

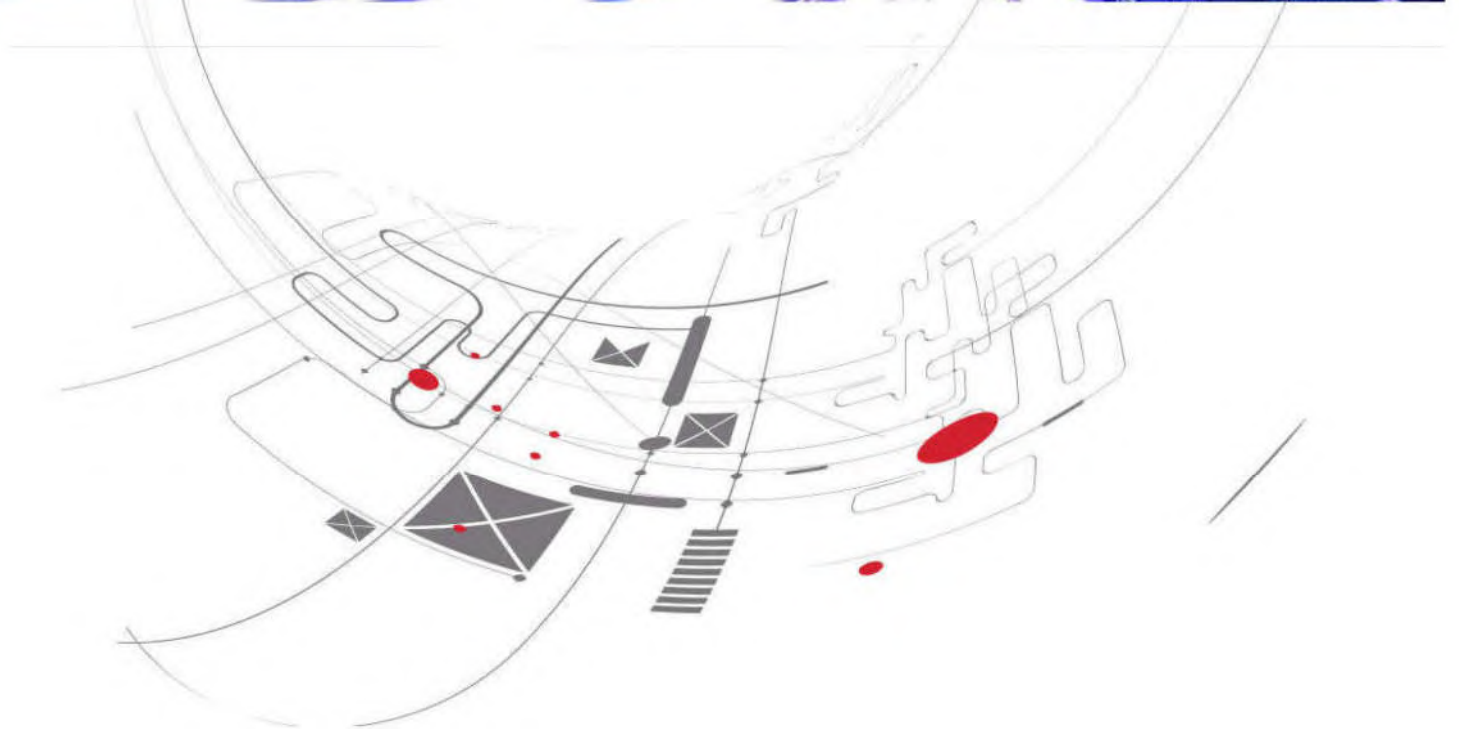


GGT

www.ggt-int.com



Low Voltage Power Cables



NYAF

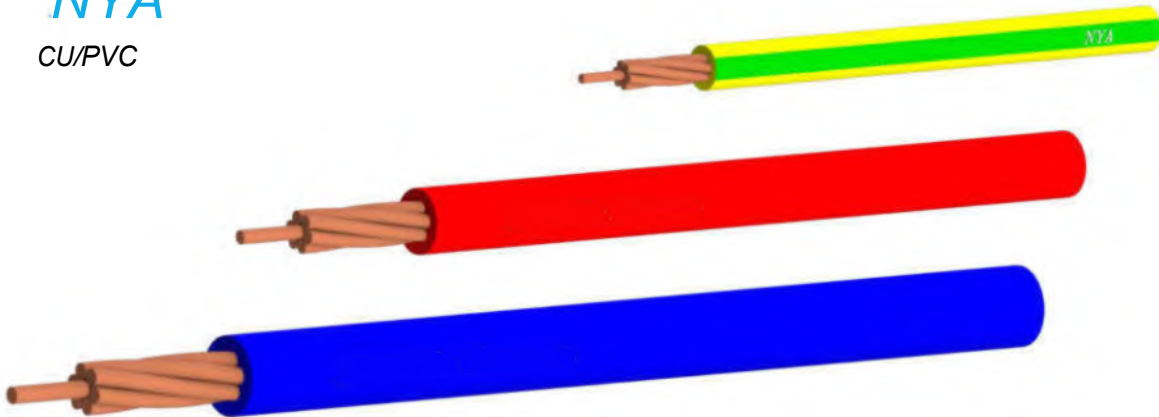
CU/PVC

Code NR	conductor cross-section	Construction of individual conductor	External diameter	Insulation thickness	Conductor resistance at 20 °C	Cable weight	Packing*
	mm ²	nominal n x mm	min-max. mm	nominal mm	max Ω/km	approx. kg/km	
1175	0.75	24 x 0,195	2,0 – 2.4	0,6	26	12	c.100, c.200
1110	1.0	31 x 0,195	2.3 – 2.7	0,6	19.5	15	c.100, c.200
1115	1,5	31 x 0,23	2,8 – 3.4	0,7	13,3	20	c.100, c.200
1125	2,5	51 x 0,23	3,4 – 3.6	0,8	7,98	32	c.100
1140	4	83 x 0,23	3,9 – 4,3	0,8	4,95	46	c.100
1160	6	82 x 0,28	4,5 – 4.9	0,8	3,30	65	c.100
1110	10	70 x 0,395	5,7 – 6,1	1,0	1,91	115	c.100
11160	16	118 x 0,395	6,8 – 7.2	1,0	1,21	170	c.100
11250	25	186 x 0,395	8,8 – 9.2	1,2	0,780	260	CUT
11350	35	265 x 0,395	10.4 – 10.8	1,2	0,554	360	CUT
11500	50	383 x 0,395	12.2 – 12.6	1,4	0,386	515	CUT
11700	70	528 x 0,395	13,3 – 13.7	1,4	0,272	710	CUT
11950	95	710 x 0,395	16.2 – 16.9	1,6	0,206	940	CUT
111200	120	614 x 0,50	17 – 17.9	1,6	0,161	1180	CUT
111500	150	765 x 0,50	19.0 – 19.9	1,8	0,129	1600	CUT
111850	185	944 x 0,50	21.0 – 21.9	2,0	0,106	2100	CUT
112400	240	1225 x 0,50	24.0 – 24.9	2,2	0,0801	3015	CUT

*)Packing: c.100 = coil 100 m, c.200 = coil 200 m CUT= cable in different lengths on drum or reel, possible cutting at required

NYA

CU/PVC



Single Core Cable Unarmored PVC insulation

Construction

Conductor: Bare copper conductor, multi wire stranded, class 2.
acc. to IEC 60228 / HD 383 / DIN VDE 0295

Insulation: PVC compound T11 acc. to IEC 60227-3 / HD
21.3 S3 / DIN VDE 00281 part 3

Colour Code: acc. to IEC 60446 i.e. EN 60446
(corresponding to DIN VDE 0293)

possible
insulation
colours:



- blue colour is used for neutral conductor, black and brown are applied
for alternating current phase conductors

Technical data

Temperature range:

During installation : +5 °C up to +70 °C
fixed installed: -30 °C up to +70 °C
at short circuit of max. 5 s: up to 160 °C
ambient temperature at storage: up to 40 °C

Nominal voltage: $U_0/U = 450/750$ V
Test voltage: 2500 V

Minimal inner bending radius: 4D for $D < 8$ mm
5D for $8 - 12$ mm
6D for $D > 12$ mm

Behavior in fire: IEC 60332-1



APPLICATION

Insulated conductor used for laying in electric-installation tubes,
under and on plaster installation in dry rooms and in closed
installation conduits. Direct laying in cable guides is not permitted.
Also applied for internal wiring of distribution and switching boxes
equipment, same as for protective laying for lighting of nominal
voltage up to 1000 V alternating current, or up to 750 V direct
current against earth.

DESIGN STANDARDS

HRNHD 21.3 S3
IEC 60227-3

ISIRI (607) 01/05
DIN VDE 0281 part 3

NYA

CU/PVC

Code No	conductor cross-section	Construction of individual conductor	External diameter	Insulation thickness	Conductor resistance at 20 °C	Specific. el. resistance of insulation at 70°C	Cable weight	Packing*
	mm ²	nominal n x mm	min-max. mm	nominal mm	max. Ω/km	min. MΩkm	approx. kg/km	
1415	1.5	7 x 0.52	2.9-3.1	0.7	12.1	0.01	20	c.100
1425	2.5	7 x 0.66	3.5-3.7	0.8	7.41	0.009	35	c.100
1440	4	7 x 0.85	4.1-4.3	0.8	4.61	0.0077	50	c.100
1460	6	7 x 1.04	4.6-4.8	0.8	3.08	0.0070	75	c.100
14100	10	7 x 1,35	5,6 - 06,7	1,0	1,83	0,0067	120	c.100
14160	16	7 x 1,70	6,4 - 07,8	1,0	1,150	0,0056	175	c.100
14250	25	7 x 2,13	8,1 - 09,7	1,2	0,727	0,0053	275	c.50, CUT
14350	35	7 x 2,52	9,0 - 10,9	1,2	0,524	0,0046	370	c.50, CUT
14500	50	19 x 1,83	10,6 - 12,8	1,4	0,387	0,0046	500	CUT
14700	70	19 x 2,17	12,1 - 14,6	1,4	0,268	0,0040	710	CUT
14950	95	19 x 2,52	14,1 - 17,1	1,6	0,193	0,0039	970	CUT
14120	120	37 x 2,03	15,6 - 18,8	1,6	0,153	0,0035	1200	CUT
14150	150	37 x 2,27	17,3 - 20,9	1,8	0,124	0,0035	1470	CUT
14185	185	37 x 2,6	19,3 - 23,3	2,0	0.0991	0.0035	1780	CUT
14240	240	37 x 2,95	24,5 - 29,6	2,2	0.0754	0.0032	2330	CUT

*)Packing: c.100 = coil 100 m, c.200 = coil 200 m CUT= cable in different lengths on drum or reel, possible cutting at required

Code No	conductor cross-section	Current - Carrying Capacity at 30° C		Short circuit current at 1 sec
	mm ²	Ground Max (A)	Air Max (A)	Max. (kA)
1415	1.5	15	24	0.17
1425	2.5	19	32	0.29
1440	4	25	42	0.46
1460	6	33	54	0.69
14100	10	45	73	1.15
14160	16	61	98	1.84
14250	25	83	129	2.88
14350	35	103	158	4.03
14500	50	132	197	5.75
14700	70	165	245	8.05
14950	95	207	290	10.93
14120	120	235	345	13.8
14150	150	---	390	17.25
14185	185	---	475	21.3
14240	240	---	560	27.6

NYM 2x (1.5-35)mm²

CU/PVC/Filler/PVC



FLEXIBLE SMALL BENDING RADIUS / FLAME RETARDANT AND HYDROCARBON RESISTANT

Construction

Conductor:	bare copper conductor acc. to IEC 60228 / HD 383 / DIN VDE 0295 class 1: solid (RE construction) class 2: multi wire stranded (RM construction)
Insulation:	PVC compound TI1 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
Filler :	cores enveloped in non-vulcanized rubber or plastic compound
Sheath:	PVC compound TM1 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
sheath colour:	Black Ral 9005 ;Grey Ral 7032 ; Blue Ral 5015

Special Features on Request

- Fire Resistance
- Oil Resistance
- Flame Retardant Cat. A, B, C



Technical data

Temperature range:	
During installation :	+5 °C up to +70 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 150 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	6D
Behavior in fire:	IEC 60332-1

DESIGN STANDARDS

HRN HD 21.4 S2
IEC 60227-4
DIN VDE 0250 part 204

Note :

Conductor Shaped 1.5 - 10 mm² supplied in solid (re) or non compacted circular stranded (rm)
conductor shape 16 - 35 mm² supplied in non compacted circular stranded (rm) conductor shape

APPLICATION

Installation cable suitable for household and industrial usage. Laid on or under plaster, in walls or concrete, without special mechanical protection, but not in dry or pre-stressed concrete. Suitable for dry, same as damp or wet environment; for internal or external application (only if the cable is protected against direct sunlight).

NYM 2 × (1.5-35)mm²

CU/PVC/Filler/PVC

Code No	number of cores x conductor cross- section	Construc- tion*	Construction of individual conductor	External diameter (MM)	Conductor resistance at 20 °C	Cable weight Kg/Km	Current- Carrying Capacity at 30°C *in air	Packing*
			nominal	min-max.	max.	nominal	Max. (A)	
122150	2 x 1,5	RE	1 x 1,36	8,4 - 9,8	12,10	115	19	c.100
122151	2 x 1,5	RM	7 x 0.52	9,0 - 9,4	12,10	130	19	c.100
122250	2 x 2,5	RE	1 x 1,78	9.8 - 10.4	7.41	164	25	c.100
122251	2 x 2,5	RM	7 x 0.66	10.3 - 10.6	7.41	177	25	c.100
122400	2 x 4	RE	1 x 2.2	10.7 - 11,1	4.61	213	34	c.100
122401	2 x 4	RM	7 x 0.85	11,3 - 11.7	4,61	232	34	c.100
122600	2 x 6	RE	1 x 2.7	11.7 - 12.1	3.08	274	44	c.100
122601	2 x 6	RM	7 x 1.04	12.4 - 12.8	3.08	298	44	c.100
1221000	2 x 10	RE	1 x 3.49	14.9 - 15.3	1.83	446	61	c.100
1221001	2 x 10	RM	7 x 1.35	15.9 - 16.3	1.83	492	61	c.100
1221601	2 x 16	RM	7 x 1.7	18- 18.4	1.15	678	82	CUT
1222501	2 x 25	RM	7 x 2.2	21.8 - 22.4	0.727	1061	108	CUT
1223501	2 x 35	RM	7 x 2.6	23.8 - 24.2	0.524	1319	134	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Nom. Cross Section Area	DC Resistance at 20°C	AC Resistance at 70°C	Insulation Resistance at 70°C	Inductance	Current - Carrying Capacity at 30° C *	Short circuit current at 1 sec
(mm ²)	Max. (Ω/km)	Max. (Ω/km)	Min. (M.Ω.km)	(mH/km)	in air Max. (A)	Max. (kA)
1.5	12.1	14.478	0.010	0.329	19	0.17
2.5	7.41	8.866	0.009	0.318	25	0.29
4	4.61	5.516	0.0077	0.297	34	0.46
6	3.08	3.685	0.0065	0.281	44	0.69
10	1.83	2.190	0.0065	0.278	61	1.15
16	1.15	1.376	0.0052	0.255	82	1.84
25	0.727	0.870	0.0050	0.252	108	2.88
35	0.524	0.627	0.0044	0.244	134	4.03

*Further information about rating factor for certain cable arrangement can be found on supplementary technical information

NYM 3 × (1.5-35)mm²

CU/PVC/Filler/PVC



FLEXIBLE SMALL BENDING RADIUS / FLAME RETARDANT AND HYDROCARBON RESISTANT

Construction

Conductor:	bare copper conductor acc. to IEC 60228 / HD 383 / DIN VDE 0295 class 1: solid (RE construction) class 2: multi wire stranded (RM construction)
Insulation:	PVC compound T11 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
Filler:	cores enveloped in non-vulcanized rubber or plastic compound
Sheath:	PVC compound TM1 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
sheath colour:	Black Ral 9005 ;Grey Ral 7032 ; Blue Ral 5015

Special Features on Request

- Fire Resistance
- Oil Resistance
- Flame Retardant Cat. A, B, C



Note :

Conductor Shaped 1.5 - 10 mm² supplied in solid (re) or non compacted circular stranded (rm)
conductor shape 16 - 35 mm² supplied in non compacted circular stranded (rm) conductor shape

Technical data

Temperature range:	
During installation :	+5 °C up to +70 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 150 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	6D
Behavior in fire:	IEC 60332-1

DESIGN STANDARDS

HRN HD 21.4 S2
IEC 60227-4
DIN VDE 0250 part 204

APPLICATION

Installation cable suitable for household and industrial usage. Laid on or under plaster, in walls or concrete, without special mechanical protection, but not in dry or pre-stressed concrete. Suitable for dry, same as damp or wet environment; for internal or external application (only if the cable is protected against direct sunlight).

NYM 3 × (1.5-35)mm²

CU/PVC/Filler/PVC

Code No	Dimensions – number of cores x conductor cross-section	Construction*	Construction of individual conductor	External diameter (MM)	Conductor resistance at 20 °C	Cable weight Kg/Km	Current-Carrying Capacity at 30°C *in air	Packing*
			nominal	min-max.	max.	nominal	Max. (A)	
123150	3 × 1,5	RE	1 × 1,36	9 - 9,4	12,10	139	19	c.100
123151	3 × 1,5	RM	7 × 0.52	9,4 - 9,8	12,10	151	19	c.100
123250	3 × 2,5	RE	1 × 1,78	10.3 - 10.7	7.41	193	25	c.100
123251	3 × 2,5	RM	7 × 0.66	10.8 - 11.2	7.41	207	25	c.100
123400	3 × 4	RE	1 × 2.2	11.3 - 11,7	4.61	255	34	c.100
123401	3 × 4	RM	7 × 0.85	11,9 - 112.3	4,61	276	34	c.100
123600	3 × 6	RE	1 × 2.7	12.8 - 13.2	3.08	345	44	c.100
123601	3 × 6	RM	7 × 1.04	13.6 - 14	3.08	374	44	c.100
1231000	3 × 10	RE	1 × 3.49	15.7- 16.1	1.83	544	61	CUT
1231001	3 × 10	RM	7 × 1.35	16.8 - 17.1	1.83	597	61	CUT
1231601	3 × 16	RM	7 × 1.7	19.5- 19.9	1.15	861	82	CUT
1232501	3 × 25	RM	7 × 2.2	23.6 - 30	0.727	1321	108	CUT
1233501	3 × 35	RM	7 × 2.6	25.2 - 25.6	0.524	1636	134	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Nom. Cross Section Area	DC Resistance at 20°C	AC Resistance at 70°C	Insulation Resistance at 70°C	Inductance	Current - Carrying Capacity at 30° C *	Short circuit current at 1 sec
(mm ²)	Max. (Ω/km)	Max. (Ω/km)	Min. (M.Ω.km)	(mH/km)	in air Max. (A)	Max. (kA)
1.5	12.1	14.478	0.010	0.329	19	0.17
2.5	7.41	8.866	0.009	0.318	25	0.29
4	4.61	5.516	0.0077	0.297	34	0.46
6	3.08	3.685	0.0065	0.281	44	0.69
10	1.83	2.190	0.0065	0.278	61	1.15
16	1.15	1.376	0.0052	0.255	82	1.84
25	0.727	0.870	0.0050	0.252	108	2.88
35	0.524	0.627	0.0044	0.244	134	4.03

* Further information about rating factor for certain cable arrangement can be found on supplementary technical information

NYM 4 × (1.5-35)mm²

CU/PVC/Filler/PVC



FLEXIBLE SMALL BENDING RADIUS / FLAME RETARDANT AND HYDROCARBON RESISTANT

Construction

Conductor:	bare copper conductor acc. to IEC 60228 / HD 383 / DIN VDE 0295
	class 1: solid (RE construction)
	class 2: multi wire stranded (RM construction)
Insulation:	PVC compound T11 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
Filler :	cores enveloped in non-vulcanized rubber or plastic compound
Sheath:	PVC compound TM1 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
sheath colour:	Black Ral 9005 ;Grey Ral 7032 ; Blue Ral 5015

Special Features on Request

- Fire Resistance
- Oil Resistance
- Flame Retardant Cat. A, B, C



Note :

Conductor Shaped 1.5 - 10 mm² supplied in solid (re) or non compacted circular stranded (rm)
conductor shape 16 - 35 mm² supplied in non compacted circular stranded (rm) conductor shape

Technical data

Temperature range:

During installation :	+5 °C up to +70 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 150 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage:	U ₀ /U = 300/500 V
Test voltage:	2000 V

Minimal inner bending radius:	6D
-------------------------------	----

Behavior in fire:	IEC 60332-1
-------------------	-------------

DESIGN STANDARDS

HRN HD 21.4 S2
IEC 60227-4
DIN VDE 0250 part 204

APPLICATION

Installation cable suitable for household and industrial usage. Laid on or under plaster, in walls or concrete, without special mechanical protection, but not in dry or pre-stressed concrete. Suitable for dry, same as damp or wet environment; for internal or external application (only if the cable is protected against direct sunlight).

NYM 4 x (1.5-35)mm²

CU/PVC/Filler/PVC

Code No	number of cores x conductor cross- section	Construction*	Construction of individual conductor	External diameter (MM)	Conductor resistance at 20 °C	Cable weight Kg/Km	Current- Carrying Capacity at 30°C *in air	Packing**
			nominal	min-max.	max.	nominal	Max. (A)	
124150	4 x 1,5	RE	1 x 1,36	9.7-10.1	12,10	164	19	c.100
124151	4 x 1,5	RM	7 x 0.52	10.2-10.6	12,10	179	19	c.100
124250	4 x 2,5	RE	1 x 1,78	11.2-11.6	7.41	232	25	c.100
124251	4 x 2,5	RM	7 x 0.66	11.7-12.1	7.41	248	25	c.100
124400	4 x 4	RE	1 x 2.2	12.7-13.1	4.61	321	34	c.100
124401	4 x 4	RM	7 x 0.85	13.4-13.8	4.61	346	34	c.100
124600	4 x 6	RE	1 x 2.7	14.3-14.7	3.08	438	44	c.100
124601	4 x 6	RM	7 x 1.04	15.3-15.7	3.08	473	44	c.100
1241000	4 x 10	RE	1 x 3.49	17.2-17.6	1.83	668	61	CUT
1241001	4 x 10	RM	7 x 1.35	18.4-18.8	1.83	731	61	CUT
1241601	4 x 16	RM	7 x 1.7	21.3-21.7	1.15	1059	82	CUT
1242501	4 x 25	RM	7 x 2.2	26.3-26.7	0.727	1651	108	CUT
1243501	4 x 35	RM	7 x 2.6	27.7-28.1	0.524	2019	134	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Nom. Cross Section Area (mm ²)	DC Resistance at 20°C Max. (Ω/km)	AC Resistance at 70°C Max. (Ω/km)	Insulation Resistance at 70°C Min. (M.Ω.km)	Inductance (mH/km)	Current - Carrying Capacity at 30° C *	Short circuit current at 1 sec Max. (kA)
					in air Max. (A)	
1.5	12.1	14.478	0.010	0.329	19	0.17
2.5	7.41	8.866	0.009	0.318	25	0.29
4	4.61	5.516	0.0077	0.297	34	0.46
6	3.08	3.685	0.0065	0.281	44	0.69
10	1.83	2.190	0.0065	0.278	61	1.15
16	1.15	1.376	0.0052	0.255	82	1.84
25	0.727	0.870	0.0050	0.252	108	2.88
35	0.524	0.627	0.0044	0.244	134	4.03

* Further information about rating factor for certain cable arrangement can be found on supplementary technical information

NYM 5 × (1.5-35)mm²

CU/PVC/Filler/PVC



FLEXIBLE SMALL BENDING RADIUS / FLAME RETARDANT AND HYDROCARBON RESISTANT

Construction

Conductor:	bare copper conductor acc. to IEC 60228 / HD 383 / DIN VDE 0295 class 1: solid (RE construction) class 2: multi wire stranded (RM construction)
Insulation:	PVC compound TI1 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
Filler:	cores enveloped in non-vulcanized rubber or plastic compound
Sheath:	PVC compound TM1 acc. to DIN VDE 0281 part 1 / HD 21.1 S4
sheath colour:	Black Ral 9005 ; Grey Ral 7032 ; Blue Ral 5015

Special Features on Request

- Fire Resistance
- Oil Resistance
- Flame Retardant Cat. A, B, C



Note :

Conductor Shaped 1.5 - 10 mm² supplied in solid (re) or non compacted circular stranded (rm)
conductor shape 16 - 35 mm² supplied in non compacted circular stranded (rm) conductor shape

Technical data

Temperature range:

During installation :	+5 °C up to +70 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 150 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage:	U ₀ /U = 300/500 V
Test voltage:	2000 V

Minimal inner bending radius:	6D
-------------------------------	----

Behavior in fire:	IEC 60332-1
-------------------	-------------

DESIGN STANDARDS

HRN HD 21.4 S2
IEC 60227-4
DIN VDE 0250 part 204

APPLICATION

Installation cable suitable for household and industrial usage. Laid on or under plaster, in walls or concrete, without special mechanical protection, but not in dry or pre-stressed concrete. Suitable for dry, same as damp or wet environment; for internal or external application (only if the cable is protected against direct sunlight).

NYM 5 × (1.5-35)mm²

CU/PVC/Filler/PVC

Code No	Dimensions – number of cores x conductor cross- section	Construction*	Construction of individual conductor	External diameter (MM)	Conductor resistance at 20 °C	Cable weight Kg/Km	Current- Carrying Capacity at 30°C *in air	Packing**
			nominal	min-max.	max.	nominal	Max. (A)	
125150	5 x 1,5	RE	1 x 1,36	10.5-10.9	12,10	196	19	c.100
125151	5 x 1,5	RM	7 x 0.52	11.1-11.5	12,10	214	19	c.100
125250	5 x 2,5	RE	1 x 1,78	12.1-12.5	7.41	279	25	c.100
125251	5 x 2,5	RM	7 x 0.66	12.8-13.2	7.41	299	25	c.100
125400	5 x 4	RE	1 x 2.2	14.2-14.6	4.61	404	34	c.100
125401	5 x 4	RM	7 x 0.85	15-15.4	4,61	436	34	c.100
125600	5 x 6	RE	1 x 2.7	15.6-16	3.08	531	44	c.100
125601	5 x 6	RM	7 x 1.04	16.5-19.9	3.08	572	44	c.100
1251000	5 x 10	RE	1 x 3.49	18.8-19.2	1.83	814	61	CUT
1251001	5 x 10	RM	7 x 1.35	20.1-20.5	1.83	892	61	CUT
1251601	5 x 16	RM	7 x 1.7	23.8-24.2	1.15	1319	82	CUT
1252501	5 x 25	RM	7 x 2.2	28.8-29.2	0.727	1962	108	CUT
1253501	5 x 35	RM	7 x 2.6	30.4-30.8	0.524	2416	134	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Nom. Cross Section Area (mm ²)	DC Resistance at 20°C Max. (Ω/km)	AC Resistance at 70°C Max. (Ω/km)	Insulation Resistance at 70°C Min. (M.Ω.km)	Inductance (mH/km)	Current - Carrying Capacity at 30° C *	Short circuit current at 1 sec Max. (kA)
					in air Max. (A)	
1.5	12.1	14.478	0.010	0.329	19	0.17
2.5	7.41	8.866	0.009	0.318	25	0.29
4	4.61	5.516	0.0077	0.297	34	0.46
6	3.08	3.685	0.0065	0.281	44	0.69
10	1.83	2.190	0.0065	0.278	61	1.15
16	1.15	1.376	0.0052	0.255	82	1.84
25	0.727	0.870	0.0050	0.252	108	2.88
35	0.524	0.627	0.0044	0.244	134	4.03

* Further information about rating factor for certain cable arrangement can be found on supplementary technical information

NYMHY

CU/PVC /PVC



FLEXIBLE SMALL BENDING RADIUS / FLAME RETARDANT AND HYDROCARBON RESISTANT

Construction

Conductor: Class 5 flexible copper as per IEC 60228, BS EN 60228

Insulation: PVC insulation type TI2 as per BS EN 50363, temperature rating 70 °C

Sheath: PVC type TM2 as per BS EN 50363 temperature rating 70 °C. (PVC rated 90 °C or 105 °C available upon request).

Core colour : HRN HD 308 S2 / VDE 0293-308

sheath colour: white or black

Special Features on Request

- Fire Resistance
- Oil Resistance
- Flame Retardant Cat. A, B, C

Technical data

Temperature range:

During installation :	+5 °C up to +70 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 150 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage: U₀/U = 450/750 V

Test voltage: 2000 V

Minimal inner bending radius: 4D for D < 8 mm
5D for 8 - 12 mm
6D for D > 12 mm

Behavior in fire: IEC 60332-1

DESIGN STANDARDS

IEC 60227
HRN HD 21.5 S3
DIN VDE 0281 part 5



APPLICATION

Flexible cable for dry areas, used for purposes requiring special flexibility in conditions free of any mechanical stresses. Permitted frequent bending and twisting. Specially suitable for application in small devices with low mechanical loads and for connection of light household devices such as kitchen appliances, desk lamps, ceiling lamps, vacuum cleaners, office machines, radios etc., as long as the cable is adapted to essential specifications of the device.

300/500V(Generally as IEC 60227)

Code No.	Dimensions – number of cores x conductor cross- section	Construction of individual conductor nominal	External diameter min-max.	Insulation thickness nominal	Sheath thickness nominal	Conductor resistance at 20 °C max.	Cable weight approx.	Packing**
	mm ²	n x mm	mm	mm	mm	Ω/km	kg/km	
13275	2 x 0.75	24 x 0.195	5.7-7.2	0.6	0.8	26.0	52	c.100
13210	2 x 1.0	31 x 0.195	5.9-7.5	0.6	0.8	19.5	65	c.100
13215	2 x 1.5	31 x 0.23	6.8-8.6	0.7	0.8	13.3	90	c.100
13225	2 x 2.5	51 x 0.23	8.4-10.6	0.8	1.0	7.98	115	c.100
13240	2 x 4	83x0.23	10.2-10.6	0.8	1.0	4.95	183	c.100
13260	2 x 6	82x0.28	11.6-12.0	0.8	1.0	3.3	258	c.100
132100	2x10	70x0.395	15.4-15.8	1.0	1.3	1.91	442	c.100
132160	2x16	118x0.395	18.2-18.6	1.0	1.6	1.21	696	CUT
132250	2x25	186x0.395	22.2-22.6	1.2	1.6	0.78	965	CUT
13375	3 x 0.75	24 x 0.195	6.0-7.6	0.6	0.8	26.0	70	c.100
13310	3 x 1.0	31 x 0.195	6.3-8.0	0.6	0.8	19.5	80	c.100
13315	3 x 1.5	31 x 0.23	7.4-9.4	0.7	0.9	13.3	115	c.100
13325	3 x 2.5	51 x 0.23	9.2-11.4	0.8	1.1	7.98	175	c.100
13340	3 x 4	83x0.23	10.5-13.4	0.8	1.0	4.95	234	c.100
13360	3 x 6	82x0.28	12.5-12.9	0.8	1.3	3.3	321	c.100
133100	3x10	70x0.395	17.0-17.4	1.0	1.3	1.91	585	c.100
133160	3x16	118x0.395	19.4-19.6	1.0	1.6	1.21	811	CUT
133250	3x25	186x0.395	23.6-24.0	1.2	1.6	0.78	1238	CUT
13475	4 x 0.75	24 x 0.195	6.6-8.3	0.6	0.8	26.0	75	c.100
13410	4 x 1.0	31 x 0.195	7.1-9.0	0.6	0.9	19.5	92	c.100
13415	4 x 1.5	31 x 0.23	8.4-10.5	0.7	1.0	13.3	145	c.100
13425	4 x 2.5	51 x 0.23	10.1-12.5	0.8	1.1	7.98	210	c.100
13440	4 x 4	83x0.23	12.3-12.7	0.8	1.3	4.95	296	c.100
13460	4 x 6	82 x 0.28	14.7-15.0	0.8	1.3	3.3	480	c.100
134100	4x10	70x0.395	19.3-19.7	1.0	1.3	1.91	755	CUT
134160	4x16	118x0.395	21.7-22.1	1.0	1.8	1.21	998	CUT
134250	4x25	186x0.395	26.7-27.1	1.2	2.0	0.78	1586	CUT
13575	5 x 0.75	24 x 0.195	7.4-9.3	0.6	0.9	26.0	96	c.100
13510	5 x 1.0	31 x 0.195	7.8-9.8	0.6	0.9	19.5	113	c.100
13515	5 x 1.5	31 x 0.23	9.3-11.6	0.7	1.1	13.3	175	c.100
13525	5 x 2.5	51 x 0.23	11.2-13.9	0.8	1.2	7.98	260	c.100
13540	5 x 4	83x0.23	16.1-16.7	0.8	1.4	4.95	363	c.100
13560	5 x 6	82 x 0.28	16.7-16.9	0.8	1.3	3.3	585	c.100
135100	5x10	70x0.395	21.2-21.6	1.0	1.6	1.91	934	CUT
135160	5x16	118x0.395	24.0-24.4	1.0	1.8	1.21	1285	CUT
135250	5x25	186x0.395	29.4-29.8	1.2	2.0	0.78	1976	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

H03VVH2-F, H05VVH2-F

CU/ PVC /PVC



Flame Retardant And UV Resistant/ Power Cables

Construction

Conductor:	bare copper conductor class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	PVC compound PVC/D acc. to IEC 60227
Sheath:	PVC compound ST5 acc. to IEC 60227
sheath colour:	White

Application

These cables are intended for connecting electrical appliances at low (H03VVH2-F) and medium (H05VVH2-F) mechanical loads in homes, kitchens and office rooms.

