

SAPPHIRE® 25 Bar Total Flood Fire Suppression System

Description

GEM SAPPHIRE® 25 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)
- Designs according to EN 15004, ISO 14520, and NFPA 2001
- JENSEN HUGHES flow calculation software
- Fitted with pressure monitoring (optional)
- Electric, pneumatic, or manual operation
- Operating range of -18 °C to 54 °C (0 °F to 130 °F)
- 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

- UL Listed
- FM Approved
- 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):	-18 °C to 54 °C (0 °F to 130 °F)
Storage temperature (system):	-18 °C to 54 °C (0 °F to 130 °F)
Physical properties of FK-5-1-12 agent	
Molecular mass:	316.04 g/mol
Boiling point:	49.0 °C (120.2 °F)
Freezing point:	-108.0 °C (-162.4 °F)
Vapor pressure 20 °C (70 °F):	0.3260 bar abs*
Liquid density 20 °C (70 °F):	1.616 g/ml
Saturated vapor density 20 °C (70 °F)	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 25 bar at 20 °C (360 psi at 70 °F).
- 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 -18 °C to 54 °C (0 °F to 130 °F)

Part No.	Container size	Pressure gauge type	Fill density		Minimum and maximum fills (weight)		Valve size	Height from floor to outlet (nom.)	Dia.	Nominal tare weight	Nominal gross weight at max. fill density excluding N ₂
	L		Min kg/L (lb/ft ³)	Max. kg/L (lb/ft ³)	Min. kg (lb)	Max. kg (lb)					
303207300	15	PG	0.5 (31.2)	1.2 (74.9)	7.5 (17)	18 (39)	25 (1.0)	695 (27.4)	204 (8.0)	29.3 (64.6)	47.3 (104.3)
303207301	30	PG	0.5 (31.2)	1.2 (74.9)	15 (33)	36 (79)	25 (1.0)	1010 (39.8)	229 (9.0)	38.8 (85.5)	74.8 (164.9)
303207302	45	PG	0.5 (31.2)	1.2 (74.9)	22.5 (50)	54 (119)	25 (1.0)	1110 (43.7)	267 (10.5)	60.4 (133.2)	114.4 (252.2)
303207303	60	PG	0.5 (31.2)	1.2 (74.9)	30 (67)	72 (158)	50 (2.0)	1428 (56.2)	267 (10.5)	80.1 (176.6)	152.1 (335.3)
303207304	120	PG	0.5 (31.2)	1.2 (74.9)	60 (133)	144 (317)	50 (2.0)	1543 (60.7)	360 (14.2)	140.6 (310.0)	284.6 (627.4)
303207305	150	PG	0.5 (31.2)	1.2 (74.9)	75 (166)	180 (396)	50 (2.0)	1893 (74.5)	360 (14.2)	166.6 (367.3)	346.6 (764.1)
303207306	180	PG	0.5 (31.2)	1.2 (74.9)	90 (199)	216 (476)	50 (2.0)	1743 (68.6)	406 (16.0)	214.8 (473.6)	430.8 (949.8)

Note: When ordering containers, the gauge type, low pressure switch, fill weight, operating temperature range, and container label must be specified at the time of shipment.

Table 3: DOT/TPED seamless SAPPHIRE container assembly details rated for -18 °C to 54 °C (0 °F to 130 °F)

Part No.	Container size	Pressure gauge type	Fill density		Minimum and maximum fills (weight)		Valve size	Height from floor to outlet (nom.)	Dia.	Nominal tare weight	Nominal gross weight at max. fill density excluding N ₂
	L		Min kg/L (lb/ft ³)	Max. kg/L (lb/ft ³)	Min. kg (lb)	Max. kg (lb)					
303207310	15	PG	0.5 (31.2)	1.2 (74.9)	7.5 (17)	18 (39)	25 (1.0)	695 (27.4)	204 (8.0)	29.3 (64.6)	47.3 (104.3)
303207311	30	PG	0.5 (31.2)	1.2 (74.9)	15 (33)	36 (79)	25 (1.0)	1010 (39.8)	229 (9.0)	38.8 (85.5)	74.8 (164.9)
303207312	45	PG	0.5 (31.2)	1.2 (74.9)	22.5 (50)	54 (119)	25 (1.0)	1110 (43.7)	267 (10.5)	60.4 (133.2)	114.4 (252.2)
303207313	60	PG	0.5 (31.2)	1.2 (74.9)	30 (67)	72 (158)	50 (2.0)	1428 (56.2)	267 (10.5)	80.1 (176.6)	152.1 (335.3)
303207314	120	PG	0.5 (31.2)	1.2 (74.9)	60 (133)	144 (317)	50 (2.0)	1543 (60.7)	360 (14.2)	140.6 (310.0)	284.6 (627.4)
303207315	150	PG	0.5 (31.2)	1.2 (74.9)	75 (166)	180 (396)	50 (2.0)	1893 (74.5)	360 (14.2)	166.6 (367.3)	346.6 (764.1)

Notes: 1. The DOT/TPED 25 bar seamless container assemblies are not approved for transportation in North America.
2. When ordering containers, the pressure gauge, low pressure switch, fill weight, operating temperature range, and container label must be specified at the time of shipment.

Ordering information

Table 4: DOT welded SAPPHIRE container assembly details rated for -18 °C to 54 °C (0 °F to 130 °F)

Part No.	Container size	Pressure gauge type	Fill density		Minimum and maximum fills (weight)		Valve size	Height from floor to outlet (nom.)	Dia.	Nominal tare weight	Nominal gross weight at max. fill density excluding N ₂
	L		Min. kg/L (lb/ft ³)	Max. kg/L (lb/ft ³)	Min. kg (lb)	Max. kg (lb)					
303.207.010	4.5	PG	0.5 (31.2)	1.2 (74.9)	2.5 (5.5)	5 (11)	25 (1.0)	324 (12.8)	178 (7)	7.7 (17)	12.7 (28.0)
303.207.001	8	PG	0.5 (31.2)	1.2 (74.9)	4.0 (9)	9.5 (21)	25 (1.0)	305 (12.0)	254 (10)	14.8 (32.6)	24.3 (53.6)
303.207.002	16	PG	0.5 (31.2)	1.2 (74.9)	8.0 (18)	19 (42)	25 (1.0)	504 (19.8)	254 (10)	18.4 (40.6)	37.4 (82.5)
303.207.003	32	PG	0.5 (31.2)	1.2 (74.9)	16.0 (36)	38 (84)	25 (1.0)	836 (32.9)	254 (10)	26.1 (57.5)	64.1 (141.3)
303.207.004	52	PG	0.5 (31.2)	1.2 (74.9)	26.0 (58)	62 (137)	50 (2.0)	595 (23.4)	406 (16)	49.1 (108.3)	111.1 (244.9)
303.207.005	106	PG	0.5 (31.2)	1.2 (74.9)	53.0 (117)	127 (280)	50 (2.0)	1022 (40.2)	406 (16)	71.8 (158.3)	198.8 (438.3)
303.207.006	147	PG	0.5 (31.2)	1.2 (74.9)	73.5 (163)	176 (388)	50 (2.0)	1356 (53.4)	406 (16)	89.9 (198.2)	265.9 (586.2)
303.207.007	180	PG	0.5 (31.2)	1.2 (74.9)	90.0 (199)	208 (459)	50 (2.0)	1635 (64.4)	406 (16)	105.8 (233.2)	313.8 (691.8)
303.207.008	343	PG	0.5 (31.2)	1.2 (74.9)	171.5 (379)	386 (851)	80 (3.0)	1466 (57.7)	610 (24)	207.0 (456.0)	593.0 (1307.3)

Notes: 1. The 4.5 L DOT welded container is not available from Marinette, US.

2. When ordering containers, the gauge type, low pressure switch, fill weight, operating temperature range, container label, and liquid level indicator must be specified at the time of shipment.

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

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