



Quality Through Experience

WIND TURBINE CABLES



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Wind Turbine Cables

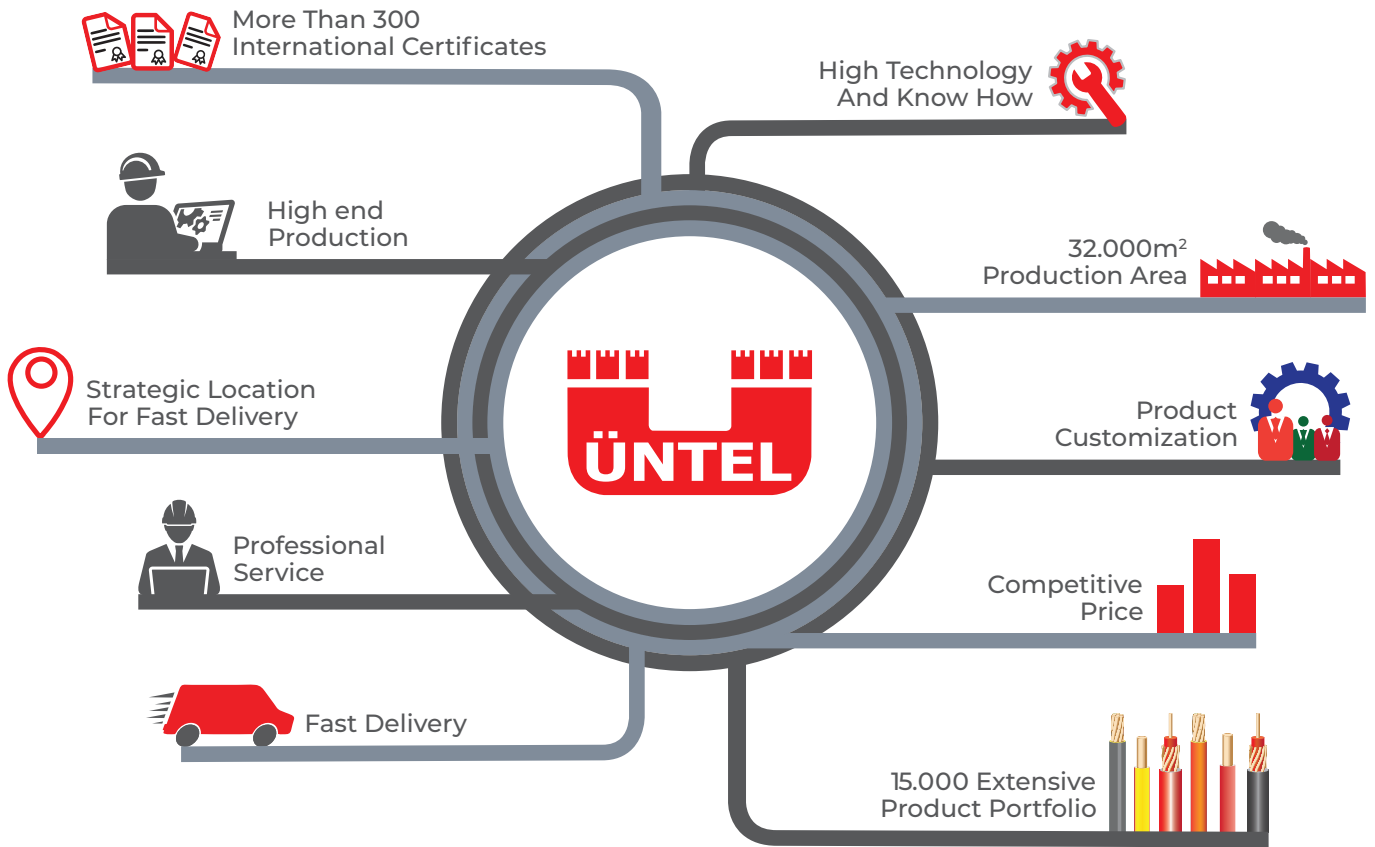


Quality Through Experience

HALF A CENTURY OF EXPERIENCE

HALF A CENTURY OF EXPERIENCE

Exporting Over 80 Countries on 6 Continents



INDUSTRIAL CABLES

MARINE CABLES

OFFSHORE CABLES

MINING & TUNNELING CABLES

AIRPORT CABLES

RAILWAY CABLES

CRANE CABLES

DEFENSE INDUSTRY CABLES

INSTRUMENTATION CABLES



ABOUT US

ABOUT US

ÜNTEL KABLO, one of leading cable manufacturers in the world was established in 1972, Turkey. With 50 years of experience, continuously develops and optimize her product range with the help of advanced technology and well trained staff.

Product range consists over 15.000 different types of cables, covers both rubber and thermoplastic cables up to Medium Voltage (MV) range. ÜNTEL's power and instrumentation cables supplies energy for industries which requires experience like marine, offshore, mines and tunnels, airports, railways and have been used in industrial ways such as heavy-duty rubber drum reeling cables, welding cables, control cables and fire resistant cables. ÜNTEL is also able to produce tailor made products for special purposes. Today these products are exported over 80 countries on six continents.

By the end of 2009, ÜNTEL finalized the investment of a new high-tech plant near Istanbul. Now continues her operations on 43.000 m2 land space with 32.000 m2 closed area. By having 3.000 tons copper drawing and 4.000 tons different type of

compound processing capacity, ÜNTEL produces 30.000 tones of cable per year. By means of new factory building, state of the art machines and unique ERP system investments ÜNTEL aimed absolute customer satisfaction.

Üntel's laboratories which are approved by organisations that specify the standards are equipped with advanced technology test and measurement devices. Within the scope of Quality System Certificates there is a quality management system presents in Üntel according to ISO, IQnet and TSE quality standards.. Around 300 different types of cables are certified by global organisations like VDE, KEMA, ABS, UL, BV, DNV, RINA and TSE.

Üntel Kablo evaluate customer needs and expectations in a sectoral view and provide effective solutions with hundred percent customer satisfaction and qualified production philosophy. Üntel's biggest value is well trained and experienced staff and believe that exceptional quality comes through this experience.

Üntel Kablo offers 15.000 different types of Rubber, PVC, PE, LSZH and Polyurethane cables complying with global standards.



Solution partner of your projects..



WIND TURBINE CABLES

Quality Through Experience

Üntel's Proven Cable Range Ready To Support Wind Energy Industry

With the growth of renewables to meet net-zero climate goals, energy companies have been transitioning to new energy markets from traditional oil, gas, and coal. This transition has pushed the technology and manufacturing sectors to provide solutions to support further growth markets as demand increases. Still, the amount of fossil fuel falls, which is never finite, and the climate emergency has highlighted the importance of a shift to clean energy.

Üntel Kablo already have significant and historical footholds within many existing offshore and onshore oil and gas, coal power projects, support the mining sector and have an extensive range of cables to support the requirements and growing demands of the renewable energy sectors.

Üntel is no stranger to changing markets, delivering high-quality cables to many existing offshore and onshore energy projects, and focusing on the design of new cable products with its highly skilled Research and Development team.

Üntel has over 15,000 cable products in its portfolio. Many of these cables are suitable for onshore wind energy demands, such as varying extreme temperatures, high winds, vibration, heavy flexing, high-torsional stress, electromagnetic interference, and hydraulic oil within the Wind Turbine. Üntel's cables are proven and certified for use in similar demanding applications and are tried and tested by numerous customers worldwide.

The main applications and cable types for Üntel's cables within the onshore Wind Turbine include:

- Broad range of Power Cables for wind towers and loop cables that have high torsional resistance
- Nacelle cables range include Control Cables and Signal Cables
- Earthing Wires and Panel Wiring cables For Wind Tower bases and Nacelle Switchgears
- Grid Connection Cables or Array Cables
- MV Power Cables



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CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Separator	A suitable tape may be applied over the conductor
Insulation	EI4 type cross-linked elastomeric compound, EPR (EN 50363-1)
Inner Sheath	EM2 or EM3 type cross-linked elastomeric compound (EN 50363-2-1) <i>If outer sheath thickness is greater than 2,4 mm</i>
Outer Sheath	EM2 type cross-linked elastomeric compound (EN 50363-2-1)
Color	Black (other colors available on request)

MAIN CHARACTERISTICS

Construction	EN 50525-2-21, VDE 0285-2-21, IEC 60245-4
General Requirements	EN 50525-1, VDE 0285-525-1, IEC 60245-1
Guide to Use	EN 50565-1/2, VDE 0298-565-1
Electrical Tests	EN 50395, IEC 60245-2
Non - electrical Tests	EN 50396, IEC 60245-2
Conduct or Resistance	EN 60228, VDE 0295
Flame Retardant	IEC 60332-1-2, VDE 0482-332-1-2
Oil Resistant	EN 60811-404, VDE 0473-811-404
Torsion Test	2PFG 2630/06.17 Annex A

OPERATING CHARACTERISTICS

Rated Voltage	450/750 V (U ₀ /U)
AC Test Voltage	2,5 kV
Operating Temperature	
<i>In Flexing Use</i>	-25°C to +60°C
<i>In Flexing Use</i>	-40°C to +90°C

Conductor Short-Circuit Temp.	200°C (Max. 5 sec)
Min. Installation Temp.	-25°C
Min. Bending Radius	EN 50565-1 Tab. 3
Current Carrying Capacities	VDE 0298-4 Tab.13 , IEC 60364-5-52 Tab. B.52.12 & Tab. C.52.1

*It's allowed up to 1.000 V AC or DC using for fixed and protected installations.

APPLICATION

These rubber sheathed flexible cables are used as power and control cables in open-built plants, industry works, electrical tools and mobile equipments under heavy conditions and medium mechanical stress. Due to it's construction it can be used indoor, outdoor, wet, oily, damp places and explosion hazard areas. Üntel Kablo certifies the usage of this cable permanently submerged in water up to 10 bar (100 mts) and IPX8 tested by TUV



FLAME RETARDANT



OIL RESISTANT



UV RESISTANT



WEATHER RESISTANT



WATER RESISTANT



SUBMERSION
100 MT (ADR)

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	6,00	50	24	13,30
1x2,5	6,40	63	26	7,98
1x4	7,30	85	29	4,95
1x6	8,10	111	32	3,30
1x10	10,20	179	41	1,91
1x16	11,00	238	44	1,21
1x25	13,80	365	69	0,78
1x35	15,30	475	77	0,554
1x50	17,80	657	89	0,386
1x70	19,40	864	97	0,272
1x95	22,10	1118	133	0,206
1x120	24,40	1404	146	0,161
1x150	16,60	1698	83	0,129
1x185	29,70	2100	178	0,106
1x240	32,60	2396	196	0,0801
1x300	35,60	3256	214	0,0641
1x400	40,90	4377	245	0,0486
1x500	45,60	5632	274	0,0384
1x630	49,30	6975	296	0,0287
2x1	8,40	94	34	19,50
2x1,5	9,30	117	37	13,30
2x2,5	10,60	160	42	7,98
2x4	12,20	221	61	4,95
2x6	13,60	288	68	3,30
2x10	19,20	555	96	1,91
2x16	21,00	717	126	1,21
2x25	26,70	1124	160	0,78
2x35	29,40	1421	176	0,554
2x50	34,40	1968	206	0,386
2x70	38,30	2564	230	0,272
2x95	43,70	3330	262	0,206
3x1	9,10	114	36	19,50

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3x1,5	9,90	140	40	13,30
3x2,5	11,40	196	46	7,98
3x4	13,10	273	66	4,95
3x6	14,60	358	73	3,30
3x10	20,60	682	124	1,91
3x16	22,50	892	135	1,21
3x25	28,60	1390	172	0,78
3x35	31,70	1789	190	0,554
3x50	37,00	2474	222	0,386
3x70	40,90	3231	245	0,272
3x95	46,90	4220	281	0,206
3x120	51,60	5248	310	0,161
3x150	56,20	6319	337	0,129
3x185	62,30	7806	374	0,106
3x240	69,50	9963	417	0,0801
3x300	76,70	11894	460	0,0641
3x2,5+1,5	12,30	229	62	7,98
3x4+2,5	14,00	316	70	4,95
3x6+4	15,80	425	79	3,30
3x10+6	22,40	810	134	1,91
3x16+10	24,60	1070	148	1,21
3x25+16	31,40	1687	188	0,78
3x35+16	34,60	2114	208	0,554
3x50+25	40,60	2945	244	0,386
3x70+35	44,50	3820	267	0,272
3x95+50	51,00	5008	306	0,206
3x120+70	56,00	6267	336	0,161
3x150+70	60,90	7432	365	0,129
3x185+95	68,40	9296	410	0,106
3x240+120	76,50	11881	459	0,0801
3x300+150	84,40	14580	506	0,0641
4x1	10,10	143	40	19,50

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
4x1,5	11,00	175	44	13,30
4x2,5	12,60	244	63	7,98
4x4	14,50	342	73	4,95
4x6	16,30	456	82	3,30
4x10	22,60	845	136	1,91
4x16	24,70	1114	148	1,21
4x25	31,80	1760	191	0,78
4x35	35,20	2265	211	0,554
4x50	41,10	3136	247	0,386
4x70	45,00	4098	270	0,272
4x95	52,00	5393	312	0,206
4x120	56,80	6657	341	0,161
4x150	62,20	8067	373	0,129
4x185	69,70	10030	418	0,106
4x240	77,60	12786	466	0,0801
4x300	85,80	15799	515	0,0641
5x1	11,10	170	44	19,50
5x1,5	12,10	208	61	13,30
5x2,5	13,80	290	69	7,98
5x4	16,10	415	81	4,95
5x6	18,10	554	91	3,30
5x10	24,90	1033	149	1,91
5x16	27,40	1377	164	1,21
5x25	35,40	2183	212	0,78
5x35	38,90	2788	233	0,554
5x50	45,80	3902	275	0,386
5x70	50,20	5113	301	0,272
5x95	57,80	6693	347	0,206
6x1,5	14,40	289	72	13,30
6x2,5	16,20	1123	81	7,98
6x4	18,70	551	94	4,95
7x1,5	15,40	337	77	13,30

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
7x2,5	17,50	463	88	7,98
7x4	20,70	670	124	4,95
12x1,5	18,70	486	94	13,30
12x2,5	21,20	669	127	7,98
12x4	24,90	969	149	4,95
18x1,5	22,00	690	132	13,30
18x2,5	25,00	964	150	7,98
18x4	29,50	1407	177	4,95
24x1,5	25,70	894	154	13,30
24x2,5	29,40	1263	176	7,98
36x1,5	29,40	1245	176	13,30
36x2,5	33,80	1781	203	7,98





(Single cores only)



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Separator	A suitable tape may be applied over the conductor
Insulation	EI8 type cross-linked elastomeric compound (EN 50363-5)
Inner Sheath	EM8 or EM10 type elastomer compound. <i>If outer sheath thickness is greater than 2,4 mm</i>
Outer Sheath	EM8 type cross-linked elastomeric compound (EN 50363-6)
Color	Black (other colors available on request)

MAIN CHARACTERISTICS

Construction	EN 50525-3-21, VDE 0285-3-21, IEC 60245-4
General Requirements	EN 50525-1, VDE 0285-525-1, IEC 60245-1
Guide to Use	EN 50565-1/2, VDE 0298-565-1
Electrical Tests	EN 50395, IEC 60245-2
Non-electrical Tests	EN 50396, IEC 60245-2
Conductor Resistance	IEC 60228, VDE 0295
Halogen Content	EN 50363-5/6, EN 60574-1
Flame Retardant	IEC 60332-1-2, VDE 0482-332-1-2, IEC 60332-3-24
Oil Resistant	EN 60811-404, VDE 0473-811-404
Torsion Test	2PFG 2630/06.17 Annex A

OPERATING CHARACTERISTICS

Rated Voltage	450/750 V (U ₀ /U)
AC Test Voltage	2,5 kV
Operating Temperature (Without mechanical shocks)	
In Flexing Use	-5°C to +70°C
In Fixed Use	-20°C to +90°C
Conductor Short-Circuit Temp.	250°C (Max. 5 sec)
Min. Installation Temp.	-5°C
Min. Bending Radius	EN 50565-1 Tab. 3
Current Carrying Capacities	VDE 0298-4 Tab.13, IEC 60364-5-52 Tab. B.52.12 & Tab. C.52.1

* It's allowed up to 1.000 V AC or DC using for fixed and protected installations.

APPLICATION

These halogen-free flexible cables are used as power and control cables temporary indoor and permanent outdoor applications. It consist low grade smoke and corrosive gases and suitable to use for heavy conditions and medium mechanical stress. Due to it's construction it can be used wet, oily, damp places and explosion hazard areas.



FLAME RETARDANT



HALOGEN - FREE



LOW SMOKE



OIL RESISTANT



UV RESISTANT

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	6,20	56	25	13,30
1x2,5	6,80	71	27	7,98
1x4	7,70	97	31	4,95
1x6	8,40	123	34	3,30
1x10	10,30	191	41	1,91
1x16	11,50	260	46	1,21
1x25	14,20	388	71	0,78
1x35	15,50	502	78	0,554
1x50	17,80	680	89	0,386
1x70	20,10	927	121	0,272
1x95	22,50	1.185	135	0,206
1x120	24,60	1.470	148	0,161
1x150	26,80	1.797	161	0,129
1x185	29,50	2.167	177	0,106
1x240	33,00	2.833	198	0,0801
1x300	36,00	3.442	216	0,0641
1x400	41,30	4.459	248	0,0486
1x500	44,60	5.748	268	0,0384
1x630	47,80	7.178	287	0,0287
2x1	8,40	100	34	19,50
2x1,5	9,40	128	38	13,30
2x2,5	11,00	181	44	7,98
2x4	12,60	248	63	4,95
2x6	14,00	318	70	3,30
2x10	19,60	601	98	1,91
2x16	22,00	799	132	1,21
2x25	26,80	1.184	161	0,78
3x1	9,10	121	36	19,50
3x1,5	10,10	153	40	13,30
3x2,5	11,80	217	47	7,98
3x4	13,50	300	68	4,95
3x6	15,00	390	75	3,30

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3x10	21,10	731	127	1,91
3x16	23,60	980	142	1,21
3x25	29,20	1.483	175	0,78
3x35	31,70	1.873	190	0,554
3x50	36,60	2.546	220	0,386
3x70	41,30	3.429	248	0,272
3x95	46,60	4.413	280	0,206
3x120	50,90	5.430	305	0,161
3x150	55,50	6.614	333	0,129
3x185	61,30	8.021	368	0,106
3x240	69,80	10627	419	0,0801
3x300	77,10	13055	463	0,0641
4x1	10,10	150	40	19,50
4x1,5	11,20	191	45	13,30
4x2,5	13,00	269	65	7,98
4x4	14,90	374	75	4,95
4x6	16,70	493	84	3,30
4x10	23,00	894	138	1,91
4x16	25,80	1.211	155	1,21
4x25	32,40	1.867	194	0,78
4x35	35,10	2.361	211	0,554
4x50	40,50	3.206	243	0,386
4x70	45,90	4.352	275	0,272
4x95	51,80	5.646	311	0,206
4x120	56,50	6.888	339	0,161
4x150	61,80	8.424	371	0,129
4x185	68,40	10.231	410	0,106
4x240	77,80	13535	467	0,0801
4x300	86,00	16633	516	0,0641
5x1	11,10	182	44	19,50
5x1,5	12,40	235	62	13,30
5x2,5	14,40	331	72	7,98

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
5x4	16,70	469	84	4,95
5x6	19,00	622	95	3,30
5x10	25,30	1.091	152	1,91
5x16	28,60	1496	172	1,21
5x25	25,90	2302	155	0,78
6x1,5	14,60	317	73	13,30
6x2,5	16,80	438	84	7,98
6x4	19,30	609	97	4,95
7x1,5	14,60	327	73	13,30
7x2,5	16,80	454	84	7,98
7x4	19,30	635	97	4,95
12x1,5	19,20	531	96	13,30
12x2,5	22,10	739	133	7,98
12x4	25,80	1.061	155	4,95
18x1,5	22,40	742	134	13,30
18x2,5	26,00	1.050	156	7,98
18x4	30,30	1507	182	4,95
24x1,5	26,20	967	157	13,30
24x2,5	30,60	1.382	184	7,98
36x1,5	30,00	1.344	180	13,30
36x2,5	35,20	1.944	211	7,98



CABLE STRUCTURE

Conductor	Electrolytic annealed, Class 5 annealed bare copper wires
Separator	A suitable may be applied over the conductor
Insulation	3GI3 Type Rubber Compound. (acc. To DIN VDE 0250 Part 20)
Sheath	Rubber Compound
Color	Black

MAIN CHARACTERISTICS

Construction	Based On DIN VDE 0250
Flame Retardant	IEC 60332-1-2
Oil Resistant	IEC 60811-404
UV Resistant	

OPERATING CHARACTERISTICS

Operating Temperature	
<i>In Flexing Use</i>	-40°C
<i>In Flexing Use</i>	-40°C
Conductor Short-Circuit Temp.	250°C
Conductor Operating Temperature	90°C
Min. Bending Radius	VDE 0298-3 Tab.3
Current Carrying Capacities	VDE 0298-4 Tab.3 & Tab.4

0,6/1 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x70	19,7	920	79	0,272
1x95	22,1	1.185	88	0,206
1x120	24,2	1.473	97	0,161
1x150	26,4	1.790	106	0,129
1x185	29,1	2.165	116	0,106
1x240	32,6	2.840	130	0,0801
1x300	35,6	3.450	142	0,0641
1x400	40,9	4.512	164	0,0486
1x500	44,2	5.831	177	0,0384
1x630	47,4	7.300	190	0,0287

1,8/3 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x70	21,1	992	84	0,272
1x95	23,7	1.271	95	0,206
1x120	25,8	1.567	103	0,161
1x150	27,6	1.860	110	0,129
1x185	30	2.210	120	0,106
1x240	33,4	2.900	134	0,0801
1x300	36,2	3.525	145	0,0641
1x400	41,3	4.550	165	0,0486
1x500	44,6	5.873	178	0,0384
1x630	47,8	7.344	191	0,0287



CABLE STRUCTURE

Conductor	Electrolytic annealed, Class 5 annealed stranded plain copper wires . (acc. to IEC 60228)
Conductor Screen	Extruded Inner Semi-Conductive Rubber Compound.
Insulation	3GI3 Type EPR Compound.
Conductor Screen	Extruded Outer Semi-Conductive Rubber Compound.
Core Arrangement	Three Core design split into in the interstices.
Inner Sheath	Gm1b Type Elastomer Compound
Outer Sheath	Special Halogen - Free Rubber Compound
Color	Red

MAIN CHARACTERISTICS

Construction	Based On DIN VDE 0250-813
Flame Retardant	IEC 60332-1-2, DIN EN 60332-1-2
Oil Resistant	IEC 60811-404
Torsion Test	2PFG 2630/06.17 Annex A

OPERATING CHARACTERISTICS

Operating Temperature	
<i>In Flexing Use</i>	-40°C...+80°C
<i>In Flexing Use</i>	-30°C...+80°C
Conductor Short-Circuit Temp.	250°C
Conductor Operating Temperature	90°C
Min. Bending Radius	VDE 0298-3 Tab.3
Torsion Test Method	2PFG 2630/06.17
Torsion Test Temperature	-40°C
Torsion Angle	150°

6/10 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3 x 50 + 3 x 25/3	44,7	3.300	447	0,393
3 x 70 + 3 x 35/3	50,2	4.440	502	0,277
3 x 95 + 3 x 50/3	55,1	5.560	551	0,21
3 x 120 + 3 x 50/3	58,7	6.570	587	0,164
3 x 150 + 3 x 70/3	61,7	7.800	617	0,132
3 x 185 + 3 x 95/3	67,7	9.220	677	0,108

8,7/15 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3 x 50 + 3 x 25/3	50	3.960	500	0,393
3 x 70 + 3 x 35/3	55	5.050	550	0,277
3 x 95 + 3 x 50/3	58,4	6.000	584	0,21
3 x 120 + 3 x 50/3	64	7.200	640	0,164
3 x 150 + 3 x 70/3	67	8.520	670	0,132
3 x 185 + 3 x 95/3	71	9.950	710	0,108

12/20 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3 x 50 + 3 x 25/3	53,5	4.360	535	0,393
3 x 70 + 3 x 35/3	57,6	5.280	576	0,277
3 x 95 + 3 x 50/3	61	6.330	610	0,21
3 x 120 + 3 x 50/3	66,5	7.800	665	0,164
3 x 150 + 3 x 70/3	70	8.900	700	0,132
3 x 185 + 3 x 95/3	75,4	10.370	754	0,108

20/35 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3 x 50 + 3 x 25/3	67,5	6.480	675	0,393
3 x 70 + 3 x 35/3	70,7	7.180	707	0,277
3 x 95 + 3 x 50/3	76	8.890	760	0,21
3 x 120 + 3 x 50/3	80	10.160	800	0,164
3 x 150 + 3 x 70/3	82,7	11.160	827	0,132
3 x 185 + 3 x 95/3	90	13.630	900	0,108



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Separator	A suitable tape may be applied over the conductor
Insulation	EI7 type cross-linked elastomeric compound (EN 50363-1)
Inner Sheath	EM6 or EM7 type cross-linked elastomeric compound (EN 50363-2-1) <i>If outer sheath thickness is greater than 2,4 mm</i>
Outer Sheath	EM7 type cross-linked elastomeric compound (EN 50363-2-1)
Color	Black (other colors available on request)

MAIN CHARACTERISTICS

Construction	EN 50525-2-21, VDE 0285-2-21, IEC 60245-4
General Requirements	EN 50525-1, VDE 0285-525-1, IEC 60245-1
Guide to Use	EN 50565-1/2, VDE 0298-565-1
Electrical Tests	EN 50395, IEC 60245-2
Non-electrical Tests	EN 50396, IEC 60245-2
Conduc or Resistance	IEC 60228, VDE 0295
Flame Retardant	IEC 60332-1-2, VDE 0482-332-1-2
Oil Resistant	EN 60811-404, VDE 0473-811-404

OPERATING CHARACTERISTICS

Rated Voltage	450/750 V (U ₀ /U)
AC Test Voltage	2,5 kV
Operating Temperature	
In Flexing Use	-25°C to +90°C
In Fixed Use	-40°C to +90°C
Conductor Short-Circuit Temp.	250°C (Max. 5 sec)
Min. Installation Temp.	-25°C
Min. Bending Radius	EN 50565-1 Tab. 3
Current Carrying Capacities	VDE 0298-4 Tab.13 , IEC 60364-5-52 Tab. B.52.12

* It's allowed up to 1.000 V AC or DC using for fixed and protected installations.

APPLICATION

These heat resistant rubber sheathed flexible cables are used as power and control cables in wind turbines, agricultural and industrial workshops. They are suitable for heavy duty applications and resistant to both mechanical abrasion and high temperatures. Due to its construction it can be used indoor, outdoor, wet, oily, damp places and explosion hazard areas.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	6,00	50	24	13,30
1x2,5	6,40	63	26	7,98
1x4	7,30	85	29	4,95
1x6	8,10	111	32	3,30
1x10	10,20	179	41	1,91
1x16	11,00	238	44	1,21
1x25	13,80	365	69	0,78
1x35	15,30	475	77	0,554
1x50	17,80	657	89	0,386
1x70	19,40	864	97	0,272
1x95	22,10	1118	133	0,206
1x120	24,40	1404	146	0,161
1x150	16,60	1698	83	0,129
1x185	29,70	2100	178	0,106
1x240	32,60	2396	196	0,0801
1x300	35,60	3256	214	0,0641
1x400	40,90	4377	245	0,0486
1x500	45,60	5632	274	0,0384
1x630	49,30	6975	296	0,0287
2x1	8,40	94	34	19,50
2x1,5	9,30	117	37	13,30
2x2,5	10,60	160	42	7,98
2x4	12,20	221	61	4,95
2x6	13,60	288	68	3,30
2x10	19,20	555	96	1,91
2x16	21,00	717	126	1,21
2x25	26,70	1124	160	0,78
2x35	29,40	1421	176	0,554
2x50	34,40	1968	206	0,386
2x70	38,30	2564	230	0,272
2x95	43,70	3330	262	0,206
3x1	9,10	114	36	19,50

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 200C (ohm / km)
3x1,5	9,90	140	40	13,30
3x2,5	11,40	196	46	7,98
3x4	13,10	273	66	4,95
3x6	14,60	358	73	3,30
3x10	20,60	682	124	1,91
3x16	22,50	892	135	1,21
3x25	28,60	1390	172	0,78
3x35	31,70	1789	190	0,554
3x50	37,00	2474	222	0,386
3x70	40,90	3231	245	0,272
3x95	46,90	4220	281	0,206
3x120	51,60	5248	310	0,161
3x150	56,20	6319	337	0,129
3x185	62,30	7806	374	0,106
3x240	69,50	9963	417	0,0801
3x300	76,70	11894	460	0,0641
3x2,5+1,5	12,30	229	62	7,98
3x4+2,5	14,00	316	70	4,95
3x6+4	15,80	425	79	3,30
3x10+6	22,40	810	134	1,91
3x16+10	24,60	1070	148	1,21
3x25+16	31,40	1687	188	0,78
3x35+16	34,60	2114	208	0,554
3x50+25	40,60	2945	244	0,386
3x70+35	44,50	3820	267	0,272
3x95+50	51,00	5008	306	0,206
3x120+70	56,00	6267	336	0,161
3x150+70	60,90	7432	365	0,129
3x185+95	68,40	9296	410	0,106
3x240+120	76,50	11881	459	0,0801
3x300+150	84,40	14580	506	0,0641
4x1	10,10	143	40	19,50

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 200C (ohm / km)
4x1,5	11,00	175	44	13,30
4x2,5	12,60	244	63	7,98
4x4	14,50	342	73	4,95
4x6	16,30	456	82	3,30
4x10	22,60	845	136	1,91
4x16	24,70	1114	148	1,21
4x25	31,80	1760	191	0,78
4x35	35,20	2265	211	0,554
4x50	41,10	3136	247	0,386
4x70	45,00	4098	270	0,272
4x95	52,00	5393	312	0,206
4x120	56,80	6657	341	0,161
4x150	62,20	8067	373	0,129
4x185	69,70	10030	418	0,106
4x240	77,60	12786	466	0,0801
4x300	85,80	15799	515	0,0641
5x1	11,10	170	44	19,50
5x1,5	12,10	208	61	13,30
5x2,5	13,80	290	69	7,98
5x4	16,10	415	81	4,95
5x6	18,10	554	91	3,30
5x10	24,9	1033	149	1,91
5x16	27,4	1377	164	1,21
5x25	35,4	2183	212	0,78
5x35	38,9	2788	233	0,554
5x50	45,8	3902	275	0,386
5x70	50,2	5113	301	0,272
5x95	57,8	6693	347	0,206
6x1,5	14,4	289	72	13,30
6x2,5	16,2	1123	81	7,98
6x4	18,7	551	94	4,95
7x1,5	15,4	337	77	13,30

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 200C (ohm / km)
7x2,5	17,5	463	88	7,98
7x4	20,7	670	124	4,95
12x1,5	18,7	486	94	13,30
12x2,5	21,2	669	127	7,98
12x4	24,9	969	149	4,95
18x1,5	22	690	132	13,30
18x2,5	25	964	150	7,98
18x4	29,5	1407	177	4,95
24x1,5	25,7	894	154	13,30
24x2,5	29,4	1263	176	7,98
36x1,5	29,4	1245	176	13,30
36x2,5	33,8	1781	203	7,98





CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded tinned copper wires
Separator	A suitable tape may be applied over the conductor, with semi-conductive layer for 3,6/6 kV
Insulation	3GI3 type cross-linked elastomeric compound (VDE 0207 - Part 20)
Sheath	5GM3 type cross-linked elastomeric compound (VDE 0207 - Part 21)
Color	Black

MAIN CHARACTERISTICS

Construction	VDE 0250-602
General Requirements	VDE 0250-1
Guide to Use	VDE 0298-3, VDE 0298-4
Electrical Tests	VDE 0472- 501, 508, 503
Non-electrical Tests	VDE 0472-401, 402, 602, 303, 615, 803, 804
Conductor Resistance	IEC 60228, VDE 0295
Flame Retardant	IEC 60332-1-2, VDE 0482-332-1-2
Oil Resistant	VDE 0473-811-404, EN 60811-404

OPERATING CHARACTERISTICS

Rated Voltage	600/1000 V - 1800/3000 V - 3600/6000 V (U_0/U)
AC Test Voltage	4 kV / 6kV / 11 kV
Operating Temperature	
<i>In Flexing Use</i>	-25°C to +90°C
<i>In Fixed Use</i>	-40°C to +90°C
Max. Conductor Operating Temp.	90°C
Conductor Short-Circuit Temp.	250°C (Max. 5 sec)
Min. Installation Temp.	-25°C
Min. Bending Radius	VDE 0298-3 Tab.3
Current Carrying Capacities	VDE 0298-4 Tab. 15

APPLICATION

Especially suitable for connections of short circuit and grounding. They are used in railway vehicles, buses, switch cabinets, continuously operating installations, pipes, trays and in closed electrical trays. These cables can be used as connection power cable in transformer substations.



FLAME RETARDANT



OIL RESISTANT



UV RESISTANT

0,6 / 1kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	4,80	36	14	13,70
1x2,5	5,40	49	16	8,21
1x4	6,10	69	18	5,09
1x6	6,60	88	20	3,39
1x10	8,10	140	24	1,95
1x16	9,10	197	27	1,24
1x25	11,40	300	34	0,795
1x35	12,70	404	51	0,565
1x50	14,60	551	58	0,393
1x70	16,50	764	66	0,277
1x95	18,45	981	74	0,21
1x120	20,15	1223	81	0,164
1x150	21,95	1504	88	0,132
1x185	24,65	1840	99	0,108
1x240	27,95	2449	112	0,0817
1x300	30,75	3004	123	0,0654

1,8 / 3kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 200C (ohm / km)
1x1,5	5,80	48	17	13,70
1x2,5	6,20	60	19	8,21
1x4	6,70	77	20	5,09
1x6	7,20	97	22	3,39
1x10	8,70	151	26	1,95
1x16	9,70	210	29	1,24
1x25	12,60	333	50	0,795
1x35	13,50	428	54	0,565
1x50	15,00	565	60	0,393
1x70	16,90	780	68	0,277
1x95	19,25	1015	77	0,21
1x120	20,95	1261	84	0,164
1x150	22,75	1545	91	0,132
1x185	25,05	1863	100	0,108
1x240	28,38	2475	114	0,0817
1x300	31,15	3033	125	0,0654

3,6/6 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	8,70	84	26	13,70
1x2,5	9,10	98	27	8,21
1x4	9,60	117	29	5,09
1x6	11,10	164	33	3,39
1x10	11,60	200	35	1,95
1x16	13,10	278	52	1,24
1x25	15,40	394	62	0,795
1x35	16,40	496	66	0,565
1x50	17,90	639	72	0,393
1x70	22,40	987	90	0,277
1x95	24,60	1233	98	0,21
1x120	23,50	1335	94	0,164
1x150	24,90	1602	100	0,132
1x185	26,80	1901	107	0,108
1x240	30,50	2539	122	0,0817
1x300	33,10	3088	132	0,0654





CABLE STRUCTURE

Conductor	Electrolytic annealed, Class 5 tinned copper wires
Separator	A suitable may be applied over the conductor, with Semi-conductive layer for 3,6/6 kV
Insulation	Special elastomer compound
Sheath	HM3 Type Halogen-Free Compound
Color	Black

MAIN CHARACTERISTICS

Construction	DIN VDE 0250-606
General Requirements	VDE 0250-1
Guide to Use	VDE 0298-3
Electrical Tests	DIN VDE 0472-501, 502, 503
Non - electrical Tests	DIN VDE 0472-401, 402, 602, 303, 615
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Under Fire Conditions Tests	DIN VDE 0472-804

OPERATING CHARACTERISTICS

Operating Temperature	
<i>In Flexing Use</i>	-25°C to +70°C
<i>In Flexing Use</i>	-40°C to +90°C
Conductor Short-Circuit Temp.	250°C
Conductor Operating Temperature	90°C
Min. Bending Radius	VDE 298-3 Tab.3
Current Carrying Capacities	VDE 0298-4 Tab.3 & Tab.4

APPLICATION

Especially suitable for connections of short circuit and grounding. They are used in wind turbines, rail vehicles, buses, switch cabinets, continuously operating installations, Pipes and pipe work ducts as well as in dry interiors.

0,6/1 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	4,5	35	14	13,7
1x2,5	5,2	48	16	8,21
1x4	5,9	66	18	5,09
1x6	6,4	86	19	3,39
1x10	8,1	140	24	1,95
1x16	8,8	193	26	1,24
1x25	11,4	300	34	0,795
1x35	12,9	407	52	0,565
1x50	15	565	60	0,393
1x70	16,2	750	65	0,277
1x95	18,5	1005	74	0,21
1x120	20,4	1225	82	0,164
1x150	22,6	1505	90	0,132
1x185	25,3	1868	101	0,108
1x240	28	2.395	112	0,0817
1x300	30,8	3.080	123	0,0654

1,8/3 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	5,7	48	17	13,7
1x2,5	6,2	60	19	8,21
1x4	6,7	78	20	5,09
1x6	7,2	100	22	3,39
1x10	8,7	154	26	1,95
1x16	9,7	215	29	1,24
1x25	12,6	338	50	0,795
1x35	13,5	436	54	0,565
1x50	15	576	60	0,393
1x70	16,9	798	68	0,277
1x95	19,3	1045	77	0,21
1x120	21	1299	84	0,164
1x150	22,8	1596	91	0,132
1x185	25,1	1923	100	0,108
1x240	28,4	2537	114	0,0817
1x300	31,2	3108	125	0,0654

3,6/6 kV

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	11,8	120	35	13,7
1x2,5	12,3	135	49	8,21
1x4	12,8	157	51	5,09
1x6	13,3	182	53	3,39
1x10	14,4	237	58	1,95
1x16	15,8	320	63	1,24
1x25	18,1	443	72	0,795
1x35	19	546	76	0,565
1x50	20,5	696	82	0,393
1x70	22,4	927	90	0,277
1x95	24,6	1171	98	0,21
1x120	26,3	1432	105	0,164
1x150	28,1	1739	112	0,132
1x185	30	2065	120	0,108
1x240	33,7	2727	135	0,0817
1x300	37,3	3284	149	0,0654





CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	PVC compound, Type TII (EN 50363-3)
Color	All colors available

MAIN CHARACTERISTICS

Construction	EN 50525-2-31, IEC 60227-3
General Requirements	EN 50525-1, HD 21.9 S2, EN 50575 EN
Guide to Use	50565-1/2
Electrical Tests	EN 50395
Non - electrical Tests	EN 50396
Conduct or Resistance	IEC 60228, VDE 0295
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	H05V-K 300/500V H07V-K 450/750 V (U ₀ /U)
AC Test Voltage	2 kV
Working Temperature (Without mechanical shocks)	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Maximum allowable time 5 sec)
Min. Installation Temp.	5°C
Min. Bending Radius	EN 50565-1 Tab. 3
Current Carrying Capacities	VDE 0298-4 Tab. 3 & Tab. 11 IEC 60364-5-52 Tab. B52.2 & B52.4 & B52.10

APPLICATION

They are used as installation cables in various electronic equipments and in switchboards. They can be used on and under plaster or must be laid in pipes.



FLAME RETARDANT

H05V-K

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 200C (ohm / km)
1x0,50	2,10	9	8	39,00
1x0,75	2,30	12	9	26,00
1x1	2,50	14	10	19,50

H07V-K

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 200C (ohm / km)
1x1,5	2,90	19	12	13,30
1x2,5	3,55	30	14	7,98
1x4	4,05	46	16	4,95
1x6	4,60	63	18	3,30
1x10	6,10	108	24	1,91
1x16	7,10	161	28	1,21
1x25	9,20	250	46	0,780
1x35	10,10	339	51	0,554
1x50	12,00	475	60	0,386
1x70	13,90	678	83	0,272
1x95	15,90	885	95	0,206
1x120	17,60	1118	106	0,161
1x150	19,40	1390	116	0,129
1x185	21,70	1692	130	0,106
1x240	25,00	2280	150	0,0801
1x300	27,80	2819	167	0,0641



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	E15 type cross-linked elastomeric compound, (EN 50363-5)
Color	All colors available

MAIN CHARACTERISTICS

Construction	EN 50525-3-41, VDE 0285-525-3-41, IEC 60245-4
General Requirements	EN 50525-1, VDE 0285-525-1, IEC 60245-1
Guide to Use	EN 50565-1/2, VDE 0298-565-1
Electrical Tests	EN 50395, IEC 60245-2
Non-electrical Tests	EN 50396, IEC 60245-2
Conductor Resistance	IEC 60228, VDE 0295
Halogen Content	EN 50363 - 5, IEC 60764 - 1
Smoke Emission	IEC 61034 /1 - 2, EN 50268 /1 - 2
Flame Retardant	IEC 60332 - 1 - 2, VDE 0482 - 332 - 1 - 2

OPERATING CHARACTERISTICS

Rated Voltage	H05Z-K 300/500V - H07Z-K 450/750V (U ₀ /U)
AC Test Voltage	2,5 kV
Operating Temperature	-40°C to +90°C
Conductor Short-Circuit Temp.	250°C (Max. 5 sec.)
Min. Installation Temp.	-5°C
Min. Bending Radius	EN 50565-1 Tab. 3
Current Carrying Capacities	VDE 0298-4 Tab.5 & 11, IEC 60364-5-52 Tab. B.52.12

APPLICATION

These halogen-free cables are used in internal installations only in dry and clean environments. Due to its characteristics they are flame retardant and self extinguishing and produce no corrosive gases.



HALOGEN - FREE



LOW SMOKE



FLAME RETARDANT

H05Z-K

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x0,50	2,10	9	6	39,00
1x0,75	2,30	12	7	26,00
1x1	2,50	14	8	19,50

H07Z-K

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	2,90	19	9	13,30
1x2,5	3,55	30	11	7,98
1x4	4,05	45	12	4,95
1x6	4,60	63	14	3,30
1x10	6,10	108	18	1,91
1x16	7,10	160	21	1,21
1x25	9,20	249	28	0,78
1x35	10,10	338	30	0,554
1x50	12,00	474	36	0,386
1x70	13,90	677	56	0,272
1x95	15,90	884	64	0,206
1x120	17,60	1117	70	0,161
1x150	19,40	1388	78	0,129
1x185	21,70	1689	87	0,106
1x240	25,00	2278	100	0,0801



ClassNK



CABLE STRUCTURE

Conductor	Electrolytic, stranded, annealed bare copper wire IEC 60228 Class 5 (Class 2 and / or tinned on request)
Insulation	Halogen free, flame retardant, cross linked polyolefin compound (HF90).
Color	Black, red, blue and other colours

MAIN CHARACTERISTICS

Construction	IEC 60092 / 353
Tests And Material	IEC 60092 / 350-360
Flame Retardant	IEC 60332 / 1-2, IEC 60332 / 3-22 Cat A
Halogen Content	IEC 60754 / 1-2
Smoke Emission	IEC 61034 / 1-2 (DIN EN 50268 / 1-2)
Ozon Resistance	IEC60811 / 403
Temperature Range	-40°C / + 90°C
Min. Bending Radius (fixed)	4 x D
Rated Voltage	0,6 / 1 kV
Test Voltage	3,5 kV

Minimum recommended installation temperature -15°C For core identification, diameter tolerances and other details see technical information section

APPLICATION

Fixed wiring in control panels, switch boards and various electrical enclosures and also used as fixed installation cables in various electromechanical and electronic equipments.



HALOGEN - FREE



LOW SMOKE



FLAME RETARDANT



RATED VOLTAGE



TEST VOLTAGE



WORKING TEMPERATURE



MIN. BENDING RADIUS



NO CORROSIVITY

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Bending Radius Fixed Min. (mm)	Max Resistance of Conductors at 20°C (ohm / km)	Current Carrying Capacity at 45°C (A)
1 x 1	2,7	15	11	19,5	16
1 x 1,5	2,9	19	12	13,3	21
1 x 2,5	3,2	28	13	7,98	29
1 x 4	3,7	41	15	4,95	39
1 x 6	4,2	59	17	3,3	50
1 x 10	5,5	98	22	1,91	71
1 x 16	6,2	148	25	1,21	93
1 x 25	8,6	240	35	0,78	122
1 x 35	9,7	330	39	0,554	152
1 x 50	11,6	464	47	0,386	195
1 x 70	13	648	53	0,272	240
1 x 95	14,9	841	60	0,206	286
1 x 120	17	1076	68	0,161	332
1 x 150	18,8	1336	76	0,129	382
1 x 185	21,5	1675	86	0,106	432
1 x 240	24	2172	96	0,0801	508
1 x 300	26,6	2703	107	0,0641	590



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	PVC compound, TI2 type (EN 50363-3)
Core Identification	JZ: Black cores with a green yellow core OZ: Black cores without a green yellow core
Sheath	PVC compound, TM2 type (EN 50363-4-1)
Color	Grey

MAIN CHARACTERISTICS

Construction	Based on EN 50525-2-11 and BA 14112019
General Requirements	EN 50525-1/2, VDE 0245-201, EN 50575
Guide to Use	EN 50565-1/2, TSE K 373
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	300/500 V (U ₀ /U)
AC Test Voltage	2 kV
Working Temperature	
<i>In Flexing Use</i>	-5°C to +70°C
<i>In Fixed Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	150°C (Max. 5 sec)
Min. Installation Temp.	-5 °C
Min. Bending Radius	Based on EN 50565-1 Tab. 3
Current Carrying Capacities	Based on VDE 0298-4 Tab.11

APPLICATION

These flexible cables are used as control cables for machines, production lines, control systems, assembly lines, measuring systems and data processing where there is low mechanical stress exist. They can be used in dry, wet and damp places inside and also outdoor if protected from UV.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
2x0,50	5,00	37	25	39,00
2x0,75	5,40	44	27	26,00
2x1	5,80	52	29	19,50
2x1,5	6,20	63	31	13,30
2x2,5	6,81	85	34	7,98
2x4	8,39	133	42	4,95
2x6	10,00	193	50	3,30
2x10	13,20	330	79	1,91
3x0,50	5,29	45	26	39,00
3x0,75	5,70	52	29	26,00
3x1	6,15	64	31	19,50
3x1,5	6,55	78	33	13,30
3x2,5	7,39	111	37	7,98
3x4	8,92	170	45	4,95
3x6	10,62	246	53	3,30
3x10	15,25	466	92	1,91
3x16	16,73	637	100	1,21
3x16+10	18,40	769	110	1,21
3x25+16	23,76	1213	143	0,780
3x35+16	26,20	1539	157	0,554
3x50+25	31,90	2240	191	0,386
3x50+35	32,60	2354	196	0,386
3x70+35	35,00	2969	210	0,272
3x95+50	44,80	4510	269	0,206
4x0,50	5,75	54	29	39,00
4x0,75	6,20	64	31	26,00
4x1	6,70	79	34	19,50
4x1,5	7,40	101	37	13,30
4x2,5	8,10	140	41	7,98
4x4	10,01	219	50	4,95
4x6	11,71	312	59	3,30
4x10	17,10	599	103	1,91

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
4x16	18,82	818	113	1,21
4x25	24,94	1312	150	0,780
5x0,50	6,30	63	32	39,00
5x0,75	6,80	77	34	26,00
5x1	7,51	97	38	19,50
5x1,5	8,10	119	41	13,30
5x2,5	8,90	168	45	7,98
5x4	11,00	263	55	4,95
5x6	13,10	383	79	3,30
6x0,5	6,70	73	34	39,00
6x0,75	7,50	93	38	26,00
6x1	8,10	114	41	19,50
6x1,5	8,80	142	44	13,30
6x2,5	9,80	204	49	7,98
7x0,5	6,70	77	34	39,00
7x0,75	7,50	98	38	26,00
7x1	8,10	120	41	19,50
7x1,5	8,80	151	44	13,30
7x2,5	9,80	219	49	7,98
8x0,50	7,70	98	39	39,00
8x0,75	8,60	125	43	26,00
8x1	9,30	153	47	19,50
8x1,5	10,60	205	53	13,30
8x2,5	11,50	280	58	7,98
10x0,50	8,60	112	43	39,00
10x0,75	9,40	138	47	26,00
10x1	10,40	175	52	19,50
10x1,5	11,30	218	57	13,30
10x2,5	12,60	317	76	7,98
12x0,50	8,90	127	45	39,00
12x0,75	10,00	162	50	26,00
12x1	10,80	200	54	19,50

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
12x1,5	11,60	250	58	13,30
12x2,5	13,10	368	79	7,98
14x0,50	9,36	143	47	39,00
14x0,75	10,40	182	52	26,00
14x1	11,30	226	57	19,50
14x1,5	12,80	302	77	13,30
14x2,5	13,70	419	82	7,98
16x0,50	10,00	166	50	39,00
16x0,75	11,00	207	55	26,00
16x1	11,90	256	60	19,50
16x1,5	13,50	342	81	13,30
16x2,5	14,70	483	88	7,98
18x0,50	10,50	184	53	39,00
18x0,75	11,50	230	58	26,00
18x1	12,70	291	76	19,50
18x1,5	14,20	381	85	13,30
18x2,5	15,40	538	92	7,98
19x0,50	10,50	187	53	39,00
19x0,75	11,50	234	58	26,00
19x1	12,70	298	76	19,50
19x1,5	14,20	391	85	13,30
19x2,5	15,40	554	92	7,98
24x0,50	12,40	240	74	39,00
24x0,75	13,60	299	82	26,00
24x1	15,00	379	90	19,50
24x1,5	16,80	499	101	13,30
24x2,5	18,20	706	109	7,98
25x0,50	12,70	256	76	39,00
25x0,75	14,00	320	84	26,00
25x1	15,40	404	92	19,50
25x1,5	17,40	540	104	13,30
25x2,5	18,70	751	112	7,98

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
30x0,50	13,10	286	79	39,00
30x0,75	14,40	358	86	26,00
30x1	15,90	455	95	19,50
30x1,5	18,00	609	108	13,30
30x2,5	19,50	865	117	7,98
32x0,50	13,60	307	82	39,00
32x0,75	15,20	393	91	26,00
32x1	16,50	490	99	19,50
32x1,5	18,70	655	112	13,30
32x2,5	20,20	929	121	7,98
36x0,50	14,10	338	85	39,00
36x0,75	15,70	431	94	26,00
36x1	17,30	547	104	19,50
36x1,5	19,60	731	118	13,30
36x2,5	21,00	1028	126	7,98
40x0,50	14,90	391	89	39,00
40x0,75	16,40	490	98	26,00
40x1	18,00	621	108	19,50
40x1,5	20,40	830	122	13,30
40x2,5	22,10	1176	133	7,98





CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	PVC compound, TI2 type (EN 50363-3)
Core Identification	JZ: Black cores with a green yellow core OZ: Black cores without a green yellow core
Seperator	Seperating foil (Polyster tape)
Screen	Tinned copper wire braiding
Sheath	PVC compound, TM2 type (EN 50363-4-1)
Color	Grey

MAIN CHARACTERISTICS

Construction	Based on EN 50525-2-11 and BA 14112019
General Requirements	EN 50525-1/2, VDE 0245-201, EN 50575
Guide to Use	EN 50565-1/2, TSE K 373
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	300/500 V (U ₀ /U)
AC Test Voltage	2 kV
Working Tempetature	
<i>In Flexing Use</i>	-5°C to +70°C
<i>In Fixed Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	150°C (Max. 5 sec)
Min. Installation Temp.	-5 °C
Min. Bending Radius	Based on EN 50565-1 Tab. 3
Current Carrying Capacities	Based on VDE 0298-4 Tab.11

APPLICATION

These flexible cables are used as signal and control cables for machines, production lines, control systems, assembly lines, measuring systems and data processing where there is low mechanical stress exist. They can be used in dry, wet and damp places inside and also outdoor if protected from UV. It's shielded for against electromagnetic disturbances.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
2x0,50	5,50	39	28	39,00
2x0,75	5,90	46	30	26,00
2x1	6,30	53	32	19,50
2x1,5	6,70	62	34	13,30
2x2,5	7,38	84	37	7,98
2x4	8,98	127	45	4,95
2x6	10,38	173	52	3,30
2x10	13,58	310	81	1,91
3x0,50	5,80	48	29	39,00
3x0,75	6,30	56	32	26,00
3x1	6,70	67	34	19,50
3x1,5	7,18	82	36	13,30
3x2,5	8,08	114	40	7,98
3x4	9,58	169	48	4,95
3x6	11,28	240	56	3,30
3x10	14,48	394	87	1,91
4x0,50	6,30	57	32	39,00
4x0,75	6,70	68	34	26,00
4x1	7,28	83	36	19,50
4x1,5	7,78	101	39	13,30
4x2,5	8,68	142	43	7,98
4x4	10,38	212	52	4,95
4x6	12,28	304	74	3,30
4x10	15,88	499	95	1,91
5x0,50	6,80	69	34	39,00
5x0,75	7,38	85	37	26,00
5x1	8,18	107	41	19,50
5x1,5	8,68	128	43	13,30
5x2,5	9,48	175	47	7,98
5x4	11,58	269	58	4,95
5x6	13,68	384	82	3,30
5x10	17,68	635	106	1,91

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
6x0,5	7,38	82	37	39,00
6x0,75	8,08	103	40	26,00
6x1	8,68	123	43	19,50
6x1,5	9,38	150	47	13,30
6x2,5	10,18	207	51	7,98
7x0,5	7,38	86	37	39,00
7x0,75	8,08	108	40	26,00
7x1	8,68	130	43	19,50
7x1,5	9,38	160	47	13,30
7x2,5	10,18	222	51	7,98
8x0,50	8,58	113	43	39,00
8x0,75	9,28	136	46	26,00
8x1	9,98	163	50	19,50
8x1,5	10,98	206	55	13,30
8x2,5	11,98	282	60	7,98
10x0,50	9,18	121	46	39,00
10x0,75	9,98	147	50	26,00
10x1	10,98	183	55	19,50
10x1,5	11,88	227	59	13,30
10x2,5	12,98	317	78	7,98
12x0,50	9,48	137	47	39,00
12x0,75	10,38	168	52	26,00
12x1	11,38	210	57	19,50
12x1,5	12,18	259	73	13,30
12x2,5	13,68	374	82	7,98
14x0,50	9,88	153	49	39,00
14x0,75	10,98	193	55	26,00
14x1	11,88	237	59	19,50
14x1,5	12,78	295	77	13,30
14x2,5	14,28	426	86	7,98
16x0,50	10,38	173	52	39,00
16x0,75	11,58	218	58	26

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
16x1	12,48	267	75	19,50
16x1,5	13,68	340	82	13,30
16x2,5	15,08	484	90	7,98
18x0,50	11,08	197	55	39,00
18x0,75	12,08	242	72	26,00
18x1	13,08	297	78	19,50
18x1,5	14,38	378	86	13,30
18x2,5	15,78	539	95	7,98
19x0,50	11,08	200	55	39,00
19x0,75	12,08	246	72	26,00
19x1	13,08	304	78	19,50
19x1,5	14,38	388	86	13,30
19x2,5	15,78	556	95	7,98
24x0,50	12,78	247	77	39,00
24x0,75	14,18	312	85	26,00
24x1	15,38	385	92	19,50
24x1,5	16,88	490	101	13,30
24x2,5	18,90	723	113	7,98
25x0,50	13,08	263	78	39,00
25x0,75	14,58	333	87	26,00
25x1	15,78	409	95	19,50
25x1,5	17,18	520	103	13,30
25x2,5	19,40	766	116	7,98
30x0,50	13,68	300	82	39,00
30x0,75	14,98	372	90	26,00
30x1	16,48	469	99	19,50
30x1,5	17,78	590	107	13,30
30x2,5	20,00	874	120	7,98
32x0,50	14,18	319	85	39,00
32x0,75	15,58	397	93	26,00
32x1	17,08	500	102	19,50
32x1,5	18,60	637	112	13,30

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
32x2,5	20,80	932	125	7,98
36x0,50	14,68	352	88	39,00
36x0,75	16,28	446	98	26,00
36x1	17,68	554	106	19,50
36x1,5	19,50	717	117	13,30
36x2,5	21,70	1048	130	7,98
40x0,50	15,28	390	92	39,00
40x0,75	16,98	495	102	26,00
40x1	18,50	623	111	19,50
40x1,5	20,20	795	121	13,30
40x2,5	22,60	1165	136	7,98





CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	PVC compound, TI52 type (EN 50290-2-21)
Core Identification	Up to including 10 cores DIN 47100 core colors Above 10 cores black cores with or without a green yellow core
Seperator	Polyester tape
Screen	Tinned copper wire braiding
Sheath	PVC compound, TM52 type (EN 50290-22)
Color	Grey

MAIN CHARACTERISTICS

Construction	Based on TS 13755, VDE 0812
General Requirements	EN 50290-2-20
Guide to Use	Based on. EN 50565-1/2, VDE 891 Part 1 to 10
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396, EN 50290
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	300/500 V (U ₀ /U)
AC Test Voltage	2 kV
Working Temperature	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Max. 5 sec)
Min. Bending Radius	Based on. VDE 0891 - Part 5
Current Carrying Capacities	Based on VDE 0298-4 Tab.11

For all sections

Mutual capacitance	Approx 120 nF/km
Inductivity	Approx 0,65 mH/km

APPLICATION

These cables are used for data transmission, signalling and monitoring in automation, audio/vision, security and control systems indoor where electromagnetic disturbances exists.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
2x0,50	5,50	39	41	39,00
2x0,75	5,90	46	44	26,00
2x1	6,30	53	47	19,50
2x1,5	6,70	62	50	13,30
2x2,5	7,38	84	55	7,98
3x0,50	5,80	48	44	39,00
3x0,75	6,30	56	47	26,00
3x1	6,70	67	50	19,50
3x1,5	7,18	82	54	13,30
3x2,5	8,08	114	61	7,98
4x0,50	6,30	57	47	39,00
4x0,75	6,70	68	50	26,00
4x1	7,28	83	55	19,50
4x1,5	7,78	101	58	13,30
4x2,5	8,68	142	65	7,98
5x0,50	6,80	69	51	39,00
5x0,75	7,38	85	55	26,00
5x1	8,18	107	61	19,50
5x1,5	8,68	128	65	13,30
5x2,5	9,48	175	71	7,98
6x0,5	7,38	82	55	39,00
6x0,75	8,08	103	61	26,00
6x1	8,68	123	65	19,50
6x1,5	9,38	150	70	13,30
6x2,5	10,18	207	76	7,98
7x0,5	7,38	86	55	39,00
7x0,75	8,08	108	61	26,00
7x1	8,68	130	65	19,50
7x1,5	9,38	160	70	13,30
7x2,5	10,18	222	76	7,98
8x0,50	8,58	113	64	39,00
8x0,75	9,28	136	70	26,00

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
8x1	9,98	163	75	19,50
8x1,5	10,98	206	82	13,30
8x2,5	11,98	282	90	7,98
10x0,50	9,18	121	69	39,00
10x0,75	9,98	147	75	26,00
10x1	10,98	183	82	19,50
10x1,5	11,88	227	89	13,30
10x2,5	12,98	317	97	7,98
12x0,50	9,48	137	71	39,00
12x0,75	10,38	168	78	26,00
12x1	11,38	210	85	19,50
12x1,5	12,18	259	91	13,30
12x2,5	13,68	374	103	7,98
14x0,50	9,88	153	74	39,00
14x0,75	10,98	193	82	26,00
14x1	11,88	237	89	19,50
14x1,5	12,78	295	96	13,30
14x2,5	14,28	426	107	7,98
16x0,50	10,38	173	78	39,00
16x0,75	11,58	218	87	26,00
16x1	12,48	267	94	19,50
16x1,5	13,68	340	103	13,30
16x2,5	15,08	484	113	7,98
18x0,50	11,08	197	83	39,00
18x0,75	12,08	242	91	26,00
18x1	13,08	297	98	19,50
18x1,5	14,38	378	108	13,30
18x2,5	15,78	539	118	7,98
19x0,50	11,08	200	83	39,00
19x0,75	12,08	246	91	26,00
19x1	13,08	304	98	19,50
19x1,5	14,38	388	108	13,30

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
19x2,5	15,78	556	118	7,98
24x0,50	12,78	247	96	39,00
24x0,75	14,18	312	106	26,00
24x1	15,38	385	115	19,50
24x1,5	16,88	490	127	13,30
24x2,5	18,90	723	142	7,98
25x0,50	13,08	263	98	39,00
25x0,75	14,58	333	109	26,00
25x1	15,78	409	118	19,50
25x1,5	17,18	520	129	13,30
25x2,5	19,40	766	146	7,98
30x0,50	13,68	300	103	39,00
30x0,75	14,98	372	112	26,00
30x1	16,48	469	124	19,50
30x1,5	17,78	590	133	13,30
30x2,5	20,00	874	150	7,98
32x0,50	14,18	319	106	39,00
32x0,75	15,58	397	117	26,00
32x1	17,08	500	128	19,50
32x1,5	18,60	637	140	13,30
32x2,5	20,80	932	156	7,98
36x0,50	14,68	352	110	39,00
36x0,75	16,28	446	122	26,00
36x1	17,68	554	133	19,50
36x1,5	19,50	717	146	13,30
36x2,5	21,70	1048	163	7,98
40x0,50	15,28	390	115	39,00
40x0,75	16,98	495	127	26,00
40x1	18,50	623	139	19,50
40x1,5	20,20	795	152	13,30
40x2,5	22,60	1165	170	7,98



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	Halogen-Free compound (EN 50290-2-26)
Separator	Polyester tape
Core Identification	Up to including 10 cores DIN 47100 core colors Above 10 cores black cores with or without a green yellow core
Screen	Tinned copper wire braiding
Sheath	Halogen-Free compound (EN 50290-2-27)
Color	Grey

MAIN CHARACTERISTICS

Construction	Based on TS 13755, VDE 0812
General Requirements	EN 50290-2-20
Guide to Use	Based on. EN 50565-1/2, VDE 891 Part 1 to 10
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396, EN 50290
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2, IEC 60332-3-24 Cat C
Halogen Content	IEC 60754-1/2
Smoke Density	IEC 61034-1/2

OPERATING CHARACTERISTICS

Rated Voltage	300/500 V (U ₀ /U)
AC Test Voltage	2 kV
Working Temperature	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Max. 5 sec)
Min. Installation Temp.	0°C
Min. Bending Radius	Based on. VDE 0891 - Part 5
Current Carrying Capacities	Based on VDE 0298-4 Tab.11

For all sections

Mutual capacitance	Approx 120 nF/km
Inductivity	Approx 0,65 mH/km

APPLICATION

These cables are used for data transmission, signalling and monitoring in automation, audio/vision, security and control systems indoor where electromagnetic disturbances exists and when higher safety required in case of fire.



ELECTROMAGNETIC
COMPATIBILITY



FLAME RETARDANT



HALOGEN - FREE



LOW SMOKE

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
2x0,50	5,50	40	41	39,00
2x0,75	5,90	47	44	26,00
2x1	6,30	55	47	19,50
2x1,5	6,70	64	50	13,30
2x2,5	7,38	87	55	7,98
3x0,50	5,80	49	44	39,00
3x0,75	6,30	58	47	26,00
3x1	6,70	69	50	19,50
3x1,5	7,18	85	54	13,30
3x2,5	8,08	118	61	7,98
4x0,50	6,30	59	47	39,00
4x0,75	6,70	70	50	26,00
4x1	7,28	86	55	19,50
4x1,5	7,78	104	58	13,30
4x2,5	8,68	146	65	7,98
5x0,50	6,80	71	51	39,00
5x0,75	7,38	88	55	26,00
5x1	8,18	110	61	19,50
5x1,5	8,68	132	65	13,30
5x2,5	9,48	180	71	7,98
6x0,50	7,40	85	56	39,00
6x0,75	8,08	106	61	26,00
6x1	8,68	127	65	19,50
6x1,5	9,38	155	70	13,30
6x2,5	10,18	213	76	7,98
7x0,50	7,40	89	56	39,00
7x0,75	8,08	111	61	26,00
7x1	8,68	134	65	19,50
7x1,5	9,38	165	70	13,30
7x2,5	10,18	229	76	7,98
8x0,50	8,60	116	65	39,00
8x0,75	9,28	140	70	26,00

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (free movement) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
8x1	9,98	168	75	19,50
8x1,5	10,98	212	82	13,30
8x2,5	11,98	291	90	7,98
10x0,75	9,98	152	75	26,00
10x1	10,98	189	82	19,50
10x1,5	11,88	234	89	13,30
10x2,5	12,98	327	97	7,98
12x0,75	10,38	173	78	26,00
12x1	11,38	216	85	19,50
12x1,5	12,18	267	91	13,30
12x2,5	13,68	386	103	7,98
14x0,75	10,98	199	82	26,00
14x1	11,88	244	89	19,50
14x1,5	12,78	304	96	13,30
14x2,5	14,28	439	107	7,98
16x0,75	11,58	225	87	26,00
16x1	12,48	275	94	19,50
16x1,5	13,68	350	103	13,30
16x2,5	15,08	499	113	7,98
18x0,75	12,08	249	91	26,00
18x1	13,08	306	98	19,50
18x1,5	14,38	390	108	13,30
18x2,5	15,78	556	118	7,98
25x0,75	14,58	343	109	26,00
25x1	15,78	422	118	19,50
25x1,5	17,20	520	129	13,30
25x2,5	19,40	790	146	7,98
30x0,75	14,98	384	112	26,00
30x1	16,48	484	124	19,50
30x1,5	17,80	590	134	13,30
30x2,5	20,00	901	150	7,98





CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	Halogen-Free compound, TI6 type (EN 50363-7)
Core Identification	JZ: Black cores with a green yellow core OZ: Black cores without a green yellow core
Sheath	Halogen-Free compound, TM7 type (EN 50363-8)
Color	Grey

MAIN CHARACTERISTICS

Construction	Based on EN 50525-3-11, Based on BA 14122019, TS 13755
General Requirements	EN 50525-1, VDE 0812, EN 50575
Guide to Use	EN 50565-1/2
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2, IEC 60332-3-24 Cat C
Halogen Content	IEC 60754-1/2
Smoke Density	IEC 61034-1/2

OPERATING CHARACTERISTICS

Rated Voltage	300/500 V (U ₀ /U)
AC Test Voltage	2 kV
Working Temperature	
<i>In Flexing Use</i>	-5°C to +70°C
<i>In Flexing Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	150°C (Max. 5 sec)
Min. Installation Temp.	-5 °C
Min. Bending Radius	Based on EN 50565-1 Tab. 3
Current Carrying Capacities	Based on VDE 0298-4 Tab.11

APPLICATION

These cables are used for control, measuring and monitoring in engineering projects and various electronic systems in closed areas when higher safety required in case of fire.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
2x0,50	5,00	37	38	39,00
2x0,75	5,40	50	41	26,00
2x1	5,80	55	44	19,50
2x1,5	6,20	75	47	13,30
2x2,5	6,80	90	51	7,98
3x0,50	5,29	46	40	39,00
3x0,75	5,70	60	43	26,00
3x1	6,10	65	46	19,50
3x1,5	6,60	95	50	13,30
3x2,5	7,50	120	56	7,98
4x0,50	5,75	55,29	43	39,00
4x0,75	6,20	65,96	47	26,00
4x1	6,70	85	50	19,50
4x1,5	7,40	120	56	13,30
4x2,5	8,10	150	61	7,98
5x0,50	6,30	64	47	39,00
5x0,75	6,80	78	51	26,00
5x1	7,50	105	56	19,50
5x1,5	8,10	140	61	13,30
5x2,5	9,30	190	70	7,98
6x0,50	6,70	75	50	39,00
6x0,75	7,50	95	56	26,00
6x1	8,10	116	61	19,50
6x1,5	8,80	144	66	13,30
6x2,5	9,80	207	74	7,98
7x0,50	6,70	80	50	39,00
7x0,75	7,50	100	56	26,00
7x1	8,10	125	61	19,50
7x1,5	8,80	153	66	13,30
7x2,5	9,80	225	74	7,98
8x0,50	7,70	101	58	39,00
8x0,75	8,60	128	65	26,00

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
8x1	9,30	156	70	19,50
8x1,5	10,60	209	80	13,30
8x2,5	11,50	285	86	7,98
10x0,50	8,60	110	65	39,00
10x0,75	9,40	142	71	26,00
10x1	10,40	180	78	19,50
10x1,5	11,30	221	85	13,30
10x2,5	12,60	320	95	7,98
12x0,50	8,90	125	67	39,00
12x0,75	10,00	167	75	26,00
12x1	10,80	206	81	19,50
12x1,5	11,60	260	87	13,30
12x2,5	13,10	372	98	7,98
14x0,50	9,30	142	70	39,00
14x0,75	10,40	187	78	26,00
14x1	11,30	233	85	19,50
14x1,5	12,80	310	96	13,30
14x2,5	13,70	426	103	7,98
16x0,50	10,00	166	75	39,00
16x0,75	11,00	212	83	26,00
16x1	11,90	265	89	19,50
16x1,5	13,50	350	101	13,30
16x2,5	14,70	500	110	7,98
18x0,50	10,50	185	79	39,00
18x0,75	11,50	237	86	26,00
18x1	12,70	301	95	19,50
18x1,5	14,20	393	107	13,30
18x2,5	15,40	552	116	7,98
25x0,50	12,70	260	95	39,00
25x0,75	14,00	333	105	26,00
25x1	15,40	420	116	19,50
25x1,5	17,40	560	131	13,30
25x2,5	18,70	775	140	7,98





CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	Halogen-Free compound, TI6 type (EN 50363-7)
Core Identification	JZ: Black cores with a green yellow core OZ: Black cores without a green yellow core
Seperator	Polyester tape
Screen	Tinned copper wire braiding
Sheath	Halogen-Free compound, TM7 type (EN 50363-8)
Color	Grey

MAIN CHARACTERISTICS

Construction	Based on EN 50525-3-11, Based on BA 14122019, TS 13755
General Requirements	EN 50525-1, VDE 0812, EN 50575
Guide to Use	EN 50565-1/2
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2, IEC 60332-3-24 Cat C
Halogen Content	IEC 60754-1/2
Smoke Density	IEC 61034-1/2

OPERATING CHARACTERISTICS

Rated Voltage	300/500 V (U ₀ /U)
AC Test Voltage	2 kV
Working Temperature	
<i>In Flexing Use</i>	-5°C to +70°C
<i>In Flexing Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	150°C (Max. 5 sec)
Min. Installation Temp.	-5 °C
Min. Bending Radius	Based on EN 50565-1 Tab. 3
Current Carrying Capacities	Based on VDE 0298-4 Tab.11

APPLICATION

These cables are used for control, measuring and monitoring in engineering projects and various electronic systems in closed areas where electromagnetic disturbances exists and when higher safety required in case of fire.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
2x0,50	5,50	40	41	39,00
2x0,75	5,90	46	44	26,00
2x1	6,30	54	47	19,50
2x1,5	6,70	63	50	13,30
2x2,5	7,40	86	56	7,98
3x0,50	5,80	49	44	39,00
3x0,75	6,30	58	47	26,00
3x1	6,70	68	50	19,50
3x1,5	7,20	83	54	13,30
3x2,5	8,10	116	61	7,98
4x0,50	6,30	58	47	39,00
4x0,75	6,70	69	50	26,00
4x1	7,30	85	55	19,50
4x1,5	7,80	102	59	13,30
4x2,5	8,70	143	65	7,98
5x0,50	6,80	70	51	39,00
5x0,75	7,40	86	56	26,00
5x1	8,20	107	62	19,50
5x1,5	8,70	130	65	13,30
5x2,5	9,50	176	71	7,98
6x0,50	7,40	84	56	39,00
6x0,75	8,10	104	61	26,00
6x1	8,70	125	65	19,50
6x1,5	9,40	152	71	13,30
6x2,5	10,20	208	77	7,98
7x0,50	7,40	87	56	39,00
7x0,75	8,10	108	61	26,00
7x1	8,70	131	65	19,50
7x1,5	9,40	161	71	13,30
7x2,5	10,20	223	77	7,98
8x0,50	8,60	113	65	39,00
8x0,75	9,30	137	70	26,00

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
8x1	10,00	164	75	19,50
8x1,5	11,00	206	83	13,30
8x2,5	12,00	283	90	7,98
10x0,50	9,20	123	69	39,00
10x0,75	10,00	148	75	26,00
10x1	11,00	185	83	19,50
10x1,5	11,90	228	89	13,30
10x2,5	13,00	319	98	7,98
12x0,50	9,50	138	71	39,00
12x0,75	10,40	169	78	26,00
12x1	11,40	210	86	19,50
12x1,5	12,20	260	92	13,30
12x2,5	13,70	376	103	7,98
14x0,50	9,90	155	74	39,00
14x0,75	11,00	194	83	26,00
14x1	11,90	237	89	19,50
14x1,5	12,80	295	96	13,30
14x2,5	14,30	427	107	7,98
16x0,50	10,40	173	78	39,00
16x0,75	11,60	219	87	26,00
16x1	12,50	268	94	19,50
16x1,5	13,70	340	103	13,30
16x2,5	15,10	485	113	7,98
18x0,50	11,10	198	83	39,00
18x0,75	12,10	243	91	26,00
18x1	13,10	298	98	19,50
18x1,5	14,40	379	108	13,30
18x2,5	15,80	541	119	7,98
25x0,50	13,10	263	98	39,00
25x0,75	14,60	334	110	26,00
25x1	15,80	411	119	19,50
25x1,5	17,20	521	129	13,30

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
25x2,5	19,40	767	146	7,98
30x0,50	13,70	301	103	39,00
30x0,75	15,00	334	113	26,00
30x1	16,50	470	124	19,50
30x1,5	17,80	591	134	13,30
30x2,5	20,00	875	150	7,98



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
Insulation	PVC compound, PVC/A type (IEC 60502-1)
Inner Covering	Extruded PVC compound for only multicore cables
Sheath	PVC compound, ST2 type (IEC 60502-1)
Color	Black

MAIN CHARACTERISTICS

Construction	IEC 60502-1 +A1, VDE 0276
General Requirements	TS HD 603 S1, VDE 0276-603
Guide to Use	VDE 0250-1
Electrical Tests	EN 50395
Non-electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	600 / 1000 V (U ₀ /U)
AC Test Voltage	3,5 kV
Operating Temperature	
<i>In Flexing Use</i>	-5°C to +50°C
<i>In Flexing Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Max. 5 sec)
Min. Installation Temp.	-5°C
Min. Bending Radius	VDE 276-603, TS HD 604 S1 Part 3C
Current Carrying Capacities	VDE 0298-4 Tab.3 & Tab.4, IEC 60364-5-52 Tab B52.1 & B52.2 & B52.4 & B52.10

APPLICATION

These cables are used in power distribution, utilities, industrial plants, machinery and construction sites in cable ducts and pipes. They can be used both indoor and outdoor where mechanical stress is low and available to use underground.



FLAME RETARDANT



UV RESISTANT

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	5,90	50	47	13,30
1x2,5	6,40	65	51	7,98
1x4	7,30	90	58	4,95
1x6	7,80	110	62	3,30
1x10	8,90	160	71	1,91
1x16	9,90	216	79	1,21
1x25	12,00	320	96	0,78
1x35	12,90	415	103	0,554
1x50	14,80	563	118	0,386
1x70	16,90	786	135	0,272
1x95	19,10	1015	153	0,206
1x120	20,80	1262	166	0,161
1x150	22,80	1557	182	0,129
1x185	25,30	1890	202	0,106
1x240	28,80	2520	230	0,0801
1x300	31,80	3096	254	0,0641
1x400	36,90	4040	295	0,0486
1x500	40,00	5275	320	0,0384
1x630	43,40	6696	347	0,0287
2x1,5	11,80	195	94	13,30
2x2,5	12,70	236	102	7,98
2x4	14,60	325	117	4,95
2x6	15,60	386	125	3,30
2x10	17,80	535	142	1,91
2x16	19,80	706	158	1,21
2x25	24,00	1045	192	0,78
3x1,5	12,30	220	98	13,30
3x2,5	15,30	270	122	7,98
3x4	16,40	375	131	4,95
3x6	16,40	455	131	3,30
3x10	18,80	640	150	1,91
3x16	20,90	860	167	1,21
3x25	25,40	1270	203	0,78

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3x35	27,40	1610	219	0,554
3x50	32,20	2237	258	0,386
3x70	36,50	3047	292	0,272
3x95	41,20	3921	330	0,206
3x120	45,50	4901	364	0,161
3x150	49,80	6000	398	0,129
3x185	55,30	7311	442	0,106
3x240	63,00	9691	504	0,0801
3x16+10	22,70	1020	182	1,21
3x25+16	27,70	1526	222	0,78
3x35+16	30,00	1900	240	0,554
3x50+25	35,40	2660	283	0,386
3x70+35	40,10	3616	321	0,272
3x95+50	45,70	4726	366	0,206
3x120+70	50,30	2930	402	0,161
3x150+70	55,00	7150	440	0,129
3x185+95	61,00	8740	488	0,106
3x240+120	69,40	11526	555	0,0801
3x300+150	77,00	14235	616	0,0641
4x1,5	13,20	256	106	13,30
4x2,5	14,20	315	114	7,98
4x4	16,50	445	132	4,95
4x6	17,70	550	142	3,30
4x10	20,40	780	163	1,91
4x16	22,80	1060	182	1,21
4x25	28,10	1595	225	0,78
4x35	30,30	2030	242	0,554
4x50	35,70	2831	286	0,386
4x70	40,70	4890	326	0,272
4x95	46,10	5033	369	0,206
4x120	50,60	6250	405	0,161
4x150	55,80	7722	446	0,129
4x185	61,80	9370	494	0,106

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
4x240	70,50	12460	564	0,0801
5x1,5	14,10	295	113	13,30
5x2,5	15,30	370	122	7,98
5x4	17,90	530	143	4,95
5x6	19,20	651	154	3,30
5x10	22,20	936	178	1,91
5x16	25,00	1291	200	1,21
5x25	31,50	2997	252	0,78
5x35	33,90	2535	271	0,554
7x1,5	14,90	345	119	13,30
7x2,5	16,30	440	130	7,98
7x4	19,10	635	153	4,95
7x6	20,60	795	165	3,30
7x10	23,90	1160	191	1,91
10x1,5	18,00	510	144	13,30
10x2,5	19,80	595	158	7,98
12x1,5	18,50	510	148	13,30
12x2,5	20,40	665	163	7,98
14x1,5	19,30	565	154	13,30
14x2,5	21,30	741	170	7,98
16x1,5	20,20	617	162	13,30
16x2,5	22,30	830	178	7,98
19x1,5	21,10	700	169	13,30
19x2,5	23,40	930	187	7,98
21x1,5	22,20	815	178	13,30
21x2,5	24,60	1085	197	7,98
24x1,5	24,20	861	194	13,30
24x2,5	26,90	1155	215	7,98
30x1,5	25,50	1007	204	13,30
30x2,5	28,60	1375	229	7,98
40x1,5	28,60	1340	229	13,30
40x2,5	32,50	1875	260	7,98



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 2 stranded plain copper wires (tinned conductor on request)
Insulation	PVC compound, PVC/A type (IEC 60502-1)
Inner Covering	Extruded PVC compound for only multicore cables
Sheath	PVC compound, ST2 type (IEC 60502-1)
Color	Black

MAIN CHARACTERISTICS

Construction	IEC 60502-1 +A1, VDE 0276
General Requirements	TS HD 603 S1, VDE 0276-603
Guide to Use	VDE 0250-1
Electrical Tests	EN 50395
Non - electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	600 / 1000 V (U ₀ /U)
AC Test Voltage	3,5 kV
Operating Temperature	
<i>In Flexing Use</i>	-5°C to +50°C
<i>In Flexing Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Max. 5 sec)
Min. Installation Temp.	-5°C
Min. Bending Radius	VDE 276-603, TS HD 604 S1 Part 3C
Current Carrying Capacities	VDE 0298-4 Tab.3 & Tab.4, IEC 60364-5-52 Tab B52.1 & B52.2 & B52.4 & B52.10

APPLICATION

These cables are used in power distribution, utilities, industrial plants, machinery and construction sites in cable ducts and pipes. They can be used both indoor and outdoor where mechanical stress is low and available to use underground.



FLAME RETARDANT



UV RESISTANT

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	5,80	52	70	13,30
1x2,5	6,15	64	74	7,98
1x4	7,10	91	85	4,95
1x6	7,50	111	90	3,30
1x10	8,30	156	100	1,91
1x16	9,90	238	119	1,21
1x25	11,40	335	137	0,78
1x35	12,70	430	152	0,554
1x50	14,40	588	173	0,386
1x70	16,00	796	192	0,272
1x95	18,30	1076	220	0,206
1x120	20,00	1328	240	0,161
1x150	22,30	1651	268	0,129
1x185	24,60	2050	295	0,106
1x240	27,60	2654	331	0,0801
1x300	30,80	3363	370	0,0641
1x400	35,10	4339	421	0,0486
1x500	38,80	5382	466	0,0384
2x1,5	11,60	197	139	13,30
2x2,5	12,30	234	148	7,98
2x4	14,20	323	170	4,95
2x6	15,00	381	180	3,30
2x10	16,60	508	199	1,91
2x16	19,80	756	238	1,21
2x25	22,80	1043	274	0,78
3x1,5	12,10	222	145	13,30
3x2,5	12,90	270	155	7,98
3x4	14,90	376	179	4,95
3x6	15,80	453	190	3,30
3x10	17,50	616	210	1,91
3x16	20,90	927	251	1,21
3x25	24,10	1289	289	0,78
3x35	26,90	1645	323	0,554

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3x50	31,40	2294	377	0,386
3x70	34,60	3018	415	0,272
3x95	39,70	4062	476	0,206
3x120	43,80	5030	526	0,161
3x150	48,50	6211	582	0,129
3x185	54,20	7778	650	0,106
3x240	60,60	9977	727	0,0801
3x16+10	22,70	1102	272	1,21
3x25+16	26,30	1551	316	0,78
3x35+16	29,50	1956	354	0,554
3x50+25	34,40	2728	413	0,386
3x70+35	38,00	3572	456	0,272
3x95+50	44,30	4903	532	0,206
3x120+70	48,10	6026	577	0,161
3x150+70	53,80	7412	646	0,129
3x185+95	59,70	9264	716	0,106
3x240+120	66,80	11854	802	0,0801
3x300+150	74,70	14965	896	0,0641
4x1,5	12,90	259	155	13,30
4x2,5	13,70	315	164	7,98
4x4	16,10	454	193	4,95
4x6	17,00	547	204	3,30
4x10	18,90	753	227	1,91
4x16	22,80	1149	274	1,21
4x25	26,50	1618	318	0,78
4x35	29,80	2083	358	0,554
4x50	34,70	2900	416	0,386
4x70	38,30	3837	460	0,272
4x95	44,70	5261	536	0,206
4x120	48,50	6408	582	0,161
4x150	54,40	8017	653	0,129
4x185	60,60	10003	727	0,106
4x240	67,50	12978	810	0,0801

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
5x1,5	13,80	300	166	13,30
5x2,5	14,80	372	178	7,98
5x4	17,30	532	208	4,95
5x6	18,40	651	221	3,30
5x10	20,60	909	247	1,91
5x16	25,00	1401	300	1,21
5x25	29,20	1984	350	0,78
5x35	33,40	2608	401	0,554
7x1,5	14,60	351	175	13,30
7x2,5	15,70	443	188	7,98
7x4	18,50	645	222	4,95
10x1,5	17,60	470	211	13,30
10x2,5	19,00	597	228	7,98
12x1,5	18,10	522	217	13,30
12x2,5	19,60	671	235	7,98
14x1,5	18,90	580	227	13,30
14x2,5	20,40	748	245	7,98
16x1,5	19,70	643	236	13,30
16x2,5	21,40	836	257	7,98
19x1,5	20,60	718	247	13,30
19x2,5	22,40	941	269	7,98
21x1,5	21,60	834	259	13,30
21x2,5	23,50	1090	282	7,98
24x1,5	23,60	886	283	13,30
24x2,5	25,70	1165	308	7,98
30x1,5	24,90	1040	299	13,30
30x2,5	27,10	1380	325	7,98
40x1,5	27,60	1363	331	13,30
40x2,5	30,40	1836	365	7,98



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 2 stranded plain copper wires (tinned conductor on request)
Insulation	XLPE compound (IEC 60502-1)
Inner Covering	Extruded HFFR compound for only multicore cables
Sheath	HFFR compound, ST8 type (IEC 60502-1)
Color	Black

MAIN CHARACTERISTICS

Construction	IEC 60502-1
Electrical Tests	EN 50395
Non - electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2, IEC 60332-3-22
Smoke Density	IEC 61034
Amount of Halogen Acid Gas	IEC 60754-1/2 (Max 0.5%)

OPERATING CHARACTERISTICS

Rated Voltage	600 / 1000 V (U ₀ /U)
AC Test Voltage	3,5 kV
Operating Temperature	
<i>In Flexing Use</i>	-5°C to +50°C
<i>In Flexing Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Max. 5 sec)
Min. Installation Temp.	-5°C
Min. Bending Radius	VDE 276-603, TS HD 604 S1 Part 3C
Current Carrying Capacities	VDE 0298-4 Tab.3 & Tab.4, IEC 60364-5-52 Tab B52.1 & B52.2 & B52.4 & B52.10

APPLICATION

These cables are used in power distribution, utilities, industrial plants, machinery and construction sites in cable ducts and pipes. They can be used both indoor and outdoor where mechanical stress is low and available to use underground.



Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	5,6	47	67,2	13,3
1x2,5	5,95	59	71,4	7,98
1x4	6,45	77	77,4	4,95
1x6	6,9	98	82,8	3,3
1x10	7,7	141	92,4	1,91
1x16	9,2	214	110,4	1,21
1x25	10,7	306	128,4	0,78
1x35	12	395	144	0,554
1x50	13,6	541	163,2	0,386
1x70	15,2	742	182,4	0,272
1x95	17,3	1003	207,6	0,206
1x120	19,2	1255	230,4	0,161
1x150	21,3	1553	255,6	0,129
1x185	23,8	1944	285,6	0,106
1x240	26,6	2518	319,2	0,0801
1x300	29,6	3189	355,2	0,0641
1x400	33,7	4110	404,4	0,0486
1x500	37,6	5145	451,2	0,0384
2x1,5	11,2	175	134,4	13,3
2x2,5	11,9	209	142,8	7,98
2x4	12,9	262	154,8	4,95
2x6	13,8	318	165,6	3,3
2x10	15,4	435	184,8	1,91
2x16	18,4	648	220,8	1,21
2x25	21,4	909	256,8	0,78
3x1,5	11,7	198	140,4	13,3
3x2,5	12,4	239	148,8	7,98
3x4	13,5	307	162	4,95
3x6	14,5	381	174	3,3
3x10	16,2	533	194,4	1,91
3x16	19,4	804	232,8	1,21
3x25	22,6	1136	271,2	0,78
3x35	25,40	1466	305	0,554

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3x50	29,10	2006	349	0,386
3x70	33,10	2752	397	0,272
3x95	37,60	3684	451	0,206
3x120	41,40	44561	497	0,161
3x150	46,80	5741	562	0,129
3x185	51,90	7132	623	0,106
3x240	58,30	9221	700	0,0801
3x16+10	21,00	948	252	1,21
3x25+16	24,60	1360	295	0,78
3x35+16	27,60	1716	331	0,554
3x50+25	32,30	1783	388	0,386
3x70+35	36,30	3237	436	0,272
3x95+50	41,30	4349	496	0,206
3x120+70	46,00	5506	552	0,161
3x150+70	51,30	6732	616	0,129
3x185+95	57,60	8525	691	0,106
3x240+120	64,20	10896	770	0,0801
3x300+150	71,60	13743	859	0,0641
4x1,5	12,40	227	149	13,30
4x2,5	13,20	280	158	7,98
4x4	14,50	368	174	4,95
4x6	15,60	461	187	3,30
4x10	17,50	655	210	1,91
4x16	21,10	995	253	1,21
4x25	24,80	1424	298	0,78
4x35	28,10	1855	337	0,554
4x50	32,60	2578	391	0,386
4x70	36,70	3507	440	0,272
4x95	41,70	4704	500	0,206
4x120	46,60	5910	559	0,161
4x150	51,90	7330	623	0,129
4x185	58,70	9270	704	0,106
4x240	65,10	11861	781	0,0801

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
5x1,5	13,30	262	160	13,30
5x2,5	14,20	326	170	7,98
5x4	15,60	431	187	4,95
5x6	16,80	544	202	3,30
5x10	19,00	784	228	1,91
5x16	23,10	1208	277	1,21
5x25	27,10	1727	325	0,78
5x35	31,50	2312	378	0,554
7x1,5	14,00	305	168	13,30
7x2,5	15,10	392	181	7,98
7x4	16,60	526	199	4,95
10x1,5	16,80	406	202	13,30
10x2,5	18,20	525	218	7,98
12x1,5	17,30	449	208	13,30
12x2,5	18,80	589	226	7,98
14x1,5	18,00	497	216	13,30
14x2,5	19,50	655	234	7,98
16x1,5	18,80	549	226	13,30
16x2,5	20,50	730	246	7,98
19x1,5	19,00	612	228	13,30
19x2,5	21,40	822	257	7,98
21x1,5	20,60	695	247	13,30
21x2,5	22,40	931	269	7,98
24x1,5	22,40	753	269	13,30
24x2,5	24,50	1015	294	7,98
30x1,5	23,60	880	283	13,30
30x2,5	25,80	1199	310	7,98
40x1,5	26,20	1134	314	13,30
40x2,5	28,90	1574	347	7,98



CABLE STRUCTURE

Conductor	Electrolytic annealed, class 2 stranded plain copper wires (tinned conductor on request)
Insulation	Cross-Linked PE (IEC 60502-1)
Inner Covering	Extruded PVC compound for only multicore cables
Sheath	PVC compound, ST2 type (IEC 60502-1)
Color	Black

MAIN CHARACTERISTICS

Construction	IEC 60502-1 +A1, VDE 0276
General Requirements	TS HD 603 S1, VDE 0276-603
Guide to Use	VDE 0250-1
Electrical Tests	EN 50395
Non - electrical Tests	EN 50396
Conductor Resistance	IEC 60228, VDE 0295, BS 6360
Flame Retardant	IEC 60332-1-2

OPERATING CHARACTERISTICS

Rated Voltage	600 / 1000 V (U ₀ /U)
AC Test Voltage	3,5 kV
Operating Temperature	
<i>In Flexing Use</i>	-5°C to +50°C
<i>In Flexing Use</i>	-30°C to +70°C
Conductor Short-Circuit Temp.	160°C (Max. 5 sec)
Min. Installation Temp.	-5°C
Min. Bending Radius	VDE 276-603, TS HD 604 S1 Part 3C
Current Carrying Capacities	VDE 0298-4 Tab.3 & Tab.4, IEC 60364-5-52 Tab B52.1 & B52.2 & B52.4 & B52.10

APPLICATION

These cables are used in power distribution, utilities, industrial plants, machinery and construction sites in cable ducts and pipes. They can be used both indoor and outdoor where mechanical stress is low and available to use underground.



FLAME RETARDANT



UV RESISTANT

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
1x1,5	5,60	47	67	13,30
1x2,5	5,95	59	71	7,98
1x4	6,45	77	77	4,95
1x6	6,90	98	83	3,30
1x10	7,70	141	92	1,91
1x16	9,20	214	110	1,21
1x25	10,70	306	128	0,78
1x35	12,00	395	144	0,554
1x50	13,60	541	163	0,386
1x70	15,20	742	182	0,272
1x95	17,30	1003	208	0,206
1x120	19,20	1255	230	0,161
1x150	21,30	1553	256	0,129
1x185	23,80	1944	286	0,106
1x240	26,60	2518	319	0,0801
1x300	29,60	3189	355	0,0641
1x400	33,70	4110	404	0,0486
1x500	37,60	5145	451	0,0384
2x1,5	11,20	175	134	13,30
2x2,5	11,90	209	143	7,98
2x4	12,90	262	155	4,95
2x6	13,80	318	166	3,30
2x10	15,40	435	185	1,91
2x16	18,40	648	221	1,21
2x25	21,40	909	257	0,78
3x1,5	11,70	198	140	13,30
3x2,5	12,40	239	149	7,98
3x4	13,50	307	162	4,95
3x6	14,50	381	174	3,30
3x10	16,20	533	194	1,91
3x16	19,40	804	233	1,21
3x25	22,60	1136	271	0,78
3x35	25,40	1466	305	0,554

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
3x50	29,10	2006	349	0,386
3x70	33,10	2752	397	0,272
3x95	37,60	3684	451	0,206
3x120	41,40	44561	497	0,161
3x150	46,80	5741	562	0,129
3x185	51,90	7132	623	0,106
3x240	58,30	9221	700	0,0801
3x16+10	21,00	948	252	1,21
3x25+16	24,60	1360	295	0,78
3x35+16	27,60	1716	331	0,554
3x50+25	32,30	1783	388	0,386
3x70+35	36,30	3237	436	0,272
3x95+50	41,30	4349	496	0,206
3x120+70	46,00	5506	552	0,161
3x150+70	51,30	6732	616	0,129
3x185+95	57,60	8525	691	0,106
3x240+120	64,20	10896	770	0,0801
3x300+150	71,60	13743	859	0,0641
4x1,5	12,40	227	149	13,30
4x2,5	13,20	280	158	7,98
4x4	14,50	368	174	4,95
4x6	15,60	461	187	3,30
4x10	17,50	655	210	1,91
4x16	21,10	995	253	1,21
4x25	24,80	1424	298	0,78
4x35	28,10	1855	337	0,554
4x50	32,60	2578	391	0,386
4x70	36,70	3507	440	0,272
4x95	41,70	4704	500	0,206
4x120	46,60	5910	559	0,161
4x150	51,90	7330	623	0,129
4x185	58,70	9270	704	0,106
4x240	65,10	11861	781	0,0801

Cross Sections (mm ²)	Nominal Overall Diameter (mm)	Approximate Weight (kg/km)	Min.Bending Radius (fixed installation) (mm)	Max. Resistance of Conductors at 20°C (ohm / km)
5x1,5	13,30	262	160	13,30
5x2,5	14,20	326	170	7,98
5x4	15,60	431	187	4,95
5x6	16,80	544	202	3,30
5x10	19,00	784	228	1,91
5x16	23,10	1208	277	1,21
5x25	27,10	1727	325	0,78
5x35	31,50	2312	378	0,554
7x1,5	14,00	305	168	13,30
7x2,5	15,10	392	181	7,98
7x4	16,60	526	199	4,95
10x1,5	16,80	406	202	13,30
10x2,5	18,20	525	218	7,98
12x1,5	17,30	449	208	13,30
12x2,5	18,80	589	226	7,98
14x1,5	18,00	497	216	13,30
14x2,5	19,50	655	234	7,98
16x1,5	18,80	549	226	13,30
16x2,5	20,50	730	246	7,98
19x1,5	19,00	612	228	13,30
19x2,5	21,40	822	257	7,98
21x1,5	20,60	695	247	13,30
21x2,5	22,40	931	269	7,98
24x1,5	22,40	753	269	13,30
24x2,5	24,50	1015	294	7,98
30x1,5	23,60	880	283	13,30
30x2,5	25,80	1199	310	7,98
40x1,5	26,20	1134	314	13,30
40x2,5	28,90	1574	347	7,98

**OFFSHORE
CABLES**



**AIRPORT
CABLES**



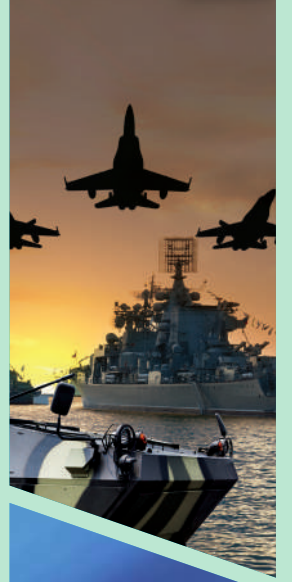
**CRANE
CABLES**



**MINING
CABLES**



**DEFENSE
INDUSTRY
CABLES**



**MARINE
CABLES**



**RAILWAY
CABLES**



**INDUSTRIAL
CABLES**



**TUNNELLING
CABLES**



**INSTRUMENTATION
CABLES**



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