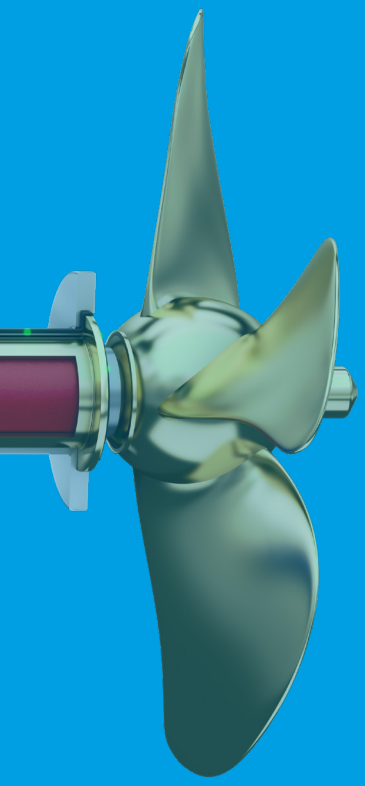
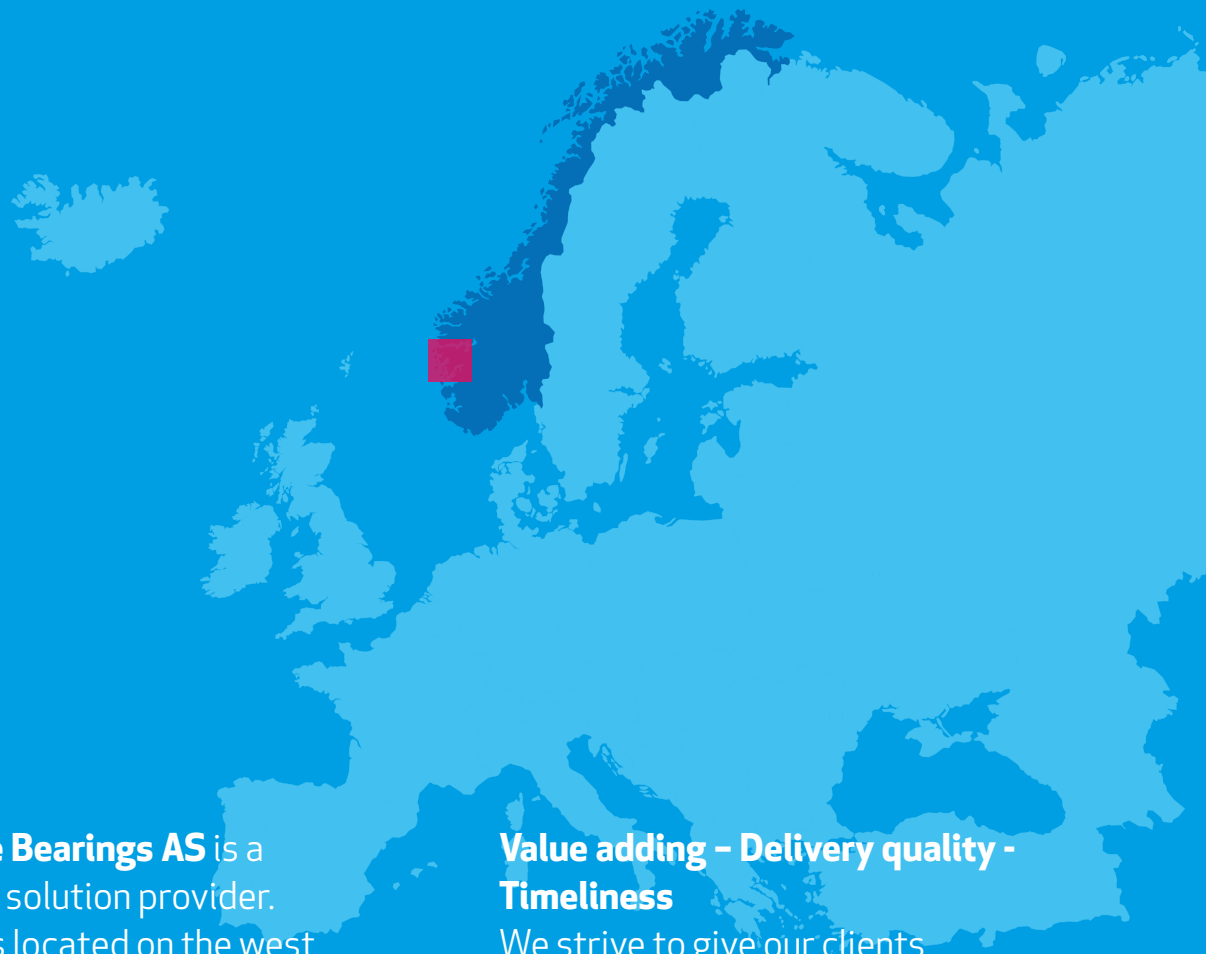
NORDEN MARINE BEARINGS

