

# (N)TSCGEWOEU

Medium voltage reeling cable acc. to DIN VDE 0250, Part 813



## Application

Flexible H.V. flexible reeling cable, also suitable for festoon systems, for high to extreme mechanical stresses, e.g. high travel speeds, dynamic tensile loads, multiple changes of direction into different planes, churning on running over rollers and torsional stresses. Mainly for mobile equipment, e.g. fast-moving container cranes, cranes, large mobile equipment and excavators. Also for application to which DIN VDE 0168 and 0118 apply: Opencast and underground mining.

## Construction

<b>Conductor</b>	: Electrolytic copper tinned, very finely stranded, class 5 Refer also to DIN VDE 0295
<b>Insulation</b>	: High grade special compound based on high quality EPR (at least 3GI3), improved mechanical and electrical characteristics Refer also to DIN VDE 0207, Part 21
<b>Field control</b>	: For designs from 3 to 30 kV: inner semi conductive layer of EPR, outer semi conductive layer of modified NBR, capable of being stripped when cold and thus extremely easy to prepare (Easy Strip design)
<b>Core identification</b>	: From 3.6/6 kV: natural coloured insulation with black semi conductive layer
<b>Core arrangement</b>	: Laid up with length of lay $7 \times D$ (core diameter), three core diameter, earth conductor split into 3 parts
<b>Inner sheath</b>	: Double layer inner sheath, special compound based on EPR, quality at least 5GM3, also served as water barrier, color: red
<b>Armour</b>	: Anti-torsion braid: reinforced braid made of polyester threads, in a vulcanized bond between the sheaths. Resulting in high strength of the sheath system.
<b>Outer sheath</b>	: Double layer outer sheath A sheath system with a unique combination of flexibility and robustness has been achieved through the use of a new sandwich structure. Abrasion and tear proof high grade rubber compounds based on PCP, quality at least 5GM5. Colour: bright red DIN VDE 0207
<b>Identification</b>	: E.g. Incore-Cables (N)TSCGEWOEU, number of cores x cross section, rated voltage, year of manufacture, serial number

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## Electrical parameters

Rated voltage (Uo/U)	1,8/3	3,6/6	6/10	8,7/15	12/20	14/25	18/30
Maximum permissible operating voltage in AC systems (Uo/U)	2,1/3,6	4,2/7,2	6,9/12	10,4/18	13,9/24	17,3/30	20,8/36
Maximum permissible operating voltage in DC systems (Uo/U)	2,7/5,4	5,4/10,8	9/18	13,5/27	18/36	22,5/45	27/54
AC test voltage Acc. to DIN VDE 0250, Part 813	6,0	11,0	17,0	24,0	29,0	36,0	43,0
Current carrying capacity	According to DIN VDE 0298, Part 4 Higher values are permissible in specific cases. Please consult the manufacturer.						
Bus compatibility	A special cable design with fiber optics can be found in the product range.						
EMC	This design exhibits an extremely low interference level as a result of use of a symmetrical three core design with very narrow manufacturing tolerances.						

## Thermal parameters

Ambient temperature	
- Fully flexible operation	-35°C to +80°C
- Fixed installation	-50°C to +80°C
Maximum permissible operating temperature of the conductor	90°C
Short-circuit temperature of the conductor	250°C.

## Mechanical parameters

Dynamical tensile load at acceleration processes	Up to 30 N/mm <sup>2</sup> (acc. to DIN VDE 0298 part 3: 15 N/mm <sup>2</sup> )
Max. permanent tensile load	Up to 20 N/mm <sup>2</sup>
Torsional stresses	+/-25°/ m
Minimum bending radius	According to DIN VDE 0298, Part 3
Minimum distance with S-type directional changes	20xD (cable diameter)
Travel speed	No restriction. For speeds beyond 240 m/min it is recommended to consult the cable manufacturer.
- Gantry (reeling operation)	
Additional tests	Reversed bending test, torsional stress test

## Chemical parameters

Resistance to oil	DIN VDE 0473, Part 81121 Para. 10
Weather resistance	Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture
Water compatibility	According to HD 2216

