



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAS00002CU
Revision No:
3

This is to certify:

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

with type designation(s)
NSO

issued to

Nortek Netherlands B.V.
Hoofddorp, Netherlands

is found to comply with

DNV rules for classification – Ships

Application:

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Issued at **Høvik** on **2025-02-20**

for **DNV**

This Certificate is valid until **2030-01-12**.

DNV local unit: **East & South Norway CMC**

Approval Engineer: **Mohsen Mohebbi**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Arrangement for the installation of the NSO including bottom flange which is welded in hull penetration, instrument bell housing, and top and bottom flange for double hull constructions.
Material of flange, Bell Housing and pipe: S355J2G3+N according to EN10250-2

Application/Limitation

Products covered by this certificate may be used as installation for Speed log.

The arrangement covered by this certificate is evaluated for an internal design pressure of 2.9 bar (equivalent to 29 meter of water).

Mounting to hull shall be approved in each case.

Gate valves shall be purchased with a DNV product certificate. Design review of valves are out of scope of this certificate. Design pressure of valves shall be minimum 2.9 bar.

The whole assembly shall be subject to hydrostatic test at 5 bar.

Valve bodies, pipes, and flanges shall be delivered with a works certificate (equivalent to type 3.1 material certificate) issued by an approved manufacturer of DNV.

Assembly as covered by this certificate shall be delivered with a DNV product certificate.

Type Approval documentation

Drawing number	Revision	Title
N2043-060	G	NSO DB Assembly 2043-NSO-I-XD-060
N2043-053	H	NSO SB Assembly 2043-NSO-I-XD-053
N2043-033	E	NSO SB Flange 2043-NSO-I-XD-033
N2043-027	G	NSO Bell Housing
N2043-029	E	NSO DB Top Flange 2043-NSO-I-XD-029
N2043-028	E	NSO DB Bottom Flange 2043-NSO-I-XD-028

Static Analysis reports of flange N2043-029, N2043-033 & N2043-028 dated 2018-10-10
Speedlog - FEA -top tank-Static pressure-1 for N2043-027 (Bell Housing) dated 2019-03-12

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- manufacturer's name or trade mark
- pressure class
- size

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

For retention of the type approval, a DNV surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

To check the validity of this certificate, please look it up at <https://approvalfinder.dnv.com>.