

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Bearing Condition Monitoring System**

with type designation(s)

**Sensor Head (DSH) Part/Mod. # U38CZ**

Issued to

**Thordon Bearings Inc.  
Burlington ON, Canada**

is found to comply with

**DNV GL rules for classification – Ships and offshore units****DNV GL rules for classification – Naval vessels****DNV GL rules for classification – Yachts****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Part/Model # U38CZ****Location classes:**

|                    |          |
|--------------------|----------|
| <b>Temperature</b> | <b>A</b> |
| <b>Humidity</b>    | <b>B</b> |
| <b>Vibration</b>   | <b>B</b> |
| <b>EMC</b>         | <b>A</b> |
| <b>Enclosure</b>   | <b>D</b> |

Issued at **Hamburg** on **2017-11-10**This Certificate is valid until **2022-11-09**.DNV GL local station: **Montreal**for **DNV GL**Approval Engineer: **Didier Girardin**

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**Joannis Papanuskas**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



## Product description

Thordon Displacement Sensor Head (DSH) Part/Model # U38CZ for tail shaft monitoring provides a static remote bearing wear monitoring that allows a wear down measurement reading when the shaft is in a stopped condition.

The DSH Sensor / Housing subsystem is mounted at the top of the propeller shaft aft bearing retaining ring/flange assembly, facing the propeller shaft and measuring the distance from the sensor to its surface. During service the top Sensor will see the shaft retracting from its initial (new) position due to bearing wear, delivering a positive measurement.

## Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

- The Thordon DSH Sensor only to be used in conjunction with the Sensor Driver Model # ECL202-U38-SXM-15-CS integrated in the Local Control Panel (LCP) Part/Model # ECL202
- DSH Sensor provided for Static remote bearing wear monitoring with sensor redundancy
- Redundancy may be exempted if the hardware is designed to be replaced without withdrawal of the shaft and / or propeller.
- Installation of DSH Sensor and LCP Panel by Thordon GSS trained personnel in accordance with Thordon Manual.

## Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Nov 2016

## Marking of product

The DSH to be marked with unique identifier consisting of:

- Drawing Number – Model Number – Serial Number

The LCP to be marked with 120 x 80 mm Identification Label, showing:

- BEARING CONDITION MONITORING SYSTEM
- LOCAL CONTROL PANEL (LCP)
- Drawing Number - Model Number - Serial number
- Work Order Number
- Manufacturer: Thordon Bearings Inc

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least after 2 years and 3.5 years and at renewal of this certificate.

END OF CERTIFICATE