

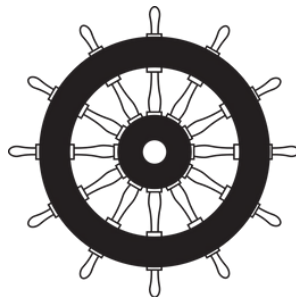
Hell Sea

The world's first fireproof and watertight certified penetration system for exhaust pipes

Hell



Sea



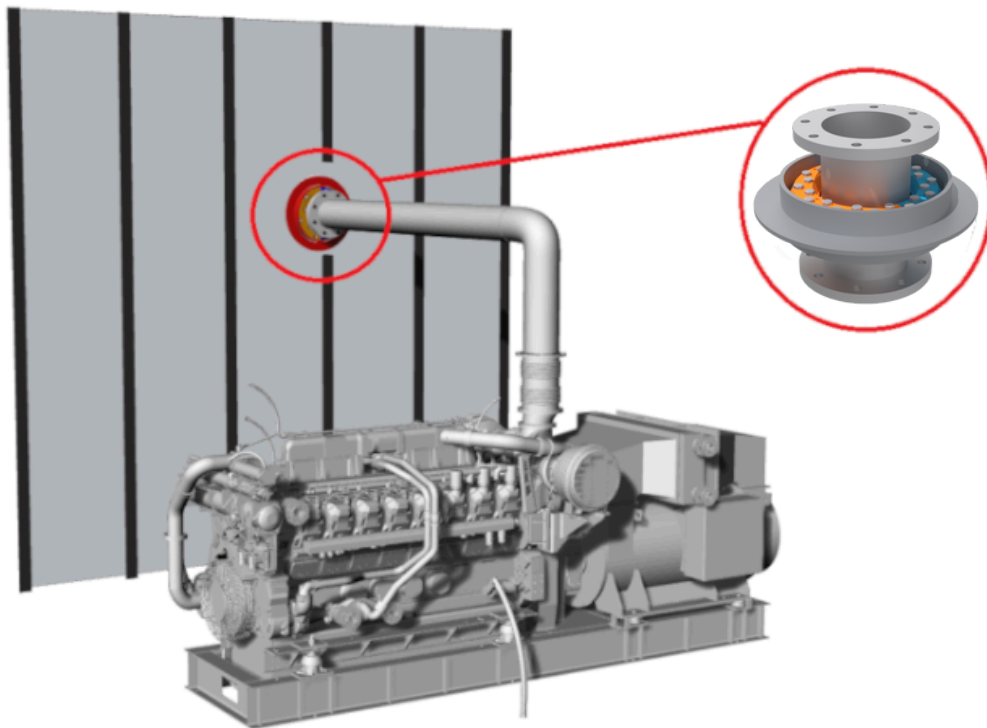
IT'S A MATTER OF SAFETY

Hell Sea is the first watertight and fireproof penetration system in the world for bulkheads and decks, designed for exhaust pipes at high temperatures, featuring the finest profile ever achieved.

The Hell Sea project was conceived to meet the new safety regulations imposed by various naval registers.

Developed by our team of experienced engineers, it allows high-temperature exhaust pipes to pass through different sections of the vessel without compromising comfort or design.

Manufactured with fireproof and watertight materials, it ensures maximum safety. Hell Sea is extremely easy to assemble.



THE BEST SOLUTION FOR YOUR VESSEL

Hell Sea was created to comply with the new standards imposed by naval registers concerning the passage of exhaust pipes.

After extensive engineering studies, we developed this solution consisting of two flanges compressing a special gasket. This configuration makes Hell Sea both fireproof and watertight, ensuring maximum safety between the vessel's different compartments.

In 2013, during the development of a Hell Sea prototype aimed at solving issues related to exhaust gas pipe penetration, the team encountered fire damage caused by exposed exhaust pipes at an Italian shipyard.

To address this issue, the first Hell Sea prototype was designed and tested, successfully meeting all requirements set by naval classification societies. The original exhaust pipes were later upgraded with the first certified Hell Sea connection.

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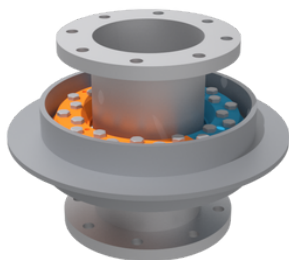
Standard Kit

The **Hell Sea** standard kit is composed of fireproof and watertight materials, it guarantees high safety.

