



CERTIFICATE NUMBER	23-2450530-PDA
EFFECTIVE DATE	20-Sep-2023
EXPIRY DATE	19-Sep-2028
ABS TECHNICAL OFFICE	Houston ESD - Ship Equipment

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

KOBELT MANUFACTURING CO. LTD.

located at

8238 129TH STREET, , SURREY, Canada, V3W 0A6

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: Hydraulic Steering Gear Cylinder

Model: 25, 35 and 45 Cylinder

Endorsements:

Tier: 5 - Unit Certification Required

This Product Design Assessment (PDA) Certificate remains valid until 19/Sep/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Mohamed C Boukamcha

Mohamed C Boukamcha,Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

KOBELT MANUFACTURING CO. LTD.

8238 129TH STREET

SURREY B.C.

Canada V3W 0A6

Telephone: 604-572-3935

Fax: 604-590-8313

Email: ekaterinaw@kobelt.com

Web: www.kobelt.com

Tier: 5 - Unit Certification Required

Product: Hydraulic Steering Gear Cylinder

Model: 25, 35 and 45 Cylinder

Endorsements:

Intended Service:

Marine & Offshore Steering Cylinders.

Description:

Unbalanced Hydraulic Cylinder for Marine Steering Application.

25 Cylinder:

Bore Diameter: 2.50", Rod Diameter: 1.25"

Stroke: 10" (Model 2510), 12" (Model 2512), 14" (Model 2514)

35 Cylinder:

Bore Diameter: 3.50", Rod Diameter: 1.75"

Stroke: 12" (Model 3512), 15" (Model 3515), 18" (Model 3518)

45 Cylinder:

Bore Diameter: 4.50", Rod Diameter: 2.25"

Stroke: 16" (Model 4516), 20" (Model 4520), 24" (Model 4524)

Rating:

Max Allowable Working Pressure: 2000 psi

Design Temperature: 32°F (0°C) to 122°F (50°C)

Service Restriction:

1. Unit Certification is required for this product.
2. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

- The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- Each Cylinder is to be affixed with a permanent nameplate or marking bearing the Manufacturer's Name or Trademark and the Maximum Allowable Working Pressure and Temperature in accordance with 4-6-7/3.5.5 of the ABS Marine Vessels Rules.
- Material Testing as per 4-3-4/3 of the ABS Marine Vessels Rules. Parts may be accepted on the basis of a review of mill certificates by the Surveyor.
- Each unit is to be hydrostatically tested to 1.5 times the maximum allowable working pressure as per 4-3-4/19 of the ABS Marine Vessels Rules.

Notes/Drawing/Documentation:

25 Cylinder Design Book, September 2023, Pages:32

Drawing No. 7800-0023, 2510 Piston Rod Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0024, 25 Cylinder Head Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0025, 25 Rod End Assembly, Rev. C, Pages: 1

Drawing No. 7800-0026, 25 Cylinder End Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0027, 25 Cylinder Seal Retainer Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0028, Cylinder 2510, Rev. D, Pages: 1

Drawing No. 7800-0029, 2512 Piston Rod Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0030, Cylinder 2512, Rev. D, Pages: 1

Drawing No. 7800-0031, 2514 Piston Rod Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0032, Cylinder 2514, Rev. D, Pages: 1

