Marioff Corporation Oy

The world’s largest supplier of water mist fire protection technology

PART 1
Marioff & Deutchland

PART 2
What is HI-FOG®?

PART 3
HI-FOG® Components

PART 4
Fire testing and approvals
Out Comes From This Presentation

- Overview For Marioff & Deutschland and the relationship between them.
- What is HI-FOG ?
- HI-FOG Components.
- Fire Tests & Approvals.
- Reference List in Middle East.
Company overview

• The world’s largest supplier of water mist fire protection technology with unrivalled experience, supplying system solutions worldwide under the brand HI-FOG®.

• Part of UTC Climate, Controls & Security, a unit of United Technologies Corporation.

• Headquartered in Vantaa, Finland with a factory in Kerava, Finland and subsidiaries in Germany, Sweden, France, Italy, UK and Spain. Distributors and agents worldwide.

• Employs nearly 400 people.

• Mission: Protecting people, property and business continuity.
Part of UTC Climate, Controls & Security

- A unit of United Technologies Corp. (NYSE: UTX), a $64 billion, Fortune 50 Company providing high technology products and services to the building systems and aerospace industries worldwide.
- Leading provider of HVAC, food safety, building controls, fire & security solutions.
- 2011 pro forma net sales $19 billion
- Employees 63,000
- Factories 63
UTC CCS industry-leading brands

- Climate systems
  - Carrier
  - NORESCO
  - Transicold

- Fire systems
  - Kidde
  - DET-TRONICS
  - Marigff
  - Edwards
  - Fenwal

- Security systems
  - Chubb
  - Interlogix
  - Supra

- Automation and controls
  - Automated Logic
  - Lenel
  - Onity
  - UT Electronic Controls
UTC CCS products

Climate systems
- Residential heating & cooling
- Commercial HVAC
- Transport refrigeration
- Commercial refrigeration

Fire systems
- Detection & Alarm
- Specialty Detection
- Fire suppression
- Firefighting
- Fire extinguishers

Security systems
- Access control
- Video surveillance
- Intrusion
- Monitoring

Automation and controls
Building automation

Fire solutions
Security solutions
Vendor Background

Deutschland Technology Co.

Founded in 1999, the distributor for Marioff Corporation Oy who is the world’s leading manufacturer of water mist fire protection systems under the brand of HI-FOG ®.

The water mist technology has rapidly developed a reputation for superior fire protection capability, becoming the standard by which other water mist systems are measured.

HI-FOG ® water mist systems are classified as high-pressure systems within the NFPA 750 standard and generate a class 1 mist under the terminology of that standard.

On land, HI-FOG ® is used to protect a large number of fire risks in museums, archives, hotels, hospitals, computer rooms, electrical stations, generator room, cable tunnel, heritage buildings, and other prestigious and valuable facilities.
Deutschland Technology co. is a company acting in Middle East representing Marioff Corporation Oy Founded in 1999

Deutschland Technology Co. holds a Certificate of Insurance: General & product Liability Coverage The maximum amount of indemnity is € 2,000,000

Deutschland Technology Co. holds a Certificate of insurance covering the system operation has a liability including injury, property damages and environmental pollution, the maximum amount of indemnity is € 2,000,000

Deutschland Technology Co. is certified by Lloyd’s Register as an installer and maintenance provider of fire extinguishing equipment and systems type HI-FOG ®.
Our scope of work

- Detail Design Submittal
- Technical submittal
- Consultant approval
- Coordination drawing
- Supply of the system components
- Installation
- Testing & Commissioning
- Operation & Training
Part 2: What is HI-FOG®?
What is HI-FOG®?

- Water is sprayed by means of high pressure through special nozzles, creating HI-FOG® water mist.
How HI-FOG® fights fire?

• HI-FOG® cools the fire and the air surrounding it, blocks the radiant heat and displaces the oxygen from the seat of the fire.
Core HI-FOG® benefits

• **Minimal damage and downtime:** with fast control and swift fire suppression, using small amounts of pure water, HI-FOG® keeps both damage and downtime to a minimum. While some other systems need recharging or servicing after activation, HI-FOG® is ready to go again without delay, as the supply of water is always guaranteed.

• **Immediate activation:** HI-FOG® sprinklers activate as the ambient temperature reaches its threshold temperature and breaks the bulb. The HI-FOG® spray head system can be activated the moment the fire is detected, i.e. when it is still in its infancy, thereby preventing it from spreading.

