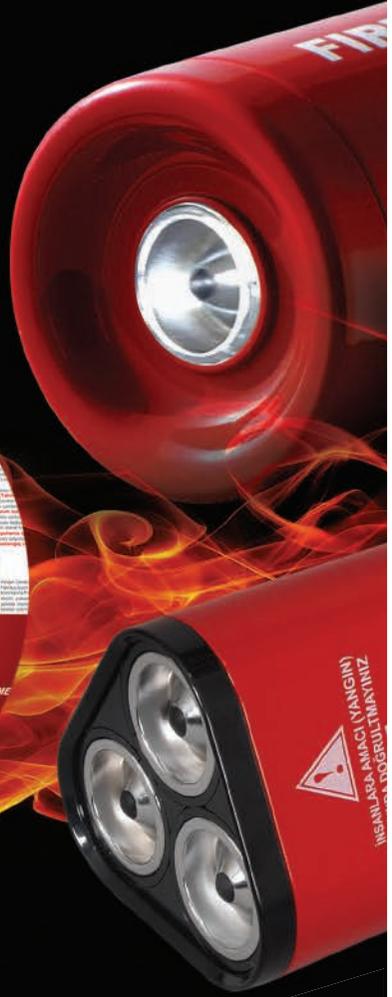




YG Yangın Güvenliği
San. ve Dış Tic. Ltd. Şti.



HAFEX[®]
HYBRID AEROSOL FIRE EXTINGUISHING SYSTEMS





HAFEX®

HYBRID AEROSOL FIRE EXTINGUISHING SYSTEMS

As YG® YANGIN GUVENLIGI San. ve Dış. Tic. Ltd. Şti. We are established in 2010, and we have been in the fire and safety sector since 2005 for public and private institute projects rather than retail business. Therefore, we became a manufacturer of Super Fire Ball and Portable Aerosol Fire Extinguishers on May 2017.

We now have expanded our technology and created HAFEX®(Hybrid Aerosol Fire Extinguishing Systems) with our partner company SGS®Siyah Güvenlik Sistemleri Ltd. Sti. in 2019.

Now, our company provides the best quality with the latest technology for fire extinguishing systems both in short and long term aspects of fire protection. Besides we are the only company in the world that manufactures fire ball that can be integrated with any fire extinguishing panel and/or a manual release button which provides another activation method for better detection and extinguishing fires. In addition, only we provide Fire Balls for D Class Fires that is also our another diversity.

Technology of HAFEX®has determined new dynamics for its own chemical compound which resulted in superior efficiency for fire protection. HAFEX®Condensed Aerosol Generating Fire Extinguishing and Suppression System is providing highest extinguishing density yield comparing the Aerosol Fire Extinguishing sector also assuring easier installation while guaranteed cost efficiency with increased quality and compatibility with flexible solutions for integrating the system with control units for both detection and activation for determination and extinguishing the fire. All of our products are unpressurised which does not need refilling and not requiring maintenance within the product life time.

Accordingly, all the production, shipment line are Approved & Certified and manufactured within the quality standard of ISO 9001:2015, and all the facilities managed under ISO 14001:2015 and ISO 10002:2014.

ACHIEVEMENTS AND POLICY;

Sustainable innovation for fire protection industry.

Provide the highest quality manufacturing facilities for fire detection and extinguishing systems.

Persistent business ethics both in domestic market and foreign markets.

Exhibiting reliable commercial morals for permanent protection of human life, other livings and properties.

Perform the most efficient production for the most efficacious results within the fire protection sector.





GENERAL INFORMATION AND INTRODUCTION OF OUR UNIQUE PRODUCTS

HAFEX

Hybrid Aerosol Fire Extinguishing Systems are Aerosol gas are classified as a hot aerosol fire extinguishers, which yields high efficiency in fire extinguishing capacity, easy concept of product making and installation practical and modular framework, and the most importantly providing long-term of no-maintenance with storage of solid form of the fire extinguishing agents within non-pressurised containers introduces this indispensable systems to the fire extinguishing sector as the most advantageous solution, with zero Ozone Depletion Potential (ODP) and zero Global Warming Potential (GWP) and with non-environmental harm Aerosol gas fire extinguishers have become one the most preferred fire extinguisher all around the world.

