



CERTIFICATE NUMBER DATE
19-GD1834978-PDA 03 Apr 2019

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

DESMI PUMPING TECHNOLOGY A/S

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: **Pump, Vertical In-Line Centrifugal**

Model: **ESL25-180, ESL40-180, ESL50-180, ESL65-180, ESL80-180, ESL80-180E, ESL100-180, ESL40-180N, ESL50-180N, ESL65-180M, ESL80-180N, ESL100-180N, ESLH 25-180, ESLH 40-180, ESLH65-180, ESLH80-180E, ESLH100-180, ESLH65-180M, ESLH80-180N, ESLH100-180N.**

This Product Design Assessment (PDA) Certificate 19-GD1834978-PDA, dated 03/Apr/2019 remains valid until 02/Apr/2024 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

Andrzej Wasowski
Engineer/Consultant

TERMS & CONDITIONS OF ABS DESIGN ASSESSMENT

1. AGREEMENT

Unless otherwise agreed in writing, all services rendered and certificates issued are governed by the terms and conditions of the "Request for Product Type Approval and Agreement" (the "Agreement") which are hereby incorporated by reference.

2. REPRESENTATIONS AS TO DESIGN ASSESSMENT

A certificate of design assessment represents that the product design meets the ABS, statutory, industrial or manufacturer's standard described on the reverse hereof and that the manufacturer has established a systematic quality monitoring system sufficient to show its capacity to consistently manufacture a product which meets the designated standards. ABS is not a substitute for the independent judgment of professional designers or engineers nor a substitute for the quality control procedures of constructors, steel makers, suppliers, manufacturers and vendors of marine structures, materials, machinery or equipment. ABS represents solely to the manufacturer or other client of ABS that it will use due diligence in developing Rules, Guides and standards and in surveying the plant as called for by ABS criteria for type approval.

3. SUSPENSION OF CERTIFICATION

Any of the following events will cause immediate suspension of the certificate of design assessment unless the change is submitted to ABS for a new review and audit.

- a) Redesign of the product or products covered by this certificate;
- b) Change in production methods;
- c) Substantial change in management organization;
- d) Substantial change in frequency or curriculum for personnel training;
- e) Refusing access to ABS personnel for periodic or annual audits;
- f) Failure to correct a non-compliance identified during an audit or in service;
- g) Failure to pay ABS fees.

4. VALIDITY

The validity, applicability and interpretation of a certificate issued under the terms of or in contemplation of ABS Type Approval are governed by the Rules, Guides and standards of American Bureau of Shipping which shall remain the sole judge thereof. Nothing contained in this certificate or in

any report issued in contemplation of this certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied, nor create any interest, right, claim or benefit in any third party. It is understood and agreed that nothing expressed herein is intended or shall be construed to give any person, firm or corporation other than the parties hereto, any right, remedy, or claim hereunder or under any of the provisions herein contained; all of the provisions hereof are for the sole and exclusive benefit of the parties hereto.

5. LIMITATION

ABS makes no representations beyond those contained herein and in the provisions of the Agreement regarding its reports, statements, plan review, surveys, certificates or other services.

6. HOLD HARMLESS

The party to whom this certificate is issued, and his assignee and successor in interest, agree to indemnify and hold harmless ABS from and against any and all claims, demands, lawsuits, or actions for damages, including legal fees, to persons or other legal entities and property, tangible, intangible, or otherwise which may be brought against ABS incidental to, arising out of or in connection with the work done, services performed or material to be furnished under this certificate, except for those claims caused solely and completely by the negligence of ABS, its agents, employees, officers, directors or subcontractors.

7. ARBITRATION

Any and all differences and disputes of whatsoever nature arising out of this agreement shall be put to arbitration in the City of New York pursuant to the laws relating to the arbitration there in force, before a board of three persons, consisting of one arbitrator to be appointed by ABS, one by Client, and one by the two so chosen. The decision of any two of the three on any point or points shall be final. Until such time as the arbitrators finally close the hearings either party shall have the right by written notice served on the arbitrators and on an officer of the other party to specify further disputes or difference under this Agreement for hearing and determination. The arbitration is to be conducted in accordance with the rules of the Society of Maritime Arbitrators, Inc. The arbitrators may grant any relief, other than punitive damages,

which they, or a majority of them, deem just and equitable and within the scope of the agreement of the parties, including, but not limited to, specific performance. Awards made in pursuance to this clause may include costs including a reasonable allowance for attorney's fees and judgment may be entered upon any award made hereunder in any court having jurisdiction. ABS and client hereby mutually waive any and all claims to punitive damages in any forum.

Client shall be required to notify ABS within thirty (30) days of the commencement of any arbitration between it and third parties which may concern ABS's work in connection with this Agreement and shall afford ABS an opportunity, at ABS's sole option, to participate in the arbitration.

8. TIME BAR TO LEGAL ACTION

Any statutes of limitation notwithstanding, Client expressly agrees for itself and its affiliated companies that its right to bring or to assert against ABS any and all claims, demands or proceedings whether in arbitration or otherwise shall be waived unless (a) notice is received by ABS within thirty (30) days after Client or its affiliates had notice of or should reasonably have been expected to have had notice of the basis for such claims; and (b) arbitration or legal proceedings, if any, based on such claims or demands of whatever nature are commenced within one (1) year of the date of such notice to ABS.

