Product Presentation

EXXFIRE
securing hardware

Introduction

- The growth of data centers and telecommunication facilities worldwide is a multi-billion dollar business, producing excessive power consumption and heat generation. Fire and risk of fire is a major cost for operators
- EXXFIRE™ has produced a revolutionary (patented) pressureless and maintenance free device, capable of stopping overheating and fire non-destructively inside electrical/ICT equipment and cabinets
- EXXFIRE™ is a micro solid fueled rocket, developed by TNO, and deployed for 7 years now in space (ESA Proba-2 satellite)
- The device consumes its own heat, produces room temperature nitrogen while pushing aside oxygen and cooling the interior

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Problem

- Data centers, telecommunication and other facilities suffer fire incidents. Today's fire protection systems are insufficient and damage equipment when activated
- National Fire Protecting Agency: In USA, on average/year, excl. homes
  - 944 fires start in electronic equipment rooms
  - 605 fires start with electronic equipment
- 100 to 200 serious data center fire incidents/year in USA, 300 to 600 fire incidents/year worldwide
- Several blue chip companies have faced serious fire accidents in their data/ telecommunication centers
- Causing serious hassle for customers worldwide
- Loss of assets, revenue and reputation

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Bare Figures

- 6000 data centres USA (excl. Telco)
  - 200 fire incidents per year (NFPA)
- 16000 data centres worldwide (IDC)
  - 500 fire incidents on average per year
- **1 in 30**
  data centres has serious damage due to fire every year
- **3 to 4%**
  of all data centres has a fire incident per year

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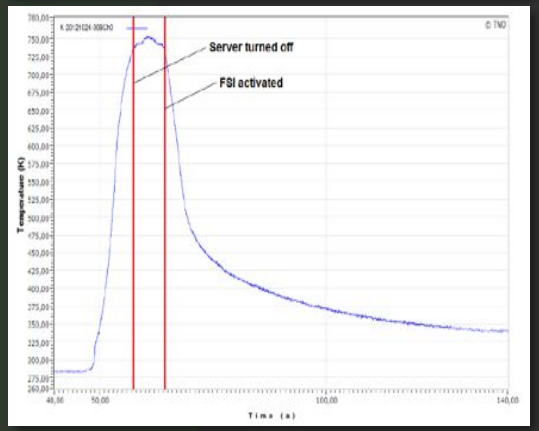
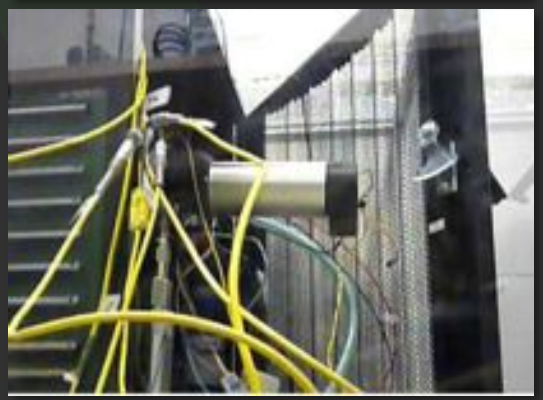
Solution EXXFIRE™

- **Safe**, no gas leakage/ no explosion risk
- **Not pressurized** when not initiated
- Output = **ambient temperature N_2**
- Local fire extinguishing **without damaging** vicinity equipment
- **30% smaller**
- Similar **output volume**
- Long storage / **no maintenance** >15 years
- Lower release **pressure** <10 bar
- **Flexible** product shape
- Flexible **positioning**





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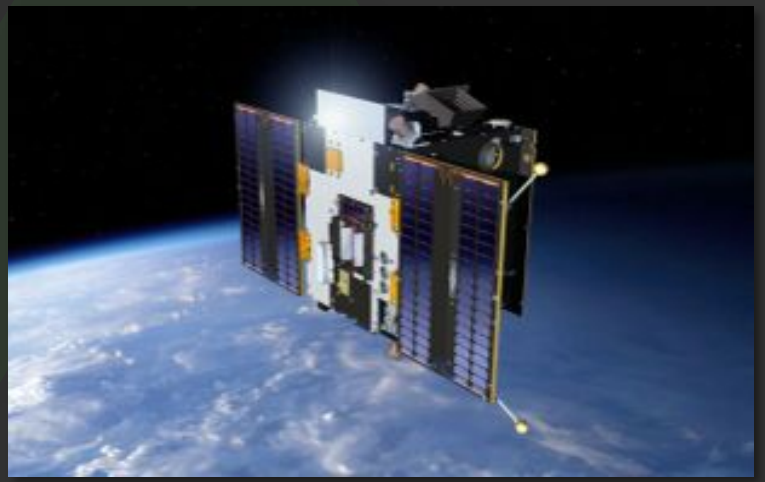
Background

- EXXFIRE™ has a product line based on Cool Gas Generator technology developed for ESA by TNO Defense, Safety & Security
- 7 Years proven technology on Proba-2 Satellite of ESA, successfully activated in 2011 and 2012 for extended propulsion
- Further developed by our team of rocket scientists and engineers
- Extensively tested at TNO for fire extinguishing usage



