

Pyrotechnics in the Marine Industry

WESCOM
GROUP



Pyrotechnics Distress Signals

Pyrotechnics signals have been around for a very long time, with Wescom Group’s Comet and Pains Wessex brands having over 150 years of marine heritage.

Carried and recommended by the world’s search and rescue professionals, pyrotechnic distress signals are used globally in marine emergencies. Hand flares, smoke markers, rockets, smoke and light MOBs and line thrower pyrotechnics have been part of the IMO’s SOLAS safety equipment directive for ship’s bridge and life-rafts for decades. But, in the age of AI and global satellite communications, are chemical reaction-based products relevant to a modern marine industry?

Life Saving Capabilities

Pyrotechnics unique capabilities still play a significant role in search and rescue (SAR) operations, offering a range of benefits that enhance visibility, communication, and overall effectiveness in marine emergencies.



Designed for a Marine Environment

Waterproof, reliable and self-powered - with no battery requirement and easy to deploy in time critical situations, pyrotechnics are designed to support marine search and rescue requirements



Supports Multiple Responses

From initial distress signalling to rendezvous points, area illumination or as helicopter wind indicators, pyrotechnics support multiple tasks in a complex team rescue scenario. Typically supplied in packs, the versatility of pyrotechnics mean they can be used in multiple ways in a rescue scenario.



Enhanced Visibility

Visible over long distances and few offering unique daylight detection with intense high candela brightness and colored distress smoke. Pyrotechnic signals cut through fog, rain and darkness; in the toughest environments, to offer crews a greatly improved chance of pinpointing their location in an emergency. Even post activation pyrotechnic hand flares offer residual heat signature that professional SAR crews infrared cameras can detect over great distances



Effective Signalling

Pyrotechnics offer a clear, universally recognised, unmistakable light or coloured smoke signal of distress that can’t be misinterpreted in the way electronic lights can be confused with navigation, phone or other marine illuminations.



Compliments Electronic Distress Signals

Pyrotechnics pinpoint precise physical locations, giving rescuers a visual confirmation in extreme environmental conditions, of the digital screen data received from rescue beacons or radio mayday coordinates.



Stringent Quality Controls

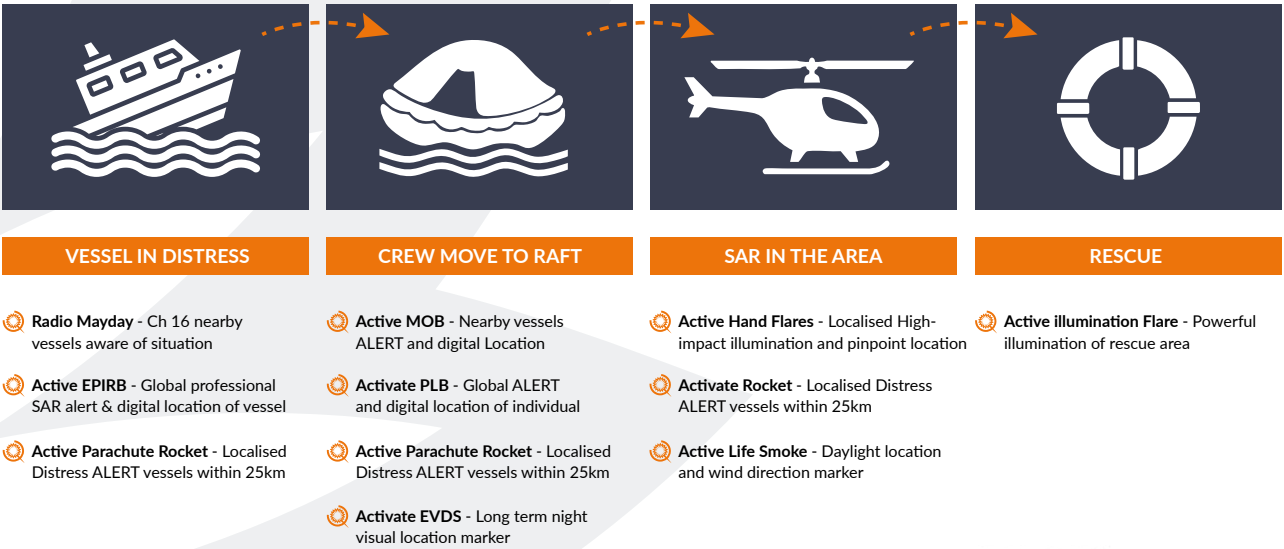
As the quality and reliability of pyrotechnics can have life changing impact, SOLAS approved pyrotechnics have comprehensive annual testing requirements on core product capabilities, such as brightness, trust, height, activation delays and combustion purity, to ensure user confidence that they will deploy and perform as intended.

Pyrotechnics as a Key Aspect in Search & Rescue

Physical Location Detection

Search and rescue distress signals are designed to work in conjunction with multiple rescue technologies, each with their own capabilities and place in the rescue cycle. (see diagram below). Pyrotechnics have a key part to play in an integrated survival plan through their life saving features of **universal recognition, daylight detection, ease of activation, powerful sudden illumination**. All of which assist the identification of a physical location – supporting the multiple electronic and radio frequency messages that confirm distress situation and digital coordinates from EPIRBs, PLBs, Radios and AIS MOBs.

Timeline of Distress Signaling Deployment



Dynamic Solution

Pyrotechnics are a SOLAS mandated safety essential in commercial vessels, found on the bridge and in liferafts and lifeboats survival packs, while leisure users are typically have combination packs suited for the vessel owners’ needs, be that inshore / offshore or SOLAS kits. Both scenarios offer a range of products that provide the crew multiple opportunities to deploy rockets, hand Flares or smoke to **attract attention, pinpoint location, provide wind strength indication** or the ability to **illuminate an area**.

Pyrotechnics are ideally suited to the dynamic nature of a rescue situation, because of the combination of instant recognition power and the wide range of capabilities that they offer, meaning those in a marine emergency have the ability to both highlight a distress situation and help rescuers identify their location.

All marine emergency products have a place in supporting crew safety, from 406MHz beacons, LED lights or man overboard devices, the core benefits are highlighting those in need of help and where to find them. Pyrotechnics compliment these technologies and offer their own unique and powerful capacities that can overcome extreme weather, darkness and poor visibility to help turn coordinates into physical locations and grab rescuers attention.



Designed for Safety

Pyrotechnics products produce signals through energetic components that produce heat and or projectiles which could be hazardous if mishandled.

Wescom's decades of experience has helped design a range that maximises user safety:

- ✓ **Activation delays** – a certified delay ensures user has time to prepare for deployment
- ✓ **Identification** – Colour coding for daylight and specific product caps to help identification of product type by touch in poor visibility.
- ✓ **Standardised instructions** – Ensure clear, safe operating guidance.
- ✓ **Handling** – Grip areas identify optimal holding position and extendable lockable handles on hand flares helps keep distance from heat.
- ✓ **Thrust** – Our products are designed to reach maximum height even in strong winds and minimise combustion on the ground.
- ✓ **Combustion purity** – our products are independently tested for combustion purity to minimise sparks or hot drips on activation.

Pyrotechnics are powerful lifesaving tools, but they require considerate use, being aware of surroundings and should be included in regular safety drills or processes to ensure safe handling during deployment.

Wescom Group Global Hubs