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## Range and dimensions

Article Code	Number of conductors & cross-section	Power / Earth conductor diameter (mm)	Overall diameter of cable Min. value (mm)	Overall diameter of cable Max. value (mm)	Approx. cable weight (kg/km)	Maximum permissible tensile force (N)
<b>0,6/1 kV (N)TSW0EU=(N)SHT0EU</b>						
E9203C070EAKRD4/35/3	3x70+3x35/3	12.0/5.0	39.7	42.7	3920	6300
E9203C095EAKRD4/50/3	3x95+3x50/3	14.0/6.0	44.3	47.3	5020	8550
E9203C120EAKRD4/70/3	3x120+3x70/3	15.8/7.2	51.0	55.0	6630	10800
E9203C150EAKRD4/70/3	3x150+3x70/3	17.5/7.2	53.9	57.9	7690	13500
E9203C185EAKRD4/95/3	3x185+3x95/3	19.7/8.1	58.9	62.9	9310	16650
E9203C240EAKRD4/120/3	3x240+3x120/3	22.5/9.3	67.4	71.4	12200	21600
<b>1.8/3 kV (N)TSCGEWOEU</b>						
E9203C025EAKRD5/25/3	3x25+3x25/3	7.1/4.2	40.4	43.4	2680	1500 (2250)
E9203C035EAKRD5/25/3	3x35+3x25/3	8.3/4.2	43.0	46.0	3150	2100 (3150)
E9203C050EAKRD5/25/3	3x50+3x25/3	9.9/4.2	46.4	49.4	3840	3000 (4500)
E9203C070EAKRD5/35/3	3x70+3x35/3	11.8/5.0	45.9	48.9	4240	4200 (6300)
E9203C095EAKRD5/50/3	3x95+3x50/3	13.8/5.9	58.5	62.5	6490	5700 (8550)
E9203C120EAKRD5/70/3	3x120+3x70/3	15.4/7.0	63.8	67.8	8010	7200 (10800)
E9203C150EAKRD5/70/3	3x150+3x70/3	17.2/7.0	67.7	71.7	9240	9000 (13500)
E9203C185EAKRD5/95/3	3x185+3x95/3	19.0/8.0	71.6	75.6	10750	11100 (16650)
E9203C240EAKRD5/120/3	3x240+3x120/3	21.8/9.0	79.4	83.4	13640	14400 (21600)
E9203C300EAKRD5/150/3	3x300+3x150/3	24.4/10.0	84.7	89.7	16230	18000 (27000)
<b>3.6/6 (7.2)kV (N)TSCGEWOEU</b>						
E9203C025EAKRD6/25/3	3x25+3x25/3	7.1/4.2	36.1	39.1	2190	1500 (2250)
E9203C035EAKRD6/25/3	3x35+3x25/3	8.3/4.2	39.6	42.6	2710	2100 (3150)
E9203C050EAKRD6/25/3	3x50+3x16	9.9/4.2	42.4	45.4	3360	3000 (4500)
E9203C070EAKRD6/35/3	3x70+3x35/3	11.8/5.0	46.4	49.4	4290	4200 (6300)
E9203C095EAKRD6/50/3	3x95+3x50/3	13.8/5.9	51.4	55.5	5520	5700 (8550)
E9203C120EAKRD6/70/3	3x120+3x35	15.4/7.0	55.0	59.0	6680	7200 (10800)
E9203C150EAKRD6/70/3	3x150+3x35	17.2/7.0	58.8	62.8	7830	9000 (13500)
E9203C185EAKRD6/95/3	3x185+3x95/3	19.0/8.0	65.1	69.1	9480	11100 (16650)
E9203C240EAKRD6/120/3	3x240+3x120/3	21.8/9.0	72.5	76.5	12120	14400 (21600)
E9203C300EAKRD6/150/3	3x300+3x150/3	24.4/10.0	78.2	82.2	14580	18000 (27000)
<b>6/10 kV (N)TSCGEWOEU</b>						
E9203C025EAKRD12/25/3	3x25+3x25/3	7.1/4.2	37.8	40.8	2410	1500 (2250)
E9203C035EAKRD12/25/3	3x35+3x25/3	8.3/4.2	40.9	43.9	2880	2100 (3150)
E9203C050EAKRD12/25/3	3x50+3x25/3	9.9/4.2	43.7	46.7	3480	3000 (4500)
E9203C070EAKRD12/35/3	3x70+3x35/3	11.8/5.0	47.7	50.7	4570	4200 (6300)
E9203C095EAKRD12/50/3	3x95+3x50/3	13.8/5.9	52.8	56.8	5710	5700 (8550)
E9203C120EAKRD12/70/3	3x120+3x70/3	15.4/7.0	56.2	60.2	6830	7200 (10800)
E9203C150EAKRD12/70/3	3x150+3x70/3	17.2/7.0	61.5	65.5	8180	9000 (13500)
E9203C185EAKRD12/95/3	3x185+3x95/3	19.0/8.0	65.3	69.3	9660	11100 (16650)
E9203C240EAKRD12/120/3	3x240+3x120/3	21.8/9.0	73.8	77.8	12310	14400 (21600)
E9203C300EAKRD12/150/3	3x300+3x150/3	24.4/10.0	79.5	83.5	14780	18000 (27000)
<b>12/20 kV (N)TSCGEWOEU</b>						
E9203C025EAKRD20/25/3	3x25+3x25/3	7.1/4.2	41.1	47.1	2940	1500 (2250)
E9203C035EAKRD20/25/3	3x35+3x25/3	8.3/4.2	43.7	49.6	3420	2100 (3150)
E9203C050EAKRD20/25/3	3x50+3x25/3	9.9/4.2	47.1	55.8	4300	3000 (4500)
E9203C070EAKRD20/35/3	3x70+3x35/3	11.8/5.0	52.0	59.9	5300	4200 (6300)
E9203C095EAKRD20/50/3	3x95+3x50/3	13.8/5.9	57.2	63.2	6500	5700 (8550)
E9203C120EAKRD20/70/3	3x120+3x70/3	15.4/7.0	62.1	69.1	7870	7200 (10800)
E9203C150EAKRD20/70/3	3x150+3x70/3	17.2/7.0	65.9	73.0	9060	9000 (13500)
E9203C185EAKRD20/95/3	3x185+3x95/3	19.0/8.0	69.8	78.3	10850	11100 (16650)
E9203C240EAKRD20/120/3	3x240+3x120/3	21.8/9.0	77.3	84.3	13340	14400 (21600)
E9203C300EAKRD20/150/3	3x300+3x150/3	24.4/10.0	84.2	92.2	16250	18000 (27000)

