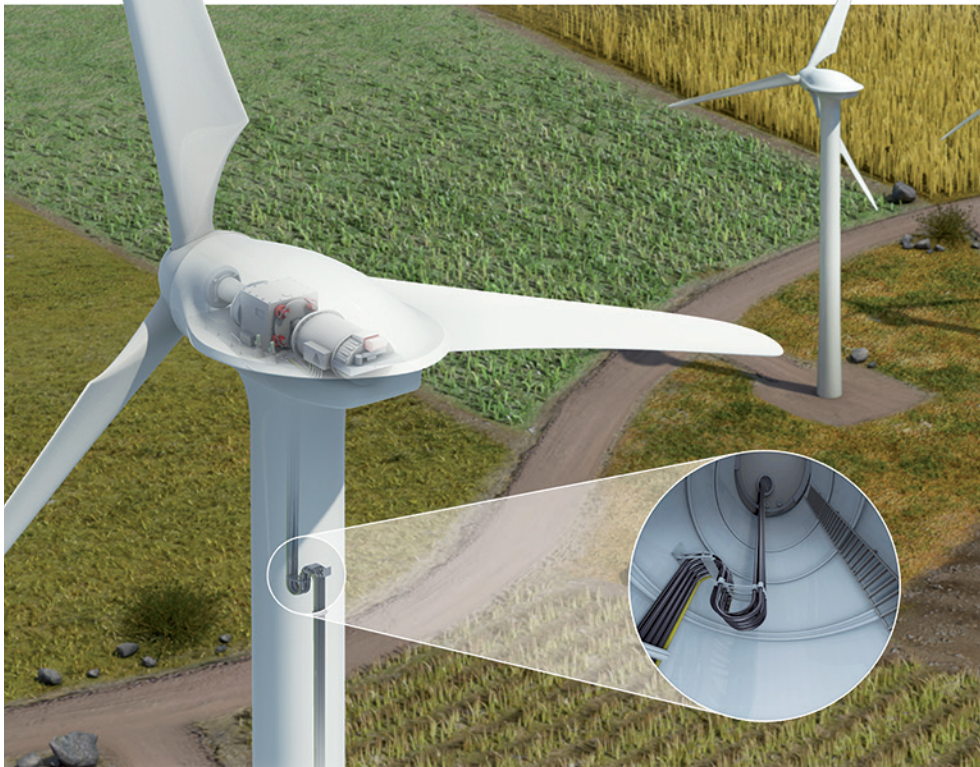




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nexans



Nexans WINDLINK® connection system

**Nexans Power Accessories
Germany GmbH**

Technical instructions and application information

Reprinting, even partial, only with special allowance.

The data given were determined diligently, they are however only guide values and do not release our customers of the duty to carry out tests themselves in order to check the suitability of the products delivered by us for the intended use.

Selection, processing and use of the products cannot be controlled by us and are therefore exclusively in your field of responsibility.

Attention: Before first ordering please contact the manufacturer.

Illustrations and drawings may only show a close reflection and are not decisive.

We reserve the right to alter or modify the characteristics described.

Our products meet the VDE standards respectively correspond to DIN pages and IEC recommendations.

Our responsibilities are only those listed in the latest edition of "General Terms and Conditions for the Supply of Products and Services of the Electrical and Electronics Industry". If requested we provide a copy.

Types or versions not part of the catalogue you receive on request.

Hof, October 2013

WINDLINK® connection system

Solutions out of one hand

Nexans offers complete coordinated system solutions. The customer gets everything out of one hand: From separable connection components to turnkey 100% pre-tested installable kits pre-mounted on cable.



Low-voltage connectors



Medium-voltage connectors



Low-voltage kits



Medium-voltage jumpers

Low voltage connection components

Able to withstand thermal cycling throughout a turbine's lifetime, our systems use a shear-bolt connector or hexagon compression joint as well as lugs combined with a roll-on sleeve, a heat-shrink or a cold-shrink sleeve.

Low-voltage kits

To facilitate on-site installation, Nexans provides pre-assembled kits.

Medium-voltage connectors

Nexans safe-to-touch T-connectors are designed for the new generation of compact switchgears and transformers, and can also accommodate the larger cross-sections and cable-to-cable connections.

