DIVENWS 04 2025

NUCLEAR SPECIALISTS IN PROFESSIONAL DIVING

UNDERWATER UXO CLEARANCE OPERATIONS

THE BADGE: VESELIN VEŠKO MIJAJLOVIĆ

IDSA ANNUAL MEETING 2025

INTERNATIONAL DIVING SCHOOLS ASSOCIATION
IDSA

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Alongside this new range, SMP will introduce an enhanced website feature that allows users to schedule and book rental equipment directly online, check availability, and access a database of manuals and spec sheets. Drop-down menus will also be available to select optional supporting equipment.

Interested? Get in touch with SMP on +44 (0)1772 687775 or email sales@smp-ltd.co.uk

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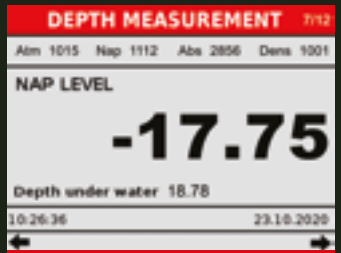

Large display and logging

Easy and fast anchor info

Angle measurement

FROM THE CHAIRMAN

LEO LAGARDE

We would like to thank you that we get more request for the QCards, so we can more and more spread out the word of IDSA in the world. Please od notice that IDSA training and exams can only be done by OUR FULL MEMBER schools. They can ask the IDSA office to issue an IDSA Q-card.

As your board we have review all the memberships and replaced everybody in the right membership. We are also working on the IDSA organisation, and we are restructuring the office, Carin will stop after the IDSA meeting, and Rebecca will remain in the office for your questions.

Also, the documents will be restructured, and we will share with you a SharePoint surrounding for this to upload your relevant documents.

We have reviewed the IDSA Standards, we (the technical committee) have made several sections for easier working, and they will be sent out to the full members for control and approval.

It is always a pleasure to see the IDSA news and I would like to impress that we need more stories from you as members, (former) students, and the Industry.
We would like to have more associate members to take the step to become a full member (also possible for Level 1 and 2 only!) so please reach out to us if you need any help or have any questions.

The next annual meeting will be a good moment for all of us to discuss various topics, so if you have any suggestions for topics, please let us know! so we can take this with us, as we are now setting up the program for this. And we would like to have more interaction with all the members.

The next annual meeting will be held in Sweden. our host will be **Yrgo**, the commercial diving school in Gothenburg. The Annual meeting will be in week 26 from 24-26 June. So, **SAVE THE DATE** and time for being there. As you are aware that working together in the organisation is important for all of us.

We trust that you all stay safe and hope you have a lot of new students.

FROM THE EDITOR

ROBBERT DE BIE

This marks the 9th edition under my supervision, and we've made great progress in transforming IDSA News into a polished magazine, filled with stories from the schools. A big thank you to everyone for your support.

But nevertheless, we can do more because IDSA news is for the industry and a good place to promote your school, company etc.
For this we can use all the help from all our members, so take this on and write a little story (one pager is enough) about your school, company etc.

We have some standard items, topics in our magazine, such as:
Medical issues *(by Dr. Hossam)*
The Badge *(each time members will be asked to fill in some questions)*
Historical Diving *(by Peter Dick from Historical Diving Society)*

But for these stories we need input from your side;
The Student, please ask your (ex)student to fill in some questions and have this sent with some pictures to us!
The Instructor, please ask your staff to write what they do on the school and how their experience is!
Your school, please take this opportunity to write about your school and take on this free publicity! Sent this to us with some pictures of your school.

For you as a member is a good media to introduce the school with pictures, challenges you are facing. When you have had an audit from IDSA, or another organization please write an article for IDSA news on this.
For all of us this magazine is not only to promote our organization but also **YOUR** school. So also, for your instructors please write your article on your important job.
If you have any good new ideas, please let me know so we can make a topic out of this.

Being the editor of IDSA news is a very challenging and satisfying responsibility. After all, our readers rely on IDSA news to fulfil their needs regarding topics which they bring to the table.

IDSA news will be sent to you via e-mail and post, but please have the digital version of the magazine sent to all you (ex)students, companies, etc to spread out the word of IDSA.

Enjoy reading the IDSA News and Safe Diving Training.

YOUR AD IN IDSA NEWS!

IDSA news is looking for advertisers, so if you want to advertise, please let us know, the costs for advertising are:
The Magazine is A4 format printed in 4 colors offset litho.

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Quarter page:
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All digital photographs and artwork to be supplied at 300 dpi.

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ECOLE NATIONALE DES SCAPHANDRIERS TRAINS

NUCLEAR SPECIALISTS IN PROFES-SIONAL DIVING

Cécile Dorthe, nuclear diver in France

France has 57 nuclear reactors throughout the country, producing 80% of the country's electricity. These reactors undergo a complete 6-month inspection every 10 years. During these maintenance visits, the nuclear reaction is stopped to allow more than 3,000 workers to intervene day and night on the entire installation. Among these thousands of workers and technicians, a few commercial divers dive into the plant's two basins, the reactor building pool and the uranium fuel storage building.

These high-risk operations mainly involve decontamination, maintenance and dismantling. They require compliance with strict procedures before, during and after the dive, so as not to endanger the diver.

Experts in the field have recognized that it is more difficult and time-consuming to train a nuclear specialist than a commercial diver. NUVIA has therefore decided to train its technicians and engineers in diving, rather than continuing to entrust these tasks to generalists commercial divers with little nuclear training.

NUVIA's management therefore turned to the Ecole Nationale des Scaphandriers (ENS), entrusting them with an initial group of engineers and technicians who were complete beginners in diving. The result lived up to their expectations.

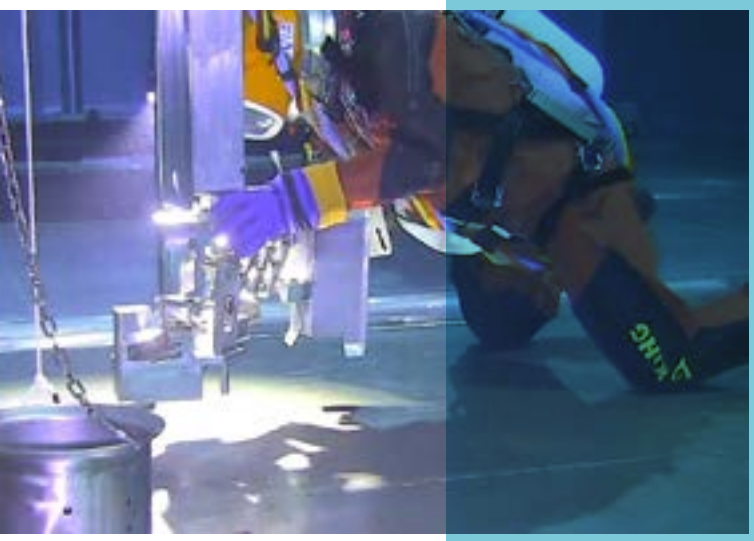
These highly qualified specialists include Cécile Dorthe, the first woman in France to dive into the radioactive basins of nuclear power plants.

NUVIA, France's nuclear leader

NUVIA operates worldwide on highly regulated and sensitive nuclear sites. For decades, NUVIA has played a part in all major projects worldwide, thanks to its long-standing expertise.

NUVIA is the French market leader in underwater works, specializing in the nuclear sector, and has a hyperbaric department headed by Jean-Luc Dubedat.

"I've been in this profession for forty years, and nuclear power is my whole life. Our main mission is to work on the maintenance of nuclear pools. We've noticed that commercial divers have little or no nuclear training, which is detrimental to the quality and safety of our work in a high-risk environment. The difference with a construction and civil engineering diver lies in the kinematics of the nuclear industry, and the reflexes of certain safety gestures. The decision to train NUVIA employees in diving was a natural one. This approach is more logical, safer for staff and more sustainable over time. Even



if the divers involved were very competent underwater, as soon as it came to implementing protocols specific to the nuclear industry, we noticed major deviations that could have serious consequences for the health and safety of personnel.

So we approached the French leader in training professional divers, the Ecole Nationale des Scaphandriers located in Fréjus on the French Riviera, to train an engineer and three technicians. We now have a team of seven specialized commercial divers, all with a nuclear background, who will be able to intervene more effectively on the 57 reactors of France's nineteen nuclear power plants.

Cécile Dorthe, pioneer and first woman diver to work in the nuclear industry

Cécile Dorthe, 37, a nuclear dismantling engineer for the past ten years and mother of a 9-year-old daughter, has been learning to dive at the Ecole Nationale des Scaphandriers for the past few months. The young woman tells us all about her very special world, her impressions and the reasons behind her choice.

"I work in the supervisory department and supervise around 150 people throughout France. We set up a hyperbaric department at NUVIA and hired experienced divers from the public works sector, who were highly skilled in underwater work, but much less so in the nuclear sector. Today, with this training at ENS, our approach is reversed. We want to become autonomous and recruit in-house nuclear specialists trained in underwater work.

Discovery of the underwater world for the engineer and her three nuclear colleagues

Cécile Dorthe arrived in Fréjus a few months ago and discovered a whole new world. It was an exciting adventure for the four future divers, who had never put their heads under water before, as she is fond of pointing out. A baptism of diving as an appetizer, followed by a three-week introduction to diving, then 19 weeks of training focusing on underwater safety and work. A la carte training for this team, who will be responsible for working on France's 57 nuclear reactors.

"It's a completely new environment for me. I'm really looking forward to being able to work in the power plants, as it will give me a chance to get away from my office. It will change my daily life completely.

For a size like mine, the equipment is very heavy. Fortunately, once in the water, it doesn't seem so. It's quite an adventure, in a very masculine environment, where you have to be comfortable with the fact that you have to change, like the men, at the back of the truck.

Our activity consists of cleaning and decontaminating pools using high pressure, in order to loosen the radioactive deposit and vacuum it up. Our main mission is to decontaminate these pools so that, once emptied, environmental conditions are acceptable and enable workers to work safely. But we also have to change rollers, adjust sensors, take measurements, and so on.

Water, along with lead, is the best shield against radiation. We have the perfect outfit to protect us: a totally watertight suit that protects us from any contact with water, a continuous-flow helmet to prevent the intrusion of contaminated water, etc. Unlike civil engineering divers, we're not exposed to swell or wind, and we benefit from excellent visibility in water at tropical temperatures. Tropical but radioactive..."

France's first female diver to work in a nuclear environment

"It puts a bit of a weight on my shoulders, because the diving profession is not a very feminine environment, and the nuclear industry, although tending to become more feminine, is still very masculine. I think that being a woman in a man's environment can bring a certain sensitivity, a different ap-

proach, which can be good. A woman diver of my size means we have to rethink the ergonomics of the workstation, and innovate with the current version of the dressing and decontamination station. This enables us to improve our working conditions and eliminate the difference between men and women. I never imagined I'd one day become a commercial diver. I'm very proud and very eager to carry out my first missions. It's all I think about now!

I NEVER IMAGINED I'D ONE DAY BECOME A COMMERCIAL DIVER

Nuclear power, a new opening for the Ecole Nationale des Scaphandriers

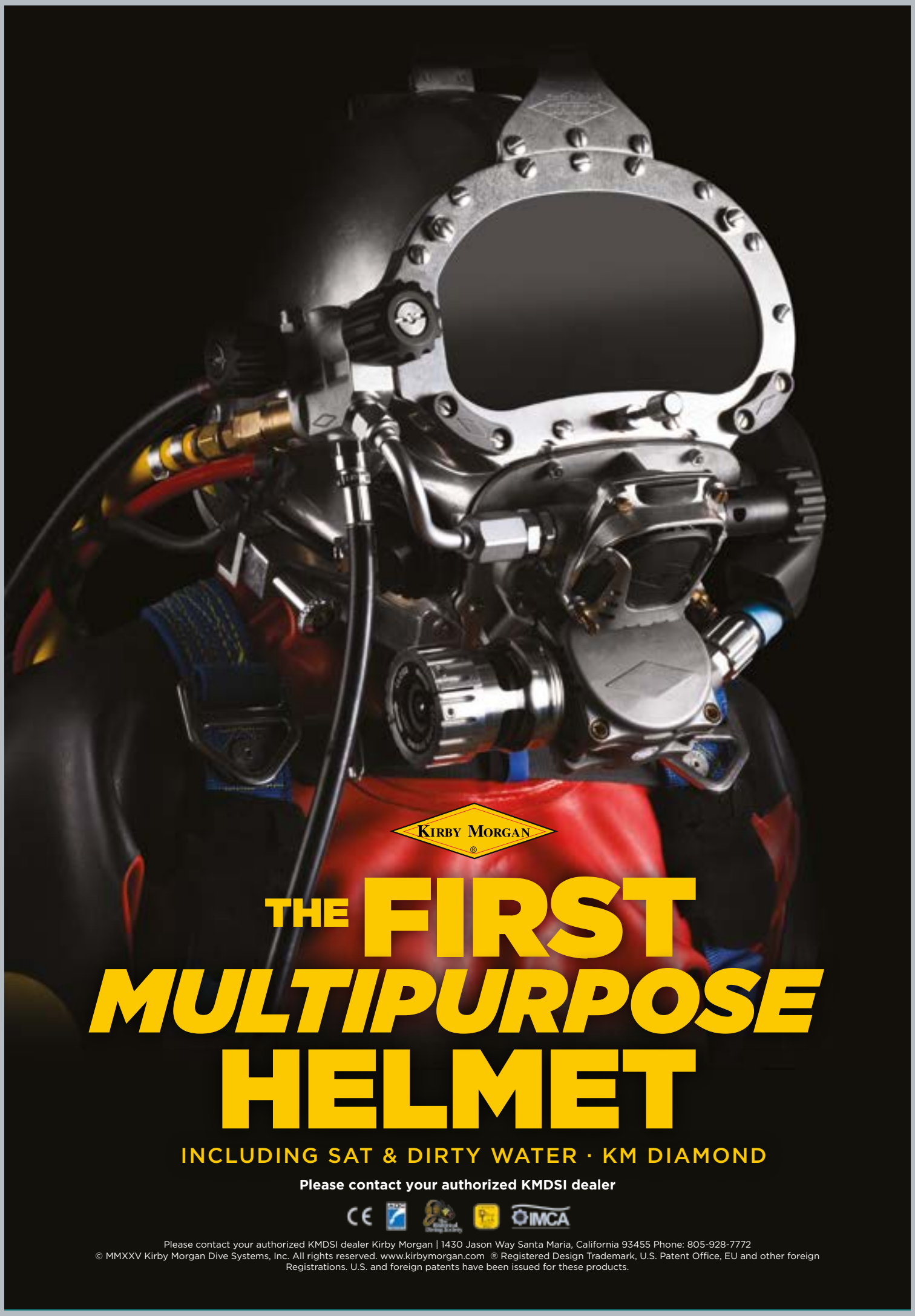
With educational workshops at sea, on lakes, rivers, ponds, dams, harbors, outfalls and bridge piers, ENS boasts the most comprehensive technical facilities in France. This wide variety of training sites, synonymous with quality, attracts students from all horizons. The school now also attracts highly specialized nuclear workers.

"This isn't the first time we've trained commercial divers, who then go on to work in the nuclear industry, having undergone additional training to get to grips with this very special environment.

On the other hand, this is the first time we have trained highly qualified nuclear professionals in diving and underwater work. It's an unusual and highly motivating approach for our instructors.

The school is proud to train the staff of the NUVIA group, the European market leader," explains Vincent Grimalt, deputy director of the Ecole Nationale des Scaphandriers.

ARTICLE WRITTEN BY LYDIA FOURNIÉ AND JÉRÔME VINCENT.
PHOTOS BY LYDIA FOURNIÉ.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KIRBY MORGAN HISTORY PART 3

In 1966, the KMM-6, marked the introduction of the first production mask with an attached hood. It featured two earphones on the inside the hood, protected by metal cups, significantly enhancing hearing capabilities. Prior to this, all masks had face cushions and seals glued in.

A U.S. divers demand regulator was utilized with this mask, and approximately ten units were manufactured. Kirby recalls that the original version incorporated a Scubapro regulator, which was later replaced with a U.S. Divers regulator for easier modification to accommodate the adjustable Dial-A-Breath. Kirby approached Agonic, a machine shop, with a Conshelf 12 regulator and sketches, explaining the need for custom-machined components to serve a specific function. This design involved some engineering work, resulting in about ten units with the hood securely attached. Eventually, Bev proposed the innovative idea of adding a zipper to the hood. Morgan emphasized the significance of this change, as it allowed exhaust bubbles to exit outside the hood, thereby improving hearing. Additionally, the mask featured two earphones instead of one. The air flow control knob still featured a Victor welding valve, a carry-over from the MM3, and the spider remained attached by metal rings.

MCSHX-3

This clam shell helmet shell and mask section were made of fiberglass. A brass steady flow valve metered air to the lens for defogging and a by-pass in the valve provided the air supply to a Scuba-Pro demand regulator at the bottom, front of the helmet. This helmet was completed in 1964, prior to Morgan working with Kirby. It was designed to be dry over the entire head and used a neck seal to work properly. The primary problem was leakage in the joint between the front and rear of the hat. The problem was fixed, but it was time to move onto the next design. Only one was manufactured, it is now in the Kirby Morgan Museum. The Moran Clam Shell helmet provided the starting design for what was to become a standard configuration for all the future Kirby Morgan masks and helmets.

1966. KMCHX-4.
Kirby Morgan Clam Shell Helmet Experimental 4

The Clam Shell model 4 is made of fiberglass with brass fittings. This helmet was designed to meet requirements set by the U.S. Navy Experimental Diving Unit. It was to be used with a semi-closed rebreather system that was back mounted. An oral nasal mask was incorporated inside the mask to reduce CO2 buildup. This model used a face seal, not the neck seal of the earlier model. The rear of the helmet was free flooding. The clam shell hinge was located close to the rear of the helmet. Only one prototype was made and tested. It was returned after several years and is now in the KMDSI company museum. This was one of the three important products for the company since it helped develop their knowledge of lung powered rebreathers.

KMCSHX-5

Kirby Morgan Clam Shell Helmet.The next progression in clam shells, this helmet used a demand regulator as a back up breathing system. The main breathing system was a back mounted semi-closed recirculator. This photograph shows Kirby suited up for a test, using a chest mounted breathing bag on a venturi recirculator. This helmet was free flooding in the rear and was made of fiberglass. Only one was made in 1967.

KMSLH-7

Kirby Morgan SemiLight Helmet. At the same time the clam shell series was being made, the SemiLight fibreglass helmet was designed and manufactured. A face seal separated the face area of this helmet from the back. The first was made in 1966. In all, 36 SemiLights were made and sold. The helmet was discontinued due to lack of time and funding. This helmet was the direct forerunner to the Kirby Morgan SuperLite-17.

THE CLAM SHELL MODEL 4 IS MADE OF FIBERGLASS WITH BRASS FITTINGS

KMSLHX-8

Kirby Morgan SemiLight. One modified version of the SemiLight was made and tested. The balance was not right so the helmet was not manufactured.

MHX-9

Unnamed Helmet. This unnamed helmet was designed to be used with a rubber mask section inserted into the forward part of the helmet. One was made and tested.


MIDDLE EAST FOR COMMERCIAL DIVING
الشرق الأوسط للغوص التجاري

FROM CLASS-ROOM TO OFF-SHORE

**BY MONA SHOBAIR,
REGIONAL SALES MANAGER AT MIDDLE EAST FOR COMMERCIAL DIVING - MECD**

Our students embark on an enlightening adventure that begins with the fundamentals and progresses to an in-depth exploration of offshore subjects. The journey is guided by our highly experienced instructors, who are not only patient but also passionate about sharing their knowledge. At MECD, each instructor specializes in a specific area of expertise, ensuring a comprehensive learning experience for our students. On board we have doctors, diving instructors, engineers etc.

To support our experienced instructors, it is essential to have up-to-date and, most importantly, well-maintained equipment. This ensures the safety of our students and facilitates a smoother educational process. Maintenance is done according to international standards.

The adventure begins long before the course starts, with a "behind the scenes" aspect that includes the selection of students for our programs. By implementing a highly selective criteria for admissions, we ensure that only those who understand the educational process and are committed to their training join our courses. The criteria includes checking their fitness, age, swimming level and medical check etc.. This approach helps us avoid failures in the training process and produces competent divers, which is our ultimate goal.

THE GOOD SELECTION OF STUDENTS LEADS TO A SMOOTH AND FRUITFUL TRAINING PROCESS

Students begin with theoretical lectures, which are just as important as the practical ones. A significant amount of effort is dedicated to theoretical subjects, including in-class practice and homework assignments, culminating in exams for all subjects. Topics covered include physics, physiology, and more. Additionally, First Aid training is mandatory for all our divers to ensure their safety and the safety of others. Practical sessions progress gradually from scuba diving to surface supply. Skills are taught in our Integrated Training Facility (ITF), affectionately known as the "All-in-One." This facility is fully equipped with a diving tank, DDC, dry welding stations, welding simulators, shower rooms, dry rooms, and more. It provides a convenient training environment that greatly enhances the training process. Then, it comes the time to explore the depths in the offshore. Now, that our students are ready and confident, they head offshore for deep dives and other essential skills.

As the adventure comes to an end, a mix of emotions arises. We take pride in our graduates and the effort they have put forth to earn their success. However, there's also a sense of sorrow in knowing we will miss each and every one of them. Our graduates often return for additional courses, where they are always welcomed with warmth. It's important to remember that not every supervisor can be an instructor, and not everyone has what it takes to be a commercial diver.

All in all, the good selection of students leads to a smooth and fruitful training process. Which results in professional graduates ready to serve the market. "A market is never saturated with a good product, but it is very quickly saturated with a bad one." Henry Ford

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A Stronger, Leading Industry Player
In August 2024, Hytech B.V. and Technical Diving Equipment Pommec B.V. officially merged, forming Hytech-Pommec. This merger has created a stronger, larger company that now ranks among the top five in the industry. With a wealth of expertise and an innovative approach, Hytech-Pommec is well-positioned to serve clients with high-quality, tailor-made solutions.

DIVE DECOMPRESSION QUAD-LOCK CHAMBER

HYTECH-POMMEC

DIVING, MEDICAL, TUNNELLING & LIFE SUPPORT SOLUTIONS

Engineering, Production, and Service Excellence

With in-house engineering, production facilities, and service capabilities, Hytech-Pommec successfully completes complex projects. Whether it's a Launch and Recovery System (LARS), Surface Supply Equipment (SSE), a Hyperbaric Oxygen (HBO) chamber or a Life Support Unit, our team in Raamsdonksveer is equipped to deliver. Our dedicated workforce ensures that every project meets the highest industry standards like IMCA design requirements, IOGP, SIR, SWOD and so on.

Serving various Industries

Hytech-Pommec serves a wide range of industries, including governmental, medical, commercial diving, tunnelling, life support and yachting. Our ability to provide customized solutions sets us apart, as we work closely with clients to develop the most efficient and effective systems for their needs and above all for safety. Innovation and quality are at the core of our operations, ensuring we provide cutting-edge solutions that meet the demands of an ever-evolving industry.

Comprehensive Diving Equipment and Services

Beyond large-scale projects, Hytech-Pommec also supplies essential diving equipment, including Kirby Morgan products, reinforcing our commitment to being a one-stop shop for the diving industry. Our expertise extends to maintenance, servicing, and training, helping clients maximize the lifespan and performance of their equipment.

A Vision for the Future

As we look to the future, Hytech-Pommec is committed to driving innovation and maintaining our position as an industry leader. We continuously invest in research and development to push the boundaries of diving technology. With a strong foundation and a clear mission, we are ready to tackle new challenges and collaborate with our partners and customers to shape the future of diving technology.

