

Anti-Pirate System



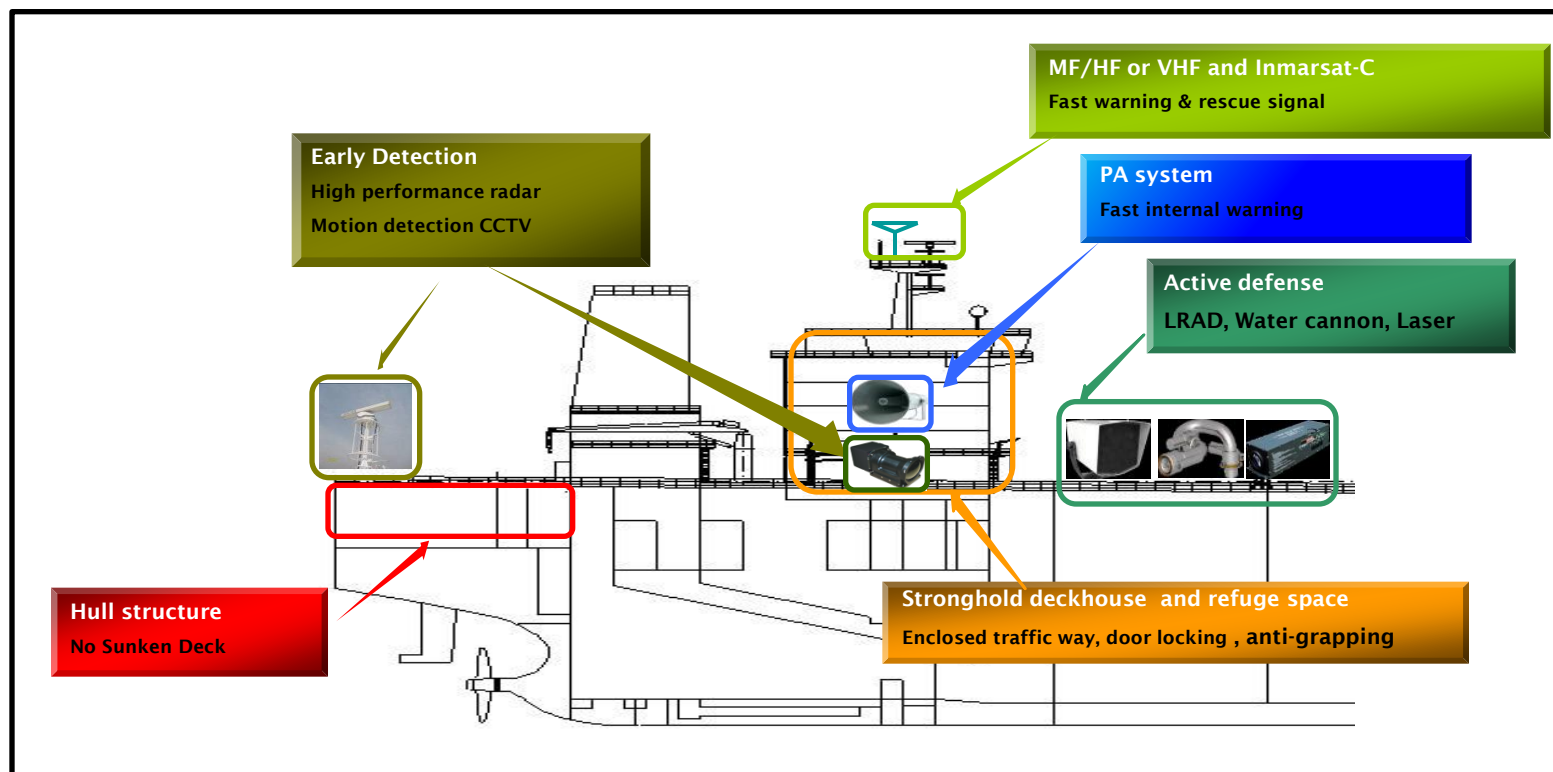
DSME

**DAEWOO SHIPBUILDING &
MARINE ENGINEERING CO.,LTD.**

1. General Introduction

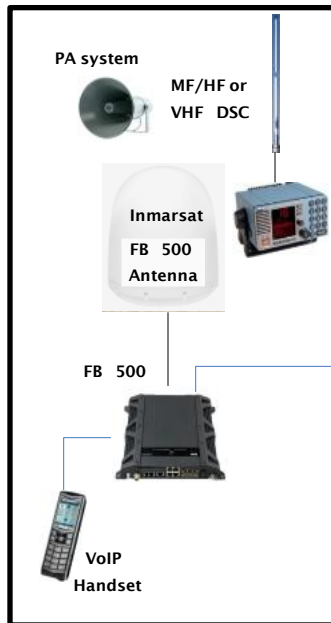
DSME Anti-Piracy System will be prepared to Avoid, Deter or Delay Pirate Attacks.

The System is including Early detection system, Fast warning & Rescue signal release and active defense system as well as Anti-piracy construction with Closed deckhouse and No sunken deck.

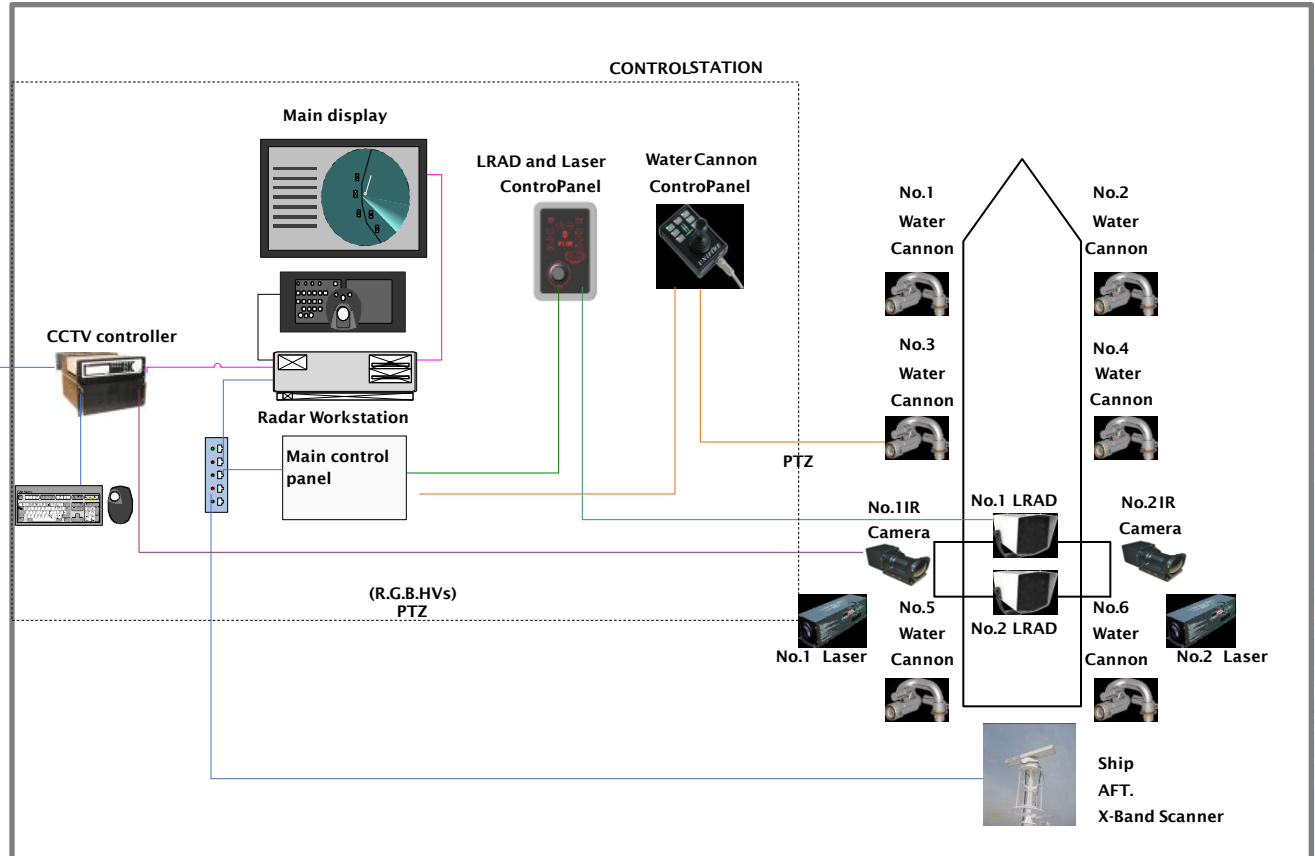


2. System configuration

Existing System



DAPS Scope of Supply



3. Early detection and prewarning system

1) Early detection

: Early detection of suspected targets to be the first line of defense

1-1) High performance RADAR scanner :

To detect small and fast multi-targets in long range



2) Internal warning and external rescue signal release :

Most effective way to avoid pirate attacks

2-1) Internal warning : Through PA system



1-2) Multi-Tracking and motion detection CCTV :

To analyze the suspected targets and to transfer real time image to shore



2-2) External rescue signal release :

Through GMDSS(MF/HF, VHF DSC or Sat-C) system



4. Active defense system

1) Active defense :
Warning and attack to prevent pirate invasion by LRAD, water cannon and laser

1-1) LRAD (Long Range Acoustic Device) :

To deter and delay by high decibel and automatic targeting and remote control



1-2) Water cannon :

To deter and delay by high water pressure and remote control



1-3) Laser :

To deter and delay by a high-powered laser beam designed to disorient and temporarily blind

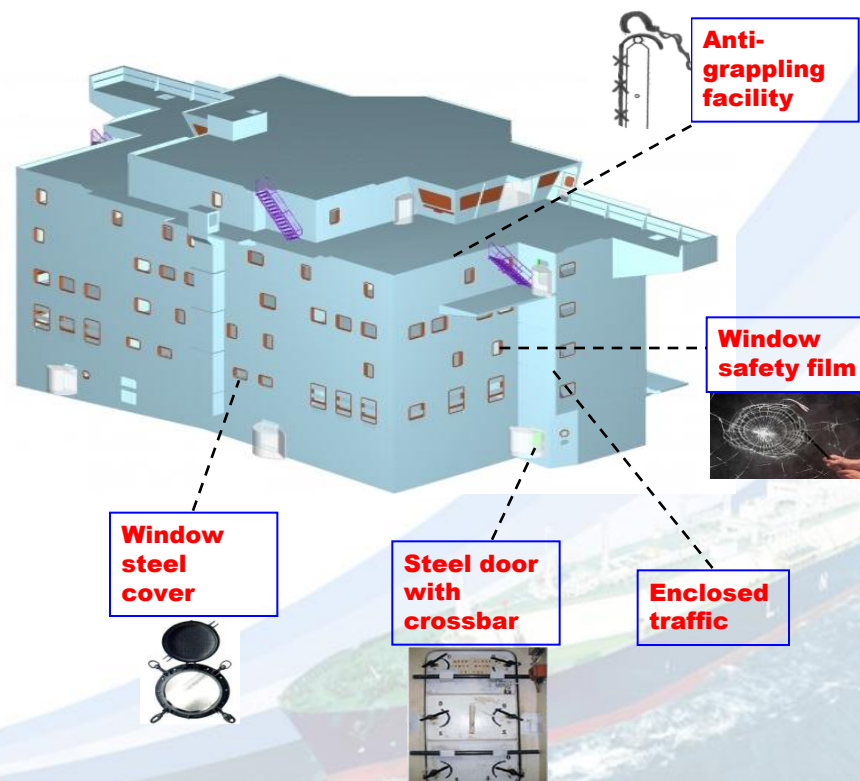


5. Stronghold Deckhouse

Anti-pirate construction and facilities for deckhouse and ER space shall be designed/constructed to protect or delay for deckhouse and ER space trespass by non-authorized persons or armed pirates.

Facilities :

- Enclosed traffic way in deckhouse (DSME patent)
- Anti-grappling arrangement on deckhouse outside platform.
- Steel structured lobby and steel doors with lockable crossbar at entrance
- Steel cover on easy accessible windows and safety film on all windows.



6. Refuge space (citadel)

The hidden refuge space (citadel) shall be provided for refuge of crew members during the pirates trespass in vessel. In the refuge space shall be fitted with storage of rations and first aid kits.

