Miko Marine AS

AIMING FOR ENHANCED SHIP COMBAT SURVIVABILITY

NDC24 Southampton, Oct 23, 2024

NAVY LEADERS™
A DIVISION OF DEFENCE LEADERS LTD

Naval Damage Control

MIKO MARINE

NAVY LEADERS
A DIVISION OF DEFENCE LEADERS LTD

Naval Damage Control

Key Notes

- Reconceptualising traditional NDC countermeasures for modern warships
- Lean manning and impact on effective NDC
- Civilian industry partners' provision of NDC solutions for navies

…. Based on personal assessments and experiences as a **DAMCONMAN**!

MIKO MARINE

Vollsveien 4, N-1336 Lysaker, Norway

NCAGE CODE N4419

Facts & Figures:

- Established in 1996
- Mission: Safeguarding life, environment and property in the maritime industry
- Main office in Oslo, Norway
- Owned by Buksér og Berging AS and Miko AS (50/50)
  - Production by long-lasting partners, mainly in Scandinavia
  - NATO Stock Numbered portfolio
  - Subsidiaries in USA
  - Sales distributors worldwide
  - ISO 9001:2015 and ISO 14001:2015 certified
  - Solid finances

Our Motto:

Keeping water on the outside and oil on the inside!

- In-house competence:
  - Product development & design
  - CAD, FEM
  - Naval architecture
  - Naval Damage Control / BDR
  - Marine operations
  - Oil removal operations from wrecks
  - Dive and ROV operations
  - Own product portfolio
- Customers include governmental organizations, shipping and energy companies, diving companies and ROV operators

Some of Our customers in the Maritime Industry

Past and current customers:

ROYAL NAVY

ROYAL CANADIAN NAVY

MARINE NATIONALE

Indian Navy

RAJA FINNISH BORDER GUARD

SECRETARÍA DE MARINA ARMADA DE MÉXICO

MARINHA DO BRASIL

Marine

PHILIPPINE COAST GUARD

UNITED STATES NAVY

TÜRK DENİZ KUVVETLERİ 1081

UNITED STATES COAST GUARD SEMPER PARATUS 1790

KYSTVAKTEN

Customers in the Naval segment:

Navy
Coast Guard
Border Control
Naval Support
Naval Yards
Naval Combat Support
Diving Units
MIRG
ENVIRG
SOF

Our current focus :

Marine

Our Future Focus:

대한민국해군 REPUBLIC OF KOREA NAVY

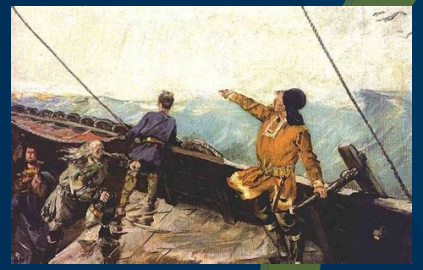
JMSDF

ROYAL AUSTRALIAN NAVY

ROYAL NEW ZEALAND NAVY

Reconceptualising traditional NDC countermeasures for modern warships

1000AC









Present day

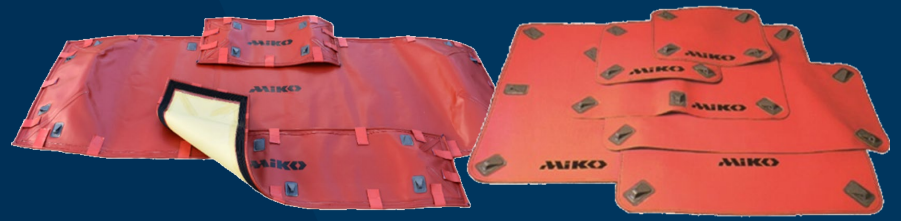
HULLS:

- **Wood, Iron,Steel(s), aluminium, GRP, CFRP, Titanium.**
- **Rivetted, welded, moulded**
- **Insulated,Non-insulated (variuos materials and thickess 8-80mm)**

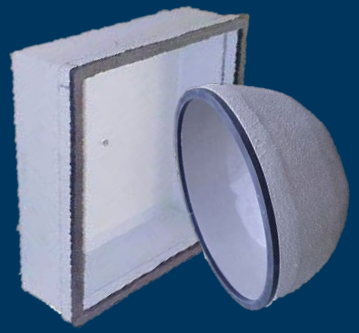
MIKO MARINE

Traditional NDC methodes and tools

Covering (blending)



Plugging (sealing)



Shoring (stiffening)

MIKO MARINE

Reconceptualising traditional NDC countermeasures for modern warships

Damage control countermeasures for modern warships are essential for maintaining operational capability and crew safety in the event of an attack or mishap.

