

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP000028C
Revision No:
2

This is to certify:

that the **Hydraulic Cylinders**

with type designation(s)
Steering gear cylinder - Series 25, 25B, 35, 35B, 45

issued to

Kobelt Manufacturing Co. Ltd.
Surrey, BC, Canada

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.10 Steering gear
DNV standard DNV-ST-0194 – Hydraulic cylinders

Application:

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

Design pressure (push) see page 2
Design pressure (pull) see page 2
Cylinder sizes see page 2

Issued at **Hamburg** on **2026-01-26**

for **DNV**

This Certificate is valid until **2031-01-25**.

DNV local unit: **Vancouver**

Approval Engineer: **Christof Kotzmann-Bendrien**



Digitally Signed By:

Sven Klinger

Location: DNV Hamburg,
Germany

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

Steering Gear Differential Hydraulic Cylinder

Cylinder type / size	Bore (inch)	Diameter of piston rod (inch)	Stroke max. (inch)	Fully retracted (inch)	Mid stroke (inch)	Fully extended (inch)
Cyl. 2510	2.5	1.25	10.00	22.19	27.19	32.19
Cyl. 2512	2.5	1.25	12.00	24.19	30.19	36.19
Cyl. 2514	2.5	1.25	14.00	26.19	33.19	40.19
Cyl. 2510B	2.5	1.25	10.00	23.15	28.15	33.15
Cyl. 2512B	2.5	1.25	12.00	25.15	31.15	37.15
Cyl. 2514B	2.5	1.25	14.00	27.15	34.15	41.15
Cyl. 3512	3.5	1.75	12.00	27.28	33.28	39.28
Cyl. 3515	3.5	1.75	15.00	30.28	37.78	45.28
Cyl. 3518	3.5	1.75	18.00	33.28	42.28	51.28
Cyl. 3512B	3.5	1.75	12.00	28.60	34.60	40.60
Cyl. 3515B	3.5	1.75	15.00	31.60	39.10	46.60
Cyl. 3518B	3.5	1.75	18.00	34.60	43.60	52.60
Cyl. 4516	4.5	2.25	16.00	34.375	42.275	50.375
Cyl. 4520	4.5	2.25	20.00	38.375	48.375	58.375
Cyl. 4524	4.5	2.25	24.00	42.375	54.375	66.375

Application/Limitation

Valid for all cylinder type and size:

Maximum working Pressure (Push & Pull): 1600 psi / 110 bar

Design Pressure (Push & Pull) : 2000 psi / 138 bar

Test Pressure: 3000 psi / 207 bar (Tests carried in accordance with DNV-ST-0194)

Design Temperature (min/max): 0°C to 45°C

Corrosion allowance: 0.3 mm

Material requirements as in acc. to DNV-RU-Ship-Part 2-Chap.2-Metallic Materials

Type Approval documentation

7802-0003- Rev.D - 25 Cylinder GA
7800-0028- Rev.D - Cylinder 2510
7800-0030- Rev.D - Cylinder 2512
7800-0032- Rev.D - Cylinder 2514
7800-0054-Rev.B - Cylinder 2510B
7800-0056-Rev.B - Cylinder 2512B
7800-0058-Rev.B - Cylinder 2514B
7802-0009- Rev.A - Cylinder 2510B
7802-0010- Rev.A - Cylinder 2512B
7802-0011- Rev.A - Cylinder 2514B
7802-0001- Rev.C - 35 Cylinder GA
7800-0006- Rev.D - Cylinder 3512
7800-0008- Rev.D - Cylinder 3515
7800-0010- Rev.D - Cylinder 3518
7800-0048-Rev.B - Cylinder 3512B
7800-0050-Rev.B - Cylinder 3515B
7800-0052-Rev.B - Cylinder 3518B
7802-0006- Rev.A - Cylinder 3512B
7802-0007- Rev.A - Cylinder 3515B
7802-0008- Rev.A - Cylinder 3518B
7802-0002- Rev.B - 45 Cylinder GA
7800-0017- Rev.C - Cylinder 4516
7800-0019- Rev.C - Cylinder 4520
7800-0021- Rev.C - Cylinder 4524

Marking of product

The product is to be marked with

- manufacturer's name or trademark
- type approval number designation
- serial number
- year of construction
- design / test pressure in psi / bar

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 Type Approval are complied with. Refer to DNV-CP-0338, Sec.4.

The certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

Other conditions

This type approval does not cover:

- Crane cylinders
- Cylinders for life saving equipment

END OF CERTIFICATE