelerator pressure.

II. Operation

When one or more sprinklers are activated, the accelerator operates to permit system air pressure into the dry pipe valve intermediate chamber. Doing so will immediately overcome the ability of the system air pressure to hold the dry pipe valve closed without having to wait for a system air pressure to decay to approximately 20% of the water supply. The dry pipe valve immediately opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), close the air supply control valve (K), and close the accelerator control valve (R).

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 3. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 4. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 5. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 6. Reset accelerator (Q) using the instruction on its resetting label.

Step 7. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 8. Fully open the main control valve (A) and lock it open.

Step 9. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

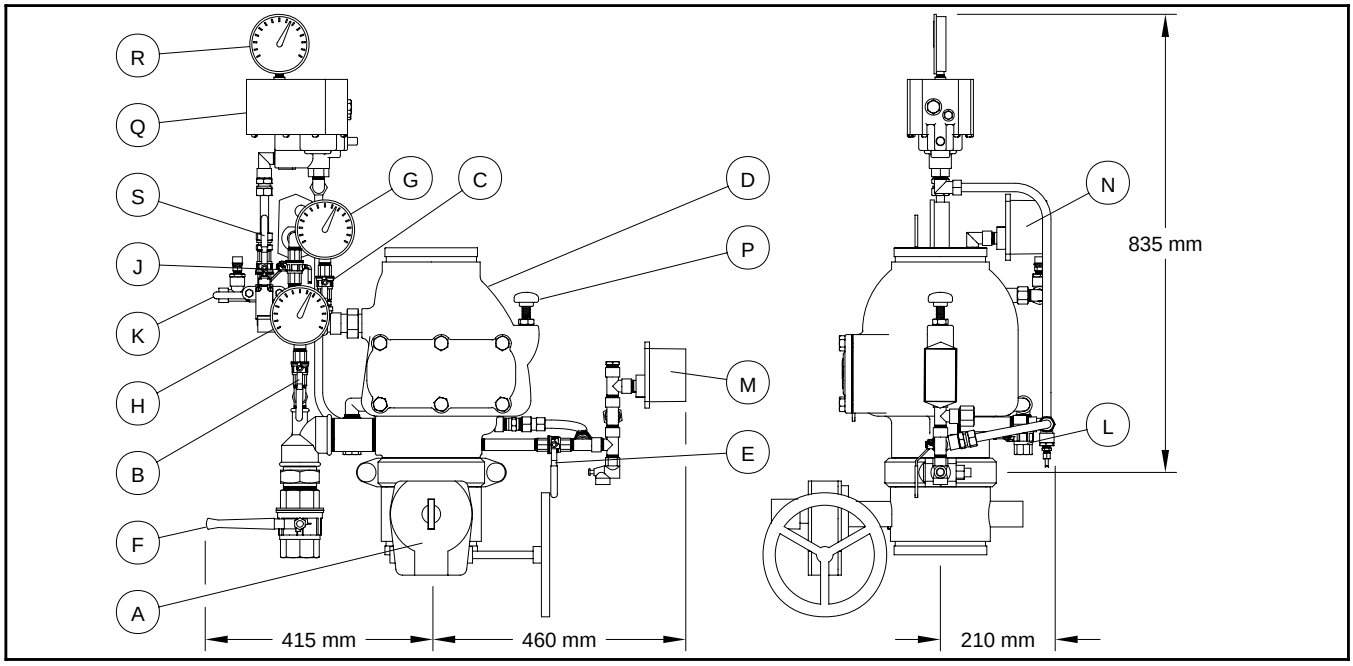
Step 1. Open the alarm test valve (E), verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Close the alarm test valve (E), verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.

Appendix H of TFP1090 (09/2005)
Summary Instructions (If problems occur, consult full document)
Dry Pipe Valve, DPV-1, DN100, Standard Alarm Test, With Accelerator



I. Normal conditions:

- The main control valve (A) is opened and locked, and the accelerator control valve (S) and air supply control valve (K) are open.
- The sprinkler system is filled with air and is pressurized.
- The main drain valve (F), and low body drain valve (L) are closed.
- The alarm test valve (E) is in the closed position.
- The pressure gauge valves (B) and (C) are open.
- The pressure switch valve (J) is open.
- System air pressure gauge (G) reads downstream air pressure, water supply pressure gauge (H,) reads the upstream water pressure, and accelerator air pressure gauge (R) reads the accelerator pressure.

II. Operation

When one or more sprinklers are activated, the accelerator operates to permit system air pressure into the dry pipe valve intermediate chamber. Doing so will immediately overcome the ability of the system air pressure to hold the dry pipe valve closed without having to wait for a system air pressure to decay to approximately 20% of the water supply. The dry pipe valve immediately opens to permit water flow into the system piping and to be discharged from any open sprinklers. Also, with the dry pipe valve open, water flows to actuate the waterflow pressure alarm switch (M) and, as applicable, the water motor alarm.

III. Removing system from service:

Step 1. Close the main control valve (A), close the air supply control valve (K), and close the accelerator control valve (R).

Step 2. Drain the system with the main drain valve (F) and by opening all auxiliary drain valves in the system to make sure that cross-mains and branch lines are drained.

IV. Placing the system back in service:

Step 1. Close the auxiliary drain valves after water ceases to discharge, and leave the main drain valve (F) open.

Step 2. Replace the sprinklers that have operated and the sprinklers close to the fire.

Step 3. Push down on the reset knob (P) to allow the dry pipe valve (D) to reseat.

Step 4. Via the air supply control valve (K) pressurize the system with air to 0,7 bar, and then open and close each auxiliary drain valves in the system piping to drain any remaining water in trapped sections. Also, partially open the low body drain valve (L) to assure that the riser is completely drained. Close the low body drain valve (L) as soon as water ceases to discharge.

Step 5. Open the air supply control valve (K) to restore the system to the normal system air pressure.

Step 6. Reset accelerator (Q) using the instruction on its resetting label.

Step 7. Partially open the main control valve (A), and then slowly close the main drain valve (F).

Step 8. Fully open the main control valve (A) and lock it open.

Step 9. Reset the fire alarm panel and notify the central alarm station.

V. Weekly test:

Important: Prior to closing any valves or activating any alarms, notify local security guards and the central alarm station if applicable.

Step 1. Open the alarm test valve (E), verify that the alarm signal created by the waterflow pressure alarm switch (M) is visible at the fire panel. If applicable, check the sound of the water motor alarm — it must be clear and steady.

Step 2. Close the alarm test valve (E), verify that the normal supply and system pressures are restored. If the supply pressure is below the normal, use the instructions from the water supply to obtain the usual pressure.

Step 3. Close the pressure switch valve (J) and verify operation of the low air pressure alarm switch (N).

Step 4. Return the pressure switch valve (J) to the normally open position after verifying that the alarm signal is visible at the fire panel.