ALARM VALVE
MODEL-H (DUCTILE IRON)

HD FIRE PROTECT LIMITED

TECHNICAL DATA

MODEL	H
END CONNECTION	Flange x Flange Flange x Groove Groove x Groove
NOMINAL SIZE	200, 150, 100 & 80 NB
MAXIMUM SERVICE PRESSURE	250 PSI*/ 17.2 BAR
THREADED OPENING	BSPT
MOUNTING	Vertical
FLANGE CONNECTION	ANSI B16.42 #150 (Flange drilling matching to ANSI B 16.5#150) Standard Supply.
TRIM	Galvanized fittings with Brass Valves
FACTORY HYDROSTATIC TEST PRESSURE	500 PSI / 34.5 BAR
FRICTIONAL LOSS IN TERMS OF EQUIVALENT LENGTH OF PIPE (C-120)	200 NB - 7.5 Mtrs. 150 NB - 7.0 Mtrs. 100 NB - 6.1 Mtrs. 80 NB - 4.7 Mtrs.
FINISH	Red RAL 3001
APPROVAL	UL Listed & FM Approved
ORDERING INFORMATION	Specify size of valve, trim details, grooved valve pipe outside diameter.
REFERENCE	NFPA 13 and NFPA 25

*** For 200 NB, FM approval is rated upto 200 PSI (13.8 BAR)**

WEIGHT IN KG

Valve Size	Flange X Flange	Flange X Groove	Groove X Groove
3" (80 NB)	18	15.0	12.10
4" (100 NB	27	22.1	17.30
6" (150 NB)	42	35.8	28.0
8" (200 NB)	65	54.0	44.0

GROOVE PIPE SIZE

NORMAL SIZE	Pipe OD in mm
3" (80 NB)	**89**
4" (100 NB)	**114.3**
6" (150 NB)	**165.1**
6" (150 NB)	**168.3**
8" (200 NB)	**219.1**

NOTE: FOR 6" (150 NB) STANDARD SUPPLY IS 168.3 mm OD PIPE GROOVE. FOR 165.1mm REQUIREMENT, SPECIFY IN ORDER



DESCRIPTION

Alarm Valve is a double seated clapper check valve with grooved seat design, which ensures positive water flow for alarm operation and is designed for installation in wet pipe sprinkler system. External bypass prevents false alarm under all supply pressure condition. In the event of variable pressure condition, false alarm is prevented with the provision of retard chamber, thus the design allows for installation under both variable and constant supply pressure condition.

Operation of one or more automatic fire sprinklers causes the water to flow into the sprinkler system causing the alarm valve to open, allowing continuous flow of water into the system and transmittal of alarms, both electrical and mechanical.

OPERATION

The fire protection system initially when being pressurized, will allow water to flow into the system until water supply and system pressure is equalized and the clapper closes the waterway. Once the pressure is stabilized, the fire protection system is ready to be placed in service and then the alarm control valve must be opened. Under normal condition, the water pressure gauge connected to the system side of the alarm valve would show a higher or equal pressure reading than the water pressure gauge connected to the supply side of the valve. This occurs because of the bypass line connecting downstream and upstream side of the alarm valve, which allows water pressure surge to pass without lifting the valve clapper off its seat, thereby causing excessive high pressure surge entrapped in the system side due to presence of a check valve, which generally prevents false alarm.

Sudden high pressure surge, as might be encountered by start-up of a large fire pump may lead the valve clapper to lift momentarily, allowing water to flow through grooves in the valve seat to the retard chamber. The water in the alarm line is automatically drained out, which helps to prevent false alarm due to successive transient surge in supply pressure. The restriction assembly located beneath the retard chamber consists of inlet and drain restriction orifices, which are established by considering the volume of the retard chamber to meet the listing and approval requirements about time-to-alarm factor. These requirements represent a balancing of the need to reduce the possible false alarm due to a transient surge in supply pressure and to achieve desired minimum time- to- alarm following a sprinkler operation.

In constant pressure installation, the retard chamber is not required and the water passing through the groove in the alarm valve seat flows directly through restriction nozzle assembly to activate the mechanical and electrical alarm.

ACCESSORIES

- Retard Chamber:
  HD retard chamber model RC9 is required when the Alarm Valve is installed on systems with a variable pressure water supply to curtail unwanted and false alarms.
- Water Motor Sprinkler Alarm:
  Alarm Valve model H is designed to operate a mechanical alarm gong during a sustained flow of water (such as the flow required by an open sprinkler). Refer to the water motor sprinkler alarm catalogue HD 107 for further details.
- Pressure Switch (Optional):
  Alarm Valve trim allows connection of pressure switch to activate local electric alarms or remote electric alarms during a constant flow of water (such as the flow required by open sprinklers).

INSTALLATION

1. HD sprinkler alarm valve, Model-H must be installed vertically only.
2. The alarm valve must be installed in a readily visible and accessible location and provision to be made in such a way that alarm line drain is visible and accessible.
3. Where water pressure fluctuates, the variable pressure trim with retard chamber must be used. Under non-fluctuating water pressure condition, the constant pressure trim, which does not include retard chamber, may be used.
4. The valve must be installed with trim in accordance with the trim data. Failure to follow the appropiate trim connection guidelines may prevent the device from functioning properly as well as void listing, approval and the manufacturer's warranty.
5. Care must be exercised while installing the check valve in the trim to ascertain that they are located with the arrow mark on the check valve body and pointed in proper direction.
6. The contraction and expansion associated with an excessive volume of trapped air could cause the waterway clapper to periodically open and shut. This may result in false alarm or intermittent alarm. To avoid these, it is recommended to have breather valve in the system piping network & a vent valve at the extreme end of the system to bleed-off the air.
7. The ball valve provided on the alarm line must be kept open and strapped in set position.
8. Pipe connecting the retard chamber and sprinkler alarm bell must be supported properly to avoid loading on the retard chamber.
9. All the newly installed system pipes must be flushed properly before alarm valve is put into service.

INSPECTION AND MAINTENANCE

A qualified and trained person must commission the system. After few initial successful tests an authorised person must be trained to perform inspection and testing of the system.

It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that all control valves are in proper position as per the requirement of the system and no damage has taken place to any component. It is recommended that the alarm valve and its accessories should be examined and performed for following at least quarterly or as demanded by local authorities to ensure reliable and trouble free operation and service.

1. Inspection and testing is to be carried out only by an authorized person. DO NOT TURN OFF the water supply valve to undertake repair work or to test the valve, without placing a roving fire patrol in the area covered by the system. The patrol should continue until the system is back into service. Also do inform the local security personnel and alarm control station, so that a false alarm is not signaled.
2. Open the alarm test valve. Verify that the sprinkler alarm bell and/or the pressure alarm switch/ electric alarm properly actuates. Close the alarm test valve and verify that water has ceased to flow from the alarm line drain.
3. Clean the 20 NB (3/4") strainer provided on the sprinkler alarm bell line.
4. Clean the strainer of restriction assembly.
5. Inspect the check valve clapper located on the bypass line.

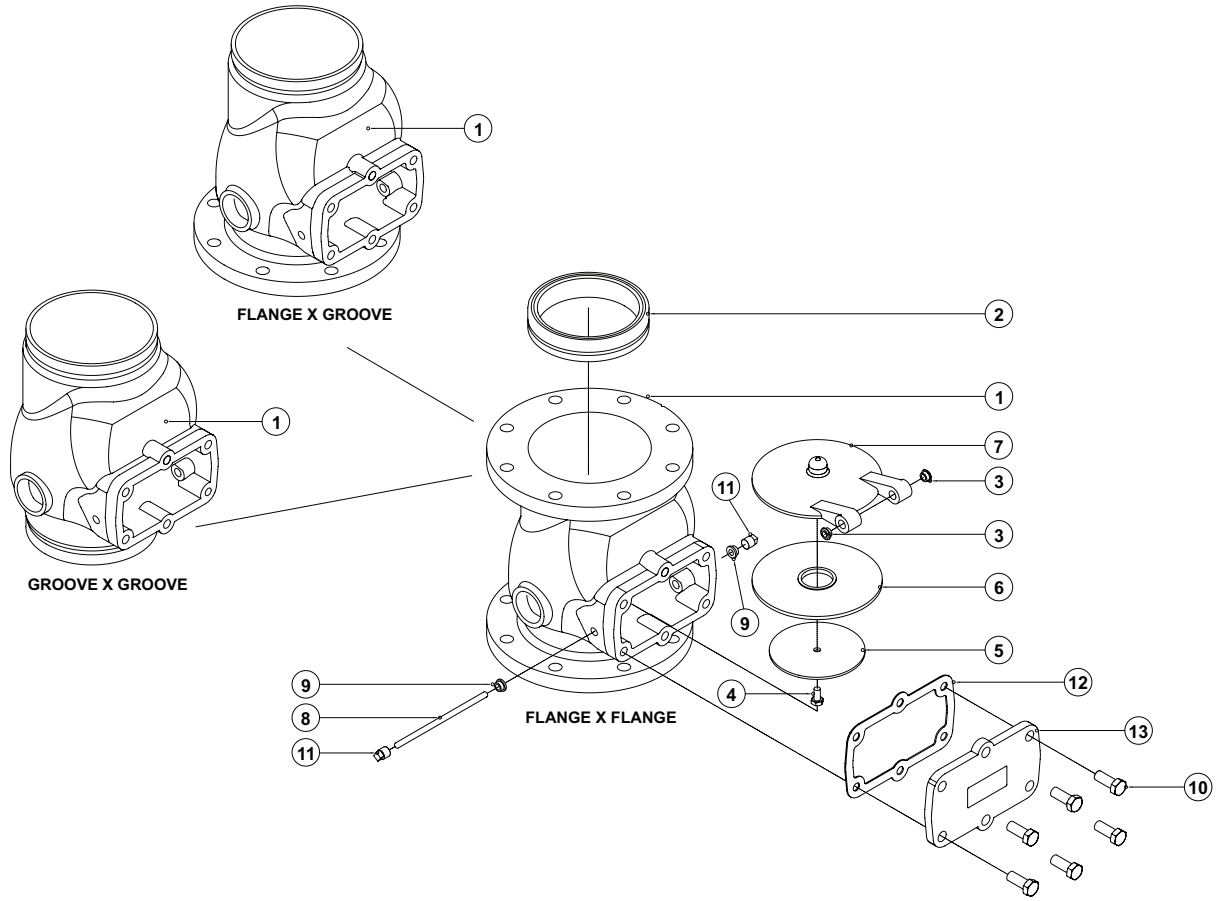
FALSE ALARM

1. Inspect the valve rubber clapper face. If worn or damaged, replace it. Be certain that dirt, stone or any other foreign object have not accumulated under the clapper face and lodged in the groove or holes. Clean the clapper face thoroughly. If the seat ring surface is nicked or scoured, it might be possible to repair the same using lapping compound. If not, replace the complete valve or return it to the manufacturer's works for repair.
2. If sprinkler alarm bell is not functioning or the impeller is jammed, please follow the maintenance guidelines provided in the catalogue for sprinkler alarm bell.
3. If pressure alarm switch gives a steady signal, but sprinkler alarm generates an intermittent alarm, check sprinkler alarm bell shaft. If both the sprinkler alarm bell and pressure alarm switch are generating intermittent alarm then check for the possible air which is trapped within the sprinkler system. Trapped air is to be bled off. Also intermittent alarm may occur due to sudden pressure drop or increase in the system pressure. These problems can be corrected by maintaining a steady supply.

CAUTION ⚠

1. The UL Listing, FM Approval and manufacturer's warranty are valid only when the alarm valve is installed with HD trim set and installed as per installation guidelines.
2. Pressure relief valve is required with wet pipe system when a rise in ambient temperature can cause system pressure to exceed beyond 17.5 kg/sq.cm (250 PSI). In that case, suitable pressure relief valve setting should be used.
3. For proper operation of the wet system and to minimize unwanted false alarm, it is important to remove trapped air from the system. Air trapped in the system may also cause intermittent operation of the Water Motor Alarm during sustained flow of water.

ALARM VALVE, MODEL – H SIZE 200 / 150 / 100 / 80 NB

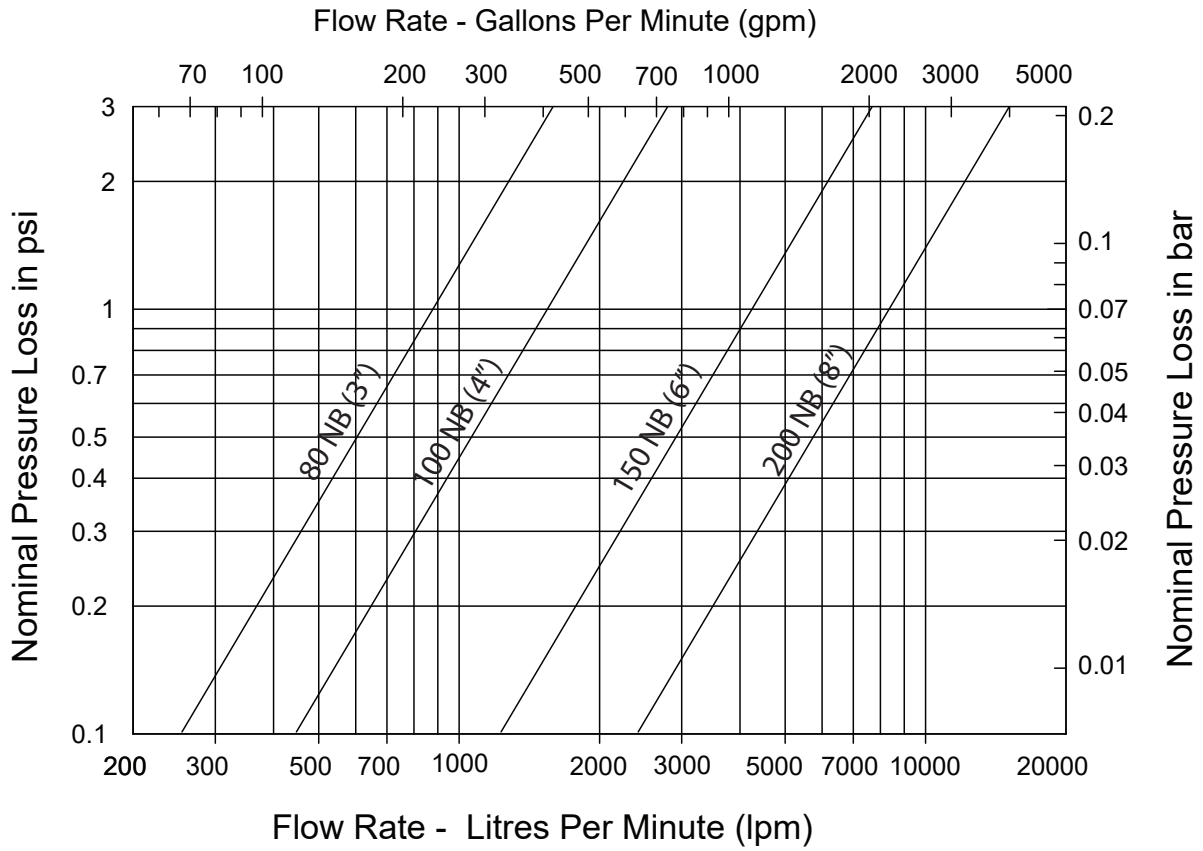


PART LIST

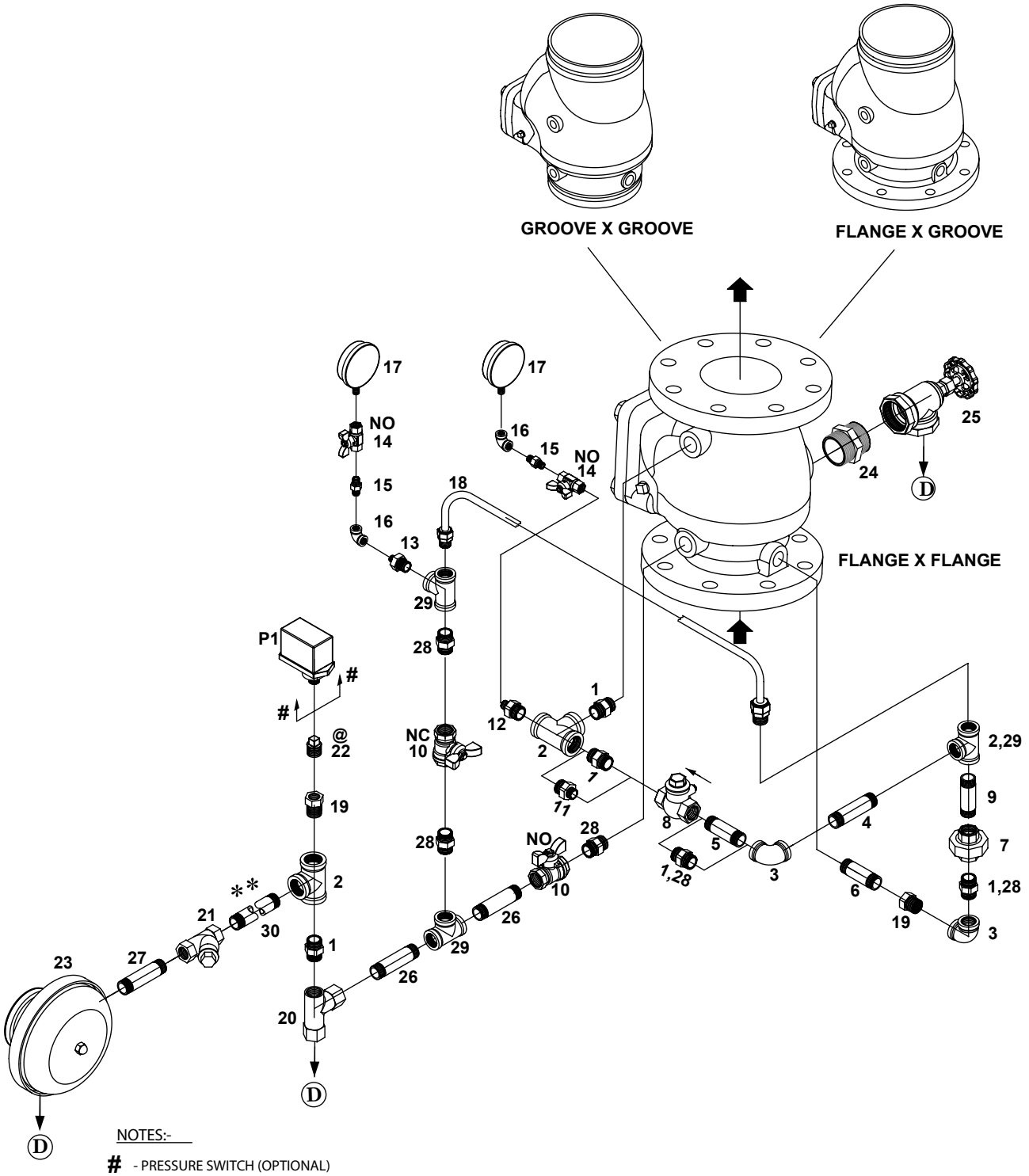
ITEM	PART NO.				DESCRIPTION	QTY.				MATERIAL SPECIFICATION
	200 NB	150 NB	100 NB	80 NB		200 NB	150 NB	100 NB	80 NB	
1	NA	NA	NA	NA	HOUSING (FLANGE X FLANGE)	1	1	1	1	DUCTILE IRON
1	NA	NA	NA	NA	HOUSING (FLANGE X GROOVE)	1	1	1	1	DUCTILE IRON
1	NA	NA	NA	NA	HOUSING (GROOVE X GROOVE)	1	1	1	1	DUCTILE IRON
2	NA	NA	NA	NA	SEAT	1	1	1	1	STAINLESS STEEL*
3	2600	2600	2600	2600	CLAPPER BUSH	2	2	2	2	BRASS
4	9102	9101	9101	9101	HEX. HEAD BOLT	4	1	1	1	STAINLESS STEEL
5	2636	2628	2619	2656	RUBBER CLAMP	1	1	1	1	STAINLESS STEEL
6	117769	117765	117761	117757	RUBBER SEAT	1	1	1	1	EPDM **
7	2634	2603	2617	2654	CLAPPER	1	1	1	1	DUCTILE IRON
8	2638	2608	2258	2658	HINGE PIN	1	1	1	1	STAINLESS STEEL
9	2599	2599	2599	2599	BODY BUSH	2	2	2	2	BRASS
10	9004	9004	9004	8373	HEX. HEAD BOLT	6	6	4	4	STEEL
11	9430	9430	9430	9430	SQ. HEAD PLUG	2	2	2	2	DUCTILE IRON
12	117767	117763	117759	117752	COVER GASKET	1	1	1	1	EPDM **
13	2631	2604	2615	2651	COVER	1	1	1	1	DUCTILE IRON

