










SOLAS Training Manual

Distress Signals • Lifebuoy Markers • Line Throwing Devices



Emergency Telephone No.: ++49/471/393-0

		Article	Art.-No.	Page
1		+ Parachute Signal Rocket, red	+ 9123100	3+
2		+ Handflare, red (as of 01/03)	+ 9162800	7+
3		+ Handflare, red	+ 9132800	11+
4		+ Smoke Signal, orange	+ 9132000	15+
5		+ Lifebuoy Light/Bracket Lifebuoy Light	+ 9120500/9120600	19+
6		+ Light-Smoke Signal (as of 04/02)	+ 9161600	23+
7		+ Light-Smoke Signal	+ 9121600	29+
8		+ Line Throwing Device (Single Shot System)	+ 9160400	33+
9		+ Line Throwing Device 250	+ 9110400	37+

Training Manual

Parachute Signal Rocket, red

Art.-No. 9123100



1



1

General

A parachute signal rocket, red, is a pyrotechnic aerial flare to alert potential rescue craft from a distance. The rockets should be used when a vessel is at sight. The rocket will fly to a minimum height of 300 meters. At the top of the trajectory a red flare with 30,000 candela will be ejected with its parachute. The burning time is 40 seconds.

A red flare with a height of 300 meters can be seen in a clear night for more than 30 nautical miles.

Stowage

Parachute signal rockets, red, are provided on the ship's bridge (12 pcs.), in liferafts and lifeboats (each 4 pcs.).

Description

The COMET parachute signal rocket, red, Art.-No. 9123100, consists basically of 2 main components:

1. The launching tube with integral ignition system (pull wire igniter).
2. The rocket with
 - the rocket motor
 - the red flare attached to the parachute.

Remarks

Do not use parachute signal rockets after date of expiry.

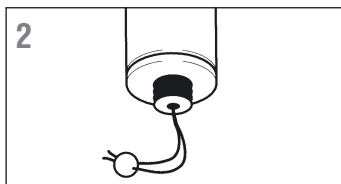
Date of expiry is printed on the parachute signal rocket.

Use parachute signal rockets only in an emergency at sea.

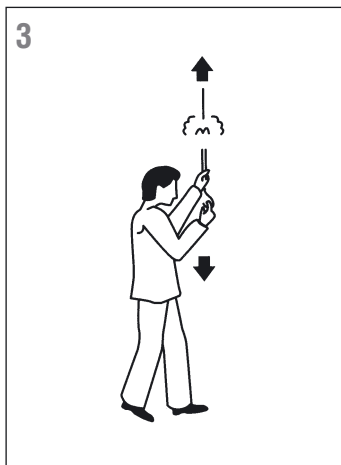
According to the instructions for use printed on the signal



Remove screw cap.



Grab the ball.



Hold the rocket at an angle 90° over your head, look sideways and pull ignition cord firmly.

The rocket ignites instantaneously.



Art.-No. 9123100

1

Application

Distress signal for ships (bridge), lifeboats and liferafts conforming to SOLAS 74/88.

Technical Data

- Length: 295 mm
- Diameter: 32 mm
- Diameter at handle: 38 mm
- Weight: 270 g
- Launching tube: high impact polystyrene
- Altitude: 300 m
- Burning time: 40 sec.
- Light intensity: 30,000 cd.

The rockets are hand operated. The recoil is negligible.

Packing

1. 30 Parachute rockets: 1 tin can in a packing case (approx. 9.85 kg)
 2. 60 Parachute rockets: 2 tin cans in a packing case (approx. 18.2 kg)
- Single rocket: Sealed polyethylene bag

Function (in principle)

A friction igniter will ignite the rocket.

At a height of 300 m the flare is ignited and ejected.

Hazardous Ingredients

Mixture of: Black powder, strontium nitrate, potassium perchlorate, magnesium, polyvinylchloride, binder

Fire and Explosion Data

- Flash point: 71°C (160°F)
- Special Fire Fighting Procedures: Once ignited the device cannot be extinguished.

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition products: Magnesiumoxide, NOx when burned.
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies.

Routine Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

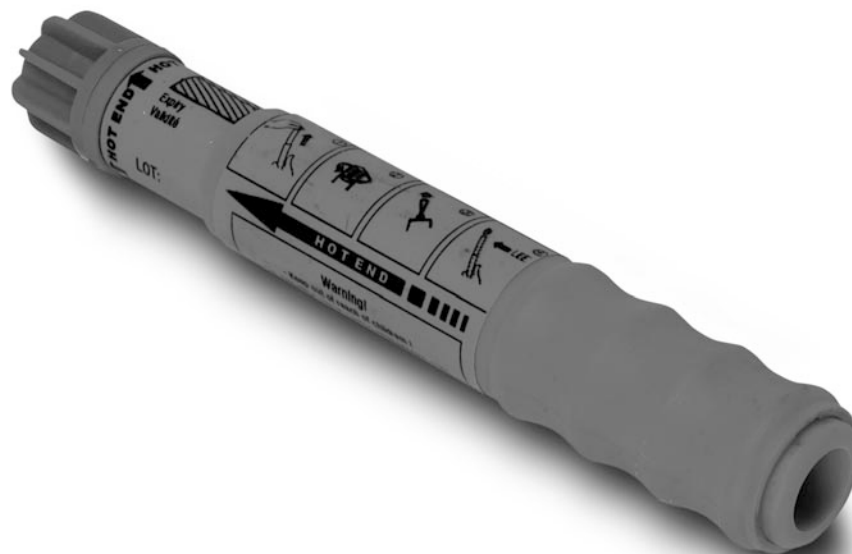
Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

- Dangerous goods classification: 1.4.G
UN code no.: UN0431



General

2 A handflare is a pyrotechnic signal designed to be handheld throughout its burning time. Use it when you can see the rescue vessel approaching you.

The red flare has a light intensity of at least 15,000 candela and a burning time of at least 60 seconds.

The flare can be seen up to 6 nautical miles at night and 1 nautical mile in daylight.

Stowage

Handflares, red, are provided in liferafts and lifeboats (each 6 pcs.).

Description

The COMET handflare, red, Art-No. 9162800, is equipped with a pull wire igniter, a simple and reliable means of ignition.

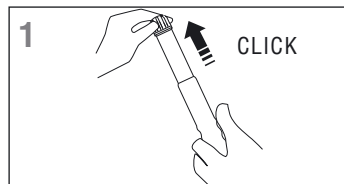
Remarks

Do not use handflares after date of expiry.

Date of expiry is printed on the handflare, red.

Use handflares only in an emergency at sea.

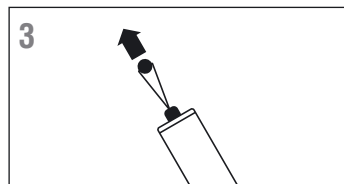
According to the instructions for use printed on the signal



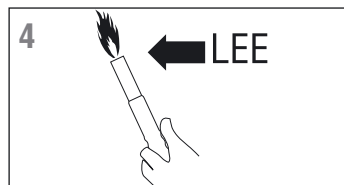
Pull flare out of grip tube until engaged.



Unscrew cap.



Pull ignition cord firmly.



Hold flare at bottom and downwind while burning.



Art.-No. 9162800

Application

Distress signal for lifeboats and liferafts conforming to SOLAS 74/88 as well as for small vessels and leisure crafts.

Technical Data

- Length: 175 mm
- Length with handle folded out: 280 mm
- Weight: 160 g
- Ignition: Pull wire igniter with 2 sec. delay
- Burning time: 60 sec.
- Light intensity: 15,000 cd.

The handflares are drip-proof while burning.

Packing

100 handflares: 1 packing case (17 kg)
Single Flare: Sealed polyethylene bag

Function (in principle)

Ignition of the handflare with the friction igniter pulling the cord.

Hazardous Ingredients

Mixture of: Strontium nitrate, barium peroxide, potassium perchlorate, magnesium, blackpowder, polyvinylchloride

Fire and Explosion Data

- Flash point: 71°C (160°F)
- Special Fire Fighting Procedures: Once ignited the device cannot be extinguished
- Extinguishing media for secondary fires: water

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition products: Magnesiumoxide, NOx when burned
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies or fire brigades.

Routing Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification: 1.4.G
UN code no.: UN0191



General

A handflare is a pyrotechnic signal designed to be handheld throughout its burning time. Use it when you can see the rescue vessel approaching you.

The red flare has a light intensity of at least 15,000 candela and a burning time of at least 60 seconds.

The flare can be seen up to 6 nautical miles at night and 1 nautical mile in daylight.

Stowage

Handflares, red, are provided in liferafts and lifeboats (each 6 pcs.).

Description

The COMET handflare, red, Art-No. 9132800, is equipped with a pull wire igniter, a simple and reliable means of ignition.

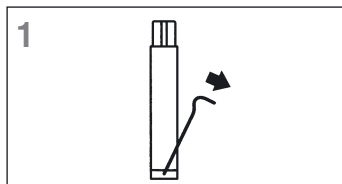
Remarks

Do not use handflares after date of expiry.

Date of expiry is printed on the handflare, red.

Use handflares only in an emergency at sea.

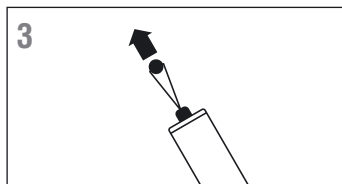
According to the instructions for use printed on the signal



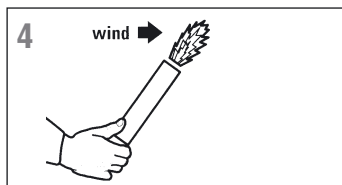
Flip handle down.



Remove screw cap.



Pull ignition cord firmly.



Hold flare downwind.



3

Art.-No. 9132800

Application

Distress signal for lifeboats and liferafts conforming to SOLAS 74/88 as well as for small vessels and leisure crafts.

Technical Data

- Length: 170 mm
- Length with handle folded out: 270 mm
- Weight: 160 g
- Ignition: Pull wire igniter with 2 sec. delay
- Burning time: 60 sec.
- Light intensity: 15,000 cd.

The handflares are drip-proof while burning.

Packing

100 handflares: 1 packing case (17 kg)
Single Flare: Sealed polyethylene bag

Function (in principle)

Ignition of the handflare with the friction igniter pulling the cord.

Hazardous Ingredients

Mixture of: Strontium nitrate, barium peroxide, potassium perchlorate, magnesium, blackpowder, polyvinylchloride

Fire and Explosion Data

- Flash point: 71°C (160°F)
- Special Fire Fighting Procedures: Once ignited the device cannot be extinguished
- Extinguishing media for secondary fires: water

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition products: Magnesiumoxide, NO_x when burned.
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies or fire brigades.

Routing Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification: 1.4.G
UN code no.: UN0191

Training Manual
Smoke Signal, orange, 4 minutes

Art.-No. 9132000



4

General

A smoke signal, orange, is a floating day light signal to locate the position of a lifeboat or liferaft. The smoke cloud and the visibility of the smoke depends on the speed of the wind. The smoke will spread over the water surface, which makes it clearly visible for aircrafts. It is safe on oil or petrol covered water.

Stowage

Smoke signal, orange, is provided in liferafts and lifeboats (each 2 pcs.).

Description

The COMET smoke signal, orange, Art.-No. 9132000, is equipped with a pull wire igniter. The smoke duration is 4 minutes.

Remarks

Do not use smoke signals after date of expiry.

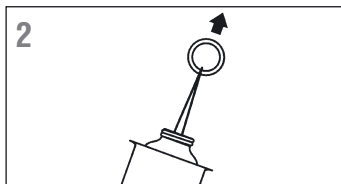
Date of expiry is printed on the smoke signal, orange.

Use smoke signal only in an emergency at sea.

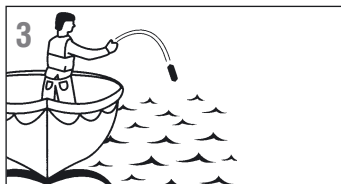
According to the instructions for use printed on the signal



Remove the lid.



Pull striker ring firmly.



Throw signal overboard, downwind.



Application

Distress signal for lifeboats and liferafts conforming to SOLAS 74/88. Floating smoke buoy for marking purpose.

Technical Data

- Height: 150 mm
- Diameter: 80 mm
- Weight: 575 g
- Smoke duration: at least 4 min.

The signal is safe on oil and petrol covered water.

Packing

18 smoke signals: 1 packing case (approx. 12 kg)

Function (in principle)

Ignition of the signal by a friction igniter after pulling the cord.

Hazardous Ingredients

Mixture of: Orange dye, potassium chlorate, milk sugar, stearic acid, barium nitrate, black powder.

Fire and Explosion Data

- Flash point: 71°C (160°F)
- Special Fire Fighting Procedures: Once ignited the device cannot be extinguished.

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition: CO₂, smoke colour as sublimate when burned. May stain surfaces.
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies or fire brigades.

Routine Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification: 1.4.G
UN code no.: UN0197

Training Manual
Lifebuoy Light/Bracket Lifebuoy Light

Art.-No. 9120500/9120600



General

A lifebuoy light marks the position of a lifebuoy. It is attached to the lifebuoys on board the ship. In case of a man overboard, the lifebuoy will be thrown overboard together with the lifebuoy light. It marks the position of the lifebuoy for the person who has gone overboard and for the ship or the rescue boat.

Stowage

Lifebuoy lights are provided on ships (a lifebuoy light is connected to every second lifebuoy, minimum is 2 lifebuoy lights per ship).