Technical data

Temperature range:	
During installation :	-5 °C up to +70 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	150 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 300/500 V
Test voltage:core/core	2.5 KV AC for 5 Min
Minimal inner bending radius:	6X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60227

H03VVH2-F, H05VVH2-F

CU/PVC/PVC

Cable Code	Dimension and Weights				Electrical Properties		
	Nominal Cross Section	Overall Diameter	Net Weight	Standart Length	Max. Dc Conductor Resistance at 20° C	Current Carrying Capacity	
		mm	Kg/Km	mm		In Ground at 20° C	On Air at 30° C
F250	2x0.50	3.4x5.5	35	100	39	3	-
F275	2x0.75	3.4x5.7	41	100	26	6	-
F210	2x1.0	4.3x6.80	56	100	19.5	10	-
F215	2x1.5	4.50x7.60	63	100	13.3	20	-
F225	2x2.5	5.50x9.00	88	100	7.98	27	-
F240	2x4	6.10x10.50	125	100	4.95	34	-
F260	2x6	6.70x11.90	170	100	3.8	44	-
F375	3x0.75	3.60x8.50	62	100	26	13	-
F310	3x1.0	3.90x9.30	65	100	19.5	16	-
F315	3x1.5	4.55x10.80	95	100	13.3	20	-
F325	3x2.5	5.50x12.70	130	100	7.98	27	-
F340	3x4	6.00x14.30	180	100	4.95	34	-
F360	3x6	6.7x16.60	245	100	3.8	44	-

Flat Twin

CU/PVC/PVC



Flat twin Flame Retardant cable

Construction	Technical data
Conductor: bare copper conductor class 1 or 2 acc. to IEC 60228 / HD 383 / DIN VDE 0295 1mm ² to 2.5mm ² : Class 1 solid conductor 4mm ² to 16mm ² : Class 2 stranded conductor	Temperature during installation: -5 °C up to +70 °C Fixed installed Temperature: -30 °C up to +70 °C
Circuit Protection Conductor (Earth): 1mm ² to 2.5mm ² : Class 1 solid copper conductor 4mm ² to 16mm ² : Class 2 stranded copper conductor	Temperature at short circuit of max. 5 s: up to 150 °C
Insulation: PVC compound PVC/D acc. to IEC 60227	Nominal voltage: U ₀ /U = 300/500 V
Core Color Identification: Brown-Blue,	Test voltage: 2000 V
Sheath: PVC compound ST5 acc. to IEC 60227	Minimal inner bending radius: 6D
sheath colour: Grey , White	Behavior in fire: IEC 60332-1
Application Polyvinyl Chloride (PVC) insulated and PVC over sheathed cables - up to 300/500V - for electric power and lighting manufactured in accordance with British Standard BS6004. This standard includes the national type Low Voltage cables which were not included in the Harmonized series of cables to BS EN 50525. British Standard BS6004 specifies the requirements for Low Voltage (LV) flexible Polyvinyl Chloride (PVC) insulated and PVC over sheathed cables commonly used in final circuits in building, including electric power supply and lighting applications with a voltage range of up to and including 300V/500V.	Design Standards IEC 60227

Flat Twin

CU/XLHF/HFPO

Code No.	number of cores x conductor cross-section	Construction	Cross Section of Circuit protective Conductor	Insulation thickness	sheath thickness	Nominal Overall Dimension	Cable weight	Packing*
	N x mm ²		mm ²	nom. mm	Nom. mm	nom. mm	Nom. kg/km	
T21	2x1.0	RE	1	0.6	0.9	4.35x7.95	70	CUT
T215	2x1.5	RE	1	0.7	0.9	4.85x8.9	90	CUT
T225	2x2.5	RE	1.5	0.8	1	5.66x10.65	125	CUT
T240	2x4.0	RM	1.5	0.8	1	6.2x11.95	175	CUT
T260	2x6.0	RM	2.5	0.8	1.1	7.1x13.7	240	CUT
T210	2x10	RM	4	1	1.2	8.8x17.3	375	CUT
T216	2x16	RM	6	1	1.3	9.85x2.1	532	CUT
T310	3x1.0	RE	1	0.6	0.9	4.32x9.9	96	CUT
T315	3x1.5	RE	1	0.7	0.9	4.85x12.2	118	CUT

NYIFY-U

CU/PVC/PVC



300 / 500 V PVC insulated flat sheathed cords.

Construction

Conductor:	bare copper conductor,, class 1 acc. to IEC 60228
Insulation:	PVC compound Type D acc. to IEC 60227
Sheath:	PVC compound ST1 acc. to IEC 60227
sheath colour:	white , black or Gray

Application

Fixed wiring in dry and damp premises, in conduits on/in/under plaster and on insulators every plaster, switching and distribution panels.

Technical data

Temperature during installation:	+5 °C up to +70 °C
Fixed installed Temperature:	-30 °C up to +70 °C
Temperature at short circuit of max. 5 s:	up to 150 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	8D for
Behavior in fire:	IEC 60332-1

Design Standards

IEC 60227

NYIFY-U

CU/PVC/PVC

Nominal Cross Section (mm ²)	Overall Diameter (mm)	Net Weight (kg/km) approx.	Conductor DC resistance at 20°C(ohm/km) max.	Current Carrying Capacity in
				Air (A)
2x1	3,4x9,7	45	18,1	12
2x1,5	4,5x12	60	12,1	19
2x2,5	5,1x13,6	91	7,41	25
2x4	6,4x15,6	125	4,61	34
3x1	3,4x10,2	66	18,1	12
3x1,5	4,5x19.1	90	12,1	19
3x2,5	5,3x21,6	132	7,41	26
3x4	6,5x25.1	190	4,61	34

NYY 1 × (1.5-630)mm²

CU/PVC/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor: Cu, 2 acc. IEC60228, BS6360, BS EN 60228
class 1: solid, round(RE) or sector (SE)
class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm² are compacted

Insulation: PVC compound DIV-4 acc. to HRN HD 603.1

Sheath: UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)

sheath colour: Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC
fi reduced flame propagation



Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 160 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:	3.5 KV AC for 5 Min

Minimal inner bending radius:	single core :15D multi core : 12D
-------------------------------	--------------------------------------

Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A

Maximal tensile strength:	50 N/mm ²
---------------------------	----------------------

DESIGN STANDARDS

IEC 60502-1
DIN VDE 0276 part 603

APPLICATION

Distribution and signal power cable for static outdoor application (with protection against direct UV-irradiation), in ground, in water, within facilities, in cable canals, in concrete, in conditions where heavier mechanical loads and especially tensile strains, are not expected. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants, same as for connection of signaling devices in industry, traffic and similar.

NYY 1 × (1.5-630)mm²

CU/PVC/PVC

Code No.	number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Insulation thickness	Conductor resistance at 20 °C	Short circuit current 1s	Cable weight	Packing *
	N x mm ²		nominal n x mm	Nom. mm	nom. mm	max. Ω/km	nom. kA	Nom. kg/km	
41115	1 x 1.5	RM	7 x 0.52	6.0	0.8	12.1	0.173	53	CUT
41125	1 x 2.5	RM	7 x 0.66	6.4	0.8	7.41	0,288	66	CUT
4114	1 x 4	RM	7 x 0.85	7.5	1,0	4,61	0,46	92	CUT
4116	1 x 6	RM	7 x 1.04	8.0	1,0	3,08	0,69	120	CUT
41110	1 x 10	RM	7 x 1.35	8.8	1,0	1,83	1,15	170	CUT
41116	1 x 16	RM	7 x 1.7	9.8	1,0	1,15	1,84	235	CUT
41125	1 x 25	RM	7 x 2,2	11.8	1,2	0,727	2,87	340	CUT
41135	1 x 35	RM	7 x 2,6	12.1	1,2	0,524	4,02	420	CUT
41150	1 x 50	RM	19 x 1,8	13.9	1,4	0,387	5,75	580	CUT
41170	1 x 70	RM	19 x 2,2	15.6	1,4	0,268	8,05	780	CUT
41195	1 x 95	RM	19 x 2,6	17.8	1,6	0,193	10,90	1040	CUT
411120	1 x 120	RM	19 x 2,8	19.4	1,6	0,153	13,80	1280	CUT
411150	1 x 150	RM	37 x 2,3	21.5	1,8	0,124	17,20	1590	CUT
411185	1 x 185	RM	37 x 2,6	23.4	2,0	0,0991	21,30	1960	CUT
411240	1 x 240	RM	37 x 2,95	26.5	2,2	0,0754	27,60	2505	CUT
411300	1 x 300	RM	61 x 2,6	29.4	2,4	0,0601	34,50	3120	CUT
411400	1 x 400	RM	61 x 2,89	32.6	2,6	0,047	41,20	4065	CUT
411500	1 x 500	RM	61 x 3,23	36.4	2,8	0,0366	51,50	5150	CUT
411630	1 x 630	RM	91 x 2,97	43.1	2,8	0,0283	64,00	6620	CUT

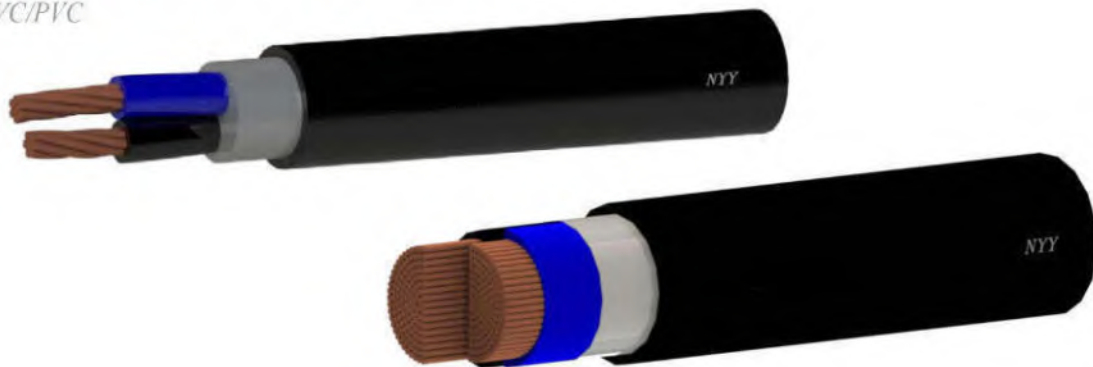
*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\Delta U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross-sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734
500	994	1254	663	860	747	827
630	1180	1486	-----	-----	858	934

NYN 2 x (1.5-400)mm²

CU/PVC/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≤ 50 mm ² : circular solid (RE) or circular stranded (RM), > 50 mm ² : sector-shaped stranded (SM)
Insulation:	polyvinyl chloride PVC
Colour code:	blue, black
Laying up:	cores twisted in layers (if necessary with filling element(s))
Inner Covering:	extruded filler of PVC
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005



Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



APPLICATION

Distribution and signal power cable for static outdoor application (with protection against direct UV-irradiation), in ground, in water, within facilities, in cable canals, in concrete, in conditions where heavier mechanical loads and especially tensile strains, are not expected. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants, same as for connection of signaling devices in industry, traffic and similar.

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C > 300 mm ² : max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	8 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

DESIGN STANDARDS

IEC 60502-1
DIN VDE 0276 part 603

NYY 2 x (1.5-400)mm²

CU/PVC/PVC

Code No.	Dimensions – number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	External diameter	Conductor resistance at 20 °C	Short circuit current 1s	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	max. Ω/km	nom. kA	Nom. kg/km	
412150	2 x 1.5	RM	0.8	1.8	11.1	12.1	0.173	155	CUT
412151	2 x 1.5	RE	0.8	1.8	10.5	12.1	0.173	150	CUT
412250	2 x 2.5	RM	0.8	1.8	12.1	7.41	0,288	200	CUT
412251	2 x 2.5	RE	0.8	1.8	11.5	7.41	0,288	190	CUT
41240	2 x 4	RM	1,0	1.8	14.4	4,61	0,46	290	CUT
41241	2 x 4	RE	1,0	1.8	13.6	4,61	0,46	270	CUT
41260	2 x 6	RM	1,0	1.8	15.6	3,08	0,69	345	CUT
41261	2 x 6	RE	1,0	1.8	14.1	3,08	0,69	330	CUT
412100	2 x 10	RM	1,0	1.8	17.4	1,83	1,15	470	CUT
412101	2 x 10	RE	1,0	1.8	15.9	1,83	1,15	440	CUT
412160	2 x 16	RM	1,0	1.8	20.0	1,15	1,84	650	CUT
41261	2 x 16	RE	1,0	1.8	18.5	3,08	0,69	610	CUT
41225	2 x 25	RM	1,2	1.8	23.4	0,727	2,87	910	CUT
41235	2 x 35	RM	1,2	1.8	24.5	0,524	4,02	1020	CUT
41250	2 x 50	SM	1,4	1.8	22.8	0,387	5,75	1330	CUT
41270	2 x 70	SM	1,4	1.9	26.6	0,268	8,05	1730	CUT
41295	2 x 95	SM	1,6	2.0	30.2	0,193	10,90	2360	CUT
412120	2 x 120	SM	1,6	2.1	33.3	0,153	13,80	2850	CUT
412150	2 x 150	SM	1,8	2.2	36.8	0,124	17,20	3480	CUT
412185	2 x 185	SM	2,0	2.4	40.5	0,0991	21,30	4350	CUT
412240	2 x 240	SM	2,2	2.6	45.9	0,0754	27,60	5610	CUT
412300	2 x 300	SM	2,4	2.7	50.8	0,0601	34,50	7210	CUT
412400	2 x 400	SM	2,6	3.0	57.9	0,047	41,20	8420	CUT

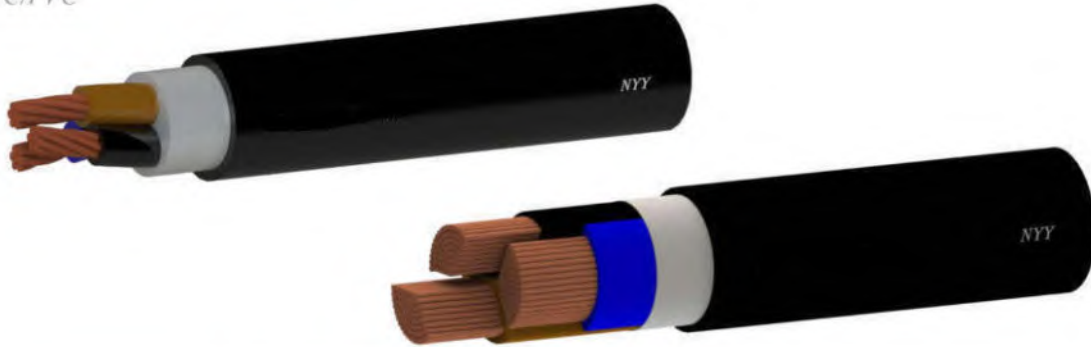
*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\approx U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross-sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734

NYN 3x (1.5-400)mm²

CU/PVC/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≤ 50 mm ² : circular solid (RE) or circular stranded (RM), > 50 mm ² : sector-shaped stranded (SM)
Insulation:	polyvinyl chloride PVC
Colour code:	Blue, Brown, Black
Laying up:	cores twisted in layers (if necessary with filling element(s))
Inner Covering:	extruded filler of PVC
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005



Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C > 300 mm ² : max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	8 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

DESIGN STANDARDS

IEC 60502-1
DIN VDE 0276 part 603

APPLICATION

Distribution and signal power cable for static outdoor application (with protection against direct UV-irradiation), in ground, in water, within facilities, in cable canals, in concrete, in conditions where heavier mechanical loads and especially tensile strains, are not expected. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants, same as for connection of signaling devices in industry, traffic and similar.

NYN 3 x (1.5-400)mm²

CU/PVC/PVC

Code No.	number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Conductor resistance at 20 °C	Short circuit current 1s	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	max. Ω/km	nom. kA	Nom. kg/km	
413150	3 x 1.5	RM	0.8	1.8	11.6	12.1	0.173	195	CUT
413151	3 x 1.5	RE	0.8	1.8	10.8	12.1	0.173	175	CUT
413250	3 x 2.5	RM	0.8	1.8	11.9	7.41	0,288	235	CUT
413251	3 x 2.5	RE	0.8	1.8	11.4	7.41	0,288	215	CUT
41340	3 x 4	RM	1,0	1.8	14.2	4,61	0,46	315	CUT
41341	3 x 4	RE	1,0	1.8	13.1	4,61	0,46	310	CUT
41360	3 x 6	RM	1,0	1.8	15.1	3,08	0,69	405	CUT
41361	3 x 6	RE	1,0	1.8	14.4	3,08	0,69	395	CUT
413100	3 x 10	RM	1,0	1.8	17.1	1,83	1,15	585	CUT
413101	3 x 10	RE	1,0	1.8	16.1	1,83	1,15	545	CUT
413160	3 x 16	RM	1,0	1.8	19.4	1,15	1,84	825	CUT
41361	3 x 16	RE	1,0	1.8	17.9	3,08	0,69	740	CUT
41325	3 x 25	RM	1,2	1.8	24.4	0,727	2,87	1250	CUT
41335	3 x 35	RM	1,2	1.8	25.9	0,524	4,02	1550	CUT
41350	3 x 50	SM	1,4	1.8	25.8	0,387	5,75	1750	CUT
41370	3 x 70	SM	1,4	2.0	29.0	0,268	8,05	2335	CUT
41395	3 x 95	SM	1,6	2.1	33.1	0,193	10,90	3250	CUT
413120	3 x 120	SM	1,6	2.2	36.0	0,153	13,80	3850	CUT
413150	3 x 150	SM	1,8	2.3	40.2	0,124	17,20	4850	CUT
413185	3 x 185	SM	2,0	2.5	44.2	0,0991	21,30	6010	CUT
413240	3 x 240	SM	2,2	2.7	49.9	0,0754	27,60	7810	CUT
413300	3 x 300	SM	2,4	2.9	52.4	0,0601	34,50	9650	CUT
413400	3 x 400	SM	2,6	3.1	59.6	0,047	41,20	12550	CUT

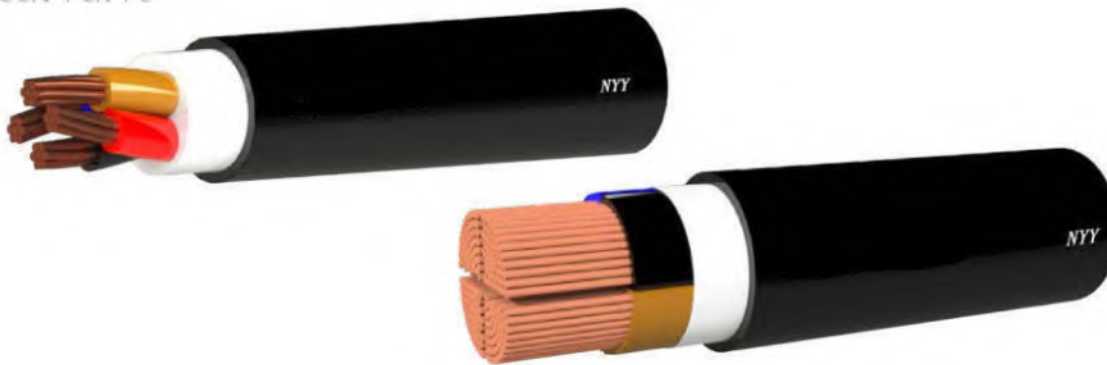
*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\Delta U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734

NYN 4 x (1.5-400)mm²

CU/PVC/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PROPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≤ 50 mm ² : circular solid (RE) or circular stranded (RM), > 50 mm ² : sector-shaped stranded (SM)
Insulation:	polyvinyl chloride PVC
Colour code:	Blue, Brown, Black, Red
Laying up:	cores twisted in layers (if necessary with filling element(s))
Inner Covering:	extruded filler of PVC
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



APPLICATION

Distribution and signal power cable for static outdoor application (with protection against direct UV-irradiation), in ground, in water, within facilities, in cable canals, in concrete, in conditions where heavier mechanical loads and especially tensile strains, are not expected. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants, same as for connection of signaling devices in industry, traffic and similar.

Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C °C > 300 mm ² : max. +140 °C

ambient temperature at storage:	up to 40 °C
---------------------------------	-------------

Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min

Minimal inner bending radius:	8 X Cable Ø
-------------------------------	-------------

Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A

Conductor resistance:	Acc to IEC 60228
-----------------------	------------------

DESIGN STANDARDS

IEC 60502-1
DIN VDE 0276 part 603

NYN 4 x (1.5-400)mm²

CU/PVC/PVC

Code No.	number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4142516	3 x 25/16	RM/RM	1.2	1.8	25.7	1500	CUT
4143516	3 x 35/16	RM/RM	1.2	1.8	27.0	1780	CUT
415025	3 x 50/25	SM/RM	1.4	1.9	27.5	2140	CUT
417035	3 x 70 /35	SM/RM	1.4	2.0	30.9	2880	CUT
419550	3 x 95 /50	SM/SM	1.6	2.2	35.6	3870	CUT
4112070	3 x 120 /70	SM/SM	1.6	2.3	38.8	4820	CUT
4115070	3 x 150/70	SM/SM	1.8	2.4	43.1	5830	CUT
4118595	3 x 185/95	SM/SM	2.0	2.6	47.6	7440	CUT
41240120	3 x 240/120	SM/SM	2.2	2.8	53.3	9260	CUT
41300150	3 x 300/150	SM/SM	2.4	3.0	60.5	11550	CUT
414150	4 X 1.5	RM	0.8	1.8	12.4	240	CUT
414151	4 X 1.5	RE	0.8	1.8	11.6	210	CUT
414250	4 X 2.5	RM	0.8	1.8	13.3	300	CUT
414251	4 X 2.5	RE	0.8	1.8	12.3	245	CUT
41440	4 X 4	Rm	1.0	1.8	16.1	450	CUT
41441	4 X 4	RE	1.0	1.8	14.8	380	CUT
41460	4 X 6	RM	1.0	1.8	16.8	560	CUT
41461	4 X 6	RE	1.0	1.8	15.8	450	CUT
414100	4 X 10	RM	1.0	1.8	19.7	780	CUT
414101	4 X 10	RE	1.0	1.8	17.5	650	CUT
414160	4 X 16	RM	1.0	1.8	22.6	1130	CUT
414161	4 X 16	RE	1.0	1.8	19.7	990	CUT
41425	4 X 25	RM	1.2	1.8	26.8	1630	CUT
41435	4 X 35	RM	1.2	1.8	28.2	1995	CUT
41450	4 X 50	SM	1.4	1.9	28.9	2400	CUT
41470	4 X 70	SM	1.4	2.1	32.6	3220	CUT
41495	4 X 95	SM	1.6	2.2	37.2	4270	CUT
414120	4 X 120	SM	1.6	2.4	40.6	5280	CUT
414150	4 X 150	SM	1.8	2.5	45.1	6590	CUT
414185	4 X 185	SM	2.0	2.7	49.8	8110	CUT
414240	4 X 240	SM	2.2	2.9	55.9	13480	CUT
414300	4 X 300	SM	2.4	3.1	61.8	12951	CUT
414400	4 X 400	SM	2.6	3.4	69.8	16700	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

NYN 5 x (1.5-300)mm²

CU/PVC/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PROPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 circular solid (RE) or circular stranded (RM),
Insulation:	polyvinyl chloride PVC
Colour code:	Blue, Brown, Black, Red, Y/G
Laying up:	cores twisted in layers (if necessary with filling element(s))
Inner Covering:	extruded filler of PVC
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005



Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



APPLICATION

Distribution and signal power cable for static outdoor application (with protection against direct UV-irradiation), in ground, in water, within facilities, in cable canals, in concrete, in conditions where heavier mechanical loads and especially tensile strains, are not expected. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants, same as for connection of signaling devices in industry, traffic and similar.

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm²: max. +160 °C °C > 300 mm²: max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	8 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

DESIGN STANDARDS

IEC 60502-1
DIN VDE 0276 part 603

$NYY\ 5 \times (1.5-300)mm^2$

CU/PVC/PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
415150	5 X 1.5	RM	0.8	1.8	13.3	280	CUT
415151	5 X 1.5	RE	0.8	1.8	12.2	240	CUT
415250	5 X 2.5	RM	0.8	1.8	14.5	350	CUT
415251	5 X 2.5	RE	0.8	1.8	13.3	290	CUT
41540	5 X 4	Rm	1.0	1.8	17.3	530	CUT
41541	5 X 4	RE	1.0	1.8	16.6	450	CUT
41560	5 X 6	RM	1.0	1.8	18.8	670	CUT
41561	5 X 6	RE	1.0	1.8	17.5	490	CUT
415100	5 X 10	RM	1.0	1.8	21.4	940	CUT
415101	5 X 10	RE	1.0	1.8	19.6	690	CUT
415160	5 X 16	RM	1.0	1.8	24.9	1360	CUT
415161	5 X 16	RE	1.0	1.8	22.8	710	CUT
41525	5 X 25	RM	1.2	1.8	29.8	1980	CUT
41535	5 X 35	RM	1.2	1.9	31.6	2460	CUT
41550	5 X 50	RM	1.4	2.0	33.6	3430	CUT
41570	5 X 70	RM	1.4	2.2	41.3	4560	CUT
41595	5 X 95	RM	1.6	2.4	47.8	6180	CUT
415120	5 X 120	RM	1.6	2.5	49.5	7360	CUT
415150	5 X 150	RM	1.8	2.7	57.4	9490	CUT
415185	5 X 185	RM	2.0	2.9	63.8	11560	CUT
415240	5 X 240	RM	2.2	3.1	71.8	14800	CUT
415300	5 X 300	RM	2.4	3.3	78.9	18650	CUT

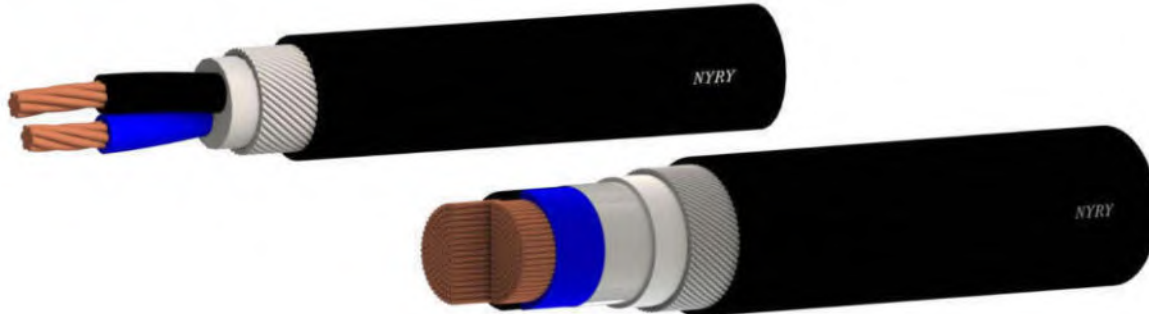
*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) U_0/U (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734

NYRY 2x (1.5-400)mm²

CU/PVC/SWA/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≤ 50 mm ² : circular solid (RE) or circular stranded (RM), > 50 mm ² : sector-shaped stranded (SM)
Insulation:	polyvinyl chloride PVC
Colour code:	blue, black
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005



Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C °C > 300 mm ² : max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	10 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

Design Standard

IEC 60502-1

DIN VDE 0271

Application :

Distribution and signal power cable for static application, mostly in ground, but also in water, within and outside facilities, in cable canals, in concrete. Used in electric power plants and other electric plants, in industry, metropolitan networks and for connection of signalling devices in industry, traffic and similar. Resistant to mechanical loads, able to sustain heavier mechanical tensile strains, could be laid slantingly or vertically, same as on grounds exposed to land-sliding.

NYRY 2 x (1.5-400)mm²

CU/PVC/SPA/ PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RE/RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
422150	2 x 1.5	RM	0.8	1.8	8.2	0.9	13.7	360	CUT
422151	2 x 1.5	RE	0.8	1.8	7.6	0.9	12.9	320	CUT
422250	2 x 2.5	RM	0.8	1.8	9.1	0.9	14.5	370	CUT
422251	2 x 2.5	RE	0.8	1.8	8.7	0.9	13.4	350	CUT
42240	2 x 4	RM	1,0	1.8	11.3	0.9	16.4	520	CUT
42241	2 x 4	RE	1,0	1.8	10.8	0.9	15.0	410	CUT
42260	2 x 6	RM	1,0	1.8	12.3	1.25	18.2	650	CUT
421261	2 x 6	RE	1,0	1.8	11.8	1.25	16.4	480	CUT
422100	2 x 10	RM	1,0	1.8	14.3	1.25	20.1	600	CUT
422101	2 x 10	RE	1,0	1.8	13.5	1.25	18.3	510	CUT
422160	2 x 16	RM	1,0	1.8	16.3	1.25	22.3	600	CUT
42261	2 x 16	RE	1,0	1.8	14.6	1.25	19.1	510	CUT
42225	2 x 25	RM	1,2	1.8	19.5	1.6	26.2	960	CUT
42235	2 x 35	RM	1,2	1.8	20.7	1.6	27.5	1350	CUT
42250	2 x 50	SM	1,4	1.9	21.2	1.6	28.1	1670	CUT
42270	2 x 70	SM	1,4	2.0	24.2	2.0	32.1	1845	CUT
42295	2 x 95	SM	1,6	2.2	28.1	2.0	36.6	2310	CUT
422120	2 x 120	SM	1,6	2.3	31.1	2.0	39.6	3145	CUT
422150	2 x 150	SM	1,8	2.4	34.2	2.5	44.2	3865	CUT
422185	2 x 185	SM	2,0	2.6	38.1	2.5	48.6	4640	CUT
422240	2 x 240	SM	2,2	2.8	43.1	2.5	53.7	6090	CUT
422300	2 x 300	SM	2,4	2.9	48.1	2.5	59.6	7360	CUT
422400	2 x 400	SM	2,6	3.1	54.2	2.5	65.4	10820	CUT

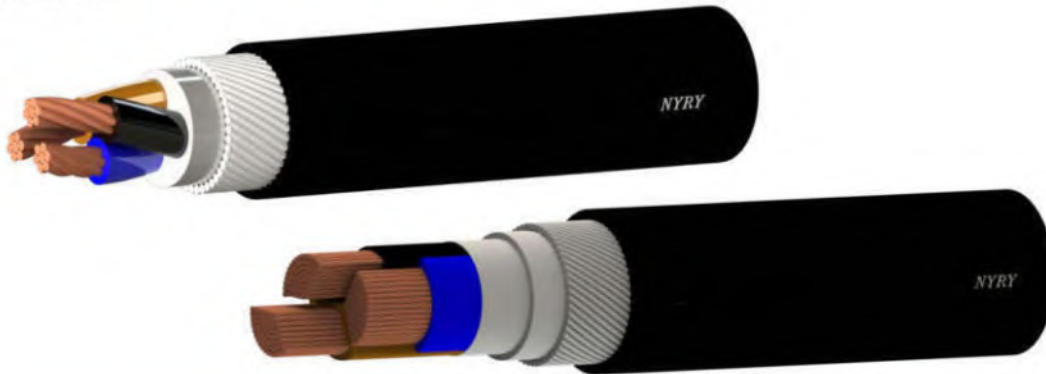
*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734

NYRY 3 x (1.5-300)mm²

CU/PVC/SWA/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PROPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≤ 50 mm ² : circular solid (RE) or circular stranded (RM), > 50 mm ² : sector-shaped stranded (SM)
Insulation:	polyvinyl chloride PVC
Colour code:	blue, black, Yellow/Green
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations
Y insulation & outer sheath of PVC
fl reduced flame propagation



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C > 300 mm ² : max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

Design Standard

IEC 60502-1
DIN VDE 0271

Application :

Distribution and signal power cable for static application, mostly in ground, but also in water, within and outside facilities, in cable canals, in concrete. Used in electric power plants and other electric plants, in industry, metropolitan networks and for connection of signalling devices in industry, traffic and similar. Resistant to mechanical loads, able to sustain heavier mechanical tensile strains, could be laid slantingly or vertically, same as on grounds exposed to land-sliding.

NYRY 3 x (1.5-300)mm²

CU/PVC/SWA/PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RE/RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
423150	3 x 1.5	RM	0.8	1.8	8.9	0.9	14.4	400	CUT
423151	3 x 1.5	RE	0.8	1.8	8.1	0.9	14.0	380	CUT
423250	3 x 2.5	RM	0.8	1.8	9.8	0.9	15.3	460	CUT
423251	3 x 2.5	RE	0.8	1.8	9.1	0.9	15.0	450	CUT
42340	3 x 4	RM	1,0	1.8	11.8	1.25	17.8	700	CUT
42341	3 x 4	RE	1,0	1.8	11.1	1.25	17.1	680	CUT
42360	3 x 6	RM	1,0	1.8	13.0	1.25	19.5	830	CUT
42361	3 x 6	RE	1,0	1.8	12.2	1.25	18.9	800	CUT
423100	3x 10	RM	1,0	1.8	15.1	1.25	21.3	1050	CUT
423101	3 x 10	RE	1,0	1.8	14.6	1.25	20.9	1010	CUT
423160	3 x 16	RM	1,0	1.8	17.4	1.25	23.6	1360	CUT
42316	3 x 16	RE	1,0	1.8	16.8	1.25	23.1	1340	CUT
42325	3 x 25	RM	1,2	1.8	21.1	1.6	27.9	1990	CUT
42335	3 x 35	RM	1,2	1.8	22.2	1.6	29.1	2300	CUT
42350	3 x 50	SM	1,4	2.0	24.1	2.0	31.6	2800	CUT
42370	3 x 70	SM	1,4	2.1	27.8	2.0	35.9	3810	CUT
42395	3 x 95	SM	1,6	2.2	31.6	2.0	40.1	4770	CUT
423120	3x 120	SM	1,6	2.3	34.3	2.0	42.8	5650	CUT
423150	3 x 150	SM	1,8	2.5	38.6	2.5	48.6	7280	CUT
423185	3 x 185	SM	2,0	2.7	42.3	2.5	52.8	8650	CUT
423240	3 x 240	SM	2,2	2.9	47.8	2.5	58.9	10730	CUT
423300	3 x 300	SM	2,4	2.9	49.1	2.5	60.8	12600	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649

NYRY 4 x (1.5-300)mm²



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PROPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≤ 50 mm ² : circular solid (RE) or circular stranded (RM), > 50 mm ² : sector-shaped stranded (SM)
Insulation:	polyvinyl chloride PVC
Colour code:	blue, black, Brown, Yellow/Green
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C > 300 mm ² : max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

Design Standard

IEC 60502-1
DIN VDE 0271

Application :

Distribution and signal power cable for static application, mostly in ground, but also in water, within and outside facilities, in cable canals, in concrete. Used in electric power plants and other electric plants, in industry, metropolitan networks and for connection of signalling devices in industry, traffic and similar. Resistant to mechanical loads, able to sustain heavier mechanical tensile strains, could be laid slantingly or vertically, same as on grounds exposed to land-sliding.

NYRY 4 x (1.5-300)mm²

CU/PVC/SLA/ PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RE/RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
424150	4 x 1.5	RM	0.8	1.8	9.7	0.9	15.1	445	CUT
424151	4 x 1.5	RE	0.8	1.8	9.1	0.9	14.8	430	CUT
424250	4 x 2.5	RM	0.8	1.8	10.6	0.9	16.2	530	CUT
424251	4 x 2.5	RE	0.8	1.8	10.1	0.9	15.8	510	CUT
42440	4 x 4	RM	1,0	1.8	13.1	1.25	19.2	810	CUT
42441	4 x 4	RE	1,0	1.8	12.8	1.25	18.9	980	CUT
42460	4 x 6	RM	1,0	1.8	14.2	1.25	20.6	950	CUT
42461	4 x 6	RE	1,0	1.8	13.9	1.25	20.1	930	CUT
424100	4 x 10	RM	1,0	1.8	16.5	1.25	22.8	1230	CUT
424101	4 x 10	RE	1,0	1.8	16.1	1.25	22.3	1210	CUT
424160	4 x 16	RM	1,0	1.8	19.3	1.6	25.9	1750	CUT
42416	4 x 16	RE	1,0	1.8	19.0	1.6	25.3	1710	CUT
42425	4 x 25	RM	1,2	1.8	23.7	1.6	30.3	2360	CUT
42435	4 x 35	RM	1,2	1.9	24.6	1.6	31.9	2770	CUT
42450	4 x 50	SM	1,4	2.1	27.1	2.0	35.8	3700	CUT
42470	4 x 70	SM	1,4	2.2	30.5	2.0	39.1	4720	CUT
42495	4 x 95	SM	1,6	2.4	35.1	2.5	44.9	6380	CUT
424120	4x 120	SM	1,6	2.5	38.6	2.5	48.3	7610	CUT
424150	4 x 150	SM	1,8	2.7	42.8	2.5	53.3	9150	CUT
424185	4 x 185	SM	2,0	2.9	47.3	2.5	58.4	10950	CUT
424240	4 x 240	SM	2,2	3.1	53.2	2.5	64.5	13620	CUT
424300	4 x 300	SM	2,4	3.3	58.9	2.5	70.6	16420	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649

NYRY 5 × (1.5-240)mm²

CU/PVC/SWA/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PROPAGATION

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228 ≥ 35 mm ² : Compacted Conductor
Insulation:	polyvinyl chloride PVC
Colour code:	blue, black, Red, Brown, Yellow/Green
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



Application :

Distribution and signal power cable for static application, mostly in ground, but also in water, within and outside facilities, in cable canals, in concrete. Used in electric power plants and other electric plants, in industry, metropolitan networks and for connection of signalling devices in industry, traffic and similar. Resistant to mechanical loads, able to sustain heavier mechanical tensile strains, could be laid slantingly or vertically, same as on grounds exposed to land-sliding.

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm ² : max. +160 °C °C > 300 mm ² : max. +140 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

Design Standard

IEC 60502-1

DIN VDE 0271

NYRY 5 x (1.5-240)mm²

CU/PVC/SWA/ PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RE/RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
425150	5 x 1.5	RM	0.8	1.8	10.5	0.9	16.1	510	CUT
425151	5 x 1.5	RE	0.8	1.8	10.2	0.9	15.7	495	CUT
425250	5 x 2.5	RM	0.8	1.8	11.9	0.9	17.3	605	CUT
425251	5 x 2.5	RE	0.8	1.8	11.5	0.9	16.9	590	CUT
42540	5 x 4	RM	1,0	1.8	14.4	1.25	20.6	920	CUT
42541	5 x 4	RE	1,0	1.8	14.1	1.25	20.1	900	CUT
42560	5 x 6	RM	1,0	1.8	15.9	1.25	21.8	1100	CUT
42561	5 x 6	RE	1,0	1.8	15.6	1.25	21.3	1080	CUT
425100	5 x 10	RM	1,0	1.8	18.4	1.6	25.3	1560	CUT
425101	5 x 10	RE	1,0	1.8	18.1	1.6	25.1	1540	CUT
425160	5 x 16	RM	1,0	1.8	21.3	1.6	28.3	2050	CUT
42516	5 x 16	RM	1,0	1.8	21.0	1.6	28.0	2010	CUT
42525	5 x 25	RM	1,2	1.9	25.8	1.6	32.9	2820	CUT
42535	5 x 35	RM	1,2	2.0	27.6	2.0	35.6	3560	CUT
42550	5 x 50	RM	1,4	2.2	32.5	2.0	40.8	4700	CUT
42570	5 x 70	RM	1,4	2.3	36.9	2.0	45.9	6030	CUT
42595	5 x 95	RM	1,6	2.5	42.6	2.5	52.1	8270	CUT
425120	5x 120	RM	1,6	2.7	46.8	2.5	56.8	9890	CUT
425150	5 x 150	RM	1,8	2.9	52.6	2.5	62.8	12010	CUT
425185	5 x 185	RM	2,0	3.0	57.7	2.5	68.3	14290	CUT
425240	5 x 240	RM	2,2	3.3	65.1	2.5	77.1	18870	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\approx U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580

N2XY 1x(4-630)mm²

CU/XLPE/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

- Conductor: Cu, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
 class 1: solid, round(RE)
 class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm² are compacted
- Insulation: XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, colour marked acc. to HRN HD 308 S2 / VDE 0293-308
- Sheath: UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
 sheath colour: Black Ral 9005

Abbreviations

2X Insulation of XLPE
 Y outer sheath of PVC
 fl reduced flame propagation



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
fixed installed:	-20 °C up to +90 °C
at short circuit of max.	5 s: up to 250 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:	3.5 KV AC for 5 Min
Minimal inner bending radius:	single core :15D multi core : 12D
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Maximal tensile strength:	50 N/mm ²

DESIGN STANDARDS

IEC 60502-1
 DIN VDE 0276 part 603



APPLICATION

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XY 1 x (4-630)mm²

CU/XLPE/PVC

Code No.	number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Insulation thickness	Conductor resistance at 20 °C	Short circuit current 1s	Cable weight	Packing*
	N x mm ²		nominal n x mm	Nom. mm	nom. mm	max. Ω/km	nom. kA	Nom. kg/km	
4314	1 x 4	RM	7 x 0.85	6.9	0.7	4,61	0,46	80	CUT
4316	1 x 6	RM	7 x 1.04	7.4	0.7	3,08	0,69	100	CUT
43110	1 x 10	RM	7 x 1.35	8.4	0.7	1,83	1,15	150	CUT
43116	1 x 16	RM	7 x 1.7	9.4	0.7	1,15	1,84	210	CUT
43125	1 x 25	RM	7 x 2,2	11.1	0.9	0,727	2,87	310	CUT
43135	1 x 35	RM	7 x 2,6	11.7	0.9	0,524	4,02	395	CUT
43150	1 x 50	RM	19 x 1,8	13.1	1.0	0,387	5,75	540	CUT
43170	1 x 70	RM	19 x 2,2	15.1	1.1	0,268	8,05	730	CUT
43195	1 x 95	RM	19 x 2,6	16.6	1.1	0,193	10,90	970	CUT
431120	1 x 120	RM	19 x 2,8	17.3	1.2	0,153	13,80	1210	CUT
431150	1 x 150	RM	37 x 2,3	20.6	1.4	0,124	17,20	1510	CUT
431185	1 x 185	RM	37 x 2,6	22.5	1.6	0,0991	21,30	1850	CUT
431240	1 x 240	RM	37 x 2,95	25.8	1.7	0,0754	27,60	2375	CUT
431300	1 x 300	RM	61 x 2,6	27.9	1.8	0,0601	34,50	2950	CUT
431400	1 x 400	RM	61 x 2,89	31.2	2.0	0,047	41,20	3880	CUT
431500	1 x 500	RM	61 x 3,23	34.8	2.2	0,0366	51,50	4840	CUT
431630	1 x 630	RM	91 x 2,97	42.1	2.4	0,0283	64,00	6400	CUT

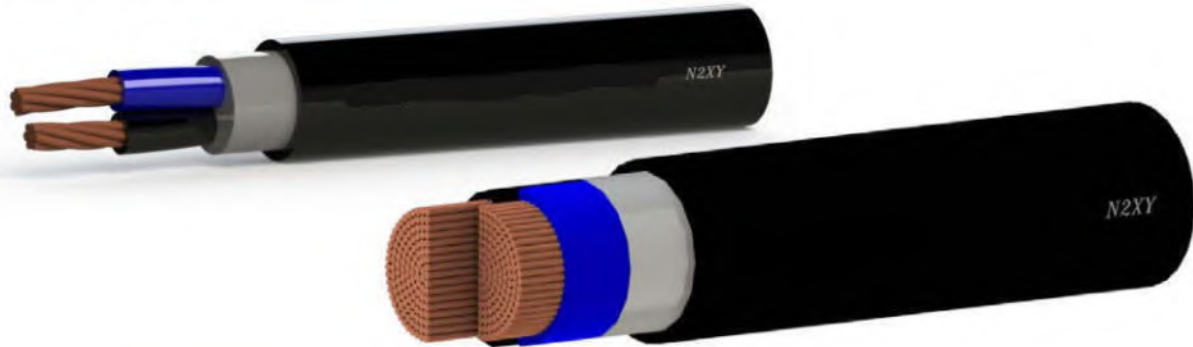
*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross-sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734
500	994	1254	663	860	747	827
630	1180	1486	-----	-----	858	934

N2XY 2 x (1.5-400)mm²

CU/XLPE/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor:	Cu, class 1 or 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 Class 1 :solid, round (RE) Class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black acc. to VDE 0293-308
Filler:	(in multi wire cables) extruded elastomer or plastomer compound or wrapped thermoplastic tapes
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

2X Insulation of XLPE
Y outer sheath of PVC
fl reduced flame propagation
-J manufactured with one yellow/green conductor
-O manufactured without one yellow/green conductor



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	Up to . +160
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

Design Standards
IEC 60502-1
DIN VDE 0276 part 603

APPLICATION

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XY 2 x (1.5-400)mm²

CU/XLPE/PVC

Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	External diameter	Conductor resistance at 20 °C	Short circuit current 1s	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	max. Ω/km	nom. kA	Nom. kg/km	
432150	2 x 1.5	RM	0.7	1.8	10.9	12.1	0.173	165	CUT
432250	2 x 2.5	RM	0.7	1.8	11.7	7.41	0,288	200	CUT
43240	2 x 4	RM	0.7	1.8	13.2	4,61	0,46	275	CUT
43260	2 x 6	RM	0.7	1.8	14.3	3,08	0,69	345	CUT
412100	2 x 10	RM	0.7	1.8	16.2	1,83	1,15	480	CUT
432160	2 x 16	RM	0.7	1.8	18.7	1,15	1,84	670	CUT
43225	2 x 25	RM	0.9	1.8	22.1	0,727	2,87	985	CUT
43235	2 x 35	RM	0.9	1.8	23.3	0,524	4,02	1,195	CUT
43250	2 x 50	SM	1.0	1.8	20.9	0,387	5,75	1,150	CUT
43270	2 x 70	SM	1.1	1.8	23.8	0,268	8,05	1,535	CUT
43295	2 x 95	SM	1.1	2.0	27.2	0,193	10,90	2,040	CUT
432120	2 x 120	SM	1.2	2.1	30.2	0,153	13,80	2,545	CUT
432150	2 x 150	SM	1.4	2.2	33.4	0,124	17,20	3,155	CUT
432185	2 x 185	SM	1.6	2.3	36.8	0,0991	21,30	3,863	CUT
432240	2 x 240	SM	1.7	2.5	41.5	0,0754	27,60	4,965	CUT
432300	2 x 300	SM	1.8	2.7	46	0,0601	34,50	6,160	CUT
432400	2 x 400	SM	2.0	2.9	52.4	0,047	41,20	8,135	CUT

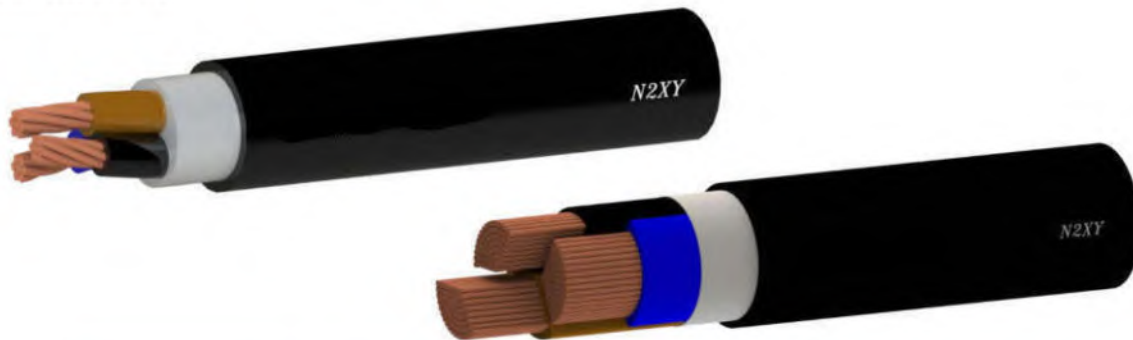
*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross-sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734

N2XY 3 x (1.5-400) mm²

CU/XLPE/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor:	Cu, class 1 or 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 Class 1 :solid, round (RE) Class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	Blue, black ,Brown(Y/G) acc. to VDE 0293-308
Filler:	(in multi wire cables) extruded elastomer or plastomer compound or wrapped thermoplastic tapes
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

2X Insulation of XLPE
Y outer sheath of PVC
fl reduced flame propagation
-J manufactured with one yellow/green conductor
-O manufactured without one yellow/green conductor



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	Up to +160
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards
IEC 60502-1
DIN VDE 0276 part 603

APPLICATION

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XY 3 x (1.5-400) mm²

CU/XLPE/PVC

Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	External diameter	Conductor resistance at 20 °C	Short circuit current 1s	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	max. Ω/km	nom. kA	Nom. kg/km	
433150	3 x 1.5	RM	0.7	1.8	11.3	12.1	0.173	185	CUT
433250	3 x 2.5	RM	0.7	1.8	12.2	7.41	0.288	235	CUT
43340	3 x 4	RM	0.7	1.8	13.8	4.61	0.46	320	CUT
43360	3 x 6	RM	0.7	1.8	15	3.08	0.69	405	CUT
433100	3 x 10	RM	0.7	1.8	17	1.83	1.15	575	CUT
433160	3 x 16	RM	0.7	1.8	19.7	1.15	1.84	835	CUT
43325	3 x 25	RM	0.9	1.8	23.4	0.727	2.87	1,215	CUT
43335	3 x 35	RM	0.9	1.8	24.6	0.524	4.02	1,495	CUT
43350	3 x 50	SM	1.0	1.8	24.2	0.387	5.75	1,675	CUT
43370	3 x 70	SM	1.1	1.9	27.8	0.268	8.05	2,280	CUT
43395	3 x 95	SM	1.1	2.0	31	0.193	10.90	3,010	CUT
433120	3 x 120	SM	1.2	2.1	34.3	0.153	13.80	3,755	CUT
433150	3 x 150	SM	1.4	2.3	38.4	0.124	17.20	4,685	CUT
433185	3 x 185	SM	1.6	2.4	42.5	0.0991	21.30	5,750	CUT
433240	3 x 240	SM	1.7	2.6	47.5	0.0754	27.60	7,375	CUT
433300	3 x 300	SM	1.8	2.8	49.5	0.0601	34.50	9,105	CUT
433400	3 x 400	SM	2.0	3.1	56.9	0.047	41.20	12,065	CUT

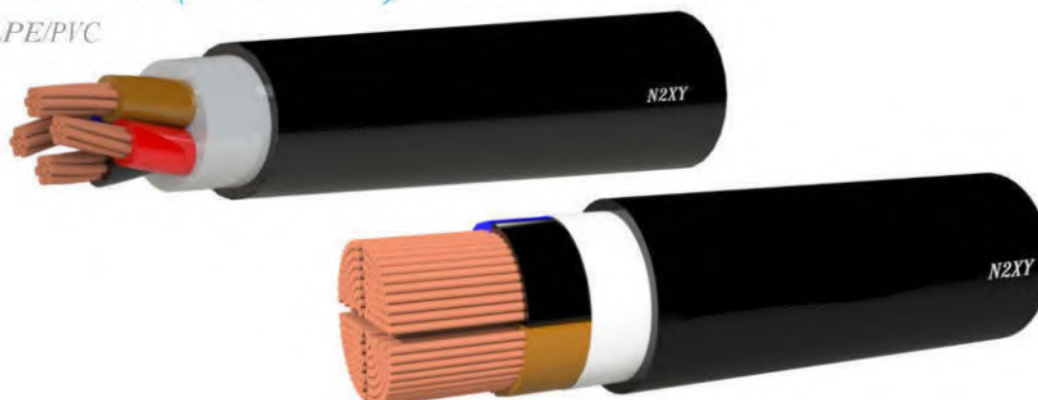
*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross-sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734

N2XY 4 x (1.5-400) mm²

CU/XLPE/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PROPAGATION

Construction

Conductor:	Cu, class 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 Class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	Blue(Y/G), black ,Brown , Grey acc. to VDE 0293-308
Filler:	(in multi wire cables) extruded elastomer or plastomer compound or wrapped thermoplastic tapes
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

2X Insulation of XLPE

Y outer sheath of PVC

fl reduced flame propagation

-J manufactured with one yellow/green conductor

-O manufactured without one yellow/green conductor



Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	Up to +160°C

ambient temperature at storage: up to 40 °C

Nominal voltage: U_o/U = 0,6/1 KV

Test voltage:core/core 3.5 KV AC for 5 Min

Minimal inner bending radius: 12 X Cable Ø

Behavior in fire: IEC 60332-1

Flame propagation: IEC 60332-3 cat.A

Conductor resistance: Acc to IEC 60228

Design Standards

IEC 60502-1
DIN VDE 0276 part 603

APPLICATION

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XY 4 x (1.5-400)mm²

CU/XLPE/PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4342516	3 x 25/16	RM/RM	0.9	1.8	24.5	1,370	CUT
4343516	3 x 35/16	RM/RM	0.9	1.8	25.5	1,655	CUT
435025	3 x 50/25	SM/RM	1.0	1.8	25.7	1,955	CUT
437035	3 x 70 /35	SM/RM	1.1	1.9	29.4	2,665	CUT
439550	3 x 95 /50	SM/SM	1.1	2.1	33.1	3,555	CUT
4312070	3 x 120 /70	SM/SM	1.2	2.2	36.7	4,495	CUT
4315070	3 x 150/70	SM/SM	1.4	2.3	40.9	5,425	CUT
4318595	3 x 185/95	SM/SM	1.6	2.5	45.4	6,745	CUT
43240120	3 x 240/120	SM/SM	1.7	2.7	50.8	8,670	CUT
43300150	3 x 300/150	SM/SM	1.8	2.8	56	10,710	CUT
434150	4 X 1.5	RM	0.7	1.8	12.1	215	CUT
434250	4 X 2.5	RM	0.7	1.8	13.1	270	CUT
43440	4 X 4	Rm	0.7	1.8	14.8	375	CUT
43460	4 X 6	RM	0.7	1.8	16.2	485	CUT
434100	4 X 10	RM	0.7	1.8	18.4	700	CUT
434160	4 X 16	RM	0.7	1.8	21.4	1,020	CUT
43425	4 X 25	RM	0.9	1.8	25.5	1,490	CUT
43435	4 X 35	RM	0.9	1.8	26.9	1,855	CUT
43450	4 X 50	SM	1.0	1.9	27	2,205	CUT
43470	4 X 70	SM	1.1	2.0	30.9	3,010	CUT
43495	4 X 95	SM	1.1	2.1	34.5	3,970	CUT
434120	4 X 120	SM	1.2	2.3	38.5	4,980	CUT
434150	4 X 150	SM	1.4	2.4	42.9	6,195	CUT
434185	4 X 185	SM	1.6	2.6	47.6	7,621	CUT
434240	4 X 240	SM	1.7	2.8	53.2	9,780	CUT
434300	4 X 300	SM	1.8	3.0	58.9	12,130	CUT
434400	4 X 400	SM	2.0	3.3	66.3	16,045	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

N2XY 5 x (1.5-300)mm²

CU/XLPE/PVC



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction

Conductor:	Cu, class 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 Class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	Blue, Y/G, black ,Brown , Grey acc. to VDE 0293-308
Filler:	(in multi wire cables) extruded elastomer or plastomer compound or wrapped thermoplastic tapes
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

2X Insulation of XLPE

Y outer sheath of PVC

fl reduced flame propagation

-J manufactured with one yellow/green conductor

-O manufactured without one yellow/green conductor



Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	Up to +160 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage: U₀/U = 0.6/1 KV

Test voltage:core/core 3.5 KV AC for 5 Min

Minimal inner bending radius: 12 X Cable Ø

Behavior in fire: IEC 60332-1

Flame propagation: IEC 60332-3 cat.A

Conductor resistance: Acc to IEC 60228

Design Standards

IEC 60502-1
DIN VDE 0276 part 603

APPLICATION

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XY 5 x (1.5-300)mm²

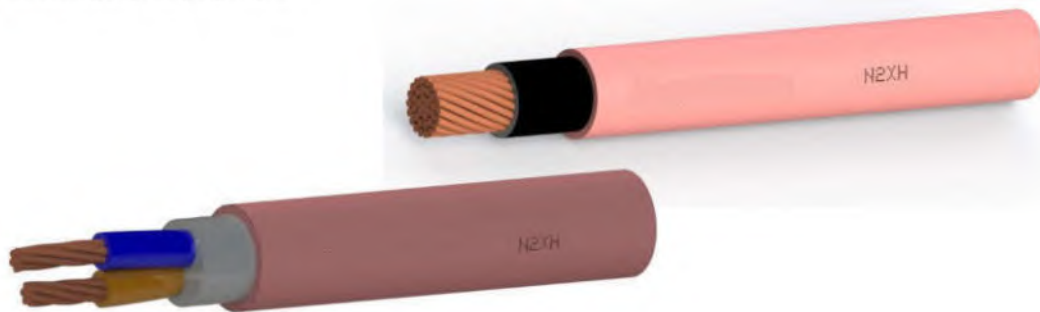
CU/XLPE/PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
435150	5 X 1.5	RM	0.7	1.8	13	240	CUT
435250	5 X 2.5	RM	0.7	1.8	14.1	320	CUT
43540	5 X 4	Rm	0.7	1.8	16	440	CUT
43560	5 X 6	RM	0.7	1.8	17.4	575	CUT
435100	5 X 10	RM	0.7	1.8	20	840	CUT
435160	5 X 16	RM	0.7	1.8	23.3	1,230	CUT
43525	5 X 25	RM	0.9	1.8	27.9	1,810	CUT
43535	5 X 35	RM	0.9	1.8	29.5	2,275	CUT
43550	5 X 50	RM	1.0	2.0	34	3,160	CUT
43570	5 X 70	RM	1.1	2.1	39.4	4,315	CUT
43595	5 X 95	RM	1.1	2.3	44.5	5,735	CUT
435120	5 X 120	RM	1.2	2.5	49.5	7,175	CUT
435150	5 X 150	RM	1.4	2.6	54.8	8,860	CUT
435185	5 X 185	RM	1.6	2.8	61	10,921	CUT
435240	5 X 240	RM	1.7	3.0	68.4	5,445	CUT
435300	5 X 300	RM	1.8	3.2	75.4	17,960	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

N2XH

CU/XLPE/Halogen free polyolefin



Halogen-free power and signal cable, with improved properties under fire

Construction

Conductor:	Cu, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295 class 1: solid, round(RE) class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, colour marked acc. to HRN HD 308 S2 / VDE 0293-308
Filler:	filler applied in multi core cables, extruded halogen-free polymer or halogen-free tape
Sheath:	Halogen-free thermoplastic polyolefin in compliance with DIN VDE 0276-604 or IEC 60502
sheath colour:	Red Or By request



Abbreviations

2X Insulation of XLPE

H outer sheath of Halogen-free thermoplastic polyolefin

fl reduced flame propagation



APPLICATION

Power cable suitable for fixed installation in dry and damp environment, on or under plaster, on cable trays, same as in walls and concrete. Not intended for direct laying in ground or water. For outdoor application can be laid in tubes, but in that case should be taken all precautionary measures necessary to prevent water penetration into the tubes. Suitable for supply systems in an emergency. Appropriate for application in all situations where people and material goods need to be protected in case of fire. Recommended for public buildings frequented by a lot of people, and for buildings of high material value, for industrial complexes, electric power plants, transformer stations, municipal facilities, hotels, shopping malls, hospitals, schools, airports, underground railways and similar.

Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
fixed installed:	-15 °C up to +90 °C
maximum operation temperature :	+90 °C
at short circuit of max.	5 s: up to 250 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:	3.5 KV AC for 5 Min

Minimal inner bending radius:	single core :15D multi core : 12D
-------------------------------	--------------------------------------

Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Halogen free	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

DESIGN STANDARDS

IEC 60502-1
HRN HD 604 S1
DIN VDE 0276 part 604

Core Identification

- 1 core: ● Black
- 2 core: ● Blue ● Brown
- 3 core: ● Brown ● Black ● Grey
- 3 core including earth: ● Brown ● Blue ● Green/Yellow
- 4 core: ● Blue ● Brown ● Black ● Grey
- 4 core including earth: ● Green/Yellow ● Brown ● Black ● Grey
- 5 core: ● Blue ● Brown ● Black ● Grey ● Black
- 5 core including earth: ● Green/Yellow ● Blue ● Brown ● Black ● Grey

N2XH 1x(1.5-300)mm²

CU/XLPE/Halogen free polyolefin

Dimensions – number of cores x conductor cross-section	Construction of individual conductor	External diameter	Conductor diameter	Fire load	Conductor resistance at 20 °C	Cable weight	Packing*
N x mm ²	nominal n x mm	approx. mm	nominal mm	kwh/m	max. Ω/km	approx. kg/km	
1 x 1,5 RE	1 x 1,36	5,4	1,38	0,15	12,10	43	CUT
1 x 2,5 RE	1 x 1,74	5,8	1,78	0,17	7,41	56	CUT
1 x 4 RE	1 x 2,20	6,4	2,25	0,20	4,61	75	CUT
1 x 6 RE	1 x 2,7	6,9	2,76	0,22	3,08	97	CUT
1 x 10 RE	1 x 3,49	7,7	3,57	0,26	1,83	140	CUT
1 x 16 RM	7 x 1,70	9,1	5,00	0,36	1,15	202	CUT
1 x 25 RM	7 x 2,13	11	6,10	0,48	0,727	302	CUT
1 x 35 RM	7 x 2,52	12	7,20	0,55	0,524	397	CUT
1 x 50 RM	19 x 1,83	13	8,30	0,65	0,387	523	CUT
1 x 70 RM	19 x 2,17	15	10,10	0,84	0,268	745	CUT
1 x 95 RM	19 x 2,52	17	11,90	0,97	0,193	986	CUT
1 x 120 RM	37 x 2,03	18	13,00	1,10	0,153	1214	CUT
1 x 150 RM	37 x 2,27	21	14,60	1,43	0,124	1536	CUT
1 x 185 RM	37 x 2,52	23	16,20	1,72	0,0991	1888	CUT
1 x 240 RM	61 x 2,24	26	18,80	2,02	0,0754	2472	CUT
1 x 300 RM	61 x 2,50	28	20,60	2,34	0,0601	2945	CUT

N2XH 2x(1.5-300)mm²

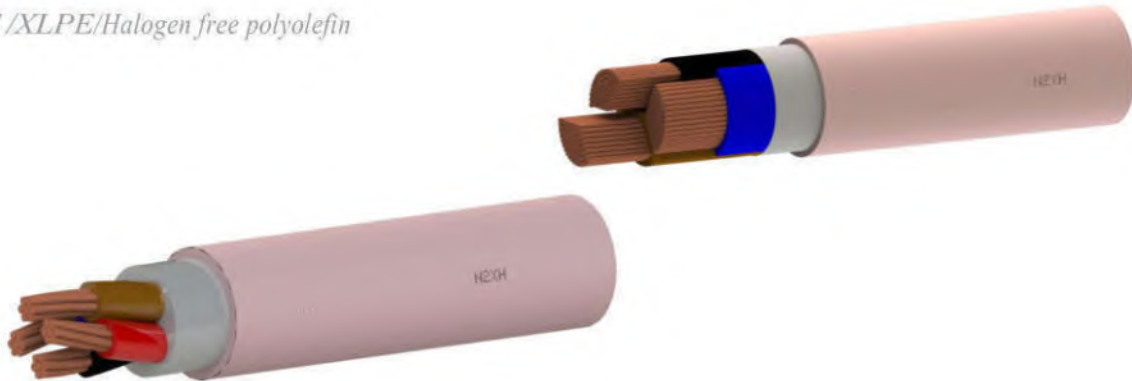
CU/XLPE/Halogen free polyolefin

Dimensions – number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Conductor diameter	Fire load	Conductor resistance at 20 °C	Cable weight	Packing*
N x mm ²		nominal n x mm	approx. mm	nominal mm	kwh/m	max. Ω/km	approx. kg/km	
2 x 1,5 RE	RE	1 x 1,38	9	1,38	0,38	12,10	120	CUT
2 x 2,5 RE	RE	1 x 1,78	10	1,78	0,45	7,41	154	CUT
2 x 4 RE	RE	1 x 2,25	11	2,25	0,53	4,61	204	CUT
2 x 6 RE	RE	1 x 2,76	12	2,76	0,60	3,08	263	CUT
2 x 10 RE	RE	1 x 3,56	13	3,57	0,73	1,83	374	CUT
2 x 16 RM	RM	7 x 1,70	16	5,00	1,06	1,15	563	CUT
2 x 25 RM	RM	7 x 2,13	20	6,10	1,52	0,727	840	CUT
2 x 35 RM	RM	7 x 2,52	22	7,20	1,79	0,524	1106	CUT
2 x 50 RM	RM	19 x 1,83	25	8,30	2,18	0,387	1444	CUT
2 x 70 RM	RM	19 x 2,17	29	10,10	2,89	0,268	2029	CUT
2 x 95 RM	RM	19 x 2,52	33	11,90	3,61	0,193	2737	CUT
2 x 120 RM	RM	37 x 2,03	36	13,00	4,23	0,153	3343	CUT
2 x 150 RM	RM	37 x 2,27	40	14,60	5,30	0,124	4192	CUT
2 x 185 RM	RM	37 x 2,52	44	16,20	6,48	0,0991	5167	CUT
2 x 240 RM	RM	61 x 2,24	50	18,80	8,09	0,0754	6807	CUT
2 x 300 RM	RM	61 x 2,50	55	20,60	9,39	0,0601	8072	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

N2XH

CU/XLPE/Halogen free polyolefin



Halogen-free power and signal cable, with improved properties under fire

Construction

- Conductor:** Cu, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
class 1: solid, round(RE)
class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm² are compacted
- Insulation:** XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, colour marked acc. to HRN HD 308 S2 / VDE 0293-308
- Filler:** filler applied in multi core cables, extruded halogen-free polymer or halogen-free tape
- Sheath:** Halogen-free thermoplastic polyolefin in compliance with DIN VDE 0276-604 or IEC 60502

sheath colour: Red Or By request



Abbreviations

2X Insulation of XLPE

H outer sheath of Halogen-free thermoplastic polyolefin

fl reduced flame propagation



APPLICATION

Power cable suitable for fixed installation in dry and damp environment, on or under plaster, on cable trays, same as in walls and concrete. Not intended for direct laying in ground or water. For outdoor application can be laid in tubes, but in that case should be taken all precautionary measures necessary to prevent water penetration into the tubes. Suitable for supply systems in an emergency. Appropriate for application in all situations where people and material goods need to be protected in case of fire. Recommended for public buildings frequented by a lot of people, and for buildings of high material value, for industrial complexes, electric power plants, transformer stations, municipal facilities, hotels, shopping malls, hospitals, schools, airports, underground railways and similar.

Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
fixed installed:	-15 °C up to +90 °C
maximum operation temperature :	+90 °C
at short circuit of max.	5 s: up to 250 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:	3.5 KV AC for 5 Min

Minimal inner bending radius:	single core :15D multi core : 12D
-------------------------------	--------------------------------------

Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Halogen free	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

DESIGN STANDARDS

IEC 60502-1
HRN HD 604 S1
DIN VDE 0276 part 604

Core Identification

- 1 core: ● Black
- 2 core: ● Blue ● Brown
- 3 core: ● Brown ● Black ● Grey
- 3 core including earth: ● Brown ● Blue ● Green/Yellow
- 4 core: ● Blue ● Brown ● Black ● Grey
- 4 core including earth: ● Green/Yellow ● Brown ● Black ● Grey
- 5 core: ● Blue ● Brown ● Black ● Grey ● Black
- 5 core including earth: ● Green/Yellow ● Blue ● Brown ● Black ● Grey

N2XH 3x(1.5-300)mm²

CU /XLPE/Halogen free polyolefin

Dimensions – number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Conductor diameter	Fire load	Conductor resistance at 20 °C	Cable weight	Packing*
N x mm ²		nominal n x mm	approx. mm	nominal mm	kwh/m	max. Ω/km	approx. kg/km	
3 x 1,5	RE	1 x 1,38	9	1,38	0,44	12,10	135	CUT
3 x 2,5	RE	1 x 1,78	10	1,78	0,51	7,41	181	CUT
3 x 4	RE	1 x 2,25	11	2,25	0,60	4,61	242	CUT
3 x 6	RE	1 x 2,76	13	2,76	0,69	3,08	319	CUT
3 x 10	RE	1 x 3,56	14	3,57	0,83	1,83	464	CUT
3 x 16	RM	7 x 1,70	17	5,00	1,22	1,15	697	CUT
3 x 25	RM	7 x 2,13	20	6,01	1,52	0,727	950	CUT
3 x 35	RM	7 x 2,52	23	7,20	2,08	0,524	1393	CUT
3 x 50	RM	19 x 1,83	26	8,30	2,56	0,387	1847	CUT
3 x 70	RM	19 x 2,17	31	10,10	3,43	0,268	2666	CUT
3 x 95	RM	19 x 2,52	36	11,90	4,17	0,193	3535	CUT
3 x 120	RM	37 x 2,03	38	13,00	4,74	0,153	4322	CUT
3 x 150	RM	37 x 2,27	43	14,60	6,03	0,124	5442	CUT
3 x 185	RM	37 x 2,52	48	16,20	7,40	0,0991	6742	CUT
3 x 240	RM	61 x 2,24	54	18,80	9,23	0,0754	8864	CUT
3 x 300	RM	61 x 2,50	59	20,60	10,79	0,0601	10522	CUT

N2XH 4x(1.5-300)mm²

CU /XLPE/Halogen free polyolefin

Dimensions – number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Conductor diameter	Fire load	Conductor resistance at 20 °C	Cable weight	Packing*
N x mm ²		nominal n x mm	approx. mm	nominal mm	kwh/m	max. Ω/km	approx. kg/km	
4 x 1,5	RE	1 x 1,38	10	1,38	0,52	12,10	163	CUT
4 x 2,5	RE	1 x 1,78	11	1,78	0,60	7,41	214	CUT
4 x 4	RE	1 x 2,25	12	2,25	0,72	4,61	294	CUT
4 x 6	RE	1 x 2,76	14	2,76	0,83	3,08	390	CUT
4 x 10	RE	1 x 3,56	16	3,57	1,03	1,83	586	CUT
4 x 16	RM	7 x 1,70	19	5,00	1,50	1,15	874	CUT
4 x 25	RM	7 x 2,13	23	6,10	2,14	0,727	1332	CUT
4 x 35	RM	7 x 2,52	26	7,20	2,57	0,524	1777	CUT
4 x 50	RM	19 x 1,83	29	8,30	3,15	0,387	2343	CUT
4 x 70	RM	19 x 2,17	35	10,10	4,17	0,268	3384	CUT
4 x 95	RM	19 x 2,52	39	11,90	5,16	0,193	4490	CUT
4 x 120	RM	37 x 2,03	43	13,00	5,98	0,153	5558	CUT
4 x 150	RM	37 x 2,27	48	14,60	7,55	0,124	6998	CUT
4 x 185	RM	37 x 2,52	53	16,20	9,35	0,0991	8657	CUT
4 x 240	RM	61 x 2,24	60	18,80	11,54	0,0754	11385	CUT
4 x 300	RM	61 x 2,50	65	20,60	13,44	0,0601	13539	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

N2XH

CU/XLPE/Halogen free polyolefin



Halogen-free power and signal cable, with improved properties under fire

Construction

Conductor:	Cu, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295 class 1: solid, round(RE) class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, colour marked acc. to HRN HD 308 S2 / VDE 0293-308
Filler:	filler applied in multi core cables, extruded halogen-free polymer or halogen-free tape
Sheath:	Halogen-free thermoplastic polyolefin in compliance with DIN VDE 0276-604 or IEC 60502

sheath colour: Red Or By request



Abbreviations

2X Insulation of XLPE

H outer sheath of Halogen-free thermoplastic polyolefin

fl reduced flame propagation



APPLICATION

Power cable suitable for fixed installation in dry and damp environment, on or under plaster, on cable trays, same as in walls and concrete. Not intended for direct laying in ground or water. For outdoor application can be laid in tubes, but in that case should be taken all precautionary measures necessary to prevent water penetration into the tubes. Suitable for supply systems in an emergency. Appropriate for application in all situations where people and material goods need to be protected in case of fire. Recommended for public buildings frequented by a lot of people, and for buildings of high material value, for industrial complexes, electric power plants, transformer stations, municipal facilities, hotels, shopping malls, hospitals, schools, airports, underground railways and similar.

Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
fixed installed:	-15 °C up to +90 °C
maximum operation temperature :	+90 °C
at short circuit of max.	5 s: up to 250 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:	3.5 KV AC for 5 Min

Minimal inner bending radius:	single core :15D multi core : 12D
-------------------------------	--------------------------------------

Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Halogen free	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

DESIGN STANDARDS

IEC 60502-1
HRN HD 604 S1
DIN VDE 0276 part 604

Core Identification

- 1 core: ● Black
- 2 core: ● Blue ● Brown
- 3 core: ● Brown ● Black ● Grey
- 3 core including earth: ● Brown ● Blue ● Green/Yellow
- 4 core: ● Blue ● Brown ● Black ● Grey
- 4 core including earth: ● Green/Yellow ● Brown ● Black ● Grey
- 5 core: ● Blue ● Brown ● Black ● Grey ● Black
- 5 core including earth: ● Green/Yellow ● Blue ● Brown ● Black ● Grey

N2XH 5x(1.5-300)mm²

CU /XLPE/Halogen free polyolefin

Dimensions – number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Conductor diameter	Fire load	Conductor resistance at 20 °C	Cable weight	Packing*
N x mm ²		nominal n x mm	approx. mm	nominal mm	kwh/m	max. Ω/km	approx. kg/km	
5 x 1,5	RE	1 x 1,38	11	1,38	0,62	12,10	193	CUT
5 x 2,5	RE	1 x 1,78	12	1,78	0,71	7,41	256	CUT
5 x 4	RE	1 x 2,25	13	2,25	0,85	4,61	352	CUT
5 x 6	RE	1 x 2,76	15	2,76	0,99	3,08	475	CUT
5 x 10	RE	1 x 3,56	17	3,57	1,22	1,83	708	CUT
5 x 16	RM	7 x 1,70	21	5,00	1,87	1,15	1081	CUT
5 x 25	RM	7 x 2,13	26	6,10	2,61	0,727	1631	CUT
5 x 35	RM	7 x 2,52	29	7,20	3,11	0,524	2163	CUT
5 x 50	RM	19 x 1,83	33	8,30	3,89	0,387	2915	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

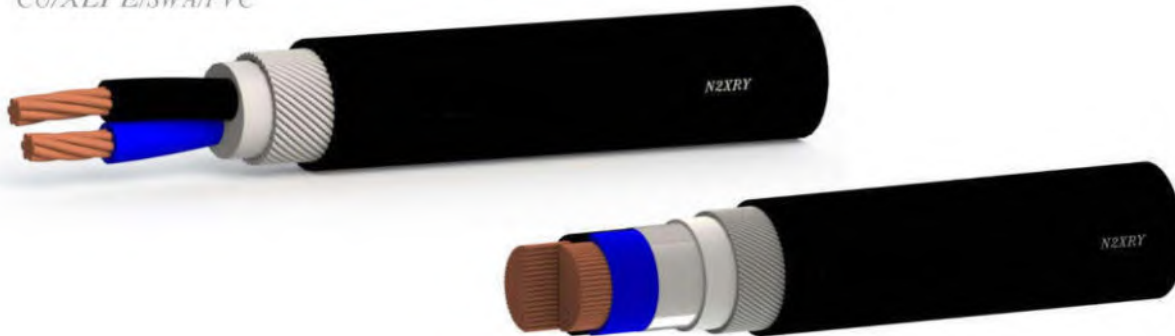
ELECTRICAL CHARACTERISTICS

Current Carrying Capacity at 30°C

NOMINAL CROSS SECTIONAL AREA mm2	NO. OF CORES										
	1		2		3 AND 4		7	10	12 AND 14	19	24
	In Ground Amps	In Air Amps	In Ground Amps	In Air Amps	In Ground Amps	In Air Amps	In Air Amps	In Air Amps	In Air Amps	In Air Amps	In Air Amps
1.5	31	24	37	26	31	23	18	16	14	13	12
2.5	41	33	48	36	41	31	23	22	20	18	16
4	59	45	63	49	53	42	-	-	-	-	-
6	101	58	80	63	66	54	-	-	-	-	-
10	128	80	104	86	87	75	-	-	-	-	-
16	144	107	136	115	113	100	-	-	-	-	-
25	174	138	173	149	144	127	-	-	-	-	-
35	206	169	-	-	174	158	-	-	-	-	-
50	254	207	-	-	206	192	-	-	-	-	-
70	301	268	-	-	254	246	-	-	-	-	-
95	343	328	-	-	301	298	-	-	-	-	-
120	387	382	-	-	343	346	-	-	-	-	-
150	434	441	-	-	387	395	-	-	-	-	-
185	501	506	-	-	434	450	-	-	-	-	-
240	565	599	-	-	501	538	-	-	-	-	-
300	565	693	-	-	-	-	-	-	-	-	-
400	749	811	-	-	-	-	-	-	-	-	-
500	843	940	-	-	-	-	-	-	-	-	-

N2XRY 2x (1.5-400)mm²

CU/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation /Armored Power Cables

Construction

Conductor:	Cu, Class 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 multi wire stranded, round (RM) or sector (SM),
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC

fl reduced flame propagation

-J manufactured with one yellow/green conductor

-O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced.

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	15 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

N2XRY 2x(1.5-400)mm²

CU/XLPE/SWA/PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
442150	2 x 1.5	RM	0.7	1.8	8.1	0.9	13.5	350	CUT
442250	2 x 2.5	RM	0.7	1.8	8.9	0.9	14.3	395	CUT
44240	2 x 4	RM	0.7	1.8	10	0.9	15.4	470	CUT
44260	2 x 6	RM	0.7	1.8	11.1	0.9	16.5	560	CUT
442100	2 x 10	RM	0.7	1.8	13	1.25	19.1	825	CUT
442160	2 x 16	RM	0.7	1.8	15.1	1.25	21.2	1,080	CUT
44225	2 x 25	RM	0.9	1.8	18.5	1.6	25.3	1,575	CUT
44235	2 x 35	RM	0.9	1.8	19.7	1.6	26.5	1,810	CUT
44250	2 x 50	SM	1.0	1.8	19.3	1.6	26.1	1,900	CUT
44270	2 x 70	SM	1.1	2.0	22.1	1.6	29.4	2,440	CUT
44295	2 x 95	SM	1.1	2.1	25.6	2.0	33.8	2,325	CUT
442120	2 x 120	SM	1.2	2.2	28.4	2.0	36.8	3,955	CUT
442150	2 x 150	SM	1.4	2.3	31.4	2.0	40	4,730	CUT
442185	2 x 185	SM	1.6	2.5	35	2.5	45	6,055	CUT
442240	2 x 240	SM	1.7	2.7	39.3	2.5	49.7	7,350	CUT
442300	2 x 300	SM	1.8	2.8	43.8	2.5	54.4	8,815	CUT
442400	2 x 400	SM	2.0	3.1	49.8	2.5	61	11,200	CUT

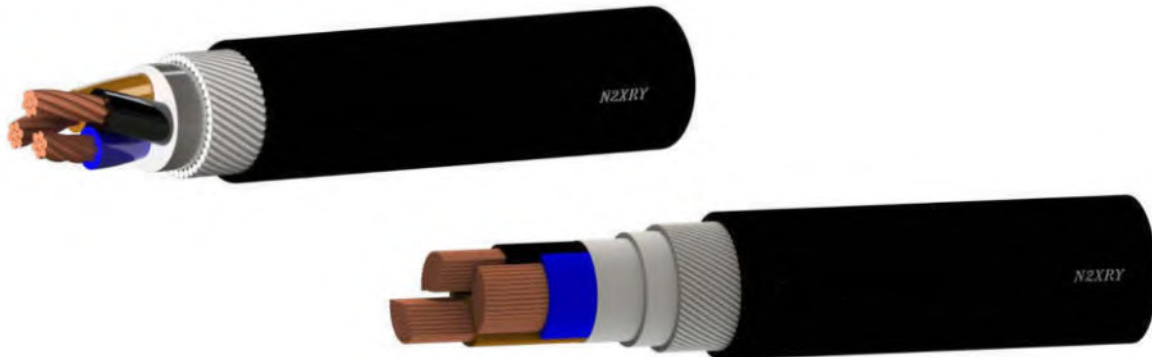
*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) U_0/U (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	35
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	107
25	144	177	105	132	114	144
35	176	217	129	162	139	176
50	214	265	157	197	169	214
70	270	336	199	250	213	270
95	334	415	246	308	264	334
120	389	485	285	359	307	389
150	446	557	326	412	352	446
185	516	647	374	475	406	516
240	618	775	445	564	483	618
300	711	894	510	649	552	711
400	843	1061	597	761	646	843

N2XRY 3x(1.5-300)mm²

CU/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation /Armored Power Cables

Construction

Conductor:	Cu, Class 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 multi wire stranded, round (RM) or sector (SM),
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black,Brown(Y/G)
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC

fl reduced flame propagation

-J manufactured with one yellow/green conductor

-O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced.

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	15 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

N2XRY 3x(1.5-300)mm²

CU/XLPE/SWA/ PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RE/RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
443150	3 x 1.5	RM	0.7	1.8	8.5	0.9	13.9	375	CUT
443250	3 x 2.5	RM	0.7	1.8	9.4	0.9	14.8	435	CUT
44340	3 x 4	RM	0.7	1.8	10.6	0.9	16.0	525	CUT
44360	3 x 6	RM	0.7	1.8	11.8	0.9	17.2	635	CUT
443100	3x 10	RM	0.7	1.8	13.8	1.25	19.9	945	CUT
443160	3 x 16	RM	0.7	1.8	16.1	1.25	22.2	1,235	CUT
44325	3 x 25	RM	0.9	1.8	19.7	1.6	26.6	1,840	CUT
44335	3 x 35	RM	0.9	1.8	21	1.6	27.8	2,150	CUT
44350	3 x 50	SM	1.0	1.9	22.6	1.6	29.6	2,575	CUT
44370	3 x 70	SM	1.1	2.0	26.4	2.0	34.4	3,595	CUT
44395	3 x 95	SM	1.1	2.2	29.4	2.0	37.8	4,465	CUT
443120	3x 120	SM	1.2	2.3	32.5	2.0	41.1	5,340	CUT
443150	3 x 150	SM	1.4	2.5	36.6	2.5	46.6	6,925	CUT
443185	3 x 185	SM	1.6	2.6	40.5	2.5	50.7	8,185	CUT
443240	3 x 240	SM	1.7	2.8	45.5	2.5	56.1	10,190	CUT
443300	3 x 300	SM	1.8	3.0	47.1	2.5	58.1	11,980	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\Delta U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649

N2XRY 4x(1.5-300)mm²

CU/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation/Armored Power Cables

Construction

Conductor:	Cu, Class 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 multi wire stranded, round (RM) or sector (SM),
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black, Brown(Y/G) , Grey
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

- Y insulation & outer sheath of PVC
- fl reduced flame propagation
- J manufactured with one yellow/green conductor
- O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	15 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc. to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

N2XRY 4x(1.5-300)mm²

CU/XLPE/SPA/ PVC

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
444150	4 x 1.5	RM	0.7	1.8	9.3	0.9	14.7	420	CUT
444250	4 x 2.5	RM	0.7	1.8	10.3	0.9	15.7	470	CUT
44440	4 x 4	RM	0.7	1.8	11.6	0.9	17	605	CUT
44460	4 x 6	RM	0.7	1.8	13	1.25	19.1	840	CUT
444100	4 x 10	RM	0.7	1.8	15.2	1.25	21.3	1110	CUT
444160	4 x 16	RM	0.7	1.8	17.8	1.6	24.6	1610	CUT
44425	4 x 25	RM	0.9	1.8	21.9	1.6	28.7	2185	CUT
44435	4 x 35	RM	0.9	1.9	23.3	1.6	30.3	2605	CUT
44450	4 x 50	SM	1.0	2.0	25.2	1.6	32.4	3200	CUT
4470	4 x 70	SM	1.1	2.2	29.3	2.0	37.7	4465	CUT
44495	4 x 95	SM	1.1	2.3	32.6	2.0	41.3	5585	CUT
444120	4x 120	SM	1.2	2.5	36.7	2.5	46.7	7220	CUT
444150	4 x 150	SM	1.4	2.6	40.9	2.5	51.1	8670	CUT
444185	4 x 185	SM	1.6	2.8	45.2	2.5	55.8	10345	CUT
444240	4 x 240	SM	1.7	3.0	50.8	2.5	61.8	12895	CUT
444300	4 x 300	SM	1.8	3.2	56.1	2.5	67.5	15540	CUT
4442516	3 x 25/16	Rm/rm	0.9	1.8	20.9	1.6	27.9	2030	CUT
4443516	3 x 35/16	Rm/rm	0.9	1.8	21.9	1.6	28.8	2350	CUT
4445025	3 x 50/25	Sm/rm	1.0	1.9	24.2	1.6	31.2	2905	CUT
4447035	3 x 70/35	Sm/rm	1.1	2.1	27.8	2.0	36.4	4060	CUT
4449550	3 x 95/50	Sm/sm	1.1	2.2	31.3	2.0	39.8	5060	CUT
44412070	3 x 120/70	Sm/sm	1.2	2.4	34.5	2.0	43.5	6200	CUT
44415070	3 x 150/70	Sm/sm	1.4	2.5	39.2	2.5	49.2	7820	CUT
44418595	3 x 185/95	Sm/sm	1.6	2.7	43.2	2.5	53.6	9360	CUT
4442412	3 x 240/120	Sm/sm	1.7	2.9	48.6	2.5	59.4	11630	CUT
4443015	3 x 300/150	Sm/sm	1.8	3.0	53.5	2.5	64.5	13970	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) U_0/U (0.6/1KV) copper conductors Laid in air

Nominal cross- sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649

N2XRY 5x(1.5-240)mm²

CU/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation/Armored Power Cables

Construction

Conductor:	Cu, Class 2 acc. DIN-VDE 0295, UNE-EN 60228, EN 60228 and IEC 60228 multi wire stranded, round (RM) or sector (SM),
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black, Brown, Y/G , Grey
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005

Abbreviations

Y insulation & outer sheath of PVC

fl reduced flame propagation

-J manufactured with one yellow/green conductor

-O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	15 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

N2XRY 5x(1.5-240)mm²

CU/XLPE/SWA/ PVC

Code No.	Dimensions – number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
	N x mm ²	RE/RM/SM	nom. mm	Nom. mm	nom. mm	mm	mm	Nom. kg/km	
445150	5 x 1.5	RM	0.7	1.8	10.2	0.9	15.6	460	CUT
445250	5 x 2.5	RM	0.7	1.8	11.3	0.9	16.7	555	CUT
44540	5 x 4	RM	0.7	1.8	12.8	1.25	18.9	800	CUT
44560	5 x 6	RM	0.7	1.8	14.3	1.25	20.4	965	CUT
445100	5 x 10	RM	0.7	1.8	16.8	1.25	22.9	1285	CUT
445160	5 x 16	RM	0.7	1.8	19.7	1.6	26.5	1860	CUT
44525	5 x 25	RM	0.9	1.8	24.3	1.6	31.1	2580	CUT
44535	5 x 35	RM	0.9	1.9	25.9	1.6	32.9	3075	CUT
44550	5 x 50	RM	1.0	2.2	30	2.0	38.3	4375	CUT
44570	5 x 70	RM	1.1	2.3	35.2	2.0	43.8	5715	CUT
44595	5 x 95	RM	1.1	2.4	39.9	2.5	49.7	7705	CUT
445120	5x 120	RM	1.2	2.6	44.5	2.5	54.6	9325	CUT
445150	5 x 150	RM	1.4	2.8	49.6	2.5	60.1	11260	CUT
445185	5 x 185	RM	1.6	3.0	55.4	2.5	66.4	13600	CUT
445240	5 x 240	RM	1.7	3.2	62.4	3.2	75.1	17805	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

Current rating (AC) $\geq U_0/U$ (0.6/1KV) copper conductors Laid in air

Nominal cross-sectional area nom.(mm ²)						
	PVC	XLPE	PVC	XLPE	PVC	XLPE
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580

N2XCY

CU conductor/XLPE Insulation /PVC Filler /Concentric Copper conductor/Helical Copper Tape/PVC Jacket



FLAME RETARDANT AND UV RESISTANT/ REDUCED FLAME PRPPAGATION

Construction		Technical data	
Cu, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295		Temperature range:	
Conductor:	class 1: solid, round(RE)	During installation :	-5 °C up to +50 °C
	class 2: multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted	fixed installed:	-20 °C up to +90 °C
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, colour marked acc. to HRN HD 308 S2 / VDE 0293-308	at short circuit of max.	5 s: up to 250 °C
		ambient temperature at storage:	up to 40 °C
Concentric conductor:	in inner layer spirally wrapped round copper wires, in external layer copper tape wrapped in counter-helix	Nominal voltage:	U ₀ /U = 0.6/1 KV
		Test voltage:	3.5 KV AC for 5 Min
Filler:	extruded elastomer or plastomer compound or wrapped thermoplastic tapes	Minimal inner bending radius:	single core :15D multi core : 12D
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)	Behavior in fire:	IEC 60332-1
sheath colour:	Black Ral 9005	Flame propagation:	IEC 60332-3 cat.A
Core colour marking:	HRN HD 308 S2 / VDE 0293-308	Maximal tensile strength:	50 N/mm ²
Abbreviations		DESIGN STANDARDS	
2X Insulation of XLPE		IEC 60502-1	
Y outer sheath of PVC		DIN VDE 0276 part 603	
fl reduced flame propagation		HRN HD 603 S1	



APPLICATION

Application Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, in conditions where there is a danger of possible mechanical damages, but where the cable is not exposed either to systematic mechanical stress or heavier tensile strain. Concentric conductor can be used as neutral, protective or earth connection, and in conditions where it is exposed to danger of damages caused by digging, it acts as protection against contact voltage, in case of rough insulation damage. Used in transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XCY

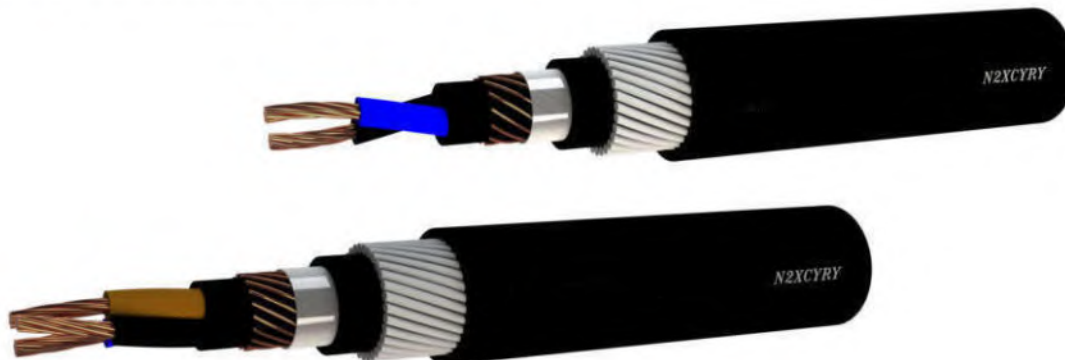
CU conductor/XLPE Insulation /PVC Filler /Concentric Copper conductor/Helical Copper Tape/PVC Jacket

Code No.	number of cores x conductor cross- section	Construction	External diameter approx.	Insulation thickness nominal	Sheath thickness nominal	Conductor resistance @ 20 °C max.	Short circuit current 1s nominal	Cable weight approx.	Packing*
	N x mm ²		mm	mm	mm	Ω/km	kA	kg/km	CUT
45215	2 x 1,5/1,5	RE	13	0,7	1,8	12,1	0,214	200	CUT
45225	2 x 2,5/2,5	RE	13,9	0,7	1,8	7,41	0,357	260	CUT
45240	2 x 4/4	RE	16	0,7	1,8	4,61	0,573	350	CUT
45315	3 x 1,5/1,5	RE	17	0,7	1,8	12,1	0,214	220	CUT
45325	3 x 2,5/2,5	RE	18	0,7	1,8	7,41	0,357	280	CUT
45340	3 x 4/4	RE	20	0,7	1,8	4,61	0,573	390	CUT
45316	3 x 16,/16	RE	20,1	0,7	1,8	1,15	2,29	880	CUT
45325	3 x 25/16	RM	25,7	0,9	1,8	0,727	3,58	1378	CUT
45335	3 x 35/16	SM	27,8	0,9	1,8	0,524	5,01	1705	CUT
45350	3 x 50/25	SM	30,9	1	1,8	0,387	7,15	2237	CUT
45370	3 x 70,/35	SM	35,3	1,1	1,8	0,268	10,01	3055	CUT
45395	3 x 95/50	SM	38,9	1,1	1,8	0,193	13,59	4058	CUT
453120	3 x 120/70	SM	43,1	1,2	1,8	0,153	17,16	5091	CUT
453150	3 x 150/70	SM	47,4	1,4	1,8	0,124	21,45	6108	CUT
453185	3 x 185/95	SM	52,6	1,6	1,8	0,0991	26,46	7587	CUT
453240	3 x 240/120	SM	58,7	1,7	1,8	0,0754	34,32	9817	CUT
45415	4 x 1,5/1,5	RE	18	0,7	1,8	12,1	0,214	250	CUT
45425	4 x 2,5/2,5	RE	19	0,7	1,8	7,41	0,357	340	CUT
45440	4 x 4,/4	RE	21	0,7	1,8	4,61	0,573	460	CUT
45460	4 x 6/6	RE	22	0,7	1,8	3,08	0,858	580	CUT
45515	5 x 1,5/1,5	RE	16	0,7	1,8	12,1	0,214	330	CUT
45525	5 x 2,5/2,5	RE	17	0,7	1,8	7,41	0,357	400	CUT
45540	5 x 4,/4	RE	19	0,7	1,8	4,61	0,573	550	CUT
45715	7 x 1,5/2,5	RE	19	0,7	1,8	12,1	0,214	350	CUT
451015	10 x 1,5/2,5	RE	23	0,7	1,8	12,1	0,214	410	CUT
451215	12 x 1,5/2,5	RE	24	0,7	1,8	12,1	0,214	470	CUT
451415	14 x 1,5/2,5	RE	25	0,7	1,8	12,1	0,214	520	CUT
451615	16 x 1,5/1,5	RE	26	0,7	1,8	12,1	0,214	620	CUT
451915	19 x 1,5/4	RE	28	0,7	1,8	12,1	0,214	660	CUT
452115	21 x 1,5/6	RE	22	0,7	1,8	12,1	0,214	620	CUT
452415	24 x 1,5/6	RE	31	0,7	1,8	12,1	0,214	850	CUT
453015	30 x 1,5/6	RE	32	0,7	1,8	12,1	0,214	1020	CUT
451015	40 x 1,5/10	RE	36	0,7	1,8	12,1	0,214	1280	CUT
455215	52 x 1,5/10	RE	38	0,7	1,8	12,1	0,214	1600	CUT
456115	61 x 1,5/10	RE	40	0,7	1,8	12,1	0,214	2000	CUT
45725	7 x 2,5/2,5	RE	21	0,7	1,8	7,41	0,357	450	CUT
451025	10 x 2,5/4	RE	25	0,7	1,8	7,41	0,357	600	CUT
451225	12 x 2,5/4	RE	25	0,7	1,8	7,41	0,357	660	CUT
451425	14 x 2,5/6	RE	26	0,7	1,8	7,41	0,357	750	CUT
451625	16 x 2,5/4	RE	27	0,7	1,8	7,41	0,357	800	CUT
451925	19 x 2,5/6	RE	29	0,7	1,8	7,41	0,357	940	CUT
452425	24 x 2,5/10	RE	33	0,7	1,8	7,41	0,357	1300	CUT
453025	30 x 2,5/10	RE	35	0,7	1,8	7,41	0,357	1600	CUT
454025	40 x 2,5/10	RE	39	0,7	1,8	7,41	0,357	1660	CUT
455225	52 x 2,5/10	RE	40	0,7	1,8	7,41	0,357	2000	CUT
456125	61 x 2,5/10	RE	42	0,7	1,8	7,41	0,357	2280	CUT
45740	7 x 4,/4	RE	23	0,7	1,8	4,61	0,573	600	CUT
451040	10 x 4/6	RE	27	0,7	1,8	4,61	0,573	900	CUT
451240	12 x 4/6	RE	27	0,7	1,8	4,61	0,573	1060	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

N2XCURY

CU/XLPE/Filler/CCW/PST/BD/GSWA/PVC



Armoured Power and signal cable 0,6/1 kV, XLPE insulated, PVC sheathed, with concentric protective Cu conductor

Construction

Conductor:	Cu, class 1 or 2 acc. to IEC 60228 / DIN VDE 0295
class 1:	solid, round (RE)
class 2:	multi wire stranded, round (RM) or sector (SM), multi wire exceeding 50 mm ² are compacted
Insulation:	XLPE-compound acc. to IEC 60502-1, concentrically stranded cores, color marked acc. to VDE 0293-308
Filler:	extruded elastomer or plastomer compound or wrapped thermoplastic tapes
Concentric conductor:	in inner layer spirally wrapped round copper wires,
Wrapping:	PES Tape
Bedding:	PVC Compound
Armour:	A layer of tin round galvanized Steel wire
Sheath:	PVC compound ST1 acc. to IEC 60502-1
sheath colour:	black or by request

Abbreviations

2X insulation of Crosslinked Polyethylene
fl reduced flame propagation

Technical data

Temperature During installation :	-5 °C up to +50 °C
fixed installed Temperature:	-20 °C up to +90 °C
At short circuit of max.	up to 250 °C
Nominal voltage:	U ₀ /U = 0,6/1 kV
Test voltage:	3.5 kV
Maximal tensile strength:	50 N/mm ²
Minimal inner bending radius:	
Behavior in fire:	IEC 60332-1
single core:	15D
multi core:	12D

Design Standards

IEC 60502-1
VDE 0276-603

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, in conditions where there is a danger of possible mechanical damages, Concentric conductor can be used as neutral, protective or earth connection, and in conditions where it is exposed to danger of damages caused by digging, it acts as protection against contact voltage, in case of rough insulation damage. Used in transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

N2XCERY

CU/XLPE/Filler/CCW/PST/BD/GSWA/PVC

N2XCERY								
Code No.	No. of Cores & Cross Section	Nominal Inner Layer Thickness	Nominal Concentric Wire Diameter	Nominal Separation Sheath Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Overall Diameter (Approx)	Total Weight (Approx)
	mm ²	mm	mm	mm	mm	mm	mm	kg/km
R45116	1×16+16 RM	0	0.8	1.2	1.25	1.5	16.2	555
R45125	1×25+25 RM	0	0.9	1.2	1.25	1.5	17.7	750
R45135	1×35+35 RM	0	0.9	1.2	1.25	1.5	18.8	960
R45150	1×50+50 RM	0	0.9	1.2	1.6	1.6	21	1250
R45215	2×1.5+1.5 RE	1	0.5	1.2	1.25	1.8	17.4	565
R45225	2×2.5+2.5 RE	1	0.5	1.2	1.25	1.8	18.2	635
R4524	2×4+4 RE	1	0.8	1.2	1.25	1.8	19.7	745
R4526	2×6+6 RE	1	0.8	1.2	1.6	1.8	21.4	965
R45210	2×10+10 RE	1	0.8	1.2	1.6	1.8	23	1175
R45216	2×16+16 RM	1	0.8	1.2	1.6	1.8	25.9	1515
R45225	2×25+25 RM	1	0.9	1.2	1.6	1.9	28.9	1965
R45235	2×35+35 RM	1	0.9	1.2	2	2	32.1	2590
R45250	2×50+50 RM	1	0.9	1.2	2	2.1	34.9	3150
R45315	3×1.5+1.5 RE	1	0.5	1.2	1.25	1.8	17.8	600
R45325	3×2.5+2.5 RE	1	0.5	1.2	1.25	1.8	18.7	680
R4534	3×4+4 RE	1	0.8	1.2	1.6	1.8	21	915
R4536	3×6+6 RE	1	0.8	1.2	1.6	1.8	22.1	1055
R45310	3×10+10 RE	1	0.8	1.2	1.6	1.8	23.8	1300
R45316	3×16+16 RM	1	0.8	1.2	1.6	1.8	26.9	1705
R45325	3×25+25 RM	1	0.8	1.2	1.6	1.9	29.9	2200
R45335	3×35+35 RM	1	0.9	1.2	2	2	33.5	3005
R45350	3×50+50 RM	1	0.9	1.2	2	2	33.1	3235

N2XCYRY

CU/XLPE/Filler/CCW/PST/BD/GSWA/PVC

N2XCYRY								
Code No.	No. of Cores & Cross Section	Nominal Inner Layer Thickness	Nominal Concentric Wire Diameter	Nominal Separation Sheath Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Overall Diameter (Approx)	Total Weight (Approx)
	mm ²	mm	mm	mm	mm	mm	mm	kg/km
R45415	4×1.5+1.5 RE	1	0.5	1.2	1.25	1.8	18.5	650
R45425	4×2.5+2.5 RE	1	0.5	1.2	1.25	1.8	19.5	745
R4544	4×4+4 RE	1	0.8	1.2	1.6	1.8	22	1015
R4546	4×6+6 RE	1	0.8	1.2	1.6	1.8	23.2	1175
R45410	4×10+10 RE	1	0.8	1.2	1.6	1.8	25.1	1475
R45416	4×16+16 RE	1	0.8	1.2	1.6	1.8	26.5	1645
R45420	4×20+20 RE	1	0.8	1.2	1.6	1.8	27.5	1765
R45425	4×25+25 RE	1	0.8	1.2	1.6	1.8	28.5	1885
R45430	4×30+30 RE	1	0.8	1.2	1.6	1.8	29.5	2005
R45435	4×35+35 RE	1	0.8	1.2	1.6	1.8	30.5	2125
R45440	4×40+40 RE	1	0.8	1.2	1.6	1.8	31.5	2245
R45445	4×45+45 RE	1	0.8	1.2	1.6	1.8	32.5	2365
R45450	4×50+50 RE	1	0.8	1.2	1.6	1.8	33.5	2485
R45455	4×55+55 RE	1	0.8	1.2	1.6	1.8	34.5	2605
R45460	4×60+60 RE	1	0.8	1.2	1.6	1.8	35.5	2725
R45465	4×65+65 RE	1	0.8	1.2	1.6	1.8	36.5	2845
R45470	4×70+70 RE	1	0.8	1.2	1.6	1.8	37.5	2965
R45475	4×75+75 RE	1	0.8	1.2	1.6	1.8	38.5	3085
R45480	4×80+80 RE	1	0.8	1.2	1.6	1.8	39.5	3205
R45485	4×85+85 RE	1	0.8	1.2	1.6	1.8	40.5	3325
R45490	4×90+90 RE	1	0.8	1.2	1.6	1.8	41.5	3445
R45495	4×95+95 RE	1	0.8	1.2	1.6	1.8	42.5	3565
R45500	4×100+100 RE	1	0.8	1.2	1.6	1.8	43.5	3685
R45505	4×105+105 RE	1	0.8	1.2	1.6	1.8	44.5	3805
R45510	4×110+110 RE	1	0.8	1.2	1.6	1.8	45.5	3925
R45515	4×115+115 RE	1	0.8	1.2	1.6	1.8	46.5	4045
R45520	4×120+120 RE	1	0.8	1.2	1.6	1.8	47.5	4165
R45525	4×125+125 RE	1	0.8	1.2	1.6	1.8	48.5	4285
R45530	4×130+130 RE	1	0.8	1.2	1.6	1.8	49.5	4405
R45535	4×135+135 RE	1	0.8	1.2	1.6	1.8	50.5	4525
R45540	4×140+140 RE	1	0.8	1.2	1.6	1.8	51.5	4645
R45545	4×145+145 RE	1	0.8	1.2	1.6	1.8	52.5	4765
R45550	4×150+150 RE	1	0.8	1.2	1.6	1.8	53.5	4885
R45555	4×155+155 RE	1	0.8	1.2	1.6	1.8	54.5	5005
R45560	4×160+160 RE	1	0.8	1.2	1.6	1.8	55.5	5125
R45565	4×165+165 RE	1	0.8	1.2	1.6	1.8	56.5	5245
R45570	4×170+170 RE	1	0.8	1.2	1.6	1.8	57.5	5365
R45575	4×175+175 RE	1	0.8	1.2	1.6	1.8	58.5	5485
R45580	4×180+180 RE	1	0.8	1.2	1.6	1.8	59.5	5605
R45585	4×185+185 RE	1	0.8	1.2	1.6	1.8	60.5	5725
R45590	4×190+190 RE	1	0.8	1.2	1.6	1.8	61.5	5845
R45595	4×195+195 RE	1	0.8	1.2	1.6	1.8	62.5	5965
R45600	4×200+200 RE	1	0.8	1.2	1.6	1.8	63.5	6085
R45605	4×205+205 RE	1	0.8	1.2	1.6	1.8	64.5	6205
R45610	4×210+210 RE	1	0.8	1.2	1.6	1.8	65.5	6325
R45615	4×215+215 RE	1	0.8	1.2	1.6	1.8	66.5	6445
R45620	4×220+220 RE	1	0.8	1.2	1.6	1.8	67.5	6565
R45625	4×225+225 RE	1	0.8	1.2	1.6	1.8	68.5	6685
R45630	4×230+230 RE	1	0.8	1.2	1.6	1.8	69.5	6805
R45635	4×235+235 RE	1	0.8	1.2	1.6	1.8	70.5	6925
R45640	4×240+240 RE	1	0.8	1.2	1.6	1.8	71.5	7045
R45645	4×245+245 RE	1	0.8	1.2	1.6	1.8	72.5	7165
R45650	4×250+250 RE	1	0.8	1.2	1.6	1.8	73.5	7285
R45655	4×255+255 RE	1	0.8	1.2	1.6	1.8	74.5	7405
R45660	4×260+260 RE	1	0.8	1.2	1.6	1.8	75.5	7525
R45665	4×265+265 RE	1	0.8	1.2	1.6	1.8	76.5	7645
R45670	4×270+270 RE	1	0.8	1.2	1.6	1.8	77.5	7765
R45675	4×275+275 RE	1	0.8	1.2	1.6	1.8	78.5	7885
R45680	4×280+280 RE	1	0.8	1.2	1.6	1.8	79.5	8005
R45685	4×285+285 RE	1	0.8	1.2	1.6	1.8	80.5	8125
R45690	4×290+290 RE	1	0.8	1.2	1.6	1.8	81.5	8245
R45695	4×295+295 RE	1	0.8	1.2	1.6	1.8	82.5	8365
R45700	4×300+300 RE	1	0.8	1.2	1.6	1.8	83.5	8485
R45705	4×305+305 RE	1	0.8	1.2	1.6	1.8	84.5	8605
R45710	4×310+310 RE	1	0.8	1.2	1.6	1.8	85.5	8725
R45715	4×315+315 RE	1	0.8	1.2	1.6	1.8	86.5	8845
R45720	4×320+320 RE	1	0.8	1.2	1.6	1.8	87.5	8965
R45725	4×325+325 RE	1	0.8	1.2	1.6	1.8	88.5	9085
R45730	4×330+330 RE	1	0.8	1.2	1.6	1.8	89.5	9205
R45735	4×335+335 RE	1	0.8	1.2	1.6	1.8	90.5	9325
R45740	4×340+340 RE	1	0.8	1.2	1.6	1.8	91.5	9445
R45745	4×345+345 RE	1	0.8	1.2	1.6	1.8	92.5	9565
R45750	4×350+350 RE	1	0.8	1.2	1.6	1.8	93.5	9685
R45755	4×355+355 RE	1	0.8	1.2	1.6	1.8	94.5	9805
R45760	4×360+360 RE	1	0.8	1.2	1.6	1.8	95.5	9925
R45765	4×365+365 RE	1	0.8	1.2	1.6	1.8	96.5	10045
R45770	4×370+370 RE	1	0.8	1.2	1.6	1.8	97.5	10165
R45775	4×375+375 RE	1	0.8	1.2	1.6	1.8	98.5	10285
R45780	4×380+380 RE	1	0.8	1.2	1.6	1.8	99.5	10405
R45785	4×385+385 RE	1	0.8	1.2	1.6	1.8	100.5	10525
R45790	4×390+390 RE	1	0.8	1.2	1.6	1.8	101.5	10645
R45795	4×395+395 RE	1	0.8	1.2	1.6	1.8	102.5	10765
R45800	4×400+400 RE	1	0.8	1.2	1.6	1.8	103.5	10885
R45805	4×405+405 RE	1	0.8	1.2	1.6	1.8	104.5	11005
R45810	4×410+410 RE	1	0.8	1.2	1.6	1.8	105.5	11125
R45815	4×415+415 RE	1	0.8	1.2	1.6	1.8	106.5	11245
R45820	4×420+420 RE	1	0.8	1.2	1.6	1.8	107.5	11365
R45825	4×425+425 RE	1	0.8	1.2	1.6	1.8	108.5	11485
R45830	4×430+430 RE	1	0.8	1.2	1.6	1.8	109.5	11605
R45835	4×435+435 RE	1	0.8	1.2	1.6	1.8	110.5	11725
R45840	4×440+440 RE	1	0.8	1.2	1.6	1.8	111.5	11845
R45845	4×445+445 RE	1	0.8	1.2	1.6	1.8	112.5	11965
R45850	4×450+450 RE	1	0.8	1.2	1.6	1.8	113.5	12085
R45855	4×455+455 RE	1	0.8	1.2	1.6	1.8	114.5	12205
R45860	4×460+460 RE	1	0.8	1.2	1.6	1.8	115.5	12325
R45865	4×465+465 RE	1	0.8	1.2	1.6	1.8	116.5	12445
R45870	4×470+470 RE	1	0.8	1.2	1.6	1.8	117.5	12565
R45875	4×475+475 RE	1	0.8	1.2	1.6	1.8	118.5	12685
R45880	4×480+480 RE	1	0.8	1.2	1.6	1.8	119.5	12805
R45885	4×485+485 RE	1	0.8	1.2	1.6	1.8	120.5	12925
R45890	4×490+490 RE	1	0.8	1.2	1.6	1.8	121.5	13045
R45895	4×495+495 RE	1	0.8	1.2	1.6	1.8	122.5	13165
R45900	4×500+500 RE	1	0.8	1.2	1.6	1.8	123.5	13285
R45905	4×505+505 RE	1	0.8	1.2	1.6	1.8	124.5	13405
R45910	4×510+510 RE	1	0.8	1.2	1.6	1.8	125.5	13525
R45915	4×515+515 RE	1	0.8	1.2	1.6	1.8	126.5	13645
R45920	4×520+520 RE	1	0.8	1.2	1.6	1.8	127.5	13765
R45925	4×525+525 RE	1	0.8	1.2	1.6	1.8	128.5	13885
R45930	4×530+530 RE	1	0.8	1.2	1.6	1.8	129.5	14005
R45935	4×535+535 RE	1	0.8	1.2	1.6	1.8	130.5	14125
R45940	4×540+540 RE	1	0.8	1.2	1.6	1.8	131.5	14245
R45945	4×545+545 RE	1	0.8	1.2	1.6	1.8	132.5	14365
R45950	4×550+550 RE	1	0.8	1.2	1.6	1.8	133.5	14485
R45955	4×555+555 RE	1	0.8	1.2	1.6	1.8	134.5	14605
R45960	4×560+560 RE	1	0.8	1.2	1.6	1.8	135.5	14725
R45965	4×565+565 RE	1	0.8	1.2	1.6	1.8	136.5	14845
R45970	4×570+570 RE	1	0.8	1.2	1.6	1.8	137.5	14965
R45975	4×575+575 RE	1	0.8	1.2	1.6	1.8	138.5	15085
R45980	4×580+580 RE	1	0.8	1.2	1.6	1.8	139.5	15205
R45985	4×585+585 RE	1	0.8	1.2	1.6	1.8	140.5	15325
R45990	4×590+590 RE	1	0.8	1.2	1.6	1.8	141.5	15445
R45995	4×595+595 RE	1	0.8	1.2	1.6	1.8	142.5	15565
R46000	4×600+600 RE	1	0.8	1.2	1.6	1.8	143.5	15685

NYCY 1 x (4-300)mm²

CU/PVC /C-CU /PVC



Power cable, 0,6/1kV with concentric copper conductor

Construction

Conductor:	plain annealed copper, class 1 or class 2 acc. to IEC 60228(35 mm ² and above compacted Conductor)
Insulation:	PVC compound DIV-4 acc. to HRN HD 603.1
Bedding:	Polyvinyl Chloride (PVC)
Concentric conductor:	Concentric conductor in inner layer of round copper wires, outer layer with copper tape
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005 (Available with outer sheath in alternative colours on request.)

Abbreviations

Y insulation & outer sheath of PVC



Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
at short circuit of max.	5 s: up to 160 °C
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:	3.5 KV AC for 5 Min
Minimal inner bending radius:	single core :15D multi core : 12D
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Maximal tensile strength:	50 N/mm ²

DESIGN STANDARDS

IEC 60502
DIN VDE 0276 part 603
HD 603 S1

APPLICATION

Power cables for energy supply are installed in open air, in underground, in water, indoors and in cable ducts, power station, for industry and distribution boards as well as in subscriber networks, where mechanical damages are not to be expected.

NYCY 1x(4-300)mm²

CU/PVC/C-CU/PVC

Code No.	number of cores x conductor cross- section	Construction	Construction of individual conductor	External diameter	Insulation thickness	Cable weight	Packing*
	N x mm ²		nominal n x mm	Nom. mm	nom. mm	Nom. kg/km	
4610404	1 x 4/4	RM	7 x 0.85	9.2	1.2	150	CUT
4610606	1 x 6/6	RM	7 x 1.04	9.9	1.0	200	CUT
4611010	1 x 10/10	RM	7 x 1.35	11.9	1.4	315	CUT
4611616	1 x 16/16	RM	7 x 1.7	14.9	1.0	485	CUT
4612525	1 x 25/25	RM	7 x 2,2	17.2	1.2	695	CUT
4613535	1 x 35/35	RM	7 x 2,6	17.9	1.2	870	CUT
4615050	1 x 50/50	RM	19 x 1,8	21.2	1.4	1,215	CUT
4617070	1 x 70/70	RM	19 x 2,2	23.2	1.4	1,580	CUT
4619595	1 x 95/95	RM	19 x 2,6	24.2	1.6	2,090	CUT
4611212	1 x 120/120	RM	19 x 2,83	25.8	1.6	2,555	CUT
4611515	1 x 150/150	RM	37 x 2,3	27.7	1.8	3,170	CUT
4611818	1 x 185/185	RM	37 x 2,6	30.8	2.0	3,890	CUT
4612424	1 x 240/240	RM	37 x 2,95	34.5	2.2	4,980	CUT
4613030	1 x 300/300	RM	61 x 2,6	37.9	2.4	6,175	CUT

*)Packing: c.100 = coil 100 m, CUT= cable in different lengths on drum or reel, possible cutting at required

H05VVH6-F/H07VVH6-F/Flat PVC Cables

CU/PVC/PVC



Smaller bending radius in contrast to round cables

Conductor:	bare copper (untinned) conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 part 1 (YI2 acc. to VDE 0207 part 4)
Colour code:	Acc. To VDE 0293-308
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 part 1 (YM2 acc. to VDE 0207 part 5)
sheath colour:	Gray Ral 7042

Abbreviations

Y insulation & outer sheath of PVC
fl reduced flame propagation



Technical data

Temperature range:

during application:	-5 °C up to +70 °C
Fixed Installed:	-30 °C up to +70 °C
at short circuit of max.	≤ 300 mm²: max. +160 °C °C > 300 mm²: max. +140 °C
ambient temperature at storage:	up to 40 °C

Nominal voltage: ≤1.0	U ₀ /U = 300/500 V
Test voltage:core/core ≤1.0	2.0 KV AC for 5 Min

Nominal voltage: >1.0	U ₀ /U = 450/750 V
Test voltage:core/core >1.0	2.5 KV AC for 5 Min

Minimal inner bending radius:	8 X thickness of the cable
-------------------------------	----------------------------

Behavior in fire:	IEC 60332-1
-------------------	-------------

Maximal tensile strength:	static: 15 N/mm² dynamic: 30 N/mm²
---------------------------	---------------------------------------

Conductor resistance:	Acc to IEC 60228
-----------------------	------------------

Design Standard:

IEC 60227-6
DIN VDE 0281 part 404
HD 359 S2

Application:

These power and control flat cables can be used on festoons systems on handling equipment as overhead cranes. They are designed for indoors and outdoors for ambient temperature down to -25°C. These cables can accept a trolley travelling speed up to 120m/mn.

Flat Cables



H05VVH6-F/H07VVH6-F/Flat PVC Cables

CU/PVC/PVC

Code No.	Dimensions – number of cores x conductor cross-section	Construction of individual conductor	Insulation thickness	Sheat thickness at broad flat part		External Dimensions	Cable weight	Packing*
				nominal	nominal			
	N * mm ²	n x mm	mm	mm	Nom mm	approx. kg/km		
0.75								
51475	4 G 0.75	24 x 0.195	0.6	0.9	4.1X12.2	90	CUT	
51575	5 G 0.75	24 x 0.195	0.6	0.9	4.1X16.5	130	CUT	
51675	6 G 0.75	24 x 0.195	0.6	0.9	4.1 X 17.8	160	CUT	
51975	9 G 0.75	24 x 0.195	0.6	0.9	4.1 X 24.8	230	CUT	
511275	12 G 0.75	24 x 0.195	0.6	0.9	4.1 X 31.7	300	CUT	
511675	16 G 0.75	24 x 0.195	0.6	0.9	4.1 X 40.9	400	CUT	
511875	18 G 0.75	24 x 0.195	0.6	0.9	4.1 X 47.5	450	CUT	
512075	20 G 0.75	24 x 0.195	0.6	0.9	4.1 X 50.2	510	CUT	
512475	24 G 0.75	24 x 0.195	0.6	0.9	4.1 X 59.4	555	CUT	
1.0								
51410	4 G 1.0	31 x 0.195	0.6	0.9	4.3 X 12.9	100	CUT	
51510	5 G 1.0	31 x 0.195	0.6	0.9	4.3 X 17.4	150	CUT	
51610	6 G 1.0	31 x 0.195	0.6	0.9	4.3 X 18.9	180	CUT	
51910	9 G 1.0	31 x 0.195	0.6	0.9	4.3 X 26.3	265	CUT	
511210	12 G 1.0	31 x 0.195	0.6	0.9	4.3 X 33.7	350	CUT	
511610	16 G 1.0	31 x 0.195	0.6	0.9	4.3 X 43.7	460	CUT	
511810	18 G 1.0	31 x 0.195	0.6	0.9	4.3 X 50.6	520	CUT	
512010	20 G 1.0	31 x 0.195	0.6	0.9	4.3 X 53.6	575	CUT	
512410	24 G 1.0	31 x 0.195	0.6	0.9	4.3 X 63.5	690	CUT	
1.5								
51415	4 G 1.5	31 x 0.230	0.7	1.0	5 x 14.8	140	CUT	
51515	5 G 1.5	31 x 0.230	0.7	1.0	5 x 19.8	200	CUT	
51615	6 G 1.5	31 x 0.230	0.7	1.0	5 x 21.7	240	CUT	
51915	9 G 1.5	31 x 0.230	0.7	1.0	5 x 30.6	350	CUT	
511215	12 G 1.5	31 x 0.230	0.7	1.0	5 x 39.5	465	CUT	
511615	16 G 1.5	31 x 0.230	0.7	1.0	5 x 51.3	620	CUT	
511815	18 G 1.5	31 x 0.230	0.7	1.0	5 x 59.2	700	CUT	
512015	20 G 1.5	31 x 0.230	0.7	1.0	5 x 63.1	770	CUT	
512415	24 G 1.5	31 x 0.230	0.7	1.0	5 x 75.1	910	CUT	
2.5								
51425	4 G 2.5	51 x 0.230	0.8	1.0	5.6 x 18.0	210	CUT	
51525	5G 2.5	51 x 0.230	0.8	1.0	5.6 x 24.6	300	CUT	
51725	6 G 2.5	51 x 0.230	0.8	1.0	5.6 x 26.8	360	CUT	
51925	9 G 2.5	51 x 0.230	0.8	1.0	5.6 x 37.6	530	CUT	
511225	12 G 2.5	51 x 0.230	0.8	1.0	5.6 x 48.4	700	CUT	
511625	16 G 2.5	51 x 0.230	0.8	1.0	5.6 x 62.9	930	CUT	
511825	18 G 2.5	51 x 0.230	0.8	1.0	5.6 x 73.1	1050	CUT	
512025	20 G 2.5	51 x 0.230	0.8	1.0	5.6 x 77.3	1160	CUT	
512425	24 G 2.5	51 x 0.230	0.8	1.0	5.6 x 91.7	1390	CUT	

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

H1Z2Z2-K

EN 50618

Flexible Solar cables 1500V DC

Photovoltaic power cables, halogen free, flame retardant



Properties :

- A lifetime 'Component' lasts up-to 30 years even under tough conditions
- Used in extreme weather conditions [UV Resistance]
- Halogen-free low smoke emission and low toxicity during fire
- Flame & Fire retardant
- Easy installation with color identification
- Suitable to common connector types
- One common factor for most of the photovoltaic power systems is outdoor use characterized by high temperature/high UV radiation

Construction :

- Tinned copper-conductor, to DIN VDE 0295 cl.5, fine-wire, IEC 60228 cl.5
- Core insulation : cross-linked Polyolefin, flame retardant, halogen free,
- Outer sheath : cross-linked Polyolefin, flame retardant, halogen free, UV resistant
- Sheath colour : as request with meter marking

Chemical Features :

- Weather and UV resistant
- Resistant to mineral oils
- Resistant to acids & alkaline

Thermal Features :

- Ambient Temperature: -40° C to +90° C
- Maximum Temperature at Conductor: 120° C (20000h)
- Short Circuit Temperature: 250° C @ conductor (max. 5sec)
- Thermal Endurance Test: According to EN 60216-2 [temperature index +120° C]
- High Temperature Pressure Test according to EN 60811-3-1
- Damp-Heat Test: According to EN 60068-2-78. 1000 hrs. at 90° C with 85% humidity

Electrical Features :

- Rated Voltage, U_0 1500 V DC / EN50618
- Maximum Permitted DC Voltage: 1.8 kV [conductor/ conductor, non earthed system, circuit not under load]
- Maximum Permitted AC Voltage: 0.7/1.2 kV [U_0 / U]
- Insulation Resistance: 1000 M Ω /KM
- Voltage Withstand: 6500 V as per EN50395 for 5 min
- Ampacity: According to requirements for cables for PV systems

Mechanical features:

- Resistant to Impact, tear and abrasion
- Minimum bending radius is 4 times the diameter
- Safe pulling force -50 N/sqmm
- Mineral Oil Resistance will be according to EN 60811-2-1
- Ozone Resistance will be according to EN 50396 part 8.1.3
- Weathering-UV Resistance: according to HD 605/A1 or DIN 53367
- Ammonia resistant is done for 30 days in saturated ammonia atmosphere [internal testing]
- Very good resistance to oil and chemicals
- Acid & Alkaline Resistance will be according to EN 60811-2-1 [Oxal acid and sodium hydroxide]

Cable Size Table

Code NR	Dimensions – conductor cross-section	Construction of individual conductor	External diameter	Sheath colour	Cable weight	Bending Radius Fixed
	mm ²	nominal n x mm	nom mm		approx. kg/km	mm
61115	1 x 1.5	31 x 0.23	4.4	Black	38	15
61125	1x2,5	51 x 0,23	5.6	Black	42	17
61140	1 x 4	56 x 0.28	5.3	Black ,Blue, Red	53	18
61160	1 x 6	78 x 0.29	6.7	Black ,Blue, Red	92	20
611100	1 x 10	70 x 0.395	7.7	Black ,Blue, Red	123	23
611160	1 x 16	116 x 0.395	9.0	Black	153	30
611250	1 x 25	186 x 0.395	10.4	Black	240	34
611350	1 x 35	265 x 0.395	12.3	Black	336	50
611500	1 x 50	383 x 0.395	14.7	Black	480	58
611700	1 x 70	528 x 0.395	15.3	Black	710	66
611950	1 x 95	710 x 0.395	17.0	Black	910	75
6111200	1 x 120	928 x 0.395	19.1	Black	1110	82
6111500	1 x 150	722 x 0.5	22.7	Black	1410	91
6111850	1 x 185	879 x 0.5	25.5	Black	1750	101
6112400	1 x 240	1163 x 0.5	28.3	Black	2310	114

Packing:

- Wooden packing according to the IPPC ISPM standard
- All pallets and plywood reels ace to IPPC Standard ISPM 15

Max. Current rating for Flexible Solar cables

at 120 °C / 248 °F – Ambient temperature 30 °C / 86 °F

Construction	Exposed	On surfaces without contact	On surfaces with contact	In conduit, casing, duct
				
mm ²	Current [A]			
2.5	51	48	34	27
4	68	65	45	36
6	88	84	59	47
10	121	115	80	64
16	160	152	106	85
25	211	200	140	112
35	261	248	174	139
50	320	304	213	170

Conversion factors for different ambient temperatures (base 30 °C)

Tempera- ture	Current rating at 120 °C
°C	Factor
20	× 1.05
30	× 1.00
40	× 0.94
50	× 0.88
60	× 0.82
70	× 0.75
80	× 0.67
90	× 0.58

Continuous duty with current loads as per above table.

This results in a conductor temperature of 120 °C (calculation according IEC 60287).

NA2XY 1x(10-300)mm²

Al/XLPE/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation Aluminium Power cable

Construction

Conductor:	Al, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, color marked acc. to HRN HD 308 S2 / VDE 0293-308
Colour code:	black
Filler:	extruded elastomer or plastomer compound
Sheath:	PVC ST1 Compound Acc to IEC 60502-1
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
 fl reduced flame propagation
 -J manufactured with one yellow/green conductor
 -O manufactured without one yellow/green conductor



Application

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
 VDE 0276-603

NA2XY 1x(10-630)mm²

Al/XLPE/PVC

Single Core							
Code No.	number of cores x conductor cross-section	Construction	Construction of individual conductor	External diameter	Insulation thickness	Cable weight	Packing*
	Nx mm ²		nominal nx mm	.Nom mm	.nom mm	.Nom kg/km	
A1110	1x 10	RM	7x 1.35	8.4	0.7	85	CUT
A1116	1x 16	RM	7x 1.7	9.4	0.7	115	CUT
A1125	1x 25	RM	7x 2,2	11.1	0.9	160	CUT
A1135	1x 35	RM	7x 2,6	11.7	0.9	200	CUT
A1150	1x 50	RM	19x 1,8	13.1	1	260	CUT
A1170	1x 70	RM	19x 2,2	15.1	1.1	340	CUT
A1195	1x 95	RM	19x 2,6	16.6	1.1	430	CUT
A11120	1x 120	RM	19x 2,8	17.3	1.2	500	CUT
A11150	1x 150	RM	37x 2,3	20.6	1.4	640	CUT
A1185	1x 185	RM	37x 2,6	22.5	1.6	790	CUT
A11240	1x 240	RM	37x 2,95	25.8	1.7	1,010	CUT
A11300	1x 300	RM	61x 2,6	27.9	1.8	1,210	CUT
A11400	1x 400	RM	61x 2,89	31.2	2	1,700	CUT
A11500	1x 500	RM	61x 3,23	34.8	2.2	1,990	CUT
A11630	1x 630	RM	91x 2,97	42.1	2.4	2,480	CUT

Electrical Data

Nom. Cross Section Area (mm ²)	Conductor		Inductance		Current - Carrying Capacity at 30° C *				Short circuit current at 1 sec Max. (kA)
	DC Resistance at 20°C Max. (Ω/km)	AC Resistance at 90°C Max. (Ω/km)	Trefoil formation 	Flat formation 					
					in air	in ground	in air	in ground	
10	3.08	3.949	0.336	0.382	60	71	62	70	0.94
16	1.91	2.449	0.311	0.357	81	92	84	91	1.5
25	1.2	1.539	0.302	0.348	109	118	112	117	2.35
35	0.868	1.113	0.289	0.335	134	142	138	140	3.29
50	0.641	0.822	0.279	0.325	165	168	170	166	4.7
70	0.443	0.568	0.269	0.316	211	206	218	203	6.58
95	0.32	0.411	0.263	0.309	260	245	269	242	8.93
120	0.253	0.325	0.26	0.306	303	279	312	275	11.28
150	0.206	0.265	0.258	0.304	353	313	364	309	14.1
185	0.164	0.212	0.258	0.304	411	355	424	350	17.39
240	0.125	0.162	0.253	0.299	494	412	510	406	22.56
300	0.1	0.13	0.249	0.295	571	465	590	458	28.2
400	0.0778	0.103	0.245	0.292	688	536	711	528	37.6
500	0.0605	0.081	0.245	0.291	796	609	823	599	47
630	0.0469	0.065	0.243	0.289	932	692	963	680	59.22

NA2XY 2x(10-300)mm²

Al/XLPE/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation Aluminium Power cable

Construction

Conductor:	Al, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, color marked acc. to HRN HD 308 S2 / VDE 0293-308
Colour code:	black, blue
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Filler:	extruded elastomer or plastomer compound
Sheath:	PVC ST1 Compound Acc to IEC 60502-1
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
 fl reduced flame propagation
 -J manufactured with one yellow/green conductor
 -O manufactured without one yellow/green conductor



Application

Distribution, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
 VDE 0276-603

NA2XY 2x(10-300)mm²

Al/XLPE/PVC

2 Core

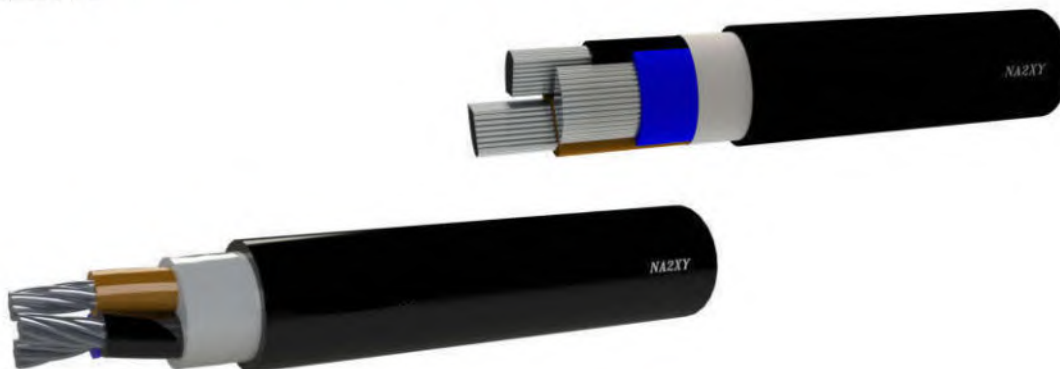
Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	Nx mm ²		.nom mm	.Nom mm	.nom mm	.Nom kg/km	
A1210	2x 10	RM	0.7	1.8	16.2	350	CUT
A1216	2x 16	RM	0.7	1.8	18.7	460	CUT
A1225	2x 25	RM	0.9	1.8	22.1	590	CUT
A1235	2x 35	RM	0.9	1.8	23.3	740	CUT
A1250	2x 50	SM	1	1.8	20.9	840	CUT
A1270	2x 70	SM	1.1	1.8	23.8	1,100	CUT
A1295	2x 95	SM	1.1	2	27.2	1,440	CUT
A12120	2x 120	SM	1.2	2.1	30.2	1,740	CUT
A12150	2x 150	SM	1.4	2.2	33.4	2,040	CUT
A12185	2x 185	SM	1.6	2.3	36.8	2,600	CUT
A12240	2x 240	SM	1.7	2.5	41.5	3,215	CUT
A12300	2x 300	SM	1.8	2.7	46	3,950	CUT

Electrical Data

Nom. Cross Section Area (mm ²)	Conductor		Inductance (mH/km)	Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec Max. (kA)
	DC Resistance at 20°C Max. (Ω/km)	AC Resistance at 90°C Max. (Ω/km)		in air	in ground	
				Max. (A)	Max. (A)	
10	3.08	3.949	0.248	67	75	0.94
16	1.91	2.449	0.236	91	100	1.5
25	1.2	1.539	0.242	119	128	2.35
35	0.868	1.113	0.234	147	154	3.29
50	0.641	0.822	0.232	179	183	4.7
70	0.443	0.568	0.229	227	226	6.58
95	0.32	0.411	0.224	277	270	8.93
120	0.253	0.325	0.223	322	308	11.28
150	0.206	0.265	0.225	364	344	14.1
185	0.164	0.211	0.225	425	391	17.39
240	0.125	0.162	0.223	501	454	22.56
300	0.1	0.13	0.222	574	511	28.2

NA2XY 3x(10-300)mm²

Al/XLPE/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation Aluminium Power cable

Construction

Conductor:	Al, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, color marked acc. to HRN HD 308 S2 / VDE 0293-308
Colour code:	Black, Blue, Brown
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Filler:	extruded elastomer or plastomer compound
Sheath:	PVC ST1 Compound Acc to IEC 60502-1
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
fl reduced flame propagation
-J manufactured with one yellow/green conductor
-O manufactured without one yellow/green conductor



Application

Distribution, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

NA2XY 3x(10-300)mm²

Al/XLPE/PVC

3 Core

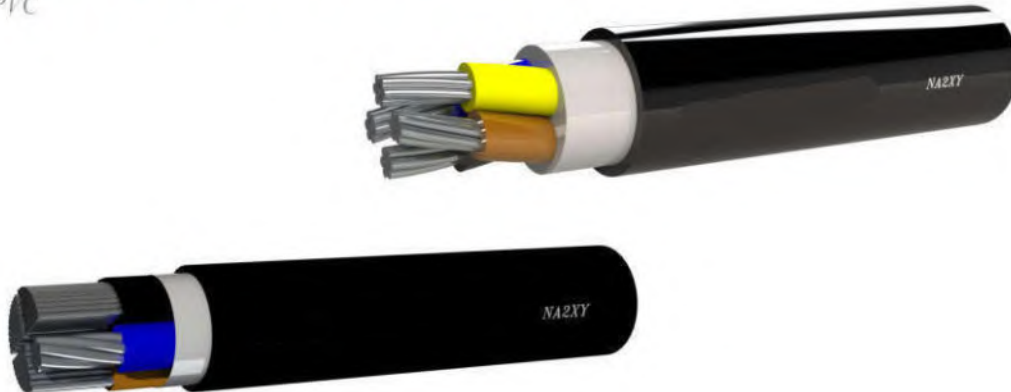
Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		.nom mm	.Nom mm	.nom mm	.Nom kg/km	
A1310	3x 10	RM	0.7	1.8	17	285	CUT
A1316	3x 16	RM	0.7	1.8	19.7	510	CUT
A1325	3x 25	RM	0.9	1.8	23.4	660	CUT
A1335	3x 35	RM	0.9	1.8	24.6	830	CUT
A1350	3x 50	SM	1	1.8	24.2	950	CUT
A1370	3x 70	SM	1.1	1.9	27.8	1,130	CUT
A1395	3x 95	SM	1.1	2	31	1,430	CUT
A13120	3x 120	SM	1.2	2.1	34.3	1,720	CUT
A13150	3x 150	SM	1.4	2.3	38.4	2,115	CUT
A13185	3x 185	SM	1.6	2.4	42.5	2,580	CUT
A13240	3x 240	SM	1.7	2.6	47.5	3,280	CUT
A13300	3x 300	SM	1.8	2.8	49.5	3,970	CUT

Electrical Data

Nom. Cross Section Area (mm ²)	Conductor			Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec
	DC Resistance at 20°C	AC Resistance at 90°C	Inductance	in air	in ground	
				Max. (A)	Max. (A)	
	Max. (Ω/km)	Max. (Ω/km)	(mH/km)	Max. (A)	Max. (A)	Max. (kA)
10	3.08	3.949	0.248	67	75	0.94
16	1.91	2.449	0.236	91	100	1.5
25	1.2	1.539	0.242	119	128	2.35
35	0.868	1.113	0.234	147	154	3.29
50	0.641	0.822	0.232	179	183	4.7
70	0.443	0.568	0.229	227	226	6.58
95	0.32	0.411	0.224	277	270	8.93
120	0.253	0.325	0.223	322	308	11.28
150	0.206	0.265	0.225	364	344	14.1
185	0.164	0.211	0.225	425	391	17.39
240	0.125	0.162	0.223	501	454	22.56
300	0.1	0.13	0.222	574	511	28.2

NA2XY 4x(10-300)mm²

Al/XLPE/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation Aluminium Power cable

Construction

Conductor:	Al, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, color marked acc. to HRN HD 308 S2 / VDE 0293-308
Colour code:	Black, blue, Brown, Yellow
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Filler:	extruded elastomer or plastomer compound
Sheath:	PVC ST1 Compound Acc to IEC 60502-1

sheath colour: Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
fl reduced flame propagation
-J manufactured with one yellow/green conductor
-O manufactured without one yellow/green conductor



Application

Distribution, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

NA2XY 4x(10-300)mm²

Al/XLPE/PVC

4 Core							
Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thick- ness	External diameter	Cable weight	Packing*
	N x mm ²		.nom mm	.Nom mm	.nom mm	.Nom kg/km	
A14325/16	3x 25/16	RM/RM	0.9	1.8	24.5	760	CUT
A14335/16	3x 35/16	RM/RM	0.9	1.8	26	920	CUT
A14350/25	3x 50/25	SM/RM	1	1.8	25.7	810	CUT
A14370/35	3x 70 /35	SM/RM	1.1	1.9	29.4	1080	CUT
A14395/50	3x 95 /50	SM/SM	1.1	2.1	33.1	1440	CUT
A143120/70	3x 120 /70	SM/SM	1.2	2.2	36.7	1790	CUT
A143150/70	3x 150/70	SM/SM	1.4	2.3	40.9	2144	CUT
A143185/95	3x 185/95	SM/SM	1.6	2.5	45.4	2695	CUT
A143240/120	3x 240/120	SM/SM	1.7	2.7	50.8	3440	CUT
A143300/150	3x 300/150	SM/SM	1.8	2.8	56	4250	CUT
A141.5	4X 1.5	RM	0.7	1.8	12.1	180	CUT
A142.5	4X 2.5	RM	0.7	1.8	13.1	210	CUT
A144	4X 4	Rm	0.7	1.8	14.8	250	CUT
A146	4X 6	RM	0.7	1.8	16.2	310	CUT
A1410	4X 10	RM	0.7	1.8	18.4	450	CUT
A1416	4X 16	RM	0.7	1.8	21.4	605	CUT
A1425	4X 25	RM	0.9	1.8	25.5	790	CUT
A1435	4X 35	RM	0.9	1.8	26.9	995	CUT
A1450	4X 50	SM	1	1.9	27	1,060	CUT
A1470	4X 70	SM	1.1	2	30.9	1,435	CUT
A1495	4X 95	SM	1.1	2.1	34.5	1,820	CUT
A14120	4X 120	SM	1.2	2.3	38.5	2,275	CUT
A14150	4X 150	SM	1.4	2.4	42.9	2,750	CUT
A14185	4X 185	SM	1.6	2.6	47.6	3,340	CUT
A14240	4X 240	SM	1.7	2.8	53.2	4,250	CUT
A14300	4X 300	SM	1.8	3	58.9	5,135	CUT

NA2XY 5x(10-300)mm²

Al/XLPE/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation Aluminium Power cable

Construction

Conductor:	Al, class 1 or 2 acc. to HRN HD 383 / IEC 60228 / DIN VDE 0295
Insulation:	XLPE-compound DIX 3 acc. to HRN HD 603 S1, concentrically stranded cores, color marked acc. to HRN HD 308 S2 / VDE 0293-308
Colour code:	Black, Blue, Brown, Red, Yellow/Green
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Sheath:	PVC (ST1) Compound Acc to IEC 60502-1
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
 fl reduced flame propagation
 -J manufactured with one yellow/green conductor
 -O manufactured without one yellow/green conductor



Application

Distribution and signal power cable for static application in ground, in water, within facilities, in cable canals, in concrete, where heavier mechanical stresses are not expected, and the cable has to be protected against mechanical damages, also in conditions where cables are not exposed to heavier tensile strains. Used in electric power plants, transformer stations, industrial plants, metropolitan networks and in other electric plants where heavier current and thermal loads are expected (operating temperature of conductor up to 90 °C).