COMPANY INTRODUCTION

A SOLUTION PROVIDER

NORDEN MARINE BEARINGS





Norden Marine Bearings AS is a marine bearing solution provider. The company is located on the west coast of Norway, where our inhouse engineering, production and sales & service departments are located.

Our roots go back to 1997
Norden products have a long track record and are used in some of the world's most demanding and harsh areas.

Our products and systems come in many versions, the common nominator is that they always include Norden synthetic bearing or sealing materials.

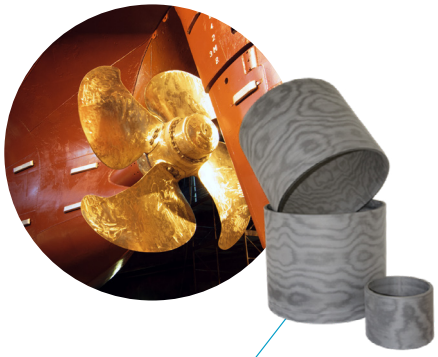
Value adding – Delivery quality - Timeliness
We strive to give our clients an experience of quality and competence throughout the dealing with us.

Certification
Norden Marine Bearings hold ISO 9001:2015 certification.

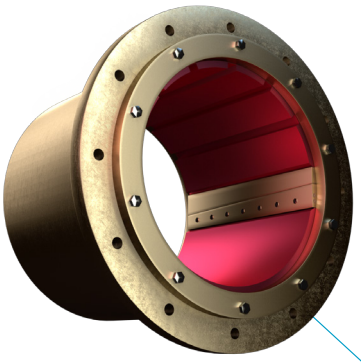
All our processes are governed by our quality management system, and full project traceability is available for supplied products.

Norden materials hold material type approvals from the worlds' leading shipbuilding classification societies.

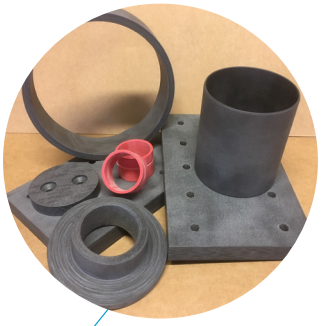
Environmentally friendly
- Oil and Grease free operation



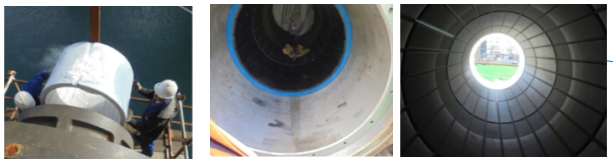
RUDDER BEARINGS



STERN TUBE BEARINGS



DECK EQUIPMENT BEARINGS



DREDGING BEARINGS

Certified by leading classification societies

Synthetic materials
The Norden materials consist of two material families, and cover a wide specter of material properties.

Norden Composites are low friction and high load carrying materials, made of reinforced thermosetting resin with added lubricants for enhanced properties.

Norden Elastomers are soft ductile materials for low to medium load, made of a thermosetting crosslinked polymer with fillers to enhance bearing properties.

Environmentally friendly
Norden materials are suitable for operations without lubrication, or with water as lubricant.

Rudder bearings
The bearing material Norden 788 Marine has over the last decade proven its quality in the harsh environment of the North Sea.

Norden 788 Marine's high load carrying capability, low wear and friction properties, makes the material a perfect rudder bearing. The material qualifies for the highest type approval certification
- Maximum load without lubrication.

Norden 788 Marine is ready to support your next newbuild or maintenance project!

Ships are supposed to be sailing!
Norden speed-lane production ensure shortest possible lead time for vessels in drydock.

WATER LUBRICATED

"THE UNREGULATED LEAK OF LUBRICATION OIL FROM STERN TUBE BEARING SYSTEMS MAY REPRESENT A SIGNIFICANT OIL QUANTITY."

"...ASSUMPTION ARE IN THE RANGE OF 6 LITRES OF OIL PER SHIP PER DAY."

— DET NORSKE VERITAS,
Report for Norwegian Maritime Directorate,
Regular operational emissions and discharges from shipping in polar areas

STERN TUBE SYSTEM

- Type Approved Bearings
- Water Filtration Unit
- Control & alarm system
- Bearing Wear Monitoring

SOLUTION

WATER LUBRICATED STERN TUBE SYSTEM

Avoid Risk

Avoid the risk associated with operating vessels with oil lubrication by installing water lubricated tail shaft.

An oil leakage represent exposure towards; unexpected maintenance, loss of hire, and fines.

Regulatory change

Unlimited tail shaft withdrawal survey intervals.

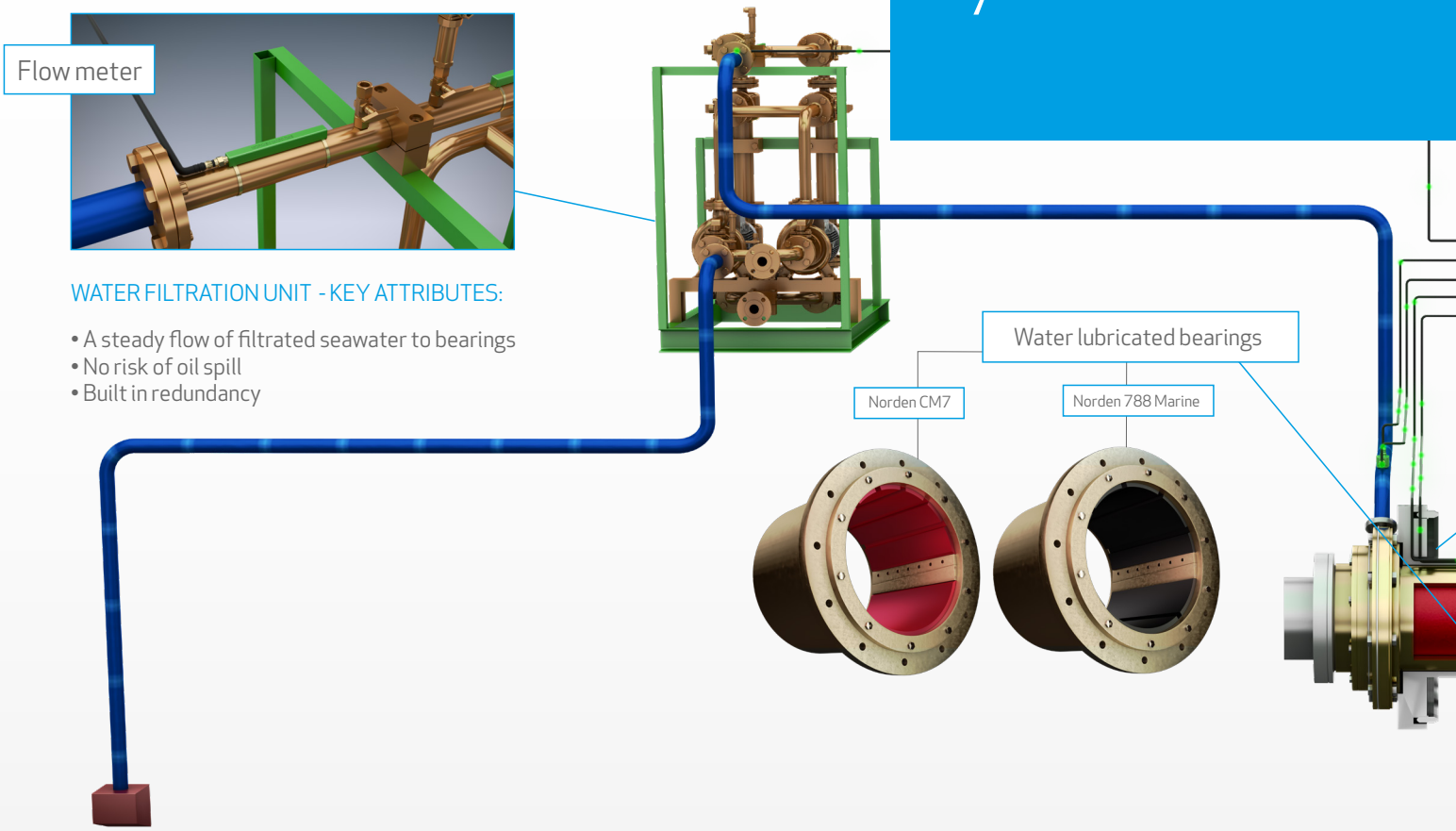
Condition based maintenance notations.

