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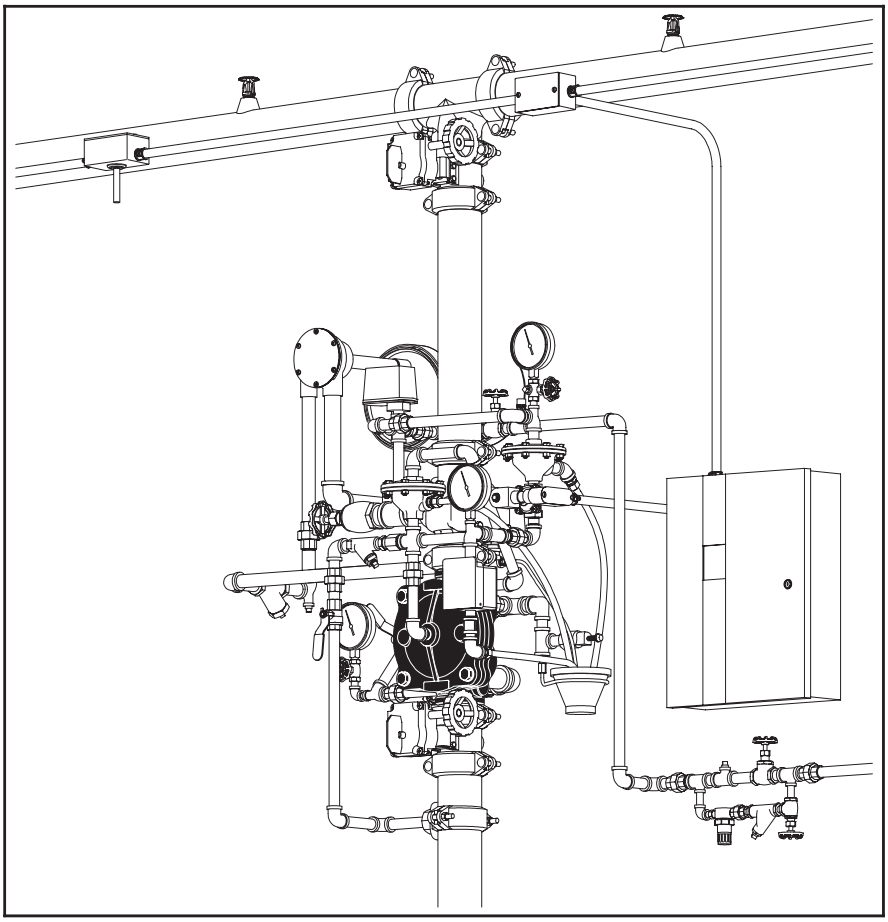
Preaction System with Model DV-5 Deluge Valve Double Interlock — Electric/Pneumatic Actuation 1-1/2 thru 8 Inch (DN40 and DN200)

General Description



The Model DV-5 Double Interlock Preaction System with Electric/Pneumatic Actuation (Fig. 1) is designed for use in applications, such as refrigerated areas, requiring the maximum degree of protection against inadvertent flooding of the sprinkler system piping.

The Model DV-5 Double Interlock Preaction System with Electric/Pneumatic Actuation utilizes a Model DV-5 Deluge Valve and a Riser Check Valve. The Riser Check Valve (that does not require the use of priming water) isolates the Deluge Valve from the system air pressure. The releasing trim for the Deluge Valve utilizes a Solenoid Valve and a Dry Pilot Actuator in a series configuration. The system air pressure holds the Dry Plot Actuator closed, whereas the Solenoid Valve remains closed until it is electrically energized by a Deluge Valve Releasing Panel (automatic control unit). The Releasing Panel is operated by either a fire detection device or manual electric pull station.

In order for the Double Interlock Preaction System to automatically actuate, two independent events must occur. The deluge valve releasing panel must operate and open the Solenoid Valve upon automatic operation of the electric fire detection initiating circuit or manual operation of the electric-manual pull initiating circuit, and the sprinkler system piping must lose air pressure due to operation of one or more sprinklers.

The Double Interlock Preaction System will automatically actuate only when both the Dry Pilot Actuator and the Solenoid Valve are open at the same time. Accidental opening of just the Dry Pilot Actuator (for example: a lift truck accidentally dislodges a sprinkler), or just energizing the Solenoid Valve (for example: an accidental operation of an electric pull station), will only cause an alarm, and will not actuate the system or flood the sprinkler system piping.

The Model DV-5 Deluge Valve (described in Technical Data Sheet TFP1305) is a diaphragm style valve that depends upon water pressure in the Diaphragm Chamber to hold the Diaphragm closed against the water supply pressure. When the DV-5 Valve is set for service, the Diaphragm Chamber is pressurized through the trim connections from the inlet side of the system's main control valve, for example an O.S.&Y. gate valve or butterfly valve (Fig. 1).

Operation of the Solenoid Valve and Dry Pilot Actuator at the same time releases water from the Diaphragm Chamber faster than it can be replenished through the 1/8 inch (3,2 mm) Priming Supply Restriction (Item 7 - Fig. 2A) in the diaphragm supply connections. This results in a rapid pressure drop in the Diaphragm Chamber below the valve trip point. The water supply pressure then forces the Diaphragm open permitting water to flow

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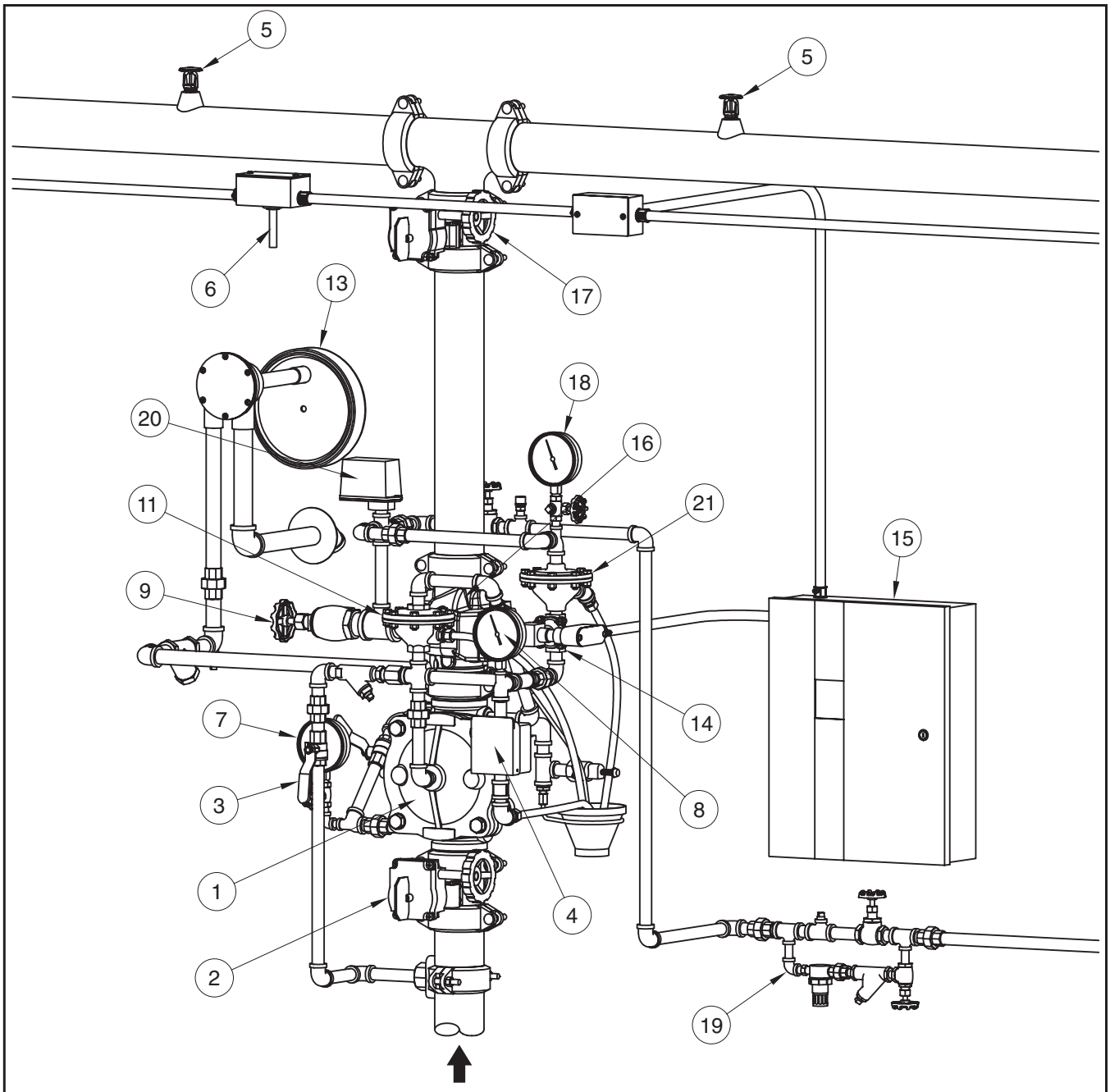
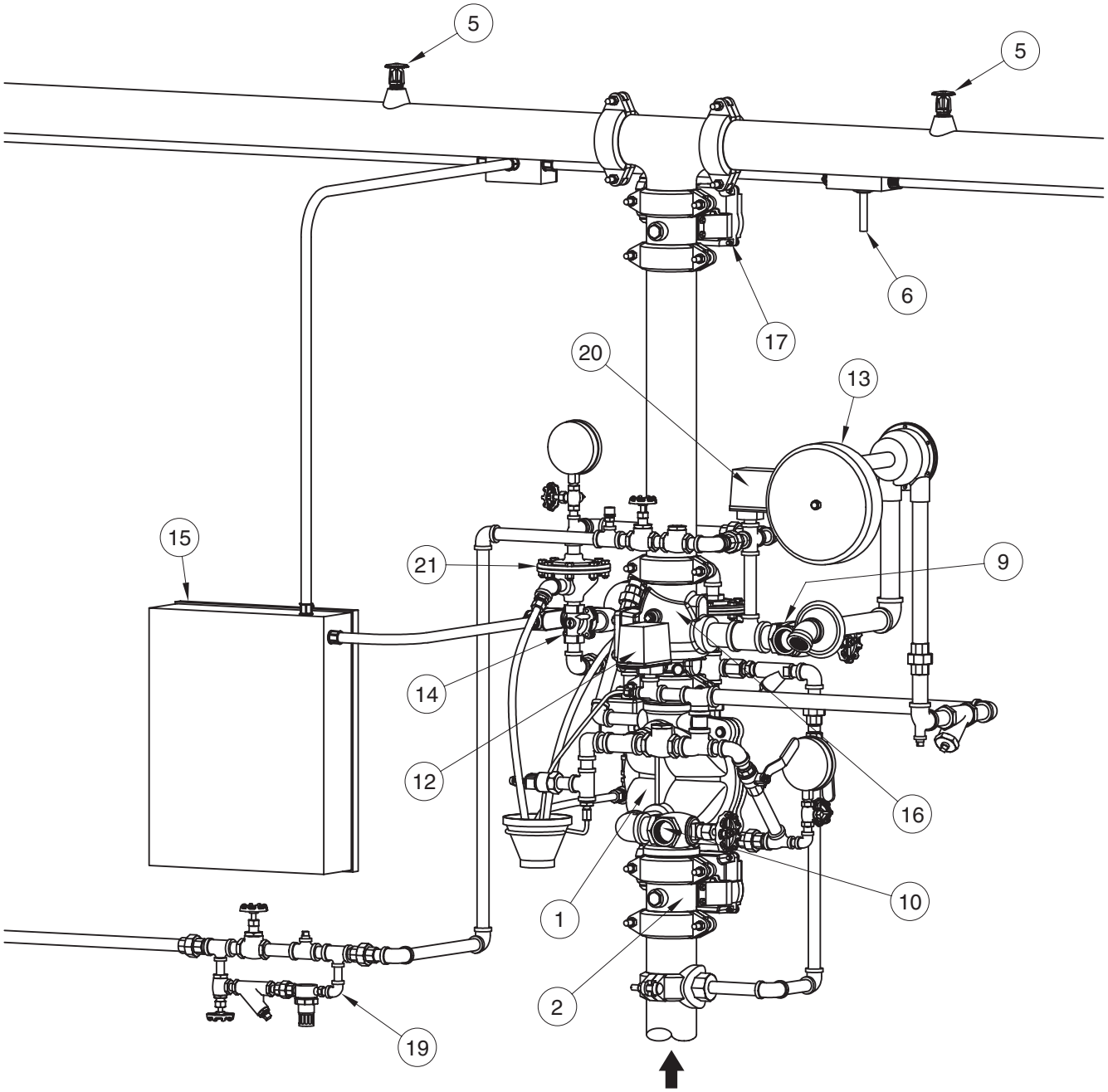


