



Marine & Offshore

Certificate number: 26884/C0 BV

File number: ACE5/852/1

Product code: 2852I

*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*

**ELHAND TRANSFORMATORY Sp. z o.o.**  
LUBLINIEC - POLAND

*for the type of product*

**AIR-COOLED TRANSFORMERS**

Power transformers

ET3... power P 100kVA to 2500kVA

Voltage up to 15000V

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships.

IEC 60076 Series

*This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 24 Nov 2027**

**For Bureau Veritas Marine & Offshore,**

At BV KATOWICE, on 24 Nov 2022,

Wojciech Lubojanski

***This certificate was created electronically and is valid without signature***



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 Marine & Offshore. 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 & Offshore 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 Marine & Offshore 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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

Air-cooled three-phase power transformers,

Type	Rated power [KVA]	Voltage [V]	Phase	Vector Group	Frequency [Hz]	Insulation class	Protection degree
ET3SM-100	100	400/230	3	Dyn5	50/60	F	IP23
ET3SM-100	100	400/230	3	Dyn11	50/60	F	IP23
ET3SM-160	160	600/230	3	Dyn5	50/60	F	IP23
ET3SM-250	250	600/400	3	Dyn5	50/60	F	IP23
ET3SM-130	130	380/440	3	ynD5	50	H	IP23
ET3oM-200	200	450/450	3	Dyn5	60	F	IP23
ET3SM-630	630	690/440	3	Dyn11	50/60	F	IP23
ET3oM-1100	1100	690/703/703	3	Dd0yn11	60	H	IP23
ET3HM-1600	1600	6600±2x2.5%/440	3	Dyn11	60	F	IP23
ET3HM-2500	2500	10700±2.5%/660	3	Dyn11	60	F	IP23

E : Elhand ( Manufacturer Symbol)

T : Transformer

1 , 3 : Number of phases

S : Not Shielded windings

o , H : Shielded windings

M : Maritime

### 2. DOCUMENTS AND DRAWINGS:

#### - ET3SM-100 (Dyn 5)

**PRODUCT SPECIFICATION:** KTT091161-K-1/2, KTT091161-M-1/1, KTT091161-R-1/3, KTT091161-Z-1/1, KTT091161-W-1/2 & KTT091161-W-2/2 dated 27/05/2010

**Service and operation manual:** 04317/2011 dated 23/01/2012

#### - ET3SM-100 (Dyn 11)

**PRODUCT SPECIFICATION:** KTT080651-K-1/2, KTT080651-M-1/1, KTT080651-R-1/3, KTT080651-Z-1/1, KTT080651-W-1/2 & KTT080651-W-2/2 dated 17/03/2008

**Service and operation manual:** 04676/2008 dated 23/01/2012

#### - ET3SM-160

**PRODUCT SPECIFICATION:** KTT101351-K-1/2, KTT101351-M-1/1, KTT101351-R-1/3, KTT101351-Z-1/1, KTT101351-W-1/2 & KTT101351-W-2/2 dated 09/12/2010

**Service and operation manual:** 17022/2010 dated 23/01/2012

#### - ET3SM-250

**PRODUCT SPECIFICATION:** KTT111063-K-1/2, KTT111063-M-1/1, KTT111063-R-1/3, KTT111063-Z-1/1 & KTT111063-W-1/3 dated 10/10/2011

**Service and operation manual:** 21323/2011 dated 23/01/2012

#### **For C0 version:**

- Datasheet Enclosure BG44 EN
- ET3 Datasheet 0.05-160kVA IP00\_EN
- Datasheet Enclosure BG23 EN
- ET3 Datasheet 200kVA - 2500 kVA IP00\_EN
- Datasheet Enclosure BG54\_EN
- Type Test Plan, dated 26.10.2022
- Difference between ET3oM and ET3SM

### 3. TEST REPORTS:

#### **TRANSFORMER TEST CHART**

- **ET3SM-100 (Dyn 5):** EX/0010/2011/05 dated 03/03/2011
- **ET3SM-100 (Dyn 11):** EX/0044/2008/01 dated 03/04/2008
- **ET3SM-160:** PL/1664/2010/01 dated 17/12/2010
- **ET3SM-250:** EX/0230/2011/01 dated 10/11/2011

#### **For C0 version:**

- ET3SM - 130 380V/440V, Test Report No. KTT220075
- ET3SM - 630 690V/440V, Test Report No. KTT200171
- ET3oM - 200 450V/450V, Test Report No. KTT210388
- ET3oM- 1100 690V/703V/703V, Test Report No. KTT190568

- ET3HM-2500 10700V±2.5%/660V , Test Report No. KTT210893
- ET3HM-1600 6600V±2x2.5%/440V, Test Report No. KTT210505

**4. APPLICATION / LIMITATION:**



BUREAU VERITAS Rules for the Classification of Steel Ships.

**5. PRODUCTION SURVEY REQUIREMENTS:**

- 5.1 - The AIR-COOLED TRANSFORMERS are to be supplied by **ELHAND TRANSFORMATORY Sp. z o.o.** in compliance with the type and the requirements described in this certificate.
- 5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 - BV product certificate is required.
- 5.4 - For information, **ELHAND TRANSFORMATORY Sp. z o.o.** has declared to Bureau Veritas the following production site(s):

**ELHAND TRANSFORMATORY Sp. z o.o.**  
**Klonowa 60**  
**42-700 Lubliniec**  
**Poland**

**6. MARKING OF PRODUCT:**

- Maker's name or trade mark
- Serial number of the units
- Equipment type number or model identification under which it was type-tested
-  or  conformity marking, as relevant

**7. OTHERS:**

- 7.1 - It is **ELHAND TRANSFORMATORY Sp. z o.o.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
- 7.2 - This certificate supersedes the Type Approval Certificate No. 26884/B1 BV issued on 19 Jan 2018 by the Society.

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