ALARM CHECK VALVE

MODEL: SFL-ACV

SIZES 3” TO 8”

GENERAL DESCRIPTION

Alarm Check 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 alarm, both electrical and mechanical.

KEY TECHNICAL FEATURES

Model SFL-ACV	Trim: Galvanised fitting with Brass Valves
End connection: Flange X Flange; Flange X Groove; Groove X Groove	Factory hydrostatic test pressure: 35Kg./Sq.Cm. (500PSI)
Nominal size: 3”, 4”, 6”, 8”	Frictional loss in terms of equivalent length of pipe (C-120): 200 NB - 7.50 Mtrs. 150 NB - 7 Mtrs. 100 NB - 6.1 Mtrs. 80 NB - 4.7 Mtrs.
Maximum service pressure: 17.5 Bar (250 PSI)*	Finish: Red RAL 3001
Threaded opening: BSPT	Approval: UL Listed & FM Approved
Mounting: Vertical	Ordering information: Specify size of valve, trim details, valve flange drilling specification, grooved valve pipe outside diameter.
Flange connection: ANSI B16.42 #150 (Flange drilling matching to ANSI B 16.5#150) standard supply. Optional: ISO 7005-1 PN16. DIN 2501 PART-1 PN16. EN 1092-1 PN16	Reference: NFPA 13 and NFPA 25

* For 8”, FM approval is rated upto 200 PSI (14 Bar)

ALARM CHECK VALVE
MODEL: SFL-ACV

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. 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 requirement with regard to time-toalarm. 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.

WEIGHT IN KG

VALVE SIZE	FLANGE X FLANGE	FLANGE X GLOOVE	GLOOVE X GLOOVE
8”	65	54.0	44.0
6”	42	35.8	28.0
4”	27	22.1	17.30
3”	18	15.0	12.10

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” (150 NB)	219.1

NOTE: FOR 6” (150 NB) STANDARD SUPPLY IS 168.3 MM OD PIPE GROOVE. FOR 165.1MM SPECIFY IN ORDER

INSTALLATION

1. SANFLO Alarm Valve, Model SFL-ACV must be installed vertically.
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 appropriate 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 cycle open and shut. This may result in false alarm or an intermittent alarm. To avoid these, it is recommended to have breather valve in the system piping network and 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 the 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 actuate. 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.

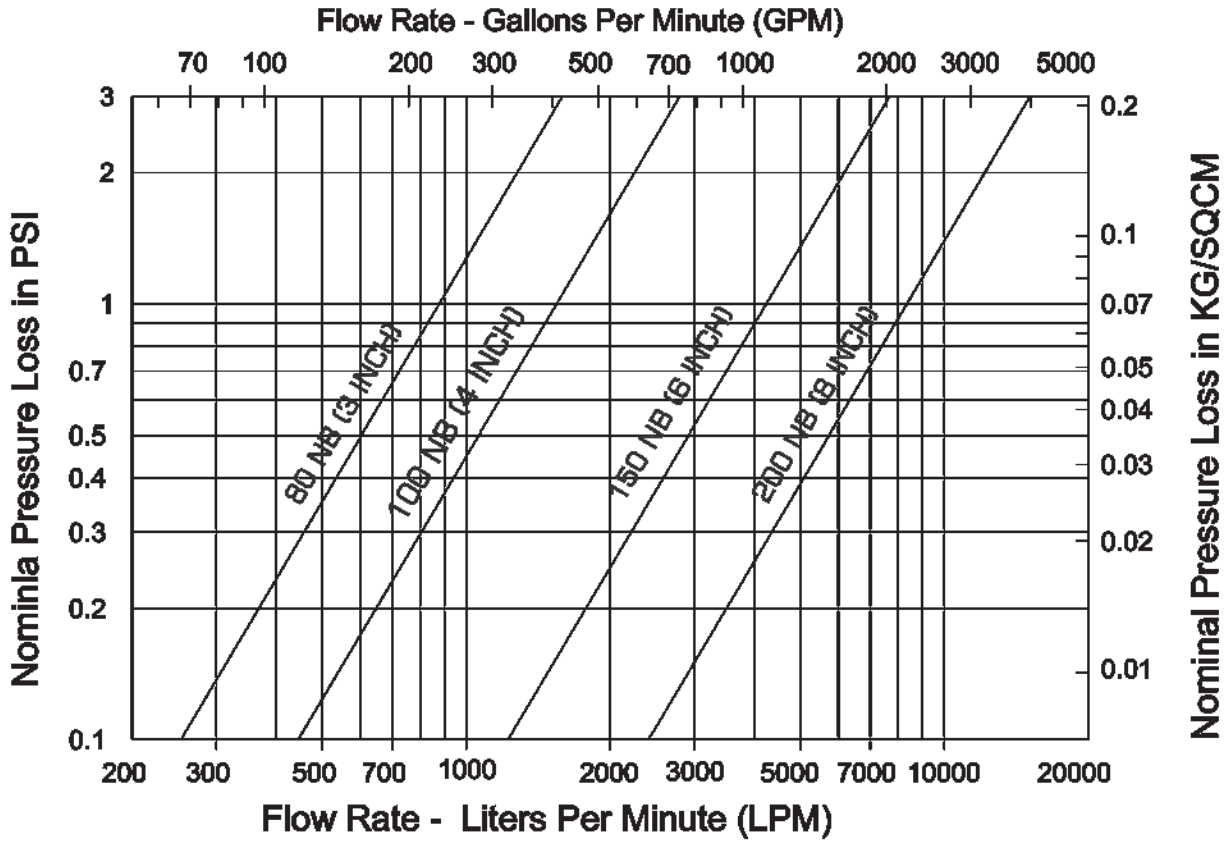
FALSE ALARM

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 guideline 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 the intermittent alarm may occur due to sudden pressure drop and increase in the system. 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 SANFLO 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 17.5 Bar (250 PSI). A 17.7 Bar 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. The air trapped in the system may also cause intermittent operation of the Water Motor Alarm during sustained flow of water.

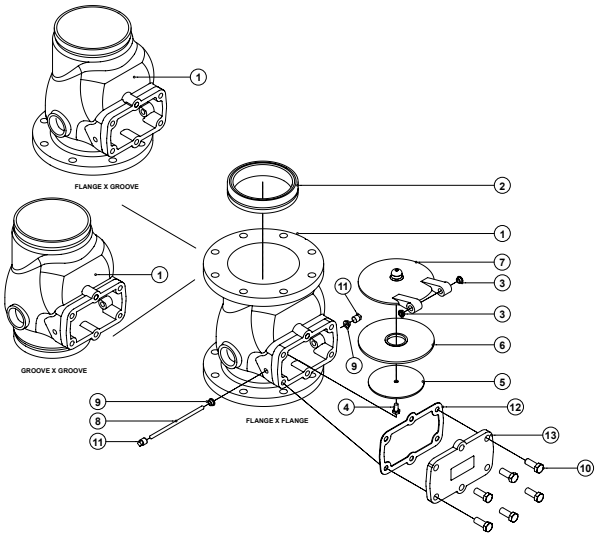
NOMINAL PRESSURE LOSS VS FLOW - ALARM VALVE (MODEL SFL-ACV)



ALARM CHECK VALVE

MODEL: SFL-ACV

ALARM VALVE, MODEL SFL-ACV SIZE 200 / 150 / 100 / 80 NB

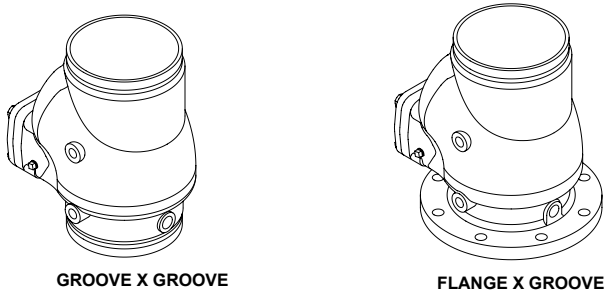


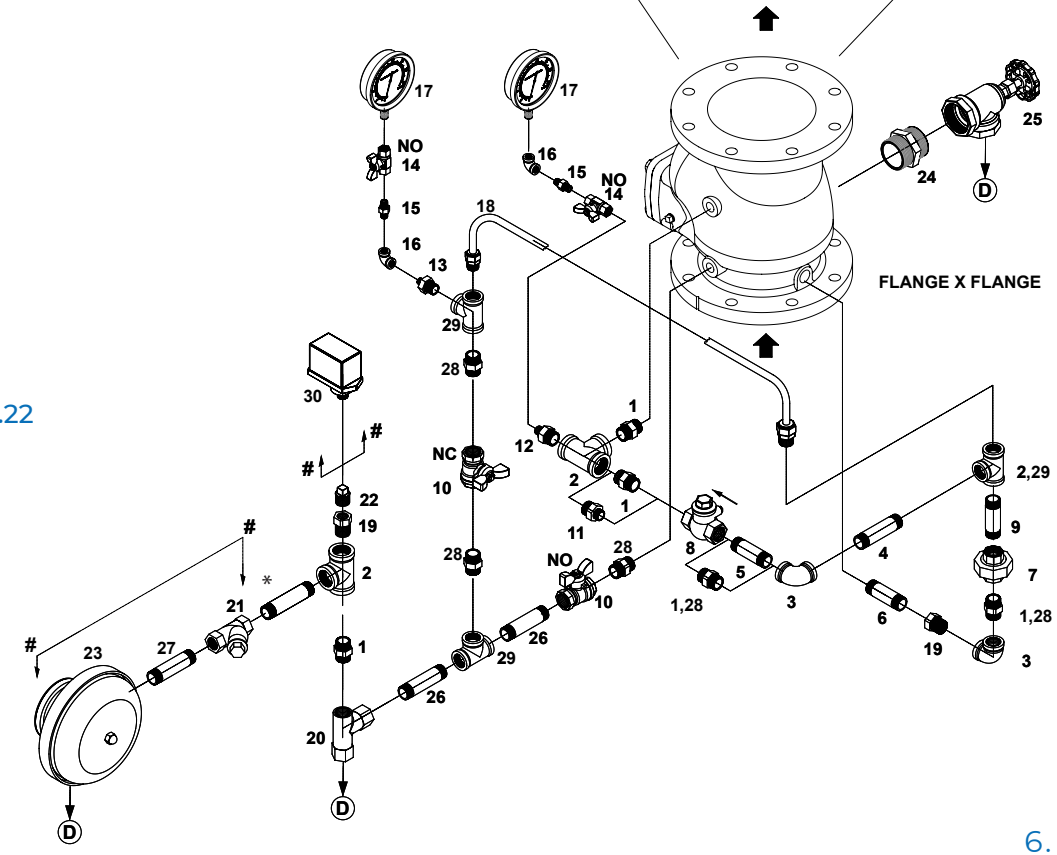
ITEM	PART NO.				DESCRIPTION	QTY.				MATERIAL SPECIFICATION
	200 NB	150 NB	100 NB	80 NB		200 NB	150 NB	100 NB	80 NB	
1	NA	NA	NA	NA	HOUSING (FLANGE X FLANGE)	1	1	1	1	DUCTILE IRON
1	2478	2471	2469	2468	HOUSING (FLANGE X GROOVE)	1	1	1	1	DUCTILE IRON
1	2485	2482	2480	2479	HOUSING (GROOVE X GROOVE)	1	1	1	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	2635	2606	2618	2655	RUBBER SEAT	1	1	1	1	EPDM**
7	2634	2603	2617	2654	CLAPPER	1	1	1	1	DUCTILE IRON
8	2638	2608	2658	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	2637	2611	2620	2657	COVER GASKET	1	1	1	1	EPDM**
13	2631	2604	2615	2651	COVER	1	1	1	1	DUCTILE IRON