Aerosol gas fire extinguishers interferes the fire by chemically and physically and primarily it breaks the chemical chain reaction of the fire while the broad surface of the aerosol particles drags the free-radicals like hydrogen and hydroxyl radicals to its surface and absorbs while interacting within the flooded region. Whereas, it has been proven that this process does not effect on the oxygen levels within the region necessarily. Which also proves that the extinguishing process will not decrease the oxygen levels to critical phases. Therefore, this allows the clean aerosol gas fire extinguishing system are clearly safe to be used where animals and humankind are exists in the suppressed region.

When the aerosol gas fire suppression system is activated, results of the redox (reduction-oxidation) reaction within the non-pressurised container will generate highly effective condensed fire extinguishing fog with the over-all weight of size spread at 2 microns or smaller particules.

Therefore, this fog contains compounds of alkaline earth metals with carbonate and bi-carbonate, nitrogen, carbon dioxide and low quantity of water vapour and they emerges unstable yielded radicals (hydrogen and hydroxyl) from the exothermic reaction of the fire which also feeds the burning reaction and these free radicals(hydrogen and hydroxyl compounds) acts as a fuel within the fire and after the discharge of the aerosol gas these free radicals reacts with the components of the aerosol gas and with this reaction aerosol gas components will absorb these fuels of the fire and obstructs the free radicals to not substitute with the fire reaction. In other words, Fire can not occur while the aerosol gas is flooded within the region.

SUPER FIRE BALL

Super Fire Ball is the most cost efficient, easiest and fastest portable fire extinguisher to interfere the local fires.

This fabulous device is non-pressurised container made with polystyrene. It contains Dry Chemical Powder that has been developed from Boron Mineral and micronised specifically for Super Fire Ball.

The activation mechanism of Super Fire Ball works with the fuse detection. Which allows süper fire ball to activate by any contact with the flame.

Another unique feature of the Super Fire Ball is that you can integrate the activation mechanism with any fire extinguishing panel and/or manual release button to increase efficiency for better protection.

PFE-1 & PFE-3

Portable Aerosol Fire Extinguishers are distinctively replaced the utilized heavy weight, unpractical and maintenance required DCP and CO₂ fire extinguisher cylinders. Which does not require Maintenance for 10 years! while other old and simple extinguishers must be maintained every single year.

They are 10 times more efficient in weight, 3 times cheaper in comparison to maintenance and refill cost of the other extinguishers within long term. Also they do not harm health and environment, where Aerosol is free of corossion, not containing CFC HFC, Zero Ozone Depletion Potential(ODP), Zero Global Warming Potential (GWP).

HAFEX®

HYBRID AEROSOL FIRE EXTINGUISHING SYSTEMS

CERTIFICATION OF DOMESTIC TURKISH PRODUCT



As **YG®** Yangın Güvenliği Ltd. Sti and **SGS®** Siyah Güvenlik Sistemleri Ltd. Sti.

We have invented the best Condensed Aerosol Gas Fire Extinguishing Sytems in the World. Whereas, this is the prime production for Turkey. Therefore, Hybrid Aerosol Gas Technology is Certified and Patented also Manufactured as Domestic Turkish Product under the Trademark of **HAFEX®**.

Proudly We Are Ready to Introduce Our Fabolous Technology with Turkey and The World.

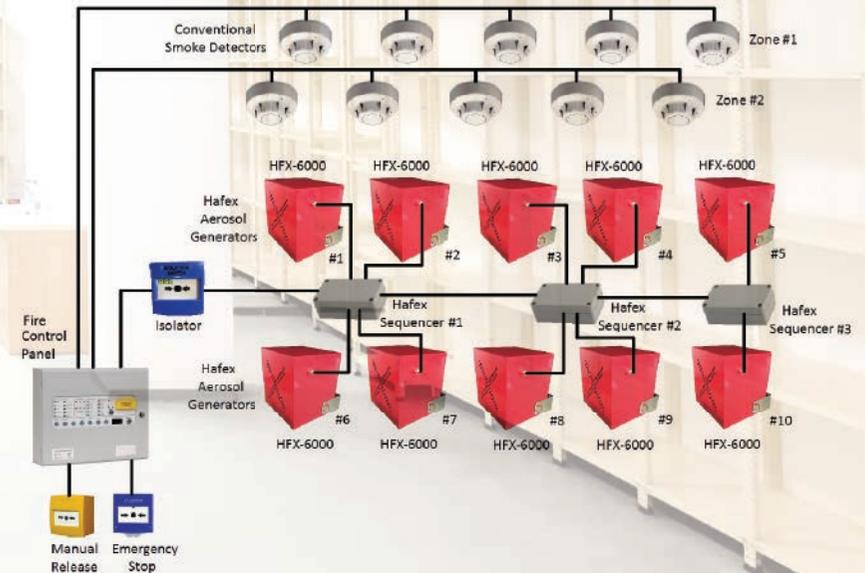
SYSTEM DESIGN

HAFEX® products are designed for protection from all types of fires, which are suitable for the following standards: ISO15779, UL2775, NFPA2010, CEN/TR15276 and AS4487. The System are approved to integrate with any electronic connection modules such as sequential activators, remote control units, accessories of electronics and all types of electronic units which are used in fire and safety.

MIRACLE OF AEROSOL FIRE EXTINGUISHERS

When the aerosol gas fire suppression system is activated, results of the redox (reduction-oxidation) reaction within the non-pressurised container will generate highly effective condensed fire extinguishing fog with the over-all weight of size spread at 2 microns or smaller particules. Therefore, this fog contains compounds of alkaline earth metals with carbonate and bi-carbonate, nitrogen, carbon dioxide and low quantity of water vapour and they emerges unstable yielded radicals (hydrogen and hydroxyl) from the exothermic reaction of the fire which also feeds the burning reaction and these free radicals (hydrogen and hydroxyl compounds) acts as a fuel within the fire and after the discharge of the aerosol gas these free radicals reacts with the components of the aerosol gas and with this reaction aerosol gas components will absorb these fuels of the fire and obstructs the free radicals to not substitute with the fire reaction. In other words, fire can not occur continue while the aerosol gas is flooded within the region.

ILLUSTRATION OF HAFEX DETECTION AND INSTALLATION METHOD





HAFEX[®]

HYBRID AEROSOL FIRE EXTINGUISHING SYSTEMS

USAGE AREAS

Electrical and Energy Rooms
 Control Rooms
 Base Stations
 Engines and Engine Rooms
 Transformer Centers
 Wind Tribunues
 Warehouses & Archives

Power Generation
 Petrochemistry Oil & Gas
 Processing
 Communication
 Mines
 Railways and others

ADVANTAGES OF AEROSOL FIRE EXTINGUISHER SYSTEMS

- Does not require maintenance for 15 years.
- Does not require pressured containers. Does not face the problems of leakage how other alternative of HALON gas systems faces.
- Does not require pipes or pressure controlled nozzles.
- After the activation of the system, all the clean fire extinguishing gas will load the whole volume(total flooding).
- Installation and setting of the system is highly simple.
- Does not require valves or mechanical activation device to activate the system it activates directly with an electrical signal.
- It has a stable and compact body while it takes a little bit of place.
- It does not have toxicity or corrosivity effect on either environment or livings.
- It does not leave stains or residues after the activation.



GRAND HAFEX UNITS

HFX-1100

GROSS WEIGHT:
10.2 kg.
CHEMICAL WEIGHT:
1.1 kg.
DIMENSIONS:
211 x 287 x 212
EXTINGUISHING CAPACITY:
A CLASS FIRES: 11m³
B CLASS FIRES: 25m³



HFX-2200

GROSS WEIGHT:
16.0 kg.
CHEMICAL WEIGHT:
2.2 kg.
DIMENSIONS:
286 x 287 x 218
EXTINGUISHING CAPACITY:
A CLASS FIRES: 22m³
B CLASS FIRES: 45m³



HFX-3400

GROSS WEIGHT:
19.3 kg.
CHEMICAL WEIGHT:
3.4 kg.
DIMENSIONS:
286 x 287 x 258
EXTINGUISHING CAPACITY:
A CLASS FIRES: 34m³
B CLASS FIRES: 78m³



