

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Contactor**

with type designation(s)

3TF20, -21, -22, -27, -28, -29/3TK20, 3TF68, -69

Issued to

**Siemens AG GWA
Amberg, Germany**

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Rated Voltage (V) 690
Rated Current (A) 16 - 20
Frequency (Hz) 50 / 60**This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2015-09-21**DNV GL local station: **Essen**Approval Engineer: **Marta Alonso Pontes**for **DNV GL**

**Marit Laumann
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

General data:

Coil voltages: 24 – 500 V AC 50 Hz
24 – 600 V AC 60 Hz
12 – 250 V DC
Auxiliary contacts rated current: 10 A

Rated conditional short circuit current = 50kA by use of suitable fuses according to manufacturer's recommendations.

Type	3TF20	3TF21	3TF22	3TF27
Rated Operational Voltage (V) (Screw terminals)	690	690	690	690
Rating at utilization cat. AC1 (A)	16	16	16	16
Rating at utilization cat. AC3 (A)				
- " - at 230	9,0	9,0	9,0	9,0
- " - at 400	8,4	8,4	8,4	8,4
- " - at 500	6,5	6,5	6,5	6,5
- " - at 690	5,2	5,2	5,2	5,2
Aux. contacts rated voltage AC (V)	500	500	500	500

Type	3TF28	3TF29
Rated Operational Voltage (V) (Screw terminals)	690	690
Rating at utilization cat. AC1 (A)	16	16
Rating at utilization cat. AC3 (A)		
- " - at 230	5,1	5,1
- " - at 400	5,1	5,1
- " - at 500	4,8	4,8
- " - at 690	4,8	4,8
Aux. contacts rated voltage AC (V)	500	500

Type	3TK20	3TF68	3TF69
Rated Operational Voltage (V) (Screw terminals)	690	1000	1000
Rating at utilization cat. AC1 (A)	16	630	850
Rating at utilization cat. AC3 (A)		630	
- " - at 230	9,0	-	-
- " - at 400	8,4	630	820
- " - at 500	6,5	630	820
- " - at 690	5,2	630	820
- " - at 1000	-	435	580
Aux. contacts rated voltage AC (V)	500	690	690

Application/Limitation

For installations inside switchboard/enclosures onboard ships and offshore units.

Temp.class C (-25 to 55 °C)
Vibration class A (2-100 Hz)

Type Approval documentation

Tests carried out

Type tests according to IEC 60947-1 and 60947-4-1.
Vibration test, low temperature test, dry heat test, humidity test and flammability test.

Marking of product

Manufacturer's label containing data and manufacturer's type number.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routines (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at least every second year.

END OF CERTIFICATE