Traditional methods have evolved to incorporate modern technologies and practices, enhancing effectiveness in contemporary naval warfare.

Here’s an overview of traditional damage control countermeasures and how they are adapted for modern warships:

Reconceptualising traditional NDC countermeasures for modern warships

- **Organization and Training**
  - **Traditional Approach**: Dedicated damage control teams trained to respond to various emergencies (fires, flooding, hull breaches).
  - **Modern Adaptation**: Integrated training simulators that replicate real-life scenarios using virtual reality, enabling crews to practice in a controlled environment. Continuous drills to improve coordination among various departments.
- **Flood Control Measures**
  - **Traditional Approach**: Patching holes with traditional means, using pumps, and closing watertight doors to prevent flooding spread.
  - **Modern Adaptation**:
    - **High-Capacity Pumps**: Enhanced pumps capable of removing large volumes of water quickly.
    - **Hull Integrity Monitoring**: Sensors that detect breaches or pressure changes in the hull, providing real-time data to the crew.
- **Structural Integrity**
  - **Traditional Approach**: Reinforced bulkheads and watertight compartments designed to contain damage.
  - **Modern Adaptation**:
    - **Advanced Materials**: Use of composite materials and lightweight alloys that enhance strength and reduce weight.
    - **Integrated Damage Control Systems**: Real-time monitoring of structural integrity through sensors that can detect stress, cracks, or deformation.

Reconceptualising traditional NDC countermeasures for modern warships

In other words..

Modern warships are designed to withstand and respond to damage more effectively than ever before. While traditional damage control methods remain foundational, their evolution through the integration of technology, advanced equipment, and enhanced training has significantly improved naval survivability in contemporary warfare.

Reconceptualising traditional NDC countermeasures for modern warships

Summary

Reconceptualizing damage control flood countermeasures for modern warships requires a combination of **Innovative technologies**, **Training**, and **Design approaches**.

By integrating these strategies, navies can enhance the resilience and survivability of their vessels, ensuring they remain operational even in the face of severe damage.

However, sometimes we must to face the rough and brutal realty of a lost battle and ensure that all sailors are accounted for...

Photos: johngrefsnes Nov 11 2018

Lean manning. Impacts and challenges on effective NDC

Lean Manning concepts aim to reduce crew size on naval vessels while maintaining or enhancing operational effectiveness. However, implementing these concepts presents several impacts and challenges regarding effective damage control on warships.

Here are some key points to consider:

Lean manning. Impacts and challenges on effective NDC

Reduced Personnel Availability:

- **Impact**: With fewer crew members available, there may not be enough personnel to execute damage control procedures effectively during emergencies.
- **Challenge**: This can lead to delays in responding to incidents such as fires or flooding, increasing the risk of catastrophic failure.

Increased Workload:

- **Impact**: Lean Manning can lead to increased workloads for remaining crew members, who may already be stretched thin with regular duties.
- **Challenge**: Fatigue and stress can impair decision-making and physical performance during critical damage control situations.

Specialization vs. Cross-Training:

- **Impact**: Lean Manning often necessitates that crew members specialize in certain areas (e.g., firefighting, flooding control) to maintain efficiency.
- **Challenge**: Specialization can create gaps in skills if crew members are not adequately cross-trained to handle multiple damage control scenarios.

Training and Preparedness:

- **Impact**: To ensure that a lean crew can respond effectively, rigorous and continuous training becomes crucial.
- **Challenge**: The time and resources required for comprehensive training can be difficult to manage, especially with reduced personnel.

Reliance on Technology:

- **Impact**: Lean Manning encourages the adoption of advanced technology and automation to assist in damage control efforts.
- **Challenge**: Over-reliance on technology can be problematic if systems fail or if crew members lack the necessary training to operate or troubleshoot equipment under stress.

