

SAPPHIRE® 42 Bar Total Flood Fire Suppression System

Description

GEM SAPPHIRE® 42 bar Total Flood Fire Suppression Systems are safe, environmentally friendly clean agent systems that deliver FK-5-1-12 agent. SAPPHIRE Total Flood Fire Suppression Systems have a proven track record for protecting people and high value assets.

Features

- Fully meets EN 12094 (components)
- Compliance with VdS 2381 guidelines for halocarbon systems
- Designs according to EN 15004, ISO 14520, and NFPA 2001
- VdS flow calculation software
- Selector valve systems
- Fitted with pressure monitoring (optional)
- Electric, pneumatic, or manual operation
- Operating range of -20 °C to 50 °C
- Manufactured in the UK

Applications

FK-5-1-12 agent is effective for the following total flood fire suppression applications:

- Data centers
- Electrical switching rooms
- Machinery spaces
- Medical facilities
- Heritage and cultural sites
- Air traffic control
- Oil and gas facilities

Approvals, listings, and certifications

- LPCB
- VdS
- CNBOP
- CE marked
- UKCA marked



Specifications

Table 1: Specifications

Environmental data	
Ozone Depletion Potential (ODP):	0
Global Warming Potential (GWP):	1
Atmospheric Life Time (ALT):	0.014 years (5 days)
Operating temperature (system):	-20 °C to 50 °C
Storage temperature (system):	-20 °C to 50 °C
Physical properties of FK-5-1-12 agent	
Molecular mass:	316.04 g/mol
Boiling point:	49.0 °C
Freezing point:	-108.0 °C
Vapor pressure 20 °C:	0.3260 bar abs*
Liquid density 20 °C:	1.616 g/ml
Saturated vapor density 20 °C:	4.3305 kg/m ³
Heat of vaporization at boiling point:	88.0 kJ/kg
Chemical formula:	CF ₃ CF ₂ C(O)CF(CF ₃) ₂
Chemical name:	Dodecafluoro-2-methylpentan-3-one

*1 bar = 0.1 MPa = 10⁵ Pa; 1 MPa = 1 N/mm²

Ordering information

- Each container assembly consists of a container complete with valve assembly, pressure gauge, pressure gauge switch, low pressure switch, and a container label (ordered separately).
- Each container assembly is pressurized with dry nitrogen to 42 bar at 20 °C.
- Do not store the containers in direct sunlight or in adverse weather conditions. Do not position the containers where water can accumulate around the base.

Table 2: TPED seamless SAPPHIRE container assembly details rated for 42 bar (nominal) systems manufactured to ISO 9809-1 or ISO 9809-2 as applicable

Part No.	Container size	Pressure gauge type	Temp. °C	Fill density		Minimum and maximum fills (weight)		Valve size mm	Height from floor to outlet (nom.) mm	Dia. mm	Nominal tare weight kg	Nominal gross weight at max. fill density excluding N ₂ kg
	L			Min. kg/L	Max. kg/L	Min. kg	Max. kg					
303207400	15	PG or CPG	50	0.5	1	7.5	15	25	695	204	29.3	44.3
303207401	30	PG or CPG	50	0.5	1	15	30	25	1010	229	38.8	68.8
303207402	45	PG or CPG	50	0.5	1	22.5	45	25	1110	267	60.4	105.4
303207403	60	PG or CPG	50	0.5	1	30	60	50	1428	267	80.1	140.1
303207404	120	PG or CPG	50	0.5	1	60	120	50	1543	360	140.6	260.6
303207406	180	PG or CPG	50	0.5	1	90	180	50	1743	406	214.8	394.8

Note: PG (standard pressure gauge)
CPG (contacted pressure gauge)

Table 3: DOT/TPED seamless SAPPHIRE container assembly details for 42 bar (nominal) systems manufactured to ISO 9809-01 or ISO 9809-2 as applicable

