

Allianz Global Corporate & Specialty SE

ALLIANZ RISK CONSULTING

THE CHALLENGES FOR PROMOTING WATER MIST IN THE INSURANCE INDUSTRY

24/10/2019





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RISK ENGINEER – WHAT DOES IT MEAN FOR THE INSURANCE INDUSTRY?

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EXAMPLES - PROPOSALS

LEARNING OBJECTIVES

- Clarifying the function of a risk engineer.
- Understanding the curbs of the widespread of the water mist industry within the insurance industry.
- Being able to propose or identify ideas to better promote the water mist technology in the insurance industry.
- Bear in mind,
 - Risk engineer → prescription
 - Limited experience even if global print foot





RISK ENGINEER

- Insurance companies
 - When you buy insurance, you're buying a promise.
 - Intangible product till you need it.
- There are various forms of insurance depending on
 - Local needs
 - Financial development
- Insurance business is split in 3 parts
 - Life
 - Health
 - P&C; P&C is divided in industrial and mass
- **LET'S FOCUS ON INDUSTRIAL INSURANCE**



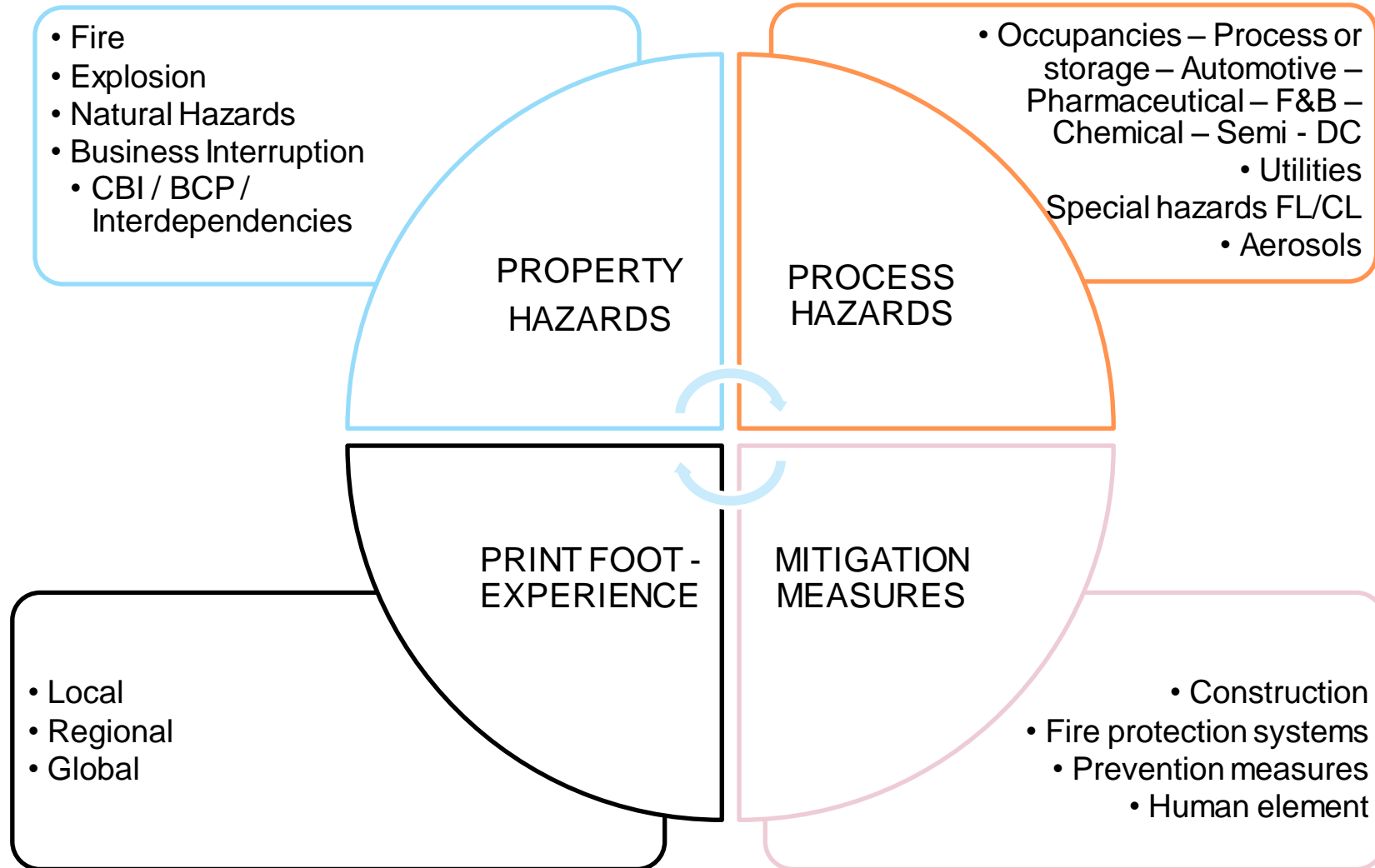
RISK ENGINEER

- Traditional INSURANCE INDUSTRIES
 - Middle market – location between 5 M€ - 50 M€ of capacity – local print foot
 - Corporate clients – location between 5 M€ - 2000 M€ - global or complex print foot
- Corporate insurance companies are driven technically
 - Risk consulting
 - Underwriting
- The underwriting terms (captive, deductible, reinsurance) and the risk assessment will determine the loss exposure / risk quality → quote
- Corporate insurance need one way or another good risk engineers and underwriters
 - Find solutions
 - Assess the risk → rating internal or external
 - Calculate the exposure → depending on guidelines and systems set-up: EML / MFL
- But for which products?
 - Line of Business
 - Let's focus on **Property / Machinery breakdown and Energy**





RISK ENGINEER

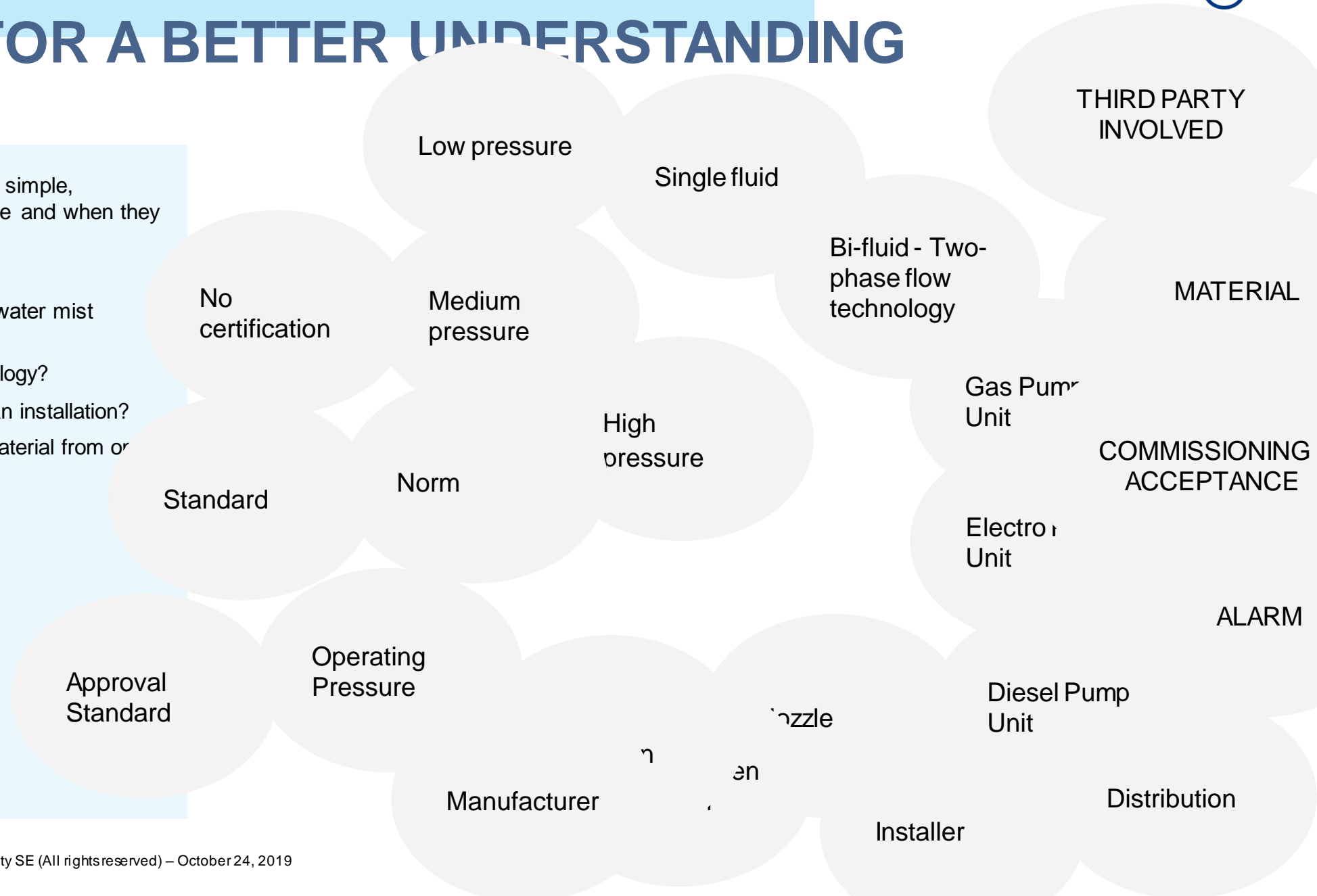


- 2 types of engineers
 - Those who manage the clients and define the strategy: Account Engineer
 - Those who are on the field: Consulting Engineer or Field Engineer
- Being a good Risk Engineer require technical skills, soft skills but there is no template:
 - Sensitivity
 - Opportunities
 - Speciality - expertise
 - Limited understanding of the local, Regional or International codes/standards



THE GAPS FOR A BETTER UNDERSTANDING

- Risk Engineer likes when it is simple, technologically understandable and when they trust the players
- So now, let's think about the water mist industry:
 - How clear is your technology?
 - How understandable is an installation?
 - How repeatable is the material from or supplier to another one?





THE GAPS FOR A BETTER UNDERSTANDING



Sinorix H20 Jet
Siemens ©



Hi-Fog references
Marioff©



Danfoss references
Danfoss©



THE GAPS FOR A BETTER UNDERSTANDING

NFPA 750:2019 1.1 Scope.

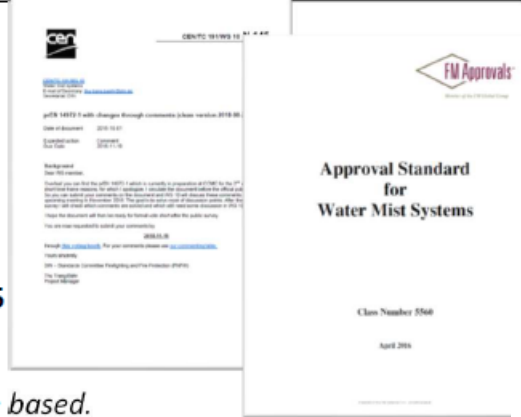
This standard **contains** the minimum requirements for the design, installation, maintenance, and testing of water mist fire protection systems.

This standard does not provide definitive fire performance criteria, nor does it offer specific guidance on how to design a system to control, suppress, or extinguish a fire. Reliance is placed on the procurement and installation of **listed water mist equipment or systems** that have demonstrated performance in fire tests as part of a listing process.

NFPA 750:2019 1.1 : 该标准包括对细水雾系统设计、安装、维护和试验方面的最低要求。



FM5560:2016
BS8489-1 to 7: 2016
BS8485:2015
CEN/TS 14972:2018/19
VDS 3188
CCCC / CCS
CNPP, CNBOP
IMO MSC 265/84, MSC/Circ.1165
...others...



These standard's are performance based.

Navigation: Sitemap | Guideline work | About VdS | Imprint | Search

Products: VdS, Inspected, Approved, Safe.

Inspection of Fire Protection Systems, Certifications, VdS-approved Products, Companies and Experts, Training Center and Publishing House, VdS Cyber-Security.

You are here: VdS > Certifications > Lists > Products for Water Extinguishing System

Products: VdS-approved Products for Water Extinguishing Systems
Date: 08.08.2019

- Power supply equipments
 - Control and indicating equipments
 - Control devices
 - Electrical control devices
 - Power supply equipments
 - Power supply equipments
- Transmission path devices
 - Input/output devices for transmission path
 - Input-/output devices
- Control and indicating panels
 - Remote control and indicating panels
 - Control and indicating panels
- Fire detection and Voice Alarm systems

6.9 Pump Systems.

6.9.1 Pumps.

6.9.1.1 Installation Standard. Pumps for water mist systems shall be installed in accordance with NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*.

6.9.3 Controllers.

6.9.3.1 Listing. Controllers for pumps shall be listed fire pump controllers and be installed in accordance with NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*.

RG SYSTEMS, S.L. Polígono Industrial Villalonquejar, C/Merindad de Montija, No. 6 ES 09001 Burgos Phone: 0034 947281130 Fax:	
High pressure water mist nozzles	
Approval no.:	G417011
Name of product:	"EMM-20-760-845"
Further product information:	The water mist nozzle may only be used to protect areas of application according to VdS 3188 AnnexK.2.1. Parameter water mist nozzle: max. permissible ceiling height:2.2 m. The enclosure 3 of the approval and the system specific manual of the manufacturer for planning and installation (see enclosure 2) must be observed.



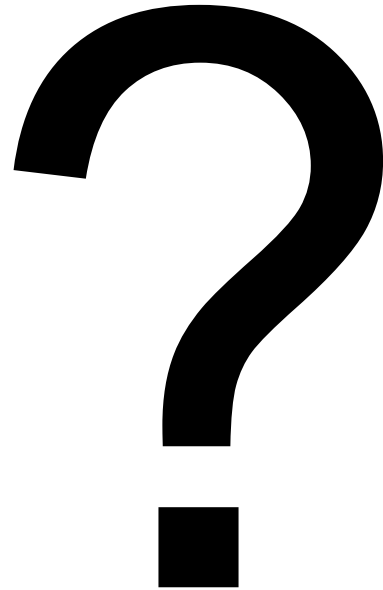
THE GAPS FOR A BETTER UNDERSTANDING

The screenshot displays the ApprovalGuide software interface. On the left is a navigation tree under the 'Fire Protection' division, listing various system types such as 'Fixed Extinguishing Systems', 'Carbon Dioxide Systems', and 'Water Mist Systems'. The main window shows a document titled 'Approval Standard for Water Mist Systems' by FM Approvals. The document content includes a table of contents with sections like '1. INTRODUCTION', '2. GENERAL INFORMATION', '3. GENERAL REQUIREMENTS', '4. PERFORMANCE REQUIREMENTS', and '5. OPERATIONS REQUIREMENTS', followed by four appendices (A, B, C, D) detailing fire tests for machinery protection. The document also specifies 'Class Number 5560' and a date of 'April 2016'. A red cloud highlights the top toolbar of the software, which contains icons for file operations, navigation, and search, along with a page indicator showing '1 / 314'.

- VdS 3188
- CEN TS14972
 - Still a draft
- FM Approval Standard - 5560
 - How many appendices?
 - How can we read the certificates?
- FM Global Data Sheet 4-2
 - Water Mist Systems
- NFPA 750
 - Standard on Water Mist Fire Protection Systems
- Local test protocol for local markets
- Various approach for open space
 - American POV
 - European POV with VdS



THE GAPS FOR A BETTER UNDERSTANDING





EXAMPLES - PROPOSALS

- Not all companies have the time and the will to educate their engineer on all topics.
- Water mist systems are fire protection system with less applications than others that are well known.
- Don't expect the risk engineer community to educate itself regarding this technology.
- Popularize / disseminate with education sessions.

1 - EDUCATION





EXAMPLES - PROPOSALS

12.4.2017

List of LAND type approvals

Factory Mutual / USA	Approval Report	Issued at	Valid until	HI-FOG system
Combustion turbines, machinery spaces, and special hazard machinery spaces in enclosures with volumes up to, and including 290 m³	Project ID J1.00544 AH	Nov 2012	Continuous	MAU
Combustion turbines, machinery spaces, and special hazard machinery spaces in enclosures with volumes up to, and including 1500 m³	Project ID 3036676	Aug 2002	Continuous	GPU
Machinery and combustion turbines in enclosures with volumes up to, and including 1375 m³	Project ID 3046250	Jan 2000	Continuous	SPU
Machinery and combustion turbines in enclosures with volumes up to, and including 1375 m³	Project ID 3046251	May 2005	Continuous	GPU
Light hazard occupancies (Hazard Category 1 HC-1)	Project ID 3000431	Apr 2014	Continuous	GPU
Light hazard occupancies (Hazard Category 1 HC-1)	Project ID 3022984	Nov 2013	Continuous	SPU
Industrial Oil Cookers	Project ID 3032104	Mar 2015	Continuous	SPU
Wet benches and other processing equipment	Project ID 3006268	Apr 2011	Continuous	MAU
Computer room subfloors	Project ID 3011692	Aug 2011	Continuous	DAU

Underwriters Laboratories Inc. / USA	No.	Issued at	Valid until	HI-FOG system
Ordinary Hazard 1 (US) type occupancies (HI-FOG 2000 sprinkler)	20120105-EX15843	Jan 2012	Continuous	SPU



1/5


1 - EDUCATION

2 - READABLE

Fire Test Summary #45MS/MAR06 Page 1 of 4
 HI-FOG GPU systems for total compartment protection of machinery spaces and cargo pump rooms up to and including 1500 m³ net volume
 19 April 2011

Test standard: IMO MSC/Circ.1165 Revised guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump rooms

Summary: Eight machinery spaces fire extinguishing tests and one thermal management test were conducted in a 1500 m³ enclosure with the Gas-driven Pump Unit (GPU) operated by compressed air. The fire scenarios included both exposed and obstructed spray fires, cascade fires, pool fires and class A fires, and their combinations. All the fires were extinguished within the acceptable time of 15 min and temperatures were controlled as required.



Conclusions: The HI-FOG GPU fire protection system with the principal installation criteria below was shown to be applicable as an alternative fixed fire extinguishing system as required by Regulation II-2/10 of the SOLAS convention in machinery spaces of Category A and cargo pump rooms up to and including 1500 m³ net volume.

Spray head configuration	Type	45 1MC 8MC 1000
Location		Ceiling level
Projection		Downward
Max ceiling height		7.5 m
Max opening		5 m
Max distance from walls		2.5 m
Max coverage volume per spray head		136 m³

Gas-driven pump unit (GPU)	Cylinder type	Compressed air / 50 / 200 bar
		N = number of spray heads t = design duration (min) V = cylinder volume (L) p = cylinder pressure (bar)
	Number of cylinders	1000 $\frac{N \times t}{V \times p}$

Danfoss
SEMCO
FIRE PROTECTION

	IMO 1387	IMO 913	FM 5560	IMO 1387	FMRC	IMO 1165	FMRC	IMO 698 & 728 date of certification, use 1165	FMRC	FM 5560	Fryer Test Report of 15-12-2006	UL 300	IMO 1165	IMO 1165	VoS	
Product designation code	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 4 10 130-00	HMP 4 10 130-00	HMP 4 10 130-00	HMP 4 10 130-00	HMP 4 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00	HMP 3 10 130-00
Intended application	Local application	Local application	Local application	Local application	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)	Machinery space use (testing)
Features																
Product capacity	4.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Manufacturing weight	N/A	N/A	3.0	N/A	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flow rate	1.10	1.10	1.10	1.10	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Flow pressure	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Approved by	DNV GL, ABS, DNV, RINA, Lloyds & NORSOK	DNV GL, ABS, DNV, RINA, Lloyds & NORSOK	DNV GL, ABS, DNV, RINA, Lloyds & NORSOK	DNV GL, ABS, DNV, RINA, Lloyds & NORSOK	DNV, ABS & BV	DNV	DNV	DNV	DNV	DNV	DNV	DNV	DNV, ABS & BV	DNV, ABS & BV	DNV, ABS & BV	VoS
Class/Type No	907 03 00000	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010	907 03 00010
Application	Local application															
Extinguisher installation in enclosure																
Machinery space TI																
Industrial use fire type code																
Dust protection																
Power generation																
Other systems, gas, water, mechanical, marine																
Compressors																
Engine hazards (barrier, ventilation, emergency stop, fire, etc.)																
Thermal loads (barrier, ventilation, emergency stop, fire, etc.)																

LEGEND:
 Green = typical application
 Yellow = it is possible to use the nozzle for the application, but it depends on specific conditions



EXAMPLES - PROPOSALS

- Personal experience
 - Some players are clearly open to the discussion and understand the gaps for any risk engineer. Some other players don't.
 - It is difficult to get information from suppliers regarding:
 - Tests results and installation requirements
 - At AGCS we provide a list upon request to our clients of companies
 - Offer is not very clear for non-expert or experienced engineer
 - Client: it is very rare there is such a knowledge regarding fire protection system
 - Insurer: Water Mist system does not have the best reputation due to previous insurer experience
- It is **unacceptable** to observe players that use their VdS or FM Approval to answer for any kind of project

1 - EDUCATION

2 - READABLE

3 - CLEAN-UP

TAKE AWAY

- The room for water mist is there:
 - When there is no alternative
 - When there is no adequate water supply
 - When it is cheaper or makes more sense: DC / EXISTING / EQPT / HRB
- But to have a larger room, don't underestimate how the prescriptive approach works.
- Take action together as a community. The knowledge only makes sense when it is shared.
- Training, education sessions.
- Clean-up the players



**THERE ARE WORSE
THINGS IN LIFE THAN
DEATH. HAVE YOU EVER
SPENT AN EVENING
WITH AN INSURANCE
SALESMAN?**

WOODY ALLEN

**THERE ARE WORSE
THINGS IN LIFE THAN
DEATH. HAVE YOU EVER
SPENT AN EVENING
WITH AN INSURANCE
SALESMAN?**

MY WIFE

**BY CHANCE I'M
IN THE RISK
CONSULTING
INDUSTRY**