It is made up of two metal flanges that compress a fireproof and watertight ceramic packing.

It is also pre-assembled (certified ISO 9001) with a section flanged pipe so that it can be installed on the pre-existing pipeline.

For this reason the Hell Sea standard kit is extremely easy to assemble, indeed just one welding intervention is required.



Features & Benefit

- Certified and patented Watertight 2Bar and A60 Fireproof
- Resistant to very high temperatures
- Prevents vibrations
- Minimises heat dispersion
- Pre-Assembled kit ready for installation

Applications:

- Available in different sizes to fit common metal pipes ranging from DN32 to DN1000
- Approved for use with common metallic pipes especially for exhaust gas pipes



Hell Sea standard installation

Hell Sea fittings must be welded to the fire-rated division for fast installation, either at sea or in dry dock.

They can be installed on a standard or eccentric penetration.

Easy installation:

1. Make a hole according to the table
2. Weld the external lintel to the structure
3. Always connect or align the pipeline to the pipe section flanges.
Do not move any part of the kit to fit the pipeline

Retrofits installation:

1. On board survey to check the penetration setup
2. After the inspection, the installation procedure is the same as for a standard application.



Hell Sea
INNOVATIVE SAFETY SYSTEM

Also available for
eccentric pipe line



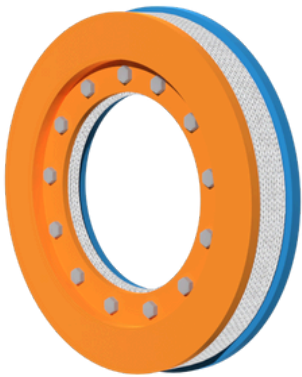
Hell Sea V.2

The **Hell Sea** V.2 kit is composed of fireproof and watertight materials, it guarantees high safety.

It is made up of two metal flanges that compress a fireproof and watertight packing.

It is entirely assembled from our technicians on board (certified ISO 9001) also available with a section flanged pipe.

The Hell Sea V.2 kit is extremely easy to install, no intervention from the customer is required, as installation is carried out by a specialized technician. No welding operations are needed, since no shell ring is required.



Features & Benefit

- Certified and patented 2Bar Watertight and A60 Fireproof
- Resistant to very high temperatures
- Prevents vibrations
- Minimises heat dispersion
- Pre-Assembled kit ready for an easy installation



Applications:

- Available in different sizes to fit common metallic pipes ranging from DN32 to DN1000
- Approved for use with common metallic pipe especially for exhaust gas pipe



