DNV·GL

Certificate No:
TAE000019C

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Is-limiter

with type designation(s)
QU3I, QS2 and QR3S

Issued to
ABB AG
Ratingen Nordrhein-Westfalen, Germany

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

Short circuit current limitation for installation inside cubicle UniGear or as a complete unit or as a loose element in a cubicle of custom design.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-07-18**.

Issued at **Hamburg** on **2016-07-19**

for **DNV GL**

DNV GL local station: **Essen**

Approval Engineer: **Andreas Andrecht**

Duy Nam Le
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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Product description

12 and 17,5 kV air insulated Is limiter of types QU3I, QS2 and QR3S

Description	Insert holder	Insert holder	Insert	Insert	Tripping device
Type	**QU3I 12--**	**QU3I 17--**	**QS2 12--**	**QS2 17--**	**QR3S 031**
Number of poles	3	3	3	3	1 unit per pole
Voltage	12 kV	17,5 kV	12 kV	17,5 kV	NA
Max. Current	2500/3000/ 4000 A	2500/3000/ 4000 A	2500/3000/ 4000 A	2500/3000/ 4000 A	NA
Frequency	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	AC/DC
Insulating medium	Air	Air	NA	NA	NA
Max. short-time current (3s)	50 kA*	50 kA*	NA	NA	NA
Max. peak withstand	125 kA*	125 kA*	NA	NA	NA
Breaking capacity	210 kA rms	210 kA rms	210 kA rms	210 kA rms	NA
Lighting withstand	75 kV	95 kV	75 kV	95 kV	NA
Power-frequency withstand	28 kV	38 kV	28 kV	38 kV	NA

* Only applicable for Is limitors in ZS1 switchboard.

NA = Not Applicable

Application/Limitation

Max current to be de-rated by 5% to account for ambient temperature difference in testing norm IEC 62271-1 (40°C) and DNV rules (45°C).
The Is limiter must be regarded as a component only. End user is responsible wrt. short circuit level and selectivity. Require case by case approval as part of the switchboard.

Type Approval documentation

Tests carried out

Type tests in according to IEC 62271-1 & -200 including Dielectric type test, Temperature test of the electronic, Temperatur rise test, Breaking tests and Internal arking. Evironmental test including Vibration, EMC, Damp and Cold.

Marking of product

Type, Serial number, Voltage, Current and Diagram 1VB (tripping device only).

Periodical assessment

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

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and 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.

Survey to be performed at least every second year.

END OF CERTIFICATE