

# TECHN DIVE LTD

LET OUR UNDERWATER EXPERIENCE BE YOUR GUIDE



## UNDERWATER TECHNICAL SERVICES



Phones: +30 2104520335, +30 2104519496, Emergency Mob.: +30 6936999731 – 24/7

# TECHNODIVE LTD

The foundation of the Company goes back to 1975 rendering Technodive one of the first Underwater Technical Services firms in Greece.

Technodive Ltd is the final establishment of previous companies, alliances and partnerships, operating under its current name since 1985.

Having an experience of more than 35 years in underwater operations **TECHNODIVE LTD** has evolved to a leading underwater services firm serving incessantly the Maritime Community in Greece and abroad.

A steady growth in demand from Shipowners and Operators has resulted to the expansion of our Company, however without deviation from our aim to maintain the high standards of quality services offered to our clients. In fact our policy of continuous improvement has upgraded our Underwater Services.

Our experienced personnel are constantly trained to the highest standards, performing their job according to recognized quality control procedures monitored by Classification Societies.

Our office and workshop are located in the center of Piraeus, totaling 350 square meters, the company has a permanent team of five (5) divers, a team which if needed can be augmented by another team of ten (10) non-exclusive divers. In all Technodive employs a total of twelve (12) employees including Accounting and Legal Dept.

Our list of clients includes apart from Shipowners, Operators, Charterers, Shipping Agents, Hull & Machinery Underwriters, leading P & I Clubs, Marine Technical Consultants & Surveyors, Law Offices, Shipyards, Refineries, Civil Engineering firms, Insurance Companies, Salvage Companies, Marine Paints Companies etc.

Having the appropriate infrastructure supported by its experienced personnel, Technodive Ltd is offering its clients a 24 hour all year round immediate response diving service on an almost worldwide basis.



# WORK SHOP

Our workshop of 250 square meters is located at 26 Asclepiou Street in Piraeus and is equipped with all the mechanical and diving equipment needed to cope with a wide range of diving tasks.

A water tank of 100 cubic meters (100,000 litres) has been built in our facilities for the training of our divers in welding, cutting, operating hydraulic machinery etc. as well as for testing and upgrading old and new hydraulic equipment and other underwater tools.



# DIVING SUPPORT BOAT

**KERMIT PENTE , REG. NO. 9183**

- ➔ **CODE: 20165**
- ➔ **AMYEN: GRC 134100308**
- ➔ **INTERNATIONAL CALL LETTERS: SW 9049**
- ➔ **M.M.S.I.: 237737200**
- ➔ **LENGTH OVERALL: 15.30M**
- ➔ **BREADTH: 05.45M**
- ➔ **DEPTH: 1.57M**
- ➔ **MAX SPEED: 11 KNOTS**
- ➔ **G.R.T.: 24.91 KOX**
- ➔ **N.R.T: 10.09 KKK**
- ➔ **YEAR OF BUILT: 1991**
- ➔ **PLACE OF BUILT: GREECE**
- ➔ **CONSTRUCTION MATERIAL: STEEL**
- ➔ **PROPULSION MACHINERY (2): DAEWOO MD 196TIE**
- ➔ **HORSE POWER: 496 BHP**
- ➔ **MANUFACTURER: S.KOREA**
- ➔ **YEAR OF CONSTRUCTION: 2002**
- ➔ **TELECOMMUNICATION MEANS (2): VHF / DSC**
- ➔ **CLASSIFICATION SOCIETY: INSB**



# WORK LIST

## ↘ Inspection Services

- General Hull Inspections
- CCTV Video Inspections in Lieu of Dry-Docking
- Class In-Water Surveys
- New Zealand MPI Inspection Services
- Impact Damage Inspections
- Special Surveys for Paint Condition
- Underwater Structural Inspections
- Marine Construction Inspections
- Underwater inspections with ROV-Drone

## ↘ Underwater Hull Cleaning Services

- All types of paint coatings: SPC (Self Polishing), FRC (Silicone), STC (Hard Paint).
- Special silicone brushes designed by us and approved by and for AZRA ADVANCED MATERIALS-BLUERACE paint company.

## ↘ Underwater Propeller Polishing & Propeller Repairs

- Propeller diamond super polishing to Rupert Scale grade "A"
- Propeller repairs / crack detection & repair
- Grinding of serrated blade edges
- Application of epoxy material in way of cavitated surfaces
- PBCF (Propeller Boss Cap Fin) Installation / Replacement

## ↘ Hull Repairs

- Underwater cofferdam construction / installation for insert permanent repair.
- Wet & Dry hull repairs.
- Underwater installation / replacement of ropeguard
- Underwater welding (Technodive WPS Class A & Certified Welder Divers)
- Underwater cutting.

## ↘ Various Jobs

- Measurements of rudder pintle & tailshaft wear down clearances
- Ultrasonic steel thickness determination LVL2 certificate
- Replacement of ICCP Linear / Loop Anodes / Wasted Anodes
- Hydrographic Surveys / Seabed Surveys / Soundings
- Search and recovery

## ↘ Salvage operations

# APPROVALS

**ABS**  
**CERTIFICATE OF Recognized External Specialist**  
**TECHNODIVE LTD.**  
 15-17, Hatzikyriakou Avenue, 18537 Piraeus, Greece

**In-Water Survey**

This certificate is issued to Technodive Ltd. for the provision of in-water survey services for the hull cleaning of ships. The certificate is valid until 31/12/2022.

**AZRATECH**  
**Approved Supplier - "TECHNODIVE LTD"**  
**Activity: Underwater Hull Cleaning of Ships**

**TO WHOM IT MAY CONCERN**

We hereby wish to confirm that "TECHNODIVE LTD" is an approved and qualified supplier for the underwater hull cleaning services for Azra Epoxy Silicon Biocide-free Coating.

We hereby also confirm that "TECHNODIVE LTD" possess the complete technical knowledge and the necessary equipment to carry out the proper underwater hull cleaning work for our Epoxy Silicon Biocide-free Coating.

The works undertaken with "TECHNODIVE LTD" have given very satisfactory results and we recommend their services for such task.

Best regards,  
 Roberto Cefagna - President  
 AZRATECH INC.

Nicole Boticco  
 AZRA ADVANCED MATERIALS GMBH

Lugano, 27 December 2022

**ATTIESTAZIONE**  
**Accordo di Lavoro per Team di Lavoro per le Ispezioni in Acqua**

This is to certify that Technodive Ltd. is approved as a service supplier to provide the following service under guidance for Approval of Service Suppliers and the relevant requirement of the society rule.

**Scope of service**  
**In-water survey on ships and mobile offshore units by DIVER**

This certificate is valid until 2025-07-19  
 Issued at **Dusan** on 2022-10-11

See the appendix for details regarding manufacturer authorizations, etc.

**DNV**  
**APPROVAL OF SERVICE SUPPLIERS**

This is to certify that Technodive Ltd. is approved as a service supplier to provide the following service under guidance for Approval of Service Suppliers and the relevant requirement of the society rule.

**Scope of service**  
**In-water survey on ships and mobile offshore units by DIVER**

This certificate is valid until 2025-07-19  
 Issued at **Dusan** on 2022-10-11

**Indian Register of Shipping**  
**PROVISIONAL CERTIFICATE OF APPROVAL**

This is to certify that, a satisfactory review of documents of the firm Technodive Ltd. is satisfactory and the firm is approved to carry out the following service under guidance for Approval of Service Suppliers and the relevant requirement of the society rule.

**Scope of service**  
**In-water survey on ships and mobile offshore units by DIVER**

This certificate is valid until 2025-07-19  
 Issued at **Dusan** on 2022-10-11

**KR**  
**CERTIFICATE OF APPROVAL OF SERVICE SUPPLIER**  
 No.: HD05-063-22

This is to certify that Technodive Ltd. is approved as a service supplier to provide the following service under guidance for Approval of Service Suppliers and the relevant requirement of the society rule.

**Scope of service**  
**In-water survey on ships and mobile offshore units by DIVER**

This certificate is valid until 2025-07-19  
 Issued at **Dusan** on 2022-10-11

See the appendix for details regarding manufacturer authorizations, etc.

