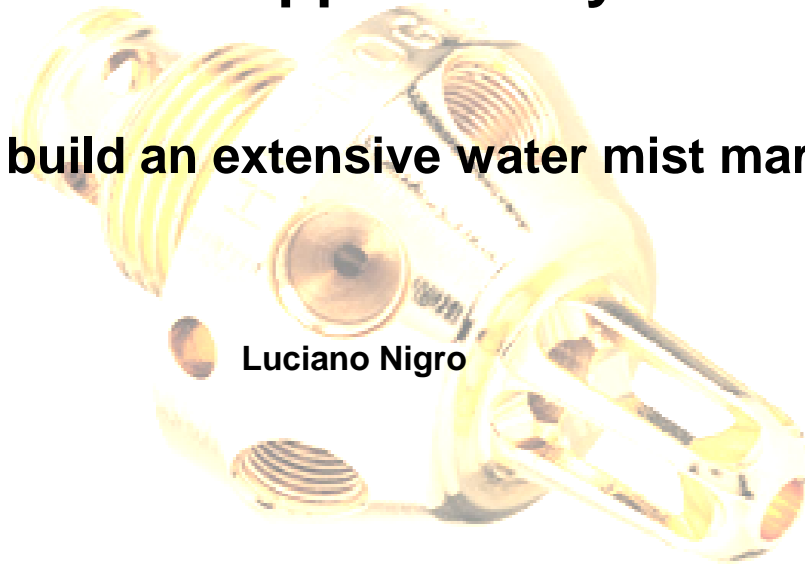




## Tested vs. Approved Systems

How to build an extensive water mist market



Luciano Nigro



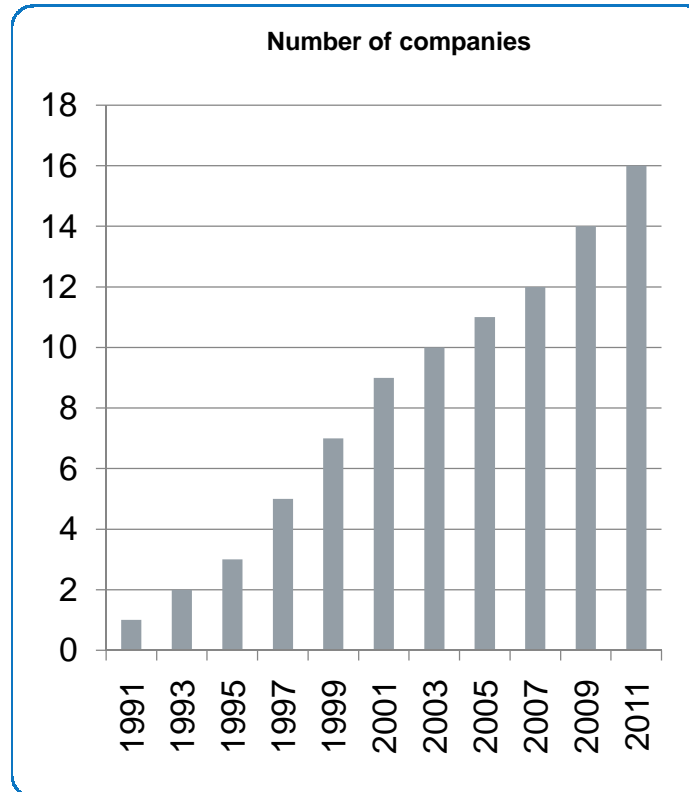
## The water mist technology



- **Started in 1991 at a very early stage of development**
- **It was easily considered among the Halon Replacement options.**
- **The Marine fire protection market soon recognized it as an option to replace Halon but also the heavy conventional sprinkler systems.**

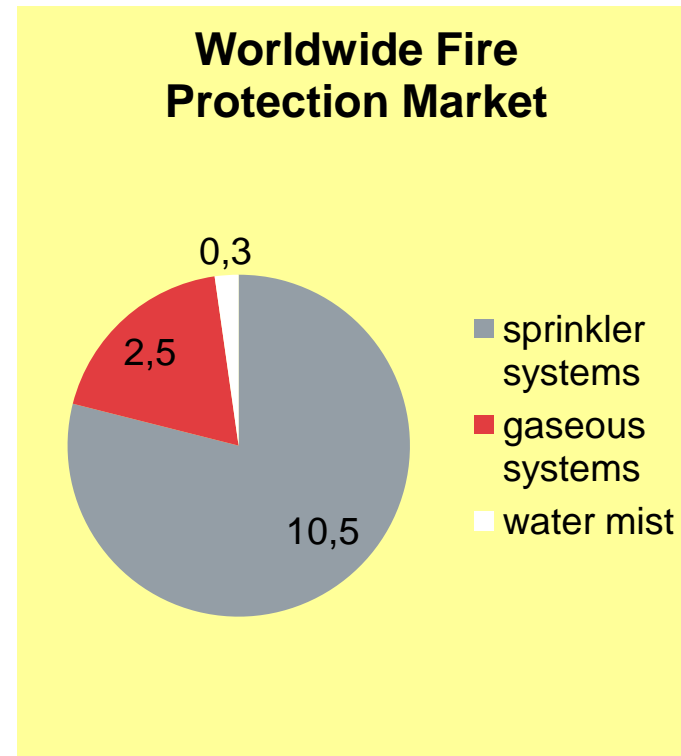
## The water mist Operating Companies

- Since 1991 more and more companies have decided to start their own water mist product
- And the grow of the number of companies seems to be relentless.
- Also the number of applications is very wide
- Probably the widest in the fire protection Market going from Machinery spaces to hotel and heritage.
- **It is the same range of water based systems in general**



## The water mist market

- **NEVERTHELESS** the water mist market remains a limited ones, when compared to other technologies.
- It is understandable that the sprinkler system market is so huge, considering the “experience”
- It is a bit harder to explain the difference versus the gaseous system market that is objectively limited in the range of application, when compared to water mist.



## Reasons for the low growth

- There may be a lot of reasons for the low growth of the Market
- They may include the size of the Companies operating in this market
- They may also involve the capability of the sales organization...
- But this is not enough to explain...
- **I have identified one more possible reason in the difficulties that the non-specialists in water mist may find in understanding and managing the process that goes from the selection of an appropriate water mist system for a given hazard, to its acceptance and approval...**
- **This creates a sort of uneasiness in the AHJs, especially the insurers, to recommend and to accept a water mist protected building or hazard as a protected ones, as they do with more traditional technologies.**



## A success story: the marine market

- A positive example is in the Marine market.
- In less than 20 years the water mist technology has replaced most of the fire protection systems installed on board of ships
- It is even possible to say that the mist technology is part of the organic grow of the marine buildings.

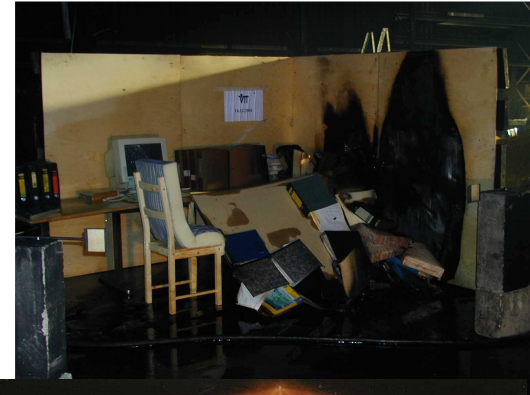


- A success story probably also due to the clear process that has been established for the approval of the systems and their recognition.
- A success story that does not exclude the AHJs from the process.



