

PRODUCTION 2025-2026

CRISTANINI

WATER MIST & DRILLING TECHNOLOGY

FD 1103

27/10/2025



**Company
Certifications
and Awards:**



NATO
CONSTRUCTOR
NCAGE A5009



AQAP-2110
NATO QUALITY
STANDARD



ISO 9001:2015
QUALITY
STANDARD



QUALITY
STANDARD
NAVAL CATEGORY



International Water
Mist Association





ARGENTINA



AUSTRALIA



BAHRAIN



BANGLADESH



BELGIUM



BOSNIA
HERZEGOVINA



BRAZIL



BRUNEI



BULGARIA



CAMBODIA



CANADA



CHILE



CHINA



COLOMBIA



CROATIA



CZECH REPUBLIC



DENMARK



ECUADOR



EGYPT



ESTONIA



FINLAND



FRANCE



GREECE



HONDURAS



HUNGARY



INDIA



INDONESIA



IRAQ



IRAN



ITALY



JAPAN



JORDAN



LIBYA



LITHUANIA



LUXEMBOURG



LATVIA



KAZAKHSTAN



KUWAIT



MALAYSIA



MEXICO



MOLDOVA



MOROCCO



MYANMAR



NORWAY



OMAN



PANAMA



PARAGUAY



PAKISTAN



PERU



PHILIPPINES



POLAND



PORTUGAL



QATAR



ROMANIA



RUSSIA



SAN MARINO



SAUDI ARABIA



SPAIN



SERBIA



SLOVAKIA



SLOVENIA



SOUTH AFRICA



SOUTH KOREA



SWEDEN



SWITZERLAND



TAIWAN



TURKEY



TUNISIA



UKRAINE



UGANDA



UNITED ARAB
EMIRATES



UNITED KINGDOM



USA



URUGUAY



VIETNAM

CLOSE TO OUR CUSTOMERS ALL OVER THE WORLD

www.cristanini.com

Dear Friends,

Our company has been a leader in exclusive niche sectors since 1972, providing solutions to problems often considered unsolvable. For over fifty years, we have worked with passion and professionalism in the field of fire protection, developing reliable and innovative solutions based on water mist technology. Our systems ensure rapid and effective intervention in challenging situations, offering total safety to those who choose us.

We design and manufacture portable systems that are easy to use, extremely safe, efficient, and effective—engineered to respond instantly. Each product is born from a deep understanding of our customers' needs, careful analysis of different use scenarios, and a continuous commitment to research and development. Our goal is to deliver solutions that are always high-performance, innovative, and safe.

Our heritage is built on the experience we have gained over time: throughout the years, we have successfully interpreted and solved complex and diverse challenges, consistently finding reliable and innovative solutions. We constantly exceed the expectations of those who rely on us. For our company, safety and reliability are not just core values—they are the beating heart of everything we do, guiding every design and operational decision.

Our excellence is measured by our ability to protect people, property, and the environment. This ongoing commitment drives us to improve every day and to innovate with responsibility and expertise.

We invite you to contact us.



A handwritten signature in black ink, appearing to read 'Cristanini' followed by a stylized flourish.



**FIRE FIGHTING
WATER MIST & DRILLING
SYSTEMS**

For the first attack on fire in open areas or confined spaces, with rapid-response systems using WATER MIST & DRILLING technology — all achieved using minimal amounts of water.

WATER MIST & DRILLING TECHNOLOGY		FD*	REFER:	page
WATER MIST TECHNOLOGY				5-11
FIRE STOP 200/30 Fire Fighting System		460	UP 1471 FD 907	16-17
WJFE 300 Fire Fighting System and Water Jet Drilling		461	UP 1348 UP1494 FD 437	18-19
FIRE STOP MOTORCYCLE Fire Fighting Motorcycle		1029	FD 992	22-23
BATTERY MINI FIRE STOP Portable Electric Powered Fire Fighting System		1030	UP 1678	24-25
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* Within the catalog, the term "FD" refers to our illustrative leaflets, while "UP" refers to technical documents

CRISTANINI: WHERE RESEARCH AND EXPERIENCE MAKE THE DIFFERENCE!

**FIRST ATTACK FIRE FIGHTING
SYSTEMS FOR OPEN OR
CONFINED AREAS, USING
WATER MIST & DRILLING
TECHNOLOGY.**

**WATER MIST &
DRILLING
TECHNOLOGY**



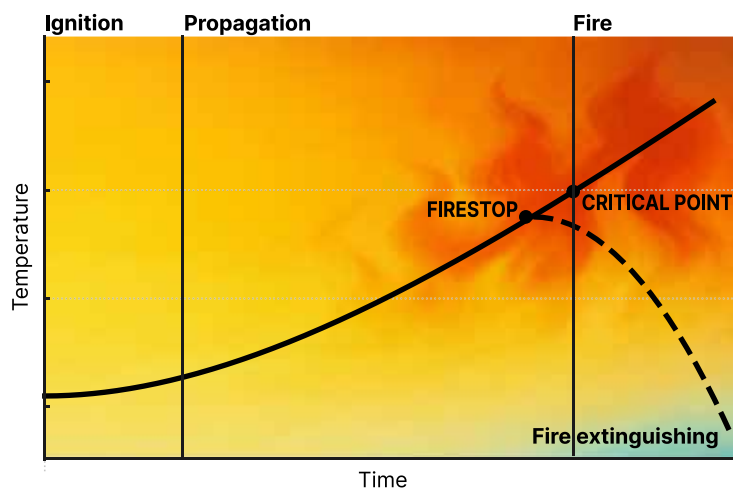
**FIRE STOP &
WJFE**



HOW DO FIRES DEVELOP

It is known that a fire starts when an **ignition** source (a spark, a cigarette butt, etc.) comes into contact with flammable materials - whether liquid (alcohol, oil, etc.) or solid (paper, wood, etc.) - in the presence of air, oxygen. However, few people know that a fire develops through the following stages:

- **Ignition**
- **Propagation**
- **Fully developed fire** passing through the **Critical Point**.



