

# PROTOLON Medium-Voltage Flexible Single-Core Cables



CABLE JOINTS, CABLE TERMINATIONS, CABLE GLANDS, CABLE CLEATS  
FEEDER PILLARS, FUSE LINKS, ARC FLASH, CABLE ROLLERS, CUT-OUTS

11KV 33KV CABLE JOINTS & CABLE TERMINATIONS  
FURSE EARTHING  
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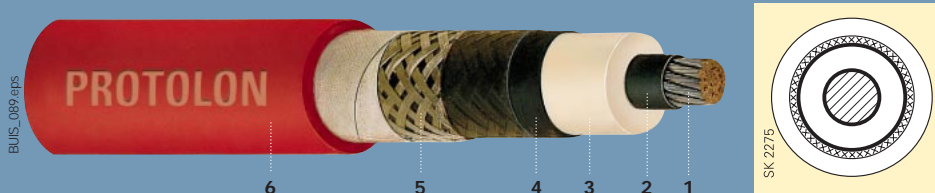


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Selection and dimensioning criteria			Refer to Section 4 for further details →	
	Type	<b>PROTOLON single-core</b>	Page	4/2
	Type designation	NTMCGCWÖU	Page	4/3
	Approvals/standards	DIN VDE 0250, Part 813 MSHA P - 189-4	Page	4/4
	Application (refer also to DIN VDE 0298, Part 3)	As a general rule, single-core cables are used in short lengths, e.g. for connection of switchgear cubicles and for connection of mobile transformer substations to the overhead line. When laying and during operation care should be taken to protect them against excessive mechanical stresses	Page	4/6
<b>Electrical parameters</b>	Rated voltage	$U_0/U = 3.6/6$ kV to 12/20 kV	Pages to	4/14
	Maximum permissible operating voltage in AC systems	$U_0/U = 4.2/7.2$ kV to 13.9/24 kV		4/17
	Maximum permissible operating voltage in DC systems	$U_0/U = 5.4/10.8$ kV to 18/36 kV		
	AC test voltage	11 kV to 29 kV		
	Current-carrying capacity	According to DIN VDE 0298, Part 4		
<b>Thermal parameters</b>	Ambient temperature		Pages to	4/18
	• Fully flexible operation	- 25 °C to + 60 °C		4/19
	• Fixed installation	- 40 °C to + 80 °C		
	Maximum permissible operating temperature of the conductor	90 °C		
	Short-circuit temperature of the conductor	200 °C		
<b>Mechanical parameters</b>	Tensile load	Up to 15 N/mm <sup>2</sup>	Page	4/20
	Torsional stresses	± 25 °/m	Page	4/21
	Minimum bending radii	According to DIN VDE 0298, Part 3	Page	4/22
<b>Chemical parameters</b>	Resistance to oil	Given to DIN VDE 0473, Part 811-2-1, Para. 10	Page	4/28
	Behaviour in case of fire	Given to DIN VDE 0482, Part 265-2-1, Para. 10		
	Weather resistance	Unrestricted use outdoors and indoors, resistant to ozone and moisture		
<b>Note on installation</b>	Termination with sealing ends	Suitable material sets for self-assembly	Page	3/13
		Termination at the manufacturer's works	Page	3/15

# PROTOLON Medium-Voltage Flexible Single-Core Cables

- 1 Conductor
- 2 Inner semiconductive layer
- 3 Insulation
- 4 Outer semiconductive layer
- 5 Cu screen
- 6 Outer sheath



Design features		Refer to Section 4 for further details →
Type	<b>PROTOLON single-core</b>	Page 4/2
Conductor (refer also to DIN VDE 0295)	Finely stranded copper conductor, tinned, Class 5	Page 4/29
Insulation (refer also to DIN VDE 0207, Part 20)	PROTOLON, basic material EPR, compound type: 3GI3	Page 4/32
Electrical field control	Inner and outer semiconductive layer of semiconductive rubber	Page 4/36
Screen	Cu wire braiding 16 mm <sup>2</sup> or 25 mm <sup>2</sup>	
Outer sheath (refer also to DIN VDE 0207, Part 21)	PROTOFIRM, basic material PCP, compound type: 5GM5, colour red	Page 4/32
Marking	(Year of manufacture) (serial number) <VDE> PROTOLON NTMCGCWÖU (cross-section) (rated voltage)	Page 4/40

**Selection data**

Number of cores and nominal cross-section  mm <sup>2</sup>	Conductor diameter  Max. value  mm	Overall diameter of cable (guidance value)		Conductor resistance at 20 °C  Ω/km	Inductance per unit length  mH/km	Operating capacitance per unit length  µF/km	Current-carrying capacity at 30 °C <sup>1)</sup>  A	Permissible short-circuit current (1s)  kA	Approx. net weight for 1000 m  kg	Maximum permissible tensile force  N
		Min. value  mm	Max. value  mm							

**3.6/6 kV NTMCGCWÖU**

1 x 16/16KON	5.7	19.4	21.4	1.240	-	0.29	141	1.95	601	240
1 x 25/16KON	6.9	21.4	23.4	0.795	-	0.34	187	3.05	825	375
1 x 35/16KON	8.1	22.6	24.6	0.565	-	0.39	231	4.27	882	525
1 x 50/16KON	9.7	24.6	27.6	0.393	-	0.43	288	6.10	1104	750
1 x 70/16KON	11.2	26.5	29.5	0.277	-	0.49	357	8.54	1346	1050
1 x 95/16KON	13.2	28.5	31.5	0.210	-	0.54	430	11.59	1614	1425
1 x 120/16KON	14.9	31.2	34.2	0.164	-	0.60	503	14.64	1983	1800
1 x 150/25KON	16.6	32.9	35.9	0.132	-	0.65	577	18.30	2300	2250
1 x 185/25KON	18.0	34.3	37.3	0.108	-	0.70	658	22.57	2642	2775
1 x 240/25KON	21.3	38.6	41.6	0.0817	-	0.75	771	29.28	3371	3600

**6/10 kV NTMCGCWÖU**

1 x 16/16KON	5.7	20.4	22.4	1.240	-	0.27	141	1.95	644	240
1 x 25/16KON	6.9	22.2	24.2	0.795	-	0.31	187	3.05	791	375
1 x 35/16KON	8.1	23.4	25.4	0.565	-	0.35	231	4.27	1050	525
1 x 50/16KON	9.7	25.4	28.4	0.393	-	0.39	288	6.10	1153	750
1 x 70/16KON	11.2	27.3	30.3	0.277	-	0.44	357	8.54	1399	1050
1 x 95/16KON	13.2	29.3	32.3	0.210	-	0.49	430	11.59	1910	1425
1 x 120/16KON	14.9	32.0	35.0	0.164	-	0.54	503	14.64	2044	1800
1 x 150/25KON	16.6	33.7	36.7	0.132	-	0.58	577	18.30	2364	2250
1 x 185/25KON	18.0	35.1	38.1	0.108	-	0.63	658	22.57	2709	2775
1 x 240/25KON	21.3	39.4	42.4	0.0817	-	0.69	771	29.28	3446	3600

**8.7/15 kV NTMCGCWÖU**

1 x 16/16KON	5.7	22.6	24.6	1.240	-	0.22	150	1.95	760	240
1 x 25/16KON	6.9	24.8	27.8	0.795	-	0.25	198	3.05	954	375
1 x 35/16KON	8.1	26.4	29.4	0.565	-	0.28	245	4.27	1101	525
1 x 50/16KON	9.7	28.0	31.0	0.393	-	0.31	307	6.10	1304	750
1 x 70/16KON	11.2	30.5	33.5	0.277	-	0.35	378	8.54	1623	1050
1 x 95/16KON	13.2	32.5	35.5	0.210	-	0.39	455	11.59	1912	1425
1 x 120/16KON	14.9	34.2	37.2	0.164	-	0.42	530	14.64	2219	1800
1 x 150/25KON	16.6	36.9	39.9	0.132	-	0.46	611	18.30	2637	2250
1 x 185/25KON	18.0	38.3	41.3	0.108	-	0.50	697	22.57	2995	2775
1 x 240/25KON	21.3	41.6	44.6	0.0817	-	0.54	820	29.28	3658	3600

**12/20 kV NTMCGCWÖU**

1 x 16/16KON	5.7	26.0	29.0	1.240	-	0.20	150	1.95	971	240
1 x 25/16KON	6.9	27.2	30.2	0.795	-	0.22	198	3.05	1090	375
1 x 35/16KON	8.1	28.4	31.4	0.565	-	0.25	245	4.27	1236	525
1 x 50/16KON	9.7	31.0	34.0	0.393	-	0.27	307	6.10	1680	750
1 x 70/16KON	11.2	32.5	35.5	0.277	-	0.30	378	8.54	1776	1050
1 x 95/16KON	13.2	34.5	37.5	0.210	-	0.33	455	11.59	2170	1425
1 x 120/16KON	14.9	37.2	40.2	0.164	-	0.36	530	14.64	2481	1800
1 x 150/25KON	16.6	38.9	41.9	0.132	-	0.39	611	18.30	3020	2250
1 x 185/25KON	18.0	40.3	43.3	0.108	-	0.42	697	22.57	3182	2775
1 x 240/25KON	21.3	43.6	46.6	0.0817	-	0.45	820	29.28	3870	3600

1) For single-core laying.



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