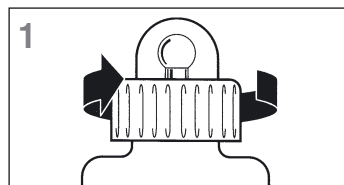
Description

The COMET lifebuoy light is a dry cell powered light equipped with a tilt switch for automatic function. It burns for two hours with a light intensity of at least 2 candela and is safe on oil or petrol covered waters.

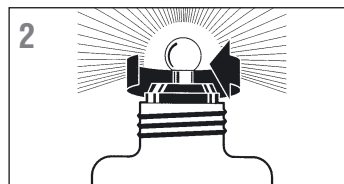
Remarks

Bulbs: 4V/0.6 Amp.
Batteries: 5 monocells 1.5V LR 20

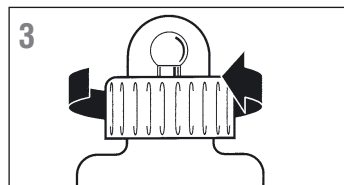
Instructions for use are printed on the signal.



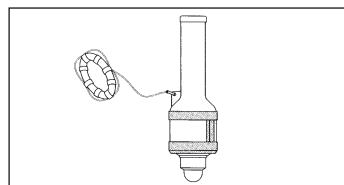
Unscrew dome.



Tighten bulb.



Replace and tighten dome firmly.



Install lifebuoy light into bracket with the light in downward position.

Tie the line to a lifebuoy.

In case of an emergency (man overboard) throw the light over board together with the lifebuoy.



Art.-No. 9120500
Art.-No. 9120600

Application

Lifebuoy marker conforming to SOLAS 74/88. Safe on oil or petrol covered water.

Technical Data

- Bulb: 4 Volt, 0.6 Amp.
- Batteries: 5 monocells 1.5 Volt
- Length: 380 mm
- Weight: 1,080 g
- Burning time: 2 hours with 2 cd.
- Light intensity: 2 cd.
- Activation: self-activating by tilt switch
- Connecting line: 2.5 m perlon line

The light will only function when upright.

Fastening on board with Bracket Lifebuoy Light, Art.-No. 9120600

Unit Packing

Unit packing in polyethylene bag.

DG-References

Non-dangerous



General

A light-smoke signal, orange, is attached to the lifebuoys located on both bridge wings. In case of a man overboard the lifebuoy will be released together with the light-smoke signal. The signal emits orange smoke and electric light to mark the position of the lifebuoy for the person who went over board and for the ship or the rescue boat. The smoke duration is 15 minutes and the duration of both lights is 2 hours with at least 2 candelas light intensity.

Stowage

Light-smoke signals, orange, are provided on the ship's bridge (1 on each bridge wing attached to the lifebuoys).

Description

The COMET light-smoke signal, orange, Art.-No. 9161600, consists of 4 main components:

1. The smoke signal (orange colour 15 minutes).
2. Two electric lights (2 hours, 2 candelas).
3. Ignition by percussion fuse.
4. A float collar.

The light-smoke signal is safe on oil or petrol covered waters. The lithium battery **is not** replaceable.

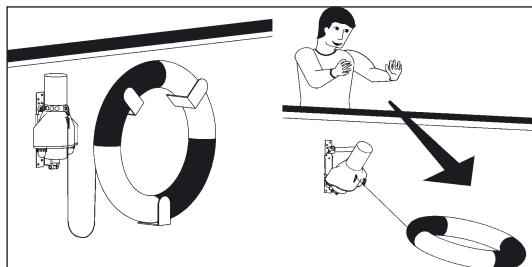
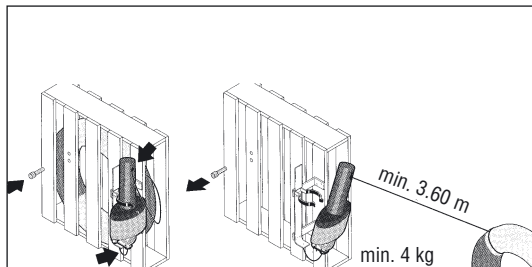
Remarks

Do not use light-smoke signals after date expiry.

Date of expiry is printed on the light-smoke signal.

Use light-smoke signals only in an emergency at sea.

Release of the Light-Smoke Signal

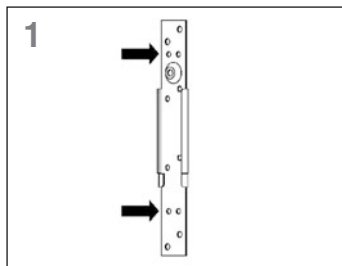


Pull locking pin of the lifebuoy chute. The signal automatically falls out of the chute or...