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- Drawing No. 7801-0045, 25 Cylinder Piston, Rev. A, Pages: 1
- Drawing No. 7801-0046, 25 Cylinder Head, Rev. E, Pages: 1
- Drawing No. 7801-0047, 25 Cylinder End, Rev. E, Pages: 1
- Drawing No. 7801-0048, 25 Bearing Sleeve, Rev. A, Pages: 1
- Drawing No. 7801-0049, 25 Cylinder Rod End, Rev. E, Pages: 1
- Drawing No. 7801-0049-P, Profile, Rod End, 25 Cylinder, Rev. C, Pages: 1
- Drawing No. 7801-0050, 25 Seal Retainer, Rev. D, Pages: 1
- Drawing No. 7801-0051, 2510 Tube, Rev. C, Pages: 1
- Drawing No. 7801-0052, 2510 Tie Rod, Rev. B, Pages: 1
- Drawing No. 7801-0053, 2510 Piston Rod, Rev. C, Pages: 1
- Drawing No. 7801-0054, 2512 Tube, Rev. C, Pages: 1
- Drawing No. 7801-0055, 2512 Tie Rod, Rev. B, Pages: 1
- Drawing No. 7801-0056, 2512 Piston Rod, Rev. C, Pages: 1
- Drawing No. 7801-0057, 2514 Tube, Rev. C, Pages: 1
- Drawing No. 7801-0058, 2514 Tie Rod, Rev. B, Pages: 1
- Drawing No. 7801-0059, 2514 Piston Rod, Rev. C, Pages: 1
- Drawing No. 7801-0060, 25 Foot, Rev. B, Pages: 1
- Drawing No. 7801-0060-P, Profile, Foot, 25 Cylinder, Rev. B, Pages: 1
- Drawing No. 7801-0061, 25 Cylinder Pin, Rev. C, Pages: 1
- Drawing No. 7801-0062, 25 Pin Keeper, Rev. B, Pages: 1
- Drawing No. 7801-0063, 25 Spacer, Rev. A, Pages: 1
- Drawing No. 7802-0003, 25 Cylinder GA, Revision: D, Pages: 1

- 35 Cylinder Design Book, September 2023, Pages: 32
- Drawing No. 7800-0001, 3512 Piston Rod Sub Assembly, Rev. B, Pages: 1
- Drawing No. 7800-0002, 35 Cylinder Head Sub Assembly, Rev. B, Pages: 1
- Drawing No. 7800-0003, 35 Rod End Assembly, Rev. C, Pages: 1
- Drawing No. 7800-0004, 35 Cylinder End Sub Assembly, Rev. B, Pages: 1
- Drawing No. 7800-0005, 35 Cylinder Seal Retainer Sub Assembly, Rev. B, Pages: 1
- Drawing No. 7800-0006, Cylinder 3512, Rev. D, Pages: 1
- Drawing No. 7800-0007, 3515 Piston Rod Sub Assembly, Rev. B, Pages: 1
- Drawing No. 7800-0008, Cylinder 3515, Rev. D, Pages: 1
- Drawing No. 7800-0009, 3518 Piston Rod Sub Assembly, Rev. B, Pages: 1
- Drawing No. 7800-0010, Cylinder 3518, Rev. D, Pages: 1
- Drawing No. 7801-0001, 35 Cylinder Piston, Rev. A, Pages: 1
- Drawing No. 7801-0002, 35 Cylinder Head, Rev. D, Pages: 1
- Drawing No. 7801-0003, 35 Cylinder End, Rev. D, Pages: 1
- Drawing No. 7801-0004, 35 Bearing Sleeve, Rev. A, Pages: 1
- Drawing No. 7801-0005, 35 Cylinder Rod End, Rev. E, Pages: 1
- Drawing No. 7801-0005-P, Profile, Rod End, 35 Cylinder, Rev. C, Pages: 1
- Drawing No. 7801-0006, 35 Seal Retainer, Rev. D, Pages: 1
- Drawing No. 7801-0007, 3512 Tube, Rev. C, Pages: 1
- Drawing No. 7801-0008, 3512 Tie Rod, Rev. B, Pages: 1
- Drawing No. 7801-0009, 3512 Piston Rod, Rev. C, Pages: 1
- Drawing No. 7801-0010, 3515 Tube, Rev. C, Pages: 1
- Drawing No. 7801-0011, 3515 Tie Rod, Rev. B, Pages: 1
- Drawing No. 7801-0012, 3515 Piston Rod, Rev. C, Pages: 1
- Drawing No. 7801-0013, 3518 Tube, Rev. C, Pages: 1
- Drawing No. 7801-0014, 3518 Tie Rod, Rev. B, Pages: 1
- Drawing No. 7801-0015, 3518 Piston Rod, Rev. C, Pages: 1
- Drawing No. 7801-0016, 35 Foot, Rev. B, Pages: 1
- Drawing No. 7801-0016-P, Profile, Foot, 35 Cylinder, Rev. B, Pages: 1
- Drawing No. 7801-0017, 35 Cylinder Pin, Rev. C, Pages: 1
- Drawing No. 7801-0018, 35 Pin Keeper, Rev. D, Pages: 1

