



We guarantee the authenticity of this digital document which has been digitally signed and marked with a unique temporal mark.

You can find in the following table the document reference, the digital signer Authority and a unique QR code reporting the main feature of the documents and addressing to the CESI website where the cover page of the document is figured in.

This digital feature avoids any counterfeit of the report and guarantees its original issue in any part.

The document is fully PDF compliant

<b>Document name</b>	Certificate of Type Conformity For Air Insulated Switchgear type 12 kV 2000 A 50 kA 50 Hz VHIH (800x1770x2500), switchgear with 12 kV 2000 A 50 kA 50 Hz VK10P50H VCB Rated voltage 12 kV; Rated normal current 2000 A; Rated short-circuit current 50 kA; Rated frequency 50 Hz
<b>Date of issue</b>	March 9 <sup>th</sup> , 2020
<b>CESI reference number</b>	C0004138-1
<b>Client</b>	Larsen & Toubro Ltd. Ahmednagar, Maharashtra, Pin-414 111, INDIA.
<b>Signed by</b>	



## CESI S.p.A.

Via Rubattino 54  
I-20134 Milano - Italy  
Tel: +39 02 21251  
Fax: +39 02 21255440  
e-mail: [info@cesi.it](mailto:info@cesi.it)  
[www.cesi.it](http://www.cesi.it)

Capitale sociale € 8.550.000 interamente versato  
C.F. e numero iscrizione Reg. Imprese di Milano 00793580150  
P.I. IT00793580150  
N. R.E.A. 429222



## Certificate of Type Conformity

in compliance with Standards

IEC 62271-100 (2017-06) / IEC 62271-200 (2011-10)

Product	AC three-phase air-insulated metal-enclosed switchgear and controlgear composed by No. 1 functional unit
Designation	VHIH
Manufacturer	Larsen & Toubro Ltd.
Applicant	Larsen & Toubro Ltd.
Main ratings	Rated voltage 12 kV; Rated normal current 2000 A; Rated SC current 50 kA; Rated frequency 50 Hz;
Main performance	Basic short-circuit test-duties, Double-earth fault tests, Single-phase fault tests, Out-of-phase making and breaking tests, Short-time withstand current and peak withstand current tests;

The certified product has been evaluated as compliant with the following standards:

IEC 62271-100 (2017-06) clauses 6.106, 6.108, 6.110.  
IEC 62271-200 (2011-10) clauses 6.101, 6.6.  
IEC TR 62271-307 (2015-09) clause 4.5.

This document attests that the certified product meets all the requirements relevant to the ratings assigned by the applicant and listed in the Evaluation Report indicated in the following pages and verified by testing according to the above specified normative reference documents. **This certificate has been issued according to a Product Certification scheme type 1 (see requirements of ISO/IEC17067:2013 item 5.3.7).**

Rev.1: the above note has been modified.

This certificate is composed of 3 pages.

09 March 2020

29 April 2020

08 March 2025

First Issue date

Current Issue Date

Expiry Date

Only integral reproduction of this document is allowed without written permission from CESI.  
The authenticity of this document is guaranteed by the authorized signature.  
Digital authentic document provided through PDF format allows certified digital delivery.

Approved by



PRD N° 018B

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC  
Signatory of EA, IAF and ILAC Mutual Recognition agreements

**CESI** S.p.A.

Testing & Certification Division  
Business Area Certification  
Il Responsabile

(Roberto Piccin)

## I. Detailed Ratings assigned by the Manufacturer

<b>Metal-enclosed switchgear</b>	
Manufacturer	Larsen & Toubro Ltd.
Type	VHIH
Voltage	12 kV
Frequency	50 Hz
Normal current	2000 A
Insulation level	
- Lightning impulse withstand voltage to earth and between phases	75 kV <sub>peak</sub>
- Power frequency withstand voltage to earth and between phases	28 kV <sub>rms</sub>
Short-time withstand current	
Main circuit	50 kA
Earthing circuit	50 kA
Peak withstand current	
Main circuit	125 kA
Earthing circuit	125 kA
Short-circuit duration	3 s
IP coding	IP4X
Number of phases	3
Normal current	2000 A
<b>Circuit-breaker</b>	
Manufacturer	Larsen & Toubro Ltd.
Type	VK10P50H
Class	E2, C2, M2, S1
Voltage	12 kV
Lightning impulse withstand voltage to earth and between phase	75 kV <sub>peak</sub>
Power frequency withstand voltage to earth and between phases	28 kV <sub>rms</sub>
Normal current	2000 A
Frequency	50 Hz
Short-circuit making current	125 kA
Short-circuit breaking current	125 kA
Short-circuit duration	3 s
d.c. component (referred to time constant = 45 ms)	40 %
Minimum opening time	<18 ms
Transient recovery voltage (TRV)	
First-pole-to-clear factor	1,5
Peak value (U <sub>c</sub> )	20,6 kV
Rate of rise (U/t)	0,34 kV/μs
Operating sequence	O-0,3s-CO-3 min-CO
Short-circuit duration	3 s
Out-of-phase breaking current (voltage factor 2,5)	12,5 kA
<b>Vacuum interrupters</b>	
Manufacturer	ABB
Type	VG7
Opening gap dimension	(10 to12) mm
Maximum permissible wear	3 mm
Closing Speed	(1,0 to 1,4) m/s
Opening Speed	(1,3 to1,8) m/s
Maximum Overtravel	2 mm
Maximum Opening rebound	2 mm
Maximum contact bounce duration	2 ms
<b>Operating mechanism</b>	
Type	Spring Charged
Supply voltage	

Closing device	110 V d.c.
Opening device	110 V d.c.
Motor	110 V d.c.

## II. Type Tests

Herein the list of test reports and the related performance assessed.  
All documents issued by CESI are available in CESI archive for 10 years.

No. Standard / Sub-clause	Description of test	Test report
IEC 62271-200 / 6.101 IEC 62271-100 / 6.106, 6.108, 6.110;	Basic short-circuit test-duties; Single-phase fault tests; Single-phase double-earth fault tests; Out-of-phase making and breaking tests (OP2);	B9000435
IEC 62271-200 (2011-10) clauses 6.6	Short-time withstand current and peak withstand current tests;	B9010972

## III. Conformity Evaluation

Evaluation of:

- product identification
- type test results
- representativeness of the tested specimens
- additional documents (Extension Report and Comparison File)

is duly reported in the following document issued by CESI:

- **Evaluation Report C0004130**

The Manufacturer guarantees that the products are manufactured according to the submitted drawings.