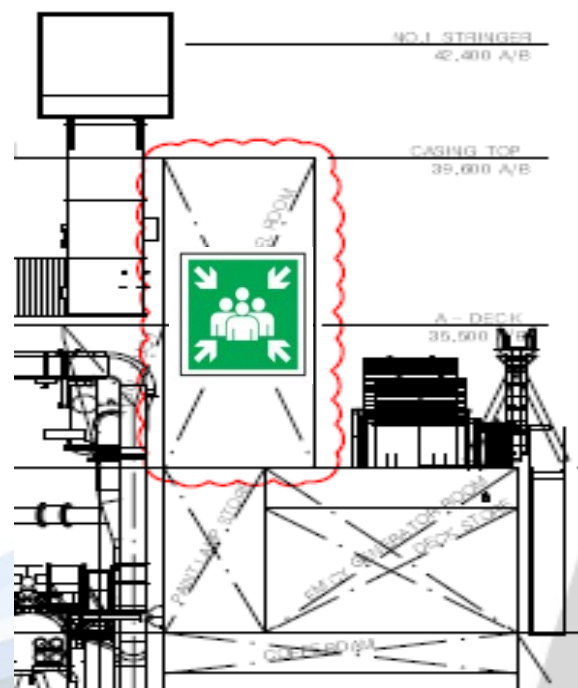
Facilities :

1) Protection facilities

- Sound insulation for inside sound reduction
- Steel Door with Additional locking (Bar Type)
- Double steel door with lobby.

2) Crew facilities

- One(1) public toilet
- Shelf for first aid kits, rations, water and etc such as crew survival
- Portable fire extinguisher
- VHF telephone, I-sat telephone
- GPS, SSAS push button
- Emergency lighting, UPS
- Overriding ER emergency stop & quick closing valves



Anti-pirate System

CASE 1

Citadel system

1. Shelter : S/G Room or ECR
2. main facilities in shelter
 - steel door
 - bulletproof glass
 - toilet
 - additional vent. system
 - VHF and communication system
 - UPS, CCTV
 - provisions & medicine
 - Locking device for Hatch & Door



Anti-pirate System

CASE 2

Citadel system

1. Shelter : Fresh water tank
2. main facilities in shelter
 - marking the tank name for disguise
 - air vent installation for disguise
 - level gauge installation for disguise
 - communication system
 - toilet
 - provisions & medicine



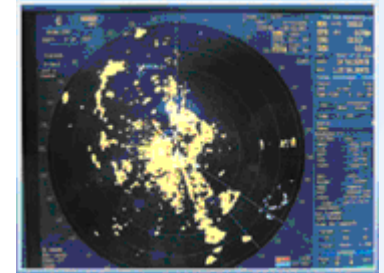
Anti-pirate System

CASE 3

Anti-pirate equipment

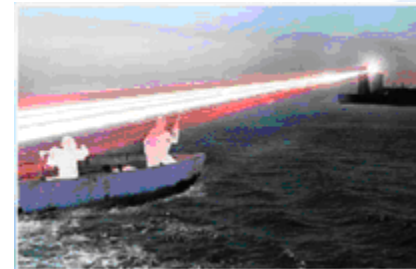
1. night vision device

identification of the pirate after analyzing the speed and a direction of the vessel within radius 10km.



2. laser beam

shooting of the laser beam with 1 m in diameter to cause temporary visual impairment.



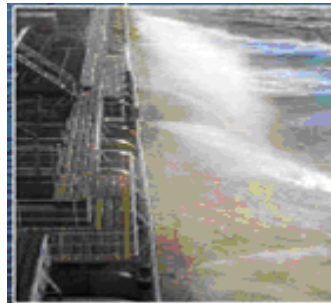
Anti-pirate System

CASE 3

Anti-pirate equipment

3. hot water spray

using by the engine heat



4. remote controlled water cannon

10kg/1cm² water pressure and
70m effective range.



Anti-pirate System

CASE 3

Anti-pirate equipment

5. water jet spray

makes hull surface smooth and vision interception to make embarkation of pirate difficult.



Thank you for your attention.



Basic & Integrated Design

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