

DRASS[®]
DEFENCESOLUTIONS

90
YEARS

FROM TRADITION TO TECHNOLOGY

Continuously active since 1927 with the Galeazzi business line, Drass has extensive experience in manned underwater technology, establishing the world record for deep diving immersion with an atmospheric diving suit in 1937. Today Drass is international leader in commercial diving, medical hyperbarics, midget and compact submarines, and vehicles for special forces.

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DG450

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COMPACT SUBMARINE

Technical Specification FP04-01-07 DG450

FOREWORD

With the Drass DG450 continues the legacy of our Italian-made Compact Submarines and is based on the traditional design which was a huge success worldwide. The Compact Submarine's success is due to the geniality of design, its simple hull construction, the reliability of the on-board equipment, as well as its ease of operability and maintainability. Furthermore, the Compact Submarine makes the end user self-sufficient in the operation and maintenance of a craft dedicated to operations in littoral waters, including disassembly and reassembly for ease of maintenance or modernization.

DRASS DG450 COMPACT DESIGN PRINCIPLE

The design of the Drass DG450 is based on an operational concept which makes this craft more similar to that of an aircraft than a naval vessel; due to its limited size, when not in operation, the DG450 can be stored dry in a hangar and launched for mission only. This feature facilitates maintenance, increases the longevity of the craft and, more importantly, makes it less detectable by air recognition. As a significant evolution from the smaller DG85, DG120 and DG160 Submarines, the double hull design of the DG450 further reduces the radiated noise propagation. The composite material of the second hull provides advanced stealth capabilities against active sonar. The Drass DG450 is fitted with a wide range of weapons and equipment:

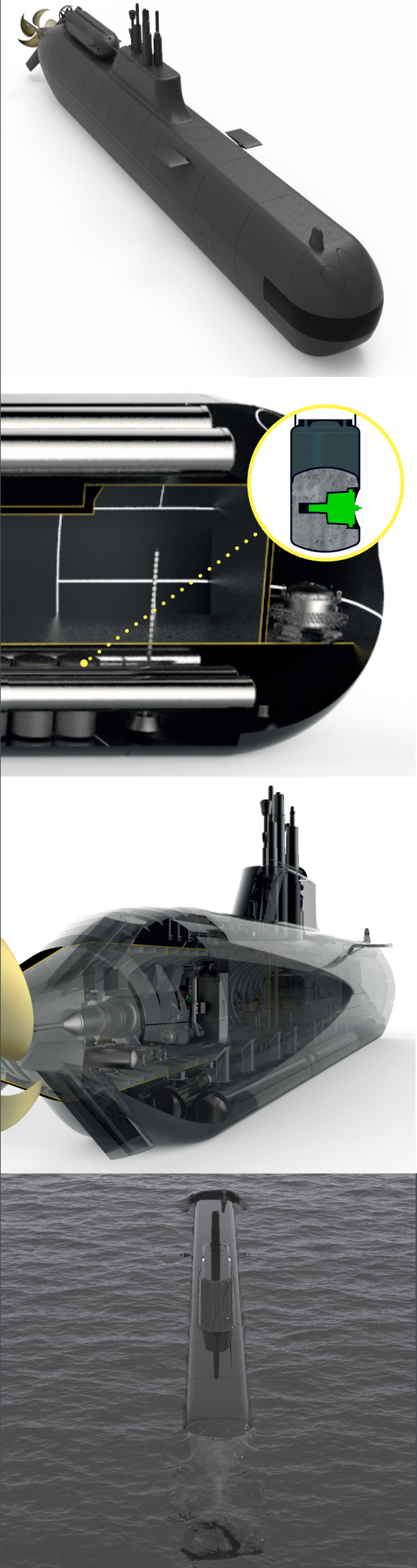
- Patrol and attack mission consists of the standard payload 3bow heavy-weight torpedoes and 4 optional light torpedoes (future development)
- In case of Special Forces deployment, possibility to lock out up to a team of 12 with additional payload of 2 SDVs (Swimmer Delivery Vehicles) or 2 inflatable boats
- Other configurations are available including 20/70 mm machine guns and minor accessories

The Compact Submarine hull is composed of a main pressure hull, divided in four parts with separate battery containers; these vessels are bolted together and can be disassembled for maintenance, testing and road transportation. The Submarine design is based on a typical double hull, composed of an internal pressure vessel and an external secondary hull made of GRP giving the hydrodynamic shape.

DRASS DG450 COMPACT SUBMARINE OPERATIONAL TASKS

Despite displacing around one fourth of a conventional diesel electric submarine, the Drass DG450 Compact Submarine provides similar attack potential, able to load and launch up to 3 latest generation wire-guided light torpedoes.

- It has been specifically designed for the following operational tasks:
- Attack of strategic targets in open sea by special forces operators (oil platforms and terminals, sea lines)
 - Anti-ship and anti-submarine attacks with up to 3 wire-guided heavy-weight torpedoes (50 km range)
 - Patrol of coastal areas as a deterrent against enemy ships approaching own coastal targets
 - Intelligence gathering of acoustic, electronic and communication information
 - SDV and inflatable boat deployment for Special Forces Operators and intelligence missions.
 - Deployment of mines in shallow waters / harbor mouths



EQUIPMENT CONFIGURATION

- Submarine Steering Station
- Submarine Platform Management System
- Navigation / Combat System
- Passive Sonar
- Obstacle Avoidance Sonar
- SWR Intercept Sonar (OPTIONAL)
- RWR Radar Warning Receiver
- ESM, DF– Electronic Support Measure, Direction Finding (OPTIONAL)
- Two Optronic Masts
- HF Transceiver
- UHF/VHF Transceiver
- Underwater Communication System
- Sound Powered Telephone
- Intercom Network
- INS – Inertial Navigation System
- Echo Sounder with Sound Velocity
- Doppler Velocity Log

DRASS DG450 COMPACT SUBMARINE TECHNICAL SPECIFICATIONS

The Drass DG450 platform can be fine-tailored to the needs of the Navies and their required payload.

Displacement:

• Ready to dive	ton.	451
• Dry	ton.	369

Reserve of buoyancy:

• With jettisonable ballast	12%
• Without jettisonable ballast	9%

Dimensions:

• Overall length	meters	40.0
• Overall height	meters	7.15
• Overall width	meters	4.30
• Hull diameter	meters	3.00

Speed and Endurance

Speed:

• Maximum submerged	km/h	22.2	(12.0 knots)
• Maximum on surface	km/h	16.7	(9.0 knots)
• Cruising submerged	km/h	9.3	(5.0 knots)
• Operational depth	meters	150	

Endurance:

• Cruising Range (snorting/submerged)	km	5550	(3000 n.miles)
• Submerged Range (on batteries)	km	370	(200 n.miles)

Indiscretion rate:

• Cruising speed	15%
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CREW

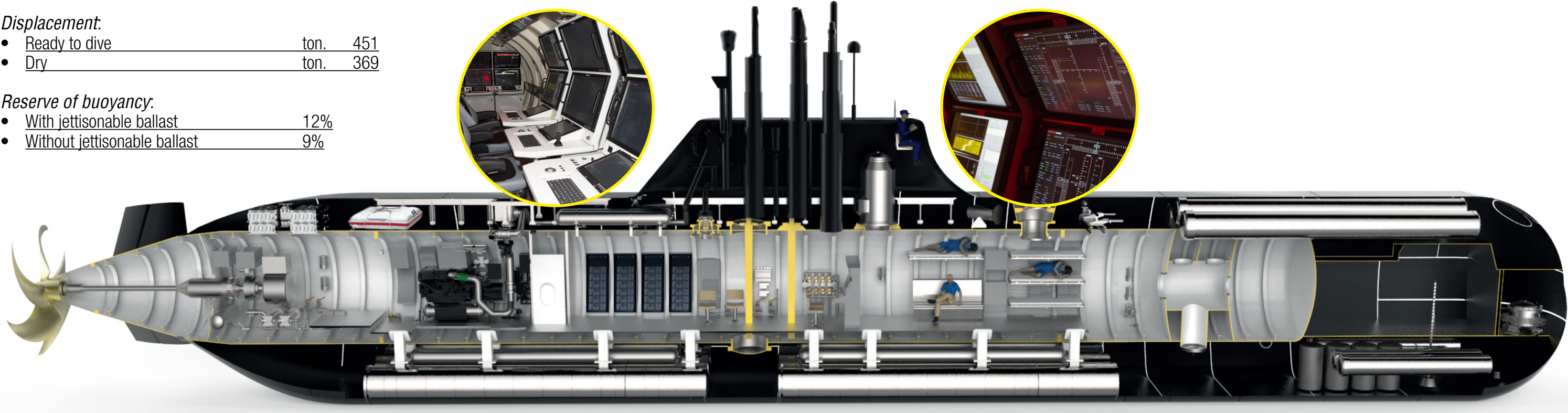
• Complements	9
• Commandos	12

WEAPONS

The DG450 Compact Submarine is equipped with the following weapons:

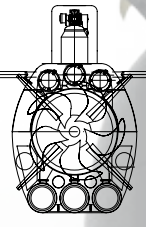
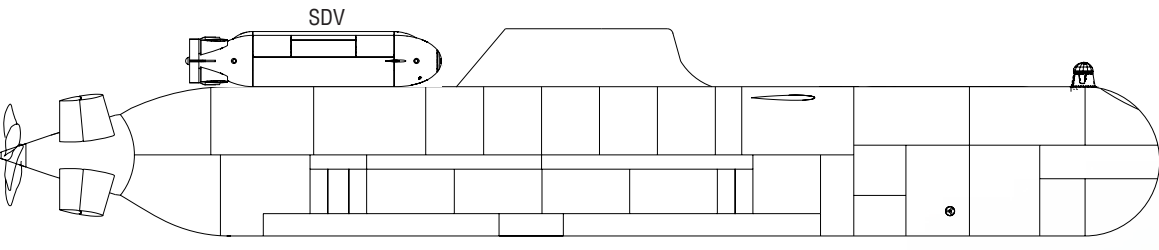
Standard payload:

• 533 mm wire-guided torpedoes, launched from the Bow Torpedo Launching Tubes (BTLT):	
Quantity	3

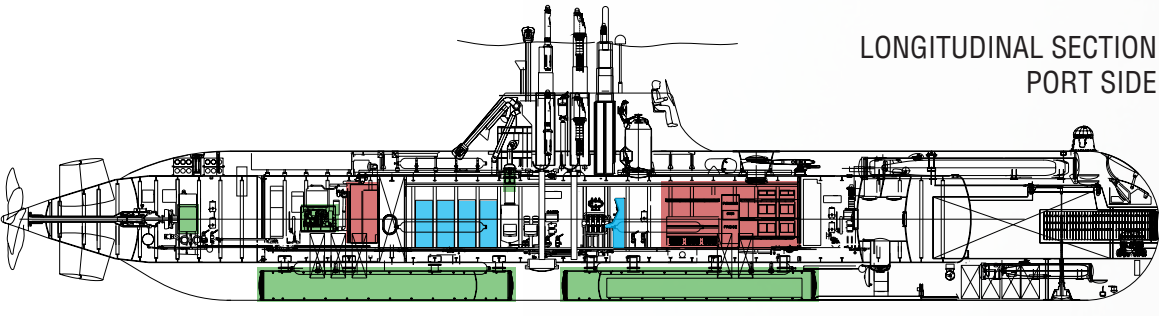
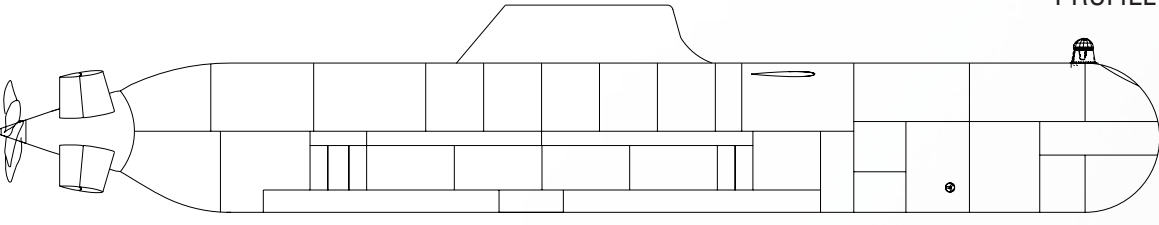


Mission payload:

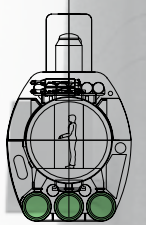
- Light torpedoes (future development), launched from the Lateral Torpedo Launching Tubes (LTLT):
Quantity 4 OPTIONAL
- SDVs (Swimmer Delivery Vehicles) on deck:
Quantity 2 OPTIONAL
- Diver Gear Containers:
Quantity 8 OPTIONAL
- Inflatable Boat for 8 Special Forces Operators:
Quantity: 1 OPTIONAL
- Mines:
Quantity 4+4 OPTIONAL
- Decoy:
Quantity 12 OPTIONAL



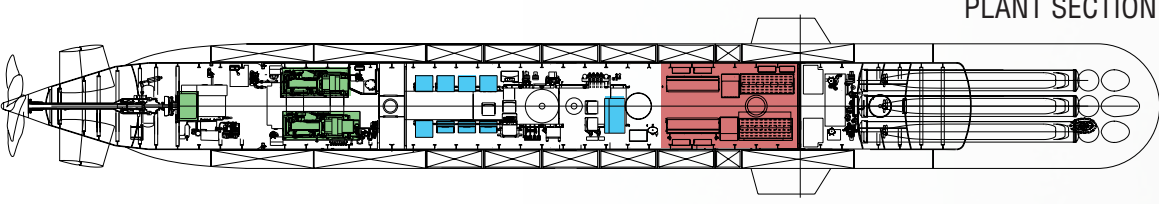
PROFILE



LONGITUDINAL SECTION
PORT SIDE



PLANT SECTION



CONTROL SYSTEM

- Steering console
- Platform console
- Navigation console
- Tactical console
- Sonar console
- Extra Multi-Functional console (OPTIONAL)

PROPULSION SYSTEM

- 6 battery banks
- 2 diesel generators
- 1 redundant electric motor
- 1 snorkel system

LIVING SPACES

- Accommodation
- Gallery and provision room
- Sanitary and service facilities