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
 VDE 0276-603

NA2XY 5x(10-50)mm²

Al/XLPE/PVC

5 Core

Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		.nom mm	.Nom mm	.nom mm	.Nom kg/km	
A1510	5X 10	RM	0.7	1.8	20	525	CUT
A1516	5X 16	RM	0.7	1.8	23.3	710	CUT
A1525	5X 25	RM	0.9	1.8	27.9	935	CUT
A1535	5X 35	RM	0.9	1.8	29.5	1,190	CUT
A1550	5X 50	RM	1	2	34	1,480	CUT

Electrical Data

Nom. Cross Section Area (mm ²)	Conductor		Inductance (mH/km)	Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec Max. (kA)
	DC Resistance at 20°C Max. (Ω/km)	AC Resistance at 90°C Max. (Ω/km)		in air	in ground	
				Max. (A)	Max. (A)	
10	3.08	3.949	0.248	65	70	0.94
16	2	2	0	88	92	2
25	1.2	1.539	0.242	117	118	2.35
35	1	1	0	144	143	3
50	0.641	0.822	0.232	176	168	4.7

NA2XRY 2x(10-300)mm²

Al/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation /Armored Power Cables

Construction

Conductor:	Al, Class 2 acc. DIN-VDE 0295, IEC 60228 multi wire stranded, round (RM) or sector (SM),
Insulation:	Cross-linked Polyethylene (XLPE) acc to DIN VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black,
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (EN 50363-4-1, DIN VDE 207 TM2)
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
 fl reduced flame propagation
 -J manufactured with one yellow/green conductor
 -O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Ø
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
 VDE 0276-603

NA2XRY 2x(10-300)mm²

AL/XLPE/SPA/PVC

2Core

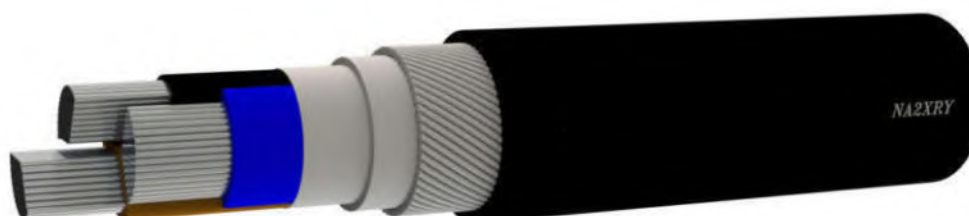
Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
			nom. mm	Nom. mm	nom. mm			Nom. kg/km	
A3210	2 x 10	RM	0.7	1.8	13	1.25	19.1	655	CUT
A3216	2 x 16	RM	0.7	1.8	15.1	1.25	21.2	820	CUT
A3225	2 x 25	RM	0.9	1.8	18.5	1.6	25.3	1125	CUT
A3235	2 x 35	RM	0.9	1.8	19.7	1.6	26.5	1325	CUT
A3250	2 x 50	SM	1	1.8	19.3	1.6	26.1	1530	CUT
A3270	2 x 70	SM	1.1	2	22.1	1.6	29.4	1923	CUT
A3295	2 x 95	SM	1.1	2.1	25.6	2	33.8	2595	CUT
A32120	2 x 120	SM	1.2	2.2	28.4	2	36.8	3020	CUT
A32150	2 x 150	SM	1.4	2.3	31.4	2	40	3430	CUT
A32185	2 x 185	SM	1.6	2.5	35	2.5	45	4650	CUT
A32240	2 x 240	SM	1.7	2.7	39.3	2.5	49.7	5460	CUT
A32300	2 x 300	SM	1.8	2.8	43.8	2.5	54.4	6360	CUT

Electrical Data

Conductor			Inductance	Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec
(mm ²)	Max. (Ω/km)	Max. (Ω/km)		in air Max. (A)	in ground Max. (A)	
10	3.08	3.949	0.248	71	78	0.94
16	1.91	2.449	0.236	95	102	1.5
25	1.2	1.539	0.242	125	131	2.35
35	0.868	1.113	0.234	154	158	3.29
50	0.641	0.822	0.232	186	187	4.7
70	0.443	0.568	0.229	235	229	6.58
95	0.32	0.411	0.224	288	274	8.93
120	0.253	0.325	0.223	333	312	11.28
150	0.206	0.265	0.225	375	347	14.1
185	0.164	0.211	0.225	437	394	17.39
240	0.125	0.162	0.223	513	455	22.56
300	0.1	0.13	0.222	585	511	28.2

NA2XRY 3x(10-300)mm²

Al/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation /Armored Power Cables

Construction

Conductor:	Al, Class 2 acc. DIN-VDE 0295, IEC 60228 multi wire stranded, round (RM) or sector (SM), Cross-linked Polyethylene (XLPE) acc to DIN
Insulation:	VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black, Brown
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (IEC 60502-1, DIN VDE 207 ST1)
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
 fl reduced flame propagation
 -J manufactured with one yellow/green conductor
 -O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced

Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	Uo/U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
 VDE 0276-603

NA2XRY 3x(10-300)mm²

Al/XLPE/SWA/PVC

3Core									
Code No.	Dimensions - number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
			nom. mm	Nom. mm	nom. mm			Nom. kg/km	
A3310	3 x 10	RM	0.7	1.8	13.8	1.25	19.9	720	CUT
A3316	3 x 16	RM	0.7	1.8	16.1	1.25	22.2	890	CUT
A3325	3 x 25	RM	0.9	1.8	19.7	1.6	26.6	1230	CUT
A3335	3 x 35	RM	0.9	1.8	21	1.6	27.8	1480	CUT
A3350	3 x 50	SM	1	1.9	22.6	1.6	29.6	1550	CUT
A3370	3 x 70	SM	1.1	2	26.4	2	34.4	2185	CUT
A3395	3 x 95	SM	1.1	2.2	29.4	2	37.8	2590	CUT
A33120	3 x 120	SM	1.2	2.3	32.5	2	41.1	3010	CUT
A33150	3 x 150	SM	1.4	2.5	36.6	2.5	46.6	3960	CUT
A33185	3 x 185	SM	1.6	2.6	40.5	2.5	50.7	4570	CUT
A33240	3 x 240	SM	1.7	2.8	45.5	2.5	56.1	5510	CUT
A33300	3 x 300	SM	1.8	3	47.1	2.5	58.1	6405	CUT

Electrical Data

Conductor			Inductance	Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec
(mm ²)	Max. (Ω/km)	Max. (Ω/km)		in air Max. (A)	in ground Max. (A)	
10	3.08	3.949	0.248	60	65	0.94
16	1.91	2.449	0.236	81	86	1.5
25	1.2	1.539	0.242	106	110	2.35
35	0.868	1.113	0.234	131	133	3.29
50	0.641	0.822	0.232	162	161	4.7
70	0.443	0.568	0.229	205	197	6.58
95	0.32	0.411	0.224	250	235	8.93
120	0.253	0.325	0.223	290	267	11.28
150	0.206	0.265	0.225	332	299	14.1
185	0.164	0.211	0.225	384	338	17.39
240	0.125	0.162	0.223	451	390	22.56
300	0.1	0.13	0.222	516	438	28.2

NA2XRY 4x(10-300)mm²

Al/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation /Armored Power Cables

Construction

Conductor:	Al, Class 2 acc. DIN-VDE 0295, IEC 60228 multi wire stranded, round (RM) or sector (SM), Cross-linked Polyethylene (XLPE) acc to DIN
Insulation:	VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black, Brown, Grey
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (IEC 60502-1, DIN VDE 207 ST1)
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
 fl reduced flame propagation
 -J manufactured with one yellow/green conductor
 -O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced

Technical data

Temperature range:

During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U _o /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
 VDE 0276-603

4Core

Code No.	number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
			nom. mm	Nom. mm	nom. mm			Nom. kg/km	
A3410	4 x 10	RM	0.7	1.8	15.2	1.25	21.3	800	CUT
A3416	4 x 16	RM	0.7	1.8	17.8	1.6	24.6	1160	CUT
A3425	4 x 25	RM	0.9	1.8	21.9	1.6	28.7	1405	CUT
A3435	4 x 35	RM	0.9	1.9	23.3	1.6	30.3	1750	CUT
A3450	4 x 50	SM	1	2	25.2	1.6	32.4	1850	CUT
A3470	4 x 70	SM	1.1	2.2	29.3	2	37.7	2630	CUT
A3495	4 x 95	SM	1.1	2.3	32.6	2	41.3	3150	CUT
A34120	4x 120	SM	1.2	2.5	36.7	2.5	46.7	4160	CUT
A34150	4 x 150	SM	1.4	2.6	40.9	2.5	51.1	4920	CUT
A34185	4 x 185	SM	1.6	2.8	45.2	2.5	55.8	5660	CUT
A34240	4 x 240	SM	1.7	3	50.8	2.5	61.8	6805	CUT
A34300	4 x 300	SM	1.8	3.2	56.1	2.5	67.5	7930	CUT
A342516	3 x 25/16	Rm/rm	0.9	1.8	20.9	1.6	27.9	1487	CUT
A343516	3 x 35/16	Rm/rm	0.9	1.8	21.9	1.6	28.8	1722	CUT
A345025	3 x 50/25	Sm/rm	1	1.9	24.2	1.6	31.2	2440	CUT
A347035	3 x 70/35	Sm/rm	1.1	2.1	27.8	2	36.4	2950	CUT
A349550	3 x 95/50	Sm/sm	1.1	2.2	31.3	2	39.8	4033	CUT
A342401 20	3 x 240/120	Sm/sm	1.7	2.9	48.6	2.5	62.1	8162	CUT
A343001 50	3 x 300/150	Sm/sm	1.8	3	53.5	2.5	69.2	9318	CUT

Electrical Data

Conductor		Inductance		Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec
(mm ²)	Max. (Ω/km)	Max. (Ω/km)	(mH/km)	in air Max. (A)	in ground Max. (A)	Max. (kA)
10	3.08	3.949	0.248	66	71	0.94
16	1.91	2.449	0.236	90	93	1.5
25	1.2	1.539	0.242	119	120	2.35
35	0.868	1.113	0.234	146	143	3.29
50	0.641	0.822	0.232	171	165	4.7
70	0.443	0.568	0.229	215	201	6.58
95	0.32	0.411	0.224	263	240	8.93
120	0.253	0.325	0.223	307	273	11.28
150	0.206	0.265	0.225	355	308	14.1
185	0.164	0.211	0.225	405	346	17.39
240	0.125	0.162	0.223	476	399	22.56
300	0.1	0.13	0.222	544	448	28.2

NA2XRY 5x(10-300)mm²

Al/XLPE/SWA/PVC



Flame Retardant And UV Resistant/ Reduced Flame Propagation /Armored Power Cables

Construction

Conductor:	Al, Class 2 acc. DIN-VDE 0295, IEC 60228 multi wire stranded, round (RM) or sector (SM), Cross-linked Polyethylene (XLPE) acc to DIN
Insulation:	VDE 0276-603 e IEC 60502 e IEC 60502 and HD 603S1,
Colour code:	blue, black, Brown,Y/G , Grey
Laying up:	cores twisted in layers (if necessary with filling element(s))
Wrapping:	at least 1 layer of plastic tape
Bedding:	Polyvinyl Chloride (PVC)
Armour:	a layer of thin round galvanized steel wires, helically
Sheath:	UV resistant PVC (IEC 60502-1, DIN VDE 207 ST1)
sheath colour:	Black Ral 9005



Abbreviations

2X insulation & outer sheath of Crosslinked Polyethylene
fl reduced flame propagation
~J manufactured with one yellow/green conductor
~O manufactured without one yellow/green conductor



Application

These cables are resistant against outer mechanical reactions with their armors of galvanized steel wires. They are suitable for heavy operating conditions, laying and installation. Used under ground and under normal and salty water if specially produced

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
during operation:	-20 °C up to +90 °C
at short circuit of max.	250 °C @ 5 sec
ambient temperature at storage:	up to 40 °C
Nominal voltage:	U ₀ /U = 0.6/1 KV
Test voltage:core/core	3.5 KV AC for 5 Min
Minimal inner bending radius:	12 X Cable Φ
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A
Conductor resistance:	Acc to IEC 60228

Design Standards

IEC 60502-1
VDE 0276-603

NA2XRY 5x(10-300)mm²

Al/XLPE/SWA/PVC

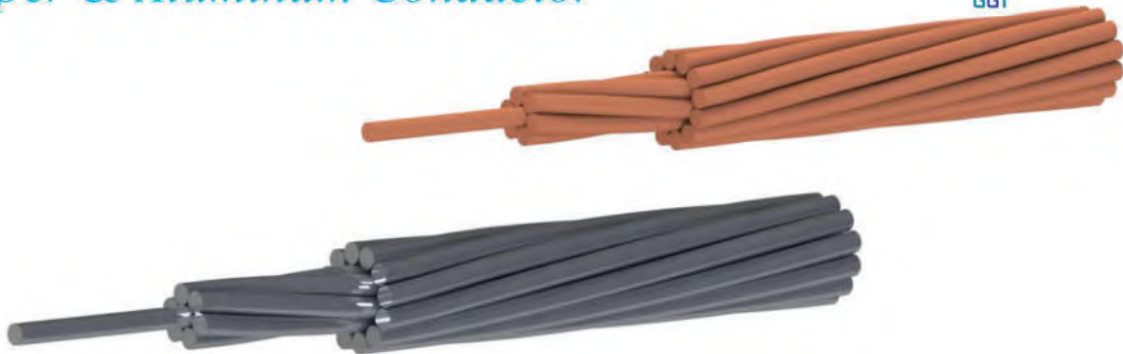
5Core

Code No.	number of cores x conductor cross-section	Construction	Insulation thickness	sheath thickness	Diameter under Armour	Armour wire Diameter	External diameter	Cable weight	Packing*
			nom. mm	Nom. mm	nom. mm			Nom. kg/km	
A3510	5 x 10	RM	0.7	1.8	16.8	1.25	22.9	920	CUT
A3516	5 x 16	RM	0.7	1.8	19.7	1.6	26.5	1320	CUT
A3525	5 x 25	RM	0.9	1.8	24.3	1.6	31.1	1620	CUT
A3535	5 x 35	RM	0.9	1.9	25.9	1.6	32.9	1980	CUT
A3550	5 x 50	RM	1	2.2	30	2	38.3	2650	CUT

Electrical Data

Conductor			Inductance	Current - Carrying Capacity at 30° C *		Short circuit current at 1 sec
(mm ²)	Max. (Ω/km)	Max. (Ω/km)		in air Max. (A)	in ground Max. (A)	
10	3.08	3.949	0.248	68	72	0.94
16	1.91	2.449	0.236	93	94	1.5
25	1.2	1.539	0.242	123	122	2.35
35	0.868	1.113	0.234	151	145	3.29
50	0.641	0.822	0.232	185	172	4.70

Copper & Aluminum Conductor



Copper & Aluminum Conductor

Construction

Conductor: Class 2 annealed stranded copper conductor or aluminum Conductor according to IEC 60228 or BS EN 50182

Technical data

Conductor resistance: Acc to IEC 60228

Design Standards

DIN 48201, IEC 60228
BS EN 50182
IEC 61089

APPLICATION

Used as earth connection, for flexible lines and connection, in distribution networks for connecting of metal parts, and for overhead electric lines.

AAC conductor is also known as aluminum stranded conductor. It is manufactured from electrolytically refined aluminum, with a minimum purity of 99.7%.

Copper Conductor

Code No.	Dimensions – number of cores x conductor cross-section	Calculated cross-sections	Construction	External diameter	Permitted stress	Conductor resistance at 20 °C	Rope weight
	mm ²	mm ²	nominal n x mm	approx. mm	max. kN	max. Ω/km	nominal kg/km
0010	10	10,02	7x1,35	4,1	4,02	1,8072	90
0016	16	15,89	7x1,70	5,1	6,37	1,1385	142
0025	25	24,25	7x2,10	6,3	09,72	0,7460	217
0035	35	34,36	7x2,50	7,5	13,77	0,5265	308
00501	50	49,48	7x3,00	9,0	19,84	0,3656	443
00502	50	48,35	19x1,80	9,0	19,38	0,3759	433
0070	70	65,81	19x2,10	10,5	26,38	0,2762	590
00951	95	93,27	19x2,50	12,5	37,39	0,1949	836
00952	95	93,11	37x1,79	12,5	37,39	0,1949	834
001201	120	116,99	19x2,80	14,0	46,90	0,1554	1048
001202	120	117,40	37x2,01	14,1	46,90	0,1554	1052
00150	150	147,11	37x2,25	15,8	58,98	0,1238	1318
00185	185	181,52	37x2,50	17,5	72,81	0,1003	1627
00240	240	242,54	61x2,25	20,3	97,23	0,0753	2173
00300	300	299,43	61x2,50	22,5	120,04	0,0610	2683
00400	400	400,14	61x2,89	26,0	160,42	0,0456	3585
00500	500	499,83	61x3,23	29,1	200,38	0,0365	4479

AAC (Stranded All Aluminum Conductor)

BS EN 50182

Code No	Code	Nominal Area		Stranding	Overall Diameter	Weight	Rated Strength	Electrical Resistance	Current Rating *
		Nominal	Theoretical						
		mm ²	mm ²	No. x mm	mm	kg/km	KN	Ω/Km	A
025	Gnat	25	26.9	7/2.21	6.63	73	4.83	1.0643	115
035	Mosquito	35	36.9	7/2.59	7.77	101	6.27	0.7749	140
040	Ladybird	40	42.8	7/2.79	8.37	117	7.28	0.6678	154
070	Bluebottle	70	73.6	7/3.66	10.98	201	11.78	0.388	215
075	Earwig	75	78.6	7/3.78	11.34	215	12.57	0.3638	223
080	Grasshopper	80	84.1	7/3.91	11.73	230	13.45	0.34	233
090	Clegg	90	95.6	7/4.17	12.51	261	15.3	0.2989	252
0100	Beetle	100	106.4	19/2.67	13.35	292	18.08	0.2701	269
0120	Bee	120	132	7/4.90	14.7	361	21.12	0.2165	307
0180	Caterpillar	180	185.9	19/3.53	17.65	511	29.75	0.1546	379
0220	Spider	220	237.6	19/3.99	19.95	653	38.01	0.121	440
0350	Moth	350	373.1	19/5.00	25	1025	59.69	0.077	579
03501	Drone	350	372.4	37/3.58	25.06	1027	59.59	0.0774	577
0450	Maybug	450	486.1	37/4.09	28.63	1341	77.78	0.0593	677
0500	Scorpion	500	529.8	37/4.27	29.89	1461	84.77	0.0544	713
0600	Cicada	600	628.3	37/4.65	32.55	1733	100.54	0.0459	788

The items marked with "*" are not in our current product range and the details are for information only.

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre², ambient temperature of 50° C & conductor temperature of 80°C

Numbers of Wires	Final Modules of Elasticity		Coefficient of linear Expansion	
	AL	Kg/mm ²	lb/in ²	1/Co
7		6000	8.5 x10 ⁶	23.0 x10 ⁻⁶
19		5700	8.1 x10 ⁶	23.0 x10 ⁻⁶
37		5700	8.1 x10 ⁶	23.0 x10 ⁻⁶
61		5500	7.8 x10 ⁶	23.0 x10 ⁻⁶
91		5500	7.8 x10 ⁶	23.0 x10 ⁻⁶

NFA2X

AL/XLPE



LOW VOLTAGE BUNDLED ALUMINUM OVERHEAD CABLE

Construction

Phase conductor:	round Al conductor, multi wire stranded compacted (RM), class 2 acc. to HRN HD 383, phase conductors are marked with longitudinal protrusions (one, two or three)
Neutral (supporting) conductor:	round conductor, multi wire stranded compacted (RM), class 2 acc. to HRN HD 383, of aluminium alloy
Insulation:	XLPE (cross-linked polyethylene, recent mark: PE-X) compound TIX-2 or TIX-5 acc. to HD 626 S1
Insulation colour:	Black Ral 9005



Technical data

Temperature range:

During installation :	-5 °C
during operation:	-30 °C up to +80 °C
at short circuit of max.	max. +130

ambient temperature at storage:	up to 40 °C
---------------------------------	-------------

Nominal voltage:	U ₀ /U = 0.6/1 KV
------------------	------------------------------

Test voltage:core/core	4.0 KV AC for 5 Min
	10.0 KV AC for 15 Min

Minimal inner bending radius:	12 X Cable Ø
-------------------------------	--------------

maximum permitted operating voltage in 3-phase systems:	1.2KV
---	-------

DESIGN STANDARDS

HRN HD 626 S1
DIN VDE 0276 part 626

APPLICATION

Self-supporting overhead cable bundle, applied for electric power distribution in low voltage metropolitan, suburban and rural networks, for public lighting and house connections. Laid on pillars, consoles and house fronts.

Dimensional Data

Size	Number/Diameter			Insulation Thickness			Approx. Diameter			Approx. Twisted Diameter	Approx. Net Weight	Standard Quantity Per Reel
	Phase	Neutral	Lighting	Phase	Neutral	Lighting	Phase	Neutral	Lighting			
mm ²	AL	ALOY	AL	mm	mm	mm	mm	mm	mm	mm	kg/km	m
2x25+25	7/2.13	7/2.13	-	1.4	1.4	-	9.2	9.2	-	21	338	1,000
2x35+25	7/2.52	7/2.13	-	1.6	1.4	-	10.8	9.2	-	24	394	1,000
2x50+35	7/3.02	7/2.52	-	1.6	1.6	-	12.3	10.8	-	26	526	1,000
2x70+50	19/2.17	7/3.02	-	1.8	1.6	-	14.5	12.3	-	31	760	1,000
2x95+70	19/2.52	19/2.52	-	2.0	1.8	-	16.6	16.2	-	36	975	1,000
3x25+25	7/2.13	7/2.13	-	1.4	1.4	-	9.2	9.2	-	24	425	1,000
3x35+25	7/2.52	7/2.13	-	1.6	1.4	-	10.8	9.2	-	27	537	1,000
3x50+35	7/3.02	7/2.52	-	1.6	1.6	-	12.3	10.8	-	30	717	1,000
3x70+50	19/2.17	7/3.02	-	1.8	1.6	-	14.5	12.3	-	36	1,057	1,000
3x95+70	19/2.52	19/2.52	-	2.0	1.8	-	16.6	16.2	-	40	1,340	1,000

Electrical Data

Size	Number/Diameter			Resistance at 20 °C			Current Carrying Capacity at 35 °C		Short Circuit Current at 1 sec.		Breaking Load
	Phase	Neutral	Lighting	Phase	Neutral	Lighting	Phase	Lighting	Phase	Lighting	
mm ²	AL	ALOY	AL	Ohm/km	Ohm/km	Ohm/km	A	A	kA	kA	kg
2x25+25	7/2.13	7/2.13	-	1.20	1.380	-	103	-	2.30	-	712
2x35+25	7/2.52	7/2.13	-	0.868	1.380	-	125	-	3.22	-	712
2x50+35	7/3.02	7/2.52	-	0.641	0.986	-	154	-	4.60	-	997
2x70+50	19/2.17	7/3.02	-	0.443	0.690	-	196	-	6.44	-	1,395
2x95+70	19/2.52	19/2.52	-	0.320	0.450	-	242	-	4.60	-	1,932
3x25+25	7/2.13	7/2.13	-	1.20	1.380	-	103	-	2.30	-	712
3x35+25	7/2.52	7/2.13	-	0.868	1.380	-	125	-	3.22	-	712
3x50+35	7/3.02	7/2.52	-	0.641	0.986	-	154	-	4.60	-	997
3x70+50	19/2.17	7/3.02	-	0.443	0.690	-	196	-	6.44	-	1,395
3x95+70	19/2.52	19/2.52	-	0.320	0.450	-	242	-	4.60	-	1,932

NFA2X

AL/XLPE



LOW VOLTAGE BUNDLED ALUMINUM OVERHEAD CABLE

Construction

Phase conductor:	round Al conductor, multi wire stranded compacted (RM), class 2 acc. to HRN HD 383, phase conductors are marked with longitudinal protrusions (one, two or three)
Neutral (supporting) conductor:	round conductor, multi wire stranded compacted (RM), class 2 acc. to HRN HD 383, of aluminium alloy
Insulation:	XLPE (cross-linked polyethylene, recent mark: PE-X) compound TIX-2 or TIX-5 acc. to HD 626 S1
Insulation colour:	Black Ral 9005



Technical data

Temperature range:

During installation :	-5 °C
during operation:	-30 °C up to +80 °C
at short circuit of max.	max. +130

ambient temperature at storage:	up to 40 °C
---------------------------------	-------------

Nominal voltage:	U ₀ /U = 0.6/1 KV
------------------	------------------------------

Test voltage:core/core	4.0 KV AC for 5 Min
	10.0 KV AC for 15 Min

Minimal inner bending radius:	12 X Cable Ø
-------------------------------	--------------

maximum permitted operating voltage in 3-phase systems:	1.2KV
---	-------

DESIGN STANDARDS

HRN HD 626 S1
DIN VDE 0276 part 626

APPLICATION

Self-supporting overhead cable bundle, applied for electric power distribution in low voltage metropolitan, suburban and rural networks, for public lighting and house connections. Laid on pillars, consoles and house fronts.

NFA2X

AL/XLPE

Dimensional Data

Size	Number/Diameter			Insulation Thickness			Approx. Diameter			Approx. Twisted Diameter	Approx. Net Weight	Standard Quantity Per Reel
	Phase	Neutral	Lighting	Phase	Neutral	Lighting	Phase	Neutral	Lighting			
mm ²	AL	ALOY	AL	mm	mm	mm	mm	mm	mm	mm	kg/km	m
3x25+25+2x16	7/2.13	7/2.13	7/1.71	1.4	1.4	1.2	9.2	9.2	7.5	32	598	1,000
3x35+25+2x16	7/2.52	7/2.13	7/1.71	1.6	1.4	1.2	10.8	9.2	7.5	34	683	1,000
2x50+35+2x16	7/3.02	7/2.52	7/1.71	1.6	1.6	1.2	12.3	10.8	7.5	40	863	1,000
2x70+50+2x16	19/2.17	7/3.02	7/1.71	1.8	1.6	1.2	14.5	12.3	7.5	48	1130	1,000
2x95+70+2x16	19/2.52	19/2.52	7/1.71	2.	1.8	1.2	16.6	16.2	7.5	55	1410	1,000
3x25+25+16	7/2.13	7/2.13	7/1.71	1.4	1.4	1.2	9.2	9.2	7.5	32	528	1,000
3x35+25+16	7/2.52	7/2.13	7/1.71	1.6	1.4	1.2	10.8	9.2	7.5	34	613	1,000
3x50+35+16	7/3.02	7/2.52	7/1.71	1.6	1.6	1.2	12.3	10.8	7.5	40	793	1,000
3x70+50+16	19/2.17	7/3.02	7/1.71	1.8	1.6	1.2	14.5	12.3	7.5	48	1060	1,000
3x95+70+16	19/2.52	19/2.52	7/1.71	2.0	1.8	1.2	16.6	16.2	7.5	55	1340	1,000

Electrical Data

Size	Number/Diameter			Resistance at 20 °C			Current Carrying Capacity at 35 °C		Short Circuit Current at 1 sec.		Breaking Load
	Phase	Neutral	Lighting	Phase	Neutral	Lighting	Phase	Lighting	Phase	Lighting	
mm ²	AL	ALOY	AL	Ohm/km	Ohm/km	Ohm/km	A	A	kA	kA	kg
3x25+25+2x16	7/2.13	7/2.13	7/1.71	1.20	1.380	1.91	103	72	2.30	1.47	712
3x35+25+2x16	7/2.52	7/2.13	7/1.71	0.868	1.380	1.91	125	72	3.22	1.47	712
2x50+35+2x16	7/3.02	7/2.52	7/1.71	0.641	0.986	1.91	154	72	4.60	1.47	997
2x70+50+2x16	19/2.17	7/3.02	7/1.71	0.443	0.690	1.91	196	72	6.44	1.47	1,395
2x95+70+2x16	19/2.52	19/2.52	7/1.71	0.320	0.450	1.91	242	72	4.60	1.47	1,932
3x25+25+16	7/2.13	7/2.13	7/1.71	1.20	1.380	1.91	103	72	2.30	1.47	712
3x35+25+16	7/2.52	7/2.13	7/1.71	0.868	1.380	1.91	125	72	3.22	1.47	712
3x50+35+16	7/3.02	7/2.52	7/1.71	0.641	0.986	1.91	154	72	4.60	1.47	997
3x70+50+16	19/2.17	7/3.02	7/1.71	0.443	0.690	1.91	196	72	6.44	1.47	1,395
3x95+70+16	19/2.52	19/2.52	7/1.71	0.320	0.450	1.91	242	72	4.60	1.47	1,932

ACSR

Aluminum Conductor Steel Reinforced



Aluminum Conductor Steel Reinforced

Construction

conductor: Hard Drawn Aluminium: BS EN 60889
AL1 and Zinc coated steel wire as per BS EN 50189 with the class and grade in accordance with ST1A, ST5E and ST6C

Design Standards

ASTM - B 231 Metric Units
ASTM - B 232,
TS IEC 1089
DIN48201
BS 215
UNE 21.018

The electrical and dimensional properties of this product are measured by the Technical and Quality Assurance department at Zarcable laboratory. Cable performance in respect of conductor resistance, construction quality Dimensional consistency, and other parameters are verified to publish standards and approved product drawings.

APPLICATION

Used as bare overhead transmission conductor and as primary and secondary distribution conductor and messenger support. ACSR offers optimal strength for line design. Variable steel core stranding enables desired strength to be achieved without sacrificing ampacity.