Robust

A water lubricated tail shaft system designed with emphasis on; corrosion resistance, bearing material selection, and installation arrangement, produce a reliable system with long service life.

Continuous condition monitoring enable timely maintenance planning.

Norden Bearing Monitoring & Water Filtration System



WATER FILTRATION UNIT - KEY ATTRIBUTES:

- A steady flow of filtrated seawater to bearings
- No risk of oil spill
- Built in redundancy

THE SYSTEM

1

Vessel & shaft line specification

2

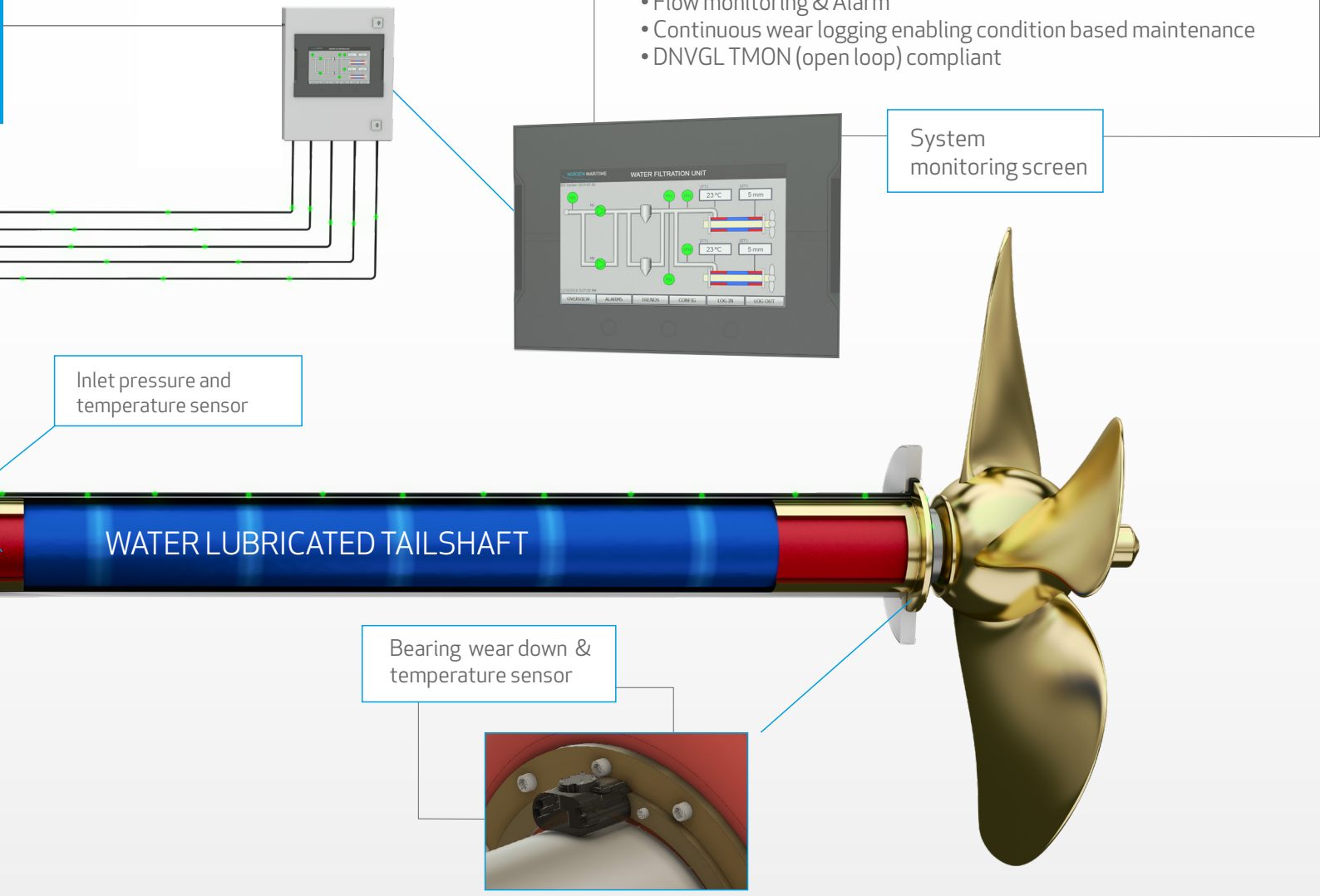
Bearing material & design selection

VISUALIZATION OF SYSTEM STATUS

•Overview • Alarm • Trends • System configuration

KEY ATTRIBUTES:

- Continuous condition monitoring of stern tube bearings system
- Flow monitoring & Alarm
- Continuous wear logging enabling condition based maintenance
- DNVGL TMON (open loop) compliant



3

Water Filtration Unit configuration

4

Class notation specific equipment

VESSEL AND SHAFT

1

The correct starting point

Water lubricated sterntube is more than a bearing. To ensure that offered scope is correct for a specific project the following details are requested;

- Regulatory requirements
- Vessel particulars
- Propeller operational profile
- Shaft line layout
- Bearing forces

LINE SPECIFICATION

Photo from Pexels.com

Photo by Lex Photography from Pexels

BEARING MATERIAL AND

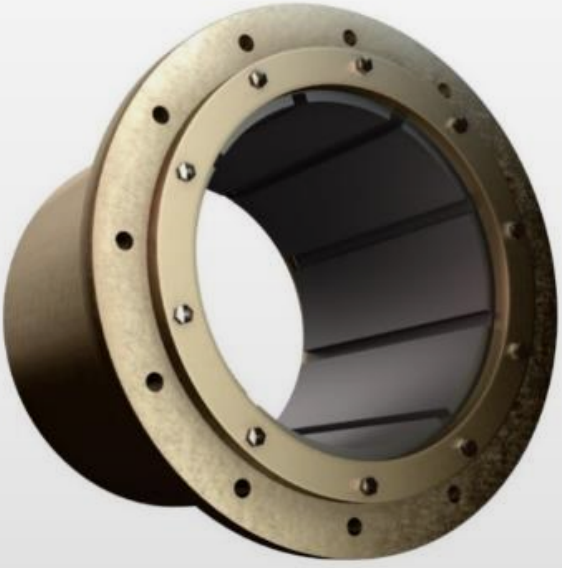
2

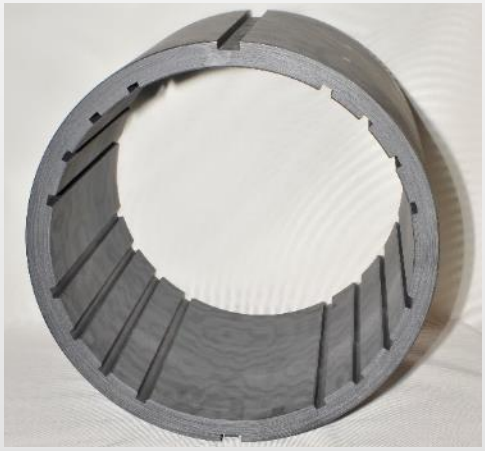
NORDEN 788 MARINE

- A composite bearing
- A hard and tough material
- Low friction at acceleration/deceleration
- Good dimensional stability
- Flexible bearing design

NORDEN CM7

- An elastomer bearing
- A soft and ductile material
- Low wear rate
- Good resistance to abrasive particles
- Good edge loading capability
- Good shock absorption capability

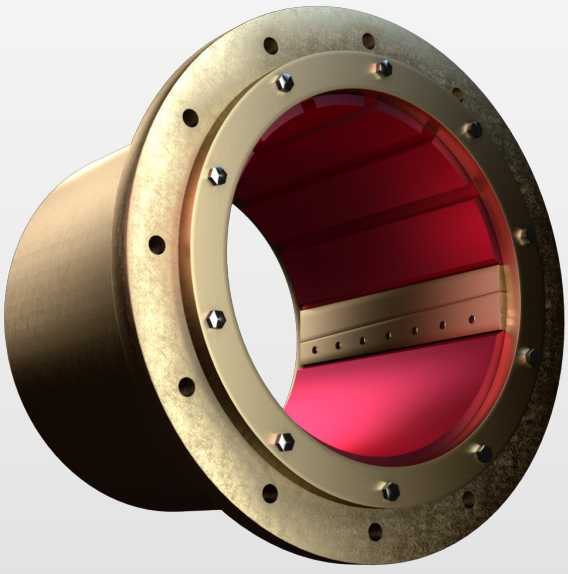




DESIGN SELECTION

BOTH

- Proven technology
- Represent majority of water lubricated bearings in use today
- An environmental option to oil bearings