**Lloyd's Register Approved Service Supplier**

**Supplier** Technodive Ltd.  
**Address** 15-17 Hatzikyriakou Str, Piraeus, 18537, Greece  
**Contact Details** tech@technodive.gr  
**Contact Number** +30 2104523333

The above company having been submitted hereby receives approval in accordance with the requirements of Lloyd's Register Procedures for Approval of Service Suppliers as Supplier from the subject(s) listed above for the provision of:

**In-Water Survey of Ships and Mobile Offshore Units**

This approval is conditional upon the Supplier maintaining the documented scheme as specified by any member of the Lloyd's Register Group and hereby approved and notifying Lloyd's Register in writing of any change to that scheme including any change in personnel, equipment or procedures. This certificate is issued to the Supplier and, subject to the Supplier complying with the necessary conditions, is valid to the date referred to above.

24/11/2022

**NIPPON KAIJI KYOKAI**  
**CERTIFICATE OF APPROVAL FOR FIRMS CARRYING OUT AN IN-WATER SURVEY ON SHIPS AND MOBILE OFFSHORE UNITS BY DIVER OR REMOTELY OPERATED VEHICLE**

This is to certify that Technodive Ltd. is approved as a service supplier to provide the following service under guidance for Approval of Service Suppliers and the relevant requirement of the society rule.

**Scope of service**  
**In-water survey on ships and mobile offshore units by DIVER**

This certificate is valid until 2025-07-19  
 Issued at **Dusan** on 2022-10-11

**RINA**  
**CERTIFICATE OF APPROVAL OF SERVICE SUPPLIER**  
 CERTIFICATE NO. SU108823XH

This is to certify that Technodive Ltd. is approved as a service supplier to provide the following service under guidance for Approval of Service Suppliers and the relevant requirement of the society rule.

**Scope of service**  
**In-water survey on ships and mobile offshore units by diver of Remotely Operated Vehicle (ROV)**

This certificate is valid until 2025-07-19  
 Issued at **Dusan** on 2022-10-11

# INSPECTION

## UNDERWATER CCTV VIDEO HULL SURVEY-INSPECTION

The methodology followed by our company for underwater CCTV video inspections on ships fully complies with the requirements of each Class.

All gear, diving equipment, video, ROV and photographic equipment likely to be required, are inspected, tested and ready for each operation.

We undertake every type of underwater inspection/survey performed by experienced professional divers or by means of underwater ROV (drone).

- General Hull Inspections
- CCTV Video Inspections in Lieu of Dry-Docking
- Class In-Water Surveys
- New Zealand MPI Inspection Services
- Impact Damage Inspections
- Surveys for Paint Condition
- Underwater Structural Inspections
- Seabed Surveys / Hydrographic Surveys
- Ultrasonic Inspections
- Marine Construction Inspections
- Underwater Inspections with ROV-Drone

Specialized detailed written reports supported by drawings or video-photographic evidence are delivered to Clients and Class.



# HULL CLEANING

We have many years of experience in hull cleaning for all types of antifouling coatings. Our company has two sets of Brush-kart systems, one which is permanently installed on our diving boat for working in Piraeus anchorage and nearby ports and a portable set on our heavy truck which can travel and operate in all Greek ports such as Lavrion, Kalamata, Chios Island, Crete Island, Corfu Island, Katakolo, Patras etc.

Our company is certified by 'Azra Advanced Materials GmbH' Paint Company to perform hull cleanings with no damage on their coatings deploying brushes that we manufacture ourselves and are also certified by them.

In addition, Jotun Paint Company has issued a recommendation letter for our company declaring the satisfactory results of our cleaning operations and confirming our ability to deal with every kind of underwater hull cleanings and coatings.

## METHOD & TYPE OF EQUIPMENT

For the cleaning of submerged hull we use the four (4) wheel hydraulic powered / driven vehicle Brush kart concept capable to move towards all directions with excellent maneuverability, fast & versatile achieving, depending on the fouling, approx. 2200-2500 sq.m. per hour (for silicon coating approx. 1.000 sq.m.per hour). It is fitted with a full range of triple rotary brushes of different hardness & density.

The Brush kart hydraulic power unit clamps itself in way of hull by means of suction effect (vacuum) and is driven by the diver executing longitudinal passes from bow to aft & vice versa.





## TYPE OF BRUSHES

Depending on the type (plant or animal growth) & severity of marine fouling encountered e.g. light, medium, heavy, the most appropriate type of brush(es) will be selected and used to remove the existing marine growth from the hull effectively causing no damage to the paint coating.

### ↳Hull Cleaning of Silicon coating

Silicone paints (FRC) are very special, sensitive and their cost is very expensive. The cleaning of these paints is done by using specially made silicone brushes in order to remove the marine growth without causing damage to the coating. In these cases our driven vehicle Brush kart is also fitted with wheels made of silicone so that it does not create abrasions in the sensitive antifouling coating.

#### BRUSHES FOR SILICON COATING

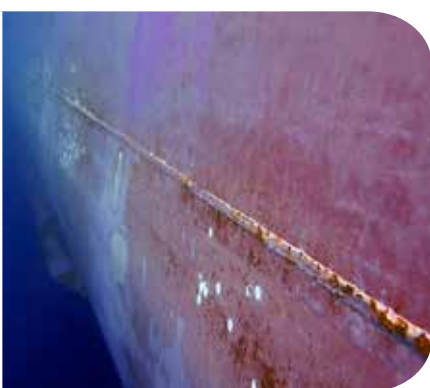
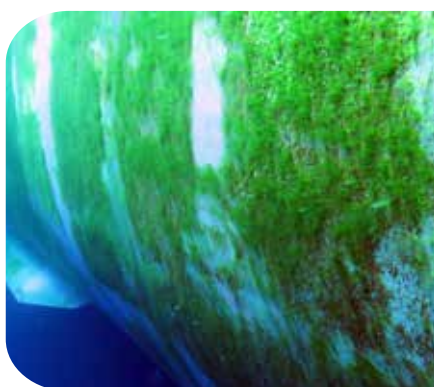


# HULL CLEANING

## ➤ Hull Cleaning of light marine fouling

This type of brush is mainly used for ships with conventional coating / antifouling SPC - STC, which are fouled with algae, sea grass or weed from light to high density and height / length, in combination with medium hardness barnacles.

