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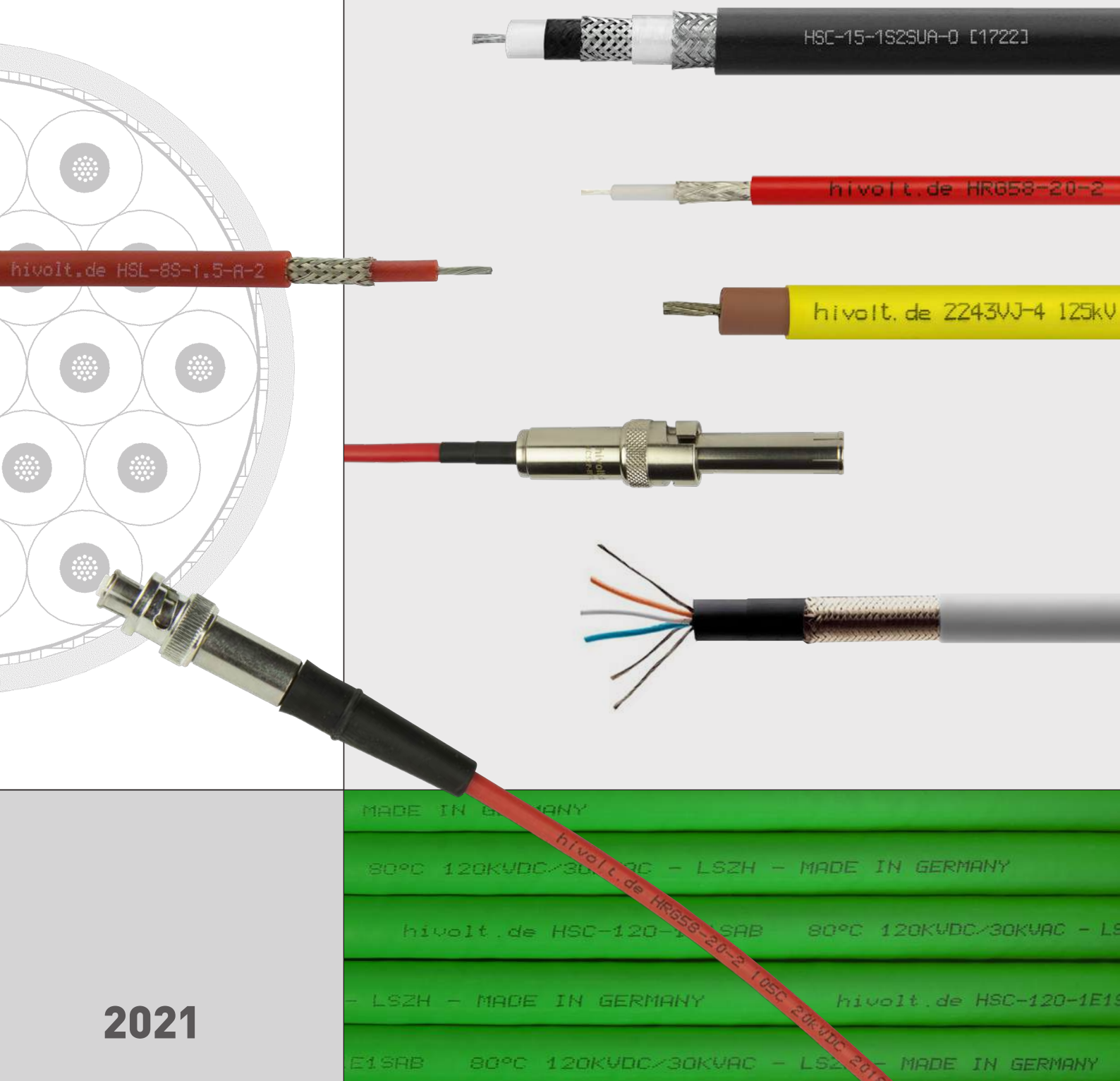
HIGH VOLTAGE CABLE & CONNECTORS

Edition 8



2021

ABOUT US

hivolt.de is an internationally operating specialist for professional high voltage components and power supplies. hivolt.de serves customers in D-A-CH, the whole of Europe and worldwide.
Products which are delivered by hivolt.de are being used in a variety of applications, both in industry as well as in research.
In order to find the optimal products for individual applications, we offer precise counsel to our established and potential customers. If desired, we are also able to support the integration into the customer's end product.
Our logistics cares for a smooth flow of goods and delivery on schedule – continuous and reliable.

Due to our inhouse design capabilities and our close cooperation with several leading manufacturers hivolt.de is able to offer custom-made high voltage products that match our customer's specific applications. This includes variations of standard products or special full custom designs.

ABOUT THIS CATALOG

This catalog comprises a multitude of high voltage cables, connectors and cable assemblies.

Unshielded and Shielded Cable: A wide range of unshielded cables for voltages up to 150kV and shielded cables for voltages up to 320kV. Many cables are furnished with semiconductive layers providing low partial discharge levels and AC ratings. Silicone, PE and EPR dielectrics are standard – miscellaneous dielectrics and custom cables are available on request.

Triaxial Cable: Various triaxial cable types for voltages up to 300kV. Many cable types are furnished with semiconductive layers. These cables feature low partial discharge levels making them an excellent choice for sensitive measurement applications or specific AC or pulsed operation.

X-Ray / E-Beam Cable: High quality, 1, 3, 4 and 5 core cables with EPR or Silicone dielectric for voltages up to 320kV. They are equipped with semiconductive layers, braided shield and robust outer jacket. Many types provide high flexibility making X-Ray cables an excellent choice for safe transmission of high voltage in moving applications. These cables are typically used terminated as complete cable assemblies.

Special Cable: Special and multiconductor cables in many different configurations. Customer applications often demand for specific solutions, e.g. the transmission of low voltage signals on high voltage potential. hivolt.de is able to provide custom cable for applications where special cables are required.

HV Connectors Cable Assemblies and Receptacles: Standard HV Connectors for voltages up to 100kV. We offer coaxial HV connectors up to 20kV as well as single and multi pin HV connectors in different designs.
We supply cables terminated with HV connectors as fully tested high voltage cable assemblies.
High voltage molded rubber and resin cast cable terminations and mating receptacles are available for voltages up to 300kV. Typical applications include industrial X-Ray, electron beam welding, analytical instruments, electron microscopes, test stations, high energy, pulsed power and particle physics.

DISCLAIMER

The information given in this catalog is technical data, not assured product characteristics. It has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. All drawings and pictures are not to scale. All values and dimensions without given tolerances are nominal. The content is subject to change without notice. The user has to ensure by adequate tests that the product is suitable for his application regarding safety and technical aspects. hivolt.de GmbH & Co. KG does not assume any liability arising out of the application or use of any product described. The technical data is based on manufacturer's information.

The intended use for almost all cables in this catalog is short term testing/measurement. The cables are not suitable for medium/high voltage utility power applications, unless otherwise stated.
The following must be taken into account: Insulation wall thickness and test voltages are not in line with common standards requirements. Special care and attention is required when using the cables.

SAFETY ADVICE

Design, installation and inspection of machinery and devices carrying high voltage require accordingly trained and qualified personnel. Appropriate safety rules and directives must be complied with. Improper handling of high voltage can mean severe injuries or death and may cause serious collateral damage!

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UNSHIELDED HIGH VOLTAGE CABLES

RATED VOLTAGE DC [kV]	RATED VOLTAGE AC [kV]	TYPE	CONDUCTOR SIZE [AWG]	CONDUCTOR SIZE [mm²]	DIELECTRIC MATERIAL	OUTER DIA [mm]	MAX. OPER. TEMP. [°C]	UL	INFO	STA-TUS	PAGE
2		HPA-0226-7-AG-0	26	0.14	PFA	1.3	205	-	Series[1]	S	18
3		HXW-03-24-12	24	0.24	XLPE	1.6	105	UL	Series[1]	O	28
5		HSW-0516-0	16	1.32	Silicone	2.7	150	UL	Series[1]	P	24
6		HSW-0624-0	24	0.24	Silicone	2.3	150	UL	Series[1]	P	24
6		HXW-06-24-9	24	0.24	XLPE	1.7	105	UL	Series[1]	O	28
10	(6.7)	8511R	15	1.53	Silicone	4.8	150	-		P	44
10		HSW-1012-2	12	3.29	Silicone	4.2	150	UL	Series[1]	P	24
10		HSW-1022-2	22	0.36	Silicone	2.7	150	UL	Series[1]	P	24
10		HXW-10-24-9	24	0.24	XLPE	1.9	105	UL	Series[1]	O	28
15		2075	12	3.1	Silicone	6	200	-		S	33
15		2132	6	13.6	Silicone	7.6	149	-		P	37
15		HSW-1514-2	14	2.08	Silicone	3.9	150	UL	Series[1]	P	24
18		HFP-1824-19-0	24	0.24	FEP	1.27	200	-	Series[1]	S	16
20		2185R	20	0.51	Silicone	3.2	149	-		S	40
20	(6.6)	HSL-20-0.38-B-9	22	0.38	Silicone	4.95	180	-		P	45
20		HST-2006-133-2	6	13.6	Silicone	8.0	150	UL	Series[1]	S	20
20		HSW-2012-2	12	3.29	Silicone	4.9	150	UL	Series[1]	P	24
20		HSW-2018-0	18	0.81	Silicone	3.8	150	UL	Series[1]	P	24
20		HSW-2022-2	22	0.36	Silicone	3.4	150	UL	Series[1]	P	24
20		HTV-20-22-2	22	0.36	PE-X	4.7	105	UL		S	48
30		2178	20	0.51	Silicone	4.7	149	-		S	39
30		HFP-3020-19-2	20	0.61	FEP	2.54	200	-	Series[1]	S	16
30		HSX-3014-41-2	14	2.09	Silicone	6.5	150	UL	Series[1]	P	26
30		HSX-3018-16-9	18	0.81	Silicone	5.8	150	UL	Series[1]	P	26
30		HSX-3022-7-9	22	0.36	Silicone	5.5	150	UL	Series[1]	P	26
30		HTV-30-22-2	22	0.36	PE-X	5	105	UL		P	49
40		2012	18	0.97	Silicone	6	200	-		S	29
40		HSL-40-0.97-A-9	18	0.97	Silicone	6.2	200	-		P	46
40		HSL-40-35-A-9	2	35	Silicone	16.3	140	-		S	47
40		HST-4008-133-9	8	8.54	Silicone	9.2	150	UL	Series[1]	S	20
40		HSW-4010-9	10	5.32	Silicone	7.8	150	UL	Series[1]	P	24
40		HSW-4022-2	22	0.36	Silicone	5.7	150	UL	Series[1]	P	24
50		2032	16	1.2	Silicone	7.5	200	-		S	31
50		HTV-50-22-2	22	0.36	PE-X	6.6	105	UL		P	50
60		2024	12	3.1	Silicone	9.1	200	-		S	30
60		2149	18	0.97	LDHMW PE	5.9	60	-		P	38
80		2229	12	3.1	Silicone	10.7	200	-		P	41
100		2062	8	8.5	Silicone	16.5	200	-		S	32
100		2124A	16	1.2	LDHMW PE	9.4	60	-		P	35
100		2125A	12	3.1	LDHMW PE	9.4	60	-		S	36

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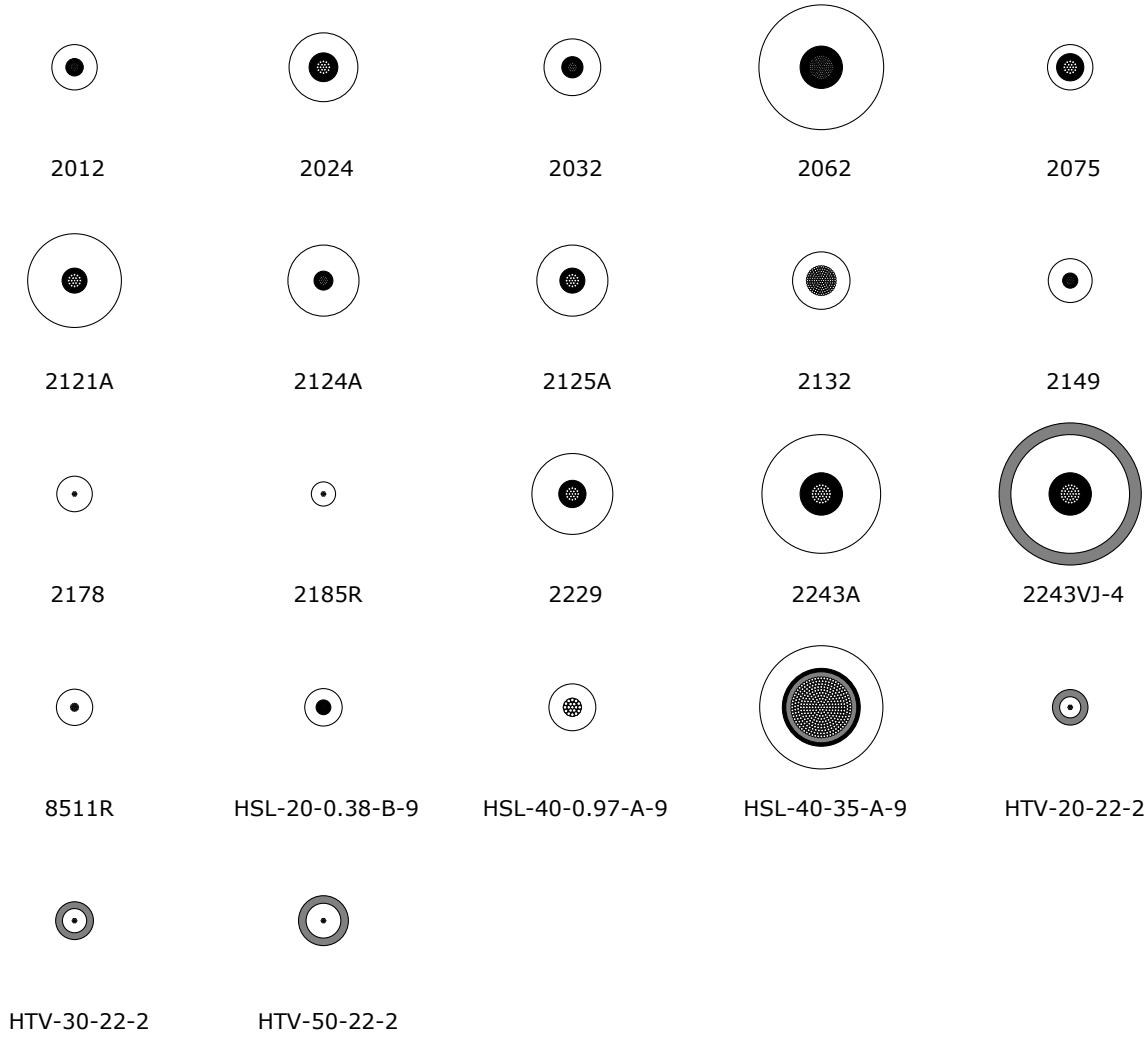
125		**2243A**	8	8	EPR	15.7	121	-		S	42
125		**2243VJ-4**	8	8	EPR	18.8	80	-		S	43
150		**2121A**	12	3.1	LDHMW PE	12.4	60	-		P	34

[1] The wire types marked as Series are represented here as examples. For detailed information and cross section views on the whole series, please refer to the respective page.

Note:
Operation of unshielded cables at AC voltages requires careful tests and long term qualification for the specific application. All AC ratings for unshielded cables are given for orientation only.

▪ UNSHIELDED HIGH VOLTAGE CABLES – CROSS SECTION VIEWS



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SHIELDED HIGH VOLTAGE CABLES

RATED VOLTAGE DC [kV]	RATED VOLTAGE AC [kV]	TYPE	CONDUCTOR SIZE [AWG]	CONDUCTOR SIZE [mm²]	DIELECTRIC MATERIAL	JACKET MATERIAL	OUTER DIA [mm]	MAX OPER. TEMP. [°C]	UL	INFO	STA-TUS	PAGE
8	3	**HSL-8S-0.75-B-2**	18	0.75	Silicone	Silicone	4.9	150	-		P	91
8	3	**HSL-8S-1.5-A-2**	16	1.5	Silicone	Silicone	6.7	150	-		P	92
10		**2232**	6	13.6	LDHMW PE	TPR	12.7	60	-		S	70
10	1	**HRG316-10-B-2**		0.18	FEP	FEP	2.45	200	-		P	79
10	3	**HSL-10S-0.5-A-2**		0.5	Silicone	Silicone	4.9	180	-		P	93
10		**HSL-10S-1.5-U-A-2**	16	1.5	Silicone	Silicone	6.9	150	UL		Y	94
10		**HSUS-1022-19-2**	22	0.38	Silicone	Silicone	5.6	150	UL	Series[1]	P	54
15	5	**2075S**	12	3.1	Silicone		7.1	200	-		S	63
15	5	**2075SVJ**	12	3.1	Silicone	PVC	9.7	60	-		S	64
15		**HSL-15S-3.9-A-2**	12	3.9	Silicone	Silicone	8.9	150	-		P	95
15	6	**HSL-15S-6-A-9**	10	6.0	Silicone	Silicone	11.6	180	-		P	96
20		**HRG58-20-2**		0.50	PE-X	TPE-U (PUR)	4.95	105	-		P	76
20		**HRG58-20-XV-U-2**		0.50	PE-X	PVC	5.1	105	UL		P	77
20	6.6	**HSL-20-0.38-SS-C-0**	22	0.38	Silicone	Silicone	7.3	140	-		P	97
20	6.6	**HSL-20-0.38-SS-F1-0**	22	0.38	Silicone	Special Silicone	7.5	180	-		E	98
20	6.6	**HSL-20-0.38-SS-P1-0**	22	0.38	Silicone	Special Silicone	7.5	140	-		E	99
20		**RG213-020**		3.1	PE	PVC	10.3	70	-		P	105
30		**130660**	22	0.36	HDFRPE	PVC	5.5	80	-		P	56
30		**HPW-30S-0.34-A-2**	22	0.34	PE-X	PE-X	5.45	105	-		P	73
30	9	**HSL-30-0.38-SS-C-0**	22	0.38	Silicone	Silicone	11.1	140	-		E	100
30	10	**HSL-30-6-SU-A-x**	10	6.0	Silicone	TPE-U	12.3	90	-		S	101
30		**HTV-30S-22-0**	22	0.36	PE-X	PVC	5.45	105	UL		P	102
30		**HTV-30S-22-2**	22	0.36	PE-X	PVC	5.45	105	UL		P	103
40	15	**2012S**	18	0.97	Silicone		7.1	200	-		S	57
40	15	**2012STJ**	18	0.97	Silicone	TPR	10.2	80	-		S	58
40		**HPW-40S-0.5-A-2**	20	0.5	PE-X	PUR	6.6	80	-		S	74
40	1.4	**HRG303-40-U-A-2**		0.69	FEP	FEP	4.30	200	UL		P	78
50	15	**2032S**	16	1.2	Silicone		8.3	200	-		S	60
50	15	**2032STJ**	16	1.2	Silicone	TPR	10.7	80	-		S	61
50	6	**HPW-50S-0.34-A-2**	22	0.34	PE-X	PVC	7.28	80	-		S	75
50	15	**HSC-50-1S1SUA-0**	16	1.33	Silicone	TPE-U	11.7	90	-		P	81
	17	**HSC-17-1SSSOB-2**		6	Silicone	Silicone / Polyester	12.9	150	-		E	80
60	20	**2024SVJ**	12	3.1	Silicone	PVC	12.7	60	-		S	59
60		**2149SVJ**	18	0.97	LDHMW PE	PVC	8.6	60	-		P	69
60	20	**HSC-60-1PSUA-2**	18	0.97	LDHMW PE	TPE-U	7.9	60	-		P	82
60		**HXC-60-1EA-8**	14	2.0	EPR (black)	PVC	11.1	70	-		P	104

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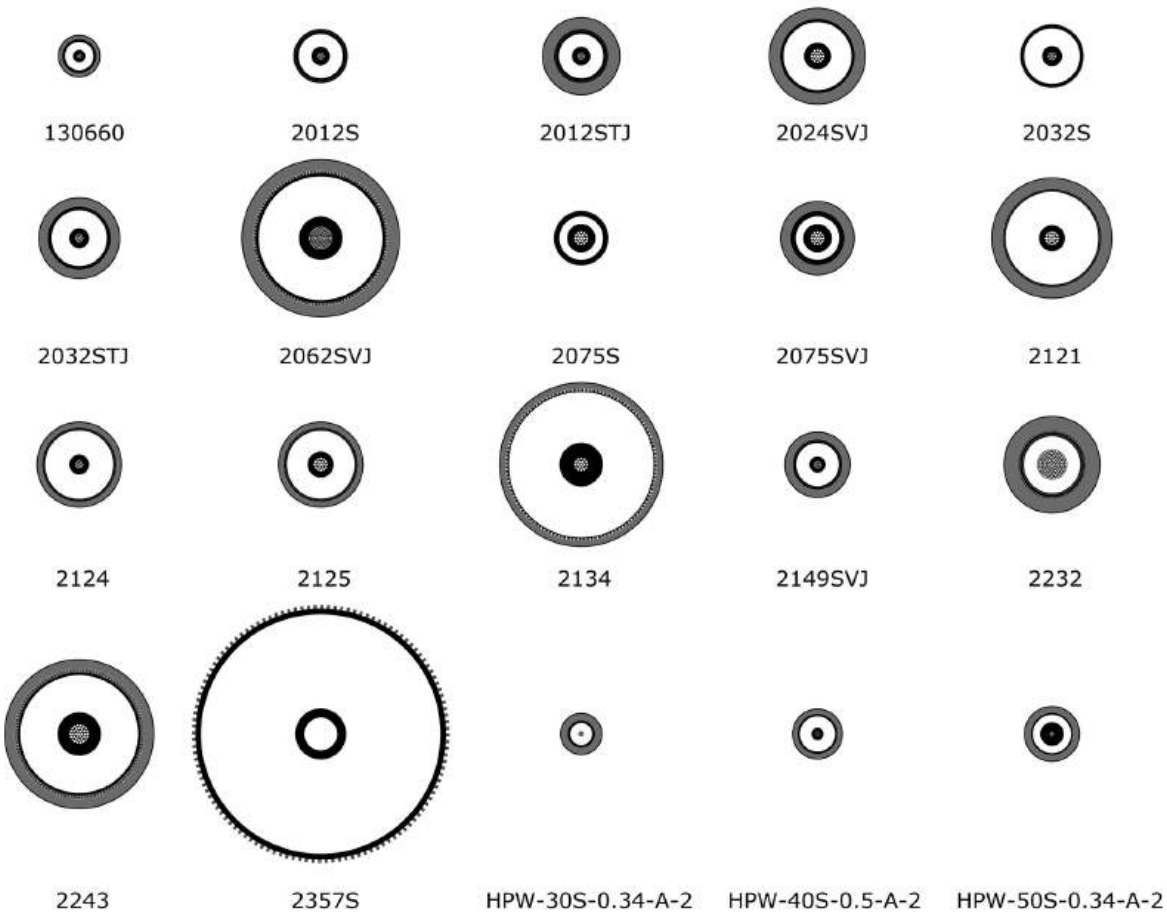
100	30	**2062SVJ**	8	8.5	Silicone	PVC	20.8	60	-		S	62
100		**2124**	16	1.2	LDHMW PE	PVC	11.2	60	-		P	66
100		**2125**	12	3.1	LDHMW PE	PVC	11.2	60	-		S	67
100	30	**HSC-100-1PSUB-2**	16	1.2	LDHMW PE	TPE-U	13.4	60	-		E	83
111		**HSC-111-1X1SVA-2**		50	XLPE	PVC	44.0	90	-		P	84
120	30	**HSC-120-1E1SAB-2**		6	EPR	EVA EM8	20.6	60	-		P	85
125	40	**2243**	8	8	EPR	PVC	19.7	80	-		P	71
125	40	**HSC-125-1E1SAB-2**		10	EPR 3GI3	EVA EM8	21.3	80	-		S	86
125		**HSC-125-1E1SVA-0**	6	13	EPR	PVC	19.7	80	-		S	88
150		**2121**	12	3.1	LDHMW PE	PVC	15.9	60	-		P	65
150	60	**HSC-150-1E1SAB-2**		10	EPR	EVA EM8	26.0	50	-		S	89
150	45	**HSC-150-1PSUB-2**	12	3.1	LDHMW PE	TPE-U	16.6	60	-		E	90
200		**2134**	12	3.1	LDHMW PE	PVC	21.6	60	-		S	68
230	75	**2042**			EPR	PVC	31.1	60	-	X-Ray	P	128
300	100	**2357S**	4	21.2	EPR		34.0		-		S	72
320	115	**2236**			EPR	PVC	38.2	60	-	X-Ray	P	133

[1] A large variety of HSUS Series High Voltage Wires is available. For detailed information, please refer to page 54

▪ SHIELDED HIGH VOLTAGE CABLES – CROSS SECTION VIEWS



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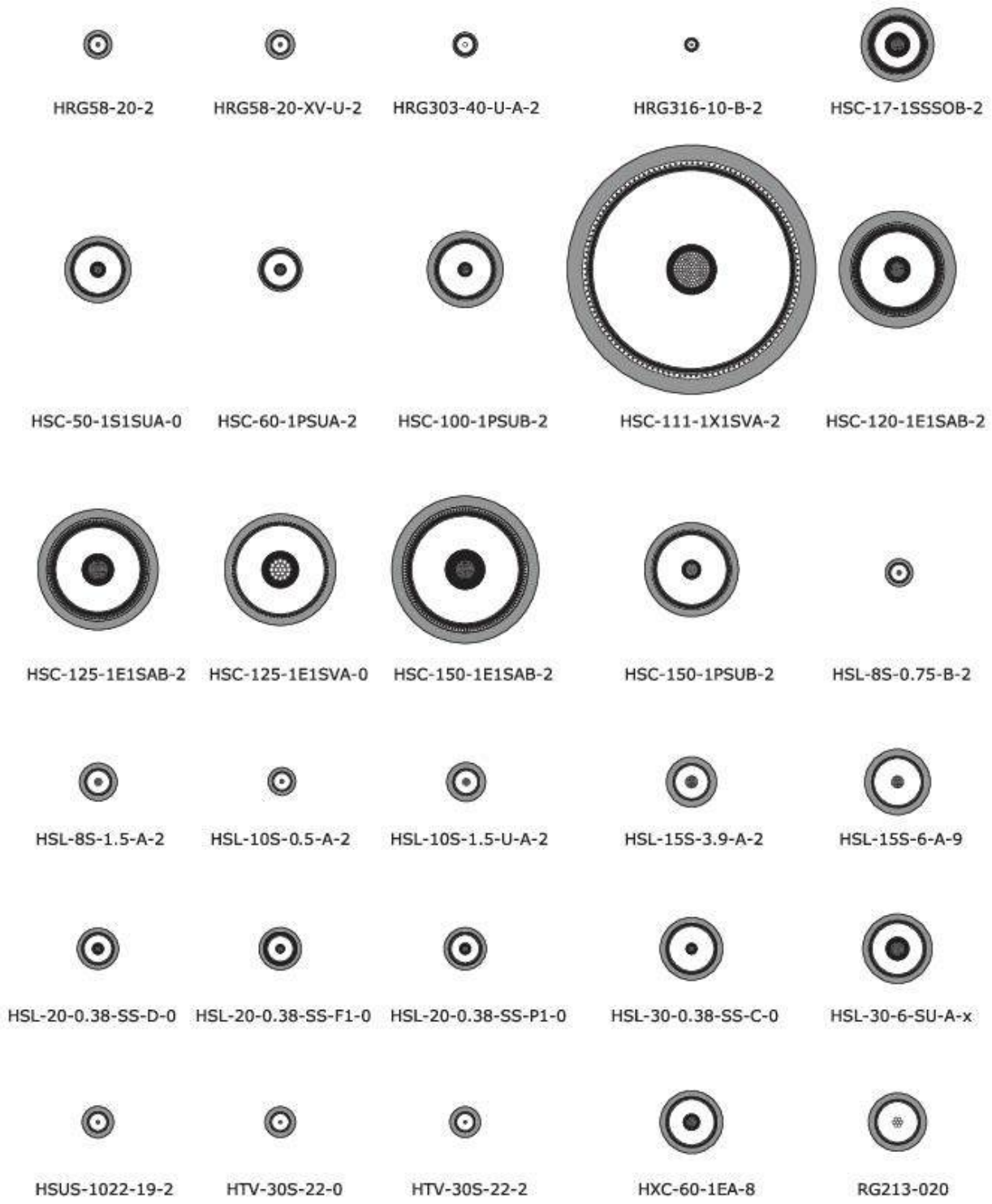

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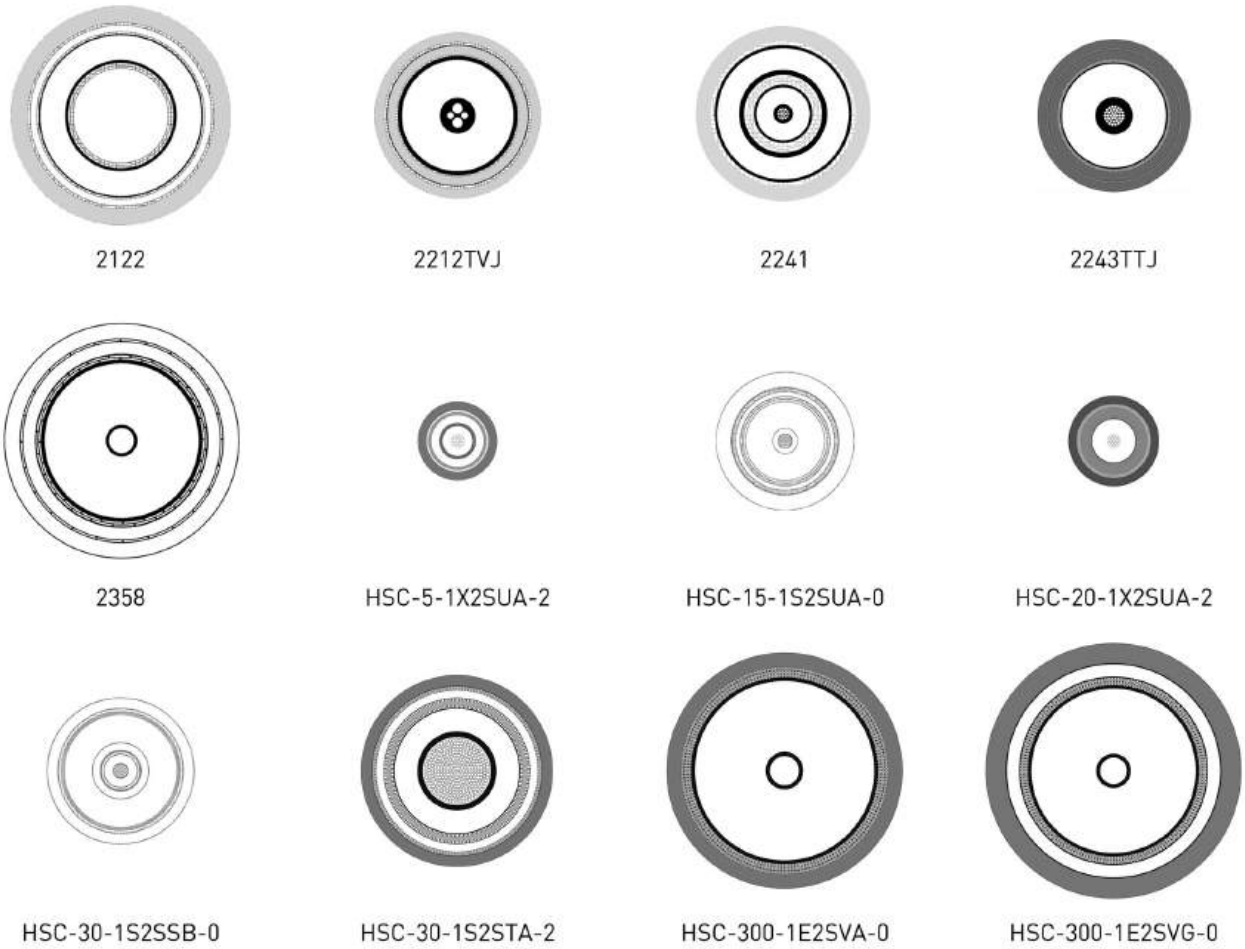
TRIAXIAL HIGH VOLTAGE CABLES

RATED VOLTAGE		TYPE	DESCRIPTION	CONDUCTORS		DIELECTRIC MATERIAL	JACKET MATERIAL	OUTER DIAMETER	MAX. OPER. TEMP.	STA-TUS	PAGE
DC [kV]	AC [kV]			#	SIZE [AWG]			[mm]	[°C]		
5		HSC-5-1X2SUA-2	5kV between shields	1	21	PE-X	TPE-U	5.0	105	S	115
20		HSC-20-1X2SUA-2	low noise	1	20	PE-X	TPE-U	6.1	105	P	118
22.5		2122	pulse cable, 5kV between shields	1	4	EPR	PVC	41.9	60	E	110
30		HSC-30-1S2SSB-0	shielded core	1	18	SILICONE	SILICONE	11.0	140	E	119
30		HSC-30-1S2STA-2	two shields: 35mm², 11mm²	1	35mm²	SILICONE	TPE-O	25.0	105	E	120
(50)	15	HSC-15-1S2SUA-0	low PD, very robust	1	16	SILICONE	TPE-U	14.3	90	P	116
60		HXC-60-3S1SUA-0	e-beam	3		SILICONE	TPE-U	25.4	90	Y	142
75	25	2241	quadraxial	1	14	EPR	PU	25.4	60	S	112
100	30	2212TVJ	double shielded X-Ray	3	10	EPR	PVC	24.1	60	S	111
125	40	2243TTJ	triax 2243	1	8	EPR	TPR	23.0	105	S	113
300		2358	25kV between shields	1	4	EPR	PVC	46.7	60	S	114
300		HSC-300-1E2SVA-0	double shield	1	4	EPR	PVC	41.7	100	S	121
300		HSC-300-1E2SVG-0	50kV between shields	1	4	EPR	PVC	49.3	60	S	122
320		HXC-320-3EUB-0	e-beam	3		EPR	PUR	38.2	80	E	144

▪ TRIAXIAL HIGH VOLTAGE CABLES – CROSS SECTION VIEWS



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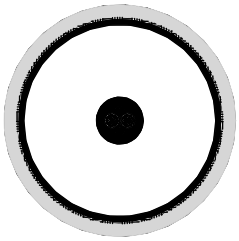
X-RAY / E-BEAM HIGH VOLTAGE CABLES

RATED VOLTAGE DC [kV]	RATED VOLTAGE AC [kV]	TYPE	NO. OF CONDUC-TORS	DIELECTRIC MATERIAL	JACKET MATERIAL	OUTER DIAMETER [mm]	MAX. OPER. TEMP. [°C]	INFO	STA-TUS	PAGE
60		**HXC-60-3S1SUA-0**	3	SILICONE	TPE-U	25.4	90	e-beam	Y	142
75	25	**2214**	3	EPR	PVC	16.5	60		P	131
75	25	**2226**	4	EPR	PVC	16.8	60		S	132
75		**HXC-75-3ED-8**	3	EPR	PVC	13.2	70		S	136
75		**HXC-75-4EC-9**	4	EPR	PVC	16.7	70		P	137
100	30	**2171**	5	EPR	PVC	21.5	60		S	129
100	30	**2212**	3	EPR	PVC	19.9	60		P	130
100		**HXC-100-3EA-8**	3	EPR	PVC	20.0	70		P	138
160	50	**2266**	4	EPR	PVC	26.4	60		S	134
160		**HXC-160-3EB-8**	3	EPR	PVC	22.9	70		S	139
160		**HXC-160-3EC-0**	3	EPR	PVC	29.0	70		S	140
230	75	**2042**	3	EPR	PVC	31.1	60		P	128
300		**HXC-300-3EA-0**	3	EPR	PU	49.0			S	141
320	115	**2236**	3	EPR	PVC	38.2	60		P	133
320	115	**2338**	4	EPR	PVC	38.2	60		S	135
320		**HXC-320-3EUB-0**	3	EPR	PUR	38.2	80	e-beam	E	144

▪ X-RAY / E-BEAM HIGH VOLTAGE CABLES – CROSS SECTION VIEWS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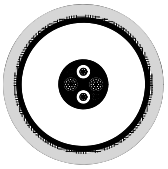
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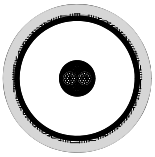
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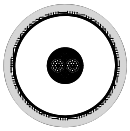
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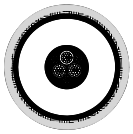
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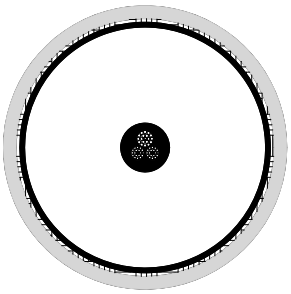
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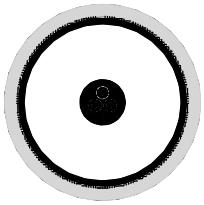
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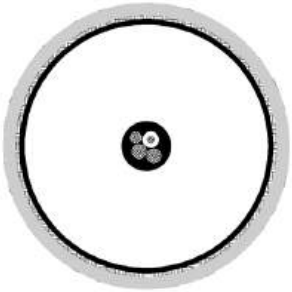
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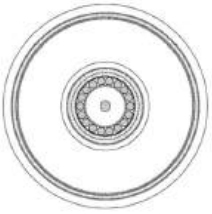
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HXC-75-3ED-8

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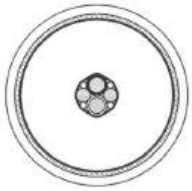
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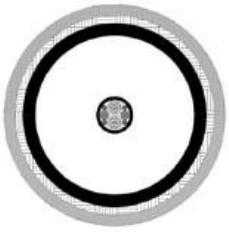
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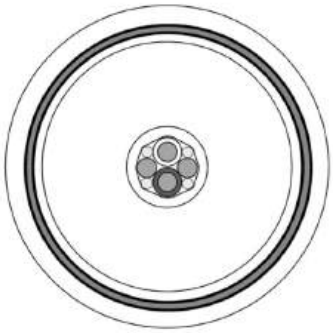
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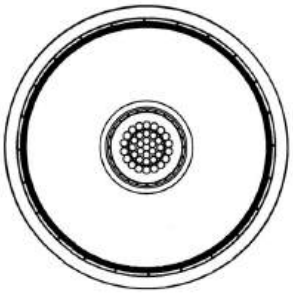
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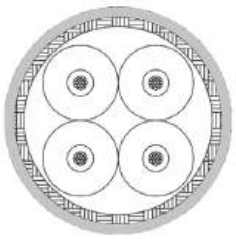
SPECIAL HIGH VOLTAGE CABLES

RATED VOLTAGE DC [kV]	RATED VOLTAGE AC [kV]	TYPE	DESCRIPTION	CONDUCTORS #	CONDUCTORS SIZE [AWG]	DIELECTRIC MATERIAL	JACKET MATERIAL	OUTER DIAMETER [mm]	MAX. OPER. TEMP. [°C]	STA-TUS	PAGE
	0.25	HSC-0.25-8Q1SFA-6	low capacitance, multiconductor	8	28	PTFE-E Tape	FEP	15.8	180	E	154
	1	HSC-1-2SSUB-0	HF, power	2	10	SILICONE	TPE-U	15.1	90	S	155
	1	HSC-1-4SSUA-6	HF, power	4	11	SILICONE	TPE-U	18.7	80	S	156
	3	HSC-3-2A1SAB-0	MV measurement	2	6mm²	EVA	EVA	19.0	90	S	158
	3	HSC-3-2S1SSB-0	signal/power on HV	2	18	SILICONE	SILICONE	9.4	180	E	160
7.5	3	HSC-7.5-2K2SA	radiation resistant pump cable	2	22	PEEK	V2A BRAID	5.0	200	S	162
8	2.5	HSC-2.5-7SSB-2	HV insulated control cable	7	26	FEP	SILICONE	9.0	150	E	157
9		106331	shielded with additional LV wire	1 1	≈23 ≈20	PE	PVC	1.6	80	S	148
10		HSC-10-6SSSA	multiconductor	6	20	SILICONE	SILICONE	14.1	90	E	163
15		2181-1	outer shield	2 2	6 20	SILICONE	PVC	20.3	60	E	150
15		2183	outer shield	3	8	SILICONE	NEOPRENE	18.5	60	E	151
15		2201	outer shield	2 2	10 20	SILICONE	PVC	13.7	60	E	
15		2207	outer shield	2 2	4 20	SILICONE	PVC	22.9	60	E	
15		2211-R1	outer shield	2 2	8 20	SILICONE	PVC	15.8	60	E	
15	5	HSC-5-7X2SVA-2	HV insulated control cable	7	26	PP / PE	PVC	10.6	85	E	161
21	15	HSC-15-2SSA-9	signal/power on HV	2	17	SILICONE	SILICONE	19.5	150	S	164
30		2187	outer shield	3	20	SILICONE	TPR	13.5	104	E	
30		HSC-30-3S2SUC-0	double shield	3	14 20	SILICONE	TPE-U	23.5	90	E	165
30		HSC-30-9SSC-2	unshielded	8 1	22 12	SILICONE	SILICONE	19.1	150	E	167
40		2176	outer shield	4	18	SILICONE	PVC	19.0	60	E	
50		2111	outer shield	4	16	SILICONE	NEOPRENE	24.1	60	E	149
50		2188	outer shield	5	16	SILICONE	PVC	24.6	60	E	152
50		2228	inner shields	3	16	SILICONE	PVC	21.1	60	E	
60		2233	outer shield	19	18	PE	PVC	30.5	60	E	153

▪ SPECIAL HIGH VOLTAGE CABLES – CROSS SECTION VIEWS

106331



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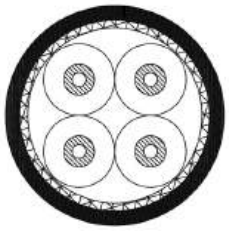

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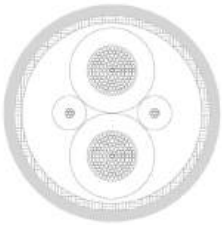

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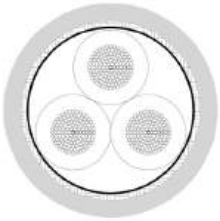
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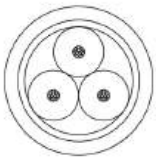
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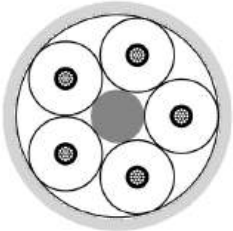
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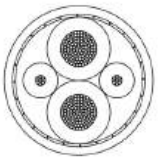
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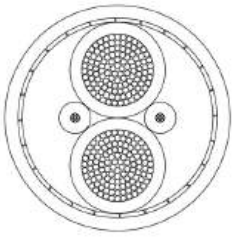
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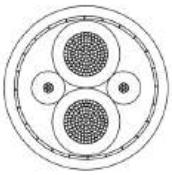
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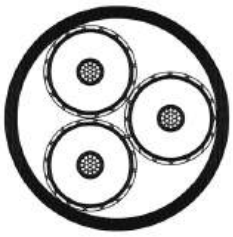
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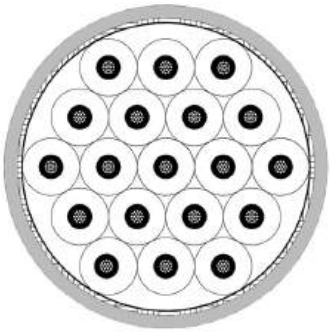
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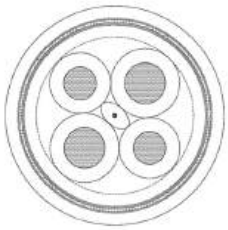
HSC-1-2SSUB-0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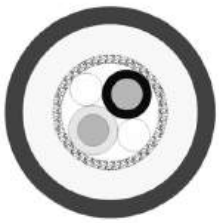
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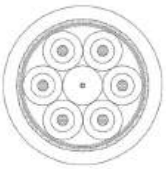
HSC-5-7X2SVA-2

HSC-7.5-2K2SA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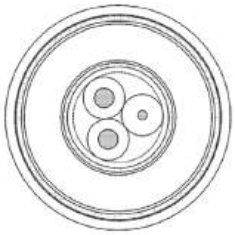
HSC-15-2SSA-9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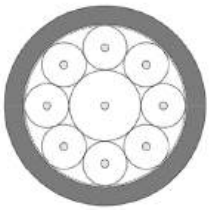
HSC-30-9SSC-2

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A wide range of unshielded cable types for voltages up to 150kV$_{DC}$. Many cable types are furnished with semiconductive layers. These layers are smoothing the electrical field, lowering the field strength and provide low partial discharge levels.
Silicone, PE and EPR dielectrics are standard – miscellaneous dielectrics on request.

UL recognized appliance wiring material – AWM style 3239 and other UL styles.

hivolt.de is able to provide modified standard types or full custom designed cable for applications where special cable types are required.

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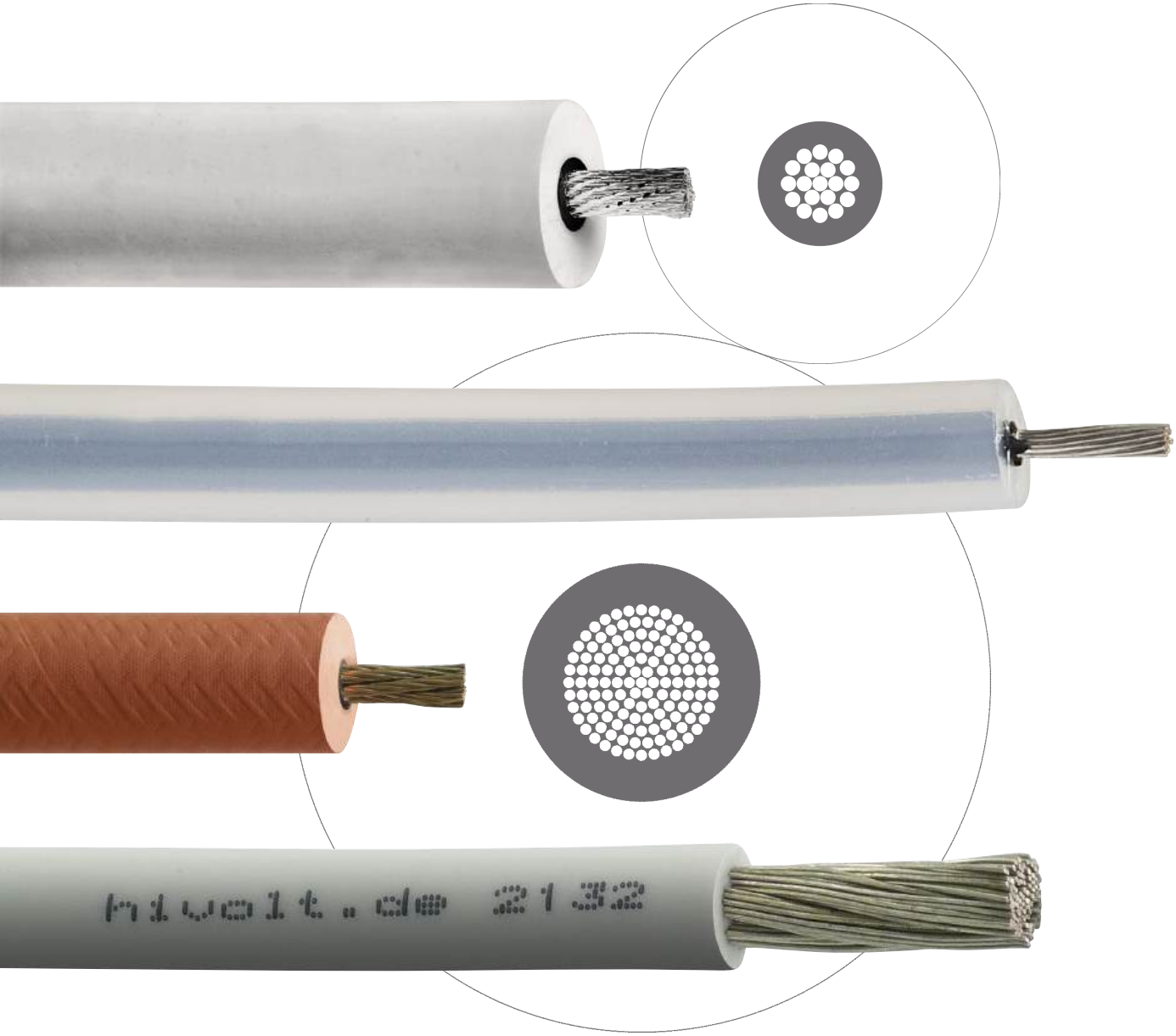
UNSHIELDED HIGH VOLTAGE CABLE



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HFP Series

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UNSHIELDED HIGH VOLTAGE / HIGH TEMPERATURE WIRE
18kV$_{DC}$ – 30kV$_{DC}$ - FEP, ETCHED FEP AND SILICONE COATED FEP – INTERNAL USE

FEATURES

- Extremely Small Diameter - High Flexibility
- Operating Temperature: -55°C - +200°C
- Bondable Surface: pre-etched or Silicone coated
- High Voltage up to 30kV$_{DC}$
- 28 AWG - 18 AWG Conductors - Silver Plated Copper
- Ozone and Corona Resistant
- Reference: MIL-W-22759
- FEP Resins Meet Flammability Requirements of UL94V-0
- RoHS Compliant

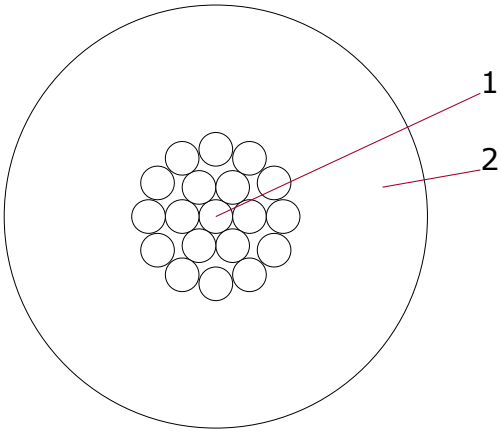
APPLICATIONS

- Laser Systems
- High Voltage Transformers
- Military & Space
- Industrial & Medical
- High Voltage Power Supplies

Fluorinated Ethylene Propylene (FEP) offers an excellent combination of properties that include: exceptional dielectric properties, a low dielectric constant over a wide frequency range, chemical inertness including transformer oils and dielectric fluids, heat resistance with retention of properties after service at 204° C, toughness, flexibility, possesses a very high degree of stress crack resistance, low coefficient of friction, low flammability, negligible moisture absorption, has long term weatherability and excellent resistance to ozone sunlight and weather.
FEP offers the lowest refractive index of all thermoplastics with low light reflection (the same as water).

HFPE: pre-etched surface is compatible with epoxy based potting materials.
HFPS: Silicone coated surface is compatible with RTV/Silicone based potting materials and adhesives..

HFP, HFPE WIRES



1. Conductor	Silver plated copper wires
2. Dielectric	HFP Series: FEP HFPE Series: Pre-etched FEP

Pre-etching provides a bond ready FEP surface compatible with epoxy based potting materials.

The shelf life of the etching on the HFPE wires is normally 6 months or longer when protected from ultra-violet light (sunlight).

HFP TYPE	HFPE TYPE	RATED VOLTAGE [kV$_{DC}$]	SIZE [AWG]	STRANDS [n/AWG]	OUTER DIA [mm]
HFP-1828-19-*	**HFPE-1828-19-***	18	28	19/40	1.02
HFP-1826-19-*	**HFPE-1826-19-***	18	26	19/38	1.14
HFP-2026-19-*	**-**	20	26	19/38	1.27
HFP-1824-19-*	**HFPE-1824-19-***	18	24	19/36	1.27
HFP-2022-19-*	**HFPE-2022-19-***	20	22	19/34	1.52
HFP-2520-19-*	**HFPE-2520-19-***	25	20	19/32	2.03
HFP-3020-19-*	**HFPE-3020-19-***	30	20	19/32	2.54
HFP-3018-19-*	**-**	30	18	19/30	3.30

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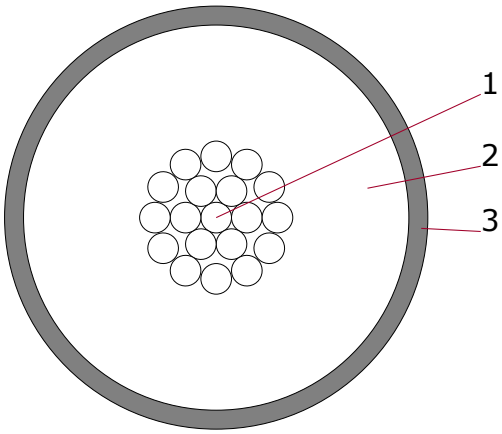
HFPS WIRES



1. Conductor	Silver plated copper wires
2. Dielectric	FEP
3. Coating	Silicone

Silicone coating provides a bond ready jacket compatible with RTV based potting materials and adhesives.

HFPS TYPE	RATED VOLTAGE [kVDC]	SIZE [AWG]	STRANDS [n/AWG]	DIELECTRIC DIA [mm]	OUTER DIA [mm]
HFPS-1828-19-*	18	28	19/40	1.02	1.32
HFPS-1824-19-*	18	24	19/36	1.27	1.52
HFPS-2022-19-*	20	22	19/34	1.52	1.78
HFPS-2520-19-*	25	20	19/32	2.03	2.29
HFPS-3020-19-*	30	20	19/32	2.54	2.79

Thicker silicone coating available on request.

ORDERING INFORMATION

Ordering example for part number: **HFPE-3020-19-2**

HFPE	-	**30**	**20**	-	**19**	-	**2**
Base Part Designation		Voltage Rating [kVDC]	Conductor Size [AWG]		No. of Strands		Color Code

COLOR CODE

0 black	1 brown	**2 red**	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	**9 white**	10 natural	

Preferred colors shown in **bold**. Minimum order quantities may apply.

The HFP series wires are normally not stocked.

For abrasive applications Nomex braid is available optionally.

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HPA Series

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UNSHIELDED HIGH VOLTAGE / WIDE TEMPERATURE RANGE PFA WIRE
2kV$_{DC}$ / AWG26 - AWG24 – INTERNAL USE

FEATURES

- Operating Temperature: -100°C up to +250°C
- PFA Dielectric
- High Flexibility
- 26 AWG - 24 AWG Conductors
- Silver Plated or Nickel Plated Stranded Copper Wires
- Resistant to UV, Ozone, Weather and Oil
- RoHS Compliant

TYPICAL APPLICATIONS

- Wiring in Hot or Cold Environment
- Wiring in Abrasive Environment, eg. Moisture or Chemicals
- Wiring in Confined Spaces

Perfluoroalkoxy Alkane (PFA) offers an excellent combination of properties that are similar to those of polytetrafluoro-ethylene (PTFE). PFA wires have better anti-stick properties and higher chemical resistance. They are preferred when extended service is required in hostile environments involving chemical, thermal, and mechanical stress. Compared to FEP, they are more capable to withstand repeated bending without fracture.

The HPA series includes unshielded high voltage wires with conductor made of stranded copper wires and PFA dielectric. The copper wires are silver plated or nickel plated, resulting in two different operating temperature ranges: up to 205°C or 250°C respectively.

TECHNICAL DATA

Rated Voltage		2kV$_{DC}$
Test Voltage		4kV$_{DC}$
Conductor	**..-AG-.. types**	Silver plated stranded copper wires
Conductor	**..-NI-.. types**	Nickel plated stranded copper wires
Dielectric		PFA
min. Bend Radius		8 * Outer Diameter (moving) 4 * Outer Diameter (fixed installation)
Operating Temperature	**..-AG-.. types**	-100°C - +205°C (fixed installation)
Operating Temperature	**..-NI-.. types**	-100°C - +250°C (fixed installation)
RoHS Compliant		Yes

TYPE OVERVIEW

TYPE	RATED VOLTAGE [kV$_{DC}$]	SIZE [AWG]	STRANDS [n/AWG]	CONDUCTOR PLATING	OUTER DIAMETER [mm]
HPA-0226-7-AG-0	2	26	7/34	Ag	1.30 ±0.10
HPA-0224-19-AG-0	2	24	19/36	Ag	3.10 ±0.15
HPA-0224-19-NI-0	2	24	19/36	Ni	3.10 ±0.15

Other conductor constructions are available on request

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ORDERING INFORMATION

Ordering example for part number: **HPA-0226-7-AG-0**

HPA	-	02	26	-	7	-	AG	-	0
Base Part Designation		Voltage Rating [kV_{DC}]	Conductor Size [AWG]		No. of Strands		Conductor Plating		Color Code (black)

The HPA series wires are normally not stocked. Minimum order quantity may apply for certain types.

It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

HPA SERIES CROSS SECTION VIEWS

HPA-0226-7-AG-0

HPA-0224-19-AG-0

HPA-0224-19-NI-0

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UNSHIELDED SILICONE HIGH VOLTAGE / HIGH CURRENT / HIGH TEMPERATURE APPLIANCE WIRE
20kVDC - 60kVDC – AWM STYLE 3616 – INTERNAL USE

FEATURES
- 8 AWG - 2 AWG Conductors t.p.c.
- High Temperature 150°C rating
- High Flexibility
- Ozone and Corona Resistant
- Meets VW-1 Flame Test
- RoHS Compliant

TYPICAL APPLICATIONS
- Heaters, Furnaces, Ovens
- Motors, Generators, Dryers
- Corona Treating Equipment

TYPE OVERVIEW

CONDUCTOR				RATED VOLTAGE [kVDC]								
				20	25	30	35	40	45	50	55	60
SIZE [AWG]	STRANDS [n/AWG]	AREA [mm²]	DIAMETER [mm] [inch]	NOM. OUTER DIAMETER [mm] [inch]								
8	133/29	8.54	4.3 .169	6.9 .270	7.5 .295	8.1 .320	8.6 .340	9.2 .363	10.5 .412	11.5 .452	11.9 .468	12.2 .482
6	133/27	13.6	5.4 .213	8.0 .315	8.6 .340	9.3 .365	9.8 .385	10.4 .408	11.6 .455	12.6 .495	13.0 .512	13.3 .525
4	133/25	21.5	6.8 .269	9.5 .375	10.0 .395	10.7 .420	11.2 .440	11.8 .463	13.0 .513	14.0 .552	14.4 .568	14.8 .582
2	133/23	34.3	8.5 .336	11.2 .440	11.8 .463	12.4 .490	12.9 .508	13.5 .530	14.7 .580	15.7 .618	16.1 .635	16.5 .648

The above list represents standard constructions for UL 3616.

ORDERING INFORMATION
(Ordering example for part number: **HST-2008-133-9**)

HST	-	20	08	-	133	-	9
Base Part Designation		Voltage Rating [kVDC]	Conductor Size [AWG]		No. of Strands		Color Code

COLOR CODE

0 black	1 brown	**2 red**	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	**9 white**	10 natural	

Preferred colors shown in **bold**. Minimum order quantities may apply.

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HST SERIES CROSS SECTION VIEWS

HST-2008-133-X

HST-2006-133-X

HST-2004-133-X

HST-2002-133-X

HST-2508-133-X

HST-2506-133-X

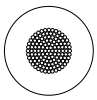
HST-2504-133-X

HST-2502-133-X

HST-3008-133-X

HST-3006-133-X

HST-3004-133-X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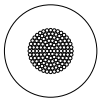
HST-3508-133-X

HST-3506-133-X

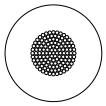
HST-3504-133-X


HST-3502-133-X

HST-4008-133-X

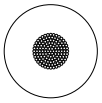
HST-4006-133-X

HST-4004-133-X


HST-4002-133-X

HST-4508-133-X

HST-4506-133-X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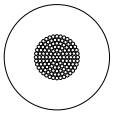
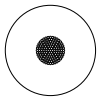
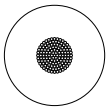
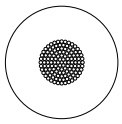

HST-4502-133-X

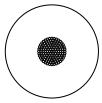
HST-5008-133-X


HST-5006-133-X


HST-5004-133-X


HST-5002-133-X

HST-5508-133-X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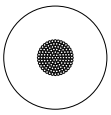
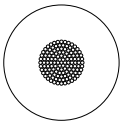
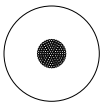
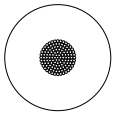
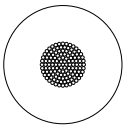

HST-5504-133-X


HST-5502-133-X

HST-6008-133-X


HST-6006-133-X


HST-6004-133-X


HST-6002-133-X

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HSU Series

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UNSHIELDED SILICONE HIGH VOLTAGE / HIGH TEMPERATURE APPLIANCE WIRE
10kVDC - 50kVDC – AWM STYLE 3239 – INTERNAL USE

FEATURES
- 22 AWG - 10 AWG Conductors
- Conductor Construction: Tinned Copper
- Operating Temperature -50°C - +150°C
- High Flexibility
- Ozone and Corona Resistant
- Meets VW-1 Flame Test
- Made in Germany
- RoHS Compliant

TYPICAL APPLICATIONS
- Internal High Voltage Wiring
- Laser Power Supplies
- CRT / Video Displays

SPECIFICATIONS

Operating Temperature:	-50°C - +150°C
Min. Bend Radius (static):	7.5 * Outer Diameter

ORDERING INFORMATION
(Ordering example for part number: **HSU-1012-65-2**)

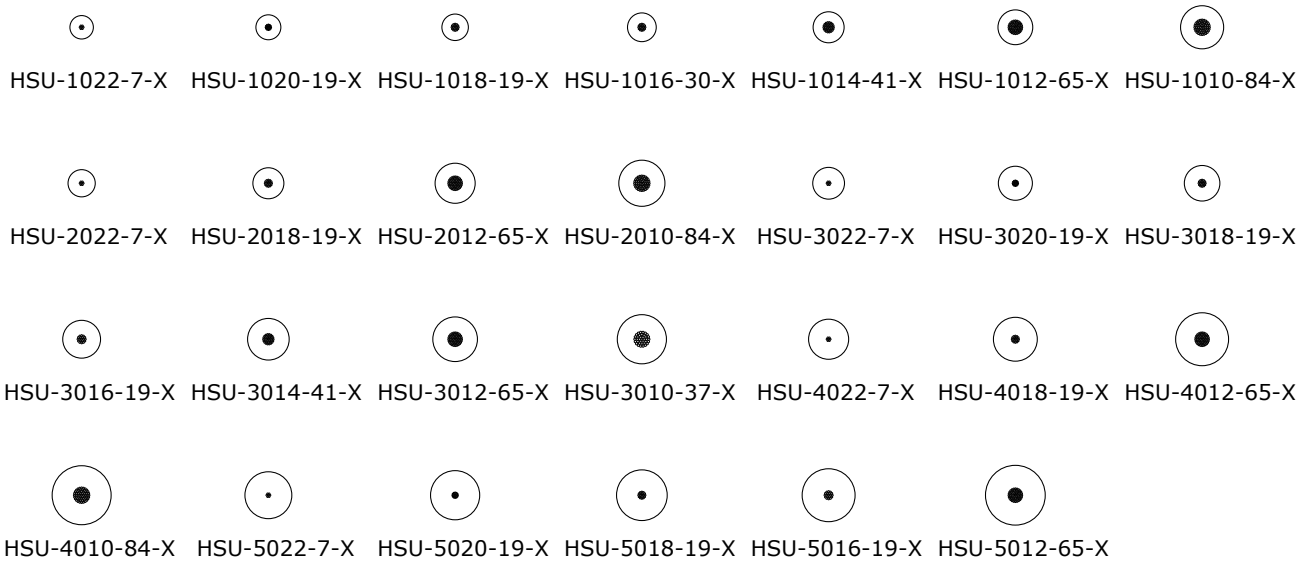
HSU	-	10	12	-	65	-	2
Base Part Designation		Voltage Rating [kVDC]	Conductor Size [AWG]		No. of Strands		Color Code

COLOR CODE

0 black	1 brown	**2 red**	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	**9 white**	10 natural	

Preferred colors shown in **bold**. Minimum order quantities may apply. Different conductor constructions and plating for use up to 200°C available on request.

HSU SERIES CROSS SECTION VIEWS



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TYPE OVERVIEW

CONDUCTOR				RATED VOLTAGE [kVDC]									
				10		20		30		40		50	
SIZE [AWG]	STRANDS [n/AWG]	AREA [mm²]	WEIGHT [kg/km]	OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]	OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]	OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]	OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]	OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]
24	19/36	0.24	2.3	2.81-3.16	10.3	3.36-3.79	14.2	3.91-4.42	18.5	4.91-5.47	27.9	5.91-6.52	39.4
22	7/30	0.36	3.4	2.78-3.19	11.3	3.5-3.8	15.8	4.04-4.56	20.5	5.4-5.6	30.8	6.04-6.66	41.9
20	19/32	0.62	5.7	3.01-3.43	14.8	3.64-4.12	19.3	4.27-4.80	24.5	5.27-5.90	35.0	6.27-6.99	46.9
18	19/30	0.96	9.3	3.27-3.71	19.1	3.93-4.34	24.0	4.53-5.07	29.5	5.53-6.12	40.9	6.53-7.17	53.0
16	19/29	1.35	13.0	3.5-3.95	24.0	4.13-4.63	29.0	4.76-5.31	35.0	5.76-6.36	46.0	6.76-7.41	59.0
14	41/30	2.08	19.9	4.01-4.27	32.7	4.64-5.06	38.8	5.27-5.85	47.0	6.27-6.90	58.1	7.27-7.95	72.1
12	65/30	3.31	31.5	4.39-4.88	46.0	5.05-5.51	53.0	5.65-6.25	59.0	6.65-7.3	73.0	7.65-8.35	87.0
10	84/29	5.94	57.0	5.6-6.09	78.0	5.6-6.41	82.0	6.55-7.30	92.6	7.5-8.19	106.0	-	-
Test Voltage (Spark Test) [kVAC]				10		15		20		25		30	

These cables have been spark tested according to UL758 during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

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HSW Series

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UNSHIELDED SILICONE HIGH VOLTAGE / HIGH TEMPERATURE APPLIANCE WIRE
5kVDC - 60kVDC – AWM STYLE 3239 AND CANADIAN CERTIFIED – INTERNAL USE

FEATURES
- 24 AWG - 10 AWG conductors
- High temperature 150°C rating
- Optional silver-plated / 200°C version
- High flexibility
- Ozone and corona resistant
- Meets VW-1 flame test
- RoHS compliant

TYPICAL APPLICATIONS
- Internal high voltage wiring
- Laser power supplies
- CRT / video displays

CONDUCTOR			RATED VOLTAGE [kVDC]												
			5	6	10	15	20	25	30	35	40	45	50	55	60
SIZE [AWG]	STRANDS [n/AWG]	AREA [mm²]	NOM. OUTER DIAMETER [mm] [inch]												
24	19/36	0.24	2.0 .077	2.3 .089	2.5 .099	2.7 .107	3.2 .126	3.8 .150	4.4 .174	5.0 .196	5.5 .218	6.8 .266	7.8 .306	8.2 .322	8.5 .336
22	7/30	0.36	2.1 .083	2.4 .095	2.7 .105	2.9 .113	3.4 .132	4.0 .156	4.6 .180	5.1 .202	5.7 .224	6.9 .272	7.9 .312	8.3 .328	8.7 .342
20	10/30	0.51	2.3 .090	2.6 .103	2.8 .110	3.0 .120	3.6 .140	4.2 .164	4.8 .188	5.3 .210	5.9 .232	7.1 .280	8.1 .320	8.5 .336	8.9 .350
18	16/30	0.81	2.5 .099	2.9 .115	3.1 .123	3.3 .131	3.8 .151	4.4 .175	5.1 .199	5.6 .221	6.2 .243	7.4 .291	8.4 .331	8.8 .347	9.2 .361
16	26/30	1.32	2.7 .108	3.1 .121	3.3 .130	3.5 .138	4.0 .158	4.6 .182	5.2 .206	5.8 .228	6.4 .250	7.6 .298	8.6 .338	9.0 .354	9.3 .368
14	41/30	2.08	3.1 .124	3.5 .137	3.7 .146	3.9 .154	4.4 .174	5.0 .197	5.6 .222	6.1 .240	6.8 .266	8.0 .314	9.0 .354	9.4 .370	9.8 .384
12	65/30	3.29	3.6 .142	3.9 .155	4.2 .164	4.4 .172	4.9 .192	5.5 .216	6.1 .240	6.7 .262	7.2 .284	8.4 .332	9.4 .372	9.9 .388	10.2 .402
10	105/30	5.32	4.2 .167	4.6 .180	4.8 .189	5.0 .197	5.5 .217	6.1 .241	6.7 .265	7.3 .287	7.8 .309	9.1 .357	10.1 .397	10.5 .413	10.8 .427

The above list represents standard constructions for UL 3239. Different conductor constructions available on request.

Canadian certified constructions are listed under the 6, 10 ,15, 20, 30, 40, and 50kVDC ratings.
Min. Bend Radius: 8 * Outer Diameter (fixed)

These cables have been spark tested according to UL758 during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

ORDERING INFORMATION

Ordering example for part number: **HSW-2022-AG-2**

HSW	-	20	22	-	AG	-	2
Base Part Designation		Voltage Rating [kVDC]	Conductor Size [AWG]		Silver-Plated, 200°C Rating [1] (Option)		Color Code

[1] The UL 3239 temperature rating covers 150°C only.

COLOR CODE

0 black	1 brown	**2 red**	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	**9 white**	10 natural	

Preferred colors shown in **bold**. Minimum order quantities may apply.

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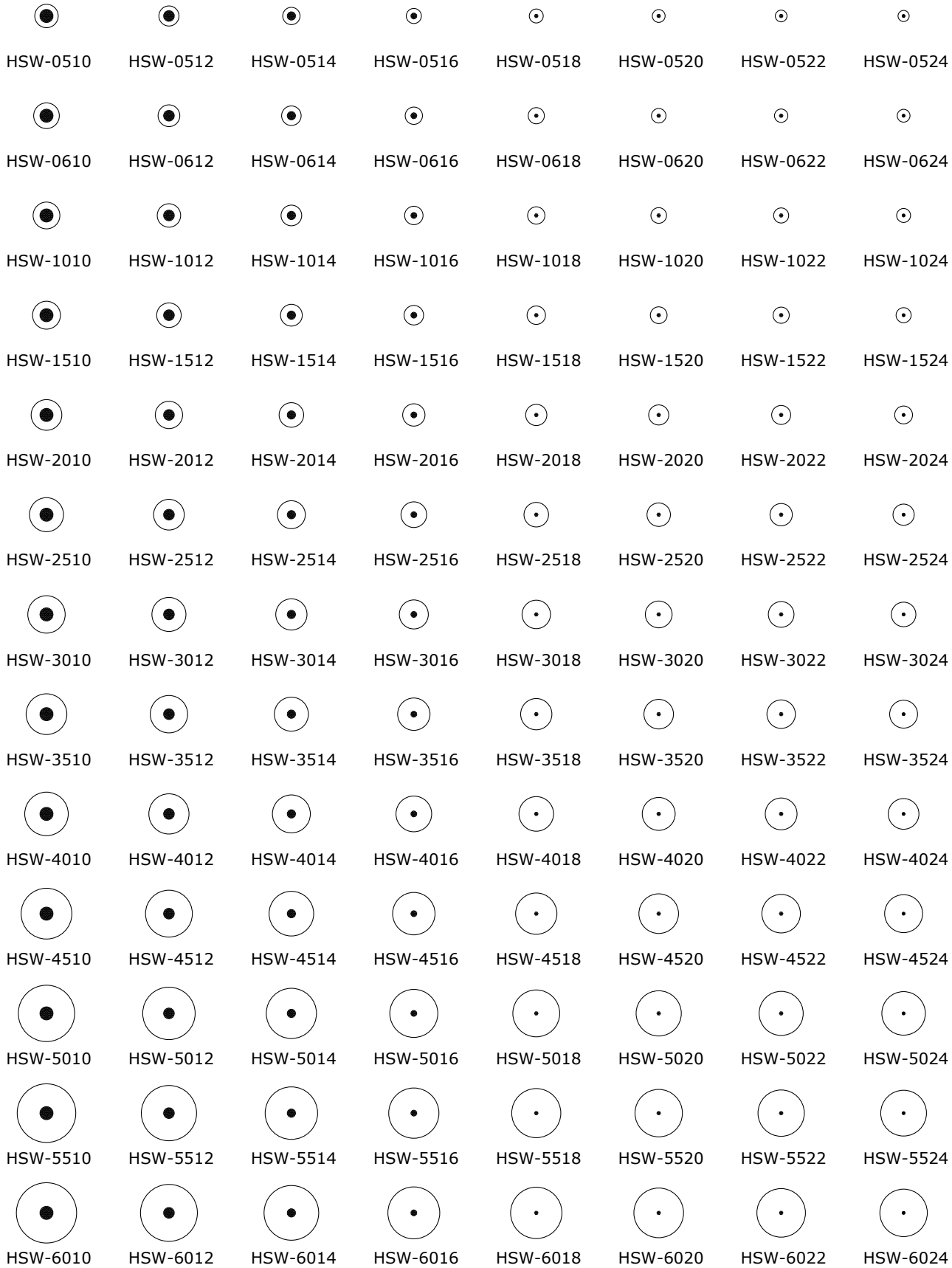
HSW SERIES CROSS SECTION VIEWS



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HSX Series

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UNSHIELDED SILICONE HIGH VOLTAGE / HIGH TEMPERATURE APPLIANCE WIRE
5kVDC – 50kVDC - AWM STYLE 3239 CERTIFIED – INTERNAL USE

FEATURES
- 24 AWG to 10 AWG conductors
- High temperature 150°C rating
- High flexibility
- Ozone and corona resistant
- Meets VW-1 flame test requirements
- RoHS compliant

TYPICAL APPLICATIONS
- Internal high voltage wiring
- Laser power supplies
- CRT / video displays

CONDUCTOR			RATED VOLTAGE [kVDC]									
			5	10	15	20	25	30	35	40	45	50
SIZE [AWG]	STRANDS [n/AWG]	AREA [mm²]	NOM. OUTER DIAMETER [mm] [inch]									
24	7/32	0.24	2.2 .086	2.7 .107	3.0 .118	3.5 .136	-	-	-	-	-	-
22	7/30	0.36	2.3 .092	2.8 .112	3.1 .122	3.6 .143	4.4 .175	5.5 .215	6.1 .242	6.9 .272	7.9 .312	8.9 .352
22	19/34	0.38	2.3 .092	2.8 .112	3.1 .122	3.6 .143	4.4 .175	5.5 .215	6.1 .242	6.9 .272	7.9 .312	8.9 .352
20	10/30	0.51	2.5 .098	3.0 .118	3.3 .128	3.8 .15	4.6 .182	5.6 .22	6.3 .248	7.1 .278	8.1 .318	9.1 .358
18	16/30	0.81	2.8 .11	3.3 .13	3.6 .14	4.1 .16	5.0 .195	5.8 .23	6.6 .26	7.4 .29	8.4 .33	9.4 .37
16	26/30	1.32	2.9 .116	3.5 .136	3.7 .146	4.2 .165	5.1 .20	6.1 .24	6.8 .266	7.6 .30	8.5 .336	9.6 .376
14	41/30	2.09	3.4 .132	3.9 .152	4.1 .162	4.6 .182	5.5 .216	6.5 .255	7.2 .282	8.0 .315	8.9 .352	10.0 .392
12	65/30	3.31	3.8 .15	4.3 .17	4.6 .18	5.1 .20	5.9 .234	6.9 .27	7.6 .30	8.5 .335	9.4 .37	10.5 .415
10	105/30	5.35	4.4 .175	5.0 .195	5.2 .205	5.7 .225	6.6 .259	7.5 .295	8.3 .325	9.1 .36	10.0 .395	11.2 .44

The above list represents standard constructions for UL 3239.

Min. Bend Radius: 8 * Outer Diameter (fixed)

These cables have been spark tested according to UL758 during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

ORDERING INFORMATION
Ordering example for part number: **HSX-2022-7-2**

HSX	-	20	22	-	7	-	2
Base Part Designation		Voltage Rating [kVDC]	Conductor Size [AWG]		No. of Strands		Color Code

COLOR CODE

0 black	1 brown	2 red	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	9 white	10 natural	

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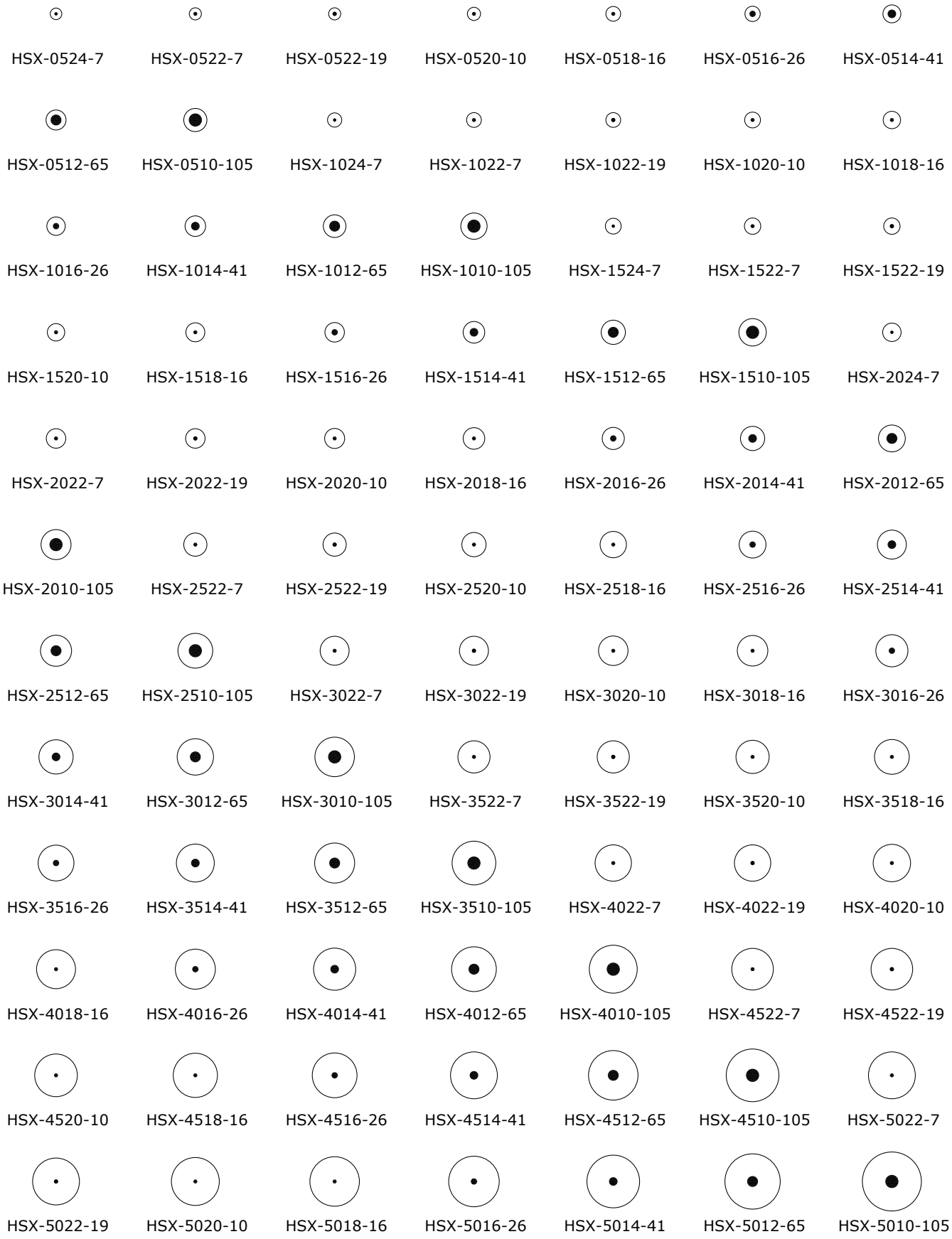
HSX SERIES CROSS SECTION VIEWS



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HXW Series

hivolt.de

UNSHIELDED XLPE HIGH VOLTAGE / HIGH TEMPERATURE APPLIANCE WIRE
3kVDC / 6kVDC / 10kVDC – AWM STYLE 3239 – INTERNAL USE

FEATURES

- 24 AWG Conductors
- High Flexibility
- High Cut-Through Strength
- Small Diameter
- Operating Temperature up to 105°C
- Meets UL VW-1 Flame Test
- RoHS compliant

TYPICAL APPLICATIONS

- Internal high voltage wiring
- Applications requiring high flexibility and small diameter

SPECIFICATIONS

Rated Voltage:	3kVDC, 6kVDC, 10kVDC models
Operating Temperature:	max. +105°C
Insulation Resistance:	min. 1GΩ*km at 20°C
Conductor:	Stranded wire of tinned annealed copper
Insulation Material:	XLPE, free of Pb, Hg, Cd, Cr, PVC and flame retardants PBDE or PBB
Heat Resistance:	The insulation ist cross-linked by irradiation and stable thermally

TYPE OVERVIEW

TYPE	RATED VOLTAGE [kVDC]	SIZE [AWG]	STRANDS [n/AWG]	CONDUCTOR DIAMETER [mm]	CONDUCTOR RESISTANCE [Ω/km]	OUTER DIAMETER [mm]
HXW-03-24-*	3	24	19/36	0.64	≤ 83.3	1.60
HXW-06-24-*	6	24	19/36	0.64	≤ 83.3	1.74
HXW-10-24-*	10	24	19/36	0.64	≤ 83.3	1.90

* Color code (see table below)

Max. conductor resistance specified at 20°C

ORDERING INFORMATION

(Ordering example for part number: **HXW-10-24-12**)

HXW	-	10	-	24	-	12
Base Part Designation		Voltage Rating [kVDC]		Conductor Size [AWG]		Color Code

COLOR CODE

6 - blue
8 - grey
9 - white
12 - pink

HXW SERIES CROSS SECTION VIEWS

HXW-03-24-X

HXW-06-24-X

HXW-10-24-X

OBSOLETE

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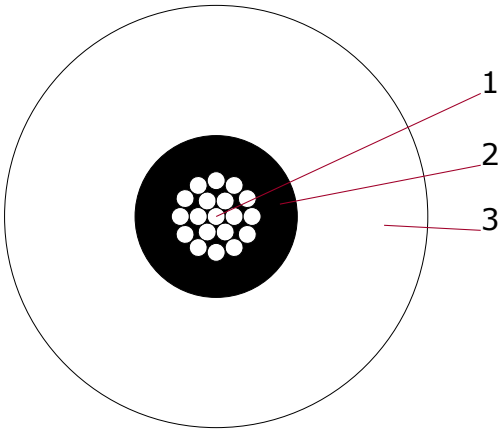
2012

40kV$_{DC}$ - AWG18 - SILICONE DIELECTRIC- INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 40kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and silicone dielectric. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG18 Cu/Ag (19xAWG30 s.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.3mm
3. Dielectric	Silicone	Ø 6mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$
min. Bend Radius	10mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.045kg/m
Color	white
Status	S (Special)

The cable is suitable for short term AC operation at up to 15kVRMS (50Hz) provided that proper means regarding partial discharge are chosen for the application.
The final operating voltage must be determined by the user.

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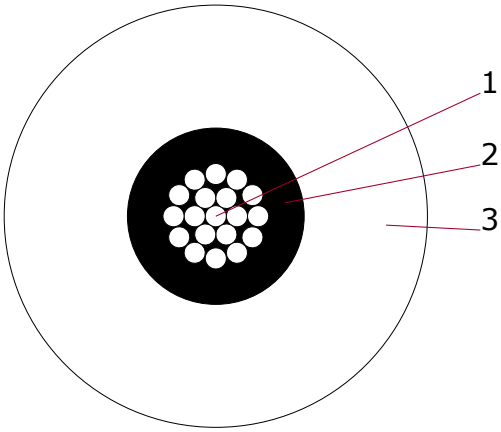
2024

60kV$_{DC}$ - AWG12 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 60kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and silicone dielectric. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG12 Cu/Ag (19xAWG25 s.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive Silicone (black)	Ø 3.8mm
3. Dielectric	Silicone	Ø 9.1mm

TECHNICAL DATA

Rated Voltage	60kV$_{DC}$
min. Bend Radius	13mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.112kg/m
Color	white
Status	S (Special)

The cable is suitable for short term AC operation at up to 20kV$_{RMS}$ (50Hz) provided that proper means regarding partial discharge are chosen for the application.
The final operating voltage must be determined by the user.

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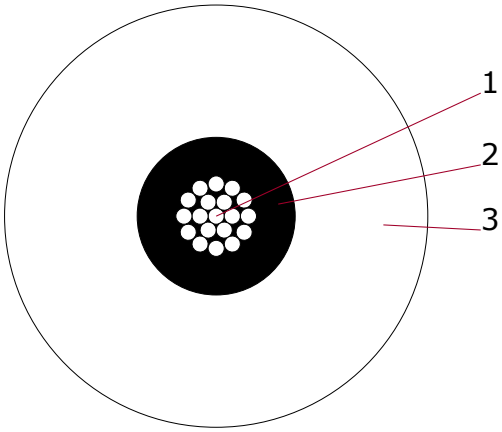
2032

50kV$_{DC}$ - AWG16 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 50kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and silicone dielectric. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG16 Cu/Ag (19xAWG29 s.p.c.)	1.2mm² Ø 1.5mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.8mm
3. Dielectric	Silicone	Ø 7.5mm

TECHNICAL DATA

Rated Voltage	50kV$_{DC}$
min. Bend Radius	13mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.064kg/m
Color	white
Status	S (Special)

The cable is suitable for short term AC operation at up to 15kV$_{RMS}$ (50Hz) provided that proper means regarding partial discharge are chosen for the application.

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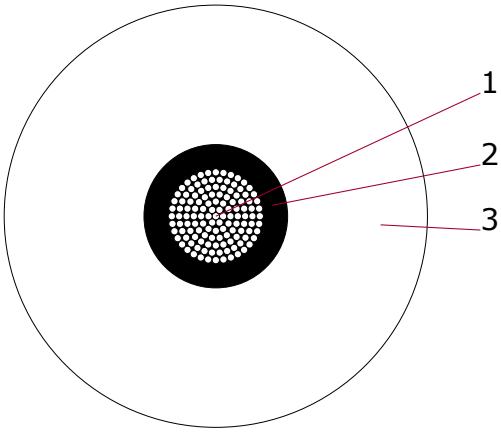
2062

100kV$_{DC}$ - AWG8 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 100kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and silicone dielectric. Suitable for an operating temperature range from -51°C to 200°C.

CONSTRUCTION



1. Conductor	AWG8 Cu/Ag (133xAWG29 s.p.c.)	8.5mm² Ø 4.2mm
2. Semicon	Semiconductive Silicone (black)	Ø 5.6mm
3. Dielectric	Silicone	Ø 16.5mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$
min. Bend Radius	64mm (fixed)
Operating Temperature	-51°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.373kg/m
Color	white
Status	S (Special)

The cable is suitable for short term AC operation at up to 30kV$_{RMS}$ (50Hz) provided that proper means regarding partial discharge are chosen for the application.
The final operating voltage must be determined by the user.

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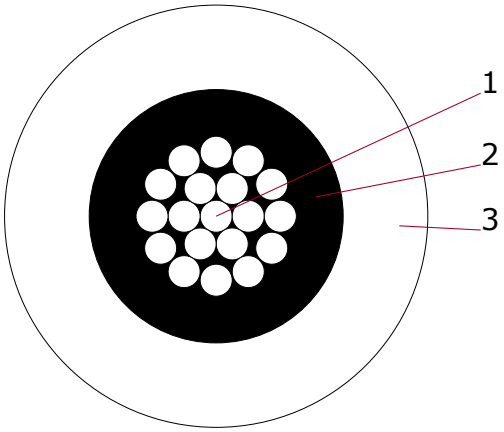
2075

15kV$_{DC}$ - AWG12 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 15kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and silicone dielectric. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG12 Cu/Ag (19xAWG25 s.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive Silicone (black)	Ø 3.6mm
3. Dielectric	Silicone	Ø 6mm

TECHNICAL DATA

Rated Voltage	15kV$_{DC}$
min. Bend Radius	13mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.046kg/m
Color	white
Status	S (Special)

The cable is suitable for short term AC operation at up to 5kV$_{RMS}$ (50Hz) provided that proper means regarding partial discharge are chosen for the application.
The final operating voltage must be determined by the user.

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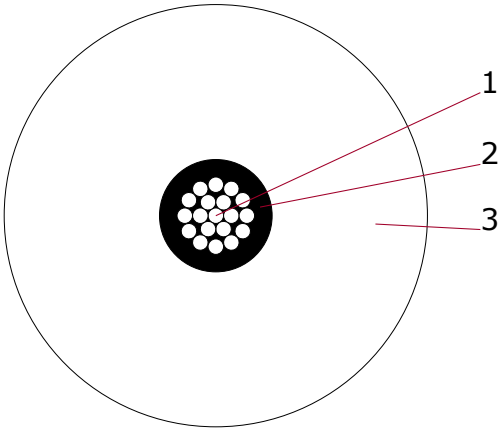
2121A

150kV$_{DC}$ - AWG12 - LDHMW PE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 150kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and PE dielectric.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (19xAWG25 t.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive PE (black)	Ø 3.3mm
3. Dielectric	LDHMW PE	Ø 12.4mm

TECHNICAL DATA

Rated Voltage	150kV$_{DC}$
min. Bend Radius	178mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.135kg/m
Color	natural
Status	P (Preferred)

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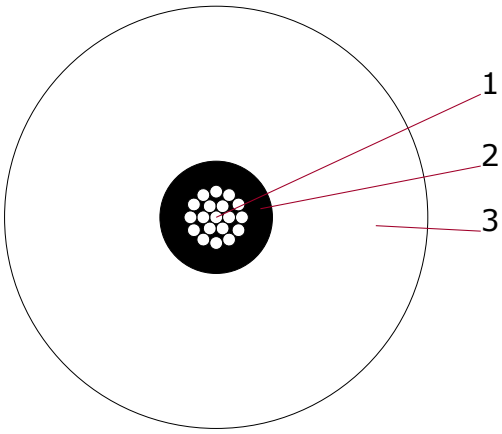
2124A

100kV$_{DC}$ - AWG16 - LDHMW PE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 100kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and PE dielectric.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (19xAWG29 t.p.c.)	1.2mm² Ø 1.5mm
2. Semicon	Semiconductive PE (black)	Ø 2.5mm
3. Dielectric	LDHMW PE	Ø 9.4mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$
min. Bend Radius	127mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.075kg/m
Color	natural
Status	P (Preferred)

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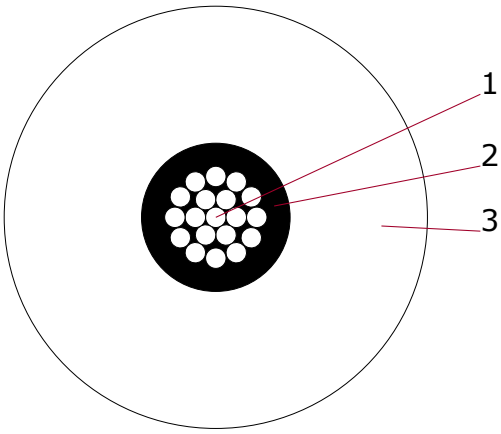
2125A

100kV$_{DC}$ - AWG12 - LDHMW PE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 100kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and PE dielectric.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (19xAWG25 t.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive PE (black)	Ø 3.3mm
3. Dielectric	LDHMW PE	Ø 9.4mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$
min. Bend Radius	127mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.089kg/m
Color	natural
Status	S (Special)

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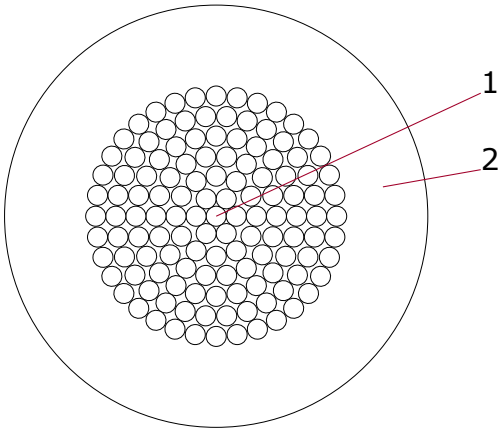
2132

15kV$_{DC}$ - AWG6 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 15kV$_{DC}$ high voltage cable with silicone dielectric. Suitable for an operating temperature range from -50°C to 149°C.

CONSTRUCTION



1. Conductor	AWG6 Cu/Sn (133xAWG27 t.p.c.)	13.6mm² Ø 5.3mm
2. Dielectric	Silicone	Ø 7.6mm

TECHNICAL DATA

Rated Voltage	15kV$_{DC}$
Test Voltage	12.5kV$_{AC}$ (Spark Test)
min. Bend Radius	114mm (moving), 57mm (fixed)
Operating Temperature	-50°C - +149°C
RoHS Compliant	Yes
Weight	ca. 0.161kg/m
Color	white
Status	P (Preferred)

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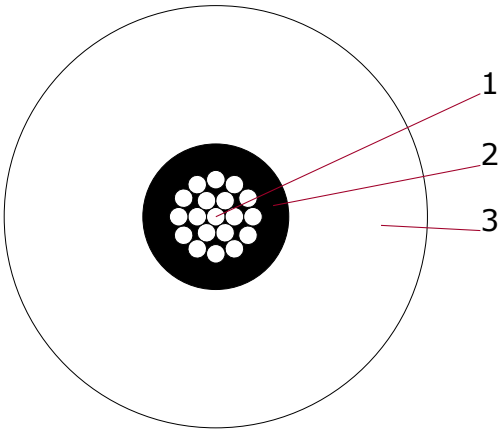
2149

60kV$_{DC}$ - AWG18 - LDHMW PE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 60kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and PE dielectric.

CONSTRUCTION



1. Conductor	AWG18 Cu/Sn (19xAWG30 t.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive PE (black)	Ø 2mm
3. Dielectric	LDHMW PE	Ø 5.9mm

TECHNICAL DATA

Rated Voltage	60kV$_{DC}$
Test Voltage	10kV (Spark Test)
min. Bend Radius	64mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.03kg/m
Color	natural
Status	P (Preferred)

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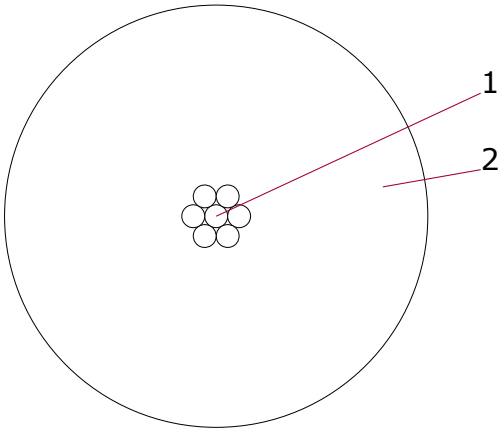
2178

30kV$_{DC}$ - AWG20 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 30kV$_{DC}$ high voltage cable with silicone dielectric. Suitable for an operating temperature range from -65°C to 149°C.

CONSTRUCTION



1. Conductor	AWG20 Cu/Sn (10xAWG30 t.p.c.)	0.51mm² Ø 0.97mm
2. Dielectric	Silicone	Ø 4.7mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
min. Bend Radius	10mm (fixed)
Operating Temperature	-65°C - +149°C
RoHS Compliant	Yes
Weight	ca. 0.03kg/m
Color	white
Status	S (Special)

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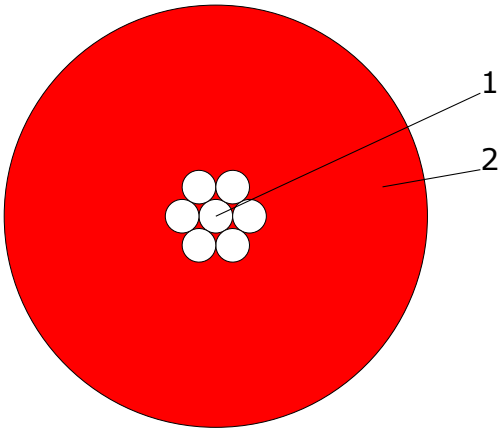
2185R

20kV$_{DC}$ - AWG20 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 20kV$_{DC}$ high voltage cable with silicone dielectric. Suitable for an operating temperature range from -65°C to 149°C.

CONSTRUCTION



1. Conductor	AWG20 Cu/Sn (10xAWG30 t.p.c.)	0.51mm² Ø 0.97mm
2. Dielectric	Silicone	Ø 3.2mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$
min. Bend Radius	13mm (fixed)
Operating Temperature	-65°C - +149°C
RoHS Compliant	Yes
Weight	ca. 0.015kg/m
Color	red
Status	S (Special)

The cable has been spark tested according to UL758 during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

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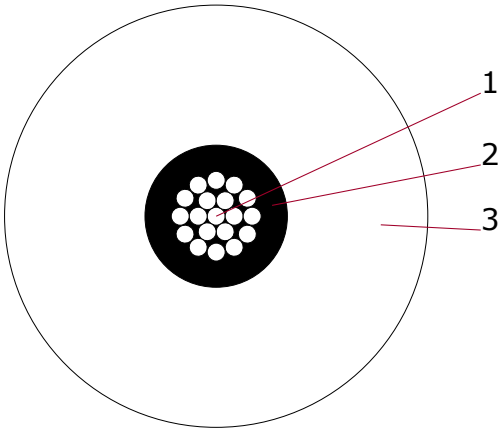
2229

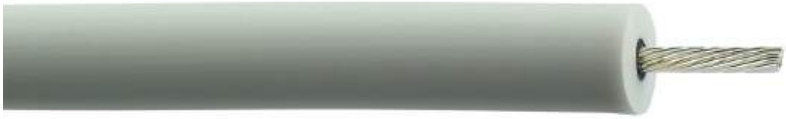
80kV$_{DC}$ - AWG12 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 80kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and silicone dielectric. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION





1. Conductor	AWG12 Cu/Ag (19xAWG25 s.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive Silicone (black)	Ø 3.6mm
3. Dielectric	Silicone	Ø 10.7mm

TECHNICAL DATA

Rated Voltage	80kV$_{DC}$
min. Bend Radius	25mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.149kg/m
Color	white
Status	P (Preferred)

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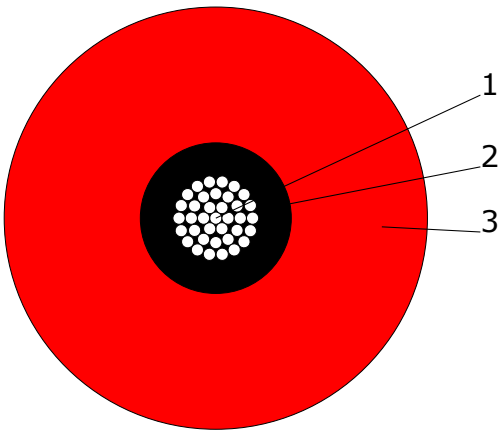
2243A

125kV$_{DC}$ - AWG8 - EPR DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 125kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and EPR dielectric.

CONSTRUCTION



1. Conductor	AWG8 Cu/Sn (49xAWG25 t.p.c.)	8mm² Ø 3.6mm
2. Semicon	Semiconductive EPR	Ø 5.6mm
3. Dielectric	EPR	Ø 15.7mm

TECHNICAL DATA

Rated Voltage	125kV$_{DC}$
min. Bend Radius	127mm (fixed)
Operating Temperature	-51°C - +121°C
RoHS Compliant	Yes
Weight	ca. 0.32kg/m
Color	red
Status	S (Special)

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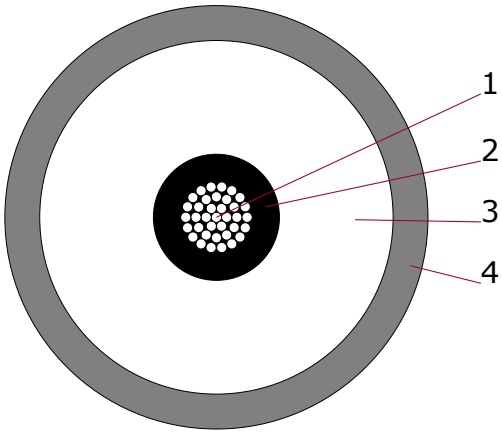
2243VJ-4

125kV$_{DC}$ - AWG8 - EPR DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 125kV$_{DC}$ high voltage cable with semiconductive layer around the conductor and EPR dielectric. PVC jacket.

CONSTRUCTION



1. Conductor	AWG8 Cu/Sn (49xAWG25 t.p.c.)	8mm² Ø 3.6mm
2. Semicon	Semiconductive EPR	Ø 5.6mm
3. Dielectric	EPR	Ø 15.7mm
4. Jacket	PVC	Ø 18.8mm

TECHNICAL DATA

Rated Voltage	125kV$_{DC}$
min. Bend Radius	150mm (fixed)
Operating Temperature	-51°C - +80°C
RoHS Compliant	Yes
Weight	ca. 0.44kg/m
Color	yellow
Status	S (Special)

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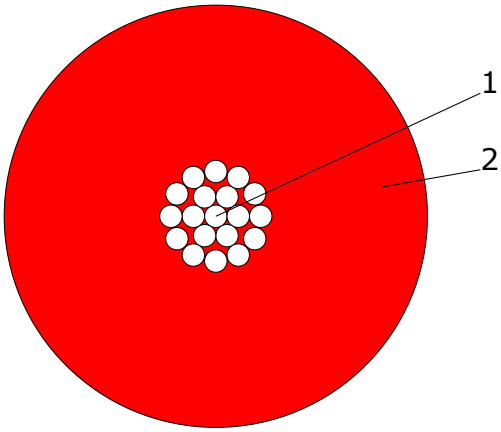
8511R

10kV$_{DC}$ / (6.7)kV$_{AC}$ - AWG15 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 10kV$_{DC}$ high voltage cable with silicone dielectric. Suitable for an operating temperature range from -50°C to 150°C.

CONSTRUCTION



1. Conductor	AWG15 Cu/Sn (30xAWG30 t.p.c.)	1.53mm²
2. Dielectric	Silicone	Ø 4.8mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	10kV$_{DC}$ / (6.7)kV$_{AC}$
Test Voltage	14kV$_{AC}$ (Spark Test)
Conductor Resistance @ 20°C	≤ 13.7Ω/km
min. Bend Radius	72mm (moving), 36mm (fixed)
Operating Temperature	-50°C - +150°C
RoHS Compliant	Yes
Weight	ca. 0.035kg/m
Cu-Weight	ca. 0.014kg/m
Color	red
Status	P (Preferred)

The cable is suitable for short term AC operation at up to 6.7kVRMS (50Hz) provided that proper means regarding partial discharge are chosen for the application.

The final operating voltage must be determined by the user.

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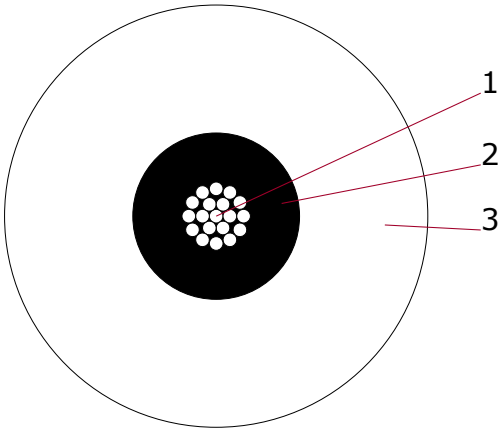
HSL-20-0.38-B-9

20kV$_{DC}$ / (6.6)kV$_{AC}$ - AWG22 - SILICONE DIELECTRIC - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 20kV$_{DC}$ high voltage cable with semiconductive silicone and silicone dielectric. Suitable for an operating temperature up to 180°C.

CONSTRUCTION



1. Conductor	AWG22 Cu/Ag (19xAWG34 s.p.c.)	0.38mm² Ø 0.78mm
2. Semicon	Semiconductive Silicone	Ø 1.95mm
3. Dielectric	Silicone	Ø 4.95mm ± 0.15mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$ / (6.6)kV$_{AC}$
Test Voltage	18 kV$_{AC}$ (Spark Test)
Conductor Resistance @ 20°C	≤ 48.56Ω/km
min. Bend Radius	50mm (moving), 37.2mm (fixed)
Operating Temperature	-50°C - +180°C
RoHS Compliant	Yes
Weight	ca. 0.0267kg/m
Cu-Weight	ca. 0.0038kg/m
Color	white
Status	P (Preferred)

The cable is suitable for short term AC operation at up to 6.6kV$_{RMS}$ (50Hz) provided that proper means regarding partial discharge are chosen for the application.

The final operating voltage must be determined by the user.

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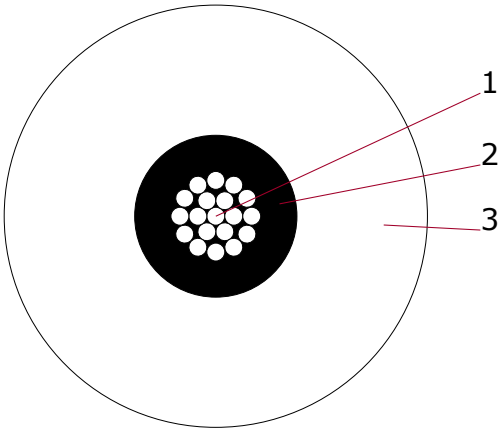
HSL-40-0.97-A-9

40kV$_{DC}$ - AWG18 - SILICONE DIELECTRIC – INTERNAL USE

PRODUCT DESCRIPTION

Flexible 40kV$_{DC}$ unshielded high voltage wire with silver plated stranded conductor, Silicone dielectric and semiconductive Silicone layer around the conductor.

CONSTRUCTION



1. Conductor	AWG18 Cu/Ag (4x0.25mm V4A + 19x0.25mm s.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.4mm
3. Dielectric	Silicone	Ø 6.2mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$
Test Voltage	25 kV$_{AC}$ (Spark Test) 80kV$_{DC}$ / 1min; 64kV$_{DC}$ / 24h (Type Test)
Conductor Resistance @ 20°C	≤ 24.2Ω/km
min. Bend Radius	100mm (moving), 50mm (fixed)
Operating Temperature	-65°C - +200°C
Flame Retardance	t.b.s.
Low Smoke	Yes
Halogen-free	Yes
RoHS Compliant	Yes
Weight	ca. 0.045kg/m
Cu-Weight	ca. 0.0071kg/m
Color	white
Status	P (Preferred)

The cable is suitable for short term AC operation at up to 15kV$_{RMS}$ (50Hz) provided that proper means regarding partial discharge are chosen for the application.

The final operating voltage must be determined by the user.

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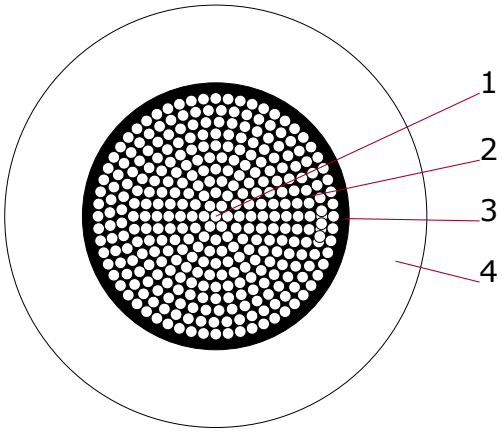
HSL-40-35-A-9

40kV$_{DC}$ - AWG2 - SILICONE DIELECTRIC – INTERNAL USE

PRODUCT DESCRIPTION

40kV$_{DC}$ unshielded high voltage wire with tin plated stranded conductor, Silicone dielectric and semiconductive Silicone layer around the conductor.

CONSTRUCTION



1. Conductor	AWG2 Cu/Sn (1117xAWG32 t.p.c.)	35mm² Ø 9.14mm
2. Tape	Semiconductive nonwoven material	
3. Semicon	Semiconductive silicone (black)	Ø 10.3mm
4. Dielectric	Silicone	Ø 16.3mm ± 0.6mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$
Test Voltage	25 kV$_{AC}$ (Spark Test) 64kV$_{DC}$ / 24h (Type Test)
Conductor Resistance @ 20°C	≤ 0.51Ω/km
min. Bend Radius	123mm (fixed)
Operating Temperature	-50°C - +140°C
RoHS Compliant	Yes
Weight	0.527kg/m
Color	white
Status	S (Special)

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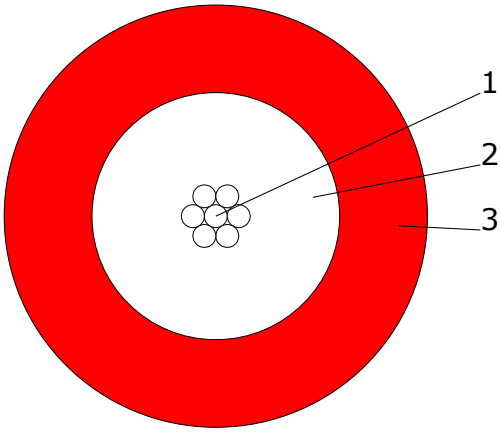
HTV-20-22-2

20kV$_{DC}$ - AWG22 - PE-X DIELECTRIC
AWM STYLE 3871 - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 30kV$_{DC}$ high voltage cable with PE-X dielectric and PVC jacket. UL recognized AWM style 3873 (internal use).
Oil resistant and flame retardant according to below mentioned files.
RoHS compliant.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.36mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 2.8mm ± 0.1mm
3. Jacket	PVC	Ø 4.7mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$
Test Voltage	15kV$_{AC}$ (Spark Test)
Conductor Resistance @ 20°C	≤ 58Ω/km
min. Bend Radius	48mm (moving), 24mm (fixed)
Operating Temperature	-15°C - +105°C
Oil Resistance	according to DIN EN 60811-2-1, 168h ≤ 80°C
Flame Retardance	according to UL2556, Horizontal Flame Test
RoHS Compliant	Yes
Weight	ca. 0.027kg/m
Color	red (~RAL 3000)
Status	S (Special)

The cable has been tested according to UL758 at 15kV$_{AC}$ (spark test) during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

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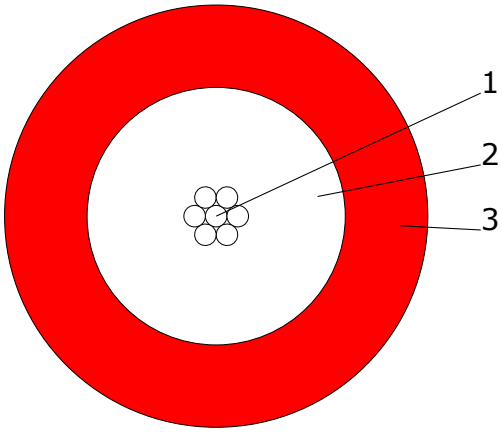
HTV-30-22-2

30kV$_{DC}$ - AWG22 - PE-X DIELECTRIC
AWM STYLE 3873 - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 30kV$_{DC}$ high voltage cable with PE-X dielectric and PVC jacket. UL recognized AWM style 3873 (internal use).
Oil resistant and flame retardant according to below mentioned files.
RoHS compliant.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.36mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 3.2mm ± 0.15mm
3. Jacket	PVC	Ø 5mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
Test Voltage	20kV$_{AC}$ (Spark Test)
Conductor Resistance @ 20°C	≤ 58Ω/km
min. Bend Radius	50mm (moving), 25mm (fixed)
Operating Temperature	-15°C - +105°C
Oil Resistance	according to UL1581 Tab.50.182 ≤ 60°C
Flame Retardance	according to UL2556, Horizontal Flame Test
RoHS Compliant	Yes
Weight	ca. 0.028kg/m
Color	red (~RAL 3000)
Status	P (Preferred)

The cable has been tested according to UL758 at 20kV$_{AC}$ (spark test) during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

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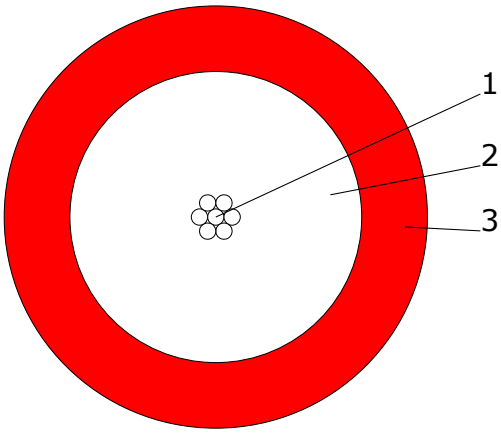
HTV-50-22-2

50kV$_{DC}$ - AWG22 - PE-X DIELECTRIC
AWM STYLE 3875 - INTERNAL USE

PRODUCT DESCRIPTION

Unshielded 50kV$_{DC}$ high voltage cable with PE-X dielectric and PVC jacket. UL recognized AWM style 3875 (internal use).
Oil resistant and flame retardant according to below mentioned files.
RoHS compliant.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.36mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 4.6mm ± 0.2mm
3. Jacket	PVC	Ø 6.6mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	50kV$_{DC}$
Test Voltage	30kV$_{AC}$ (Spark Test)
Conductor Resistance @ 20°C	≤ 58Ω/km
min. Bend Radius	66mm (moving), 33mm (fixed)
Operating Temperature	-15°C - +105°C
Oil Resistance	according to UL1581 Tab.50.182, ≤ 60°C
Flame Retardance	according to UL2556, Horizontal Flame Test
RoHS Compliant	Yes
Weight	ca. 0.043kg/m
Color	red (~RAL 3000)
Status	P (Preferred)

The cable has been tested according to UL758 at 30kV$_{AC}$ (spark test) during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

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A wide range of shielded cable types for voltages up to 300kV$_{DC}$. Many cable types are furnished with semiconductive layers. These layers are smoothing the electrical field, lowering the field strength and provide low partial discharge levels enabling AC operation.
Silicone, PE and EPR dielectrics are standard – miscellaneous dielectrics on request.

UL recognized appliance wiring material – AWM style 3239 and other UL styles.

hivolt.de is able to provide modified standard types or full custom designed cable for applications where special cable types are required.

Upon customer's request we offer high voltage cables terminated with different types of connectors or as complete cable assemblies with molded terminations.

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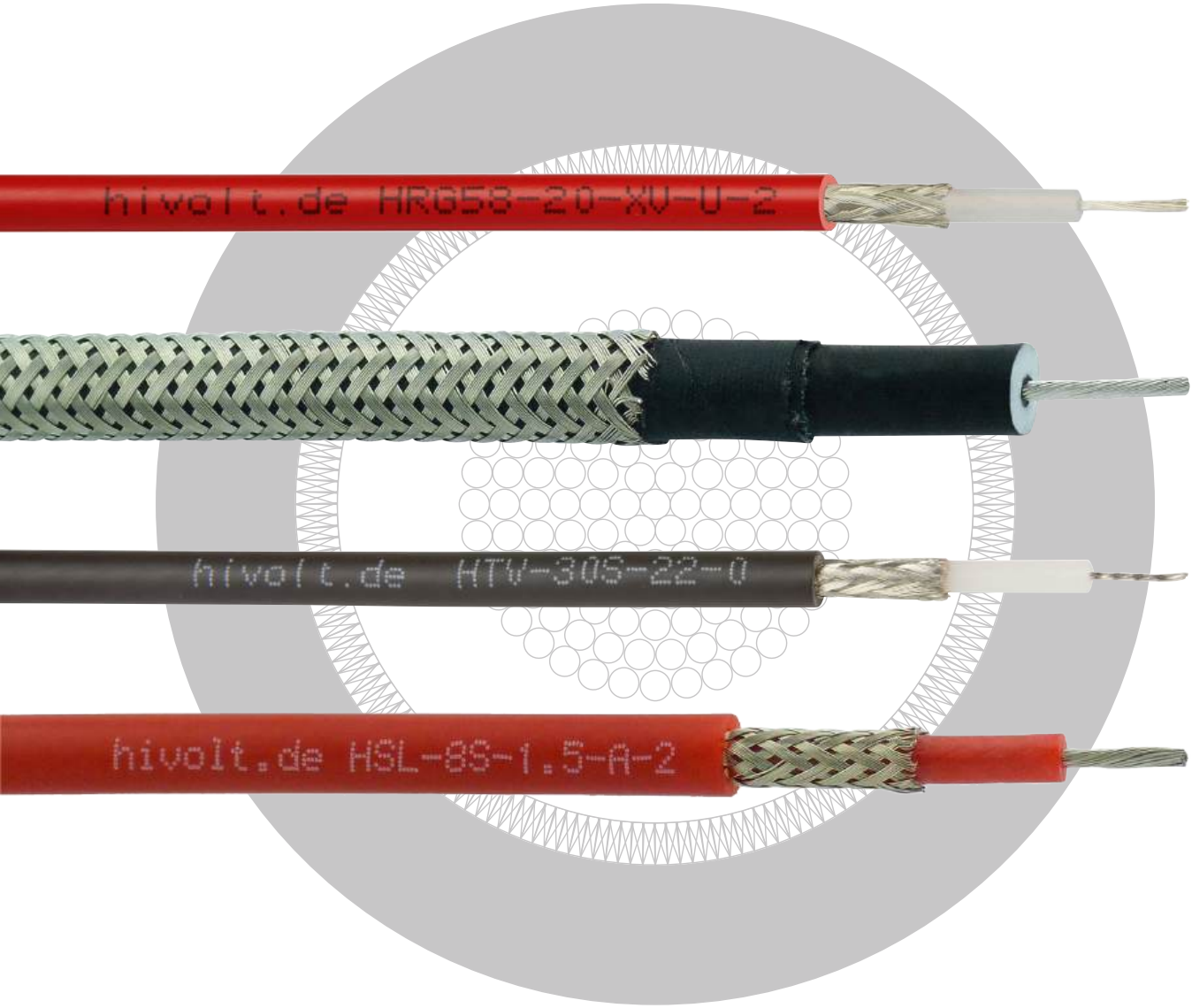
SHIELDED
HIGH VOLTAGE CABLE



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HSUS Series

hivolt.de

SHIELDED SILICONE HIGH VOLTAGE / HIGH TEMPERATURE APPLIANCE WIRE
10kVDC – 30kVDC - AWM STYLE 3239 – INTERNAL USE

FEATURES

- 22 AWG - 10 AWG Conductors
- Conductor Construction: Tinned Copper
- Shield Construction: Tinned Copper Braid
- Operating Temperature: -50°C - +150°C
- High Flexibility
- Ozone and Corona resistant
- Meets VW-1 Flame Test
- Made in Germany
- RoHS compliant

TYPICAL APPLICATIONS

- Signal Transmission
- HV Measurement
- Laser Power Supplies

SPECIFICATIONS

Operating Temperature:	-50°C - +150°C
Min. Bend Radius (fixed):	7.5 * Outer Diameter

TYPE OVERVIEW

CONDUCTOR			RATED VOLTAGE [kVDC]								
			10			20			30		
SIZE [AWG]	STRANDS [n/AWG]	AREA [mm²]	DIELEC-TRIC DIAMETER [mm]	NOM. OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]	DIELEC-TRIC DIAMETER [mm]	NOM. OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]	DIELEC-TRIC DIAMETER [mm]	NOM. OUTER DIAMETER [mm]	TOTAL WEIGHT [kg/km]
22	19/34	0.38	3.1	5.6	43.7	-	-	-	-	-	-
20	19/32	0.62	-	-	-	3.9	6.9	65	4.5	7.5	77.5
18	19/30	0.96	3.5	6.4	59.3	-	-	-	4.8	7.7	83.7
16	19/29	1.35	-	-	-	4.4	7.4	80	5.0	8.0	91.3
	41/32	1.33	3.9	6.8	68	-	-	-	-	-	-
14	41/30	2.08	-	-	-	-	-	-	5.5	8.5	106.7
12	19/24	3.88	-	-	-	-	-	-	6.1	9.1	133.2
	61/29	3.92	4.6	7.6	98.9	5.3	8.3	111	5.9	8.9	124.7
10	84/29	5.94	5.7	8.7	142.5	6.1	9.1	150	-	-	-
Test Voltage (Spark Test) [kVAC]			10			15			20		
Test Voltage (Cond./Braid 60s) [kVDC]			21			41			61		

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ORDERING INFORMATION

Ordering example for part number: **HSUS-1012-61-2**

HSUS	-	10	12	-	61	-	2
Base Part Designation		Voltage Rating [kV$_{DC}$]	Conductor Size [AWG]		No. of Strands		Color Code

COLOR CODE

0 black	1 brown	**2 red**	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	9 white	10 natural	

Preferred voltages, conductor sizes and colors shown in **bold**. Minimum order quantities may apply.
Other conductor strandings on request.

The availability of certain types is currently limited.

These cables have been tested according to UL758 during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

HSUS SERIES CROSS SECTION VIEWS

HSUS-1010-84-X

HSUS-1012-61-X

HSUS-1016-41-X

HSUS-1018-19-X

HSUS-1022-19-X

HSUS-2010-84-X

HSUS-2012-61-X

HSUS-2016-19-X

HSUS-2020-19-X

HSUS-3012-19-X

HSUS-3012-61-X

HSUS-3014-41-X

HSUS-3016-19-X

HSUS-3018-19-X

HSUS-3020-19-X

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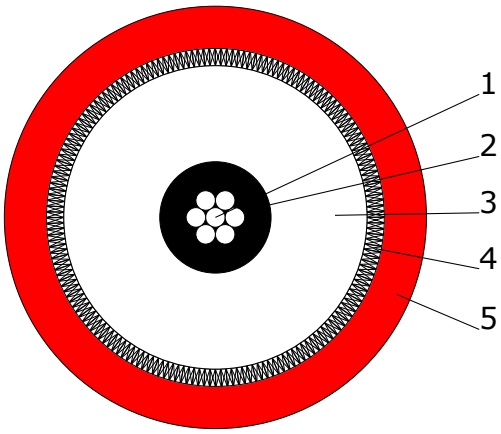
130660

30kV$_{DC}$ - AWG22 - HDFRPE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 30kV$_{DC}$ cable with PE dielectric and PVC jacket.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.36mm² Ø 0.76mm
2. Dielectric 1	HDPE	Ø 1.5mm
3. Dielectric 2	HDFRPE	Ø 3.9mm ± 0.1mm
4. Braid	Cu/Sn (0.10mm t.p.c.) 83% Coverage	Ø 4.4mm
5. Jacket	PVC	Ø 5.5mm ± 0.1mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
Test Voltage	20kV$_{AC}$ (Spark Test, core) 60kV$_{DC}$ / 1min
Conductor Resistance @ 20°C	≤ 55Ω/km
Impedance	typ. 65Ω
Capacitance	typ. 83pF/m
min. Bend Radius	55mm (moving), 28mm (fixed)
Operating Temperature	-15°C - +80°C (moving), -30°C - +80°C (fixed)
Flame Retardance	according to DIN EN 60332-2-2
RoHS Compliant	Yes
Weight	ca. 0.041kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with our HS/HB connector series.

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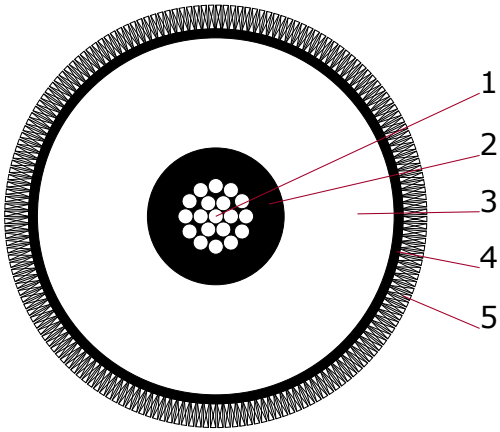
2012S

40kV$_{DC}$ / 15kV$_{AC}$ - AWG18 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 40kV$_{DC}$ / 15kV$_{AC}$ high voltage cable with silicone dielectric. No jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG18 Cu/Ag (19xAWG30 s.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.3mm
3. Dielectric	Silicone	Ø 6mm
4. Semicon	Semiconductive Ink & Tape	Ø 6.3mm
5. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 80% Coverage	Ø 7.1mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$ / 15kV$_{AC}$
Impedance	typ. 41Ω
Capacitance	typ. 184pF/m
min. Bend Radius	25mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Status	S (Special)

This cable can be terminated with our HC7 connector series.

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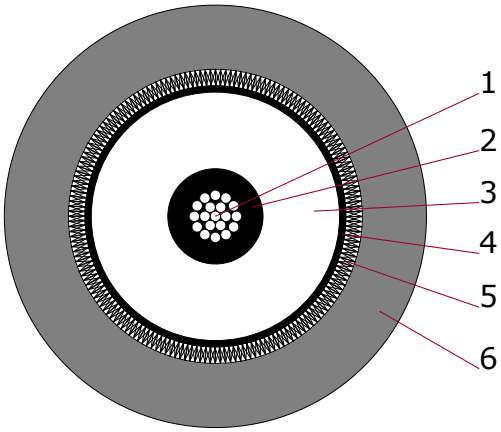
2012STJ

40kV$_{DC}$ / 15kV$_{AC}$ - AWG18 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 40kV$_{DC}$ / 15kV$_{AC}$ high voltage cable with silicone dielectric and TPR jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG18 Cu/Ag (19xAWG30 s.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.3mm
3. Dielectric	Silicone	Ø 6mm
4. Semicon	Semiconductive Ink & Tape	Ø 6.3mm
5. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 80% Coverage	Ø 7.1mm
6. Jacket	TPR	Ø 10.2mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$ / 15kV$_{AC}$
Impedance	typ. 41Ω
Capacitance	typ. 184pF/m
min. Bend Radius	25mm (fixed)
Operating Temperature	-65°C - +80°C
RoHS Compliant	Yes
Weight	ca. 0.124kg/m
Color	black
Status	S (Special)

Other jacket materials upon request.
This cable can be terminated with our HC7 connector series.

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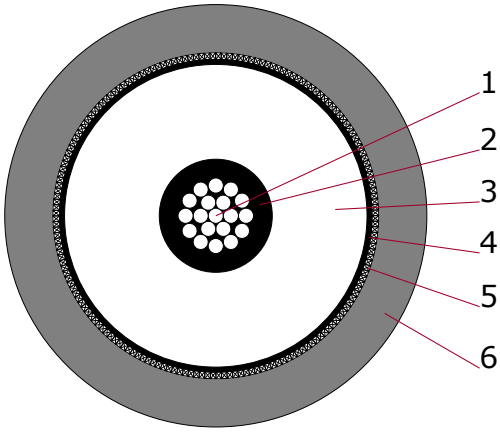
2024SVJ

60kV$_{DC}$ / 20kV$_{AC}$ - AWG12 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 60kV$_{DC}$ / 20kV$_{AC}$ flexible high voltage cable with silicone dielectric and PVC jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG12 Cu/Ag (19xAWG25 s.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive Silicone (black)	Ø 3.4mm
3. Dielectric	Silicone	Ø 9.1mm
4. Semicon	Semiconductive Ink & Tape	Ø 9.4mm
5. Braid	Cu/Sn (6x24x AWG34 t.p.c.) 81% Coverage	Ø 9.8mm
6. Jacket	PVC	Ø 12.7mm

TECHNICAL DATA

Rated Voltage	60kV$_{DC}$ / 20kV$_{AC}$
Impedance	typ. 39Ω
Capacitance	typ. 187pF/m
min. Bend Radius	38mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.232kg/m
Color	black
Status	S (Special)

Other jacket materials upon request.
This cable can be terminated with our HC7 connector series.

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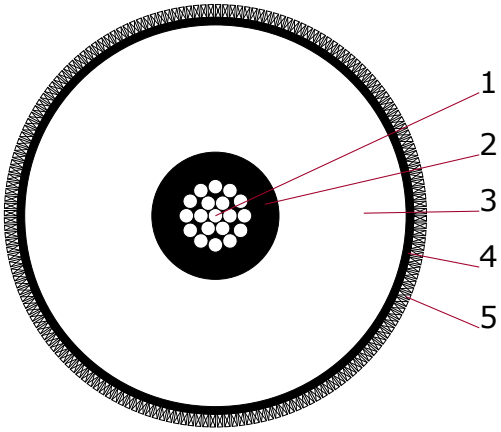
2032S

50kV$_{DC}$ / 15kV$_{AC}$ - AWG16 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 50kV$_{DC}$ / 15kV$_{AC}$ high voltage cable with silicone dielectric. No jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour. Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG16 Cu/Ag (19xAWG29 s.p.c.)	1.2mm² Ø 1.5mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.5mm
3. Dielectric	Silicone	Ø 7.5mm
4. Semicon	Semiconductive Ink & Tape	Ø 7.8mm
5. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 86% Coverage	Ø 8.3mm

TECHNICAL DATA

Rated Voltage	50kV$_{DC}$ / 15kV$_{AC}$
Impedance	typ. 44Ω
Capacitance	typ. 164pF/m
min. Bend Radius	25mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Weight	ca. 0.1kg/m
Status	S (Special)

This cable can be terminated with our HC7 connector series.

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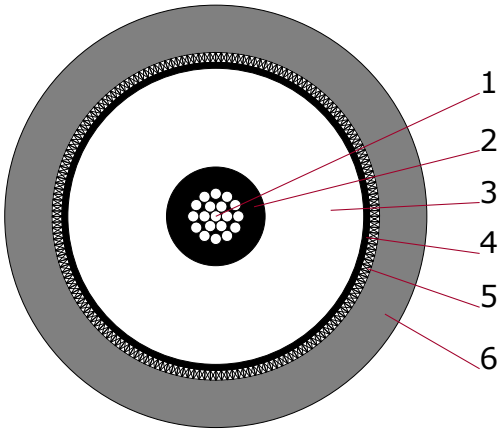
2032STJ

50kV$_{DC}$ / 15kV$_{AC}$ - AWG16 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 50kV$_{DC}$ / 15kV$_{AC}$ high voltage cable with silicone dielectric and TPR jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG16 Cu/Ag (19xAWG29 s.p.c.)	1.2mm² Ø 1.5mm
2. Semicon	Semiconductive Silicone (black)	Ø 2.5mm
3. Dielectric	Silicone	Ø 7.5mm
4. Semicon	Semiconductive Ink & Tape	Ø 7.8mm
5. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 86% Coverage	Ø 8.3mm
6. Jacket	TPR	Ø 10.7mm

TECHNICAL DATA

Rated Voltage	50kV$_{DC}$ / 15kV$_{AC}$
Impedance	typ. 44Ω
Capacitance	typ. 164pF/m
min. Bend Radius	25mm (fixed)
Operating Temperature	-65°C - +80°C
RoHS Compliant	Yes
Weight	ca. 0.171kg/m
Color	black
Status	S (Special)

Other jacket materials upon request.
This cable can be terminated with our HC7 connector series.

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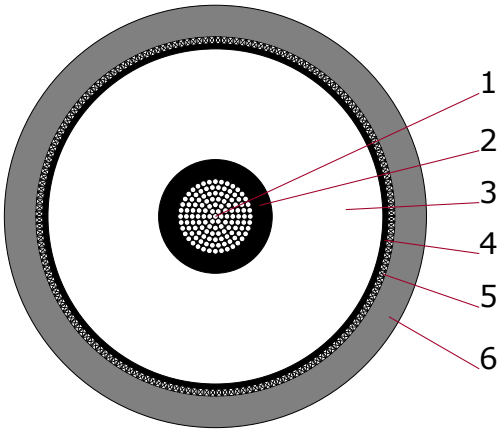
2062SVJ

100kV$_{DC}$ / 30kV$_{AC}$ - AWG8 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 100kV$_{DC}$ / 30kV$_{AC}$ high voltage cable with silicone dielectric and PVC jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG8 Cu/Ag (133xAWG29 s.p.c.)	8.5mm² Ø 4.2mm
2. Semicon	Semiconductive Silicone (black)	Ø 5.6mm
3. Dielectric	Silicone	Ø 16.5mm
4. Semicon	Semiconductive Ink & Tape	Ø 17mm
5. Braid	Cu/Sn (10x24x AWG34 t.p.c.) 85% Coverage	Ø 17.7mm
6. Jacket	PVC	Ø 20.8mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$ / 30kV$_{AC}$
Test Voltage	110kV$_{DC}$ / 5min
Impedance	typ. 41Ω
Capacitance	typ. 164pF/m
min. Bend Radius	140mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.596kg/m
Color	black
Status	S (Special)

Other jacket materials upon request.
This cable can be terminated with our high voltage connector S1105-9-T.

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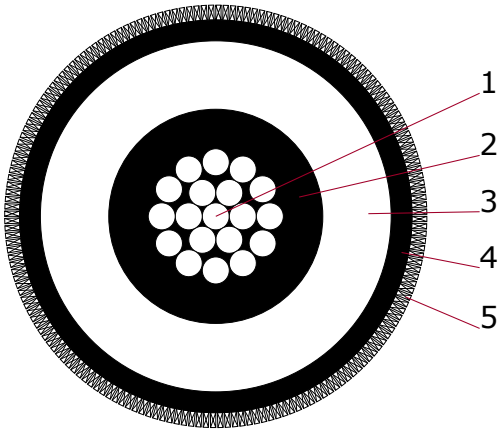
2075S

15kV$_{DC}$ / 5kV$_{AC}$ - AWG12 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 15kV$_{DC}$ / 5kV$_{AC}$ high voltage cable with silicone dielectric. No jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.
Suitable for an operating temperature range from -65°C to 200°C.

CONSTRUCTION



1. Conductor	AWG12 Cu/Ag (19xAWG25 s.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive Silicone (black)	Ø 3.6mm
3. Dielectric	Silicone	Ø 5.9mm
4. Semicon	Semiconductive Ink & Tape	Ø 6.6mm
5. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 90% Coverage	Ø 7.1mm

TECHNICAL DATA

Rated Voltage	15kV$_{DC}$ / 5kV$_{AC}$
Impedance	typ. 25Ω
Capacitance	typ. 321pF/m
min. Bend Radius	25mm (fixed)
Operating Temperature	-65°C - +200°C
RoHS Compliant	Yes
Status	S (Special)

This cable can be terminated with our HC7 connector series.

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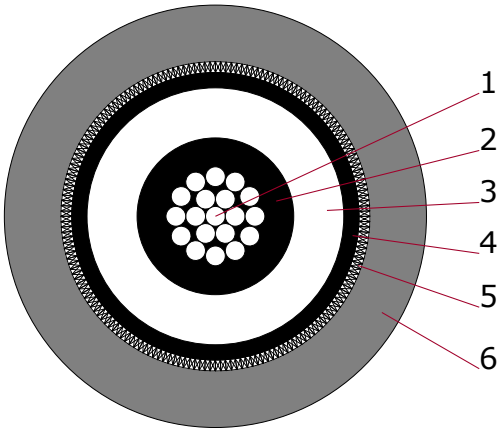
2075SVJ

15kV$_{DC}$ / 5kV$_{AC}$ - AWG12 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 15kV$_{DC}$ / 5kV$_{AC}$ high voltage cable silicone dielectric and PVC jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG12 Cu/Ag (19xAWG25 s.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive Silicone (black)	Ø 3.6mm
3. Dielectric	Silicone	Ø 5.9mm
4. Semicon	Semiconductive Ink & Tape	Ø 6.6mm
5. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 90% Coverage	Ø 7.1mm
6. Jacket	PVC	Ø 9.7mm

TECHNICAL DATA

Rated Voltage	15kV$_{DC}$ / 5kV$_{AC}$
Impedance	typ. 25Ω
Capacitance	typ. 321pF/m
min. Bend Radius	25mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.127kg/m
Color	black
Status	S (Special)

Other jacket materials upon request.
This cable can be terminated with our HC7 connector series.

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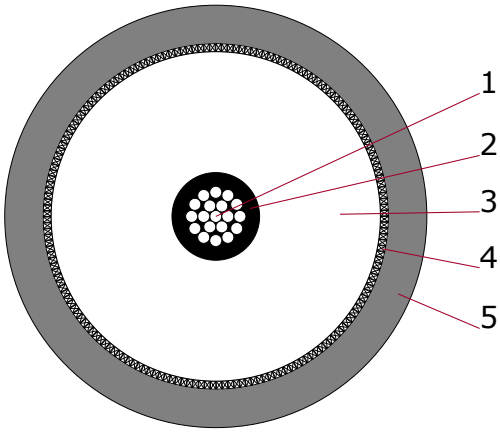
2121

150kV$_{DC}$ - AWG12 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 150kV$_{DC}$ high voltage cable with PE dielectric. Semiconductive layer around the conductor.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (19xAWG25 t.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive PE (black)	Ø 3.3mm
3. Dielectric	LDHMW PE	Ø 12.4mm
4. Braid	Cu/Sn (10x24x AWG34 t.p.c.) 90% Coverage	Ø 13mm
5. Jacket	PVC	Ø 15.9mm

TECHNICAL DATA

Rated Voltage	150kV$_{DC}$
Test Voltage	165kV$_{DC}$ / 5min Jacket Spark Test: 5kV
Impedance	typ. 59Ω
Capacitance	typ. 95pF/m
min. Bend Radius	216mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.28kg/m
Color	black
Status	P (Preferred)

See also HSC-150-1PSUB-2 for a version with outer semicon

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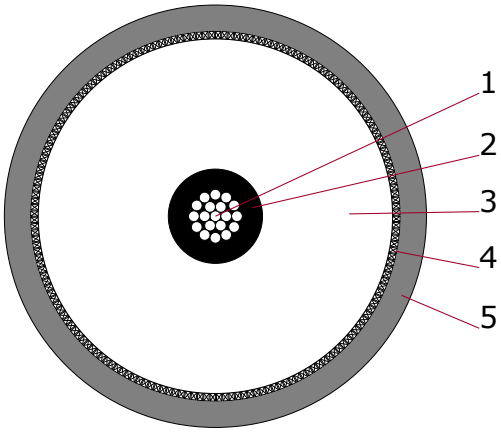
2124

100kV$_{DC}$ - AWG16 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 100kV$_{DC}$ high voltage cable with PE dielectric and PVC jacket. Semiconductive layer around the conductor.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (19xAWG29 t.p.c.)	1.2mm² Ø 1.5mm
2. Semicon	Semiconductive PE (black)	Ø 2.5mm
3. Dielectric	LDHMW PE	Ø 9.15mm
4. Braid	Cu/Sn (9x24x AWG34 t.p.c.) 90% Coverage	Ø 9.8mm
5. Jacket	PVC	Ø 11.2mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$
Test Voltage	110kV$_{DC}$ / 5min Jacket Spark Test: 5kV
Impedance	typ. 61Ω
Capacitance	typ. 98pF/m
min. Bend Radius	152mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.15kg/m
Color	black
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.
See also HSC-100-1PSUB-2 for a version with outer semicon.

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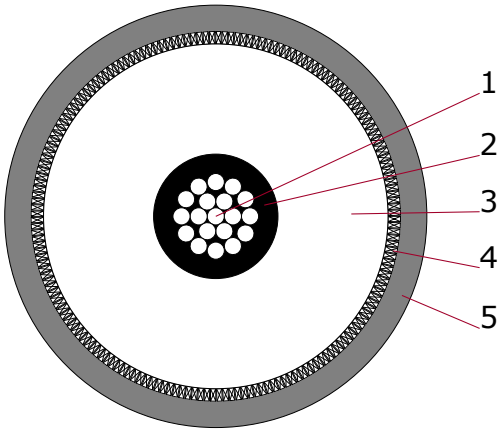
2125

100kV$_{DC}$ - AWG12 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 100kV$_{DC}$ high voltage cable with semiconductive PE, LDHMW PE dielectric and PVC jacket.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (19xAWG25 t.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive PE (black)	Ø 3.3mm
3. Dielectric	LDHMW PE	Ø 9.1mm
4. Braid	Cu/Sn (9x24x AWG34 t.p.c.) 90% Coverage	Ø 9.8mm
5. Jacket	PVC	Ø 11.2mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$
Test Voltage	110kV$_{DC}$ / 10min Jacket Spark Test: 5kV
Impedance	typ. 48Ω
Capacitance	typ. 121pF/m
min. Bend Radius	152mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.165kg/m
Color	black
Status	S (Special)

This cable can be terminated with our HC7 connector series.

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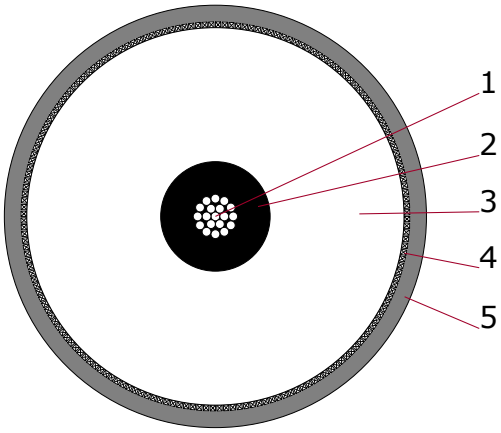
2134

200kV$_{DC}$ - AWG12 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 200kV$_{DC}$ high voltage cable with PE dielectric and PVC jacket. Semiconductive layer around the conductor.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (19xAWG25 t.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive PE	Ø 5.6mm
3. Dielectric	LDHMW PE	Ø 19.3mm
4. Braid	Cu/Sn (10x24x AWG34 t.p.c.) 90% Coverage	Ø 19.9mm
5. Jacket	PVC	Ø 21.6mm

TECHNICAL DATA

Rated Voltage	200kV$_{DC}$
Test Voltage	220kV$_{DC}$ / 10min Jacket Spark Test: 5kV
Impedance	typ. 64Ω
Capacitance	typ. 102pF/m
Operating Temperature	-51°C - +60°C
Weight	ca. 0.551kg/m
Color	black
Status	S (Special)

This cable can be terminated with our high voltage connector S1105-9-T.

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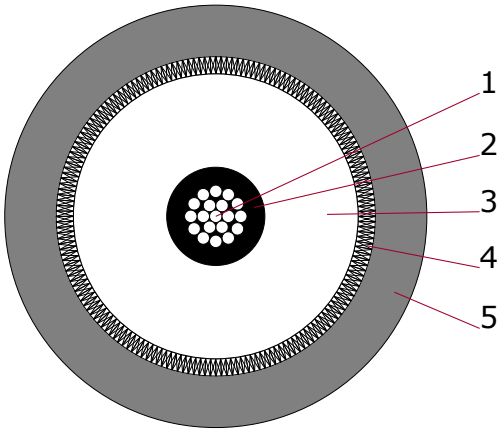
2149SVJ

60kV$_{DC}$ - AWG18 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 60kV$_{DC}$ high voltage cable with PE dielectric and PVC jacket. Semiconductive layer around the conductor.

CONSTRUCTION



1. Conductor	AWG18 Cu/Sn (19xAWG30 t.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive PE	Ø 2mm
3. Dielectric	LDHMW PE	Ø 5.9mm
4. Braid	Cu/Sn (6x16x AWG34 t.p.c.) 86% Coverage	Ø 6.5mm
5. Jacket	PVC	Ø 8.6mm

TECHNICAL DATA

Rated Voltage	60kV$_{DC}$
Impedance	typ. 50Ω
Capacitance	typ. 121pF/m
min. Bend Radius	64mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.075kg/m
Color	black
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.
See also HSC-60-1PSUA-2 for a version with outer semicon

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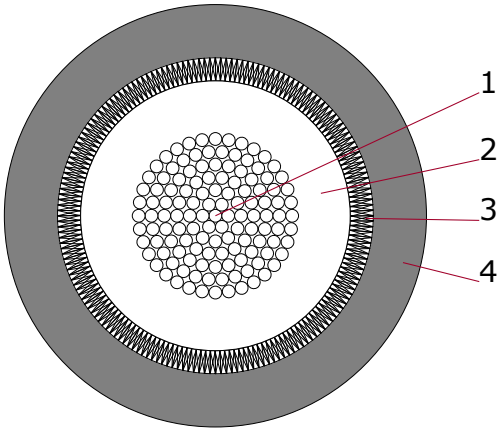
2232

10kV$_{DC}$ - AWG6 - LDHMW PE DIELECTRIC - LOW IMPEDANCE

PRODUCT DESCRIPTION

Shielded 10kV$_{DC}$ high voltage cable with LDHMW PE dielectric and TPR jacket.
The cable features very low impedance and large copper area on the center conductor and the shield. It is intended for non-continuous pulse applications.

CONSTRUCTION



1. Conductor	AWG6 Cu/Sn (133xAWG27 t.p.c.)	13.6mm² Ø 5.3mm
2. Dielectric	LDHMW PE	Ø 7.6mm
3. Braid	Cu/Sn (6x24x AWG30 t.p.c.) 95% Coverage	Ø 8.9mm
4. Jacket	TPR	Ø 12.7mm

TECHNICAL DATA

Rated Voltage	10kV$_{DC}$
Impedance	typ. 14Ω
Capacitance	typ. 358pF/m
min. Bend Radius	152mm (fixed)
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.298kg/m
Color	black
Status	S (Special)

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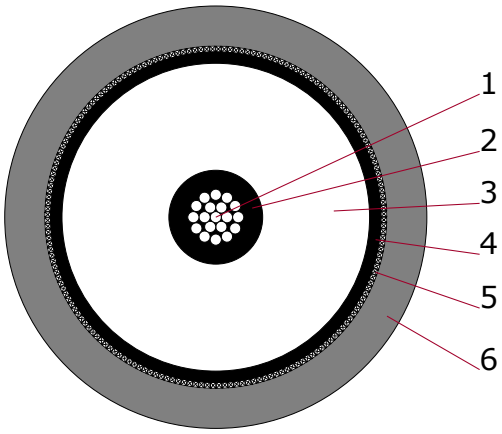
2243

125kV$_{DC}$ / 40kV$_{AC}$ - AWG8 - EPR DIELECTRIC

PRODUCT DESCRIPTION

Shielded 125kV$_{DC}$ high voltage cable with EPR dielectric and PVC jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG8 Cu/Sn (49xAWG25 t.p.c.)	8mm² Ø 3.6mm
2. Semicon	Semiconductive EPR	Ø 5.6mm
3. Dielectric	EPR	Ø 15.7mm
4. Semicon	Semiconductive Tape	Ø 16.1mm
5. Braid	Cu/Sn (7x24x AWG30 t.p.c.) 90% Coverage	Ø 17.1mm
6. Jacket	PVC	Ø 19.7mm

TECHNICAL DATA

Rated Voltage	125kV$_{DC}$ / 40kV$_{AC}$
Impedance	typ. 46Ω
Capacitance	typ. 155pF/m
min. Bend Radius	127mm (fixed)
Operating Temperature	-51°C - +80°C
RoHS Compliant	Yes
Weight	ca. 0.55kg/m
Color	black
Status	P (Preferred)

This cable can be terminated with our high voltage connector S1105-9-T.

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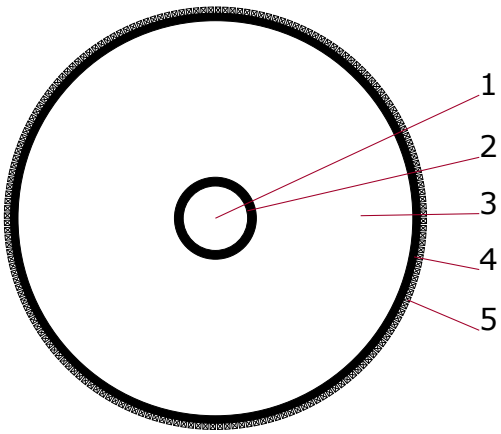
2357S

300kV$_{DC}$ / 100kV$_{AC}$ - AWG4 - EPR DIELECTRIC

PRODUCT DESCRIPTION

Shielded high voltage cable with solid copper conductor, semiconductive EPR and EPR dielectric, covered with a second layer of semiconductive EPR and a braided copper shield. No polymer jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG4 Cu (1xAWG4 copper solid)	21.2mm² Ø 5.19mm
2. Semicon	Semiconductive EPR	Ø 6.6mm
3. Dielectric	EPR	Ø 31.8mm
4. Semicon	Semiconductive EPR	Ø 33.0mm
5. Braid	Cu (8x48x AWG30 copper)	Ø 34.0mm

TECHNICAL DATA

Rated Voltage	300kV$_{DC}$ / 100kV$_{AC}$
Test Voltage	110kV$_{AC}$ (RMS) / 20min
Status	S (Special)

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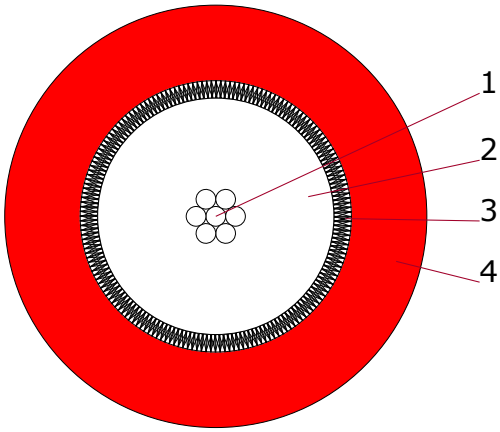
HPW-30S-0.34-A-2

30kV$_{DC}$ - AWG22 - PE-X DIELECTRIC

PRODUCT DESCRIPTION

30kV$_{DC}$ coaxial high voltage cable. Halogen free, non corrosive, flame retardant, low smoke (FRNC/LSZH). RoHS / REACH compliant. The PE-X jacket is oil resistant.
The cable is fully compatible with our HC52P-HTV30S 20kV high voltage connectors.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.34mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 3.05mm ± 0.1mm
3. Braid	Cu/Sn (0.1mm t.p.c.) 85% Coverage	Ø 3.5mm
4. Jacket	PE-X	Ø 5.45mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
Test Voltage	61kV$_{DC}$ / 1min (conductor / braid) 48kV$_{DC}$ / 24h (conductor / braid) 20kV$_{AC}$ (Spark Test, core)
Conductor Resistance @ 20°C	≤ 59Ω/km
Impedance	typ. 60Ω
Capacitance	typ. 105pF/m
min. Bend Radius	55mm (moving), 28mm (fixed)
Operating Temperature	-25°C - +105°C
Oil Resistance	according to DIN EN 60811-404 (168h 100°C)
Flame Retardance	according to DIN EN 60332-1-2 (60s)
Low Smoke	Yes
Halogen-free	Yes (LSZH)
RoHS Compliant	Yes
Weight	ca. 0.039kg/m
Cu-Weight	ca. 0.013kg/m
Color	red (~RAL 3000)
Status	P (Preferred)

This cable can be terminated with our HC52 series high voltage connector HC52P-HTV30S and our high voltage connector series HS/HB.

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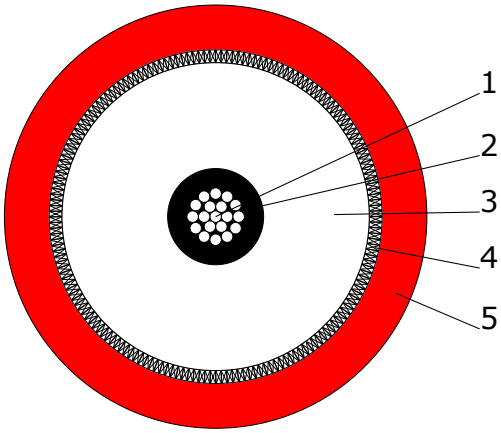
HPW-40S-0.5-A-2

40kV$_{DC}$ - AWG20 - PE-X DIELECTRIC

PRODUCT DESCRIPTION

40kV$_{DC}$ coaxial high voltage cable. It is fully compatible with our HS Series high voltage connectors (HS11, HS21, HS31, HS40). Halogen free, flame retardant. RoHS / REACH compliant. The jacket is resistant against oil, hydrolysis and microbes.

CONSTRUCTION



1. Conductor	AWG20 Cu/Sn (19xAWG33 t.p.c.)	0.5mm² Ø 0.92mm
2. Semicon	Semiconductive PE	Ø 1.5mm ±0.05mm
3. Dielectric	PE-X	Ø 4.8mm ± 0.1mm
4. Braid	Cu/Sn (16x 8x 0.1mm t.p.c.) ≥85% Coverage	Ø 5.2mm ± 0.1mm
5. Jacket	PUR	Ø 6.6mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$
Test Voltage	64kV$_{DC}$ / 24h (conductor / braid) 25kV$_{AC}$ (Spark Test core)
Conductor Resistance @ 20°C	≤ 40Ω/km
Braid Resistance @ 20°C	≤ 30Ω/km
Insulation Resistance @ 20°C	> 10000MΩ*km
Impedance	typ. 60Ω
Capacitance	typ. 109pF/m
min. Bend Radius	130mm (moving), 66mm (fixed)
Operating Temperature	-20°C - +80°C
Oil Resistance	t.b.s.
Flame Retardance	t.b.s.
Halogen-free	Yes
RoHS Compliant	Yes
Weight	ca. 0.05kg/m
Cu-Weight	ca. 0.02kg/m
Color	red (~RAL3000)
Status	S (Special)

Intended for fixed installation; suitable for flexible wiring to a limited extent.
This cable can be terminated with our HS/HB and HC7 connector series.

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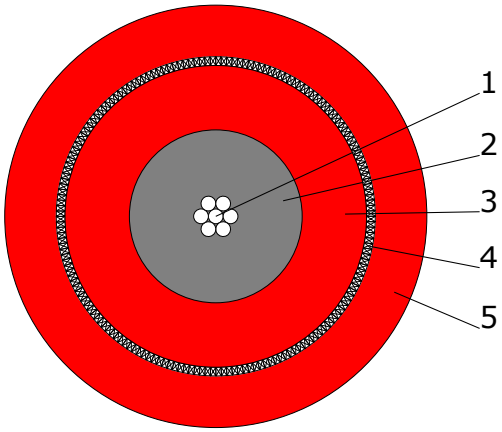
HPW-50S-0.34-A-2

50kV$_{DC}$ / 6kV$_{AC}$ - AWG22 - PE-X DIELECTRIC

PRODUCT DESCRIPTION

50kV$_{DC}$ coaxial high voltage cable. It is suitable as a direct replacement for the discontinued shielded TV-50 industrial standard cable regarding electrical and mechanical properties. RoHS / REACH compliant.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 t.p.c.)	0.34mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 2.98mm ± 0.10mm
3. Inner Jacket	PVC red	Ø 5.2mm ± 0.1mm
4. Braid	Helically wound Cu/Sn (t.p.c.) wires (mm)	Ø 5.5mm
5. Jacket	PVC	Ø 7.28mm ± 0.20mm

TECHNICAL DATA

Rated Voltage	50kV$_{DC}$ / 6kV$_{AC}$
Test Voltage	60kV$_{DC}$ / 1min 12kV$_{AC}$ / 1min
Conductor Resistance @ 20°C	≤ 55.9Ω/km
Braid Resistance	≤ 12.5Ω/km
min. Bend Radius	40mm (fixed)
Operating Temperature	-15°C - +80°C
Weight	ca. 0.074kg/m
Color	red
Status	S (Special)

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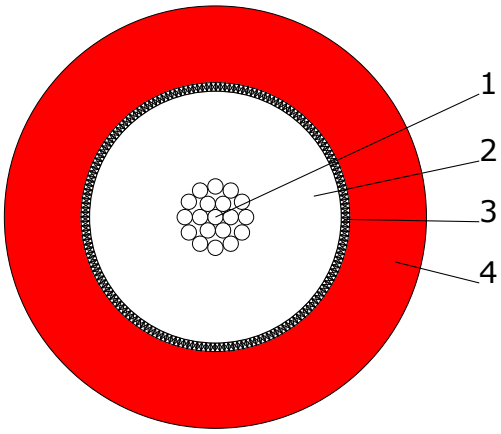
HRG58-20-2

20kV$_{DC}$ - 0.50mm² - PE-X DIELECTRIC

PRODUCT DESCRIPTION

20kV$_{DC}$ coaxial high voltage cable suitable to replace standard 50Ω RG58 coaxial cable in high voltage applications. The dimensions correspond to standard RG58-C/U. It is fully compatible with SHV, MHV, HC51 and Kings® type coaxial connectors. Halogen free, flame retardant, low smoke (LSZH). RoHS / REACH compliant.
The jacket is resistant against oil, hydrolysis and microbes.
The cable is available on cardboard reels (150m) and wooden reels (500m).

CONSTRUCTION



1. Conductor	Cu/Sn (19xAWG33 t.p.c.)	0.50mm² Ø 0.95mm
2. Dielectric	PE-X	Ø 2.95mm ± 0.05mm
3. Braid	Cu/Sn (0.13mm t.p.c.) 90% Coverage	Ø 3.35mm ± 0.1mm
4. Jacket	TPE-U (PUR)	Ø 4.95mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$
Test Voltage	41kV$_{DC}$ / 60s (conductor / braid) 15kV$_{AC}$ (Spark Test, core)
Conductor Resistance @ 20°C	≤ 40Ω/km
Impedance	typ. 51Ω
Capacitance	typ. 102pF/m
min. Bend Radius	74mm (moving), 37mm (fixed)
Operating Temperature	-20°C - +105°C
Flame Retardance	according to DIN EN 60332-2-1 (60s) and DIN EN 60332-2-2 (20s)
Halogen-free	Yes (LSZH)
RoHS Compliant	Yes
Weight	ca. 0.036kg/m
Cu-Weight	ca. 0.014kg/m
Color	red
Status	P (Preferred)

Intended for fixed installation; suitable for flexible wiring to a limited extent.
This cable can be terminated with SHV, MHV, our HC51 series HC51P-58 and HC51RB-58 connectors, and our HS/HB series high voltage connectors.
HRG58-20-2 can also be supplied with UL Style 3871 approval as HRG58-20-XV-U-2.

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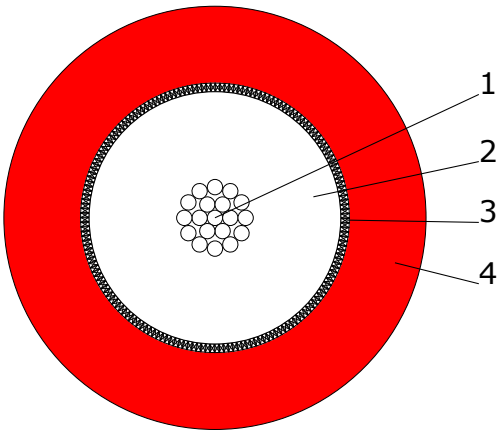
HRG58-20-XV-U-2

20kV$_{DC}$ - 0.50mm² - PE-X DIELECTRIC
AWM STYLE 3871

PRODUCT DESCRIPTION

20kV$_{DC}$ coaxial high voltage cable suitable to replace standard 50Ω coaxial cable in high voltage applications. The dimensions correspond to standard RG58-C/U.
It is fully compatible with SHV, MHV, HC51 and Kings® type coaxial connectors.
UL recognized AWM style 3871. Flame retardant, RoHS / REACH compliant.
The jacket is resistant against oil and provides good chemical resistance properties.
The cable is available on cardboard reels (150m) and wooden reels (500m).

CONSTRUCTION



1. Conductor	Cu/Sn (19xAWG33 t.p.c.)	0.50mm² Ø 0.95mm
2. Dielectric	PE-X Wall Thickness (average) Wall Thickness (minimum)	Ø 2.95mm ± 0.1mm ≥ 0.38mm ≥ 0.33mm
3. Braid	Cu/Sn (0.13mm t.p.c.) 90% Coverage	Ø 3.35mm ± 0.1mm
4. Jacket	PVC Wall Thickness (average) Wall Thickness (minimum)	Ø 5.1mm ± 0.1mm ≥ 0.79mm ≥ 0.61mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$
Test Voltage	41kV$_{DC}$ / 60s (conductor / braid) 15kV$_{AC}$ (Spark Test, core)
Conductor Resistance @ 20°C	≤ 40Ω/km
Impedance	typ. 51Ω
Capacitance	typ. 102pF/m
min. Bend Radius	77mm (moving), 38mm (fixed)
Operating Temperature	-20°C - +105°C
Oil Resistance	Jacket according to DIN EN 60811-404 (168h / 80°C)
Flame Retardance	according to DIN EN 60332-2-2 (20s) Horizontal Flame Test UL758/1581/2556
Halogen-free	No
RoHS Compliant	Yes
Weight	ca. 0.040kg/m
Cu-Weight	ca. 0.014kg/m
Color	red
Status	P (Preferred)

Intended for fixed installation; suitable for flexible wiring to a limited extent.

This cable can be terminated with SHV, MHV, our HC51 series HC51P-58 and HC51RB-58 connectors, and our HS/HB series high voltage connectors.

HRG58-20-XV-U-2 can also be supplied without UL approval as HRG58-20-2.

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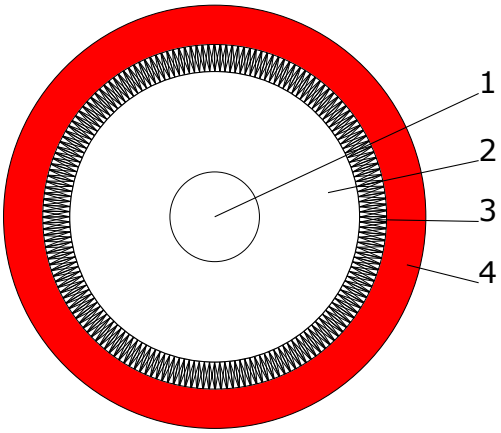
HRG303-40-U-A-2

40kV$_{DC}$ / 1.4kV$_{AC}$ - 0.69mm² - FEP DIELECTRIC
AWM STYLE 3239 - INTERNAL USE

PRODUCT DESCRIPTION

40kV$_{DC}$ coaxial high voltage cable with a solid silver plated copper conductor and a braid of silver plated copper wires. Suitable to replace standard 50Ω RG58 type coaxial cable in high voltage applications. Core dimensions similar to RG58. It is compatible with SHV, MHV, HC51, HC52 and Kings® type coaxial connectors.
UL recognized AWM Style 3239 (40kV, 150°C, horizontal flame and VW-1 flame - internal use). RoHS/REACH compliant. Using FEP dielectric and an FEP jacket, the cable can be operated at temperatures of -65 to +200°C. The UL recognition covers operating temperatures up to 150°C. It shows excellent chemical and abrasion resistance properties.

CONSTRUCTION



1. Conductor	Cu/Ag (1x0.94mm s.p.c.)	0.69mm² Ø 0.94mm
2. Dielectric	FEP	Ø 2.95mm
3. Braid	Cu/Ag (0.127mm s.p.c.)	Ø 3.5mm
4. Jacket	FEP	Ø 4.30mm ± 0.15mm

TECHNICAL DATA

Rated Voltage	40kV$_{DC}$ / 1.4kV$_{AC}$
Test Voltage	81kV$_{DC}$ / 60s (conductor / braid) 15kV$_{AC}$ (Spark Test, core) 5kV$_{AC}$ (Spark Test, jacket) 64kV$_{DC}$ / 24h (Type Test)
Conductor Resistance @ 20°C	≤ 26Ω/km
Insulation Resistance @ 20°C	> 5000MΩ*km
Impedance	50Ω ±3Ω
Capacitance	typ. 94pF/m; max. 105pF/m
min. Bend Radius	45mm (moving), 20mm (fixed)
Operating Temperature	-65°C - +200°C; UL: +150°C
Oil Resistance	Yes
Flame Retardance	according to UL758/1581/2556, Horizontal and VW-1 Flame Test
Low Smoke	Yes
Halogen-free	No
RoHS Compliant	Yes
Weight	ca. 0.040kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with SHV, MHV, our HC51 series HC51P-58, HC51RB-58 and HC52P-58 connectors, and our HS/HB series high voltage connectors.

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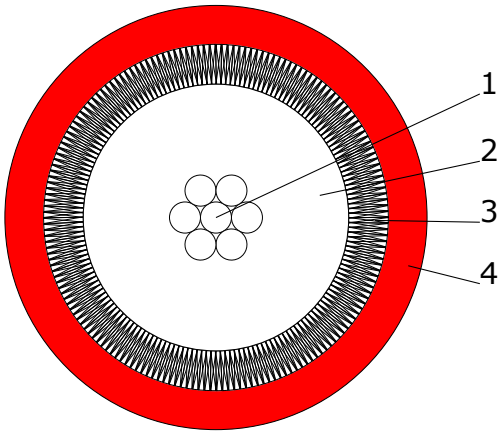
HRG316-10-B-2

10kV$_{DC}$ / 1kV$_{AC}$ - 0.18mm² - FEP DIELECTRIC

PRODUCT DESCRIPTION

10kV$_{DC}$ coaxial high voltage cable suitable to replace standard 50Ω RG316 type coaxial cable in high voltage applications. Very flexible due to a small diameter of 2.45mm only and thus ideal for applications in limited space. The dimensions are identical to standard RG316.
It is compatible with our HC55AP-316 SHV type coaxial connector.
Solid silver plated copper conductor and a braid of silver plated copper wires. Using FEP dielectric and an FEP jacket, the cable can be operated at temperatures of -65 to +200°C. It shows excellent chemical and abrasion resistance.

CONSTRUCTION



1. Conductor	Cu/Ag (7xAWG33 s.p.c.)	0.18mm² Ø 0.54m
2. Dielectric	FEP	Ø 1.54mm ± 0.05mm
3. Braid	Cu/Ag (0.10mm s.p.c.)	Ø 2.0mm
4. Jacket	FEP	Ø 2.45mm ± 0.15mm

TECHNICAL DATA

Rated Voltage	10kV$_{DC}$ / 1kV$_{AC}$
Test Voltage	20kV$_{DC}$ / 60s (conductor / braid) 15kV$_{AC}$ (Spark Test, core) 5kV$_{AC}$ (Spark Test, jacket) 20kV$_{DC}$ / 24h (Type Test)
Conductor Resistance @ 20°C	≤ 110Ω/km
Insulation Resistance @ 20°C	> 5000MΩ*km
Impedance	50Ω ±3Ω
Capacitance	typ. 94pF/m; max. 105pF/m
min. Bend Radius	25mm (moving), 10mm (fixed)
Operating Temperature	-65°C - +200°C
Oil Resistance	Yes
Flame Retardance	Yes
Low Smoke	Yes
Halogen-free	No
RoHS Compliant	Yes
Weight	ca. 0.014kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with our SHV connector HC55AP-316.

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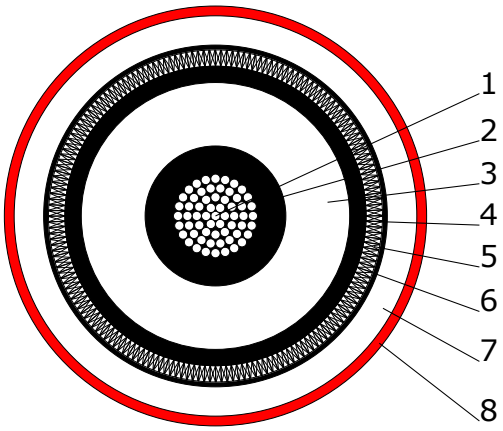
HSC-17-1SSSOB-2

17kVAC – 6mm² - SHIELDED SILICONE DIELECTRIC HIGH VOLTAGE CABLE

PRODUCT DESCRIPTION

17kVAC shielded high voltage cable with semiconductive layer around the conductor, silicone dielectric, semiconductive layer around the dielectric, braid, silicone jacket and a protective jacket made of woven, impregnated polyester yarn. The shield is intended for EMC purpose. The area equivalent of the shield is not suitable to carry the full operating current of the inner conductor.

CONSTRUCTION



1. Conductor	Cu/Sn (84x0.30mm, t.p.c.)	6mm² Ø 3.2mm
2. Semicon	Semiconductive Silicone	Ø 4.3mm
3. Dielectric	Silicone	Ø 8.2mm
4. Semicon	Semiconductive Silicone	Ø 9.2mm
5. Braid	Cu/Sn (0.25mm t.p.c.) ≥ 50% Coverage	Ø 10.2mm
6. Tape	PTFE-Tape	
7. Jacket	Silicone	Ø 12.3mm
8. Protective Jacket	impregnated Polyester	Ø 12.9mm ± 0.6mm

TECHNICAL DATA

Rated Voltage	17kVAC
Test Voltage	t.b.s.
Conductor Resistance @ 20°C	≤ 3.39Ω/km
Capacitance	t.b.s.
min. Bend Radius	97mm (fixed), 194mm (moving)
Operating Temperature	-50°C - +140°C
RoHS Compliant	Yes
Weight	0.222kg/m
Cu-Weight	0.095kg/m
Color	red
Status	E (Example)

This cable can be terminated with our HC7 connector series.

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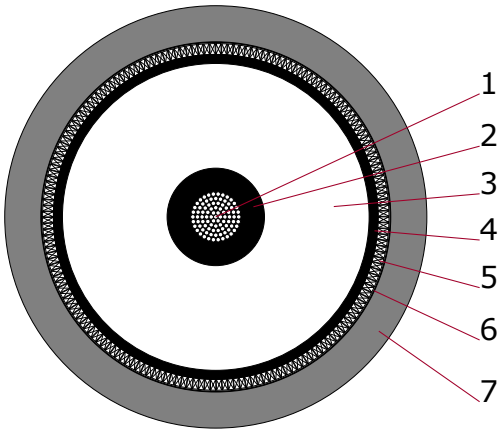
HSC-50-1S1SUA-0

50kV$_{DC}$ / 15kV$_{AC}$ - AWG16 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

50kV$_{DC}$ / 15kV$_{AC}$ shielded high voltage cable optimized for low partial discharge, robustness and high flexibility even at low ambient temperatures. Semiconductive layers around the conductor and the inner dielectric assure excellent PD behavior.
Silicone dielectric and a robust TPE-U / Polyurethane jacket.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (105xAWG36 t.p.c.)	1.33mm² Ø 1.53mm
2. Semicon	Semiconductive Silicone	Ø 2.7mm
3. Dielectric	Silicone	Ø 8.5mm
4. Semicon	Semiconductive PTFE Tape	Ø 9.0mm
5. Braid	Cu/Sn (6x24x 0.15mm t.p.c.) ≥85% Coverage	Ø 9.6mm
6. Tape	Nonwoven Separator Tape	Ø 9.7mm
7. Jacket	TPE-U	Ø 11.7mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	50kV$_{DC}$ / 15kV$_{AC}$
Test Voltage (Conductor – Braid) **(Jacket)**	80kV$_{DC}$ / 1min 5kV$_{AC}$ (Spark Test)
Partial Discharge Level	≤ 20pC, U$_{PD}$ = 8kV$_{AC}$
Conductor Resistance @ 20°C	≤ 13.6Ω/km
Braid Resistance	≤ 16Ω/km
Capacitance	typ. 150pF/m
min. Bend Radius	120mm (moving), 60mm (fixed)
Operating Temperature	-40°C - +90°C
RoHS Compliant	Yes
Weight	ca. 0.197kg/m
Cu-Weight	ca. 0.063kg/m
Color	black
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.

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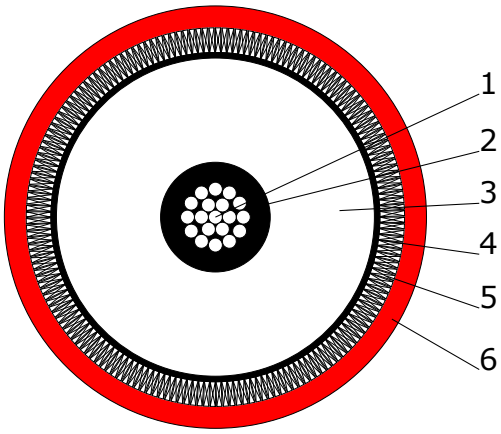
HSC-60-1PSUA-2

60kV$_{DC}$ / 20kV$_{AC}$ - AWG18 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 60kV$_{DC}$ / 20kV$_{AC}$ high voltage cable with LDHMW PE dielectric and robust TPE-U jacket. Good partial discharge behaviour due to semiconductive layers around the conductor and the inner dielectric.
Halogen free.

CONSTRUCTION



1. Conductor	AWG18 Cu/Sn (19xAWG30 t.p.c.)	0.97mm² Ø 1.24mm
2. Semicon	Semiconductive PE (black)	Ø 2mm
3. Dielectric	LDHMW PE	Ø 5.9mm
4. Semicon	Semiconductive Tape	
5. Braid	Cu/Sn (AWG34 t.p.c.) 85% Coverage	Ø 7.1mm
6. Jacket	TPE-U	Ø 7.9mm ± 0.3mm

TECHNICAL DATA

Rated Voltage	60kV$_{DC}$ / 20kV$_{AC}$
Test Voltage	70kV$_{DC}$ / 10min (conductor / braid) 2.5kV$_{AC}$ (Spark Test, jacket)
Capacitance	typ. 121pF/m
min. Bend Radius	90mm (fixed)
Operating Temperature	-40°C - +60°C
Halogen-free	Yes
RoHS Compliant	Yes
Weight	ca. 0.077kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.

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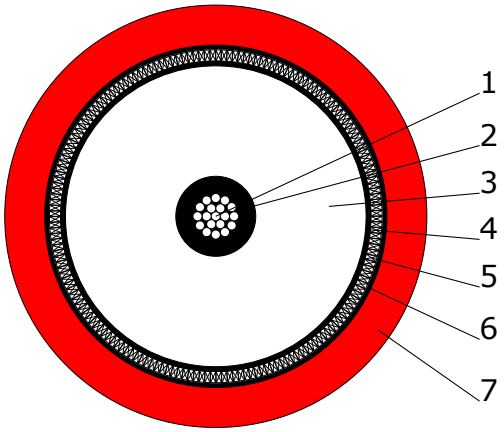
HSC-100-1PSUB-2

100kV$_{DC}$ / 30kV$_{AC}$ - AWG16 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 100kV$_{DC}$ / 30kV$_{AC}$ high voltage cable with LDHMW PE dielectric and robust TPE-U jacket. Excellent partial discharge behaviour due to semiconductive layers around the conductor and the inner dielectric.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (19xAWG29 t.p.c.)	1.2mm² Ø 1.5mm
2. Semicon	Semiconductive PE (black)	Ø 2.5mm
3. Dielectric	LDHMW PE	Ø 9.4mm ± 0.3mm
4. Semicon	Semiconductive PTFE Tape	Ø 9.8mm
5. Braid	Cu/Sn (0.2mm t.p.c.) ≥85% Coverage	Ø 10.6mm
6. Tape	Nonwoven material	Ø 10.9mm
7. Jacket	TPE-U	Ø 13.4mm ± 0.4mm

TECHNICAL DATA

Rated Voltage	100kV$_{DC}$ / 30kV$_{AC}$
Test Voltage	110kV$_{DC}$ / 10min (conductor / braid) 2.5kV$_{AC}$ (Spark Test, jacket)
Capacitance	typ. 100pF/m
min. Bend Radius	201mm (fixed)
Operating Temperature	-40°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.22kg/m
Color	red
Status	E (Example)

This cable can be terminated with our HC7 connector series.

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HSC-111-1X1SVA-2

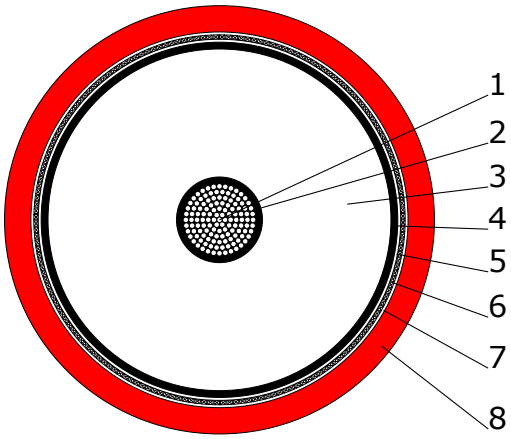
111kVDC – XLPE DIELECTRIC - HIGH VOLTAGE ELECTROSTATIC FILTER CABLE

PRODUCT DESCRIPTION

Single core shielded high voltage power cable for electrostatic filter applications with open circuit voltage of up to 111kVP.

Robust design with stranded aluminium conductor, semiconductive conductor screen, XLPE dielectric, semiconductive insulation screen, copper screen and PVC jacket.
The cable is suitable to be used indoors or outdoors as well as buried in earth or laid in water.

CONSTRUCTION



1. Conductor	Al, stranded	50mm² Ø 8.2mm nom.
2. Semicon	Extruded Semicon	Ø 8.8mm nom.
3. Dielectric	XLPE	Ø 35.1mm ± 0.9mm
4. Semicon	Extruded Semicon	Ø 36.5mm nom.
5. Tape	Semiconductive Tape	
6. Braid	Cu Wires	25mm²
7. Tape	Separator Tape	
8. Jacket	PVC	Ø 44mm nom.

TECHNICAL DATA

Rated Voltage	111kVDC Peak
Test Voltage	111kVAC / 15min
Capacitance (Conductor – Braid)	120pF/m
Conductor Resistance @ 20°C	≤ 0.641 Ω/km
max. Short Circuit Current	4.7kA / 1s (Conductor) 5.1kA / 1s (Screen)
max. Permissible Pulling Force	1.5kN
min. Bend Radius	700mm
max. Conductor Temperature	+90°C +250°C (during Short Circuit)
min. Ambient Temperature	-5°C (during Laying)
Weight	1.8kg/m
Al-Weight	145kg/km
Cu-Weight	283kg/km
Color	red
Status	P (Preferred)

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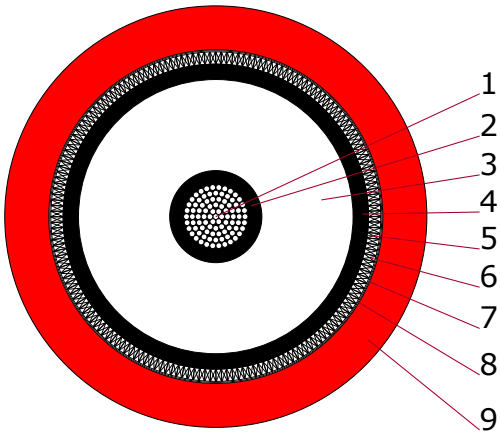
HSC-120-1E1SAB-2

120kV$_{DC}$ / 30kV$_{AC}$ - 6mm² - EPR DIELECTRIC – MEASUREMENT CABLE

PRODUCT DESCRIPTION

Shielded high voltage cable optimized for low partial discharge, robustness and flexibility. Halogen free design with EPR dielectric and a robust flame retardant EVA jacket. Semiconductive layers around the center conductor and the dielectric assure excellent PD behavior.
This cable is intended and designed for short term measurement applications.
The following must be taken into account: insulation wall thickness and test voltage are not in line with common standards requirements. Special care and attention is necessary when using the cable.

CONSTRUCTION



1. Conductor	Cu/Sn (t.p.c.) (class 5 acc. DIN EN 60228)	6mm² Ø 2.9mm
2. Semicon	Semiconductive EPR	Ø 4.5mm
3. Dielectric	EPR	Ø 13.4mm
4. Semicon	Semiconductive NBR Rubber	Ø 14.8mm
5. Tape	Semiconductive Tape	
6. Braid	Cu	Ø 16.1mm > 6mm²
7. Tape	PET Tape	
8. Tape	Nonwoven Separator Tape	
9. Jacket	Cross linked EVA EM8	Ø 20.6mm ± 0.8mm

TECHNICAL DATA

Rated Voltage	120kV$_{DC}$ / 30kV$_{AC}$
Test Voltage (routine test)	150kV$_{DC}$ / 3min
Test Voltage (type test)	150kV$_{DC}$ / 30min; 50kV$_{AC}$ / 3min
Insulation Resistance	> 20MΩ*km
max. Permissible Pulling Force	15N/mm²
min. Bend Radius	214mm (during installation or occasional movements in operation) 214mm (fixed installed operation)
Operating Temperature	-20°C - +60°C (moving) -40°C - +80°C (stationary)
Oil Resistance	according to DIN EN 60811-404
Flame propagation, single cable	according to DIN EN 60332-1-2
Halogen-free	Yes
RoHS Compliant	Yes
Weight	ca. 0.535kg/m
Cu-Weight	ca. 0.166kg/m
Color	red
Status	P (Preferred)

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HSC-125-1E1SAB-2

8.7/15kVAC – 40kVAC/125kVDC – EPR DIELECTRIC – MV / MEASUREMENT CABLE

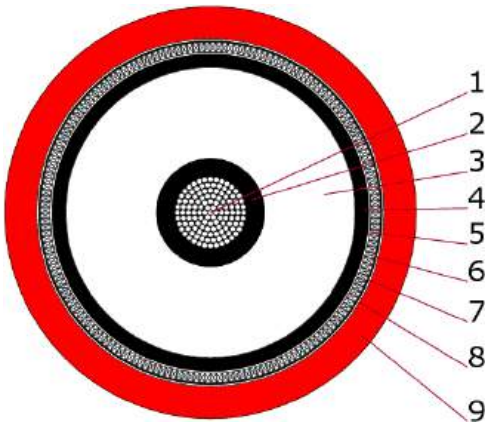
PRODUCT DESCRIPTION

Shielded high voltage cable optimized for low partial discharge, robustness and flexibility. Halogen free design with EPR dielectric and a robust flame retardant EVA jacket. Semiconductive layers around the center conductor and the dielectric assure excellent PD behavior.

This cable is intended and designed for use as flexible wiring in switchgears with protected installation or for short term measurement applications.
In case of switchgear wiring the permissible operating voltage is 8.7/15kVAC. The common rules for installation and use must be followed.
For short term testing/measurement applications the operating voltage is up to 40kVAC or up to 125kVDC respectively.
The following must be taken into account: insulation wall thickness and test voltage are not in line with common standards requirements. Special care and attention is necessary when using the cable.

Basic specification based on ICEA S-93-639 / UL 1072.

CONSTRUCTION



1 Conductor	Cu/Sn (t.p.c.) (class 5 acc. DIN EN 60228)	10mm² Ø 4.0mm
2 Semicon	Semiconductive EPR	Ø 5.6mm
3 Dielectric	EPR 3GI3	Ø 15.0mm
4 Semicon	Semiconductive NBR Rubber	Ø 16.4mm
5 Tape	Semiconductive Tape	
6 Braid	Cu/Sn (t.p.c.)	Ø 17.6mm > 10mm²
7 Tape	PET Tape	
8 Tape	Nonwoven Separator Tape	
9 Jacket	EVA EM8	Ø 21.3mm ± 1.0mm

TECHNICAL DATA

Rated Voltage (continuous use) **Maximum Voltage (phase - phase)**	8.7/15kVAC U_0/U 15.75kVAC
Rated Voltage (short term use)	125kVDC 40kVAC
Test Voltage (routine test)	35kVAC / 5min
Partial Discharge Test (routine test)	≤ 5pC @ 20kVAC
Test Voltage (type test)	160kVDC / 15min 55kVAC / 5min
Insulation Resistance	> 20MΩ*km

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Capacitance (Conductor – Braid I)	t.b.s.
Conductor Resistance @ 20°C	t.b.s. Ω/km
Braid Resistance (Braid I)	t.b.s. mΩ/m
Braid Resistance (Braid II)	t.b.s. mΩ/m
max. Permissible Pulling Force	15N/mm²
min. Bend Radius	213mm (during installation or occasional movements in operation) 213mm (stationary – measurement use) 128mm (stationary – continuous use with max. 15kV$_{AC}$)
Operating Temperature	-20°C - +60°C (moving) -40°C - +80°C (stationary)
Oil Resistance	according to DIN EN 60811-404
Flame propagation, single cable	according to DIN EN 60332-1-2
Weight	0.620kg/m
Cu-Weight	0.212kg/m
Color	red
RoHS Compliant	Yes
Halogen Free	Yes
Status	S (Special)

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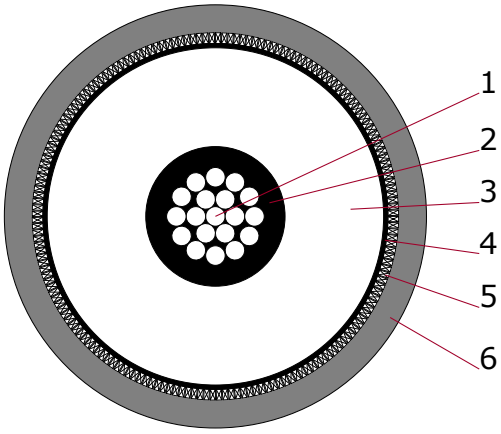
HSC-125-1E1SVA-0

125kV$_{DC}$ - AWG6 - EPR DIELECTRIC - MEASUREMENT CABLE

PRODUCT DESCRIPTION

Shielded 125kV$_{DC}$ high voltage cable with semiconductive EPR, EPR dielectric and PVC jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	AWG6 Cu/Sn (19xAWG19 t.p.c.)	13mm² Ø 5.5mm
2. Semicon	Semiconductive EPR	Ø 6.5mm
3. Dielectric	EPR	Ø 15.7mm ± 0.25mm
4. Semicon	Semiconductive Tape	Ø 16.1mm
5. Braid	Cu/Sn (7x24x AWG30 t.p.c.) ≥90% Coverage	Ø 17.1mm ± 0.25mm
6. Jacket	PVC	Ø 19.7mm ± 0.4mm

TECHNICAL DATA

Rated Voltage	125kV$_{DC}$
Test Voltage	55kV$_{AC}$ / 10min
Operating Temperature	-51°C - +80°C
RoHS Compliant	Yes
Weight	ca. 0.58kg/m
Color	black
Status	S (Special)

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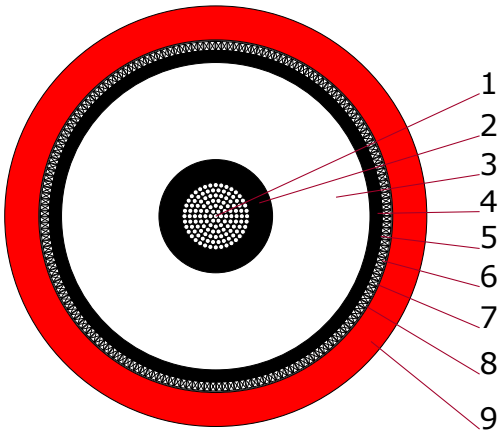
HSC-150-1E1SAB-2

150kV$_{DC}$ / 60kV$_{AC}$ - 10mm² - EPR DIELECTRIC - MEASUREMENT CABLE

PRODUCT DESCRIPTION

Shielded high voltage cable optimized for low partial discharge, robustness and flexibility. Halogen free design with EPR dielectric and a robust flame retardant EVA jacket. Semiconductive layers around the center conductor and the dielectric assure excellent PD behavior.
This cable is intended and designed for short term measurement applications.
The following must be taken into account: insulation wall thickness and test voltage are not in line with common standards requirements. Special care and attention is necessary when using the cable.

CONSTRUCTION



1. Conductor	Cu/Sn (t.p.c.) (class 5 acc. DIN EN 60228)	10mm² Ø 4.0mm
2. Semicon	Semiconductive EPR	Ø 7.0mm
3. Dielectric	EPR	Ø 19.0mm
4. Semicon	Semiconductive NBR Rubber	Ø 20.4mm
5. Tape	Semiconductive Tape	
6. Braid	Cu/Sn (t.p.c.)	Ø 21.6mm > 10mm²
7. Tape	PET Tape	
8. Tape	Nonwoven Separator Tape	
9. Jacket	EVA EM8	Ø 26.0mm ± 1.5mm

TECHNICAL DATA

Rated Voltage	150kV$_{DC}$ / 60kV$_{AC}$
Test Voltage (routine test)	190kV$_{DC}$ / 5min 75kV$_{AC}$ / 5min
Test Voltage (type test)	190kV$_{DC}$ / 15min 75kV$_{AC}$ / 15min
Insulation Resistance	> 20MΩ*km
Capacitance (Conductor – Braid)	typ. 170pF/m
Conductor Resistance @ 20°C	typ. 1.8Ω/km
Braid Resistance	typ. 1.8Ω/km
max. Permissible Pulling Force	15N/mm²
min. Bend Radius	260mm (during installation or occasional movements in operation) 260mm (fixed installed operation)
Operating Temperature	-20°C - +50°C (moving) -40°C - +60°C (stationary)
Oil Resistance	according to DIN EN 60811-404
Flame Propagation, Single Cable	according to DIN EN 60332-1-2
Halogen-free	Yes
RoHS Compliant	Yes
Weight	ca. 0.860kg/m
Cu-Weight	ca. 0.260kg/m
Color	red
Status	S (Special)

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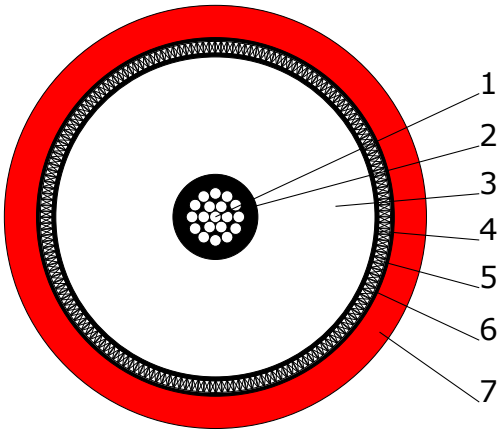
HSC-150-1PSUB-2

150kV$_{DC}$ / 45kV$_{AC}$ - AWG12 - LDHMW PE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 150kV$_{DC}$ / 45kV$_{AC}$ high voltage cable with LDHMW PE dielectric and robust TPE-U jacket. Shows excellent partial discharge behaviour due to semiconductive layers around the conductor and the inner dielectric.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (19xAWG25 t.p.c.)	3.1mm² Ø 2.4mm
2. Semicon	Semiconductive PE (black)	Ø 3.3mm
3. Dielectric	LDHMW PE	Ø 12.4mm ± 0.3mm
4. Semicon	Semiconductive PTFE Tape	Ø 12.8mm
5. Braid	Cu/Sn (0.25mm t.p.c.) ≥85% Coverage	Ø 13.8mm
6. Tape	Nonwoven material	Ø 14.1mm
7. Jacket	TPE-U	Ø 16.6mm ± 0.6mm

TECHNICAL DATA

Rated Voltage	150kV$_{DC}$ / 45kV$_{AC}$
Test Voltage	165kV$_{DC}$ / 10min (conductor / braid) 2.5kV$_{AC}$ (Spark Test, jacket)
Capacitance	typ. 95pF/m
min. Bend Radius	249mm (fixed)
Operating Temperature	-40°C - +60°C
RoHS Compliant	Yes
Weight	ca. 0.32kg/m
Color	red
Status	E (Example)

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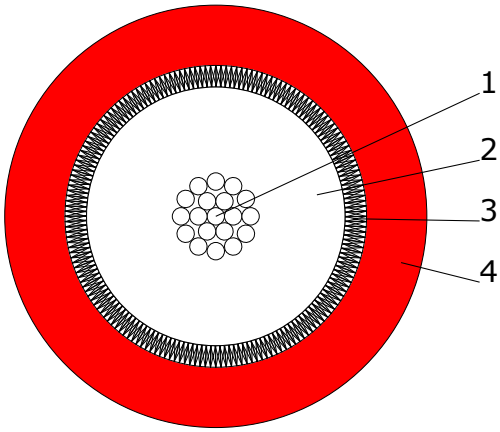
HSL-8S-0.75-B-2

8kV$_{DC}$ / 3kV$_{AC}$ - AWG18 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Highly flexible 8kV$_{DC}$ / 3kV$_{AC}$ shielded high voltage cable for high voltage applications at high temperatures up to 150°C. The construction is based on a tin plated fine stranded conductor, Silicone dielectric, tin plated fine stranded shield braid and a silicone jacket.

CONSTRUCTION



1. Conductor	AWG18 Cu/Sn (23xAWG32 t.p.c.)	0.75mm² Ø 1.16mm
2. Dielectric	Silicone	Ø 3mm
3. Braid	Cu/Sn (AWG36 t.p.c.) ≥85% Coverage	Ø 3.5mm
4. Jacket	Silicone	Ø 4.9mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	8kV$_{DC}$ / 3kV$_{AC}$
Test Voltage	20kV$_{DC}$ / 1min (conductor / braid) 8kV$_{AC}$ (Spark Test, core) 2.5kV$_{AC}$ (Spark Test, jacket)
Conductor Resistance @ 20°C	≤ 26.7Ω/km
Capacitance	typ. 170pF/m
min. Bend Radius	74mm (moving), 37mm (fixed)
Operating Temperature	-50°C - +150°C
RoHS Compliant	Yes
Weight	ca. 0.044kg/m
Cu-Weight	ca. 0.021kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with our HS/HB connector series.
If the number of core wires is reduced, termination with RG58-compatible connectors is also possible

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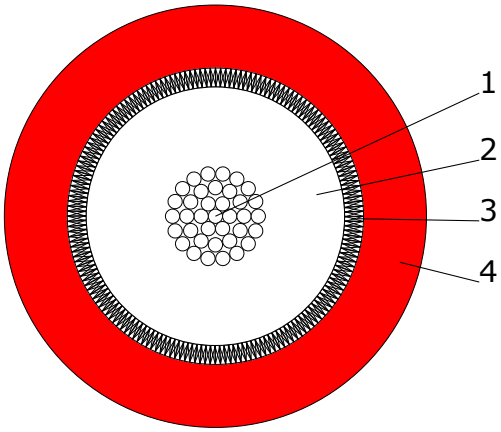
HSL-8S-1.5-A-2

8kV$_{DC}$ / 3kV$_{AC}$ - AWG16 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Very flexible 8kV$_{DC}$ / 3kV$_{AC}$ shielded high voltage cable for high voltage applications at high temperatures up to 150°C. The construction is based on a tin plated fine stranded conductor, Silicone dielectric, tin plated fine stranded shield braid and a silicone jacket.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (28xAWG30 t.p.c.)	1.5mm² Ø 1.6mm
2. Dielectric	Silicone	Ø 4.1mm
3. Braid	Cu/Sn (AWG34 t.p.c.) 80% Coverage	Ø 4.7mm
4. Jacket	Silicone	Ø 6.7mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	8kV$_{DC}$ / 3kV$_{AC}$
Test Voltage	6kV$_{AC}$ (Spark Test, core)
Conductor Resistance @ 20°C	≤ 13.7Ω/km
Capacitance	typ. 200pF/m
min. Bend Radius	100mm (moving), 50mm (fixed)
Operating Temperature	-50°C - +150°C
RoHS Compliant	Yes
Weight	ca. 0.071kg/m
Cu-Weight	ca. 0.033kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with our HS/HB and HC7 connector series.
See HSL-10S-1.5-U-A-2 for UL recognized version.

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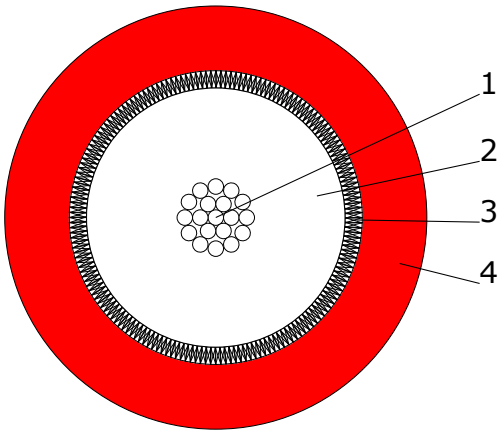
HSL-10S-0.5-A-2

10kV$_{DC}$ / 3kV$_{AC}$ - 0.5mm² - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Very flexible 10kV$_{DC}$/3kV$_{AC}$ shielded high voltage cable for high voltage applications at high temperatures up to 180°C. The cable maintains its flexibility over the whole temperature range.
It is fully compatible with RG58 dimensioned connectors like SHV, MHV and 10kV HC51 or 10kV Kings®.
The construction is based on a silver plated fine stranded conductor, Silicone dielectric, silver plated fine stranded shield braid and a Silicone jacket.

CONSTRUCTION



1. Conductor	Cu/Ag (19xAWG33 s.p.c.)	0.5mm² Ø 0.88mm
2. Dielectric	Silicone	Ø 3mm
3. Braid	Cu/Ag (AWG37 s.p.c.) ≥90% Coverage	Ø 3.4mm
4. Jacket	Silicone	Ø 4.9mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	10kV$_{DC}$ / 3kV$_{AC}$
Test Voltage	21kV$_{DC}$ / 1min (conductor / braid) 10kV$_{AC}$ (Spark Test, core) 2.5kV$_{AC}$ (Spark Test, jacket)
Conductor Resistance @ 20°C	≤ 40Ω/km
Impedance	typ. 43Ω
Capacitance	typ. 132pF/m
min. Bend Radius	74mm (moving), 37mm (fixed)
Operating Temperature	-50°C - +180°C
Flame Retardance	t.b.s.
Low Smoke	t.b.s.
Halogen-free	acc. DIN EN 60754-1
RoHS Compliant	Yes
Weight	ca. 0.038kg/m
Cu-Weight	ca. 0.017kg/m
Color	red
Status	P (Preferred)

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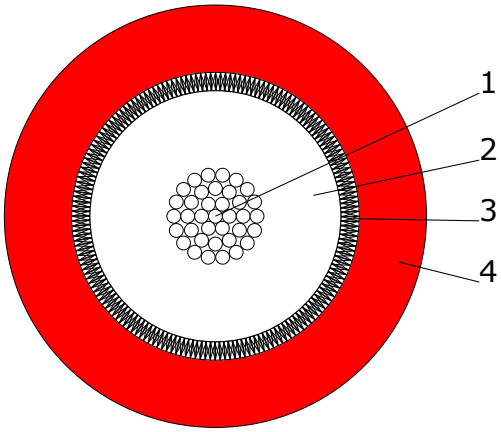
HSL-10S-1.5-U-A-2

10kV$_{DC}$ - AWG16 - SILICONE DIELECTRIC
AWM STYLE 3239

PRODUCT DESCRIPTION

Very flexible 10kV$_{DC}$ shielded high voltage cable for high voltage applications at high temperatures up to 150°C. The construction is based on a tin plated fine stranded conductor, Silicone dielectric, tin plated fine stranded shield braid and a silicone jacket. UL recognized AWM style 3239.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (37xAWG31 t.p.c.)	1.5mm² Ø 1.56mm
2. Dielectric	Silicone	Ø 4.1mm
3. Braid	Cu/Sn (0.15mm t.p.c.) ≥80% Coverage	Ø 4.7mm
4. Jacket	Silicone	Ø 6.9mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	10kV$_{DC}$
Test Voltage	10kV$_{AC}$ (Spark Test, core) 5kV$_{AC}$ (Spark Test, jacket) 21kV$_{DC}$/1min (core/braid)
Conductor Resistance @ 20°C	≤ 13Ω/km
min. Bend Radius	52mm (fixed)
Operating Temperature	-50°C - +150°C
RoHS Compliant	Yes
Weight	ca. 0.074kg/m
Color	red
Status	Y (Preliminary)

This cable can be terminated with our HS/HB and HC7 connector series.

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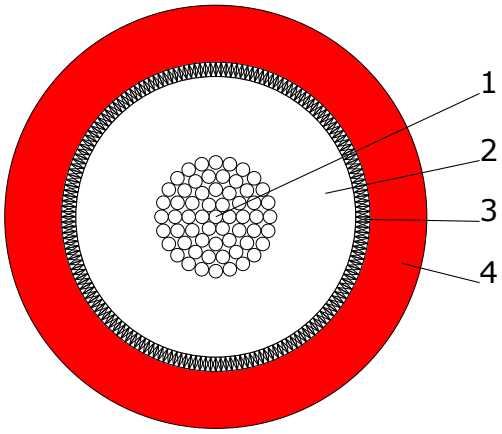
HSL-15S-3.9-A-2

15kV$_{DC}$ - AWG12 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Flexible 15kV$_{DC}$ shielded high voltage cable for high voltage applications at high temperatures up to 150°C. The construction is based on a tin plated fine stranded conductor, silicone dielectric, tin plated fine stranded shield braid and a silicone jacket.

CONSTRUCTION



1. Conductor	AWG12 Cu/Sn (61xAWG29 t.p.c.)	3.9mm² Ø 2.45mm
2. Dielectric	Silicone	Ø 5.9mm ± 0.15mm
3. Braid	Cu/Sn (0.15mm t.p.c.) ≥85% Coverage	Ø 6.5mm ± 0.2mm
4. Jacket	Silicone	Ø 8.9mm ± 0.25mm

TECHNICAL DATA

Rated Voltage	15kV$_{DC}$
Test Voltage	12.5kV$_{AC}$ (Spark Test, core) 5kV$_{AC}$ (Spark Test, jacket) 31kV$_{DC}$/1min (core/braid)
Conductor Resistance @ 20°C	≤ 4.7Ω/km
min. Bend Radius	67mm (fixed)
Operating Temperature	-50°C - +150°C
RoHS Compliant	Yes
Weight	ca. 0.132kg/m
Cu-Weight	ca. 0.063kg/m
Color	red
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.

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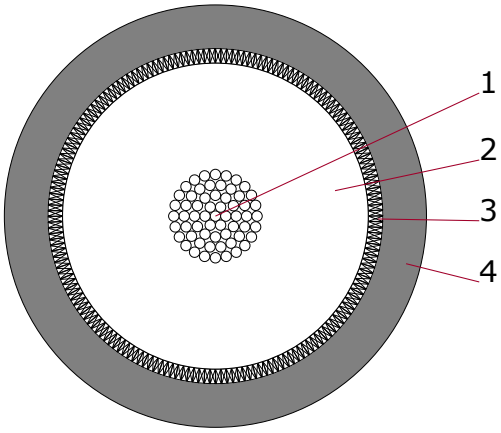
HSL-15S-6-A-9

15kV$_{DC}$ / 6kV$_{AC}$ - AWG10 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Flexible 15kV$_{DC}$ / 6kV$_{AC}$ shielded high voltage cable for high voltage applications at high temperatures up to 180°C. The construction is based on a tin plated fine stranded conductor, Silicone dielectric, tin plated fine stranded shield braid and a silicone jacket.

CONSTRUCTION



1. Conductor	AWG10 Cu/Sn (84x0.301mm t.p.c.)	6.0mm² Ø 3.17mm
2. Dielectric	Silicone	Ø 8.4mm
3. Braid	Cu/Sn (AWG32 t.p.c.) ≥90% Coverage	Ø 9.2mm 4.5mm²
4. Jacket	Silicone	Ø 11.6mm ± 0.6mm

TECHNICAL DATA

Rated Voltage	15kV$_{DC}$ / 6kV$_{AC}$
Test Voltage	40kV$_{DC}$ / 1min (conductor / braid) 12kV$_{AC}$ (Spark Test, core)
Conductor Resistance @ 20°C	≤ 3.39Ω/km
Capacitance	typ. 185pF/m
min. Bend Radius	174mm (moving), 87mm (fixed)
Operating Temperature	-50°C - +180°C
RoHS Compliant	Yes
Weight	ca. 0.23kg/m
Cu-Weight	ca. 0.119kg/m
Color	white
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.

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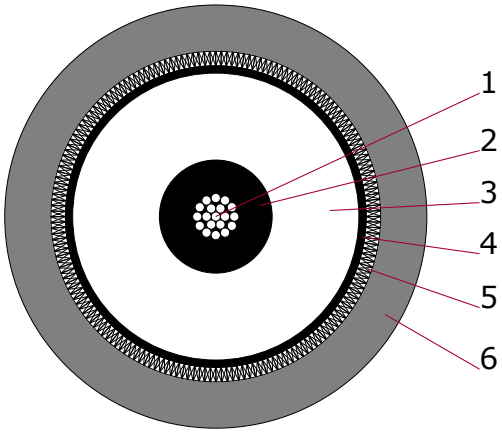
HSL-20-0.38-SS-C-0

20kV$_{DC}$ / 6.6kV$_{AC}$ - AWG22 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 20kV$_{DC}$ / 6.6kV$_{AC}$ high voltage cable with silicone dielectric and silicone jacket. Shows excellent partial discharge behaviour due to semiconductive layers around the conductor and the inner dielectric.
Ideal for applications at high temperatures up to 140°C.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (19xAWG34 t.p.c.)	0.38mm² Ø 0.78mm
2. Semicon	Semiconductive Silicone	Ø 2.0mm ± 0.1mm
3. Dielectric	Silicone	Ø 5.0mm ± 0.2mm
4. Semicon	Semiconductive Tape	Ø 5.2mm
5. Braid	Cu/Sn (0.13mm t.p.c.) ≥85% Coverage	Ø 5.7mm ± 0.2mm
6. Jacket	Silicone	Ø 7.3mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$ / 6.6kV$_{AC}$
Test Voltage	50kV$_{DC}$ / 1min (conductor / braid) 18kV$_{AC}$ (Spark Test, core) 2.5kV$_{AC}$ (Spark Test, jacket)
Conductor Resistance @ 20°C	≤ 52.2Ω/km
Braid Resistance	≤ 10.2Ω/km
Impedance	typ. 60Ω
Capacitance	typ. 175pF/m
min. Bend Radius	73mm (moving), 55mm (fixed)
Operating Temperature	-50°C - +140°C
RoHS Compliant	Yes
Weight	ca. 0.071kg/m
Cu-Weight	ca. 0.023kg/m
Color	black
Status	P (Preferred)

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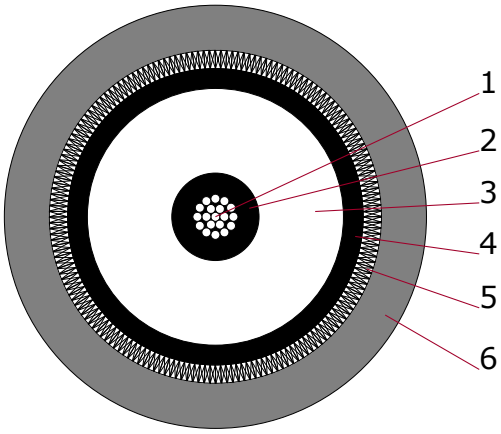
HSL-20-0.38-SS-F1-0

20kV$_{DC}$ / 6.6kV$_{AC}$ - AWG22 - SILICONE DIELECTRIC LOW PD

PRODUCT DESCRIPTION

Shielded 20kV$_{DC}$ / 6.6kV$_{AC}$ high voltage cable optimized for low partial discharge and high flexibility even at low ambient temperatures. Semiconductive layers around the conductor and the inner dielectric assure excellent PD behavior.
Remark: The semicon layers are firmly bonded to the dielectric.

CONSTRUCTION



1. Conductor	AWG22 Cu/Ag (19xAWG34 s.p.c.)	0.38mm² Ø 0.78mm
2. Semicon	Semiconductive Silicone	Ø 1.55mm ± 0.1mm
3. Dielectric	Silicone	Ø 4.55mm ± 0.2mm
4. Semicon	Semiconductive Silicone	Ø 5.25mm
5. Braid	Cu/Sn (0.13mm t.p.c.) ≥85% Coverage	Ø 5.9mm ± 0.2mm
6. Jacket	Special Silicone	Ø 7.5mm ± 0.3mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$ / 6.6kV$_{AC}$
Test Voltage	50kV$_{DC}$ / 1min (conductor / braid) 18kV$_{AC}$ (Spark Test, core) 2.5kV$_{AC}$ (Spark Test, jacket)
Conductor Resistance @ 20°C	≤ 48.6Ω/km
Braid Resistance	typ. 10.2Ω/km
Impedance	typ. 46Ω
Capacitance	typ. 180pF/m
min. Bend Radius	75mm (moving), 56mm (fixed)
Operating Temperature	-50°C - +180°C
RoHS Compliant	Yes
Weight	ca. 0.080kg/m
Cu-Weight	ca. 0.030kg/m
Ag-Weight	ca. 0.11kg/km
Color	black
Status	E (Example)

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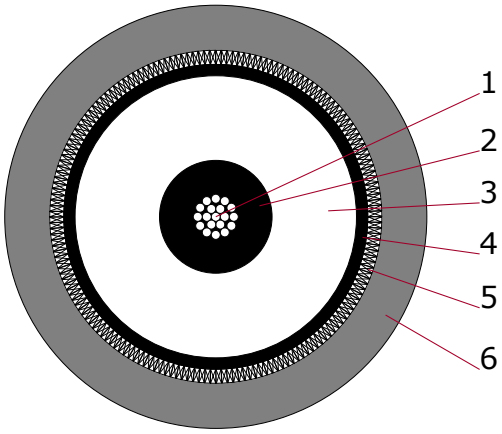
HSL-20-0.38-SS-P1-0

20kVDC / 6.6kVAC - AWG22 - SILICONE DIELECTRIC - LOW PD

PRODUCT DESCRIPTION

20kVDC / 6.6kVAC shielded high voltage cable optimized for low partial discharge and high flexibility even at low ambient temperatures. Semiconductive layers around the conductor and the inner dielectric assure excellent PD behavior.
Remark: The outer semicon layer adheres to the dielectric but is removable.

CONSTRUCTION



1. Conductor	AWG22 Cu/Ag (19xAWG34 s.p.c.)	0.38mm² Ø 0.78mm
2. Semicon	Semiconductive Silicone	Ø 2.0mm ± 0.1mm
3. Dielectric	Silicone	Ø 5.0mm ± 0.2mm
4. Semicon	Semiconductive PTFE Tape	Ø 5.4mm
5. Braid	Cu/Sn (0.13mm t.p.c.) ≥85% Coverage	Ø 5.9mm ± 0.3mm
6. Jacket	Special Silicone	Ø 7.5mm ± 0.3mm

TECHNICAL DATA

Rated Voltage	20kVDC / 6.6kVAC
Test Voltage	50kVDC / 1min (conductor / braid) 18kVAC (Spark Test, core) 2.5kVAC (Spark Test, jacket)
Conductor Resistance @ 20°C	≤ 52.2Ω/km
Braid Resistance	≤ 10.2Ω/km
Impedance	typ. 46Ω
Capacitance	typ. 180pF/m
min. Bend Radius	73mm (moving), 55mm (fixed)
Operating Temperature	-40°C - +140°C
RoHS Compliant	Yes
Weight	ca. 0.082kg/m
Cu-Weight	ca. 0.034kg/m
Color	black
Status	E (Example)

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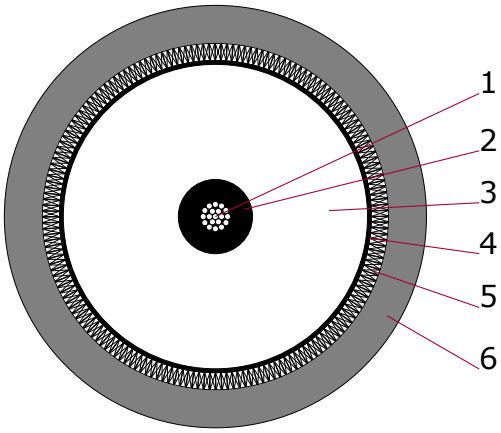
HSL-30-0.38-SS-C-0

30kV$_{DC}$ / 9kV$_{AC}$ - AWG22 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Shielded 30kV$_{DC}$ / 9kV$_{AC}$ high voltage cable with silicone dielectric and silicone jacket. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.
Ideal for applications at high temperatures up to 140°C.

CONSTRUCTION



1. Conductor	AWG22 Cu/Ag (19xAWG34 s.p.c.)	0.38mm² Ø 0.78mm
2. Semicon	Semiconductive Silicone	Ø 1.95mm
3. Dielectric	Silicone	Ø 8.0mm ± 0.25mm
4. Semicon	Semiconductive Tape	Ø 8.2mm
5. Braid	Cu/Sn (0.15mm t.p.c.) ≥85% Coverage	Ø 9.1mm ± 0.3mm
6. Jacket	Silicone	Ø 11.1mm ± 0.3mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$ / 9kV$_{AC}$
Test Voltage	80kV$_{DC}$ / 1min (conductor / braid) 25kV$_{AC}$ (Spark Test, core) 2.5kV$_{AC}$ (Spark Test, jacket)
Conductor Resistance @ 20°C	≤ 52.17Ω/km
Impedance	typ. 45Ω
Capacitance	typ. 140pF/m
min. Bend Radius	111mm (moving), 84mm (fixed)
Operating Temperature	-50°C - +140°C
RoHS Compliant	Yes
Weight	ca. 0.155kg/m
Cu-Weight	ca. 0.047kg/m
Color	black
Status	E (Example)

This cable can be terminated with our HC7 connector series.

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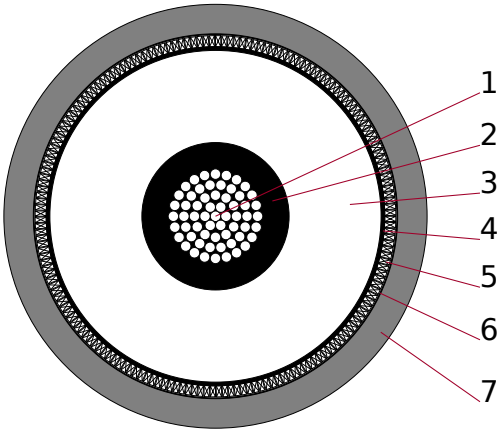
HSL-30-6-SU-A-x

30kV$_{DC}$ / 10kV$_{AC}$ - AWG10 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

30kV$_{DC}$ / 10kV$_{AC}$ shielded high voltage cable optimized for low partial discharge, robustness and high flexibility.
Semiconductive layers around the conductor and the inner dielectric assure good PD behavior.
Silicone dielectric and a robust TPE-U / Polyurethane jacket.

CONSTRUCTION



1. Conductor	AWG10 Cu/Sn (84x0.301mm t.p.c.)	6.0mm² Ø 3.2mm
2. Semicon	Semiconductive Silicone	Ø 4.1mm
3. Dielectric	Silicone	Ø 9.1mm
4. Semicon	Semiconductive Tape	Ø 9.3mm
5. Braid	Cu/Sn (0.15mm t.p.c.) ≥85% Coverage	Ø 10.1mm
6. Tape	Nonwoven Separator Tape	Ø 10.2mm
7. Jacket	TPE-U	Ø 12.3mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$ / 10kV$_{AC}$
Test Voltage (Conductor – Braid) **(Jacket)**	50kV$_{DC}$ / 1min 5kV$_{AC}$ (Spark Test)
Conductor Resistance @ 20°C	≤ 3.4Ω/km
Braid Resistance	≤ 9.5Ω/km
Capacitance	typ. 217pF/m
min. Bend Radius	123mm (moving), 62mm (fixed)
Operating Temperature	-40°C - +90°C
RoHS Compliant	Yes
Weight	ca. 0.180kg/m
Cu-Weight	ca. 0.107kg/m
Status	S (Special)

This cable can be terminated with our HC7 connector series.

COLOR CODE (-X)

0 black	1 brown	2 red	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	9 white	10 natural	

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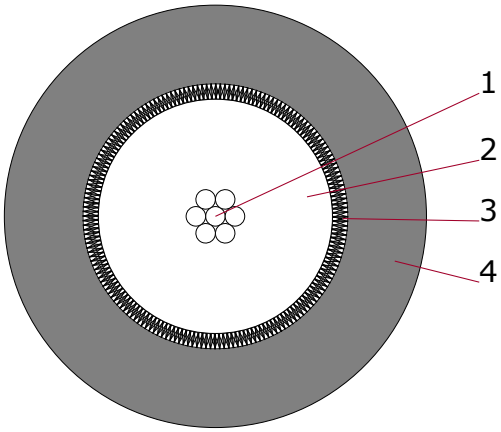
HTV-30S-22-0

30kV$_{DC}$ - AWG22 - PE-X DIELECTRIC
AWM STYLE 3873 - INTERNAL USE

PRODUCT DESCRIPTION

Shielded 30kV$_{DC}$ high voltage cable with PE-X dielectric and PVC jacket. UL recognized AWM style 3873 (internal use).Oil resistant and flame retardant according below standards.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.36mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 3.05mm ± 0.1mm
3. Braid	Cu/Sn (0.1mm t.p.c.) 85% Coverage	Ø 3.5mm ± 0.1mm
4. Jacket	PVC	Ø 5.45mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
Test Voltage	61kV$_{DC}$ / 1min (core / braid) 20kV$_{AC}$ (Spark Test, core) Extended dielectric strength test 48kV$_{DC}$ / 24h available on request.
Conductor Resistance @ 20°C	≤ 58Ω/km
Impedance	typ. 60Ω
Capacitance	typ. 90pF/m
min. Bend Radius	55mm (moving), 27mm (fixed)
Operating Temperature	-15°C - +105°C
Oil Resistance	according to UL1581 Tab.50.182 ≤ 60°C
Flame Retardance	according to UL2556, Horizontal Flame Test
RoHS Compliant	Yes
Weight	ca. 0.039kg/m
Cu-Weight	ca. 0.012kg/m
Color	black
Status	P (Preferred)

This cable can be terminated with our HC52 series high voltage connector HC52P-HTV30S and our HS/HB connector series.

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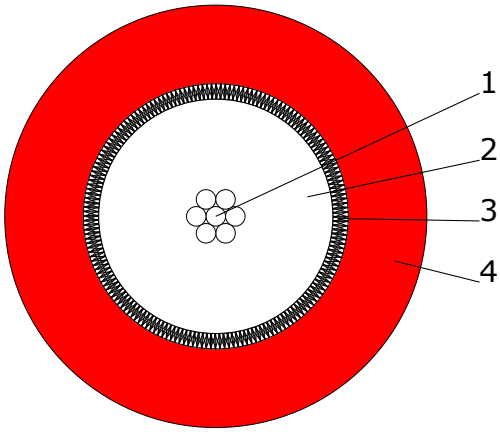
HTV-30S-22-2

30kV$_{DC}$ - AWG22 - PE-X DIELECTRIC
AWM STYLE 3873 - INTERNAL USE

PRODUCT DESCRIPTION

Shielded 30kV$_{DC}$ high voltage cable with PE-X dielectric and PVC jacket. UL recognized AWM style 3873 (internal use). Oil resistant and flame retardant according below standards.

CONSTRUCTION



1. Conductor	AWG22 Cu/Sn (7xAWG30 Cu/Sn (compact tinned MGZ≈15, bunched, re-tinned))	0.36mm² Ø 0.76mm
2. Dielectric	PE-X	Ø 3.05mm ± 0.1mm
3. Braid	Cu/Sn (0.1mm t.p.c.) 85% Coverage	Ø 3.5mm ± 0.1mm
4. Jacket	PVC	Ø 5.45mm ± 0.2mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
Test Voltage	61kV$_{DC}$ / 1min (core / braid) 20kV$_{AC}$ (Spark Test, core) Extended dielectric strength test 48kV$_{DC}$ / 24h available on request.
Conductor Resistance @ 20°C	≤ 58Ω/km
Impedance	typ. 60Ω
Capacitance	typ. 90pF/m
min. Bend Radius	55mm (moving), 27mm (fixed)
Operating Temperature	-15°C - +105°C
Oil Resistance	according to UL1581 Tab.50.182 ≤ 60°C
Flame Retardance	according to UL2556, Horizontal Flame Test
RoHS Compliant	Yes
Weight	ca. 0.039kg/m
Cu-Weight	ca. 0.012kg/m
Color	red (~RAL 3000)
Status	P (Preferred)

This cable can be terminated with our HC52 series high voltage connector HC52P-HTV30S and our HS/HB connector series.

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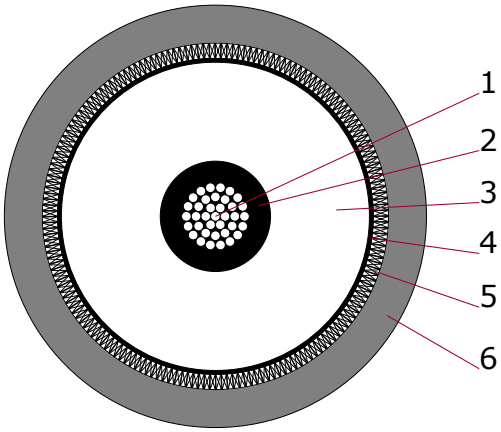
HXC-60-1EA-8

60kV$_{DC}$ - AWG14 - EPR (BLACK) DIELECTRIC

PRODUCT DESCRIPTION

Shielded 60kV$_{DC}$ high voltage cable with EPR dielectric an PVC jacket. Shows excellent partial discharge behaviour due to semiconductive layers around the conductor and the inner dielectric.

CONSTRUCTION



1. Conductor	AWG14 Cu/Sn (37xAWG30 t.p.c.)	2.0mm² Ø 2.0mm
2. Semicon	Semiconductive tape and Semiconductive EPR (black)	Ø 2.9mm
3. Dielectric	EPR (black)	Ø 8.1mm
4. Semicon	Semiconductive tape (black)	Ø 8.3mm
5. Braid	Cu/Sn (mm t.p.c.) 95% Coverage	Ø 9.1mm
6. Jacket	PVC	Ø 11.1mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	60kV$_{DC}$
Test Voltage	90kV$_{DC}$ / 10min
Conductor Resistance @ 20°C	≤ 9Ω/km
Braid Resistance @ 20°C	≤ 7.22Ω/km
Insulation Resistance @ 20°C	> 1000MΩ*km
Capacitance	typ. 163pF/m
min. Bend Radius	45mm (moving), 22mm (fixed)
Operating Temperature	-10°C - +70°C
RoHS Compliant	Yes
Weight	ca. 0.17kg/m
Color	light grey
Status	P (Preferred)

This cable can be terminated with our HC7 connector series.

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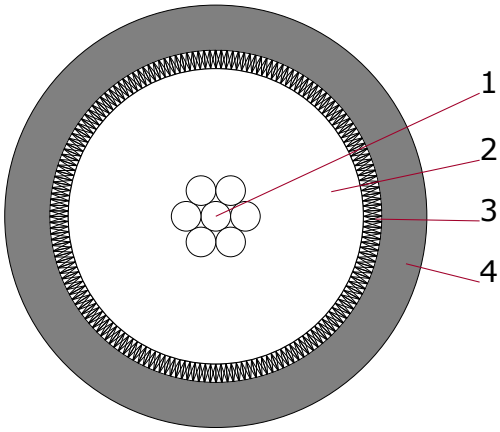
RG213-020

20kV$_{DC}$ - 3.1mm² - PE DIELECTRIC

PRODUCT DESCRIPTION

Coaxial cable 50Ω RG213 tested for high voltage applications up to 20kV$_{DC}$. PE dielectric and PVC jacket.
RoHS compliant.

CONSTRUCTION



1. Conductor	Cu (7x0.75mm)	3.1mm² Ø 2.25mm
2 Dielectric	PE	Ø 7.24mm
3. Braid	Cu (0.2mm)	Ø 8.05mm
4. Jacket	PVC	Ø 10.3mm

TECHNICAL DATA

Rated Voltage	20kV$_{DC}$
Conductor Resistance @ 20°C	≤ 5.5Ω/km
Braid Resistance @ 20°C	≤ 4.5Ω/km
Impedance	typ. 50Ω
Capacitance	typ. 101pF/m
min. Bend Radius	100mm (moving), 50mm (fixed)
Operating Temperature	-20°C - +70°C
UV Resistance	very good
RoHS Compliant	Yes
Weight	ca. 0.154kg/m
Color	black
Status	P (Preferred)

This cable can be terminated with our 20kV$_{DC}$ coaxial connectors HC52P-213 and HC52RB-213 or our HC7 connector series.

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Various triaxial cable types for voltages up to 300kV$_{DC}$. Many cable types are furnished with semiconductive layers. These cables feature low partial discharge levels making them an excellent choice for sensitive measurement applications or specific AC or pulsed operation.
Silicone, PE-X and EPR dielectrics are standard – miscellaneous dielectrics on request.

hivolt.de is able to provide modified standard types or full custom designed cable for applications where special cable types are required.

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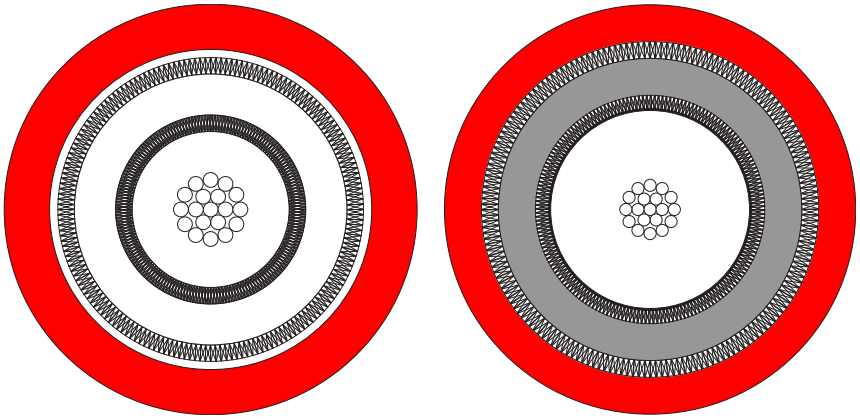
TRIAXIAL
HIGH VOLTAGE CABLE



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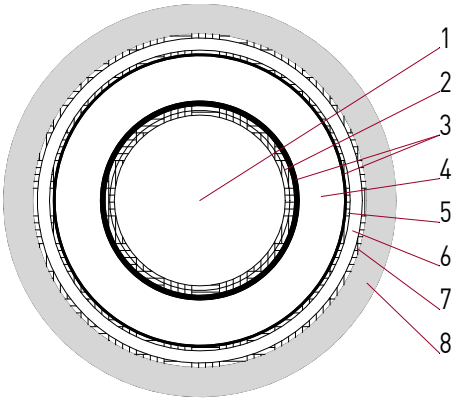
2122

22.5kV$_{DC}$ – EPR DIELECTRIC – HV PULSE CABLE

PRODUCT DESCRIPTION

Triaxial high voltage pulse cable for applications up to 22.5kV$_{DC}$. The construction is based on a double shielded neoprene core, a shielded EPR dielectric and a PVC jacket over another braid.
Semiconductive EPR and a Mylar tape around the conducor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Core	Neoprene	Ø 19.1mm
2. Braid	Conductor: Cu/Sn Double Shield (AWG34 t.p.c.) 80% Coverage	
3. Semicon	Semiconductive EPR	Ø 21.3mm (inner layer)
4. Dielectric	EPR	Ø 31.1mm
5. Braid	Cu/Sn (AWG28 t.p.c.) 80% Coverage	
6. Tape	Mylar Tape (1.27mm)	
7. Braid	Cu/Sn (AWG28 t.p.c.) 80% Coverage	
8. Jacket	PVC	Ø 41.9mm

TECHNICAL DATA

Rated Voltage (Core – Inner Shield)	22.5kV$_{DC}$
Rated Voltage (Inner Shield – Outer Shield)	5kV$_{DC}$
Impedance (Core – Inner Shield)	15Ω
Capacitance (Core – Inner Shield)	358pF/m
min. Bend Radius (static)	152mm
Operating Temperature	-51°C - +60°C
Weight	2.09kg/m
Color	black
Status	E (Example)

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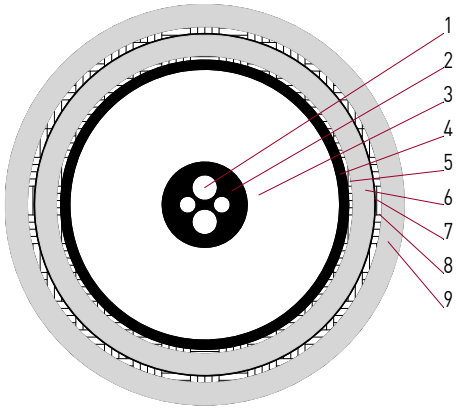
2212TVJ

100kV$_{DC}$ – EPR DIELECTRIC – MULTICONDUCTOR

PRODUCT DESCRIPTION

Triaxial 100kV$_{DC}$ / 30kV$_{AC}$ 3 conductor cable for X-ray applications. Semiconductive layers around the conductor and the inner dielectric reduce partial discharge and internal corona.
The inner braid is surrounded by a PVC inner jacket. Further on another braid is laid on two lapped Mylar tape layers and covered by a PVC outer jacket.

CONSTRUCTION



1. Conductor	2x Cu/Sn AWG15,(19x0.33mm, t.p.c.), Polyester Tape Insulation, 2x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.)	
2. Semicon	Semiconductive EPR	Ø 5.1mm
3. Dielectric	EPR	Ø 15.8mm
4. Semicon	Semiconductive EPR	Ø 16.9mm
5. Braid	Cu/Sn (AWG34 t.p.c.) 80% Coverage	
6. Inner Jacket	PVC	
7. Tape	Mylar Tape (2 Layers, ½ lapped)	
8. Braid	Cu/Sn (AWG34 t.p.c.)	
9. Jacket	PVC	Ø 23.4mm

TECHNICAL DATA

Rated Voltage (Core – Inner Shield)	100kV$_{DC}$ / 30kV$_{AC}$
Rated Voltage (Inner Shield – Outer Shield)	2kV$_{DC}$
Impedance (Core – Inner Shield)	53Ω
Capacitance (Core – Inner Shield)	131pF/m
min. Bend Radius (static)	178mm
Operating Temperature	-51°C - +60°C
Weight	0.91kg/m
Color	black
Status	S (Special)

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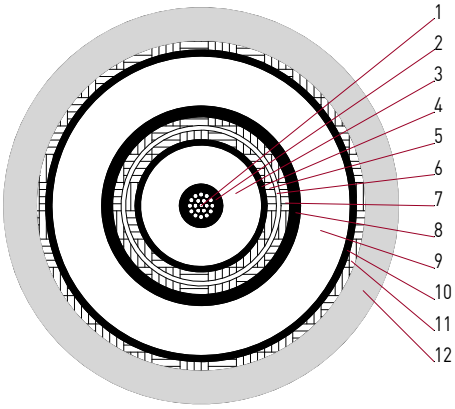
2241

75kV$_{DC}$ – EPR DIELECTRIC - QUADRAXIAL

PRODUCT DESCRIPTION

Quadraxial high voltage cable with EPR dielectric and semicons and PVC jacket. For high voltage applications up to 75kV$_{DC}$ / 25kV$_{AC}$.
The stranded conductor and the dielectric are each surrounded by semicon layers; two overall braids with Mylar tapes in between are surrounded by a semicon layer, a second dielectric and a further semicon layer. The cable is finally braided by a third shield and jacketed with Polyurethane ovre Mylar separator.

CONSTRUCTION



1. Conductor	Cu/Ag AWG14 (19xAWG27 s.p.c.)	1.94mm²
2. Semicon	Semiconductive EPR	Ø 2.8mm
3. Dielectric	EPR	Ø 7.8mm ± 0.3mm
4. Semicon	Semiconductive EPR	Ø 8.5mm
5. Braid I	Shield 1: Cu/Sn (AWG30 t.p.c.) 95% Coverage	Ø 9.7mm ± 0.4mm
6. Tape	Mylar Tapes	Ø 10.3mm
7. Braid II	Shield 2: Cu/Sn (AWG30 t.p.c.) 90% Coverage	Ø 11.4mm ± 0.4mm
8. Semicon	Semiconductive EPR over Semiconductive Tape	Ø 12.8mm
9. Dielectric	EPR	Ø 19.2mm ± 0.3mm
10. Semicon	Semiconductive EPR	Ø 19.9mm
11. Braid III	Shield 3: Cu/Sn (AWG34 t.p.c.) 90% Coverage	Ø 21.2mm ± 0.5mm
12. Jacket	Polyurethane over Mylar Separator	Ø 25.4mm ± 0.6mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I)	75kV$_{DC}$ / 25kV$_{AC}$
Rated Voltage (Braid II – Braid III)	75kV$_{DC}$
Impedance (Conductor – Braid I)	typ. 42Ω
Capacitance (Conductor – Braid I)	typ. 164pF/m
min. Bend Radius	203mm (fixed)
Operating Temperature	-51°C - +80°C
Weight	0.75kg/m
Color	black
Status	S (Special)

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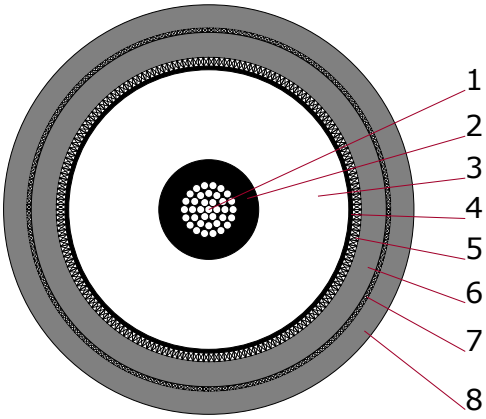
2243TTJ

125kV$_{DC}$ / 40kV$_{AC}$ - EPR DIELECTRIC

PRODUCT DESCRIPTION

Triaxial 125kV$_{DC}$ / 40kV$_{AC}$ high voltage cable. Semiconductive layers around the conductor and the inner dielectric reduce partial discharge and internal corona.
The inner braid is surrounded by a TPR inner jacket, as well as the outer braid is also jacketed with TPR.

CONSTRUCTION



1. Conductor	AWG8 Cu/Sn (49xAWG25 t.p.c.)	8mm²
2. Semicon	Semiconductive EPR	Ø 5.6mm
3. Dielectric	EPR	Ø 15.7mm ± 0.25mm
4. Semicon	Semiconductive Tape	Ø 16.1mm
5. Braid I	Cu/Sn (7x24x AWG30 t.p.c.) 90% Coverage	≈ 4.9mm² Ø 17.1mm
6. Inner Jacket	TPR	Ø 19.9mm ± 0.4mm
7. Braid II	Cu/Sn (7x24x AWG34 t.p.c.) 90% Coverage	≈ 2mm² Ø 20.4mm
8. Outer Jacket	TPR	Ø 23.0mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	**(Conductor – Braid I)** **(Braid I – Braid II)**	125kV$_{DC}$ / 40kV$_{AC}$ 5kV$_{DC}$
Test Voltage	**(Conductor – Braid I)** **(Braid I – Braid II)**	55kV$_{AC}$ / 10min 10kV$_{DC}$ / 10min
Impedance	**(Conductor – Braid I)**	typ. 47Ω
Capacitance	**(Conductor – Braid I)**	typ. 155pF/m
min. Bend Radius		150mm (fixed)
Operating Temperature		-51°C - +105°C
RoHS Compliant		Yes
Weight		0.745kg/m
Color		black
Status		S (Special)

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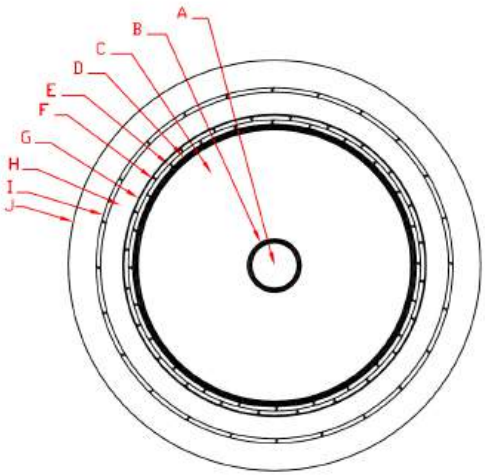
2358

300kV$_{DC}$ - EPR DIELECTRIC

PRODUCT DESCRIPTION

Triaxial 300kV$_{DC}$ / 25kV$_{AC}$ high voltage cable with solid Cu conductor. Semiconductive layers around the conductor and the inner dielectric (EPR) ensure excellent partial discharge behaviour.
The inner braid is surrounded by a Mylar tape. The second dielectric (Polyoefin) is surrounded by the second braid and the outer jacket (PVC).

CONSTRUCTION



A	**Conductor**	AWG4 solid Cu	21.2mm² Ø 5.2mm
B	**Semicon**	Semiconductive EPR	Ø 6.6mm
C	**Dielectric**	EPR	Ø 31.8mm ± 0.6mm
D	**Semicon**	Semiconductive EPR	Ø 33.0mm
E	**Braid I a**	Cu/Sn (9x 24x AWG30 t.p.c.)	
F	**Braid I b**	Cu/Sn (11x 24x AWG30 t.p.c.)	
G	**Tape**	Mylar Tape	
H	**Dielectric**	Polyolefin	Ø 40.6mm ± 0.8mm
I	**Braid II**	Cu/Sn (AWG30 t.p.c.) 85% Coverage	
J	**Outer Jacket**	PVC	Ø 46.7mm ± 0.8mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I) **(Braid I – Braid II)**	300kV$_{DC}$ 25kV$_{DC}$
Test Voltage (Conductor – Braid I) **(Braid I – Braid II)**	330kV$_{DC}$ 30kV$_{DC}$ /
Impedance (Conductor – Braid I)	62Ω
Capacitance (Conductor – Braid I)	typ. 100pF/m
Conductor Resistance @ 20°C	typ. 0.86mΩ/m
Braid Resistance @ 20°C (Braid I)	typ. 1.25mΩ/m
min. Bend Radius	330mm (fixed)
max. Conductor Temperature	+60°C
Weight	2.1kg/m
Color	black
Status	S (Special)

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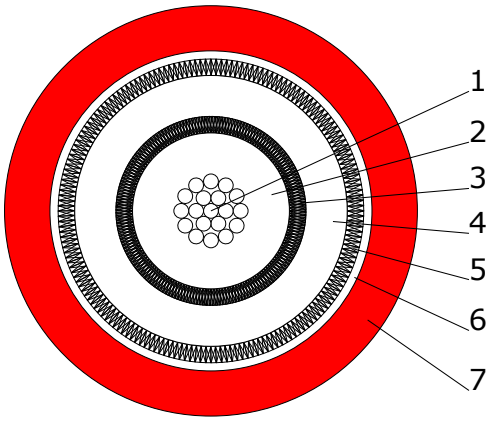
HSC-5-1X2SUA-2

5kV$_{DC}$ - 0.50mm² - PE-X DIELECTRIC

PRODUCT DESCRIPTION

Triaxial high voltage cable. The cable is well suited for high voltage guarded measurement applications. It features identical high voltage ratings between the core conductor and the inner shield as well as between both shields.
The cable is free of halogens, low smoke (LSZH), RoHS/REACH compliant. The jacket is resistant against oil, hydrolysis and microbes.

CONSTRUCTION



1. Conductor	Cu (19xAWG33 b.c.)	0.50mm² Ø 0.95mm
2. Dielectric	PE-X	Ø 1.90mm ± 0.05mm
3. Braid I	Cu/Sn (0.10mm t.p.c.) 90% Coverage	Ø 2.3mm
4. Dielectric	PE-X	Ø 3.3mm ± 0.2mm
5. Braid II	Cu/Sn (0.10mm t.p.c.) 90% Coverage	Ø 3.7mm
6. Tape	Nonwoven Seperator Tape	
7. Jacket	TPE-U (PUR)	Ø 5.0mm ± 0.2mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I) **(Braid I – Braid II)**	5kV$_{DC}$ 5kV$_{DC}$
Test Voltage (Conductor – Braid I) **(Braid I – Braid II)** **(Spark Test, core)**	11kV$_{DC}$ / 60s 11kV$_{DC}$ / 60s 5kV$_{AC}$
Conductor Resistance @ 20°C	≤ 41Ω/km
Impedance (Conductor – Braid I) **(Braid I – Braid II)**	typ. 30Ω typ. 15Ω
Capacitance (Conductor – Braid I) **(Braid I – Braid II)**	typ. 165pF/m typ. 290pF/m
Isolation Resistance @ 20°C **(Conductor – Braid I)** **(Braid I – Braid II)**	≥ 1GΩ*km t.b.s.
min. Bend Radius	75mm (moving), 40mm (fixed)
Operating Temperature	-20°C - +105°C
Flame Retardance	according to DIN EN 60332-2-2 (20s)
Halogen-free	Yes (LSZH)
RoHS compliant	Yes
Weight	ca. 0.035kg/m
Cu-Weight	ca. 0.023kg/m
Color	red
Status	S (Special)

Intended for fixed installation; suitable for flexible wiring to a limited extent.

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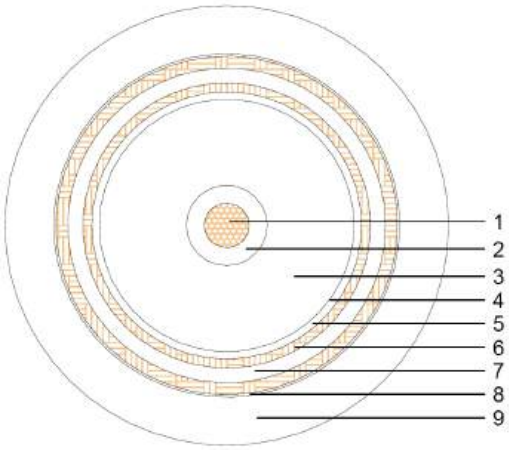
HSC-15-1S2SUA-0

15kV$_{AC}$ – AWG16 – SILICONE DIELECTRIC

PRODUCT DESCRIPTION

15kV$_{AC}$ triaxial high voltage cable optimized for low partial discharge, robustness and high flexibility even at low ambient temperatures. Semiconductive layers around the conductor and the inner dielectric assure excellent PD behavior. Silicone dielectric and a robust TPE-U / Polyurethane jacket.

CONSTRUCTION



1. Conductor	AWG16 Cu/Sn (105x0.127mm t.p.c.)	1.33mm² Ø 1.53mm
2. Semicon	Semiconductive Silicone	Ø 2.7mm
3. Dielectric	Silicone	Ø 8.5mm
4. Semicon	Semiconductive PTFE Tape	Ø 9.0mm
5. Braid I	Cu/Sn (6x24x 0.15mm t.p.c.) ≥85% Coverage	Ø 9.6mm
5a. Tape	Polyester Tape	Ø 9.7mm
6. Dielectric	Silicone	Ø 10.7mm
6a. Tape	Polyester Tape	Ø 10.8mm
7. Braid II	Cu/Sn (5x24x 0.203mm t.p.c.) ≥85% Coverage	Ø 11.6mm
8. Tape	Nonwoven Separator Tape	Ø 11.7mm
9. Jacket	TPE-U	Ø 14.3mm ± 0.5mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I) **(Braid I – Braid II)**	15kV$_{AC}$ 1kV$_{AC}$
Test Voltage (Conductor – Braid I) **(Braid I – Braid II)** **(Jacket)**	40kV$_{DC}$ / 1min 6kV$_{DC}$ / 1min 5kV$_{AC}$ (Spark Test)
Partial Discharge Level (Conductor – Braid I)	≤ 20pC, U_{PD} = 8kV$_{AC}$
Capacitance (Conductor – Braid I) **(Braid I – Braid II)**	typ. 150pF/m typ. 870pF/m
Conductor Resistance @ 20°C	≤ 14.6Ω/km
Isolation Resistance (Braid I – Braid II)	> 10^9 Ω on 21m cable length

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Braid Resistance (Braid I)	<16mΩ/m
Braid Resistance (Braid II)	<11mΩ/m
min. Bend Radius	210mm (moving), 105mm (fixed)
Operating Temperature	-40°C - +90°C
RoHS Compliant	Yes
Weight	0.330kg/m
Cu-Weight	0.142kg/m
Color	black
Status	P (Preferred)

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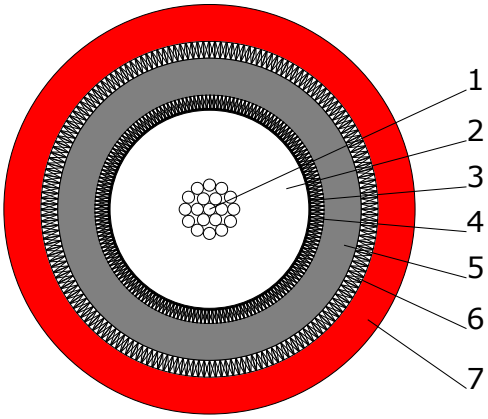
HSC-20-1X2SUA-2

20kV$_{DC}$ - 0.50mm² - PE-X DIELECTRIC - LOW NOISE

PRODUCT DESCRIPTION

Low noise triaxial high voltage cable suitable to replace standard 50Ω RG58 type triaxial cable.
It is mechanically compatible with triaxial connectors designed for 9222 type cable.
The cable is free of halogens, low smoke (LSZH). RoHS/REACH compliant.
The jacket is resistant against oil, hydrolysis and microbes. The cable is radiation resistant to a limited extent.

CONSTRUCTION



1. Conductor	Cu/Sn (19xAWG33 t.p.c.)	0.50mm² Ø 0.95mm
2. Dielectric	PE-X	Ø 2.95mm ± 0.05mm
3. Semicon	Semiconductive Tape	
4. Braid I	Cu/Sn (0.10mm t.p.c.) 95% Coverage	Ø 3.4mm
5. Inner Jacket	TPE-U (PUR)	Ø 4.5mm ± 0.15mm
6. Braid II	Cu/Sn (0.10mm t.p.c.) 85% Coverage	Ø 5.0mm
7. Jacket	TPE-U (PUR)	Ø 6.1mm ± 0.15mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I) **(Braid I – Braid II)**	20kV$_{DC}$ 500V$_{DC}$
Test Voltage (Conductor – Braid I) **(Braid I – Braid II)** **(Spark Test, core)**	41kV$_{DC}$ / 60s 2kV$_{DC}$ / 60s 15kV$_{AC}$
Conductor Resistance @ 20°C	≤ 40Ω/km
Impedance (Conductor – Braid I)	typ. 50Ω
Capacitance (Conductor – Braid I)	typ. 102pF/m
min. Bend Radius	90mm (moving), 60mm (fixed)
Operating Temperature	-20°C - +105°C
Flame Retardance	according to DIN EN 60332-2-2 (20s)
Halogen-free	Yes (LSZH)
RoHS Compliant	Yes
Weight	ca. t.b.s. kg/m
Cu-Weight	ca. t.b.s. kg/m
Color	red
Status	P (Preferred)

Intended for fixed installation; suitable for flexible wiring to a limited extent.

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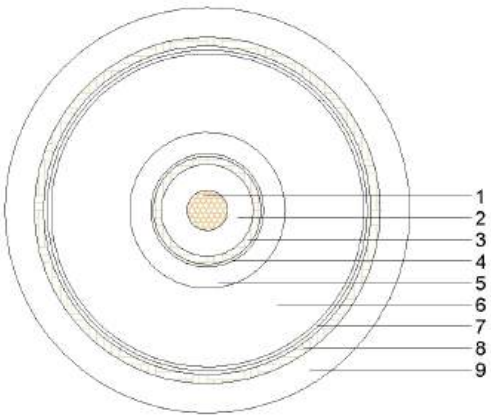
HSC-30-1S2SSB-0

30kV$_{DC}$ – AWG18 - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

30kV$_{DC}$ triaxial high voltage cable optimized for small dimensions, low partial discharge and high flexibility even at low ambient temperatures. Semiconductive layers below and above the dielectric assure excellent PD behavior.
Silicone dielectric and a flexible silicone jacket.

CONSTRUCTION



1. Conductor	AWG18 Cu/Sn (98x0.1mm t.p.c.)	0.75mm² Ø 1.2mm
2. Dielectric	Silicone	Ø 2.5mm
3. Braid I	Cu/Sn (0.107mm t.p.c.) (Coverage ≥ 85%)	Ø 2.9mm
4. Semicon	Semiconductive Tape	
5. Semicon	Semiconductive Silicone Color: black	Ø 4.2mm
6. Dielectric	Silicone Color: white	Ø 8.5mm
7. Semicon	Semiconductive PTFE Tape	
8. Braid II	Cu/Sn (0.107mm t.p.c.) (Coverage ≥ 85%)	Ø 9.4mm
9. Jacket	Silicone	Ø 11.0mm ± 0.5mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I) **(Braid I – Braid II)**	150V 30kV$_{DC}$
Test Voltage (Braid I – Braid II) **(Core Wire)** **(Jacket)**	61kV$_{DC}$ / 1min 3kV$_{AC}$ (Spark Test) 2.5kV$_{AC}$ (Spark Test)
Capacitance (Braid I – Braid II)	typ. 240pF/m
Conductor Resistance @ 20°C	≤ 24Ω/km
Braid Resistance (Braid I)	≤ 35Ω/km
Braid Resistance (Braid II)	≤ 11Ω/km
min. Bend Radius	165mm (moving), 55mm (fixed)
Operating Temperature	-50°C - +140°C
RoHS Compliant	Yes
Weight	0.135kg/m
Cu-Weight	0.050kg/m
Color	black
Status	E (Example)

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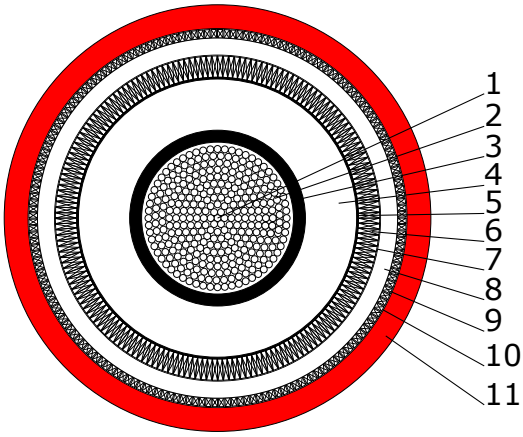
HSC-30-1S2STA-2

30kV$_{DC}$ / 5kV$_{DC}$ - 35mm² / 35mm² / 11mm² - SILICONE DIELECTRIC

PRODUCT DESCRIPTION

Triaxial high voltage cable. It features identical cross-sectional area (35mm²) of both the core conductor and the inner shield which is a non-braided spiral winding with high optical coverage.The outer shield is braided and has 10.8mm².
The rated voltage is 30kV$_{DC}$ between the core conductor and the inner shield and 5kV$_{DC}$ between both shields.
Intended for fixed installation.

CONSTRUCTION



1. Conductor	Cu/Sn (1117x0.203mm t.p.c.)	35.0mm² Ø 8.7mm ±0.44mm
2. Tape	Semiconductive nonwoven material	Ø 8.9mm ± 0.44mm
3. Semicon	Semiconductive Silicone 0.7mm	Ø 10.3mm ± 0.6mm
4. Dielectric	Silicone white 3.0mm	Ø 16.3mm ± 0.6mm
5. Tape	Semiconductive nonwoven material	
6. Shield	Cu/Sn (36x AWG18 (19x AWG30 each) t.p.c.); lay direction: Z-lay 98.7% optical coverage	34.5mm² Ø 19.0mm ± 0.6mm
7. Tape	Polyester (PET) foil	Ø 19.1m ± 0.6mm
8. Dielectric	Silicone white 1.0mm	Ø 21.1mm ± 0.7mm
9. Braid	Cu/Sn (7x 36x AWG30 t.p.c.); 80% Coverage	10.8mm² Ø 22.1mm ± 0.7mm
10. Tape	Nonwoven material	Ø 22.2mm ± 0.7mm
11. Jacket	TPE-O (Thermoplastic Polyolefin-Elastomer) 1.4mm	Ø 25.0mm ± 0.9mm

TECHNICAL DATA

Rated Voltage (Core – Shield) **(Shield – Braid)**	30kV$_{DC}$ 5kV$_{DC}$
Test Voltage (Core – Shield) **(Shield – Braid)** **(Spark Test, core)** **(Spark Test, jacket)**	61kV$_{DC}$ / 60s (routine test), 48kV$_{DC}$ / 24h (type test) 11kV$_{DC}$ / 60s (routine test), 8kV$_{DC}$ / 24h (type test) 20kV$_{AC}$ 5kV$_{AC}$ (inner jacket); 5kV$_{AC}$ (outer jacket)
min. Bend Radius	188mm (fixed)
Operating Temperature	-50°C - +105°C
Flame Retardance	acc. IEC60332-1
Low Smoke	t.b.s
Halogen-free	yes, acc. IEC60754-1
Non Toxic	yes, acc. IEC60754-2
RoHS Compliant	Yes
Weight	t.b.s
Cu-Weight	t.b.s
Color	red
Status	E (Example)

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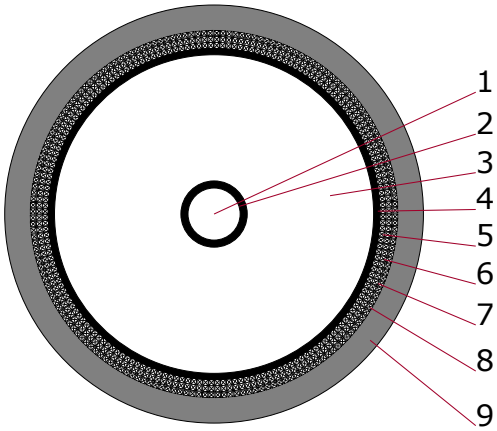
HSC-300-1E2SVA-0

300kV$_{DC}$ - EPR DIELECTRIC

PRODUCT DESCRIPTION

Triaxial 300kV$_{DC}$ high voltage cable with solid Cu conductor. Semiconductive EPR layers around the conductor and the inner dielectric (EPR) ensure excellent partial discharge behaviour.
The second dielectric is of 2 layers half lapped Mylar tape, followed by the second braid and the outer PVC jacket.

CONSTRUCTION



1. Conductor	AWG4 solid Cu	21.2mm² Ø 5.2mm
2. Semicon	Semiconductive EPR	Ø 6.6mm
3. Dielectric	EPR	Ø 31.8mm ± 0.6mm
4. Semicon	Semiconductive EPR	Ø 33.0mm
5. Braid I a	Cu/Sn (9x 24x AWG30 t.p.c.)	
6. Braid I b	Cu/Sn (11x 24x AWG30 t.p.c.)	
7. Dielectric	Mylar Tape, 2 Layers, ½ lapped	
8. Braid II	Cu/Sn (AWG30 t.p.c.) 85% Coverage	Ø 36.6mm
9. Outer Jacket	PVC	Ø 41.7mm ± 0.8mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid I)	300kV$_{DC}$
Test Voltage (Conductor – Braid I) **(Braid I – Braid II)**	330kV$_{DC}$ 5kV$_{DC}$
Impedance (Conductor – Braid I)	typ. 62Ω
Capacitance (Conductor – Braid I)	typ. 100pF/m
Conductor Resistance @ 20°C	typ. 0.86mΩ/m
Braid Resistance @ 20°C (Braid I)	typ. 1.3mΩ/m
min. Bend Radius	320mm (fixed)
max. Conductor Temperature	-51°C - +100°C
Weight	typ. 2kg/m
Color	black
Status	S (Special)

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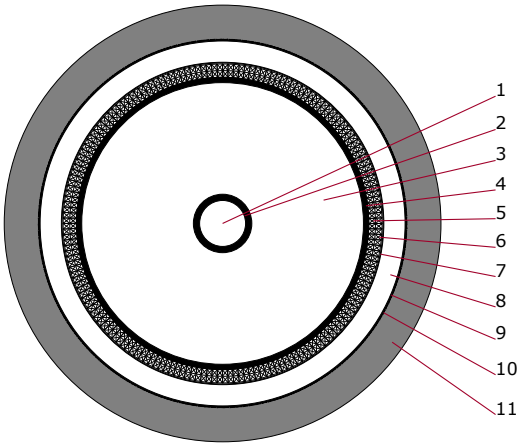
HSC-300-1E2SVG-0

300kV$_{DC}$ - EPR DIELECTRIC

PRODUCT DESCRIPTION

300kV$_{DC}$ EPR dielectric triaxial high voltage cable for high voltage testing applications.
Large conductor cross-section of inner braid.

CONSTRUCTION



1. Conductor	AWG4 solid bare Cu	21.2mm² Ø 5.2mm
2. Semicon	Semiconductive EPR	Ø 6.6mm
3. Dielectric	EPR	Ø 31.8mm ± 0.6mm
4. Semicon	Semiconductive EPR	0.61mm
5. Braid a	Cu braid (9x24x AWG30)	
6. Braid b	Cu wires (45x AWG20)	
7. Semicon	Semiconductive tape, ½ lapped	
8. Dielectric	LDHMW PE, t=2.54mm	Ø 41.2mm
9. Semicon	Semiconductive tape, ½ lapped	
10. Shield	Copper tape 0.05mm, ½ lapped, 2 layers	
11. Jacket	PVC, fire retardant	Ø 49.3mm ± 0.8mm

TECHNICAL DATA

Rated Voltage (Conductor – Braid) **(Braid – Shield)**	300kV$_{DC}$ 50kV$_{DC}$
Test Voltage (Conductor – Braid) **(Braid – Shield)**	330kV$_{DC}$ 55kV$_{DC}$
Impedance (Conductor – Braid)	typ. 62Ω
Capacitance (Conductor – Braid)	typ. 98pF/m
Conductor Resistance @ 20°C	typ. 0.86mΩ/m
Braid Resistance @ 20°C	typ. 0.60mΩ/m
Maximum Relative Humidity	100%
min. Bend Radius	356mm (fixed)
Max. Conductor Temperature	+60°C
Weight	typ. 2.4kg/m
Color	black
Status	S (Special)

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High quality, 1, 3, 4 and 5 core X-Ray / E-Beam cables with EPR or Silicone dielectric for voltages up to 320kV$_{DC}$. These cables are equipped with semiconductive layers, braided shield and robust outer jacket. Many types provide high flexibility making X-Ray cables an excellent choice for safe transmission of high voltage in movable applications.
These cables are typically used terminated as complete cable assemblies.

hivolt.de is able to provide modified standard types or full custom designs for applications where special cable types are required.

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X-RAY / E-BEAM HIGH VOLTAGE CABLE

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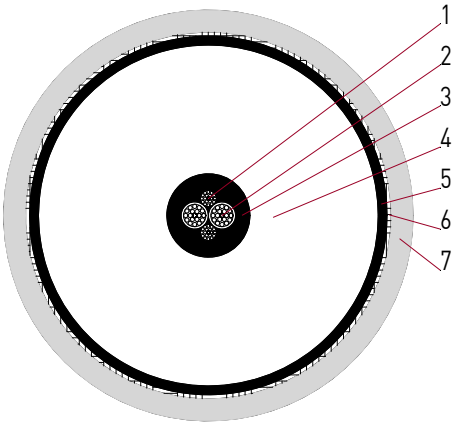
2042

230kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

230kV$_{DC}$ / 75kV$_{AC}$ 3 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. Two conductors are Tefzel insulated, one conductor is a bare conductor.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	2x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.), AWG15 in total	1.9mm²
2. Conductor	2x Cu/Sn AWG16 (19x0.33mm, t.p.c.), Tefzel Insulation, Rated Voltage: 5kV$_{DC}$	2x 1.2mm²
3. Semicon	Semiconductive EPR (black)	Ø 6.1mm
4. Dielectric	EPR	Ø 24.9mm
5. Semicon	Semiconductive EPR (black)	Ø 26.2mm
6. Braid	Cu/Sn ≥80% Coverage	Ø 26.8mm
7. Jacket	PVC (black)	Ø 31.1mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	230kV$_{DC}$ / 75kV$_{AC}$
Impedance	59Ω
Capacitance	115pF/m
min. Bend Radius (static)	152mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	1.07kg/m
Status	P (Preferred)

The cable is available also with Low Smoke Zero Halogene jacket. Part-No. 2042LS, status: S

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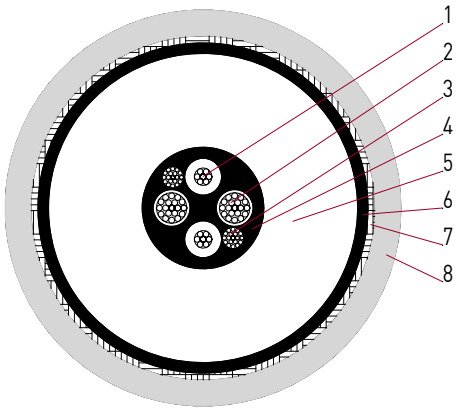
2171

100kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

100kV$_{DC}$ / 30kV$_{AC}$ 5 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. Two conductors are Mylar tape insulated, two conductors are Polyester tape insulated, one conductor is a bare conductor. Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	2x St/Cu AWG20 (7x0.32 copper cladded steel), 79mΩ/m, Mylar Tape Insulation, Rated Voltage: 10kV$_{DC}$	2x 0.57mm²
2. Conductor	2x Cu/Sn AWG15 (19x0.33mm, t.p.c.), Polyester Tape Insulation, Rated Voltage: 1kV$_{DC}$	2x 1.7mm²
3. Conductor	2x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.), AWG15 in total	1.9mm²
4. Semicon	Semiconductive EPR (black)	Ø 6.6mm
5. Dielectric	EPR	Ø 16.8mm
6. Semicon	Semiconductive EPR (black)	Ø 17.9mm
7. Braid	Cu/Sn ≥80% Coverage	Ø 18.7mm
8. Jacket	PVC (grey)	Ø 21.5mm

TECHNICAL DATA

Number of Conductors	5
Rated Voltage	100kV$_{DC}$ / 30kV$_{AC}$
Impedance	36Ω
Capacitance	167pF/m
min. Bend Radius (static)	101mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	0.58kg/m
Status	S (Special)

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X-Ray HV Cable

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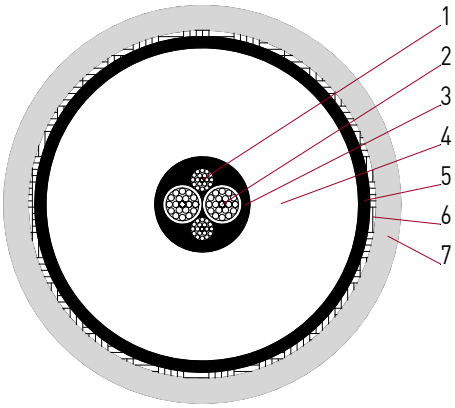
2212

100kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

100kV$_{DC}$ / 30kV$_{AC}$ 3 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. One bare conductor and two Polyester tape insulated conductors.
Semiconductive layers around the conductor and the inner dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	2x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.), AWG15 in total	1.65mm²
2. Conductor	2x Cu/Sn AWG15,(19x0.33mm, t.p.c.), Polyester Tape Insulation, Rated Voltage: 1kV$_{DC}$	2x 1.65mm²
3. Semicon	Semiconductive EPR (black)	Ø 4.8mm
4. Dielectric	EPR	Ø 15.8mm
5. Semicon	Semiconductive EPR (black)	Ø 16.9mm
6. Braid	Cu/Sn ≥80% Coverage	Ø 17.5mm
7. Jacket	PVC	Ø 19.9mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	100kV$_{DC}$ / 30kV$_{AC}$
Impedance	53Ω
Capacitance	131pF/m
min. Bend Radius (static)	101mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	0.49kg/m
Color	grey
Status	P (Preferred)

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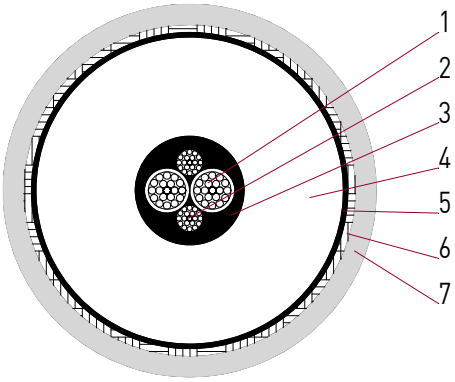
2214

75kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

75kV$_{DC}$ / 25kV$_{AC}$ 3 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. Two conductors are Polyester tape insulated, one conductor is a bare conductor.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	2x Cu/Sn AWG15 (19x0.33mm, t.p.c.), Polyester Tape Insulation, Rated Voltage: 1kV$_{DC}$	2x 1.7mm²
2. Conductor	2x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.), AWG15 in total	1.9mm²
3. Semicon	Semiconductive EPR (black)	Ø 4.8mm
4. Dielectric	EPR	Ø 13.0mm
5. Semicon	Semiconductive EPR (black)	Ø 14.1mm
6. Braid	Cu/Sn ≥95% Coverage	Ø 14.7mm
7. Jacket	PVC	Ø 16.5mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	75kV$_{DC}$ / 25kV$_{AC}$
Impedance	46Ω
Capacitance	154pF/m
min. Bend Radius (static)	76mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	0.37kg/m
Color	grey
Status	P (Preferred)

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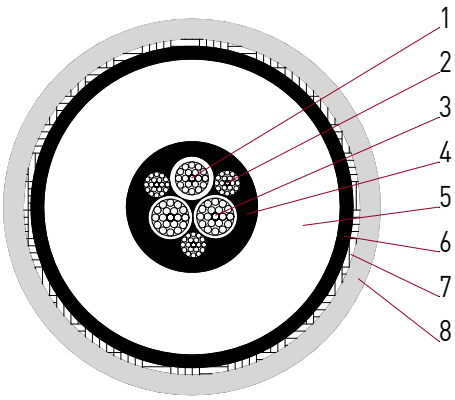
2226

75kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

75kV$_{DC}$ / 25kV$_{AC}$ 4 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. One Tefzel insulated conductor, one bare conductor and two Polyester tape insulated conductors.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	1x Cu/Sn AWG16 (19x0.30mm, t.p.c.), Tefzel Insulation, Rated Voltage: 5kV$_{DC}$	1.2mm²
2. Conductor	3x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.), AWG13 in total	2.9mm²
3. Conductor	2x Cu/Sn AWG15 (19x0.33mm, t.p.c.), Polyester Tape Insulation, Rated Voltage: 1kV$_{DC}$	2x 1.7mm²
4. Semicon	Semiconductive EPR (black)	Ø 5.8mm
5. Dielectric	EPR	Ø 13.2mm
6. Semicon	Semiconductive EPR (black)	Ø 14.4mm
7. Braid	Cu/Sn ≥95% Coverage	Ø 15.0mm
8. Jacket	PVC	Ø 16.8mm

TECHNICAL DATA

Number of Conductors	4
Rated Voltage	75kV$_{DC}$ / 25kV$_{AC}$
Impedance	37Ω
Capacitance	197pF/m
min. Bend Radius (static)	76mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	0.39kg/m
Color	grey
Status	S (Special)

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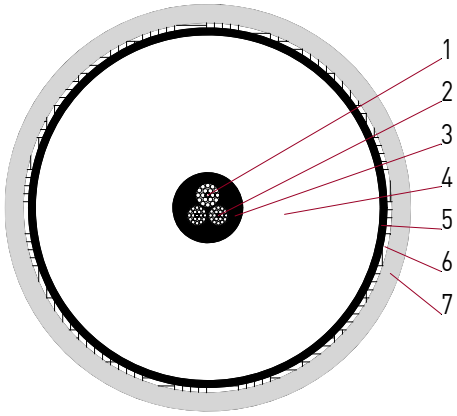
2236

320kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

320kV$_{DC}$ / 115kV$_{AC}$ 3 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. One bare conductors, two Tefzel insulated conductors.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	1x bare Cu/Sn AWG12 (19x0.46mm t.p.c.)	3.1mm²
2. Conductor	2x Cu/Sn AWG14 (19x0.37mm, t.p.c.), Tefzel Insulated, Rated Voltage: 5kV$_{DC}$	2x 1.9mm²
3. Semicon	Semiconductive EPR (black)	Ø 6.6mm
4. Dielectric	EPR	Ø 32.5mm
5. Semicon	Semiconductive EPR (black)	Ø 33.8mm
6. Braid	Cu/Sn (AWG30 t.p.c.) ≥80% Coverage	Ø 34.8mm
7. Jacket	PVC	Ø 38.2mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	320kV$_{DC}$ / 115kV$_{AC}$
Impedance	61Ω
Capacitance	102pF/m
min. Bend Radius (static)	190mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	1.64kg/m
Color	black
Status	P (Preferred)

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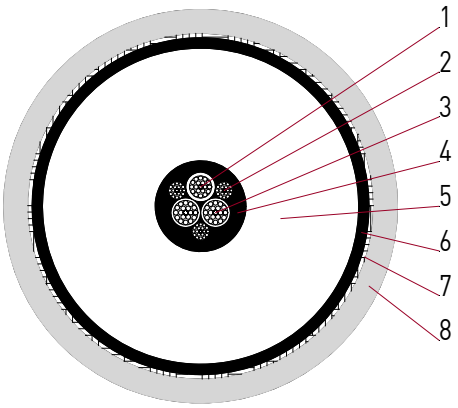
2266

160kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

160kV$_{DC}$ / 50kV$_{AC}$ 4 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. One Tefzel insulated conductor, one bare conductor and two Polyester tape insulated conductors.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	1x Cu/Sn AWG16 (19x0.3mm t.p.c.), Tefzel Insulation, Rated Voltage: 10kV$_{DC}$	1.2mm²
2. Conductor	3x bare Cu/Sn AWG18 (19x0.24mm, t.p.c.), AWG13 in total	2.9mm²
3. Conductor	2x Cu/Sn AWG15 (19x0.33mm, t.p.c.), Polyester Tape, Rated Voltage: 1kV$_{DC}$	2x 1.7mm²
4. Semicon	Semiconductive EPR (black)	Ø 6.1mm
5. Dielectric	EPR	Ø 21.2mm
6. Semicon	Semiconductive EPR (black)	Ø 22.6mm
7. Braid	Cu/Sn ≥90% Coverage	Ø 23.2mm
8. Jacket	PVC	Ø 26.4mm

TECHNICAL DATA

Number of Conductors	4
Rated Voltage	160kV$_{DC}$ / 50kV$_{AC}$
Impedance	48Ω
Capacitance	154pF/m
min. Bend Radius (static)	140mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	0.89kg/m
Color	grey
Status	S (Special)

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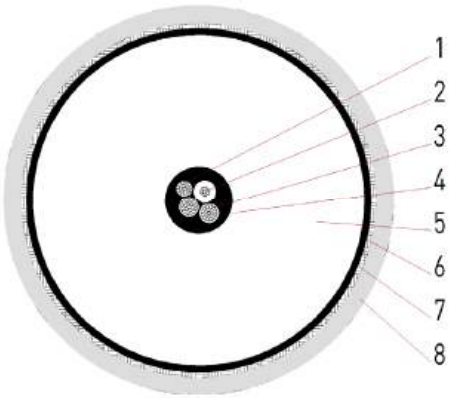
2338

320kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

320kV$_{DC}$ / 115kV$_{AC}$ 4 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. One bare conductor and three Mylar tape insulated conductors.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	1x bare Cu/Sn AWG15 (19x0.33mm t.p.c.)	1.7mm²
2. Conductor	1x St/Cu AWG20 (7x0.32mm copper cladded steel), Mylar Tape Insulation, Rated Voltage: 10kV$_{DC}$	0.57mm²
3. Conductor	2x Cu/Sn AWG15 (19x0.33mm, t.p.c.), Mylar Tape Insulation, Rated Voltage: 1kV$_{DC}$	2x 1.7mm²
4. Semicon	Semiconductive EPR	Ø 6.6mm
5. Dielectric	EPR	Ø 32.5mm
6. Semicon	Semiconductive EPR	Ø 33.8mm
7. Braid	Cu/Sn (9x24x AWG30 t.p.c.) ≥80% Coverage	Ø 34.8mm
8. Jacket	PVC	Ø 38.2mm

TECHNICAL DATA

Number of Conductors	4
Rated Voltage	320kV$_{DC}$ / 115kV$_{AC}$
Impedance	61Ω
Capacitance	102pF/m
min. Bend Radius (static)	191mm
Operating Temperature	-51°C - +60°C
RoHS Compliant	Yes
Weight	1.64kg/m
Color	black
Status	S (Special)

Only available as a fitted cable assembly.

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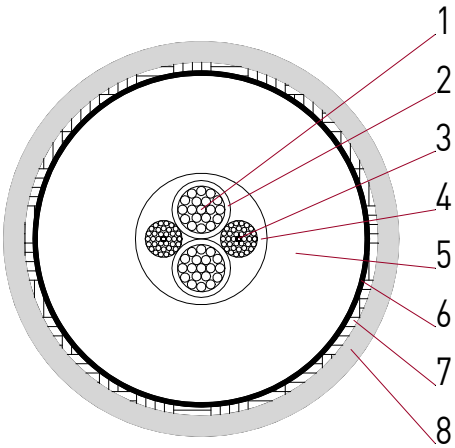
HXC-75-3ED-8

75kV$_{DC}$ – EPR DIELECTRIC – HIGH FLEXIBILITY – SMALL SIZE

PRODUCT DESCRIPTION

Highly flexible small size 75kV$_{DC}$ 3 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. Two ETFE insulated conductors and one bare conductor.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	2x Cu/Sn 1.8mm² (19x0.35mm t.p.c.)	2x 1.8mm²
2. Insulation	ETFE Insulation	
3. Conductor	2x bare Cu/Sn 1.25mm² (50x0.18mm t.p.c.)	2.5mm²
4. Semicon	Semiconductive EPR (black)	Ø 4.5mm
5. Dielectric	EPR (black)	Ø 10.9mm ±0.5mm
6. Semicon	Semiconductive tape (black)	
7. Braid	Cu/Sn ≥90% Coverage	
8. Jacket	PVC	Ø 13.2mm ±0.5mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	75kV$_{DC}$
Routine Test Voltage (High Voltage Insulation)	120kV$_{DC}$ / 10min
Routine Test Voltage (Conductor Insulation)	3.5kV$_{ACrms}$ / 5min
Thickness of Jacket (PVC)	0.7mm
Thickness of High Voltage Dielectric	3.2mm
Diameter of Core Assembly	4.4mm
Capacitance between Cond. and Shield	150pF/m ±10%
RoHS Compliant	Yes
Weight	0.235kg/m
Color	light grey
Status	S (Special)

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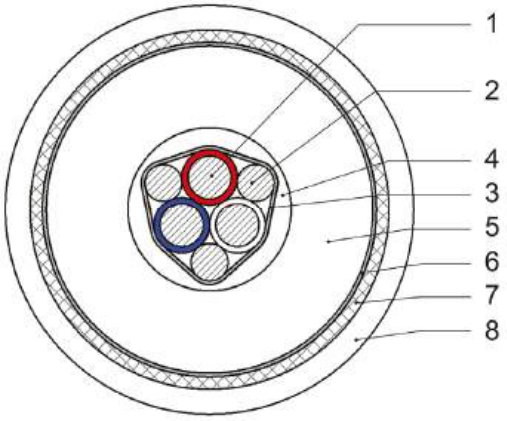
HXC-75-4EC-9

75kV$_{DC}$ – EPR DIELECTRIC – HIGH FLEXIBILITY

PRODUCT DESCRIPTION

Highly flexible small size 75kV$_{DC}$ 4 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. Three ETFE insulated conductors and one bare conductor.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	3x Cu/Sn 1.5mm² (19x0.32mm t.p.c.), ETFE Insulation red, white, blue	3x 1.5mm²
2. Conductor	3x bare Cu/Sn 0.5mm² (20x0.18mm t.p.c.)	1.5mm²
3. Tape	Semiconductive tape	
4. Filling	Semiconductive EPR	
5. Dielectric	EPR (black)	
6. Tape	Semiconductive tape	
7. Braid	Cu/Sn ≥95% Coverage	
8. Jacket	PVC	Ø 16.7mm ± 0.5mm

TECHNICAL DATA

Number of Conductors	4
Rated Voltage	75kV$_{DC}$
Routine Test Voltage (HV Insulation)	120kV$_{DC}$ / 10min
Rated Voltage (Conductor Insulation)	750V$_{ACrms}$ / 1000V$_{DC}$
Maximum Conductor Current	1.5mm²: 15A; 0.5mm²: 8A
Insulation Resistance Core to Shield @20°C	≥ $1 \cdot 10^{12}$ Ωm
Conductor Resistance Bare Cond. @20°C	11.9Ω/km ±10%
Conductor Resistance Insul. Cond. @20°C	11.9Ω/km ±10%
Capacitance between Cond. and Shield	226pF/m ±10%
min. Bend Radius	68mm (moving); 34mm (fixed)
Operating Temperature	-10°C - +70°C
Storage Temperature	-40°C - +70°C
Weight	0.340kg/m
Color	white
RoHS Compliant	Yes
Status	P (Preferred)

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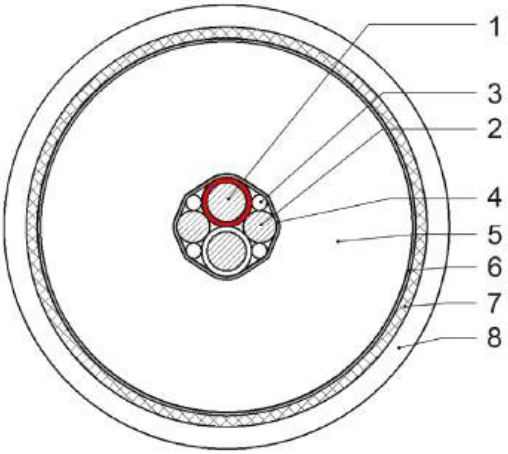
HXC-100-3EA-8

100kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

100kV$_{DC}$ shielded 3 conductor high voltage cable for X-Ray applications. Two conductors are ETFE insulated, one conductor is a bare conductor.
Semiconductive tapes around the conductor and the EP dielectric ensure excellent partial discharge behaviour.
PVC jacket.

CONSTRUCTION



1. Conductor	2x Cu/Sn 1.8mm² (19x0.35mm t.p.c.), ETFE Insulation red, white	2x 1.8mm²
2. Conductor	2x bare Cu/Sn 1.25mm² (50x0.18mm t.p.c.)	2.5mm²
3. Filling		
4. Tape	Semiconductive tape	
5. Dielectric	EPR (black)	
6. Tape	Semiconductive tape	
7. Braid	Cu/Sn ≥95% Coverage	
8. Jacket	PVC	Ø 20.0m ±0.6m

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	100kV$_{DC}$
Routine Test Voltage (HV Insulation)	160kV$_{DC}$ / 10min
Rated Voltage (Conductor Insulation)	750V$_{ACrms}$ / 1000V$_{DC}$
Maximum Conductor Current	1.8mm²: 17A; 1.25mm²: 14A
Insulation Resistance Core to Shield @ 20°C	≥ $5 \cdot 10^{12}$ Ωm
Conductor Resistance Bare Cond. @ 20°C	7Ω/km ±5%
Conductor Resistance Insul. Cond. @ 20°C	10Ω/km ±5%
Capacitance between Cond. and Shield	136pF/m ±10%
min. Bend Radius	80mm (moving); 40mm (fixed)
Operating Temperature	-10°C - +70°C
Storage Temperature	-40°C - +70°C
Weight	0.515kg/m
Color	light grey
RoHS Compliant	Yes
Status	P (Preferred)

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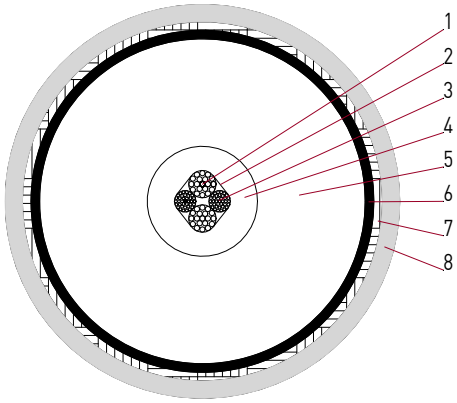
HXC-160-3EB-8

160kV$_{DC}$ – EPR DIELECTRIC

PRODUCT DESCRIPTION

160kV$_{DC}$ 3 conductor shielded high voltage cable with EPR dielectric and PVC jacket for X-ray applications. Two FEP insulated conductors and one bare conductor.
Semiconductive layers around the conductor and the dielectric ensure excellent partial discharge behaviour.

CONSTRUCTION



1. Conductor	2x Cu/Sn 1.5mm² (19x0.32mm, t.p.c.), Tefzel Insulation	2x 1.5mm²
2. Semicon	Semiconductive tape	
3. Conductor	2x bare Cu/Sn 0.76mm² (30x0.18mm, t.p.c.)	1.5mm²
4. Semicon	Semiconductive EPR (black)	
5. Dielectric	EPR (black)	Ø 19.5mm
6. Semicon	Semiconductive tape (black)	
7. Braid	Cu/Sn ≥95% Coverage	
8. Jacket	PVC	Ø 22.9mm ±1.0mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	160kV$_{DC}$
Routine Test Voltage (High Voltage Insulation)	200kV$_{DC}$ / 10min
Routine Test Voltage (Conductor Insulation)	6.5kV$_{ACrms}$ / 1min
Maximum Conductor Current	1.5mm²: 15A
Thickness of Jacket (PVC)	1.0mm
Thickness of High Voltage Dielectric	5.5mm
Diameter of Core Assembly	6.4mm
Insulation Resistance Core to Shield @ 20°C	≥ $1 \cdot 10^{12}$Ωm
Conductor Insulation Resistance @ 20°C	≥ $1 \cdot 10^{12}$Ωm
Capacitance between Cond. and Shield	204pF/m ±10%
min. Bend Radius (static)	60mm
min. Bend Radius (dynamic)	120mm
Operating Temperature	-10°C - +70°C
Storage Temperature	-40°C - +70°C
RoHS Compliant	Yes
Weight	0.630kg/m
Color	light grey
Status	S (Special)

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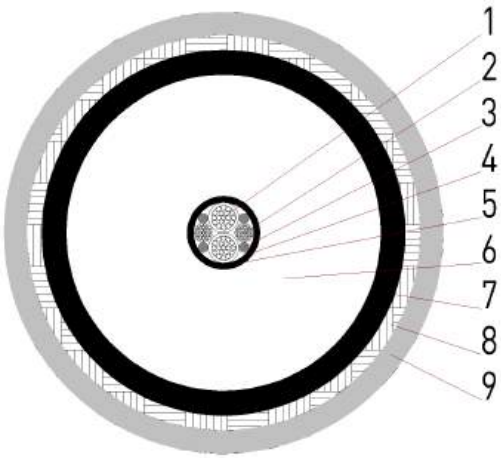
HXC-160-3EC-0

160kV$_{DC}$ – EPR DIELECTRIC

CONSTRUCTION



1. Conductor	2x Cu/Sn 1.5mm² (19x0.32mm t.p.c.), FEP Insulation	2x 1.5mm²
2. Conductor	2x bare Cu/Sn 1.25mm² (50x0.18mm t.p.c.)	2.5mm²
3. Filling	4x Reinforced Kevlar string	
4. Tape	Semiconductive tape	
5. Bedding	Semiconductive EPR	Ø 4.8mm
6. Dielectric	EPR (black)	Ø 20.8mm
7. Semicon	Extruded semiconductive EPR	
8. Braid	Cu/Sn ≥95% Coverage	Ø 27mm
9. Jacket	PVC	Ø 29mm ± 1.0mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	160kV$_{DC}$
Test Voltage	220kV$_{DC}$ / 10min (high voltage insulation) 4.5kV$_{AC}$ / 1min (conductor insulation)
Maximum Conductor Current	1.5mm²: 15A; 1.25mm²: 14A
Corona Level @ 160kV$_{DC}$	≤ 10pC
Insulation Resistance Core to Shield @ 20°C	≥ 1x10^{12}Ωm
Conductor Insulation Resistance @ 20°C	≥ 1x10^{12}Ωm
Conductor Resistance @ 20°C	7.3mΩ/m ±10% (bare conductor) 11.9mΩ/m ±10% (insulated conductor)
Shield Resistance @ 20°C	6.27mΩ/m ±10%
Capacitance between Conductors and Shield	132pF/m ±10%
min. Bend Radius	116mm (moving), 58mm (fixed)
Operating Temperature	-10°C - +100°C
Storage Temperature	-40°C - +70°C
RoHS Compliant	Yes
Weight	1.03kg/m
Color	black
Status	S (Special)

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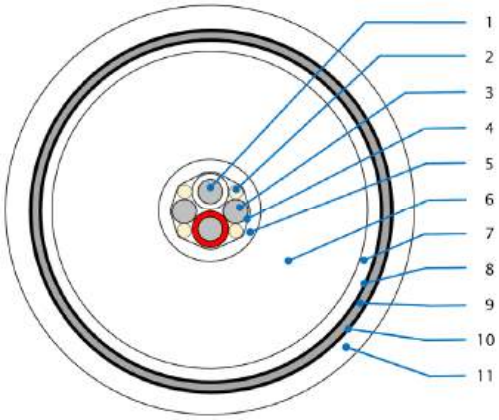
HXC-300-3EA-0

300kVDC – 3 CONDUCTOR - EPR DIELECTRIC

PRODUCT DESCRIPTION

Shielded 300kVDC high voltage cable with 3 conductors for X-ray and E-beam applications and for low power, high voltage test and measurement equipment.
Two FEP insulated and one bare conductor, EPR dielectric, PVC jacket. A triple extruded constructions ensures low partial discharge.
Oil resistant and flame retardant. RoHS compliant.

CONSTRUCTION



1. Conductor	2x Cu/Sn AWG16 (19x0.32mm, t.p.c.), FEP Insulation	1.5mm² Ø 2.4mm
2. Filler		
3. Conductor	2x bare Cu/Sn (50x0.18mm, t.p.c.), AWG13 in total	2.5mm²
4. Semicon	Semiconductive Tape	
5. Semicon	Extruded Semiconductive Layer	Ø 11mm
6. Dielectric	EPR	Ø 41mm
7. Semicon	Extruded Semiconductive Layer	
8. Semicon	Semiconductive Tape	
9. Braid	Cu/Sn, 80% Coverage	
10. Tape	Protective Tape	
11. Jacket	Polyurethane	Ø 49mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage	300kVDC
Routine Test Voltage (High Voltage Insulation)	350kVDC / 15 minutes
Routine Test Voltage (Conductor Insulation)	4.5kVAC / 5min
Recommend max Operating Voltage between Conductors	1000VDC, 50VAC
Conductor Resistance @ 20°C	typ. 7mΩ/m (bare conductor) typ. 11.9mΩ/m (insulated conductors)
Capacitance	typ. 123pF/m
min. Bend Radius	200mm (fixed)
Oil Resistance	Yes (Jacket)
Weight	2.6kg/m
Color	black
RoHS Compliant	Yes
Status	S (Special)

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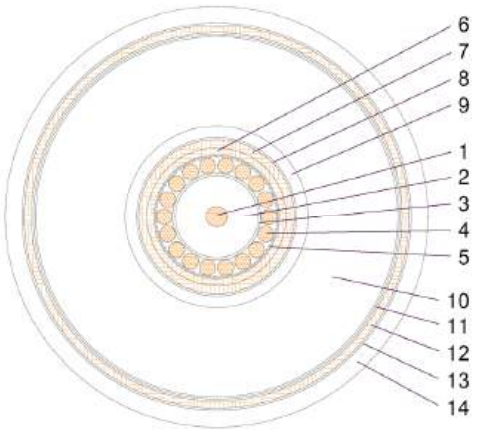
HXC-60-3S1SUA-0

60kV$_{DC}$ – 3 CONDUCTOR SILICONE DIELECTRIC

PRODUCT DESCRIPTION

60kV$_{DC}$ 3-conductor shielded high voltage cable for E-beam applications. Triaxial core construction with XLPE insulated centered grid conductor and concentric large area filament conductors. Silicone dielectric and Polyurethane jacket.

CONSTRUCTION



1. Conductor (GRID)	1x Cu/Sn AWG16 (solid, t.p.c.)	1.3mm² Ø 1.29mm
2. Dielectric	XLPE	Ø 5mm
3. Semicon	Semiconductive Tape	
4. Conductor (F1)	18x Cu/Sn AWG20 (18x 19x0.203mm t.p.c.)	10.9mm² Ø 7.1mm
5. Tape	PTFE Tape	
6. Braid 1.1 (F2.1)	Cu/Sn (0.25mm t.p.c.) (Coverage ≥ 90%)	5.4mm² Ø 8.4mm
7. Braid 1.2 (F2.2)	Cu/Sn (0.25mm t.p.c.) (Coverage ≥ 85%)	5.2mm² Ø 9.4mm
8. Semicon	Semiconductive Tape	
9. Semicon	Semiconductive Silicone	Ø 11.0mm
10. Dielectric	Silicone	Ø 22.0mm
11. Semicon	Semiconductive Tape	
12. Braid 2 (GND)	Cu/Sn (0.2mm t.p.c.) (Coverage ≥ 80%)	Ø 23.1mm
13. Tape	Separator Tape	
14. Jacket	TPE-U	Ø 25.4mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	**(GRID – F1)** **(F2 – GND)** **(F1 – F2)**	2kV$_{DC}$ 60kV$_{DC}$ 50V	
Test Voltage	**(GRID – F1)** **(F2 – GND)** **(F1 – F2)**	20kV$_{DC}$ / 1min 80kV$_{DC}$ / 1min 2kV$_{DC}$ / 1min	(routine test) (routine test) (routine test)
Test Voltage	**(GRID – F1)** **(F2 – GND)**	20kV$_{DC}$ / 24h 80kV$_{DC}$ / 24h	(type test) (type test)
Conductor Resistance @ 20°C (GRID)		≤ 14Ω/km	
Conductor Resistance @ 20°C (F1)		≤ 1.66Ω/km	
Conductor Resistance @ 20°C (F2)		≤ 2.0Ω/km (Braid 1.1 and Braid 1.2 in parallel)	

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Impedance	**(GRID – F1)** **(F2 – GND)**	≈57Ω (t.b.c.) ≈24Ω (t.b.c.)
Capacitance	**(GRID – F1)** **(F2 – GND)**	≈85pF/m (t.b.c.) ≈240pF/m (t.b.c.)
min. Bend Radius		255mm (moving), 130mm (fixed)
Operating Temperature		-40°C - +90°C
Weight		0.956kg/m
Cu-Weight		t.b.s. kg/m
Color		black
RoHS Compliant		Yes
Status		Y (Preliminary)

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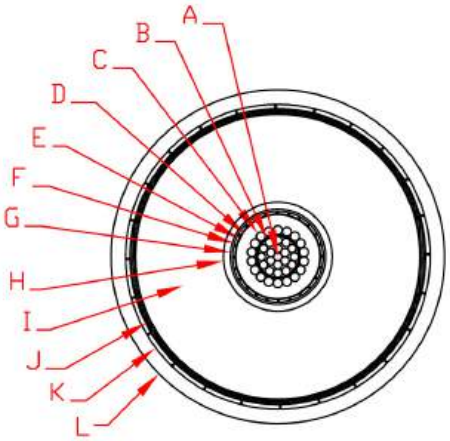
HXC-320-3EUB-0

320kV$_{DC}$ – 3 CONDUCTOR EPR DIELECTRIC

PRODUCT DESCRIPTION

320kV$_{DC}$ 3-conductor shielded high voltage cable for E-beam applications. Triaxial core construction and high dielectric strength between filament and grid conductors for optimized performance. EPR dielectric and Polyurethane jacket.

CONSTRUCTION



A. Conductor	1x Cu/Sn AWG6 (19x0.94mm t.p.c.) (Filament)	13.2mm² Ø 4.7mm
B. Tape	Fusible Mylar Tape (0.15mm)	
C. Conductor	18x Cu/Sn AWG20 (19x0.2mm t.p.c.) (Filament)	10.9mm²
D. Dielectric	5x Mylar Tape (0.13mm), ½ lapped 1.27mm Wall Thickness	Ø 9.6mm
E. Tape	Aluminized Mylar Tape, ¼ lapped	
F. Braid	9x24 Cu/Sn AWG34 (0.16mm t.p.c.) (Coverage ≥ 95%) (Grid)	Ø 10.3mm
G. Semicon	Semiconductive Tape, ½ lapped	Ø 11.2mm
H. Semicon	Semiconductive EPR	Ø 12.8mm
I. Dielectric	EPR	Ø 32.5mm ± 0.51mm
J. Semicon	Semiconductive EPR	Ø 33.8mm
K. Braid	9x24 Cu/Sn AWG34 (0.16mm t.p.c.) (Coverage ≥ 80%)	Ø 34.8mm ± 0.51mm
L. Jacket	Polyurethane	Ø 38.2mm ± 0.64mm

TECHNICAL DATA

Rated Voltage	**(F. Braid – K. Braid)**	320kV$_{DC}$
Test Voltage	**(F. Braid – K. Braid)**	t.b.s.
Rated Voltage	**(C. Conductor - F. Braid)**	5kV$_{DC}$
Test Voltage	**(C. Conductor - F. Braid)**	50kV$_{DC}$
Impedance	**(F. Braid – J. Braid)**	typ. 39Ω
Capacitance	**(F. Braid – J. Braid)**	typ. 173pF/m
min. Bend Radius		200mm (fixed)
Operating Temperature		-51°C - +80°C
Weight		t.b.s. kg/m
Cu-Weight		t.b.s. kg/m
Color		black
RoHS Compliant		Yes
Status		E (Example)

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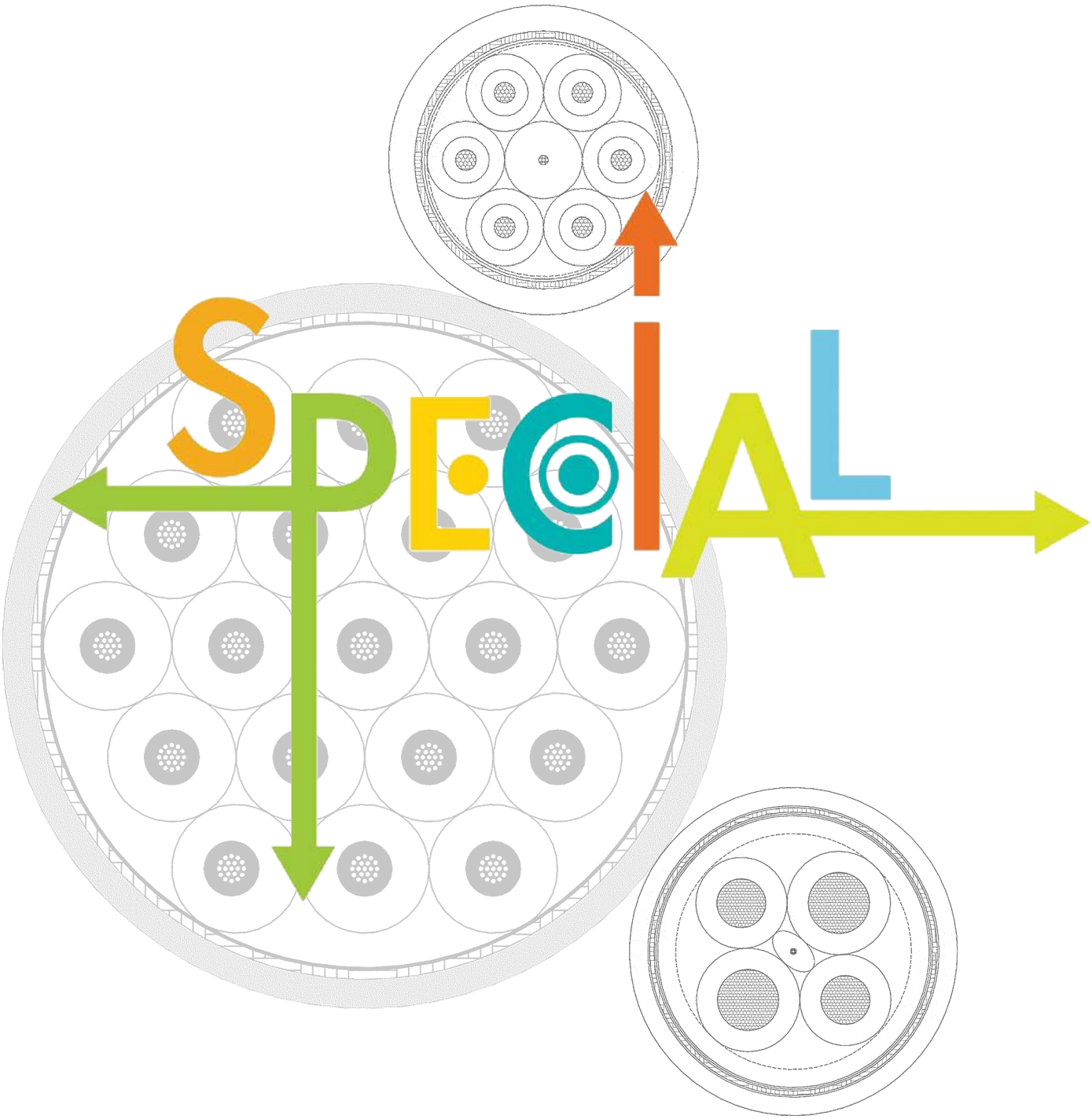
SPECIAL
HIGH VOLTAGE CABLE



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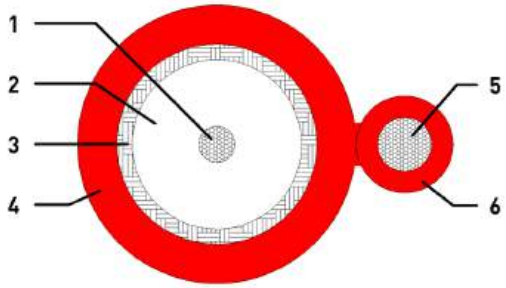
106331

9kV$_{DC}$ – 0.25mm² – PE DIELECTRIC – ADDITIONAL WIRE

PRODUCT DESCRIPTION

Single conductor (0.25mm², 14 x 0.15mm), shielded high voltage cable with PE dielectric and PVC jacket, specified for voltages up to 9kV$_{DC}$.
Additional unshielded mechanically coupled single wire (0.5mm², 16x0.2mm), PVC jacket, not specified for high voltage.

CONSTRUCTION



1. HV Conductor	Cu (14 x 0.15mm)	0.25mm² Ø 0.6mm
2. Dielectric	PE	Ø 2.8mm ± 0.1mm
3. Braid	Cu	
4. Jacket	PVC	Ø 4.6mm ± 0.2mm
5. Additional Conductor	Cu/Sn (16 x 0.20mm t.p.c.)	0.5mm² Ø 0.9mm
6. Jacket	PVC	Ø 1.6mm ± 0.2mm

TECHNICAL DATA

Rated Voltage (HV Conductor)	9kV$_{DC}$
Test Voltage (HV Conductor)	18kV$_{DC}$
Operating Temperature	-5°C - +80°C
Color	red
RoHS Compliant	Yes
Status	S (Special)

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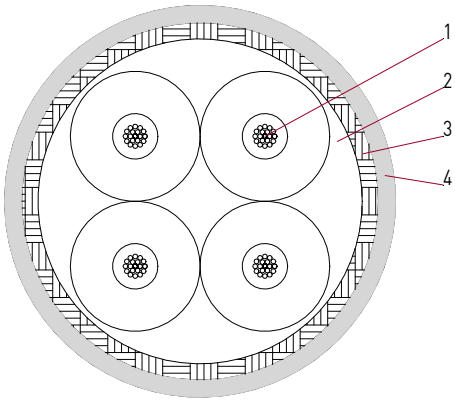
2111

50kV$_{DC}$ – AWG16 – SILICONE DIELECTRIC – 4 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

Shielded 50kV$_{DC}$ high voltage cable with 4 conductors, each of them insulated with a silicone dielectric over a semiconducting silicone layer; neoprene jacket.

CONSTRUCTION



1. Conductor	4x Cu/Ag AWG16 (19x0.29mm, s.p.c.), Semicon: Semiconducting Silicone Dielectric: Silicone	Ø 7.6mm
2. Filler		
3. Braid	Cu/Sn (AWG34 t.p.c.) 80% Coverage	
4. Jacket	Neoprene (black)	Ø 24.1mm

TECHNICAL DATA

Number of Conductors	4
Rated Voltage (Conductor – Shield)	50kV$_{DC}$
Impedance	44Ω
Capacitance	164pF/m
min. Bend Radius	102mm (static)
Operating Temperature	-51°C - +60°C
Weight	0.21kg/m
Status	E (Example)

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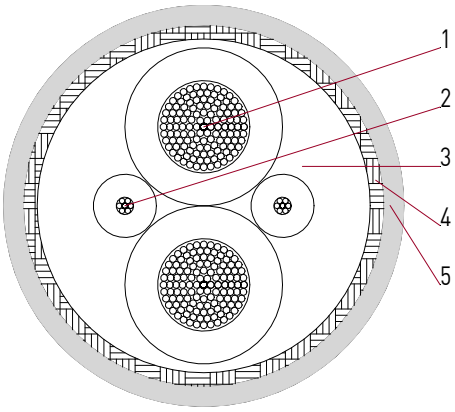
2181-1

15kV$_{DC}$ – SILICONE DIELECTRIC – 4 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

Shielded 15kV$_{DC}$ high voltage cable with 4 conductors, each of them insulated with a silicone dielectric. The outer jacket is of PVC material.

CONSTRUCTION



1. Conductor	2x Cu/Sn AWG6 (133x0.36mm, t.p.c.), Dielectric: Silicone,	Ø 7.6mm
2. Conductor	2x Cu/Sn AWG20 (10x0.29mm, t.p.c.), Dielectric: Silicone	Ø 3.2mm
3. Filler	Filler Material and Binding Tape	
4. Braid	Cu/Sn (AWG34 t.p.c.) 85% Coverage	Ø 19.3mm
5. Jacket	PVC	Ø 20.3mm

TECHNICAL DATA

Number of Conductors	4
Rated Voltage (Conductor – Shield)	15kV$_{DC}$
min. Bend Radius	152mm (static)
Operating Temperature	-51°C - +60°C
Weight	0.60kg/m
Color	grey
Status	E (Example)

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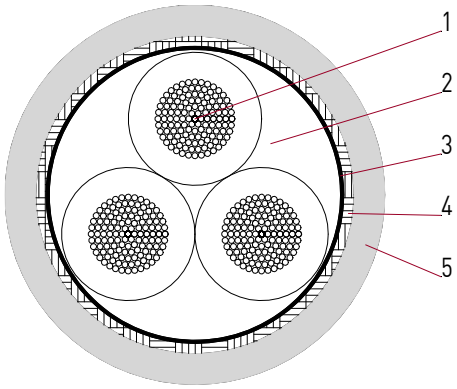
2183

15kV$_{DC}$ – AWG8 - SILICONE DIELECTRIC - 3 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

Shielded 15kV$_{DC}$ high voltage cable with 3 conductors, each of them insulated with a silicone dielectric. The outer jacket is of neoprene material.

CONSTRUCTION



1. Conductor	3x Cu/Sn AWG8 (133x0.27mm t.p.c.), Dielectric: Silicone	Ø 6.5mm
2. Filler		
3. Semicon	Semiconductive Tape	
4. Braid	Cu/Sn (AWG34 t.p.c.) 85% Coverage	
5. Jacket	Neoprene	Ø 18.5mm

TECHNICAL DATA

Number of Conductors	3
Rated Voltage (Conductor – Braid)	15kV$_{DC}$
min. Bend Radius	101mm (static)
Operating Temperature	-51°C - +60°C
Weight	0.37kg/m
Color	black
Status	E (Example)

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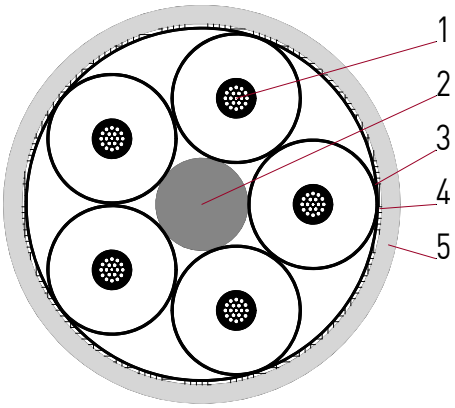
2188

50kV$_{DC}$ – AWG16 – SILICONE DIELECTRIC – 5 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

Shielded 50kV$_{DC}$ high voltage cable with 5 conductors. Each conductor is optimized for low partial discharge with two semicon around the conductor and the silicone dielectric.
A semiconductive tape is wrapped around the 5 conductors under a braid and a PVC jacket.

CONSTRUCTION



1. Conductor	5x Cu/Ag AWG16 (19x0.29mm s.p.c.), Semicon: Semiconductive Silicone, Dielectric: Silicone, Semicon: Semiconductive Ink	Ø 7.5mm
2. Cord	Neoprene	Ø 5.3mm
3. Semicon	Semiconductive Tape	
4. Braid	Cu/Sn (AWG34 t.p.c.) 90% Coverage	
5. Jacket	PVC	Ø 24.6mm

TECHNICAL DATA

Number of Conductors	5
Rated Voltage (Conductor – Shield)	50kV$_{DC}$
min. Bend Radius	127mm (static)
Operating Temperature	-51°C - +60°C
Weight	0.45kg/m
Color	black
Status	E (Example)

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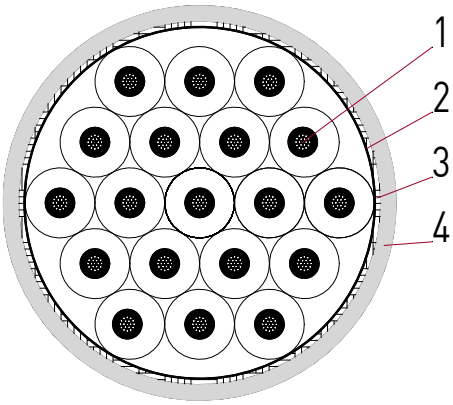
2233

60kV$_{DC}$ – AWG18 – PE DIELECTRIC - 19 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

This 60kV$_{DC}$ shielded high voltage cable is constructed with 19 LDHMW PE insulated conductors bedded within a non-hygroscopic tape. The jacket is of PVC material.

CONSTRUCTION



1. Conductor	19x Cu/Sn AWG18 (19x0.26mm t.p.c.), Semicon: Semiconducting PE, Dielectric: LDHMW PE	Ø 5.8mm
2. Bedding	Non-Hygroscopic Tape	
3. Braid	Cu/Sn (AWG34 t.p.c.)	
4. Jacket	PVC	Ø 30.5mm

TECHNICAL DATA

Number of Conductors	19
Rated Voltage (Conductor – Shield)	60kV$_{DC}$
min. Bend Radius	482mm (static)
Operating Temperature	-51°C - +60°C
Weight	0.67kg/m
Status	E (Example)

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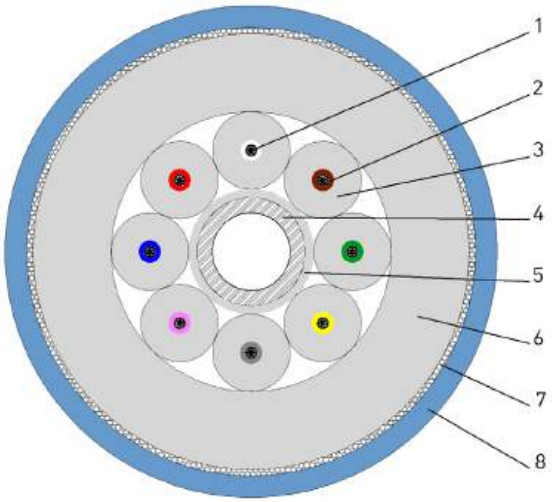
HSC-0.25-8Q1SFA-6

8 CONDUCTOR SHIELDED LOW CAPACITANCE SIGNAL CABLE

PRODUCT DESCRIPTION

8 conductor shielded signal cable with very low stray capacitance of the wires among each other and to the shield.
The dielectric of the conductors and the dielectric between conductors and shield are made of stretched PTFE foil with low permittivity wound to minimize stray capacitances.
The conductors are provided with a thin, color-coded FEP insulation. Above this, the cores are padded with stretched PTFE foil.
The structure made of stretched PTFE tape has only limited mechanical stability and deforms under the effect of pressure.

CONSTRUCTION



1. Conductor	AWG28 Cu/Ag (19x0.08mm s.p.c.)	0.095mm² Ø ≈0.4mm
2. Dielectric	FEP Colors according to DIN47100	Ø 0.7mm
3. Dielectric	PTFE-E Tape	Ø 2.5mm
4. Tube	PTFE inner diameter: 2.5mm	Ø 3.5mm
5. Dielectric	PTFE-E Tape	Ø 4.1mm
6. Dielectric	PTFE-E Tape	Ø 14.2mm
7. Braid	Cu/Sn (0.15mm t.p.c.) > 80% coverage	Ø 14.8mm
8. Jacket	FEP	Ø 15.8mm ± 0.6mm

TECHNICAL DATA

Rated Voltage (Conductor – Conductor)	250V_{AC}
Test Voltage (Core Wires)	2.9kV_{AC} (Spark Test)
Conductor Resistance @ 20°C	≤ 194Ω/km
Braid Resistance @ 20°C	t.b.s.
Capacitance	t.b.s
min. Bend Radius	160mm (fixed)
Operating Temperature	-100°C- +180°C
Halogen-free	No
RoHS Compliant	Yes
Weight	ca. 0.23kg/m
Color	blue
Status	E (Example)

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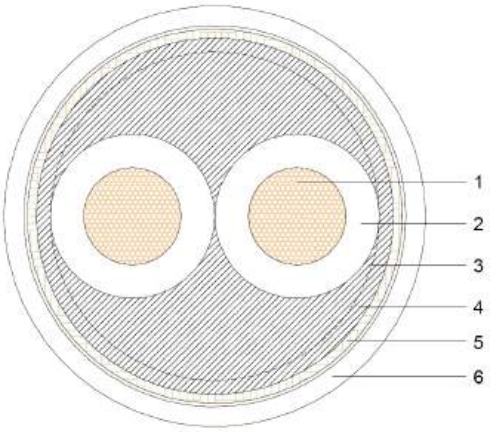
HSC-1-2SSUB-0

1kVAC - 2 CORE HIGH FREQUENCY POWER CABLE

PRODUCT DESCRIPTION

1kVAC 2 conductor shielded cable for medium / high frequency power transmission. The core conductors are made of high frequency litz wire to facilitate low losses at high switching frequencies. Silicone dielectric and robust Polyurethane jacket.

CONSTRUCTION



1. Conductor (Core)	600x0.10mm enamelled copper wire (high frequency litz wire)	4.7mm² Ø 3.6mm
2. Dielectric (Core)	Silicone	Ø 5.9mm
3. Twist	2 Cores	Ø 11.8mm
4. Filling	Silicone	Ø 12.8mm
5. Braid	Cu/Sn (0.161mm t.p.c.) ≥85% Coverage	Ø 13.4mm
6. Jacket	TPE-U	Ø 15.1mm ± 1.0mm

TECHNICAL DATA

Rated Voltage (Conductor – Conductor)	1kVAC
Rated Voltage (Conductor – Braid)	1kVAC
Test Voltage	10kVAC (Sparktest)
Conductor Resistance @ 20°C	≤ 3.8Ω/km
Capacitance (Conductor – Conductor)	typ. t.b.s. pF/m
Capacitance (Conductor – Braid)	typ. t.b.s. pF/m
Impedance (Conductor – Conductor)	typ. t.b.s. Ω
min. Bend Radius	230mm (moving), 115mm (fixed)
Operating Temperature	-40°C - +90°C
Weight	0.406kg/m
Cu-Weight	0.170kg/m
Color	black
RoHS Compliant	Yes
Status	S (Special)

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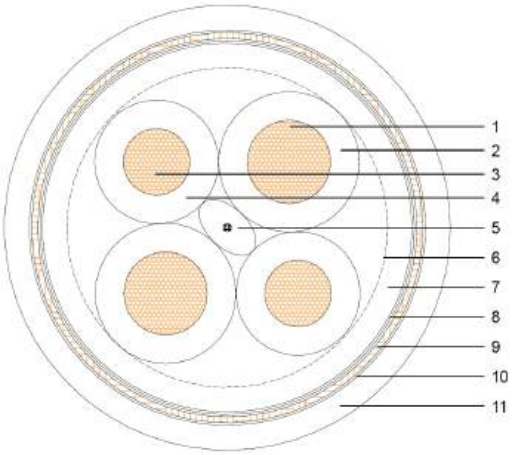
HSC-1-4SSUA-6

1kVAC - 4 CORE SHIELDED HIGH FREQUENCY POWER CABLE
AWM STYLE 20234

PRODUCT DESCRIPTION

UL recognized AWM 1kVAC 4 conductor shielded cable for medium / high frequency power transmission. Two core conductors are made of high frequency litz wire to facilitate low losses at high switching frequencies. Two conventional conductors are additionally provided. Silicone dielectric and robust Polyurethane jacket.

CONSTRUCTION



1. Conductor	AWG11 (600x0.10mm enamelled copper wire / high frequency litz wire)	4.7mm² Ø 3.6mm
2. Dielectric	Silicone Marking: "1", "2"	Ø 5.9mm
3. Conductor	AWG12 Cu/Sn (224x0.15mm t.p.c.)	3.9mm² Ø 2.9mm
4. Dielectric	Silicone	Ø 5.2mm
5. Filler	Silicone on glass fiber	
6. Twist	Filler, 4 Cores (2xAWG11 + 1xAWG12)	Ø 14mm
7. Filling	Silicone	Ø 15.5mm
8. Tape	PTFE Tape	
9. Braid	Cu/Sn (0.127mm t.p.c.) ≥85% Coverage	Ø 16.1mm
10. Tape	PTFE Tape	
11. Jacket	TPE-U	Ø 18.7mm ± 1.0mm

TECHNICAL DATA

Rated Voltage (Conductor – Conductor)	1kVAC
Rated Voltage (Conductor – Braid)	1kVAC
Test Voltage (Conductor – Conductor)	4kVAC
Test Voltage (Conductor – Braid)	4kVAC
Capacitance (Conductor – Conductor)	typ. t.b.s. pF/m
Capacitance (Conductor – Braid)	typ. t.b.s. pF/m
min. Bend Radius	280mm (moving), 140mm (fixed)
Operating Temperature	-40°C - +80°C
Weight	0.584kg/m
Cu-Weight	0.280kg/m
RoHS Compliant	Yes
Status	S (Special)

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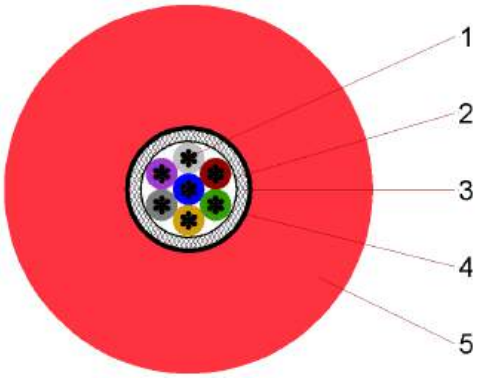
HSC-2.5-7SSB-2

2.5kVAC – 7 CONDUCTOR SHIELDED CONTROL CABLE WITH UNSHIELDED HIGH VOLTAGE ISOLATION

PRODUCT DESCRIPTION

7-conductor, low voltage shielded control cable with Silicone high voltage isolation.
The inner shielded core is isolated for up to 2.5kVAC or 8kVDC operating voltage.
Intended for the transmission of signals on high voltage potential. Suitable only for internal wiring in non-accessible space.

CONSTRUCTION



1. Conductor (Core)	AWG26 Cu/Sn (7x0.16mm t.p.c.) Isolation: FEP, Ø 0.8mm Colors according to DIN 47100	
2. Twist	7 Conductors AWG26, PET Separator Tape	
3. Braid	Cu/Sn (0.127mm t.p.c.) ≥90% Coverage	Ø 2.9mm
4. Semicon	Semiconductive Tape	
5. Dielectric	Silicone Color: red	Ø 9.0mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	2.5kVAC / 8kVDC	
Rated Voltage (Core Conductors)	300V	
Test Voltage (HV Insulation)	11.5kVAC (Sparktest) 16kVDC / 1min	(routine test) (routine test)
Conductor Resistance @ 20°C	≤ 133Ω/km	
Braid Resistance @ 20°C	< t.b.s. mΩ/m	
min. Bend Radius	135mm (moving), 70mm (fixed)	
Operating Temperature	-50°C - +150°C	
Weight	98kg/km	
Cu-Weight	29kg/km	
Halogen-free	**No**	
RoHS Compliant	Yes	
Status	E (Example)	

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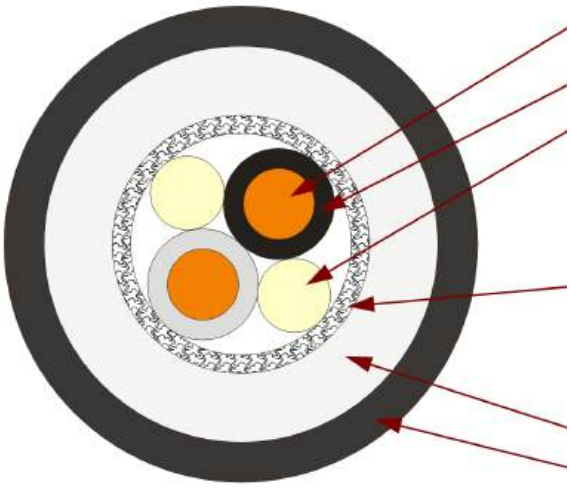
HSC-3-2A1SAB-0

2 CONDUCTOR MEDIUM VOLTAGE MEASUREMENT CABLE

PRODUCT DESCRIPTION

Flexible medium voltage measurement cable with a two conductor shielded core, optimized for outdoor applications with long service life. Insulation and jacket consist of a halogen-free, heat resistant, cross-linked special elastomeric EVA compounds.
This cable is intended and designed for long term measurement applications. The voltage level within the core is 30V, the voltage level of the core to the environment is 3kV$_{AC}$. The core assembly consists of two wires with a large copper area and a wire screen with a copper area equivalent to the conductors.
The core is insulated from the environment. No outer screen is provided. The cable must be installed in such a way that it is protected against touching.

CONSTRUCTION



1. Conductor	Cu/Sn (t.p.c.) (class 5 acc. DIN EN 60228)	6mm² Ø 2.9mm
2. Insulation	Special cross-linked EVA	Ø 4.5mm
3. Filler		Ø 3.1mm
4. Core Assembly		Ø 9.0mm
5. Tape	PET Foil	
6. Braid	Cu/Sn (t.p.c.)	Ø 10.0mm > 6mm²
7. Tape	PET Foil	
8. Tape	Nonwoven Polyester Tape	
9. Dielectric	Special cross-linked EVA	Ø 16.0mm
10. Jacket	Special cross-linked EVA	Ø 19.0mm

TECHNICAL DATA

Rated Voltage	**(Conductor – Conductor)**	30V$_{AC}$
	(Conductor – Braid)	30V$_{AC}$
	(Core – Environment)	3kV$_{AC}$
Test Voltage	**(Routine Test)**	
	(Conductor – Braid)	500V$_{AC}$ / 5min
	(Core – Environment)	12kV$_{AC}$ / 5min
Test Voltage	**(Type Tests)**	
	(Conductor – Braid)	1kV$_{AC}$ / 5min
	(Core – Environment)	20kV$_{AC}$ / 5min
Impulse Voltage Test	**(Type Test)**	
	(Core – Environment)	40kV

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Current Carrying Capacity *	max. 53A (each conductor) at 30°C ambient / 90°C conductor temperature, one cable laying on a surface
Short Circuit Current (1s)	max. 858A (each conductor), start at 90°C conductor temperature
Insulation Resistance	> 20MΩ*km at 20°C
Conductor Resistance @ 20°C	≤ 3.4Ω/km
Braid Resistance @ 20°C	t.b.s.
Maximum Permissible Operating Temperature at Conductor	+120°C (20 000h)
Recommended Maximum Operating Temperature at Conductor	+90°C (> 100 000h)
Maximum Permissible Short Circuit Temperature at Conductor	+250°C
Minimum Permissible Temperature	-40°C
Maximum Permissible Pulling Force	15N/mm²
Minimum Bend Radius	190mm (during installation or occasional movements in operation) 114mm (fixed installed in operation)
Oil Resistance	according to DIN EN 60811-404
UV Resistance	according to ISO 4892-2
Ozone Resistance	according to DIN EN 50305
Fire Behavior	
- Flame propagation, single cable	according to DIN EN 60332-1-2
- Flame propagation, bunched cable	according to DIN EN 60332-3-24
- Smoke emission	according to DIN EN 601034-2 (light transmittance ≥ 60%)
- Corrosive and acid gas emission tests	according to DIN EN 60754-2 (pH ≥ 4.3 conductivity ≤ 2.5µS/mm)
Weight	ca. 0.54kg/m
Color	black
Halogen-free	Yes
RoHS Compliant	Yes
Status	S (Special)

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

Temperature	°C	25	**30**	35	40	45	50	55	60	65	70	75	80	85
Factor	f	1.04	**1.00**	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41	0.29

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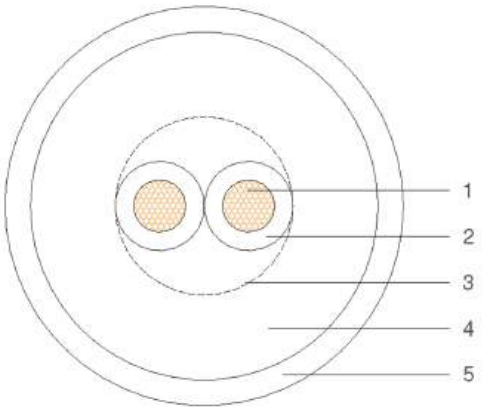
HSC-3-2S1SSB-0

3kVAC – 2 CORE SILICONE

PRODUCT DESCRIPTION

Two conductor cable with silicone high voltage insulation. The twisted core wires are isolated against environment for up to 3kVAC operating voltage. The cable is intended to transmit signal level voltages on high voltage potential. Suitable only for internal wiring in non-accessible space.
The cable delivers high flexibility and compactness and has been designed for demanding industrial applications.

CONSTRUCTION



1. Conductor	AWG18 Cu/Sn (19xAWG30 t.p.c.)	0.96mm² Ø 1.23mm
2. Dielectric	Silicone	Ø 2.1mm ± 0.1mm
3. Twist	2 Cores	Ø 4.2mm ± 0.2mm
4. Inner Jacket	Silicone	Ø 8.2mm ± 0.3mm
5. Jacket	Silicone	Ø 9.4mm ± 0.3mm

TECHNICAL DATA

Rated Voltage (Conductor - Environment) **Rated Voltage (Conductor - Conductor)**	3kVAC 150VAC
Test Voltage (Conductor) **Test Voltage (Inner Jacket)** **Test Voltage (Jacket)**	3kVAC (sparktest) 15kVAC (sparktest) 20kVAC (sparktest)
Test Voltage (Conductor - Environment)	18.5kVAC / 1min (type test)
Surge Test Voltage (Conductor - Environm.)	40kVP (type test)
Conductor Resistance @ 20°C	20.5Ω/km
min. Bend Radius	71mm (fixed), 141mm (moving)
Operating Temperature	-50°C - +180°C
Weight	0.102kg/m
Cu-Weight	0.02kg/m
Color	black
RoHS Compliant	Yes
Status	E (Example)

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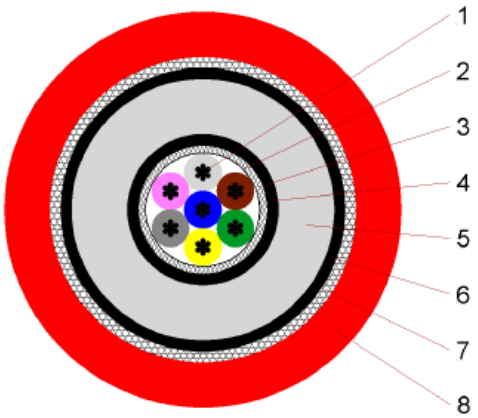
HSC-5-7X2SVA-2

5kVAC – 7 CONDUCTOR SHIELDED CONTROL CABLE WITH SHIELDED HIGH VOLTAGE ISOLATION

PRODUCT DESCRIPTION

7-conductor, low voltage shielded control cable with PE-X high voltage isolation, outer shield and PVC jacket.
The cable is also available in a halogen-free version with TPE-U (PUR) Jacket.
The inner shielded core is isolated for up to 5kVAC or 15kVDC operating voltage.
Intended for the transmission of signals on high voltage potential. Suitable only for internal wiring in non-accessible space.

CONSTRUCTION



1. Conductor (Core)	AWG26 Cu/Sn (7x0.16mm t.p.c.) Isolation: PP Ø 0.99mm ± 0.05mm Colors according to DIN 47100	
2. Twist	7 Conductors AWG26, PET Separator Tape	Ø 3.05mm
3. Braid I (Core)	Cu/Sn (0.10mm t.p.c.) ca. 95% Coverage	Ø 3.45mm
4. Semicon	Semiconductive PE Color: black	Ø 4.05mm
5. Dielectric	PE-X Color: natural	Ø 7.0mm ± 0.3mm
6. Semicon	Semiconductive PE Color: black	Ø 7.6mm
7. Braid II	Cu/Sn (0.13mm t.p.c.) ca. 85% Coverage	Ø 8.12mm
8. Jacket	PVC Color: red, silk-mat	Ø 10.6mm ± 0.5mm

TECHNICAL DATA

Rated Voltage	**(Braid I – Braid II)** **(Core Conductors)**	5kVAC / 15kVDC 300V	
Test Voltage	**(HV Isolation)** **(Braid I – Braid II)**	14kVAC (Sparktest) 20kVDC / 1min	(routine test) (routine test)
Capacitance	**(Braid I – Braid II)**	typ. 240pF/m t.b.c.	
Conductor Resistance @ 20°C		≤ 139Ω/km	
Braid Resistance @ 20°C	**(Braid I)** **(Braid II)**	< t.b.s. mΩ/m < t.b.s. mΩ/m	
min. Bend Radius		160mm (moving), 80mm (fixed)	
Operating Temperature		-40°C - +85°C	
Weight		143kg/km	
Cu-Weight		53,1kg/km	
Halogen-free		No	
RoHS Compliant		Yes	
Status		E (Example)	

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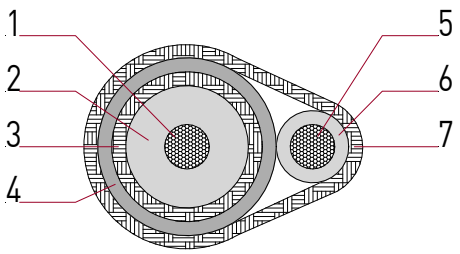
HSC-7.5-2K2SA

7.5kV$_{DC}$ – AWG22 – PEEK DIELECTRIC - 2 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

Single conductor, shielded high voltage cable with PEEK dielectric, specified for voltages up to 7.5kV$_{DC}$ and 3.0kV$_{AC}$ with an additional, unshielded, low voltage conductor. Both conductors are located side by side and coated with a V2A / stainless steel braid. The cable is radiation resistant.

CONSTRUCTION



1. Conductor	Cu/Ni AWG22 (19x0.16mm n.p.c.)	Ø <0.79mm
2. Dielectric	PEEK	Ø 2.2mm
3. Braid	Cu/Ni (0.13mm n.p.c.)	Ø 2.7mm
4. Inner Jacket	PEEK	Ø 3.2mm
5. Conductor	Cu/Ni AWG22 (19x0.16mm n.p.c.)	Ø <0.79mm
6. Dielectric	PEEK	Ø 1.3mm
7. Braid	V2A / stainless steel (0.12mm)	ca. 3.7 x 5.0mm

TECHNICAL DATA

Rated Voltage (shielded conductor)	7.5kV$_{DC}$ / 3.0kV$_{AC}$
Test Voltage (shielded conductor)	20kV$_{DC}$ / 8.0kV$_{AC}$
min. Bend Radius	60mm (static)
Operating Temperature	-60°C - +200°C
Weight	34.5kg/km
Cu-Weight	18kg/km
RoHS Compliant	Yes
Status	S (Special)

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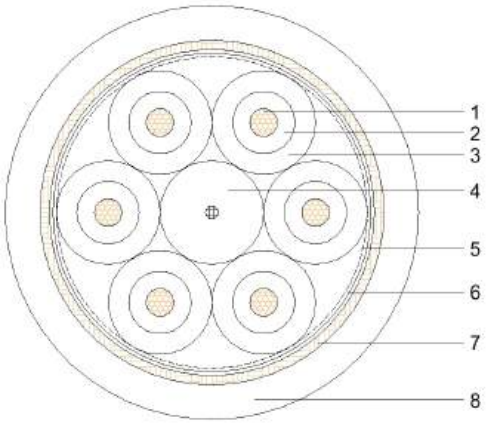
HSC-10-6SSSA

10kV$_{DC}$ – 6 CORE SILICONE DIELECTRIC SHIELDED HIGH VOLTAGE CABLE

PRODUCT DESCRIPTION

10kV$_{DC}$ six core multiconductor (6x AWG20) shielded high voltage cable with silicone dielectric and silicone jacket. The individual cores feature layers of semiconductive silicone around the conductors.

CONSTRUCTION



1. Conductor	Cu/Sn (19 x 0.203mm t.p.c.)	0.6mm² Ø < 0.99mm
2. Semicon	Semiconductive Silicone	Ø 2.2mm
3. Dielectric	Silicone	Ø 3.6mm
4. Filler	Silicone around glass fiber	Ø 3.6mm
5. Twist	6 Cores	Ø 10.9mm
6. Tape	Polyester Foil	
7. Braid	Cu/Sn (0.15mm t.p.c.) ≥85% Coverage	Ø 11.7mm
8. Jacket	Silicone	Ø 14.1mm ± 0.7mm

TECHNICAL DATA

Rated Voltage	10kV$_{DC}$ (conductor / braid)
Test Voltage	25kV$_{DC}$ or 10kV$_{AC}$ (Sparktest) 20kV$_{DC}$ or 8kV$_{AC}$ 1min (conductor / conductor) 15kV$_{DC}$ or 6kV$_{AC}$ 1min (conductor / braid)
Resistance at 20°C	< 32.4Ω/km (conductor)
min. Bend Radius	7.5 x Ø (fixed), 15 x Ø (moving)
Operating Temperature	-50°C - +90°C
Weight	250kg/km (total) 83kg/km (copper)
Color	t.b.d.
RoHS Compliant	Yes
Status	E (Example)

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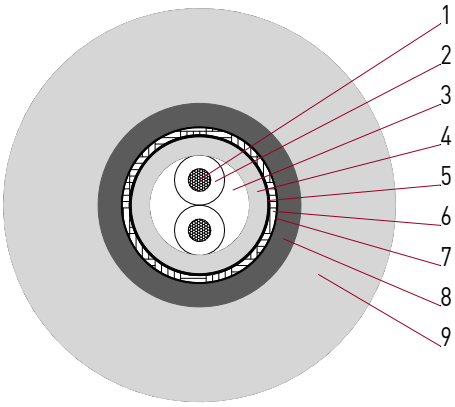
HSC-15-2SSA-9

15kVAC – SILICONE DIELECTRIC - 2 CONDUCTOR SHIELDED

PRODUCT DESCRIPTION

2-core, shielded control cable with silicone high voltage isolation. The inner shielded cable is isolated against the environment for up to 15kVAC operating voltage. The cable has been developed for the transmission of signals or supply voltages on high voltage potential. Suitable only for internal wiring in non-accessible space.

CONSTRUCTION



1. Conductor	2x Cu/Sn (IEC 60228, t.p.c.)	2x 1mm²
2. Dielectric	Silicone	Ø 2.5mm
3. Twist	2 Cores	Ø 5.0mm
4. Inner Jacket	Silicone	Ø 7.0
5. Tape	Polyester Tape	
6. Braid	Cu/Sn (0.15mm t.p.c.)	Ø 7.7mm
7. Tape	Semiconductive Tape	
8. Semicon	Semiconductive Silicone	Ø 10.1mm
9. Dielectric / Jacket	Silicone	Ø 19.5mm ±0.5mm

TECHNICAL DATA

Rated Voltage (Braid – Environment)	15kVAC / 21kVDC
Rated Voltage (Conductor – Braid)	300 / 500V
Test Voltage (Braid – Environment)	35kVAC / 5min
Test Voltage (Conductor – Conductor)	2.0kVAC
Test Voltage (Conductor – Braid)	1.5kVAC
min. Bend Radius	150mm (static) / 200mm (dynamic)
Operating Temperature	-51°C - +150°C
Weight	0.43kg/m
Color	white
RoHS Compliant	Yes
Status	S (Special)

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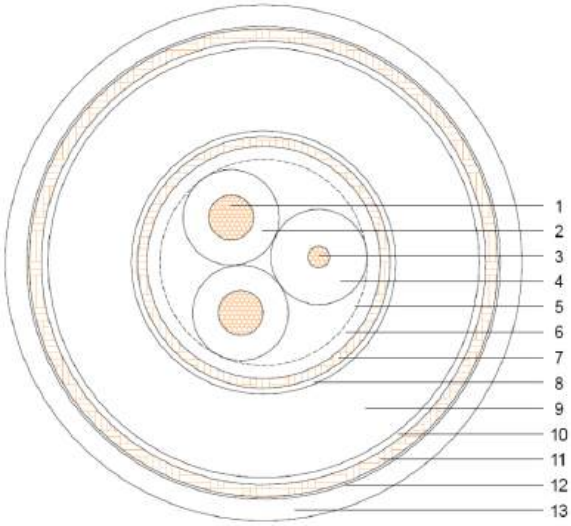
HSC-30-3S2SUC-0

30kV$_{DC}$ – 3 CONDUCTOR DOUBLE SHIELDED

PRODUCT DESCRIPTION

30kV$_{DC}$ shielded high voltage cable with a separately shielded 3 conductor core. Optimized for low partial discharge and high flexibility. Semiconductive layers around the core wires and the dielectric layer assure excellent PD behavior. Fine wires, the use of Silicone for all inner dielectrics and a Polyurethane jacket provide high flexibility to minimize the transmission of vibrations.

CONSTRUCTION



1. Conductor (F1, F2)	AWG14 Cu/Sn (105x0.16mm t.p.c.)	2.1mm²
2. Dielectric (F1, F2)	Silicone Color: white, red	Ø 4.0mm
3. Conductor (SUP)	AWG20 Cu/Sn (41x0.127mm t.p.c.)	0.52mm²
4. Dielectric (SUP)	Silicone Color: black	Ø 4.0mm
5. Twist	3 Cores (2xAWG14 + 1xAWG20)	Ø 8.7mm
6. Filling	Semiconductive Silicone	Ø 9.7mm
7. Braid I (EXT)	Cu/Sn (0.203mm t.p.c.) ≥95% Coverage	Ø 10.5mm ≈6.2mm²
8. Semicon	Semiconductive PTFE Tape	Ø 11.0mm
9. Dielectric	Silicone Color: t.b.s.	Ø 20.0mm
10. Semicon	Semiconductive PTFE Tape	Ø 20.5mm
11. Braid II (GND)	Cu/Sn (0.254mm t.p.c.) ≥95% Coverage	Ø 21.5mm ≈12.8mm²
12. Tape	Separator Tape	
13. Jacket	TPE-U black	Ø 23.5mm ± 0.5mm

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TECHNICAL DATA

Rated Voltage	**(EXT – GND)** **(EXT - SUP)** **(EXT - F1/F2)**	30kV$_{DC}$ 12kV$_{DC}$ 10kV$_{DC}$	
Test Voltage	**(EXT – GND)** **(EXT - SUP/F1/F2)**	54kV$_{DC}$ / 1min 22kV$_{DC}$ / 1min	(routine test) (routine test)
Capacitance	**(EXT – GND)** **(EXT - SUP)** **(EXT - F1, F2)**	typ. 295pF/m typ. 110pF/m typ. 200pF/m	(type test) (type test) (type test)
Conductor Resistance @ 20°C	**(SUP)** **(F1, F2)**	< 40mΩ/m < 10mΩ/m	(type test) (type test)
Braid Resistance @ 20°C	**(EXT)** **(GND)**	< 4mΩ/m < 2mΩ/m	(type test) (type test)
min. Bend Radius		175mm (static)	
Operating Temperature		-40°C - +90°C	
Flammability		UL2556 9.4 VW-1	
Weight		0.893kg/m	
Color		black	
RoHS Compliant		Yes	
Status		E (Example)	

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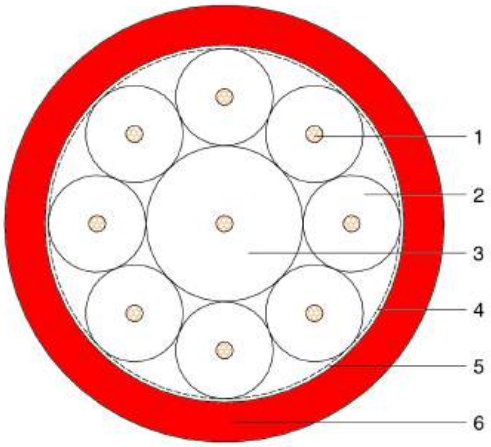
HSC-30-9SSC-2

30kV$_{DC}$ – 9 CORE SILICONE DIELECTRIC

PRODUCT DESCRIPTION

30kV$_{DC}$ 9 core (8+1) multi-conductor (8x AWG22 + 1x AWG12) unshielded high voltage cable with silicone dielectric and silicone jacket.
8 HV-wires type HSU-3022-7-9 (30kV$_{DC}$, AWG22, UL3239) around one central core wire for ground connection.

CONSTRUCTION



1. Conductor	8x AWG22 Cu/Sn (7xAWG30 t.p.c.)	8x 0.36mm² Ø < 0.77mm
2. Dielectric	Silicone (white)	Ø 4.2mm
3. Central Core	1x AWG12 Cu/Sn (65xAWG30 t.p.c.) Silicone (green/yellow)	1x 3.3mm² Ø 2.4mm Ø 6.8mm
4. Twist		Ø 15.3mm
5. Tape		
6. Jacket	Silicone	Ø 19.1mm ± 0.7mm

TECHNICAL DATA

Rated Voltage	30kV$_{DC}$
Test Voltage	20kV$_{AC}$ (Sparktest core) 5kV$_{AC}$ (core / core)
Conductor Resistance @ 20°C	≤ 54.8 Ω/km (AWG22 Conductors) ≤ 5.9Ω/km (Central Core Conductor)
min. Bend Radius	150mm (fixed), 300mm (moving)
Operating Temperature	-50°C - +150°C
Weight	tbd
Cu-Weight	0.059kg/m
Color	red
RoHS Compliant	Yes
Status	E (Example)

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Custom Special High Voltage Cables

The Special HV Cables shown here are just examples for some possible configurations. Customer applications often demand for specific solutions. **hivolt.de** is able to provide customized HV cables that match most specific requirements.

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High voltage connectors for voltages up to 100kV$_{DC}$. We offer coaxial as well as single and multi pin HV connectors in different designs.
Semi-custom or full-custom connector solutions are feasible for specific applications.

When required, cables can be supplied terminated with HV connectors as fully tested high voltage cable assemblies. These can be based on our standard range of connectors or various third party connector models.

Another range of high voltage cable assemblies consist of high voltage cable fitted with industry standard molded rubber or resin cast terminations like R10, R24, R28, O3/O4 (Federal Standard) and many more.
These HV cable assemblies and mating receptacles are available for voltages up to 300kV$_{DC}$ and beyond.
The receptacles are oil-tight providing an excellent interface into transformer oil filled high voltage tanks.
Please let us know your specific requirement.

Typical applications include high voltage power supplies, nuclear instrumentation, industrial and scientific X-Ray, electron microscopes, mass spectrometry, electrostatic precipitators, high voltage test equipment, electron beam welding, high energy, pulsed power, particle physics and many more.

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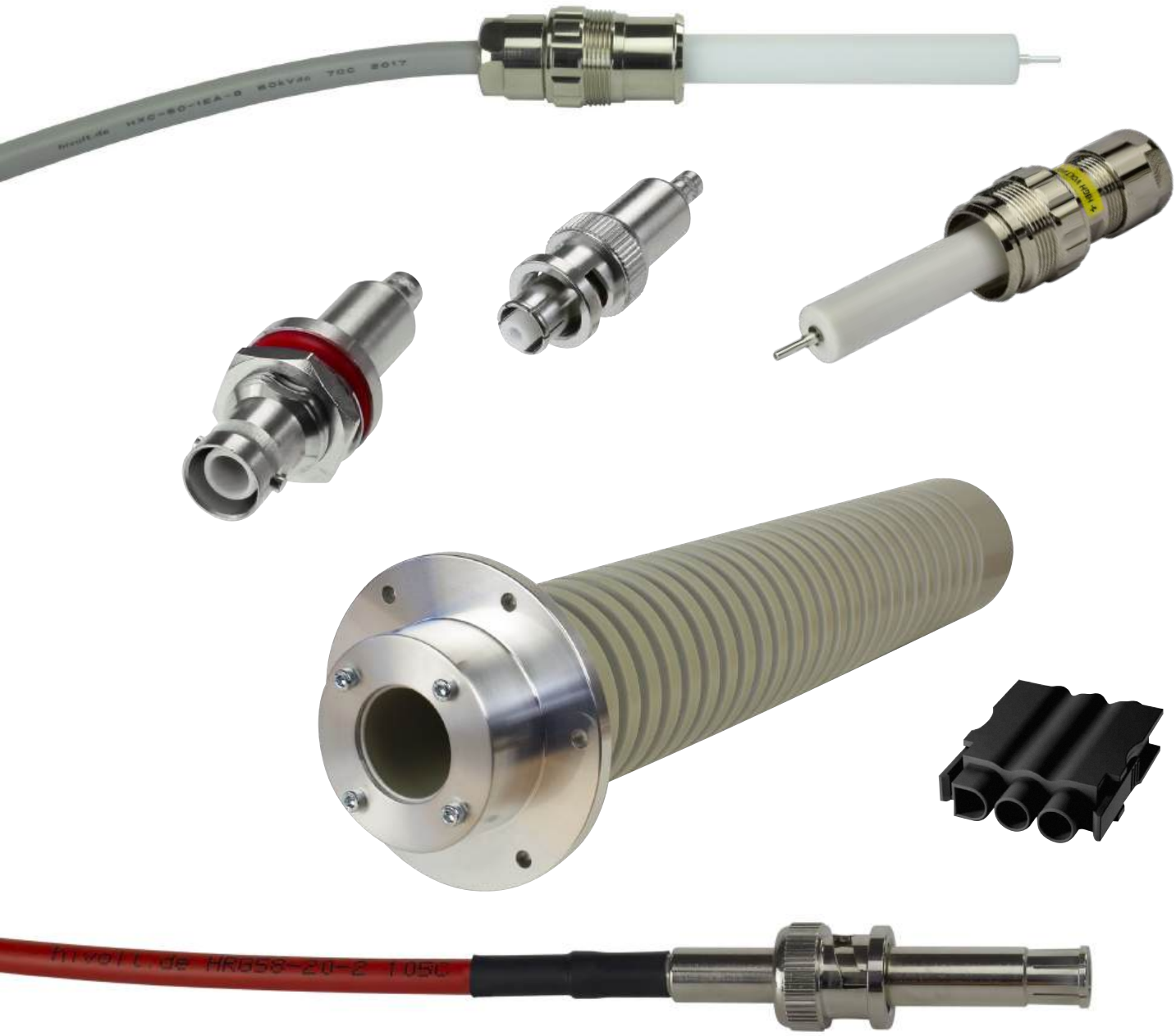
HIGH VOLTAGE
» CONNECTORS
» CABLE ASSEMBLIES
» RECEPTACLES



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SHV - STRAIGHT CABLE PLUG & SEALED BULKHEAD RECEPTACLE
5kV$_{DC}$ / 3.5kV$_{RMS}$

FEATURES
- Rated voltage 5kV$_{DC}$ / 3.5kV$_{RMS}$
- Rated current 500mA
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS
- Safe high voltage laboratory wiring
- High voltage power supplies / amplifiers
- Nuclear instrumentation
- Test and measurement equipment

DESCRIPTION
SHV (**S**afe **H**igh **V**oltage – Nuclear Instrumentation Module Standard) reverse polarity, coaxial high voltage connectors.

The straight cable plug 57K101-106N3 and the rear mount bulkhead crimp receptacle 57S507-106N4 are compatible with standard RG58-C/U or our 20kV rated LSZH **HRG58-20-2** coaxial cable for crimp assembly. For high temperature applications it can also be assembled with silicone or FEP insulated coaxial cable **HSL-10S-0.5-A-2** or **HRG303-40-U-A-2**, respectively.

The outer ground connection is maintained during unintended mating/unmating. The center contacts are recessed to prevent shock hazard when the connectors are mated. For personal safety the connectors must not be mated or unmated when energized! The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

Remark: SHV and BNC connectors are not intermateable.

SPECIFICATIONS

Impedance:		50Ω
Frequency:		DC to 300MHz
Insulation resistance:		≥ 1000GΩ
Center contact resistance:		≤ 2mΩ
Outer contact resistance:		≤ 1.5mΩ
Operating voltage:		max. 5000V$_{DC}$ / 3500V$_{RMS}$
Test voltage:		min. 10000V$_{DC}$ / 5000V$_{RMS}$ (at sea level)
Operating current:		500mA (average) / 10A (peak)
Mating cycles:		min. 500
Coupling nut retention:		(cable plug)
	57K101-106N3	≥ 450N
Center contact captivation:		(bulkhead receptacle)
	57S501-200N3	≥ 18N (axial) / ≥ 3Ncm (radial)
	57S507-106N4	≥ 27N (axial) / ≥ 3Ncm (radial)
Operating temperature:		-55 to +155°C
Weight	**57K101-106N3**	20.4g
	57S501-200N3	11.0g
	57S507-106N4	30.0g

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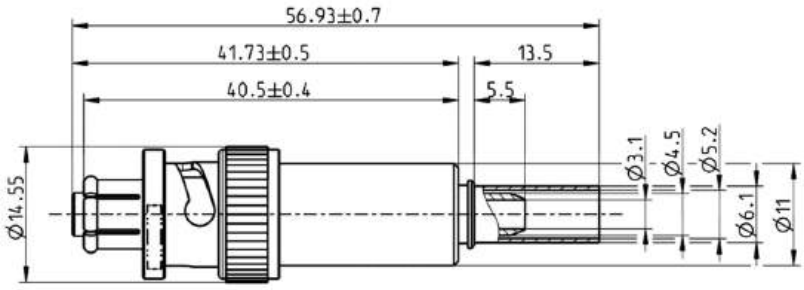
Material and plating

Connector part	Straight Cable Plug 57K101-106N3	
	Material	**Plating**
Center contact	Beryllium copper	Gold, min. 1.27µm, over nickel
Outer contact	Beryllium copper	Flash white bronze over silver
Body	Brass	Flash white bronze over silver
Dielectric	PTFE	-
Gasket	Silicone	-

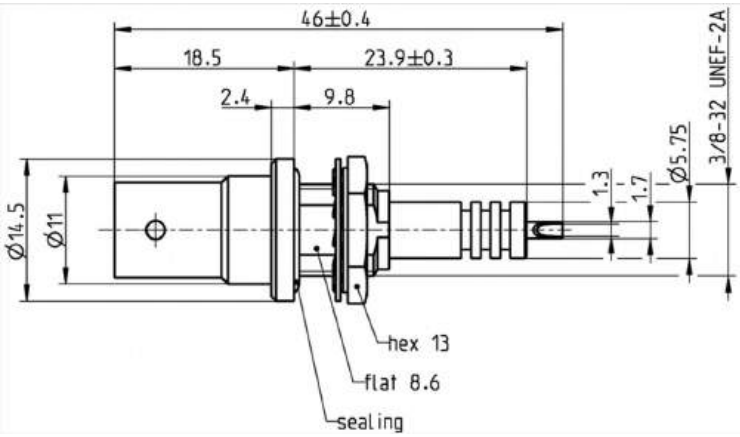
Connector part	Bulkhead Receptacle 57S501-200N3		Bulkhead Receptacle 57S507-106N4	
	Material	**Plating**	**Material**	**Plating**
Center contact	Brass	Gold, min. 1.27µm, over nickel	Brass	Gold, min. 0.8µm, over nickel
Outer contact	Brass	White bronze	Brass	Flash white bronze over silver
Body	Brass	Flash white bronze over silver		
Dielectric	PTFE		PTFE	
Gasket	NBR			
Crimping ferrule			Copper	Flash white bronze over silver

DIMENSIONS

- STRAIGHT CABLE PLUG 57K101-106N3



- FRONT MOUNT BULKHEAD RECEPTACLE 57S501-200N3



Dimensions are in mm. Drawings not to scale.

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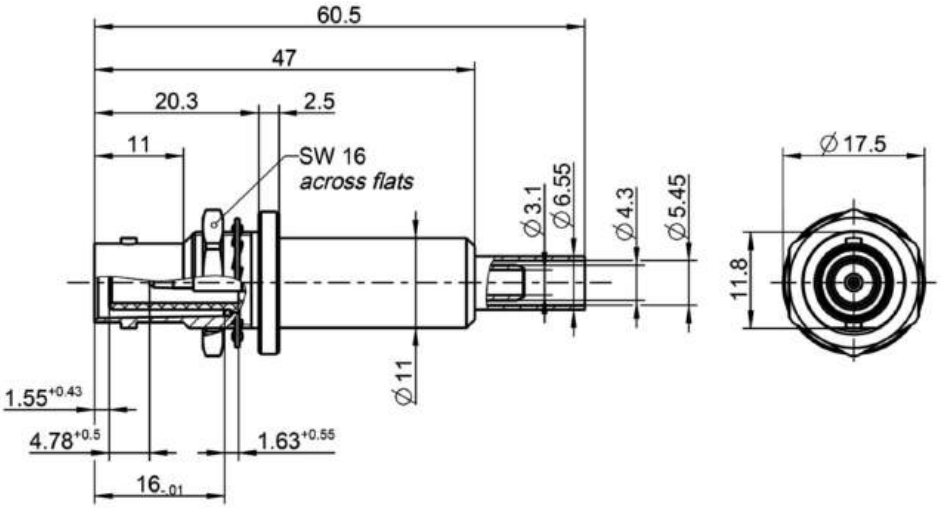
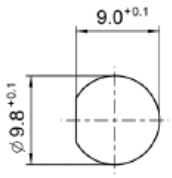
- REAR MOUNT BULKHEAD CRIMP RECEPTACLE 57S507-106N4



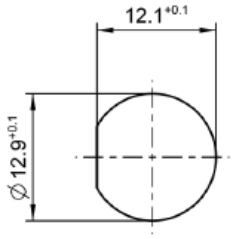
Dimensions are in mm. Drawings not to scale.

PANEL CUT-OUT

- FRONT MOUNT RECEPTACLE 57S501-200N3



- REAR MOUNT RECEPTACLE 57S507-106N4



ORDERING INFORMATION

SHV Straight Cable Plug (female)	**57K101-106N3**
SHV Bulkhead Receptacle (male)	
Front Mount, Solder:	**57S501-200N3**
Rear Mount, Crimp:	**57S507-106N4**

The SHV plug can be assembled by the user (see next chapter for assembly instructions).

Bespoke ready-to-use high voltage cable assemblies based on several high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

Examples:

Cable: HRG58-20-2; Length: 2m; SHV plug assembled on both sides	**HCA-005-S01-002-S01-A**
Cable: HSL-10S-0.5-A-2; Length: 80m; SHV plug assembled on one side	**HCA-005-S01-080-B**

ACCESSORIES

Bend Relief for Cable Plug	**71Z526-006SW**

CRIMP DIMENSIONS

SHV Straight Cable Plug	**57K101-106N3** ferrule: HEX 5.35mm, center pin: HEX 1.75mm
SHV Bulkhead Crimp Receptacle	**57S507-106N4** ferrule: HEX 5.50mm, center pin: HEX 1.75mm

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HC51 Series

hivolt.de

10kV - STRAIGHT COAXIAL CONNECTOR SERIES

FEATURES

- Rated voltage 10kV$_{DC}$
- Recessed contacts
- Coaxial design
- Bayonet coupling
- Intermateable with industry standard 10kV coaxial connectors
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS

- Instrument high voltage connections
- High voltage power supplies / amplifiers
- Medical electronics
- Nuclear instrumentation
- Test and measurement equipment
- High voltage laboratory wiring
- General high voltage testing

DESCRIPTION

10kV reverse polarity coaxial high voltage connectors designed to minimize the risk of electrical shock to personnel through the use of recessed contacts. Both the cable connectors and the bulkhead receptacles have recessed contacts and will stand off the rated voltage in unmated condition.
The front mount receptacles are hermetically sealed.

The straight crimp cable plug HC51P-58 and the rear mount crimp receptacle HC51RB-58 are compatible with our 20kV rated LSZH **HRG58-20-2** coaxial cable for crimp assembly.
For high temperature applications up to 8kV$_{DC}$ the connectors can also be assembled with silicone or FEP insulated coaxial cable **HSL-10S-0.5-A-2** or **HRG303-40-U-A-2**, respectively.

A suitable crimping tool is available on request.
The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

The connectors must never be mated or unmated when energized.

Please see the HC52 series for 20kV$_{DC}$ models.
HC51 series connectors are not intermateable with SHV or HC52 series connectors.

SPECIFICATIONS

Operating voltage:	max. 10kV$_{DC}$ (at sea level)
Test voltage:	15kV$_{DC}$
Impedance:	non constant
Insulation resistance:	1000GΩ
Center contact resistance:	≤ 3mΩ
Outer contact resistance:	≤ 2mΩ
Operating temperature:	-55 to +85°C (high temperature versions available)
Leak rate	< 1x10^{-6} mbar*l/s @ 1bar differential pressure (applies to front mount bulkhead receptacles only)

Ratings listed above apply to clean mated connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure, etc.), the connector should be derated. The fitness for use must be proved by extended operational tests.

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MODEL OVERVIEW - PLUGS

Part Number Description	Termination Center Contact	Contact Pin Material/ Plating	Insulator Material	Body Material/ Plating	Gasket Material	Weight
HC51P-58 **Straight Crimp Cable Plug** 	Solder	Beryllium Copper/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	20.3g

MODEL OVERVIEW - RECEPTACLES

Part Number Description	Termination Center Contact	Contact Pin Material/ Plating	Insulator Material	Body Material/ Plating	Gasket Material	Weight
HC51RB-58 **Rear Mount Bulkhead Crimp Receptacle** 	Solder	Brass/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	
HC51RB-A **Rear Mount Bulkhead Receptacle (long insulator)** 	Solder	Berylium Copper/ Au over Ni over Cu	High Density PE	Brass/ Sn-Zn-Cu Alloy over Cu	Silicone	29g
HC51RB-B **Rear Mount Bulkhead Receptacle (short insulator)** 	Solder	Berylium Copper/ Au over Ni over Cu	High Density PE	Brass/ Sn-Zn-Cu Alloy over Cu	Silicone	29g

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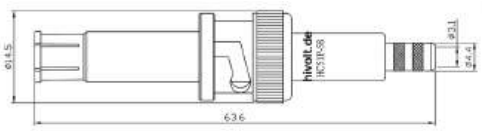
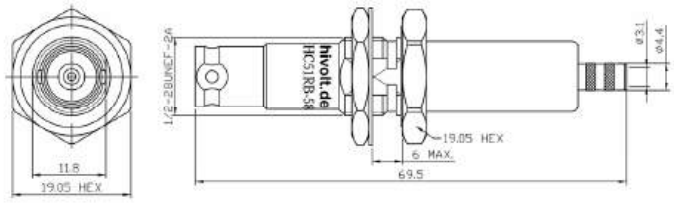
DIMENSIONS

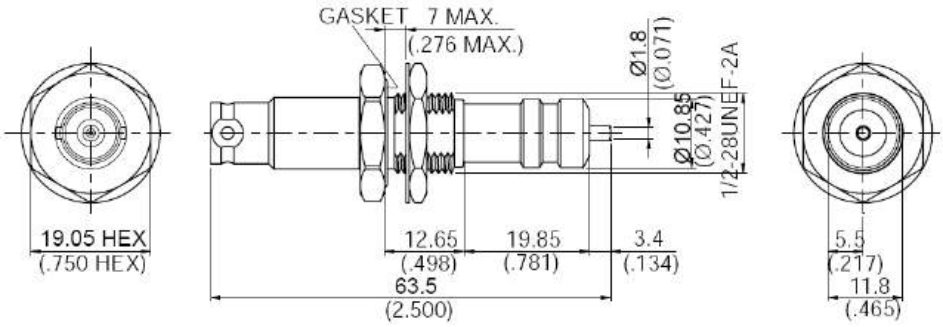
HC51P-58



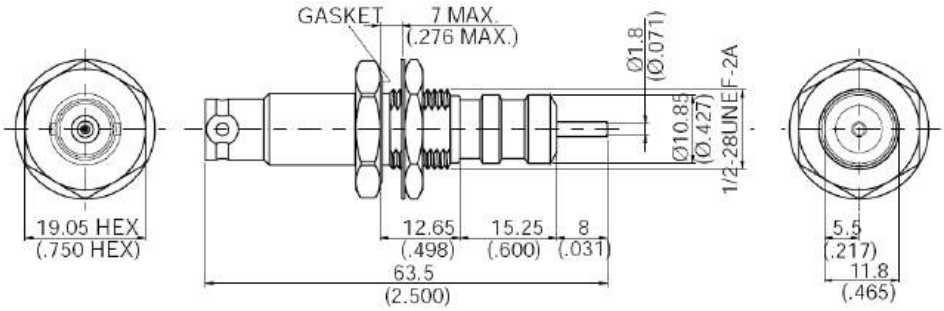
HC51RB-58



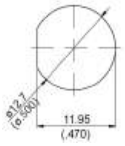
HC51RB-A



HC51RB-B



PANEL CUT-OUT FOR RECEPTACLES



- All dimensions are in mm (inch); drawings not to scale.
- All values and dimensions without given tolerances are nominal.

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ORDERING INFORMATION

10kV Straight Crimp Cable Plug (female)	**HC51P-58**
10kV Rear Mount Bulkhead Crimp Receptacle (male)	**HC51RB-58**
10kV Front Mount Bulkhead Receptacle (male, long insulator)	**HC51RB-A**
10kV Front Mount Bulkhead Receptacle (male, short insulator)	**HC51RB-B**

CRIMP TOOLS

Ergonomic blank crimp tool frame suitable for crimp inserts **HC-CR-DIE-A, HC-CR-DIE-B, HC-CR-DIE-C**	**HC-CR-2**
Crimp Insert Hex **5.5mm**, 5.9mm, Square 0.98mm, 1.6mm, **2.4mm**	**HC-CR-DIE-B**

Bespoke ready-to-use high voltage cable assemblies based on different high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

Examples:

Cable: HRG58-20-2; Length: 2m; **HC51P-58** plug assembled on both ends	**HCA-010-H51A-002-H51A-A**
Cable: HSL-10S-0.5-A-2; Length: 80m; **HC51P-58** plug assembled on one end	**HCA-010-H51A-080-S**
Cable: HRG58-20-2; Length: 33m; **HC51P-58** plug assembled on one end, **HC51RB-58** receptacle on the other end	**HCA-010-H51A-033-H51R-A**

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HC52 Series

20kV - STRAIGHT COAXIAL CONNECTOR SERIES

FEATURES

- Rated voltage 20kV$_{DC}$
- Recessed contacts
- Coaxial design
- Bayonet coupling
- Intermateable with industry standard 20kV coaxial connectors
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS

- Instrument high voltage connections
- High voltage power supplies / amplifiers
- Medical electronics
- Nuclear instrumentation
- Test and measurement equipment
- High voltage laboratory wiring
- General high voltage testing

DESCRIPTION

20kV reverse polarity coaxial high voltage connectors designed to minimize the risk of electrical shock to personnel through the use of recessed contacts. Both the cable connectors and the bulkhead receptacles have recessed contacts and will stand off the rated voltage in unmated condition.
The front mount receptacles are hermetically sealed.

The straight cable plug **HC52P-58** is compatible with our 20kV rated **HRG58-20-2** and our 40kV rated UL recognized **HRG303-40-U-A-2** coaxial cable.

The straight cable plug **HC52P-HTV30S** is compatible with our 30kV rated UL recognized **HTV-30S-22-2** coaxial cable variants.

The straight cable plugs **HC52P-213** and **HC52P-214** are compatible with our 20kV rated **HRG213-20-B-2**, **HRG213-20-C-2** or standard RG 213 / RG 214 coaxial cable.

A suitable crimping tool is available on request.
The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

The connectors must never be mated or unmated when energized.

Please see the HC51 series for 10kV$_{DC}$ models.
HC52 series connectors are not intermateable with SHV or HC51 series connectors.

SPECIFICATIONS

Operating voltage:	max. 20kV$_{DC}$ (at sea level)
Test voltage:	30kV$_{DC}$
Impedance:	non constant
Insulation resistance:	1000GΩ
Center contact resistance:	≤ 3mΩ
Outer contact resistance:	≤ 2mΩ
Operating temperature:	-55 to +85°C
Leak rate	< $1x10^{-6}$ mbar*l/s @ 1bar differential pressure (applies to front mount bulkhead receptacles **HC52RB-A /-B** only)

Ratings listed above apply to clean mated connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure, etc.) the connector should be derated. The fitness for use must be proved by extended operational tests.

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MODEL OVERVIEW - PLUGS

Part Number Description	Termination Center Contact	Contact Pin Material/ Plating	Insulator Material	Body Material/ Plating	Gasket Material	Weight
HC52P-58 **HC52P-1672669** **HC52P-HTV30S** **Straight Crimp Cable Plug** 	Solder	Beryllium Copper/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	51.2g
HC52P-213 **HC52P-214** **Straight Crimp Cable Plug** 	Solder	Beryllium Copper/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	51.2g

MODEL OVERVIEW - RECEPTACLES

Part Number Description	Termination Center Contact	Contact Pin Material/ Plating	Insulator Material	Body Material/ Plating	Gasket Material	Weight
HC52RB-A **Front Mount Bulkhead Receptacle (long insulator)** 	Solder	Brass/ Au over Ni over Cu	High Density PE	Brass/ Sn-Zn-Cu Alloy over Cu	Silicone	58g
HC52RB-B **Front Mount Bulkhead Receptacle (short insul.)** 	Solder	Brass/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	61g

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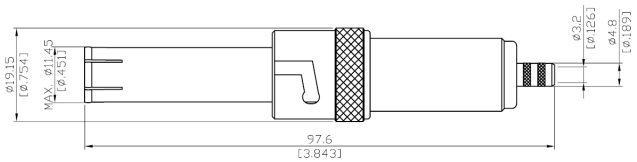
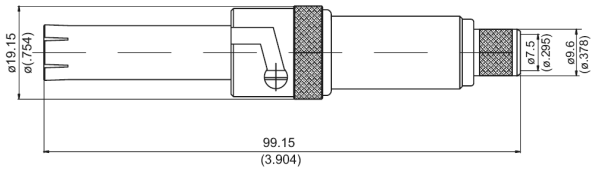
▪ DIMENSIONS

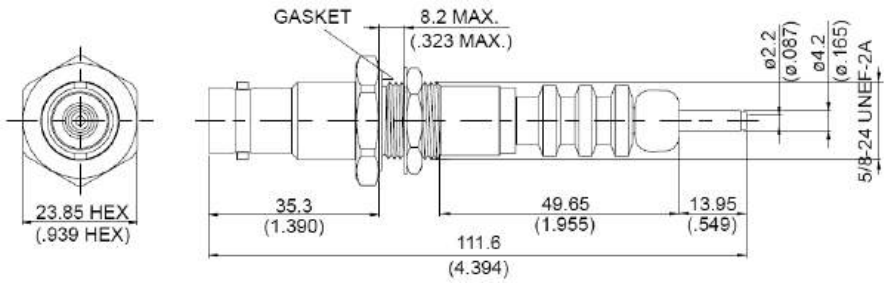
HC52P-58 /-1672669 /-HTV30S



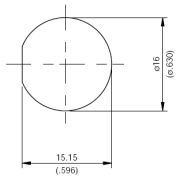
HC52P-213 /-214



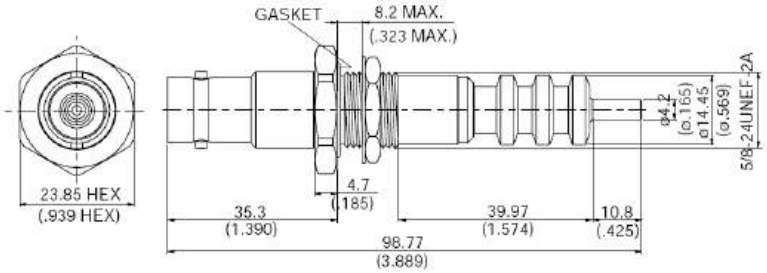
HC52RB-A



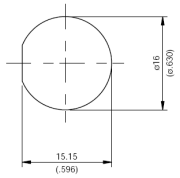
PANEL CUT-OUT



HC52RB-B



PANEL CUT-OUT



- All dimensions are in mm (inch); drawings not to scale.
- All values and dimensions without given tolerances are nominal.

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ORDERING INFORMATION

20kV Straight Crimp Cable Plug (female) for RG 58	**HC52P-58**
20kV Straight Crimp Cable Plug (female) for RG 213	**HC52P-213**
20kV Straight Crimp Cable Plug (female) for RG 214	**HC52P-214**
20kV Straight Crimp Cable Plug (female) for 167-2669	**HC52P-1672669**
20kV Straight Crimp Cable Plug (female) for HTV-30S-22-2	**HC52P-HTV30S**
20kV Front Mount Bulkhead Receptacle (male, long insulator)	**HC52RB-A**
20kV Front Mount Bulkhead Receptacle (male, short insulator)	**HC52RB-B**

CRIMP TOOLS

Ergonomic blank crimp tool frame suitable for crimp inserts **HC-CR-DIE-A, HC-CR-DIE-B, HC-CR-DIE-C**	**HC-CR-2**
Crimp Insert Hex 5.5mm, **5.9mm**, Square 0.98mm, 1.6mm, 2.4mm	**HC-CR-DIE-B**
Crimp Insert Hex 2.55mm, 3.3mm, **10.7mm**, Square 1.6mm, 2.4mm	**HC-CR-DIE-C**

Bespoke ready-to-use high voltage cable assemblies based on different high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

Examples:

Cable: HTV-30S-22-2; Length: 2m; **HC52P-HTV30S** plug assembled on both ends	**HCA-020-H52C-002-H52C-T**
Cable: RG 213; Length: 10m; **HC52P-213** plug assembled on one end, **HC52RB-213** receptacle on the other end	**HCA-020-H52A-010-H52R-X**

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HC55A Series

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5/6kV - SHV COAXIAL CONNECTOR SERIES

FEATURES

- Rated voltage 5kV$_{DC}$ / 3.5kV$_{RMS}$
  6kV$_{DC}$ / 3.5kV$_{RMS}$ bulkhead receptacle
- Recessed contacts
- Available with PTFE and PEEK insulators
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS

- Instrument high voltage connections
- High voltage power supplies / amplifiers
- Medical electronics
- Nuclear instrumentation
- Test and measurement equipment
- Safe high voltage laboratory wiring

DESCRIPTION

5kV SHV (**S**afe **H**igh **V**oltage – Nuclear Instrumentation Module Standard) reverse polarity, coaxial high voltage connectors with high temperature PTFE or high temperature / radiation tolerant PEEK insulators.

The straight cable plugs are compatible with coaxial cable groups RG58 or RG316, respectively.
For suitable cable please see our PE-X insulated **HRG58-20-2** or **HRG58-20-XV-U-2**, FEP insulated high temperature **HRG303-40-U-A-2**, **HRG316-10-B-2** or extremely flexible silicone insulated high temperature **HSL-10S-0.5-A-2** types.

The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c

A suitable crimping tool is available on request.

Please see our HC51 or HC52 series for 10kV$_{DC}$ or 20kV$_{DC}$ models, respectively.

Remark: SHV connectors are not intermateable with HC51, HC52, MHV or BNC connectors.

The connectors must never be mated or unmated when energized.

SPECIFICATIONS

Operating voltage (at sea level):	max. 5000V$_{DC}$ / 3500V$_{RMS}$
HC55AP-316:	max. 5000V$_{DC}$
HC55ARB-A Blkhd. receptacle:	max. 6000V$_{DC}$ / 3500V$_{RMS}$
Test voltage:	max. 10000V$_{DC}$ / 5000V$_{RMS}$
Impedance:	50Ω
Frequency:	DC to 300MHz
Insulation resistance:	> 1000GΩ
Center contact resistance:	< 2mΩ
Outer contact resistance:	< 1.5mΩ
Operating current:	max. 10A
Operating temperature:	-65 to +165°C
Mating cycles:	min. 500
Termination center conductor:	solder
Termination outer conductor:	crimp

Ratings listed above apply to clean mated connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure, etc.) the connector should be derated. The fitness for use must be proved by extended operational tests.

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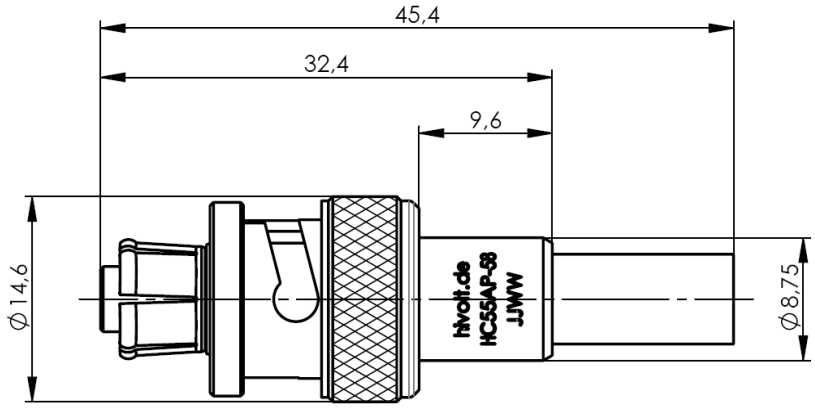
MODEL OVERVIEW

Part Number Description	Center Contact Material/ Plating	Outer Contact Material/ Plating	Insulator Material	Body Material/ Plating	Crimp Ferrule Material/ Plating	Gasket Material	Cable Group
HC55AP-58 **Straight Cable Plug**	CuBe2Pb/ NiP-Au	CuBe2Pb/ CuSnZn	PTFE	CuZn/ CuSnZn	Cu/ CuSnZn	Silicone	RG58
HC55AP-58-K **Straight Cable Plug**	CuBe2Pb/ NiP-Au	CuBe2Pb/ CuSnZn	PEEK	C / CuSnZn	Cu/ CuSnZn	Silicone	RG58
HC55AP-316 **Straight Cable Plug**	CuBe2Pb/ NiP-Au	CuBe2Pb/ CuSnZn	PTFE	CuZn / CuSnZn	Brass/ Ni	Silicone	RG316

Part Number Description	Center Contact Material/ Plating	Outer Contact Material/ Plating	Insulator Material	Nut Material/ Plating	Lock Washer Material/ Plating	Gasket Material	
HC55ARB-A **Bulkhead Solder Receptacle**	CuZn/ NiP-Au	CuZn/ CuSnZn	PTFE	CuZn/ Ni	CuSn6/ Ni	Silicone	

DIMENSIONS

HC55AP-58, HC55AP-58-K



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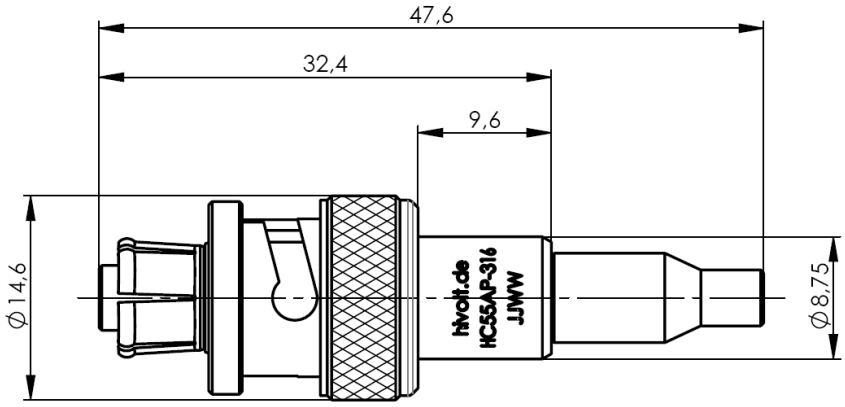
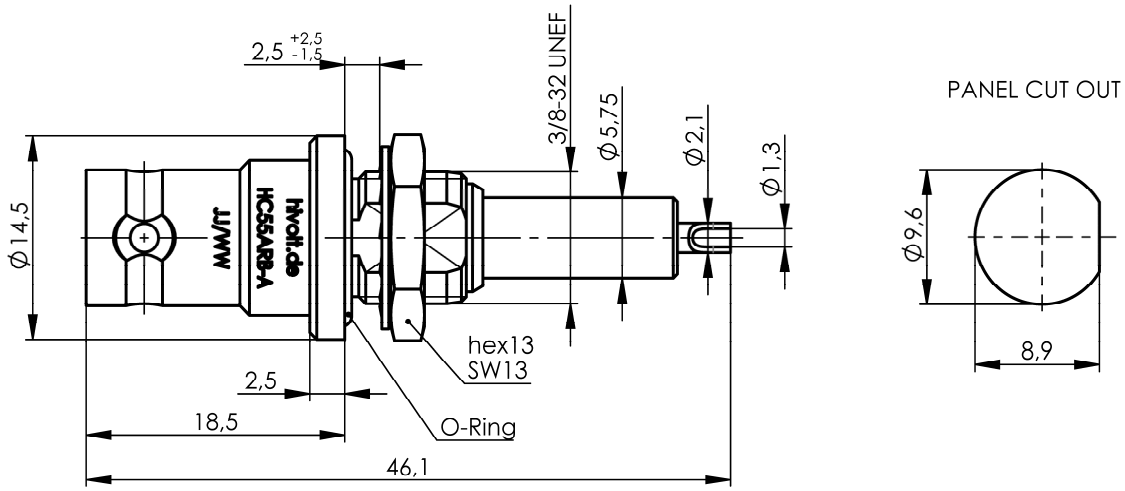
HC55AP-316



HC55ARB-A



- All dimensions are in mm; drawings not to scale.
- All values and dimensions without given tolerances are nominal.

ORDERING INFORMATION

5kV Straight Solder/Crimp Cable Plug (female) PTFE for RG58	**HC55AP-58**
5kV Straight Solder/Crimp Cable Plug (female) PEEK for RG58	**HC55AP-58-K**
5kV Straight Solder/Crimp Cable Plug (female) PTFE for RG316	**HC55AP-316**
6kV Straight Solder Panel Mount Bulkhead Receptacle (male) PTFE	**HC55ARB-A**

Bespoke ready-to-use high voltage cable assemblies based on different high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

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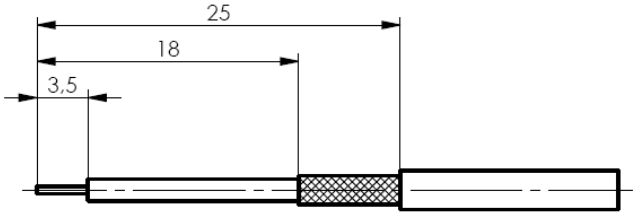
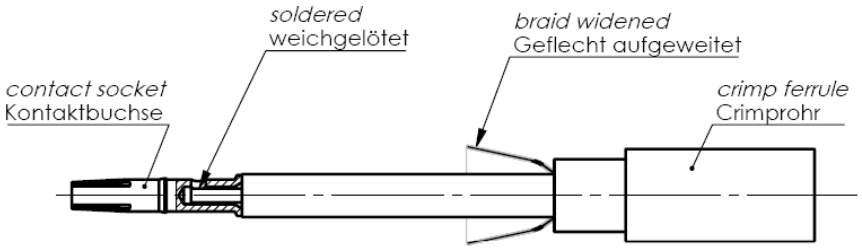
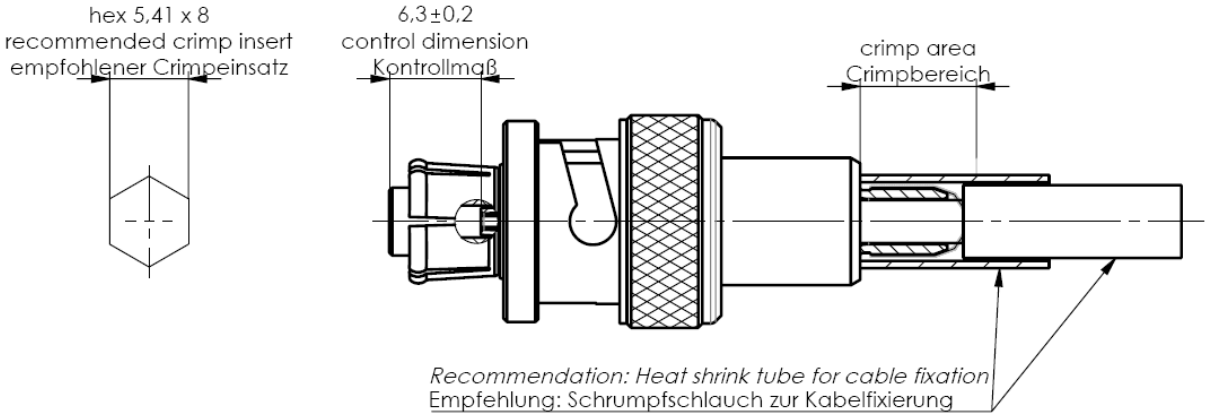
▪ CABLE ASSEMBLY INSTRUCTIONS HC55AP-58, HC55AP-58-K







- Operation at elevated AC voltages requires special means of terminating the connectors. Please contact the manufacturer for details.

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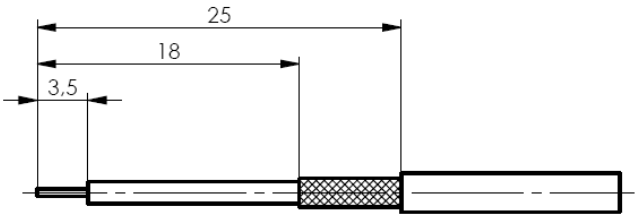
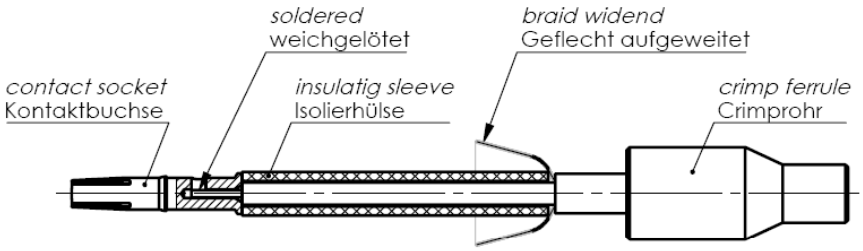
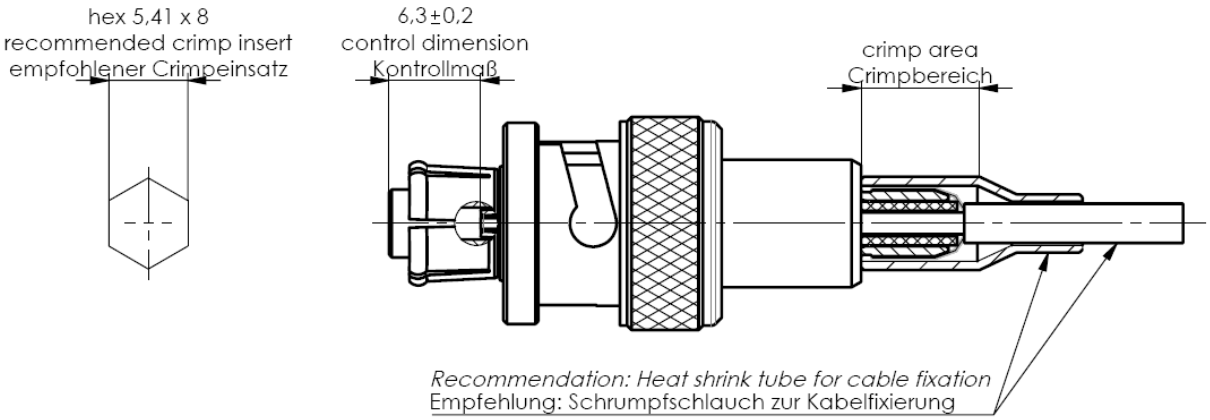
CABLE ASSEMBLY INSTRUCTIONS HC55AP-316







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HC7 Series

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SINGLE POLE HIGH VOLTAGE CONNECTORS
10kV – 100kV

FEATURES
- Up to 100kV$_{DC}$
- Oil-tight receptacles available
- PTFE insulation
- POM or PEEK insulation optionally available
- Low contact resistance
- Extended temperature range
- Made in Germany
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS
- Instrument high voltage connections
- Test stations

DESCRIPTION
The single pole high voltage connector pairs HC7M-xx (cable mounting plug) and HC7F-xx (instrument mounting receptacle) are available for operating voltages of up to 100kV$_{DC}$ in 30A or 80A versions. The connectors are suitable for use with shielded high voltage cable.
The silver-plated center contact, the strong nickel-plated housing and the screw interlock warrant a safe and reliable connection. The cable is fixed to the connector housing by means of an integrated cable gland. The cylindrical wedging results in a strong mechanical connection and a good shield connection. Five different sizes of cable glands are available, allowing use with a wide range of cable diameters. An external cable gland may be used with an M20x1.5 or M25x1.5 adaptor (xx-20 or xx-25 models, respectively).
The connectors are available with PTFE insulation featuring an extended operating temperature range. Optionally, versions with POM or PEEK insulators are available. Minimum order quantities apply for POM or PEEK versions.
Receptacles are optionally available as oil-tight versions.

The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

The connectors must never be mated or unmated when energized.

SPECIFICATIONS

Locking system:	threaded coupling	
Termination inner contact:	solder (male contact), solder / screw (female contact)	
Shield connection:	screw joint / cable gland	
Contact surface:	Ag	
Case material:	CuZn (brass), nickel plated	
Insulation material:	PTFE (Teflon®), white POM, PEEK (optional)	
Flammability class:	UL94 V-0	
Operating temperature:	housing:	-30°C to +80°C
	insulation inserts:	PTFE: -50°C to +200°C
		POM: -30°C to +120°C
		PEEK: -50°C to +200°C
Rated temperature, contacts:	+120°C	
Contact resistance:	30A type (HC7xAx):	max. 300µΩ
	80A type (HC7xBx):	max. 150µΩ
Wire gauge (plugs):	30A type (HC7xAx):	max. 2.5mm² / bore hole: ø2.6mm
	80A type (HC7xBx):	max. 10mm² / bore hole: ø4.8mm
Mating / unmating force:	30A type (HC7xAx):	5.5N / 4N
	80A type (HC7xBx):	15N / 10N
Mating cycles:	> 100 000	
Inner cable diameter	max. 10mm	

Ratings listed above apply to clean connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution, extreme mechanical exposure etc.), the connector should be derated. The fitness for use must be proved by extended operational tests.

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MODEL OVERVIEW

Model		Operating Voltage	Type Test Voltage	Rated Current
Plug	Receptacle			
HC7M-10A-x	**7F-10A**	10kV$_{DC}$	15kV$_{DC}$	30A
HC7M-10B-x	**7F-10B**	10kV$_{DC}$	15kV$_{DC}$	80A
HC7M-20A-x	**7F-20A**	20kV$_{DC}$	30kV$_{DC}$	30A
HC7M-20B-x	**7F-20B**	20kV$_{DC}$	30kV$_{DC}$	80A
HC7M-20B-x-P	**7F-20B-P**	20kV$_{DC}$	30kV$_{DC}$	80A
HC7M-30A-x	**7F-30A**	30kV$_{DC}$	45kV$_{DC}$	30A
HC7M-30B-x	**7F-30B**	30kV$_{DC}$	45kV$_{DC}$	80A
HC7M-50A-x	**7F-50A**	50kV$_{DC}$	75kV$_{DC}$	30A
HC7M-50B-x	**7F-50B**	50kV$_{DC}$	75kV$_{DC}$	80A
HC7M-60A-x	**7F-60A**	60kV$_{DC}$	90kV$_{DC}$	30A
HC7M-60B-x	**7F-60B**	60kV$_{DC}$	90kV$_{DC}$	80A
HC7M-100A-x	**C7F-100A**	100kV$_{DC}$	150kV$_{DC}$	30A
HC7M-100B-x	**HC7F-100B**	100kV$_{DC}$	150kV$_{DC}$	80A

x: outer cable diameter code – see table below

OUTER CABLE DIAMETER CODE

Diameter Code	Outer Cable Diameter
1	6.5 – 8mm
2	8 – 9.5mm
3	9.5 – 11mm
4	11 – 12.5mm
5	12.5 – 14mm
20	adaptor M20x1.5
25	adaptor M25x1.5

Bespoke ready-to-use high voltage cable assemblies based on several high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

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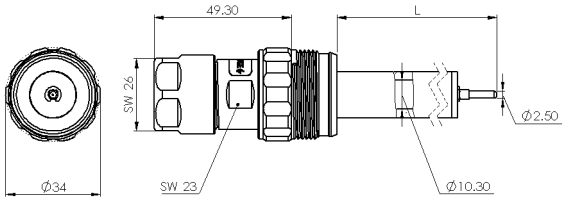
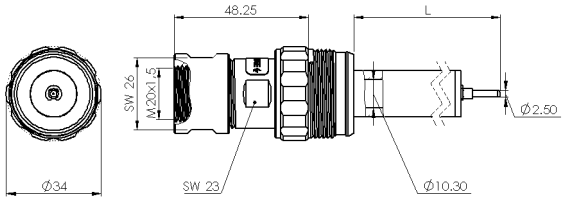
DIMENSIONS 30A TYPE CONNECTORS

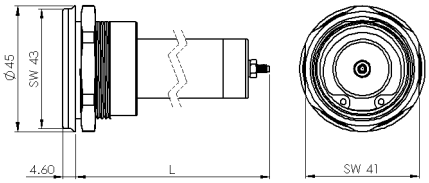
HC7M-xA-1 ... HC7M-xA-5



HC7M-xA-20



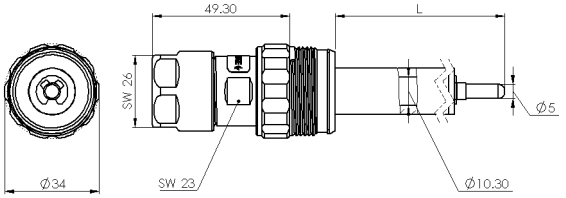
HC7F-xA, HC7F-xA-O



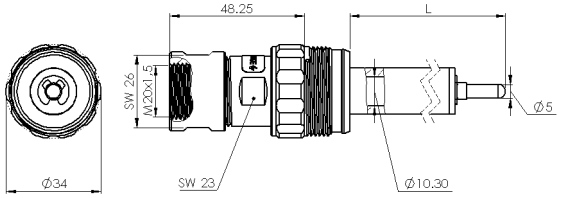
Model	L	Model	L
HC7M-10A	32.43	**HC7F-10A**	64.28
HC7M-20A	52.43	**HC7F-20A**	84.28
HC7M-30A	72.43	**HC7F-30A**	104.28
HC7M-50A	122.43	**HC7F-50A**	154.28
HC7M-60A	204.93	**HC7F-60A**	235.28
HC7M-100A	357.93	**HC7F-100A**	388.28

DIMENSIONS 80A TYPE CONNECTORS

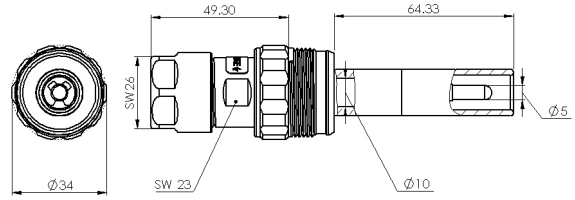
HC7M-xB-1 ... HC7M-xB-5



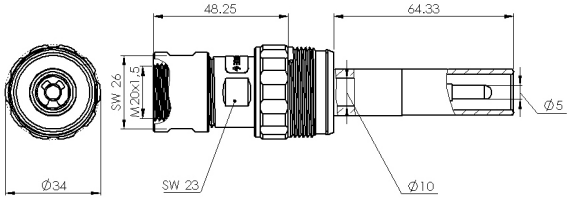
HC7M-xB-20



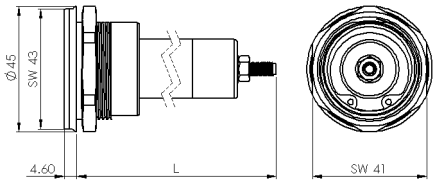
HC7M-20B-1-P ... HC7M-20B-5-P



HC7M-20B-20-P



HC7F-xB, HC7F-xB-O, HC7F-20B-P, HC7F-20B-PO



Model	L	Model	L
HC7M-10B	36.43	**HC7F-10B**	77.78
HC7M-20B	53.93	**HC7F-20B**	97.78
HC7M-20B-xx-P	64.33	**HC7F-20B-P**	97.78
HC7M-30B	76.43	**HC7F-30B**	117.78
HC7M-50B	126.43	**HC7F-50B**	167.78
HC7M-60B	208.93	**HC7F-60B**	249.78
HC7M-100B	361.93	**HC7F-100B**	402.78

Notes: "SW" = wrench size.

Dimensions are in mm. Drawings not to scale

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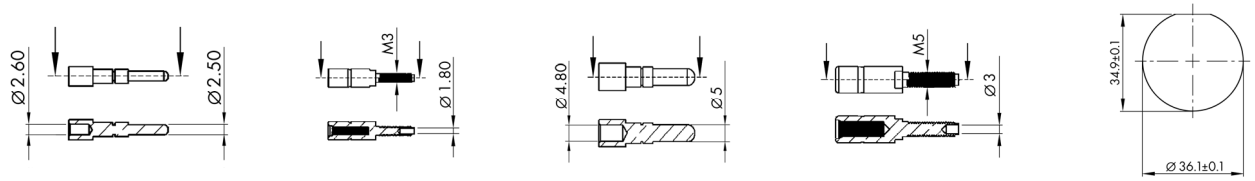
DIMENSIONS

2.5mm contacts (male / female) 5mm contacts (male / female) Panel cut-out



Note: Dimensions are in mm. Drawings not to scale

ORDERING INFORMATION

HC7	M	-	10	A	-	1	-	0
Base Part Designation	**M** - Plug **F** - Receptacle		Operating Voltage [kV$_{DC}$]	Contact size **A** – 2.5mm (30A) **B** – 5mm (80A)		Outer Cable Diameter (plugs) **1** - 6.5–8mm **2** – 8–9.5mm **3** – 9.5–11mm **4** - 11–12.5mm **5** - 12.5–14mm **20** - adaptor M20 **25** - adaptor M25		Options

Examples:	HC7M-10A-1	(HC7 series plug, 10kV, 30A, cable outer diameter 6.5-8mm)
	HC7M-20B-5-P	(HC7 series plug, 20kV, 80A, cable outer diameter 12.5-14mm, recessed male contact)
	HC7F-100A	(HC7 series receptacle, 100kV, 30A)
	HC7F-30B-O	(HC7 series receptacle, 30kV, 80A, oil-tight)

OPTIONS

-K insulator material: PEEK
-M insulator material: POM
-O oil-tight receptacle
-P recessed male contact – only available for HC7x-20B connectors

Preferred items / minimum order quantities may apply.

CABLE

Suitable cable types: shielded high voltage cable; numerous types available on request, e.g.:

2124	up to 100kV$_{DC}$, AWG16, PE / PVC, 11.2mm, universal
HXC-60-1EA-8	up to 60kV$_{DC}$, AWG14, EPR / PVC, 11.1mm, highly flexible
HSL-15S-6-A-9	up to 15kV$_{DC}$, AWG10, Silicone, 11.6mm, flexible, high temperature
HSC-50-1S1SUA-0	up to 50kV$_{DC}$, AWG16, Silicone / PU, 11.7mm, highly flexible even at low ambient temperatures
HSL-20S-13-U-A-2	up to 20kV$_{DC}$, AWG6, Silicone / PU, 13.5mm, flexible, requires enlarged solder hole in contact pin

Bespoke ready-to-use high voltage cable assemblies based on several high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

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HS/HB Series

hivolt.de

SINGLE POLE HIGH VOLTAGE CONNECTORS
10 / 20 / 30 / 40kV

FEATURES
- Up to 40kV$_{DC}$ / 30A
- 100,000 mating cycles
- UL94 V-0 flammability rating
- Extended temperature range
- Central attachment
- Low cost
- Made in Germany
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS
- Instrument high voltage connections
- Test stations

DESCRIPTION
The single pole high voltage connector pairs HSxx (cable mounting connector) and HBxx (instrument mounting socket) are available for operating voltages of 10kV$_{DC}$, 20kV$_{DC}$, 30kV$_{DC}$ and 40kV$_{DC}$. The connectors are suitable for use with shielded / screened high voltage cable.
The silver-plated central contact, the strong nickel-plated housing and the screw interlock warrant a safe and reliable connection. Extended operating temperature range due to PTFE insulation. The 20kV models also with POM insulation.

The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

The connectors must never be mated or unmated when energized.

Model		Operating Voltage	Test Voltage	Rated Current	Insulation material	Mounting type (panel mount connector HBxx)
Plug	**Receptacle**					
HS11-T	**HB11-T**	10kV$_{DC}$	15kV$_{DC}$	30A	PTFE	round flange
HS21	**HB21**	20kV$_{DC}$	30kV$_{DC}$	30A	POM	round flange
HS21-T	**HB21-T**	20kV$_{DC}$	30kV$_{DC}$	30A	PTFE	round flange
HS31-T	**HB31-T**	30kV$_{DC}$	45kV$_{DC}$	30A	PTFE	round flange
HS40-T	**HB40-T**	40kV$_{DC}$	60kV$_{DC}$	30A	PTFE	4-hole flange

SPECIFICATIONS

Termination inner contact:	soldering
Shield connection:	screw joint / cable gland
Contact surface:	Ag
Insulation material:	PTFE (Teflon®) white (POM (Delrin®) white on request for 20kV models)
Temperature range:	-30°C to +80°C
Insulation resistance:	$10^{16}\Omega$ (contact / housing)
Contact resistance:	max. 300 µΩ
Wire gauge:	max. 2.5mm² / bore hole: ø2.4mm
Mating / unmating force:	5.5N / 4.0N
Mating cycles:	100 000
Max. outer diameter - shielded:	6.0mm (6.5mm)
Max. inner insulation diameter:	5.0mm
Suitable cable types:	shielded high voltage cable; e.g:
	HPW-40S-0.5-A-2 up to 40kV$_{DC}$, PE / PUR, **LSZH**, universal
	130660 up to 30kV$_{DC}$, PE / PVC, universal
	HRG303-40-U-A-2 up to 40kV$_{DC}$, FEP / FEP, high temperature
	HRG58-20-2 up to 20kV$_{DC}$, PE / PUR, **LSZH**, universal
	HSL-8S-0.75-B-2 up to 8kV$_{DC}$, Silicone, high temperature
	HTV-30S-22-2 up to 30kV$_{DC}$, PE / PVC, UL (internal wiring)

Bespoke ready-to-use high voltage cable assemblies based on several high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

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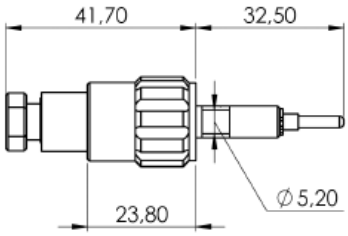
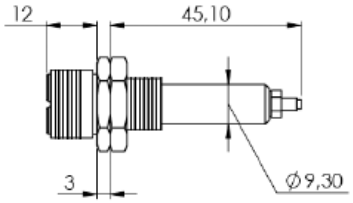
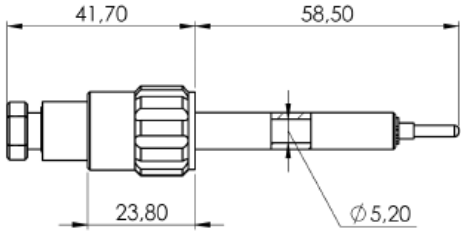
Ratings listed above apply to clean connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure etc.) the connector should be derated. The fitness for use must be proved by extended operational tests.

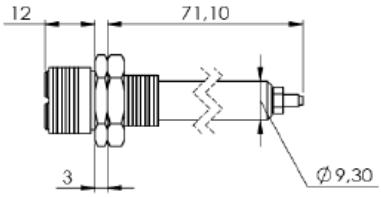
DIMENSIONS HS11 / HB11



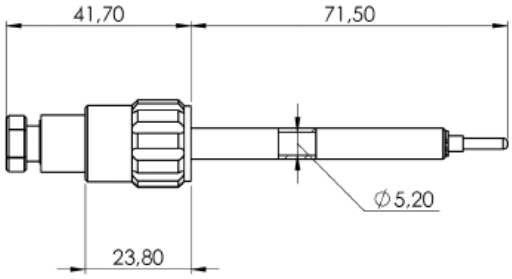


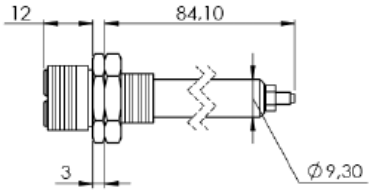
DIMENSIONS HS21 / HB21



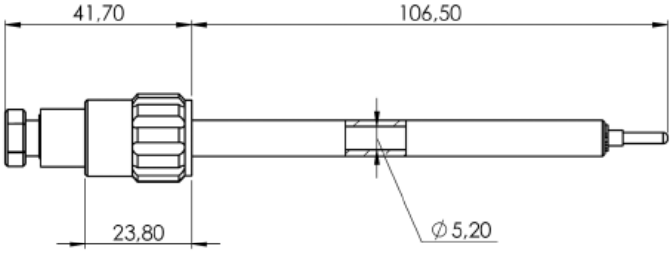


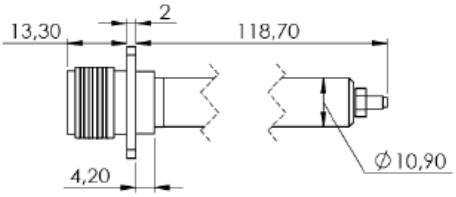
DIMENSIONS HS31 / HB31



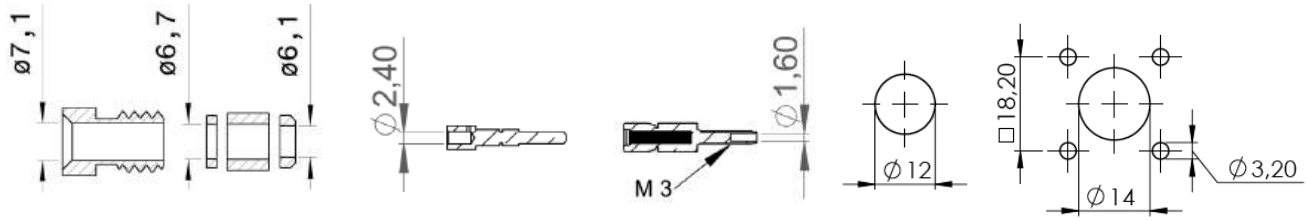


DIMENSIONS HS40 / HB40





DIMENSIONS CABLE GLAND / CONTACT HS / HB / PANEL CUT-OUT FOR ROUND / 4-HOLE FLANGE



Note: Dimensions are in mm. Drawings not to scale

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SB1105

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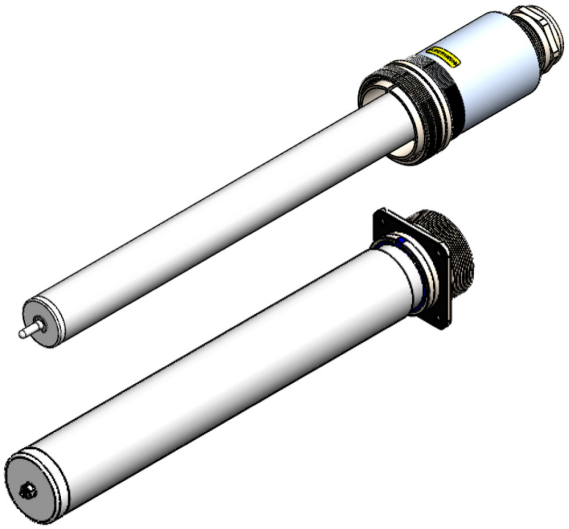
SINGLE POLE HIGH VOLTAGE CONNECTORS
100kV / 80A



FEATURES
- 100kV$_{DC}$ / 80A
- Oil-tight receptacle
- UL94 V-0 flammability rating
- 100,000 mating cycles
- Extended temperature range
- Central attachment
- Made in Germany
- Completed cable assemblies available
- RoHS compliant (exemption 6c)

APPLICATIONS
- Instrument high voltage connections
- Test stations

DESCRIPTION
The single pole high voltage connector pair S1105-9-T (cable mounting plug) and B1105-9-O-T (instrument mounting receptacle) is available for operating voltage of up to 100kV$_{DC}$ and a nominal current of 80A.
The connector is suitable for use with shielded / screened high voltage cable. The silver-plated central contact, the strong nickel-plated housing and the screw interlock warrant a safe and reliable connection. The cable is fixed to the connector housing by means of a metric cable gland. The cylindrical wedging results in a strong mechanical connection and an excellent shield connection. The receptacle is oil-tight.

The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

The insulation material is PTFE, which has an extended operating temperature range.

Model		Operating Voltage	Test Voltage	Rated Current	Cable Diameter	
Plug	Receptacle				max. inner	outer
S1105-9-T	**B1105-9-O-T**	100kV$_{DC}$	150kV$_{DC}$	80A	25mm	25mm

SPECIFICATIONS

Termination center contact:	soldering
Shield connection:	screw joint / cable gland
Contact surface:	Ag
Insulation material:	PTFE (Teflon®), white
Temperature range:	-30°C to +80°C
Contact resistance:	max. 150µΩ
Contact diameter:	5mm
Wire gauge (plugs):	max. 10mm² / bore hole: ø4mm
Mating / unmating force:	15N / 10N
Mating cycles:	> 100 000
Suitable cable type:	shielded high voltage cable; different types available on request, e.g.:
	2062SVJ (100kV$_{DC}$), AWG8, Silicone / PVC, 20.8mm
	2134 (200kV$_{DC}$), AWG12, LDHMW PE / PVC, 21.6mm
	2243 (125kV$_{DC}$), AWG8, EPR / PVC, 19.7mm

Bespoke ready-to-use high voltage cable assemblies are available on request. The cable assemblies are fully tested. Please contact hivolt.de for details.

Ratings listed above apply to clean connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure, etc.) the connector should be derated. The fitness for use must be proved by extended operational tests.

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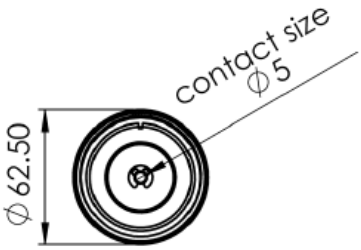
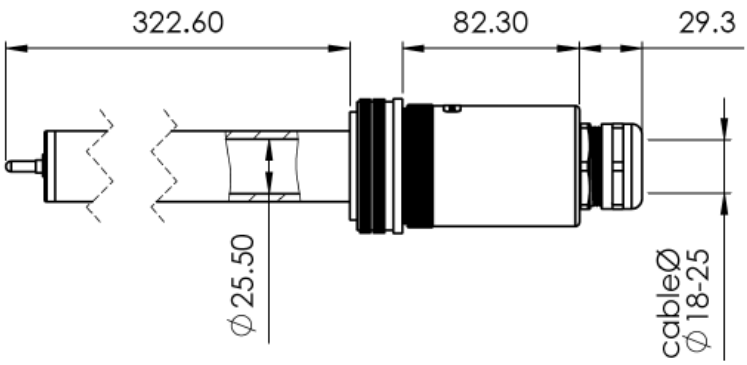
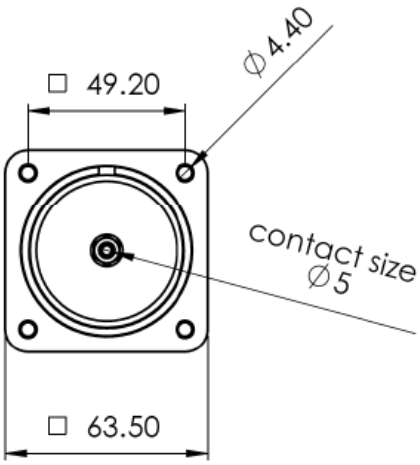
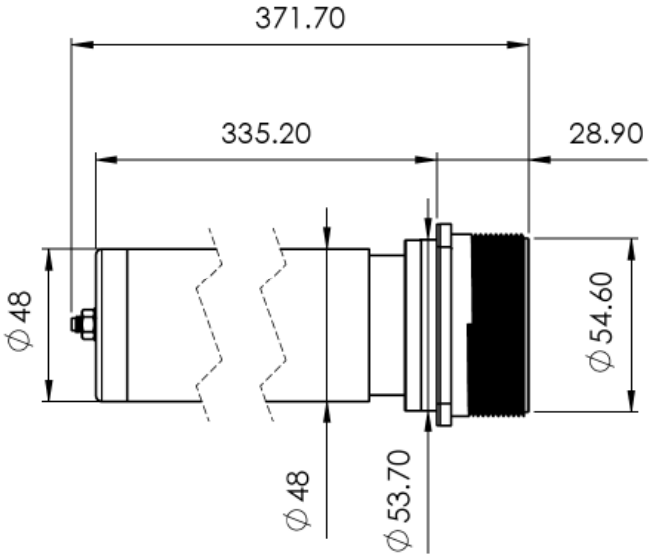
DIMENSIONS S1105-9-T





DIMENSIONS B1105-9-O-T





- All dimensions are in mm; drawings not to scale.
- All values and dimensions without given tolerances are nominal.

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VP-CL Series

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1 / 2 / 3 POLE HIGH VOLTAGE CONNECTORS
13kV, 13A

FEATURES

- Rated voltage 13kV$_{DC}$
- Rated current 13A
- Perfect for internal wiring
- Fast assembly
- High flexibility due to several mounting options
- Clip Lock
- Made in Germany
- RoHS compliant (exemption 6c)
- REACH SVHC compliant

PRODUCT DESCRIPTION

The VP-CL series of high voltage connectors is available in 1, 2 or 3 pole versions. A Clip Lock mechanism permits easy mating and unmating and ensures that the plug will be locked to the receptacle when mated. The connectors feature versatile mounting options; they can be used unmounted with flying leads, mounted as a feedthrough or mounted on the surface of a structural part. The VP-CL series connectors are intended for internal use only.
Crimp contacts used for easy assembly are available for wire sizes of AWG26 to AWG14.

The connectors are RoHS compliant according to 2011/65/EU / 2015/863 / Exemption 6c.

CONNECTOR HOUSINGS

No. of Poles	Plug	Receptacle
1	**VP-CL-1M**	**VP-CL-1F**
2	**VP-CL-2M**	**VP-CL-2F**
3	**VP-CL-3M**	**VP-CL-3F**

CRIMP CONTACTS

Conductor		Plug		Receptacle	
Size [AWG]	**Area [mm²]**	**Silver-plated**	**Gold-plated**	**Silver-plated**	**Gold-plated**
26 – 22	0.14 - 0.37	**VP-CM-24-AG**	**VP-CM-24-AU**	**VP-CF-24-AG**	**VP-CF-24-AU**
20	0.5	**VP-CM-20-AG**	**VP-CM-20-AU**	**VP-CF-20-AG**	**VP-CF-20-AU**
20 – 16	0.75 - 1.0	**VP-CM-18-AG**	**VP-CM-18-AU**	**VP-CF-18-AG**	**VP-CF-18-AU**
16 – 15	1.5	**VP-CM-16-AG**	**VP-CM-16-AU**	**VP-CF-16-AG**	**VP-CF-16-AU**
14	2.5	**VP-CM-14-AG**	**VP-CM-14-AU**	**VP-CF-14-AG**	**VP-CF-14-AU**

SPECIFICATIONS

Rated Voltage:	13kV$_{DC}$
Test Voltage:	20kV$_{DC}$
Rated Current:	13A (AWG14 / 2.5mm²)
Contact Resistance:	≤ 5mΩ
Crimp Contact Material:	Brass (CuZn)
Crimp Contact Plating:	Silver (Ag) or Gold (Au)
Crimp Contact Diameter:	1.6mm
Contact Rated Temperature:	120°C
Housing Material:	High Performance PK (Polyketon) UL94 V-0 black
Operating Temperature:	-40°C - +150°C
Insulation Group:	I (DIN IEC 60664)
Crimp Tool (on request):	VP-CR-1.6-3.6 consisting of: - Basic crimping tool in a toolbox - Crimping die B for crimp contacts 0.14-1.0mm², 1.5mm², 2.5mm² and 4.0mm² - Contact positioner 1 for crimp contacts with a diameter of 1.6mm, 2.5mm and 3.6mm - Extraction tool for 10 pole revos

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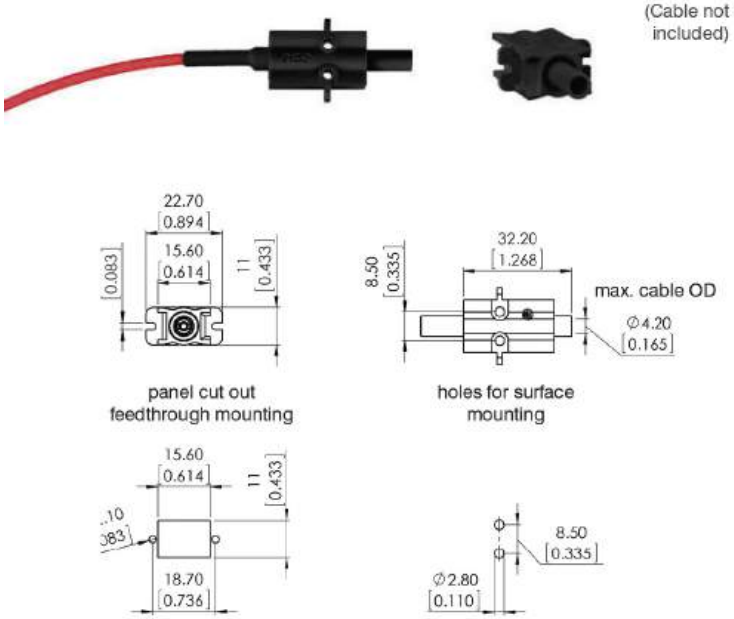
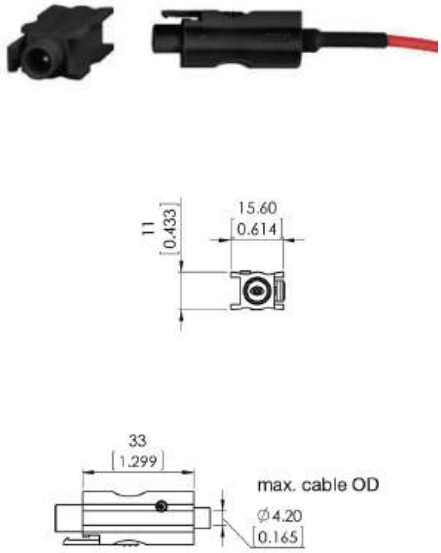
DIMENSIONS

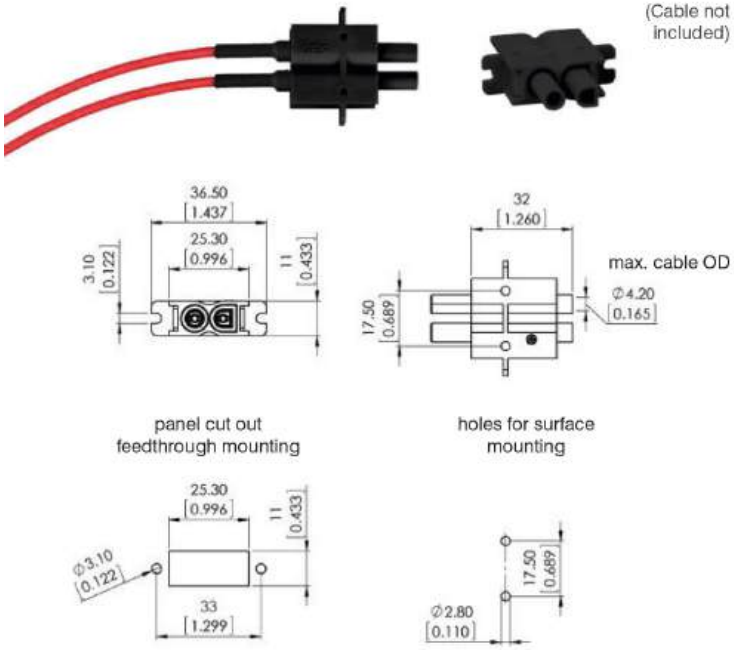
VP-CL-1F



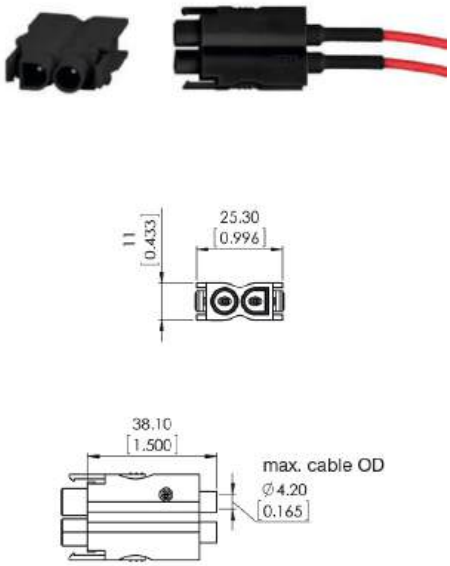
VP-CL-1M



VP-CL-2F



VP-CL-2M



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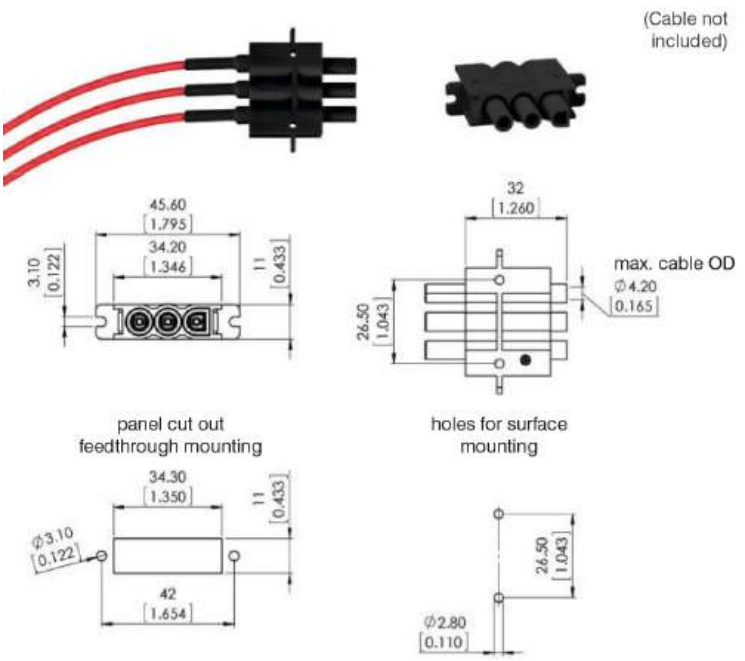
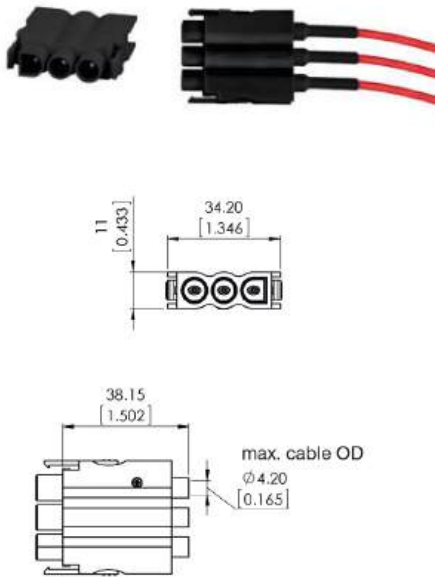
DIMENSIONS

VP-CL-3F



VP-CL-3M



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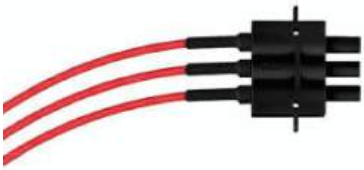
HIGH VOLTAGE CABLE ASSEMBLIES UP TO 100kV

FEATURES

- Different connector families
- Various standard configurations
- Operating voltage up to 100kV$_{DC}$
- Oil-tight and hermetically sealed receptacles available
- Extended temperature range available
- Made in Germany

APPLICATIONS

- Analytical Instruments
- Medical electronics
- Particle physics
- Instrument high voltage connections
- High voltage power supplies / amplifiers
- Nuclear instrumentation
- Test and measurement equipment
- High voltage laboratory wiring
- General high voltage wiring



DESCRIPTION

Custom configurations of high voltage cable assemblies for connecting HV power supplies to different kind of equipment. Various connector models can be terminated to a great number of cable types. The terminations can be made single-sided or two-sided. Two-sided terminations are possible with identical or different connector models. Mating instrument mount receptacles are available in oil-tight or even hermetically sealed versions.
The cable assemblies are fully tested to provide reliable long-lasting connections.

Typical applications include high voltage power supplies, nuclear instrumentation, industrial and scientific X-Ray, electron microscopes, mass spectrometry, high voltage test equipment, electron beam welding, particle physics and many more.

HC55A / 57 SHV

Safe **H**igh **V**oltage coaxial connectors up to 5kV$_{DC}$. Cable group mechanically matching RG 58 and RG 316 style.
High temperature versions available.
SHV terminated cable assemblies are used in nuclear instrumentation and many other applications. Both the cable connectors and the bulkhead receptacles have recessed contacts and will withstand the rated voltage in unmated condition.

HC51

Coaxial connectors up to 10kV$_{DC}$. Cable group mechanically matching RG 58 style. High temperature versions available for the cable. Typical applications include industrial, nuclear instrumentation and medical. Both the cable connectors and the bulkhead receptacles have recessed contacts and will withstand the rated voltage in unmated condition. The front mount receptacles are hermetically sealed.

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- **HC52**

  Coaxial connectors up to 20kV$_{DC}$. Cable group mechanically matching RG 213 / RG 214 style and HTV-30S-22.
  Typical applications include industrial, nuclear instrumentation and medical. Both the cable connectors and the bulkhead receptacles have recessed contacts and will withstand the rated voltage in unmated condition. The front mount receptacles are hermetically sealed.

- **HC7**

  Industrial high voltage connector series for 10, 20, 30, 50, 60 and 100kV$_{DC}$. Fits to cables from 6.5 to 14mm outer diameter. Various cable types for different requirements available. Medium to high power industrial and scientific applications.

- **HS**

  Industrial high voltage connector series for 10, 20, 30 and 40kV$_{DC}$. Fits to cables from 5 to 6.5mm outer diameter. Cable types for different requirements available. Low to medium power industrial, scientific and T&M applications.

- **VP-CL**

  1, 2 or 3 pole connector series for internal wiring up to 13kV$_{DC}$.

- **Others**

  We are able to provide high voltage cable assemblies using many other HV connector types like LEMO, Fischer or MIL.

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HV Cable Assemblies

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HIGH VOLTAGE MOLDED RUBBER AND RESIN CAST CABLE TERMINATIONS AND RESIN CAST RECEPTACLES 50kV – 300kV

FEATURES

- Up to 300kV$_{DC}$
- Oil-tight Receptacles
- Extended Temperature Range
- Various Standard Types
- Custom Designs

APPLICATIONS

- Industrial X-Ray
- Analytical Instruments
- Particle Physics
- Electron Beam Welding
- Pulsed Power
- Test Stations

DESCRIPTION

A comprehensive range of high voltage cable assemblies and mating chassis mounted receptacles used for connecting HV power supplies to X-Ray tubes and other equipment. Available in the following styles and voltages: 65kV (R3), 75kV Federal Standard (O3, O4), 100kV (R10), 160kV (R24), 210kV (R30), 225kV (R28), 300kV, Pantak connectors, bottle shaped connectors and custom types. The cable terminations are implemented as resin cast or molded rubber connectors and fit most makes of industrial and scientific equipment. Molded rubber connectors are available spring loaded or with spring loaded flanges.

A wide range of termination clamping flanges, insulation paste, receptacle blanking plugs and test probes are available.

Typical applications include medical and industrial X-Ray, electron microscopes, X-Ray fluorescence, inspection equipment, electron beam welding, high energy, pulsed power and particle physics.

160kV R24 Type Spring Loaded Molded Rubber Connector and Receptacle

75kV O3 Type Resin Cast Connector and Receptacle

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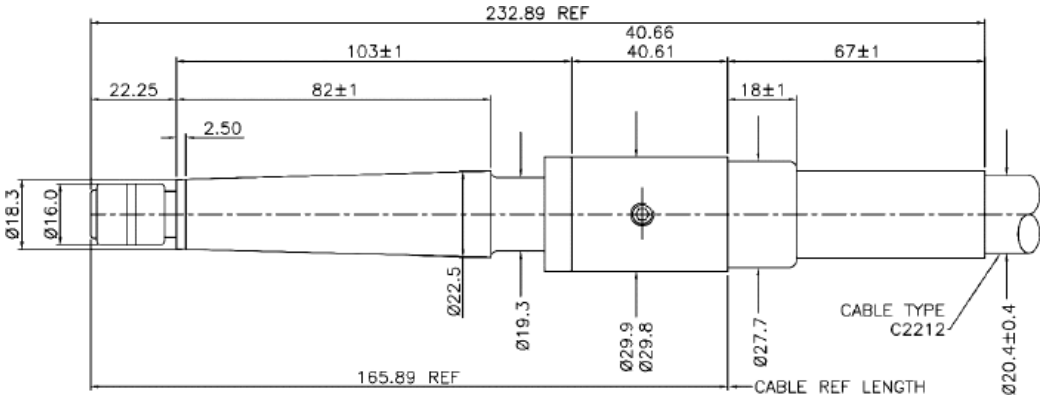
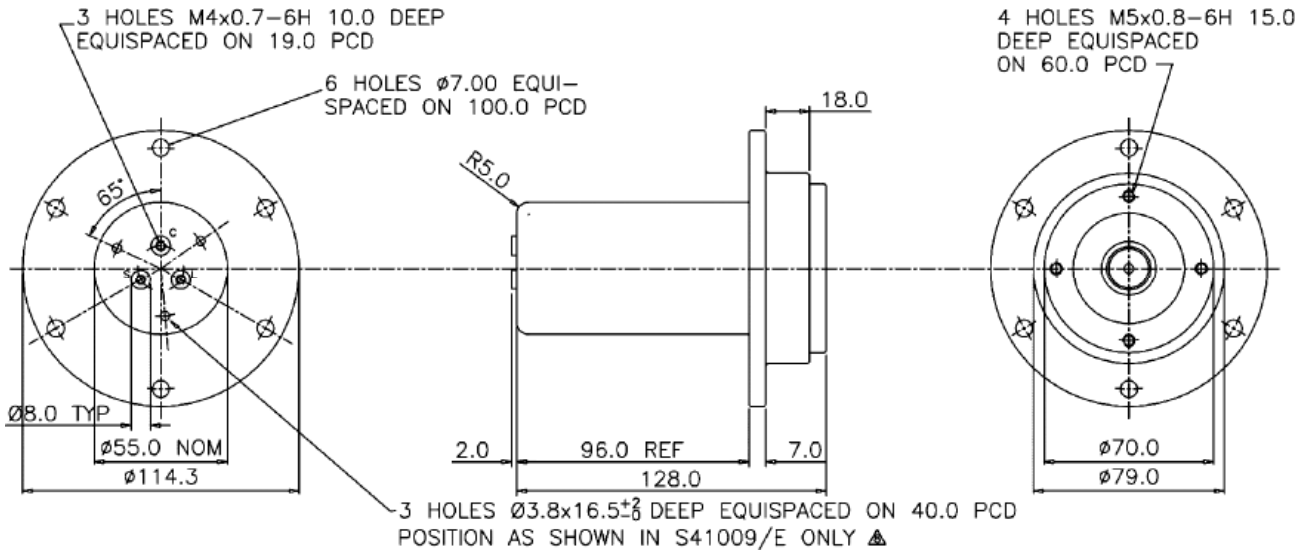
EXAMPLES OF HIGH VOLTAGE CABLE ASSEMBLIES AND RECEPTACLES (FOR REFERENCE ONLY)

High Voltage Cable Assemblies are manufactured in various different combinations of cable and connector types. Some possible configurations and some variants of receptacles are shown for reference. All drawings are for identification purposes only. All drawings not to scale.
Final configurations are defined according to the requirements of the customer's application.

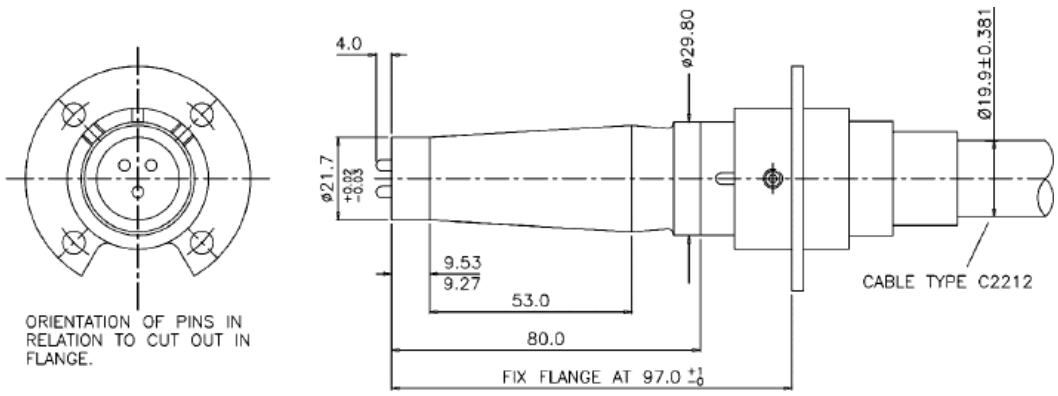
▪ 100kV R10 STRAIGHT MOLDED RUBBER CONNECTOR – CABLE TYPE 2212



▪ 100kV R10 RECEPTACLE



▪ 100kV R27 STRAIGHT MOLDED RUBBER CONNECTOR – CABLE TYPE 2212



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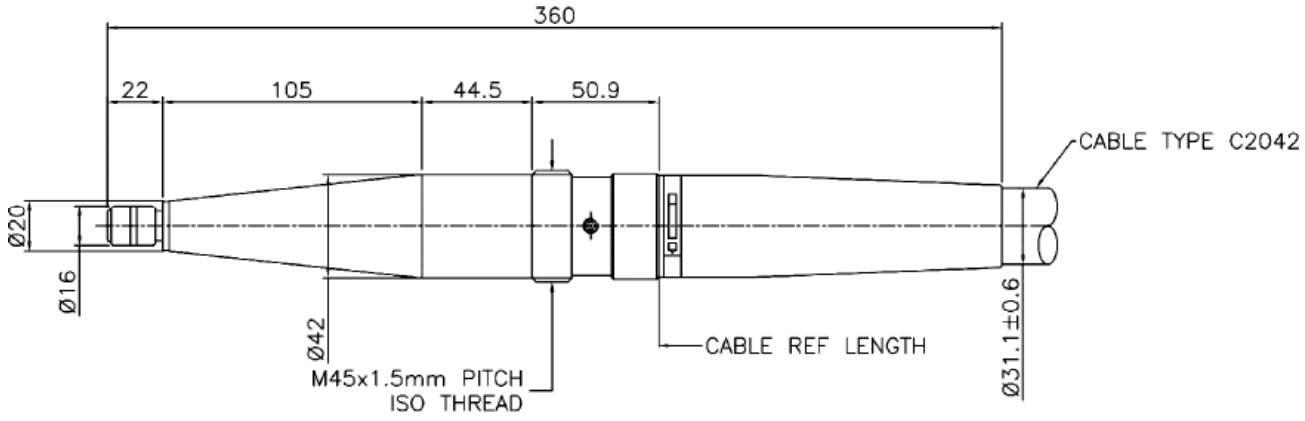
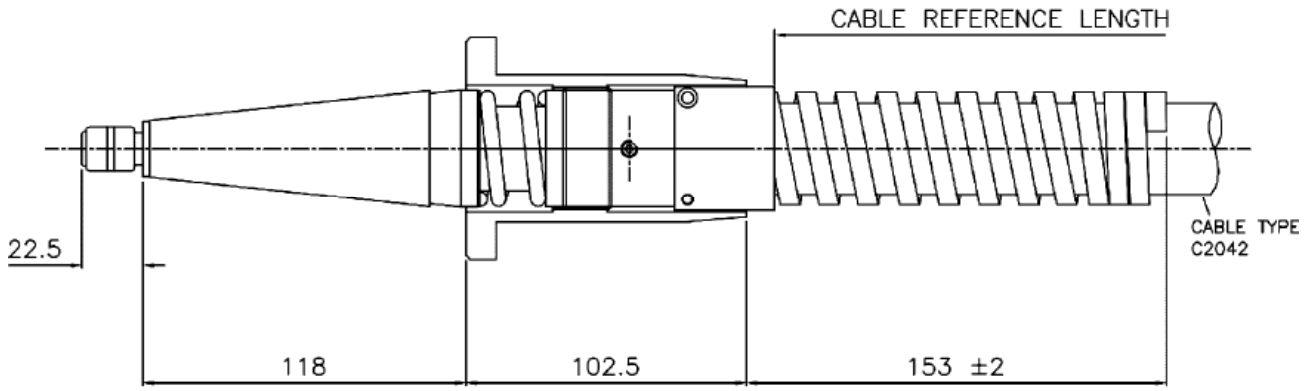
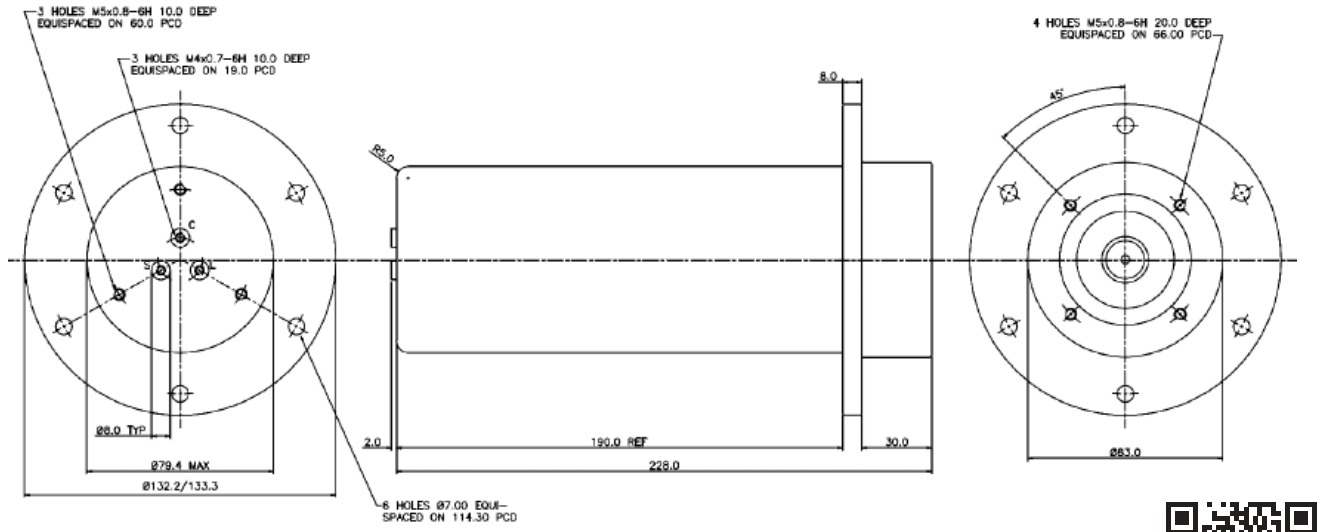
160kV R24 STRAIGHT MOLDED RUBBER CONNECTOR – CABLE TYPE 2042



160kV R24 SPRING LOADED STRAIGHT MOLDED RUBBER CONNECTOR – CABLE TYPE 2042



160kV R24 RECEPTACLE



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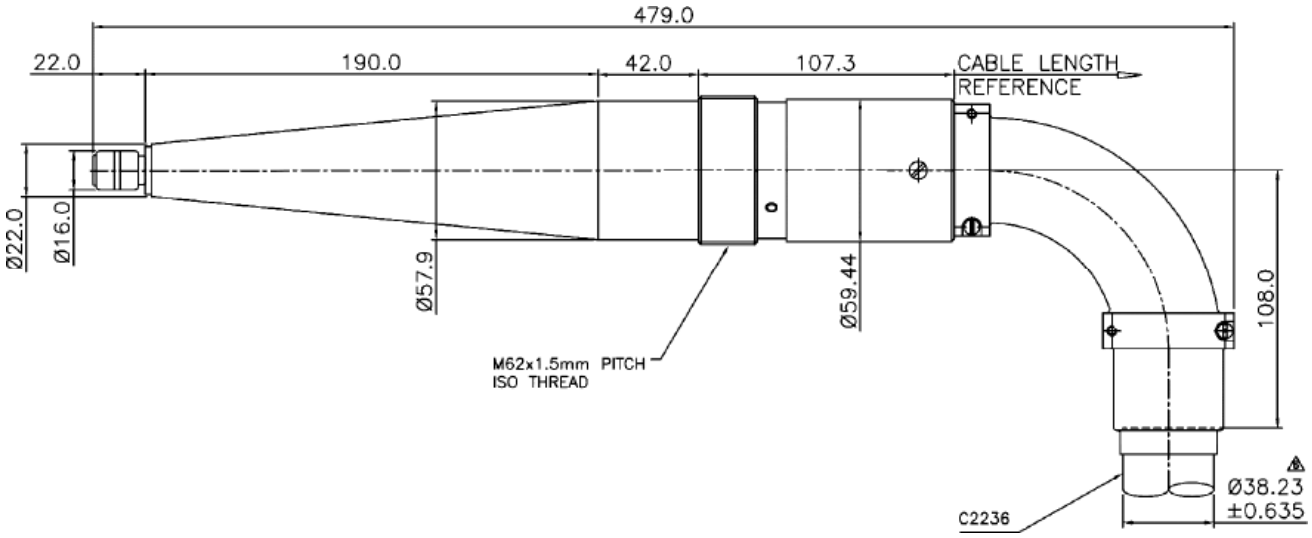
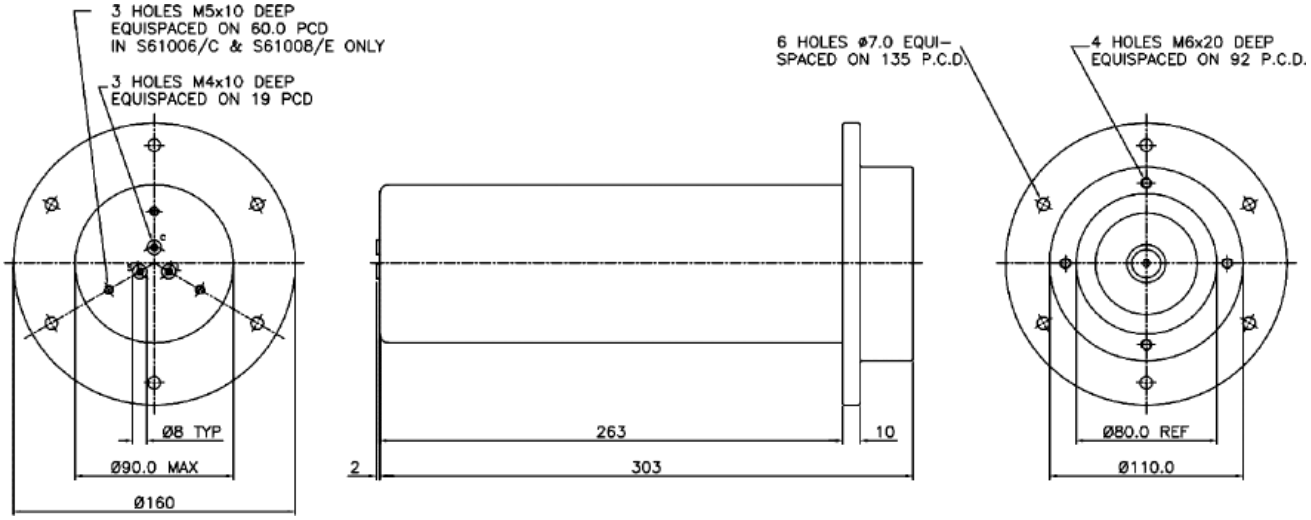
210kV R30 RIGHT ANGLE MOLDED RUBBER CONNECTOR – CABLE TYPE 2236



210kV R30 RECEPTACLE



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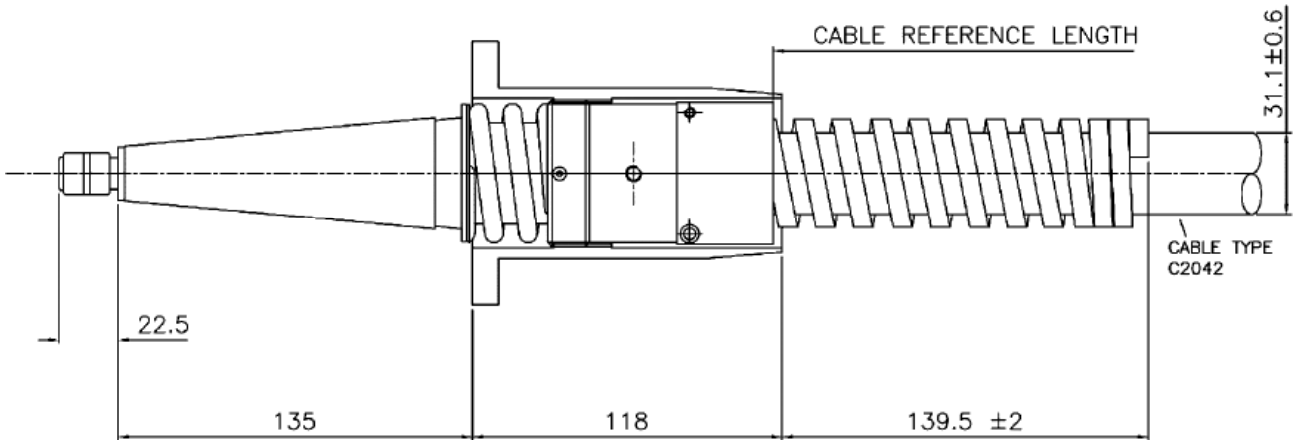
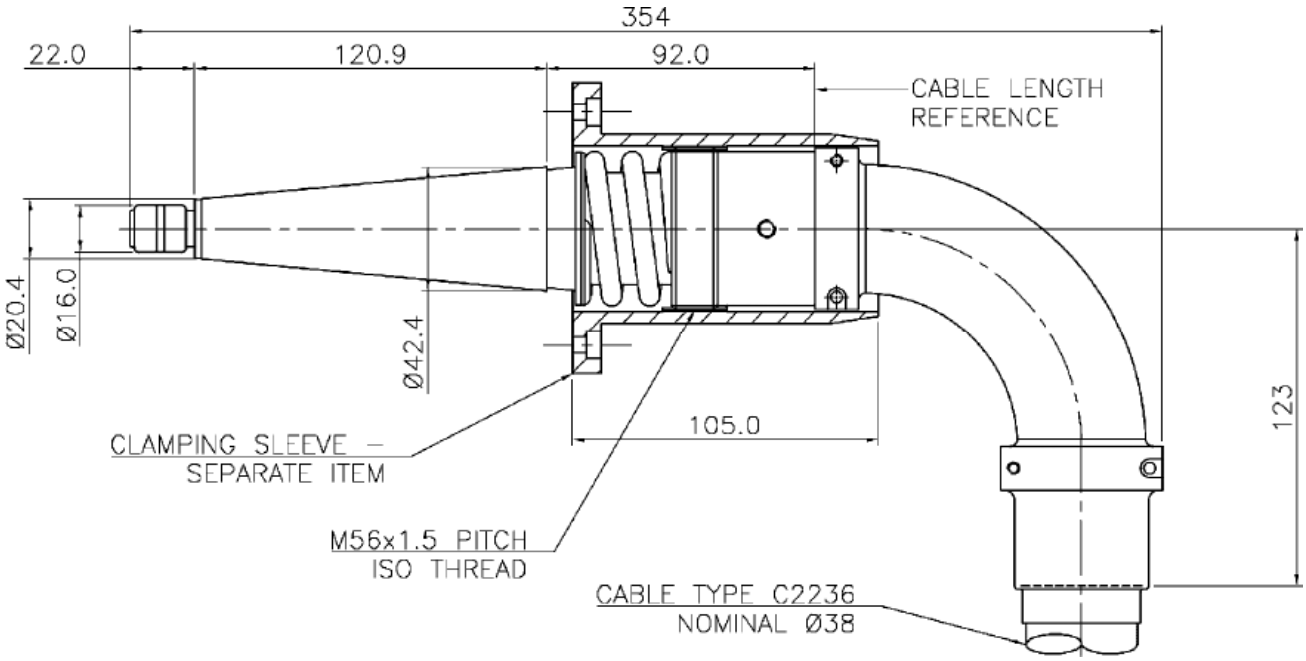
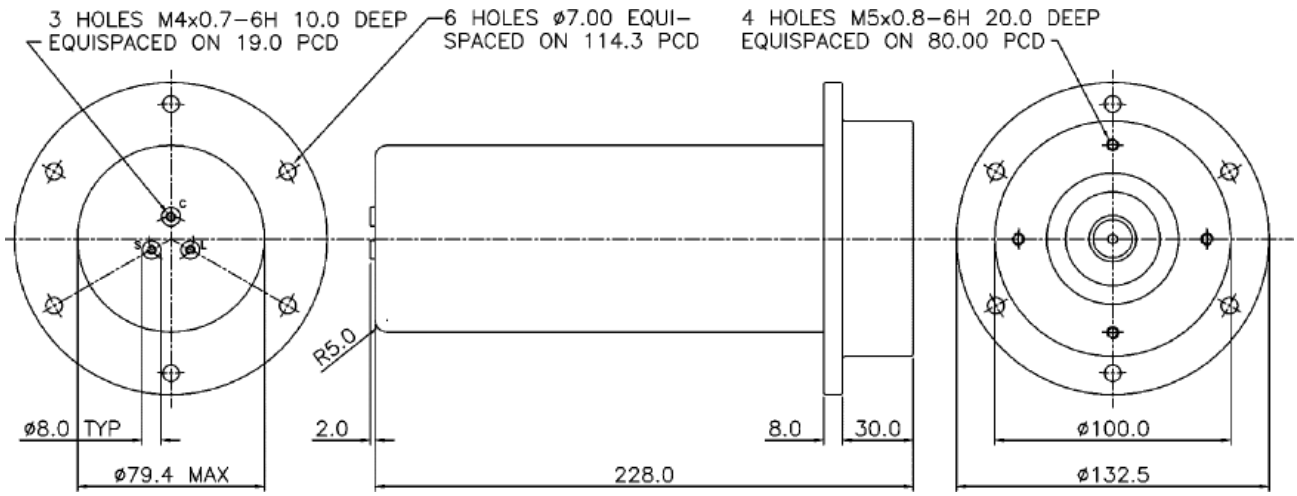
- **225kV R28 SPRING LOADED STRAIGHT MOLDED RUBBER CONNECTOR – CABLE TYPE 2042**



- **225kV R28 SPRING LOADED RIGHT ANGLE MOLDED RUBBER CONNECTOR – CABLE TYPE 2236**



- **225kV R28 RECEPTACLE**



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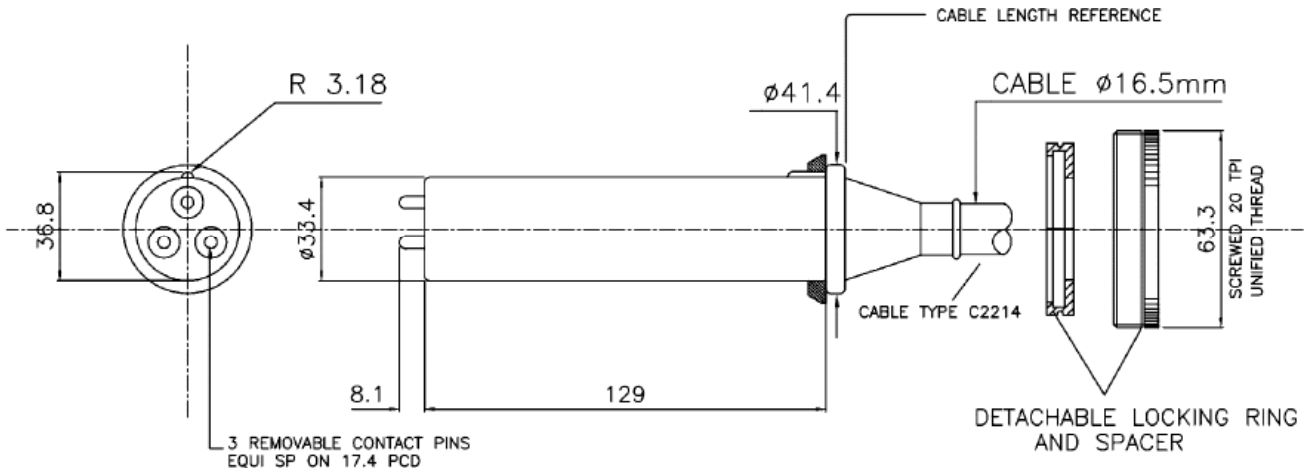
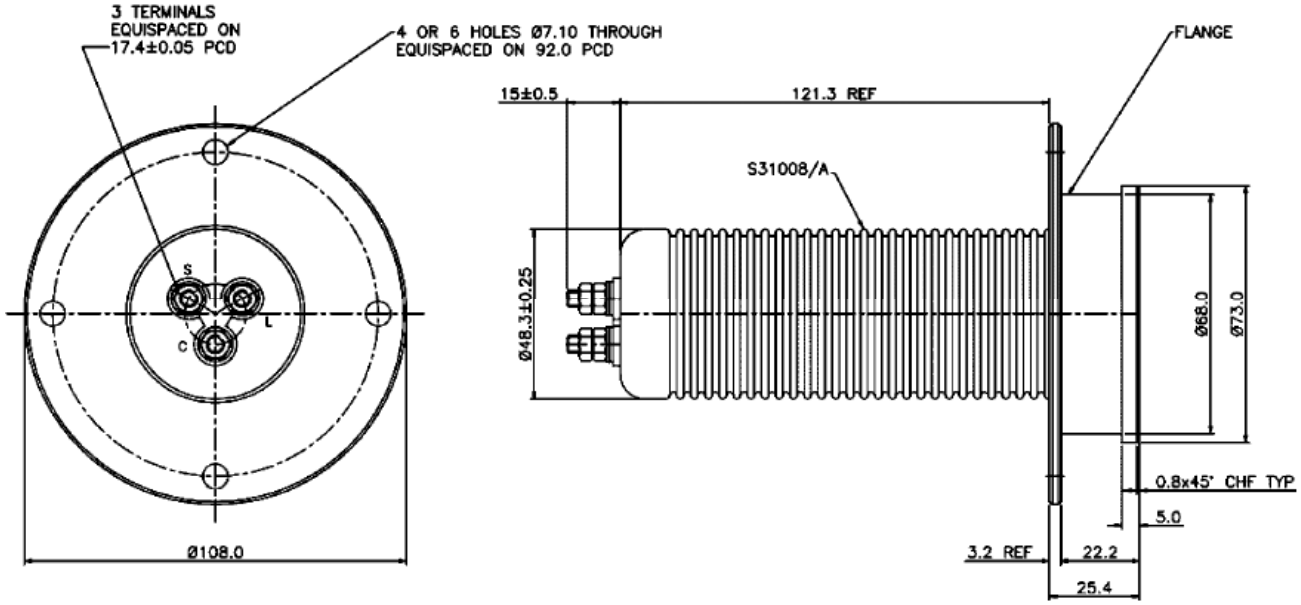
▪ 75kV 03 STRAIGHT RESIN CAST CONNECTOR – CABLE TYPE 2214



▪ 75kV RECEPTACLE WITH FLANGE



Note: drawings not to scale

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TERMINOLOGY / TECHNICAL INFORMATION

Rated Voltage (Operating Voltage)

The maximum voltage (DC or AC – according to the specified values) that may be applied between the centre conductor(s) and

- the environment for unshielded cable or
- the shield for shielded or X-Ray cable or
- the inner shield for triaxial cable or
- the chassis part for single pole connectors (only when plug and receptacle are mated).

For X-Ray, triaxial and multiconductor cable additional relations may apply for the additional conductors.

In case of applied AC voltage the term AC refers to sinusoidal RMS voltage at 50 / 60Hz. AC voltages of higher frequency or pulsed voltages must be examined individually. Cables without AC voltage specification must not be operated with AC voltage applied.

Operation of unshielded cables at AC voltages requires careful tests and long term qualification for the specific application. Suitable means regarding partial discharge have to be considered. All AC ratings for unshielded cables are given for orientation only.

The intended use for almost all cables in this catalog is short term testing/measurement. The cables are not suitable for medium/high voltage utility power applications, unless otherwise stated.
The following must be taken into account: Insulation wall thickness and test voltages are not in line with common standards requirements. Special care and attention is required when using the cables.

In case of UL recognized AWM please notice the following advice: Normally the cable has been spark tested according to UL758 during production. It is recommended to derate the operating voltage for continuous operation. The user has to ensure by adequate tests that the cable is suitable for his application.

(Routine) Test Voltage

The voltage applied to the cable during production to test the dielectric strength on the insulation. The duration of the test and further information are given as appropriate.
The cable must not be operated at test voltage levels.

Type (Model)

Identifier for a specific product. May be extended by optional parameters to form a complete part number.

Conductor

Size: Conductor cross-sectional area, given in AWG or mm².
Area: Conductor cross-sectional area, given in mm².
Diameter: Approximate diameter of the bare conductor.
Strands: Conductor construction, given in number of strands and size/diameter of single strand wire.
Resistance: Maximal conductor resistance per given length.
Weight: Weight of the bare conductor per given length.
Material: Normally copper (Cu).
Plating: Surface treatment (bare / none, tin plated, silver plated) shown with the conductor material (e.g. Cu/Sn: tin plated copper conductor),

No. of Conductors

Effective number of individual, insulated conductors in a multiconductor or X-Ray / E-Beam cable. Multiple bare conductors in X-Ray / E-Beam cables are counted as one conductor.

Dielectric

A non-conducting, insulating material with a specific dielectric constant. Used to insulate the high voltage carrying conductor from the environment or the shield.

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Dielectric (Material)

Specifies the type of compound used for the dielectric. Typical dielectric materials are:

- EPR: Ethylene Propylene Copolymer Rubber
- EPDM: Ethylene Propylene Diene Monomer Rubber
- FEP: Fluorinated Ethylene Propylene
- LDHMW PE: Low Density High Molecular Weight Polyethylene
- PE: Polyethylene
- PEEK: Polyether Ether Ketone
- PFA: Perfluoroalkoxy alkane
- PTFE: Polytetrafluoroethylene (Teflon®)
- SILICONE: Silicone Rubber
- XLPE / PE-X: Cross-Linked Polyethylene

Semicon

A semi-conducting material that has a specific resistance characteristic. When bonded to the dielectric of a cable, the electrical field will be flattened reducing the field strength and the voltage stress to the dielectric. Furthermore, voids between metallic conductors and the dielectric will be avoided, thus reducing partial discharge or internal corona. Semicon is used for both the inner conductor shielding and between the dielectric insulation and metallic shield.

Capacitance

Electrical capacitance of a shielded cable measured between conductor and shield per given length.

Impedance

Characteristic impedance of a shielded cable. Not to be confused with conductor resistance.

Shield (Braid)

A conducting layer or sheath of material applied around an insulated conductor or conductors. Typical shields in high voltage cables are constructed of copper braid. The purpose of the shield is:

- Protection in case of breakdown of the high voltage insulation,
- electrostatic shielding of the enclosed conductors,
- return path for the operating current.

Construction: Plating and AWG or metric size of the individual strand in the braid.
Area equivalent: The conductor size equivalent of the complete braid.
Coverage (%): The physical area of the shield layer covered by the shielding material.

Jacket (Material)

An outer sheath or protective covering over a conductor or insulation, mainly used for protection against the environment, but may also be used to provide additional insulation. Typical jacket materials are:

- FEP: Fluorinated Ethylene Propylene
- NEOPRENE: Polychloroprene Rubber
- PFA: Perfluoroalkoxy alkane
- PU / PUR: Polyurethane Rubber
- PVC: Polyvinyl Chloride
- SILICONE: Silicone Rubber
- TPE: Thermoplastic Elastomeres
- TPE-U: Thermoplastic Elastomeres, Urethane Based
- TPR: Thermoplastic Rubber

LSZH

Low Smoke Zero Halogen is a material classification typically used for cable jacketing composed of thermoplastic or thermoset compounds that emit limited smoke and no halogen when exposed to high sources of heat.

FRNC

Flame Retardant Non-Corrosive is a material classification typically used for cable jacketing.
Flame retardant cables are cables which, although ignitable on exposure to flame source, will greatly reduce flame spread and self extinguish once the flame source is removed.
Non-corrosive cables have a minimal evolution of corrosive combustion gases.

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Outer Diameter (DIA)
Nominal diameter of the finished cable.

Weight / Total Weight
Weight of the finished cable per given length.

Cu-Weight / Copper Weight
Weight of the copper content of the cable per given length.

Color
Color of the finished cable.

Min. Bend Radius
Minimum admissible radius when bending the cable. Normally shown for static / fixed bending. Additional information for dynamic / moving bending given for some cables.

Temperatures

Operating Temper.: The maximum continuous operating temperature of the finished cable. Depends on the ambient temperature and the actual operating current.

max. Conductor: The maximum continuous temperature of the conductor during operation. Depending on the dielectric material used this limit temperature can be higher than maximum operating temperature of the cable.

Storage Temperature: The maximum continuous temperature when the cable is not under operation.

RoHS Compliant

Yes: The cable complies to the EU Directive 2011/65/EU (Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment).

-: The cable may contain amounts of substances that exeed the limits of the EU Directive 2011/65/EU.

Halogen-free

Yes: No halogenes (Fluorine, Chlorine, Bromine, Iodine, Astatine) are intentionally present in the cable.

No: Halogenes (Fluorine, Chlorine, Bromine, Iodine, Astatine) may intentionally be present in the cable.

Oil Resistance
If applicable, the finished cable is oil resistant according to the listed standards.

STATUS

P: Preferred – Normally in stock and fast delivery.

Y: Preliminary – In development. Electrical, mechanical and environmental data are subject to change during the final design of the cable. A final specification will be determined at time of ordering.

S: Special – Available on request. Longer delivery time and large Minimum Order Quantities may apply.

E: Example – Rough draft. No specific realization yet.

O: Obsolete – No longer available.

COLOR CODE

0 black	1 brown	2 red	3 orange	4 yellow	5 green
6 blue	7 violet	8 grey	9 white	10 natural	

Notice: This color code is not identical to the color code used to identify individual wires in a control cable.

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DISCLAIMER

The information given in this catalog is technical data, not assured product characteristics. It has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. All drawings and pictures are not to scale. All values and dimensions without given tolerances are nominal. The content is subject to change without notice.
The user has to ensure by adequate tests that the product is suitable for his application regarding safety and technical aspects. hivolt.de GmbH & Co. KG does not assume any liability arising out of the application or use of any product described. The technical data is based on manufacturer's information.

The intended use for almost all cables in this catalog is short term testing/measurement. The cables are not suitable for medium/high voltage utility power applications, unless otherwise stated.
The following must be taken into account: Insulation wall thickness and test voltages are not in line with common standards requirements. Special care and attention is required when using the cables.

SAFETY ADVICE

Design, installation and inspection of machinery and devices carrying high voltage require accordingly trained and qualified personnel. Appropriate safety rules and directives must be complied with. Improper handling of high voltage can mean severe injuries or death and may cause serious collateral damage!

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AWG TABLE

Size [AWG]	[#]	[AWG]	Area [mm²]	Dia [mm]	Res. [Ω/m]	Weight [kg/km]
44	solid		0.00198	0.050	8.6844	0.018
43	solid		0.00250	0.056	6.8871	0.022
42	solid		0.00315	0.063	5.4617	0.028
41	solid		0.00397	0.071	4.3313	0.035
40	solid		0.00501	0.080	3.4349	0.045
39	solid		0.00632	0.090	2.7240	0.056
38	solid		0.00797	0.101	2.1602	0.071
37	solid		0.0100	0.113	1.7131	0.090
36	solid		0.0127	0.127	1.3586	0.113
	7	44	0.0139	0.151	1.2406	0.124
35	solid		0.0160	0.143	1.0774	0.143
34	solid		0.0201	0.160	0.8544	0.180
	7	42	0.0221	0.190	0.7802	0.197
33	solid		0.0254	0.180	0.6776	0.227
32	solid		0.0320	0.202	0.5374	0.286
	7	40	0.0351	0.240	0.4907	0.313
	19	44	0.0377	0.244	0.4571	0.336
31	solid		0.0404	0.227	0.4261	0.360
30	solid		0.0509	0.255	0.3379	0.454
	7	38	0.0558	0.302	0.3086	0.497
	19	42	0.0599	0.308	0.2875	0.534
29	solid		0.0642	0.286	0.2680	0.573
28	solid		0.0810	0.321	0.2125	0.722
	7	36	0.0887	0.381	0.1941	0.791
	19	40	0.0952	0.388	0.1808	0.849
27	solid		0.102	0.361	0.1686	0.911
26	solid		0.129	0.405	0.1337	1.149
	7	34	0.141	0.480	0.1221	1.258
	10	36	0.127	0.484	0.1359	1.300
	19	38	0.151	0.490	0.1137	1.350
25	solid		0.162	0.455	0.1060	1.448
24	solid		0.205	0.511	0.0841	1.826
	7	32	0.224	0.606	0.0768	2.000
	10	34	0.201	0.611	0.0854	1.797
	19	36	0.241	0.618	0.0715	2.147
	41	40	0.205	0.580	0.0838	1.832
23	solid		0.258	0.573	0.0667	2.303
22	solid		0.326	0.644	0.0529	2.904
	7	30	0.356	0.764	0.0483	3.180
	19	34	0.383	0.779	0.0450	3.414
	26	36	0.329	0.740	0.0523	2.938
21	solid		0.410	0.723	0.0419	3.662
20	solid		0.518	0.812	0.0333	4.617
	7	28	0.567	0.963	0.0304	5.056
	10	30	0.509	0.971	0.0338	4.543
	19	32	0.609	0.982	0.0283	5.428
	26	34	0.524	0.933	0.0329	4.671
	41	36	0.519	0.922	0.0331	4.633
19	solid		0.653	0.912	0.0264	5.822

Size [AWG]	[#]	[AWG]	Area [mm²]	Dia [mm]	Res. [Ω/m]	Weight [kg/km]
18	solid		0.823	1.02	0.0209	7.342
	7	26	0.901	1.21	0.0191	8.040
	16	30	0.815	1.18	0.0211	7.268
	19	30	0.968	1.24	0.0178	8.631
	41	34	0.826	1.16	0.0208	7.366
	65	36	0.823	1.15	0.0209	7.345
17	solid		1.04	1.15	0.0166	9.258
16	solid		1.31	1.29	0.0132	11.67
	7	24	1.43	1.47	0.0120	12.78
	19	29	1.22	1.45	0.0141	10.88
	26	30	1.32	1.52	0.0130	11.81
	65	34	1.31	1.52	0.0131	11.68
	105	36	1.33	1.44	0.0129	11.86
15	solid		1.65	1.45	0.0104	14.72
14	solid		2.08	1.63	0.0083	18.56
	7	22	2.28	1.93	0.0076	20.33
	19	27	1.94	1.80	0.0089	17.31
	41	30	2.09	1.96	0.0082	18.62
	105	34	2.11	1.82	0.0081	18.87
13	solid		2.62	1.83	0.0066	23.41
12	solid		3.31	2.05	0.0052	29.51
	7	20	3.62	2.44	0.0048	32.32
	19	25	3.08	2.29	0.0056	27.52
	37	28	3.00	2.17	0.0057	26.73
	61	29	3.92	2.48	0.0044	34.95
	65	30	3.31	2.31	0.0052	29.53
	165	34	3.32	2.27	0.0052	29.65
11	solid		4.17	2.30	0.0041	37.22
10	solid		5.26	2.59	0.0033	46.93
	37	26	4.76	2.74	0.0036	42.49
	49	27	5.00	2.84	0.0034	44.63
	105	30	5.35	3.30	0.0032	47.70
9	solid		6.63	2.91	0.0026	59.18
8	solid		8.37	3.26	0.0021	74.62
	19	21	7.80	3.51	0.0022	69.57
	49	25	7.96	3.59	0.0022	70.96
	133	29	8.54	4.22	0.0020	76.18
	168	30	8.56	4.42	0.0020	76.32
	665	36	8.42	3.53	0.0020	75.14
7	solid		10.5	3.66	0.0016	94.10
6	solid		13.3	4.12	0.0013	118.7
	133	27	13.6	5.33	0.0013	121.1
	266	30	13.5	5.18	0.0013	120.8
5	solid		16.8	4.62	0.0010	149.6
4	solid		21.2	5.19	0.0008	188.7
	420	30	21.4	6.53	0.0008	190.8
3	solid		26.7	5.83	0.0006	237.9
2	solid		33.6	6.54	0.0005	300.0
	665	30	33.9	8.59	0.0005	302.1
1	solid		42.4	7.35	0.0004	378.3
0	solid		53.5	8.25	0.0003	477.0

Approximate values @ 20°C

The diameters of stranded wires given in this table are approximate values. The actual diameter may vary depending on the build-up of the particular cable.

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TYPE	CLASS	P.
106331	Spec	148
130660	Shield	56
2012	Unsh	29
2012S	Shield	57
2012STJ	Shield	58
2024	Unsh	30
2024SVJ	Shield	59
2032	Unsh	31
2032S	Shield	60
2032STJ	Shield	61
2042	X-Ray	128
2062	Unsh	32
2062SVJ	Shield	62
2075	Unsh	33
2075S	Shield	63
2075SVJ	Shield	64
2111	Multic	149
2121	Shield	65
2121A	Unsh	34
2122	Triax	110
2124	Shield	66
2124A	Unsh	35
2125	Shield	67
2125A	Unsh	36
2132	Unsh	37
2134	Shield	68
2149	Unsh	38
2149SVJ	Shield	69
2171	X-Ray	129
2176	Multic	12
2178	Unsh	39
2181-1	Multic	150
2183	Multic	151
2185R	Unsh	40
2187	Multic	12
2188	Multic	152
2201	Multic	12
2207	Multic	12
2211-R1	Multic	12
2212	X-Ray	130
2212TVJ	Triax	111
2214	X-Ray	131
2226	X-Ray	132
2228	Multic	12
2229	Unsh	41
2232	Shield	70
2233	Multic	153
2236	X-Ray	133

TYPE	CLASS	P.
2241	Quadr	112
2243	Shield	71
2243A	Unsh	42
2243TTJ	Triax	113
2243VJ-4	Unsh	43
2266	X-Ray	134
2338	X-Ray	135
2357S	Shield	72
2358	Triax	114
8511R	Unsh	44
HFP Series	Unsh	16
HPA Series	Unsh	18
HPW-30S-0.34-A-2	Shield	73
HPW-40S-0.5-A-2	Shield	74
HPW-50S-0.34-A-2	Shield	75
HRG58-20-2	Shield	76
HRG58-20-XV-U-2	Shield	77
HRG303-40-U-A-2	Shield	78
HRG316-10-B-2	Shield	79
HSC-0.25-8Q1SFA-6	Multic	154
HSC-1-2SSUB-0	Multic	155
HSC-1-4SSUA-6	Multic	156
HSC-2.5-7SSB-2	Multic	157
HSC-3-2A1SAB-0	Multic	158
HSC-3-2S1SSB-0	Multic	160
HSC-5-1X2SUA-2	Triax	115
HSC-5-7X2SVA-2	Multic	161
HSC-7.5-2K2SA	Spec	162
HSC-10-6SSSA	Multic	163
HSC-15-1S2SUA-0	Triax	116
HSC-15-2SSA-9	Multic	164
HSC-17-1SSSOB-2	Shield	80
HSC-20-1X2SUA-2	Triax	118
HSC-30-1S2SSB-0	Triax	119
HSC-30-1S2STA-2	Triax	120
HSC-30-3S2SUC-0	Multic	165
HSC-30-9SSC-2	Multic	167
HSC-50-1S1SUA-0	Shield	81
HSC-60-1PSUA-2	Shield	82
HSC-100-1PSUB-2	Shield	83
HSC-111-1X1SVA-2	Shield	84
HSC-120-1E1SAB-2	Shield	85
HSC-125-1E1SAB-2	Shield	86
HSC-125-1E1SVA-0	Shield	88
HSC-150-1E1SAB-2	Shield	89
HSC-150-1PSUB-2	Shield	90
HSC-300-1E2SVA-0	Triax	121
HSC-300-1E2SVG-0	Triax	122

TYPE	CLASS	P.
HSL-8S-0.75-B-2	Shield	91
HSL-8S-1.5-A-2	Shield	92
HSL-10S-0.5-A-2	Shield	93
HSL-10S-1.5-U-A-2	Shield	94
HSL-15S-3.9-A-2	Shield	95
HSL-15S-6-A-9	Shield	96
HSL-20-0.38-B-9	Unsh	45
HSL-20-0.38-SS-C-0	Shield	97
HSL-20-0.38-SS-F1-0	Shield	98
HSL-20-0.38-SS-P1-0	Shield	99
HSL-30-0.38-SS-C-0	Shield	100
HSL-30-6-SU-A-x	Shield	101
HSL-40-0.97-A-9	Unsh	46
HSL-40-35-A-9	Unsh	47
HST Series	Unsh	20
HSU Series	Unsh	22
HSUS Series	Shield	54
HSW Series	Unsh	24
HSX Series	Unsh	26
HTV-20-22-2	Unsh	48
HTV-30-22-2	Unsh	49
HTV-30S-22-0	Shield	102
HTV-30S-22-2	Shield	103
HTV-50-22-2	Unsh	50
HXC-60-1EA-8	Shield	104
HXC-60-3S1SUA-0	E-Bm	142
HXC-75-3ED-8	X-Ray	136
HXC-75-4EC-9	X-Ray	137
HXC-100-3EA-8	X-Ray	138
HXC-160-3EB-8	X-Ray	139
HXC-160-3EC-0	X-Ray	140
HXC-300-3EA-0	X-Ray	141
HXC-320-3EUB-0	E-Bm	144
HXW Series	Unsh	28
RG213-020	Shield	105

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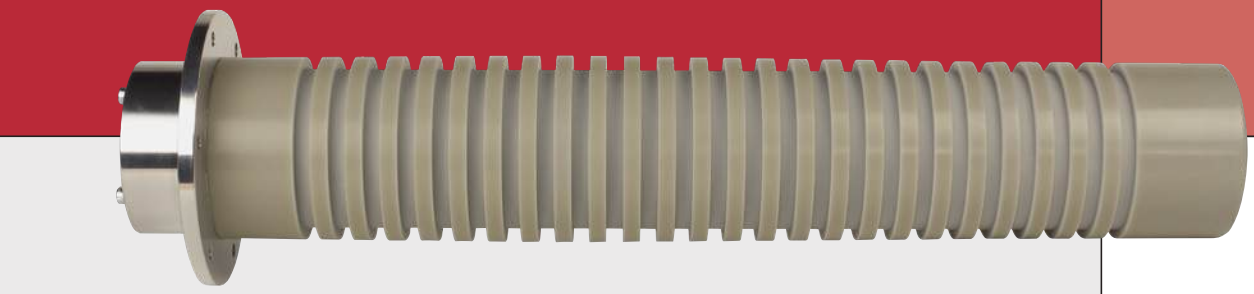

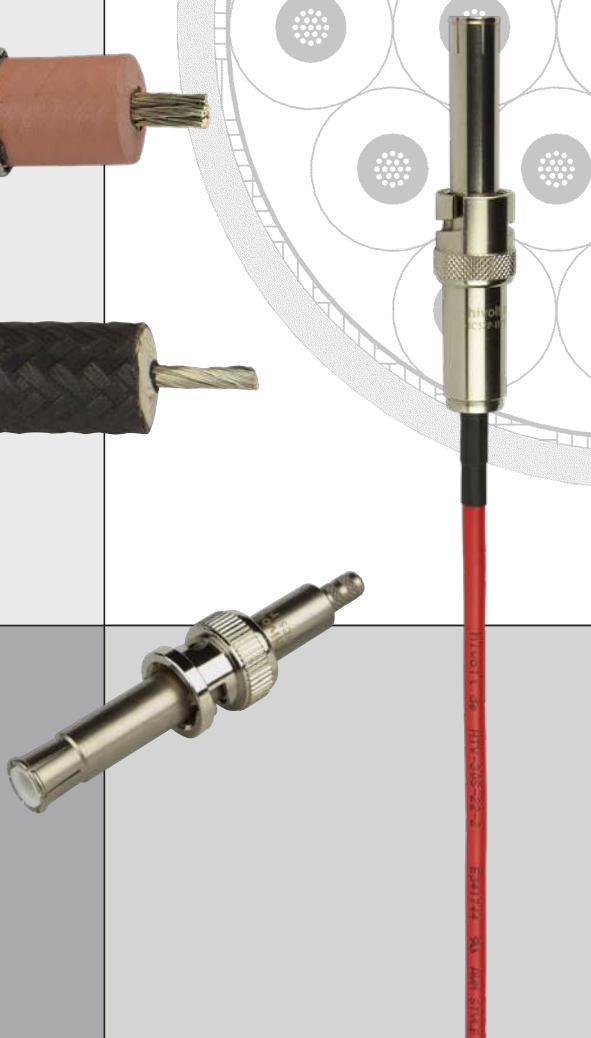

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