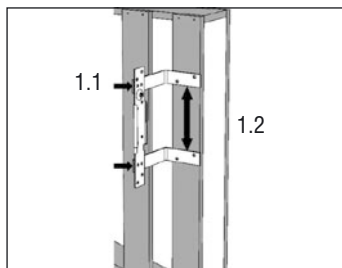
...throw the lifebuoy overboard.
The signal automatically falls down together with the lifebuoy.



Art.-No. 9161600

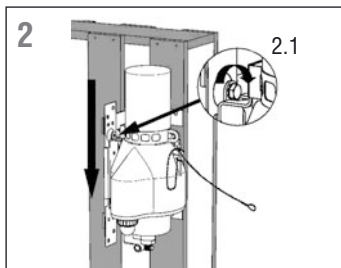


Fasten adapter rail on outside of bridgewings/bulwarks.

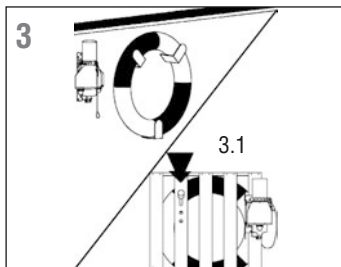


With lifebuoy-shute:

Fasten right-angled bracket outboard side of the lifebuoy-shut (1.1).
Screw mounting rail to right-angled bracket (1.2).



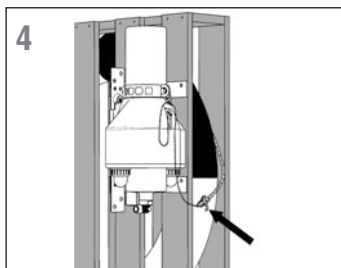
Insert Light-Smoke Signal with Bracket (Art.-No. 9161600) into adapter rail. Fasten device with lock screw at adapter rail (underlay locking washer) (2.1.). Do not release the device! In accordance with the performance standard of IMO resp. SOLAS a light test is not necessary.



Install lifebuoy into bracket.

With lifebuoy-shute:

Put lifebuoy into lifebuoy-shute and fix by means of locking pin. (3.1.).



Tie the connection-line of the lifebuoy with the pull cord of the Light-Smoke Signal.

NOTE: Avoid at any time strong tension to be effected on the safety clip of the pull cord. Danger of unintentional release of the signal!

Application

Equipment for marking a lifebuoy in man overboard cases by means of an electric light signal and a smoke signal conforming to SOLAS 74/88.

Technical Data

Bulbs:	2 x 2.4 Volt, 1.2 Amp.
Battery:	1 x Lithium battery with 2.6 V
Length:	453 mm
Diameter:	275 mm
Weight:	4.7 kg
Smoke duration:	15 minutes
Burning time:	2 hours
Light intensity:	2 cd.

Packing

2 Light-Smoke Signals with brackets: 1 packing case (approx. 19.5 kg)

Technical Description

The release of the signal is automatical when attached to a lifebuoy of minimum 4 kg, which is launched from a lifebuoy-slide or by hand. The smoke signal will be activated by percussion fuse and the electric lights will be switched on automatically. The smoke signal emits dense orange smoke for a total of 15 minutes. The signal is safe on oil or petrol covered water. The signal is manufactured of seawater resistant aluminium and plastic.

Function (in principle)

Ignition of smoke by a percussion fuse after pulling the Light-Smoke Signal out of the bracket. The light will switch on automatically.

Hazardous Ingredients

Mixture of: Orange Dye, potassium chlorate, barium nitrate, black powder

Fire and Explosion Data

- Flash point: 71°C (160°F)
- Special Fire Fighting Procedures: Once ignited the device cannot be extinguished.
- Extinguishing media for secondary fires: water.

Reactive Data

- | | |
|-----------------------------------|---|
| Stability: | Stable. Do not expose to temperatures above 71°C (160°F). |
| Incompatibility: | N.A. |
| Hazardous decomposition products: | CO ₂ , smoke colour as sublimate. |
| Hazardous polymerisation: | Does not occur. |

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies.

Routine Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification:	1.4S
UN code no.:	UN0432



General

A light-smoke signal, orange, is attached to the lifebuoys located on both bridge wings. In case of a man overboard the lifebuoy will be released together with the light-smoke signal. The signal emits orange smoke and electric light to mark the position of the lifebuoy for the person who went over board and for the ship or the rescue boat. The smoke duration is 15 minutes and the duration of both lights is 2 hours with at least 2 candelas light intensity.

Stowage

Light-smoke signals, orange, are provided on the ship's bridge (1 on each bridge wing attached to the lifebuoys).

