

TYPE APPROVAL CERTIFICATE

This is to certify:**That the High Voltage Cable**with type designation(s)
MMGSHXCHX, MMGSEHXCHX

Issued to

Nexans Deutschland GmbH
Mönchengladbach, Nordrhein-Westfalen, Germanyis 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 (kV) 6/10 + 8,7/15**
Temp. class (°C) 90Issued at **Hamburg** on **2019-01-23**for **DNV GL**This Certificate is valid until **2020-12-01**.DNV GL local station: **Essen**Approval Engineer: **Carsten Hunsalz**

Arne Schaarmann
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

Type:	MMGSHXCHX and MMGSEHXCHX 6/10 kV + 8,7/15 kV
Conductors:	Bare or tinned copper – stranded class 2 or class 5
Cond. screening:	Non-metallic extruded semi-conducting layer
Core insulation:	EPR
Insul. screening:	Non-metallic extruded semi-conducting layer
Metallic screen:	Bare or tinned copper, as a braid or concentric wires
Inner covering:	Halogen-free extruded rubber compound (optional)
Inner sheath:	SHF2
Armour:	Bare or tinned braided armour
Outer sheath:	SHF2

Number of cores x conductor cross-section mm ²	Overall diameter min mm	Overall diameter max mm
MMGSHXCHX 6/10 kV		
1 x 50	28,5	32,0
1 x 70	30,0	33,0
1 x 95	33,0	37,0
1 x 120	34,0	38,0
1 x 150	35,0	39,0
1 x 185	36,0	40,0
1 x 240	40,0	44,0
1 x 300	43,0	47,0

Number of cores x conductor cross-section mm ²	Overall diameter min mm	Overall diameter max mm
MMGSEHXCHX 6/10kV		
3 x 25	48,0	52,0
3 x 35	51,0	55,0
3 x 50	55,0	59,0
3 x 70	58,0	62,0
3 x 95	64,0	68,0
3 x 120	68,0	72,0
3 x 240	84,0	87,5

Number of cores x conductor cross-section mm ²	Overall diameter min mm	Overall diameter max mm
MMGSHXCHX 8,7/15kV		
1 x 25	26,0	29,0
1 x 35	26,5	29,5
1 x 50	28,5	31,5
1 x 70	30,5	33,5
1 x 95	32,5	35,5
1 x 120	34,0	37,0
1 x 150	37,0	40,0
1 x 185	38,5	41,5
1 x 240	41,5	44,5
1 x 300	44,0	47,0

Number of cores x conductor cross-section mm ²	Overall diameter min mm	Overall diameter max mm
MMGSEHXCHX 8,7/15kV		
3 x 25	55,5	58,5
3 x 35	57,5	60,5
3 x 50	61,5	64,5
3 x 70	65,5	68,5
3 x 95	70,5	73,5
3 x 120	73,5	76,5
3 x 150	78,0	82,0

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

High voltage power.

Flame retardant in bunch Cat. A. Halogen free. Low smoke.

Type Approval documentation

Data sheets: Specification of MMGSHXCHX + MMGSEHXCHX 6/10 kV MG-S-020 dated 2018-01-15
Specification of MMGSHXCHX + MMGSEHXCHX 8,7/15 kV MG-S-021 dated 2018-01-15
Test reports: Nexans Emission 1009_C dated 2018-05-11, Emission 1072 dated 2015-09-16,
P-01394-B-1264 dated 2018-03-08, P-01394-R-0989 dated 2018-05-02,
P-01394-V-0694 dated 2018-05-02, S002-2018 dated 2018-11-12,
S001-2018 dated 2018-11-04, ETS No. 18052802 dated 2018-06-12 + 18043001-2

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-354	2014-08	Electrical installations in ships - Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)	
IEC 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions – Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10 μ S/mm
IEC 61034-1/2	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product


Example:

NEXANS MMGSHXCHX or MMGSEHXCHX – size – 8,7/15 kV – 90C – IEC 60092-354 – IEC 60332-3-22 – CE(Symbol) Order-No.

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:



Job Id: **262.1-029518-1**
Certificate No: **TAE00003CA**

- 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