

# TEST CERTIFICATE

Issued to: SAS Power Industries FZE  
(Subsidiary of Galfar Al Misnad Engg. & Contg., WLL)  
P.O. Box 54505  
RAS Al Khaimah  
United Arab Emirates

For the product: Low-voltage switchgear and controlgear assembly

Trade name: SAS-GALFAR

Type/Model: **400 A Switchboard**

Ratings:  $I_{nA}$  400 A,  $U_e$  415 V,  $U_{imp}$  8 kV, IP54,  
 $I_{cw}$  43,3 kA - 1 s and 25 kA - 3 s (main busbar),  $I_{cc}$  36 kA at 415 V (incoming unit),  
 $I_{cc}$  25 kA and 36 kA at 415 V (outgoing units)  
For more details see annex

Manufactured by: SAS Power Industries FZE  
(Subsidiary of Galfar Al Misnad Engg. & Contg., WLL)  
P.O. Box 54505  
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United Arab Emirates

Subject: Design verification

Requirements: IEC 61439-2:2011  
Clauses 10.2.2, 10.2.3, 10.2.7, 10.3 – 10.9, 10.10.2.3.5 and 10.11 – 10.13

Remarks: -

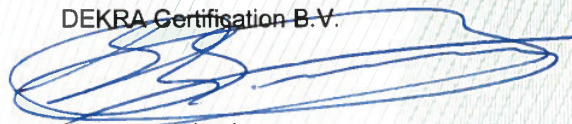
This Test Certificate is granted on account of an examination by DEKRA, the results of which are laid down in report no. 2163707.02-INC, dated 16 December 2013.

The examination has been carried out on one single specimen of the product, submitted by the manufacturer. The Attestation does not include an assessment of the manufacturer's production. Conformity of his production with the specimen tested by DEKRA is not the responsibility of DEKRA.

Arnhem, 16 December 2013

Number: 2163707.101

DEKRA Certification B.V.



H.L. Schendstok  
Certification Manager

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**Overview of product evaluation according to IEC 61439-2:**

IEC 61439-2 Clause	Clause description	Tested ratings	Results
10.2	Strength of material and parts		
10.2.2	Resistance to corrosion	Severity test A: indoor	Pass
10.3	Properties of insulating materials		
10.2.3.2	Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects	Insulating materials retaining current-carrying parts in position: 960 °C Other insulating materials: 650 °C	Pass
10.2.7	Marking		Pass
10.3	Degree of protection of assembly	IP54	Pass
10.4	Clearances and creepage distances	Clearances > 8 mm, based on Uimp = 8 kV; Creepage distances > 10 mm, based on Ui = 690 V, pollution degree 3, material group IIIa.	Pass
10.5	Protection against electric shock and integrity of protective circuits		
10.5.2	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	Earth resistance < 0,1 Ω	Pass
10.5.3	Short-circuit withstand strength of the protective circuit	Icc 21,6 kA at 240 V	Pass
10.6*	Incorporation of switching devices and components		Pass
10.7	Internal electrical circuits and connections		Pass
10.8	Terminals for external conductors		Pass
10.9	Dielectric properties		
10.9.2	Power-frequency withstand voltage	Ui 690 V	Pass
10.9.3	Impulse withstand voltage	Uimp 8 kV	Pass
10.9.4	Testing of enclosures made of insulating material		Pass
10.10	Verification of temperature rise		
10.10.2.3.5	Verification of the complete assembly (at normal ambient air temperature)	Incoming unit: - 400 A (MCCB Q0)  Outgoing units: - 140 A (MCCB Q8) - 85 A (MCCB Q5) - 80 A (MCCB Q4) - 68 A (MCCB Q1) - 52 A (MCCB Q3) - 25 A (MCCB Q2)  Rated diversity factor 1,0	Pass
10.10.2.3.5	Verification of the complete assembly (at 50 °C ambient air temperature) **	Incoming unit: - 400 A (MCCB Q0)  Outgoing units: - 105 A (MCCB Q8) - 73 A (MCCB Q5) - 67 A (MCCB Q4) - 55 A (MCCB Q1) - 40 A (MCCB Q3) - 20 A (MCCB Q2)  Rated diversity factor 1,0	Pass
10.11	Short-circuit withstand strength	Icw 43,3 kA - 1 s and 25 kA - 3 s (main busbar) Icc 21,6 kA at 240 V (neutral busbar) Icc 36 kA at 415 V (incoming unit) Icc 25 kA at 415 V (outgoing units Q2/Q4) Icc 36 kA at 415 V (other outgoing units)	Pass
10.12	Electromagnetic compatibility (EMC)		Pass
10.13	Mechanical operation	200 operations	Pass

\* The examination of the compliance of components in the assembly with their relevant product standard is not part of this product evaluation.

\*\* The test was performed in a test room with the ambient air temperature raised to actual 50 °C.

**Product details:**

	Description
<b>Incoming circuits</b>	MCCB, ABB T5N630, 400 A, 3 poles (Q0)
<b>Outgoing circuits</b>	1x MCCB, ABB A2N 250, 160 A, 3 poles (Q8) 1x MCCB, ABB XT1N160, 125 A, 3 poles (Q5) 1x MCCB, ABB A1C 125, 100 A, 3 poles (Q4) 1x MCCB, ABB XT1N160, 80 A, 3 poles (Q1) 1x MCCB, ABB XT1N160, 63 A, 3 poles (Q3) 1x MCCB, ABB A1C 125, 32 A, 3 poles (Q2)
<b>Main busbar</b>	30 x 10 mm, tin plated copper
<b>Neutral</b>	30 x 10 mm, tin plated copper
<b>Protective Earth</b>	30 x 5 mm, tin plated copper