ALARM CHECK VALVE

MODEL: SFL-ACV

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





NOTES:

- **#** Optional Trim Ordered seperately
- **Ⓓ** Drain
- ***** To suit at site by installer
- **NO** Normally open
- **NC** Normally closed

WHEN PRESSURE SWITCH IS SUPPLIED THEN SL.NO.22
PLUG NOT REQUIRED.

SANFLO®

ALARM CHECK VALVE

MODEL: SFL-ACV

CONSTANT PRESSURE TRIM FOR ALARM VALVE MODEL SFL-ACV (200 / 150 / 100 / 80 NB)

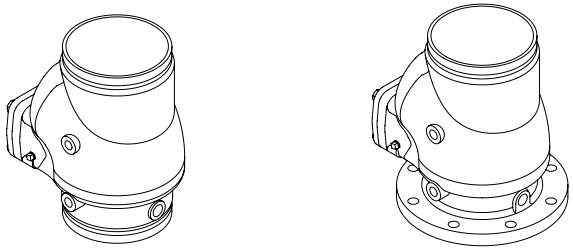
ITEM No.	CODE No.	DESCRIPTION	SIZE	QTY. PER ALARM VALVE SIZE			
				200 NB	150 NB	100 NB	80 NB
1	8625	HEX NIPPLE	3/4"	4	4	5	2
2	8620	TEE	3/4"	3	3	3	2
3	8617	ELBOW	3/4"	2	2	2	-
3	8616	ELBOW	1/2"	-	-	-	2
4	8951	PIPE NIPPLE	3/4" X 150 MM LONG	1	-	-	-
4	9407	PIPE NIPPLE	3/4" X 130 MM LONG	-	1	-	-
4	9406	PIPE NIPPLE	1/2" X 100 MM LONG	-	-	1	-
4	9397	PIPE NIPPLE	3/4" 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
6	9480	PIPE NIPPLE	1/2" X 80 MM LONG	-	1	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	9893	PIPE NIPPLE	1/2" X 70MM LONG	-	-	-	1
10	9423	BALL VALVE	1/2"	2	2	2	2
11	8633	HEX NIPPLE	3/4" X 1/2"	-	-	-	1
12	8632	ELBOW	3/4" X 1/4"	1	1	1	1
13	8631	PRESSURE GUAGE	1/2" X 1/4"	1	1	1	1
14	9477	ALARM TEST LINE ASSEMBLY	1/4"	2	2	2	2
15	8698	ALARM TEST LINE ASSEMBLY	1/4"	2	2	2	2

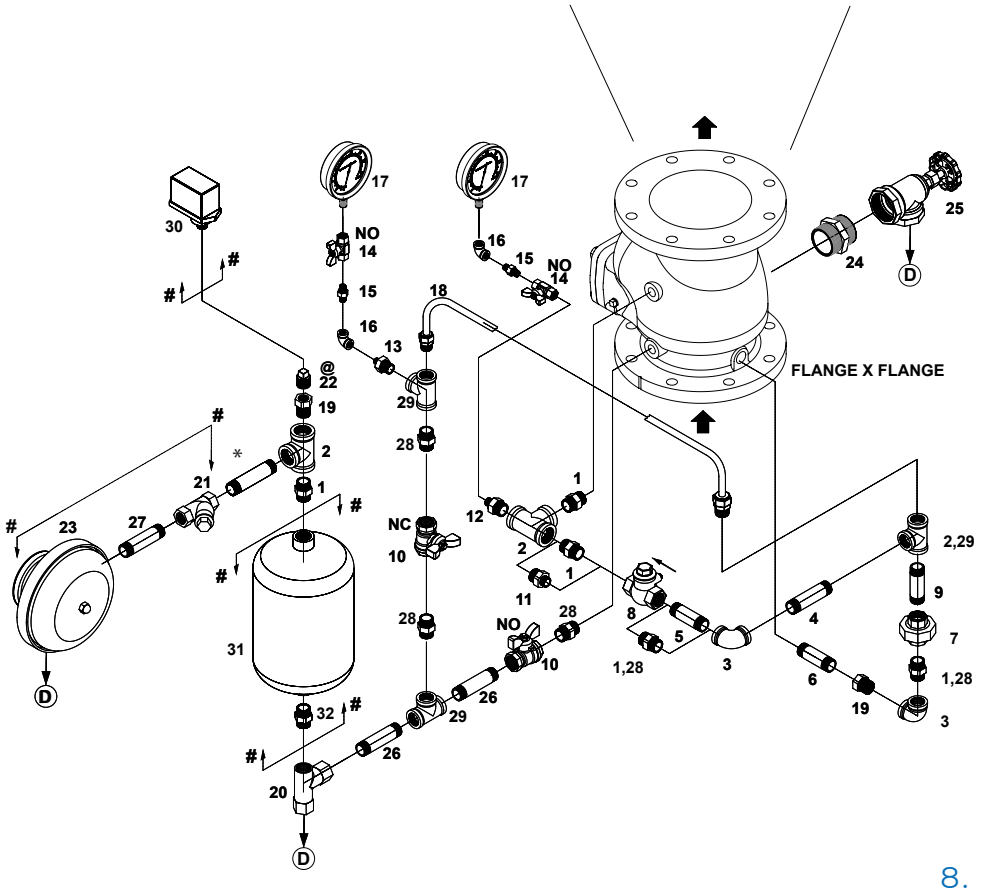
ITEM No.	CODE No.	DESCRIPTION	SIZE	QTY. PER ALARM VALVE SIZE			
				200 NB	150 NB	100 NB	80 NB
16	8357	ELBOW	1/4"	2	2	2	2
17	9526	PRESSURE GUAGE	1/4"	2	2	2	2
18	2301	ALARM TEST LINE ASSEMBLY	1/2"	-	-	-	1
18	2302	ALARM TEST LINE ASSEMBLY	1/2"	-	-	1	-
18	2303	ALARM TEST LINE ASSEMBLY	1/2"	-	1	-	-
18	2304	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	'HD' MAKE	1	1	1	1
21	9382	'Y' TYPE STRAINER	3/4"	1	1	1	1
22	8629	PLUG	1/2"	1	1	1	1
23	1416	SPRINKLER ALARM	TYPE 'A'	1	1	1	1
23	1417	SPRINKLER ALARM	TYPE 'B'	1	1	1	1
24	8359	HEC NIPPLE	2"	1	1	1	-
24	8360	HEC 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	-	PRESSURE SWITCH (OPTIONAL)	1/2" END CONNECTION	1	1	1	1