Code Words

Grouse, Petrel, Minorca, Guinea, Dorking, Cochin, Dotterel, Leghorn, Egret, Redwing, Mallard, Finch, Grackle, Pheasant, Martin, Falcon, Chukar, Ruddy, Canary, Bluebird, Turkey, Swan, Sparrow, Robin, Raven, Quail, Pigeon, Penguin, Swanate, Sparate, Waxwing, Merlin, Chickadee, Pelican, Osprey, Kingbird, Swift, Coot, Brant, Flicker, Parakeet, Peacock, Rook, Flamingo, Stilt, Partridge, Ostrich, Linnet, Ibis, Hawk, Dove, Squab, Grosbeak, Gannet, Starling, Drake, Oriole, Lark, Hen, Eagle, Wood Duck, Scoter, Tern, Rail, Ortolan, Bluejay, Bunting, Bittern, Bobolink, Lapwing, Condor, Cardinal, Curlew, Kiwi, Teal, Dipper

DIMENSIONS

ASTM Sizes - TS IEC 1089

CODE AL mm ²	CANADA STANDARD		SECTION				CONDUCTORS			
	Type	Section AWG	Al mm ²	Steel mm ²	Total mm ²	Copper equivalent mm ²	Aluminum		Steel	
							No.	Diameter r	No.	Diameter mm
17/3	TUHRUS	5	16.83	2.8	19.63	10.6	6	1.89	1	1.89
21/4	SWAN	4	21.18	3.53	24.71	13.3	6	2.12	1	2.12
27/4	SWALLOW	3	26.69	4.45	31.14	16.8	6	2.38	1	2.38
34/6	SPARROW	2	33.59	5.6	39.19	21.1	6	2.67	1	2.67
42/7	ROBIN	1	42.41	7.07	49.48	26.7	6	3	1	3
54/9	RAVEN	1/0	53.52	8.92	62.44	33.7	6	3.37	1	3.37
67/11	QUAIL	2/0	67.33	11.22	78.55	43.3	6	3.78	1	3.78
85/14	PIGEON	3/0	85.12	14.18	99.3	53.5	6	4.25	1	4.25
135/7	WAXWING	266800	134.98	7.5	142.48	84.9	18	3.09	1	3.09
135/22	PARTRIDGE	266800	134.87	21.99	156.86	84.8	26	2.57	7	2

DIMENSIONS

ASTM Sizes - TS IEC 1089

CODE AL mm ²	CANADA STANDARD		SECTION				CONDUCTORS			
	Type	Section AWG	Al mm ²	Steel mm ²	Total mm ²	Copper equivalent mm ²	Aluminum		Steel	
							No.	Diameter m	No.	Diameter m
152/8	PHEOBE	300000	152.09	8.45	160.54	95.6	18	3.28	1	3.28
152/25	OSTRICH	300000	152.19	24.71	176.9	95.7	26	2.73	7	2.12
242/39	HAWK	477000	241.65	39.19	280.84	152	26	3.44	7	2.67
403/65	DRAKE	795000	402.56	65.44	468	253.2	26	4.44	7	3.45
485/63	CARDINAL	954000	484.53	62.81	547.34	304.7	54	3.38	7	3.38
645/82	PHEASANT	127200	645.08	81.71	726.79	405.7	54	3.90	19	2.34

ASTM - TS IEC 1089

CODE AL mm2	DIAMETER		RATED STRENGT H Kg	DC RESISTA NCE AT 20°C ohm/km	UNIT WEIGHT kg/km			TOTAL WEIGHT		PACKING OF REELS		
	Steel core mm	Complete cable mm			AL kg/km	Steel kg/km	Total kg/km	AL %	Steel %	Reel type	In one reel	
											Lengths m	Net weight Kg
17/3	1.89	5.67	665	1.0752	46.2	21.8	68	67.9	32.1	R-100	9600	653
21/4	2.12	6.36	831	1.355	58.1	27.5	85.6	67.9	32.1	R-100	8000	685
27/4	2.38	7.14	1023	1.0742	73.2	34.6	107.8	67.9	32.1	R-100	6400	690
34/6	2.67	8.01	1264	0.8543	92.1	43.6	135.7	67.9	32.1	R-100	4800	652
42/7	3	9	1579	0.6767	116.4	55	171.4	67.9	32.1	R-100	3200	550
54/9	3.37	10.11	1945	0.5362	146.8	69.4	216.2	67.9	32.1	R-100	3200	692
67/11	3.78	11.34	2420	0.4263	184.7	87.3	272	67.9	32.1	R-100	2400	653
85/14	4.25	12.75	3035	0.3366	233.5	110.4	343.9	67.9	32.1	R-100	1600	550
135/7	3.09	15.45	3220	0.2134	371.8	58.3	430.1	86.4	13.6	R-100	1600	688
135/22	6	16.28	5099	0.214	372.2	171.6	543.8	68.5	31.5	R-120	1600	870
152/8	3.28	16.4	3628	0.1891	418.9	65.7	484.6	86.4	13.6	R-120	2500	1212
152/25	6.36	17.28	5736	0.1897	420	192.9	612.9	68.5	31.5	R-120	1600	981
242/39	8.01	21.77	8798	0.1194	666.8	306	972.8	68.5	31.5	R-150	1750	1703
403/65	10.35	28.11	14165	0.0715	1110.9	511	1621.9	68.5	31.5	R-180	1600	2595
485/63	10.14	30.42	15589	0.0597	1339.6	190.2	1829.8	73.2	26.8	R-200	2000	3660
645/82	11.7	35.1	20383	0.0449	1783.8	639.7	2423.5	73.6	26.4	R-200	1600	3878

ASTM - B 232 Metric Units

CODE	SIZE AWG- MCM	STRANDING No. x mm			SECTION mm ²			OVERALL DIAMETER mm			CONDUCTOR WEIGHT kg / km			RATED STRENGTH KN	ELECTRICAL RESISTANCE			CURRENT CARRYING CAPACITY Y (1)
		Al.	Steel	Total	Al.	Total	Core	Total	Al.	Steel	Total	Al.	Steel		20°C DC	25°C AC	75°C AC	
TURKEY	6	6 x 1.68	1 x 1.68	15.52	13.3	5.04	1.68	53.8	36.5	17.3	5.295	2.1135	2.1496	2.6850	110			
SWAN	4	6 x 2.12	1 x 2.12	24.71	21.18	6.36	2.12	85.4	58	27.4	8.28	1.3278	1.3537	1.7172	145			
SWANATE	4	7 x 1.96	1 x 2.61	26.47	21.12	6.53	2.61	99.7	58	41.7	10.5	1.1313	1.3387	1.7383	145			
SPARROW	2	6 x 2.67	1 x 2.67	39.2	33.6	8.01	2.67	135.9	92.3	43.6	12.68	0.8343	0.8527	1.1081	195			
SPARATE	2	7 x 2.47	1 x 3.30	42.09	33.54	5.24	3.3	158.8	92.3	66.51	6.2	0.8251	0.8435	1.1181	195			
ROBIN	1	6 x 3.00	1 x 3.00	49.48	42.41	9.0	3.0	171.4	116.4	55	15.8	0.6621	0.6768	0.8907	200			
RAVEN	1/0	6 x 3.37	1 x 3.37	62.44	53.52	10.11	3.37	216.1	146.7	69.4	19.49	0.5243	0.5370	0.7165	255			
QUAIL	2/0	6 x 3.78	1 x 3.78	78.55	67.33	11.34	3.78	272.5	185	87.5	23.63	0.4160	0.4265	0.5803	295			
PIGEON	3/0	6 x 4.25	1 x 4.25	99.31	85.12	12.75	4.25	343.5	233.2	110.3	29.46	0.3304	0.3386	0.4705	340			
Penguin	4/0	6x4.77	1x4.77	107.2	107.2	14.31	4.77	433.2	294.2	139	37.16	0.2618	0.2697	0.3829	390			
Waxwing	266.8	18x3.09	1x3.09	135	135	15.45	3.09	431.6	372.9	58.7	30.62	0.2119	0.2169	0.2595	480			
Partridge	266.8	26x2.57	7x2.00	134.9	134.9	16.28	6	546.1	374.3	193.3	50.28	0.2100	0.2146	0.2569	490			
Ostrich	300	26x2.73	7x2.12	152.2	152.2	17.28	4.36	543.2	469.7	73.5	56.52	0.1867	0.1909	0.2283	530			
Merlin	336.4	18x3.47	1x3.47	170.2	170.2	17.35	3.47	689	472.2	216.8	38.36	0.1680	0.1719	0.2057	560			
Linnet	336.4	26x2.89	7x2.25	170.6	170.6	18.31	6.75	784.8	473.2	311.1	62.75	0.1663	0.1669	0.2037	570			
Oriole	336.4	30x2.69	7x2.69	170.5	170.5	18.83	8.07	642.9	555.5	372	76.98	0.1654	0.1690	0.2024	575			
Chickadee	397.5	18x3.77	1x3.77	200.9	200.9	18.85	3.77	770.9	666.4	104.5	44.23	0.1221	0.1457	0.1742	620			
Brant	397.5	24x3.27	7x2.18	201.6	201.6	19.62	6.54	915.2	670.1	245.1	64.97	0.1417	0.1450	0.1732	630			
Ibis	397.5	26x3.14	7x2.44	201.3	201.3	19.88	7.32	977.7	667.7	308	72.53	0.1411	0.1444	0.1726	635			
Lark	397.5	30x2.92	7x2.92	200.9	200.9	20.44	8.76	1111.7	671	440.7	90.3	0.1401	0.1434	0.1716	645			
Pelican	477	18x4.14	1x4.14	242.3	242.3	20.7	4.14	898.9	777	121.9	52.51	0.1184	0.1217	0.1453	700			
Flicker	477	26x3.58	7x2.39	241.6	241.6	21.19	7.17	1067	781.6	285.4	76.54	0.1178	0.1207	0.1444	710			
Hawk	477	26x3.44	7x2.67	241.6	241.6	21.77	7.01	1140	781.3	358.7	86.77	0.1171	0.1201	0.1437	715			
Hen	477	30x3.20	7x3.20	241.3	241.3	22.40	9.6	1297.7	983.2	514.5	105.91	0.1165	0.1194	0.1427	725			
Osprey	556.5	18x4.74	1x4.47	282.5	282.5	22.35	4.47	898.9	777	121.9	60.96	0.1014	0.1043	0.1247	775			
Parakeet	556.5	24x3.87	7x2.58	282.3	282.3	23.22	7.74	1067	781.0	285.4	88.11	0.1010	0.1037	0.1240	785			
Dove	556.5	26x3.72	7x2.89	282.6	282.6	23.55	6.67	1140	781.3	358.7	105.57	0.1007	0.1033	0.1237	790			
Eagle	556.5	27x3.30	7x3.46	282.1	282.1	24.27	1.38	1297.7	983.2	515.5	123.71	0.1001	0.1027	0.1227	800			
Peacock	605	24x4.03	7x2.65	306.1	306.1	24.19	8.07	1160.8	849.8	311	96.12	0.0928	0.0928	0.1141	830			
Squab	605	26x3.87	7x3.01	305.8	305.8	24.51	9.03	1410.8	851.2	559.6	108.13	0.0925	0.0951	0.1135	835			
Wood deck	605	30x3.61	7x3.61	307.1	307.1	25.17	10.83	1398.9	851.5	547.4	128.6	0.0331	0.0944	0.1128	845			
Teal	605	30x3.61	19x2.16	307.1	307.1	25.24	10.80	1398.9	851.5	547.4	135.5	0.09166	0.09449	0.11286	845			
Kingbird	636	18x4.78	1x4.78	323	323	23.9	4.78	1026.9	887.4	139.5	69.86	0.08891	0.09219	0.11286	840			
Rook	636	24x4.14	7x2.76	323.1	323.1	24.84	8.28	128.8	892.9	388.9	97.9	0.08825	0.09088	0.10925	855			
Grosbeak	636	26x3.97	7x3.09	351.5	251.5	9.27	1302.2	892.6	--	409.6	1302.2	0.11214	0.08793	0.10827	860			
Scoter	636	30x3.70	7x3.70	322.6	322.6	25.9	11.1	1477.8	891.4	586.4	135.27	0.0876	0.0899	0.10794	870			
Egret	636	30x3.70	19x2.22	322.6	322.6	25.9	11.1	1470.3	895	575.3	140.17	0.0876	0.8990	0.10761	870			
Swift	636	36x3.38	1x3.38	323	323	23.66	3.58	958.4	888.4	7	61.41	0.0892	0.9186	0.1093	845			
Flamingo	666.6	24x4.23	7x2.82	381	337.3	25.38	8.46	1276.9	935.2	341.7	105.46	0.0843	0.8563	0.1037	880			
Gannet	666.6	26x4.07	7x3.16	393.2	338.3	25.76	9.48	1364.7	936.1	428.6	117.48	0.08399	0.08497	0.1030.2	885			
Stilt	715.5	24x4.39	7x2.92	410.2	363.3	26.32	8.76	1372.1	1004.5	367.6	113.47	0.07841	0.08104	0.09678	920			
Starling	715.5	26x4.21	7x3.28	421	361.9	26.68	9.84	1465.9	1004.5	461.4	126.37	0.07808	0.08038	0.9613	930			
Redwing	715.5	30x3.92	19x2.35	444.5	362.1	27.43	11.75	1653.4	1007.1	646.3	153.96	0.0776	0.08005	0.09547	940			
Cuckoo	795	24x4.62	7x3.08	454.5	402.3	27.72	9.24	1522.4	1115.2	407.2	124.15	0.07087	0.07316	0.08727	985			
Drake	795	26x4.44	7x3.45	468	402.6	28.11	10.35	1628.1	1115.8	512.3	140.17	0.07054	0.07283	0.08694	995			
Coot	795	36x3.77	1x3.77	413.1	401.9	26.39	3.77	1198	1110.2	87.8	74.76	0.07152	0.07415	0.08825	975			

ASTM - B 232 Metric Units

CODE	SIZE AWG- MCM	STRANDING No. x mm		SECTION mm²		OVERALL DIAMETER mm		CONDUCTOR WEIGHT kg / km			RATED STRENGTH H KN	ELECTRICAL RESISTANCE			CURRENT CARRYING CAPACITY
		Al.	Steel	Total	Al.	Total	Core	Total	Al.	Steel		20°C DC	25°C AC	75°C AC	
Tern	795	45x3.38	7x2.25	431.6	403.8	27.03	4.75	1333.4	1116.1	217.3	98.34	0.07119	0.07382	0.08793	970
Condor	795	54x3.08	7x3.08	454.5	402.3	27.72	9.24	1513.9	1116.1	407.8	125.48	0.07054	0.07283	0.08694	975
Mallard	795	30x4.14	19x2.48	495.6	403.8	28.96	12.4	1837.9	1188.7	719.2	170.87	0.06988	0.07218	0.08596	1005
Ruddy	900	45x3.59	7x2.40	487.2	455.8	28.74	7.2	1510.5	1263.5	247	108.58	0.06243	0.06463	0.07743	1050
Canary	900	54x3.28	7x3.28	515.4	456.3	29.52	9.84	1724.8	1263.5	461.3	141.95	0.06234	0.06463	0.07710	1055
Catbird	954	36x4.14	1x4.14	498.1	484.6	28.98	4.14	1437.6	1333.4	104.2	88.11	0.05971	0.06234	0.07415	1095
Rail	954	45x3.70	7x2.47	517.3	483.8	29.61	7.41	1599.8	1339.4	260.4	115.25	0.05938	0.06201	0.07382	1090
Mallard	795	30x4.14	19x2.48	495.6	403.8	28.96	12.4	1837.9	1188.7	719.2	170.87	0.06988	0.07218	0.08596	1005
Ruddy	900	45x3.59	7x2.40	487.2	455.8	28.74	7.2	1510.5	1263.5	247	108.58	0.06243	0.06463	0.07743	1050
Canary	900	54x3.28	7x3.28	515.4	456.3	29.52	9.84	1724.8	1263.5	461.3	141.95	0.06234	0.06463	0.07710	1055
Cardinal	954	54x3.28	7x3.28	515.4	491.5	29.42	10.14	1839.9	1339.4	500.5	150.4	0.05906	0.06135	0.07315	1095
Parakeet	1050	54x3.28	7x3.28	515.4	491.5	29.42	10.14	1839.9	1339.4	500.5	150.4	0.05906	0.06135	0.07315	1095
Bluebird	1100	54x3.28	7x3.28	515.4	491.5	29.42	10.14	1839.9	1339.4	500.5	150.4	0.05906	0.06135	0.07315	1095
Robin	1100	54x3.28	7x3.28	515.4	491.5	29.42	10.14	1839.9	1339.4	500.5	150.4	0.05906	0.06135	0.07315	1095
Mocker	1100	54x3.28	7x3.28	515.4	491.5	29.42	10.14	1839.9	1339.4	500.5	150.4	0.05906	0.06135	0.07315	1095
Starling	1100	54x3.28	7x3.28	515.4	491.5	29.42	10.14	1839.9	1339.4	500.5	150.4	0.05906	0.06135	0.07315	1095
Chukar	1780	84x3.70	19x2.22	976.7	903.2	42.7	11.1	3086.5	2510.6	575.9	226.94	0.03182	0.03477	0.04101	1620
Bluebird	2165	84x4.07	19x2.44	1181.6	1092.8	44.76	12.2	3737.8	3040.4	697.4	268.32	0.02628	0.02953	0.03445	1815
Kiwi	2167	72x4.41	7x2.94	1147.3	1099.8	44.1	8.82	3427.3	3056.7	370.6	221.6	0.02628	0.02986	0.03478	1795
Thrasher	2312.8	76x4.43	19x2.07	1235.3	1711.4	45.79	10.35	3760.7	3262.1	498.6	252.3	0.02461	0.02838	0.03328	1875
Grouse	80	8x2.54	1x4.24	54.66	40.54	9.32	4.24	221.7	111.8	109.9	23.14	0.6798	0.69590	0.96260	200
Petrel	101.8	12x2.34	7x2.34	81.71	51.61	11.7	7.02	378.1	142.9	235.2	42.28	0.5217	0.52890	0.78350	250
Minorca	110.8	12x2.44	7x2.44	88.84	51.11	12.2	7.32	411.6	155.5	256.1	50.28	0.4793	0.49770	0.74180	265
Leghorn	134.5	12x2.69	7x2.69	108	68.2	13.45	8.07	500	189	311	60.52	0.3947	0.40120	0.61810	300
Guinea	159	12x2.92	7x2.92	127.23	80.36	14.6	8.76	590.5	223.2	367.3	68.08	0.3340	0.33990	0.53740	330
Dotterel	176.9	12x3.08	7x3.08	144.56	89.41	15.4	9.24	656.9	248.4	408.4	76.98	0.3002	0.30770	0.49150	350
Dorking	190.8	12x3.20	12x3.20	152.81	96.51	16	9.6	708.8	267.9	440.9	83.21	0.2782	0.28410	0.46160	370
Brahma	203.2	16x2.86	19x2.48	194.57	102.79	18.12	12.4	1007.2	285.3	721.9	126.37	0.2520	0.25590	0.42950	380
Cochin	211.3	12x3.37	7x3.37	169.47	107.04	16.85	10.11	785	296.6	488.4	92.11	0.2513	0.25590	0.42490	390

CODE	Section mm ²			Stranding No.X mm		Overall Diameter		Rated Strength KN	Electrical Resistance	Conductor Weight Kg/Km.			Current Carrying Capacity
	Al.	steel	Total	Al.	steel	Core	Total			Al.	steel	Total	
16/2.5	15.3	2.55	17.85	6X1.80	1X1.80	1.8	5.4	5.95	1.8792	42	20	62	90
25/4	23.8	4	27.8	6X2.25	1X2.25	2.25	6.8	9.2	1.2027	66	31	97	125
35/6	34.3	5.7	40	6X2.70	1X2.70	2.7	8.1	12.65	0.8353	95	45	140	145
44/32	44	31.7	75.7	14X2.00	7X2.40	7.2	11.2	45	0.6566	124	248	372	160
50/8	48.3	8	56.3	6X3.20	1X3.20	3.2	9.6	17.1	0.5946	133	63	196	170
50/30	51.2	29.8	81	12X2.33	7X2.33	6.99	11.7	43.8	0.5644	143	235	378	170
70/12	69.9	11.4	81.3	26X1.85	7X1.44	4.32	11.7	26.8	0.4130	194	90	284	290
95/15	94.4	15.3	109.7	26X2.15	7X1.67	5.01	13.6	35.75	0.3058	262	121	383	350
95/55	96.5	56.3	152.8	121X3.20	7X3.20	9.6	16	79.35	0.2992	269	443	712	350
105/75	105.7	75.5	181.5	14X3.10	19X2.25	11.25	17.5	108.45	0.2733	295	596	891	370
120/20	121.6	19.8	141.4	26X2.44	7X1.90	5.7	15.5	45.65	0.2374	338	156	494	410
120/30	121.6	29.8	151.4	26X2.44	7X2.33	6.99	15.5	45.65	0.2374	338	235	573	410
120/40	121.6	39.8	161.4	26X2.44	7X2.70	7.7	15.5	45.65	0.2374	338	314	652	410
120/50	121.6	49.8	171.4	26X2.44	7X3.20	9.6	15.5	45.65	0.2374	338	393	731	410
120/60	121.6	59.8	181.4	26X2.44	7X3.60	10.8	15.5	45.65	0.2374	338	472	810	410
120/70	121.6	69.8	191.4	26X2.44	7X4.02	12	15.5	45.65	0.2374	338	551	889	410
120/80	121.6	79.8	201.4	26X2.44	7X4.44	13.2	15.5	45.65	0.2374	338	630	968	410
120/90	121.6	89.8	211.4	26X2.44	7X4.86	14.4	15.5	45.65	0.2374	338	709	1047	410
120/100	121.6	99.8	221.4	26X2.44	7X5.28	15.6	15.5	45.65	0.2374	338	788	1126	410
120/110	121.6	109.8	231.4	26X2.44	7X5.70	16.8	15.5	45.65	0.2374	338	867	1205	410
120/120	121.6	119.8	241.4	26X2.44	7X6.12	18	15.5	45.65	0.2374	338	946	1284	410
120/130	121.6	129.8	251.4	26X2.44	7X6.54	19.2	15.5	45.65	0.2374	338	1025	1363	410
120/140	121.6	139.8	261.4	26X2.44	7X6.96	20.4	15.5	45.65	0.2374	338	1104	1442	410
120/150	121.6	149.8	271.4	26X2.44	7X7.38	21.6	15.5	45.65	0.2374	338	1183	1521	410
120/160	121.6	159.8	281.4	26X2.44	7X7.80	22.8	15.5	45.65	0.2374	338	1262	1600	410
120/170	121.6	169.8	291.4	26X2.44	7X8.22	24	15.5	45.65	0.2374	338	1341	1679	410
120/180	121.6	179.8	301.4	26X2.44	7X8.64	25.2	15.5	45.65	0.2374	338	1420	1758	410
120/190	121.6	189.8	311.4	26X2.44	7X9.06	26.4	15.5	45.65	0.2374	338	1499	1837	410
120/200	121.6	199.8	321.4	26X2.44	7X9.48	27.6	15.5	45.65	0.2374	338	1578	1916	410
120/210	121.6	209.8	331.4	26X2.44	7X9.90	28.8	15.5	45.65	0.2374	338	1657	1995	410
120/220	121.6	219.8	341.4	26X2.44	7X10.32	30	15.5	45.65	0.2374	338	1736	2074	410
120/230	121.6	229.8	351.4	26X2.44	7X10.74	31.2	15.5	45.65	0.2374	338	1815	2153	410
120/240	121.6	239.8	361.4	26X2.44	7X11.16	32.4	15.5	45.65	0.2374	338	1894	2232	410
120/250	121.6	249.8	371.4	26X2.44	7X11.58	33.6	15.5	45.65	0.2374	338	1973	2311	410
120/260	121.6	259.8	381.4	26X2.44	7X12.00	34.8	15.5	45.65	0.2374	338	2052	2390	410
120/270	121.6	269.8	391.4	26X2.44	7X12.42	36	15.5	45.65	0.2374	338	2131	2469	410
120/280	121.6	279.8	401.4	26X2.44	7X12.84	37.2	15.5	45.65	0.2374	338	2210	2548	410
120/290	121.6	289.8	411.4	26X2.44	7X13.26	38.4	15.5	45.65	0.2374	338	2289	2627	410
120/300	121.6	299.8	421.4	26X2.44	7X13.68	39.6	15.5	45.65	0.2374	338	2368	2706	410
120/310	121.6	309.8	431.4	26X2.44	7X14.10	40.8	15.5	45.65	0.2374	338	2447	2785	410
120/320	121.6	319.8	441.4	26X2.44	7X14.52	42	15.5	45.65	0.2374	338	2526	2864	410
120/330	121.6	329.8	451.4	26X2.44	7X14.94	43.2	15.5	45.65	0.2374	338	2605	2943	410
120/340	121.6	339.8	461.4	26X2.44	7X15.36	44.4	15.5	45.65	0.2374	338	2684	3022	410
120/350	121.6	349.8	471.4	26X2.44	7X15.78	45.6	15.5	45.65	0.2374	338	2763	3101	410
120/360	121.6	359.8	481.4	26X2.44	7X16.20	46.8	15.5	45.65	0.2374	338	2842	3180	410
120/370	121.6	369.8	491.4	26X2.44	7X16.62	48	15.5	45.65	0.2374	338	2921	3259	410
120/380	121.6	379.8	501.4	26X2.44	7X17.04	49.2	15.5	45.65	0.2374	338	3000	3338	410
120/390	121.6	389.8	511.4	26X2.44	7X17.46	50.4	15.5	45.65	0.2374	338	3079	3417	410
120/400	121.6	399.8	521.4	26X2.44	7X17.88	51.6	15.5	45.65	0.2374	338	3158	3496	410
120/410	121.6	409.8	531.4	26X2.44	7X18.30	52.8	15.5	45.65	0.2374	338	3237	3575	410
120/420	121.6	419.8	541.4	26X2.44	7X18.72	54	15.5	45.65	0.2374	338	3316	3654	410
120/430	121.6	429.8	551.4	26X2.44	7X19.14	55.2	15.5	45.65	0.2374	338	3395	3733	410
120/440	121.6	439.8	561.4	26X2.44	7X19.56	56.4	15.5	45.65	0.2374	338	3474	3812	410
120/450	121.6	449.8	571.4	26X2.44	7X19.98	57.6	15.5	45.65	0.2374	338	3553	3891	410
120/460	121.6	459.8	581.4	26X2.44	7X20.40	58.8	15.5	45.65	0.2374	338	3632	3970	410
120/470	121.6	469.8	591.4	26X2.44	7X20.82	60	15.5	45.65	0.2374	338	3711	4049	410
120/480	121.6	479.8	601.4	26X2.44	7X21.24	61.2	15.5	45.65	0.2374	338	3790	4128	410
120/490	121.6	489.8	611.4	26X2.44	7X21.66	62.4	15.5	45.65	0.2374	338	3869	4207	410
120/500	121.6	499.8	621.4	26X2.44	7X22.08	63.6	15.5	45.65	0.2374	338	3948	4286	410
120/510	121.6	509.8	631.4	26X2.44	7X22.50	64.8	15.5	45.65	0.2374	338	4027	4365	410
120/520	121.6	519.8	641.4	26X2.44	7X22.92	66	15.5	45.65	0.2374	338	4106	4444	410
120/530	121.6	529.8	651.4	26X2.44	7X23.34	67.2	15.5	45.65	0.2374	338	4185	4523	410
120/540	121.6	539.8	661.4	26X2.44	7X23.76	68.4	15.5	45.65	0.2374	338	4264	4602	410
120/550	121.6	549.8	671.4	26X2.44	7X24.18	69.6	15.5	45.65	0.2374	338	4343	4681	410
120/560	121.6	559.8	681.4	26X2.44	7X24.60	70.8	15.5	45.65	0.2374	338	4422	4760	410
120/570	121.6	569.8	691.4	26X2.44	7X25.02	72	15.5	45.65	0.2374	338	4501	4839	410
120/580	121.6	579.8	701.4	26X2.44	7X25.44	73.2	15.5	45.65	0.2374	338	4580	4918	410
120/590	121.6	589.8	711.4	26X2.44	7X25.86	74.4	15.5	45.65	0.2374	338	4659	4997	410
120/600	121.6	599.8	721.4	26X2.44	7X26.28	75.6	15.5	45.65	0.2374	338	4738	5076	410
120/610	121.6	609.8	731.4	26X2.44	7X26.70	76.8	15.5	45.65	0.2374	338	4817	5155	410
120/620	121.6	619.8	741.4	26X2.44	7X27.12	78	15.5	45.65	0.2374	338	4896	5234	410
120/630	121.6	629.8	751.4	26X2.44	7X27.54	79.2	15.5	45.65	0.2374	338	4975	5313	410
120/640	121.6	639.8	761.4	26X2.44	7X27.96	80.4	15.5	45.65	0.2374	338	5054	5392	410
120/650	121.6	649.8	771.4	26X2.44	7X28.38	81.6	15.5	45.65	0.2374	338	5133	5471	410
120/660	121.6	659.8	781.4	26X2.44	7X28.80	82.8	15.5	45.65	0.				

Basic Technical Data of Stranded Conductors

Modul of Elasticity and Coefficients of Linear Expansion for Constructions of Aluminium Conductors

Steel-Reinforced to IEC Publ. No. 209

NO. OF WIRES		FINAL MODULUS OF ELASTICITY		COEFFICIENT OF LINEAR EXPANSION	
Al.	St	kg/mm ²	lb/in ²	1/C°	1/F°
6	1	81	11.5 x 10 ⁶	19.1 x 10 ⁻⁶	10.6 x 10 ⁻⁶
6	7	77	11.0 x 10 ⁶	19.8 x 10 ⁻⁶	11.0 x 10 ⁻⁶
12	7	107	15.2 x 10 ⁶	15.3 x 10 ⁻⁶	8.5 x 10 ⁻⁶
18	1	67	9.5 x 10 ⁶	21.2 x 10 ⁻⁶	11.8 x 10 ⁻⁶
24	7	74	10.5 x 10 ⁶	19.6 x 10 ⁻⁶	10.9 x 10 ⁻⁶
26	7	77	10.9 x 10 ⁶	18.9 x 10 ⁻⁶	10.5 x 10 ⁻⁶
28	7	79	11.2 x 10 ⁶	18.4 x 10 ⁻⁶	10.2 x 10 ⁻⁶
30	7	82	11.6 x 10 ⁶	17.8 x 10 ⁻⁶	9.9 x 10 ⁻⁶
30	19	80	11.4 x 10 ⁶	18.0 x 10 ⁻⁶	10.0 x 10 ⁻⁶
32	19	82	11.7 x 10 ⁶	17.5 x 10 ⁻⁶	9.7 x 10 ⁻⁶
54	7	70	9.9 x 10 ⁶	19.3 x 10 ⁻⁶	10.7 x 10 ⁻⁶
54	19	68	9.7 x 10 ⁶	19.4 x 10 ⁻⁶	10.8 x 10 ⁻⁶

Density at 20°C

Aluminium: 2.703 kg/dm

Galvanised Steel: 7.80 kg/dm

Temperature Coefficient of 20°C

Aluminium: 0.00403 (°C)

Resistivity at 20°C

Aluminium: Should not exceed 0.028264

Linear Expansivity

Aluminium: 23 x 10 (°C)

Galvanised Steel: 11.5 x 10 (1/°C)

SPECIFICATIONS

NO. OF WIRES		FINAL MODULUS OF ELASTICITY	COEFFICIENT OF LINEAR EXPANSION
Al.	St	N/mm ²	1°C
6	1	81	19.1 x 10 ⁻⁶
6	7	77	19.8 x 10 ⁻⁶
12	7	107	15.3 x 10 ⁻⁶
18	1	67	21.2 x 10 ⁻⁶
24	7	74	19.6 x 10 ⁻⁶
26	7	77	18.9 x 10 ⁻⁶
28	7	79	18.4 x 10 ⁻⁶
30	7	82	17.8 x 10 ⁻⁶
30	19	80	18.0 x 10 ⁻⁶
32	19	82	17.5 x 10 ⁻⁶
54	7	70	19.3 x 10 ⁻⁶
54	19	68	19.4 x 10 ⁻⁶

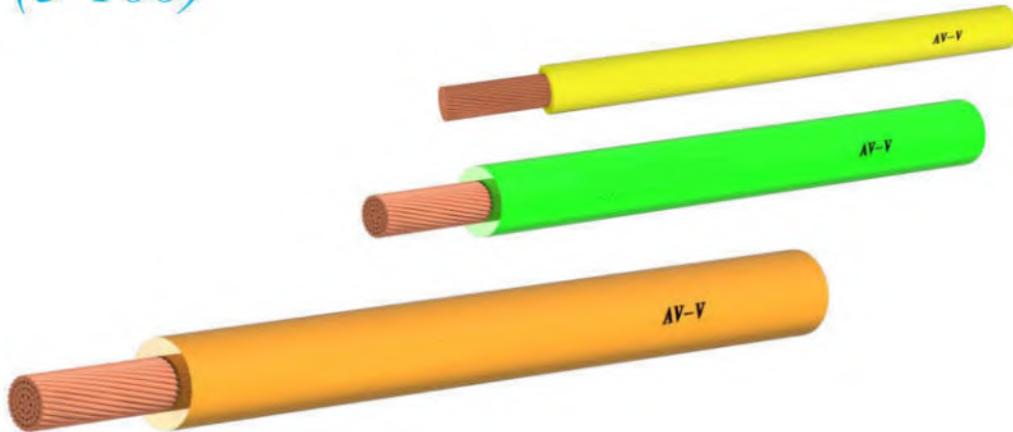


Automotive Cables



AV-V (5-100)

CU/PVC



PVC Insulated, Non Sheathed cable for Automotive (Battery Cable)

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Soft-PVC with properties according to ISO 6722-1, Type T1

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

A : low-tension cable for automobiles

V : Vinyl Insulated

V : Vibration Type

Properties :

- Oil and fuel resistant as per DIN ISO 6722 part 2

APPLICATION

- Cable used in low voltage circuits in automobiles (Battery Cable)

Technical data

Temperature range:

Max Working Temperature : +80 °C
Min Working Temperature : - 40 °C
Hot-pressure resistance test at: +120 °C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

KS C 3311
ISO 6722
JASOD 611

AV-V (5-100)