1 - Model DV-5 Deluge Valve
2 - Main Control Valve (N.O.)
3 - Diaphragm Chamber Supply Control Valve (N.O.)
4 - Local Manual Control Station
5 - Automatic Sprinklers
6 - Heat Detectors, Smoke Detectors, etc. (Fire Detection)
7 - Water Supply Pressure Gauge
8 - Diaphragm Chamber Pressure Gauge
9 - System Drain Valve (N.C.)
10 - Main Drain Valve (N.C.) (Shown at Rear of Valve)
11 - Fail-Safe Valve
12 - Waterflow Pressure Alarm Switch (Shown at Rear of Valve)
13 - Water Motor Alarm (Optional)
14 - Solenoid Valve
15 - Deluge Valve Releasing Panel
16 - Riser Check Valve
17 - System Shut-Off Valve (N.O.)
18 - Air Pressure Gauge
19 - Automatic Air/Nitrogen Supply
20 - Low Pressure Alarm Switch
21 - Dry Pilot Actuator

FIGURE 1 — PART 1 OF 2
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION
— SYSTEM SCHEMATIC (Front View)—



1 - Model DV-5 Deluge Valve
2 - Main Control Valve (N.O.)
3 - Diaphragm Chamber Supply Control Valve (N.O.) (Shown at Front of Valve)
4 - Local Manual Control Station (Shown at Front of Valve)
5 - Automatic Sprinklers
6 - Heat Detectors, Smoke Detectors, etc. (Fire Detection)
7 - Water Supply Pressure Gauge (Shown at Front of Valve)
8 - Diaphragm Chamber Pressure Gauge (Shown at Front of Valve)
9 - System Drain Valve (N.C.)
10 - Main Drain Valve (N.C.)
11 - Fail-Safe Valve (Shown at Front of Valve)
12 - Waterflow Pressure Alarm Switch
13 - Water Motor Alarm (Optional)
14 - Solenoid Valve
15 - Deluge Valve Releasing Panel
16 - Riser Check Valve
17 - System Shut-Off Valve (N.O.)
18 - Air Pressure Gauge (Shown at Front of Valve)
19 - Automatic Air/Nitrogen Supply
20 - Low Pressure Alarm Switch
21 - Dry Pilot Actuator

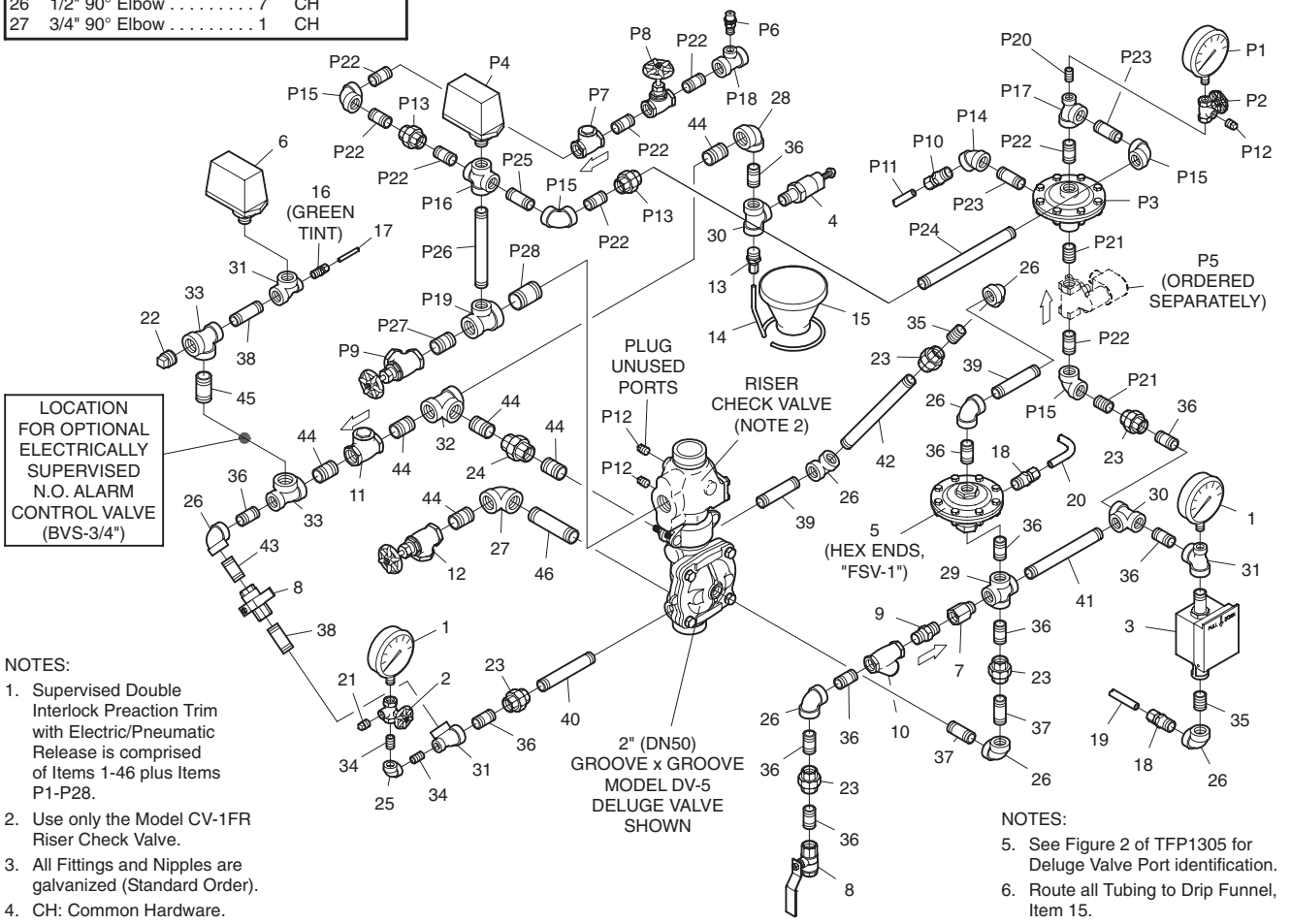
FIGURE 1 — PART 2 OF 2
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION
— SYSTEM SCHEMATIC (Rear View)—

NO.	DESCRIPTION	QTY.	P/N
1	300 psi/ 2000 kPa Water Pressure Gauge	2	92-343-1-005
2	1/4" Gauge Test Valve	1	46-005-1-002
3	Model MC-1 Manual Control Station	1	52-289-2-001
4	Model AD-1 Automatic Drain Valve	1	52-793-2-004
5	Fail-Safe Valve, Model FSV-1	1	52-343-1-001
6	Waterflow Pressure Alarm Switch (PS10-2A)	.1	2571
7	Priming Supply Restriction	1	92-020-1-009
8	1/2" Ball Valve	2	46-050-1-004
9	1/2" Spring Loaded Check Valve	1	92-322-1-002
10	1/2" Y-Strainer	1	52-353-1-005
11	3/4" Swing Check Valve	.1	46-049-1-005
12	3/4" Angle Valve	1	46-048-1-005
13	Drip Funnel Connector	1	92-211-1-005
14	Drip Funnel Bracket	1	92-211-1-003
15	Drip Funnel	1	92-343-1-007
16	3/32" Vent Fitting	1	92-032-1-002
17	1/4" x 18" Tubing	1	CH
18	1/2" Tubing Connector	2	CH
19	1/2" x 12" Tubing	1	CH
20	1/2" x 18" Tubing	1	CH
21	1/4" Plug	1	CH
22	3/4" Plug	1	CH
23	1/2" Union	5	CH
24	3/4" Union	1	CH
25	1/4" 90° Elbow	1	CH
26	1/2" 90° Elbow	7	CH
27	3/4" 90° Elbow	1	CH