ALARM CHECK VALVE

MODEL: SFL-ACV

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





NOTES:

- **#** Optional Trim Ordered seperately
- Ⓓ Drain
- ***** To suit at site by installer
- **NO** Normally open
- **NC** Normally closed

WHEN PRESSURE SWITCH IS SUPPLIED THEN SL.NO.22 PLUG NOT REQUIRED.

SANFLO®

ALARM CHECK VALVE

MODEL: SFL-ACV

CONSTANT PRESSURE TRIM FOR ALARM VALVE MODEL SFL-ACV (200 / 150 / 100 / 80 NB)

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3	8616	ELBOW	1/2"	-	-	-	2
4	8951	PIPE NIPPLE	3/4" X 150 MM LONG	1	-	-	-
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4	9406	PIPE NIPPLE	1/2" X 100 MM LONG	-	-	1	-
4	9397	PIPE NIPPLE	3/4" X 100 MM LONG	-	-	-	1
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6	9397	PIPE NIPPLE	1/2" X 100 MM LONG	1	-	-	1
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9	8663	PIPE NIPPLE	3/4" X 70MM LONG	1	1	-	-
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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
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19	8355	REDUCING BUSH	3/4" X 1/2"	2	2	2	1
20	1027	RESTRICTION NOZZLE ASSEMBLY	´HD´ MAKE	1	1	1	1
21	9382	´Y´TYPE STRAINER	3/4"	1	1	1	1
22	8629	PLUG	1/2"	1	1	1	1
23	1416	SPRINKLER ALARM	TYPE ´A´	1	1	1	1
23	1417	SPRINKLER ALARM	TYPE ´B´	1	1	1	1
24	8359	HEX NIPPLE	2"	1	1	1	-
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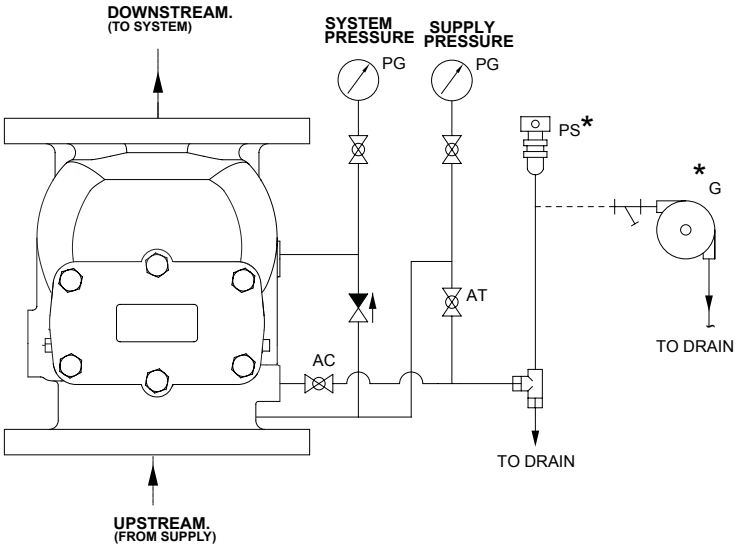
29	8619	TEE	1/2"	2	2	2	3
30	-	PRESSURE SWITCH (OPTIONAL)	1/2" END CONNECTION	1	1	1	1
31	2300	RETARD CHAMBER, MODEL - RC9	´HD´ MAKE	1	1	1	1
32	8625	HEX NIPPLE	3/4'	1	1	1	1

