

SECTION - VIII
SILICON CABLES



PRODUCTS

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SiD

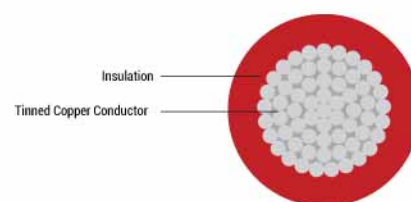
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Application

Silicone single core cables are used in high as well as extremely low temperature areas. They are used mainly in the steel producing industries, in aviation industries as well as in ship building, cement, glass and ceramic factories. These cables are halogen-free, especially suited for use in power stations.

Standards

Adapted to VDE 0250 part 1 and 502.

Technical Data

Voltage Rating : U_0 / U - 300 / 500V

Test Voltage : 2000V

Temperature Range : -50°C to +180°C (up to + 200°C for short time with adequate ventilation)

Minimum Bending Radius : Fixed installation: 6 x cable ϕ . One bend at end of core: 3 x cable ϕ

Cable Construction

Tinned copper conductor Cl. 5, to EN 60228.

Silicone core insulation.

Type SiFF : This variant is similar to SiF with high flexible copper strands.

*SiF and SiFF is also available with polyester yarn over the cable.

Properties

Advantages : High ignition or flash point.

Resistant to : High molecular oils, fats from vegetables and animals, alcohols, plasticisers and clopenes, diluted acids, dyes and salt dissolution, oxidation substances, tropical influences and weather, lake water, oxygen and UV

Halogen - Free : According to IEC 60754-2

Behaviour in Fire : Flame propagation test according to EN 60332-1-2

Cable Design Parameters

Kindly complete the part numbers for SiF and SiFF by adding the suffix (in place of 'xx') for the colour required:

01 - green, 02 - black, 03 - red, 04 - blue, 05 - yellow, 07 - white, 09 - brown, 10 - orange, 12 - grey.

	Part Number	Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
SiF	08010101xx80	0.25	1.9	2.4	5.5
	08010102xx80	0.5	2.1	4.5	8.6
	08010103xx80	0.75	2.4	6.7	11.8
	08010104xx80	1.0	2.5	9.0	13.5
	08010105xx80	1.5	2.8	12.9	18.5
	08010106xx80	2.5	3.5	21.5	30.0

	Part Number	Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
SiF	08010107xx80	4.0	4.2	34.1	47.3
	08010108xx80	6.0	5.2	51.2	71.1
	08010109xx80	10.0	7.0	87.1	119.4
	08010110xx80	16.0	8.4	145.1	187.7
	08010111xx80	25.0	9.9	225.8	289.6
	08010112xx80	35.0	11	317.9	398.3
	08010113xx80	50.0	12.5	456.2	559.7
	08010114xx80	70.0	14.5	644.6	765.8
SiFF	08020101xx80	0.25	1.9	2.5	6
	08020102xx80	0.5	2.1	4.9	8
	08020103xx80	0.75	2.5	7.3	12
	08020104xx80	1.0	2.7	9.8	15
	08020105xx80	1.5	3.0	14.7	21
	08020106xx80	2.5	3.8	24.5	35
	08020107xx80	4.0	4.6	39.2	54
	08020108xx80	6.0	5.7	53.9	78
	08020109xx80	10.0	7.6	89.8	133

*For the variants with polyester yarn braid i.e., SiF-PYB & SiFF-PYB, the insulated core colour shall be white.

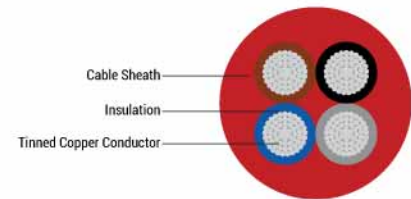
Kindly complete the part numbers for these cables by adding the suffix (in place of 'p') for the colour of polyester yarn required:

01 - green, 02 - red, 03 - blue, 04 - yellow, 05 - white, 06 - black.

	Part Number	Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
SiF-PYB	08010101078p	0.25	2.3	2.4	5.5
	08010102078p	0.5	2.5	4.5	8.6
	08010103078p	0.75	2.8	6.7	11.8
	08010104078p	1.0	2.9	9	13.5
	08010105078p	1.5	3.2	12.9	18.5
	08010106078p	2.5	3.9	21.5	30
	08010107078p	4.0	4.6	34.1	47.3
	08010108078p	6.0	5.6	51.2	71.1
	08010109078p	10.0	7.4	87.1	119.4
	08010110078p	16.0	8.8	145.1	187.7
	08010111078p	25.0	10.2	225.8	289.6
	08010112078p	35.0	11.4	317.9	398.3
	08010113078p	50.0	12.8	456.2	559.7
	08010114078p	70.0	14.9	644.6	765.8

	Part Number	Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
SFF-PYB	08020101078p	0.25	2.3	2.5	6
	08020102078p	0.5	2.5	4.9	8
	08020103078p	0.75	2.9	7.3	12
	08020104078p	1.0	3.1	9.8	15
	08020105078p	1.5	3.4	14.7	21
	08020106078p	2.5	4.2	24.5	35
	08020107078p	4.0	5.0	39.2	54
	08020108078p	6.0	6.1	53.9	78
	08020109078p	10.0	8.0	89.8	133

*For multi-pair maximum resistance shall be increased by 2%.



