

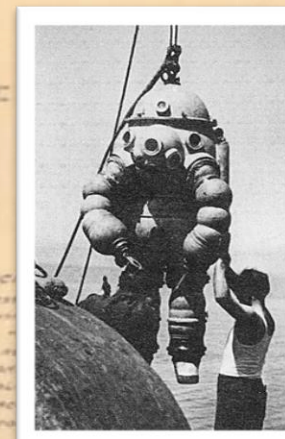
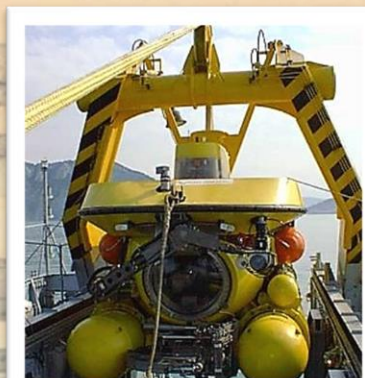


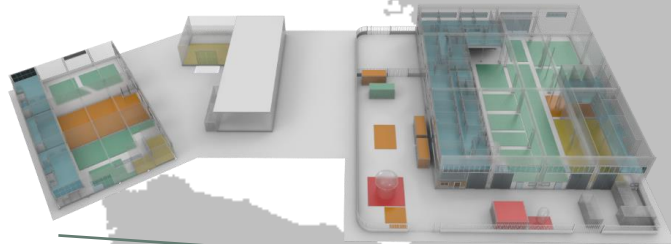
DRASS PRODUCTS GENERAL PRESENTATION

DRASS, 1927

DRASS, founded in 1927, is today a world leader in the Subsea and Underwater Technologies and Systems

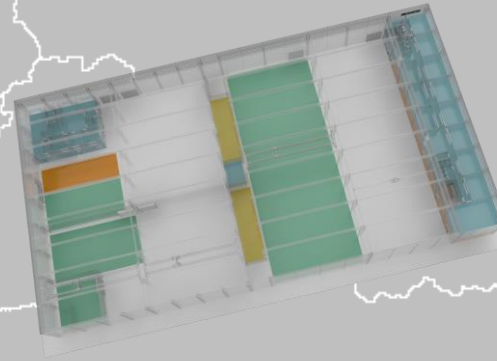
Midget and Compact Submarines, Swimmer Delivery Vehicles for Special Forces, Hyperbaric and Diving Systems, Deep Dive Simulators, Submarine Rescue Systems, Last Generation Diving Helmets





DRASS Facility Livorno (ITA)

- Offices 1300 sqm
- Stores 1500 sqm
- Workshop 2400 sqm



DRASS Facility Timisoara (ROM)

- Offices 1000 sqm
- Stores 1300 sqm
- Workshop 6000 sqm

DRASS MAIN FACILITIES

DIVING & SIMULATOR

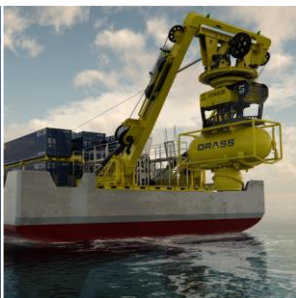
- Midget Submarine
- Compact Submarine
- Swimmer Delivery Vehicle



- Deep Diving
- Surface Diving
- Modular Systems

SUBMARINE RESCUE & INTERVENTION SYSTEMS

- Spares and Components
- Repair and Maintenance
- Training Centre



- Resident Rescue System
- Deployable Rescue System
- Submarine Ventilation
- Submarine Intervention Systems

ENGINEERING & TESTING

- Tunneling Hyperbaric Chambers
- Industrial Pressure Vessels



- Consultancy
- Laboratory and Experimental

MEDICAL HOT SERIES & SCUBA

- Medical Hyperbaric Chambers
- Scuba Diving Chambers
- Diving Boats



DEFENCE SOLUTIONS

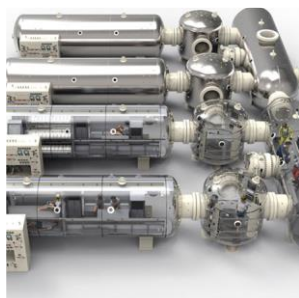
GLOBAL SERVICE

INDUSTRIAL

BUSINESS LINES OVERVIEW

DIVING & SIMULATOR

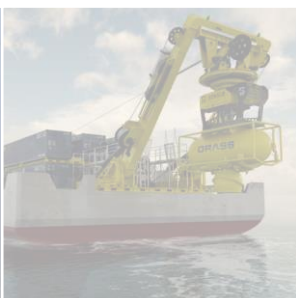
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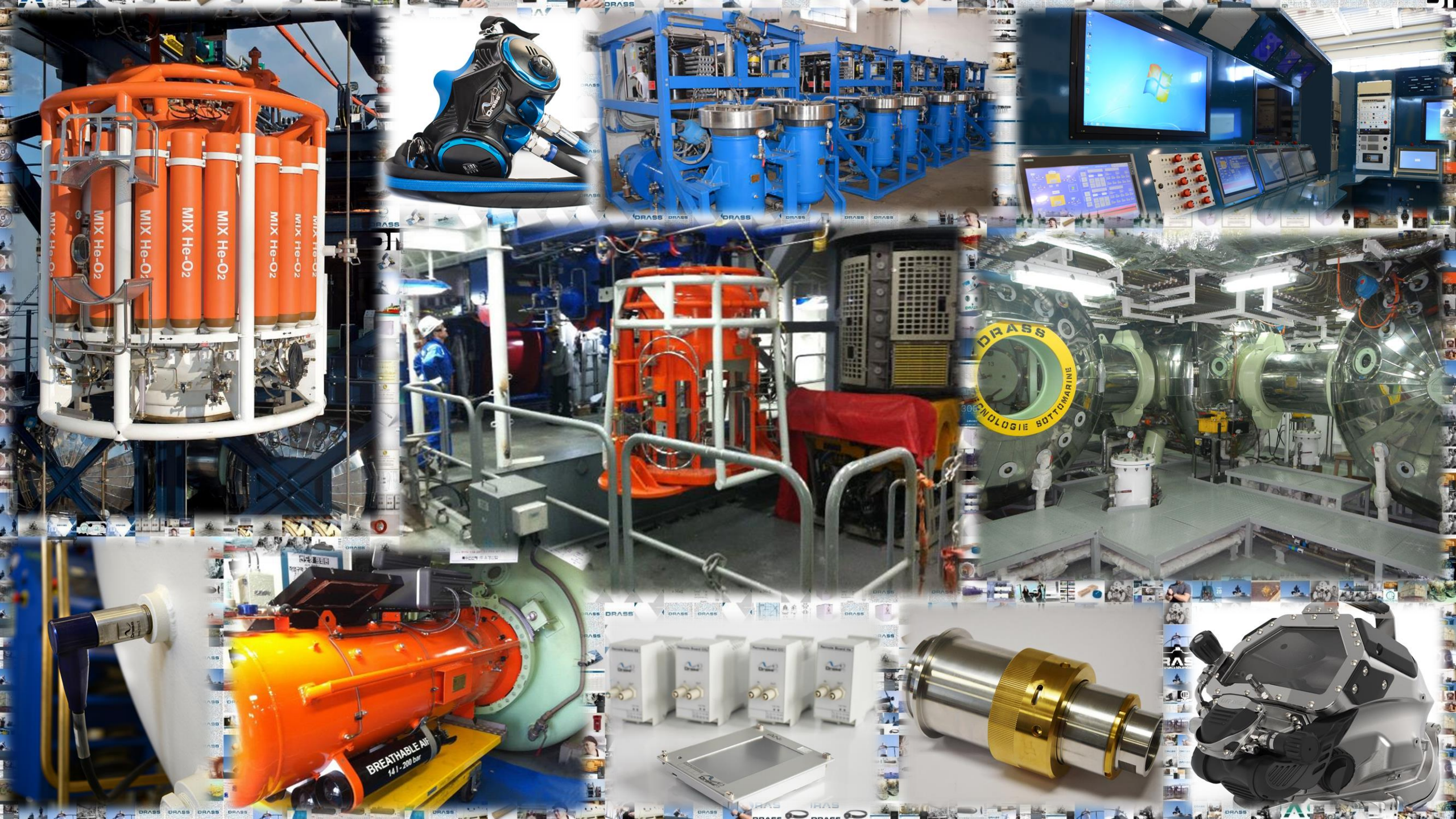


