



CERTIFICATE NUMBER

03-LD362989-3-PDA

DATE

04 September 2013

ABS TECHNICAL OFFICE

Gdynia Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
**EMERSON PROCESS MANAGEMENT, DAMCOS A/S -
NAESTVED**

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 Actuator, Remotely Controlled**

MODEL: **BRC and BRCF 125 - 16000 & BHH and BHHF 125 - 16000 & BRC and BHH 32000**

This Product Design Assessment (PDA) Certificate 03-LD362989-3-PDA, dated 04/Sep/2013 remains valid until 03/Sep/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING


Jaroslaw Kondracki
Engineer

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 application/certificate is governed by the "Terms and Conditions of the Request for Product Type Approval and Agreement" as contained in the ABS Rules.

EMERSON PROCESS MANAGEMENT, DAMCOS A/S
MARINE SOLUTION DAMCOS A/S
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PRODUCT:
Hydraulic Actuator, Remotely Controlled

MODEL:
BRC and BRCF 125 - 16000 & BHH and BHHF 125 - 16000 & BRC and BHH 32000

Intended Service:
Remote controlled valve operation.

Description:
BRC and BHH - Hydraulic double-acting balanced rotary actuator 90° rotation.
BRCF and BHHF - Hydraulic single-acting balanced rotary actuator 90° rotation, fail safe (spring acting).

Ratings:
BRC, BRCF, BHH and BHHF 125, 250, 500, 1000, 2000, 4000, 8000, 16000. BRC and BHH 32000. Maximum Working Pressure 135 bar. Design Temperature -20°C to 80°C.

Service Restriction:

1. Limited by aforementioned product ratings.
2. Unit Certification is not required for this product. 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:
Each individual unit is to be hydrostatically tested to 1.5 times of the maximum allowable working pressure by the manufacturer as per 4-6-7/3.5.5 of the SV Rules.

Notes / Drawings / Documentation:



EMERSON PROCESS MANAGEMENT, DAMCOS A/S

Drawing List

160n9097 - ASSEMBLY DRAWING
03-LD382989/2-PDA - CERTIFICATE
108-34311-1 - PRESSURE TESTING REPORT
160N9045 - Assembly drawing BRC 2000
160N9046 - Assembly drawing BRC 250
160N9047 - Assembly drawing BRC 500
160N9048 - Assembly drawing BRC 1000
160N9049 - Assembly drawing BRC 4000
160N9050 - Assembly drawing BRC 125
160N9072 - BRC 8000/16000 Assembly
160N9261 - Assembly drawing BRCF 4000 A1-B1 + FO
160N9262 - Assembly drawing BRCF 1000-2000 A1+FO
160N9263 - BRCF 8000/16000 +FO Assembly
160N9267 - Assembly drawing BRCF 250-500 A1 - B1, FC + FO
160N9269 - Assembly drawing BRCF 125 A1 + FO

Term of Validity:

This Product Design Assessment (PDA) Certificate 03-LD362989-3-PDA, dated 04/Sep/2013 remains valid until 03/Sep/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:

Rules for Building and Classing Steel Vessels, 2013, 1-1-4/7.7, 4-4-1/A1.5, 4-6-7/3.5.5

National:

NA

International:

NA

Government Authority:

NA

EUMED:

NA

Others:

NA





CERTIFICATE NUMBER

DATE

03-LD362989-3-PDA-DUP

11 October 2013

ABS TECHNICAL OFFICE

Shanghai ESD

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
**EMERSON PROCESS MANAGEMENT MARINE SYSTEMS
(SHANGHA - SHANGHAI**

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 Actuator, Remotely Controlled**

MODEL: **BRC and BRCF 125 - 16000 & BHH and BHHF 125 - 16000 & BRC and BHH 32000**

This Product Design Assessment (PDA) Certificate 03-LD362989-3-PDA-DUP, dated 11/Oct/2013 remains valid until 03/Sep/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Bin-Hong Wang

Bin-Hong Wang

Engineer

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 manufacturing process without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

EMERSON PROCESS MANAGEMENT MARINE SYSTEMS (SHANGHA

T3-7, 128 LONG GUI ROAD, JINQIAO EXPORT
PROCESS ZONE (SOUTH)
SHANGHAI
China

MA Certificate No. 12-SQ2107598-X

Product: Hydraulic Actuator, Remotely Controlled

Model: BRC and BRCF 125 - 16000 & BHH and BHHF 125 - 16000 & BRC and BHH 32000

Intended Service:

Remote controlled valve operation

Description:

BRC & BHH - Hydraulic double-acting balanced rotary actuator 90 deg rotation.

BRCF & BHHF - Hydraulic single-acting balanced rotary actuator 90 deg rotation, fail safe (spring acting).

Ratings:

BRC, BRCF, BHH and BHHF 125, 250, 500, 1000, 2000, 4000, 8000, 16000. BRC and BHH 32000. Maximum Working Pressure 135 bar, Temperature -20 deg C to 80 deg C.

Service Restrictions:

1. Limited by aforementioned product ratings.
2. Unit Certification is not required for this product. 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:

1. Original Equipment Manufacturer (OEM) Emerson Process Management - Naestved.
2. Each individual unit is to be hydrostatically tested to 1.5 times of the maximum allowable working pressure by the manufacturer as per 4-6-7/3.5.5 of the SV Rules.

Notes / Drawings / Documentation:

This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

Term of Validity:

This Product Design Assessment (PDA) Certificate 03-LD362989-3-PDA-DUP, dated 11/Oct/2013 remains valid until 03/Sep/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:

2013 Steel Vessel Rules 1-1-4/7.7, 4-4-1/A1.5, 4-6-7/3.5.5

National:

NA

International:

NA

EMERSON PROCESS MANAGEMENT MARINE SYSTEMS (SHANGHA
T3-7, 128 LONG GUI ROAD, JINQIAO EXPORT
PROCESS ZONE (SOUTH)
SHANGHAI
China

MA Certificate No. 12-SQ2107598-X

Government Authority:

NA

EUMED:

NA

Others:

NA