NO.	DESCRIPTION	QTY.	P/N
28	3/4" x 1/2" 90° Elbow	1	CH
29	1/2" Cross	1	CH
30	1/2" Tee	2	CH
31	1/2" x 1/4" x 1/2" Tee	3	CH
32	3/4" Tee	1	CH
33	3/4" x 1/2" x 3/4" Tee	2	CH
34	1/4" x Close Nipple	2	CH
35	1/2" x Close Nipple	2	CH
36	1/2" x 1-1/2" Nipple	11	CH
37	1/2" x 2" Nipple	2	CH
38	1/2" x 2-1/2" Nipple	2	CH
39	1/2" x 3-1/2" Nipple	1	CH
40	1/2" x 5" Nipple	1	CH
41	1/2" x 7" Nipple	1	CH
42	1/2" x 8" Nipple	1	CH
43	Select Nipple per Table	1	CH
44	3/4" x 1-1/2" Nipple	6	CH
45	3/4" x 2" Nipple	1	CH
46	3/4" x 4" Nipple	1	CH
P1	250 psi/ 1750 kPa Air Pressure Gauge	1	92-343-1-012
P2	1/4" Gauge Test Valve	1	46-005-1-002
P3	Model DP-1 Dry Pilot Actuator	1	52-280-1-001
P4	Low Air Pressure Alarm Switch (PS40-2A)	.1	2573
P5	Solenoid Valve Per Data Sheet TFP2180	1	Ordered Separately
P6	1/4" Pressure Relief Valve	1	92-343-1-020

NO.	DESCRIPTION	QTY.	P/N
P7	1/2" Swing Check Valve	.1	46-049-1-004
P8	1/2" Globe Valve	1	46-047-1-004
P9	3/4" Angle Valve	1	46-048-1-005
P10	1/2" Tubing Connector	1	CH
P11	1/2" x 24" Tubing	1	CH
P12	1/4" Plug	3	CH
P13	1/2" Union	2	CH
P14	1/2" 45° Elbow	1	CH
P15	1/2" 90° Elbow	4	CH
P16	1/2" Cross	1	CH
P17	1/2" x 1/4" x 1/2" Tee	1	CH
P18	1/2" x 1/2" x 1/4" Tee	1	CH
P19	1" x 3/4" x 1/2" Tee	1	CH
P20	1/4" x Close Nipple	1	CH
P21	1/2" x Close Nipple	2	CH
P22	1/2" x 1-1/2" Nipple	8	CH
P23	1/2" x 2" Nipple	2	CH
P24	1/2" x 9" Nipple	1	CH
P25	Select Nipple per Table	1	CH
P26	Select Nipple per Table	1	CH
P27	3/4" x 1-1/2" Nipple	1	CH
P28	1" x 2" Nipple	1	CH

Nipple Number	Select Appropriate Nipple Sizes per DV-5 Deluge Valve Size	
	1-1/2" (DN40)	2" (DN50)
43	1/2" x 1-1/2"	1/2" x 2"
P25	1/2" x 2-1/2"	1/2" x 2"
P26	1/2" x 6"	1/2" x 5-1/2"



NOTES:

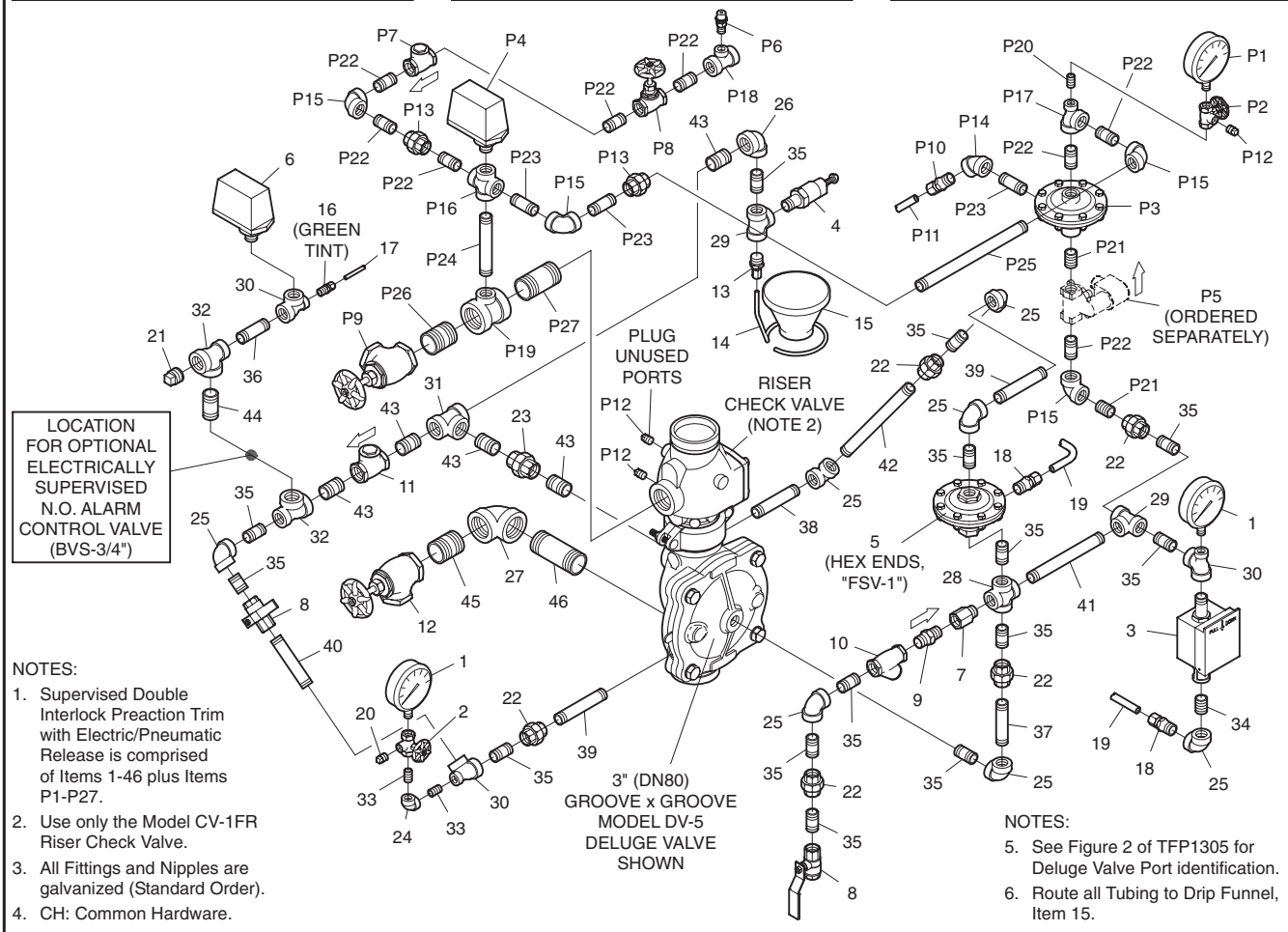
1. Supervised Double Interlock Preaction Trim with Electric/Pneumatic Release is comprised of Items 1-46 plus Items P1-P28.
2. Use only the Model CV-1FR Riser Check Valve.
3. All Fittings and Nipples are galvanized (Standard Order).
4. CH: Common Hardware.

NOTES:

5. See Figure 2 of TFP1305 for Deluge Valve Port identification.
6. Route all Tubing to Drip Funnel, Item 15.

FIGURE 2A — PART 1 OF 3
1-1/2 and 2 INCH (DN40 and DN50) MODEL DV-5 DELUGE VALVES
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION TRIM (52-478-X-127)
— EXPLODED VIEW —

NO.	DESCRIPTION	QTY.	P/N
1	300 psi/ 2000 kPa Water Pressure Gauge	2	92-343-1-005
2	1/4" Gauge Test Valve	1	46-005-1-002
3	Model MC-1 Manual Control Station	1	52-289-2-001
4	Model AD-1 Automatic Drain Valve	1	52-793-2-004
5	Fail-Safe Valve, Model FSV-1	1	52-343-1-001
6	Waterflow Pressure Alarm Switch (PS10-2A)	.1	2571
7	Priming Supply Restriction	1	92-020-1-009
8	1/2" Ball Valve	2	46-050-1-004
9	1/2" Spring Loaded Check Valve	1	92-322-1-002
10	1/2" Y-Strainer	1	52-353-1-005
11	3/4" Swing Check Valve	.1	46-049-1-005
12	1-1/4" Angle Valve	1	46-048-1-007
13	Drip Funnel Connector	1	92-211-1-005
14	Drip Funnel Bracket	1	92-211-1-003
15	Drip Funnel	1	92-343-1-007
16	3/32" Vent Fitting	1	92-032-1-002
17	1/4" x 18" Tubing	1	CH
18	1/2" Tubing Connector	2	CH
19	1/2" x 18" Tubing	2	CH
20	1/4" Plug	1	CH
21	3/4" Plug	1	CH
22	1/2" Union	5	CH
23	3/4" Union	1	CH
24	1/4" 90° Elbow	1	CH
25	1/2" 90° Elbow	7	CH
26	3/4" x 1/2" 90° Elbow	1	CH
27	1-1/4" 90° Elbow	1	CH
28	1/2" Cross	1	CH
29	1/2" Tee	2	CH
30	1/2" x 1/4" x 1/2" Tee	3	CH
31	3/4" Tee	1	CH
32	3/4" x 1/2" x 3/4" Tee	2	CH
33	1/4" x Close Nipple	2	CH
34	1/2" x Close Nipple	1	CH
35	1/2" x 1-1/2" Nipple	14	CH
36	1/2" x 2-1/2" Nipple	1	CH
37	1/2" x 3-1/2" Nipple	1	CH
38	1/2" x 4" Nipple	1	CH
39	1/2" x 4-1/2" Nipple	2	CH
40	1/2" x 5" Nipple	1	CH
41	1/2" x 7" Nipple	1	CH
42	1/2" x 8" Nipple	1	CH
43	3/4" x 1-1/2" Nipple	5	CH
44	3/4" x 2" Nipple	1	CH
45	1-1/4" x 2" Nipple	1	CH
46	1-1/4" x 4" Nipple	1	CH
P1	250 psi/ 1750 kPa Air Pressure Gauge	1	92-343-1-012
P2	1/4" Gauge Test Valve	1	46-005-1-002
P3	Model DP-1 Dry Pilot Actuator	1	52-280-1-001
P4	Low Air Pressure Alarm Switch (PS40-2A)	.1	2573
P5	Solenoid Valve Per Data Sheet TFP2180	1	Ordered Separately
P6	1/4" Pressure Relief Valve	1	92-343-1-020
P7	1/2" Swing Check Valve	.1	46-049-1-004
P8	1/2" Globe Valve	1	46-047-1-004
P9	1-1/4" Angle Valve	1	46-048-1-007
P10	1/2" Tubing Connector	1	CH
P11	1/2" x 24" Tubing	1	CH
P12	1/4" Plug	3	CH
P13	1/2" Union	2	CH
P14	1/2" 45° Elbow	1	CH
P15	1/2" 90° Elbow	4	CH
P16	1/2" Cross	1	CH
P17	1/2" x 1/4" x 1/2" Tee	1	CH
P18	1/2" x 1/2" x 1/4" Tee	1	CH
P19	1-1/4" x 1-1/4" x 1/2" Tee	.1	CH
P20	1/4" x Close Nipple	1	CH
P21	1/2" x Close Nipple	2	CH
P22	1/2" x 1-1/2" Nipple	8	CH
P23	1/2" x 2" Nipple	3	CH
P24	1/2" x 5" Nipple	1	CH
P25	1/2" x 10-1/2" Nipple	1	CH
P26	1-1/4" x 2" Nipple	1	CH
P27	1-1/4" x 3" Nipple	1	CH



NOTES:

1. Supervised Double Interlock Preaction Trim with Electric/Pneumatic Release is comprised of Items 1-46 plus Items P1-P27.
2. Use only the Model CV-1FR Riser Check Valve.
3. All Fittings and Nipples are galvanized (Standard Order).
4. CH: Common Hardware.

NOTES:

5. See Figure 2 of TFP1305 for Deluge Valve Port identification.
6. Route all Tubing to Drip Funnel, Item 15.

FIGURE 2A — PART 2 OF 3
3 INCH (DN80) MODEL DV-5 DELUGE VALVES
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION TRIM (52-478-X-124)
— EXPLODED VIEW —

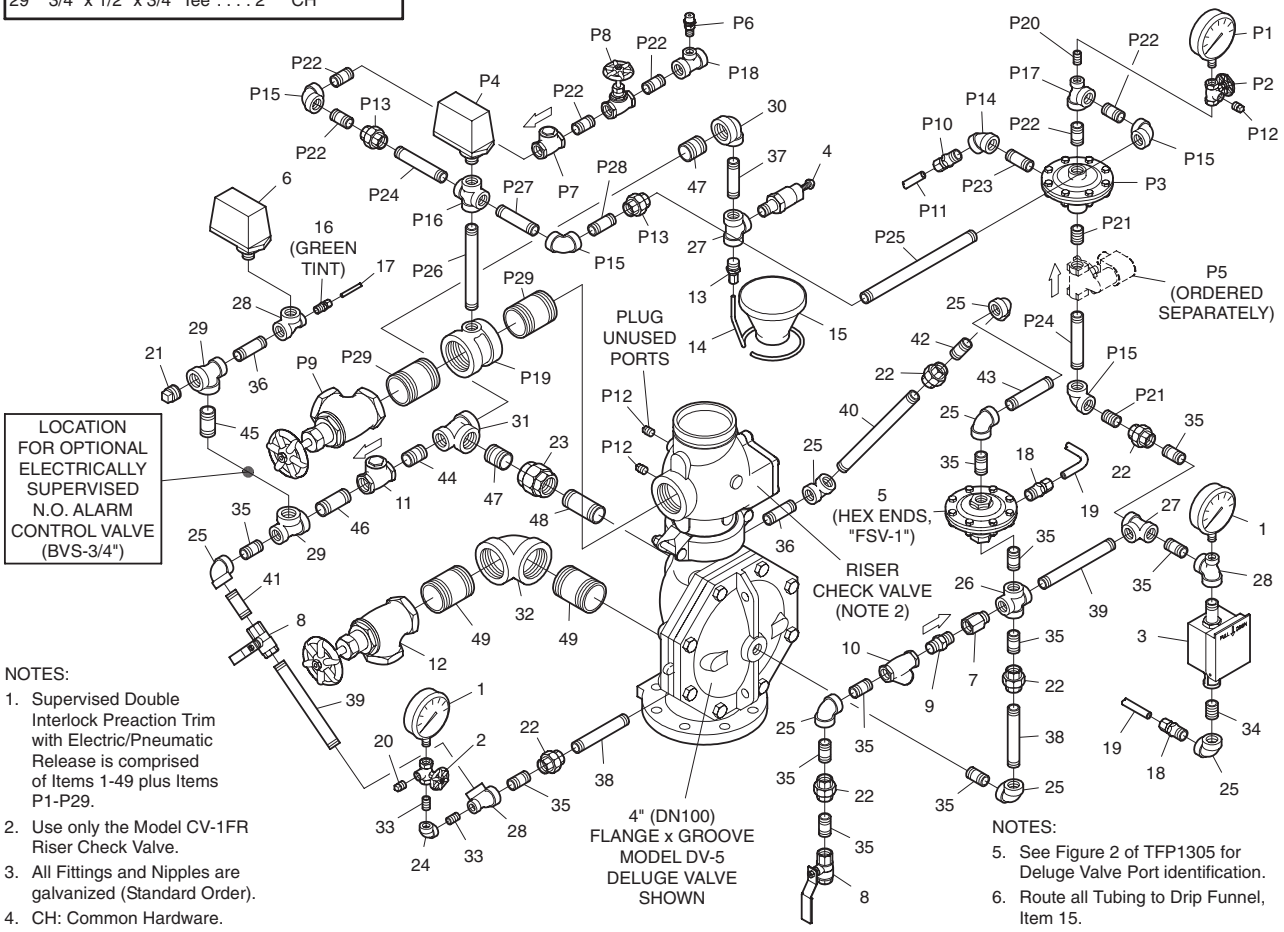
NO.	DESCRIPTION	QTY.	P/N
1	300 psi/ 2000 kPa Water Pressure Gauge	2	92-343-1-005
2	1/4" Gauge Test Valve	1	46-005-1-002
3	Model MC-1 Manual Control Station	1	52-289-2-001
4	Model AD-1 Automatic Drain Valve	1	52-793-2-004
5	Fail-Safe Valve, Model FSV-1	1	52-343-1-001
6	Waterflow Pressure Alarm Switch (PS10-2A)	.1	2571
7	Priming Supply Restriction	1	92-020-1-009
8	1/2" Ball Valve	2	46-050-1-004
9	1/2" Spring Loaded Check Valve	1	92-322-1-002
10	1/2" Y-Strainer	1	52-353-1-005
11	3/4" Swing Check Valve	.1	46-049-1-005
12	2" Angle Valve	1	46-048-1-009
13	Drip Funnel Connector	1	92-211-1-005
14	Drip Funnel Bracket	1	92-211-1-003
15	Drip Funnel	1	92-343-1-007
16	3/32" Vent Fitting	1	92-032-1-002
17	1/4" x 24" Tubing	1	CH
18	1/2" Tubing Connector	2	CH
19	1/2" x 24" Tubing	2	CH
20	1/4" Plug	1	CH
21	3/4" Plug	1	CH
22	1/2" Union	5	CH
23	1" Union	1	CH
24	1/4" 90° Elbow	1	CH
25	1/2" 90° Elbow	7	CH
26	1/2" Cross	1	CH
27	1/2" Tee	2	CH
28	1/2" x 1/4" x 1/2" Tee	3	CH
29	3/4" x 1/2" x 3/4" Tee	2	CH

NO.	DESCRIPTION	QTY.	P/N
30	1" x 1/2" 90° Elbow	1	CH
31	1" x 3/4" x 1" Tee	1	CH
32	2" 90° Elbow	1	CH
33	1/4" x Close Nipple	2	CH
34	1/2" x Close Nipple	1	CH
35	1/2" x 1-1/2" Nipple	11	CH
36	1/2" x 2-1/2" Nipple	2	CH
37	1/2" x 3" Nipple	1	CH
38	1/2" x 5" Nipple	2	CH
39	1/2" x 7" Nipple	2	CH
40	1/2" x 9" Nipple	1	CH
41	Select Nipple per Table	1	CH
42	Select Nipple per Table	1	CH
43	Select Nipple per Table	1	CH
44	3/4" x 1-1/2" Nipple	1	CH
45	3/4" x 2" Nipple	1	CH
46	Select Nipple per Table	1	CH
47	1" x Close Nipple	2	CH
48	1" x 3" Nipple	1	CH
49	2" x 3" Nipple	2	CH

P1	250 psi/ 1750 kPa Air Pressure Gauge	1	92-343-1-012
P2	1/4" Gauge Test Valve	1	46-005-1-002
P3	Model DP-1 Dry Pilot Actuator	1	52-280-1-001
P4	Low Air Pressure Alarm Switch (PS40-2A)	.1	2573
P5	Solenoid Valve Per Data Sheet TFP2180	1	Ordered Separately
P6	1/4" Pressure Relief Valve	1	92-343-1-020
P7	1/2" Swing Check Valve	.1	46-049-1-004
P8	1/2" Globe Valve	1	46-047-1-004
P9	2" Angle Valve	1	46-048-1-009

NO.	DESCRIPTION	QTY.	P/N
P10	1/2" Tubing Connector	1	CH
P11	1/2" x 24" Tubing	1	CH
P12	1/4" Plug	3	CH
P13	1/2" Union	2	CH
P14	1/2" 45° Elbow	1	CH
P15	1/2" 90° Elbow	4	CH
P16	1/2" Cross	1	CH
P17	1/2" x 1/4" x 1/2" Tee	1	CH
P18	1/2" x 1/2" x 1/4" Tee	1	CH
P19	2" x 2" x 1/2" Tee	1	CH
P20	1/4" x Close Nipple	1	CH
P21	1/2" x Close Nipple	2	CH
P22	1/2" x 1-1/2" Nipple	6	CH
P23	1/2" x 2" Nipple	1	CH
P24	1/2" x 4-1/2" Nipple	2	CH
P25	1/2" x 11" Nipple	1	CH
P26	Select Nipple per Table	1	CH
P27	Select Nipple per Table	1	CH
P28	Select Nipple per Table	1	CH
P29	2" x 3" Nipple	2	CH

Nipple No.	Select Appropriate Nipple Sizes per DV-5 Deluge Valve Size		
	4" (DN100)	6" (DN150)	8" (DN200)
41	1/2" x 2-1/2"	1/2" x 5-1/2"	1/2" x 8 -1/2"
42	1/2" x 1-1/2"	1/2" x 2"	1/2" x 2"
43	1/2" x 4"	1/2" x 5"	1/2" x 5-1/2"
46	3/4" x 2-1/2"	3/4" x 3-1/2"	3/4" x 4-1/2"
P26	1/2" x 7"	1/2" x 5-1/2"	1/2" x 3"
P27	1/2" x 3-1/2"	1/2" x 6"	1/2" x 8"
P28	1/2" x 2"	1/2" x 2-1/2"	1/2" x 4"



NOTES:

1. Supervised Double Interlock Preaction Trim with Electric/Pneumatic Release is comprised of Items 1-49 plus Items P1-P29.
2. Use only the Model CV-1FR Riser Check Valve.
3. All Fittings and Nipples are galvanized (Standard Order).
4. CH: Common Hardware.

NOTES:

5. See Figure 2 of TFP1305 for Deluge Valve Port identification.
6. Route all Tubing to Drip Funnel, Item 15.

FIGURE 2A — PART 3 OF 3
4, 6, and 8 INCH (DN100, DN150, and DN200) MODEL DV-5 DELUGE VALVES
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION TRIM (52-478-X-121)
— EXPLODED VIEW —

NOTES:

1. Use only the 2" Model CV-1FR Riser Check Valve with 1-1/2" and 2" DV-5 Valves. Use corresponding sized Model CV-1FR Riser Check Valves for 3"-8" Model DV-5 Valves.
2. Nipples 1-7 vary in length relative to the Model DV-5 size and Riser Check Valve used. Select per the appropriate table. All other nipples packed unassembled shall be installed per the appropriate trim exploded view, Figure 2A Part 1, 2, or 3.
3. Install subassemblies in alphabetical order.
4. See Figure 2 of TFP1305 for Deluge Valve Port identification.
5. Route all Tubing to Drip Funnel.
6. When DV-5 trips, the Fail-Safe Valve opens, partially diverting the diaphragm supply to drain, allowing diaphragm chamber to remain de-pressurized after a decrease in system flow.

Nipple Number	Select Appropriate Nipple Sizes per DV-5 Deluge Valve Size With Model CV-1FR Check Valve					
	1-1/2" (DN40)	2" (DN50)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)
1	1/2" x 1-1/2"	1/2" x 2"	1/2" x 1-1/2"	1/2" x 2-1/2"	1/2" x 5-1/2"	1/2" x 8-1/2"
2	1/2" x Close	1/2" x Close	1/2" x 1-1/2"	1/2" x 1-1/2"	1/2" x 2"	1/2" x 2"
3	1/2" x 3-1/2"	1/2" x 3-1/2"	1/2" x 4-1/2"	1/2" x 4"	1/2" x 5"	1/2" x 5-1/2"
4	3/4" x 1-1/2"	3/4" x 1-1/2"	3/4" x 1-1/2"	3/4" x 2-1/2"	3/4" x 3-1/2"	3/4" x 4-1/2"
5	1/2" x 6"	1/2" x 5-1/2"	1/2" x 5"	1/2" x 7"	1/2" x 5-1/2"	1/2" x 3"
6	1/2" x 2-1/2"	1/2" x 2"	1/2" x 2"	1/2" x 3-1/2"	1/2" x 6"	1/2" x 8"
7	1/2" x 1-1/2"	1/2" x 1-1/2"	1/2" x 2"	1/2" x 2"	1/2" x 2-1/2"	1/2" x 4"
System Main Drain Size	3/4" NPT	3/4" NPT	1-1/4" NPT	2" NPT	2" NPT	2" NPT
Main Drain Size	3/4" NPT	3/4" NPT	1-1/4" NPT	2" NPT	2" NPT	2" NPT

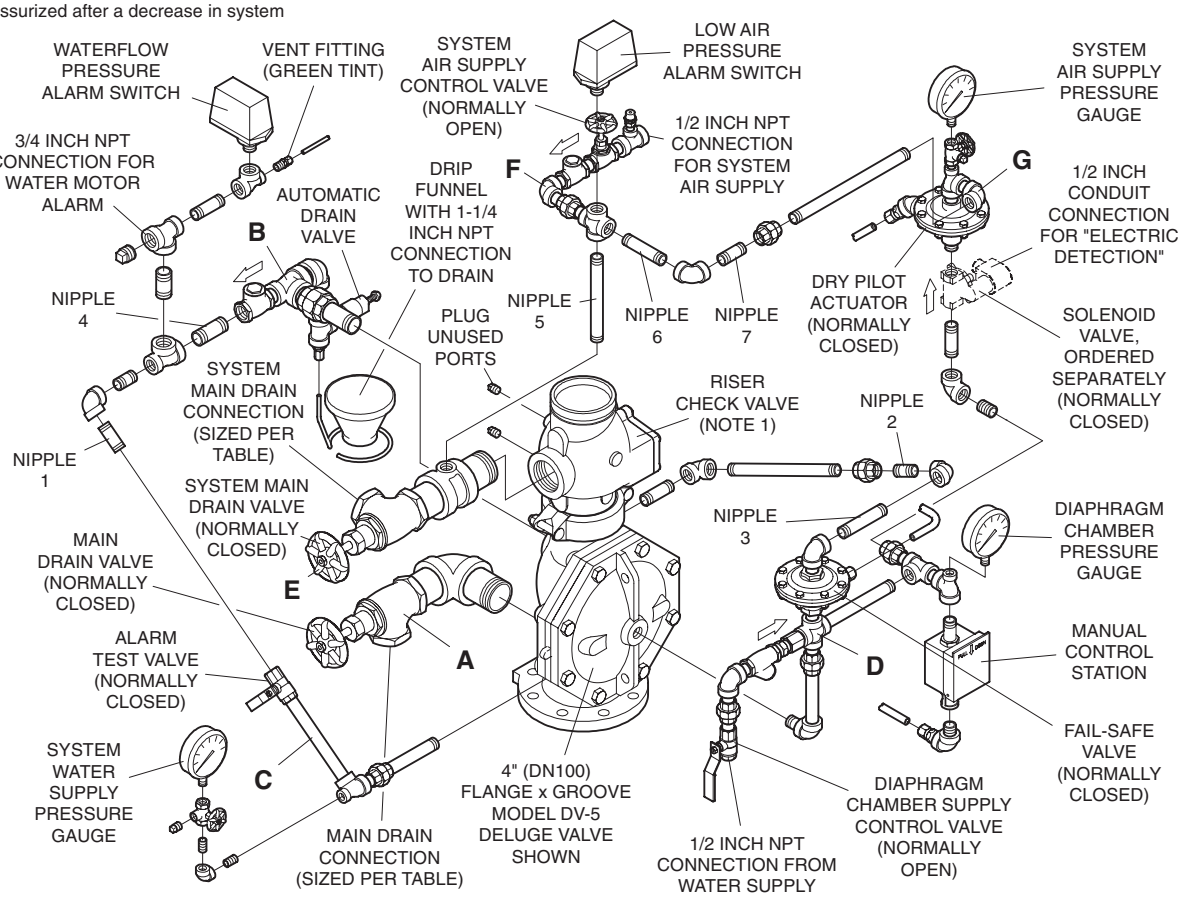


FIGURE 2B
1-1/2 thru 8 INCH (DN40 thru DN200) MODEL DV-5 DELUGE VALVES
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION TRIM
— OPERATIONAL COMPONENTS —

Valve Size	Nominal Installation Dimensions in Inches and (mm)											
	A	B	C	D	E	F	G	H	J	K	L	M
1-1/2" (DN40)	7.00 (177,8)	8.88 (225,4)	13.00 (330,2)	10.50 (266,7)	27.13 (689,0)	4.00 (101,6)	5.81 (147,6)	5.81 (147,6)	3.00 (76,2)	7.00 (177,8)	4.00 (101,6)	14.81 (376,2)
2" (DN50)	7.13 (181,0)	9.13 (231,8)	13.00 (330,2)	10.50 (266,7)	27.50 (698,5)	3.13 (79,4)	6.00 (152,4)	6.00 (152,4)	3.00 (76,2)	7.00 (177,8)	3.13 (79,4)	15.38 (390,5)
3" (DN80)	7.81 (198,4)	10.44 (265,1)	14.50 (368,3)	10.50 (266,7)	31.00 (787,4)	1.69 (42,9)	6.69 (170,0)	6.69 (170,0)	4.25 (108,0)	7.00 (177,8)	0.25 (6,4)	21.13 (536,6)
4" (DN100)	10.00 (254,0)	11.75 (298,5)	17.88 (454,0)	10.50 (266,7)	35.63 (904,9)	1.75 (44,5)	6.50 (165,1)	8.56 (217,5)	6.25 (158,8)	7.13 (181,0)	0.38 (9,5)	25.38 (644,5)
6" (DN150)	11.38 (289,0)	14.31 (363,5)	18.75 (476,3)	10.50 (266,7)	36.19 (919,2)	3.50 (88,9)	7.88 (200,0)	9.94 (252,4)	6.25 (158,8)	7.13 (181,0)	1.56 (39,7)	29.63 (752,5)
8" (DN200)	12.00 (304,8)	16.00 (406,4)	21.25 (539,8)	10.50 (266,7)	40.50 (1028,7)	1.75 (44,5)	10.75 (273,1)	10.63 (269,9)	6.25 (158,8)	7.13 (181,0)	7.13 (181,0)	36.50 (927,1)

* MINIMUM CLEARANCE.

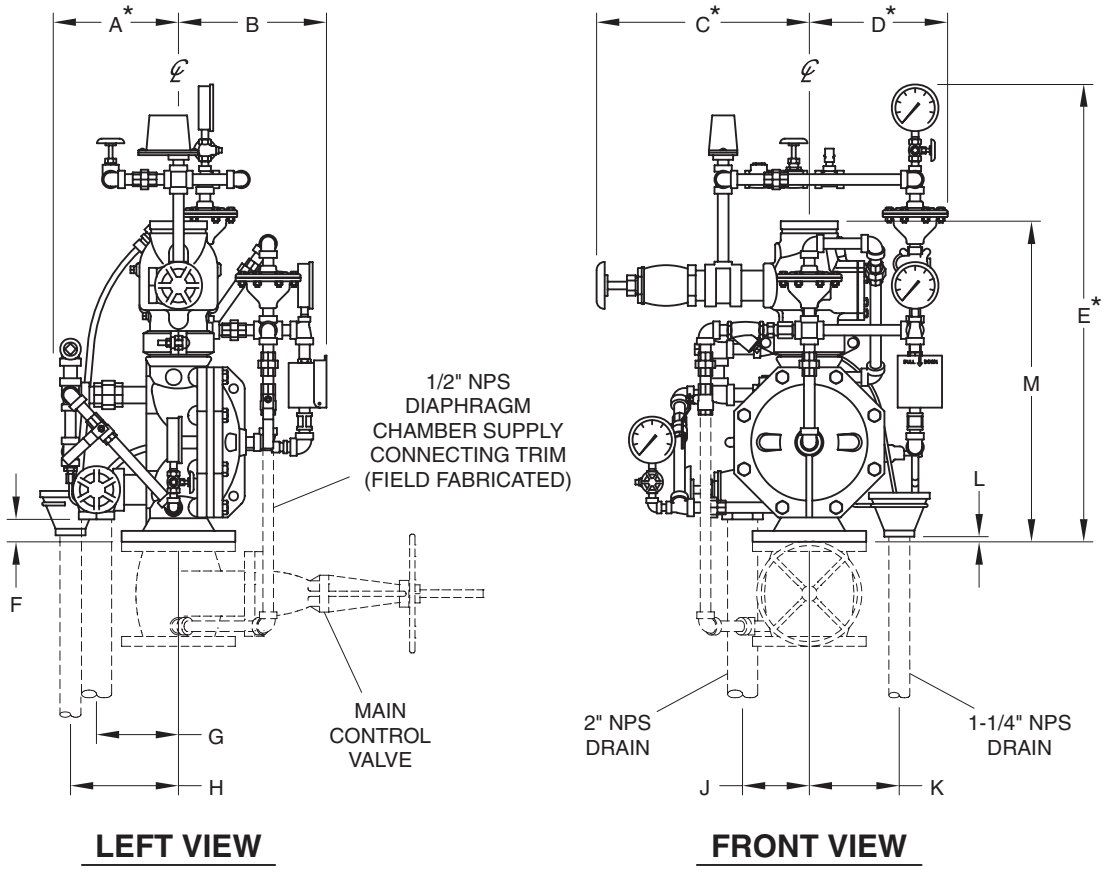


FIGURE 3
1-1/2 thru 8 INCH (DN40 thru DN200) MODEL DV-5 DELUGE VALVES
DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC ACTUATION TRIM
— NOMINAL INSTALLATION DIMENSIONS —

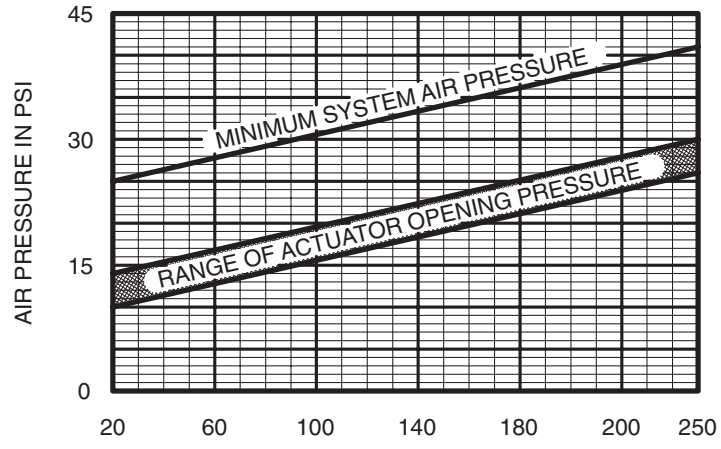
into the system piping, as well as through the Alarm Port to actuate the system alarms.

As water flows into the system, the Model FSV-1 Fail-Safe Valve (Item 5 - Fig. 2A, also described in Technical Data Sheet TFP1386) becomes pressurized and upon operation constantly vents the DV-5 Diaphragm Chamber so as to maintain the DV-5 Valve in the open (operated) position until the system is reset.

WARNING

The Model DV-5 Double Interlock Preaction System with Electric/Pneumatic Actuation described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. ***Failure to do so may impair the performance of the related 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.



GRAPH A
DOUBLE INTERLOCK PREACTION SYSTEM
AIR PRESSURE REQUIREMENTS

Technical Data

Approvals
UL and C-UL Listed. FM Approved.

Deluge Valve
Model DV-5.

Riser Check Valve
Model CV-1FR.

NOTE

1-1/2 inch (DN40) risers utilize a 2 inch (DN50) Riser Check Valve in combination with the 1-1/2 inch (DN40) Model DV-5 Deluge Valve.

Valve Trim
The Double Interlock Preaction System with Electric/Pneumatic Actuation Trim (Fig. 2A/2B) forms a part of the laboratory listings and approvals. The trim is necessary for proper operation of the DV-5 Valve.

Each package of trim includes the following items:

- Water Supply Pressure Gauge
- Diaphragm Chamber Pressure Gauge
- Diaphragm Chamber Connections
- Manual Control Station
- Main Drain Valve
- System Drain Valve
- Alarm Test Valve
- Automatic Drain Valve
- System Air Pressure Gauge
- Air Supply Connections
- Low Air Pressure Alarm Switch
- Waterflow Pressure Alarm Switch
- Dry Pilot Actuator
- Pressure Operated Relief Valve

To ease field assembly of the trim arrangement, the trim components are provided partially assembled as shown in Figure 2B.

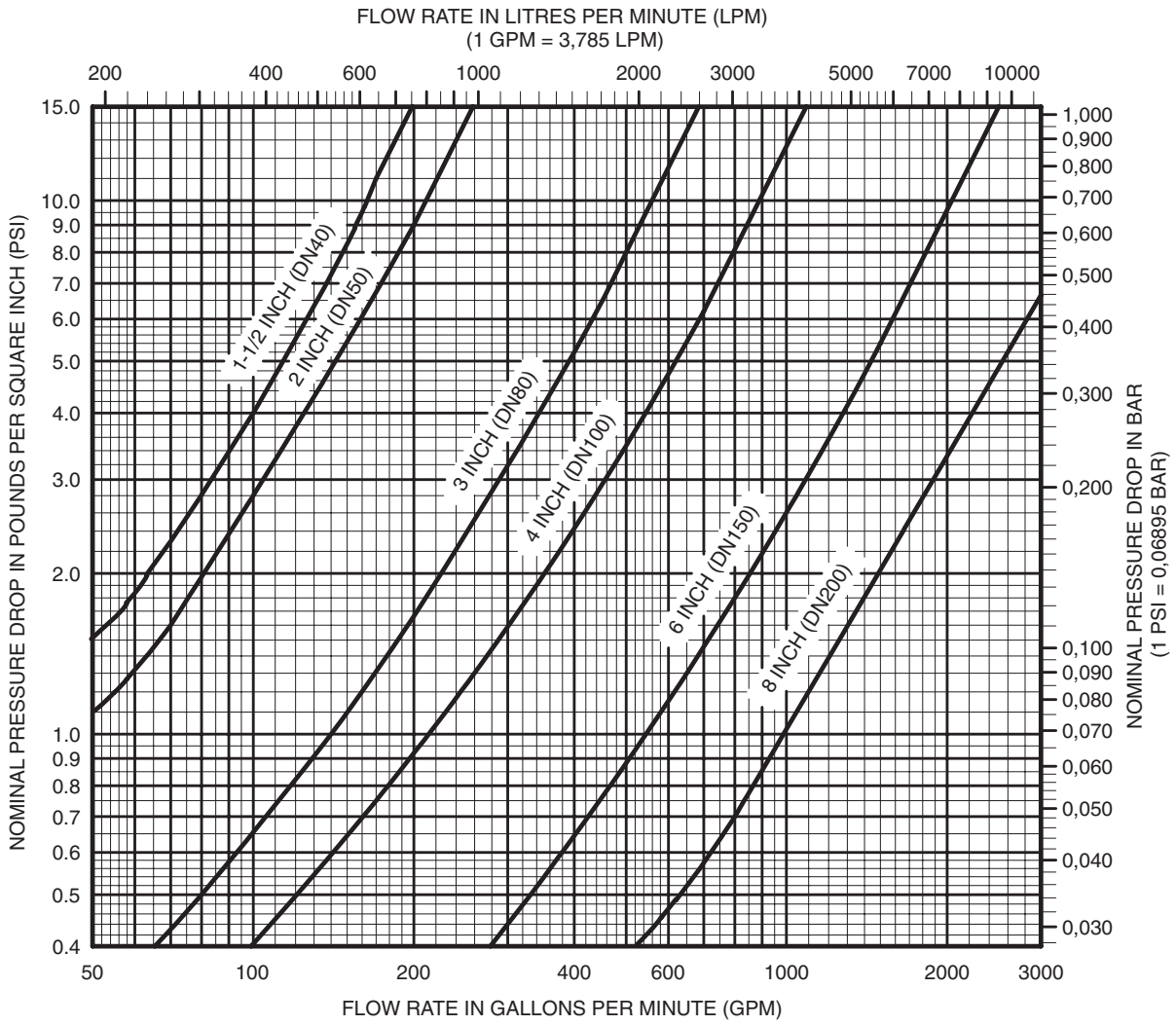
The trim arrangement is provided with galvanized or black nipples and fittings. The galvanized trim is intended for non-corrosive or corrosive conditions, whereas the black trim is principally intended for use with AFFF systems.

NOTE

When the system pressure is greater than 175 psi (12,1 bar), provision is to be made to replace the standard order 300 psi (20,7 bar) Water Pressure Gauges, shown in Figure 2A/2B with separately ordered 600 psi (41,4 bar) Water Pressure Gauges.

System Design Considerations
Because a double interlock preaction system requires time for a drop in system air pressure to occur (concurrently with the response time for the separate fire detection system) before it will allow water to enter the system piping, this system has characteristics similar to a dry pipe sprinkler system. Therefore, the system design considerations for a dry pipe system are normally applied to a double interlock preaction system — including a 30% increase in design area; a maximum 1 minute water delivery time for system capacities of 750 gallons (2800 litres) or more; and, prohibition of gridded system piping.

In order to readily perform the System Inspection Procedure described in the Care and Maintenance section, it is



The approximate friction loss, based on the Hazen and Williams formula and expressed in equivalent length of pipe with C=120, is as follows:

15 feet of 1-1/2 Sch. 40 pipe for the 1-1/2 inch Valve Combination** calculated on a typical flow rate of 100 GPM.
28 feet of 2 inch Sch. 40 pipe for the 2 inch Valve Combination* calculated on a typical flow rate of 175 GPM.
37 feet of 3 inch Sch. 40 pipe for the 3 inch Valve Combination* calculated on a typical flow rate of 350 GPM.
48 feet of 4 inch Sch. 40 pipe for the 4 inch Valve Combination* calculated on a typical flow rate of 600 GPM.
73 feet of 6 inch Sch. 40 pipe for the 6 inch Valve Combination* calculated on a typical flow rate of 1500 GPM.
103 feet of 8 inch Sch. 30 pipe for the 8 inch Valve Combination* calculated on a typical flow rate of 2500 GPM.

GRAPH B
DELUGE AND CHECK VALVE COMBINATION*
— NOMINAL PRESSURE LOSS VERSUS FLOW —

**** Model DV-5 Deluge Valve combined with Model CV-1FR Riser Check Valve***

*****1-1/2 inch Model DV-5 Deluge Valve combined with 2 inch Model CV-1FR Riser Check Valve***

recommended that a System Shut-Off Valve be installed above the Riser Check Valve, as shown in Figure 1. The System Shut-Off Valve should be a listed or approved (as appropriate) indicating valve with a supervisory switch to monitor the normally open position.

Detection System
The Double Interlock Preaction System With Electric/Pneumatic Actuation Trim provides for electric operation of the DV-5 Valve by a detection system consisting of electrical devices such as heat sensitive thermostats, smoke detectors, and/or electric manual pull stations. Information on the various types of separately ordered Solenoid Valves that may be used with this trim package is given in Technical Data Sheet TFP2180. Nominal installation dimensions for the Double Interlock Preaction System With Electric/Pneumatic Actuation Trim are shown in Figure 3.

The deluge valve releasing panel (automatic control unit) with battery back-up, fire detection devices, manual pull stations, and signaling devices that are utilized with the Double Interlock Preaction System with Electric/Pneumatic Actuation must be UL Listed, ULC Listed, C-UL Listed, or FM Approved, as applicable.

NOTES

Approval by Factory Mutual is contingent on the use of an FM Approved 24VDC Solenoid Valve (P/N 52-287-1-024 or P/N 52-287-1-124). FM only approves solenoid valves for use in non-hazardous locations.

Consult with the Authority Having Jurisdiction regarding installation criteria pertaining to electric actuation circuitry.

The Double Interlock Preaction System With Electric/Pneumatic Actuation Trim is provided with a Model FSV-1 Fail-Safe Valve (Item 5 - Fig. 2A, also described in Technical Data Sheet TFP1386); consequently, the release circuit of the releasing panel need only provide the standard ten minutes of alarm condition intended to energize the Solenoid Valve to open. After the ten minute duration, at which point should the Solenoid Valve become de-energized and closes (especially while operating under battery back-up), the Fail-Safe Valve will have already automatically operated to constantly vent the DV-5 Diaphragm Chamber, thereby preventing the DV-5 Diaphragm Chamber from becoming re-pressurized and preventing an inadvertent closing of the DV-5 during a fire event.

System Air Pressure Requirements
The required system air pressure for the Double Interlock Preaction System with Electric/Pneumatic Actuation is shown in Graph A as a function of the anticipated water supply pressure. It is recommended that the system air pressure be maintained by one of the following methods:

- A maximum 200 psi (13,8 bar) plant air supply in combination with the Model AMD-1 Air Maintenance Device described in Technical Data Sheet TFP1221.
- A dedicated air compressor in combination with the Model AMD-2 Air Maintenance Device described in Technical Data Sheet TFP1231.
- A maximum 3000 psi (206,9 bar) nitrogen cylinder in combination with the Model AMD-3 Nitrogen Maintenance Device described in Technical Data Sheet TFP1241.

NOTES

The dew point of the air or nitrogen supply, for a system exposed to freezing conditions, must be maintained below the lowest ambient temperature to which the system piping will be exposed. Introduction of moisture into the system piping can create ice build up which could prevent proper operation of the system.

Friction Loss
The nominal pressure loss versus flow data for the Model DV-5 Deluge Valve plus Riser Check Valve is provided in Graph B.

Installation

NOTES

1-1/2 inch (DN40) risers utilize a 2 inch (DN50) Riser Check Valve in combination with the 1-1/2 inch (DN40) Model DV-5 Deluge Valve.

Proper operation of the Model DV-5 Deluge Valves depends upon their trim being installed in accordance with the instructions given in this Technical Data Sheet. Failure to follow the appropriate trim diagram may prevent the DV-5 Valve from functioning properly, as well as void listings, approvals, and the manufacturer's warranties.

Field adjustments of the Air Maintenance Device, Low Pressure Alarm Switch, and Pressure Relief Valve are required.

When using compressed air as opposed to compressed nitrogen for refrigerated area service, alternate air supply connections with an air dryer may be required by the Authority Having Jurisdiction. The "1/2 Inch NPT Connection For System Air Supply" shown in Figure 2B is to be plugged when using an alternate air supply connection; the location of the Air Pressure Maintenance is to be as specified by the Authority Having Jurisdiction; and, Step 10 regarding the adjustment of the Pressure Relief Valve can be omitted, since the Pressure Relief Valve in this case will be ineffective.

The DV-5 Valve must be installed in a readily visible and accessible location.

The DV-5 Valve and associated trim must be maintained at a minimum temperature of 40°F/4°C.

Heat tracing of the DV-5 Valve or its associated trim is not permitted. Heat tracing can result in the formation of hardened mineral deposits that can prevent proper operation.

The Model DV-5 Deluge Valve is to be installed in accordance with the following criteria:

Step 1. 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 DV-5 Valve must be trimmed in accordance with Figure 2A/2B.

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

Step 4. Drain tubing to the drip funnel

must be installed with smooth bends that will not restrict flow.

Step 5. The main drain and drip funnel drain may be interconnected provided a check valve is located at least 12 inches (300 mm) below the drip funnel.

Step 6. Suitable provision must be made for disposal of drain water. Drainage water must be directed so that it will not cause accidental damage to property or danger to persons.

Step 7. Connect the Diaphragm Chamber Supply Control Valve to the inlet side of the system's main control valve in order to facilitate setting of the DV-5 Valve (Fig. 3).

Step 8. Unused pressure alarm switch connections must be plugged.

Step 9. A suitable automatic supervisory air (nitrogen) supply, as described in the Technical Data Section, is to be installed in accordance with the applicable Technical Data Sheet. Refer to Graph A for the system air pressure requirements.

An air dryer, when specified, is to be installed as required by the Authority Having Jurisdiction.

Step 10. The Pressure Relief Valve (P6 - Fig. 2A) is factory set to relieve at a pressure of approximately 45 psi (3,1 bar), which can typically be used for a maximum system pressure of 40 psi (2,8 bar). The Pressure Relief Valve may be reset; however, it must be reset to relieve at a pressure that is in accordance with the requirements of the Authority Having Jurisdiction.

To reset the Pressure Relief Valve, first loosen the jam nut and then adjust the cap accordingly — clockwise for a higher pressure setting or counterclockwise for a lower pressure setting. After verifying the desired pressure setting, tighten the jam nut.

Step 11. The Low Pressure Alarm Switch (Item P4 - Fig. 2A) is to be adjusted to operate on falling pressure at approximately 6 psi (0,4 bar) below the minimum Double Interlock Dry System air pressure requirement shown on Graph B.

Use the instructions provided with the switch to adjust the pressure setting.

Step 12. Conduit and electrical connections are to be made in accordance with the requirements of the authority having jurisdiction and/or the National Electric Code.

Step 13. Before a system hydrostatic test is performed in accordance with NFPA 13 system acceptance test requirements, the DV-5 Diaphragm Chamber is to be depressurized; the Automatic Drain Valve (4, Fig. 2A) is to be temporarily replaced with a 1/2 inch NPT plug, the 3/32 inch Vent Fitting (17 - Fig. 2A) is to be temporarily replaced with a 1/4 inch NPT plug, and the Diaphragm Cover Bolts **must be uniformly and securely tightened using a cross-draw sequence**. After tightening, double-check to make certain that all of the Diaphragm Cover Bolts are securely tightened.

Valve Setting Procedure

Steps 1 through 15 are to be performed when initially setting the Model DV-5 Deluge Valve; after an operational test of the fire protection system; or, after system operation due to a fire.

Step 1. Close the Main Control Valve.

Step 2. Close the Diaphragm Chamber Supply Control Valve and the System Air Supply Control Valve.

Step 3. Open the Main Drain Valve, System Drain Valve, and all auxiliary drains in the system. After water ceases to discharge, close the System Drain Valve and auxiliary drain valves. Leave the Main Drain Valve open.

NOTE

Do not open the Inspector's Test Connection and auxiliary drains if resetting after a system test; otherwise, system air pressure will be relieved unnecessarily.

Step 4. Depress the plunger of the Automatic Drain Valve to verify that it is open and that the DV-5 Valve is completely drained.

Step 5. Clean the Strainer in the Diaphragm Chamber Supply connection by removing the clean-out plug and strainer basket. The Strainer may be flushed out by momentarily opening the Diaphragm Chamber Supply Control Valve.

Step 6. Inspect for and clear all ice plugs where system piping has been exposed to freezing conditions and when there has been a flow of water into the system.

Step 7. Replace all damaged or operated sprinklers. Replacement sprinklers must be of the same type and temperature rating as those that operated.

NOTE

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

Step 8. Service the air dryer, if applicable, in accordance with the manufacturer's instructions.

Step 9. Open the System Air Supply Control Valve and allow the system to automatically re-establish its nominal system air pressure per Graph A. Observe the Automatic Drain Valve for leaks. If there are leaks, determine/correct the cause of the leakage problem within the Riser Check Valve.

Step 10. Reset the actuation system.

Manual Actuation — Push the operating lever up; however, do not close the hinged cover at this time.

Electric Actuation — Reset the electric detection system in accordance with the manufacturer's instructions to de-energize the Solenoid Valve.

Step 11. Open the Diaphragm Chamber Supply Control Valve and allow full pressure to build up in the Diaphragm Chamber.

Step 12. Operate (open) the Manual Control Station to vent trapped air from the Diaphragm Chamber. If necessary, first open the hinged cover, and then fully pull down on the operating lever. SLOWLY close the operating lever, by pushing it up, after aerated water ceases to discharge from the Manual Control Station drain tubing. Close the hinged cover and insert a new break rod in the small hole through the top of the enclosing box.

Step 13. Inspect the drain connections from the Manual Control Station and the Dry Pilot Actuator. Any leaks must be corrected before proceeding to the next step.

Step 14. Verify the ability for the DV-5 Diaphragm to hold pressure as follows:

With the diaphragm chamber pressurized per Step 12, temporarily close the Diaphragm Chamber Supply Control Valve and observe the Diaphragm Chamber Pressure Gauge for a drop in pressure.

If a drop in pressure is noted, the DV-5 Diaphragm is to be replaced and/or any leaks must be corrected before proceeding to the next step.

If the Diaphragm Chamber Pressure Gauge does not indicate a drop in pressure, re-open the Diaphragm Chamber Supply Control Valve and proceed to the next step.

Step 15. Slowly open the Main Control Valve. Close the Main Drain Valve as soon as water discharges from the

drain connection. Observe the Automatic Drain Valve for leaks. If there are leaks, determine/correct the cause of the leakage problem. If there are no leaks, the DV-5 Valve is ready to be placed in service and the Main Control Valve must then be fully opened.

NOTES

When the Main Control Valve is opened, the pressure on the Diaphragm Chamber may increase. This increase in pressure is normal, and if the pressure is greater than 250 psi (17,2 bar), the pressure is to be relieved by partially and temporarily opening the Manual Control Station; however, do not allow the pressure as indicated on the Diaphragm Chamber Pressure Gauge to drop below the supply pressure shown on the Water Supply Pressure Gauge, since this action may result in tripping of the DV-5 Valve.

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

Care and Maintenance

The following procedures, inspections, and maintenance must be performed as indicated, in addition to any specific requirements of the NFPA, and any impairment 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 the National Fire Protection Association (e.g., NFPA 25), in addition to the 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 in accordance with local requirements and/or national codes.

It is recommended that the System Inspection Procedure be performed at least semi-annually by a qualified Inspection Service. The Double Interlock Preaction System Inspection Procedure may be followed in lieu of performing any of the operational tests recommended in the Technical Data Sheets for the Model DV-5 Deluge Valve, Riser Check Valve, 24 VDC Solenoid Valve, Dry Pilot Actuator, and Model MC-1 Manual Control Station.

NOTES

It is recommended that the individuals responsible for the care and maintenance of the Double Interlock Preaction System develop a working understanding of the system, in general, prior to performing inspection and/or maintenance procedures. These instructions, as well as individual instructions for the deluge valve, riser check valve, solenoid valve, dry pilot actuator, manual control station, switches, and pressure maintenance device should be reviewed.

The following procedures pertain to the automatic control valve portion of the Double Interlock Preaction System. Refer to the manufacturer's instructions and NFPA 25 for care and maintenance procedures for all other devices (e.g., electric detection, main control and system shut-off valves, supervisory devices, sprinklers, etc.).

Before performing the System Inspection Procedure, which will result in operation of alarms, notify the proper authorities and all personnel who may be affected.

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 system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

System Inspection Procedure

Step 1. Close the Main Control Valve (Fig. 1) and then open the DV-5 Main Drain Valve (Fig. 2B).

Step 2. Manually operate Deluge Valve Releasing Panel, and verify the following:

- Verify the operation of the Releasing Panel and its associated alarms.
- Verify that there is no leakage from the Dry Pilot Actuator (Fig. 2B).

NOTES

During this procedure, the Solenoid Valve is opened; however, the Dry Pilot Actuator should remain closed and the DV-5 Deluge Valve Diaphragm Chamber should remain pressurized.

This procedure is used to verify that the DV-5 Deluge Valve will remain set if the electric detection system operates but the sprinkler system remains in its normally pressurized condition.

Step 3. Open the Inspector's Test Connection but be prepared to close it immediately after verifying that the Low Pressure Alarm Switch (Fig. 2B) and its associated alarms operate properly. The Low Pressure Alarm Switch should operate at the previously established pressure (refer to Installation section, Step 11).

Close the Inspector's Test Connection.

Step 4. Close the Diaphragm Chamber Supply Control Valve (Fig. 2B).

Step 5. Close the System Shut-off Valve (Fig. 1) after the system air pressure has been restored to normal.

Step 6. Manually restore the electric fire detection system to a normal condition in accordance with the manufacturer's instructions. The Solenoid Valve will then be de-energized and returned to its normally closed position.

Step 7. Open the Diaphragm Chamber Supply Control Valve (Fig. 2B).

Step 8. Open the Main Control Valve (Fig. 1) one turn beyond the position at which water just begins to flow from the Main Drain Valve.

Step 9. Close the Main Drain Valve (Fig. 2B).

Step 10. Close the Air Supply Control Valve (Fig. 2B).

Step 11. Open the Dry Pilot Actuator by partially opening the System Main Drain Valve (Fig. 2B) to relieve air pressure at the inlet to the Actuator. Verify that there is no leakage from the Dry Pilot Actuator.

NOTES

During this procedure, the Dry Pilot Actuator is opened; however, the Solenoid Valve should remain closed and the DV-5 Deluge Valve Diaphragm Chamber should remain pressurized.

This procedure is used to verify that the DV-5 Deluge Valve will remain set if the Dry Pilot Actuator operates due to loss of system air pressure and the electric detection system remains in a normal condition.

Step 12. Open (energize) the Solenoid Valve by operating the deluge valve releasing panel, and verify the following:

- Verify that the DV-5 Valve operates, as is indicated by a discharge of water from the System Main Drain Valve and the Automatic Drain Valve. The Automatic Drain Valve may or may not close depending on the flow past the partially open Main Control Valve.
- Verify that the Model FSV-1 Fail-Safe Valve has operated as is indicated by water discharging into the Drip Funnel from the 1/2 inch drain tube connected to the Model FSV-1 Fail-Safe Valve.
- Verify that the Waterflow Pressure Alarm Switch (Fig. 2B) and its associated alarms properly operate.
- Verify that the Water Motor Alarm, if applicable, properly operates.

NOTE

This procedure simulates opening of both the Dry Pilot Actuator (loss of system air pressure) and Solenoid Valve (operation of the deluge valve releasing panel) to verify automatic system operation.

Step 13. Reset the Double Interlock Preaction System in accordance with the Resetting Procedure section.

Fail-Safe Valve

If water does not discharge from the 1/2 inch tube connected to the Model FSV-1 Fail-Safe Valve during Step 12 of the System Inspection Procedure, the Model FSV-1 Fail-Safe Valve is to be disassembled, cleaned, and inspected as follows:

Step 1. Take the sprinkler system out of service by using Steps 1 through 4 of the Resetting Procedure.

Step 2. Remove the FSV-1 from the Double Interlock Preaction Trim.

Step 3. Refer to Technical Data Sheet TFP1386 and completely disassemble the FSV-1.

Step 4. Clean all parts, and replace worn or damaged parts as necessary

Step 5. Reassemble the FSV-1 in accordance with Technical Data Sheet TFP1386 and then reinstall the FSV-1 into the Double Interlock Preaction Trim.

Step 6. Place the system into service in accordance with the Resetting Procedure section and then perform the System Inspection Procedure to verify proper operation of the system, as well as the FSV-1 Fail-Safe Valve.

Quarterly Waterflow Alarm Test Procedure

Testing of the system waterflow alarms must be performed quarterly. To test the waterflow alarm, open the Alarm Test Valve, which will allow a flow of water to the Waterflow Pressure Alarm Switch and/or Water Motor Alarm. Upon satisfactory completion of the test, close the Alarm Test Valve.

Limited Warranty

Products manufactured by Tyco Fire Products 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 Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products 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 applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products 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 TYCO FIRE PRODUCTS 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 TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' 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.

Ordering Procedure

With reference to Table A on Page 16, the following items must be ordered separately:

- Deluge Valve
- Riser Check Valve
- Coupling (Deluge Valve to Riser Check Valve)
- Double Interlock Preaction Trim
- Automatic System Air Supply
- Solenoid Valve
- Accessories

NOTE

1-1/2 inch (DN40) risers utilize a 2 inch (DN50) Riser Check Valve in combination with the 1-1/2 inch (DN40) Model DV-5 Deluge Valve.

Part Numbers for factory pre-trimmed Model DV-5 Valves are provided in the Price Book.

Replacement Trim Parts:
Specify: (description) for use with Model DV-5 Deluge Valve, P/N (see Figure 2A).

DELUGE VALVE (SELECT ONE)
P/N's are for American Standard Groove x Groove Connections, and Threaded Ports, For other configurations refer to Technical Data Sheet TFP1305. Specify: (size) Model DV-5 groove x groove Deluge Valve, P/N (specify).

1-1/2 Inch	P/N 52-477-1-919
2 Inch	P/N 52-477-1-910
3 Inch	P/N 52-477-1-912
4 Inch	P/N 52-477-1-913
6 Inch	P/N 52-477-1-915
8 Inch	P/N 52-477-1-916

RISER CHECK VALVE (SELECT ONE)
P/N's are for American Standard Grooved Connections. For other configurations refer to Technical Data Sheet TFP950 for the groove x groove Model CV-1FR Riser Check Valve. Specify: (size), Model CV-1FR groove x groove Riser Check Valve, P/N (specify). *For 1-1/2 inch risers, use the 2 Inch Riser Check Valve.*

2 Inch	P/N 59-590-1-020
3 Inch	P/N 59-590-1-030
4 Inch	P/N 59-590-1-040
6 Inch	P/N 59-590-1-060
8 Inch	P/N 59-590-1-080

COUPLING (SELECT ONE)
P/N's are for American Standard Grooved Connections. For other configurations and finishes refer to Technical Data Sheet TFP1830 and TFP1880. A coupling to attach the Riser Check Valve to the outlet of the Deluge Valve must be separately ordered. Specify: (Size), (Figure #), painted, (description), P/N (specify). *For 1-1/2 inch risers, order an additional Reducing Coupling for the outlet of the 2 inch Riser Check Valve.*

2 x 1-1/2 Inch Figure 716 Painted Reducing Coupling	P/N 7162015ES
2 Inch Figure 772 Painted Rigid Coupling	P/N 77220ASC
3 Inch Figure 772 Painted Rigid Coupling	P/N 77230ASC
4 Inch Figure 772 Painted Rigid Coupling	P/N 77240ASC
6 Inch Figure 772 Painted Rigid Coupling	P/N 77260ASC
8 Inch Figure 772 Painted Rigid Coupling	P/N 77280ASC

DOUBLE INTERLOCK PREACTION TRIM (SELECT ONE)
Specify: (specify size and finish — galvanized is standard) Semi-Preassembled Double Interlock Preaction System With Electric/Pneumatic Actuation Trim for Model DV-5 Deluge Valves, P/N (specify).

1-1/2 & 2 Inch Galvanized	P/N 52-478-2-127
1-1/2 & 2 Inch Black	P/N 52-478-1-127
3 Inch Galvanized	P/N 52-478-2-124
3 Inch Black	P/N 52-478-1-124
4, 6 & 8 Inch Galvanized	P/N 52-478-2-121
4, 6 & 8 Inch Black.	P/N 52-478-1-121

AUTOMATIC SYSTEM AIR SUPPLY (SELECT ONE)
A device capable of maintaining a nominal system air or nitrogen pressure per Graph A must be separately ordered. Specify: (Specify model and description), P/N (specify).

Model AMD-1 Air Maintenance Device (TFP1221)	P/N 52-324-2-002
Model AMD-2 Air Maintenance Device (TFP1231)	P/N 52-326-2-001
Model AMD-3 Nitrogen Maintenance Device (TFP1241)	P/N 52-328-2-001

SOLENOID VALVE (SELECT ONE)
A Solenoid Valve compatible with the anticipated maximum water supply pressure must be ordered separately. Refer to Technical Data Sheet TFP2180 for other voltage ratings and NEMA classifications. Specify: 24 VDC, NEMA 2, 4 and 4X, (specify 175 or 250 psi) Solenoid Valve, P/N (specify).

175 psi	P/N 52-287-1-024
250 psi	P/N 52-287-1-124

ACCESSORIES (AS NEEDED)
Specify: (description), PN (specify).

600 PSI Water Pressure Gauge	P/N 92-343-1-004
Model WMA-1 Water Motor Alarm (TFP921)	P/N 52-630-1-001

TABLE A — ORDERING LIST