DNV·GL

Certificate No:
TAE00001W9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Circuit Breaker

with type designation(s)
Compact circuit-breaker model series NZM1 – NZM4
Compact switch-disconnectors N, PN

Issued to
Eaton Industries GmbH
Bonn Nordrhein-Westfalen, Germany

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Rated Voltage (V)	**up to 1000**
Rated Current (A)	**15 - 1600**
Frequency (Hz)	**50 - 60**

Issued at **Hamburg** on **2017-04-06**
This Certificate is valid until **2022-04-05**.
DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Harald Amberger**

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.

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Product description

Compact circuit-breaker model series NZM1 – NZM4 up to 1600 A					
Ratings		NZM1	NZM2	NZM3	NZM4
Operational current I_e	A	15 – 160	15 – 300	125 – 630	315 – 1600
Impulse withstand voltage U_{imp}	kV	6	8	8	8
Insulation voltage U_i	V	690	1000	1000	1000
Operational voltage U_e AC	V	690	1000	1000	1000
Frequency	Hz	50/60	50/60	50/60	50/60
Number of poles		3/4	3/4	3/4	3/4
Utilization category		A	A	A	A/B*
Short-circuit making and breaking capacity	Switching capacity				
I_{cu} at 440V / 690V	B [kA]	25 / --	25 / --	-- / --	-- / --
	C [kA]	30 / 8	30 / 8	30 / 8	-- / --
	N [kA]	35 / 10	35 / 20	35 / 20	35 / 20
	S [kA]	35 / 10	65 / 20	65 / 20	65 / 30
	H [kA]	70 / 10	130 / 20	130 / 35	85 / 50
	L [kA]	-- / --	130 / 80	130 / 80	85 / 50
I_{cs} at 440V / 690V	B [kA]	18,5 / --	18,5 / --	-- / --	-- / --
	C [kA]	22,5 / 4	22,5 / 4	22,5 / 4	-- / --
	N [kA]	35 / 7,5	35 / 5	35 / 5	26 / 15
	S [kA]	35 / 7,5	65 / 5	65 / 6	32 / 15
	H [kA]	35 / 7,5	130 / 5	130 / 9	43 / 37
	L [kA]	-- / --	130 / 80	130 / 20	43 / 37
I_{cm} at 440V / 690V	B [kA]	52,5 / --	52,5 / --	-- / --	-- / --
	C [kA]	63 / 13,6	63 / 13,6	63 / 13,6	-- / --
	N [kA]	73,5 / 17	73,5 / 40	73,5 / 40	73,5 / 40
	S [kA]	73,5 / 17	143 / 40	143 / 52,5	143 / 63
	H [kA]	154 / 17	286 / 40	286 / 73,5	187 / 105
	L [kA]	-- / --	286 / 176	286 / 176	187 / 105
I_{cw} 1s	[kA]	--	--	--	20

Compact switch-disconnectors N, PN up to 1600 A					
Ratings		N1/PN1	N2/PN2	N3/PN3	N4/PN4
Operational current I_e	A	160	250	630	1600
Impulse withstand voltage U_{imp}	kV	6	8	8	8
Insulation voltage U_i	V	690	690	1000	1000
Operational voltage U_e AC	V	690	690	690	690
Frequency	Hz	50/60	50/60	50/60	50/60
Number of poles		3/4	3/4	3/4	3/4
Further technical ratings according manufacturer documentation					

Application/Limitation

Location Classes:
Temperature: B, Humidity: B, Vibration: A

* Type with electronic release VE and VEF

Reduction for …XSV plug in and …XAV withdrawable unit to be observed

With Uimp=6kV; Overvoltage category II applies for applications in IT systems > 600 V

Operating instruction of the manufacturer to be observed

Type Approval documentation

Tests carried out

IEC 60947-2 incl. Anex H, IEC 60947-3, cold, dry heat, damp heat, vibration, inclination
flame retardancy

Marking of product

According IEC 60974-2/3 subclause 5.2

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 Routine Tests (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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE