



[www.refleksyangin.com.tr](http://www.refleksyangin.com.tr)



Refleks Inc., founded in 2007, is a manufacturer and distributor of advanced fire protection systems. It is an organization that provides design, manufacturing, procurement and installation of all types of suppression systems. Goods designed and produced by Refleks Inc. are branded with the “RSS” trademark (Refleks Suppression Systems). Sector based distribution of our turnkey projects can be summarized as 85% industrial and 15% maritime.

Engineering, procurement, shipping and warehousing operations are carried out by Refleks employees and from Kartal - Istanbul facilities. All systems design, manufacturing, distribution, installation and testing are accomplished via our highly customized ERP platform. Refleks Inc. branches located in Ankara, Izmir and Adana are responsible for project follow-ups and providing technical support to our customers and local distributors.

Our manufacturing, design and field operations are  $\pi$ 0036, TPED, CE, IMO, VdS, GOST-R certified and VdS certification process is ongoing.

Technical specifications and details of all systems can be viewed in depth at [www.refleksyangin.com.tr](http://www.refleksyangin.com.tr)



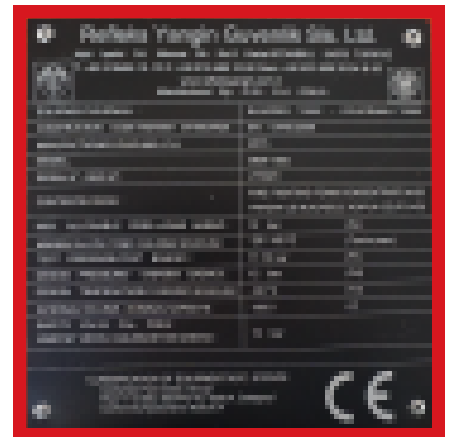


Our engineering solutions are organized by the coordination of Refleks field personnel and customer requests and needs. Our fire engineering know-how is constantly enhanced as we keep track of latest developments and technologies through uninterrupted NFPA membership, manufacturer certified trainings and by updated publications gathered from VdS and other international seminars.

Fire suppression system designs are crafted by our experienced in-house engineering department with the help of VdS certified software tools. Fire protection of facilities and ships are ensured by coupling active and passive system capabilities. Suppression system projects that use water, foam, gas or dry-wet chemicals as agents are coupled with passive systems in consideration with total risk analyses. We take extra care in protecting rights and privacy of our customers.

System installations are performed by CE certified Refleks teams which are made of experienced and trained mechanics, welders, electricians and construction workers.





Foam concentrations are supplied from Fomtec with UL, EN 1568, ICAO, Lloyd's Register, Last Fire Test and UK Defence certificates. RSS Foam Systems and equipments are manufactured in Italy with CE and Turkish Lloyd certificates. NFPA 11 and API compliant RSS Foam Systems are designed with VdS approved software tools and assembled by Refleks personnel.



Foam systems, consist of FM, UL, GOST-R, RINA, Turkish Lloyd certified products, are typically applied for flammable and combustible tanks, warehouses, petroleum and chemical industrial plants, plane hangars, airports and tankers.



## **WATERMIST SUPPRESSION SYSTEMS**

Watermist systems are now widely being used in industrial and maritime sectors. It is the preferred alternative for turbines, generators, transformers, cable conduits, ducts, hydraulic pump rooms, presses, and oil pools. High pressure watermist systems are usually applied for museums, archives, historic buildings, road and railroad tunnels, maintenance workshops, passenger areas, rail cars, fuel and flammable facilities.



These systems are FM approved, UL listed or VdS certified. System designs, installations and tests are performed according to NFPA 750 rules. High pressure pumps can be manufactured or supplied as diesel or electrical. For volumes smaller than 270 m<sup>3</sup>, no-pump systems are used. Certified, stainless steel pipes and fittings are used in installation. An entire factory or ship can be protected with one pump system with the help of selector valves. Operational tests are performed at Refleks facilities.



## **HFC-227ea (FM-200)<sup>®</sup> GASEOUS SUPPRESSION SYSTEMS**

Refleks distributed FM-200 based systems are FM approved and UL listed. Refleks manufactured RSS HFC-227ea Systems are GOST-R certified and VdS certification process is ongoing. Typically, these systems operate under 25 bars of pressure and can be automatically or manually (electronically/mechanically) activated. UL listed and GL certified systems with a working pressure of 52 bars can be supplied upon request. Welded cylinders are DOT or TPED certified and have capacities of 26, 45, 83 or 150 liters. We provide economically feasible solutions by adding selector valves onto systems. All hydraulic calculations are made with advanced and VdS certified software tools. Door fan tests are executed by Refleks personnel and according to NFPA 2001 rules.



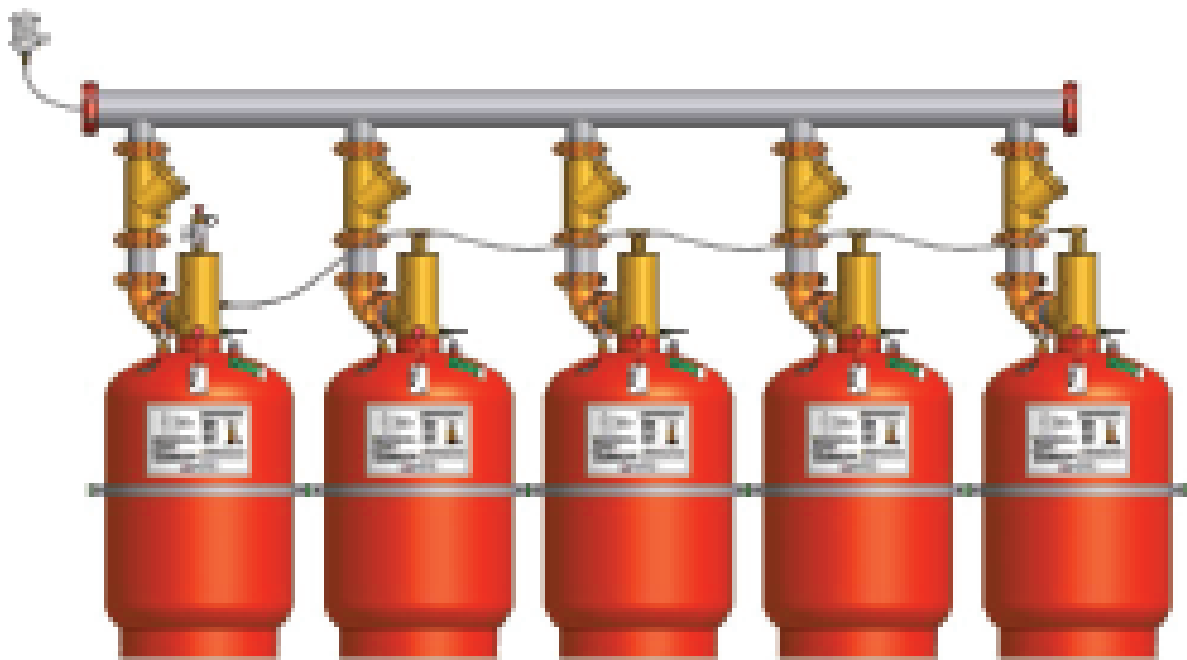


**ARGON (IG01 - IG541 - IG55 - IG100) GASEOUS SUPPRESSION SYSTEMS**

Refleks distributed argon (inert) based systems are FM approved + UL listed or LPCB + VdS certified. Refleks manufactured RSS Argon Systems are GOST-R certified and VdS certification process is ongoing. Systems operate under either 200 or 300 bars of pressure. Seamless cylinders are DOT or TPED certified and have capacities of 80 or 140 liters.

Pressure drops are monitored by a special pressure gauge cabled to a fire detection panel. System can be automatically or manually (electrical/mechanical) activated. System-Specific ventilation hatches are sized by calculations and installed along with the rest of the system.





### **NOVEC 1230 GASEOUS SUPPRESSION SYSTEMS**

Refleks is an importer and distributor of FM approved and UL listed NOVEC 1230 systems. Typically, these systems operate under 25 bars of pressure. Welded cylinders have capacities of 20, 40, 60, 190, 276, 412 and 453 liters. By far, it is the most feasible and advantageous alternative for customers seeking to switch from Halon 1301 systems as the existing pipe network can remain operational upon cylinder and nozzle replacements. Pressure drops are monitored by low pressure switches and pressure gauges. System can be automatically or manually (electronically or mechanically) activated.

## **HFC-125 GASEOUS SUPPRESSION SYSTEMS**

Refleks distributed HFC-125 based systems are FM approved and UL listed. Refleks manufactured RSS HFC-125 Systems are GOST-R certified and VdS certification process is ongoing. Typically, these systems operate under 25 bars of pressure and can be automatically or manually (electronically/mechanically) activated. UL listed and GL certified systems with a working pressure of 42 bars can be supplied upon request. Welded cylinders are DOT or TPED certified and have capacities of 26, 45, 83 or 150 liters. We provide economically feasible solutions by adding selector valves onto systems. All hydraulic calculations are made with advanced and VdS certified software tools. Door fan tests are executed by Refleks personnel and according to NFPA 2001 rules.



## **CO<sub>2</sub> GASEOUS SUPPRESSION SYSTEMS**

Refleks distributed CO<sub>2</sub> systems are FM approved and UL listed. Refleks manufactured RSS CO<sub>2</sub> Systems are GOST-R certified. System typically operates under 60 bars of pressure. Seamless cylinders have capacities of 50 and 67 liters. Refleks manufactured special balance systems are used as indicators of protection against gas leakage contingencies. CO<sub>2</sub> systems used in the maritime sector are RINA or GL certified.





# MICRO ENVIRONMENT SUPPRESSION SYSTEMS

Refleks distributed Micro-Environment systems are FM approved and UL listed. Refleks manufactured MIKROREFLEKS Systems are GOST-R certified. Cylinders with capacities of 0.5, 1, 2, 4, 6 and 12 kgs are available. Some of the most typical application environments are AC/DC powered areas, furnaces, vehicles, compressors, CNCs, wind turbines, press machines, museums, kitchen hoods, raised floors and suspended ceilings. System pressure is monitored by low pressure switches and pressure gauges. Unlike other suppression solutions, Micro-Environment systems do not require a panel for activation. Nitrogen filled 5mm tube detectors are sufficient to suppress fire immediately. Amount of gas needed is calculated for the whole environment in question.



## FILLING & REFILLING SERVICES

Initial filling and refilling operations along with electromechanical tests of automatic gaseous, water, wet-dry chemical and foam systems are performed at our TSE and Turkish Lloyd certified facilities and by our personnel whom are trained abroad according to UL standards.

All Refleks manufactured RSS products are TPED and CE certified according to TUV-SUD EN 13322-1 standards. Both as components and as an entire system, all RSS branded gaseous extinguishing products/systems have been qualified for VDS and GOST-R certifications.





## **WATER SUPPRESSION AND COOLING SYSTEMS**

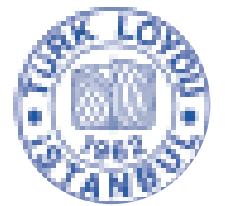
Fire pumps, hydrant systems, fire cabinets, sprinklers, spray cooling and suppression systems are designed with VdS certified software tools. Hydraulic calculations, procurement, on-site installations and maintenances are in compliance with BYKHK, NFPA and EN rules. All distributed systems consist of FM approved and UL listed components. HDPE tests are made as per EN 850 rules.



Refleks manufactured RSS Water Suppression Systems are CE certified and consist of welded cylinders. All related tests are performed in compliance with NFPA rules.

## MARITIME SECTOR

Refleks holds a “Certificate of Approval for Service Supplier” from Turkish Lloyd. Our products and engineering services are in compliance with IMO rules. IMO Msc/Circ.848 tests are performed in our 500 m<sup>3</sup> test room. Our gaseous and foam suppression systems specific to maritime industry have Type Approval certificates. All fire detection and suppression system components are MED certified. Refleks has full capability to design, install, commission, arrange training sessions, provide documentations, perform FAT, HAT and SAT tests of maritime fire protection systems for all types of military and commercial ships.



## FIRE AND GAS DETECTION SYSTEMS

Designing, engineering, procurement, installation, maintenance and periodic tests of conventional and addressable fire or gas detection systems are performed by certified Refleks technicians trained to operate by manufacturers procedures. Refleks supplies FM approved, UL listed and ATEX, EN or LPCB certified standard type smoke, heat or combined heat-of-rise detectors, digital or analogue LHDs (Line Type Heat Detector), beam, air-sampling detectors, spark or ex-proof UV + IR 3 flame detectors, oil mist detectors, toxic and flammable gas detectors and panels.



## **FIRE AND SMOKE CURTAINS, ROOF VENTILATION SYSTEMS**

Vertical, horizontal, curvilinear fire curtains are used to prepare secure passages by blockading smoke or heat within fire zones as part of a passive protection system. Fire/Smoke curtains can be closed/opened manually or automatically upon a signal from the fire detection/alarm system. Curtains are a flexible and an aesthetic solution, especially for older buildings that are incompliant with BYKHY rules, as they can be used to create virtual corridors free of heat and smoke during evacuation.

EN, BSI certified and UL listed curtains along with their accompanying electronic equipments are supplied and installed by Refleks. They come in three EN 1201 standardized fabric variations; 1000 C° @ 4 hours, 1000 C° @ 2 hours and 600 C° @ 2 hours.

Smoke curtains are designed and applied as static or dynamic. Our facilities are equipped to repair all components of a curtain system.

In the case of fire and upon the blockade of smoke, roof ventilation systems would be responsible for discharging the smoke into atmosphere.

All Refleks distributed ventilation systems are EN certified.



## **MAINTENANCE, REPAIRING AND TRAINING**

Refleks Inc. has always had the capability of delivering on-site support teams to a large number of fire protected local and international facilities for periodic maintenance routine tests and controls. We also provide operation and test training sessions. Repairs are made at our in-house mechanic and electronic shops. All maintenances and tests are performed as documented in “NFPA Test and Maintenance Inspection” norms.



**With our experienced personnel, we orchestrate theoretic and hands-on fire training sessions at industrial facilities and ships along with emergency action plan scenarios.**





