NERO INDUSTRIES
Advanced Reliability

OUR FACTORIES

NERO Endüstri Savunma Sanayi A.Ş. which operates in United States of America, Bulgaria and Turkey at Ankara headquarters, is one of the largest subsystem manufacturers in Defence Industry in Turkey. Our company which is located on a plot of 12.000 m2 in Anatolia Organized Industrial Zone; has been performing hundred percent domestic design, manufacture and provide system solutions since its foundation in 2009. More than 100 engineers are assigned within its staff of 210 people. Besides, it imports 29 different countries in the world. While our group companies operate in Space Aviation field, Defence Industry, it also comprises one of the largest test centres of Turkey regarding Defence Industry

NERO INDUSTRIES
Advanced Reliability

ARES ARMA MARS UMAY

By combining design, production, monitoring, control and improvement methods conforming to ISO9001 and AS9100 standards with quality engineering and test infrastructure, it successfully competes with its global competitors and accomplishes outstanding projects together with world leaders of the sector.

Nero Industry has started project designing phase of the factory for the project which is worth 1.6 billion TL together with project-based investment incentive support on Presidential decree published in official gazette on 20th April, 2020 in order to establish Turkey's first semiconductor production factory. Turkey's first semi-conductor serial production facility which will be established on 300.000 m2 plot, will bring our country to the level where we will be able to compete with semiconductor companies at global level. Nero Industry, together with its high qualified employees will create first investment phase of Turkey in this field with this project.

Within the scope of designed and qualified systems,

ARES – Fire Suppression Systems,
MARS – CBRN Detection and Filtration Systems,
ARMA – Power Systems,
UMAY – Laser Detection/Warning and Smoke Grenade Launcher Systems are included.

35

NERO INDUSTRY SYSTEMS IMPORT TO 35 COUNTRIES

- Germany
- Israel
- Ukraine
- Brasil
- USA
- Azerbaijan
- Bahrain
- China
- Indonesia
- Kuwait
- Malaysia
- Oman
- Pakistan
- Qatar
- Singapore
- France
- Spain
- England
- Peru
- Saudi Arabia
- Turkmenistan
- United Arab Emirates
- Canada
- India
- Thailand
- Kazakhstan
- Latvia
- Estonia
- Lithuania
- S. Korea
- Poland
- Belarus
- Bangladesh
- Czech Republic
- Iraq

ARES FIRE SUPPRESSION SYSTEMS

The most dangerous threats during land operations are ATGM and RPG attacks. These weapons could even destroy a heavy armed vehicle within seconds. Ares product group developed by NERO INDUSTRY; could suppress the explosion caused by unguided antitank attacks, mine explosions, inflammable and caustic hazardous materials, liquid fuel fires, RPGs (RPG 6, RPG 7, vb.), antitank missiles (ATM) or any other heavy armour piercing ammunition. UV-IR optical sensors have the capability of detection in less than 3 milliseconds, control units have the feature of activation within 6 milliseconds after detection and extinguishing cylinders have the feature of becoming active in less than 7 milliseconds. By means of Ares fire suppression systems, fire is suppressed in less than 250 milliseconds. This system comprises all the conditions described in NATO's Stanag 4317 standard and all qualification tests is made at NATO Level 4 standard together with customer.

By means of ARES body and tire fire extinguishing systems, the fires caused by molotov cocktails could easily be extinguished even while the vehicle is under threat. The system in general protects human life and precious properties against destructions which could be caused by armour piercing ammunition or hydrocarbon fuel in the vehicle.

FIRE EXTINGUISHER FAMILY

CONTROL UNITS FAMILY

SENSOR FAMILY

SUPPORTIVE PRODUCTS

PYREX EXTINGUISHERS WITH GAS AGENT

(CREW AND ENGINE)

The fire suppression cylinders eliminate the high temperature up to 2000 degrees generated within the vehicle by RPG and ATGM attacks striking the armoured vehicle and the pressure created by the explosion with the cooling agent HFC 227EA (FM-200) gas inside them. These extinguisher cylinders zero out loss of both lives and property when they are active by eliminating the high temperature generated by the rocket attack thanks to the cooling gas specification and also eliminating the high pressure with the 42 BAR pressurised operating pressure.

Extinguisher cylinders have successfully passed high temperature, low temperature, humidity, environmental tests as per MIL-STD-810H military standards. Compared to the other extinguishers in its own segment, having an aluminium body makes it lighter and more practical. These extinguishers optionally having an operating range between -32 and +120 degrees, have completely environment friendly HFC 227EA gas. The fact that they do not leave any dust or dirt when they are active, eliminates the necessity of cleaning. The extinguishers being activated within 3 milliseconds by pyrotechnic triggers, guarantee to get activated absolutely in all kinds of environmental conditions and establishes superiority to equivalent electronic valved structures.