HFX-4500

GROSS WEIGHT:
26.5 kg.
CHEMICAL WEIGHT:
4.5 kg.
DIMENSIONS:
361 x 360 x 266
EXTINGUISHING CAPACITY:
A CLASS FIRES: 45m³
B CLASS FIRES: 100m³



HFX-6000

GROSS WEIGHT:
30.6 kg.
CHEMICAL WEIGHT:
6 kg.
DIMENSIONS:
361 x 360 x 285
EXTINGUISHING CAPACITY:
A CLASS FIRES: 60m³
B CLASS FIRES: 130m³



MINI HAFEX UNITS

HFX-50S

GROSS WEIGHT:
0.83 kg.
CHEMICAL WEIGHT:
50 gr.
DIMENSIONS:
56 x 56 x 128
EXTINGUISHING CAPACITY:
A CLASS FIRES: 0.5m³
B CLASS FIRES: 1m³



HFX-100S

GROSS WEIGHT:
1.4 kg.
CHEMICAL WEIGHT:
100 gr.
DIMENSIONS:
88 x 88 x 102
EXTINGUISHING CAPACITY:
A CLASS FIRES: 1m³
B CLASS FIRES: 2m³



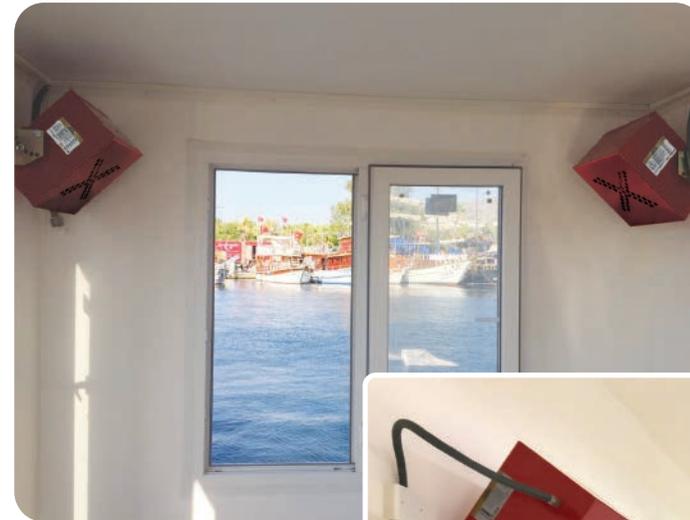
HFX-200S

GROSS WEIGHT:
1.85 kg.
CHEMICAL WEIGHT:
200 gr.
DIMENSIONS:
88 x 88 x 137
EXTINGUISHING CAPACITY:
A CLASS FIRES: 2m³
B CLASS FIRES: 4m³



HFX-500S

GROSS WEIGHT:
4.78 kg.
CHEMICAL WEIGHT:
500 gr.
DIMENSIONS:
100 x 100 x 241
EXTINGUISHING CAPACITY:
A CLASS FIRES: 5m³
B CLASS FIRES: 10m³



FIRE CLASSES

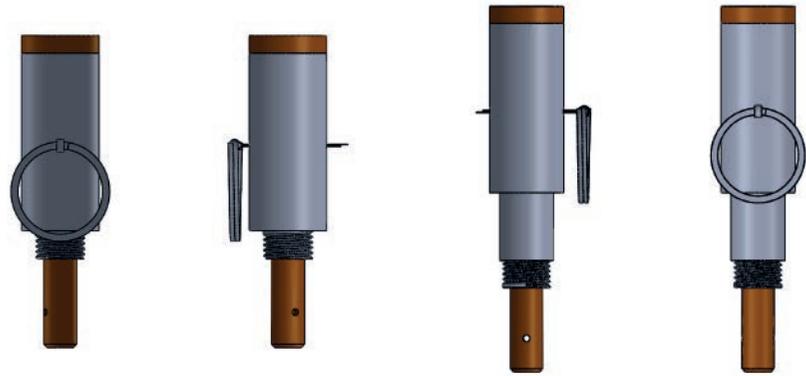




THERMO-MECHANIC ACTIVATOR (TMA-K, TMA-U)

Thermo-Mechanic Activator (TMA-K)
For HFX-50S,100S,200S,500S

Thermo-Mechanic Activator (TMA-U)
For HFX-1100,2200,3400,4500,6000



Suitable for all HAFEX aerosol fire extinguisher generators which detects the heat at different temperatures and "TMA" activates the aerosol generators.