## A not yet success story: the land market

- In the land market the story is quite different.
- In the last 20 years the water mist technology has created a considerable scientific interest
- But it is not yet considered among the “mature fire protection alternative” or at least it is not mature as a generalized fire protection.
- Still it is a **SPECIAL** fire protection system!
- **When discussing about water mist protection of buildings with the AHJs the reaction is:**
- **Oh! Quite interesting, I have anything against...**
- **But for the time being why don't we discuss about sprinkler or gaseous systems?...**





## Among the reason for this reaction

- A potential reason may be the relative “confusion” existing, in many countries, about the approval concept for water mist systems.
- The sales of simply tested systems instead of recognized approved products is certainly an issue on a world wide basis
- The consideration that the system currently receive in the American market should induce a thorough thinking among ourselves, as water mist manufacturers, finalized to understand why the technology is not breaking out on that market.



APPROVED



## What can we do to improve

- **Three possible interventions:**
  - We might decide to push versus a market where approved systems only are acceptable; approved should have a meaning similar to that of “Listed” in NFPA 750, it is to say: “systems included in a list published by an organization acceptable to the authority having jurisdiction... that maintains periodic evaluation of systems ... to verify that they meet designated standards... ”.
  - We might push the standardization process in Europe versus a standard that include the “third party verification” of each installed system, either within the CE marking scheme or an alternate ones that guarantee the competence of the inspection body.
  - **Meanwhile we might distribute as much clear information as possible to the market, for example introducing the PASSPORT of the WATER MIST system applications.**

# What do we mean with the PASSPORT

- **The PASSPORT:**
  - It can be designed in a variety of ways according to the discussion to be done.
  - Once defined, the same format should be used by all manufacturers, for the systems that they want to distribute through the passport system, to make different systems easily understandable and comparable.
  - **The information supplied should be Clear and True, and organizations like IWMA might both supervise them and distribute as much as possible to the market in seminars and through the web.**

WATER MIST SYSTEM PASSPORT			
System Identification:		Manufacturer	
MT4 Machinery Space System		Marioff Corporation Oy	
1	<b>space geometry</b>	parameter	value note
1.01	space characteristics	Limited / unlimited	limited
	ceiling height	mt.	N.A. 11 mt tested ceiling
	allowed openings	m <sup>2</sup>	factor See manual for calc. formula.
	Max Volume	Cubic Meters	3300
2	<b>Hazard</b>		
2.01	Hazard Classification	Machinery Space	Solas II
	Fire classification	Class B	Mainly
	Limitation/exclusion	flammable liquid storage areas	
3	<b>system type</b>		
3.01	operating pressure	High/medium/low	High
3.02	sprinkler like / deluge	sprinkler like system	
3.03	Compartment prot.	Total flooding/local appl.	total flooding
3.04	Pipe	Single/double	Single
3.05	Fluid	Single/twin	Single
4	<b>Testing / approvals</b>		
4.01	Test Laboratory	VTT Finland	
4.02	Test Report(s)	VTT Report ...	
4.03	Land Approval(s)	none	
4.04	Marine Approval(s)	Most of the Marine Registers	
5	<b>Design specifications</b>		
5.01	nozzle type	open/closed	open
5.02	spacing	square meter per nozzle	16 m <sup>2</sup>
5.03	Nozzle height	max height	11 m
5.04	design pressure	minimum	50 bar
5.05	operating nozzles	no. of operating nozzles	all in the volume
5.06	Duration	minutes	as specified
6	<b>Main components</b>		
6.01	Water reservoir	water reservoir based on duration	
6.02	pump unit	SPU electric / SPUD Diesel driven	
6.03	Pump Unit power abs.	According to no. of operating nozzles	
6.04	Control Valves	SVM electric or pneumatic activated	
6.05	Pipe and fittings	Stainless steel / cutting ring joints	
6.06	Nozzle 1	Vertical, open, various orifices	
6.07	Nozzle 2	Pop Up for floor installation	
1	March 12th 2003	issue after approval	
issue	issuing date	description	note

