

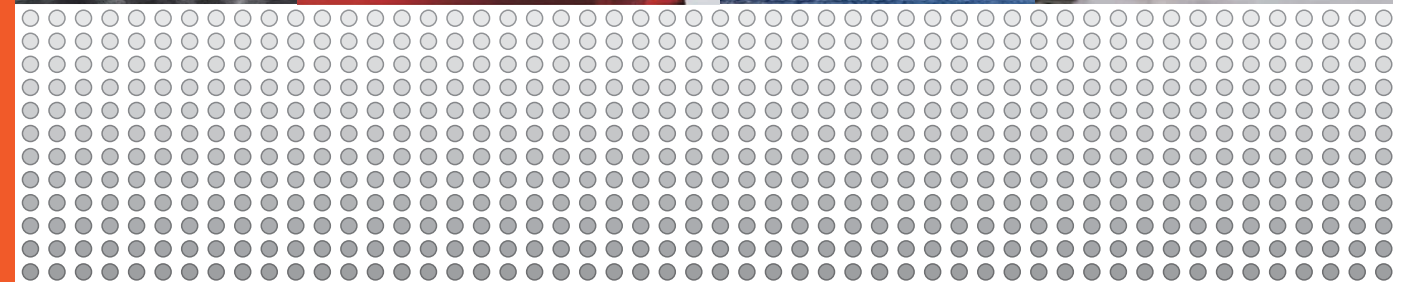


# VTI FIRE PRODUCTS

## VTI Fire Products Co.,Ltd

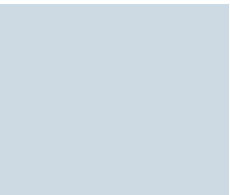
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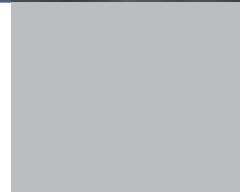
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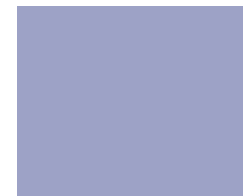
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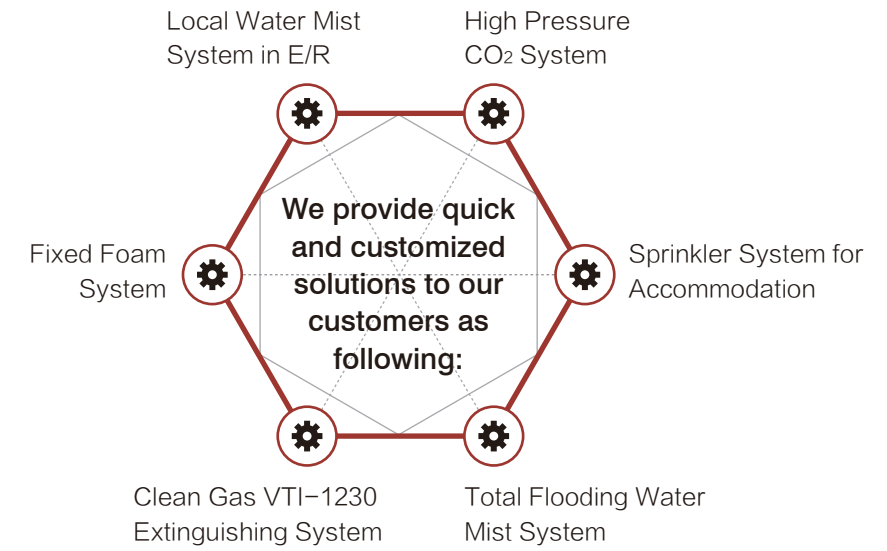
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# VTI INTRODUCTION

VTI Fire Products is a world leading innovative developer and manufacturer of fire fighting products. The company is located in United Kingdom and has a work shop in Shanghai, where all products are developed and manufactured in our ISO 9001 accredited production facility. We could provide customer the total fire protection solutions for Marine and Offshore Markets, including High Pressure CO<sub>2</sub>, Local water mist in E/R, Low expansion foam, Accommodation Sprinkler System, Total flooding low pressure water mist system in E/R, VTI-1230 and INERGEN(IG541) system.