CYLINDER CODES

DS - 3R - C - A

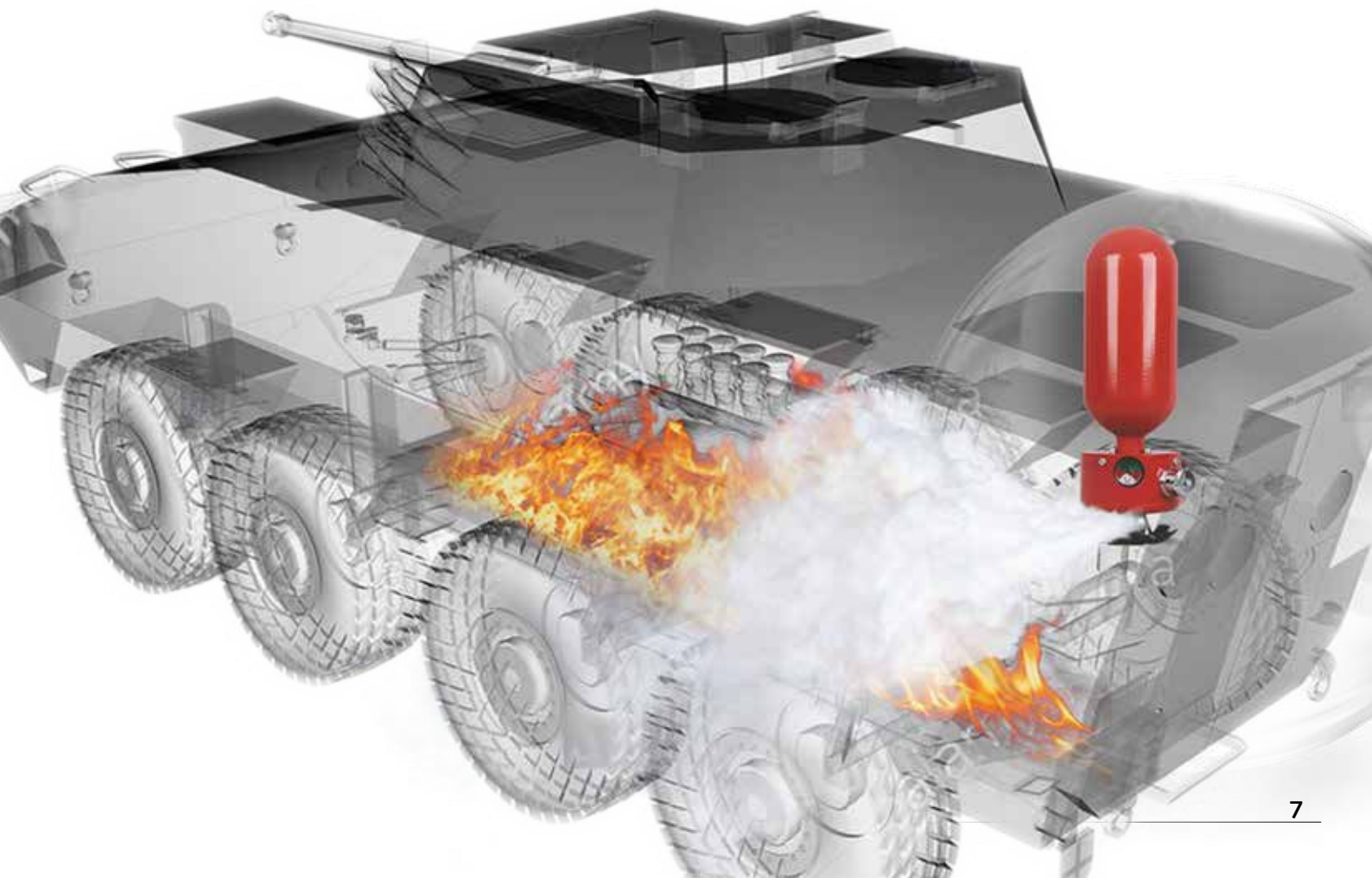
- A ALUMINIUM
- S STEEL
- C CREW
- E ENGINE
- 1 1,5 LITERS
- 2 TYPE 1 – 2.0 LITERS
- 22 TYPE 5 - 2.0 LITERS
- 3 3.4 LITERS
- 4 4.5 LITERS
- 6 6 LITERS
- DS DS DOUBLE SHOT
- SS SS SINGLE SHOT

COLOUR SELECTION

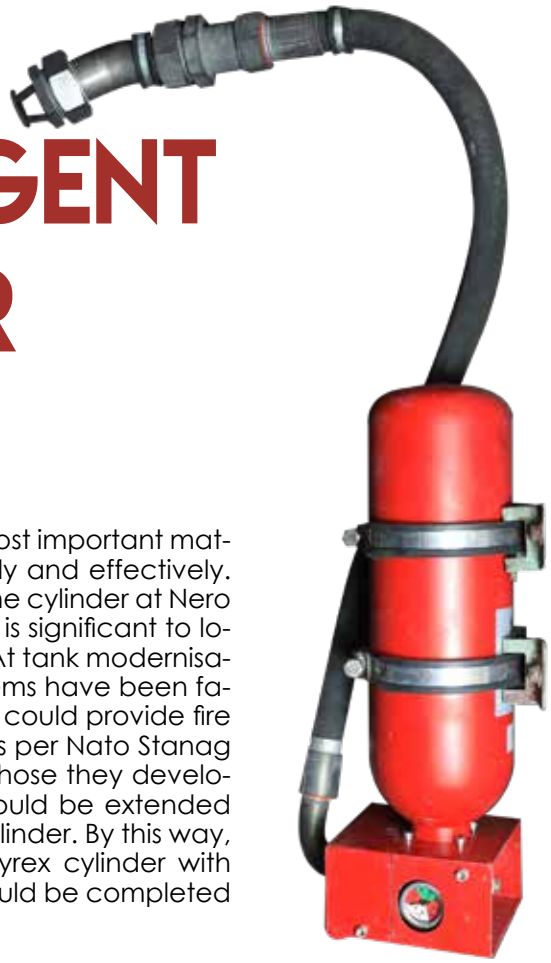
- RAL 300
- RAL 6019
- FS 33245
- RAL 9010

TECHNICAL SPECIFICATIONS

High speed reaction in a time period less than 6 ms	Cylinder capacity: different sizes between 3 - 10 kg
Pressure indicator resistant to vibration	Super pressurisation: Dry nitrogen
360° homogenous distribution	Cylinder nominal pressure : 42 Bar
Harmless to human life	Operating temperature : -55 +120 C°
Refillable by refill kit	Weight : 5 ±0,5 kg 18±0,5 kg
MTBF duration of 250,000 hours	Pyrotechnic activation
Extinguisher active substance: HFC 227 ea	MIL-STD-810H, MIL-STD-461G, MIL-STD-1275E certifications
Substance helping respiration: Sodium bicarbonate	Conforming to UL, CE GOST-R standards