Lean manning. Challenges on effective NDC

Coordination and Communication:

- With fewer personnel, effective coordination during damage control operations can become complicated. Clear communication is essential, and any breakdown can hinder response efforts.

Limited Flexibility:

- In situations requiring rapid adaptation to evolving damage control scenarios, a lean crew may struggle to maintain flexibility. They may lack the personnel to cover multiple stations or tasks.

Emergency Response Capability:

- The reduced crew size can impair the ship's overall emergency response capability. For instance, in larger vessels, damage control parties can be quickly dispatched to multiple areas simultaneously, which is more challenging with a lean crew.

Morale and Retention:

- Continuous pressure on crew members due to increased responsibilities can negatively impact morale. High turnover rates can further hinder damage control proficiency, as new crew members may take time to reach the level of experience required for effective damage control.

Operational Readiness:

- Maintaining operational readiness becomes more difficult with lean Manning. If crew members are often assigned to multiple roles (continuously watch-on-watch) or experience burnout, their readiness for damage control operations can decline.

Conclusion

While Lean Manning concepts can streamline operations and reduce costs, they also pose significant challenges to effective naval damage control. Balancing crew size with operational requirements is crucial to ensure that warships remain capable of responding to emergencies effectively.

Training, effective communication, and the appropriate use of technology are vital components that need to be prioritized to mitigate these challenges.

Lean management on Damage Control. Benefits on effective NDC

Lean management concepts can significantly impact naval damage control operations on warships by streamlining processes, improving efficiency, and enhancing overall effectiveness.

Here’s a breakdown of how these concepts influence damage control, the challenges they present, and the benefits they offer:

Lean management on Damage Control. Benefits on effective NDC

Impacts of Lean Management on Naval Damage Control

Streamlined Processes:

Standardized Procedures: Lean concepts encourage the development of standardized operating procedures (SOPs) for damage control, ensuring that all crew members are trained in the same efficient methods.

Value Stream Mapping: This step-by-step technique helps identify and eliminate waste in damage control processes, allowing for quicker responses to emergencies.

Improved Training and Readiness:

Continuous Improvement: Lean promotes a culture of continuous improvement, ensuring that training programs are regularly updated based on lessons learned from drills and real incidents.

Simulations and Drills: Regular training and simulations based on lean principles can prepare the crew for various damage scenarios, enhancing their readiness.

Enhanced Communication:

Visual Management Tools: Tools like status boards can help crews quickly assess damage control situations, making it easier to communicate the status and requirements during an emergency.

Challenges of Implementing Lean Management in Damage Control

Cultural Resistance:

Change Management: Transitioning to a lean approach may face resistance from crew members accustomed to traditional methods. Overcoming this requires strong leadership and effective change management strategies.

Resource Constraints:

Limited Resources: Warships operate under tight budgets and limited resources. Implementing lean practices may require initial investments in training and tools that some naval commands may be hesitant to provide.

Complex Operational Environments:

Dynamic Situations: The unpredictable nature of combat and damage scenarios may make it challenging to implement standardized lean processes. Each situation can require tailored responses, complicating the application of lean principles.

Lean management on Damage Control. Benefits on effective NDC

Conclusion

Incorporating lean management concepts into naval damage control operations on warships can lead to significant improvements in efficiency, communication, and readiness.

While challenges exist, particularly in cultural resistance and resource constraints, the potential benefits—such as increased operational effectiveness and crew empowerment—make it a worthwhile pursuit. Adapting these concepts to the unique environments of naval operations will be key to successful implementation.

When ALL that is said…
I have allways been looking back to this Question:

Could a Small Crew Have Saved the Stark - or the Samuel B. Roberts?

On 17 May 1987, while on patrol in the Persian Gulf, the USS *Stark* (FFG-31) was struck by two Exocet missiles fired from an Iraqi fighter. One exploded on impact below the port bridge wing. The other broke up as it passed through the ship, spreading rocket fuel that fed extremely high-temperature fires.