WATER FILTRATION UNIT

3

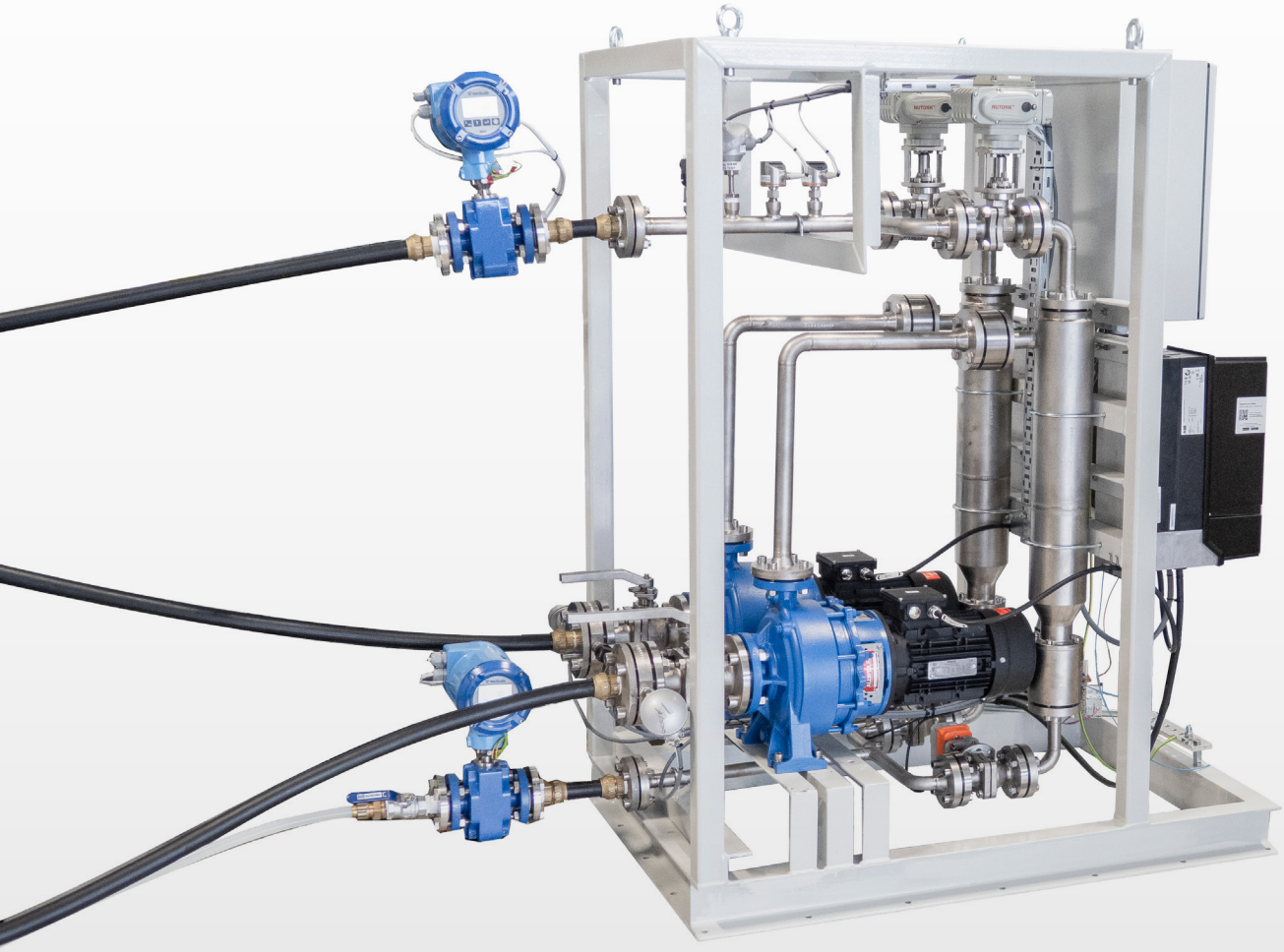
Clean cooling water for seals and bearings

Robust design for long service life.