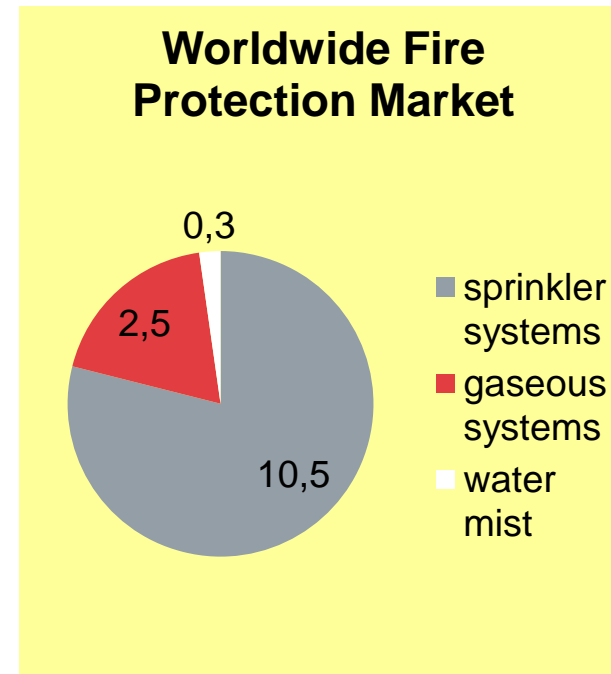
# What do we mean with the PASSPORT

- **The PASSPORT:**
  - The passport scheme might be introduced in the new version of the CEN TS 14972 being developed in the TC 191/WG5/TG3
  - A big role might be played by associations like IWMA, should they decide to act also as a supervisor of the market against those systems that are commercialized without meeting the necessary requirements.
  - **The development of one or more specialized organization doing Water Mist Fire Protection System approval remains in any case the only final solution.**

WATER MIST SYSTEM PASSPORT				
System Identification:		Manufacturer		
MT4 Machinery Space System		Marioff Corporation Oy		
1	space geometry	parameter	value	note
1.01	space characteristics	Limited / unlimited	limited	
	ceiling height	mt.	N.A.	11 mt tested ceiling
	allowed openings	m <sup>2</sup>	factor	See manual for calc. formula.
	Max Volume	Cubic Meters	3300	
2	Hazard			
2.01	Hazard Classification	Machinery Space	Solas II	
	Fire classification	Class B	Mainly	
	Limitation/exclusion	flammable liquid storage areas		
3	system type			
3.01	operating pressure	High/medium/low	High	
3.02	sprinkler like / deluge	sprinkler like system		
3.03	Compartment prot.	Total flooding/local appl.	total flooding	
3.04	Pipe	Single/double	Single	
3.05	Fluid	Single/twin	Single	
4	Testing / approvals			
4.01	Test Laboratory	VTT Finland		
4.02	Test Report(s)	VTT Report ...		
4.03	Land Approval(s)	none		
4.04	Marine Approval(s)	Most of the Marine Registers		
5	Design specifications			
5.01	nozzle type	open/closed	open	
5.02	spacing	square meter per nozzle	16	m2
5.03	Nozzle height	max height	11	m
5.04	design pressure	minimum	50	bar
5.05	operating nozzles	no. of operating nozzles	all in the volume	
5.06	Duration	minutes	as specified	
6	Main components			
6.01	Water reservoir	water reservoir based on duration		
6.02	pump unit	SPU electric / SPUD Diesel driven		
6.03	Pump Unit power abs.	According to no. of operating nozzles		
6.04	Control Valves	SVM electric or pneumatic activated		
6.05	Pipe and fittings	Stainless steel / cutting ring joints		
6.06	Nozzle 1	Vertical, open, various orifices		
6.07	Nozzle 2	Pop Up for floor installation		
1	March 12th 2003	issue after approval		
issue	issuing date	description		note

## CONCLUSION

- May be the mentioned idea is not the best one we may have.
- We would really like to open a discussion on the matter
- However we cannot forget that still we are in a niche market although there is nothing preventing the water mist technology to cover a significantly larger portion of the global fire protection market.
- **It is therefore necessary to start an intensive “Brain Storming” among the “Stakeholders” of the technology to find the way...**



 **HI-FOG®**  
water mist fire protection



***THANK YOU***

---

**Marijff**  
A UTC Fire & Security Company