Three key factors are therefore involved in optimizing firefighting action, considering that 80% of fires are small in scale:

- **Speed of action before the fire surpasses the Critical Point**
- **Attack on the ignition point by cooling the initial flames**
- **Smothering the flames by removing oxygen**

THE SUCCESS OF CRISTANINI'S PRODUCTS IS PRECISELY LINKED TO THE APPLICATION OF THESE FACTORS BECAUSE:

1. It offers systems based on Water Mist (**WM**) technology, which—thanks to the use of patented nozzles—transform a powerful hydrodynamic jet into a fine water mist. This mist increases the flame–water contact surface, providing an intense cooling effect even with minimal water usage.
2. The mist produced with **WM** technology creates a barrier between the flames and oxygen, effectively smothering the fire without the need for large quantities of water transported by heavy, slow, and cumbersome vehicles
3. On the contrary, thanks to the reduced amount of water required, Cristanini units are autonomous, can be operated by a single person, and are compact in size, allowing for rapid deployment and intervention at the fire scene.



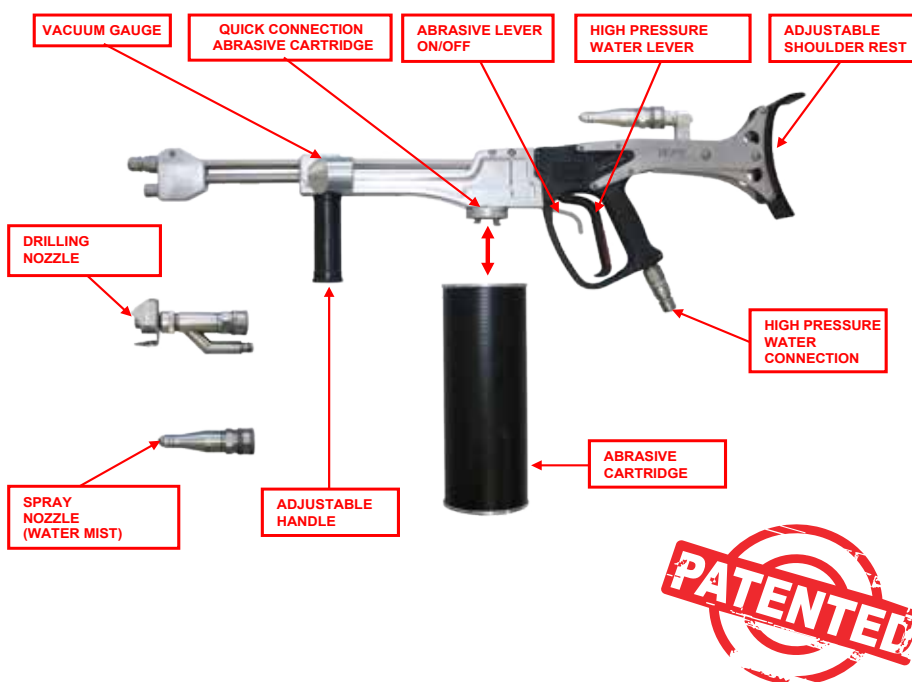
WM & DRILLING IN CONFINED SPACES

Drilling & WM technology in confined spaces prevents the risk of **BACKDRAFT**.

However, Cristanini's fire-fighting systems go even further, offering an additional advantage: by combining **WM** technology with **Drilling** - a patented system for penetrating walls (concrete, metal, wood, etc.) Fires can be attacked from the outside without opening confined spaces, thus eliminating the operator's risk of **BACKDRAFT**.



The operator switches from Drilling to **WM** by changing the nozzle on the lance..



DRILLING TESTS RESULTS

TEST	MATERIAL	TIME
1	6.2 mm (0,24 inch) steel plate	22 sec.
2	95 mm (3,74 inch) concrete block	71 sec.
3	135 mm (5,31 inch) high density block	48 sec.



HOW WM AND DRILLING REDUCE THE RISK OF BACKDRAFT IN CONFINED SPACES

DRILLING



WATER MIST



DIAMOND NOZZLE



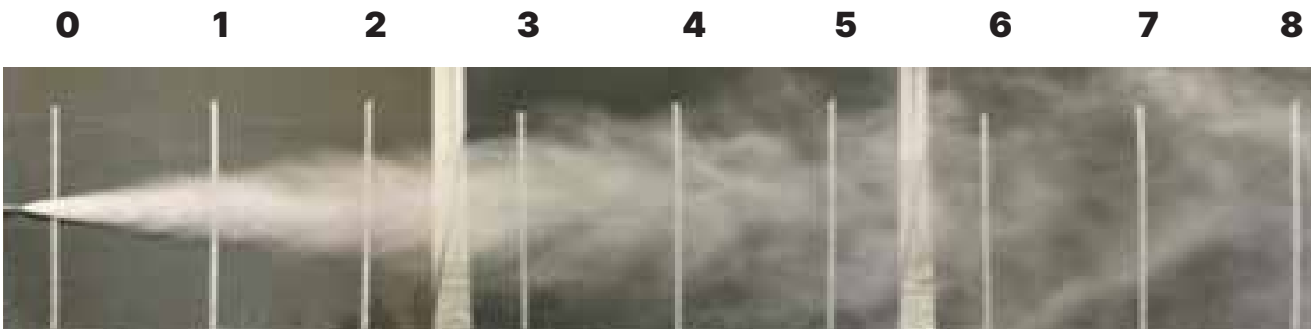
WE MEASURED THE DROPLETS IN TERMS OF NUMBER, DIAMETER, AND VELOCITY... FOR 1 LITER, WE COUNTED 238 MILLION!



MAXIMIZED EFFICIENCY WITH MINIMAL WATER USE

1 Liter of water	Pressure	Droplet		Contact surface
	5 bar 72.5 psi	1		0.048 m ² 0.51 ft ²
	350 bar 5076 psi	238 million		30 m ² 323 ft ²

WATER MIST



JET PROPAGATION TEST AT 8 METRES (26.2 ft)

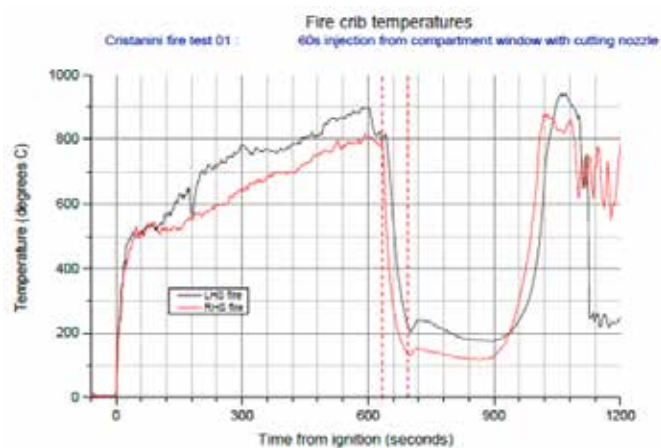
CERTIFIED TESTS



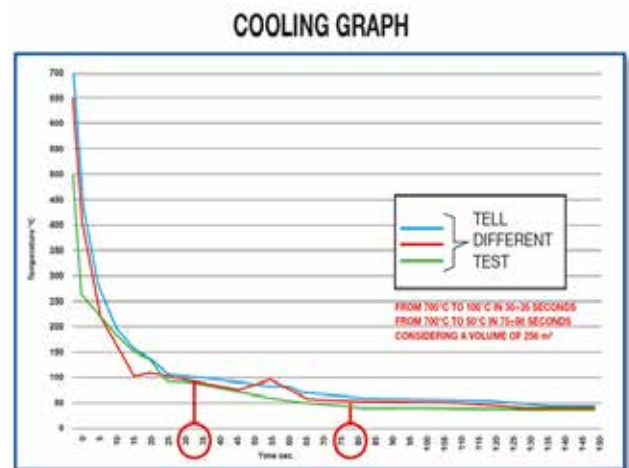
MARINA MILITARE (TARANTO - ITALY)
DRILLING TIME 10 SECONDS



TEMPERATURE DROP : 600 °C (1112 °F) IN 60 SECONDS



TEMPERATURE DROP : 600 °C (1112 °F) IN 60 SECONDS



TEMPERATURE DROP: 650 °C (1202 °F) IN 80 SECONDS

THE LIST OF ADVANTAGES OF CRISTANINI MOBILE WATER MIST SYSTEMS

Dear Friends

We are convinced that, even while striving to identify the many advantages of our WM technology systems, the list is not exhaustive, as in your operations you will discover additional benefits that allow you to fully appreciate the efficiency, safety, and reliability of Cristanini systems!

1. **Effective intervention:** The misted jet rapidly extracts heat, creates a thermal barrier over the fire, and replaces air with water vapor, effectively smothering the flames.
2. **Reduced water requirement:** This allows you to choose a system from our range—from portable units, motorcycles, vans, to off-road vehicles—all capable of moving easily through traffic or narrow historic streets, reducing response time and enabling rapid first fire attack.
3. **Ease of use:** Our systems are simple to operate, allowing for straightforward management and deployment, and reducing the personnel required for emergency response; in extreme cases, a single operator can manage the intervention.
4. **High safety standards:** All our systems provide lances with minimal recoil and a harmless WM jet. The WJFE system allows the operator full control of both Drilling and WM actions directly from the lance.
5. **Flexible reach:** The low flow requirement of our WM systems allows the use of 3/8" (DN10) hoses, which are compact and lightweight. With suitable extensions, they can reach distances of several tens of meters and heights over 50 m (164 ft).
6. **Low recoil:** Thanks to the minimal water volume required, the recoil is under 10 kg (100 N), making it easily manageable by the operator even in challenging positions.
7. **Non-damaging jet:** The WM jet is safe even near the nozzle, allowing intervention without causing damage in sensitive environments such as theaters, cinemas, museums, libraries, areas with live wiring or electrical cabinets, hospitals, laboratories, and around digital and electronic equipment (PCs, monitors, data centers, archives, etc.).
8. **Versatile accessories:** The availability of specific accessories increases operational versatility, enabling the resolution of unusual problems such as fires in chimneys and attics.

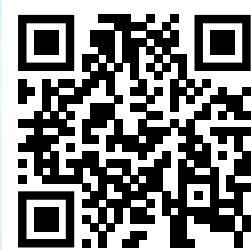
OUR TECHNICIANS ARE AVAILABLE TO DEMONSTRATE THE EFFICIENCY OF OUR SYSTEMS AT OUR HEADQUARTERS IN RIVOLI VERONESE (VERONA)

Eng. *Giancarlo Franchini*

NOTES

[illegible]





FIRE STOP 200/30

P/N 950090230



NATO STOCK NUMBER
4210-15-016-1520

For more information, refer to our documents:

- UP 1471
- FD 907



High-Pressure Water Mist System for First Response Fire fighting

Designed for rapid intervention in urban and remote environments, the Fire Stop 200/30 is the ideal solution for initial fire response in areas with restricted access such as historical city centers, high-traffic zones, mountain terrain, or isolated locations.

Description

The Fire Stop 200/30 delivers a powerful high-pressure water jet using advanced Water Mist Technology, transforming a small volume of water

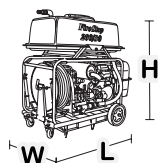
into a fine mist. At 200 bar (2900 psi), this atomized spray rapidly turns into vapor upon contact with the fire, absorbing heat and displacing oxygen-effectively suppressing the flames.

This method significantly reduces collateral damage typically caused by traditional low-pressure firefighting systems, which often use excessive amounts of water.

The Fire Stop 200/30 therefore provides an efficient and modern approach to fire control, particularly suitable for sensitive or constrained environments.

Dimensions (LxWxH)

1320×700×1200 mm
52×28×47 in



Weight
226 kg
498 lb



Capabilities

Feature	Value
Water Pressure MAX.	200 bar (2900 psi)
Flow rate: water mist/ straight jet MAX.	22/28 L/min (5.8/7.4 gpm)
Engine power	15.5 kW (20.8 hp)
Fuel type	Petrol
High pressure hose length	40 m (131 ft)



FIRE STOP 200/30 STANDARD ACCESSORIES

1		 FIRE STOP LANCE High pressure lance, with two nozzles and multiple settings to deliver Water Mist and water jets of different dimensions, mixed with foaming extinguishing product.	P/N 950090308
2		 Manual hose reel With high pressure hose, 40 meters long (131,2 ft)	P/N 950090313
3		 Nozzle holder extension 680 mm long (26,7 inch), with quick coupling.	P/N 120048038

FIRE STOP 200/30 OPTIONAL ACCESSORIES

1		 SAM 56 For the suction and transfer of water or liquids, (also containing solids up to Ø 20mm (0,79 inch)) with a suction height of up to 5 meters (16,4 ft)	P/N 950090129
2		 AJ6M 20 meter long (65,6 ft), stainless steel hose resistant to a temperature of 260 °C (500 °F) for fires inside chimneys, crawl spaces etc.	P/N 120040550

WJFE 300

P/N 800040038



NATO STOCK NUMBER
4230-15-016-1520

For more information, refer to our documents:

- **UP 1348**
- **UP 1494**
- **FD 437**



Water Jet Drilling & Fire Extinguishing System For Intrinsically Safe Drilling of All Materials and Fire Fighting in Enclosed Spaces

Description

The WJFE 300 combines abrasive water jet technology with Water Mist-based fire suppression in one compact and efficient system.

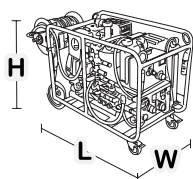
Engineered for use in enclosed, oxygen-limited, or high-risk areas such as buildings, ships, vessels, or industrial plants it allows operators to safely penetrate all common construction materials

without generating heat or sparks or introducing oxygen.

Following drilling using a high-pressure water jet at 350 bar (5075 psi) mixed with an abrasive, the Water Mist system is activated, producing a fine spray that instantly vaporizes upon contact with heat. This vapor expands up to 1800 times its original volume as water, rapidly saturating the atmosphere, displacing oxygen, and lowering temperature. This not only suppresses the fire but also prevents the formation of backdrafts, making re-entry and intervention significantly safer for firefighters.

Dimensions (LxWxH)

1360×570×800 mm
53.5×22.5×31.5 in



Weight
245 kg
540 lb



Capabilities

Feature	Value
Water Pressure MAX.	350 bar (5075 psi)
Flow rate: water mist/ drilling MAX.	17/16 L/min (4.5/4.2 gpm)
Engine power	11 kW (15 hp)
Fuel type	Diesel
High pressure hose length	40 m (131 ft)



WJFE 300 STANDARD ACCESSORIES

1		 WJFE LANCE Special lance that combines high pressure water and abrasive for drilling metal, concrete ecc. For preventing backdraft during fire fighting operations	P/N 958090479
2		 HOSE REEL With high pressure hose, 40 meters long (131,2 ft)	P/N 958090560

WJFE 300 OPTIONAL ACCESSORIES

1		 SAM 56 For the suction and transfer of water or liquids, (also containing solids up to Ø 20mm (0,79 inch)) with a suction height of up to 5 meters (16,4 ft)	P/N 950090129
2		 AJ6M 20 meter long (65,6 ft), stainless steel hose resistant to a temperature of 260 °C (500 °F) for fires inside chimneys, crawl spaces etc.	P/N 120040550
3		 HOSE REEL With high pressure hose, 40 meters long (131,2 ft)	P/N 958090540



**WJFE 300 DRILLING TO PROVIDE ACCESS FOR THE
WATER MIST JET IN CONFINED AREAS**

CRISTANINI
WATER MIST & DRILLING TECHNOLOGY



FIRE STOP MOTORCYCLE

P/N 880030004



NATO STOCK NUMBER
4230-15-016-1520

For more information, refer to our documents:

- **FD 992**



Ultra-Mobile First Response Firefighting Unit Equipped with CRISTANINI Water Mist Technology Built on The Piaggio MP3 Scooter Platform

Description

The FIRE STOP MOTORCYCLE provides a powerful mobile fire response solution where conventional vehicles may not reach.

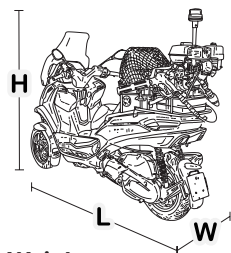
Compact yet effective, it carries the Cristanini Water Mist System, which uses a high-pressure mist to quickly suppress flames, cool hot surfaces,

and prevent fire spread—all while minimizing water usage and eliminating structural damage caused by flooding from traditional fire fighting methods.

Thanks to the maneuverability of the Piaggio MP3, operators can rapidly navigate tight urban environments, narrow paths and congested areas, making it perfect for first response operations in a wide variety of scenarios.

Dimensions (LxWxH)

2200×800×1440 mm
86×31×57 in



Weight
368 kg
810 lb



Capabilities

Feature	Value
Scooter Model	PIAGGIO MP3
Water Pressure MAX.	90 bar (1305 psi)
Flow rate MAX.	8.3 L/min (2.2 gpm)
Engine power	2.4 kW (3.2 hp)
Fuel type	Petrol
High pressure hose length	10 m (33 ft)
Water Tank Capacity (with extinguishing agent)	50 L (13.2 gal)



FIRE STOP MOTORCYCLE STANDARD ACCESSORIES

1		 WM LANCE Special lance complete with intelligent double head and long distance and WM nozzles	P/N 950090355
2		 HOSE REEL With high pressure hose, 10 meters long (32,8 ft)	P/N 089010062

FIRE STOP MOTORCYCLE OPTIONAL ACCESSORIES

1		 AJ6M 8 meters long (26,2 ft), stainless steel hose resistant to a temperature of 260 °C (500 °F) for fires inside chimneys, crawl spaces etc.	P/N 085010023
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BATTERY MINI FIRE STOP

P/N 880030003



For more information, refer to our documents:

- UP 1678



**BATTERY
ENERGY**



Portable high-tech water mist system - autonomous battery operated solution for first response fire fighting in **nautical or confined environments** with **special ruby nozzle**

Description

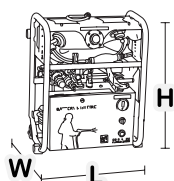
BMFS is the fastest and most effective system for first response fire fighting in nautical environments. It is very reliable, ready to use, completely autonomous and extremely effective for rapid and precise extinguishing operations. BMFS uses a minimal quantity of water; thanks to its WATER MIST

technology, it is able to extinguish a fire using 90% less water, compared with traditional extinguishing systems.

The CRISTANINI PATENTED lance included in this system generates a high-pressure WATER MIST jet which exits from a special ruby nozzle. This vapor expands up to 1800 times its original volume as water, rapidly saturating the atmosphere, displacing oxygen, and lowering temperature. Resulting in the rapid reduction of the size and temperature of the fire, bringing it quickly under control.

Dimensions (LxWxH)

435×310×575 mm
17×12×23 in



Weight

24.8 kg
10.6 lb

Capabilities

Feature	Value
Water Pressure MAX.	90 bar (1305 psi)
Flow rate: water mist/ straight jet MAX.	6.4 L/min (1.7 gpm)
Engine power	2.6 kW
Type of power supply	Electrical (lithium battery)
High pressure hose length	10 m (33 ft)



BATTERY MINI FIRE STOP STANDARD ACCESSORIES

1		 WM LANCE Special lance complete with intelligent double head with long distance and WM nozzles	P/N 950090359
2		 HOSE With high pressure hose, 10 meters long (32,8 ft)	P/N 120041028
3		 BATTERY CHARGER	P/N 025085085

BATTERY MINI FIRE STOP OPTIONAL ACCESSORIES

1		 AJ6M 8 meters long (26,2 ft), stainless steel hose resistant to a temperature of 260 °C (500 °F) for fires inside chimneys, crawl spaces etc.	P/N 085010023
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STRATEVAC

STRATEGIC EVACUATION

P/N 800010200



NATO STOCK NUMBER
4210-15-027-1194

For more information, refer to our documents:

- **FD 1012**



Dimensions (LxWxH)

4910×2200×2500 mm
193×87×98 in



Weight

5200 kg
11464 lb



STRATEVAC is a multifunctional platform for air crew rescue, allowing rescue crews to quickly access stricken pilots and/or aircrew who may be incapacitated and unable to escape the aircraft under their own means. Patients can be quickly treated and transported for further aid.

DESCRIPTION

STRATEVAC can quickly intervene in case of emergency, easily approaching aircraft used by Armed Forces such as:

EF-2000, T-346M, F-35, AMX, PA200 TORNADO, P-180, HH-101A, HH-139A and others.

STRATEVAC allows the conduct of rescue operations in complete safety, limiting the risk of falls of incapacitated crew during all phases of rescue extraction.

STRATEVAC allows rescuers on board the vehicle, to approach the stricken aircraft whilst maintaining full control of the vehicle. The platform, can be raised from 2 to 4 m (from 6.56 to 13.12 ft) and allows rescuers to reach different aircraft cockpits. The leading edge of the platform is also able to adapt to the shape of the aircraft, reducing distances and decreasing the risk of falls. The platform area is adequate to allow first aid operations, and the placement of injured personnel on normal stretchers, or biocontainment stretchers as supplied in various NATO departments.

**The STRATEVAC CRISTANINI system consists of:**

- multipurpose vehicle, weighing 7.2 tonnes, with a maximum speed of 90 km/h;
- an elevating platform, with extendable edges, adaptable to the shape of any aircraft, controlled by ultrasonic proximity sensors;
- a hydraulic stabilizer system, to guarantee vehicle stability during the platform lifting;
- a rear stairway, with steps which have an optimised surface, inclination and spacing to ensure easy and safe use;
- a water tank with a capacity of 500 litres (132 gal.) to satisfy all operational needs;
- a thermal imaging camera;
- a **SANIJET C.921** decontamination and detoxification system;
- a **SANIJETGUN** patented special lance to carry out all decontamination operations, with a single operator;
- a **WJFE 300** drilling and **WATER MIST** system;
- a **WJFE patented lance** for drilling any material (e.g. 5 mm (0.016 inch) thick steel in 15 seconds!).

CAPABILITIES

WORK PLATFORM LOAD RATING	500 kg (1100 lb): 4 people and 180 kg (396 lb) of equipment
NOMINAL PLATFORM LOAD	250 kg (550 lb): 2 people and 90 kg (198 lb) of equipment
MAXIMUM GROUND CLEARANCE TO WORK PLATFORM	3,4 meters (11,15 ft)
WORKING PLATFORM EXTENSION	1 meter (3,28 ft)
MAXIMUM WIND SPEED	12,5 m/s (41 ft/s)

X-FOG

FIRE EXTINGUISHING PRODUCT

P/N 009080216



For more information, refer to our documents:

UP 1681

10 kg - 22 lb

Liquid form

Product life: 10 years

Product for fire extinguishing with extreme cooling effect and protection against re-ignition to be used with **FIRE STOP 200/30, WJFE 300, FIRE STOP MOTORCYCLE, BATTERY MINI FIRE STOP and STRATEVAC**



DRILLING ABRASIVE

P/N 089070064



For more information, refer to our documents:

UP 684

25 kg - 55 lb

Solid form

Abrasive product for drilling with the **WJFE 300** and its special lance.

It is composed of Ferro-silicate material and oxides.

This product does not contain hazardous mixtures or substances as per EU Regulation nr. 1272/2008



FIRE STOP 200/30... DIFFERENT INSTALLATIONS...



THE PRODUCT ALONE IS NOT ENOUGH WITHOUT DEMOS, TRAINING, TRADE SHOWS, AND CONFERENCES AROUND THE WORLD!



... AND A WORLD OF NEW APPLICATIONS!



THE PRODUCT ALONE IS NOT ENOUGH WITHOUT DEMOS, TRAINING, TRADE SHOWS, AND CONFERENCES AROUND THE WORLD!



... AND A WORLD OF NEW APPLICATIONS!



NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

TABLE OF ENGINE POWER VARIATION RELATIVE TO ELEVATION ABOVE SEA LEVEL

Combustion engines suffer power loss as altitude increases, this is caused by the reduced density of the air and the consequent decrease in the amount of oxygen available for combustion.

Ambient conditions			Table of variation of power of Diesel engines in function of the elevation above sea level											
Elevation a.s.l. (meter)	Atmospheric pressure		Rated power per (%) adjustment factor with respect of elevation a.s.l. and ambient temperature											
	hPa	Torr	0 °C	5 °C	10 °C	15 °C	20 °C	25 °C	30 °C	35 °C	40 °C	45 °C	50 °C	
0	1013.25	760	111	110	108	106	104	102	100	97	95	92	89	
100	1001.25	751	110	108	106	104	102	100	98	96	93	91	88	
200	989.25	742	108	107	105	103	101	99	97	95	92	89	87	
300	977.25	733	107	105	104	101	100	98	96	93	91	88	85	
400	966.58	725	106	104	102	100	99	96	94	92	90	87	84	
500	957.25	718	104	103	101	99	97	95	93	91	88	86	83	
600	943.92	708	103	101	99	98	96	94	92	89	87	85	82	
700	931.92	699	101	100	98	96	94	92	90	88	86	83	80	
800	921.25	691	100	98	97	95	93	91	89	87	85	82	79	
900	909.26	682	99	97	95	94	92	90	88	85	83	81	78	
1000	898.59	674	97	96	94	92	90	89	87	84	82	80	77	
1100	879.93	660	96	94	93	91	89	87	85	83	81	79	76	
1200	877.26	658	95	93	91	90	88	86	84	82	80	77	74	
1300	866.59	650	93	92	90	88	87	85	83	81	79	76	73	
1400	855.93	642	92	91	89	87	86	84	82	80	77	75	72	
1500	845.26	634	91	89	88	86	84	82	81	78	76	74	71	
1600	834.6	626	90	88	86	85	83	81	79	77	75	73	70	
1700	823.93	618	88	87	85	84	82	80	78	76	74	72	69	
1800	814.6	611	87	86	84	82	81	79	77	75	73	70	68	
1900	805.26	604	86	84	83	81	80	78	76	74	72	69	67	
2000	794.6	596	85	83	82	80	78	77	75	73	71	68	66	
2100	785.27	589	84	82	81	79	77	76	74	72	70	67	65	
2200	775.93	582	82	81	79	78	76	74	73	71	68	66	63	
2300	765.27	574	81	80	78	77	75	73	71	68	67	65	62	
2400	755.94	567	80	78	77	75	74	72	70	68	66	64	61	
2500	746.6	560	79	77	76	74	73	71	69	67	65	63	60	
2600	737.27	553	78	76	75	73	72	70	68	66	64	62	59	
2700	726.6	545	76	75	74	72	71	69	67	65	63	61	58	
2800	718.61	539	75	74	73	71	70	68	66	64	62	60	57	
2900	709.27	532	74	73	71	70	68	67	65	63	61	59	56	
3000	701.27	526	73	72	70	69	67	66	64	62	60	58	55	