PYREX GAS AGENT EXTINGUISHER WITH HOSE



While designing armoured combat vehicles, the most important matter is to use the volume within the vehicle correctly and effectively. As the extinguisher agent is spouted directly from the cylinder at Nero Industry's existing Pyrex fire suppression cylinders, it is significant to locate it at an effective location within the vehicle. At tank modernisation or on small armoured vehicles projects, problems have been faced locating the cylinders within the vehicle. Nero could provide fire suppression system feature within same duration as per Nato Stanag 4317 by means of Pyrex extinguisher cylinder with hose they developed against these problems. Besides, hose line could be extended up to 2 meters by increasing the pressure on the cylinder. By this way, vehicle designs could be easily designed with Pyrex cylinder with hose by Nero Industry team and its qualification could be completed more quickly.

TECHNICAL SPECIFICATIONS

High speed reaction in a time period less than 6 ms	Cylinder capacity: different sizes between 3 - 10 kg
Pressure indicator	Super pressurisation: Dry nitrogen
360° homogenous distribution	Cylinder nominal pressure: 60 Bar
Harmless to human life	Operating temperature: -55 +70 C°
Refillable by refill kit	Weight : 5 ±0,5 kg 18±0,5 kg
MTBF duration of 250,000 hours	Pyrotechnic activation
Extinguisher active substance: HFC 227 ea	MIL-STD-810H, MIL-STD-461G, MIL-STD-1275E certifications
Substance helping respiration: Sodium bicarbonate	Conforming to UL, CE GOST-R standards

PYREX-XL GAS AGENT EXTINGUISHER

TECHNICAL SPECIFICATIONS

High speed reaction in a time period less than 6 ms	Cylinder capacity: Different sizes between 8 - 15 kg
Pressure indicator	Super pressurisation: Dry nitrogen
360° homogenous distribution	Cylinder nominal pressure: 60 Bar
Harmless to human life	Operating temperature : -55 +70 C°
Refillable by refill kit	Weight : 18 ±0,5 kg 30±0,5 kg
MTBF duration of 250,000 hours	Pyrotechnic activation
Extinguisher active substance: HFC 227 ea	MIL-STD-810H, MIL-STD-461G, MIL-STD-1275E certifications
Substance helping respiration: Sodium bicarbonate	Conforming to UL, CE GOST-R standards

NAFEG

AEROSOL FIRE EXTINGUISHER

NAFEG Aerosol Extinguisher, is designed to extinguish and defuse A type (solid fuel), B (liquid fuel), C (gas fuel) fires and E type (electricity) fires in enclosed volumes.

After the extinguishing agent amount is calculated for each fire type and the volume to be protected, solid NRE-CM agent within NAFEG cylinder and total number of NAFEG cylinders in the volume to be protected is determined. NAFEG-125 is designed to produce dry aerosol for extinguishing a fire in a 1,25 m3 enclosed volume. Aerosol extinguishers are compatible with standard sensors and control units and could be located inside of the protected volume.

SPECIFICATIONS

- No Ozone Depletion
- No Global Warming
- Low Toxicity
- Highly Efficient - 100 gr/m³
- Approved By EPA for SNAP Listing
- Small-Safe-Simple
- For A-B-C-E Class Total Flooding Applications
- Cost Effective
- Cool and dry; Max. 10 Years Storage/Shelf Life
- IP67 Protection Class

APPLICATIONS

- CNC-Machines
- Control Rooms (sub Floor; Above Ceiling)
- Electrical Cabinets
- Engine & Compressors Rooms
- Flammable and Combustible Liquids and Gases Storage
- Paint Lockers
- Marine Applications
- Server Rooms
- Telecommunications Facilities

TECHNICAL SPECIFICATIONS	
Extinguishing Volume	1,25 m (100 gr/m)
Activation Mode	Electric
Discharge Time	4-6 seconds
Discharge Distance	2 m
Temperature Range	-40°C (-104°F) -120°C (248°F)
Toxicity	None
Solid Fire Extinguisher Weight	125 gr
Fire Classes It Is Effective	A Class, B Class, C Class, E Class
ELECTRICITY REQUIREMENTS	
Power Supply	1.2 Amp
MECHANICAL SPECIFICATIONS	
Dimensions	Height 132 mm (5.19") Diamater 89 mm (3.50")
Weight	1.8 kg (3.96 pound)
ENVIRONMENTAL HAZARD	
Impact on Ozone Layer	None
Impact on Global Warming	None

NAFEG-TD

AEROSOL FIRE EXTINGUISHER WITH MECHANICAL ACTIVATION

NAFEG-TD, provides All-In-One independent system solution in which fire detection and extinguishing are united. Besides it can be controlled by Control Unit, it can also be activated mechanically, not being connected to any electrical power supply. Thanks to the thermal sensor/activator on it, it can detect fire and get activated automatically, at various temperatures (e.g. 57°, 68°,79°, 93°C, 141°C, 180°C) according to different requirements.

After the fire is detected by thermal sensor/activator, the fire is suppressed effectively by the aerosol extinguisher. It provides high flexibility and integrability for active fire protection at different applications with its easy installation and rapid change feature as well as its little weight and dimensions.

