



TYPE APPROVAL CERTIFICATE

Certificate No:
TAS00001J9
Revision No:
1

This is to certify:

That the Bottom Penetration for Echo Sounder, Sonar or Log

with type designation(s)
DB-60, DB-100, SB-60, SB-100, ETNSLB, ETNSLJB

Issued to
Skipper Electronics AS
Oslo, Norway

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 **2023-12-08**

for **DNV**

This Certificate is valid until **2028-06-29**.
DNV local unit: **Oslo Maritime and CAP**

Approval Engineer: **Sarah Miller**

Zeinab Sharifi
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.

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 300,000 USD.



Product description

Retractable gate/ball valve arrangement (herein referred to as 'Assembly' in the certificate) with bottom penetration consisting of gate/ball valve, pipe as intermediate element and flanged connection welded to the hull.

Type designation	Arrangement for
ETNSLJB	Echo Sounder
ETNSLB	Doppler Log
SB-100	Echo Sounder/ Doppler Log or EM Log
SB-60	EM Log or Doppler Log
DB-100	Echo Sounder/ Doppler Log or EM Log
DB-60	EM Log or Doppler Log

Material of bottom flanges, intermediate pipe, and top flanges are:

- AISI 316L / 1.4404 EN10028-7
- AISI 316 / 1.4401 EN10028-7
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Application/Limitation

Products covered by this certificate may be used as installation for Doppler speed log, echo sounder and EM speed log. Mounting to hull is to be approved in each case.

Products covered by this certificate are evaluated for a internal design pressure of 3.3 bar (equivalent to 33 meter of water).

Design review of valves are out of scope of this certificate. Design pressure of valves shall be minimum 3.3 bar.

The whole component 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 DNV product certificate.

Type Approval documentation

<u>Document number</u>	<u>Document name</u>	<u>Revision</u>
DB-60-XA	Double Bottom EML224	03
DB-100-XA	Double Bottom Gate Valve	02
DB-100-XB	Double Bottom Ball Valve	02
DB-1021	Interm.Element EML224	02
DB-2051	Interm.Element xB-100-xB	03
SB-60-XA	Single Bottom EML224	03
SB-100-XA	Single Bottom Gate valve	02
SB-100-XB	Single Bottom Ball Valve	02
SB-2021	Bottom flange SB-210 mm	01
SB-3025	Gate Valve Arrangement- ETNSLB DL850 Doppler Log	02
SB-3020	Gate Valve Arrangement- ETNSLJB 50 & 200KHz Transducer	03

Operation and Installation Manuals:

- ETNSLJB-100 mm, Gate Valve For Echo Sounder Transducer, Op.& Inst. Manual
- ETNSLB-100 mm, Gate Valve For DL 850 Op.& Inst. Manual
- SB Ball Valve 60 mm, Op. & Inst. Manual for: SB-60
- DB Ball Valve 60 mm, Op. & Inst. Manual for : DB-60
- SB Gate Valve 100 mm, Op. & Inst. Manual for: SB-100
- DB Gate Valve 100 mm, Op. & Inst. Manual for: DB-100
- SB Ball Valve 100 mm, Op. & Inst. Manual for: SB-100
- DB Ball Valve 100 mm, Op. & Inst. Manual for: DB-100



Job Id: **262.1-008914-5**
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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

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.