Fire Fighting System	
• Offshore Platforms	• Commercial Vessels
• Tug/AHTS	• Navy Vessels
• Ro-Ro Vessels	• Yachts
• Cruise	• MPV



# VTI-1230 system introduction

VTI-1230 systems are designed to extinguish fires involving flammable liquids, gases and in electrical equipment. System design pressure is 42 bar, VTI-1230 extinguishes fires by a combination of physical and chemical means. It does not significantly deplete the oxygen content in the room and tests have shown it to be less toxic than Halon 1301. A system comprises Nozzles, Containers, Pipe work and Zone Valve etc. VTI-1230 is liquid under pressure and is stored in containers, each of which is fitted with a valve specially designed to discharge the agent in containers rapidly. When the valve opens, the agent flows into the distribution pipe work to the discharge nozzles where it is rapidly dispersed as a vapour.

### Standard Packaging

- 300kg 200L Drum
- 1,200kg 800L HDPE ICB



VTI-1230 Agent, low toxicity, suitable for continuously manned space



### Physical Properties and Safety

Properties	Halon 1301	HFC-227ea (FM-200)	VTI-1230	IG541	CO <sub>2</sub>
Boiling point °C	-57.8	-16.4	49.0	-196.0	-
Design Con.	5%	7.5-8.7%	5-6%	38-43%	30-75%
NOAEL	5%	9%	10%	43%	<5%
Safety Margin	Nil	3-20%	67-100%	7-13%	Lethal

### Environment affectivity

Properties	VTI-1230	Halon 1301	HFC-227ea	IG541
Ozone depletion (ODP)	0.0	12	0.0	0
Global greenhouse Effect(GWP)	1	6900	3500	0
Lifetime in the atmosphere (Year)	0.014	65	33	0





# Total Flooding Water Mist System

# WVFS

PART  
03  
Product

All spaces

The system utilizes low water pressures and low amounts of water. The nozzle creates a homogeneous fine water spray, which absorbs heat, reduces radiant heat and cause oxygen depletion in the vicinity of the fire, which controls and suppresses the fire. This homogeneous spray consists of a high concentration of very small droplets. Because of the small mass and large surface of the droplets, nozzles create a large coverage, further minimizing the water expenditures and hydrating nearby combustibles.

## Features

- Replacement of Gas Extinguishing System
- Extinguishing Fire Quickly
- Only Solution for Whole Vessel
- Simple installation and maintenance





# Local water mist system introduction



System Running Flow

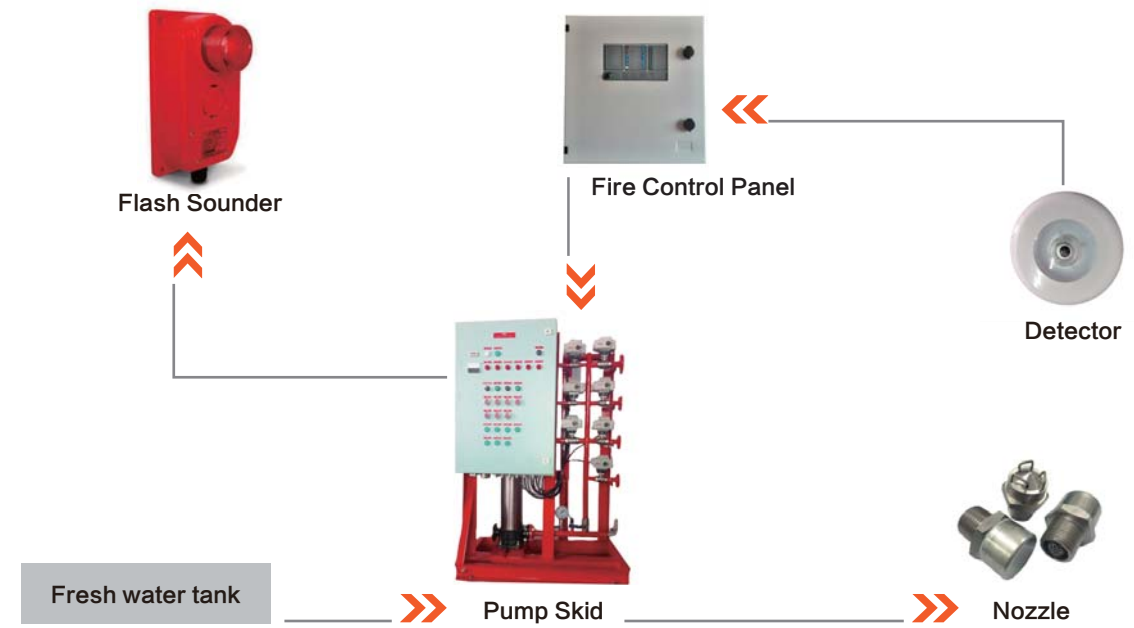
VTI local water mist system should be complied with Regulations 10.5.6, Chapter II-2 of SOLAS, as Amended and MSC.1/Circ.1387. Our system is a low pressure system, design pressure is 4bar/9bar. This system is used to protecting high risk objects/areas in engine rooms, as specified in the guidelines/requirements. The regulations state that in 2000DWT and above ships, Machinery Spaces of Category 'A' above 500m<sup>3</sup> are in addition to the Fixed Fire Extinguishing System to be protected by a Fixed Water Based Local Application Fire Fighting System. In the case of periodically unattended Machinery Spaces, the system is to have both automatic and manual release capabilities.

## Local Water Mist System Protected Area

- Main Engine Top
- Auxiliary Engine Top
- Boiler
- Incinerator
- Purifiers
- Inert gas generator etc.

## Features

- Automatically/manually activated
- Flexible fire detection solution
- Low power consumption
- Simple installation and maintenance





# High pressure CO<sub>2</sub> system introduction



## High Pressure CO<sub>2</sub> System

PART 05 Product

High pressure CO<sub>2</sub> system is widely used for total flooding or local application fire protection in marine and offshore markets. A system comprises release control parts and CO<sub>2</sub> gas storage parts. The main components include remote release station, zone valve, three way valve, control panel, CO<sub>2</sub> cylinder, nozzle and manifold etc. VTI high pressure CO<sub>2</sub> system could be activated with Pneumatic, Electrical and Manual Release which approved by CLASS.

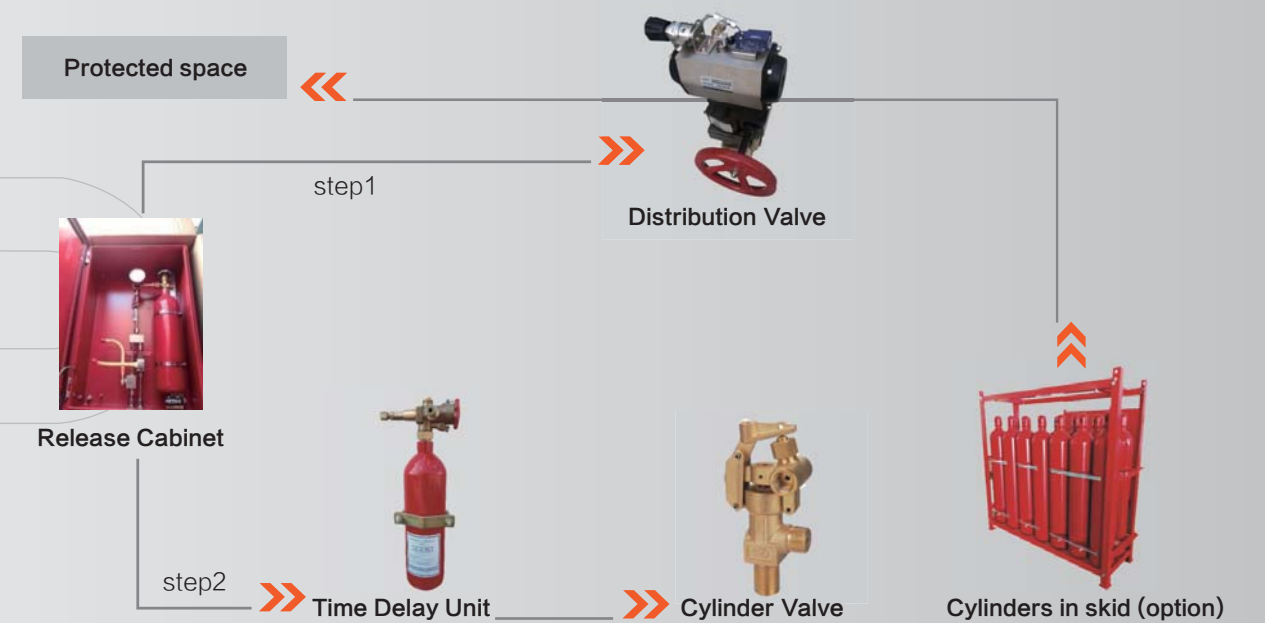
### High Pressure CO<sub>2</sub> System Protected Space

- Machinery Spaces
- Cargo Holds
- Compress Room
- Galley Duct
- Paint Store
- All closed spaces etc

### Features

- Safety delay release (machinery spaces)
- Effective on deep seated fires
- Low maintenance cost
- Pneumatic, Electrical & Manual Release

### System Running Flow





# Foam System

## High Expansion Foam Generator

VTI High Expansion Foam Generators FHG-15 and FHG-25 are primarily designed as an integrated part of the VTI High Expansion Foam system, where air from the protected volume is cooled and used for the foam production, also under the presence of smoke and combustion gases environments.

### Features

- All stainless steel body and bronze nozzle Low weight
- Easy to install
- Large area coverage
- Suitable for indoor and outdoor use
- “1” mounting flange included



## Low Expansion Foam System Protected Area

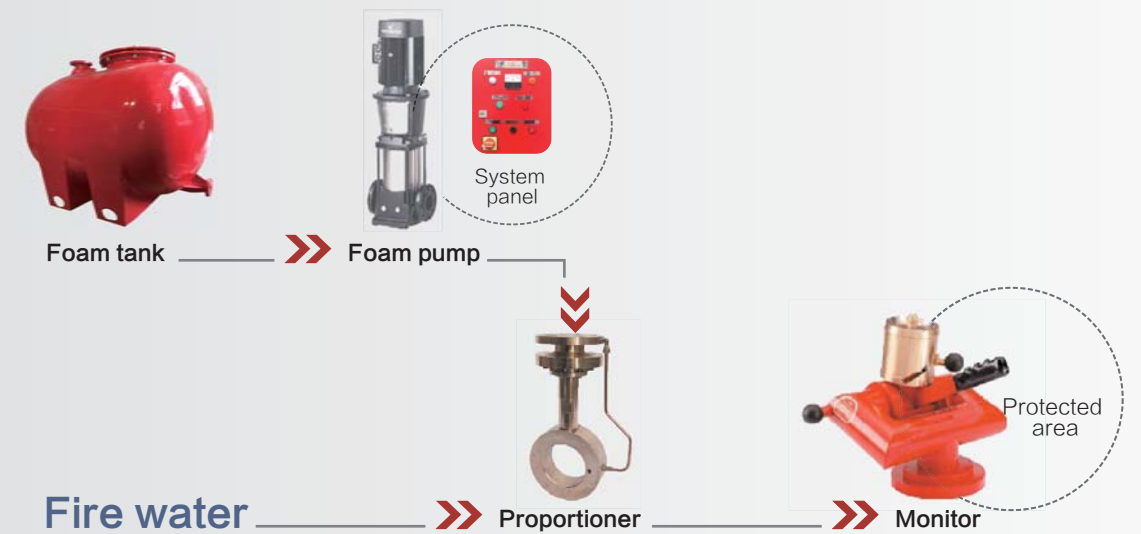
PART 06 Product

- Oil tanker deck
- Chemical tanker deck
- FPSO deck
- Helicopter deck
- Special areas on platform

### Features

- Foam pump system
- Bladder system
- Induction system
- Monitors or DIFF system

## Foam pump system







# Accommodation Sprinkler System

PART 07  
Product



VTI accommodation sprinkler system is a fixed water mist system for accommodation areas the system is designed for fresh water use while with a connection to sea water for back up operation Sea water must not be used in the system, unless it is as backup for release to prevent corrosion of the pipe system.

The sprinkler system is mainly distinguished in two types: Wet pipe system \ Dry pipe system Widely, wet pipe sprinkler systems are installed more often it is also the most reliable and simple system nozzle VTI use medium-pressure water mist nozzles designed for large variety of applications. Each nozzle works automatically and independently. In case of a fire or excessive temperature, the nozzle will be activated that means the water mist is confined to the areas affected by fire Sprinkler Control Valve The automatic sprinklers are the only operating components Commonly but not always, the automatic alarm check valves are installed which controls automatic water supply under appropriate pressure to the sprinkler piping network Sprinkler System.

## Features

VTI accommodation sprinkler system is working with a pump pressure similar to the low pressure system. The low power consumption is 30% of the consumption needed for high pressure system this is very important in emergency cases for that the power of emergency generator normally are limited. The automatic water sprinkler system consists of sprinkler heads, a pressure tank, distribution valves, pipings, sprinkler jockey pumps and the control system APPROVAL VTI sprinkler systems have major class approvals for the product.





# Dry Chemical Powder Fire Fighting System

PART 08 Product



Technical data DCP Tanks	
Tank water volume	Range 180 to 2150 liter
Storage powder	Range of 175kg to 2000kg
Design temp	0° C-65° C
Design pressure	24bar
Material	Mild steel 16MnR
Color	Red paint RAL3000

BC Powder	
Application	For hazards
Class	ABC
Major Ingredients	Sodium Bicarbonate
Appearance	Finely ground, free flowing
Color	White

Powder Monitor	
Body	AISI316L
Base flange connection	DN50/65,DIN2576,PN16
Capacity	10kg-32k
Operation	Manual
Elevation	Max.+90° ;Min.-75
Rotation	360°
Color	Red paint RAL3000

Nitrogen Cylinders	
Filling pressure	150bar at 15° C
Min. water capacity	10-68Ltrs
Standard	Green, RAL6016

The dry chemical powder system usually consists of dry chemical powder in a tank and propellant gas cylinder bank, piping or hose to carry the agent to the fire area, nozzles to assure proper flow rate and direction into the area to be protected as well as manual actuating mechanisms.

The dry chemical powder system is an installed fire extinguishing system suitable for installation mandatory on LNG and LPG vessels. The system can be installed as a central system, a modular system or a combination(hybrid) system.

## Features

- Easy system operation
  - Fast and effective knock-down of deck fires
  - All components constructed in corrosion resistant materials
  - Nitrogen gas recovered from an industrial process kind to the environment
- Dry chemical powder-harmless and effective

Dry Powder Tank Skid



Powder Monitor Discharging





# Water Spray System



A water spraying system will be installed complying with SOLAS requirement, intended for cooling, fire prevention, and crew protection in case of emergency. The system will cover cargo tank domes, cargo deck vessels, crossover manifolds, booster pumps and cargo heater boundaries of the superstructure facing the cargo zone and the cargo plant machinery deck house.

The total amount of water required by the system will be supplied from the water spray pump. The pump will take water from the main sea water suction cross line, inside the engine room.