SPECIFICATIONS

- No Need Electricity
- Include Detection Feature
- No Ozone Depletion
- No Global Warming
- Low Toxicity
- Highly Efficient - 100 gr/m³
- Approved By EPA for SNAP Listing
- Small-Safe-Simple
- For A-B-C-E Class Total Flooding Applications
- Cost Effective
- Cool and dry; Max. 10 Years Storage/Shelf Life
- IP67 Protection Class

APPLICATIONS

- CNC-Machines
- Control Rooms (sub Floor; Above Ceiling)
- Electrical Cabinets
- Engine & Compressors Rooms
- Flammable and Combustible Liquids and Gases Storage
- Paint Lockers
- Marine Applications
- Server Rooms
- Telecommunications Facilities

TECHNICAL SPECIFICATIONS

Extinguishing Volume	1,25 m (100 gr/m)
Activation Mode	Electric
Discharge Time	4-6 seconds
Discharge Distance	2 m
Temperature Range	-40°C (-104°F) -120°C (248°F)
Toxicity	None
Solid Fire Extinguisher Weight	125 gr
Fire Classes It Is Effective	A Class, B Class, C Class, E Class
ELECTRICITY REQUIREMENTS	
Power Supply	1,2 Amp (Not Compulsory)
MECHANICAL SPECIFICATIONS	
Dimensions	Diameter 89 mm (3.50") Height 172 mm (6.77")
Total Weight	1.8 kg (3.96 pound)
DETECTION OPTIONS	
Thermal Detection Treshold Temperature Options	57°C (135°F)
	68°C (155°F)
	79°C (175°F)
	93°C (200°F)
	141°C (286°F)
	180°C (356°F)
Activation Duration	5 seconds after detective bulb is broken
Impact on Ozone Layer	None
Global Warming Potential	None

FIRE CLASSES IT IS EFFECTIVE

NAFEG-TED

AEROSOL FIRE EXTINGUISHER WITH MECHANICAL AND ELECTRICAL ACTIVATION

After calculating the required extinguishing agent concentration for each type of fire and the volume that need to be protected, and determining the appropriate NAFEG extinguisher for the volume, the solid NRECM agent in the NAFEG cylinder and the total number of NAFEG cylinders in the protected area are determined. NAFEG Aerosol Extinguishers offer solutions for every need with electrical, mechanical and both electrical and mechanical activation options.

NAFEG-TED Mechanical and Electrical Activated Aerosol Fire Extinguisher; It is a combined version of Mechanically Activated NAFEG-TED and Electrically Activated NAFEG. Thanks to the thermal sensor/activator on it, it can perform automatic detection-extinguishing, and at the same time, it can be connected to the control box and be activated remotely thanks to the military connector on it.

SPECIFICATIONS

- No Ozone Depletion
- No Global Warming
- Low Toxicity
- Highly Efficient - 100 gr/m^3
- Approved By EPA for SNAP Listing
- Small-Safe-Simple
- For A-B-C-E Class Total Flooding Applications
- Cost Effective
- Cool and dry; Max. 10 Years Storage/Shelf Life
- IP67 Protection Class

APPLICATIONS

- CNC-Machines
- Control Rooms (sub Floor; Above Ceiling)
- Electrical Cabinets
- Engine & Compressors Rooms
- Flammable and Combustible Liquids and Gases Storage
- Paint Lockers
- Marine Applications
- Server Rooms
- Telecommunications Facilities

TECHNICAL SPECIFICATIONS	
Extinguishing Volume	1,25 m (100 gr/m)
Activation Mode	Electrical - Manuel - Mechanical
Discharge Time	4-6 seconds
Discharge Distance	2 m
Temperature Range	-40°C (-104°F) -120°C (248°F)
Toxicity	None
Solid Fire Extinguisher Weight	125 gr
Fire Classes It Is Effective	A Class, B Class, C Class, E Class
ELECTRICITY REQUIREMENTS	
Power Supply	
MECHANICAL SPECIFICATIONS	
Dimensions	Height 251 mm (5.19") Diamater 88 mm (3.50")
Weight	2,3 kg (5.07 pound)
ENVIRONMENTAL HAZARD	
Impact on Ozone Layer	None

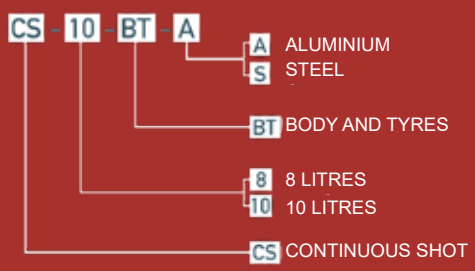
LIFEC LIQUID AGENT EXTINGUISHER

(BODY - TIRES - FUEL TANK)

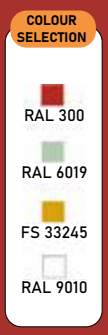
> LIFEC protects exterior body and tires of armoured vehicles and combat vehicles against external factors thanks to the liquid agents within 10 litres of extinguishing cylinders. This extinguishing liquid is a special liquid developed by Nero Industry. The liquid agents used here are carried to requested area by the help of hoses and nozzles. One LIFEC extinguishing cylinder and 8 nozzles for body section, one LIFEC extinguishing cylinder and 4 nozzles for both tires are used. When this system is activated, it extinguishes within 10 seconds, then it prevents any new fire from outbreaking for 3 minutes.

