



EVERSAFE®

Your Solution to *FIRE SAFETY*



NAF S 1230®
(FK-5-1-12)

UL LISTED
TOTAL FLOODING CLEAN AGENT
FIRE EXTINGUISHING SYSTEMS

EDITION 2021

| APPROVED BY



COMPANY PROFILE

About Us

Eversafe Extinguisher Sdn. Bhd. incorporated in the year 1979, is a member of Leeden National Oxygen Ltd, Singapore. Our production of fire-fighting equipment is housed within 2.844 acres of manufacturing and R&D facilities which allows us to offer an extensive range of high-quality products and systems

Core Values



Quality First



Safety is Our Priority



Teamwork



Provide Solutions



Integrity Always



Customer Focus



Positive Change

Vision

We aim to be the global leader in the production and marketing of firefighting equipment, systems, and solutions, through the use of innovative design.

Quality Control

Manufacturing process and quality management system have been certified to BS EN ISO 9001 by British Standards Institution.

Manufacturer/Distributor of

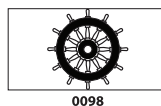
- Portable Fire Extinguishers
- Mobile Fire Extinguishers
- Fire Hose Reels
- Landing Valves
- Breeching Inlets
- Fire Hydrant Equipment
- Nozzles
- Smoke Alarms
- Fire Blankets
- Canvas Hoses
- Cabinets
- CO2 Fire Extinguishing System
- NAF S 227 Fire Extinguishing System (FM 200 Alternative)
- NAF S 125 Fire Extinguishing System
- NAF S 1230 Fire Extinguishing System
- Inert Gases Fire Extinguishing System
- Kerr Fire Foam Compound
- Wet Chemical Amerex Fire Suppression System

Product Standard/Certification

Our products are in compliance with the following product standards / certification bodies:

- American Standard (**UL**)
- Australian Standard (**SAI Global**)
- European Standard (**BSI / LPCB**)
- Malaysian Standard (**SIRIM / IKRAM**)
- Singapore Standard (**TÜV SÜD PSB / SETSCO**)
- Construction Product Directive, CPD / CPR (**BRE**)
- Pressure Equipment Directive, CE Mark (**Lloyd's Register**)
- Marine Equipment Directive, Wheel Mark (**DNV-GL**)
- Offshore Special Regulations - Sarawak Shell Bhd / Sarawak Shell Petroleum Co (**SSB / SSPC**)
- Kuwait National Petroleum Co (**KNPC**)
- Kuwait Oil Company (**KOC**)

PRODUCT APPROVALS



EVERSAFE® NAF S 1230® FIRE EXTINGUISHING SYSTEM

NAF S 1230® Engineered Extinguishing System is a next-generation halon alternative fire suppression system ideal for use in total flooding applications. It is also a hydrofluorocarbon (HFC) alternative on account of The Kigali Amendment listed HFC as substance controlled to be phased down by 2040 under the Montreal Protocol.

Eversafe is authorized distributor of NAF S 1230® Engineered Extinguishing System originated from Italy, as well as UL approved Alternative Manufacturing Location (AML) to design, assemble, fill, refill, maintain and service the system. Our NAF S 1230® system equipment is designed for an operating temperature range of 0°C to 50°C, and is appropriate for Class A, B and C fire hazards.

We offer a wide range of seamless or welded cylinder capacity to store the NAF S 1230® fluid as a liquid, super pressurized with Nitrogen to 25 bar, 42 bar or 60 bar at 21°C for suiting various design requirements and size of protected enclosure.



THE AGENT

The NAF S 1230® fluid is a fluorinated ketone, internationally identified as 1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)-3-pentanone, has a molecular formula of $C_6F_{12}O$. This fluid is identified in NFPA 2001 as FK-5-1-12, namely Dodecafluoro-2-methylpentan-3-one.

VARIETY OF CYLINDER CAPACITY

WORKING PRESSURE	CYLINDER CAPACITY (L)
25 Bar	175 L & 240 L
42 Bar	5 L, 13.4 L, 26.8 L, 40.2L, 67.5 L, 75 L, 100 L & 120 L
60 Bar	140 L, 160 L & 180 L

APPLICATION

Telecommunication Facilities

- Communication Centres
- Central & Remote Cellular Sites
- Call Centres
- Satellite Ground Stations

Commercial, Institutional Facilities Corporate & Electronic Facilities

- Medical Rooms
- Server Rooms
- Computer Rooms
- Galleries
- Aviation & Hangars
- Process Control Rooms

Power Generation, Transmission & Distribution Facilities

- Power Plant
- Power Transmitter
- Substation Rooms
- Electric Rooms

Archives, Data Bank & Industrial Applications

- Data Storage
- Archives & Libraries
- Military Installations
- Pharmaceutical Facilities
- Laboratories
- Clean Rooms

As compared with other clean agent listed in NFPA 2001, FK-5-1-12 has an excellent environmental profile:

- # SYSTEM SOLUTION

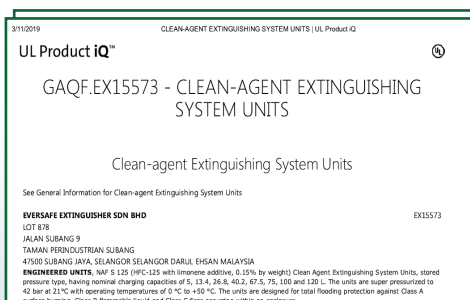


HOW IT WORKS?

The NAF S 1230® systems extinguish incipient stage fire in mere seconds by rapidly removing heat. The unique mechanism of FK-5-1-12 relies upon its ability to absorb heat energy from the combustion reaction at a molecular level. The ability of FK-5-1-12 to absorb heat faster than it is generated, essentially ends the combustion reaction.

Since FK-5-1-12 is discharged as a gaseous vapor, it rapidly penetrates enclosures to get to the source of the fire, reaching areas that can't be penetrated by water or dry chemical agent cannot.

APPROVAL & RECOGNITION



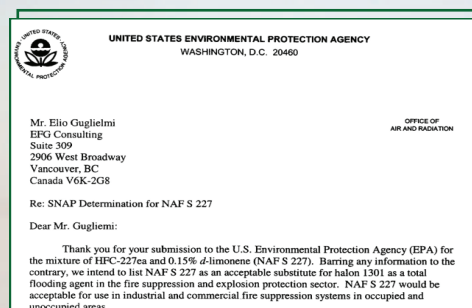
- Tested to UL 2166, UL Listed
- Listed in the classification of Agents as per NFPA 2001 standard
- Eversafe is UL approved Alternative Manufacturing Location (AML)



- UL approved flow calculation program IX1230 FCS



- Approved by BOMBA Malaysia



- Recognized as Halon replacement by US EPA



NAF S 1230® Fire Extinguishing System

Extinguishing System Components



SHFKBCA175
SHFKBCA240

SHFKBCA005
SHFKBCA013
SHFKBCA026

SHFKBCA040
SHFKBCA067

SHFKBCA075
SHFKBCA100
SHFKBCA120

SHFKBCA140
SHFKBCA160
SHFKBCA180

Welded Steel Cylinder Valve Assembly 25 Bar Systems

Part No.	SHFKBCA175	SHFKBCA240
Nominal Cylinder Capacity	175 litre	240 litre
Discharge Valve Type	V65IX	
Thread Valve	3 ½" - 12UN - 2A	
Working Pressure	25 bar	
Working Temperature	-20°C to 50°C	
Overall Height	1540 mm	1945 mm
External Diameter	445 mm	445 mm
Finishing	RAL 3000 Flame Red Epoxy Polyester Powder Coating	
Approvals	2010/35/EU TPED, ADR, UL Listed	

Seamless Steel Cylinder Valve Assembly 42 Bar Systems

Part No.	SHFKBCA005	SHFKBCA013	SHFKBCA026	SHFKBCA040	SHFKBCA067	SHFKBCA075	SHFKBCA100	SHFKBCA120
Nominal Cylinder Capacity	5 litre	13.4 litre	26.8 litre	40.2 litre	67.5 litre	75 litre	100 litre	120 litre
Discharge Valve Type	V20IX			V25IX		V40IX		
Thread Valve	1" - 11.5 NPT			G.1 ½"		2 ½" - 12UN - 2B		
Working Pressure	42 bar							
Working Temperature	-20°C to 50°C							
Overall Height	615 mm	1250 mm	1000 mm	1370 mm	1625 mm	1785 mm	1460 mm	1680 mm
External Diameter	140 mm	140 mm	229 mm	229 mm	267 mm	267 mm	358 mm	358 mm
Finishing	RAL 3000 Flame Red Epoxy Polyester Powder Coating							
Approvals	2010/35/EU TPED, ADR, UL Listed							

Seamless Steel Cylinder Valve Assembly 60 Bar Systems

Part No.	SHFKBCA140	SHFKBCA160	SHFKBCA180
Nominal Cylinder Capacity	140 litre	160 litre	180 litre
Discharge Valve Type	V40IX		
Thread Valve	2 ½" - 12UN - 2B		
Working Pressure	60 bar		
Working Temperature	-20°C to 50°C		
Overall Height	1880 mm	1980 mm	2285 mm
External Diameter	360 mm	360 mm	360 mm
Finishing	RAL 3000 Flame Red Epoxy Polyester Powder Coating		
Approvals	2010/35/EU TPED, ADR, UL Listed		



Discharge Valve SHT V20IX

Part No.	SHFKB200V20
Admissible Cylinder Capacities	5 litre, 13, 5 litre, 26.8 litre
Valve Thread	1" - 11.5 NPT
Test Pressure	250 bar
Working Pressure	42 bar
Safety Disc Pressure Rating	130 ± 10 bar
Body Material	Brass
Approvals	2014/68/EU PED, UL Listed



Discharge Valve SHT V25IX

Part No.	SHFK200V25
Admissible Cylinder Capacities	40.2 litre, 67.5 litre
Valve Thread	G. 1½"
Test Pressure	250 bar
Working Pressure	25 bar 42 bar
Safety Disc Pressure Rating	60 ± 3 bar 130 ± 10 bar
Body Material	Brass
Approvals	2014/68/EU PED, UL Listed



Discharge Valve SHT V40IX

Part No.	SHFK200V40-60	SHFK200V40
Admissible Cylinder Capacities	140 litre, 160 litre, 180 litre	75 litre, 100 litre, 120 litre
Valve Thread	2 ½" - 12UN	
Test Pressure	250 bar	
Working Pressure	25 bar	42 bar
Safety Disc Pressure Rating	60 ± 3 bar	130 ± 10 bar
Body Material	Brass	
Approvals	2014/68/EU PED, UL Listed	



Discharge Valve SHT V65IX

Part No.	SHFK200V65
Admissible Cylinder Capacities	175 litre, 240 litre
Valve Thread	3 ½" - 12UN - 2A
Test Pressure	150 bar
Working Pressure	25 bar
Safety Disc Pressure Rating	60 ± 3 bar
Body Material	Brass
Approvals	2014/68/EU PED, UL Listed



Pneumatic Manual Release

Manual Release

Manual Release & Pneumatic Manual Release

Part No.	SH31009401	SH31009402
Connection	M 30 x 1.5	
Pneumatic Connection	-	ISO 228 G 1/8"
Material	Brass	
Approvals	UL Listed	



Solenoid Valve with Pneumatic Outlet

Solenoid Valve without Pneumatic Outlet

Solenoid Valve w/o Pneumatic Outlet

Part No.	SH21006403	SH21006404
Tension	24 V DC	
Protection	IP-65	
Current	530 mA	
Temperature Limit	Class 105	
Max. Working Pressure	170 bar	
Valve Body Material	Brass	Stainless Steel AISI-303
Approvals	UL Listed	



Nitrogen Pilot Cylinder Assembly

Part No.	SH70025411
Capacity	3 litre Cylinder Filled with N ₂ at 100 bar
Valve Thread	W 28.8 x 1/4"
Discharge Valve Type	SHT V 20-N ₂
Working Pressure	100 bar
Working Temperature	- 20°C + 50°C
Finishing	RAL 3000 Flame Red Epoxy Polyester Powder Coating
Approvals	MED, CE, TPED, UL Listed



Release Hoses

Part No.	SH30503290	SH30506014	SH30522001
Connection	ISO 228 G.1/8"(MF) x R.1/8"(HG)	ISO 228 R.1/4"(MG) x R.1/4"(MG)	ISO 228 R.1/4"(MG) x R.1/4"(MG)
Size	DN 6	DN 8	DN 8
Length	160 mm	580 mm	700 mm
Material	Teflon PTFE & Stainless Steel Wire Braids		
Working Pressure	132 bar		
Burst Pressure	396 bar		
Approvals	UL Listed		

Discharge Flexible Hoses



Part No.	SH30506070	SH30502140	SH30506001
Connection	ISO 228 G.¾"(HG) x G.¾"(HF)	ISO 228 G.1"(HG) x G.1"(HF)	ISO 228 G.1"(HG) x G.1"(HG)
Admissible Valve Type	V20IX	V25IX	
Size	DN 20	DN 25	
Length	400 mm		
Material	Synthetic Rubber & High Tensile Steel Wire Braids		
Working Pressure	240 bar	185 bar	
Burst Pressure	960 bar	740 bar	
Approvals	UL Listed		

Discharge Rigid Hoses



Part No.	SH30508080	SH30508000	SH23070204
Connection	ISO 228 G.½"(FG-M)	ISO 228 G.½"(FG-FG)	ISO 228 2 ½" x 3" Groove
Admissible Valve Type	V40IX		V65IX
Size	DN 40		DN 65
Body Material	Steel		
Working Pressure	132 bar		36 bar
Burst Test Pressure	396 bar		108 bar
Approvals	UL Listed		

1 Way & 2 Ways Pneumatic Cone Release

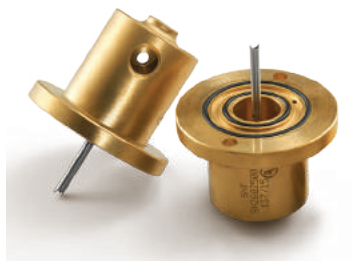


Part No.	SH30027302	SH30027303
Cone Type	1 Way	2 Ways
Connection	ISO 228 M 30 X 1.5	
Triggering Pressure	15 bar -150 bar	
Working Pressure	200 bar	
Material	Brass	
Approvals	UL Listed	

Decompression Screw and Relief Valve



Part No.	SH30027300	SH30027301	SH21006304
Type	Decompression Screw Type L	Decompression Screw Type C	Relief Valve
Working Pressure	140 bar		240 bar (Max)
Test Pressure	420 bar		NIL
Activation Pressure	NIL		20 bar (Min)
Material	Brass		
Approvals	UL Listed		



Pneumatic Head for SHT V 65 Valve

Part No.	SH26025001	SH26025002
Head Type	Blind Pneumatic	2-Ways Pneumatic
Pneumatic Connection	G. 1/4"	
Material	Brass	
Approvals	UL Listed	



Check Valves

Part No.	SH21006300	SH21006302	SH23070221
Size	1"	2"	3"
Manifold Connection	ISO 228 R1"	ISO 228 R2"	4" Coupling
Hose Connection	ISO 228 R1"	ISO 228 G. 1/2"	3" Groove
Material	Brass	Galvanized Steel	Brass
Test Pressure	260 Bar	260 Bar	150 Bar
Approvals	UL Listed		



Manifold

Pipe Connection	BSPT Male
Size Ø	3/4" - 4"
Test Pressure	100 bar
Material	Carbon Steel ASTM A-105
Internal Coating	Galvanized
Finishing	RAL 3000 Flame Red Epoxy Polyester Powder Coating
Approvals	UL Listed



Pressure Switch With Locking Device

Part No.	SH30330010
Connection	G. 1/2"
Min. Actuation Pressure	10 bar
Max. Working Pressure	370 bar
Working Temperature	-25°C to 80°C
Material	Brass
Approvals	Dir. 2006/95/EC ; 2006/42/EC ; 2004/108/EC ; UL Listed

NAF S 1230® Fire Extinguishing System

Extinguishing System Components

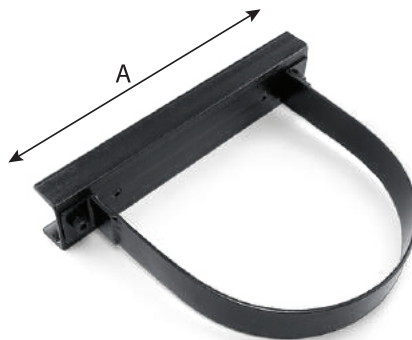


180° & 360° Nozzles

Part No. 180° Nozzle	SHFK304008	SHFK304009	SHFK304010	SHFK304011	SHFK304012	SHFK304013
Part No. 360° Nozzle	SHFK304001	SHFK304002	SHFK304003	SHFK304004	SHFK304005	SHFK304006
Thread Size	½"	¾"	1"	1 ¼"	1 ½"	2"
Thread	NPT					
Working Pressure	60 bar					
Material	Steel					
Approvals	UL Listed					

Nozzles Threaded Diaphragms

Part No.	SH30440042	SH30440052	SH30440062	SH30440072	SH30440082	SH30440092
Thread Size	½"	¾"	1"	1 ¼"	1 ½"	2"
Material	Steel AISI 303					
Approvals	UL Listed					



25 bar Welded Cylinder Bracket

Part No.	SH30601175	
Cylinder Capacity	175 litre	240 litre
Size (A)	600 mm	
Thickness	5 mm	
Material	Carbon Steel	
Finishing	Black	

42 bar Welded Cylinder Bracket

Part No.	SH30621310		SH30625010		SH30626710		SH30621010	
Cylinder Capacity	5.0 litre	13.4 litre	26.8 litre	40.2 litre	67.5 litre	75 litre	100 litre	120 litre
Size (A)	215 mm		330 mm		365 mm		440 mm	
Thickness	5 mm							
Material	Carbon Steel							
Finishing	Black							

60 bar Welded Cylinder Bracket

Part No.	SH140180BR		
Cylinder Capacity	140 litre		160 litre
Size (A)	515 mm		
Thickness	5 mm		
Material	Carbon Steel		
Finishing	Black		

NAF S 1230® Fire Extinguishing System

Extinguishing System Components



Extinguishant Control Panel

Model	EE1810-13
Size (W x H x L)	368 mm x 310 mm x 90 mm
IP Rating	IP30
Mains Supply	230V AC
Finishing	Signal Red Painted
Approvals	UL Listed



VENATOR-DU



SOC-E3N

Optical Smoke Detector

Model	VENATOR-DU	SOC-E3N
Part No.	SHD90006	-
Operating Voltage	9-33V DC	12-30V DC
Feature	Equipped with Flashing LED	Single Fire LED
Approvals	UL Listed	LPCB



VENATOR-DU



DCD-AE3

135F Heat Detector

Model	VENATOR-DU	DCD-AE3
Part No.	SHD90007	-
Operating Voltage	9-33V DC	9.5-30V DC
Feature	Equipped with Flashing LED	Twin Fire LED
Approvals	UL Listed	LPCB



Abort Switch

Model	HCVR-AS-R	QUAESTOR-U
Switch Rating	1A @ 30VDC	
Size (Width x Height x Depth)	97mm x 97mm x 59mm	
Finishing	Red Painted	
Material	Steel	
IP Rating	IP30	
Approval	UL Listed/FM	UL Listed

NAF S 1230® Fire Extinguishing System

Extinguishing System Components



Manual Pull Station & Manual Call Point

Type	Manual Pull Station	Manual Call Point
Model	HPS-DAK-SR	EE-302M
Material	Metal Construction	
Current Rating	10A @ 120VAC	3A @ 250VAC
Operating Temperature	-35°C to 66°C	-20°C to 70°C
Finishing	Red Painted	
Approval	UL/CSFM Listed	EN 54-11 / MS 1745-11 BOMBA