LARS CUSTOM MADE WITH VARIOUS OPTIONS

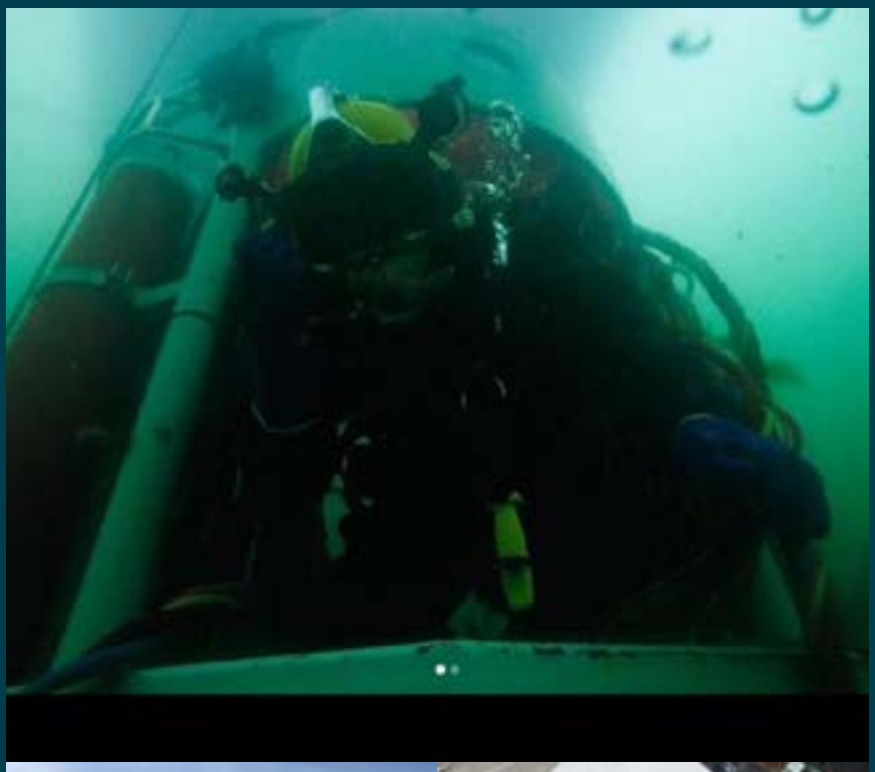
RALPH VAN HEIJST CHIEF TECHNOLOGY OFFICER

THE IDSA ANNUAL MEETING

24TH TILL 27TH OF JUNE 2025

With a pleasure we inform you that the next annual meeting will be held in Sweden, our host will be the IDSA Full Member YGRO, Commercial Diving School, Gothenburg.

The program will be sent to all the members. But the welcome drinks will be on the 24th and the 25 and 26 are scheduled for the meeting and the visit to the diving school. The 27th will be a social program.



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SMP, 2 YEARS INTO OUR JOURNEY

From prototype to standard requirement

My Name is Ben Sharples and I'm the Managing Director of Submarine Manufacturing and Products Ltd (SMP). Based in Preston and established in the 1980's SMP is well known for the design build and manufacture of quality diving and hyperbaric systems.

In December 2022 SMP's founder and owner Phil Connolly sold the business to a team of shareholders who I was able to handpick to support me in running the business.

I've been in the subsea engineering business since I left formal education in the 1990's and whilst working for JFD help grow that business which prior to the Divex acquisition was heavily focused on all things submarine rescue. As a director of JFD my knowledge of Hyperbarics grew as I took on various roles including, business development, business execution and R&D.

My fellow shareholders have similar pedigrees, coming from subsea and marine businesses covering specialisms such as subsea operations, handling systems, naval architecture to name but a few.

Having acquired the business we set to work assessing its potential, quickly realizing that well thought out products which created value for the customers would in this market lead to significant growth.

Our business comprised three main elements, box sales which was the resale of OEM products manufactured by the likes of Kirby Morgan or Broco as an example, engineered products which are SMP proprietary systems that we engineer and build in house and special projects.

In the first year we tripled the turnover of the business winning 3 separate saturation system orders, and doubling box sales. Engineered products stayed flat.

Whilst others had looked at the key cost drivers and optimized their products SMP hadn't staying loyal to original suppliers and configurations. This was set as a priority for year two.

As work on the SAT systems continued so two did product optimization work, where we quickly found ways of reducing costs and getting back to a price point which seemed to represent fair value given the quality of our offering. Sales of containerized decompression chambers, SRP's and panels picked up more than doubling pre acquisition levels

SMP found success pre covid with the supply of a submarine rescue system for Vietnam, having revisited the requirements of the market, especially those of navy's operating conventional submarines we have be able to pick up a significant order for the Indonesian Navy to build them a new 50-person submarine

I BELIEVE THERE IS A GAP BETWEEN WHAT IS TECHNICALLY POSSIBLE AND WHAT IS BEING DONE

rescue vehicle and associated hyperbaric and handling systems.

SMP was approached late in 2024 by a customer who owned a significant amount of diving equipment having acquired the assets of one of the UK's largest air diving contractors. These assets have and continue to be brought back into service/IMCA certification and are now available for hire on an individual or per spread basis.

I'm delighted that for the most part we have been able to retain the skills of SMP's core staff. Where necessary we have brought in new talent particularly boosting project management, design and workshop functions. I have a responsibility to all the staff to keep creating not only opportunities for the business but for them to grow and develop within the organization.

What does the future hold?

For SMP to be successful I believe we need to get out and talk to our customers, and be ahead of the future trends and developments, we'll continue to grow our footprint with more accessible knowledgeable people in new countries.

I believe there is a gap between what is technically possible and what is being done, hopefully we can exploit this gap and use it to bring new products to the market which offer the customer both reduced capex and reduced operating costs.

We've already seen some of this work make it to market, with new panels, new SRP configurations, but there's lots more to be done in and around chambers, control systems, launch and recovery and TUP diving systems.

We will not succeed if we just find ways to make and sell equipment cheaper, it must be offering enhanced levels of safety, be more efficient, perform better and give our customers some form of advantage over other products.

With the above in mind its essential that we retain and build upon our core engineering expertise, its this that lets us translate customers requirements into deliverable hardware solutions.

Further there is significant scope to improve our systems and processes which will be necessary to allow the team at SMP to safely scale to meet the demand we expect to see in what a buoyant market is currently.

In the meantime, we thank all our customers past present and future for there continued support as the SMP journey continues to unfold.

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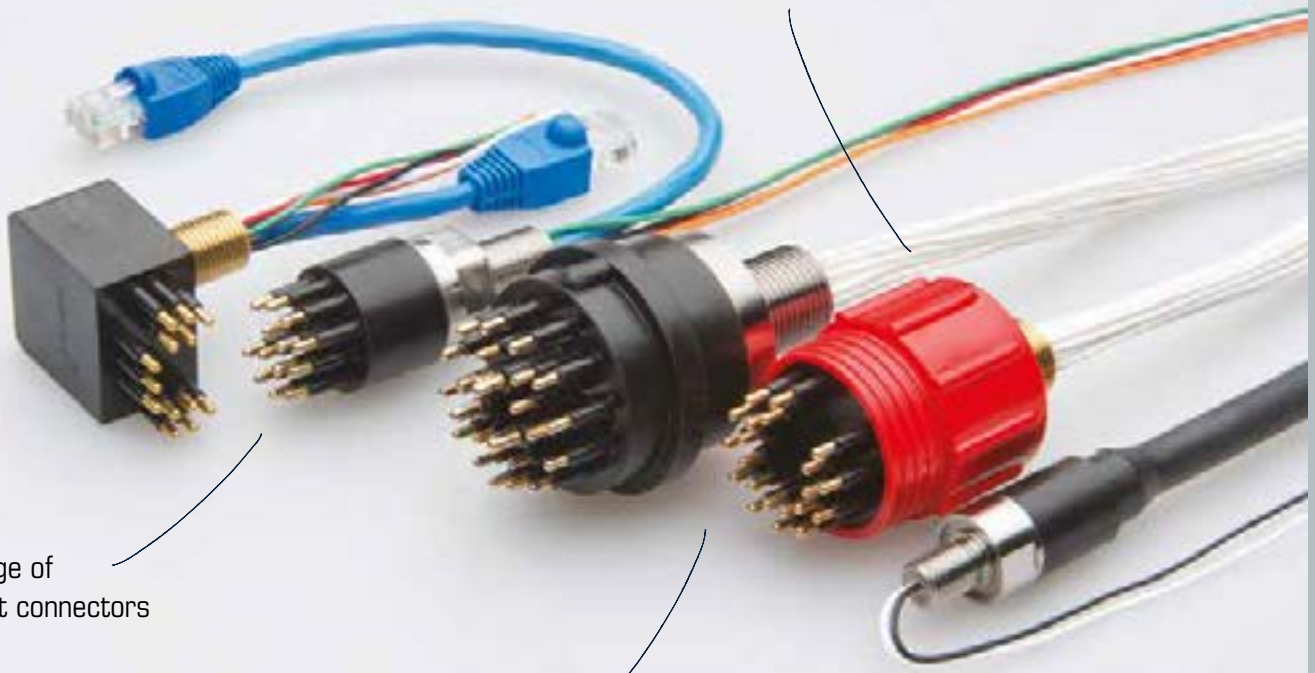

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WHAT ARE THE DO AND DONT'S

FOR SUBCONN® UNDERWATER CONNECTORS?

Follow these instructions carefully to ensure correct use of your SubConn® connectors.

Handling

- **Connectors must be greased with Molykote 44 Medium before every mating**
- **Always grease O-rings on BH, BCR and FCR connectors with Molykote 111**
- **Disconnect by pulling straight out, not at an angle**
- **Do not pull on the cable and avoid sharp bends at cable entry**
- **When using a bulkhead connector, ensure that there are no angular loads**
- **Make sure to apply the recommended torque when tightening bulkhead nuts**
- **SubConn® connectors should not be exposed to extended periods of heat or direct sunlight. If a connector becomes very dry, it should be soaked in fresh water before use**

For more information contact MacArtney Benelux ; Robbert de Bie on rdb@macartney.com or visit our website: www.macartney.com

Greasing of SubConn® connectors.

Greasing and mating under water (wet mate)

- Connectors must be greased with Molykote 44 Medium before every mating.
- A layer of grease corresponding to approximately 1/3 of socket depth should be applied to the female connector.
- All sockets should be completely sealed, and transparent layer of grease left visible on the face of the connector.
- After greasing, fully mate the male and female connector and remove any excess grease from the connector joint.

Greasing and mating above water (dry mate)

- Connectors must be greased with Molykote 44 Medium before every mating.
- A layer of grease corresponding to minimum 1/10 of socket depth should be applied to the female connector.
- The inner edge of all sockets should be completely covered, and a thin transparent layer of grease left visible on the face of the connector.
- After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on pins and in sockets.
- To confirm that grease has been sufficiently applied, de-mate and check for grease on every male pin. Then re-mate the connector.

MEDICAL ISSUE FOR SAFE DIVING

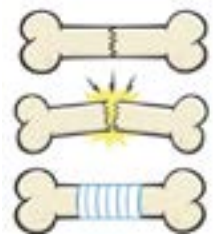
By Dr Hossam A. El-Masry - CEO Middle East for Commercial Diving MECD

MUSCLOSKELETAL INJURIES

One of most common injuries that may happen during diving are the muscloskeletal injuries, there are Four types of muscloskeletal injuries:

Fractures and fissures

Break, chip or crack in any one of the over 200 bones in the body. Fractures can be open or closed



The clinical picture may vary from a deformity of the limb or the limb may be positioned at an odd angle, swelling and discoloration, a grating noise or feeling & the person may have heard a popping sound, Pain, inability to move the injured area sometimes exposed bone.

Dislocations

Occurs at a joint; one or more bones move out of their normal position, causing tears or ruptures in the ligaments that hold the bones in place

Strains

Are a tear to either the muscle fibers or the tendons connecting the muscle to bone.

Sprains

Occur when ligaments holding the bones of a joint in place are overstretched, frayed, or torn.

Treatment:

R	Rest
I	Immobilize
C	Cold
E	Elevation

Rest; We have to assure the victim & ask him to stay calm as minimizing the movement will decrease the pain & prevent complications

Immobilize; by using splints and bandaging like rigid splints; boards, folded newspapers or magazines or soft splints ; folded blankets or towels, pillows, wetsuits or anatomic like splinting to an adjacent finger, or splinting an injured leg to the other leg.

Cold; Use available cold objects available.Cold the affected area every 20 mins for first 48 hours. Cold helps in reduction the circlation which will decrease the edema (will decrease the pain) & affect the nerve endings will decrease the pain.

Elevation; helps in reduction of the circlation which will decrease the edema (will decrease the pain).

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- Diving Supervisor (Inshore - Offshore
- Underwater Welding course
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- Trainee Air Diving Supervisor - TADS (IMCA recognized)
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THE FRIULI VENEZIA GIULIA REGION

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Article found on www.seareporter.it date 4 nov, 2024

PALERMO – A change of pace for the Sicilian region on the industrial diving front.

The Department of Labor, Employment, Orientation Services Training Activities, in fact, has finally approved the online publication of the form for the variation of the position/level of registration and the data reported for subjects already registered in the Telematic Repertoire of Industrial Diving on the website of the Sicilian Region.

In practice, it is now possible, for those who are already registered in the repertoire, to request to change their position, without losing the number of inclusions in the repertoire, by applying for a change of their position from Inshore to Top Up level, from Inshore to Saturation level or from Top Up to Saturation level.