Application

These are silicone multicore cables for use at the areas where extreme temperature changes. Silicone cables are halogen - free cables and are especially suited for installation in power stations. They have also found their use in the steel producing industries, aviation industry, ship building as well as in ceramic, glass and cement factories. Due to elastical characteristic of core insulation, these are used as flexible connection cable.

Standards

Adapted to DIN VDE 0250 part 1 and part 816.

Technical Data

Voltage Rating : $U_0 / U - 300 / 500V$

Test Voltage : 2000V

Temperature Range : -50°C to +180°C (up to + 220°C for short time)

Breakdown Voltage : Min. 5000V

Insulation Resistance : Min. 200 M Ω x km

Minimum Bending Radius : Flexing 20 x cable ϕ . Fixed installation 4 x cable ϕ

Cable Construction

Tinned copper conductor to Cl. 5, EN 60228.

Silicone core insulation.

Core identification to DIN VDE 0293 - 308 colour coded or black cores with continuous white numbers.

For 2 - cores brown, blue.

For 3 - cores and above cable provided without protective conductor.

For 6 - cores and above all black cores with number coding.

Cores stranded in layers with optimal lay - length.

Outer jacket of Silicone.

Jacket colour - red brown

Properties

Advantages: The dielectric strength hardly changes even at high temperatures.

The cable has high ignition or flash points.

In case of fire, it forms an insulating layer of SiO₂

Resistant to : High molecular oils, fats from vegetables and animals, alcohols, plasticisers and clopenes, diluted acids, dyes and salt dissolution, oxidation substances, tropical influences and weather, lake water, oxygen and UV.

Halogen - Free : According to IEC 60754 - 2.

Behaviour in Fire : Flame propagation test according to EN 60332 - 1 - 2.

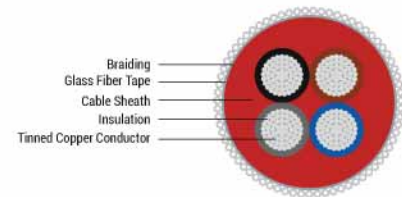
For laying as a fixed installation only in open or ventilated pipe systems as well as in ducts. Otherwise the mechanical properties of Silicone are reduced by the enclosed air at temperatures exceeding 90°C.

Cable Design Parameters

Part Number	No. of Cores and Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
080300201050	2 x 0.5	5.6	8.2	37.8
080300311050	3 x 0.5	5.9	12.2	45.1
080300411050	4 x 0.5	6.5	16.3	55.2
080300511050	5 x 0.5	7.1	20.4	66.6
080300611050	6 x 0.5	7.7	24.5	79.2
080300711050	7 x 0.5	7.9	28.5	85.8
080300811050	8 x 0.5	8.8	32.6	104.8
080301011050	10 x 0.5	10.2	40.8	137.1
080301211050	12 x 0.5	10.5	48.9	151.0
080301611050	16 x 0.5	11.7	65.2	189.8
080301811050	18 x 0.5	12.3	73.4	211.6
080302511050	25 x 0.5	14.7	101.9	299.9
080300201075	2 x 0.75	6.2	12.2	48.2
080300311075	3 x 0.75	6.8	18.3	60.7
080300411075	4 x 0.75	7.4	24.5	74.3
080300511075	5 x 0.75	8.2	30.6	92.4
080300611075	6 x 0.75	9.1	36.7	112.6
080300711075	7 x 0.75	9.1	42.8	117.9
080300811075	8 x 0.75	10.2	48.9	143.8
080301011075	10 x 0.75	11.5	61.1	182.7
080301111075	12 x 0.75	11.9	73.4	202.2
080301611075	16 x 0.75	13.2	97.8	255.6
080301811075	18 x 0.75	13.9	110.0	285.6
080300200001	2 x 1	6.7	16.3	58.1
080300310001	3 x 1	7.1	24.5	70.4
080300410001	4 x 1	7.7	32.6	86.7
080300510001	5 x 1	8.6	40.8	107.9
080300610001	6 x 1	9.6	48.9	131.8
080300710001	7 x 1	9.6	57.1	138.9
080300810001	8 x 1	10.7	65.2	169.0
080301010001	10 x 1	12.1	81.5	215.0
080301210001	12 x 1	12.6	97.8	239.1
080301610001	16 x 1	14.0	130.4	303.6
080301810001	18 x 1	14.7	146.7	339.5