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Drawing No. 7801-0019, 35 Spacer, Rev. A, Pages: 1

Drawing No. 7802-0001, 35 Cylinder GA, Revision: C, Pages: 1

45 Cylinder Design Book, September 2023, Pages:32

Drawing No. 7800-0012, 4516 Piston Rod Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0013, 45 Cylinder Head Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0014, 45 Rod End Assembly, Rev. B, Pages: 1

Drawing No. 7800-0015, 45 Cylinder End Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0016, 45 Cylinder Seal Retainer Sub Assembly, Rev. B, Pages: 1

Drawing No. 7800-0017, Cylinder 4516, Rev. C, Pages: 1

Drawing No. 7800-0018, 4520 Piston Rod Sub Assembly, Rev. C, Pages: 1

Drawing No. 7800-0019, Cylinder 4520, Rev. C, Pages: 1

Drawing No. 7800-0020, 4524 Piston Rod Sub Assembly, Rev. C, Pages: 1

Drawing No. 7800-0021, Cylinder 4524, Rev. C, Pages: 1

Drawing No. 7801-0023, 45 Cylinder Piston, Rev. A, Pages: 1

Drawing No. 7801-0024, 45 Cylinder Head, Rev. C, Pages: 1

Drawing No. 7801-0025, 45 Cylinder End, Rev. E, Pages: 1

Drawing No. 7801-0026, 45 Bearing Sleeve, Rev. A, Pages: 1

Drawing No. 7801-0027, 45 Cylinder Rod End, Rev. D, Pages: 1

Drawing No. 7801-0027-P, Profile, Rod End, 45 Cylinder, Rev. B, Pages: 1

Drawing No. 7801-0028, 45 Seal Retainer, Rev. C, Pages: 1

Drawing No. 7801-0029, 4516 Tube, Rev. C, Pages: 1

Drawing No. 7801-0030, 4516 Tie Rod, Rev. B, Pages: 1

Drawing No. 7801-0031, 4516 Piston Rod, Rev. C, Pages: 1

Drawing No. 7801-0032, 4520 Tube, Rev. C, Pages: 1

Drawing No. 7801-0033, 4520 Tie Rod, Rev. B, Pages: 1

Drawing No. 7801-0034, 4520 Piston Rod, Rev. C, Pages: 1

Drawing No. 7801-0035, 4524 Tube, Rev. C, Pages: 1

Drawing No. 7801-0036, 4524 Tie Rod, Rev. B, Pages: 1

Drawing No. 7801-0037, 4524 Piston Rod, Rev. C, Pages: 1

Drawing No. 7801-0038, 45 Foot, Rev. B, Pages: 1

Drawing No. 7801-0038-P, Profile, Foot, 45 Cylinder, Rev. B, Pages: 1

Drawing No. 7801-0039, 45 Cylinder Pin, Rev. C, Pages: 1

Drawing No. 7801-0040, 45 Pin Retainer, Rev. A, Pages: 1

Drawing No. 7801-0041, 45 Spacer, Rev. A, Pages: 1

Drawing No. 7802-0002, 45 Cylinder GA, Rev. B, Pages: 1

Terms of Validity:

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STANDARDS

KOBELT MANUFACTURING CO. LTD.

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ABS Rules:

2023 ABS Rules for Conditions of Classification, 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
2023 Marine Vessels Rules 4-3-4/3, 4-3-4/7, 4-3-4/19, 4-4-1/1.11.5, 4-4-1A1, 4-6-7/3.5.5

2023 ABS Rules for Conditions of Classification of Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

2023 Mobile Offshore Unit Rules 6-1-1/1.1, 6-1-6/1

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA