

UL TYPE EXAMINATION CERTIFICATE

Certificate No.	UL TEC-00429
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Date of Issue	2016-08-10
Applicant	Moonstar Electrical Switchgear Manufacturing LLC PO Box 48850 Dubai, United Arab Emirates
Manufacturer	Moonstar Electrical Switchgear Manufacturing LLC PO Box 48850 Dubai, United Arab Emirates
Product Sample Description	Low Voltage Switchgear and Control gear Assembly, Non-Extendable, incorporating three phase and neutral busbar system and a protective busbar.
Designation	400A Draw out MCC Panel
Ratings	Rated operational voltage (Ue): 415V Rated current of the Assembly (InA): 400A Rated frequency: 50 Hz IP rating : IP 43
Product Sample Tested and found in compliance with Standard(s)	IEC 61439-1(ed.2), IEC 61439-2(ed.2)
Test Report Nos.	4787279677.3.1 issued on 2016-07-18
Additional information	-

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein has been investigated and found to have been in compliance with the Standard(s) indicated on this Certificate, in accordance with the UL Type Examination Certificate Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Applicant. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The Applicant/ Manufacturer are solely and fully responsible for conformity of all products to all applicable Standard(s), specifications or requirements. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Certification Body

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Type Examination Summary

Summary no4787279677.3.1-S

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Product Description

: Low Voltage Switchgear and Control gear Assembly, Non-Extendable, incorporating three phase and neutral busbar system and a protective busbar.

Ratings assigned by the Applicant

- 1) Designation : 400A Draw out MCC panel
- 2) Rated operational voltage (U_e) : 415V
- 3) Rated frequency : 50Hz
- 4) Rated insulation voltage (U_i) : 690V
- 5) Rated impulse withstand voltage (U_{imp}) : 8kV
- 6) Rated current of the ASSEMBLY (I_{nA}) : 400A
 - a. Incoming circuit (I/C) : One, three-phase circuit with MCCB
 - b. Outgoing circuit (O/G) : Two D.O.L starter and one Star delta starter

Sr. No	Functional unit rating	Declared current rating (I_{nc})
1.	MCCB 400A 3P MCCB	400A
2.	3.7kW D.O.L starter – Q1	12.5A
3.	3.7kW D.O.L starter – Q2	10A
4.	7.5 kW star delta starter – Q3	20A

- 7) Rated diversity factor (RDF) : 1.00
- 8) Rated short-time peak (I_{pk}) and withstand current (I_{cw}) :
 - a. Three phase : 50kA for 1s with 105kA peak
 - b. Single phase and neutral : 30kA for 1s with 63kA peak
- 9) Bus bar details:

Sr. No	Description – Material	Busbar dimensions per phase
1	Main busbar – Tinned copper	2 x20mm x 10mm
2	Neutral busbar – Tinned copper	2 x20mm x 10mm
3	Earth (protective) busbar – Tinned copper	1 x 20mm x 10mm

- 10) Degree of protection : IP 43 (Form of Separation – Form 4a)
- 11) Material group : IIIa
- 12) Pollution of degree : 3
- 13) Mechanical impact rating : IK 05

Note : This is only a summary report. Please refer to Test Report no. 4787279677.3.1 issue date 2016-07-18 (57 pages) for details of construction, tests conducted and results.



Santosh Tripathy
Evaluator



Raghunath G
Reviewer



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I. Verification by Testing

IEC 61439-1: Ed.2.0: 2011-08 - Design verification performed as per Annex-D

Test No.	Test Details	Clause/ Sub clause no.	Verification by testing
1	Strength of material and parts (10.2)		
a	Resistance to corrosion	10.2.2	Severity A : Verified
b	Properties of insulating materials (10.2.3)		
b1	Thermal stability	10.2.3.1	Not applicable
b2	Resistance of insulating materials to abnormal heat and fire due to internal electric effects	10.2.3.2	Verified
c	Resistance to ultraviolet radiation	10.2.4	Not applicable
d	Lifting	10.2.5	Verified
e	Mechanical impact	10.2.6	Verified
f	Marking	10.2.7	Verified: Marking provided by Engraving
2	Degree of protection of enclosure	10.3	Verified
3	Clearance and creepage distances	10.4	Verified
4	Protection against electric shock and integrity of protective circuits (10.5)		
a	Effective earth continuity between the exposed conductive parts of the ASSEMBLY and the protective circuit	10.5.2	Verified
b	Short-circuit withstand strength of the protective circuit	10.5.3	Verified

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I. Verification by Testing (continued)

IEC 61439-1: Ed.2.0: 2011-08 - Design verification performed as per Annex-D

Test No.	Test Details	Clause/ Sub clause no.	Verification by testing
5	Dielectric properties (10.9)		
	a	Power-frequency withstand voltage	10.9.2 Verified
	b	Impulse withstand voltage	10.9.3 Verified
	c	Testing of enclosure made of insulating material	10.9.4 Not applicable as the enclosure is metallic
d	External operating handles of insulating material	10.9.5 Not applicable	
6	Temperature-rise limits	10.10 Verified	
7	Short-circuit withstand strength	10.11 Verified	
8	Electromagnetic compatibility (EMC)	10.12 Not applicable	
9	Mechanical operation	10.13 Verified: 200 operating cycles	

Note: Verification by tests not covered per clauses 10.6, 10.7 & 10.8.



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II. Test laboratory.

- 1) #Central Power Research Institute¹⁾
Prof Sir C.V.Raman Road, Sadashiva Nagar,
P.B.No.8066, Bangalore – 560 080
India.
- 2) UL India Pvt Ltd
Laboratory Building,
Kalyani platina campus survey no. 129/4,
Phase II, Whitefield,
Bangalore – 560 066
India.

III. Accreditation details.

This Laboratory:

- a) Is accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL),
Department of Science & Technology, India, in accordance with ISO/IEC 17025:2005.
- b) #Has been assessed by UL LLC and found to be in compliance with ISO/IEC 17025:2005
requirement under UL's Data Acceptance Program.
 - 1) Test no. 2,4&7



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