



MARINE DIVISION

Certificate number: 18972/B1 BV

File number: ACM 201/2605/01

Product code: 8102I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Recovered Energy, Inc.

Pocatello, ID - UNITED STATES OF AMERICA

for the type of product

OIL FILTERING (15 PPM) EQUIPMENT

BOSS Oil Water Separation System

Models BOSS 2.2T/107, BOSS 5T/107, BOSS 11T/107, BOSS 25T/107 and BOSS 45T/107

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- MARPOL 73/78 as amended, Annex I, Regulation 14(1), (2), (6) and (7)
- IMO Resolution MEPC.107(49)
- IMO MEPC.1/Circ.643

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 13 Jul 2017

For BUREAU VERITAS,

At BV PORT EVERGLADES CENTRE, on 19 Sep 2013,

Flavio Rosas



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

BOSS Oil Water Separation System

Models BOSS 2.2T/107, BOSS 5T/107, BOSS 11T/107, BOSS 25T/107 and BOSS 45T/107

Followed by options X1 and X2 for hazardous area classification.

1.1 Design

- The BOSS Oil Water Separation System mainly includes a coalescing type gravity separator, a process pump, a filter tank made of steel or fiberglass material depending on models, a TPH monitor and an approved oil content meter (15 ppm bilge alarm).
- The fiberglass filters are rated at 125 psig.
- The steel filters are rated at 75 psig.

1.2 Specifications

Models *	BOSS 2.2T/107	BOSS 5T/107	BOSS 11T/107	BOSS 25T/107	BOSS 45T/107
Capacity gpm (m3/h)	2.2 (0.5)	5 (1.1)	11 (2.5)	25 (5.6)	45 (10.2)
Capacity for a 24 hour period (m3/h)	10	27	55	137	245
Operating Pressure psig (bar)	15 (1)	15 (1)	15 (1)	15 (1)	15 (1)
Operating Temperature range (°C)	5/60	5/60	5/60	5/60	5/60
Frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Height inch (cm)	50 (127)	56 (142)	69 (175)	73 (185)	75 (191)
Width inch (cm)	27 (69)	28 (71)	36 (91)	41 (104)	55 (140)
Depth inch (cm)	40 (102)	49 (124)	56 (142)	77 (196)	100 (254)
Dry Weight lbs (kg)	450 (204)	750 (340)	1250 (567)	2600 (1080)	3550 (1610)

* For options (X1 and X2), refer to manufacturer's specification for electrical safe-type equipment.

1.3 Materials

- Components and electrical components per the manufacturer's part list

2. DOCUMENTS AND DRAWINGS

- Manufacturer's technical specification
- Drawings list for BOSS 2.2T/107 Sheets 1 to 9

General Assembly	N° 22TGEN001RK10 & N° 22TGEN002RK10
Dimensions	N° 22TDMX001RK10, N° 22TDMY001RK10 & N° 22TDMZ001RK10
Mounting	N° 22TMNT001RK10
Maintenance Access	N° 22TMAN001RK10
Installation Diagram	N° 22TINS001RK10
General Assembly - Standard / Yacht	N° 22TYGNA001RL20 (1/4)
P&ID - Standard	N° 22TPID001RL20 (2/4)
General Assembly - Standard / Options *	N° 22TOGNA001RL20 (3/4)
P&ID - Standard / Options *	N° 22TOPID001RL20 (4/4)

- Drawings list for BOSS 5T/107 Sheets 1 to 9

General Assembly	N° 5TGEN001RK10 & N° 5TGEN002RK10
Dimensions	N° 5TDMX001RK10, N° 5TDMY001RK10 & N° 5TDMZ001RK10
Mounting	N° 5TMNT001RK10
Maintenance Access	N° 5TMAN001RK10
Installation Diagram	N° 5TINS001RK10
P&ID - Standard	N° 5TPID001RL20 (1/3)
General Assembly - Standard / Options *	N° 5TOGNA001RL20 (2/3)
P&ID - Standard / Options *	N° 5TOPID001RL20 (3/3)

- Drawings list for BOSS 11T/107 Sheets 1 to 9

General Assembly	N° 11TGEN001RK10 & N° 11TGEN002RK10
Dimensions	N° 11TDMX001RK10, N° 11TDMY001RK10 & N° 11TDMZ001RK10
Mounting	N° 11TMNT001RK10
Maintenance Access	N° 11TMAN001RK10
Installation Diagram	N° 11TINS001RK10
P&ID - Standard	N° 11TPID001RL20 (1/3)
General Assembly - Standard / Options *	N° 11TOGNA001RL20 (2/3)
P&ID - Standard / Options *	N° 11TOPID001RL20 (3/3)

- Drawings list for BOSS 25T/107 Sheets 1 to 9

General Assembly	N° 25TGEN001RK10 & N° 25TGEN002RK10
Dimensions	N° 25TDMX001RK10, N° 25TDMY001RK10 & N° 25TDMZ001RK10
Mounting	N° 25TMNT001RK10
Maintenance Access	N° 25TMAN001RK10
Installation Diagram	N° 25TINS001RK10
P&ID - Standard	N° 25TPID001RL20 (1/3)
General Assembly - Standard / Options *	N° 25TOGNA001RL20 (2/3)
P&ID - Standard / Options *	N° 25TOPID001RL20 (3/3)

- Drawings list for BOSS 45T/107 Sheets 1 to 9

General Assembly	N° 45TGEN001RK10 & N° 45TGEN002RK10
Dimensions	N° 45TDMX001RK10, N° 45TDMY001RK10 & N° 45TDMZ001RK10
Mounting	N° 45TMNT001RK10
Maintenance Access	N° 45TMAN001RK10
Installation Diagram	N° 45TINS001RK10
P&ID - Standard	N° 45TPID001RL20 (1/3)
General Assembly - Standard / Options *	N° 45TOGNA001RL20 (2/3)
P&ID - Standard / Options *	N° 45TOPID001RL20 (3/3)

Nota: The units are available with various options that are shown in the drawings (*). When any of these options are used the 2-digit code for that option should be added after the standard model number.

- Sample electrical drawing N° 5B3350 dated 19/12/2011. *The electrical drawing is specific to each job.*
- Installation and application manual rev. 17
- Operations and maintenance manual rev. 18

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

3.1 The required tests as per IMO Resolution MEPC.107(49) Part 1 were carried out at Testing Engineers International, Inc./ Testing Services-Plumbing Laboratory (USA). Summation certificate N° TS-P00459 dated 10/06/2005. Samples Boss 2T107 and Boss 45T107 representing all Boss 107 models.

3.2 Samples were analysed by Director, TEi-Testing Services-Analytical Laboratory (accredited laboratory by USCG).

3.3 Environmental testing of the electrical and electronic components was carried out in accordance with MEPC.107(49), Part 3.

3.4 Test report N° TEi-TS-P00459.

3.5 Certificates of type test issued and endorsed by the USCG:

- N° 162.050/0009054/0 (Model BOSS 2.2T/107)
- N° 162.050/0009031/0 (Model BOSS 5T/107)
- N° 162.050/0009055/0 (Model BOSS 11T/107)
- N° 162.050/0009033/0 (Model BOSS 25T/107)
- N° 162.050/0009034/0 (Model BOSS 45T/107)

4. APPLICATION / LIMITATION

4.1 Operating media: Oil / water. Approved as an oil filtering equipment designed to produce an effluent with oil content not exceeding 15 ppm. The equipment is to be fitted with an approved oil content meter (15 ppm bilge alarm).

4.2 The approval is not valid to options that are shown in the drawings (*) in 2 above if they are not part of the type-approved unit.

4.3 Suitable for installation in non-hazardous area and in hazardous area acc. to Bureau Veritas rules Pt C, Ch 2, Sec 1 [3.24] when "X1 or X2" code comes after the standard model number.

4.4 Certified safe-type electrical equipment, Ex enclosure acc. to Bureau Veritas rules Pt C, Ch 2, Sec 2 [3.24] is required in zone 1 or zone 2 areas where explosive gas or vapour atmospheres may occur corresponding to groups [I - IIA - IIB - IIC] and to temperature class [T5] as defined in IEC classification.

4.5 When the additional class notation (CLEANSHIP) is assigned to ships, onboard surveys required in Bureau Veritas rules Pt E, Ch 9, Sec 4 are to be complied with.

4.6 The installation on board is to be carried out in compliance with manufacturer's instruction and Bureau Veritas Rules and Regulations stated on the front page of this certificate. Upon completion, each equipment is to be subject to hydraulic test and final inspection witnessed by a Society's Surveyor.

4.7 A copy of the certificate of type approval for oil filtering equipment (15 ppm equipment) shall be carried aboard a ship fitted with this equipment at all times.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **Recovered Energy, Inc.** in compliance with the type and the requirements described in this certificate. This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.2 BV product certificate is required.

5.3 Each equipment is to be supplied with its manual for installation, use and maintenance.

Place of Production

Recovered Energy, Inc.

11455 N. Rio Vista Rd.

83202 Pocatello, ID

UNITED STATES OF AMERICA

6. MARKING OF PRODUCT

The equipment shall be marked as follows:

- Manufacturer's name or logo
- Serial number
- Type designation
- IEC Ex marking when required
- Society's brand as relevant

7. OTHERS

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the equipment at any time and that the manufacturer will accept the responsibility for informing shipbuilders or their sub-contractors of the proper methods of use and general maintenance of the equipment and of the conditions of this approval.

This certificate supersedes the Type Approval Certificate N° 18972/B0 BV issued on 13/07/2012 by the Society.

***** END OF CERTIFICATE *****