On 15 April 1988, while under way in the Gulf, the *Samuel B. Roberts* (FFG-58) struck a contact mine that blasted a 23-foot hole in the engine-room bilge.

Article by Rear Admiral John T. Lyons III, U.S. Navy
(October 1998, Proceedings, Volume 124/10/1,148)

I recommend that You read his article. It's availiable online.
Discuss the article within Your hub - and ask yourselves:
Could You summarize as RADM J T Lyons today?

Civilian industry partners' provision of NDC solutions for navies

Civilian industry partners play a crucial role in providing innovative Naval Damage Control solutions to enhance the safety and resilience of naval vessels. These partners often collaborate with navies to develop advanced systems, materials, and technologies designed to minimize and manage damage during combat or accidents.

Some of the key areas where civilian industry contributes:

Photo: JGR – HMAS Cresswell, Jervis Bay AUS

Civilian industry partners' provision of NDC solutions for navies

Flooding and Stability Management

- Automated Flooding Response Systems
- Watertight Doors and Bulkheads
- Improved cabel and pipe sealing
- Blastdoors
- Etc

Damage Detection and Monitoring

- Sensors and Early Warning Systems
- Condition-based Monitoring

Photo: JGR – F313 Nov 11 2018

Civilian industry partners' provision of NDC solutions for navies

Training and Simulation

- **Damage Control Simulators**
- **Advanced Training Platforms**

DC Trainer (Sri Lanka)

Repair and Structural Reinforcement

- **Portable Damage Repair Equipment**
  - Blankings and patches
  - Shoring equipment
  - Sealing tools

DRIU by Meteksan (Türkey)

DRIU by VNE (Norway)

Civilian industry partners' provision of NDC solutions for navies

Automation and AI

- Automated Damage Control Systems
- AI-driven Decision Support

Integrated Platform Management Systems

- Cross-platform Coordination
- Networked Communication Tools

These and many more contributions from civilian industry partners are essential for modernizing naval fleets and ensuring that vessels are better equipped to handle damage from combat or accidents, ensuring crew safety and mission sustainability.

MIKO MARINE

Keeping water on the outside since 1996

NDC solutions for navies by MIKO MARINE

NATO OTAN

NCAGE CODE N4419

MIKO MARINE

MIKO MARINE

Plasters
Magnets
Tools
Kits
Covers
Oil removal
Ship Arrestor

- Miko Magnetic Plasters
- Miko Flexishape Plaster

- Miko Underwater Magnets

- MikoFix Underwater Drill
-
- Emergency Response Bag
- Miko Tanker Kit
- Miko Salvage Kit
- Miko Salvage Kit GRP - Aluminium
- Miko Tank Sealer Kit
- Miko Polar Kit (Surface Applied Miko Plaster Kit)
- Miko Salvage Bag (Miko Damage Control Bag)

- Miko Covers / Blankings

- Miko Moskito

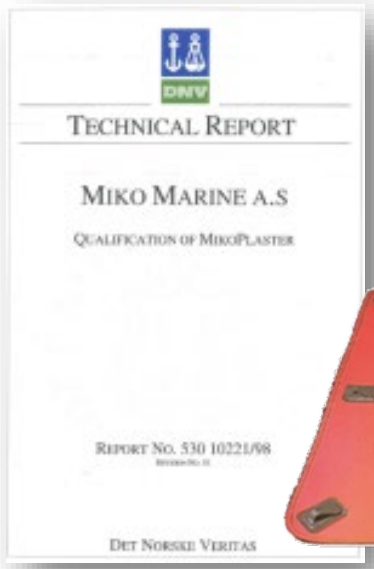
- Miko Ship Arrestor

Miko Magnetic Plasters ®

Outer layer: Polyester-reinforced PVC matting

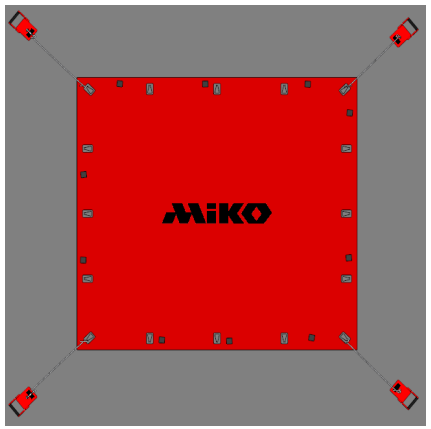
Inner layer: Nitrile rubber sheeting containing ferritic magnets providing the magnetic holding force as well as strong frictional force and sealing effect against the steel surface.