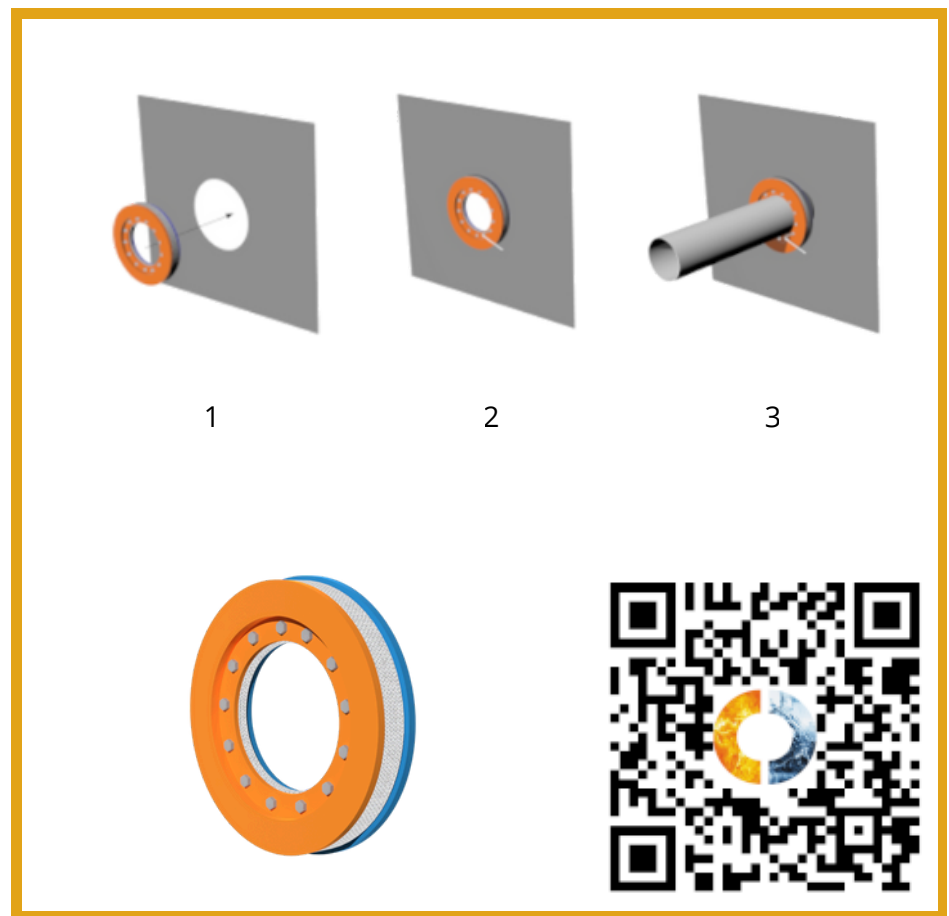
Hell Sea V.2 installation

Hell Sea fitting must be screwd to the fire-rated division for fast installation, either at sea or in dry dock.

Easy installation:

1. Make a hole according to the table
 2. The specilized technician will Screw the external flange in order to press the packing and make it adhere to the bulkhead/deck
 3. Always connect or align the pipeline to the pipe section flanges.
- Do not move any part of the kit to fit the pipeline

**Discover more
on our website
www.hellsea.it**



Hell Sea

Different configuration:



Hell Sea Slim Kit

The Hell Sea Slim Kit is the smallest solution of the Hell Sea product line, it can be installed on bulkhead or deck in really tight spaces.

Dimensional range from DN32 to DN1000,
Available connections: V-Band / PN6 Flange
The connection flanges can be customized.



Hell Sea Slim Curve Kit

The Hell Sea Slim Kit is the slim solution with a pipe section customizable as appropriate.

Dimensional range from DN32 to DN1000,
Available connections: V-Band / PN6 Flange
The connection flanges can be customized.



Hell Sea Curve Kit

The Hell Sea Curve Kit is the standard solution with a pipe section customizable as appropriate.

Dimensional range from DN32 to DN1000,
Available connections: V-Band / PN6 Flange
The connection flanges can be customized.

Hell Sea

Hell Sea Standard Kit

The Hell Sea Standard Kit it's the smartest solution for the pipe line with a pre existing PN6 flange connection, dimensional range from DN32 to DN1000 with the lowest thickness ever made.

Available connections: V-Band / PN6 Flange
The connection flanges can be customized.

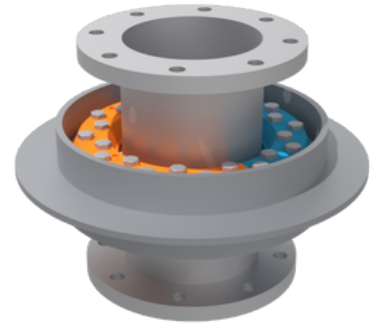
Hell Sea Binocular Kit

The Hell Sea Binocular Kit is the best solution for two pipelines close enough to each other. This kit usually comes in the slim version.

Dimensional range goes from DN32 to DN350.
Available connections: V-Band / PN6 Flange
The connection flanges can be customized.

Hell Sea Emergency Generator Hatch

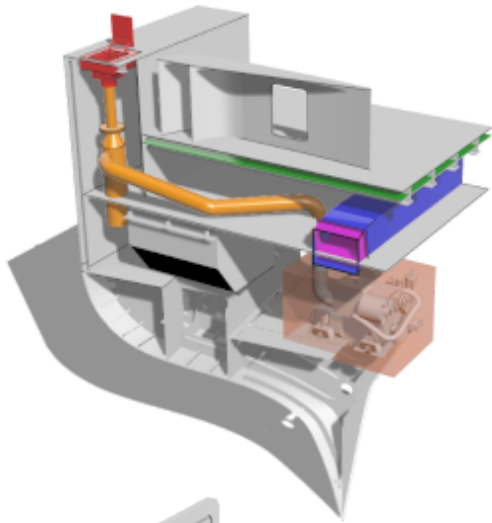
The Hell Sea Emergency Generator Hatch is a combination of a Hell Sea penetration system and the "Hatch Box," with a built-in electromagnetic system that allow automatic opening in case of need, dimensional range from DN32 to DN250.



Hell Sea Emergency Generator Hatch

The **Hell Sea** emergency generator hatch is a safety system designed for exhaust gas pipes lines that came out on the main deck. It can automatically opening the door using a complete certifice IP66 electrical system.

It's available for a pipe diameter range from DN32 to DN250

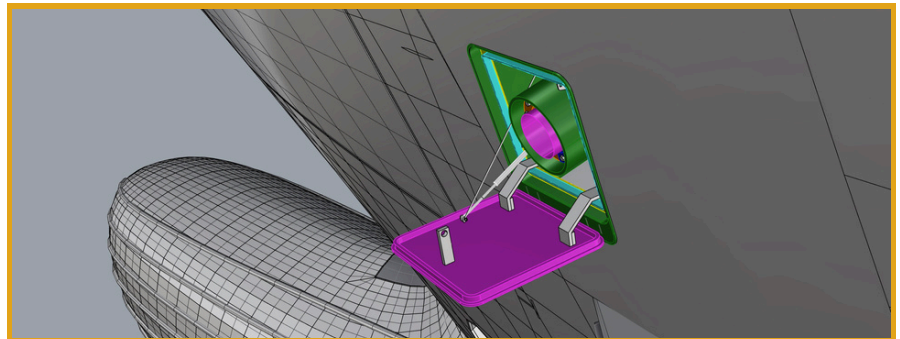


Features & Benefit:

- maximum safety without compromising deck design
- Resistant to very high temperatures
- Prevents vibration
- Minimises heat dispersion
- Pre-Assembled kit ready for installation

Applications:

- Available in different sizes to fit common metal pipes ranging from DN32 to DN250
- Approved for use with common metallic pipe
- Suitable for installations on steel and alluminium hull