Medium-voltage jumpers

Customized jumpers are cables from 1 meter to tower height, equipped on both sides with accessories to connect generators, transformers and switchgears.

Medium-voltage loop rubber cables

The loop cables reliably transmit produced energy from the generator to the transformer. These cables can handle up to 42 kV between the nacelle-based transformer and the switchgear at the base. These loop cables are 100% PD tested.

Mechanical connectors and lugs

with single shear-off-head bolts
and transverse grooving

Application

GPH mechanical connectors and lugs are reliable and a cost-effective way of connecting different conductor cross-sections and conductor materials. All connectors are equipped with shear-off-head bolts.

Advantages of shear-off-head bolts

- Easy to assemble
- Reduction of installation mistakes
- The head will always shear-off at the required torque moment
- No torque wrench required

Electrical test

Load cycle tested acc. to IEC 61238-1 class A up to connector operating temperature of max. 100°C.

Availability

- Different sizes are available
- Individual customized solutions and special designs upon request



C400 x 16 AL2 SW19

- C = lug series
- conductor cross-section
- palm hole size
- conductor material and class acc. DIN EN 60228
- installation tool size (6-8 allen key size 13-24 outer hexagon size)

M240-400 CU5/AL2 SW19

- M = mechanical connector series
- conductor cross-section
- conductor material and class acc. DIN EN 60228
- installation tool size (6-8 allen key size 13-24 outer hexagon size)

Specification

The mechanical connectors and lugs consist of IEC tested standard bodies and single shear-off-head bolts. These bolts are optimized for individual applications, e.g. Windlink® cables.

Material and Surface

Connector Body: high strength, aluminium alloy, tin-plated

Bolts: brass, tin-plated, with inner or outer hexagon



inner hexagon



outer hexagon

Connector body



50-150 mm²



95-240 mm²



120-300 mm²



185-400 mm²



300-630 mm²

Cross-section

Lug body



Cable

Wide product range for aluminium and copper conductor classes according to DIN EN 60228 Table C.1 and C.2



class 2 = round stranded



class 5 = round fine stranded

Mechanical connector types available (other types on demand)

		conductor type									
conductor type	aluminium class 2	aluminium class 2									
		70 mm²	95 mm²	120 mm²	150 mm²	185 mm²	240 mm²	300 mm²	400 mm²	500 mm²	630 mm²
		70 mm²	M70 AL2 SW6	M70-95 AL2 SW6							
		95 mm²	M70-95 AL2 SW6	M95 AL2 SW6							
		120 mm²									
		150 mm²			M150 AL2 SW6						
		185 mm²				M185 AL2 SW6					
		240 mm²									
		300 mm²						M300 AL2 SW6			
		400 mm²							M400 AL2 SW19		
		500 mm²								M500 AL2 SW22	
		630 mm²									M630 AL2 SW24

		conductor type									
conductor type	copper class 5	aluminium class 2									
		70 mm²	95 mm²	120 mm²	150 mm²	185 mm²	240 mm²	300 mm²	400 mm²	500 mm²	630 mm²
		70 mm²	M70 CU5/AL2 SW6	M70-95 CU5/AL2 SW6							
		95 mm²	M70-95 CU5/AL2 SW6	M95 CU5/AL2 SW6							
		120 mm²			M120-150 CU5/AL2 SW19/SW6						
		150 mm²									
		185 mm²				M185 CU5/AL2 SW19/SW6					
		240 mm²						M240-300 CU5/AL2 SW22/SW6	M240-400 CU5/AL2 SW19		
		300 mm²								M300-500 CU5/AL2 SW22	
		400 mm²									M400-630 CU5/AL2 SW24

		conductor type							
conductor type	copper class 5	copper class 5							
		70 mm²	95 mm²	120 mm²	150 mm²	185 mm²	240 mm²	300 mm²	400 mm²
		70 mm²	M70 CU5 SW6	M70-95 CU5 SW6					
		95 mm²	M70-95 CU5 SW6	M95 CU5 SW6					
		120 mm²							
		150 mm²			M150 CU5 SW19				
		185 mm²				M185 CU5 SW19			
		240 mm²					M240 CU5 SW22		
		300 mm²							
		400 mm²							M400 CU5 SW24

Mechanical cable lug types available (other types on demand)

conductor type		
cross-section	aluminium class 2	copper class 5
70mm²	C70 x... AL2 SW6	C70 x... CU5 SW6
95mm²	C95 x... AL2 SW6	C95 x... CU5 SW6
185mm²	C185 x... AL2 SW6	C185 x... CU5 SW19
240mm²		C240 x... CU5 SW22
300mm²	C300 x... AL2 SW6	
400mm²	C400 x... AL2 SW19	C400 x... CU5 SW24
500mm²	C500 x... AL2 SW24	
630mm²	C630 x... AL2 SW24	

Compression joints and lugs for hexagonal compression

Specification

The aluminium bodies are able to contact aluminium class 2 conductors and the copper bodies are able to contact stranded copper class 2 and 5 conductors. Bimetal bodies can realize the transition from one conductor material to another conductor material.

Material and Surface

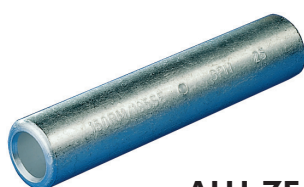
Body ALU:
ALU: aluminium
ALU-V: uncoated
tin-plated
Body CU:
KU: copper
KU-V: uncoated
tin-plated

Body Bimetal:
ALU-KU: aluminium
copper
uncoated

ZE = non-tension
T = blind hole
F = longitudinally sealed

Compression joints

Cross-section 70-400 mm² aluminium conductor



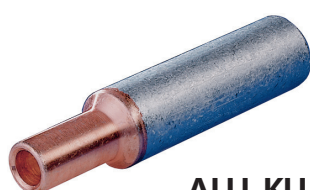
ALU-ZE-T

copper conductor



KU-ZE-T

copper / aluminium transition



ALU-KU-ZE

Compression cable lugs

uncoated

tin-plated



ALU



ALU-V



ALU-F



ALU-F-V



KU



KU-V



KU-F



KU-F-V



ALU-KU-M

Cable

Wide product range for aluminium and copper conductor classes according to DIN EN 60228 Table C.1 and C.2



class 2 = round stranded



class 5 = round fine stranded

Compression joints

		conductor type											
conductor type	aluminium class 2	aluminium class 2						copper class 5					
		70mm²	95mm²	185mm²	240mm²	300mm²	400mm²	70mm²	95mm²	185mm²	240mm²	300mm²	400mm²
		70mm²	70 ALU-ZE-T					7070 ALU-KU-ZE					
		95mm²		95 ALU-ZE-T				9570 ALU-KU-ZE	9595 ALU-KU-ZE				
		185mm²			185 ALU-ZE-T					185185 ALU-KU-ZE			
		240mm²				240 ALU-ZE-T				240185 ALU-KU-ZE	240240 ALU-KU-ZE		
	copper class 5	300mm²				300 ALU-ZE-T					300240 ALU-KU-ZE	300300 ALU-KU-ZE	
		400mm²					400 ALU-ZE-T				400240 ALU-KU-ZE	400300 ALU-KU-ZE	400400 ALU-KU-ZE
		70mm²	7070 ALU-KU-ZE	9570 ALU-KU-ZE				70 KU-ZE-T (-V)					
		95mm²		9595 ALU-KU-ZE					95 KU-ZE-T (-V)				
		185mm²			185185 ALU-KU-ZE	240185 ALU-KU-ZE				185 KU-ZE-T (-V)			
		240mm²				240240 ALU-KU-ZE	300240 ALU-KU-ZE	400240 ALU-KU-ZE			240 KU-ZE-T (-V)		
		300mm²					300300 ALU-KU-ZE	400300 ALU-KU-ZE				300 KU-ZE-T (-V)	
		400mm²						400400 ALU-KU-ZE					400 KU-ZE-T (-V)

Compression cable lugs

conductor type					
cross-section	aluminium conductor class 2			copper conductor class 5	
	uncoated	tin-plated	bimetal uncoated	uncoated	tin-plated
70mm²	70 X .. ALU 70 X .. ALU-F	70 X .. ALU(-V) 70 X .. ALU-F(-V)	70 X .. ALU-KU-M	70 X .. KU 70 X .. KU-F	70 X .. KU(-V) 70 X .. KU-F(-V)
95mm²	95 X .. ALU 95 X .. ALU-F	95 X .. ALU(-V) 95 X .. ALU-F(-V)	95 X .. ALU-KU-M	95 X .. KU 95 X .. KU-F	95 X .. KU(-V) 95 X .. KU-F(-V)
185mm²	185 X .. ALU 185 X .. ALU-F	185 X .. ALU(-V) 185 X .. ALU-F(-V)	185 X .. ALU-KU-M	185 X .. KU 185 X .. KU-F	185 X .. KU(-V) 185 X .. KU-F(-V)
240mm²	240 X .. ALU 240 X .. ALU-F	240 X .. ALU(-V) 240 X .. ALU-F(-V)	240 X .. ALU-KU-M	240 X .. KU 240 X .. KU-F	240 X .. KU(-V) 240 X .. KU-F(-V)
300mm²	300 X .. ALU 300 X .. ALU-F	300 X .. ALU(-V) 300 X .. ALU-F(-V)	300 X .. ALU-KU-M	300 X .. KU 300 X .. KU-F	300 X .. KU(-V) 300 X .. KU-F(-V)
400mm²	400 X .. ALU 400 X .. ALU-F	400 X .. ALU(-V) 400 X .. ALU-F(-V)	400 X .. ALU-KU-M	400 X .. KU 400 X .. KU-F	400 X .. KU(-V) 400 X .. KU-F(-V)

Insulation

Application

Used in various industrial applications, the insulation materials have been designed to insulate and protect mechanical connectors on LV cables up to 0,6/1 kV.

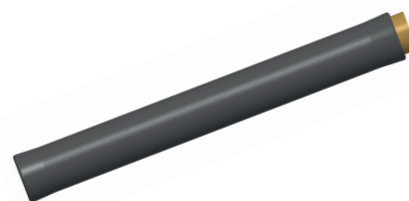
Roll-on sleeve

Technical characteristics

The EPDM roll-on sleeve acts simultaneously as insulation (dielectric) and jacket (mechanical).

Installation

After the connector is installed, it is covered with the roll-on sleeve, by simply rolling it over the connector.



Material properties

- Temperature of application area: -40 to +95°C acc. to DIN 53545
- Specific resistivity based on DIN IEC 93
- ISO-resistance based on DIN IEC 167

Roll-on sleeve	Conductor sizes (mm ²)	Cable outer diameter (mm)
RS 70-240 18-32 0.6 kV	70 - 240	18 - 32
RS 300-500 28-46 0.6 kV	300 - 500	28 - 46
RS 400-630 35-52 0.6 kV	400 - 630	35 - 52

Heat-shrink tube

Technical characteristics

Medium wall (GT3) and Heavy wall (GT4) heat-shrinkable cross-linked polyolefin tubes, adhesive lined.

Installation

Classical heat-shrinking procedure.



Name GT3	Diameter before shrinking (mm)	Diameter after shrinking (mm)	Wall thickness (mm)
GT3-30-1000	34	8	2.5
GT3-40-1000	41	12	2.5
GT3-50-1000	56	16	2.5
GT3-70-1000	81	22	2.8
GT3-95-1000	101	25	3.0
GT3-120-1000	124	34	3.0

Name GT4	Diameter before shrinking (mm)	Diameter after shrinking (mm)	Wall thickness (mm)
GT4-30-1000	34	8	3.5
GT4-40-1000	41	12	4.5
GT4-50-1000	56	16	4.5
GT4-70-1000	73	22	4.5
GT4-90-1000	90	22	4.5
GT4-120-1000	130	40	4.5

Cold-shrink over

Technical characteristics

Expanded single layer sleeves

Installation

The CSO are placed over the connector, during extraction of the tube the CSO is shrinking by itself.



Cold shrink over	Conductor sizes (mm ²)	Cable outer diameter (mm)
CSO 45 SL	50-240	25-45

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