### *POLYPROPYLENE & NYLON BRUSHES FOR LIGHT MARINE FOULING (ALGAE-WEED)*

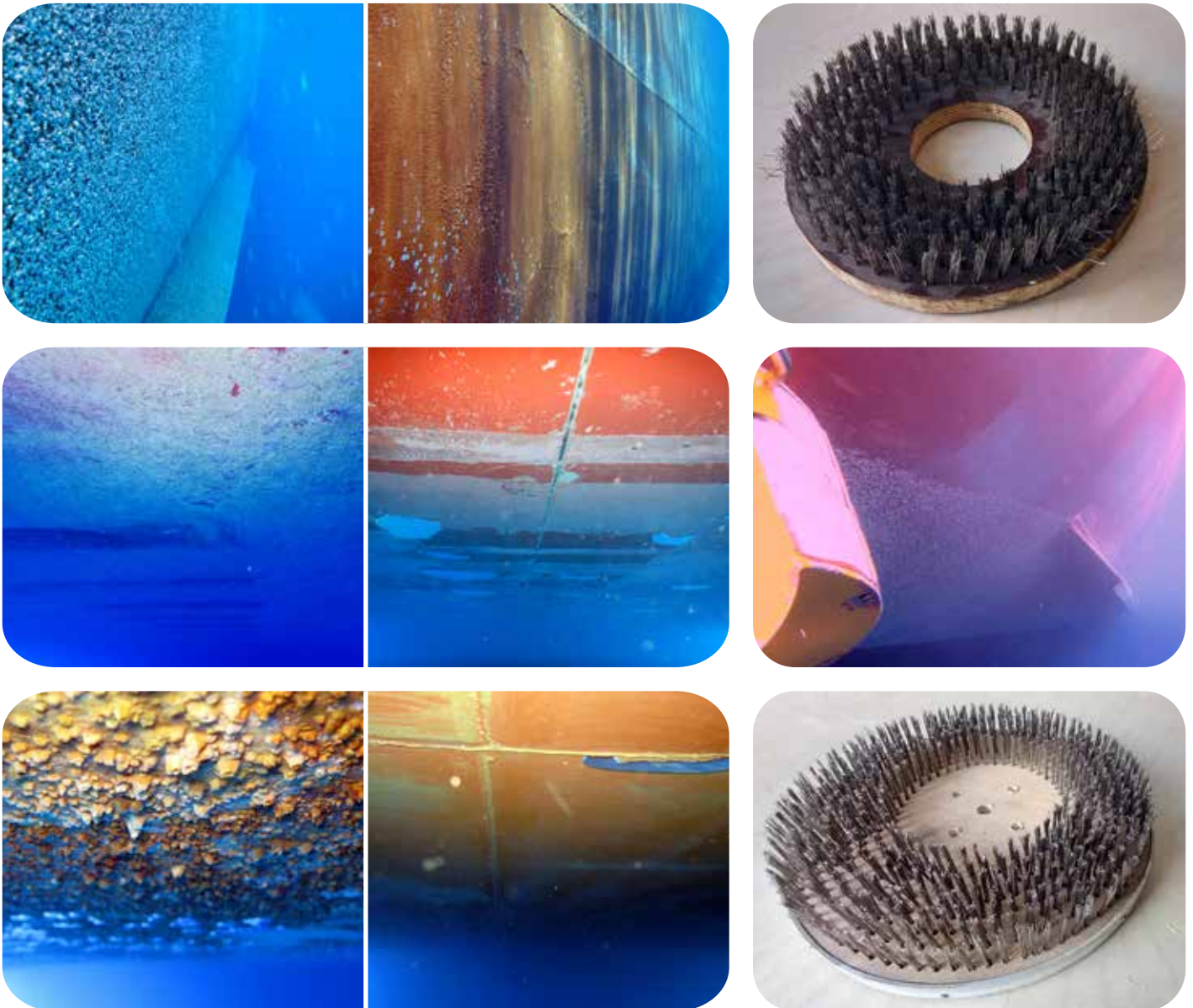


## ➤Hull Cleaning of moderate marine fouling

This type of brush is mainly used for ships with conventional coating / antifouling SPC - STC, which are fouled with barnacles (medium hardness) up to 5-6mm in height.

The brushes are made of hard stainless-steel wire bristles or wire rope and have the ability to cut & remove the barnacles' root very effectively without causing damage to the coating of the ship.

### *STEEL WIRE BRUSHES FOR MEDIUM MARINE FOULING OF BARNACLES UP TO 5-6MM*

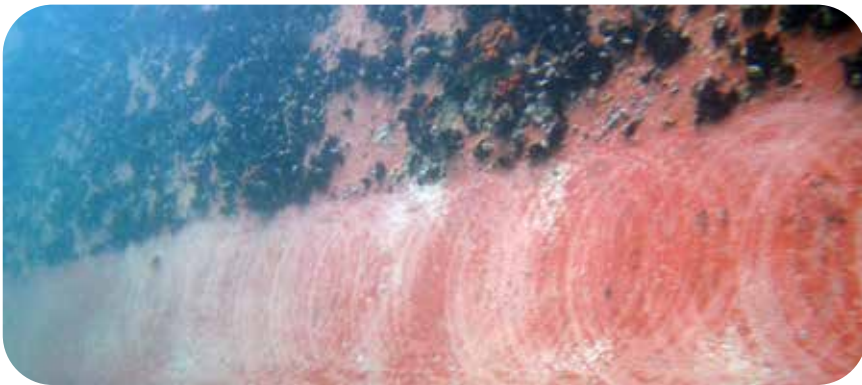


# HULL CLEANING

## ➤ Hull Cleaning of heavy / hard marine fouling

Brushes used in heavily fouled ships such as laid-up vessels and ships with a long stay in areas such as India and Brazil where high sea temperatures accelerate the development of marine animal fouling (barnacles-tubeworms-mussels-shells) especially if the ship's anti-fouling coating is almost worn off over time are brushes reinforced with 10 mm stainless steel wire and 12 mm bolts. They can break and clean hard marine fouling up to 100mm in height with satisfactory speed and efficiency and are used only in special cases such as the above.

### *BRUSHES FOR HEAVY / HARD FOULING*



# DIAMOND PROPELLER SUPER POLISHING

According to International Research Studies such as the International Council on Clean Transportation (ICCT) and the Global Maritime Energy Efficiency Partnerships (GloMEEP), propeller polishing can reduce gas emissions by 2% - 5% and fuel consumption by 3% - 4%.

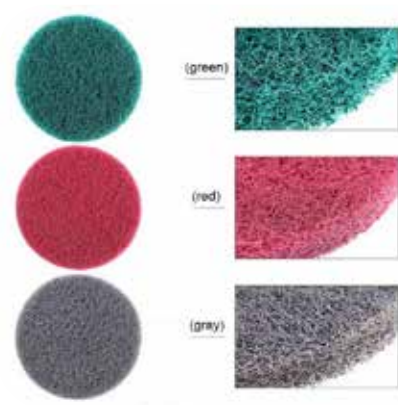
Propeller polishing is equally important for the maintenance of the propeller since it contributes to the prevention of cavitation erosion which can be avoided by regular polishing of the propeller. It is recommended to run twice a year. This has been found to have the optimal balance between cost and effect.

For propeller polishing our company uses hydraulic driven polishers fitted with 3M industrial diamond flexible discs of different density & Scotch Brite soft pads for the conditioning & finishing thus attaining results of Rupert Scale grade "A".

This finish can be achieved on propellers of reasonable condition, free from defects such as cavitation pitting, dezincification or mechanical damage.



POLISHING PADS



# PROPELLER REPAIRS

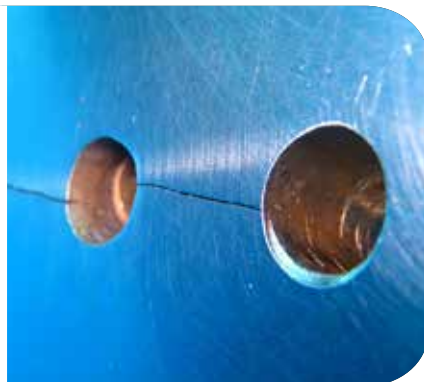
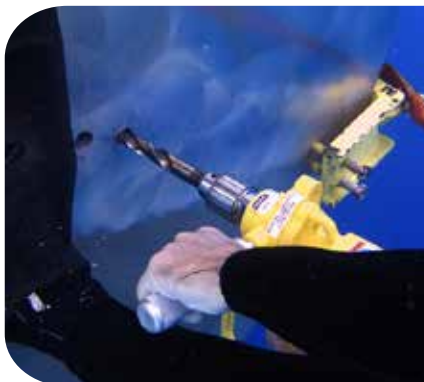
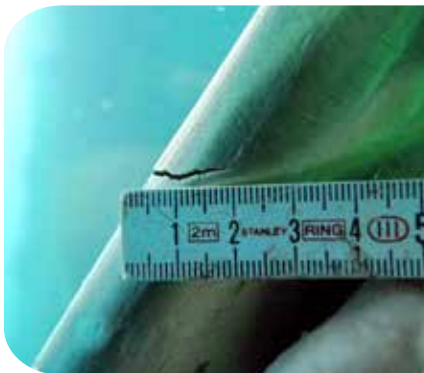
We specialize in performing propeller repairs by deploying special tools and experienced professional divers. Having carried out many successful projects, we provide technical solutions that contribute to the best possible performance of the ship and we guarantee the best result of the repair to the satisfaction of the Clients.

We have been the supporting affiliates of Wartsila Underwater Services in Greece for many years now.

Types of repairs we perform:

- Grinding of serrated blade tips / edges.
- Removal of damaged blade sections and smoothing down of nicks or broken pieces.
- Crack repair and crack arresting.
- Restoration of edge contours.
- Measurements & balancing calculations for blade cropping.
- Replacement or installation of PBCF (Propeller Boss Cap Fin).





# ANODES INSTALLATION

Our company performs installation and / or replacement of conventional anodes (zinc or aluminium) by welding or bolting same on ships and facilities.

In addition, we have successfully carried out replacement of electrical anodes such as ICCP Linear or Loop Anodes and have perfectly co-operated with MARPO Group in these operations.





# INSERT REPAIR

Permanent repairs in way of vessel's submerged hull which is suffering from heavy corrosion, holes or cracks can be performed afloat eliminating the need of dry-docking the vessel and saving time and money.