Part No.	Container size	Pressure gauge type	Temp. °C	Fill density		Minimum and maximum fills (weight)		Valve size mm	Height from floor to outlet (nom.) mm	Dia. mm	Nominal tare weight kg	Nominal gross weight at max. fill density excluding N ₂ kg
	L			Min. kg/L	Max. kg/L	Min. kg	Max. kg					
303207410	15	PG or CPG	50	0.5	1	7.5	15	25	695	204	29.3	44.3
303207411	30	PG or CPG	50	0.5	1	15	30	25	1010	229	38.8	68.8
303207412	45	PG or CPG	50	0.5	1	22.5	45	25	1110	267	60.4	105.4
303207413	60	PG or CPG	50	0.5	1	30	60	50	1428	267	80.1	140.1
303207414	120	PG or CPG	50	0.5	1	60	120	50	1543	360	140.6	260.6
303207415	150	PG or CPG	50	0.5	1	75	150	50	1893	360	166.6	316.6

Note: PG (standard pressure gauge)
CPG (contacted pressure gauge)

Ordering information

Table 4: Seamless PESO container details for 42 bar (nominal) systems manufactured to IS:7285 (Pt 2) with BIS and PESO approval

Part No.**	Container size	Pressure gauge type	Temp. °C	Fill density		Minimum and maximum fills (weight)		Valve size mm	Height from floor to outlet (nom.) mm	Dia. mm	Nominal tare weight kg	Nominal gross weight at max. fill density excluding N ₂ kg
	L			Min. kg/L	Max. kg/L	Min. kg	Max. kg					
303.207.092	34	PG or CPG	50	0.5	1	17	34	25	865	267	47	81
303.207.089	80	PG or CPG	50	0.5	1	40	80	50	1792	267	93	173
303.207.090*	120	PG or CPG	50	0.5	1	60	120	50	1622	356	144	264
303.207.101	120	PG or CPG	50	0.5	1	60	120	50	1317	406	160	280
303.207.102	140	PG or CPG	50	0.5	1	70	140	50	1492	406	175	315
303.207.091*	150	PG or CPG	50	0.5	1	75	150	50	1952	356	170	320
303.207.103	180	PG or CPG	50	0.5	1	90	180	50	1837	406	210	390

Notes: IS:7285 (Pt 2) container assemblies are only for use in India.

* Only available on special order.

** Add the suffix CR to part numbers for high corrosion-resistant painted container assemblies. For example, Part No. 303.207.099 uses standard paint and Part No. 303.207.099CR uses high corrosion-resistant paint.

PG (standard pressure gauge)

CPG (contacted pressure gauge)

Table 5: Welded TPED container details for 42 bar (nominal) systems manufactured to EN 13322-1 or EN 14208 as applicable

Part No.	Container size	Pressure gauge type	Temp. °C	Fill density		Minimum and maximum fills (weight)		Valve size mm	Height from floor to outlet (nom.) mm	Dia. mm	Nominal tare weight kg	Nominal gross weight at max. fill density excluding N ₂ kg
	L			Min. kg/L	Max. kg/L	Min. kg	Max. kg					
303.207.030	8	PG	50	0.5	1	4	8	25	305	254	17.4	25.4
303.207.031	16	PG	50	0.5	1	8	16	25	504	254	23.4	39.4
303.207.032	32	PG	50	0.5	1	16	32	25	836	254	27.5	59.5
303.207.033	52	PG	50	0.5	1	26	52	50	595	406	68.7	120.7
303.207.034	106	PG	50	0.5	1	53	106	50	1022	406	88.8	194.8
303.207.035	147	PG	50	0.5	1	73.5	147	50	1356	406	108.8	255.8
303.207.036*	180	PG	50	0.5	1	90	180	50	1635	406	128.8	308.8

Note: *The 180 L container is manufactured to EN 14208.

PG (standard pressure gauge)

CPG (contacted pressure gauge)

Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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