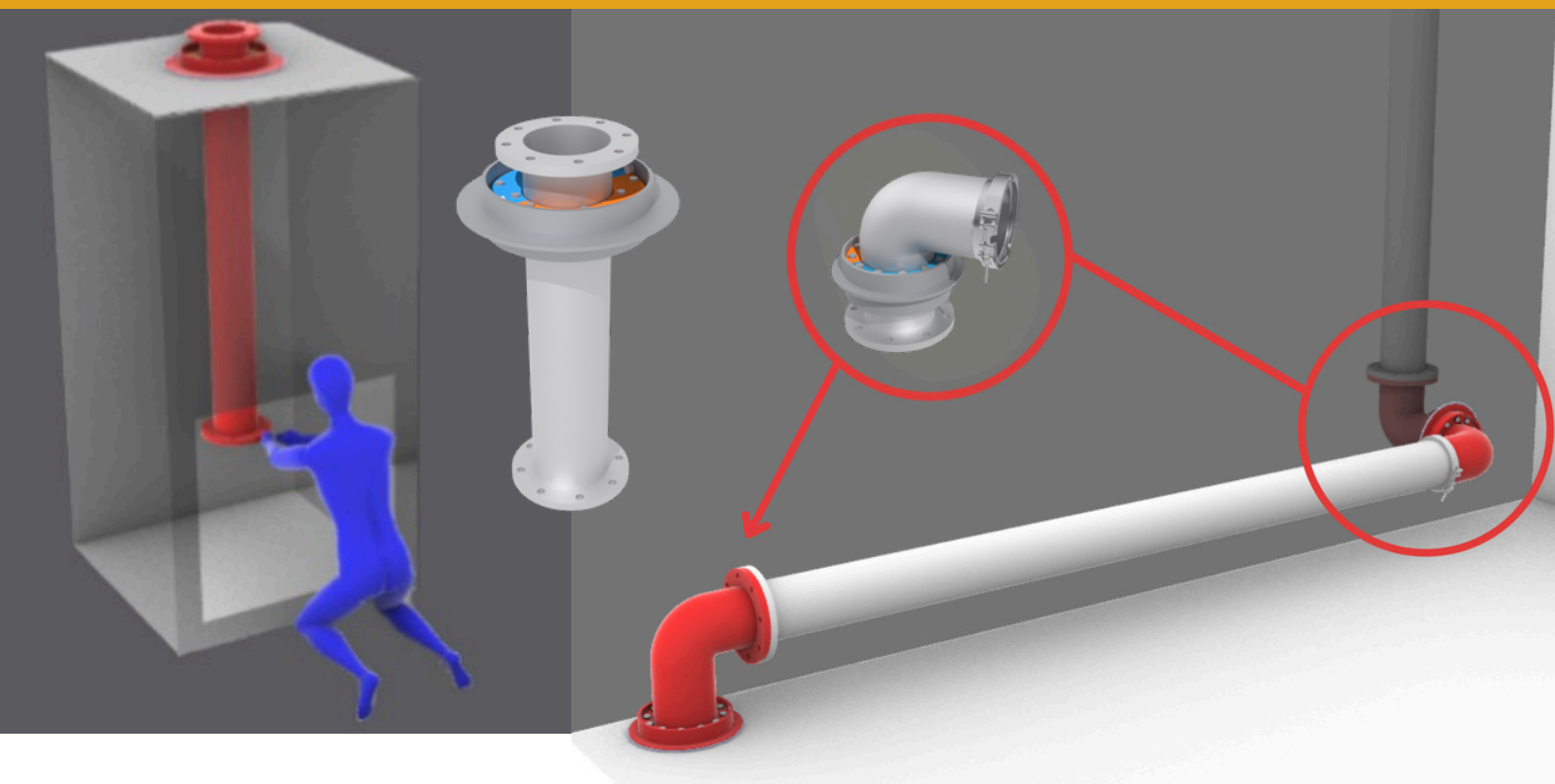


Fields of application

The **Hell Sea** system has multiple applications and can be installed even in confined spaces without difficulty.

Its key features is the simplicity of installation, combined with the possibility of customisation.

As you can see on the photo it can be customized even for main trunk installation, varying pipe section length.



Examples of a custom-length Hell Sea pipe section

Example of the Hell Sea Slim Kit applied in tight spaces, with a customised pipe section

FIRE RESISTANCE TESTING - Tested according to IMO FTP 2010, Annex 1, Part 3 Class A-0 up to A-60 (Bulkhead/Deck)

Hell Sea has been successfully tested in fire-resistance trials, obtaining the European MED A60 certification in compliance with the fire protection requirements of the MED Directive 2014/90/EU for marine equipment, and in accordance with FTP directives (IMO Res. MSC.307(88) – 2010 FTP Code – IMO MSC.1/Circ.1488) and SOLAS standards, including EU Regulation 2018/773.

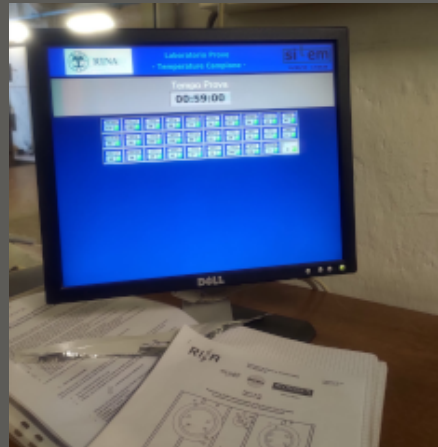
The watertight capabilities of the Hell Sea system have also been verified by flooding and pressurizing the entire water chamber up to 2 bar. The product proved watertight at a pressure equivalent to a depth of 20 meters.



European MED A60 Test
Internal oven average
temperature: 1000°C

Test Duration: 60 minutes

Unit tested size: Pipes from
DN32 to DN1000



European MED A60 Test Average
temperature recorded from the
thermocouples assembled
on the exhaust fittings: 70°C

Test duration: 60 Minutes Final
result of the performed test:
Hell Sea units approved



Temperature distribution on the Hell Sea unit size DN150 during a simulation



Tests were addressed on three different components, “exhaust pipe - gasket compression flange - shell ring”.

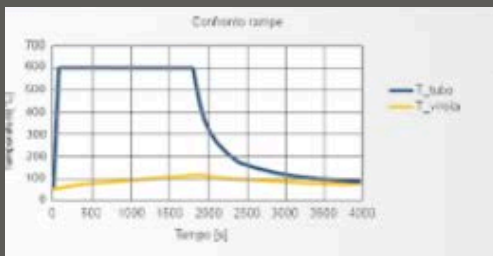
Temperature was increased in 100°C increments, held for 10 minutes at each level, up to 400°C, 500°C and 600°C.

The cooling condition was monitored as shown.

Tests were carried out by AMIND ITALIA s.a.s and GENESI S.r.l., qualified companies authorized to perform tests and issue reports.



Data were recorded via the Eurotherm Nanodac instrument on four channels, combining advanced graphical recording with PID control.

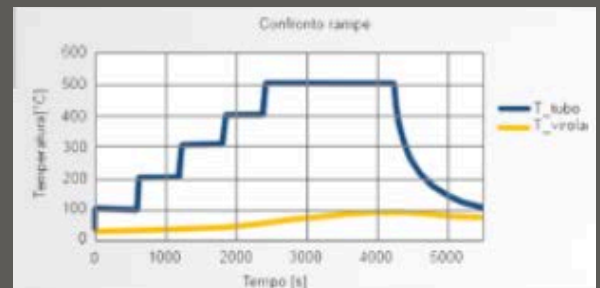


The operational condition was simulated from cold up to 500° C, held for 30 minutes, with an additional sensor placed on the outer part of of the shell ring.

Conditions were simulated from cold up to 600° C, maintained for 30 minutes.

The tests were conducted under more severe conditions than real world installation, where the shell ring, is welded to the vessel structure.

Temperature test on hull pass



Declaration of Conformity / RINA Watertightness Test

To obtain certification for our specific case, high-temperature pipe penetrations with watertight certification, together with RINA we performed a test using inert gas instead of water, verifying the resistance to gas passage at 2 bar pressure.

Hell Sea Test photo



Declaration of conformity by RINA

[illegible]



The Service ABA engineering team immediately got to work to develop a tailor-made solution, (four DN900) choosing a standard retrofit kit that could be perfectly adapted to the existing pipelines at the construction site.

After successfully passing all quality control checks, the kits were shipped directly to the construction site in China, where we also personally handled the on-site installation.

We're proud of the final result and look forward to delivering more reliable, custom-fit technical solutions to meet the most complex client needs.

Hell Sea x SAIPEM



Dear Mr Balordi, i confirm that Mr Lombardi and his colleague have just left Saipem Yantai yard after having successfully installed the watertight and fireproof penetrations in our exhaust lines.

We have really appreciated the support provided by Mr Lombardi and his team and, as well, the type of product used that has really simplify our activities for this critical installation.

The short delivery and high reliability/flexibility of the supplied product is definitely an added value for this type of application.

Saipem Procurement representatives are in cc to this e-mail for taking into account the above positive feedback for future collaboration between our Companies.

Best regards,



Reference List

Discover our world-leading exhaust safety solution at hellsea.it, including examples of where Hell Sea has been chosen for its exceptional performance and reliability.

www.hellsea.it

**HELL SEA**
HULL
PENETRATION

HOME ABOUT US PRODUCTS **REFERENCE** CERTIFICATES MORE APPLICATIONS NEWS GALLERY CONTACT





HEESEN



CODECASA



OVERMARINE GROUP



SAIPEM GROUP





Hell Sea x Ingegneria Italia



We had the pleasure of collaborating with Ingegneria Italia on social media.

Their team showed great interest in our product and its history.

Technical staff and videographers visited Service ABA to capture footage of the penetration system, later used on their channels to promote the world's most compact safety system, entirely designed and assembled in Italy.

All recordings can be found on the official HellSea Instagram and Facebook pages.

Technical Features

The Hell Sea penetration system stops smoke and flames up to 1000° C.

It can withstand water pressure up to 2 bar.

It also slightly reduce vibrations due to the elastic gasket used inside.

Maintenance and Warranty

It is essential to follow all installation steps precisely.

Do not apply pressure or move any part before or after welding the penetration system.

Each system is delivered fully assembled and tightened, and must remain unaltered to ensure safety and performance.

After Sale Support and Garancy

WARRANTY - Customers may contact **Service A.B.A.** directly to request the **Hell Sea** warranty, which includes intervention by one of our engineers in case of manufacturing defects.

Any tampering **voids** the **warranty** and **certification**.

Pricing and Installation

One of Hell Sea's greatest strenghts is its ease of installation, which can be performed directly by the client using the comprehensive manual provided.

Once installed, the system requires virtually no maintenance, ensuring longterm savings, with the only cost being the initial purchase.



Boat Builder Awards 2019

Hell Sea was a finalist in the prestigious Boat Builder Awards 2019 under the category "Collaborative solution Between a Superyacht Builder and his Partner". The system requires only a simple welding operation, is supplied as a preassembled ISO9001-certified kit, and is standardised for all pipe sizes.

"We have expanded our range of Hell Sea products also for other needs, always aimed at safety system for exhaust pipes, such as our latest patent relating to emergency hatches which, in the event of fire, open and allow the correct escape of exhasut gases, without letting the flames pass."

Hell Sea

INNOVATIVE SAFETY SYSTEM

Hell Sea systems are designed for high quality and reliability,
conceived and assembled entirely in Italy.

Customer service and technical support for all project specifications
are available through the Service A.B.A. headquarters or our global
distribution network.

For more info visit

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