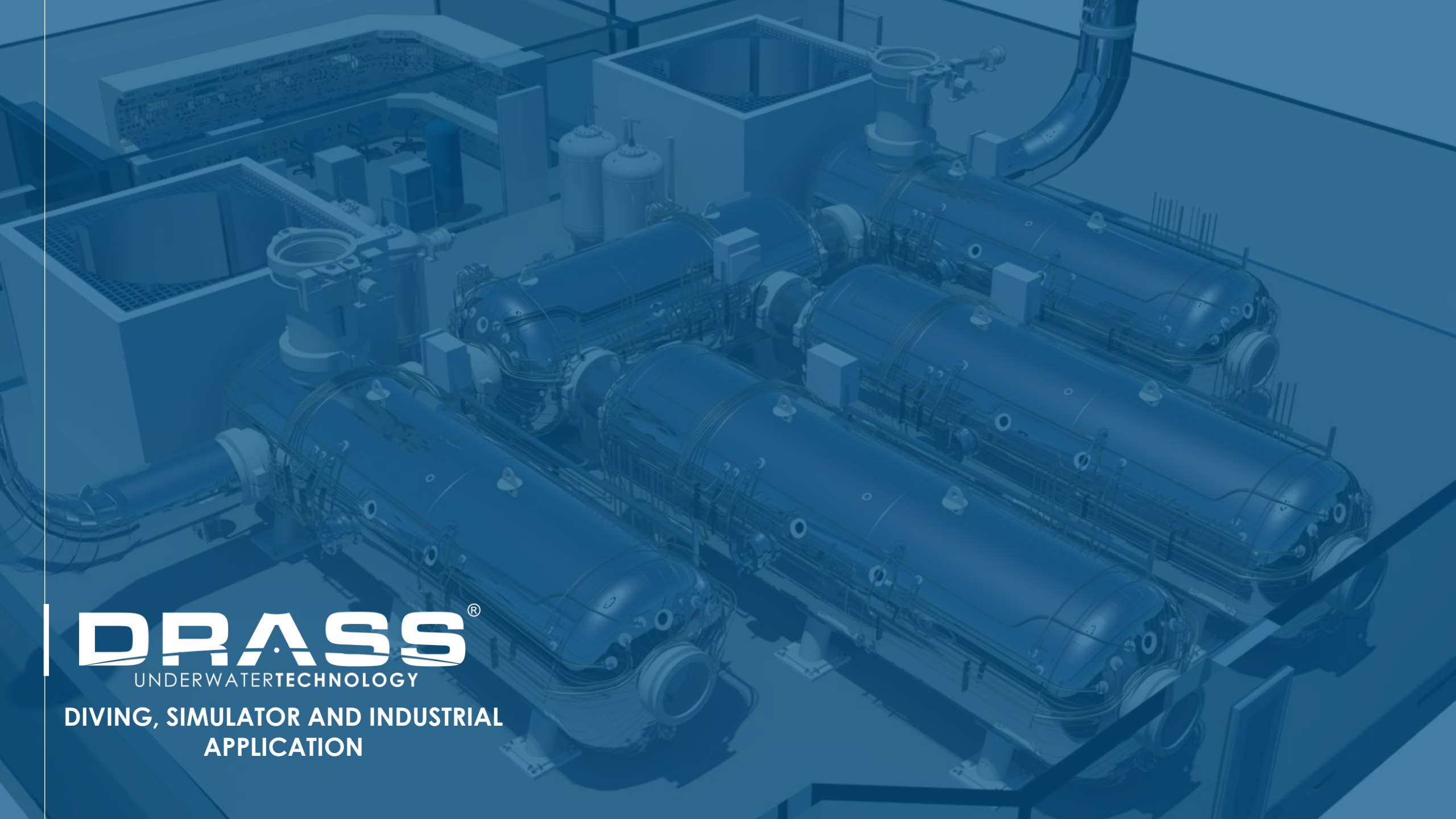
DEFENCE SOLUTIONS

GLOBAL SERVICE

INDUSTRIAL

INDUSTRIAL & COMMERCIAL





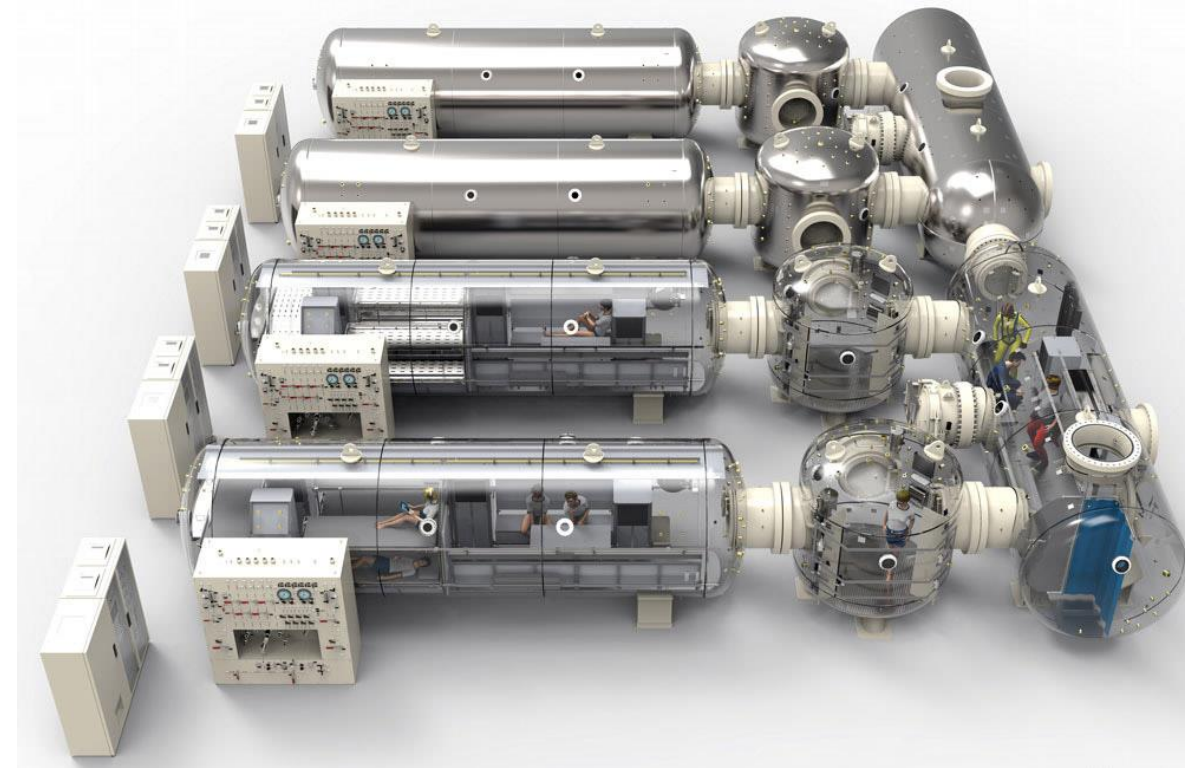
DRASS[®]
UNDERWATER TECHNOLOGY

DIVING, SIMULATOR AND INDUSTRIAL
APPLICATION

100 Series Saturation Diving Systems

The 100 Series Saturation Diving system is consolidated in the market, with the largest number of systems successfully delivered since 2005.

Different chamber complex configurations are available, from 12 to 24 diver occupancy and a single or twin diving bell configuration. The system is provided as a turnkey solution and includes all the necessary equipment for the diving operation. The equipment is fully standardized and interchangeable in all configurations.



100 Series Saturation Diving Systems



700 Series Surface Diving System

Drass 700 Series is the preferred choice of Special Forces and Navies, thanks to the high level of reliability and robustness.

- PLC Controls
- Monitoring of decompression and diver parameters
- New generation gas analysis with self calibration and multi gas reading
- Integration in compact Diver Support Boats



700 Series Surface Diving System

The 700 Series Surface Diving System consists of a complete range of equipment which provides the widest solution for air and gas mix diving.

All components are available in the stand alone or containerized version, fully certified with DNV and ABS and are compliant with IMCA regulations.



RECENT TRACK RECORD OF DIVING/RESCUE VESSELS

- ☐ Bibby Sapphire
- ☐ Toisa Pegasus now Seven Pegasus
- ☐ Helix Well Enhancer
- ☐ Gulmar (now Boskalis) Nor Da Vinci
- ☐ Gulmar (now Boskalis) Boka Atlantis
- ☐ Impresub Hera
- ☐ SBM Installer
- ☐ Korean Navy Rescue Ship ATS2 Vessel 1
- ☐ Korean Navy Rescue Ship ATS2 Vessel 2
- ☐ Technip (HRF)
- ☐ Subsea 7 Kestrel
- ☐ Harkand Haldane now Technip Deep Discover
- ☐ Kreuz Challenger
- ☐ Oriental Dragon

Completed
since 2005



In Progress

- ☐ Toisa Pelagic
- ☐ Korean Navy Rescue Ship ASR2 Vessel 1
- ☐ Italian MMI SDO-SuRS



DIVING TECHNOLOGY



BIBS MASK

Improved safety,
comfort, endurance



ELECTRICAL PENETRATORS

Improved reliability,
standardization,
lifetime



GAS ANALYZERS

Improved dimensions,
interface, functionality,
technology



UNDERWATER CONNECTORS

Improved performance,
functionality, reliability



DIVING HELMET

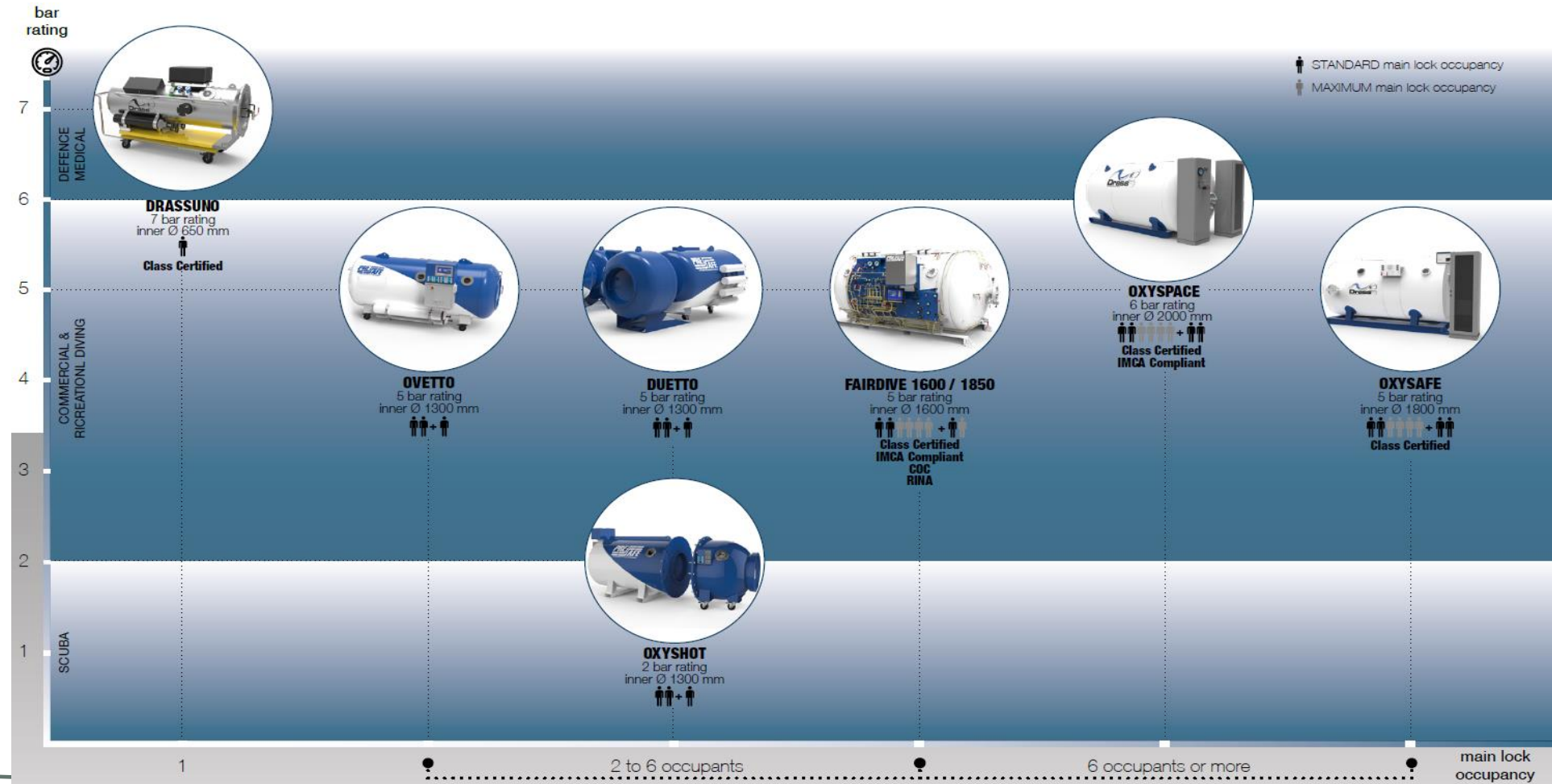
Improved safety,
performance
functionality, technology

SCUBA CHAMBERS

The Scuba Decompression chambers are relatively small, user-friendly chambers.

Designed to guarantee an immediate on-site recompression of divers in order to prevent decompression sickness.

Drass produces various models with a wide range of occupancy and working pressure options.



DRASS SUPPORT BOATS

The Drass Diving Support Boat (DSB) is a class of uniquely designed boats containing a hyperbaric diver decompression chamber (DDC) for treatment and prevention of decompression sickness. Drass DSB houses the DDC just above the keel level, giving the boat a much better stability when compared to vessels of similar dimensions. This ingenious solution enables a boat of limited dimensions to operate a DDC, whilst also leaving most of the open deck available for routine operations and safe navigation in high seas, thereby enhancing the boat's effectiveness.



Drass DSB comes fully equipped with a complete hyperbaric unit, including DDC, control panel, air storage, HP air compressors, filters and diver panels where required. Thanks to these combined features, Drass DSB is a multi-application rescue vessel that can be specifically configured for use by coastguard, navies, governmental emergency response teams, commercial and recreational diving companies.



DRASS[®]
MEDICALINDUSTRIAL

HYPERBARIC OXYGEN THERAPY

MEDICAL SYSTEMS: HYPERBARIC OXYGEN THERAPY

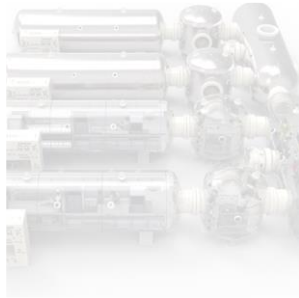


Ospedale Niguarda



DIVING & SIMULATOR

- Midget Submarine
- Compact Submarine
- Swimmer Delivery Vehicle
- NGMV



- Deep Diving
- Surface Diving
- Modular Systems

SUBMARINE RESCUE & INTERVENTION SYSTEMS

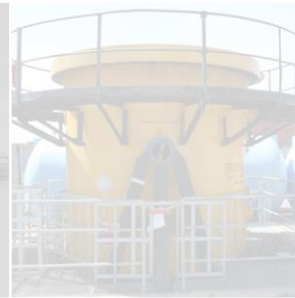
- Spares and Components
- Repair and Maintenance
- Training Centre



- Resident Rescue System
- Deployable Rescue System
- Submarine Ventilation
- Submarine Intervention Systems

