

WINDLINK® MV-RS (N)TSCGEHXOE 3+1
(N)TSCGEHXOE 20/35 kV 3x70/70
 Nexans ref.: 7132xxxx

Torsion resistant medium-voltage trailing cable for free hanging of max. 100 m resistance against: - permanent movement - permanent vibrations - compressive stress - temporary influence of seawater - suitable for torsion of max. +/- 100°/m

Description

Application

Medium-voltage trailing cable WINDLINK® MV-RS (N)TSCGEHXOE was developed for special application condition in wind turbines. The construction is torsion resistant by free hanging max. 100 m. These cables are specified for medium mechanical stress and for operation under permanent influence of seawater and usage outdoor.



Design

Power-core

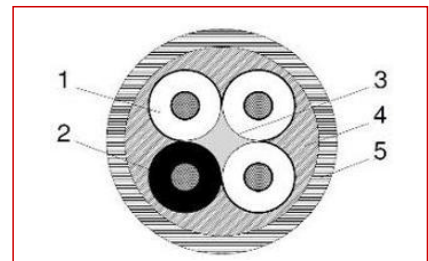
Conductor:

Copper, plain, flexible concentrically stranded circular, class 5 acc. to IEC 60228

Insulation:

- Inner semi-conductive stress control layer, fixed with insulation
- Elastomeric extruded special rubber compound RHEYCLEAN HV-EPR, quality better than 3GI3 acc. to DIN VDE 0207 part 20, based on EPDM, optimized wall thickness
- Outer semi-conductive insulation shield layer, easy strip (Thermostrip), compound basis EVA.

All three layers are extruded in one extrusion process and free of hollow space.



Protective-core

Conductor:

Copper plain, flexible concentrically stranded circular, class 5 acc. to IEC 60228

Conductor screen:

Extruded semi-conductive rubber

Standards
International Nexans specification

Inner Sheath

Extruded special rubber compound:

Quality better than GM1b, acc. to DIN VDE 0207 part 21, fulfils the requirements of EM1, nature colour, the filling of the interstices is integral part of the inner sheath and out of the same material, produced in the same process with outer sheath.

Outer Sheath

Extruded special rubber compound:

Quality better than EM8 acc. DIN EN 50363-6, based on EVA, water and oil resistant, flame retardant, abrasion and notch-resistant, colour: **black**, embossed marking e.g.:









WINDLINK MV-RS (N)TSCGEHXOE 3x25/25 18/30 kV INEXANSI year

Conductor flexibility Flexible class 5	Halogen free IEC 60754	Rated Voltage U ₀ /U (Um) 20 / 35 kV	Cable flexibility Flexible	Max. conductor temp. in service 90 °C	Weather resistance Yes	Flame retardant IEC 60332-1-2	Oil resistance EN 60811-2-1

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Characteristics

Construction characteristics	
Conductor material	Plain annealed copper
Conductor flexibility	Flexible class 5
Insulation	RHEYCLEAN-HEPR
Outer sheath	Halogen free flame retardant
Halogen free	IEC 60754
Material of the inner semi-conductor	Semi-conducting compound
Material of the external semi-conductor	Semi-conducting compound
Dimensional characteristics	
Number of phases	3
Phase Conductor Cross Section	70 mm ²
Number of protection cores	1.0
Ground conductor cross-section	70 mm ²
Approximate weight	7900 kg/km
Minimum outer diameter	74.0 mm
Maximum outer diameter	78.0 mm
Electrical characteristics	
Rated Voltage U ₀ /U (U _m)	20 / 35 kV
Mechanical characteristics	
Abrasion resistance	High
Cable flexibility	Flexible
Tear resistance	High
Usage characteristics	
Max. conductor temperature in service	90 °C
Short-circuit max. conductor temperature	250 °C
Weather resistance	Yes
Flame retardant	IEC 60332-1-2
Oil resistance	EN 60811-2-1
Ozone resistance	Yes
Silicon free	Yes
U.V resistance	Yes
Dynamic bending factor	10 (xD)
Freely suspended length	100.0 m

							
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OpCo Windlink

Temperatures on cable surface:

- moved -30 °C to +80 °C
- transport and stock -40 °C to +90 °C

Tensile stress of the conductor:

- during installation max. 50 N/mm²
- in operation max. 15 N/mm²

cross-section (mm²): sum of all cores

Bending radii:

- fixed installation min. 6 x outer-Æ
- free moving min. 10 x outer-Æ

Torsion:

max. permissible angle: ± 100 °/m









Complementary technical data for WINDLINK® MV loop rubber cables (over 6/10 kV)

Electrical data

Current-carrying capacity in ampere [A] at 30°C ambient temperature acc. to DIN VDE 0298-4 on ground:

Cross-section [mm ²]	over 6/10 kV [A]
25	139
35	172
50	216
70	265
95	319
120	371
150	428
185	488
240	587
300	680
630	1385

Short circuit current-carrying capacity (1 sec) in kA. The constant K = 143 is calculated acc. to IEC 60949 (short circuit temperature 250°C and conductor temperature 90°C):

							
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Cross-section [mm²]	for 1 sec [kA]
25	3.6
35	5.0
50	7.2
70	10.0
95	13.6
120	17.2
150	21.5
185	26.5
240	34.3
300	42.9
630	90.1

Correction factor for ambient temperatures other than 30°C to be applied to the current-carrying capacities for cables in the air acc. to DIN VDE 0298-4 (permissible conductor temperature 90°C):

10°C	20°C	30°C	40°C	50°C	60°C	70°C
1.15	1.08	1.00	0.91	0.82	0.71	0.58

Max. conductor resistance for plain wires

Cross-section [mm²]	at 20°C [Ω/km]	at 90°C [Ω/km]
25	0.780	0.998
35	0.554	0.706
50	0.386	0.494
70	0.272	0.348
95	0.206	0.264
120	0.161	0.206
150	0.129	0.165
185	0.106	0.135
240	0.0801	0.102
300	0.0641	0.0817
630	0.0287	0.0366

							
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Permissible bending radii

fixed installation	6 x Ø
free movement	10 x Ø

Permissible tensile load

during installation	50 N/mm ²
in operation	15 N/mm ²

Cross-section in mm²: sum of all cores

							
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