Description

The COMET light-smoke signal, orange, Art.-No. 9121600, consists of 4 main components:

1. The smoke signal (orange colour 15 minutes).
2. Two electric lights (2 hours, 2 candelas).
3. Igniter with 2 pull wire igniters for double security.
4. A float collar.

The light-smoke signal is safe on oil or petrol covered waters. The lithium battery **is not** replaceable.

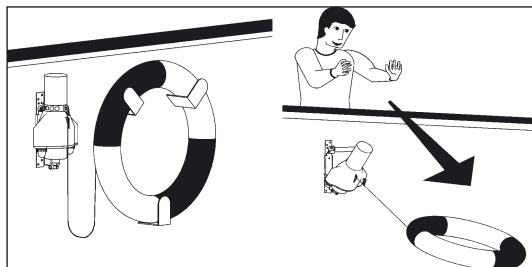
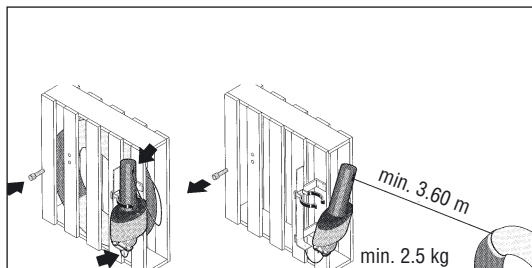
Remarks

Do not use light-smoke signals after date expiry.

Date of expiry is printed on the light-smoke signal.

Use light-smoke signals only in an emergency at sea.

Release of the Light-Smoke Signal



Pull locking pin of the lifebuoy chute. The signal automatically falls out of the chute or...

...throw the lifebuoy overboard.
The signal automatically falls down together with the lifebuoy.



Art.-No. 9121600

Application

Equipment for marking a lifebuoy in man overboard cases by means of an electric light signal and a smoke signal conforming to SOLAS 74/88.

Technical Data

Art.-No. 9121600 Light-Smoke Signal

- Bulbs: 2 x 2.4 Volt, 1.2 Amp.
- Battery: 1x Lithium-SO₂-primary cell
- Length: 540 mm
- Diameter: 275 mm
- Weight: 6.3 kg
- Smoke duration: 15 minutes
- Burning time: 2 hours
- Light intensity: 2 cd.

Art.-No. 9121400 Bracket Light-Smoke Signal

- Length: 495 mm
- Weight: 2.4 kg

Packing

2 Light-Smoke Signals with brackets: 1 packing case (approx. 19,5 kg)

Technical Description

The release of the signal is automatical when attached to a lifebuoy of minimum 2.5 kg, which is launched from a lifebuoy-slide or by hand. The smoke signal will be activated by a pull wire igniter and the electric lights will be switched on by a tilt switch.

The smoke signal emits dense orange smoke for a total of 15 minutes. The signal is safe on oil or petrol covered water. The signal is manufactured of seawater resistant aluminium and plastic.

Function (in principle)

Ignition of smoke by a friction igniter after pulling the wire. The light will switch on when the signal is in the upright position.

Hazardous Ingredients

Mixture of: Orange Dye, potassium chlorate, milk sugar, stearic acid, barium nitrate, black powder

Fire and Explosion Data

- Flash point: 71°C (160°F)
- Special Fire Fighting Procedures: Once ignited the device cannot be extinguished.

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition products: CO₂, smoke colour as sublimate.
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies.

Routine Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification: 1.4.G
UN code no.: UN0431

Training Manual
Line Throwing Device (Single Shot System)

Art.-No. 9160400



General

The line throwing device provides a line connection between ships or ship to shore.

Stowage

To be stored on the ship's bridge. SOLAS requires 4 units on board commercial vessels.

Description

The COMET Line Throwing Device consists of the following components:

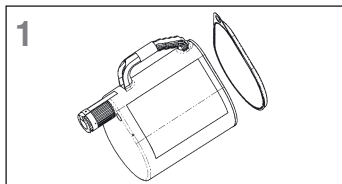
- 1 device (1 shot) incl. rocket (spare rocket art. no. 9112700) and line

The device has a throwing range of between 230 m and 250 m, it is therefore always advisable to come as close as possible before making line connections. A solid propellant is used which guarantees a highly accurate flight path even with stronger sidewinds.

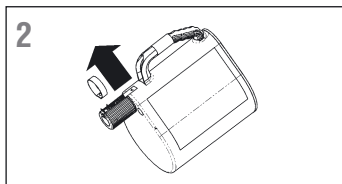
Remarks

Do not use rockets after date of expiry. Date of expiry is printed on the rocket. The device must only be used with the 9112700 rocket. **In case of a misfire keep holding device towards target and remove rocket after 30 seconds.** During training make sure that there is nobody inside the safety zone of 400 m in front (in firing direction) and 250 m either side of the firing point.

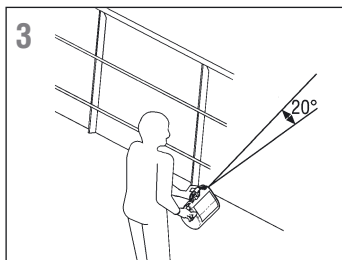
According to the instructions for use printed on the signal



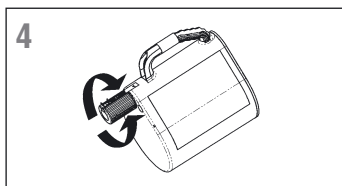
Remove lid.



Pull safety pin.



Aim at target.



Turn grip to left or right to fire.



Art.-No. 9160400

Application

Establishing of line connections in sea distress situations.

Technical Data

- Throwing range: 250 m
- Braided line: Perlon, 4 mm diameter, breaking strength of knotted line (1/2 lay) 2000 Newton (200kp)
- Rocket: solid rocket propellant in steel shell with holder for attaching the line and integral ignition cartridge
- Measurement: approx. H 313 mm x W 205 mm x L 330 mm
- Weight: approx. 4.3 kg

Packing

1 device (1 shot) incl. rocket and line in packing case

Function (in principle)

A percussion igniter will ignite the rocket.

Hazardous Ingredients

Mixture: Double base propellant, Boron, Potassium nitrate

Fire and Explosion Data

- Flash point: 170° C (338°F)

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition products: CO₂, NO_x, water vapour.
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies.

Routine Handling Precautions

Avoid heating or impact as fire may occur.

Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.

Devices are to be stored in accordance with using local regulations.

Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification: 1.4.G
UN code no.: UN0431

Training Manual
Line Throwing Device 250

Art.-No. 9110400



General

The line throwing device provides a line connection between ships or ship to shore.

Stowage

Complete set (rocket launcher, 4 rockets, 4 lines) packed in a metal case and stored on the ship's bridge.

Description

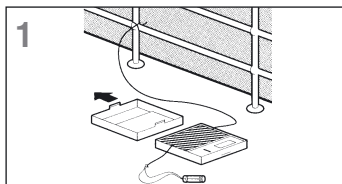
The COMET Line Throwing Device consists of the following components:

- 1 rocket launcher (Art.-No. 9111600)
- 4 rockets with integral ignition cartridge (Art.-No. 9112700)
- 4 perlon lines , 260 meters long (Art.-No. 9114200)
- 1 storage case (Art.-No. 9161300).

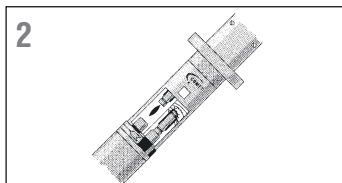
The rockets with lines have a throwing range of between 230 m and 250 m, it is therefore always advisable to come as close as possible before making line connections. A solid propellant is used which guarantees a highly accurate flight path even with stronger side winds.

Remarks

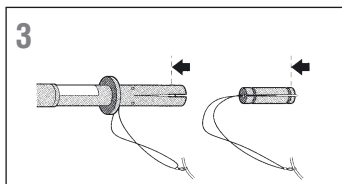
Do not use rockets after date of expiry. Date of expiry is printed on the rocket. The 9111600 launcher must only be used with the 9112700 rocket. The line throwing device must always be used with Art.-No. 9114200 lines provided. Before re-loading, point barrel of launcher downwards so that the used ignition caps fall out. **In case of a misfire keep holding device towards target and remove rocket after 30 seconds.** During training make sure that there is nobody inside the safety zone of 400 m in front (in firing direction) and 250 m either side of the firing point.



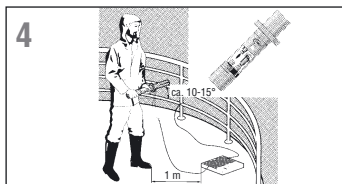
Remove cover from box containing rocket and line. Secure end of line (marked green) to a strong point. **Make sure that the green marked end of the line is completely removed from the package.**



Turn the rotatable handle of the launcher, Art.-No. 9111600, into the loading position (**black markings in line**).



Insert the rocket into launcher with the harness in slots, as far as it will go.



Stand back **1 meter behind** the box. Hold the launcher with both hands (as illustrated) with the COMET sign upward. **Both hands must be behind the black rubber guard ring.** Hold the launcher to the side of the body at hip level and an angle of 15° to 20°. **Never raise the launcher to eye level. Do not hold the line or the harness wire.** To fire, turn handle to the left in direction of the arrow until the red markings are in line.



Art.-No. 9110400

Application

Establishing of line connections in sea distress situations.

Technical Data

- Throwing ranges:

Art.-No. 9110200 =	100 m
Art.-No. 9110400 =	250 m
Art.-No. 9110600 =	400 m
- Braided lines:

Art.-No. 9110200/9110400	
Perlon, 4 mm diameter, breaking strength of knotted line (1/2 lay) 2000 Newton (200kp)	
Art.-No. 9110600	
Perlon, 3 mm diameter, breaking strength of knotted line (1/2-lay) 1600 Newton (160kp)	
Length Art.-No. 9110200 =	120 m
Length Art.-No. 9110400 =	260 m
Length Art.-No. 9110600 =	450 m
- Launcher: seawater resistant, of aluminium and stainless steel
- Rocket: solid rocket propellant in steel shell with holder for attaching the line and integral ignition cartridge
- Storage box: zinc-plated, steel, painted red
dimensions: 510 x 405 x 325 mm

Packing

- | | |
|----------------------------------|---|
| 1 braided line and 1 rocket: | 1 packing case |
| 1 Line Throwing Device complete: | 1 storage box (approx. 28 kg)
(Art.-No. 9110200 = 18 kg) |

Technical Data

Art.-No. 9110200 Line Throwing Device, 100

- | | |
|--|------------------|
| 1 Storage case | Art.-No. 9161300 |
| 1 Rocket Pistol | Art.-No. 9111600 |
| 4 Rockets 100, with integral ignition cartridge | Art.-No. 9112500 |
| 4 Braided lines, 120 m, directions for use, cleaning agent | Art.-No. 9114000 |

Art.-No. 9110400 Line Throwing Device, 250, SOLAS

- | | |
|--|------------------|
| 1 Storage case | Art.-No. 9161300 |
| 1 Rocket Pistol | Art.-No. 9111600 |
| 4 Rockets 250, with integral ignition cartridge | Art.-No. 9112700 |
| 4 Braided lines, 260 m, directions for use, cleaning agent | Art.-No. 9114200 |

Art.-No. 9110600 Line Throwing Device, 400

- | | |
|--|------------------|
| 1 Storage case | Art.-No. 9161300 |
| 1 Rocket Pistol | Art.-No. 9111600 |
| 2 Rockets 400, with integral ignition cartridge | Art.-No. 9112800 |
| 2 Braided lines, 450 m, directions for use, cleaning agent | Art.-No. 9114500 |

Accessory – not included with line throwers:

- | | |
|--|------------------|
| Prong frame with box for coiling lines | Art.-No. 9115200 |
|--|------------------|

The line throwing device 250 meets SOLAS requirements, 1974, Part III, Rule 23. The line throwing device is easy to operate and ready to fire in a short notice: Insertion of the rocket into the rocket launcher and attachment of the braided line. Insertion of the ignition cartridge is not necessary since it is integral part of the rocket. The long burning time of the rocket provides satisfactory accuracy on target even at higher wind velocities. The line throwing devices are nearly recoilless. The line throwing device is made of corrosion-proof and seawater resistant material.

Function (in principle)

Usage only with COMET rocket launcher. Ignition of the rocket with a percussion igniter.

Hazardous Ingredients

Mixture: Double base propellant, Boron, Potassium nitrate

Fire and Explosion Data

- Flash point: 71°C (160°F)

Reactive Data

- Stability: Stable. Do not expose to temperatures above 71°C (160°F).
- Incompatibility: N.A.
- Hazardous decomposition products: CO₂, NO_x, water vapour.
- Hazardous polymerisation: Does not occur.

Spill/Leak Procedure

Avoid ignition of spilled or released material.

Waste disposal: Devices should be disposed of by authorised disposal agencies.

Routine Handling Precautions

Avoid heating or impact as fire may occur.
Fire extinguishers must be on hand during handling, transport and storage.

Special Precautions

Storage should be in dry area safe from sparks and fire.
Devices are to be stored in accordance with using local regulations.
Avoid ignition of defective material.

Usage

All devices must be used in accordance with operating instructions.

DG-References

Dangerous goods classification:	1.3.G
UN code no.:	UN0240

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A company of
the Diehl Group



Comet GmbH
Pyrotechnik · Apparatebau

Vieländer Weg 147
D-27547 Bremerhaven
Germany

Phone ++49(0)471-393-0
Fax ++49(0)471-393-94

www.comet-pyro.de
info@comet-pyro.de

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