- COLOR CODES: ● ● ● ● ●
- DETECTION TEMPERATURES: 62°C, 70°C, 98°C, 124°C, 138°C

PRINCIPLE OF TECHNOLOGY

When the aerosol gas fire suppression system is activated, results of the redox (reduction-oxidation) reaction within the non-pressurised container will generate highly effective condensed fire extinguishing gas will interfere the fire by chemically and physically and primarily it breaks the chemical chain reaction of the fire. While the broad surface of the aerosol particules drags the free-radicals like hydrogen and hydroxyl radicals to its surface and absorbs while interacting within the flooded region. Whereas, it has been proven that this process does not effect on the oxygen levels within the fire region.

HEALTH & ENVIRONMENT FACTS

- A.L.T (Atmospheric Life Time) is not relevant
- O.D.P (Ozone Depletion Potential) is 0
- G.W.P (Global Warming Potential) is 0
- Completely Non-Toxic
- Free of CFC HFC

- The reason of non-toxicity and non-corrosivity effect technology on human and environment is developed with several years of experience.





AUTOMATIC PORTABLE AND ONLY ELECTRICALLY ACTIVATED FIRE EXTINGUISHING BALL IN THE WORLD!

AUTOMATIC FIRE EXTINGUISHING

Fires are classified as A,B,C,D,F and Electrical Class Fires. SUPER FIRE BALL can extinguish 4 Different Classes which are A,B,C and Electrical fires at once. Whereas, we provide D Class SUPER FIRE BALL unlike any other fire ball in the World.

Other automatic fire extinguishing systems such as when water or foam extinguisher activates all the effected region can not be maintained and all the facilities (products, electrical equipments etc..) have to be disposed. Therefore, SUPER FIRE BALL does not harm environment or any electrical equipments after it is activated.

- Fast and Effective
- Easy to Use
- Light Weight
- No Maintenance
- Secured
- Harmless
- Cost Effective



Super Fire Ball is the easiest and fastest fire extinguisher to interfere the local fires.

This fabulous device is non-pressurised container made with polystrene. It contains Dry Chemical Powder that has been developed from Boron Mineral and micronised specifically for Super Fire Ball.

The activation mechanism of Super Fire Ball works with the fuse detection(which allows the ball to function within 1-5 seconds).

Another unique feature of the Super Fire Ball is that you can integrate the activation mechanism with any fire extinguishing panel to increase efficiency for better protection.



5A 55B

MANUAL ACTIVATION METHOD



AUTOMATIC PORTABLE AND ONLY ELECTRICALLY ACTIVATED FIRE EXTINGUISHING BALL IN THE WORLD!

FEATURES & ACTIVATION METHODS

The most important feature of Super Fire Ball is providing **activation options**, which differentiates Super Fire Ball from the other fire balls completely.

1- Super Fire Ball gets activated and **extinguishes** the fire **within 3-5 seconds by any contact with the flame** such as other simple fire balls.

2- Distinctively, Super Fire Ball can also extinguish fires **without any contact with the flame** by the option of **electrical activation** which provides **better solution** amongst other fire balls.

a. Super Fire Ball **can interfere the combustion** when it is just at the developing stage **via determination of fires** by fire detection system within the environment.

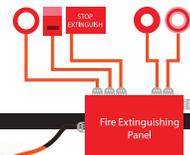
b. Super Fire Ball can also be activated **by manual release button** which will allow the **activation to be done from a distance**.

3- a.b. **With the unique electrical activation option** Super Fire Ball can extinguish the fire as fast as the detection systems which means that as the smoke,heat, LHD(Linear Heat Detector), Flame or air sampling detectors comprehend the fire and then the fire ball will be activated and extinguishes the fire rather than time delaying by waiting the flame to contact with the fire ball to be activated.