TECHNICAL SPECIFICATIONS

High speed reaction in a time period less than 10 milliseconds	Cylinder capacity: Different sizes between 8 - 10 litres
Pressure indicator	Super pressurisation: Dry nitrogen
Selenoid activation	Cylinder nominal pressure: 45 - 100 Bar
Harmless to human life	Operating temperature : -32 / +71 C°
Refillable by refill kit	Weight : 24-30 kg for 8-10 lt capacity
MTBF duration of 250,000 hours	MIL-STD-810H, MIL-STD-461G, MIL-STD-1275E certifications
Extinguisher active substance: Liquid AFFF(Biological)	Conforming to UL, CE GOST-R standards
IP67 water and dust ingress protection	Vertical and horizontal locating option



Optional CARC Colours CARC
(Chemical resistant coating)



CREW FIRE EXTINGUISHING SYSTEM

VEHICLE BODY EXTINGUISHING SYSTEM

ARES III Control Unit

Nozzle

LIFEC Liquid Agent Extinguisher

ARES CONTROL UNIT FAMILY

- Ares control unit is the unit section where warning, detection and fault status of the system which is designed and developed by Nero Industry completely as a completely domestic product, by power leds belonging to each cylinder and detector. Ares Control unit which operates flexibly, complying with system configurations and operating logic, controls fire extinguishing and fire suppression system. This smart control unit which has a many-chambered compact structure, receives the detection signals for power group, body, tire, engine, crew and other compartments to be protected and activates the system.
- By means of smart control unit, system verifications and logical operations could be performed. It has features of built-in-test, manual activation and automatic activation. It has water and dust protection at IP 67 level. Error, alarm and other data regarding fire suppression and fire extinguishing system are transmitted to vehicle main computer by CANBUS communication infrastructure.

ARES III+

TECHNICAL SPECIFICATIONS

High speed reaction in a time period less than 6 milliseconds	MTBF duration of 140,000 hours
Automatic and manual built-intest opportunity(BIT)	Galvanically isolated
Accepts input signals from optical detectors, thermocouples and thermal wire	Power supply: 24 VDC nominal (16-32V)
Automatic-manual activation	Power consumption: 450 mA @ 24 VDC
Manual activation and output signal for each compartment	Weight : 2240 gr ± 290 gr (Depends on configuration)
Fault indication for each cylinder and detector on vehicle diagram	Dimensions (WXLXH) :180 x 86 x 149 mm (±5 mm)
Alarm LEDs for every compartment	Produced as per PCB IPC A-610 class-3
Alarm logging until next reset	IP67 water and dust ingress protection
Recording fire detections, manual activations and error conditions	Salt fog test resistance 800 hours
The last 500 datalog entries can be reached	MIL-STD-810H ,MIL-STD-461G, MIL-STD certifications, 1275E UL, conforming to CE GOST-R standard

UNIT CONTROL CAPABILITIES

12 Detector (Programmable Function)
12 Cylinders(Crew (4) Engine (2) Tires (2) Body (4))
Double Shot Feature(Crew and Engine)
While manual buttons provide activation, data could be recorded by CANBUS independant from electronic system.
DC/DC Isolation

Manual Body Activation
Manual Tires Activation
Manual Engine Activation
Manual Crew Activation
Blackout Mode
Built In Test Equipment(BIT)
Combat / Peace Mode Selection

4 Inputs:

-Input 1 : Vehicle ignition switch ('NO' contact, switching to battery (+))
-Input 2 : Blackout input ('NO' contact, switching to battery (-))
-Input 3 : Emergency input ('NO' contact, switching to battery (-))
-Input 4 : Configurable digital inputs ('NO' contact, switching to battery (-))

4 Output (1A 24V DC):

-Output 1 : Main warning (1A @ 24VDC)
-Output 2 : Crew fire alarm (1A @ 24VDC)
-Output 3 : Engine fire alarm (1A @ 24VDC)
-Output 4 : Crew fan controller (1A @ 24VDC)

ARES IV CONTROL UNIT

Manual Body Activation
Manual Tires Activation
Manual Engine Activation
Manual Crew Activation
Blackout Mode
Built In Test Equipment(BIT)
Combat / Peace Mode Selection
Log Recording Feature

ARES III CONTROL UNIT

Manual Body Activation
Manual Tires Activation
Manual Engine Activation
Manual Crew Activation
Blackout Mode
Built In Test Equipment(BIT)
Combat / Peace Mode Selection

ARES SLX CONTROL UNIT

Manual Engine Activation
Manual Crew Activation
Combat / Peace Mode Selection
Built In Test Equipment(BIT)

ARES II+ CONTROL UNIT

Manual Body Activation
Manual Tires Activation
Manual Engine Activation
Manual Crew Activation
Blackout Mode
Built In Test Equipment(BIT)
Combat / Peace Mode Selection

UV-IR CONTROL DETECTOR

Control detectors come to the forefront in their class with the advanced technology and design. They are products that control box and the optical detector in the fire suppression system are used in a compact structure. The fact that functions of control unit and optical detector are combined with control detector in a single body reduces the cost of the system without reducing performance, decreases wiring, provides ergonomics in terms of in-vehicle allocation.
Control detectors detect the fire ball created by the ammunition penetrating into the armour within 3 milliseconds, before it reaches to the pressure and heat level that can harm its surrounding, and activate the system in 10 milliseconds on vehicles which are hit by RPG or ATGM rockets.

Manual Engine Activation
Manual Crew Activation
Combat / Peace Mode Selection
Built In Test Equipment(BIT)

UV-IR OPTICAL DETECTOR

> Optical detectors detect the fire ball created by the ammunition penetrating into the armour within 3 milliseconds, before it reaches to the pressure and heat level that can harm its surrounding, and send an alarm signal to control box on vehicles which are hit by RPG or ATGM rockets. It detects heat and light waves at different frequencies by UV and IR sensors within it, makes required matches and send flame signal to control box. Detectors are genuinely designed by Nero Industry engineers according to NATO Stanag 4317 and American MIL PRF 62546C standards. UVIR flame detectors have also successfully passed high temperature, low temperature, humidity, shock-vibration, corrosion and EMI/EMC tests as per MIL-STD-810H and MIL-STD-461F standards.

