

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the Bottom Penetration for Echo Sounder, Sonar or Log**

with type designation(s)  
**EMES60-S**

Issued to  
**Northern Solutions AS**  
**Vinterbro, Norway**

is found to comply with  
**DNV GL rules for classification – Ships**

**Application :**

**Flange and ball valve arrangement for single bottom hulls, intended to house EMES60 navigation sensors.**

This Certificate is valid until **2021-02-14**.

Issued at **Høvik** on **2016-02-15**

DNV GL local station: **Station Oslo Maritime and CAP**

for **DNV GL**

Approval Engineer: **Simon Ratcliffe**

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**Marianne Spæren Marveng**  
**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.

Job Id: **262.1-019766-2**  
Certificate No: **TAS00000BM**

## **Product description**

Flange and ball valve arrangement for single bottom hulls, intended to house EMES60 navigation sensors.

EMES60-S

Size: DN65

Design pressure: 4 bar

Maximum allowable working pressure for ball valve: 4 bar.

## **Application/Limitation**

The welding procedure for mounting the flange to the hull is to be approved on a case-by-case basis.

Prior to delivery each valve is to be hydrostatically tested and seat pressure tested according to EN 12266-1.

The valve is to be delivered with a manufacturer's works (3.1) certificate.

The final hull penetration assembly is to be leak tested at 7 bar. No leakage is permitted.

Note that this approval may not be used to cover the ball valve separately. It is only valid when part of a hull penetration product manufactured by Northern Solutions.

## **Type Approval documentation**

## **Tests carried out**

Burst test of ball valve. Leak test of assembly.

## **Marking of product**

For traceability to this type approval each product is to be marked with;



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- Manufacturer's name
- Type designation

### **Periodical assessment**

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every second year and before the expiry of this certificate to verify that the conditions for the approval are complied with.