Part Number	No. of Cores and Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
080300201105	2 x 1.5	8.2	23.9	86.5
080300311105	3 x 1.5	8.7	35.8	105.0
080300411105	4 x 1.5	9.7	47.8	133.5
080300511105	5 x 1.5	10.6	59.7	161.0
080300611105	6 x 1.5	11.5	71.6	191.9
080300711105	7 x 1.5	11.7	83.6	206.0
080300811105	8 x 1.5	13.0	95.5	247.9
080301011105	10 x 1.5	14.8	119.4	317.6
080301211105	12 x 1.5	15.3	143.3	353.7
080301411105	14 x 1.5	16.1	167.1	399.5
080300201205	2 x 2.5	9.3	39.8	119.1
080300311205	3 x 2.5	9.9	59.7	147.6
080300411205	4 x 2.5	10.9	79.6	184.6
080300511205	5 x 2.5	11.9	99.5	225.3
080300611205	6 x 2.5	13.6	119.4	283.8
080300711205	7 x 2.5	13.6	139.3	301.0
080300811205	8 x 2.5	15.4	159.2	368.8
080300200004	2 x 4	10.6	63.3	164.8
080300310004	3 x 4	12.0	94.9	223.4
080300410004	4 x 4	13.4	126.6	284.5
080300510004	5 x 4	14.6	158.2	346.0
08030020000	2 x 6	12.4	94.9	232.7
6080300310006	3 x 6	13.2	142.4	293.7
080300410006	4 x 6	14.7	189.8	375.7

For current ratings refer table no. 12-1 & voltage drop refer table no. 12-2.



Application

These are silicone multicore cables with galvanized steel braiding for robust application.

These cables are used in the areas having large band of extreme temperatures and can be used in the areas with increased mechanical stress.

They are especially used in steel production industries, cement industries, glass industries, aviation industries, ship buildings, etc.

Standards

Adapted to DIN VDE 0250 part 1 and part 816.

Technical Data

Voltage Rating : U_0 / U - 300 / 500V

Test Voltage : 2000V

Temperature Range : -50°C to +180°C (up to + 220°C for short time)

Temperature Limit at the Conductor : In operation +180°C

Insulation Resistance : Min. 200 MΩ x km

Minimum Bending Radius : Flexing 10 x cable \varnothing . Fixed Installation 5 x cable \varnothing

Cable Construction

Tinned copper conductor to Cl. 5, EN 60228.

Silicone core insulation.

Core identification to DIN VDE 0293 - 308 colour coded or black cores with continuous white numbers.

For 2 - cores brown, blue.

For 3 - cores and above cable provided without protective conductor.

For 6 - cores and above all black cores with number coding.

Cores stranded in layers with optimal lay - length.

Outer jacket of Silicone.

Jacket colour - red brown.

Glass fibre tape over the jacket.

Galvanised steel wire outer braiding.

Properties

Galvanised steel braid over the sheath protects against the external mechanical damages. The cable has better durability in harsh environments and applications compared to the conventional silicone cables.

Advantages : Hardly changes of dielectric strength and the insulation resistance also at high temperatures, high ignition or flash point, in case of fire, forms an insulating layer of SiO₂.

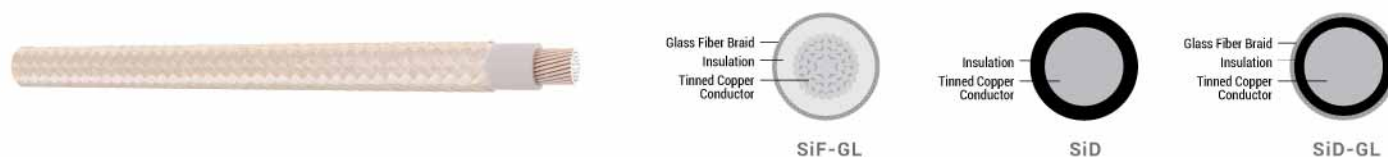
Resistant to : High molecular oils, fats from vegetables and animals, alcohols, plasticisers and clopenes, diluted acids, dyes and salt dissolution, oxidation substances, tropical influences and weather, lake water, oxygen and UV.

Halogen - Free : According to IEC 60754 - 2.

Behavior in Fire : Flame propagation test according to EN 60332 - 1 - 2.