CERTIFICATES OF SUPPLIES, PRODUCTIONS AND SERVICES

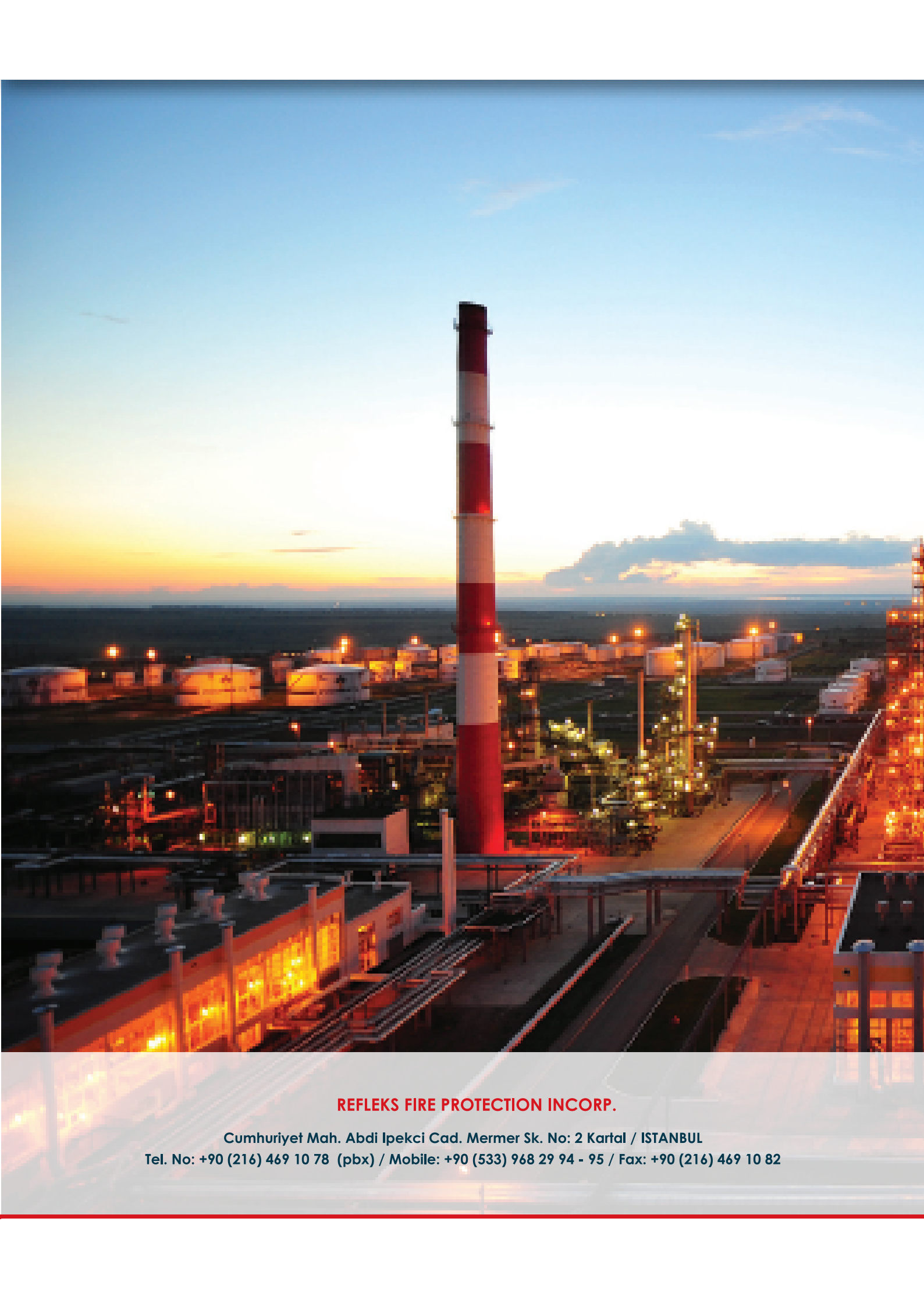
SYSTEMS - COMPONENTS	FM	UL	VDS	EN	GOST-R	ICAO	TÜRK LOYDU	LPCB	TÜV SUD	BSI	LLOYD'S REG.	ATEX	CE	NFPA 20	TSE
FM-200 (HFC 227) Gaseous Supp. Sys.	✓	✓	✓		✓		✓	✓							
FE-25 (HFC 125) Gaseous Supp. Sys.	✓	✓	✓		✓			✓							
INERT (IGOI, IG541, IG55, IG100)	✓	✓	✓		✓			✓							
NOVEC	✓	✓													
CO <sub>2</sub>	✓	✓			✓										
Micro-Environ. Supp. Sys.	✓	✓			✓										
Cylinders (2-150 Litre)				✓	✓										
Foam Concentrations		✓		✓		✓					✓				
Foam Systems	✓	✓		✓	✓		✓						✓		
Sprinkler Systems	✓	✓	✓											✓	
Fire Pumps	✓	✓	✓												
Portable Fire Pumps													✓		
Watermist Systems	✓	✓	✓										✓		
Dry-Wet Chemical Ext. Sys.		✓		✓											
Fire Detection	✓	✓	✓	✓				✓							
Ex-Proof Products	✓	✓										✓			
Fire Curtains		✓		✓						✓					
Fire Doors		✓		✓						✓					
Fire Barriers				✓											
Roof Ventilation Systems			✓	✓											
Manifold Manufacturing					✓								✓		
Piping Installations													✓		
Gas Refilling and Testing					✓		✓								✓
Design Software Tools	✓	✓	✓												
Nozzles	✓	✓	✓		✓			✓							
Connection Parts	✓	✓	✓		✓										





## **FIRE DOORS**

Refleks distributed, FM approved and UL listed helical or sliding steel fire doors are resistive to 1000 °C for 4 hours. Other types of UL listed or EN 1634, BSI 476 certified fire doors can also be supplied and installed upon request.



**REFLEKS FIRE PROTECTION INCORP.**

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