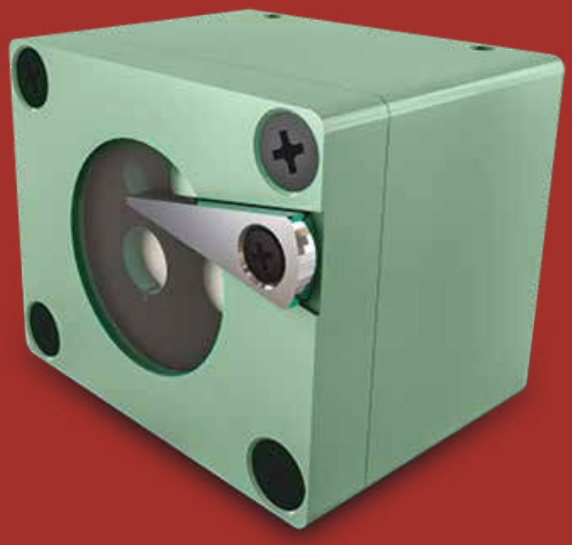
> Detectors have been specially designed as IP67 and can stay under 1 meters of water for half an hour. The detectors also having protection for false alarms, do not react against false alarms such as sunlight, vehicle headlights, welding beam, infrared heater, cigarette ash. Along with these systems protecting the engine and the crew on military armoured vehicles, electric vehicles, buses, planes, jet planes and ships; total 40 thousand detector accomplish their duty in the field.

TECHNICAL SPECIFICATIONS

High speed reaction in a time period less than 3 ms	Immunity to false alarm as per MIL-PRF 62546C
UV/IR dual sensor - Thermal Sensor	Power supply : 24 VDC nominal (16-32V) Power consumption : 70 mA @ 24 VDC
180 C° fire detection thermal sensor	Advanced software algorithm
140° blind spot detection	Operating temperature : -51 / +120 °C
Sensitivity against creeping fire	Weight : 480 g ± 50g
MTBF duration of 150,000 hours	MIL-STD-810H, MIL-STD-461F, MILSTD-1275E certifications
Production as per PCB IPC A-610 class-3	Conforming to UL, CE GOST-R standards
IP67 water and dust ingress protection Salt fog resistance: 800 hours	10 years of shelf life
Dimensions (WXLXH): 85 x 49 x 100 mm (±5 mm)	Storage temperature : -55 °C +150 °C

NERO INDUSTRIES
Advanced Reliability

TRIPLE IR OPTICAL DETECTOR



FALSE ALARM CHART

Test Performed	Spec Requirements
Headlight (55-65 W)	15 cm
Incandescent Lamp (100 W)	2,5 cm
Halogen Lamp (500 W)	5 cm
Fluorescent Light (40 W)	At any distance
UV Lamp (75 W)	At any distance
In-Vehicle Lighting (5 W)	At any distance
Match	20 cm
Sodium Lamp (70-250 W)	At any distance
Xenon Lamp (30 W)	5 cm
Flashlight (1 W)	At any distance

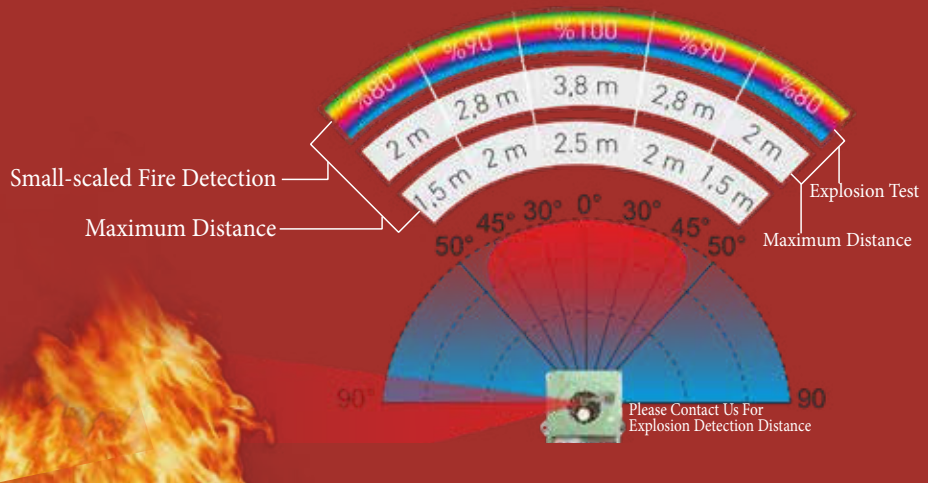
COLOUR SELECTION

RAL 300

RAL 6019

FS 33245

RAL 9010

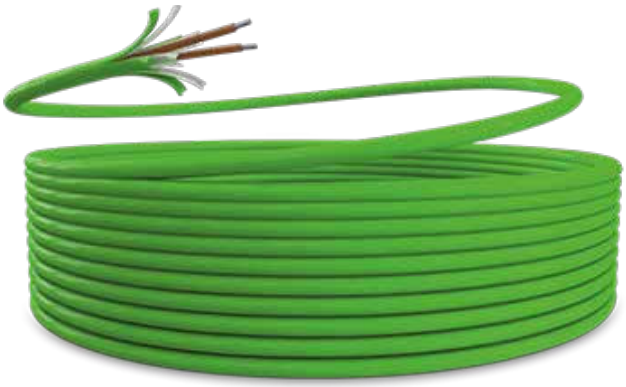


CONTINUOUS HEAT SENSOR

TECHNICAL SPECIFICATIONS

– Self-repairing (it can turn back to normal after it reaches 870°C temperature)
– K-Type TC components
– Resistant to chemical actions
– It has grounding specification
– It can still detect even after the wire is cut into pieces
– Storage temperature: -55°C +800°C
– Flexibility: Elasticity feature
– Thickness: 6 mm
– Coating material: Inconel coating
– Measurement type: K type thermocouple

Continuous sensor thermal wires are used for detecting the fire in the areas they are located in cases of fire. In this system, it is aimed to detect fire by fastening the continuous thermal wire on surfaces in the area desired to be protected from fire. As for detection period, detection can be performed within 5 up to 20 seconds depending on magnitude, class of fire and the area it bursts out.
As for detection temperature it can make detection between 50 and 250 degrees according to customer's desire. It can transmit detection temperature to control box and the ambient temperature can also be measured. It is suitable for the multistructured complicated systems which are not suitable for UV-IR detectors to make detection. It is multi-usable and can continue detection after each activation. It has an operation temperature between -55°C and +250°C and it is extensively used on tank engines, electrical panels and generators.