Titanium pipework, no moving parts (exc. Pump)

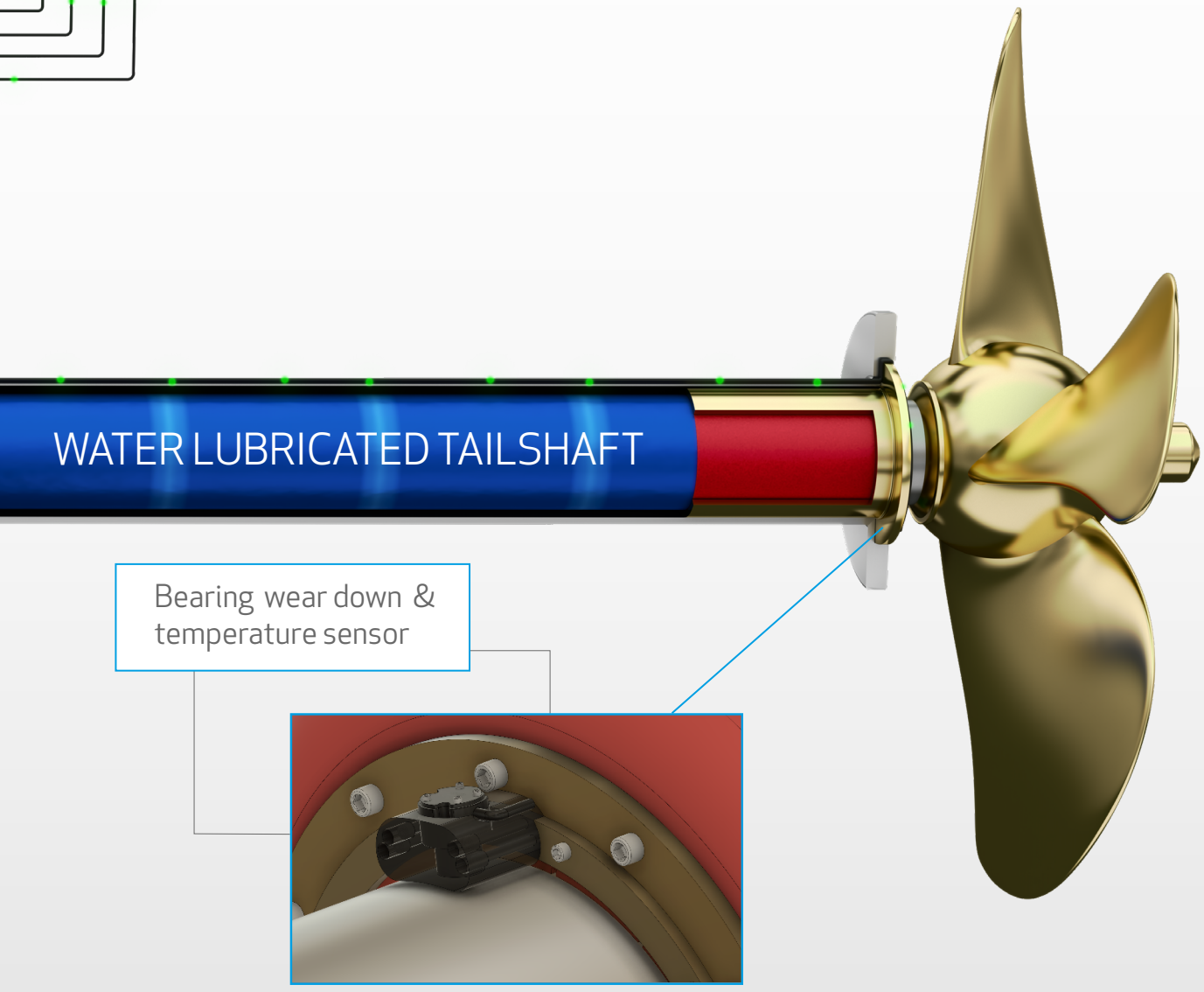
Cyclone separator

Removes sand and silt particles above 80 micron



WEAR DOWN SENSOR

4



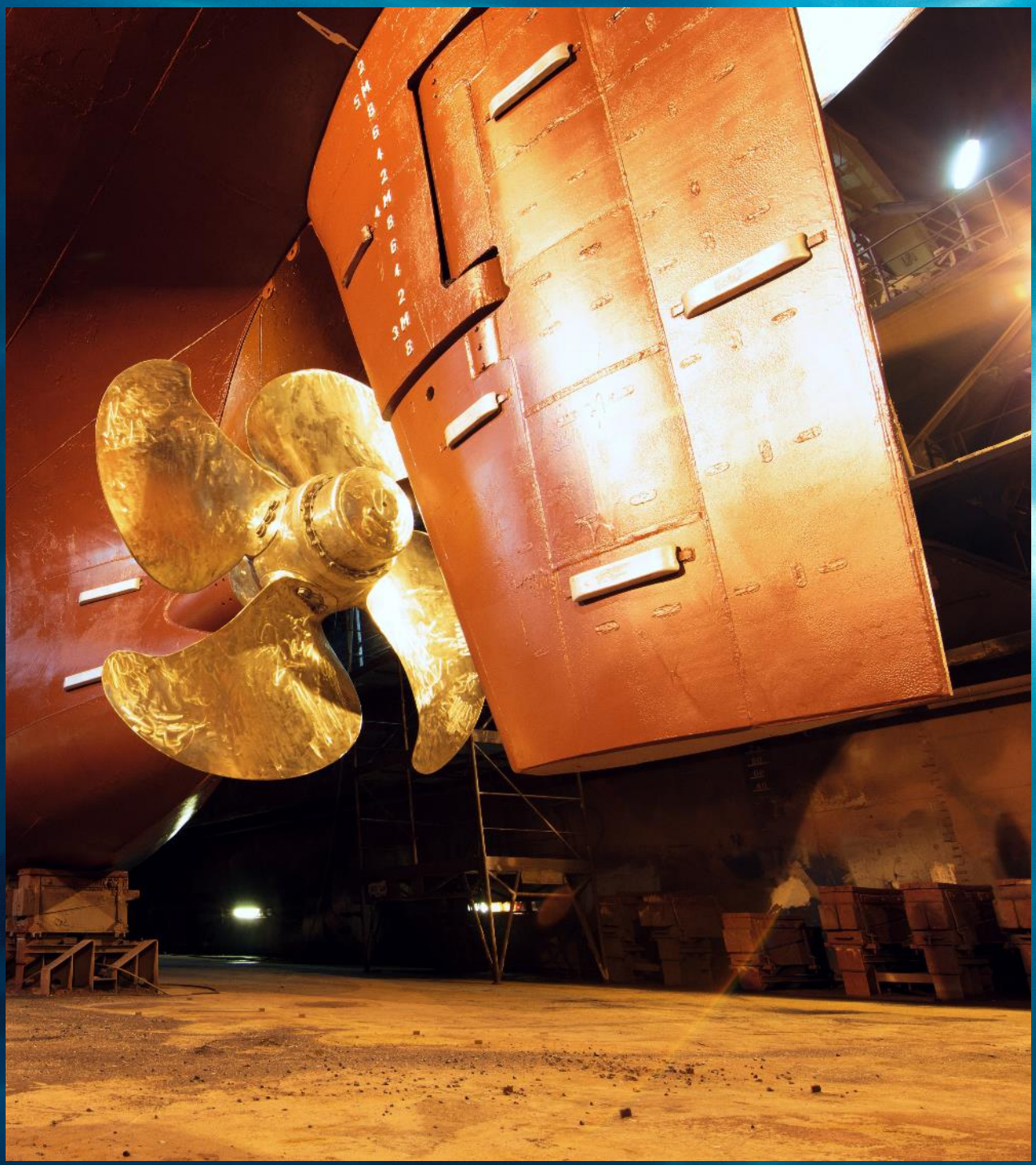
Monitor wear of aft bearing, and predict time for maintenance.

Type approved by DNVGL

Meet condition based maintenance notations for tail shaft

CORROSION PROTECTION AND INBOARD SHAFT SEAL

A system supply can optionally include shaft coating and inboard shaft seal.



WATER LUBRICATED STERN TUBE

- Environmentally friendly
- Proven technology
- No Oil – No Leakage – No Unexpected Maintenance
- Cost
- Reduced operational cost
- No Aft Seal
- Enables condition based maintenance
- VGP Compliant
- IMO Polar Code Compliant

NORDEN MARINE BEARINGS

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