Certificate No: LR21431404TA
Issue Date: 25/11/2021
Expiry Date: 24/11/2026

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**ABB Electrification Sweden AB**
Address	Motorgränd 20, Västeras, 72161, Sweden
Place of Production	ABB Electrification Sweden AB Motorgränd 20, Västeras, 72161, Sweden
Type	Contactors
Description	Two-pole low voltage DC contactors, GF-series Auxiliary contact block, CAL20
Trade Name	GF875-20, GF1050-20, GF1325-20
Application	Marine, offshore and industrial applications for use in general power distribution zones in environmental categories ENV1, ENV2 and ENV3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – December 2020.
Specified Standard	IEC 60947-4-1: 2018 IACS E10 Rev. 8 / 2021
Ratings	Ambient operating temperature: +5 °C…+70 °C GF875-20 & GF1050-20: Rated operational voltage (Ue): up to 1500 VDC (restricted to 750 VDC per pole)

Jochen Koerner

Senior Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group

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Type Approval Certificate

Rated Frequency: 50/60 Hz
Rated operational current DC-PV3 (Ie): 875 to 1050 A (1500 V / 60 °C)
Rated operational current DC-1 (Ie): 210 A (1500 V / 70 °C)

GF1325-20:
Rated operational voltage (Ue): up to 1500 VDC (restricted to 750 VDC per pole)
Rated Frequency: 50/60 Hz
Rated operational current DC-1 (Ie): 210 A (1500 V / 70 °C)

Auxiliary contact block CAL20 (1 NO + 1 NC):
Rated operational voltage (Ue): 24 – 690 VAC
Rated Frequency: 50/60 Hz

Software version PLC-Controller: 2.1.x

For detailed ratings, pls. refer to appendix.

Other Conditions

Manufacturer's derating table is to be observed.
Ventilation arrangement is to be arranged as per manufacturer's instructions.

The operational voltage per pole is 750 VDC (1L1-2T1 and 3L2-4T2).
To switch 1500 VDC, two poles (1L1 – 2T1 – 3L2 – 4T2) of GF are required to be connected in series.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re- approved prior to it being supplied to vessels to which the amended standards apply.

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This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document HTS/ETS 41899-21/MK/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

DESCRIPTION

Two-pole low voltage DC contactors, GF-series
Auxiliary contact block, CAL20

RATINGS

Utilization characteristics acc. to IEC 60947-1 / 60947-4-1:

Contactor type	**GF875-20**			
Rated insulation voltage (U_i)	1500 VDC			
Rated impulse withstand voltage (U_{imp})	8 kV			
Rated Frequency	50/60 Hz			
Degree of protection	00			
Rated thermal current (I_{th})	875 A			
Utilization category	DC-PV3		DC-1	
Ambient temperature	60 °C	70 °C	60 °C	70 °C
Rated operational voltage (Ue)	1500 VDC	1500 VDC	1500 VDC	1500 VDC
Rated operational current (Ie/Iscl)	875 / 210 A	650 / 210 A	210 A	210 A

Contactor type	**GF1050-20**			
Rated insulation voltage (U_i)	1500 VDC			
Rated impulse withstand voltage (U_{imp})	8 kV			
Rated Frequency	50/60 Hz			
Degree of protection	00			
Rated thermal current (I_{th})	1050 A			
Utilization category	DC-PV3		DC-1	
Ambient temperature	60 °C	70 °C	60 °C	70 °C
Rated operational voltage (Ue)	1500 VDC	1500 VDC	1500 VDC	1500 VDC
Rated operational current (Ie/Iscl)	1050 / 210 A	850 / 210 A	210 A	210 A

Contactor type	**GF1325-20**			
Rated insulation voltage (U_i)	1500 VDC			
Rated impulse withstand voltage (U_{imp})	8 kV			
Rated Frequency	50/60 Hz			
Degree of protection	00			
Rated thermal current (I_{th})	1325 A			
Utilization category	-		DC-1	
Ambient temperature	-	-	60 °C	70 °C
Rated operational voltage (Ue)	-	-	1500 VDC	1500 VDC
Rated operational current (Ie/Iscl)	-	-	210 A	210 A

The operational voltage per pole is 750 VDC. (1L1-2T1 and 3L2-4T2)
To switch 1500 VDC, two poles (1L1 – 2T1 – 3L2 – 4T2) of GF are required to be connected in series.

Rated control circuit voltage supply (Uc):
Code 51: Uc = 24…60 VAC / 20…60 VDC (with PLC-control)
Code 53: Uc = 100…250 VAC / 100…250 VDC (with PLC-control)

RATINGS (continued)

Contact utilization characteristics acc. to IEC 60947-1 / 60947-5-1:

Auxiliary contact block	**CAL20**
Rated insulation voltage (U_i)	690 V
Rated impulse withstand voltage (U_{imp})	6 kV
Rated operational voltage (U_e)	24 – 690 VAC
Rated Frequency	50/60 Hz
Degree of protection	00
Rated thermal current (I_{th}) $\theta \leq 40$ °C	16 A