

# SAPPHIRE® PLUS Total Flood Fire Suppression System

## Features

- UL/ULC Listed and FM Approved
- Fully meets EN 12094
- Designed according to NFPA 2001, EN 15004, and ISO 14520
- UL and FM verified software
- Selector valve systems
- Available with standard pressure gauge or contacted pressure gauge for pressure monitoring
- Electric, pneumatic, or manual operation
- Centralized storage locations
- Reduced pipe diameters for traditional systems

## Applications

The ANSUL® SAPPHIRE® PLUS Total Flood Fire Suppression System utilizes 3M™ Novec™ 1230 Fire Protection Fluid as the suppression agent. Novec 1230 fluid is effective for the following total flooding fire suppression applications:

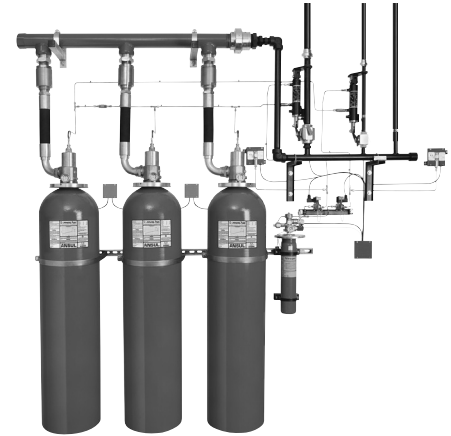
- Data centers
- Electrical switching rooms
- Machinery spaces
- Medical facilities
- Heritage and cultural sites
- Air traffic control
- Oil and gas facilities

## Description

Conventional SAPPHIRE systems use a storage pressure of 363 psi (25 bar) or 609 psi (42 bar), which is suitable for many applications. The SAPPHIRE PLUS system uses a storage pressure of 1,015 psi (70 bar) to provide the designer with more flexibility when planning the layout of the system. This super-pressurization means the containers can be placed further from the hazard area, if required. The use of smaller pipe diameters, and the use of selector valves help to protect multiple areas using one bank of containers.

## Approvals and Listings

- UL/ULC Listed
- FM Approved
- CE Marked



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## Specifications

Environmental Data	
Ozone Depletion Potential (ODP)	0
Global Warming Potential (GWP)	1
Atmospheric Lifetime (ALT)	3 to 5 days
Operating and storage temperature	0 °F to 122 °F (-18 °C to 50 °C) (UL, FM, and CE)  32 °F to 149 °F (0 °C to 65 °C) (UL and FM)

**Note:** Temperature range is dependent on fill density and nozzle coverage. For details, refer to the latest revision of manual *PN571000*.

Physical Properties of 3M Novec 1230 Fluid		
Properties	Unit	Value
Molecular weight	–	316.04
Boiling point at 1,013 bar (absolute)	°F (°C)	120.6 (49.2)
Freezing point	°F (°C)	-162.4 (-108.0)
Vapor pressure 68 °F (20 °C)	bar abs*	0.3260
Liquid density 68 °F (20 °C)	g/ml	1.616
Saturated vapor density 68 °F (20 °C)	kg/m <sup>3</sup>	4.3305
Heat of vaporization at boiling point	kJ/kg	88.0
Chemical formula	CF <sub>3</sub> CF <sub>2</sub> C(O)CF(CF <sub>3</sub> ) <sub>2</sub>	
Chemical name	Dodecafluoro-2-methylpentan-3-one	

\* 1 bar = 0.1 MPa = 100,000 Pa = 14.5 psi;  
1 MPa = 1 N/mm<sup>2</sup>

Safety Data Sheets (SDS) are available at [www.ansul.com](http://www.ansul.com)

## Ordering Information

### From Marinette, Wisconsin, USA (UL/ULC Listed and FM Approved)

Part No.	Containers with Standard Pressure Gauge (DOT*/TPED)	Part No.	Containers with Contacted Pressure Gauge (DOT*/TPED)
303700041	15 L, 122 °F (50 °C)	303700047	15 L, 122 °F (50 °C)
303700042	30 L, 122 °F (50 °C)	303700048	30 L, 122 °F (50 °C)
303700043	45 L, 122 °F (50 °C)	303700049	45 L, 122 °F (50 °C)
303700044	60 L, 122 °F (50 °C)	303700050	60 L, 122 °F (50 °C)
303700045	120 L, 122 °F (50 °C)	303700051	120 L, 122 °F (50 °C)
303700065	150 L, 122 °F (50 °C)	303700066	150 L, 122 °F (50 °C)
303700053	15 L, 149 °F (65 °C)	303700059	15 L, 149 °F (65 °C)
303700054	30 L, 149 °F (65 °C)	303700060	30 L, 149 °F (65 °C)
303700055	45 L, 149 °F (65 °C)	303700061	45 L, 149 °F (65 °C)
303700056	60 L, 149 °F (65 °C)	303700062	60 L, 149 °F (65 °C)
303700057	120 L, 149 °F (65 °C)	303700063	120 L, 149 °F (65 °C)
303700067	150 L, 149 °F (65 °C)	303700068	150 L, 149 °F (65 °C)

\* Canada and the USA mutually recognize the regulatory approvals for UN pressure receptacles. This means that UN pressure receptacles manufactured in accordance with 49 CFR (Code of Federal Regulations) marked with USA as the country of approval, commonly referred to as DOT, satisfy the TC requirements.

### From Great Yarmouth, UK (UL Listed and FM Approved)

Part No.	Containers with Standard Pressure Gauge (TPED)	Part No.	Containers with Contacted Pressure Gauge (TPED)
303700001	15 L, 122 °F (50 °C)	303700007	15 L, 122 °F (50 °C)
303700002	30 L, 122 °F (50 °C)	303700008	30 L, 122 °F (50 °C)
303700003	45 L, 122 °F (50 °C)	303700009	45 L, 122 °F (50 °C)
303700004	60 L, 122 °F (50 °C)	303700010	60 L, 122 °F (50 °C)
303700005	120 L, 122 °F (50 °C)	303700011	120 L, 122 °F (50 °C)
303700006	180 L, 122 °F (50 °C)	303700012	180 L, 122 °F (50 °C)
303700013	15 L, 149 °F (65 °C)	303700019	15 L, 149 °F (65 °C)
303700014	30 L, 149 °F (65 °C)	303700020	30 L, 149 °F (65 °C)
303700015	45 L, 149 °F (65 °C)	303700021	45 L, 149 °F (65 °C)
303700016	60 L, 149 °F (65 °C)	303700022	60 L, 149 °F (65 °C)
303700017	120 L, 149 °F (65 °C)	303700023	120 L, 149 °F (65 °C)
303700018	180 L, 149 °F (65 °C)	303700024	180 L, 149 °F (65 °C)

### From Mumbai, India (UL Listed and FM Approved)

Part No.	Containers with Standard Pressure Gauge (PESO)	Part No.	Containers with Contacted Pressure Gauge (PESO)
303700025	34 L, 122 °F (50 °C)	303700033	34 L, 122 °F (50 °C)
303700026	80 L, 122 °F (50 °C)	303700034	80 L, 122 °F (50 °C)
303700027	120 L, 122 °F (50 °C)	303700035	120 L, 122 °F (50 °C)
303700028	180 L, 122 °F (50 °C)	303700036	180 L, 122 °F (50 °C)
303700029	34 L, 149 °F (65 °C)	303700037	34 L, 149 °F (65 °C)
303700030	80 L, 149 °F (65 °C)	303700038	80 L, 149 °F (65 °C)
303700031	120 L, 149 °F (65 °C)	303700039	120 L, 149 °F (65 °C)
303700032	180 L, 149 °F (65 °C)	303700040	180 L, 149 °F (65 °C)

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

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