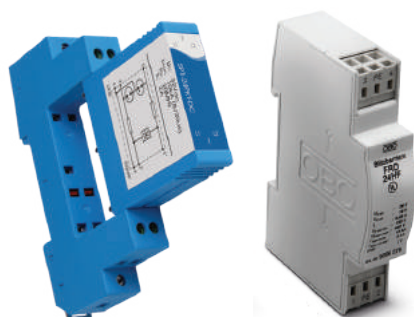
Fire Alarm Bell

Model	EE-301
Size (Ø x W)	150 mm x 62 mm
DC Rated Voltage	24V DC
IP Rating	IP33C
Operating Temperature	-20°C to 70°C
Finishing	Red Painted
Approvals	EN 54-3/MS1745-3 Bomba



Battery

Model	NP7-12	GPP-1272	GPP-12120	GPP-12170
Voltage	12V			
Capacity	7 AH	7.2 AH	12 AH	17 AH
Operating Temperature	-20°C to 60°C			
Approvals	UL Listed			



SP1-24PKT-DC

FRD-24

Surge Arrestor (Signal Line)

Model	SP1-24PKT-DC	FRD-24
Connection Type	Series	
Nominal Voltage	24V DC	
Nominal Discharge Current	5kA - 10kA	10kA
Working Temperature	-20°C to 80°C	-40°C to 80°C
Dimension (HxWxD) (mm)	90 x 65 x 13	60.5 x 90 x 17.5
IP rating	IP20	
Approvals	Tested to IEC 61643-21, ITU-K.20, K.21, K.45	UL Listed

NAF S 1230® Fire Extinguishing System

Extinguishing System Components



240PKT40



V20

Surge Arrestor (Power Line)

Model	240PKT40	V20
Connection Type	Parallel	
Nominal Voltage	230V AC	
Nominal Discharge Current	20kA - 40kA	
Working Temperature	-40°C to 80°C	
Dimension (HxWxD) (mm)	90 x 36 x 66	73 x 90 x 35.6
IP rating	IP20	
Approvals	Tested to MS IEC 61643-1	VDE DIN EN61643-11



Twin Flashing Light

Part No.	KP-305
Size (W x H x L)	74 mm x 90 mm x 179 mm
Operating Voltage	24V DC
Material	Mild Steel
Finishing	Black



LED Evacuate Sign

Part No.	KP-309
Size (W x H x L)	89 mm x 102 mm x 254 mm
Operating Voltage	20-28V DC
Current Consumption	15mA@24V DC
Finishing	Black



Wall Mounted Evacuation Signal/Strobe

Part No.	HES3-24WR				
Size (W x H x L)	127 mm x 114.3 mm x 63.5 mm				
Nominal Voltage	24V DC				
Light Intensity	15cd	30cd	60cd	75cd	110cd
Current Ratings	30mA	35mA	66mA	80mA	103mA
Finishing	Red				
Approval	UL Listed				

ENCLOSURE INTEGRITY TEST

It is laid down in NFPA 2001 standard that all total flooding clean agent systems shall have the enclosure examined and tested to locate and then effectively seal any significant air leaks that could result in a failure of the enclosure to hold the specified agent concentration level for the specified holding period of 10 minutes. Wherefore Eversafe offers a systematic gas integrity pneumatic test and provides with documented quantitative test results to our clients.

Our technicians are Retrotec certified level 3 testers who are comfortable with performing the enclosure integrity test, use Retrotec's FanTastic Integrity software to evaluate peak pressure, free vent area & etc., and also able to do larger and more complex tests.



Our Retrotec blower door fan unit and other test equipment are calibrated and reliable, it gives accurate measurement and test results.



Our Global Network

EVERSAFE® products are available in more than 45 countries worldwide



EVERSAFE EXTINGUISHER SDN. BHD. (053162-V)

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