9. LIMITATION OF LIABILITY

The combined liability of American Bureau of Shipping, its officers, employees, agents or subcontractors for any loss, claim, or damage arising from negligent performance or non-performance of any services under this Agreement, of from breach of any implied or express warranty of workmanlike performance in connection with the services, or from any other reason, to any person, corporation, partnership, business entity, sovereign, country or nation, shall be limited to the greater of a) \$100,000 or b) an amount equal to ten times the sum actually paid for the services alleged to be deficient.

The limitation of liability may be increased up to an amount twenty-five times that sum paid for services upon receipt of Client's written request at or before the time of performance of service and upon payment by Client of an additional fee of \$10.00 for every \$1,000.00 increase in the limitation.

DESMI PUMPING TECHNOLOGY A/S

TAGHOLM 1

NORRESUNDBY

Denmark DK-9400

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Tier: 4 - Enrolled in PQA Program

Product: Pump, Vertical In-Line Centrifugal
Model: ESL25-180, ESL40-180, ESL50-180,
ESL65-180, ESL80-180, ESL80-180E,
ESL100-180, ESL40-180N, ESL50-180N,
ESL65-180M, ESL80-180N, ESL100-180N.

ESLH 25-180, ESLH 40-180, ESLH65-180,
ESLH80-180E, ESLH100-180, ESLH65-180M,
ESLH80-180N, ESLH100-180N

Intended Service:

Ballast pumps, cooling-water pumps, general service pumps.

Description:

ESL, ESLH pumps, Single Stage Vertical In-Line Centrifugal pumps.

Material combination:

- 'A' (casing - cast iron / cast iron alloy, impeller - bronze), which is intended for fresh water applications.

- 'D' (casing - bronze, impeller - bronze), which is intended for sea water applications.

Additionally all pumps are approved in material combination 'E' (special bronze) intended for sea water applications.

Rating:

Nominal Diameter: 25÷100mm

Capacity: up to 250 m³/h,

Pressure: up 30 bar

See manufacturer's ABS approved pump curves.

The pump capacity will vary with working conditions and impeller design.

Service Restriction:

1. Connection flange standard and rating is to be suitable for the intended application.
2. Unit Certification is required for this product.

Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. Hydrostatic and Capacity testing are to be performed at the manufacturer's plant in the presence and to the satisfaction of the Surveyor (ABS Marine Vessels Rules 4-6-1/7.3.2 a) & b).
3. Pump capacity may vary with working conditions and impeller design. Reference should be made to the manufacturer.
4. ABS witnessed additional testing may modify the pump ratings covered by this approval.

Notes/Drawing/Documentation:

409677, ESL40/50-180N_12,
494513, ESL65/80/100-180N-12 Assembly,
490376, ESL80-180 Assembly,
490945, ESL50-180 Assembly,
491000, ESL25-180 Assembly,
491447, ESL40-180-12 Assembly,
492000, ESLH25-180 Assembly,
492001, ESLH40-180 Assembly,
408939, ESLH65_80_100-180 Assembly,
494588, ESLH65_80_100-180N-12 Assembly,
522850, ESL25-180 M IMPELLER,
523870, ESL40-180M IMPELLER,
560750, ESL40-180N M IMPELLER,

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Tier: 4 - Enrolled in PQA Program

522810, ESL50-180 IMPELLER,
561120, ESL50-180N M IMPELLER,
528880, ESL65-180 M IMPELLER,
565780, ESL65-180M M IMPELLER,
524560, ESL80-180 M IMPELLER,
528180, ESL80-180E M IMPELLER,
528560, ESL100-180 M IMPELLER,
Curves of ESL types, Curves of ESL types,
Curves of ESLH types, Curves of ESLH types,
DESMI Test Certificates for ESL pumps, DESMI Test Certificates for ESL pumps,
DESMI Test Certificates for ESLH pumps, DESMI Test Certificates for ESLH pumps,
DESMI Test-report-ESL50-180, dated 2012-02-01, No. 2011DFS/3794B,
DESMI Test Report - DSL-ESL-ESLH-SA Static Pressure Test for Pump, Dated 2018 Dec, QR-92-007
T1515, ESL INLINE OPERATION AND MAINTENANCE INSTRUCTIONS,
T1528, ESLH OPERATION AND MAINTENANCE INSTRUCTIONS,

Terms of Validity:

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STANDARDS

ABS Rules:

2019 Rules for Conditions of Classification - Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

2019 Mobile Offshore Drilling Units Rules: 6-1-6/7.3.2, 6-1-6/Table 1

2019 Mobile Offshore Units Rules: 6-1-6/7.3.2, 6-1-6/Table 1

2019 Rules for Conditions of Classification, 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2019 Steel Vessels Rules: 4-1-1/Table 6, 4-6-1/7.3.1, 4-6-1/7.3.2, 4-6-1/7.5.3

2019 Steel Vessels Under 90 Meters in Length Rules: 4-1-1/3.3, 4-4-2/1.1

2019 Offshore Supply Vessels Rules: 4-6-1/7.3.1, 4-6-1/7.3.2, 4-6-1/7.5.3

2019 Guide for Building and Classing Yachts: 4-1-1/2.2, 4-1-1/ Table 3F

2019 Marine Vessels Rules: 4-1-1/Table 6, 4-6-1/7.3.1, 4-6-1/7.3.2, 4-6-1/7.5.3

2019 Rules for Conditions of Classification - High-Speed Crafts 1-1-4/11.9, 1-1-A2, 1-1-A3, which covers the following:

2019 High-Speed Crafts Rules 4-4-2/1.1

National:

NA

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Tier: 4 - Enrolled in PQA Program

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA