

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014
Page 1 von 8



F-Exx® 8.o C

0.8 Liters

Foam based fire extinguisher

for fire ratings:

A – B – F

with frost protection to -20°C



Contents

1. Product Description	2
2. Technology	2
3. Environmental Concerns	3
4. Advantages and Unique Features	3
5. Specifications	4
6. Why F-Exx® is not a fire extinguisher according to DIN EN-3?	4
7. Why is the F-Exx® not considered to be a spray can extinguisher?	5
8. Why the F-Exx® does not have any CE marking	5
9. Specification	6
10. Functional Description	7
11. Applicational Examples	7
12. Maintenance and Repair	8
13. Other	8

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014
Page 2 von 8



1. Product Description

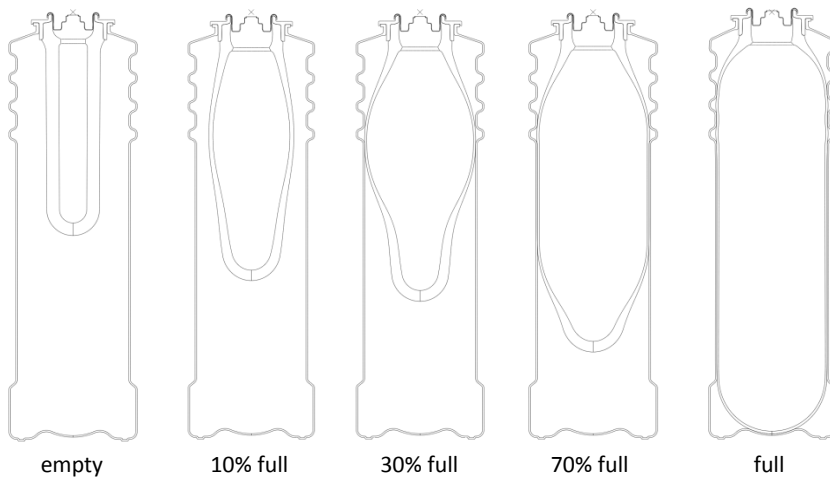
F-Exx® was developed and manufactured for a sole purpose only. As long as a fire is still small, it can be extinguished by simple means. The F-Exx® is a portable fire extinguisher for initial fires and can save lives and prevent further damage. The system does not require any propellant gases, aerosols or compressed air in order to discharge the extinguishing agent. Because of its extinguishing performance, handling and compact dimensions it can be employed in many areas. For outside use the F-Exx® has frost protection down to -20 ° C.

The F-Exx® is suitable for extinguishing:

- solid materials (Class A fires), e.g.: wood, plastics, textiles, etc.
- fires, involving flammable or combustible liquids (fire class B), e.g.: petrol, diesel, kerosene, etc.
- fires resulting from cooking oil/fats in frying and baking equipment (fire class F), e.g.: vegetable or animal oils and fats. Powder and CO₂ extinguishers are hardly suitable for this purpose.

2. Technology

A true innovation in the field of portable fire extinguishing systems: the F-Exx®. Unlike the previously known and commercially available fire extinguishers and extinguishing spray cans, the system does not have any propellant gases, aerosols or compressed air. Because of its patented elastomer force element the spray characteristics over the entire foam dispersion period is virtually constant.



3D Sectional view with unfilled and filled force element (coloured grey)

Whereas conventional powder extinguishers operate with gas pressures up to 20 bars and extinguishing spray cans up to 10 bar, the F-Exx®, is a low pressure system with a liquid pressure of approximately 2 bars. The energy contained in the system is thus only a fraction of the amount of conventional systems and excludes any risk of an explosion due to the abandonment of compressed gas. Even with wanton destruction or burning there is no danger for the user - the F-Exx® will simply leak.

With conventional operating systems the gas pressure decreases as discharge progresses further and further. With this, the spray behaviour changes regarding spraying distance and spray pattern. Due to the rapidly decreasing pressure of conventional spray can systems, it is therefore necessary to start off with a very high initial pressure. In order to achieve the required casting distance, even in these systems, a pressure of only 1 to 2 bars would be sufficient.

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014

Page 3 von 8



But in order to still have your casting distance available with the emptying of the system, the starting pressure must be very high.

In the case of F-Exx®, the pressure of the system throughout the entire dispensing period remains approximately even at about 2 bar, so that, despite the low initial pressure during the entire extinguishing operation the necessary casting distance of the system is ensured.

3. Environmental Concerns

In selecting the extinguishing agent great importance was attached to the biodegradability. The harmful PFOS / PFOA (perfluorooctane sulfonate / perfluorooctanoic acid) have been entirely omitted. To increase performance when extinguishing liquids or liquefiable solids (fire class B, e.g. petrol, diesel, kerosene, etc.) small amounts of non-biodegradable fluorine surfactants are being employed. Due to the low concentration, the water hazard class 1 was able to be obtained.

The F-Exx does not contain any powder, whereby consequential damage is avoided. This can be significant, since large dust clouds of extinguishing salts spreads far beyond the source of the fire and can also be inhaled. Dry powder acts in conjunction with humidity in a highly corrosive manner. The F-Exx® is equipped with a liquid chemical. Remnants of the extinguishing agent can be wiped off easily after spraying and wetted surfaces can be cleaned with water.

The F-Exx® is not refillable and can after its service life be disposed of in accordance with the respective local regulations (e.g. recycling centers, building yards and waste disposal plants). The drained system can simply be put into the trash after use. Even with its destruction during the disposal process there is no risk of expansion or explosion with the F-Exx®.

As an alternative to the disposal in accordance with the provisions of the council, the life cycle of the product can be further improved if it is checked after use or after the expiration of the service life of the F-Exx® by an authorized customer service agent and maintained accordingly.

4. Advantages and Unique Features

„Make safety available“

- Availability of safety due to its immediate extinguishing performance at the site of a fire!
- Broad operating capability by being suited for Classes A, B and F
- Ability to provide full extinguishing performance at any orientation (upright, upside down, on the side = 360°)
- High extinguishing performance despite the small size of the extinguishing system
- Intuitive, easy and safe usage even for inexperienced users
- Ergonomically designed handle that allows operation by either a small child's hand or by large hands and firemen's gloves
- Protection against inadvertent release (operator error)
- Spraying performance is almost constant over the entire extinguishing period
- Easy to use by use of lightweight plastic parts => minimum weight
- Applicable for electrical installations up to 1000 V (minimum spray distance 1 m)

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014

Page 4 von 8



- No maintenance and no maintenance costs within the service life of 3 years
- Frost protection down to -20 °C

Harmless and Safe

- Free of propellant gases, aerosols and compressed air, thus no risk of explosion - even at high temperatures
- No risk of explosion in the disposal chain, such as in garbage trucks or in waste incineration
- Can be used indoors, as no propellant gases can displace breathing air
- System is not a pressurized container, thus the associated risk and the usual rules for storage and transport according to UN 1950 and BGHW M20 do not apply. System is not a pressurized container, thus the associated risk and the usual rules for storage and transport according to UN 1950 and BGHW M20 do not apply.

Environmentally friendly

- Extinguishing agent is pH neutral
- No contamination as with dry powder, as a liquid extinguishing agent is used
- Remains of extinguishing agent can simply be wiped up with a cloth after spraying

5. Specifications

Fire Classes:	Class A, B, F with extinguishing performances of: 3A, 21B, 15F With the official confirmation of the fire extinguishing performance for Classes A and B, the following fires can be extinguished: 3A: a 20 kg pile of burning dry pine wood (l: 50cm; w: 30cm; h: 56cm) 21B: approx. 21 liters of burning liquid (14 liters heptane + 7 liters of water) 15F: 15 liters of burning vegetable oil
Weight:	1.5 kg
Contents (net):	800 ml
Pressure (at 20 °C):	approx. 2 - 3 bar (pure liquid pressure, not gas pressure)
Casting distance:	approximately 4.5 m
Spraying duration:	approx. 15 sec
Propellant:	elastomer force element (no gas)
Extinguishant:	Extinguishing foam Mousseal CF F-20 aqueous film forming, synthetic foam agent (AFFF)
Operating temperature:	-20 °C to 70 °C
Shelf-life:	3 years, maintenance free
Applicable for electrical systems up to 1000 V (minimum spray distance 1 m)	

6. Why F-Exx® is not a fire extinguisher according to DIN EN-3?

This European Standard (EN-3-8, Chapter 1 "Application") sets out rules for the design, type testing, production and inspection of portable fire extinguishers with metal housings, with the objective of curbing the risk arising from the interior pressure. The gas pressure inside a conventional powder extinguisher is between 15 to 20 bar. The flexible force element in the interior of the F-Exx® only generates a fluid pressure of approximately 2 bar pressure and does not contain any pressure or propellant. Therefore a metal housing is not required, neither to maintain the internal

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014

Page 5 von 8



pressure nor to prevent any explosions. The outer container of the F-Exx® can therefore be made of plastic, without thereby compromising the functionality or safety of the extinguisher.

An expertise was carried out on conformity to EN 3-7 with consideration of design-specific features by the bureau of expertise Eisner (a publicly appointed and sworn expert for fire extinguishers by the IHK Koblenz, Germany).

7. Why is the F-Exx® not considered to be a spray can extinguisher?

A spray can extinguisher is an aerosol package (Aerosol Directive 2008/47/EG), which contains a compressed gas as an energy storage in addition to the liquid or powdered chemical. Conventional extinguishing spray cans have pressures of approx. 10 bar (car tyres, 2-3 bar). Due to the resulting potential hazards similar regulations for storage and transport (UN 1950, BGHW M20) apply.

In the past, cases of bursting spray can extinguishers were reported in the media and there have been numerous recalls by the manufacturers since. The reason for this was often due to corrosion of the can resulting from the extinguishing agent. In the event of overheating, spray cans may burst, as they have no pressure relief valve. Most fire extinguishing aerosol spray cans only can operate, system-related, in an upright position. Already the mere extinguishing of a rubbish bin on the floor can therefore be a challenge. At high temperatures, the internal pressure increases dramatically. When stored in the trunk of a car a spray can quickly reaches temperatures of over 60 °C, which can bring the spray can to its bursting limit.

Due to the elimination of any compressed gases, the F-Exx® is not covered by the Aerosol Directive and therefore is not subject to the restrictive regulations for storage and transport. Attributable to its design, the system inherently does not possess any of the mentioned disadvantages. Any increase in temperature hardly increases the fluid pressure within the interior. Even pressure fluctuations, resulting, for example, in air transportation are safe. In addition, the system works in any orientation (360°), even upside down. Even with violent destruction, the foam will simply flow out completely without any risk of explosion.

In conventional spray cans the gas pressure continues to decrease with continuing discharge. As this happens, the spray behaviour changes regarding the spraying distance and spray pattern. The pressure curve of F-Exx® remains virtually constant during the entire period of usage, making possible a uniform spraying pattern (see paragraph 2).

8. Why the F-Exx® does not have any CE marking

The CE marking is a requirement for the commercialization of products for which a CE mark for various EU directives is required. With the CE marking, the manufacturer or importer declares under EU Regulation 765/2008, "that the product complies with the applicable requirements." The F-Exx® system is not covered by any of these groups or existing product technology areas. As such, for instance, the directive "Simple Pressure Vessels (2009/105/EC)" requires a *welded metal container*.

The Directive on General Product Safety (Directive 2001/95/EC) regulates health and safety of consumers. It is a collection policy that comes into play when specific guidelines are not applicable. In its new form, it also applies to products that are intended for commercial use, but can also go to the consumer market. The CE marking pursuant to this Directive is not intended for use.

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014
Page 6 von 8



9. Specification

Overall, the following certificates exist:

- Environmental Report of the manufacturer Tectro SMT GmbH
- ISO-TS Certificate of the manufacturer Tectro SMT GmbH
- Extinguishing performance according to DIN EN3-7 / EN 2 of fire classes A, B, and F (MPA Dresden, Germany)
- Electrical Test of spray jet according to DIN EN3-7 (MPA Dresden, Germany)
- Investigation of functional temperature range according to EN3-7 (MPA Dresden, Germany)
- Safety data sheet of the extinguishing agent and the system
- Material Safety Declaration by the VDE Institute (Polycyclic aromatic hydrocarbons)
- Report concerning Compliance to EN 3-7:2004+A1:2007 by Fire Expert's Office Eisner (of the Industrial Chamber of Commerce, IHK Koblenz, Germany, publicly appointed and sworn expert for fire extinguishers)

Electrical installations at voltages of up to 1000 V can be extinguished at a safety distance of 1 m

Product Data Sheet F-Exx® 8.0 C

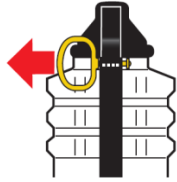
Status: 16. July 2014

Page 7 von 8

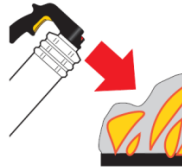


10. Functional Description

1. Remove safety pin



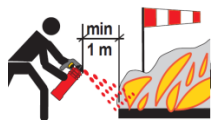
2. Aim nozzle at fire



3. Press yellow trigger



Vital Instructions for Fighting Fires:



Always maintain a safe distance to the fire



As a rule, fight the fire from below



Do not spray in the eyes



Extinguish drip fires from above



After extinguishing the fire, observe the fire site

11. Applicational Examples

Areas of applications can be found in commercial, recreational use and at home. It can also be carried by security personnel. Applications are for fighting initial fires and in extinguishing individuals on fire. Upon spraying at individuals, be aware that breathing through the foam is not at all possible.



For Fire Class A
3A



For Fire Class B
21B



...for initial engine fires...



... for initial burning tires ...



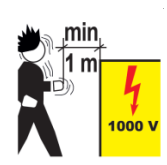
... for motorbikes ...



... for camping ...



... on boats ...



... for electrical installations up to 1000V. Min. distance 1m

Product Data Sheet F-Exx® 8.o C

Status: 16. July 2014

Page 8 von 8



12. Maintenance and Repair

The F-Exx® has a dealer warranty of 36 months and requires no maintenance during this period. The expiration date is indicated on the label. After removal of the safety device the F-Exx® should be disposed of, even if it was not entirely empty. Only by doing so, it can be ensured that in the case of an emergency, the full amount of extinguishing agent is at hand.

The F-Exx® is not refillable and should be disposed of after the expiration period in accordance with local regulations. However, an empty system can be easily fed into the trash. As an alternative to the disposal in accordance with the provisions of the council, the life cycle of the product can be further improved if it is checked after use or after the expiration of the service life of the F-Exx® by an authorized customer service agent and maintained accordingly.



Always protect the F-Exx® against exposure to direct sunlight and from other heat sources and protect it against freezing temperatures.



Storage temperature: -20°C to 60°C

Operating temperature: -20°C to 70°C

13. Other

EAN-Code:



Customs Tariff Number: 84241000

Patents: DE 10 2009 006 755.8, DE 10 2010 018 915.4, DE 10 2010 018 888.3,
DE 10 2010 018 889.1, DE 10 2011 011 352.5

Registered Design: 001 204 499-0001

Trade Mark: 011 457 108 „F-Exx“

Patents and Licenses ♦
Research, Development
and Manufacturer:

Noatec GmbH ♦ Tectro SMT GmbH

Thrasoltstr. 46 ♦ 54439 Saarburg ♦ Germany

+49 - (0)6581 - 912 - 402

+49 - (0)6581 - 912 - 410

feuerloescher@tectro.de

<http://www.f-exx.de>

<http://www.youtube.com/user/TectroSMTGmbH>