There are two ways to be able to obtain the transition to a higher level, for those who are already enrolled in the online repertoire, having already attended a professional training course that allowed them to be enrolled: attend the professional training courses for the respective levels or, alternatively, an "assessment" i.e. an assessment of the skills that can be demonstrated through an IDSA patent as provided for on page 7 of Presidential Decree no. 31/2018, i.e. the evaluation of the number of dives and bottom times as established by IDSA standards. Bottom times that must in any case be adequately reflected in the individual Logbook, an individual notebook that shows all the training and work diving experiences in the possession of every single commercial diver.

All this must be done in compliance with the IDSA (International Diving Schools Association Standard & Procedures of 14 April 2014) standards, represented by the number of dives and diving activities provided for by law 07/2016.

In the new circular, approved by the Department of Labor, Employment, Orientation, Services and Training Activities, Service VI, which deals with the coordination of employment center services of youth and precarious policies, national and transnational mobility and training courses aimed at the exercise of industrial diving activities, an important novelty is represented by the reference to the IMCA circulars of 24 March 2023, No. 1384 "Information Note" of the IMCA (Minimum Criteria for Offshore Surface Supplied Diver Training) and No. 1385 "Information Note – Diver Training Certificates – IMCA Acceptance Criteria" provisions with which IMCA recommends for Offshore the IDSA Level 3 (Surface Supplied Offshore Air Diver (IDSA Level 3) courses of the International Diving Schools Association (IDSA) i.e. the Top Up, if there is credible and independent supervision by the Public Administration, that ascertains the achievement of the qualification, with a single point of contact such as the Department of Labor which carries out the checks in Sicily.

Finally, once registration has been completed, the department will issue the new card updated with the new level of qualification. The forms put in place by the Sicilian region now create an even closer link between IDSA, IMCA and the Labor Department of the Sicilian Region itself. Close collaboration that in Italy takes on an even more important character for the whole industrial diving, in the light of a bill, with characteristics like the law promulgated by the Sicilian Region, which will be able to create a repertoire also in the Friuli Venezia Giulia region.

In the near future, in fact, divers, certified according to training courses that refer to IDSA standards, will have the opportunity to register in Sicily or Friuli Venezia Giulia, in an online directory from which it will be possible to "draw" the names of divers with all the papers in order, because they possess the skills that comply with the safety standards provided for by Legislative Decree no. 81 of 2008.

IDSA ON THE ROAD

One of our Full Members SAB from Belgium has been on an exhibition the DIVEXPO in Antwerp on 7 and 8 of December 2024. And has the IDSA banner on the stand, please write a story about your school telling, how you bring IDSA to the industry.

It is always good to see the IDSA members on exhibition and to promote the IDSA, banners can be ordered with the IDSA office and if you need some more DIVENEWS for your exhibition please sent an email to the office for this.

They will be joining the DIVEXPO again on the 6th and 7th of December 2025.

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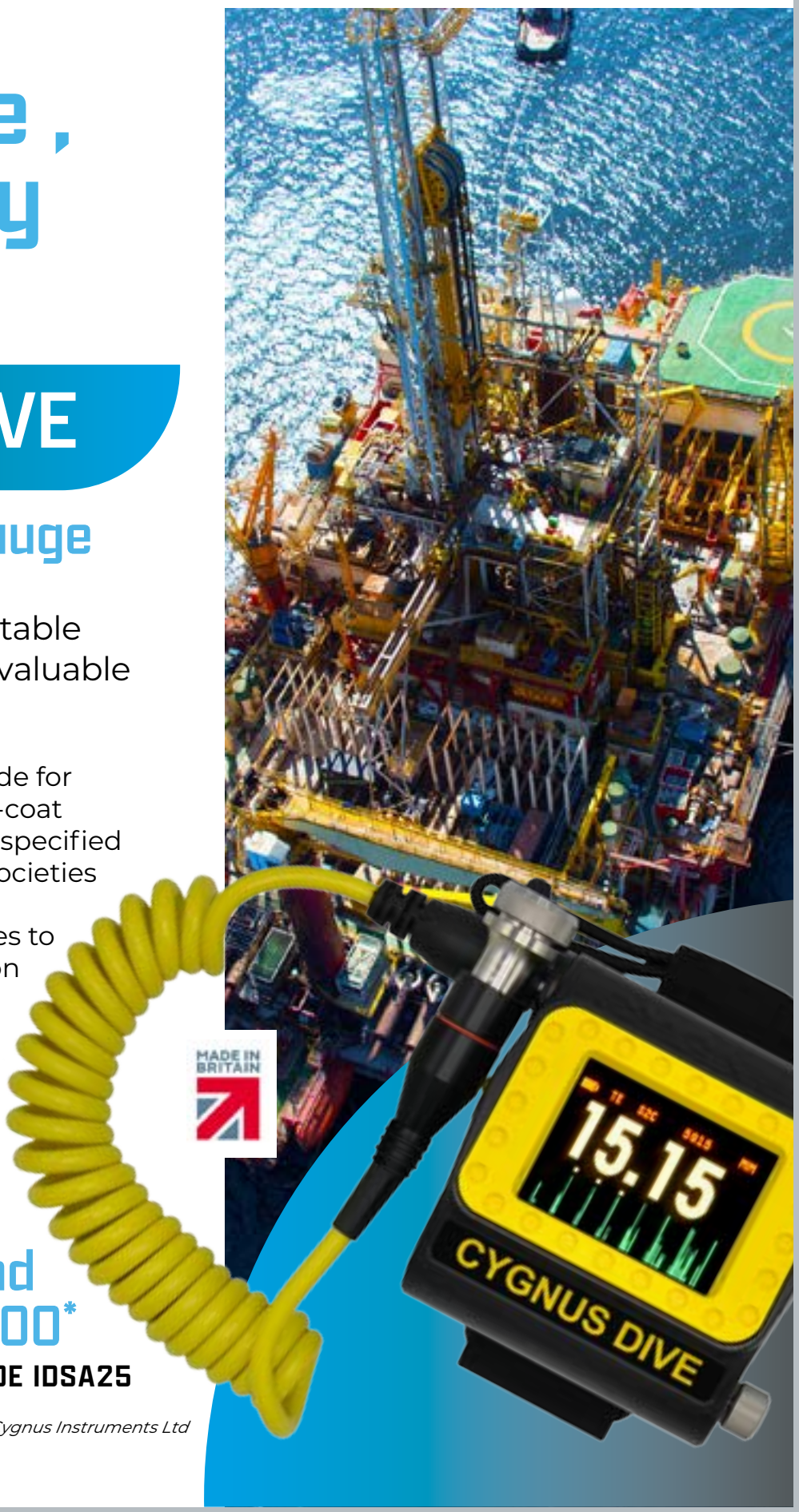

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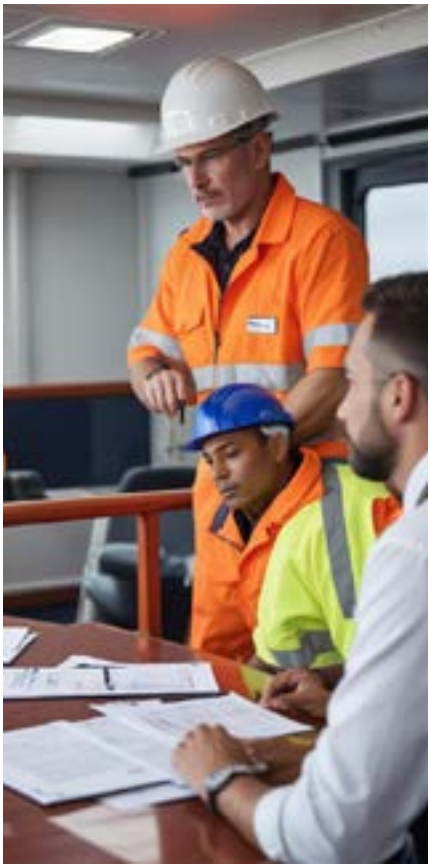
KBA TRAINING CENTRE PTE LTD

CLIENT WORKSITE REPRESEN-TATIVE (CWR) TRAINING

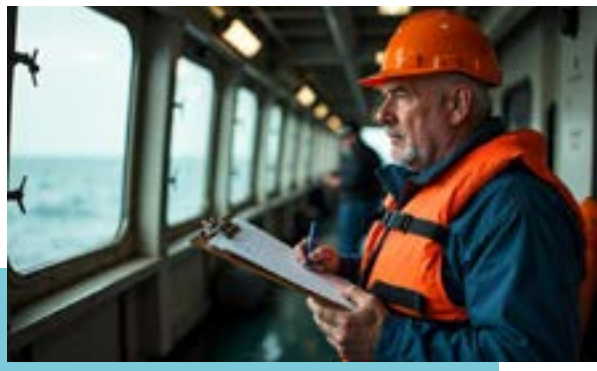
Knowledge development is a core responsibility of diving supervisors, engineers, client worksite representatives. In doing so, one will be able to maintain current skills with industry guidelines and requirements, develop and enhance technical and soft skills often required in the complex world of commercial diving, safety, and leadership.

KBA Training Centre Pte Ltd's (KBAT) Client Worksite Representative (CWR) training course has always been a popular course, for company senior management teams, vessel masters, safety personnel, diving supervisors, ROV Supervisors, and divers. Most of such personnel were looking to enhance and update their knowledge and skills with potential new employment opportunities opening upon completion. The popularity of the course motivated KBA Training to develop an online E-Learning course enabling individuals to complete this training with more flexibility and reducing time away from home and travel costs. After several months of content development, filming, and interviewing industry Subject Matter Experts (SMEs), the course was launched in October 2024 with excellent results and feedback. While the course focuses on diving operations and safety, the concepts covered are much broader about the roles and responsibilities of client worksite representatives. From career change challenges to the goals of contributing to positive change, lessons learnt from shared experiences to implementing change and the challenges from this process to successful outcomes.

If you are looking for a dynamic E-Learning course that is engaging, insightful, able to enhance your current knowledge base, and one that



demonstrates your commitment to continued personal development, then this course is for you. As KBA Training celebrates our 19 years of 'making the difference' and leading the pathway forward in providing you with quality training, leading to new career opportunities and enhancing safety in the workplace, we are pleased to share a special discounted fee for a limited



period. Contact us at courses@kbatraining.org for details or www.kbatraining.org for course information or to register.

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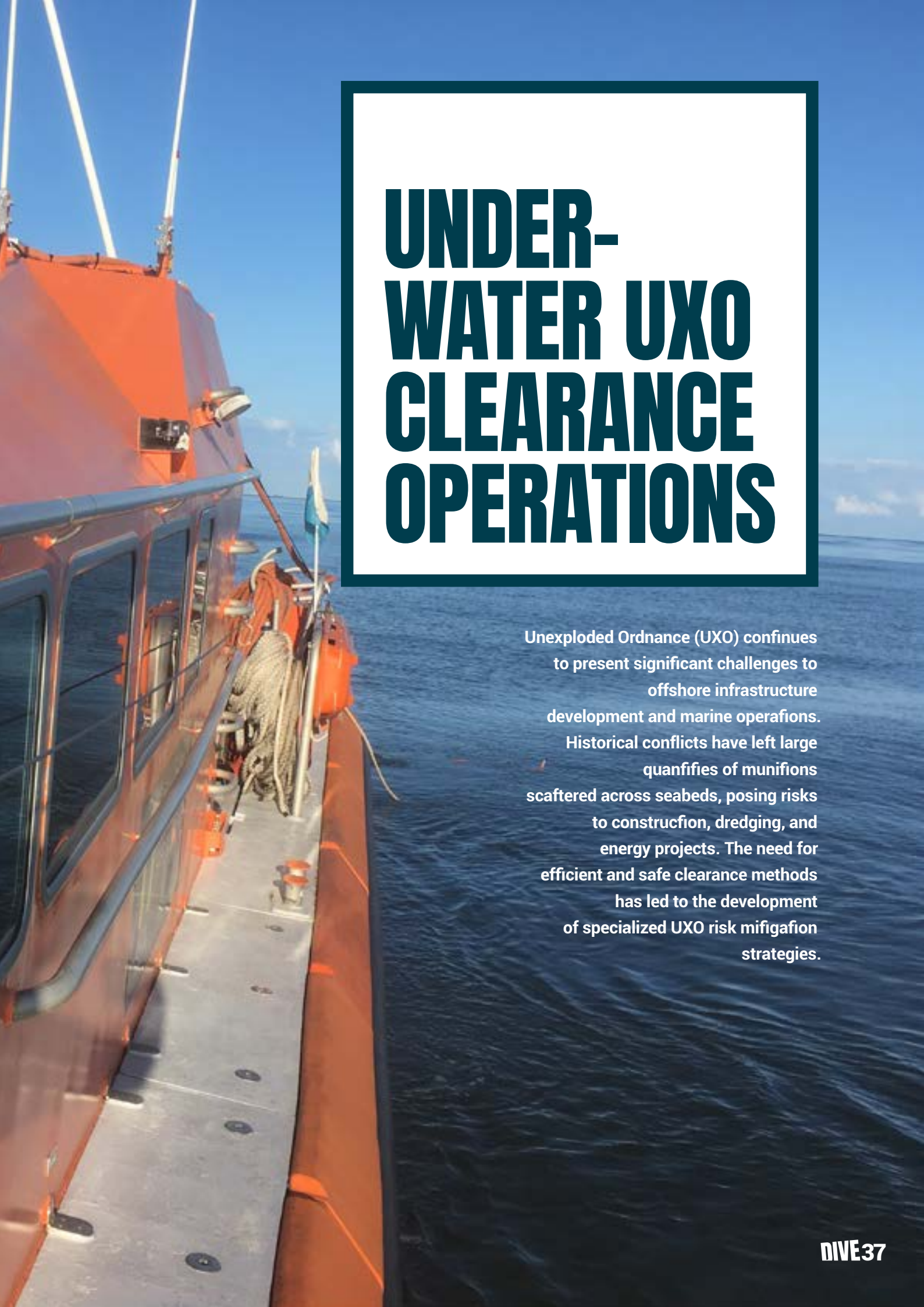
About KBA Training Centre Pte Ltd
Established in 2006, KBAT has been in the forefront in providing training for the offshore, inland/inshore and the health and safety sector. KBA Training is the premier venue for International and National accredited training and is positioned to offer integrated specialist solution for consultancy and training to the onshore, wind / renewable energy and offshore industry. Website: www.kbatraining.org


GARMIN



UNDER-WATER UXO CLEARANCE OPERATIONS

Unexploded Ordnance (UXO) confinues to present significant challenges to offshore infrastructure development and marine operafions. Historical conflicts have left large quanfifies of munifions scaftered across seabeds, posing risks to construcfion, dredging, and energy projects. The need for efficient and safe clearance methods has led to the development of specialized UXO risk mifigafion strategies.

UXO clearance operations require highly trained divers who are equipped to handle complex underwater environments. These professionals are tasked with identifying, excavating, and safely disposing of potentially unstable munitions. The process involves careful planning, risk assessment, and the implementation of mitigation measures to protect personnel, assets, and marine ecosystems.

Historical context

The seabeds of Europe and other regions still carry the legacy of past wars, where naval mines, bombs, and artillery shells were extensively deployed. During World War I and II, millions of explosive devices were laid across strategic waterways. Many of these devices remain a threat, particularly in areas like the North and Baltic Sea, which is estimated to contain thousands of unexploded munitions, including chemical weapons dumped after the conflicts.

Decades later, these remnants continue to pose hazards to maritime industries, fisheries, and infrastructure development. Understanding this historical context highlights the importance of systematic UXO clearance strategies to enable safe navigation and construction activities.

Risk mitigation strategy

A comprehensive UXO risk mitigation strategy ensures the safety of personnel, protection of assets, and preservation of marine ecosystems. This strategy involves several key phases:

The process begins with a UXO threat assessment, which evaluates the likelihood of encountering explosive remnants based on historical research and site analysis. This step provides insights into past military activities and identifies potential contamination zones. Areas assessed to have minimal impact may allow ordnance to remain in place with mitigation measures implemented to reduce interaction risks.

Once a threat is identitied, a detailed UXO risk assessment follows. This assessment calculates the likelihood and potential consequences of UXO encounters during operations. Factors such as sediment displacement, ordnance migration, and burial depth are analysed to inform mitigation planning and ensure risks are reduced to as low as reasonably practicable (ALARP).

The next step involves conducting a geophysical survey to locate and map potential UXO targets.

Tools such as magnetometers, side-scan sonar, and multibeam echosounders are used to create a geophysical image of the area. These surveys help divers and project managers prepare for clearance operations with precise data.

After the survey, identification and clearance operations begin. Remote Operated Vehicles (ROV) and/or Divers manually excavate munitions buried beneath sediment layers, carefully exposing them without triggering detonation. Once exposed, ordnance is neutralised or relocated, often involving the placement of explosive donor charges for controlled detonation. Throughout the process, strict safety protocols and environmental mitigation measures, such as bubble curtains and acoustic deterrents, are employed to minimise ecological impact.

Underwater uxo clearance operations

Following clearance, an ALARP certification is issued, confirming that the site has been rendered safe for development activities. This certification ensures compliance with regulatory standards and guarantees that risks have been mitigated to acceptable levels.

The future of uxo clearance and career opportunities

The field of UXO clearance is evolving rapidly, driven by advancements in remote technology and increasing demand for safe offshore operations. The growth of renewable energy projects, such as offshore wind farms, has intensified remote operations but the need for skilled UXO divers and engineers are still highly appreciated. These professionals not only play a crucial role in ensuring safety but also contribute to environmental protection and sustainable development.

For divers considering a career in UXO clearance, the opportunities are vast. It is a career that combines technical challenges, adventure, and the satisfaction of making a real difference. With proper training and certification, divers can become part of an elite group of specialists equipped to handle the complexities of underwater explosive hazards.

As technology advances, the integration of innovative tools such as automated detection systems, advanced sonar imaging, and improved diving equipment will further enhance operational efficiency and safety. The future of UXO clearance promises exciting developments and a continuous need for dedicated professionals ready to meet these challenges head-on.

Challenges and considerations

UXO clearance diving presents unique challenges, including poor visibility, strong currents, and the need to work in confined spaces. Corrosion and structural instability further complicate operations, requiring divers to handle munitions with extreme care. Safety is paramount, and adherence to risk mitigation strategies, such as pre-dive briefings, emergency procedures, and continuous monitoring, is critical to success.

The work also demands a high level of physical and mental resilience. Divers must be capable of maintaining focus under pressure while operating specialized equipment in challenging conditions.

Effective teamwork and communication are essential to ensuring smooth and coordinated operations.

FOR DIVERS CONSIDERING A CAREER IN UXO CLEARANCE, THE OPPORTUNIFIES ARE VAST

Conclusion

Underwater UXO clearance remains a vital component of maritime safety and development. It combines technical expertise, environmental awareness, and precision execution to mitigate risks posed by historical munitions. As offshore infrastructure continues to expand, the demand for skilled UXO divers will only grow, offering opportunities for both seasoned professionals and newcomers to the field.

The ongoing evolution of techniques, tools, and training ensures that UXO clearance operations meet the highest safety standards while addressing environmental concerns. By implementing robust risk mitigation strategies, UXO divers enable safe and efficient offshore development, supporting industries and protecting ecosystems worldwide.

About the author

Auke van der Velde is a Chartered Engineer and former Royal Netherlands Navy Clearance Diver with over 25 years of experience in subsea UXO and EOD risk mitigation. He holds senior EOD certifications, including IMAS Level 3+, and provides specialised consultancy and operational support through his company Aukssupport. Auke is passionate about new innovations and inspiring the next generation to take on the exciting challenges of UXO clearance and engineering.

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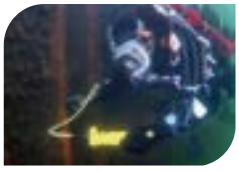

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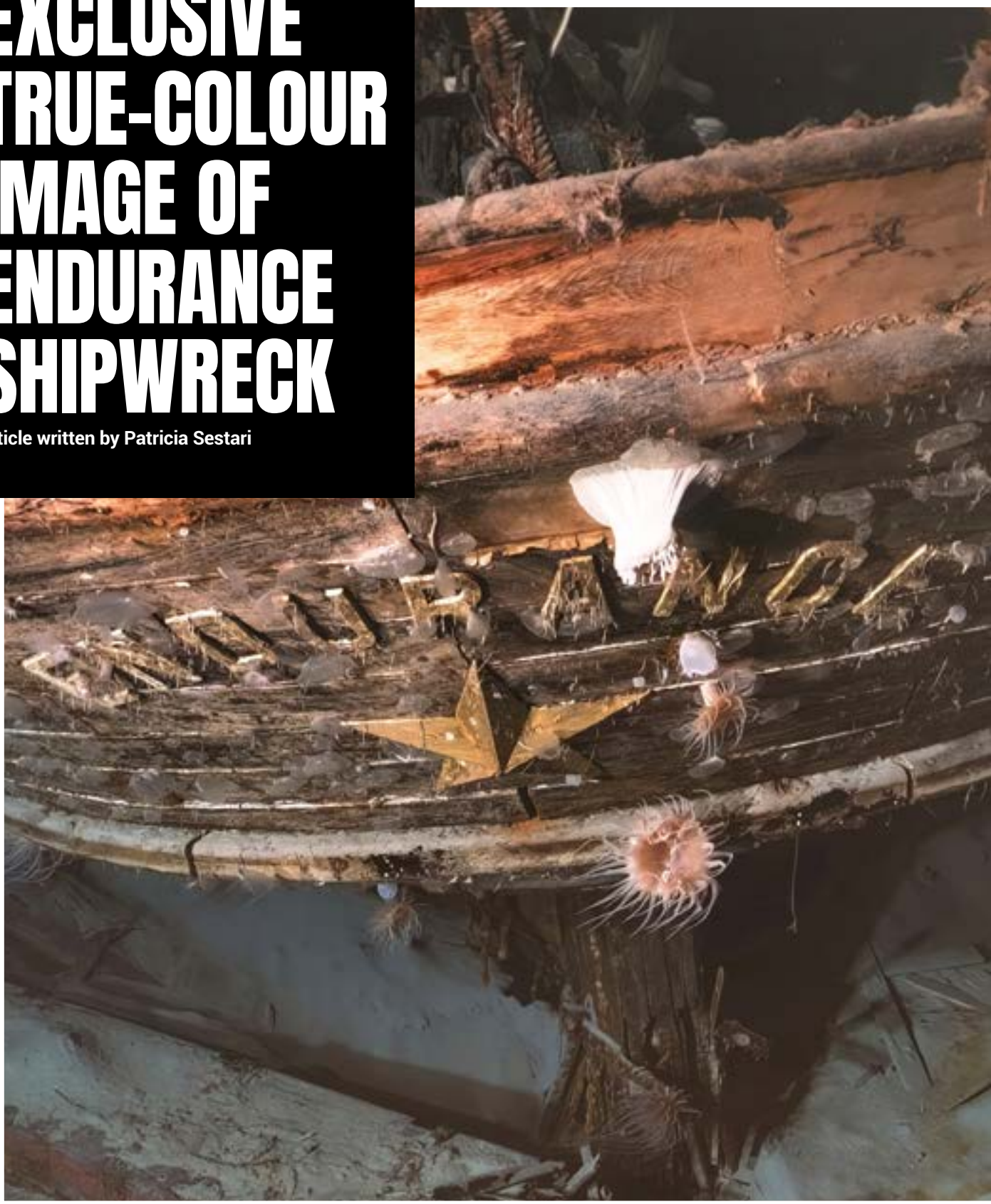
UNVEILING A NEW PERSPECTIVE:

RELEASED: EXCLUSIVE TRUE-COLOUR IMAGE OF ENDURANCE SHIPWRECK

Article written by Patricia Sestari



Voyis and the Falklands Maritime Heritage Trust reveal unprecedented details of the legendary vessel using advanced optical technology.

The Falklands Maritime Heritage Trust and Voyis Imaging proudly present an exclusive new image of the historic Endurance shipwreck. Captured using the cutting-edge Voyis Observer Imaging System, this latest image provides an unparalleled view of the vessel and the seabed, revealing intricate details with clarity never seen before.

Building on a previously released image of Endurance, this new capture showcases the ship's preserved structure with remarkable precision, made possible through Voyis' True Colour technology. Unlike traditional underwater imaging, which can suffer from colour distortion and reduced visibility, the Voyis Observer Imaging System accurately restores the shipwreck's natural hues and textures, offering a more authentic representation of how Endurance appears in its final resting place beneath the Weddell Sea. Since red wavelengths are absorbed more rapidly by water, the perceived colour of underwater objects is significantly altered. Standard cameras do not compensate for this underwater colour shift, as their colour formation models neglect the strong wavelength dependency of light in a submerged environment. As a result, shipwrecks and subsea assets often appear with unnatural blue or green tints.

Voyis' True Colour technology addresses this challenge by leveraging machine learning to efficiently train a Colour Correction Model for the current survey location. This survey-grade imaging solution corrects the distortions caused by underwater light absorption, producing images that represent colours as they would be perceived in air. This advancement allows explorers to visualize the true colour of subsea assets, uncovering fine details that standard cameras fail to capture.

"This new image is a testament to the evolution of underwater exploration technology," said Elena Lewendon, COO at the Falklands Maritime Heritage Trust. "The level of detail we can now see allows us to deepen our understanding of Endurance's condition and better appreciate the remarkable state of preservation of this legendary vessel."

Voyis' Observer Imaging System was designed to overcome the challenges of deep-sea imaging by delivering high-resolution optical data with true colour fidelity. By eliminating artificial lighting inconsistencies and improving image sharpness, this system sets a new benchmark for underwater archaeology and heritage preservation.

"Voyis is honoured to have contributed to the exploration of Endurance," said Luke Richardson, VP Sales & Marketing at Voyis. "Our Observer Pro Imaging System, with true colour correction, allows us to see the wreck as it truly is, preserving its legacy with the highest level of accuracy possible."

This latest image serves as a powerful reminder of Endurance's enduring story, a tale of resilience, exploration, and the boundless capabilities of modern technology in uncovering the past.

ORIGINAL IMAGE FROM THE ENDURANCE CAPTURE USING A STANDARD VEHICLE CAMERA

NEW IMAGE FROM THE ENDURANCE CAPTURED USING VOYIS OBSERVER IMAGING SYSTEM WITH TRUE COLOUR CORRECTION

HK-P

Fully CE15333-1:2008 certified diving system for 2 divers, developed by DZP GROUP

The HK-P Model 2 Diving Panel has a flow rate per diver of 900 ltr./ minute and is available in 200 and 300 bar versions. All components are standardized and available internationally. The Exclusive Walther Prätz quick connectors are specially designed and certified forunderwater use. HK-P Model 2 is mounted in a durable Pelicase 1600 and can be carried by one person.
The pressure regulators are frost resistant and have been successfully tested at -20°C air temperature and +4°C water temperature at 50m dive depth. The panel allows diving with air, oxygen and Nitrox. The required adapters, as well as gas analysis are optionally available.

A complete system consists of:

- 1 x panel (HK-P, HKP-2T or DAR1210)
- 2 x Kirby Morgan helmet
  (SL27, KM37 or KM37SS - with 350 superflow, balanced 455, M48 MOD1 Surface, BM18)
- 1 x video system (Axsub Axview2-P)
- 2 x camera (AxSEE30)
- 2 x light (AxLIGHT35)
- 1 x Combox with black box recording (AxTALK)
  - 2 x HP hose optional up to 30m length
  - 2 x LP-hose for oxygen optional up to 30m length
- 2 x Harness (Aquavest, MK5,…)
- 3 x Umbilical configured up to 120m
- 2 x 7ltr. 300bar Bailout kit with Quick Disconnect incl. 1st stage, LP hose & pressure gauge
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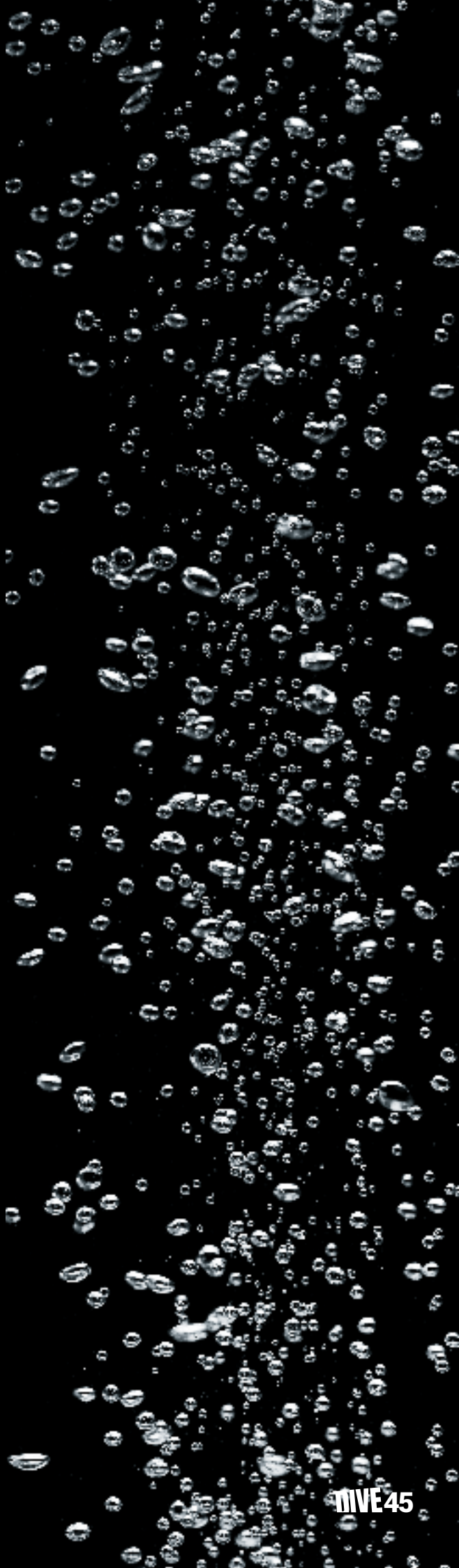
PETER DICK, HISTORICAL DIVING SOCIETY

WHAT HAS A TEA SELLER GOT TO DO WITH DIVING?

JEAN-JÉREMIE POULLIOT AND THE FIRST DEMAND REGULATOR

BY PETER DICK

One of my occasional visits in the 1980s to the book lined basements of the UK Patent Office, saw me thumbing through any number of tomes in search of a particular early French diving patent specification. Almost on the point of giving up after some hours, I turned a page and suddenly realised that I was looking at something very special and interesting; a specification for a 'régulateur pneumatique appliquè à l'art de respirer dans l'eau', enrolled on August 24th, 1827. Not what I had originally been looking for, but an application that fitted in very well with what I already knew about the history of diving.

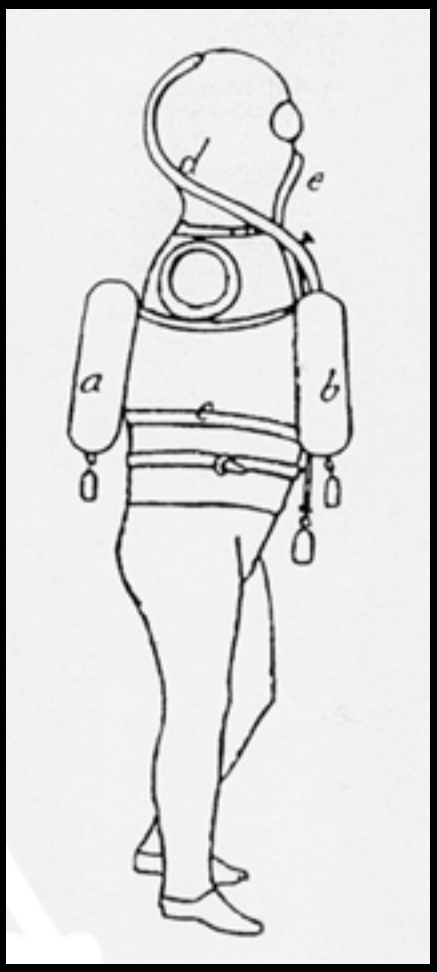


Hand-Controlled Gear

In the first half of the nineteenth century, the French undoubtedly took a lead in what just after World War II they were to call, 'free-diving': self-contained diving where the diver carried around his own compressed air supply. Beginning, it had always seemed, with another French patent specification '... appareils de navigation sous-marine' (No.5471, September 28th, 1827), enrolled by Jean Batiste Baudouin. The closeness of the dates (they are one month apart) implying that Baudouin may in fact have been reacting to the earlier Poulliot patent.

Baudouin's patent described a sophisticated submarine, using bottles of compressed air at 80 to 100 atmospheres and 'lock out' facilities (not the earliest proposal by a long way) for the diver, using gear with a hand-controlled air flow (1), to exit and work (diagram 1). A metal helmet, supplied through a tube (d) from 'two containers for air' (a and b), mounted on the chest and back and 'joined by a tube' (c). The air supply tube into the helmet had a tap to control the air flow and in front of the mouth was an exhaust tube (e), with a valve. The impression is that the diver would have kept air flow to a minimum and perhaps closed the tap completely on occasions to converse air; his problem being that he could not carry around a large supply. This is because gas reservoir or tank technology was still in its infancy. Throughout most of the nineteenth century, at best diving reservoirs were made of copper and often of iron sheets rivetted together. Baudouin's 80 to 100 atmospheres was probably more of an aspiration, based on a knowledge of human respiratory requirements (2)

Diagram 1 *Baudouin's '... appareils de navigation sous-marine'(1827). The diving dress was very basic, as shown in the drawing. A cuirass with a metal helmet, with attached to a leather trousers and arms. This was supplied through a tube (d) from two containers 'for air' (a and b), mounted on the chest and back and 'joined by a tube' (c). The supply tube had a tap to control the air flow. In front of the mouth was an exhaust tube (e), with a valve.*



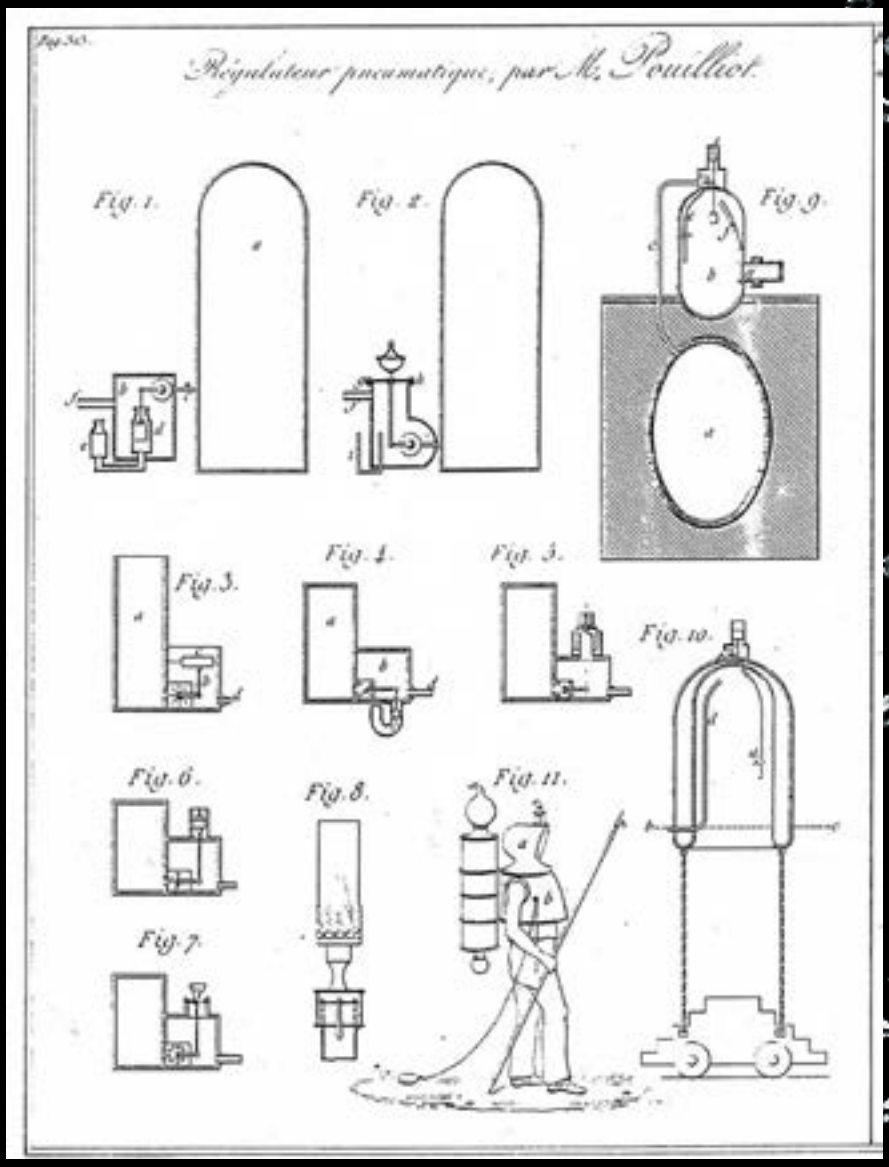
Later developments in self-contained hand-controlled equipment centred on America. The first practical application being credited to Charles Condert (1832), who made a number of successful dives in the East River, next to the Brooklyn factory where he was employed as a mechanic, before he unfortunately drown. T. Cato McKeen (1863) of Dunkirk, New York, put forward two designs and talked of 59 atmospheres as a working pressure. It was to be the 1920s, before Yves Le Prieur finally brought such equipment to its practical perfection.

