

Double interlock, Electrically Actuated, Local reset

FPS-DIE0

The Preaction system is a fire protection (FP) combined system, consisting of a controlled FDV deluge valve and a riser check valve installed downstream. The pressurized automatic sprinkler pipeline maintains the riser check valve in a closed position. The section between the downstream side of the closed deluge valve and the check valve clapper functions as the "intermediate chamber," where the water pressure switch and the acoustic alarm are connected.

In double-interlock Preaction systems, such as the FPS-DIE0 described here, full system activation depends on the occurrence of two independent, fire-related events: one caused by heat exposure and the other by fire detection. The activation of the FPS-DIE0 system requires two electrical signals.

In the event of a fire, heat causes one or more automatic sprinklers to open, resulting in a drop in pressure within the sprinkler pipeline. This pressure drop activates the air pressure switch, which sends a signal to the main control board. This constitutes the first actuation event.

At this stage, a normally closed solenoid valve located on the deluge valve's control chamber drain line remains closed.

When one or more Electric detectors are triggered, they send an electrical signal to the main control board, constituting the second actuation event. Only when both actuation events have occurred does the control board energize the solenoid valve, thereby opening the FDV deluge valve and allowing water to flow into the sprinkler pipeline.

The trim is equipped with a PSA – a device that enables the local reset of the system i.e. closing the FDV valve by pressurizing the valve's control chamber. In addition, the PSA is considered as a latching device that keeps the valve open even in case of power outage.



MARKETS



Commercial



Industry



Storage



Airports



Residential

TECHNICAL DATA

FLUID: Water

PNEUMATICS: Air, Nitrogen

SIZE RANGE:

50 mm to 250 mm (2' to 10")

AVAILABLE CONNECTIONS ENDS:

Flange*Flange, Groove*Groove, Flange*Groove, Groove* Flange

PRESSURE NOMINAL:

250 psi (17.2 bar)

ADVANTAGES

- Suitable for low temperature zone installation – water spraying pipeline is kept dry.
- Full-bore, unobstructed design.
- The ASK - Air Supply Unit provides a constant air compensation in case of pipeline minor leaks.
- The Manual /Emergency local operation valve installed in a metal enclosure is fully protected from Accidental activation. When opened, it by-passes all terms.
- Open fail-safe valve properly by special fail-safe device – the PSA.
- Low maintenance cost: the main valve is serviced in-line and only one replaceable part - the long-life elastomeric diaphragm. The riser check valve is maintenance free.

CHARACTERISTICS

- Hydro-dynamic pattern design ensures high flowrates with minimum head loss. The system trips open automatically only after two events of actuation:
- The first: Air pressure drop at the sprinklers pipeline that activates the Air pressure switch. The second: one or more of the electric sensors is triggered and sent an electric signal to the main board

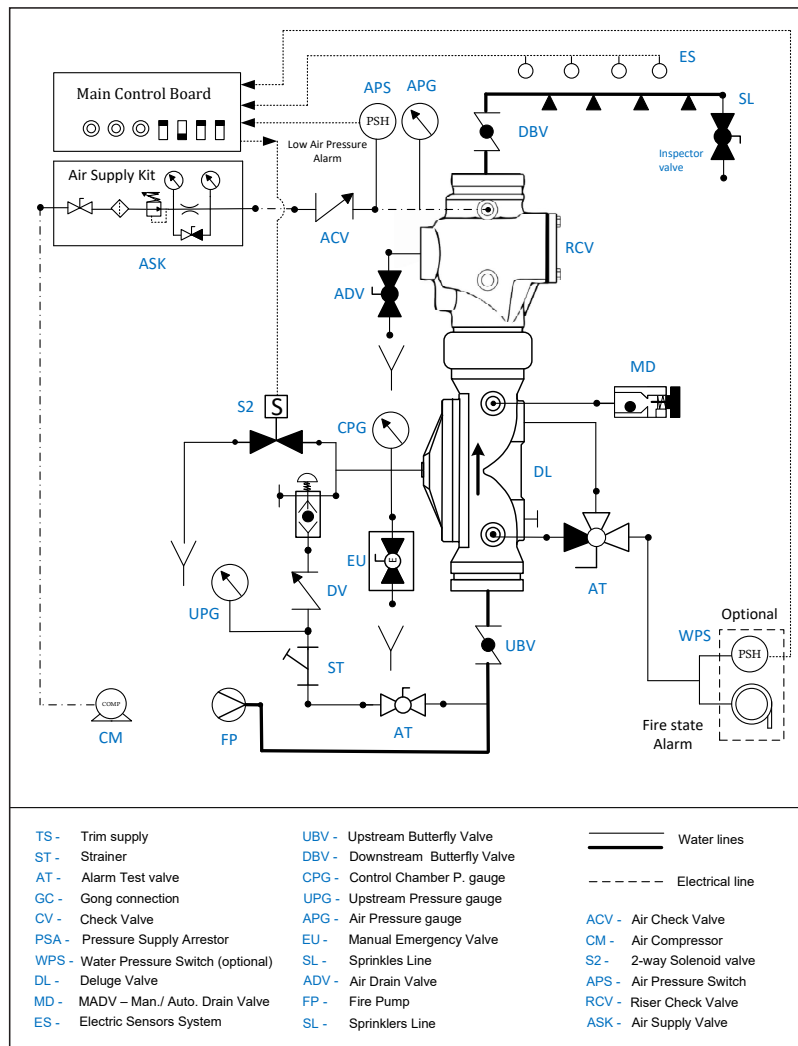
The FPS-DIE0 resets to stand-by close position by de-energizing the solenoid coil through the main control panel and replacing all shuttered open sprinklers enabling the pressurizing of downstream pipeline. In addition, the PSA bush button must be pressed locally.

APPROVALS



Schematic drawing:

Set position



OPERATION

SET POSITION

Pressurized water is retained in the deluge valve's control chamber by the check valve (CV), the closed solenoid valve (S2), the close PSA (PSA) device, by the close Hydraulic actuator (HAV) and the closed emergency valve (EU), keeping the deluge valve closed. Air pressure in the downstream spray pipeline keeps the riser check valve closed.

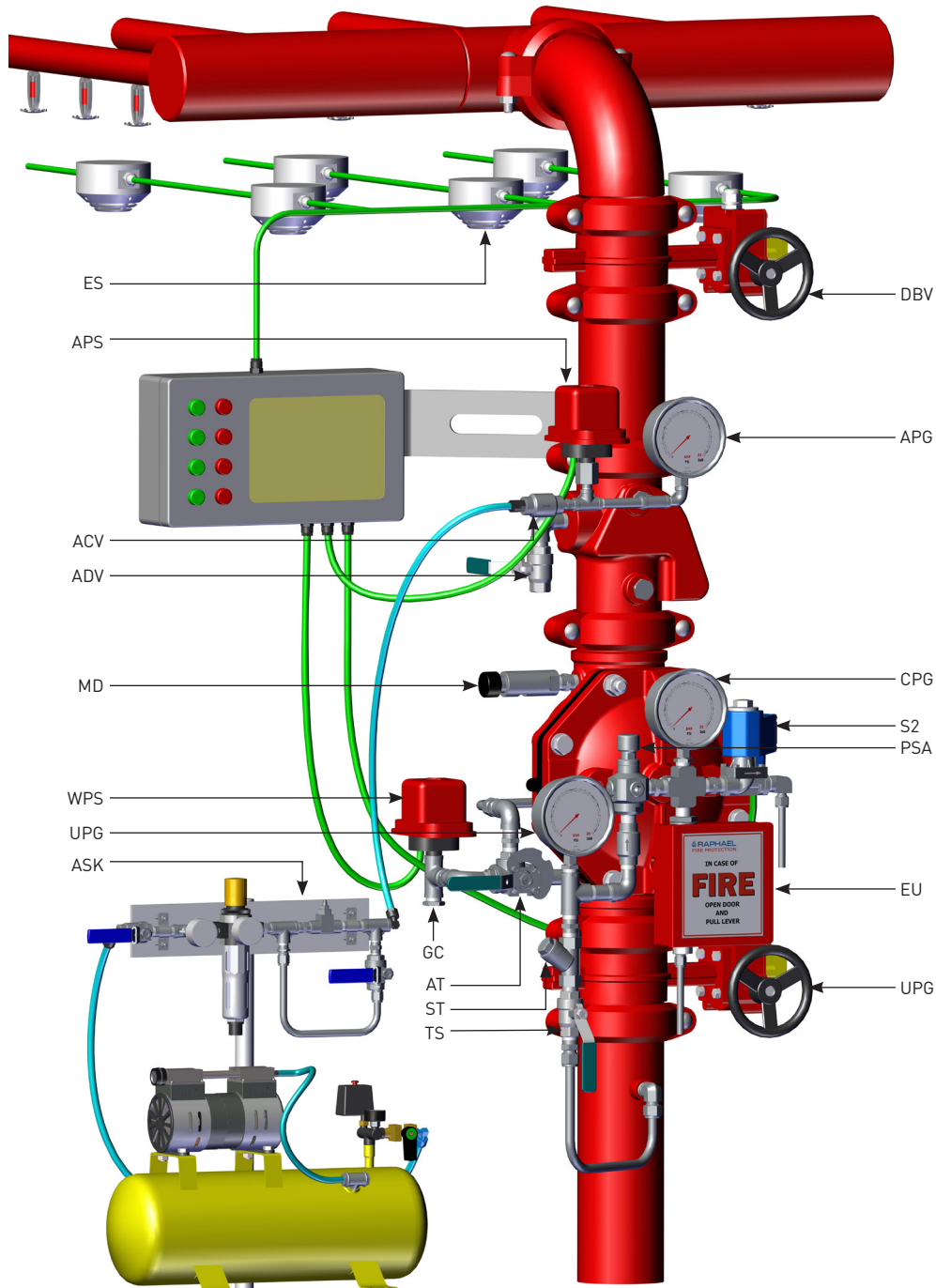
FIRE SITUATION

When heat activates one or more sprinklers, they burst open, causing the pipeline to depressurize. This triggers the low air pressure switch (APS), which closes its internal contacts and sends a signal to the main control board - recognized as the first actuation event.

If the electric detection system senses heat, it sends a signal to the control board - recognized as the second actuation event. The control board then energizes the solenoid valve (S2), which opens and drains the deluge valve's control chamber, allowing the valve to open. Water flows through the open riser check valve to the sprinkler pipeline. This activates all alarms, including the water pressure switch (WPS) and the water motor gong. The PSA avoids the control chamber pressurization and by that, latches the deluge valve open.

RESET POSITION

When the control board de-energizes the solenoid valve (S2), the valve closes. All burst-open sprinklers must be replaced. Before re-pressurizing the spray pipeline with air, it must be completely drained by opening the drain valve (ADV). The PSA (PSA) push button must then be pressed, which enables the trim supply valve (TS) to restore pressure in the control chamber and close the deluge valve.



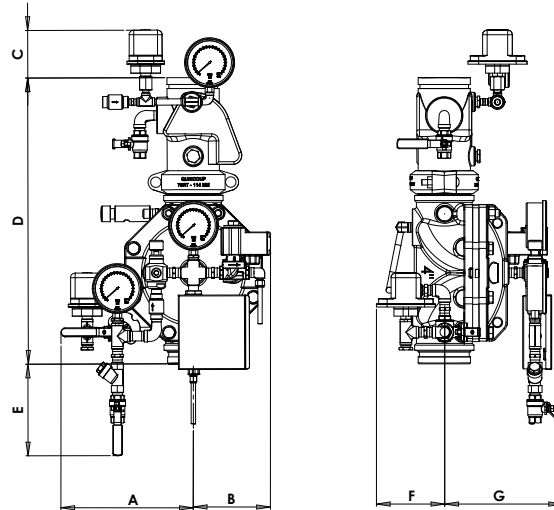
TS - Trim Supply
ST - "Y" Strainer
AT - Alarms Test Valve
GC - Gong Connection
ES - Electric Sensor
EU - Emergency Unit
S2 - Solenoid 2 way

ASK - Air supply kit
ADV - Air Drain Valve
ACV - Air Check Valve
APS - Air Pressure Switch
WPS - Water Pressure Switch
MD - Manual Automatic Drain Valve
APG - Air Pressure Gauge

CPG - Control Chamber Pressure Gauge
UPG - Upstream Pressure Gauge
PSA - Pressure Supply Arrestor
UBV - Upstream Butterfly Valve
DBV - Downstream Butterfly Valve

Parametric drawing:

FPS-DIEO



Dimensions Table

Size	2"		3"		4"		6"		8"		10"	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	263	10.3	296	11.6	290	11.4	315	12.4	336	13.2	373	14.7
B	155	6.1	170	6.7	185	7.2	176	6.9	231	9.0	307	12
C	120	4.7	120	4.7	116	4.5	114	4.5	122	4.8	132	5.2
D	392	15.4	523	20.5	629	24.7	736	28.9	897	35.3	1200	47.2
E	208	8.1	158	6.2	117	4.6	87	3.4	42.6	1.7	N/A	NqA
F	127	5	140	5.5	145	5.7	146	5.7	157	6.1	180	7.0
G	173	6.8	202	7.9	226	8.9	292	11.5	330	13	415	16.3
Kg/lb	14.2	31.3	27.9	61.5	50	110	77.2	170	126	277	179	394

Factory Standard

MAIN VALVE

BODY & COVER

- Ductile iron
- Cast Steel WCB
- Stainless Steel CF8
- Stainless Steel CF8M

RISKER CHECK VALVE:

- Ductile Iron

ELASTOMERS:

- NR, fabric reinforced Natural Rubber
- EPDM, fabric reinforced
- NBR, fabric reinforced Nitrile Rubber

COATING:

- Base layer – high built Epoxy FBE
Top layer – electrostatic Polyester powder RAL 3000
- Rilsan Polyamide based (Nylon 11)
- Internal – vitreous Enamel
External – Epoxy/Polyester powder RAL 3000

TRIM

PIPING & TUBING:

- Stainless Steel 316
- Copper/Brass

FITTINGS:

- Stainless Steel 316
- Brass

ACCESSORIES:

- Stainless steel CF8M
- Brass

PLEASE SPECIFY

- Working Media
- Ambiental conditions
- Min/Max operating flow
- Min/Max operating pressure
- Downstream set pressure
- System installation orientation
- Valve ends and standard
- Deluge valve material and coating
- Trim materials
- Solenoid Voltage
- Solenoid Protection
- Installation orientation
- Additional accessories needed:
 - Water motor Alarm (Gong)
 - Water pressure switch