

# MINEA-E



## Multi-influence Naval Mines

The Advanced Exercise Multi-influence Naval Mines series MINEA are the most advanced naval mines under manufacturing nowadays. The family of MINEA products comprises three kind of naval mines: cylindrical bottom mine, conical shape mine and moored mine.

The Advanced Exercise Mines Series (MINEA) are multi-influence naval mines equipped with the highest detection capabilities and signal processing, providing the necessary facilities for training, including Registration System, System Recovery and Acoustic Data Link (Ship/Mine).

Shelf system recovery activation order by means of an acoustic link or by programmed timing. The implemented recovery system does not use any kind of pyrotechnics or expendables.



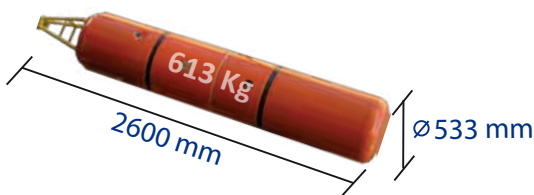
- All mines include the following sensor:
  - Triaxial magnetic sensor to detect both Static Magnetic (SM) and Alternating Magnetic (AM) signatures.
  - Triaxial electric sensor to detect both the static component (UEP) and the alternating component (ELFE).
  - Acoustic and sonar sensor.
  - Triaxial seismic sensor (except moored mine).
  - Pressure sensor.
- Communications with the mines via infrared on surface and acoustic link when submerged.
- Programmable operating parameters and fire algorithm, by means of a portable control unit.
- Self Test.
- Programmable self recovery function.
- Data link message, acoustic and visual fire indication.
- Data collection and recording of all influences signals, parameters and events.
- Combat version available for each type of mine.



#### Additional devices

- Control and programming unit.
- Acoustic data link.
- Anechoic cover to diminish target-strength.
- Tools and consumable parts.

**Cylindrical Bottom Mine**



**Conical Shape Mine**



**Moored mine**



Extensive sea trials were performed in order to validate the systems and to check the full performances of the mines. The three types of mines have successfully passed the following environmental tests:

- temperature (storage and operation)
- shock and vibration
- electromagnetic compatibility and watertightness.