* Stainless Steel is a standard supply, Bronze is an optional supply
** EPDM is a standard supply, Neoprene is an optional supply
NA : Not Applicable as these parts cannot be replaced

Nominal Pressure Loss vs Flow - Alarm Valve (Model H)



CONSTANT PRESSURE TRIM FOR ALARM VALVE MODEL - H
200 / 150 / 100 / 80 NB



NOTES:-

\# - PRESSURE SWITCH (OPTIONAL)

@ - NOT SUPPLIED WHEN PRESSURE SWITCH IS ORDERED

Ⓓ - TO OPEN DRAIN

** - STANDARD LENGTH SUPPLY OR USER TO SPECIFY (TO SUIT AT SITE) FOR ANY ALTERATIONS .

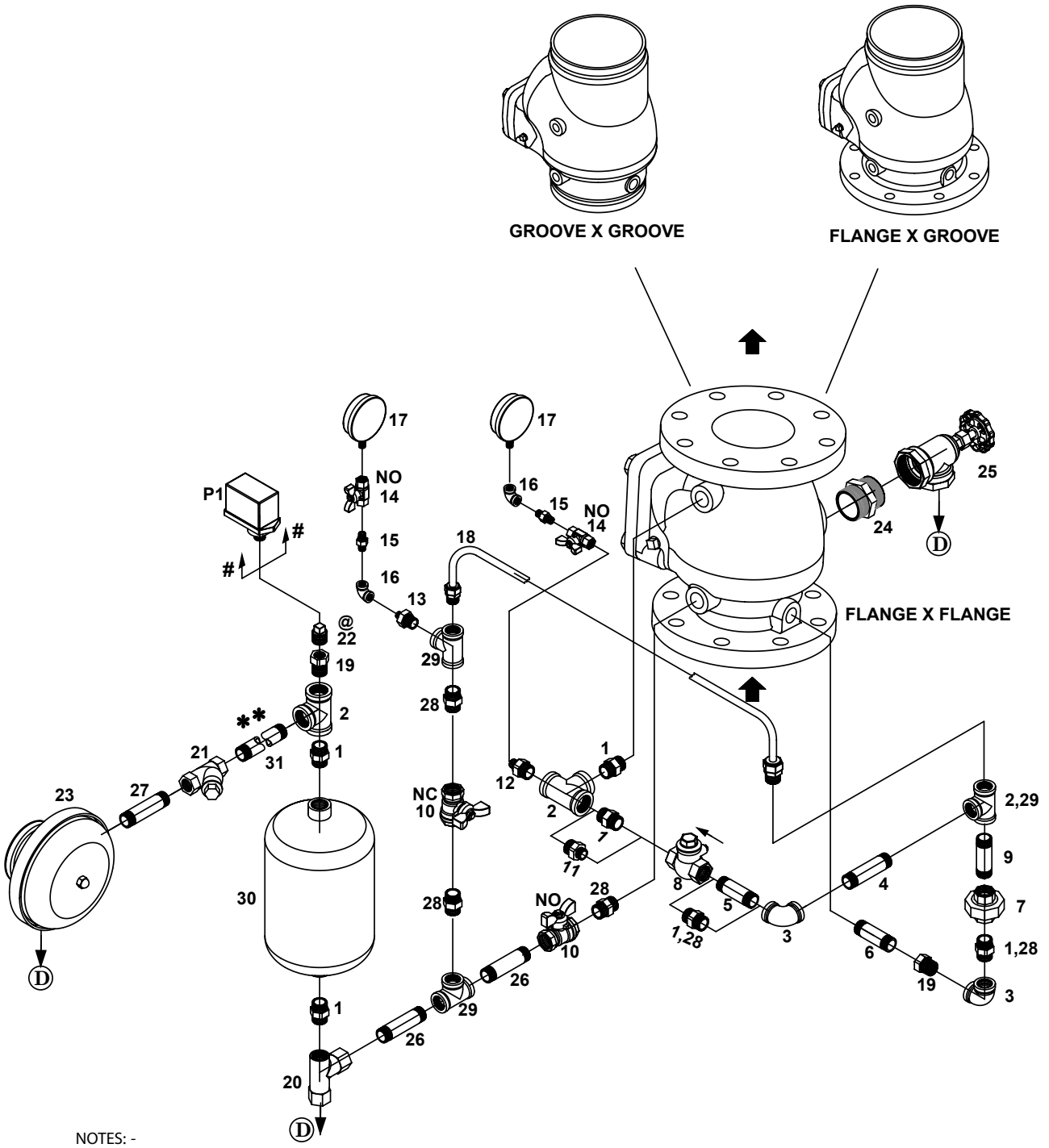
NO - NORMALLY OPEN

NC - NORMALLY CLOSED

CONSTANT PRESSURE TRIM FOR ALARM VALVE MODEL - H
200 / 150 / 100 / 80 NB

ITEM NO.	CODE NO.	DESCRIPTION	SIZE	QUANTITY PER ALARM VALVE SIZE			
				200NB	150NB	100NB	80NB
1	8625	HEX NIPPLE	3/4"	4	4	5	2
2	8620	TEE	3/4"	3	3	3	2
3	8617	ELBOW	3/4"	2	2	2	-
3	8616	ELBOW	1/2"	-	-	-	2
4	8951	PIPE NIPPLE	3/4" X 150 MM LONG	1	-	-	-
4	9407	PIPE NIPPLE	3/4" X 130 MM LONG	-	1	-	-
4	9406	PIPE NIPPLE	3/4" X 100 MM LONG	-	-	1	-
4	9397	PIPE NIPPLE	1/2" X 100 MM LONG	-	-	-	1
5	9406	PIPE NIPPLE	3/4" X 100 MM LONG	1	-	-	-
5	9441	PIPE NIPPLE	3/4" X 80 MM LONG	-	1	-	-
6	9397	PIPE NIPPLE	1/2" X 100 MM LONG	1	1	-	1
6	9480	PIPE NIPPLE	1/2" X 80 MM LONG	-	-	1	-
7	8628	UNION	3/4"	1	1	1	-
7	8627	UNION	1/2"	-	-	-	1
8	9421	SWING CHECK VALVE	3/4"	1	1	1	
8	9455	SWING CHECK VALVE	1/2"	-	-	-	1
9	8663	PIPE NIPPLE	3/4" X 70MM LONG	1	1	-	-
9	9426	PIPE NIPPLE	3/4" X 60MM LONG	-	-	1	-
9	9498	PIPE NIPPLE	1/2" X 75MM LONG	-	-	-	1
10	9423	BALL VALVE	1/2"	2	2	2	2
11	8633	REDUCING HEX NIPPLE	3/4" X 1/2"	-	-	-	1
12	8632	REDUCING HEX NIPPLE	3/4" X 1/4"	1	1	1	1
13	8631	REDUCING HEX NIPPLE	1/2" X 1/4"	1	1	1	1
14	9477	BALL VALVE	1/4"	2	2	2	2
15	8698	HEX NIPPLE	1/4"	2	2	2	2
16	8357	ELBOW	1/4"	2	2	2	2
17	114071	PRESSURE GUAGE	0-300 PSI, 'UL' LISTED	2	2	2	2
18	2301	ALARM TEST LINE ASSEMBLY	1/2"	-	-	-	1
18	2302	ALARM TEST LINE ASSEMBLY	1/2"	-	-	1	-
18	2303	ALARM TEST LINE ASSEMBLY	1/2"	-	1	-	-
18	2304	ALARM TEST LINE ASSEMBLY	1/2"	1	-	-	-
19	8355	REDUCING BUSH	3/4" X 1/2"	2	2	2	1
20	1027	RESTRICTION NOZZLE ASSEMBLY	-	1	1	1	1
21	117441	'Y' TYPE STRAINER	3/4"	1	1	1	1
22	8629	PLUG	1/2"	1	1	1	1
23	1416	SPRINKLER ALARM	-	1	1	1	1
24	8359	HEX NIPPLE	2"	1	1	1	-
24	8360	HEX NIPPLE	1-1/4"	-	-	-	1
25	9394	ANGLE VALVE	2"	1	1	1	-
25	9392	ANGLE VALVE	1-1/4"	-	-	-	1
26	9561	PIPE NIPPLE	1/2" X 60MM LONG	2	2	2	2
27	9441	PIPE NIPPLE	3/4" X 80MM LONG	1	1	1	1
28	8624	HEX NIPPLE	1/2"	3	3	3	5
29	8619	TEE	1/2"	2	2	2	3
30	9406	PIPE NIPPLE	3/4" X 100MM LONG	1	1	1	1
OPTIONAL							
P1	-	PRESSURE SWITCH	-	1	1	1	1

VARIABLE PRESSURE TRIM FOR ALARM VALVE MODEL - H
200 / 150 / 100 / 80 NB



NOTES: -

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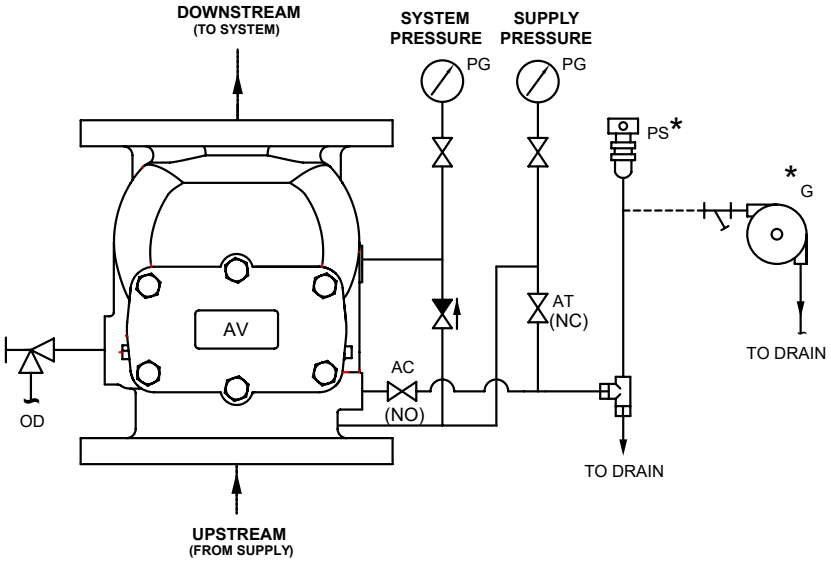
NO - NORMALLY OPEN

NC - NORMALLY CLOSED

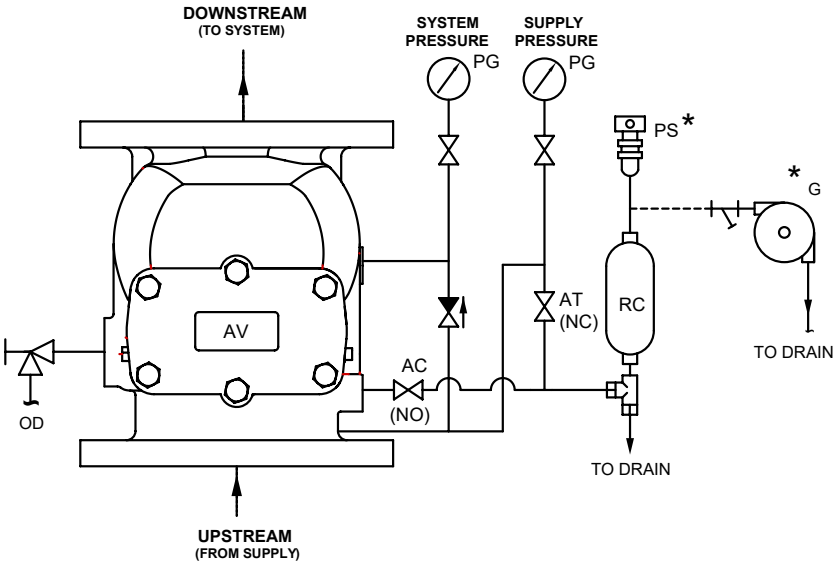
VARIABLE PRESSURE TRIM FOR ALARM VALVE MODEL - H
200 / 150 / 100 / 80 NB

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1	8625	HEX NIPPLE	3/4"	5	5	6	3
2	8620	TEE	3/4"	3	3	3	2
3	8617	ELBOW	3/4"	2	2	2	-
3	8616	ELBOW	1/2"	-	-	-	2
4	8951	PIPE NIPPLE	3/4" X 150 MM LONG	1	-	-	-
4	9407	PIPE NIPPLE	3/4" X 130 MM LONG	-	1	-	-
4	9406	PIPE NIPPLE	3/4" X 100 MM LONG	-	-	1	-
4	9397	PIPE NIPPLE	1/2" X 100 MM LONG	-	-	-	1
5	9406	PIPE NIPPLE	3/4" X 100 MM LONG	1	-	-	-
5	9441	PIPE NIPPLE	3/4" X 80 MM LONG	-	1	-	-
6	9397	PIPE NIPPLE	1/2" X 100 MM LONG	1	1	-	1
6	9480	PIPE NIPPLE	1/2" X 80 MM LONG	-	-	1	-
7	8628	UNION	3/4"	1	1	1	-
7	8627	UNION	1/2"	-	-	-	1
8	9421	SWING CHECK VALVE	3/4"	1	1	1	
8	9455	SWING CHECK VALVE	1/2"	-	-	-	1
9	8663	PIPE NIPPLE	3/4" X 70MM LONG	1	1	-	-
9	9426	PIPE NIPPLE	3/4" X 60MM LONG	-	-	1	-
9	9498	PIPE NIPPLE	1/2" X 75MM LONG	-	-	-	1
10	9423	BALL VALVE	1/2"	2	2	2	2
11	8633	REDUCING HEX NIPPLE	3/4" X 1/2"	-	-	-	1
12	8632	REDUCING HEX NIPPLE	3/4" X 1/4"	1	1	1	1
13	8631	REDUCING HEX NIPPLE	1/2" X 1/4"	1	1	1	1
14	9477	BALL VALVE	1/4"	2	2	2	2
15	8698	HEX NIPPLE	1/4"	2	2	2	2
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17	114071	PRESSURE GUAGE	0-300 PSI, 'UL' LISTED	2	2	2	2
18	2301	ALARM TEST LINE ASSEMBLY	1/2"	-	-	-	1
18	2302	ALARM TEST LINE ASSEMBLY	1/2"	-	-	1	-
18	2303	ALARM TEST LINE ASSEMBLY	1/2"	-	1	-	-
18	2304	ALARM TEST LINE ASSEMBLY	1/2"	1	-	-	-
19	8355	REDUCING BUSH	3/4" X 1/2"	2	2	2	1
20	1027	RESTRICTION NOZZLE ASSEMBLY	-	1	1	1	1
21	117441	'Y' TYPE STRAINER	3/4"	1	1	1	1
22	8629	PLUG	1/2"	1	1	1	1
23	1416	SPRINKLER ALARM	-	1	1	1	1
24	8359	HEX NIPPLE	2"	1	1	1	-
24	8360	HEX NIPPLE	1-1/4"	-	-	-	1
25	9394	ANGLE VALVE	2"	1	1	1	-
25	9392	ANGLE VALVE	1-1/4"	-	-	-	1
26	9561	PIPE NIPPLE	1/2" X 60MM LONG	2	2	2	2
27	9441	PIPE NIPPLE	3/4" X 80MM LONG	1	1	1	1
28	8624	HEX NIPPLE	1/2"	3	3	3	5
29	8619	TEE	1/2"	2	2	2	3
30	2300	RETARD CHAMBER	-	1	1	1	1
31	9406	PIPE NIPPLE	3/4" X 100MM LONG	1	1	1	1
OPTIONAL							
P1	-	PRESSURE SWITCH	-	1	1	1	1

CONSTANT PRESSURE TRIM - SCHEMATIC
ALARM VALVE MODEL - H FLANGE X FLANGE 200 / 150 / 100 / 80 NB



VARIABLE PRESSURE TRIM - SCHEMATIC
ALARM VALVE MODEL - H FLANGE X FLANGE 200 / 150 / 100 / 80 NB



ABBREVIATION & SYMBOLS

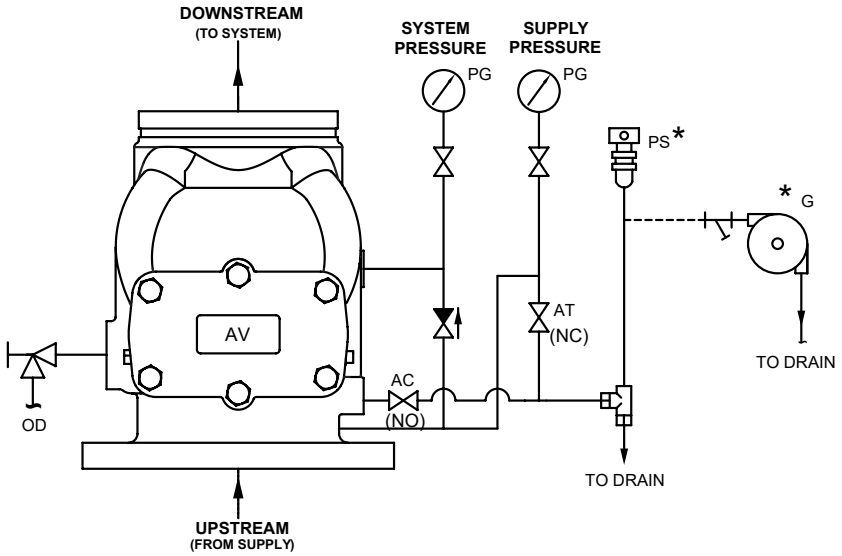
NON RETURN VALVE	NO - NORMALLY OPEN	PG - PRESSURE GUAGE
VALVE	NC - NORMALLY CLOSE	PS - PRESSURE SWITCH
ANGLE VALVE	OD - OPEN DRAIN	AC - SPRINKLER ALARM CONTROL VALVE
STRAINER	AV - ALARM VALVE	AT - SPRINKLER ALARM TEST VALVE
RESTRICTION NOZZLE ASSEMBLY	G - SPRINKLER ALARM	---- - BY USER (NOT IN 'HD' SCOPE OF SUPPLY)
* OPTIONAL	RC - RETARD CHAMBER	

NOTE :-

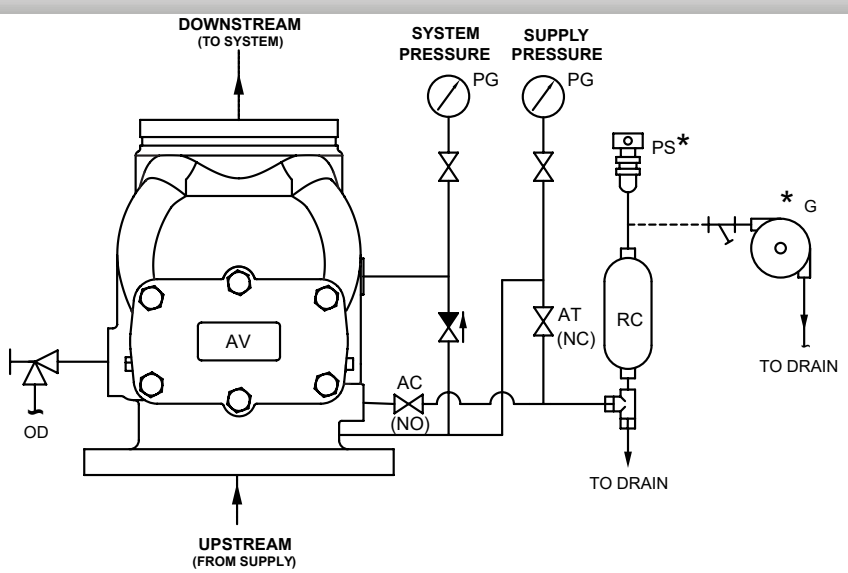
1) SPRINKLER ALARM CONTROL VALVE MUST BE KEPT NORMALLY OPEN.
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2) SPRINKLER ALARM TEST VALVE MUST BE KEPT NORMALLY CLOSED.
VALVE IS OPENED TO TEST THE SPRINKLER ALARM BELL /ELECTRIC ALARM.

CONSTANT PRESSURE TRIM - SCHEMATIC
ALARM VALVE MODEL - H FLANGE X GROOVE 200 / 150 / 100 / 80 NB



VARIABLE PRESSURE TRIM - SCHEMATIC
ALARM VALVE MODEL - H FLANGE X GROOVE 200 / 150 / 100 / 80 NB



ABBREVIATION & SYMBOLS

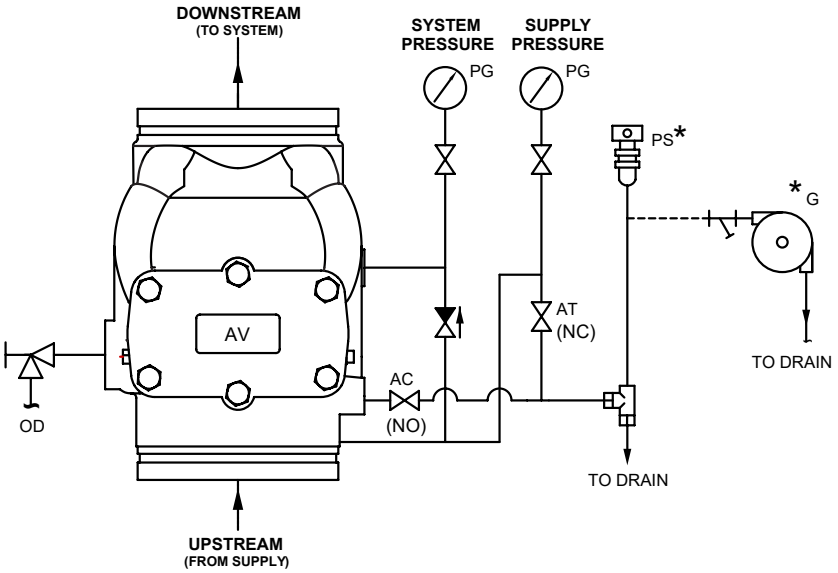
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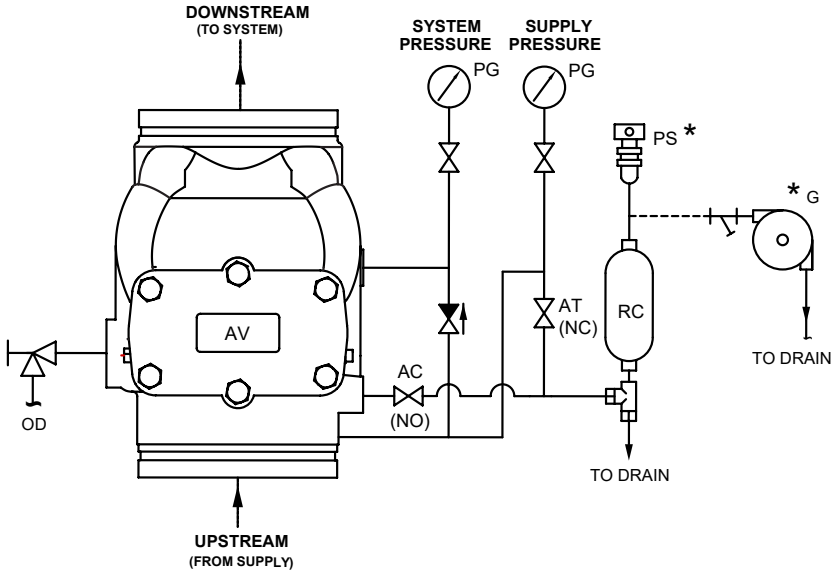
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ALARM VALVE MODEL - H GROOVE X GROOVE 200 / 150 / 100 / 80 NB



VARIABLE PRESSURE TRIM - SCHEMATIC
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ABBREVIATION & SYMBOLS

NON RETURN VALVE	NO -	NORMALLY OPEN	PG - PRESSURE GUAGE
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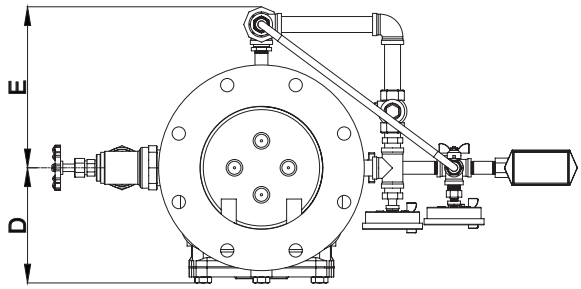
NOTE :-

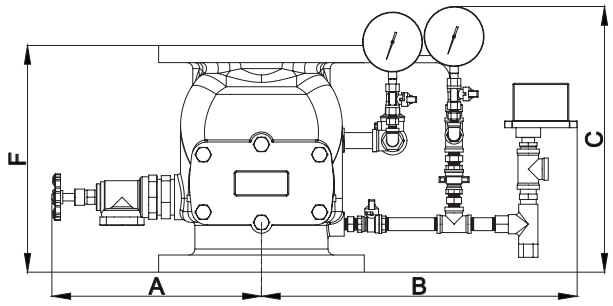
1) SPRINKLER ALARM CONTROL VALVE MUST BE KEPT NORMALLY OPEN.
IF THIS VALVE IS KEPT CLOSED, THE SPRINKLER ALARM BELL/ ELECTRIC ALARM WILL NOT SIGNAL.

2) SPRINKLER ALARM TEST VALVE MUST BE KEPT NORMALLY CLOSED.
VALVE IS OPENED TO TEST THE SPRINKLER ALARM BELL /ELECTRIC ALARM.

INSTALLATION DIMENSION WITH TRIM
ALARM VALVE MODEL - H FLANGE X FLANGE 200 / 150 / 100 / 80 NB

A) CONSTANT PRESSURE TRIM

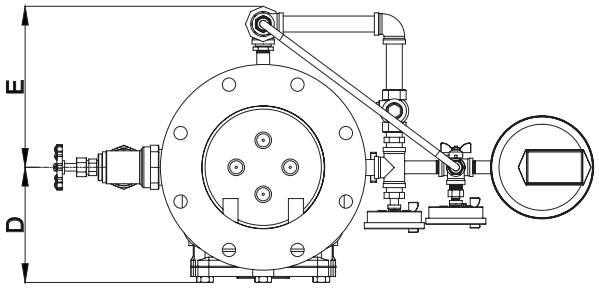


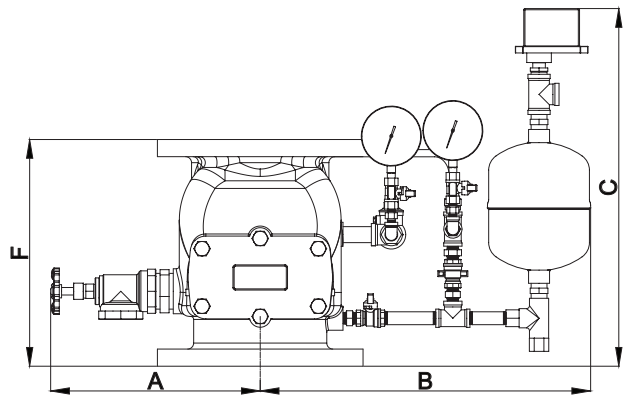


WITH CONSTANT PRESSURE TRIM				
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	434	434	434	443
D	127	140	173	192
E	201	219	234	269
F	262	274	315	378

DIMENSIONS are approx. and in millimeters

B) VARIABLE PRESSURE TRIM



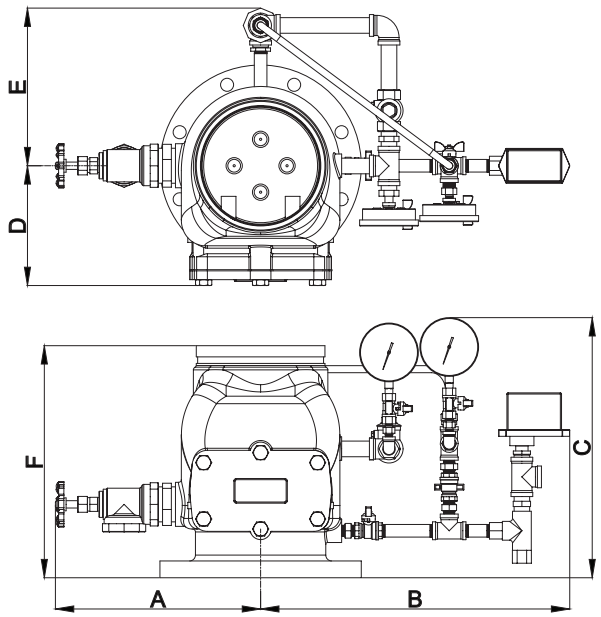


WITH VARIABLE PRESSURE TRIM				
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	482	488	510	551
C	588	588	588	597
D	127	140	173	192
E	201	219	234	269
F	262	274	315	378

DIMENSIONS are approx. and in millimeters

INSTALLATION DIMENSION WITH TRIM
ALARM VALVE MODEL - H FLANGE X GROOVE 200 / 150 / 100 / 80 NB

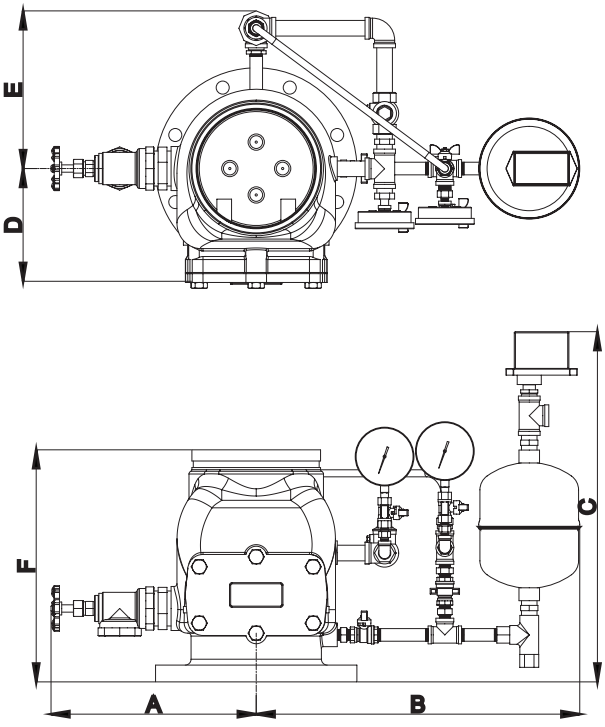
A) CONSTANT PRESSURE TRIM



WITH CONSTANT PRESSURE TRIM				
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	434	434	434	443
D	127	140	173	204
E	201	219	234	269
F	275	291.3	316.8	395.2

DIMENSIONS are approx. and in millimeters

B) VARIABLE PRESSURE TRIM

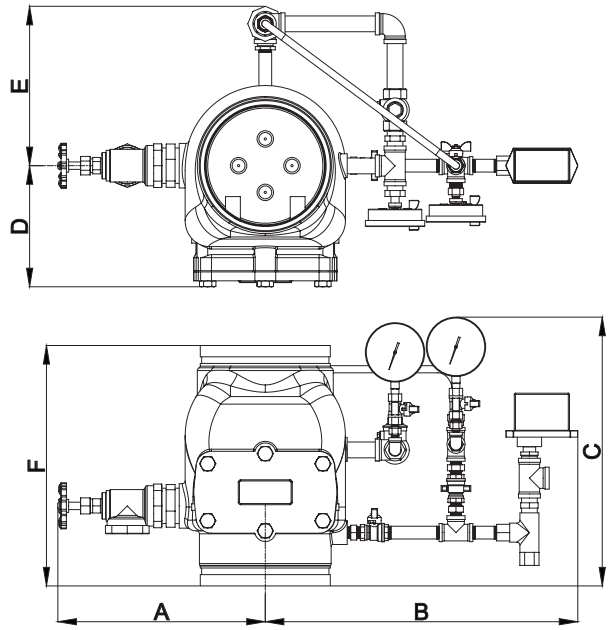


WITH VARIABLE PRESSURE TRIM				
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	482	488	510	551
C	588	588	588	597
D	127	140	173	204
E	201	219	234	269
F	275	291.3	316.8	395.2

DIMENSIONS are approx. and in millimeters

INSTALLATION DIMENSION WITH TRIM
ALARM VALVE MODEL - H GROOVE X GROOVE 200 / 150 / 100 / 80 NB

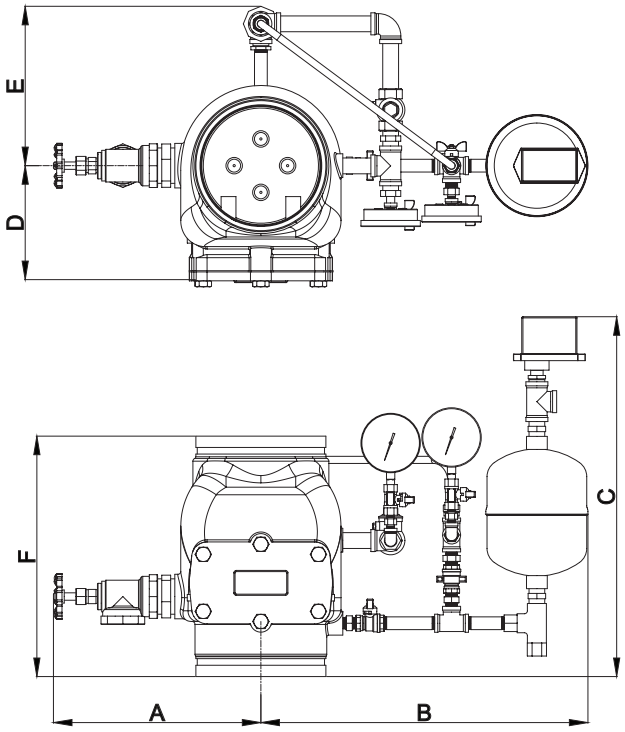
A) CONSTANT PRESSURE TRIM



WITH CONSTANT PRESSURE TRIM				
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	439	443	442	443
D	127	140	173	204
E	201	219	234	269
F	280	300	324	405

DIMENSIONS are approx. and in millimeters

B) VARIABLE PRESSURE TRIM



WITH VARIABLE PRESSURE TRIM				
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	482	488	510	551
C	593	596	596	607
D	127	140	173	204
E	201	219	234	269
F	280	300	324	405

DIMENSIONS are approx. and in millimeters

LIMITED WARRANTY

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Protecting What Matters Most to You

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