TECHNICAL INFORMATION OF SUPER FIRE BALL	
ORIGIN	TURKEY (DOMESTIC TURKISH PRODUCT)
WEIGHT	1.3kg ± %10
EXTINGUISHING AGENT	MAP 90 OR BOREX
FIRE CLASSES	5A, 55B, C, D AND ELECTRICAL FIRES
EXTINGUISHING CAPACITY	8 m ³
COLOUR	RED
DIAMETER	14.5 cm
SHAPE	SPHERE
PRODUCT LIFE	5 YEARS
NON-PRESSURIZED	
NON-OXYGEN DEPLETING	
ZERO OZONE DEPLETION POTENTIAL	
ZERO GLOBAL WARMING POTENTIAL	

ELECTRICAL ACTIVATION METHOD



- ① Cut the sleeve slightly where it is indicated with ⚠️
- ② Pull the cable carefully
- ③ Connect the cable with any fire extinguishing panel

MANUAL ACTIVATION METHOD



TSEK
39



YG[®]

YG FIRE PORTABLE AEROSOL FIRE EXTINGUISHER DEVICE PFE-1



YEARS GUARANTEE
10
YEARS GUARANTEE



CERTIFICATION OF DOMESTIC TURKISH PRODUCT



WORLD'S SMALLEST NEWEST CLEAN AND ECONOMIC FIRE EXTINGUISHER DEVICE

YG PORTABLE AEROSOL FIRE EXTINGUISHER DEVICE PFE-1

As YG® YANGIN GUVENLIGI LTD. we provide the latest technology for portable fire extinguishers developed with Aerosol Fire Extinguishing Technology.

- Does not require maintenance for 10 years.
- No stain, Non-corrosive, Non-toxic, Environment Friendly and Secured.

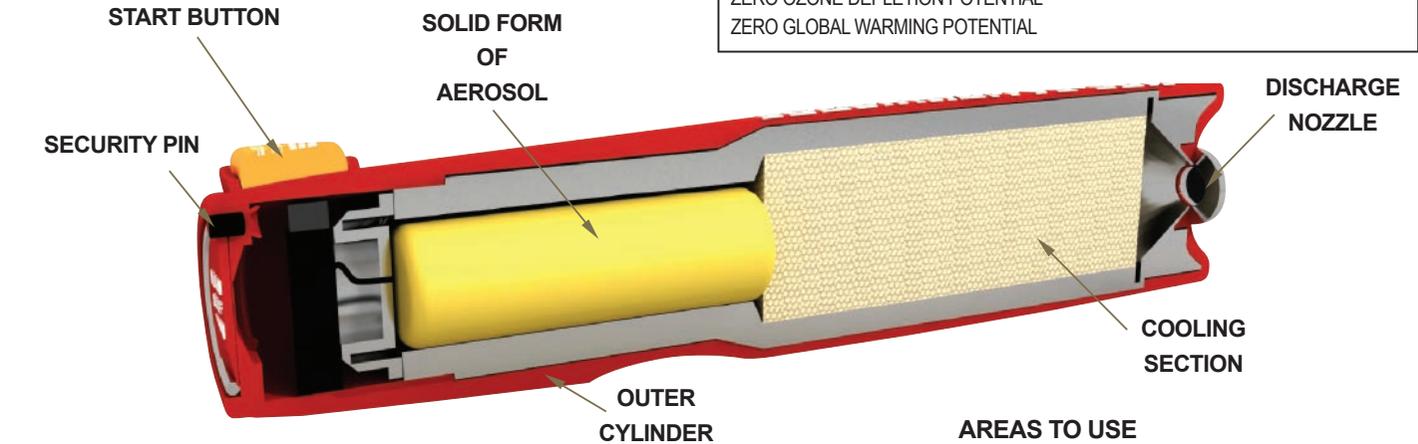
This fabulous product is suitable for all type of locations. Very effective on B,C,F and Electrical Fires.

- The size of the product will allow you to carry in your bag, on your belt, or in your car.
- Cost is very low and becomes extremely cheaper if you include the maintenance fact of simple fire extinguishers.

