

(N)TMCWOEU

Flexible medium voltage cable, 26/45 kV
+ 90°C service temperature, single core, zero halogen, fire retardant, oil, UV, ozone and moisture resistant
adapted to IEC 60840 and DIN VDE 250 - 813

Application

These cables are intended for connection of switchgear cubicles and for connection of mobile transformer substations to the overhead line. Also usable for connection of pantographs in locomotives and trains.
When laying and during operation care should be taken to protect them against excessive mechanical stresses. In other respects, DIN VDE 0298-3 applies. Usable on railway vehicles having hazard level HL3 acc. to DIN EN 45545-1(2013).

Construction



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|----------------------------|--|
| 1. Conductor: | Copper conductor, tinned, flexible (class 5) |
| 2. Insulation: | Zero halogen, cross-linked special compound, basic material HEPR requirements based on type E1110 (EN50264-1) / HEPR (IEC 60840), light pink |
| 3. Electric field control: | Inner and outer layer of semi-conductive rubber compound, black
Core screen cold strippable |
| 4. Screen: | Spinning of tinned copper wires |
| 5. Outer sheath: | Zero halogen, cross-linked special compound,
Basic material EVA, requirements based on EM104, red or black (other colours on request) |

Technical information

Rated voltage		26/45 kV
Max. operating voltage AC		30/52 kV
Max. operating voltage DC		40,5/81 kV
Test voltage AC		87 kV
Voltage pulses		IEC 61287-1
Short time overvoltages		DIN EN 50124-2
Long time overvoltages		DIN EN 50163
Max. permissible temperature at conductor		+ 90 °C
Max. short circuit temperature of the conductor		+ 250 °C
Operating temperature	fixed installed	-40 °C to 80 °C
	flex operation	-40 °C to 80 °C
Min. bending radius mm		VDE 0298 Section 3
	free movement	10 x outer diameter in mm
	during installation	6 x outer diameter in mm
	fixed installation	5 x outer diameter in mm (one time, carefully banded)
Max. tensile load		15 N/mm ²

Safety parameters

Flame propagation	single cable	IEC 60332-1
	bunched cables	IEC 60332-3-24
Zero halogen		IEC 60754-1 /-2
Smoke density		IEC 61034-2
Toxicity		EN 50305

Additional parameters

Weather resistance	Resistant to ozone, UV and moisture
Oil, acid and alkaline resistance	EN 60811-404

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N° of cores and cross section mm ²	Ø of conductor max. mm	Ø over insulation (nom.) mm	Outer diameter		Bending radius fixed min. mm	Bending radius free moving min. mm	Weight approx. kg/km	Resistance at 20°C max. Ω/km	Current carrying capacity A	Current carrying capacity trefoil A	Short Circuit Current kA
			min. mm	max. mm							
1x50/16	9,3	26,8	36	38	190	380	1900	0,393	309	237	7,15
1x70/16	11,5	28,7	38	40	200	400	2400	0,277	379	291	10,0
1x95/16	12,9	30,7	40	42	210	420	2700	0,21	457	351	13,6
1x120/16	14,6	32,8	43	45	220	440	3000	0,164	531	408	17,2
1x150/25	16,0	33,2	44	46	225	450	3700	0,132	613	470	21,5
1x185/25	18,0	35,4	46	48	235	470	4200	0,108	699	536	26,6
1x240/25	20,6	38,8	49	51	255	510	4500	0,0817	823	632	34,3
1x300/35	23,1	40,5	52	54	270	540	5400	0,0654	945	725	42,9
1x400/35	26,5	44,7	56	58	285	570	6400	0,0654	1145	879	57,2
1x500/35	29,3	46,9	59	62	300	600	7400	0,0495	1288	989	71,5
1x630/35	33,9	51,5	64	68	320	640	9200	0,0391	1432	1099	90,1

For other ambient temperatures, the current-carrying capacities must be converted with the following factors:

°C	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
f	1,15	1,12	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76	0,71	0,65	0,58	0,50	0,41

Conversion factors for laying (based on DIN VDE 0298-4)

	inside tube	surface mounting	below ceiling
f	0,8	0,95	0,90

Permissible short-circuit currents for screens (1s, 60°C → 350°C; acc. to DIN VDE 0276)

Cross sections of the screen	16	25	35
I _{thz} in kA	3,3	5,0	7,0

La version française de cette fiche technique est disponible sur demande.
De technische gegevens zijn op aanvraag in het Nederlands beschikbaar.

(N)TMCGCWOEU flex UL

Flexible medium voltage cable, 6/10 kV, 12/20 kV or 18/30 kV
+ 90°C service temperature, single core, oil, UV and ozone resistant
adapted to DIN VDE 250 - 813

Application

These cables are intended for use as short length connection in switchgear or transformer houses where a very small bending radius is required as well as power cables on mining equipment and alongside conveyor belts. Can also be used for low-speed energy chains, drum applications or to supply energy to large electrical applications and drives via energy carriers systems. When laying and during operation, care should be taken to protect them from excessive mechanical stress.

Construction



1. Conductor: Copper conductor, tinned, flexible (class 5)
2. Insulation: EPR
3. Electric field control: Inner and outer layer of semiconductive rubber compound
4. Screen: Copper spiral shield
5. Outer sheath: Rubber, compound 5GM5, red

Technical information

Rated voltage	kV	6/10	12/20	18/30
Max. operating voltage AC	kV	12	24	36
Test voltage AC	kV	17	29	43
Max. permissible temperature at conductor		+ 90 °C		
Max. short circuit temperature of the conductor		+ 200 °C		
Operating temperature	fix installed	-40 °C to 80 °C		
	flex operation	-25 °C to 80 °C		
Min. bending radius mm	fix installed	6 x outer diameter in mm		
	flex operation	8 x outer diameter in mm		
Max. tensile load		15 N/mm ²		

Safety parameters

Flame propagation	single cable	IEC 60332-1
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Additional parameters

Weather resistance	Resistant to ozone and UV
Oil resistance	EN 60811-404

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N° of cores and cross section mm ²	Outer diameter approx. mm	Weight approx. kg/km	Resistance at 20°C max. Ω/km	Current carrying capacity A
6/10 kV				
1x25/16	25	800	0,795	135
1x35/16	23	930	0,565	169
1x50/16	28	1130	0,393	207
1x70/16	30	1375	0,277	268
1x95/16	32	1636	0,21	328
1x120/16	34	1990	0,164	383
1x150/25	36	2320	0,132	444
1x185/25	38	2680	0,108	510
1x240/25	41	3300	0,0817	607
12/20 kV				
1x25/16	29	1010	0,795	135
1x35/16	30	1160	0,565	169
1x50/16	31	1350	0,393	207
1x70/16	34	1670	0,277	268
1x95/16	36	1940	0,21	328
1x120/16	38	2230	0,164	383
1x150/25	40	2660	0,132	444
1x185/25	42	3031	0,108	510
1x240/25	44	3881	0,0817	607
18/30 kV				
1x150/25	43	2780	0,132	2940
1x300/25	50	4340	0,0654	4590

Current carrying capacity according to IEC 60364-5-52, conductor temperature 90 °C, free air, ambient temperature 30° C, installation method F: three loaded conductors in trefoil

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