Power and control cables for extreme application according to VDE 0250 part. 814

Cable tipe

PANZERFLEX-VS 0.6/1 kV
(N)SHTÖU-J/ -O; (N)SHTÖU -JZ / OZ tugh rubber sheathed cable

Main application

Extra heavy duty power and control cables. For application with high mechanical stresses
(i.e.: tensile and torsion simoultaneously applied).
These cables have a tensile load of minimum 2000 N (standard for control cables) and are indicated to be used on equipment such as container crane spreader reels, rack and pinion elevators using shave guided cables, pendant station, all tenders etc.

Construction

Conductor:	Tinned copper conductor, extraflexible cl.6 IEC 60228 up to 6 mm², flexible cl.5 IEC 60228 from 10 mm² Both the class of conductors are specially designed for mobile application
Insulation:	EPR compound better than 3GI3 special compound with improved electrical and mechanical characteristics
Cores identification:	Colours according to according to DIN VDE 0293 part 308 / HD 308 S2 Standard colours: - 4 cores: green/yellow, brown, black, grey - 5 cores: green/yellow, blue, brown, black, grey - ≥ 6 cores: black with printed numbers, green/yellow in the outer layer
Central strainer (if any):	Made of aramidic yarns To be used as support element
Laying-up:	short lay length for better flexibilty ≤ 6,5 times the laying-up cores diameter in maximum 3 layer (for control cables)
Separation (if any):	Tape(s)
Inner sheath:	Polychloroprene rubber based compound Better than 5GM2
Antitwisting protection:	Textile braid of synthetic yarns Firmly vulcanized bonded between inner and outer sheath
Outer sheath:	Yellow polychloroprene rubber compound Oil and chemical resistant, 5GM3/5GM5 abrasion and notch resistant
Marking:	PALAZZO - PANZERFLEX-VS 0,6/1 kV *n of cores x cross section*

Parameters

Electrical	Rated voltage	Uo/U= 0,6/1 kV
	Maximum permissible operating voltage in AC systems	Um = 1,2 kV
	AC test voltage over 5 minutes	3,5 kV
	Current Carrying Capacity	According to DIN VDE 0298 part 4
Thermal	Fully flexible operation	- 25 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor	90 °C
	Short-circuit temperature of the conductor	250 °C
Mechanical	Tensile load	Up to 20 N/mm² with a minimum of 2000 N
	Minimum bending radii	According to DIN VDE 0298 part 3
	Reeling operation	No restriction. Consult the manufacturer if speed exceeds 180 m/min
Chemical	Resistance to oil	According to VDE / IEC standard
	Weather resistance	Unrestricted use outdoor and indoor, UV resistant, moisture resistant.

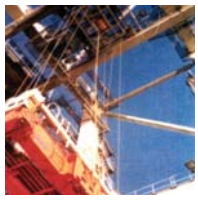

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Table 1: PANZERFLEX-VS 0.6/1 kV (N)SHTÖU -J / -O; (N)SHTÖU -JZ / OZ

N. of cores and nominal section (n•mm²)	Conductor D.C. resist. at 20 °C Ohm/km	Conductor nom. diam. mm	Overall diameter min. mm	Overall diameter max. mm	Net weight approx. kg/km	Maximum permissible tensile force N	Current carrying capacity at 30 °C * Laid straight A	Suspended in free air A	Spiral or 1 layer A	2 layer A	3 layer A	Short circuit current 80 ° to 200 °C kA
7G1.5	13,7	1,6	17,3	19,4	495	2000	23	24	18	14	11	0,19
12G1.5	13,7	1,6	23,6	25,7	885	2000	23	24	18	14	11	0,19
18G1.5	13,7	1,6	24,2	26,3	940	2000	23	24	18	14	11	0,19
24G1.5	13,7	1,6	28,8	30,9	1300	2000	23	24	18	14	11	0,19
30G1.5	13,7	1,6	30,8	34,0	1430	2000	23	24	18	14	11	0,19
36G1.5	13,7	1,6	31,0	34,2	1600	2000	23	24	18	14	11	0,19
7G2.5	8,21	2,1	19,6	21,6	650	2000	30	32	24	18	15	0,32
12G2.5	8,21	2,1	27,4	29,5	1230	2000	30	32	24	18	15	0,32
18G2.5	8,21	2,1	28,5	30,6	1340	2000	30	32	24	18	15	0,32
24G2.5	8,21	2,1	33,4	36,6	1880	2000	30	32	24	18	15	0,32
30G2.5	8,2	2,1	37,0	40,2	2310	2000	30	32	24	18	15	0,32
36G2.5	8,21	2,1	37,2	40,4	2350	2000	30	32	24	18	15	0,32
7G4	5,09	2,7	23,3	25,4	945	2000	41	43	33	25	20	0,51
12G4	5,09	2,7	32,4	35,6	1830	2000	41	43	33	25	20	0,51
18G4	5,09	2,7	32,8	36,0	2020	2000	41	43	33	25	20	0,51
4G10	1,95	4,2	25,1	27,1	1140	2000	74	78	59	45	36	1,3
4G16	1,24	5,4	28,0	30,1	1520	2000	99	104	79	60	49	2,0
4G25	0,795	6,6	32,8	36,0	2160	2000	131	138	105	80	64	3,2
4G35	0,565	8,0	35,8	39,0	2780	2800	162	170	130	99	79	4,5
4G50	0,393	9,3	41,8	45,0	3700	4000	202	212	162	123	99	6,4
4G70	0,277	11,2	46,2	49,4	4800	5600	250	263	200	153	123	9,0
4G95	0,210	13,0	53,0	57,5	6300	7600	301	316	241	184	147	12,2

*Tabulated values are valid up to three loaded conductors with or without earth
Derating factor shall be used for multicore cables depending on loaded conductors. See page 47