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<b>14/25 kV (N)TSCGEWOEU</b>						
E9203C025EAKRD24/25/3	3x25+3x25/3	7.1/4.2	49.6	53.6	3490	1500 (2250)
E9203C035EAKRD24/25/3	3x35+3x25/3	8.3/4.2	52.2	56.2	3990	2100 (3150)
E9203C050EAKRD24/25/3	3x50+3x25/3	9.9/4.2	55.7	59.7	4740	3000 (4500)
E9203C070EAKRD24/35/3	3x70+3x35/3	11.8/5.0	61.2	65.2	5990	4200 (6300)
E9203C095EAKRD24/50/3	3x95+3x50/3	13.8/5.9	65.5	69.5	7170	5700 (8550)
E9203C120EAKRD24/70/3	3x120+3x70/3	15.4/7.0	69.0	73.0	8410	7200 (10800)
E9203C150EAKRD24/70/3	3x150+3x70/3	17.2/7.0	74.3	78.3	9890	9000 (13500)
E9203C185EAKRD24/95/3	3x185+3x95/3	19.0/8.0	78.2	82.2	11460	11100 (16650)
E9203C240EAKRD24/120/3	3x240+3x120/3	21.8/9.0	85.5	90.5	14380	14400 (21600)
E9203C300EAKRD24/150/3	3x300+3x150/3	24.4/10.0	91.1	96.1	16970	18000 (27000)
<b>18/30 kV (N)TSCGEWOEU</b>						
E9203C025EAKRD15/25/3	3x25+3x25/3	7.1/4.2	53.1	57.1	3860	1500 (2250)
E9203C035EAKRD15/25/3	3x35+3x25/3	8.3/4.2	55.7	59.7	4390	2100 (3150)
E9203C050EAKRD15/25/3	3x50+3x25/3	9.9/4.2	59.1	63.1	5140	3000 (4500)
E9203C070EAKRD15/35/3	3x70+3x35/3	11.8/5.0	64.7	68.7	6440	4200 (6300)
E9203C095EAKRD15/50/3	3x95+3x50/3	13.8/5.9	69.0	73.0	7660	5700 (8550)
E9203C120EAKRD15/70/3	3x120+3x70/3	15.4/7.0	73.8	77.8	9160	7200 (10800)
E9203C150EAKRD15/70/3	3x150+3x70/3	17.2/7.0	77.7	81.7	10420	9000 (13500)
E9203C185EAKRD15/95/3	3x185+3x95/3	19.0/8.0	81.6	85.6	12020	11100 (16650)
E9203C240EAKRD15/120/3	3x240+3x120/3	21.8/9.0	89.0	94.0	15010	14400 (21600)
E9203C300EAKRD15/150/3	3x300+3x150/3	24.4/10.0	95.6	100.6	17900	18000 (27000)

## NOTICE

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