LINEAR SENSOR WIRE

TECHNICAL SPECIFICATIONS

– Disposable
– With wide detection area
– Wire gauge: 6 mm
– Bending radius: 150 mm
– Operation temperature: -55 °C + 170 °C
– Storage temperature: -55 ° C + 170 °C
– MTBF period 200,000 hours
– Design length range between 1 meter and 15 meters
– Pre-set alarm levels: 120 -150 -170° C

Linear sensor thermal wires are used for detecting the fire in the areas they are located in cases of fire. In this system, it is aimed to detect fire by fastening the thermal wire on surfaces in the area desired to be protected from fire. As for detection period, detection can be performed within 10 up to 40 seconds depending on magnitude, class of fire and the area it bursts out. When the ambient temperature reaches to 180 °C, the structure of the wire starts to get damaged and the outer layer melts and the wires inside touch each other and conduct fire alarm to control box.
It is suitable for the multistructured complicated systems which are not suitable for UV-IR detectors to make detection. It is disposable and should be changed after each activation. It has an operation temperature between -55°C and +170°C. In general, it is extensively used on vehicle engines, electrical panels and generators.

FIRE EXTINGUISHING SYSTEM CONTROL UNIT SELECTION

CONTROL UNITS	Bölgeler	Stanag 4317	Maximum Cylinder	Maximum Detector	Thermocouple	CANBUS	Switch Off Timer
Ares I Control Unit	1-2	✓	6	6	2	✓	
Ares II Control Unit	1-4	✓	6	8	2	✓	
Ares II+ Control Unit	1-4	✓	12	8	2(Optional)	✓	✓
Ares III Control Unit	1-4	✓	12	16	2	✓	✓
Ares III+ Control Unit	1-4	✓	12	12	2(Optional)	✓	✓
Ares IV Control Unit	1-4		12	12	2(Optional)	✓	✓
Ares UV-IR Control Unit Sensor	1-2	✓	4	4(+1)	1(Optional)	✓	✓
Ares M2 Control Unit	1-4		7				
Ares M3 Control Unit	1-2		5		5		✓
Ares SLX Control Unit	1-2	✓	4	5	2(Optional)	✓	✓

FIRE SUPPRESSION SYSTEM TEST KIT

The test kit is designed and produced to measure whether there are any faults in the system components, whether the performance of the system components is within the desired range, and whether the vehicle energy values are sufficient for the correct operation of the system components by connecting to the ARES Fire Suppression System.

The fire signal is sent to the UV-IR Detector via the UV-IR Test lamp included in the kit, and the user is instantly informed via the Mobile Application or the LCD screen on the Test Bag, in how many milliseconds the Activation of the Suppression Cylinders takes place and in how many milliseconds the UV-IR Detector performs the fire detection process. and test records are stored encrypted in secure NERO databases for later review. Test records can be viewed with a user-friendly interface, with a user name and password defined for the company, or the records can be transferred to USB sticks in an encrypted form via the Memory Recording port on the system.

TECHNICAL SPECIFICATIONS

Simulate UV/IR emmiton of a real fire	UV output: UV-C spectral region
Can activate UV/IR detectors from 1 meter	IR output: Medium IR spectral region
Portable	Working distance: 5- 2,5 cm
Light weight and reliable aluminum case	MBTF: 3500 hour IR and 800 hour UV
Humidity resistant with 0-ring gaskets	Working temperature: -20°C - +70°C
Standart 120W adapter	Working humidity: % 0-100 Rh

FIRE EXTINGUISHER CYLINDER SIMULATOR

- Extinguisher: DUD, NORMAL, EMPTY modes Double-Shot test
- Possibility of use with external power supply
- Working with 4 AAA batteries and 12W Power adapter Military connector connection
- Indicator LEDs
- High reliability
- Can be used in slow growing fires
- Weight : 520 g ± 50 g
- Dimensions LXWXH: 26 x 65 x 103.5mm

BACK-UP POWER UNIT

The Backup Power Unit serves to provide sufficient power to the fire extinguishing system for 2-8 hours after the main power of the vehicles is turned off.

It includes a maintenance toggle switch that enables the power supply to be turned off in cases such as performing maintenance on the system and changing the components in the vehicle, battery boosting and welding.

TECHNICAL SPECIFICATIONS

Emergency power backup	Power consumption: 15 mA @24VDC
MTBF: 120,000 hour	Weight : 620 ± 50g
Power supply: 150 mA (during 2 hours of operation at room temperature)	Dimensions (EXBXY) :115 x 60 x 114 mm (±0,5 mm)
Working temperature : -40°C +71°C	Salt fog test resistance 800 hours
Operating voltage: 16-32 VDC	IP67 water and dust ingress protection
Standart 120W adapter	MIL-STD-810H ,MIL-STD-461G, MIL-STD certifications, 1275E UL, conforming to CE GOST-R standard

COLOUR SELECTION

RAL 300

RAL 6019

FS 33245

RAL 9010

MAINTENANCE SWITCH BOX

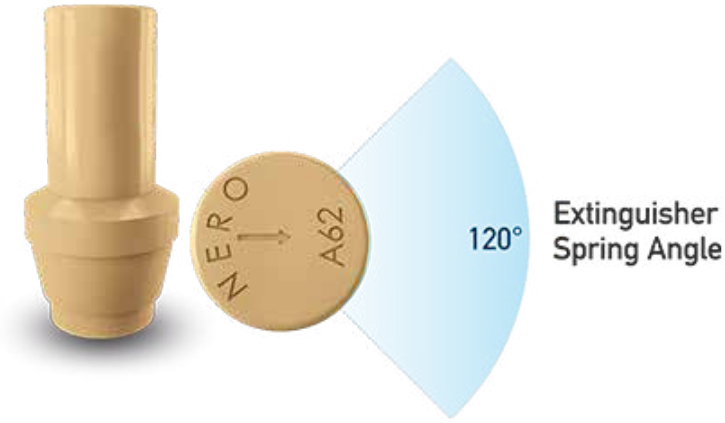
The maintenance switch box contains a maintenance toggle switch that shuts off the power supply when the system is serviced and components are changed inside the vehicle.

