

Single interlock with Pressure Reducing, Electrically Actuated, Local reset

FPS-SCE0

The preaction system is a combined fire-protection (FP) system consisting of a controlled FDV deluge valve and a riser check valve installed downstream. The pressurized automatic-sprinkler pipeline keeps the riser check valve in the closed position.

The section between the downstream side of the closed deluge valve and the clapper of the check valve functions as the intermediate chamber, where both the water-pressure switch and the acoustic alarm are connected.

In single-interlock pre-action systems, such as the FPS-SCE0 described here, full system activation depends on the occurrence of a single independent fire-related event detected by the electric fire-detection sensors.

When one or more electric detectors are triggered, they send an electrical signal to the main control board. This constitutes the actuation event. Consequently, the control board energizes the solenoid valve, opening the FDV deluge valve and allowing water to flow into the sprinkler pipeline. The low-air-pressure switch is used for supervision only.

Fire suppression is activated only when one or more sprinklers open due to heat. Water is discharged exclusively through the sprinklers that have opened directly above the fire.

The trim is equipped with a PSA - a device that enables local system reset, that is, reclosing the FDV valve by re-pressurizing its control chamber. The PSA is considered a latching device and keeps the valve open even in the event of a power outage.

The FPS-SCE0 system is also capable of reducing upstream pressure to a predetermined downstream pressure and maintaining it at a steady level. The pressure-reducing pilot responds to any downstream-pressure changes caused by flow-rate variations, ensuring a stable set pressure.



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 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 valve can be serviced in-line and includes only one replaceable part – a long-life elastomeric diaphragm.

CHARACTERISTICS

- Hydro-dynamic pattern design ensures high flowrates with minimum head loss.
- The system trips open automatically only after one event of actuation - one or more of the electric sensors is triggered and sent an electric signal to the main board

The FPS-SCE0 resets to stand-by close position, by de-energizing the solenoid valve coil through the main control panel and replacing all shuttered open sprinklers, enabling the pressurizing of downstream pipeline. In addition, by manually operating the local reset device – the PSA.

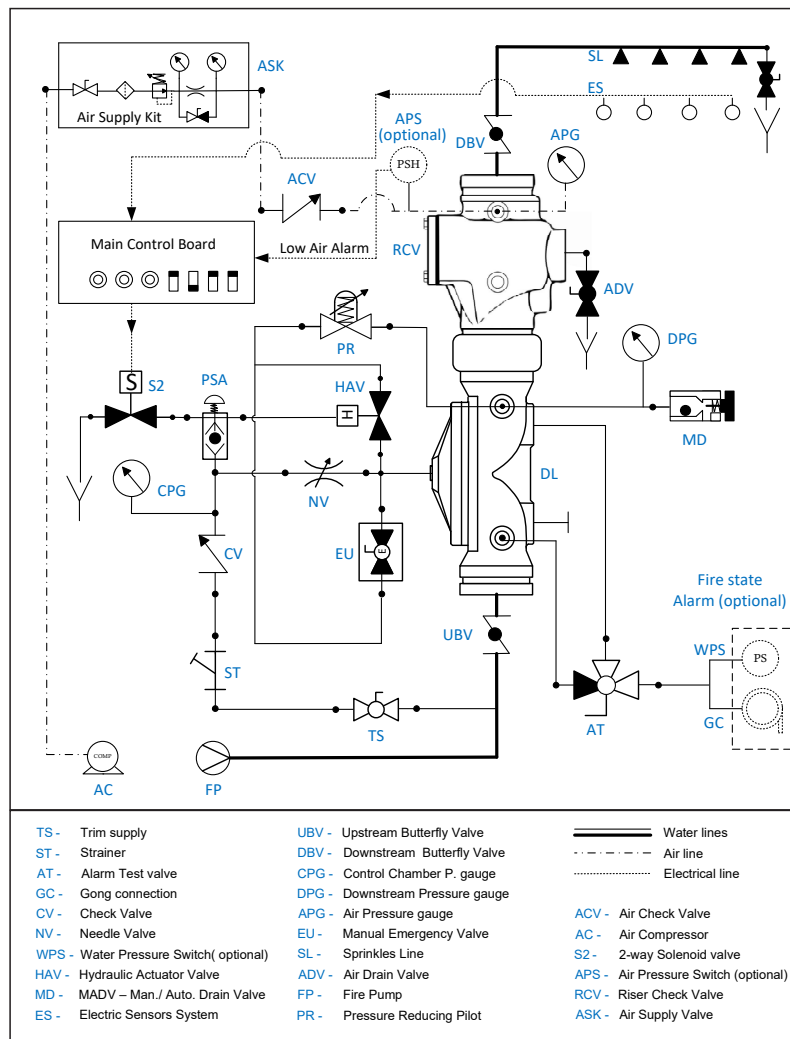
A pressure-reducing pilot enables full control over the downstream pressure and ensures a steady set in a wide pressure range.