A Background to Early Nineteenth Century Demand Regulators

Throughout the ages diving gear has evolved in line with developing technologies and, in the case of demand regulators, it was to be improvements in the manufacture of coal gas which led to a fledging gas-light industry. Its practical phase probably started in the last decade of the eighteenth century with either, Phillipe Lebon in France or William

Murdoch, a young Scots engineer, in England and thereafter the use of coal gas expanded rapidly.

A need to cut down on gas wastage during its distribution saw the introduction of 'regulators' or 'governors', which equalised pressures and regulated the gas flow from the large capacity storage gasometers to street mains and later between the floors in houses. By design they were inverted bells floating in water, whose downward movement opened a cone shaped valve, which admitted gas into the bell volume below water level. From here it escaped under a regulated pressure down the supply pipe. A small 'governor', much like that described above, was reportedly first used in Britain by Samuel Clegg and Samuel Crosley in 1817 (3) and thereafter things moved rapidly, as by 1825, Crosley patented an improved and more sensitive diaphragm design, looking very much like the regulator familiar to anyone who dived in the era of twin hose gear (4). To date, I have not managed to find anything corresponding to this regulator among early French or German patents, though we should accept that something may well exist. All it required was for someone to realise that a coal gas or hydrogen gas regulator could be adapted to provide air only when the diver inhaled (on demand), and so make efficient use of the available compressed air supply.



An Inventors Ideas on Diving

That person seems to have been sieur Jean-Jéremie Poulliot of Paris, who on December 29th, 1826, entered his first patent specification (French patent No.1975) for a pneumatic regulator, applicable to hydrogen gas apparatus and other vapour machines. The associated drawings (figs.1 and 2 on the original patent drawing), seemingly showing portable gear, with suitable regulator devices.

Diagram 2

Poulliot's Patent Specification Drawing, to which figure numbers in the text refer

On August 24th,1827, an addition detailed the regulator applied to the art of breathing underwater (and in other irrespirable atmospheres). Poulliot it appears, had undergone a period of realization in the intervening eight months. When Peter Willson, who translated the patent for me, first began to read the specification he became increasingly

enthusiastic. Poulliot had a good way of putting things over and was something of a visionary. This was not a boring technical specification, but more of a discussion document on his ideas.

Significantly, Poulliot talked of man going underwater and staying as long as he wanted, using compressed air in tanks and a regulator to breathe. He also argued that, while it was known that man could stand rarefaction (on mountains), no one knew what degree of compression he could stand. He went on to visualise divers living under a large bell, even at 300 feet depth (they still measured in feet in early nineteenth century France) he thought they should have no uncomfortable feelings, as long as fresh air was introduced. If they could breathe air at 9 atmospheres pressure (5), he reasoned that it would be possible to go deeper.

To test man at high pressure, he conceived the idea of a vessel, fed by compressed air from a large wooden reservoir sunk in the ground (fig. 9). The man entered through a door, in a trunk on the side, and could control the pressure within the vessel by hanging weights from a piston regulator. Exhalations were vented through a tube with a valve.

Next was l'hygrodôme, a underwater house and another conceptual design (fig.10), totally enclosed and sunk by using sandbag ballast. It had rooms, offices and space for the workers to be housed in the roof (presumably in line with the accommodation for French domestic servants on land. In England they lived in the basement). As early as 1649 Bishop John Wilkins had visualised whole communities living underwater and to this end. Where Wilkin's had puzzled over how air could be supplied, Poulliot's house had double walls acting as storage for compressed air sent down from a boat on the surface; the input of air being controlled by a piston regulator which sensed the pressure at depth. Within this house, a whole office he said would be 'charged with administration of the vital fluid', working in watches as on board a ship.

The idea was for the workers (using diving gear) to go out and work on the seabed, 'in the fields' as he put it, returning when they required to refill with more air. These workers became, what Poulliot termed hydrobats (as in acrobats) and he pointed out that adequate insurance cover needed to be provided.

The 'Hydroploma' Diving Equipment

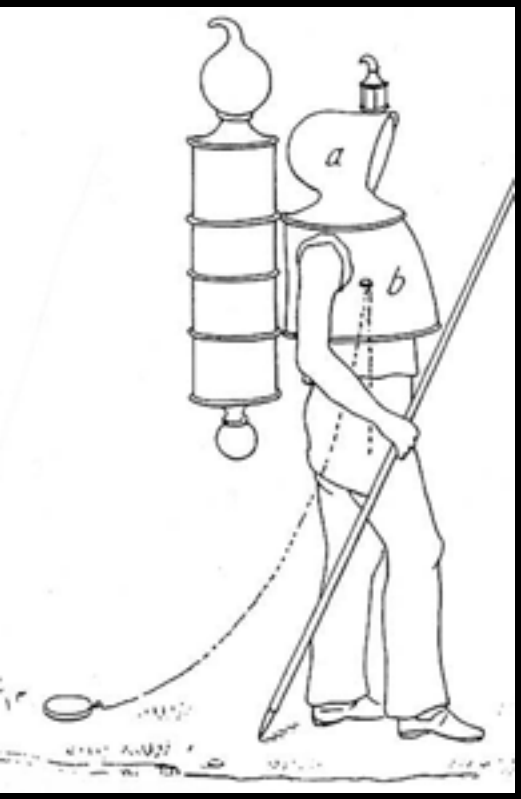
Then came the l'hydroploma (fig. 11), a underwater suit, which is of special interest.The diver wore a morion (helmet) with a visor with a half inch thick faceplate crystal, bound in place and sealed with mastic. This helmet was to be wider at the bottom, so that it covered the shoulders and had two parts; a helmet proper joined to a cuirass (covering the chest) by a hermetic seal, 'à la Moulfarine'. This was a recognisable feature of Augustus Siebe helmets (removable with a one-eighth turn), which he introduced in 1840 at the request of the divers working on the wreck of the Royal George off Portsmouth in England, so that they could rest between dives without getting completely undressed. It seems that Poulliot had the idea first.

The cuirass did not come lower than the elbow joint; 'So a man could put his hand inside and blow his nose with ease'. It had two openings for the arms, with leather sleeves attached and 'swelled' out around the chest; 'Leaving a space in which the man can keep his handkerchief, snuff box, a small bottle of cordial water, a brioche (a bun) etc.'

Poulliot's patent specification had contained an idea of his diver wheeling around a barrel of compressed air for the equipment in a wheelbarrow. He also proposed making a cuirass with double bottom to in which to store air (6), 'But, I found it more convenient and comfortable to store it in a special container (worn on the back), similar to that carried by tea sellers'. The demand regulator was at the top and connected by means of a tube to the inside of the cuirass. For exhalations; 'The breathing out hole is the same as we have seen in diving bells'. On the front was a small (candle) lantern kept alight by air emitted by the regulator. The whole thing was cal-

culated to be few kilograms lighter than water, so that the diver could pull himself to the bottom using a weight on a chain, then bob to the surface again on releasing it.

Diagram 3 *Poulliot's "tea seller" diving equipment, with back mounted air supply and regulator*

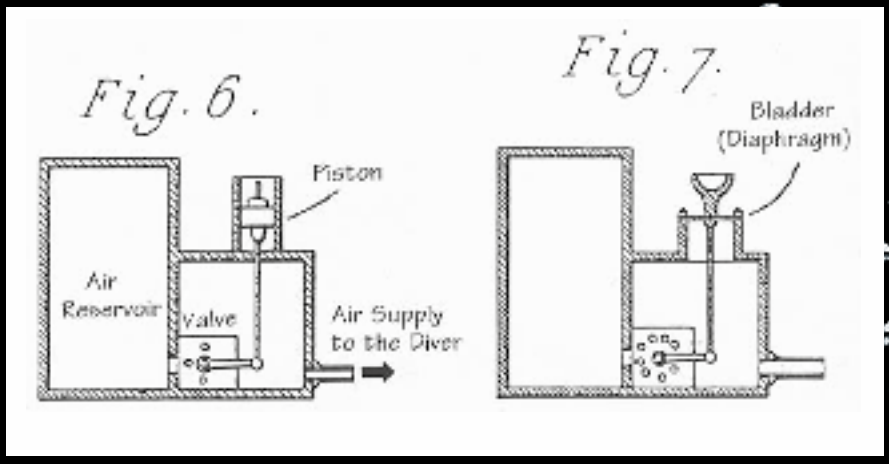


The First Demand Regulator?

Poulliot explained the workings of his 'pneumatique regulator' (figs.3,4 & 5) in terms of hydrostatic principles. The reason may well have been that hydrostatics were well established, while gas compression was relatively new and he put forward two regulator designs for underwater use (figs.6 & 7, redrawn for better appreciation).

The regulator proposed for the l'-hydroploma was of the piston type. Although it workings were not fully explained, water pressure clearly forced the piston down and the lever mechanism opened a rotary valve. Air then entered from the reservoir and, as internal air pressure built up towards equilibrium with external water pressure, the piston moved up and closed the valve again.

Diagram 4 *The 'piston' and 'bladder' regulators for use underwater*



We can nowadays appreciate that a piston would not have been particularly sensitive, though the principle is what really mattered. Poulliot, however, did offer a delicately balanced valve (fig.7), through which the free-flow of gas could be finely tuned. In place of the piston was a diaphragm (bladder), which could be weighted on the outside. The idea was to pour iron fillings into a metal cup (or remove them with a magnetised rod), and open the valve enough to supply a suitable flow of hydrogen to fuel a gas lamp (fig.8)

There is one later patent attributed to Poulliot (No.2062, July 26th, 1828), associated with diving gear for salvage etc., the drawings showing a simple dress of leather or 'rubberised satin', supplied by a stirrup pump. Nothing out of the ordinary for the date, though perhaps he was making certain that his patents covered all methods of diving. The introduction to this patent specification, showed that he had clearly done some historical research on diving. Lorena, Drebbel, Mersenne etc. all being mentioned.

Diagram 5 *Poulliot's 1828 patent. Dress closure used two copper strips, pulled together by straps, with a 'wool cord' seal between.*

To date others have received all the praise and accolades in this early diving period. With Jean-Jéremie Poulliot we have a genuine pioneer in our international history; who described a demand regulator for breathing underwater as early as 1827.

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JAN VAN DEN BOSCH AN INSTRUCTOR EXPLAINS

In what year were you trained as a professional diver?
In 1986 as military diver
In 1997 as B4 diver

Where did you receive your diving training?
In 1986 in Ostend Belgium, military diving school.
In 1997 (B4 diver) in Vucht
The Netherlands.

How did you experience the time of your training?
it was a very interesting time learning all these professional techniques.

What was your technical background before starting the training?
I had just left school and had no real experience working for a company.

What did you have to do in the field of further education / safety training to practice your profession?
During my military career I have had many opportunities to further my education and training at home and abroad.

How did you experience the time after your training, finding the right employer?
It was a challenging period in which I was able to gain a lot of experience in the diving team where I was employed. always taking on new challenges and doing interesting diving work.

Are you employed by a diving company or are you self employed?
I now work as a self-employed diver for a commercial diving school in Belgium.

How did you find your way into the job market in the beginning?
Since I worked for the military government, I didn't have to go out and find work myself.
The assignments came in and we took on the challenges.

Have you underestimated things?
Many times I underestimated things but together with the team we were always able to solve the challenges.

Have you overestimated things?
As a young diver in the team you are quickly brought back down to earth if you think you could do better than your colleague.

Where do you work now diving company / region / international / work field civil underwater construction, shipping, ports, SAT?
As a retired military diver I now work as a teacher at SAB commercial diving school in Antwerp.

What is your specialty within the specialty of the diving company?
I am a diving instructor at the training in SAB diving school. My specialty there is diving tables and underwater welding.

What does your day look like in the workplace?
First and foremost I teach theory lessons in the classroom, after which I guide the divers during their first dives in our diving tank or open water dives.

How did you see your profession develop or foresee future developments in terms of innovation, knowledge transfer, rules about safe diving etc.?
In Belgium we came from a lawlessness in the field of commercial diving. with our school we take on the challenge to give everyone within a legal framework the right training that divers need to be able to work worldwide.

Did you mapped out your future , are there still challenges?
As a retired military diver I have already found my challenge as a

I NOW WORK AS A SELF-EMPLOYED DIVER FOR A COMMERCIAL DIVING SCHOOL IN BELGIUM

diving instructor in SAB. it is satisfying that I can share my experiences with new young divers.

If you had the choice now to become a professional diver, with the knowledge of today, what would you do?
I would probably take the same test, I think I have had the most interesting job and am still passionate about professional diving.

How do you see the labour market developing?
We see that more and more professional divers are needed in ports or offshore.

How important is it to be able to work in a team where the dive supervisor is in charge, but you as diver are also expected to think along about diving safety and the technical aspect of the assignment?
As a diver you always work in a team, it is important that everyone is aware of the safety conditions. but the experience of the team members should certainly not be underestimated. we can all learn from each other.

What would you like to advise future divers?
Get good guidance for your education. definitely don't want to go too fast and keep it safe.

THE BADGE

How did you get involved with diving?
What are your ambitions?
What annoys you the most?
In The Badge we talk to people from the Professional diving world and find out who they really are and what drives them. In this month's issue, we meet Veselin Vesko Mijajlovićwho is director of RCUD.

01

1. How did you get involved in the world of Professional diving?

I joined the world of professional diving in 1988 when, as an experienced diver and sports diving instructor, I led the exercise of lifting a submarine from the bottom of the sea (20 m deep) and rescuing submariners, which was organized by the Navy of Montenegro. After that, I was appointed to the position of commander of the diving squad in the Republican Headquarters of the Territorial Defense of Montenegro, and since 1992 I have been in charge of the Special Diving Unit in the Ministry of Internal Affairs of Montenegro, where I started training military and police divers, and since 2002 I initiated the establishment of RCUD, which, on my initiative, was founded by the Government of Montenegro in June 2002. RCUD is still very active today as a training school for underwater deminers and as a Center for underwater demining, and I have been at its head since its establishment until today. For more than 20 years, I have been using the latest diving equipment such as rebreathers, underwater scooters, underwater cutting and welding suits, underwater anti-mine detectors, and other equipment and means to perform the most complex tasks underwater, and of course I pass on my knowledge and experience to younger colleagues.

Today, when I look back, I am proud that we demined over three million square meters under water in various countries, and removed over 200 tons of various mine explosives from the sea and other waters without the slightest incident.

Who did you learn the most from? 02

In technical diving, underwater vision and photography, I learned the most from my instructors, mentors, from Italy, France and other countries, and my role model was Luigi Ferraro, whose Technisub I often visited in Genoa in the late 80s and early 90s. Today I keep with love the Technisub watch that I received as a gift in 1991 when I was staying in Genoa. I would like to mention some of the big names of diving and underwater diving research, from whom I learned the most by having the honor of working with them and collaborating on various projects, namely Fabio Ruberti, Pippo Capellano, Sebastiano Tusa, Daniel Mercier. Professional diving with the use of the most modern technology for underwater demining and research, for military police, humanitarian and other needs, I learned from colleagues, professional military and police diving instructors, collaborating with them in America, France, Germany, Italy, Holland, Slovenia, Croatia and other countries.

I studied underwater demining in military and other schools, universities and academies in various countries, and I completed one of the training courses for the manager of explosive ordnance removal operations at Cranfield University in London and the Center for Management Development and Training at the Faculty of Economics of the University of Ljubljana, in the Republic of Slovenia, and I completed part of the training within the Ministry of Defense of the Republic of Slovenia. I learned the most from well-known and highly respected professors who taught mine explosives and explosion physics to our students at RCUD, and I became one of the professors who, for almost two decades, has been imparting knowledge in the field of underwater demining to students not only in Montenegro, but also at universities in other countries.

What are your drives and ambitions? 03

My wish is that RCUD, as an organi-

zation to which I have dedicated a large part of my life and which was founded on my initiative as the first civilian institution in Europe for the training of underwater deminers and humanitarian underwater demining, continues to live and develops the movement of humanitarian underwater deminers who will continue to fight for clean and safe waters. May the **RCUD MISSION continues to live long "to ensure the safe use of water resources available to countries around the world by training underwater deminers and managing underwater demining operations".**

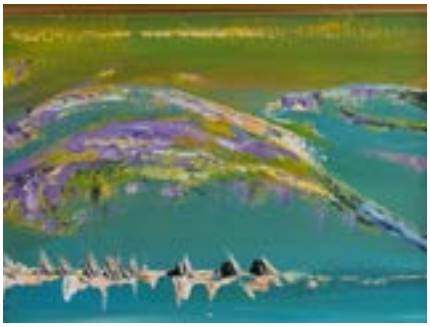
RCUD IS STILL VERY ACTIVE TODAY AS A TRAINING SCHOOL FOR UNDERWATER DEMINERS

What annoys you the most? **04**

Lack of courage in others to drop the "anchor" and sail into new unknown horizons and life adventures, for the benefit of all.

What is your life motto? **05**

Successfully run your circle of life and pass the baton on to the younger ones to carry it proudly and happily.



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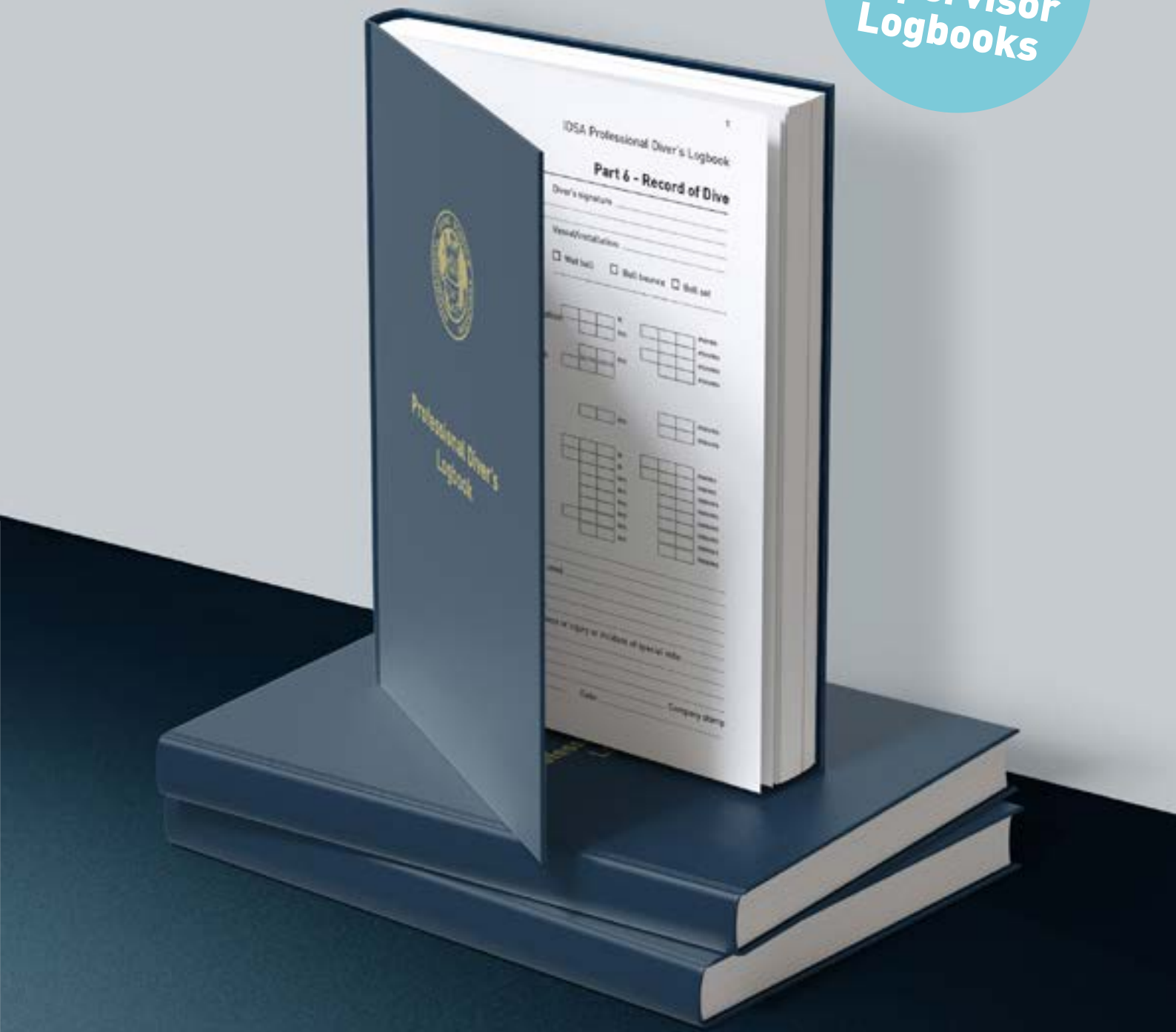

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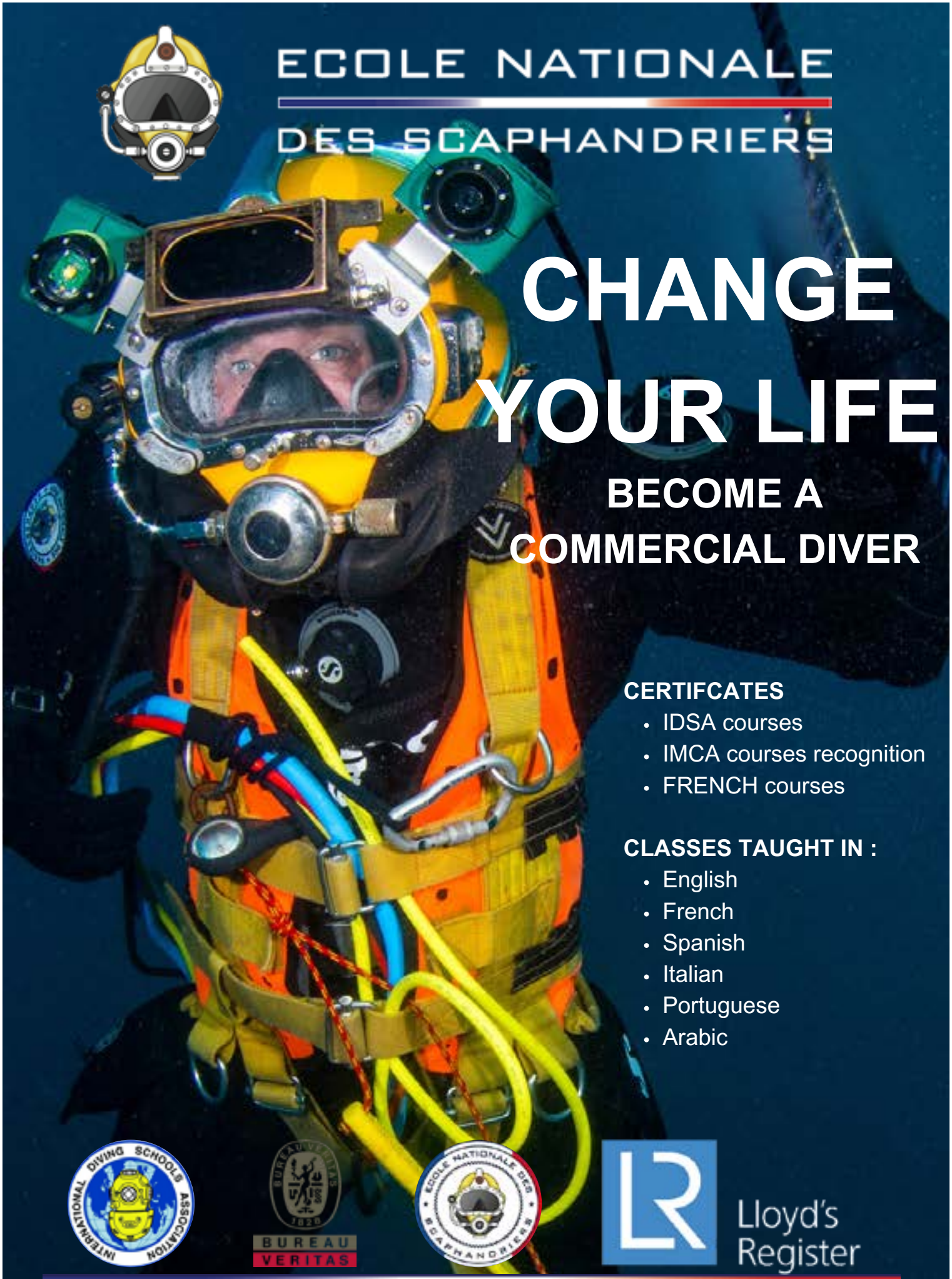

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