TECHNICAL SPECIFICATIONS

Operating temperature: -40°C +71°C
Storage temperature: -55°C +120°C
Operating voltage: 16-32 VDC
Indicator and warning signals
MTBF: 250.000 hour
Salt fog test resistance 800 hours
IP67 water and dust ingress protection
MIL-STD-810H ,MIL-STD-461G, MIL-STD certifications, 1275E UL, conforming to CE GOST-R standard

DEFLECTOR

- The deflector is the main part that provides 360˚ distribution of the extinguishing agent inside the vehicle.
- After the activation of the cylinders, the active substance is dispersed quickly and effectively with the help of deflectors.
- According to the position of the tubes in the vehicle, the dispersion direction can be adjusted up and down.
- Weight: 390g ± 50g



NOZZLE

- The viewing angle is between 90 and 180 degrees.
- Inner diameter is 5 millimeters.
- Dispersion rate is 50 - 60 liters/minute
- The material type is 304 stainless or brass.
- It is corrosion resistant
- Easy direction adjustment with the symbol arrow on the front.
- Weight: 20 g ± 5

Nozzle Code	Nozzle Name	Orifis (mm)	Extinguisher Spring Angle
NE-P-44706	A51	5	90°
NE-P-44707	A52	5	120°
NE-P-44708	A53	5	150°
NE-P-44709	A54	5	180°
NE-P-44710	A61	6	90°
NE-P-44711	A62	6	120°
NE-P-44712	A63	6	150°
NE-P-44713	A64	6	180°
NE-M-21422	ENGINE NOZZLE ALU	3/8 INC (9.525 mm)	FULL CONE 120°
NE-M-21315	TIRES NOZZLE ALU	3/8 INC (9.525 mm)	FULL CONE 120°

ENGINE NOZZLE

- The engine nozzle is designed in a conical structure to ensure effective distribution of the active ingredient in the engine compartment.
- It is insulated against dust, rain, mud and oil.
- The nozzles are placed in the engine compartment with the help of well-designed brackets.
- It is made of aluminum and is resistant to corrosion.
- Weight: 160 gr ± 20

EMERGENCY SWITCH

The emergency switch provides manual access to the fire extinguishers in the system from outside the vehicle. Provides the ability to activate fire extinguishers located in the crew, tyre, body, engine and other compartments protected by the system.

The manual activation switch works independently from the main controller. The emergency switch is directly connected to the battery to provide instant operation when needed.

TECHNICAL SPECIFICATIONS

Giving a warning signal	Diemensions GXDXU:77,8 x 77.8 x 75 mm (±5 mm)
Activation of up to 3 tubes	IP67 water and dust ingress protection
MTBF: 150,000 hour	Salt fog test resistance 800 hours
Operating voltage: 16-32 VDC	MIL-STD-810H ,MIL-STD-461G, MIL-STD-1275E certifications
Operating temperature: -40°C +71 °C	UL, CE GOST-R standards

TEST AND VERIFICATION CAPABILITY

Nero Industry provides its customers with 4 different test and simulations for the ARES fire suppression system, designed in accordance with the Nato Stanag 4317 standard, both on the vehicle and in its own cabins in the factory, and provides its customers with the verification and quality control activities of the system they purchased. This activity is done according to NATO Stanag 4317 Level 4, which has the most advanced test procedure in the world. According to this standard, Fireball and HFC concentration tests in this standard are performed on the vehicle or in simulation cabins, according to the customer's request. As a result of these tests, it is observed that the system detects the fire in 3 milliseconds and extinguishes it within 250 milliseconds.

NATO STANAG 4317 HFC227EA CONCENTRATION TEST

This test is performed with reference to NFPA 2001 HFC227ea concentration amount in accordance with the Concentration test section in NATO Stanag 4317 section 4.4.3. The aim here is to determine whether the personnel in the vehicle will be affected by the agent when the system is activated, by measuring the gas concentration in the vehicle.

NRE-227 - HFC227ea Concentration Measurement Sensor

With the measurement of light intensity, it obtains the concentration data at the position where the device is fixed.

Before the cylinder is discharged on the vehicle, the first 30 seconds of measurement and the average data for 5 minutes are obtained from the devices positioned at minimum 3 and maximum 10 different points. (At least 3 sensors must be placed according to STANAG 4317)

- Sampling Rate (>100Hz) (According to the STANAG 4317 document, it is included in the fast sensor category.)
- 0% - 25% Measurement Range
- 0°C – 40°C Operating Temperature
- Ability to take measurements at 10 points

NATO STANAG 4317 Level 4 TEST SCREEN

NATO STANAG-4317 HFC227 FIREBALL TEST

With the fireball test, detection and extinguishing time measurements take place in the vehicle or simulation test cabin. This detection and extinguishing time must not exceed 260 milliseconds in total.

Fireball test capability features

- **Injection of 200 milliliters of F-54 jet fuel for 3 seconds**
- **Fuel tank 85 °C**
- **Fuel drain line 65 °C**
- **Ignition mechanism**