ALARM CHECK VALVE
MODEL: SFL-ACV

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



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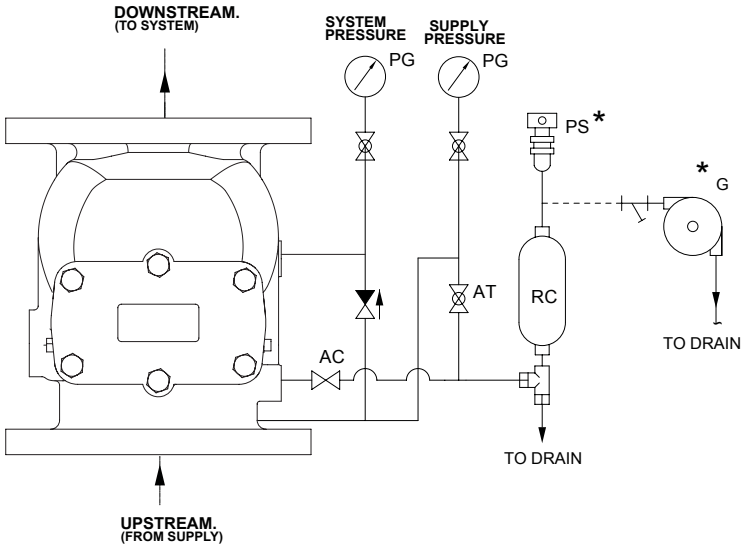


NOTES:

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.

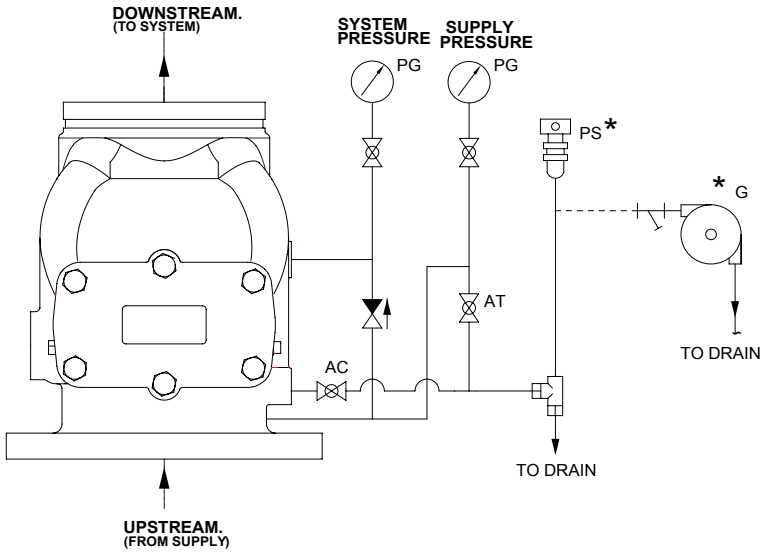
2) Sprinkler alarm test valve must be kept normally closed condition. Valve is opened to test the sprinkler alarm bell / electric alarm.

ABBREVIATION & SYMBOLS

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

ALARM CHECK VALVE
MODEL: SFL-ACV

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



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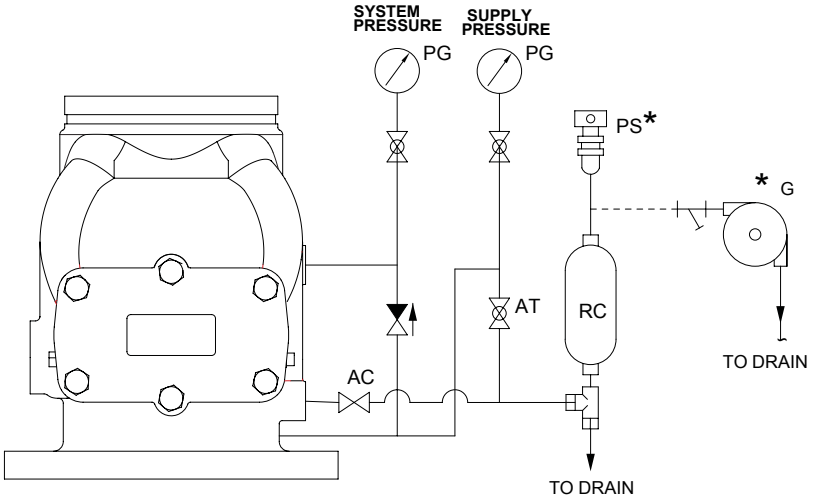

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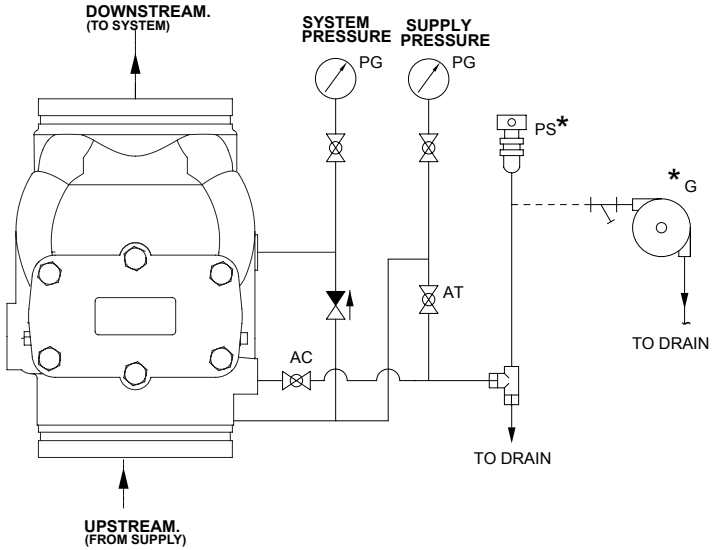
ALARM CHECK VALVE

MODEL: SFL-ACV

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



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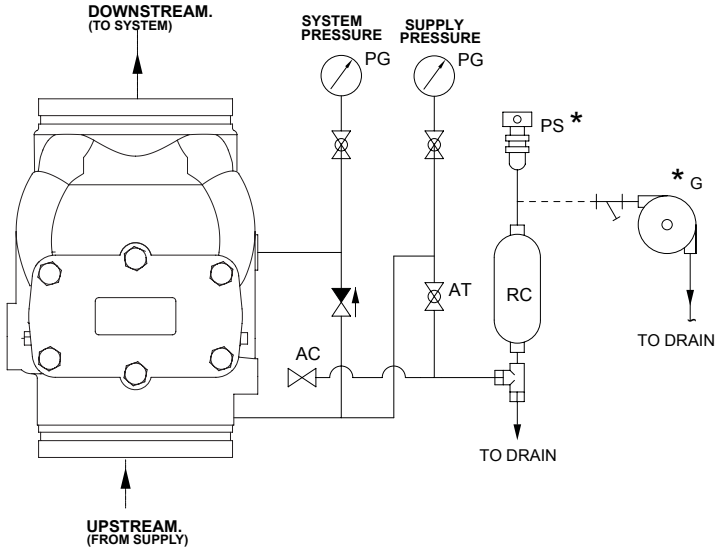

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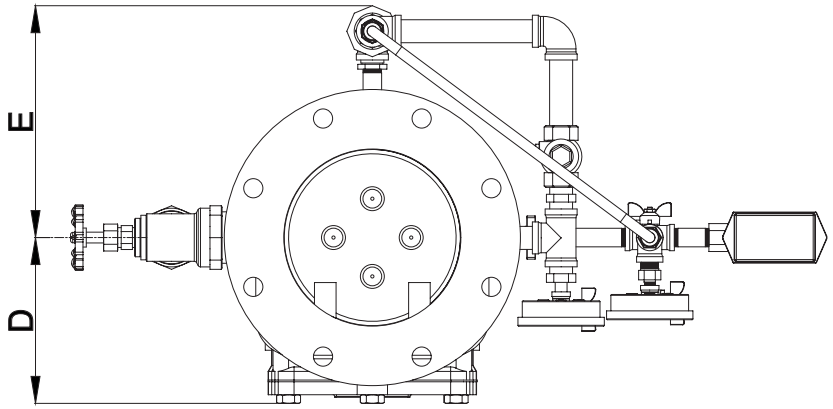
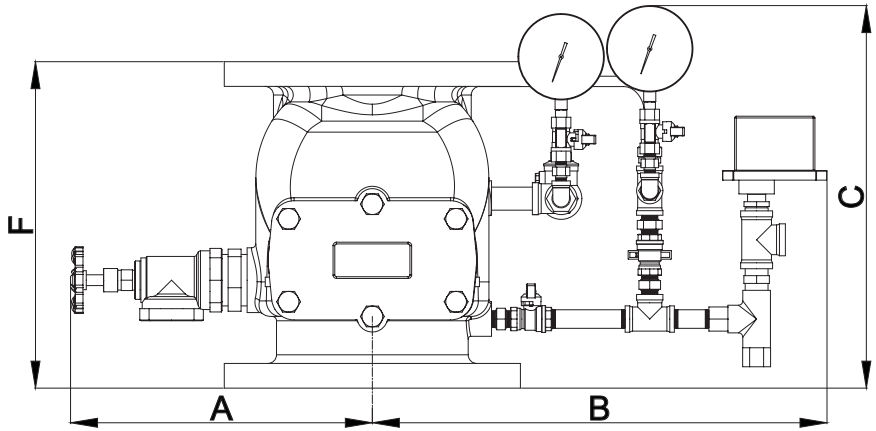
ABBREVIATION & SYMBOLS

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

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

A) CONSTANT PRESSURE TRIM





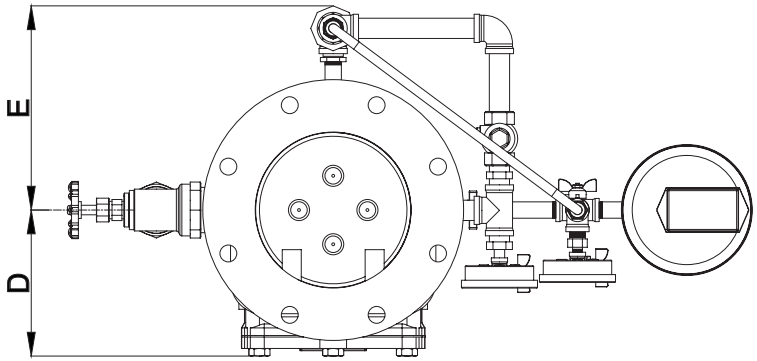
WITH CONSTANT PRESSURE TRIM

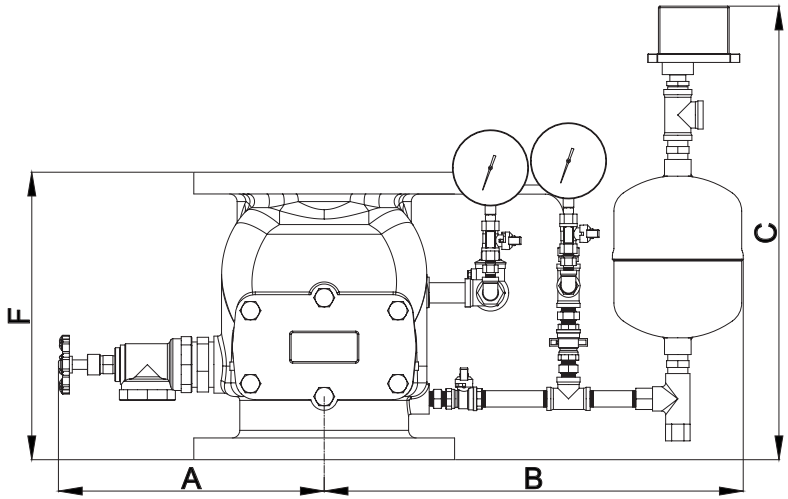
SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	434	434	434	443
D	127	140	173	192
E	201	219	234	269
F	262	274	315	378

DIMENTIONS are approx. and in millimeters

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

B) VARIABLE PRESSURE TRIM





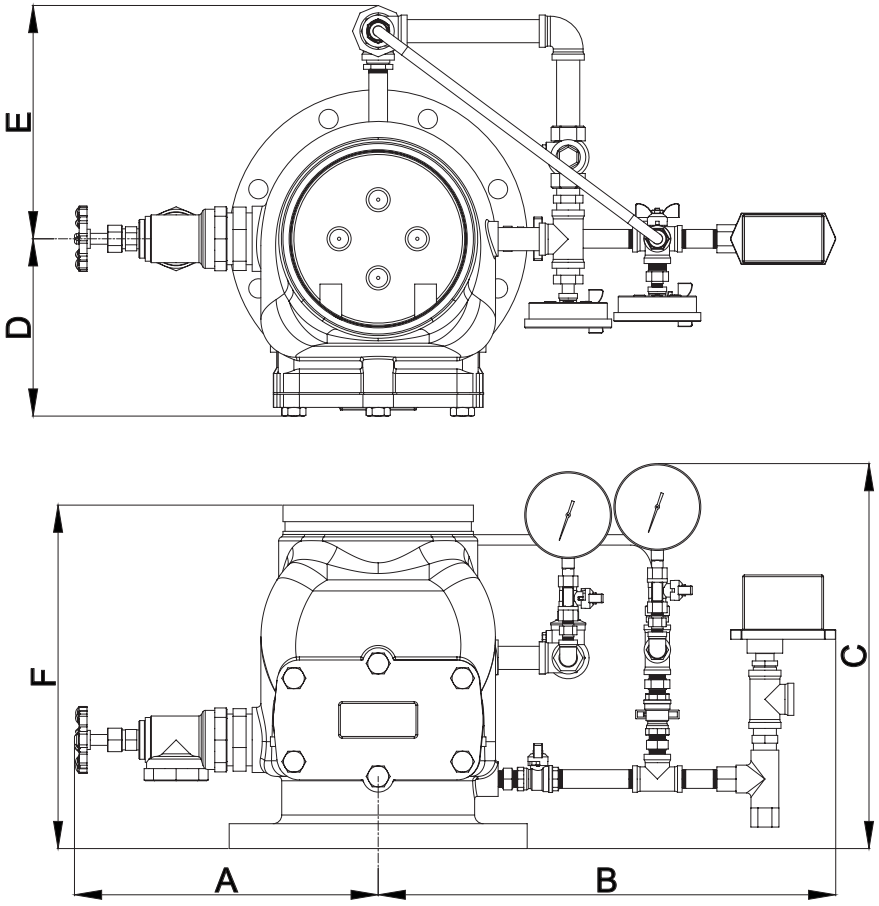
WITH VARIABLE PRESSURE TRIM

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

DIMENTIONS are approx. and in millimeters

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

A) CONSTANT PRESSURE TRIM



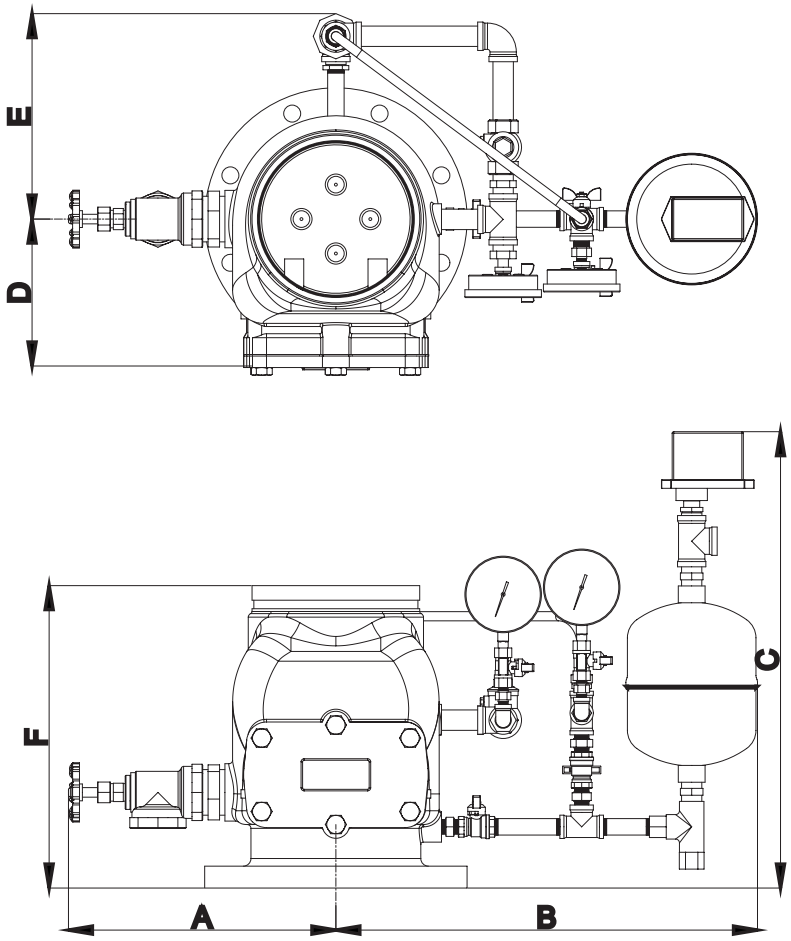
WITH CONSTANT PRESSURE TRIM

SIZE	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	434	434	434	443
D	127	140	173	192
E	201	219	234	269
F	275	291.3	316.8	395.2

DIMENTIONS are approx. and in millimeters

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

B) VARIABLE PRESSURE TRIM



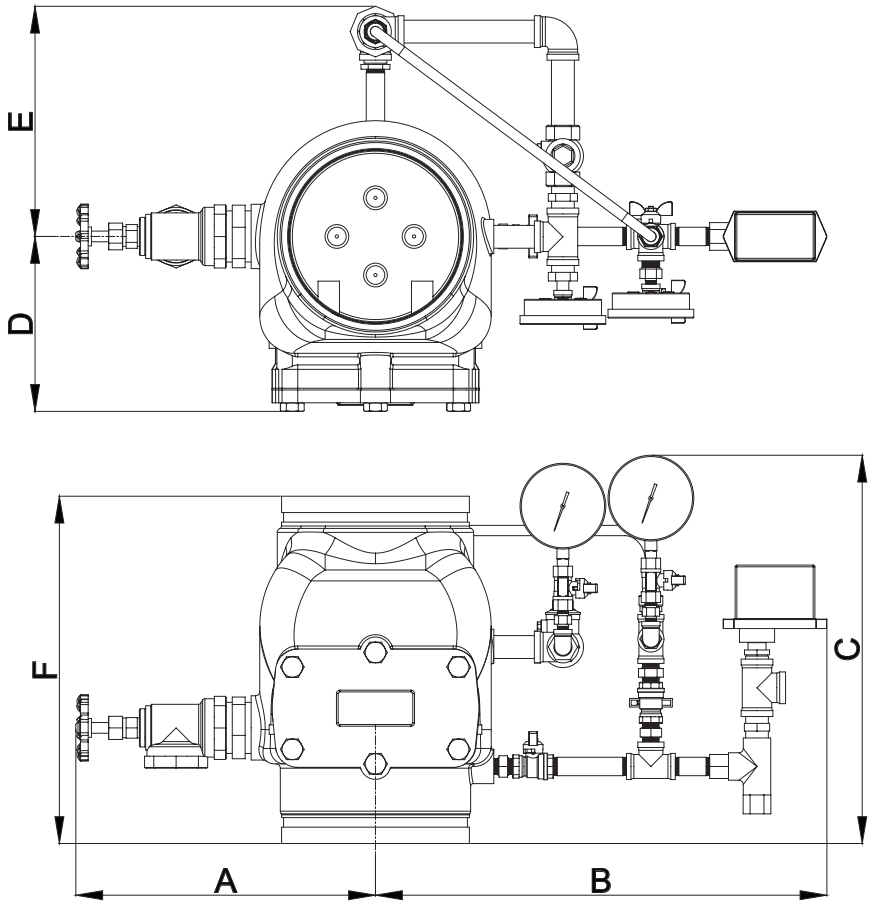
WITH VARIABLE PRESSURE TRIM

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	275	291.3	316.8	395.2

DIMENTIONS are approx. and in millimeters

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

A) CONSTANT PRESSURE TRIM

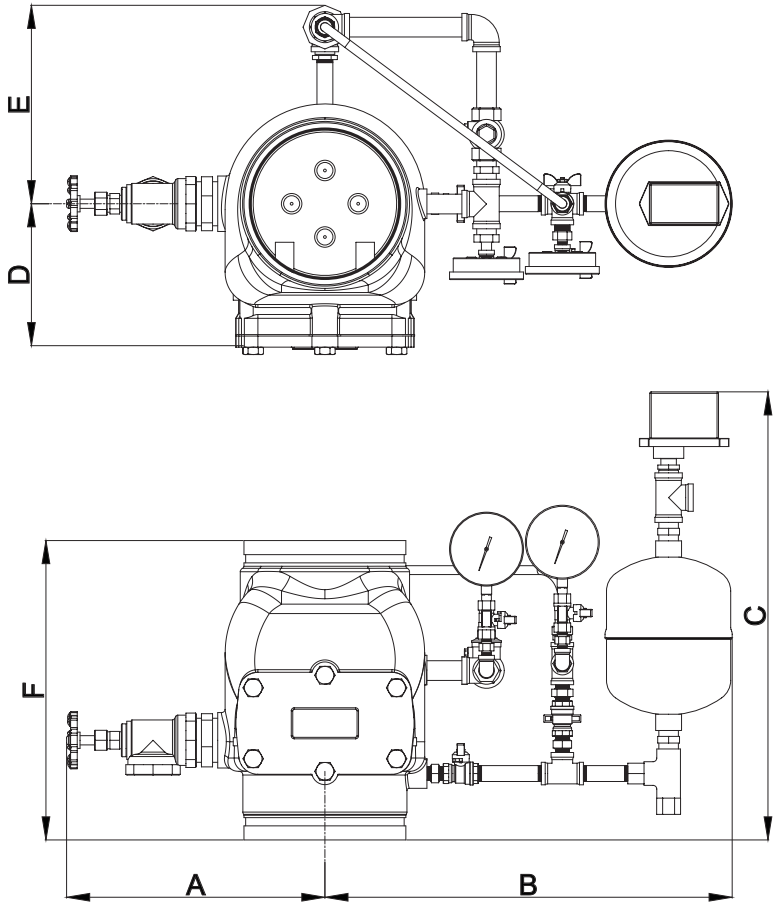


WITH CONSTANT PRESSURE TRIM

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

DIMENTIONS are approx. and in millimeters

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

DIMENTIONS are approx. and in millimeters