The water spray nozzles will be connected to the fire main. The spraying system should have full bore connection to fresh water tanks, for testing purposes. Deck spray system should be provided with the provision of fresh water flushing after trying out the same with sea water. The water spray system also capable of both local and remote manual operation.

## Water Spray System Application

- Surface Cooling
- Washing
- Fire Extinguishing
- Dust control



1/8" to 1" male conn



HHSJ 1/4" to 2" male conn.Hex. body style/316 stainless steel



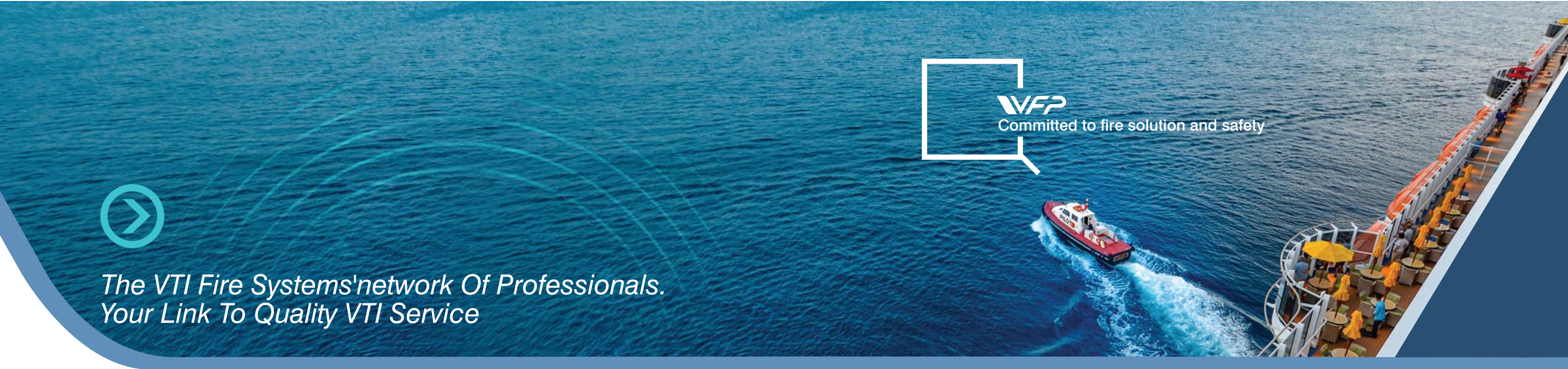
## SpiralJet HHSJ and HHSJX Nozzles

The liquid enters the nozzle and passes through the orifice. The liquid exits the nozzle through the voids in the spiral. As it deflects off the spiral surface, a full cone pattern is formed.

## FloodJet Nozzles

As liquid passes through the nozzle, it hits the deflector surface and spreads out to form a flat spray pattern. The distribution is even from the center of the spray. The deflector surface enables the formation of very wide spray angles compared to other flat spray nozzles.





## The VTI Fire Systems' network Of Professionals. Your Link To Quality VTI Service

VTI Fire Systems maintains a global network of fire protection professionals who serve the marine industry. Backed by VTI's worldwide resources, your nearby VTI fire protection professional provides a complete range of cost-effective VTI solutions to all your marine fire protection challenges.

### Fire Protection Surveys

Whether it involves an engine room or a flammable storage area, your VTI fire protection professional analyzes the fire hazard potential and recommends the best way to protect your people and equipment for the least expense.

### Single-Source Supply

As the direct link to VTI's entire and wide range of fire

suppression systems, your VTI fire protection professional offers the right combination of VTI fire protection to meet your needs.

### Expert Installation

Your local VTI fire protection professional is trained to install our Marine systems in accordance with established Maritime standards, on your schedule wherever and whenever your vessels puts into port.

### Reliable Service

From training your people to emergency service, your VTI fire protection professional has the talent, tools, genuine VTI parts and commitment to protect your VTI Investment.