Cable Design Parameters

Part Number	No. of Cores & Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
080400201075	2 x 0.75	7.6	13	94
080400311075	3 x 0.75	8.0	19.6	102
080400411075	4 x 0.75	8.6	26.1	121
080400511075	5 x 0.75	9.3	32.6	134
080400711075	7 x 0.75	10.3	45.6	159
080400200001	2 x 1	7.8	17.4	103
080400310001	3 x 1	8.2	26.1	112
080400410001	4 x 1	8.9	34.8	131
080400510001	5 x 1	9.6	43.5	148
080400710001	7 x 1	10.6	60.8	180
080400201105	2 x 1.5	8.7	25.5	124
080400311105	3 x 1.5	9.2	38.2	142
080400411105	4 x 1.5	9.9	50.9	162
080400511105	5 x 1.5	10.7	63.7	189
080400711105	7 x 1.5	11.9	89.1	229
080401211105	12 x 1.5	15.3	152.8	355
080400201205	2 x 2.5	10.0	42.4	167
080400311205	3 x 2.5	10.6	63.7	191
080400411205	4 x 2.5	11.5	84.9	224
080400511205	5 x 2.5	12.5	106.1	260
080400711205	7 x 2.5	13.9	148.5	321
080400200004	2 x 4	11.8	67.5	234
080400300004	3 x 4	12.5	101.2	269
080400400004	4 x 4	14.0	135	329
080400500004	5 x 4	15.1	168.7	385
080400200006	2 x 6	14.2	101.2	324
080400300006	3 x 6	15.0	151.8	376



Application

SiF-GL are single core silicon cables with fiber glass braid for use in high as well as extremely low temperature areas. They are used mainly in the steel producing industries, in aviation industries as well as in ship building, cement, glass and ceramic factories. SiD/SiD-GL is employed in control cabinet manufacturing, electric motor industry, lighting technology, heating equipment, air conditioning systems.

Standards

Adapted to VDE 0250 part 1 and 502.

Technical Data

Voltage Rating : $U_0 / U - 300 / 500V$

Test Voltage : 2000V

Temperature Range : $-50^{\circ}C$ to $+180^{\circ}C$ (up to $+200^{\circ}C$ for short time with adequate ventilation)

Minimum Bending Radius : Fixed installation : $6 \times$ cable ϕ . One bend at end of core $3 \times$ cable ϕ

Cable Construction

Type SiF-GL :

Tinned copper conductor to EN 60228 Cl. 5.

Silicone core insulation.

Glass - fibre braiding.

Type SiD :

Solid tinned copper conductor with Silicone insulated.

Type SiD-GL :

This variant is similar to SiD with an additional glass - fibre braiding.

Properties

Advantages : High ignition or flash point.

Resistant to : High molecular oils, fats from vegetables and animals, alcohols, plasticisers and diluted acids, dyes and salt dissolution, oxidation substances, tropical influences and weather, lake water, oxygen and UV.

Halogen - Free : According to IEC 60754-2.

Behavior in Fire : Flame propagation test according to EN 60332 - 1 - 2.



Cable Design Parameters

	Part Number	Nominal Cross Sectional Area (Sq. mm)	Approx. Cable Diameter (mm)	Approx. Copper Weight (kg/km)	Approx. Cable Weight (kg/km)
SIF-PYB	80501010180	0.25	2.4	2.4	6
	80501020180	0.50	2.6	4.5	9
	80501030180	0.75	2.9	6.7	12
	80501040180	1.0	3.0	9.0	14
	80501050180	1.5	3.3	12.9	20
	80501060180	2.5	3.9	21.5	31
	80501070180	4.0	4.7	34.1	48
	80501080180	6.0	5.7	51.2	73
	80501090180	10.0	7.5	87.1	126
	80501100180	16.0	8.9	145.1	199
	80501110180	25.0	10.8	225.8	305
	80501120180	35.0	12.1	317.9	415
	80501130180	50.0	14.1	456.2	587
	SID	80601010180	0.2	1.7	2.0
80601020180		0.28	1.8	2.8	5.4
80601030180		0.5	2.0	5.0	8.1
80601040180		0.75	2.1	7.4	10.6
80601050180		1.0	2.3	9.9	13.6
80601060180		1.5	2.5	14.9	18.9
80601070180		2.5	3.2	24.8	31.3
80601080180		4.0	3.9	39.6	49.0
80601090180		6.0	4.4	59.4	70.3
SID-GL		80701010180	0.5	2.4	5.0
	80701020180	0.75	2.5	7.4	14
	80701030180	1.0	2.7	9.9	17
	80701040180	1.5	2.9	14.9	22
	80701050180	2.5	3.6	24.8	35
	80701060180	4.0	4.3	39.6	53
	80701070180	6.0	4.8	59.4	74