Buoyancy: The larger sized plasters are equipped with a buoyancy sheet to facilitate easy handling under water.



- Temporary repair of cracks and punctures in hull
- For sealing off sea chests, water inlets and outlets. Cost-saving alternative to drydocking

Sizes due to customer's request!



A demo plaster at STAND #18

Miko Flexishape Plasters ®

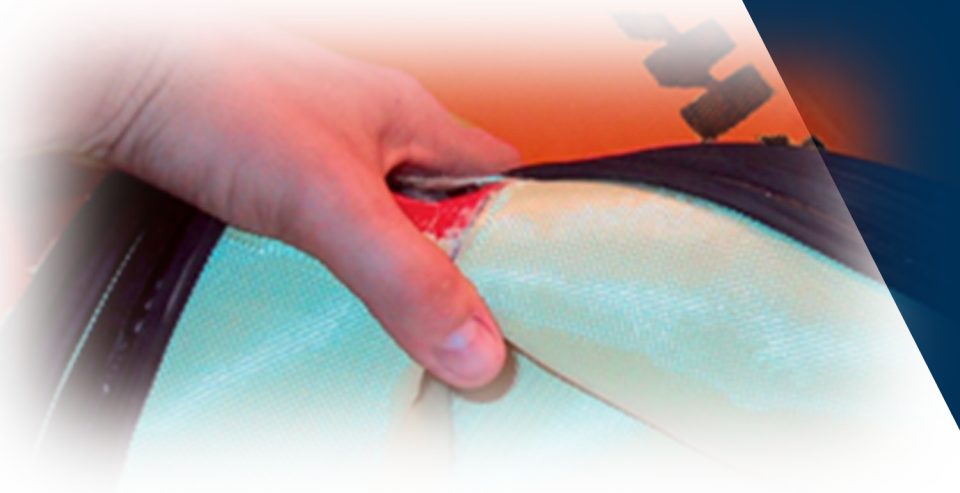
The FlexiShape Miko Plaster® is intended for **temporary and quick repair** of hull damages from groundings or collisions. It is attached to the hull using the **Miko Fix fastening system** and the corresponding **self tapping screws**.

The outer layer is a Polyester-reinforced PVC matting

The inner layer is a Aramid-reinforced fabric, similar to bullet proof vests, which protects the patch from sharp edges on the damaged hull.

The material is flexible to follow the hull curvatures and to cover uneven surfaces

The rubber stripes along the edges help improve the seal when pressed against the hull surface by self tapping screws



A demo plaster at STAND #18

Naval Damage Control. The internal battle!

SMEs from the French Navy challenged our company: Could Miko Marine develope new tools for DC teams?

Miko Salvage Bag®

Content

- 6 inflatable bags. All bags w/valve, hook, frictionstrips and markerlight
  - 1 bag 7cm w/pointed tip
  - 1 bag 12cm w/pointed tip
  - 2 bags á 18cm w/pointed tip
  - 2 bags á 18cm squared
- 1 Airbottle 3ltr/300Bar in harness w/regulator, overpressurevalve and two airhoses w/quick connections.
- Carrying handle for bags
- Suspension device w/jackstay and hook for mounting of bags on wall, pipes, deckhead etc.
- 12 stiffening rods. (2 lengths)
- 1 telescope pole w/adaptor
- 1 sheet w/formula and diagram for rapid calculation of wateringress
- Magnetic Waterlevel marker w/light
- MSB User Manual (eng)

A demo bag at STAND #18

NDC Schools

NATO Countries
Australia
New Zealand

NDC Schools


Northern Territory
Queensland
Western Australia
South Australia
New South Wales
Victoria


MIKO
SALVAGE BAG

End of Presentation!

Questions?

Thank You for you attention

Visit us on:

www.mikomarine.com

Dowload the MIKO NAVY Product Catalogue
QR-code at STAND #18

MIKO MARINE