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Technology

- Cool Gas Generator contains solid propellant (grain) generating N_2 gas at ambient temperature
- Pressureless container with sensors, circuit breaker and led indicator
- When the generator is started, the solid charge produces N_2 gas, suppressing overheating and fire

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Product line

- EXXFIRE™ 50 (2U, 4U & 8U ICT equipment)

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Product line

- EXXFIRE™ 1500 (server racks/cabinets)

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Product Development

- EXXFIRE™ 24000 Gas bottle replacement

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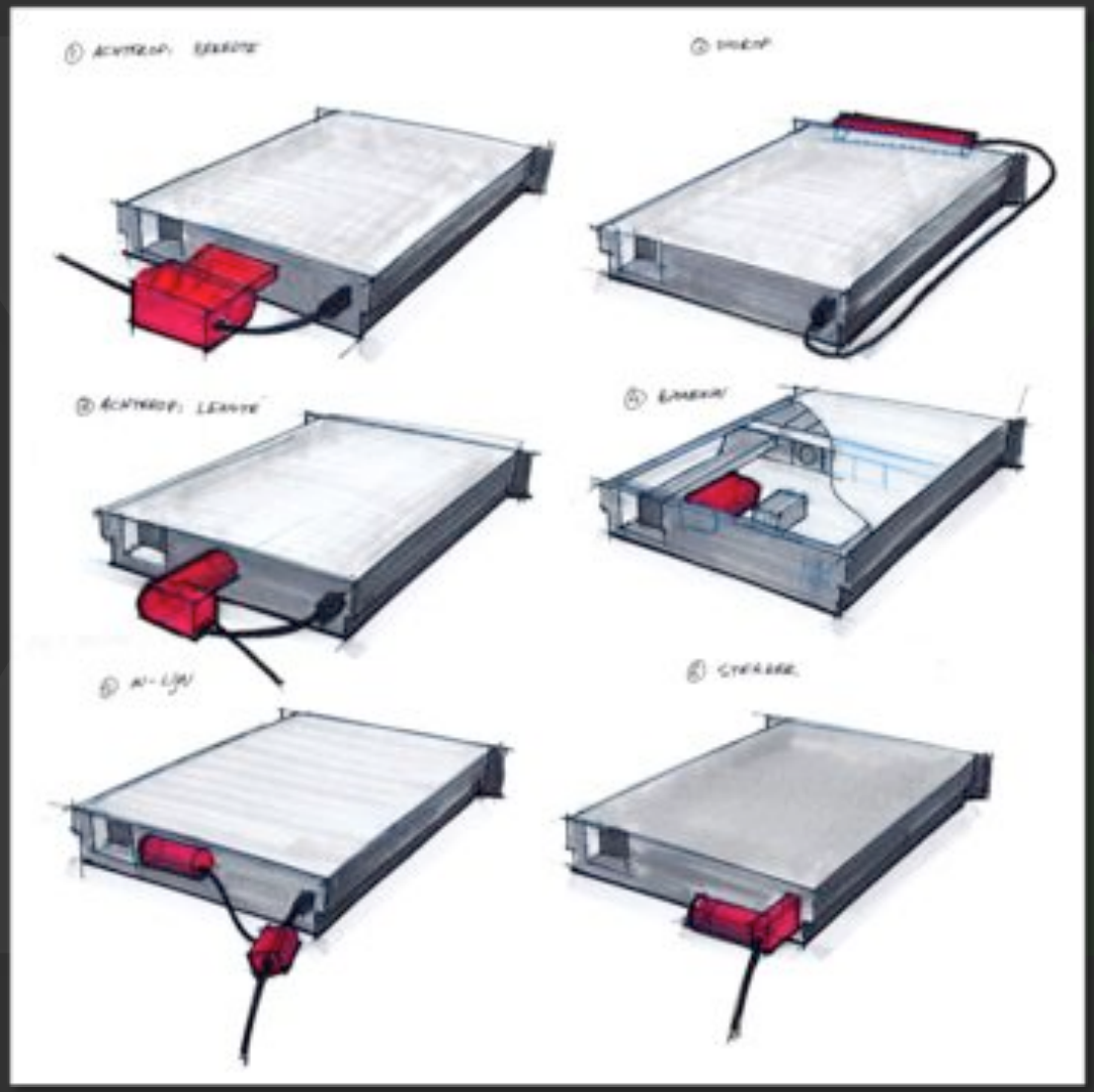
Product Development



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Timeline

EXXFIRE™ 50

- Prototypes successfully tested
- Final design 1H 2013
- Certification 2H 2013
- Ready to market 2H 2013
- Production from 2H 2013

EXXFIRE™ 1500

- Prototypes successfully tested
- Production preparation 2013
- Certification 2H 2013
- Ready to market 1H 2014
- Production from 1H 2014

EXXFIRE™ 24000

- Testing 2013
- Production 1H 2014
- Ready to market 2H 2014

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Suggestions

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