• **Safe for people and the environment:** HI-FOG® uses a pure water mist, which is entirely harmless to people and the environment, as its suppression agent. Spaces do not need to be evacuated or closed off for the system to be activated, and they can also be entered while the system is discharging without posing any risk to human life or affecting fire fighting efficiency.
Part 3 : HI-FOG System Components

- Pump Unit.
- Pipes Network.
- Nozzles.
- Section Valves.
HI-FOG® pump units

- Sprinkler Pump Unit (SPU) Marine
- Modular Sprinkler Pump Unit (MSPU)
- Gas-driven Pump Unit (GPU)
- Machinery Space Accumulator Unit (MAU)
- Diesel Pump Unit (DPU)
HI-FOG® Pipes Network

Conventional sprinkler

- 3 pipes
- 4 flanges
- 2 seals
- 8-16 bolts
- 8-16 nuts

Low pressure water mist

HI-FOG®

1 part!

25-41 parts
HI-FOG® Nozzles

HI-FOG® 1000-series sprinkler

HI-FOG® 2000-series sprinkler

HI-FOG® spray head

Stainless steel tubing

Fittings, no welding on-site

Valve
HI-FOG® Section Valves

- SVA, wet pipe section valve
- SVM, dry pipe section valve, deluge discharge
- Pre-action section valves

The 24 VDC control system has a battery back-up for 12 hours of operation.
Normally Open Section Valves

Normally Open Section Valve

Hotel Room Fire
Water Mist Fire Protection System

HI-FOG®
water mist fire protection

Marioff company presentation
Normally Closed Section Valves

Normally Closed Section Valves.
Hose Reel
Part 4: Fire testing and approvals
Relentless fire testing

- HI-FOG® has been tested in thousands of full-scale fire tests, in a larger variety of different applications than any other fire protection system.

- HI-FOG® has been issued over 100 type approvals.
Performance-based approach

- Standard testing → Type approval
- Application-specific testing → Case-by-case approval
- Project-specific testing → Project-specific approval
- Garage testing → Wild market
Approvals

- Factory Mutual (USA)
- VdS (Germany)
- CNPP (France)
- KfV – Pruf-und Kontrollstelle (Austria)
- Det Norske Veritas
- Lloyd’s Register of Shipping
- American Bureau of Shipping
- Germanischer Lloyd
- Bureau Veritas
- Registro Italiano Navale
- Polish Register of Shipping
- Russian Maritime Register of Shipping
- Marine Safety Agency, UK
- Swedish National Maritime Administration
- Finnish National Board of Navigation
- Norwegian Maritime Directorate
- Danish Maritime Authority
Currently, no generic design method is recognized for water mist protection systems.

The relationship between flux density or nozzle spacing and performance in controlling fires is not consistent between systems designed by different manufacturers.

The system features, such as nozzle spacing, flow rate, drop size distribution, cone angle, and other characteristics, need to be determined for each manufacturer's system through full-scale fire testing to obtain a listing for each specific application.
Standards

Water mist standards
  - minimum requirements for design, installation, maintenance and testing

• Sprinkler standards
• NFPA13 Standard for the Installation of Sprinkler Systems
  - wherever practicable

• CEA4001 Sprinkler Systems - Planning and Installation
  - wherever practicable

• Other guidelines
• System specific DIOM (design, installation, operation and maintenance manual)
• Manufacturer data sheets
Our Reference in the Middle East
The Ministry of Culture
Prof Dr/Aly Rafaat Consultancy
Deutschland Technology
The Museum was founded in August 1957 but the building itself was built in 1936.

The National Museum of Egyptian Civilization (NMEC) is considered one of the most important projects that are under construction in cooperation with UNESCO nowadays in Egypt.

The Ministry of Culture
Dr. Eng./Mohamed Hamed Al-Essawy
Arab Contractors
This building was built at 1907 as a private palace for Ali Pasha Fahmy.

This building was the main Head quarter
For the Egyptian leaders of Revolution since 1952.

The National Archives is one of the oldest in the world; the National Archives was founded in Cairo in 1828.
This Museum is located inside the library. It's consisted of many halls and an art library and a cultural center which is dedicated to music concerts and cultural seminars. The museum contains 1381 art job concerned with photography graphics, drawings, and sculpture.

The establishment of a sound democratic life was among the fundamental principles of the July 23, 1952. National Defense Council AL-Gohary Consult Deutschland Technology

The company was established in 1961 in the city of Cairo Asfour Crystal Hamza Associates Company Deutschland Technology

Qatar Government Bechtel Overseas Consolidated Contractors Intl. Company (CCC) NDIA was designed primarily to deal with the growing amounts of traffic at the airport.

The National Civil Aviation Training Organization Al-Hamed Consulting Engineering Office Yathreb for Engineering Works & Integrated Contracting
GUPCO (The Gulf of Suez Petroleum Company) is a joint venture owned in equal shares by BP and EGPC (The Egyptian General Petroleum Company).