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 pneumatic actuator valve (HAV), the closed PSA (PSA) device, 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

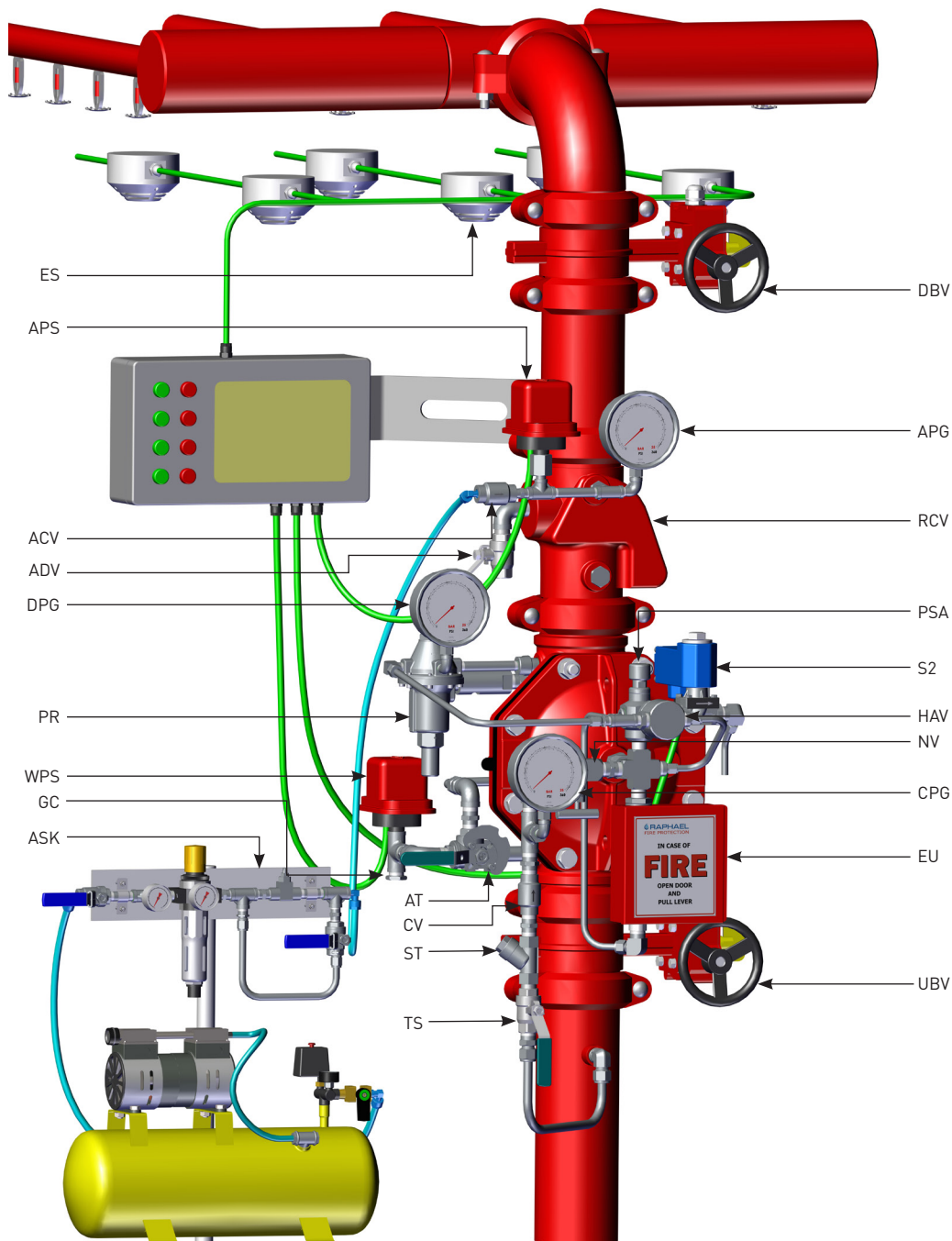
When the electric detection system senses heat, it sends a signal to the control board, recognized as the single actuation event. The control board then energizes the solenoid valve (S2), which drains the hydraulic actuator (HAV) control chamber, allowing it to open. When open, water trapped in the deluge control chamber flows through the pressure-reducing pilot to the downstream, and the deluge valve opens. Water admitted by the deluge 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 low-air-pressure switch (APS), if installed, serves for supervisory purposes only.

The PSA (PSA) prevents the control HAV's control chamber from re-pressurizing and, thereby, latches the deluge valve open.

RESET POSITION

When the control board de-energizes the solenoid valve (S2) and the PSA pushbutton has been pressed, the HAV control chamber pressurizes and the actuator closes. Upstream flow through the trim supply valve (TS) and the needle valve (NV) pressurizes the deluge control chamber, causing it to close. After it closes, the PSA pushbutton can be released.

All burst-open sprinklers must be replaced. Before re-pressurizing the spray pipeline with air, it must be thoroughly drained using the air-drain valve (ADV).

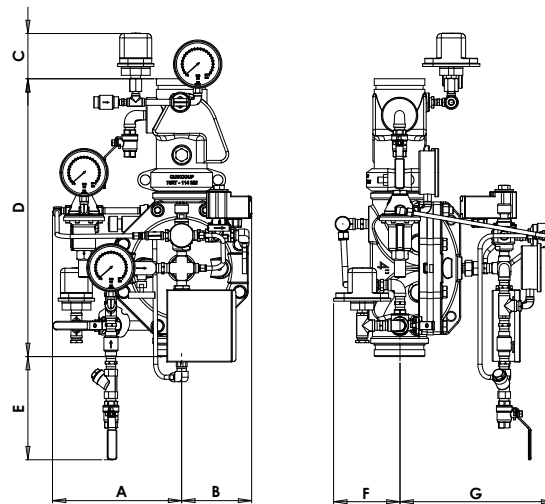


DBV - Downstream Butterfly Valve
UBV - Upstream Butterfly Valve
CPG - Control Chamber Pressure Gauge
DPG - Downstream Pressure Gauge
APG - Air Pressure Gauge
ES - Electric Sensors system
ASK - Air Supply Kit
ACV - Air Check Valve

ADV - Air Drain Valve
S2 - Solenoid 2 way
PR - Pressure Reducing Pilot Valve
PSA - Pressure Supply Arrestor
EU - Emergency Unit
CV - Check Valve
ST - "Y" Strainer
TS - Trim Supply

NV - Needle Valve
AT - Alarms Test Valve
GC - Gong Connection
HAV - Hydraulic Actuator Valve
WPS - Water Pressure Switch
APS - Air Pressure Switch (optional)
RCV - Riser Check Valve

Parametric drawing:



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	394	15.5
B	146	5.7	146	5.7	150	5.9	176	6.9	231	9	308	12.1
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	222	8.7	223	8.7	138	5.4	101	3.9	49	1.9	N/A	N/A
F	108	4.2	159	6.2	145	5.7	146	5.7	157	6.1	216	8.5
G	273	10.7	302	11.8	340	13.3	404	15.9	441	17.3	517	20.3
Kg/lb	18.6	41	31	68.3	53	116	81.2	178	131	288	186	410

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
- Pneumatic 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
 - Low air pressure switch