TECHNICAL INFORMATION OF PFE-1	
EXTINGUISHER WEIGHT	500 gr.
NET WEIGHT	610 gr. ± 10 gr.
DISCHARGE TIME	12s ± 1s
DISCHARGE DISTANCE	3m
FIRE CLASSES	B,C,F and Electrical Fires
COLOUR	RED
EXTINGUISHING CAPACITY	5 kgs OF CO ₂ OR 6 kgs OF DCP
ORIGIN	TURKEY (DOMESTIC TURKISH PRODUCT)
PRODUCT LIFE / NO MAINTENANCE	10 YEARS
NON-PRESSURIZED NON-OXYGEN DEPLETING ZERO OZONE DEPLETION POTENTIAL ZERO GLOBAL WARMING POTENTIAL	

PFE-1 contains 500 grams of Aerosol Extinguisher

Which has the same extinguishing capacity as 5kgs of CO₂ and 6kgs of DCP as shown.



AREAS TO USE

- House
- Vehicles (ground, sea, air)
- Kitchens
- Factories, Warehouses
- Server and System Rooms
- Transformers and Panels
- Cable Canals
- Generators
- Intellegent Buildings, Offices
- Shopping Malls
- Hospitals, Schools or Laboratories
- Engine Rooms
- Telecommunication Cabinets
- Any sort of Electrical Equipment Containing Locations

**TSEK
39**



YCG

YG PORTABLE AEROSOL FIRE EXTINGUISHER DEVICE PFE-3



PORTABLE AEROSOL FIRE
EXTINGUISHER DEVICE
YCG
PFE-3



YEARS GUARANTEE
10
YEARS GUARANTEE

CERTIFICATION OF DOMESTIC TURKISH PRODUCT



YG PORTABLE AEROSOL FIRE EXTINGUISHER DEVICE PFE-3

PFE-3 and PFE-1 are innovative, clean and economic fire extinguisher devices.

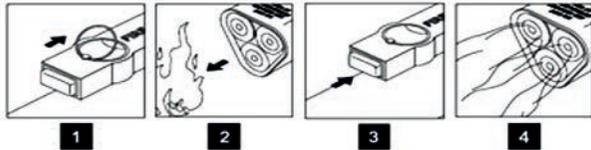
These new generation fire extinguishers are developed to overcome of the problems of classic and old fire extinguishers and provide the best solution for fire and safety in the World.

Therefore, PFE-3 is only 1720 grams and the extinguishing capacity is equals to 10 kgs of CO₂ fire extinguishers. Which does not harm human and environment completely.

Does not require maintenance for 10 years. Very easy to use for all type of people due to light weight and basic activation mechanism. Which provides the best and secured handling fire extinguisher for everyone.

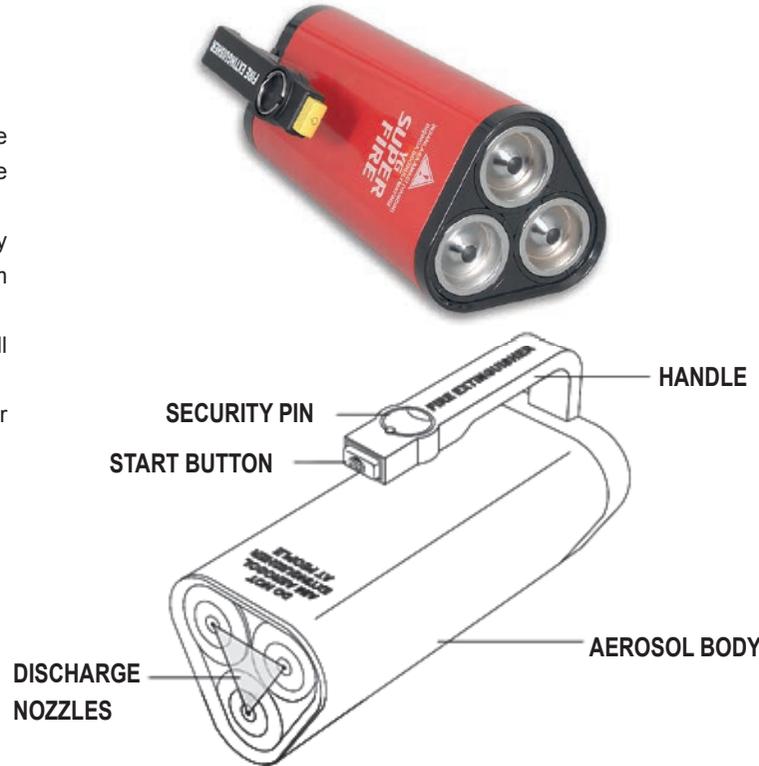
INSTRUCTIONS TO USE

1. Pull the black security pin that is placed on the handle.
2. Hold the product straight where nozzles facing the fire.
3. Press the yellow start button.
4. Hold it until the fire is extinguished.



CAUTION

- When you interfere the electrical fires hold the device minimum 1m distance from the fire and after the fire is extinguished the electrical supply must be closed for security purposes.
- Keep it away from children.
- Use it how it is instructed.
- Do not hold towards human without extinguishing purpose.
- Do not store at very high temperatures.
- Keep it away from burning substances.
- Do not touch the nozzles for 10 mins after the discharge.



TECHNICAL INFORMATION OF PFE-3	
EXTINGUISHER WEIGHT	1.500 gr.
NET WEIGHT	1720 gr. ± 10 gr.
DISCHARGE TIME	13s ± 1s
DISCHARGE DISTANCE	3m
COLOUR	Red
EXTINGUISHING CAPACITY	10 kgs of CO ₂ or 12 kgs of DCP
ORIGIN	Turkey (Domestic Turkish Product)
PRODUCT LIFE / NO MAINTENANCE	10 years
NON-PRESSURIZED NON-OXYGEN DEPLETING ZERO OZONE DEPLETION POTENTIAL ZERO GLOBAL WARMING POTENTIAL	



COMPARISON BETWEEN DIFFERENT TYPES OF FIRE EXTINGUISHING AGENTS

	YG FIRE AEROSOL	Dry Powder	Water Mist	Foam	CO ₂	Halon
INFORMATION	PFE-1 / PFE-3	MFZ/ABC1	MSQZ2(A)	MJPZ4	MT2	MY1
Weight of Agent	500 gr / 1500 gr	6 kg/12 kg	10L/20L	20L/40L	5kg/10kg	2.5kg/5kg
Pressure	NO	YES	YES	YES	YES	YES
Cause of Short Circuit	NO	YES	YES	YES	NO	NO
Corrosion	NO	NO / YES	YES	YES	NO	NO
Harm From Sudden Heat Exposure	NO	NO	NO	NO	YES	YES
Stain	NO	YES	YES	YES	NO	NO
Maintenance	10 Years	1 Years	1 Years	1 Years	1 Years	1 Years
Poisoning	NO	NO	NO	NO	YES	YES
Harm On Health and Environment	NO	NO	NO	NO	YES	YES

This table clearly shows that Aerosol Fire Extinguishing Technology is irriaved comparing to the other fire extinguishing agents. The advantages of YG FIRE AEROSOL are coloured in "GREEN" where the disadvantages of other extinguishers are coloured in "RED".



TSEK-39



TSEK-58



TSEK-164



Certification Of Domestic Turkish Product For Fire Control Panel



Certification Of Domestic Turkish Product For Aerosol



Certification Of Domestic Turkish Product For Super Fire Ball



ISO-15779



Harmlessness Certification For Health & Environment



SUPER FIRE BALL CE



HAFEX CE



ISO 9001:2015



ISO 14001:2004



SUPER FIRE BALL Trademark Patent For U.S.



SUPER FIRE BALL Trademark Patent



HAFEX Trademark Patent



WIPO Trademark Patent



Certification For Aging Test



Certificate Of Qualification

SOME OF OUR REFERENCES

HAFEX®

HYBRID AEROSOL FIRE EXTINGUISHING SYSTEMS



YG Yangın Güvenliği
San. ve Dış Tic. Ltd. Şti.



Manufactured by: YG YANGIN GUVENLIGI SAN. ve DIS TIC. LTD. STI.

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