ENGINEERING & TESTING

- Tunneling Hyperbaric Chambers
- Industrial Pressure Vessels



- Consultancy
- Laboratory and Experimental

MEDICAL HOT SERIES & SCUBA

- Medical Hyperbaric Chambers
- Scuba Diving Chambers
- Diving Boats



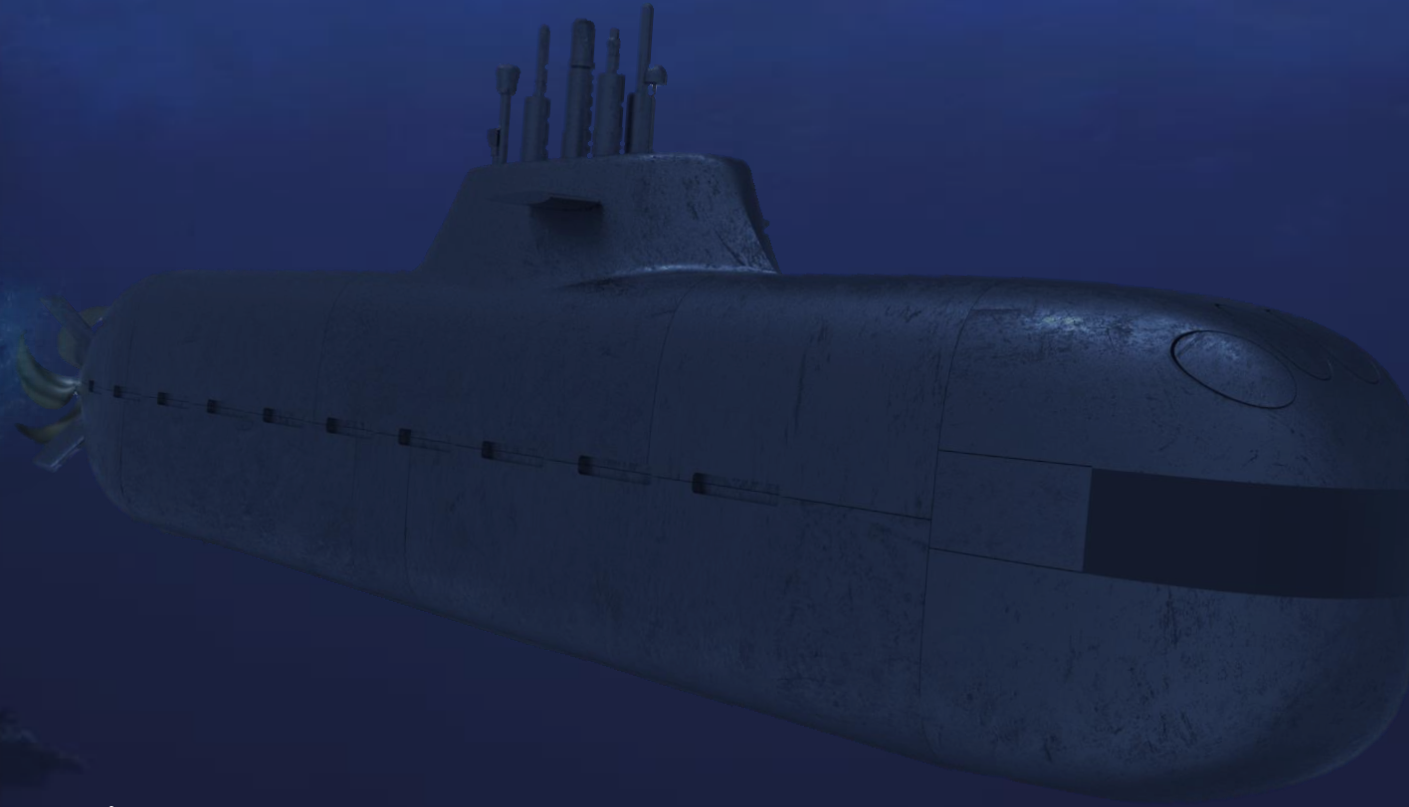
DEFENCE SOLUTIONS

GLOBAL SERVICE

INDUSTRIAL

DEFENCE & SUBMARINE RESCUE





DG CLASS MIDGETs & COMPACTs
SUBMARINES

DG100

DG160

DG550

DG900

DGCLASS
—
DSCCLASS

WWW.DRASS.TECH

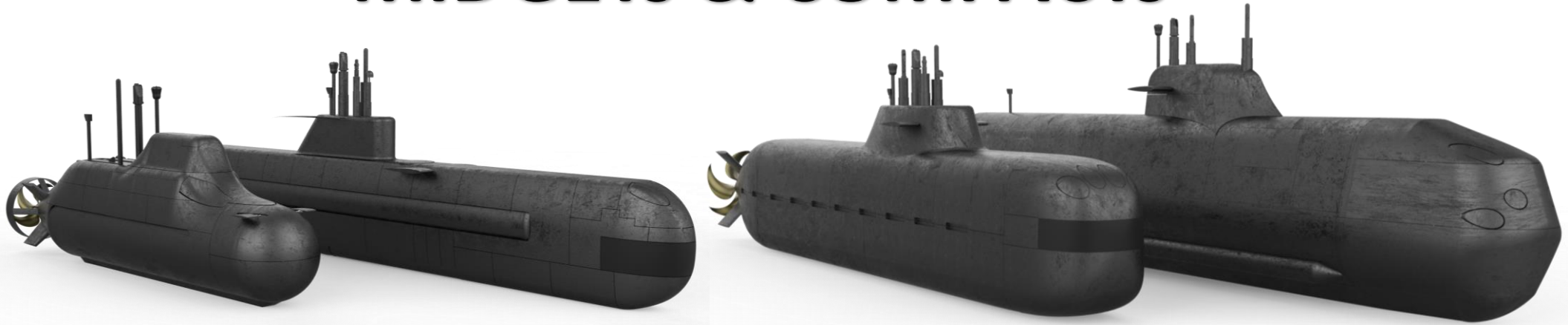
The Drass DG Class
Submarines continues the
legacy of our Italian-made
submarines.

DS4

DS8

DRASS[®]
DEFENCESOLUTIONS

MIDGETs & COMPACTs



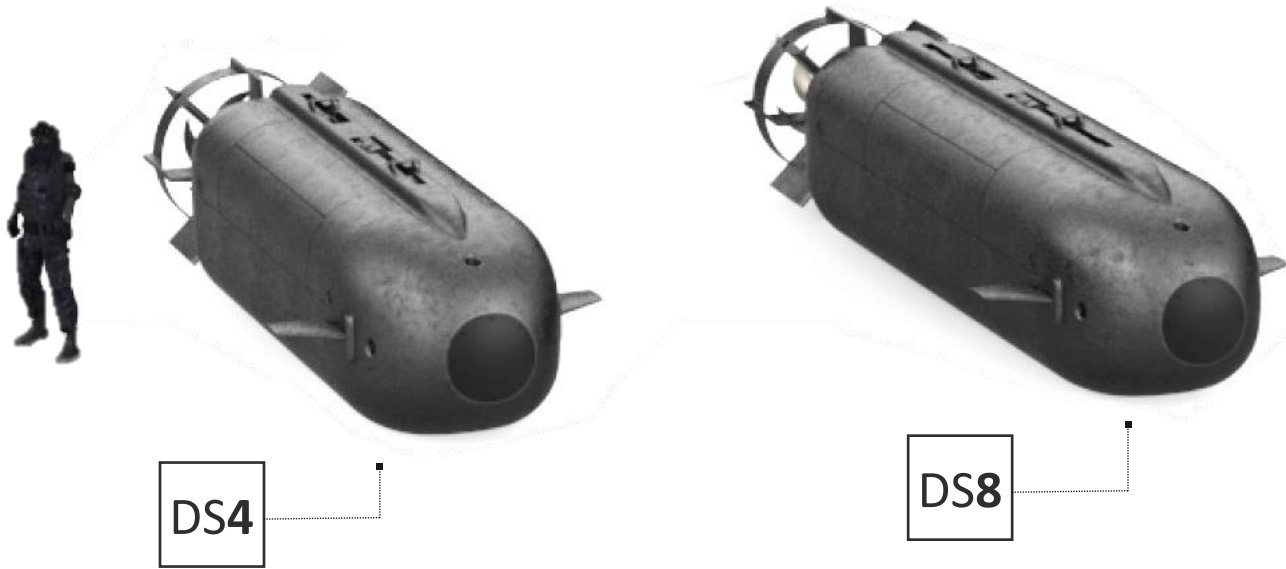
	DG100	DG160	DG550	DG900
Displacement Ready to dive	120 tons	169 tons	500 tons	900 tons
Displacement Dry	100 tons	141 tons	440 tons	790 tons
Length	20 m	35 m	40 m	50 m
Draft	2.8 m	3.5 m	5 m	6 m
Beam	3.5 m	2.50 m	4 m	5.5 m
Height (from the keel to top of sail)	5 m	6.45 m	7.8 m	9.8 m
Crew	4+4 (8 if reconfigured)	9+6	11+12	18+9 (16 if reconfigured)
Standard Payloads	2 HWTs, 6 Gear Cont.,1 Infl. Boat	2 HWTs, 6 Gear Cont., 1 Infl. Boat, 1 SDV (DS4)	4 HWTs, 8 Torp.Count., 1 SDV, 1 Infl.Boat	6 HWTs, 8 Torp.Count., 1 SDV, 2 Infl.Boats
Optional Payloads	8 Mines, 2 UUVs, 1 ROV	6 Mines, 1 UUV, 2 HWTs	2 HWTs, 8 Mines, 2 UUVs	12 Mines, 3 ROVs, 3 UUVs 1 Aerial Drone



DS CLASS SWIMMER DELIVERY
VEHICLES SDVs & LUUV



DRASS DS Class Swimmer Delivery Vehicles



The SDV comes in two main configurations: DS4 and DS8. The SDV Modularity payload concept allows the Final User to customize the SDV according to the mission profile.

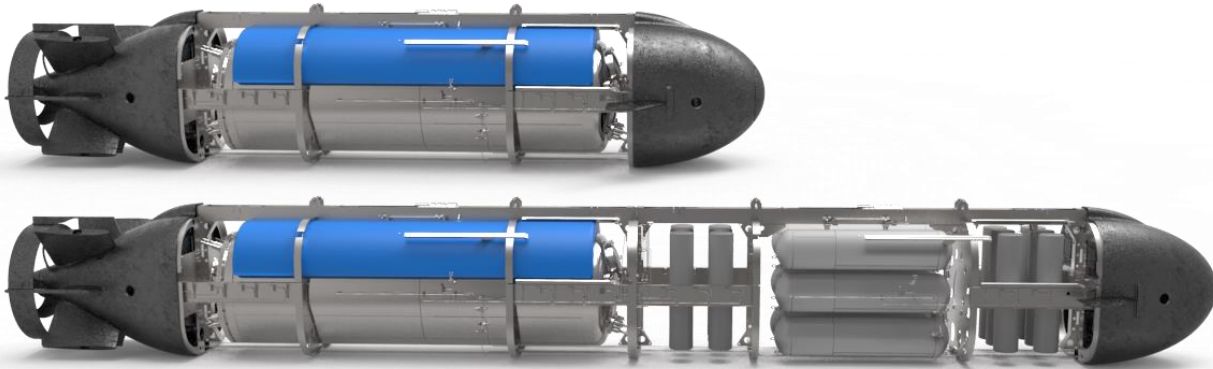


Drass DS Class is a highly effective and stealthy series of Swimmer Delivery Vehicles (SDVs) for covert intelligence and sabotage missions.

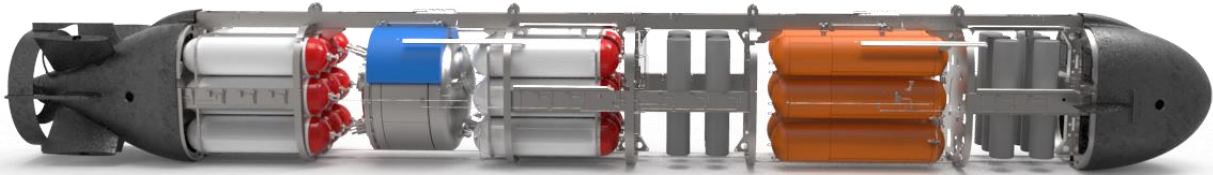
The SDV is designed to transport its offensive equipment and commandos/combat divers, from the operational base to the target and back.

DRASS Large Unmanned Underwater Vehicle

LUUV Mk2A baseline and additional payload configuration



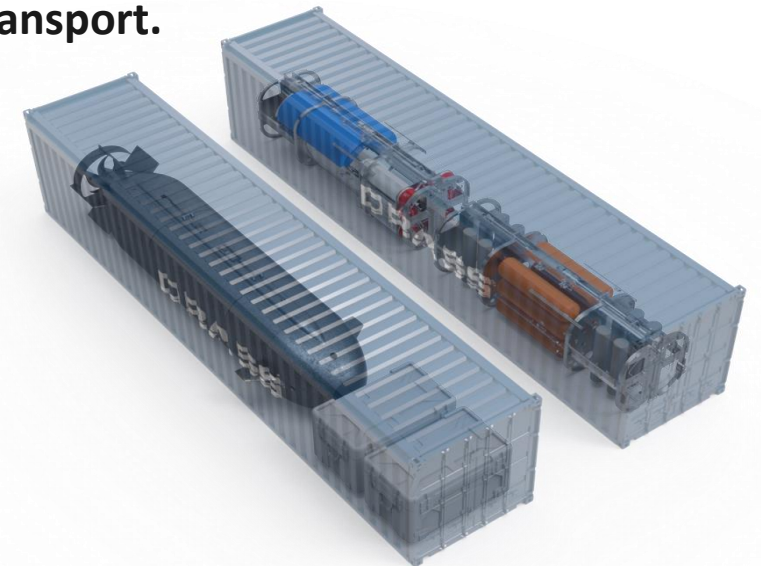
LUUV Mk2B with additional payload configuration

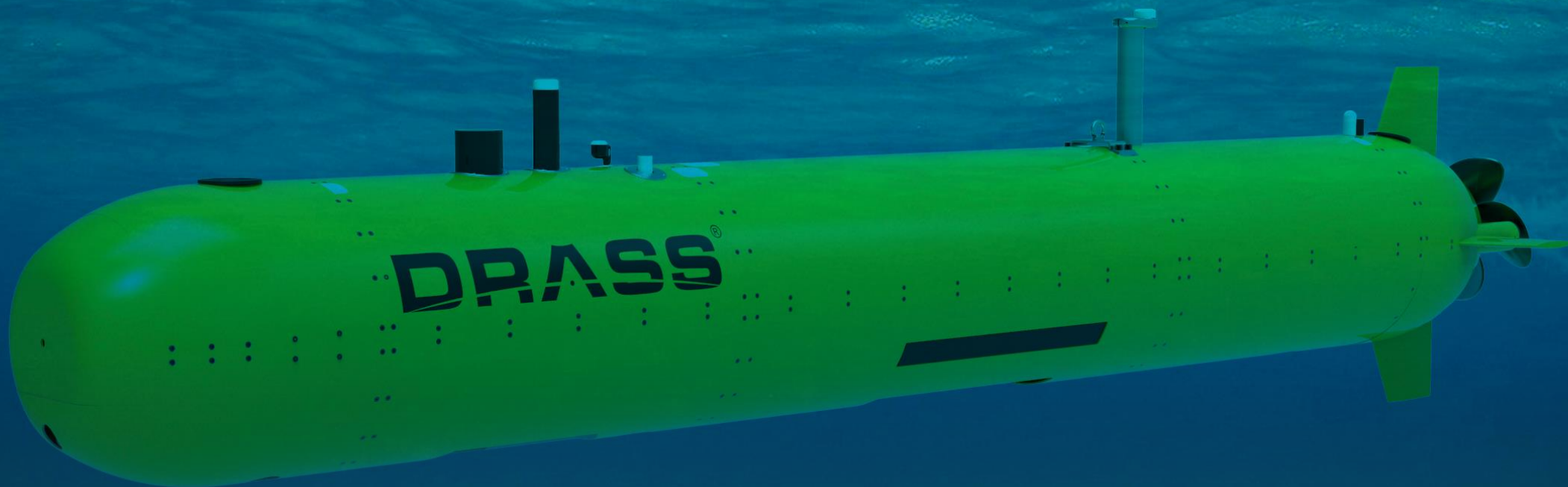


Main Mission Profiles include:

- Long Range environment analysis
- Mining ops
- Covert intelligence ops
- Management of swarms of AUV

LUUV modular design allow containerized transport.



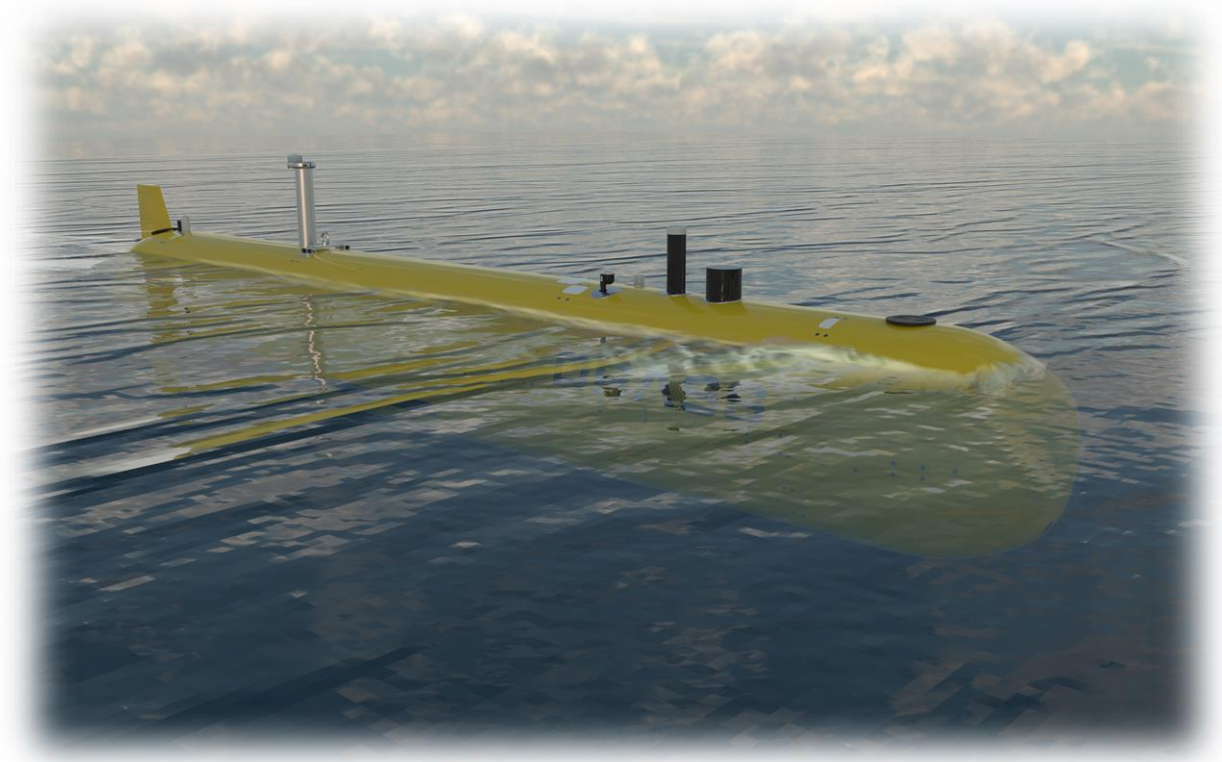
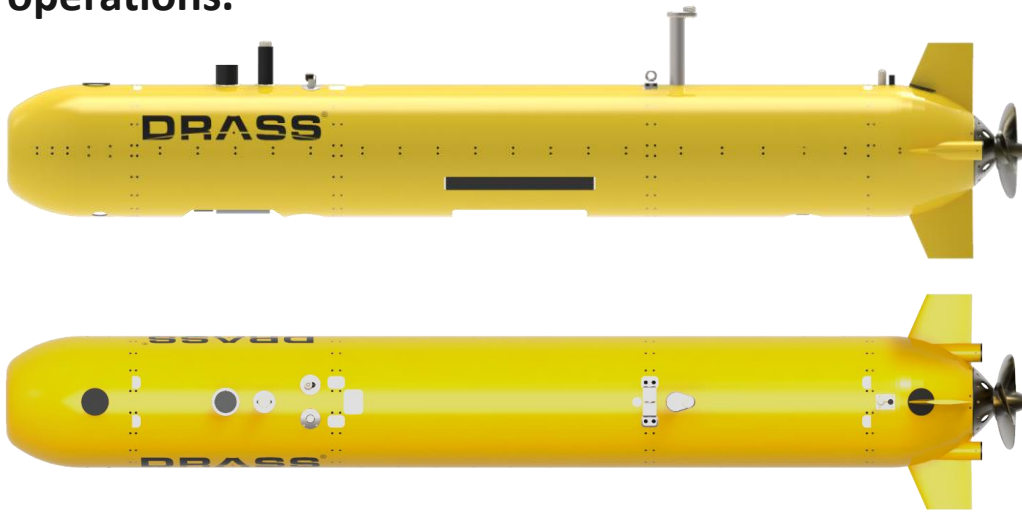


**DRASS AUTONOMOUS UNDERWATER
VEHICLE**

DRASS Autonomous Underwater Vehicle

DRASS AUV is designed in accordance with international oceanographic standards and to regulations for the safety of navigation.

It is equipped with the latest **state-of-the-art sensors**, payloads, propulsion and energy system, making it a leader in terms of **hydrographics**, **underwater surveillance** and **reconnaissance operations**.





SAIPEM



DRASS
UNDERWATER TECHNOLOGY

**SUBMARINE ASSISTANCE,
VENTILATION EQUIPMENT AND
RESCUE**

SAVER: SUBMARINE ASSISTANCE, VENTILATION EQUIPMENT and RESCUE



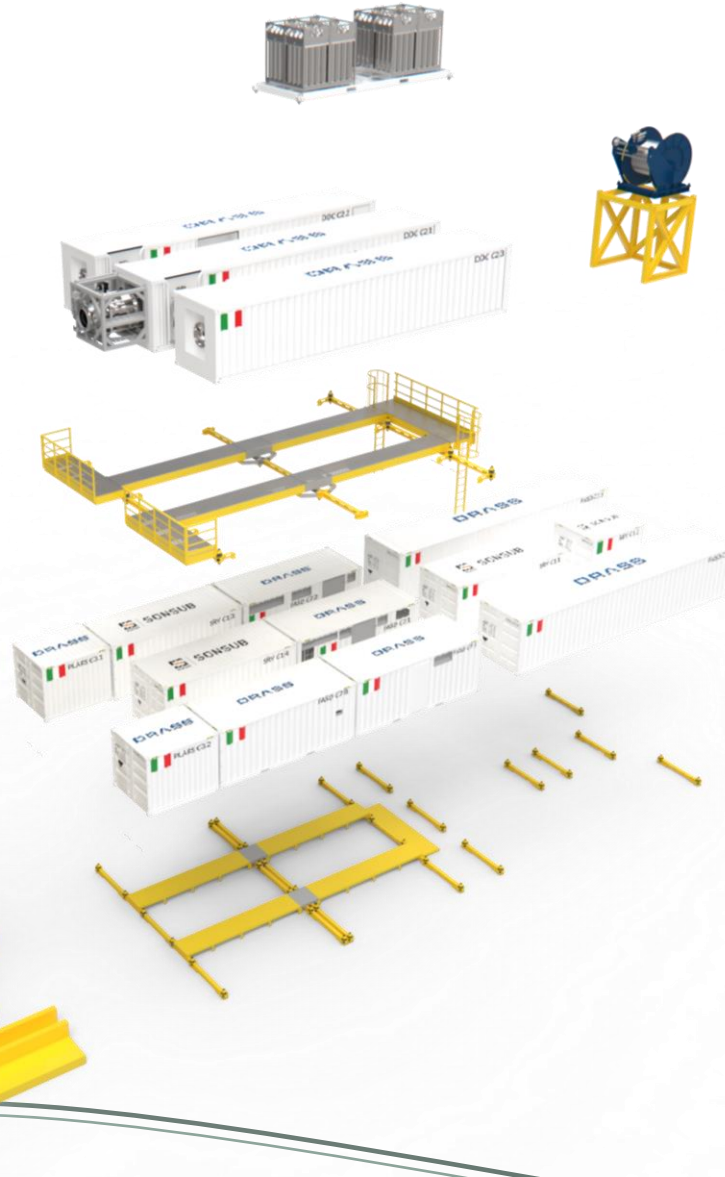
Main Challenges and Design Guidelines:

- To minimize the influence of the **weather conditions** during rescue operations
- To improve and optimize the Communications with the DISSUB implementing the **communications between the subsea assets**
- To ensure high level of redundancy and reliability together with **unlimited endurance**
- To standardize Pilot training and **reduce the Human Factor dependency**
- To enhance the existing **regulations** in light of the modern subsea applications and technologies

SAVER: SUBMARINE ASSISTANCE, VENTILATION EQUIPMENT and RESCUE

S.R.S.:

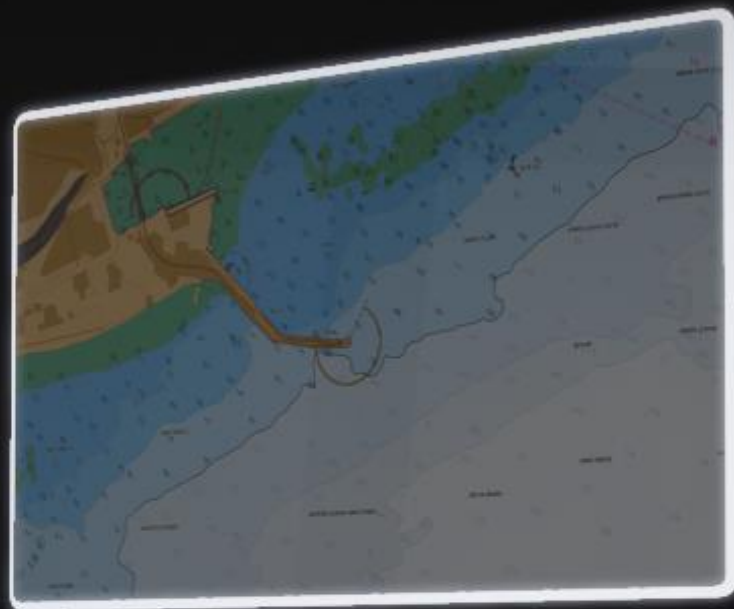
SUBMARINE RESCUE SYSTEMS



S.I.S.:

SUBMARINE INTERVENTION SYSTEMS






DRASS[®]
DEFENCESOLUTIONS

DRASS RESCUE CONTROL CENTER

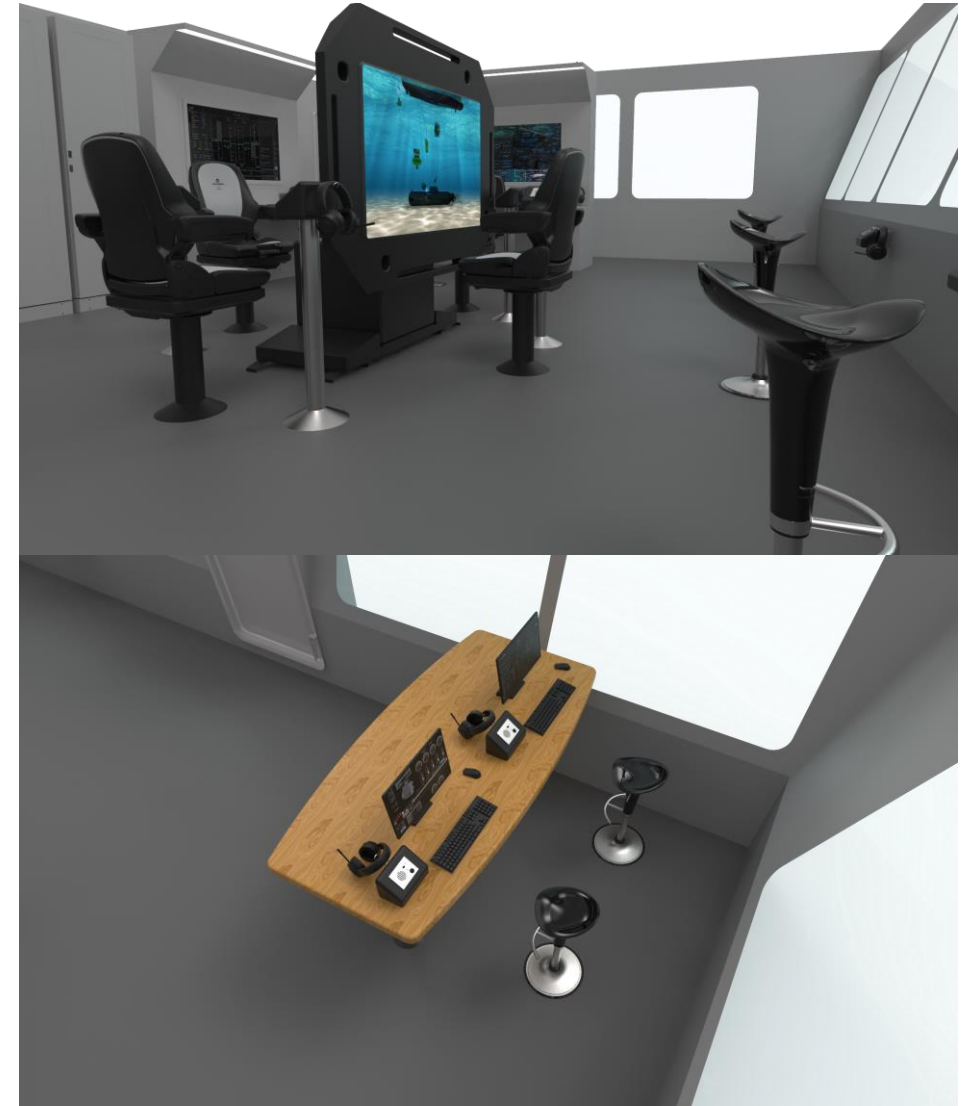

DRASS[®]
DEFENCESOLUTIONS

DRASS RESCUE CONTROL CENTER

DRASS RESCUE CONTROL CENTER

Drass Rescue Control Center is the patented critical operational hub for Rescue Operations, Hydrographic and Reconnaissance missions.

It is equipped with a tiltable 3D tactical table for the monitoring of all mission phases and briefings.



Thank you for your kind attention.