Unit of measurement of atmospheric pressure

hPa (hectoPascal = 100 Pascal)
Torr (1 Torricelli = 1.33322 hPa)

Example FIRE STOP 200/30

Engine rated power: 20.8 hp at 3000 r.p.m.

Elevation a.s.l.: 1000 m

Ambient temperature: 35 °C

Per cent adjustment factor: 84 %

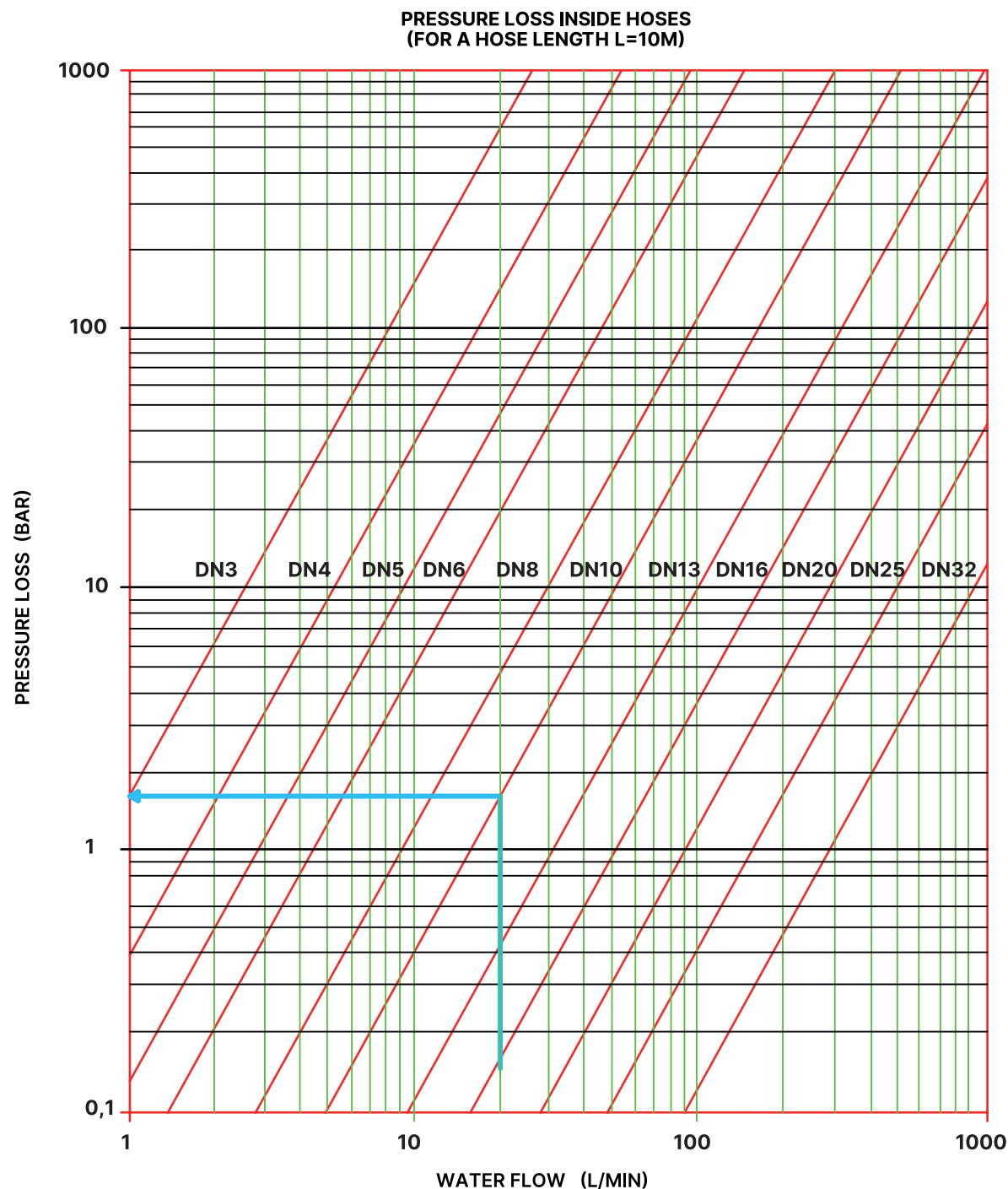
Actual Engine Power:

20.8 hp x 84 % = 17.5 hp

DIAGRAM OF PRESSURE DROP IN HIGH PRESSURE HOSES EVERY 10 M (32,8 FT) LENGTH, IN RELATION TO WATER FLOW AND DIAMETER OF THE HOSE.

Pressure loss in water pipes is the decrease in fluid pressure due to friction with the pipe walls, its internal cross-section ($\emptyset$), and its length.

These pressure losses, caused by the resistance to the motion of a fluid through a pipe, lead to an irreversible conversion of mechanical energy into heat.



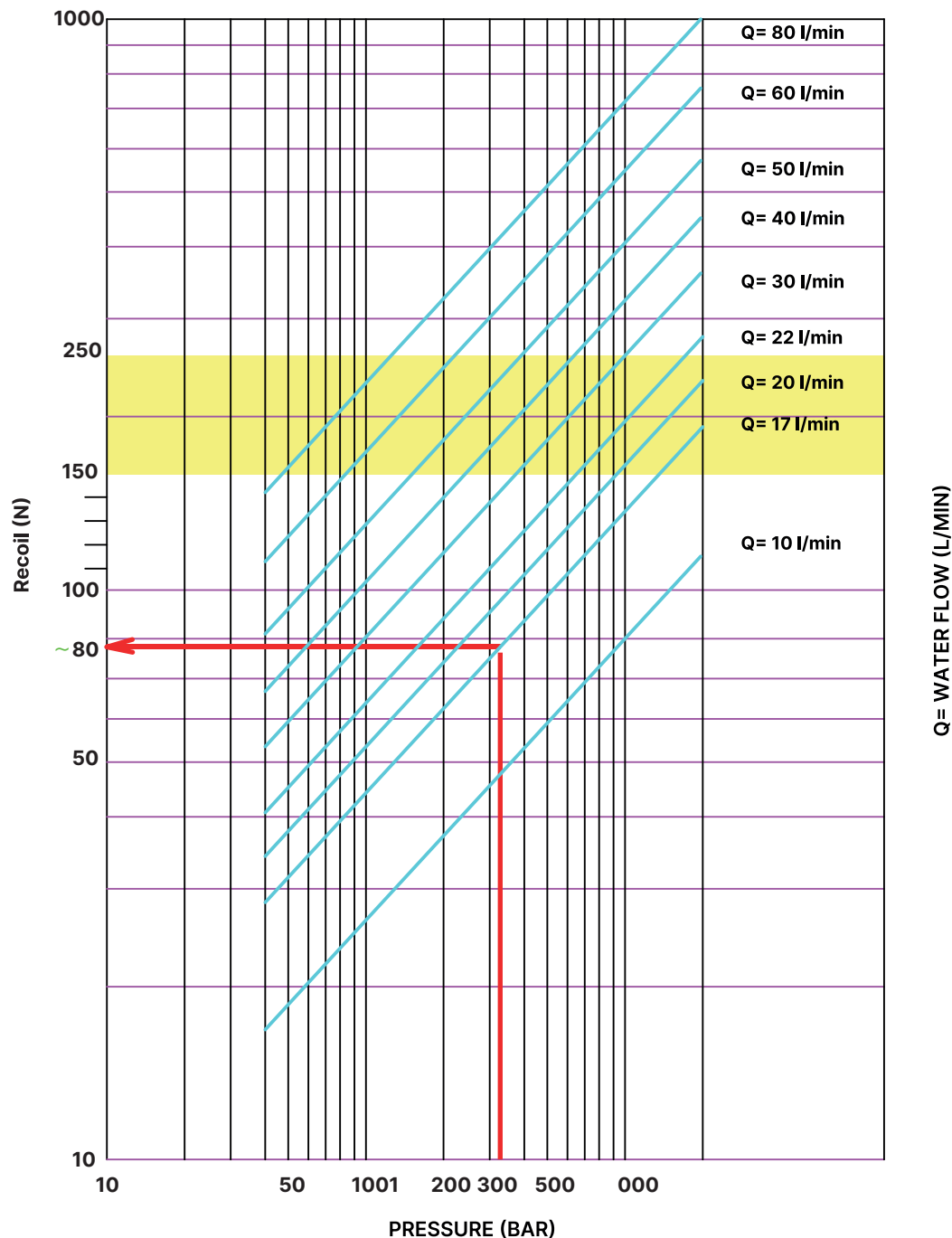
EXAMPLE:
20 L/MIN - 3/8" HOSE
PRESSURE DROP 1,8 BAR

In the selection of hose diameters, it is essential to estimate pressure drops which would cause power loss and heating of the fluid.

1 bar = 14.5 psi
1 L = 0.264 gal

DIAGRAM OF REACTION FORCE

The reaction force is the force generated on the nozzle and transmitted to the lance in the opposite direction to the water jet, and is generated by the pressure inside the tube and the kinetic force due to the motion of the nozzle. In physics, it refers to the force that one body exerts on another in response to an applied force. The key concept is the principle of action and reaction.



EXAMPLE WJFE 300:
 Pressure: 350 bar - Flow 17 L/min
 Recoil: ~80 N = 8 kg

The maximum allowable value of the jet reaction for an operator should not exceed 117.7 N (12 kg).

1 kg = 9.8066 N (Newton)
1 bar = 1.0197 kg/cm²

NOTES

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CRISTANINI spa
Via Porton, 5 - 37010 Rivoli Veronese - Verona (Italy)
Tel. +39 0456269400 - Fax +39 0456269411 - cristanini@cristanini.it



www.cristanini.com