DNV·GL

Certificate No:
TAP000010B

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Hydraulic Cylinders

with type designation(s)
ET1271, E1272

Issued to
ET Hydraulikk AS
Vatne, Norway

is found to comply with
DNV GL class guideline DNVGL-CG-0194 – Hydraulic cylinders
DNVGL-ST-0358 - Standard for Certification of offshore gangways for personnel transfer

Application :

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

Type	Max work press. push	Max work press. pull	Cylinder sizes
ET1271	250	250	50/35-300
ET1272	250	250	100/65-1100

Issued at **Høvik** on **2017-06-29**
This Certificate is valid until **2022-06-28**.
DNV GL local station: **Ålesund**

for **DNV GL**

Approval Engineer: **Khurram Saeed Khaliq**

Aldo Matteucci
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.

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Product description

Hydraulic cylinders

Cylinder type	Tube Outer Diameter	Tube Inner Diameter	Rod Diameter	Stroke	Design Pressure, push/pull
ET1271	60 mm	50 mm	35 mm	300 mm	250 bar
ET1272	120 mm	100 mm	65 mm	110 mm	250 bar*

*The hydraulic cylinder is approved based on the load chart provided in ”dimensional sketch 10/65-1100”, doc no. ET1272-100.

Material		
Cylinder type	Cylinder tube	Rod
ET1271	S355J2G3	1.4418
ET1272	S355J2G3	1.4418

Design temperature:

Application/Limitation

1. All welding is to be carried out by qualified welders and according to approved welding procedures. Non-destructive testing of all welds are to be performed according to DNVGL-CG-0194. Minimum requirement to NDT is UT and MT.
2. For hydraulic cylinder ET1271, the weld on the end eye for the rod is calculated for fatigue according to F.E.M. 1.001 3rd edition, revised 1998.10.01, and is under component group E3.
3. Material for pressure containing parts and end eye connections are to meet Charpy V-notch energy value of minimum 27J at minimum design temperature. These data are to be verified by DNV GL surveyor during the product certification.

Type Approval documentation

Production test and certification

Each cylinder is to be hydraulically pressure tested to 1.3 times the listed design pressure. The test pressure is to be applied on both sides of the piston in sequence. Testing are to be in accordance with DNVGL-CG-0194.

Marking of product

The hydraulic cylinders are to be marked with manufacturer’s name or trademark, type designations and serial number. When required by applicable rules the surveyor is to stamp each unit with VL mark and DNV GL product certificate number. Reference to type approval number is preferable.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey – every second year and before the expire date of the certificate – to verify that the conditions for the approval are complied with. Scope of the survey is to check that no alterations are made to the product design or choice of materials.

END OF CERTIFICATE