Affected shell plating is initially rendered duly watertight by fitting in position appropriate for each case cofferdam with rubber sheet that is placed underwater. Once the area is tested and watertightness has been achieved then the damaged steel plate is cropped and removed from inside the vessel. A new steel plate is fitted and subsequently dry welded with full penetration. All welds are being NDT tested and thereafter certified by the Class.

Time required for such an operation usually ranges from 12 to 16 hours.

We undertake the entire repair project with all certificates.

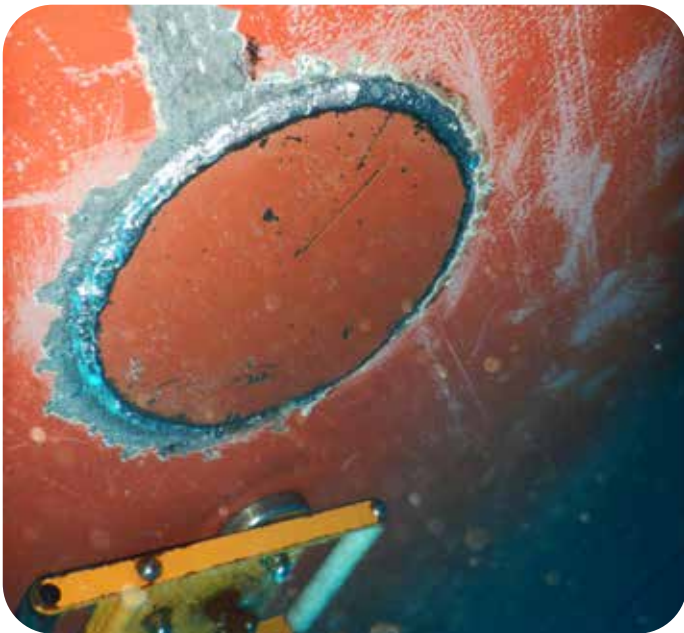


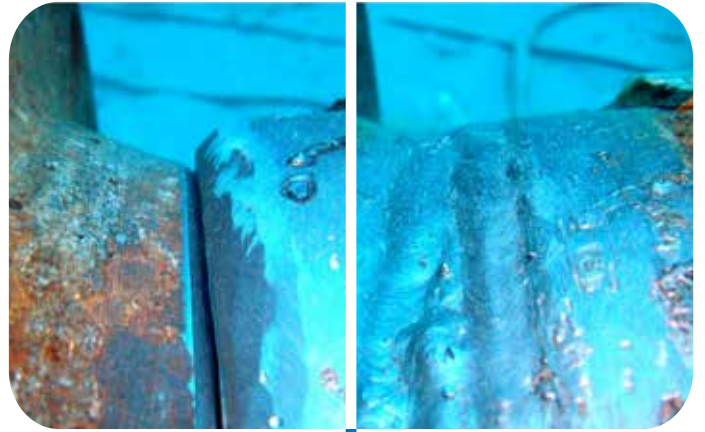
# WELDING - HULL REPAIRS

Our company possesses her own approved 'Class A' procedures for Underwater Wet Welding and Atmospheric Dry Welding enabling us perform permanent or temporary repairs to the ship's hull or other installations that are in the water.

Our welder / diver technicians have been trained at the Diver-Welder Training Center of MAREX SUBSEA WELDS LTD and are qualified holding certificates that are being renewed every 2 years.

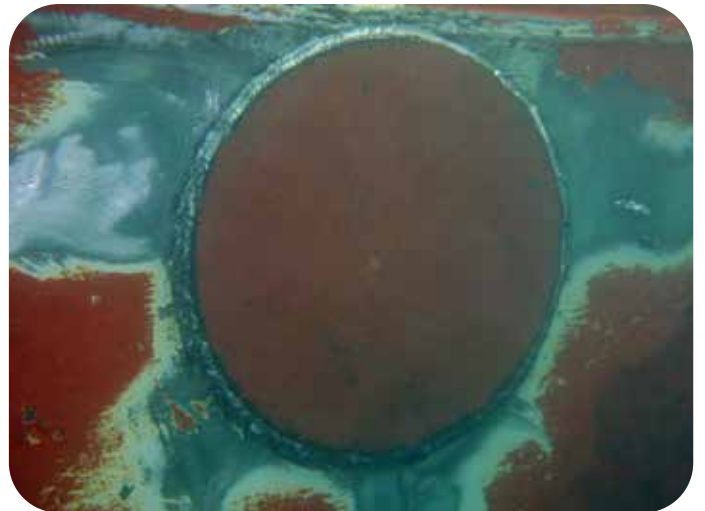
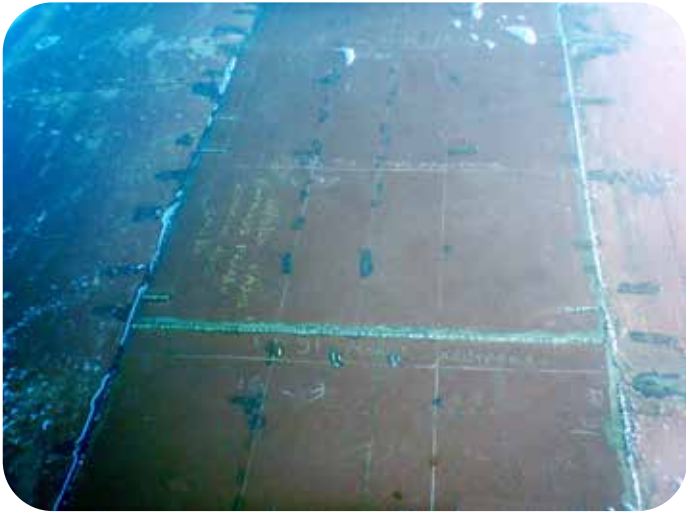
Our Welding Procedure Specification (WPS) has been issued in accordance with AWS D3.6M:2017 Class A standards.





*BEFORE*

*AFTER*



# SALVAGE OPERATIONS

We have successfully participated in many salvage operations in different locations around the world and our experience in this field is quite large.

Our company is fully equipped with necessary tools and a lot of salvage diving equipment which is in accordance with International Standards rendering us able to deal with new missions at any time.

In our facilities a 6m long container has been configured in a dive station sporting a double-lock decompression chamber (COMEXpro), ready to be transported and operated where needed and to support our dive team in every mission.

**Some of the operations we have taken part in are the following:**

<b>M/V JUPITER - 10/11/1999</b>	<b>M/V REVE D'OR - 26/06/2014</b>
<b>M/V GOLDEN SKY - 16/01/2007</b>	<b>M/V INCE INEBOLU - 06/09/2014</b>
<b>M/V NEW FLAME - 22/08/2007</b>	<b>Ro/Ro EUROPALINK - 01/10/2014</b>
<b>M/V MOONDANCE II - 14/01/2011</b>	<b>M/V YUSUF CEPNIOGLOU - 03/10/2014</b>
<b>M/V CAFER DEDE - 11/11/2011</b>	<b>M/Y NIKMAR - 15/06/2016</b>
<b>M/T ALFA 1 - 05/03/2012</b>	<b>M/Y TAKA - 30/07/2016</b>
<b>M/V RIO GOLD - 14/05/2013</b>	<b>Ro/Ro BLUE STAR PATMOS - 31/08/2017</b>
<b>M/V FEARLESS - 09/10/2013</b>	<b>Ro/Ro EXPRESS SAMINA - 30/06/2020</b>
<b>M/V IVAR REEFER - 23/01/2014</b>	<b>Ro/Ro EXPRESS PEGASUS - 24/08/2020</b>





# CONTAINERIZED DECOMPRESSION CHAMBER/DIVING STATION

In our facilities a 6m long container has been configured in a dive station sporting a double-lock decompression chamber (COMEXpro), ready to be transported and operated where needed and to support our dive team in every mission.



We also have a second portable, compact one-man decompression chamber (DRASS GALEAZZI), which in emergency cases can be transported on a fixed hyperbaric facility where treatment can be completed without having to depressurize the diver.



An underwater photograph showing a large plume of bubbles rising from the bottom right towards the surface. The water is a deep, clear blue. At the top, the surface of the water is visible with light reflecting off the ripples. A white curved line runs along the bottom edge of the frame.

**PROFESSIONAL  
FOCUS ON  
CLIENT**



# TECHNO DIVE LTD

15-17 HATZIKYRIAKOU AVENUE - PIRAEUS 18537, GREECE

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