The operation and crisis management room includes four systems as operation systems that follow up the trips operation for every airport Ministry of Civil Aviation Saleh & Hiiab Consultant Dorra (CRC)

Ali Mubarak founded the Egyptian National Library (Ketboukhap Egyptian) according to the order of the Khedive Ismail in 1286 Hijri (March 23, 1870)
- The Ministry of Culture
- MED Consultant Company

Telecom Egypt is an Egyptian company to provide the fixed telephone service was established in 1854 and was called at the time "the National Authority for Telecommunications"

Ministry Of Civil Aviation
Al-Hand Consultancy And Engineering Office
Al-Fatih Construction Company

Marioff company presentation
Al-Hikma Pharma is a leading generic pharmaceutical company.

National Bank of Egypt (NBE) is the oldest commercial bank in Egypt. It had been established on June 25, 1898 with a capital of £1 million.

The Transformer room, Generator room, fuel tank room and control room are the protected areas. Gabon Government Perenco

The factory is considered one of the largest bottling factories in Nigeria.

Al-Ahram building includes a unique set of valuable paintings and sculptures, pottery and distinctive portraits of some historical figures for senior artists Al-Ahram.
Telecom Egypt is an Egyptian company to provide the fixed telephone service was established in 1854 and was called at the time "the National Authority for Telecommunications."

The King Abdullah Petroleum Studies and Research Center (KAPSARC) is a future-oriented research and policy center committed to energy and environmental exploration and analysis. It is located in the Kingdom of Saudi Arabia, the energy center of the world. Owner Saudi Arabian oil Company (Saudi ARAMCO) Contractor (Drake & Scull) Construction Saudi

- Owner (Ghana Transport Ministry)
- Consultant Grontmij | Car | Bro
- Main contractor (Arab Contractor) Ghana LTD
| Al-Ahram building includes a unique set of valuable paintings and sculptures, pottery and distinctive portraits of some historical figures for senior artists Al-Ahram. |
| Casino Du Lebanon is a casino located in Maameltein, Jounieh in Lebanon and is 22 km north of Beirut With an area of about 35,000 square meters |
| Telecom Egypt is an Egyptian company to provide the fixed telephone service was established in 1854 and was called at the time ”the National Authority for Telecommunications” |
King Abdullah dedicated a new, year-and-a-half-duration expansion project to the Islamic world. It will comprise three parts: construction of a new building, expansion and development of courtyards around the mosque, including walkways, tunnels and toilets and development of facilities for air-conditioning, electricity and drinking water. Among the projects being carried in the Holy Haram and holy sites are the expansion of the Holy Shrine, especially of the northern yards surrounding the Holy Mosque, Masjid Al-Masjid, as well as projects involving King Abdul Aziz King Road, King Abdul Aziz Endowment, Al-Haramain Train development of the central area, road caravels in the holy sites, Al-Jamarat and King Roads. The expansion, mainly in the northern part of the Grand Mosque, will be executed in an area estimated to cover 356,000 sq. meters. Eventually, the expansion will accommodate 1.3 million worshippers, which means that it is one-and-a-half times larger than previous expansions of the Grand Mosque. It will include construction of four pedestrian bridges for visitors and Umrah performers to go from the northern courtyard inside the Grand Mosque.

The external courtyards, which will be protected against sunlight, will be linked with the first Saudi expansion and Masjid by several bridges to improve safety for visitors and Umrah performers. The expansion's main gate would be named after King Abdullah and will have two minarets, bringing the mosque's total number of minarets to 31. A 1,100-meter tunnel will be constructed from the end of the expansion passing through Jabal al-Hara while a further tunnel with a length of 1,100 meters will be built under Jabal al-Masjid. An emergency 1,000-meter tunnel crossing the other two tunnels will be constructed from Jabal Al-Kaaba. The major objective of these government projects is to ensure greater comfort for the Guests of Allah which will enable them to perform their rituals in ease and tranquility.

Name of Project: Custodian of Two Holy Mosques King Abdullah Bin Abdul-Aziz for the Expansion of the Holy Mosque and Associated Elements
Owner: Kingdom of Saudi Arabia
Contractor: Saudi Bin Laden Group
Consultant: DAR AL-KHANDASAH

The Capacity of Holy Haram After This Expansion Will Reach 2,500,000 Muslim

<table>
<thead>
<tr>
<th>Place</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haram Building (Shamiyah)</td>
<td>332,000m²</td>
</tr>
<tr>
<td>Bridges &amp; Service Building</td>
<td>628,000m²</td>
</tr>
<tr>
<td>Piazzas</td>
<td>190,000m²</td>
</tr>
</tbody>
</table>
Thank you