CU/PVC

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter		Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
					Standard (mm)	Max (mm)				
5	63/0.32	5.066	3.1	0.8	4.7	5.0	3.58	51	6.5	1,500
8	105/0.32	8.444	4.1	1.0	6.1	6.4	2.14	66	6.0	1,500
10	114/0.32	9.168	4.2	1.0	6.2	6.5	1.96	82	8.5	1,000
15	171/0.32	13.75	5.3	1.0	7.3	7.8	1.32	92	8.0	1,000
20	247/0.32	19.86	6.3	1.0	8.3	8.8	0.915	121	11.0	800
30	361/0.32	29.03	7.8	1.0	9.8	10.3	0.625	168	12.0	800
50	608/0.32	48.89	10.1	1.0	12.1	12.8	0.371	220	16.5	600
60	741/0.32	59.59	11.1	1.4	13.9	14.6	0.304	243	16.0	600
85	1064/0.32	85.57	13.1	1.4	15.9	16.6	0.212	300	24.5	500
100	369/0.32	110.10	15.1	1.4	17.9	18.8	0.165	356	23.5	500

Insulation materials for the production of automotive cables

Service temperatures			Resistance to							
Temperature index	Thermal overload capacity	Cold winding test	Specific volume resistance	Abrasion	Flame retardance	Oil	Fuels	Brake fluid	Acids/alkalis	Organic agents
ISO 6722-1 oder ISO 14572			IEC 93 DIN 53482	ISO 6722-1 oder ISO 14572						
°C/3,000 h	°C/48 h	°C	Ω · cm							
100/105	125	-40	>10 ¹²	+	+	+	+	-	+	-
105	110	-50	>10 ¹²	+	+	+	+	-	+	-
125	140	-40	>10 ¹²	+	+	+	+	-	+	-
90	100	-40	>10 ¹⁰	+	--	-	+	--	+	-
105	140	-40	>10 ¹²	++	-	++	++	+	+	+
125	150	-40	>10 ¹⁰	+	--	+	+	-	+	+
125	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
110/125	150	-40	>10 ⁹	++	+	++	++	+	+	+
90	150	-40	>10 ⁹	++	-	++	++	+	-	+
150	180	-40	>10 ⁹	++	+	++	++	+	+	+
125	150	-40	>10 ¹⁰	-	+	+	+	-	+	-
90	120	-40	>10 ¹⁰	++	-	++	++	+	-	+
125	150	-40	>10 ¹⁴	-	+/-*	-	-	-	+	-
°C/3,000 h	°C/48 h	°C	Ω · cm							
200	225	-80	>10 ¹⁰	-	+	+	+	++	+	+
140	180	-40	>10 ¹⁰	-	-	-	-	-	-	-
105	140	-40	>10 ¹²	++	+	+	+	-	+	+
125-150	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
260	305	-90	>10 ¹⁸	++	++	++	++	++	++	++
210	260	-65	>10 ¹⁵	++	++	++	++	++	++	++
180	230	-65	>10 ¹⁵	++	++	++	++	++	++	++
150	160	-30	>10 ¹⁴	++	++	++	++	++	+	+
260	290	-90	>10 ¹⁵	++	++	++	++	++	++	++

++ excellent

+ good

- fair

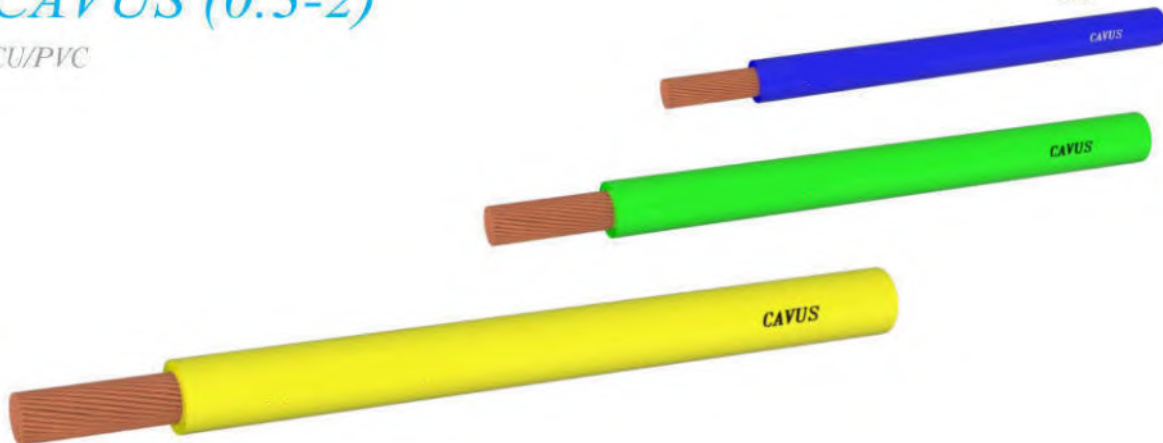
-- poor

* depending on the recipe, on demand



CAVUS (0.3-2)

CU/PVC



Compressed Ultra Thin-wall PVC insulated for automotive

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Soft-PVC with properties according to ISO 6722-1, Type T1

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

C: compressed conductor
A : low-tension cable for automobiles
V : Vinyl Insulated
US : Ultra Thin-wall Type

Properties :

- Oil and fuel resistant as per DIN ISO 6722 part 2
- Excellent flexibility
- Available in color and stripes

Technical data

Temperature range:

Max Working Temperature :	+80 °C
Min Working Temperature :	- 40 °C
Hot-pressure resistance test at:	+120°C
Ambient temperature :	+40°C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

KS C 3311
ISO 6722

APPLICATION

Low-tension electric wire for Automobiles. Used in Motorcycles and other motor vehicles for starting, charging, lighting, signal and instrument panel circuits. Flame retardant. Highly resistant against acids, Petrol and diesel. Flexible conductors with thin wall insulation.

CAVUS (0.3-2)

CU/PVC

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter		Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
					Standard (mm)	Max (mm)				
0.3	7/SB	0.3716	0.7	0.2	1.1	1.2	50.2	8	4	2,500
0.5	7/SB	0.5629	0.9	0.2	1.3	1.4	32.7	10	6	1,500
0.85	11/SB	0.8846	1.1	0.2	1.5	1.6	20.8	14	9	1,100
1.25	16/SB	1.287	1.4	0.2	1.8	1.8	14.3	18	13	800

SB: Smooth Body

Insulation materials for the production of automotive cables

Service temperatures			Resistance to							
Temperature index	Thermal overload capacity	Cold winding test	Specific volume resistance	Abrasion	Flame retardance	Oil	Fuels	Brake fluid	Acids/alkalis	Organic agents
ISO 6722-1 oder ISO 14572			IEC 93 DIN 53482	ISO 6722-1 oder ISO 14572						
°C/3,000 h	°C/48 h	°C	Ω · cm							
100/105	125	-40	>10 ¹²	+	+	+	+	-	+	-
105	110	-50	>10 ¹²	+	+	+	+	-	+	-
125	140	-40	>10 ¹²	+	+	+	+	-	+	-
90	100	-40	>10 ¹⁰	+	--	-	+	--	+	-
105	140	-40	>10 ¹²	++	-	++	++	+	+	+
125	150	-40	>10 ¹⁶	+	--	+	+	-	+	+
125	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
110/125	150	-40	>10 ⁹	++	+	++	++	+	+	+
90	150	-40	>10 ⁹	++	-	++	++	+	-	+
150	180	-40	>10 ⁹	++	+	++	++	+	+	+
125	150	-40	>10 ¹⁰	-	+	+	+	-	+	-
90	120	-40	>10 ¹⁰	++	-	++	++	+	-	+
125	150	-40	>10 ¹⁴	-	+/- *	-	-	-	+	-
°C/3,000 h	°C/48 h	°C	Ω · cm							
200	225	-80	>10 ¹⁶	-	+	+	+	++	+	+
140	180	-40	>10 ¹⁰	-	-	-	-	-	-	-
105	140	-40	>10 ¹²	++	+	+	+	-	+	+
125-150	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
260	305	-90	>10 ¹⁶	++	++	++	++	++	++	++
210	260	-65	>10 ¹⁵	++	++	++	++	++	++	++
180	230	-65	>10 ¹⁵	++	++	++	++	++	++	++
150	160	-30	>10 ¹⁴	++	++	++	++	++	+	+
260	290	-90	>10 ¹³	++	++	++	++	++	++	++

++ excellent + good

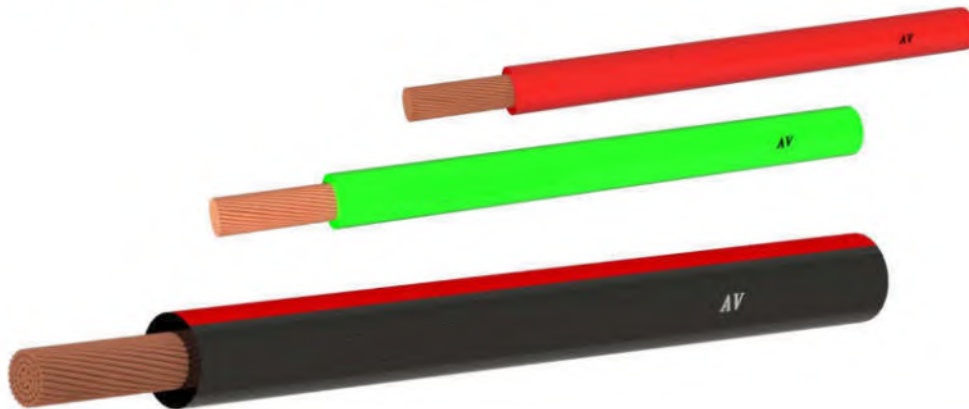
- fair

-- poor

* depending on the recipe, on demand

AV (0.5-100)mm²

CU/PVC



PVC Insulated, Non Sheathed cable for Automotive

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Soft-PVC with properties according to ISO 6722-1, Type T1

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

A : low-tension cable for automobiles

V : Vinyl Insulated

Properties :

Oil and fuel resistant as per DIN ISO 6722 part 2

Technical data

Temperature range:

Max Working Temperature : +80 °C
Min Working Temperature : - 40 °C
Hot-pressure resistance test at: +120 °C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

KS C 3311
ISO 6722

APPLICATION

Low-tension electric wire for Automobiles. Used in Motorcycles and other motor vehicles for starting, charging, lighting, signal and instrument panel circuits. Flame retardant. Highly resistant against acids, Petrol and diesel. Flexible conductors with thin wall insulation.

AV (0.5-100)mm²

CU/PVC

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter		Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
					Standard (mm)	Max (mm)				
0.5f	20/0.18	0.5087	1.0	0.6	2.2	2.4	36.7	12	8	800
0.5	7/0.32	0.5629	1.0	0.6	2.2	2.4	32.7	12	9	1000
0.75f	30/0.18	0.7630	1.2	0.6	2.4	2.6	24.4	15	12	800
0.85	11/0.32	0.8846	1.2	0.6	2.4	2.6	20.8	15	12	800
1.25f	50/0.18	1.273	1.5	0.6	2.7	2.9	14.7	21	17	600
1.25	16/0.32	1.287	1.5	0.6	2.7	2.9	14.3	20	17	600
2.0f	37/.26	1.964	1.8	0.6	3.0	3.3	9.5	27	25	500
2.0	26/.32	2.091	1.9	0.6	3.1	3.4	8.81	28	25	500
3.0f	61/0.26	3.239	2.4	0.7	3.3	4.1	5.76	37	39	300
3.0	41/0.32	3.297	2.4	0.7	3.3	4.1	5.59	38	39	300
5.0	65/0.32	5.228	3.0	0.8	4.6	4.9	3.52	51	60	200
8.0	50/0.45	7.952	3.7	0.9	5.5	5.8	2.32	66	90	100
15	84/0.45	13.36	5.4	1.1	7.6	8.0	1.38	92	150	50
20	41/0.60	20.61	6.1	1.1	8.3	8.8	0.887	121	220	50
30	70/0.80	35.19	8.0	1.4	10.8	11.5	0.520	168	390	50
40	85/0.80	42.73	8.6	1.4	11.4	12.1	0.428	188	460	50
50	108/0.80	54.29	9.8	1.6	13.0	13.8	0.337	220	590	50
60	127/0.80	63.84	10.4	1.6	13.6	14.4	0.287	243	680	50
85	169/0.80	84.96	12.0	2.0	16.0	17.0	0.215	300	910	50
100	217/0.80	109.1	13.6	2.0	17.6	18.6	0.168	356	1.100	50

Insulation materials for the production of automotive cables

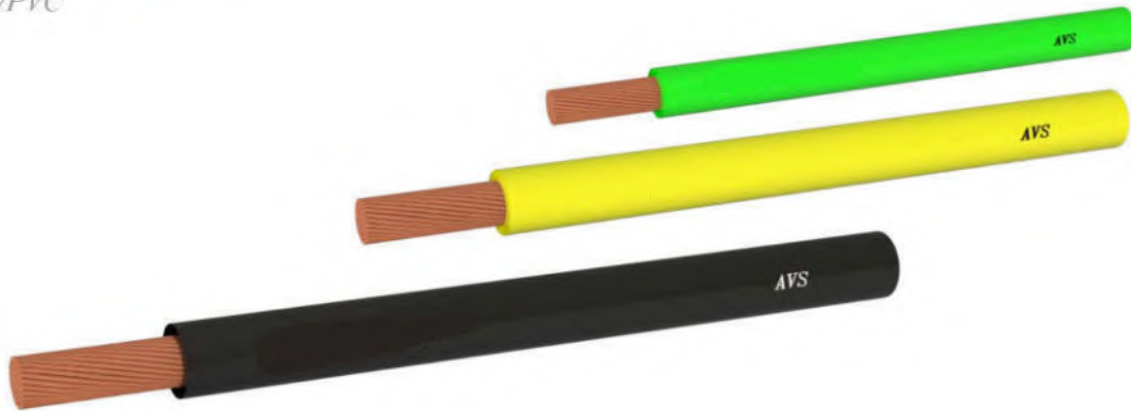
Service temperatures			Resistance to							
Temperature Index	Thermal overload capacity	Cold winding test	Specific volume resistance	Abrasion	Flame retardance	Oil	Fuels	Brake fluid	Acids/alkalis	Organic agents
ISO 6722-1 oder ISO 14572			IEC 93 DIN 53482	ISO 6722-1 oder ISO 14572						
°C/3,000 h	°C/48 h	°C	Ω · cm							
100/105	125	-40	>10 ¹²	+	+	+	+	-	+	-
105	110	-50	>10 ¹²	+	+	+	+	-	+	-
125	140	-40	>10 ¹²	+	+	+	+	-	+	-
90	100	-40	>10 ¹⁶	+	--	-	+	--	+	-
105	140	-40	>10 ¹²	++	-	++	++	+	+	+
125	150	-40	>10 ¹⁶	+	--	+	+	-	+	+
125	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
110/125	150	-40	>10 ¹⁶	++	+	++	++	+	+	+
90	150	-40	>10 ¹⁶	++	-	++	++	+	-	+
150	180	-40	>10 ¹⁶	++	+	++	++	+	+	+
125	150	-40	>10 ¹⁶	-	+	+	+	-	+	-
90	120	-40	>10 ¹⁶	++	-	++	++	+	-	+
125	150	-40	>10 ¹⁴	-	+/-*	-	-	-	+	-
°C/3,000 h	°C/48 h	°C	Ω · cm							
200	225	-80	>10 ¹⁶	-	+	+	+	++	+	+
140	180	-40	>10 ¹⁶	-	-	-	-	-	-	-
105	140	-40	>10 ¹²	++	+	+	+	-	+	+
125-150	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
260	305	-90	>10 ¹⁸	++	++	++	++	++	++	++
210	260	-65	>10 ¹⁵	++	++	++	++	++	++	++
180	230	-65	>10 ¹⁵	++	++	++	++	++	++	++
150	160	-30	>10 ¹⁴	++	++	++	++	++	+	+
260	290	-90	>10 ¹⁵	++	++	++	++	++	++	++

++ excellent + good - fair -- poor

* depending on the recipe, on demand

AVS (0.3-5)

CU/PVC



PVC Insulated, Non Sheathed cable for Automotive

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Soft-PVC with properties according to ISO 6722-1, Type T1

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

A : low-tension cable for automobiles
V : Vinyl Insulated
S : Tin-wall Type

Properties :

- Oil and fuel resistant as per DIN ISO 6722 part 2
- Constructed thinner than AV cables while providing equivalent performance
- Lighter weight and smaller diameter application

Technical data

Temperature range:

Max Working Temperature : +80 °C
Min Working Temperature : -40 °C
Hot-pressure resistance test at: +120 °C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

KS C 3311
ISO 6722

APPLICATION

Low-tension electric wire for Automobiles. Used in Motorcycles and other motor vehicles for starting, charging, lighting, signal and instrument panel circuits. Flame retardant. Highly resistant against acids, Petrol and diesel. Flexible conductors with thin wall insulation.

AVS (0.3-5)

CU/PVC

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter		Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
					Standard (mm)	Max (mm)				
0.3f	15/0.81	0.3817	0.8	0.5	1.8	1.9	48.9	9	6	1,500
0.3	7/0.26	0.3716	0.8	0.5	1.8	1.9	50.22	9	6	1,500
0.5f	20/0.18	0.5087	1.0	0.5	2.0	2.1	36.7	11	88	1,000
0.5	7/0.32	0.5629	1.0	0.5	2.0	2.1	32.7	12	9	1,000
0.75f	30/0.18	0.7630	1.2	0.5	2.2	2.3	24.4	14	11	800
0.85	11/0.32	0.8846	1.2	0.5	2.2	2.3	20.8	15	12	800
1.25f	50/0.18	1.273	1.5	0.5	2.5	2.6	14.7	20	15	600
1.25	16/0.32	1.287	1.5	0.5	2.5	2.6	14.3	20	16	600
2f	37//0.26	1.964	1.8	0.5	2.8	2.9	9.5	26	24	500
2	26/0.32	2.091	1.9	0.5	2.9	3.1	8.81	27	23	500
3	41/0.32	3.297	2.4	0.6	3.5	3.8	5.59	37	38	300
5	65/0.32	5.228	3.0	0.7	4.4	4.6	3.52	50	59	200

Insulation materials for the production of automotive cables

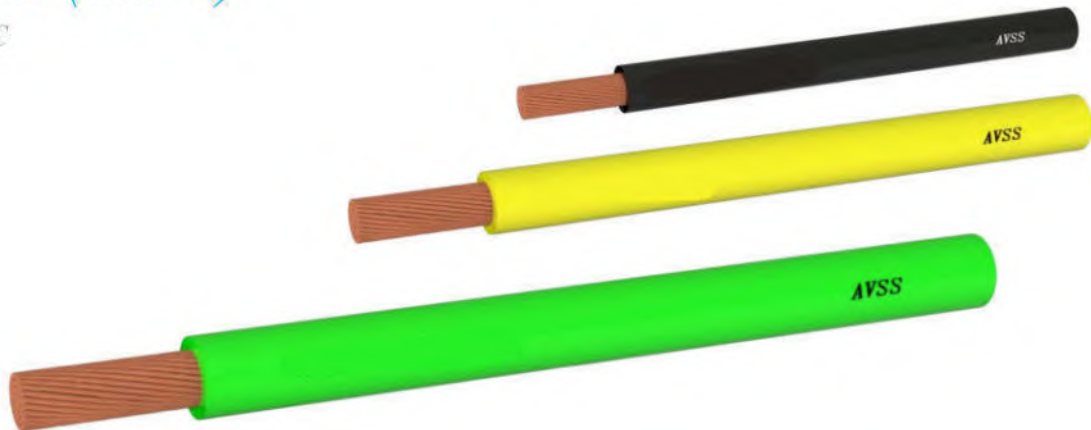
Service temperatures			Resistance to							
Temperature index	Thermal overload capacity	Cold winding test	Specific volume resistance	Abrasion	Flame retardance	Oil	Fuels	Brake fluid	Acids/alkalis	Organic agents
ISO 6722-1 oder ISO 14572			IEC 93 DIN 53482	ISO 6722-1 oder ISO 14572						
°C/3,000 h	°C/48 h	°C	Ω · cm							
100/105	125	-40	>10 ¹²	+	+	+	+	-	+	-
105	110	-50	>10 ¹²	+	+	+	+	-	+	-
125	140	-40	>10 ¹²	+	+	+	+	-	+	-
90	100	-40	>10 ¹⁰	+	--	-	+	--	+	-
105	140	-40	>10 ¹²	++	-	++	++	+	+	+
125	150	-40	>10 ¹⁰	+	--	+	+	-	+	+
125	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
110/125	150	-40	>10 ⁹	++	+	++	++	+	+	+
90	150	-40	>10 ⁹	++	-	++	++	+	-	+
150	180	-40	>10 ⁹	++	+	++	++	+	+	+
125	150	-40	>10 ¹⁰	-	+	+	+	-	+	-
90	120	-40	>10 ¹⁰	++	-	++	++	+	-	+
125	150	-40	>10 ¹⁴	-	+/- *	-	-	-	+	-
°C/3,000 h	°C/48 h	°C	Ω · cm							
200	225	-80	>10 ¹⁰	-	+	+	+	++	+	+
140	180	-40	>10 ¹⁰	-	-	-	-	-	-	-
105	140	-40	>10 ¹²	++	+	+	+	-	+	+
125-150	150	-40	>10 ¹⁴	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
260	305	-90	>10 ¹⁸	++	++	++	++	++	++	++
210	260	-65	>10 ¹³	++	++	++	++	++	++	++
180	230	-65	>10 ¹³	++	++	++	++	++	++	++
150	160	-30	>10 ¹⁴	++	++	++	++	++	+	+
260	290	-90	>10 ¹³	++	++	++	++	++	++	++

++ excellent + good - fair -- poor

* depending on the recipe, on demand

AVSS (0.3-2)

CU/PVC



PVC Insulated, Non Sheathed cable for Automotive

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Soft-PVC with properties according to ISO 6722-1, Type T1

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

A : low-tension cable for automobiles

V : Vinyl Insulated

SS : Very Thin-wall Type

Properties :

- Oil and fuel resistant as per DIN ISO 6722 part 2
- Thinner than type AVS cables while ensuring equivalent performance
- Lighter weight and small diameter type AVSS cables are best for wiring harness.

Technical data

Temperature range:

Max Working Temperature :	+80 °C
Min Working Temperature :	- 40 °C
Hot-pressure resistance test at:	+120 °C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

KS C 3311
ISO 6722

APPLICATION

Low-tension electric wire for Automobiles. Used in Motorcycles and other motor vehicles for starting, charging, lighting, signal and instrument panel circuits. Flame retardant. Highly resistant against acids, Petrol and diesel. Flexible conductors with thin wall insulation.

AVSS (0.3-2)

CU/PVC

Nominal size (mm ²)	Construction (No./mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter Standard (mm)	Overall diameter Max (mm)	Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
0.3f	19/0.16	0.3821	0.8	0.3	1.4	1.5	48.8	8	5	1,500
0.3	7/0.26	0.3717	0.8	0.3	1.4	1.5	50.2	8	5	1,500
0.5f	19/0.19	0.5387	1.0	0.3	1.6	1.7	36.7	10	7	1,000
0.5	7/0.32	0.5630	1.0	0.3	1.6	1.7	32.7	11	7	1,000
0.75f	19/0.23	0.7894	1.2	0.3	1.8	1.9	24.4	14	10	1,000
0.85	19/0.24	0.8595	1.2	0.3	1.8	1.9	21.7	14	10	1,000
1.25f	37/0.21	1.2815	1.5	0.3	2.1	2.2	14.7	19	14	800
1.25	19/0.29	1.2550	1.5	0.3	2.1	2.2	14.9	19	14	800
2f	37/0.26	1.9644	1.8	0.4	2.6	2.7	9.5	26	22	500

Insulation materials for the production of automotive cables

Service temperatures				Resistance to						
Temperature index	Thermal overload capacity	Cold winding test	Specific volume resistance	Abrasion	Flame retardance	Oil	Fuels	Brake fluid	Acids/alkalis	Organic agents
ISO 6722-1 oder ISO 14572			IEC 93 DIN 53482	ISO 6722-1 oder ISO 14572						
°C/3,000 h	°C/48 h	°C	Ω · cm							
100/105	125	-40	>10 ¹²	+	+	+	+	-	+	-
105	110	-50	>10 ¹²	+	+	+	+	-	+	-
125	140	-40	>10 ¹²	+	+	+	+	-	+	-
90	100	-40	>10 ¹⁰	+	-	-	+	-	+	-
105	140	-40	>10 ¹²	++	-	++	++	+	+	+
125	150	-40	>10 ¹⁰	+	-	+	+	-	+	+
125	150	-40	>10 ¹⁰	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
110/125	150	-40	>10 ⁹	++	+	++	++	+	+	+
90	150	-40	>10 ⁹	++	-	++	++	+	-	+
150	180	-40	>10 ⁹	++	+	++	++	+	+	+
125	150	-40	>10 ¹⁰	-	+	+	+	-	+	-
90	120	-40	>10 ¹⁰	++	-	++	++	+	-	+
125	150	-40	>10 ¹⁰	-	+/- *	-	-	-	+	-
°C/3,000 h	°C/48 h	°C	Ω · cm							
200	225	-80	>10 ¹⁰	-	+	+	+	++	+	+
140	180	-40	>10 ¹⁰	-	-	-	-	-	-	-
105	140	-40	>10 ¹²	++	+	+	+	-	+	+
125-150	150	-40	>10 ¹⁰	+	+	+	+	-	+	+
°C/3,000 h	°C/48 h	°C	Ω · cm							
260	305	-90	>10 ¹⁰	++	++	++	++	++	++	++
210	260	-65	>10 ¹³	++	++	++	++	++	++	++
180	230	-65	>10 ¹³	++	++	++	++	++	++	++
150	160	-30	>10 ¹⁴	++	++	++	++	++	+	+
260	290	-90	>10 ¹³	++	++	++	++	++	++	++

++ excellent + good

- fair

-- poor

* depending on the recipe, on demand

AEX-AVX (0.3-8)

CU/PVC



PVC Insulated, Non Sheathed cable for Automotive

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Soft-PVC with properties according to ISO 6722-1, Type T1

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

A : Low-tension cables for automobiles
V : Vinyl insulated
E : Polyethylene insulated
X : Cross-linked

Properties :

AVX : Cross-linked lead free polyvinyl chloride(105°C)
AEX : Low halogen or halogen free cross-linked polyethylene(125°C)

Technical data

Temperature range:

Max Working Temperature (AVX): +105 °C

Max Working Temperature (AEX): +125 °C

Min Working Temperature : - 40 °C

Hot-pressure resistance test at: +120 °C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

JASO D 608

APPLICATION

Wire harness of low-tension electric circuits for automobiles;
especially used for circuits requiring heat resistance and cold resistance

AVX-AEX (0.3-8)

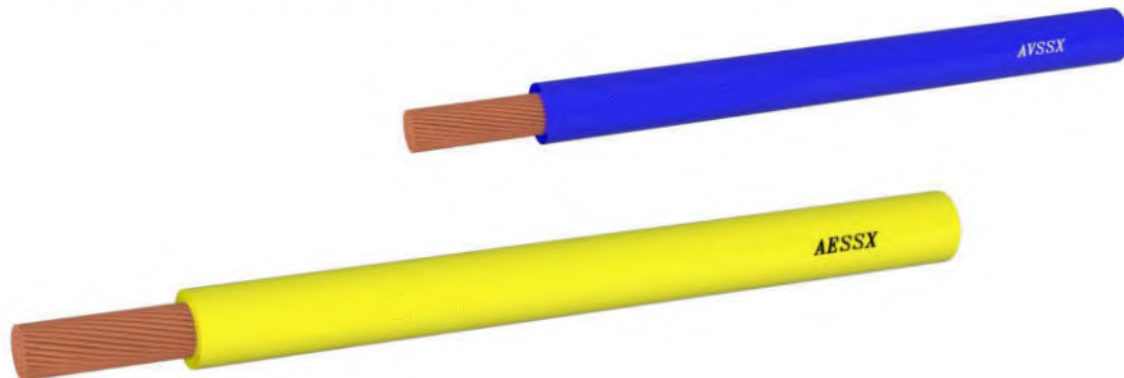
CU/X PVC-X PE

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Insulation		Conductor Current Standard		
					Nominal Diameter (mm)	Maximum Diameter (mm)	resistance limit** (Ω/Km)	limit** (A)	length (m)
0.3	7/0.26	0.3717	0.8	0.5	1.8	1.9	50.2	12/11	1000
0.3f*	12/0.18	0.3054	0.7	0.5	1.7	1.9	61.1	11/10	1000
0.5	7/0.3	0.5630	1.0	0.5	2.0	2.2	32.7	16/14	1000
0.5f*	30/0.18	0.5087	1.0	0.5	2.0	2.2	36.7	16/14	1000
0.75f*	30/0.18	0.7630	1.1	0.5	2.1	2.4	24.4	19/17	800
0.85	11/0.32	0.8846	1.2	0.5	2.2	2.4	20.8	20/18	800
0.85f*	34/0.18	0.8652	1.2	0.5	2.2	2.4	21.6	20/18	800
1.25	16/0.32	1.287	1.5	0.6	2.7	2.9	14.3	28/24	500
1.25f*	50/0.18	1.273	1.5	0.6	2.7	2.9	14.7	28/24	500
2	26/0.32	2.091	1.9	0.6	3.1	3.4	8.81	37/33	500
2f	79/0.18	2.01	1.9	0.6	3.1	3.4	9.28	37/33	500
3	41/0.32	3.297	2.4	0.7	3.8	4.1	5.59	51/44	300
3f	7/17/0.18	3.028	2.5	0.7	3.9	4.2	5.59	50/43	200
5	65/0.32	5.228	3.0	0.8	4.6	4.9	3.52	68/60	200
5f	7/30/0.18	5.343	3.1	0.8	4.7	5.0	3.52	68/60	200
8	50/0.45	7.952	3.7	0.8	5.3	5.6	2.32	88/78	200
8f	7/45/0.18	8.016	3.7	0.8	5.3	5.6	2.32	88/78	200

NOTE *f: more Flexible stranding

**Current limit : maximum allowable Current at conductor temperature 125°C or 105°C and ambient temperature 40 °C

AVSSX, AESSX (0.3-2)



Very Thin Heat Resistant Low-tension Cables

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 .

Insulation: Cross-linked Polyvinyl Chloride(AVSSX)
Cross-linked Polyethylene (AESSX)

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

A : low-tension cable for automobiles
V : Vinyl Insulated
SS : Very Tin Insulation wall
X : Cross-linked

Properties :

- Oil and fuel resistant as per DIN ISO 6722 part 2
- Thinner than type AVS cables while ensuring equivalent performance
- Lighter weight and small diameter type AVSS cables are best for wiring harness.

Technical data

Temperature range:
Max Working Temperature (AVSSX): +105 °C
Max Working Temperature (AESSX): +120 °C

Min Working Temperature : - 40 °C
Hot-pressure resistance test at: +120 °C

Nominal voltage: 25V AC - 60V DC

Test voltage: 3kv i.e < 0.5mm²
5kv i.e > 0.5mm²

Minimal inner bending radius: single core :8 x D

Withstand Voltage test : Spark :5000V for 15sec
Immersion :1000V for 1Min

DESIGN STANDARDS

KS C 3311
ISO 6722
JASO D611
ES SPEC

APPLICATION

- Wires used in low voltage circuits requiring heat resistance (105°C) such as automobiles (Vehicles and motor cycles). Suitable for the consideration of flexibility and thermal resistance

AVSSX (0.3-2)

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter		Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
					Standard (mm)	Max (mm)				
0.3	7/0.260	0.3716	0.8	0.3	1.4	1.5	50.2	8	5.0	1500
0.3f	19/0.160	0.3820	0.8	0.3	1.4	1.5	48.8	8	5.0	1500
0.5	7/0.320	0.5629	1.0	0.3	1.6	1.7	32.7	10	7.1	1000
0.5f	19/0.190	0.5387	1.0	0.3	1.6	1.7	34.6	10	6.9	1000
0.85	19/0.240	0.8595	1.2	0.3	1.8	1.9	21.7	15	9.8	1000
0.85f	37/0.172	0.8597	1.2	0.3	1.8	1.9	21.7	15	9.9	1000
1.25	19/0.290	1.2500	1.5	0.3	2.1	2.2	14.9	19	14.2	500
1.25f	37/0.210	1.2810	1.5	0.3	2.1	2.2	14.6	19	14.3	500
2	37/0.260	1.9644	1.8	0.4	2.6	2.7	9.50	27	22.2	500

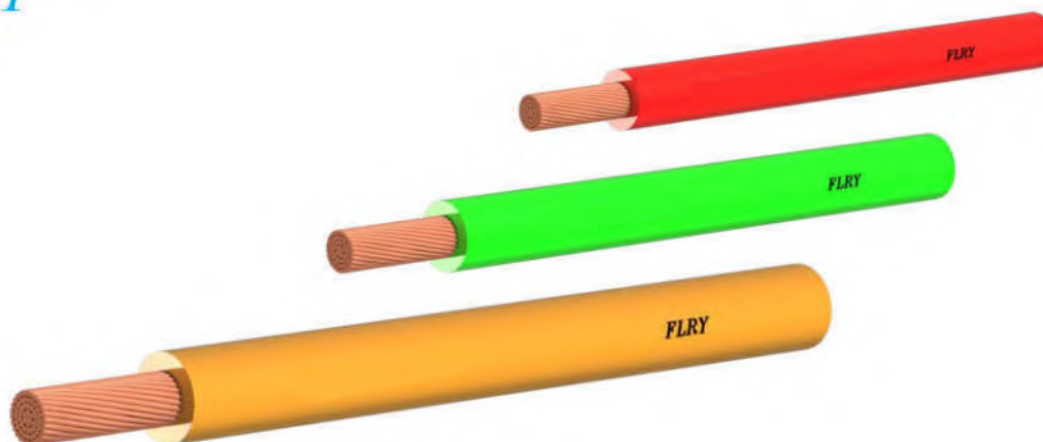
AESSX (0.3-2)

Nominal size (mm ²)	Construction (No/mm)	Calculated area (mm ²)	Outer diameter (mm)	Thickness (mm)	Overall diameter		Conductor resistance (Ω/Km)	Current limit (A)	Approx. weight (g/m)	Standard length (m)
					Standard (mm)	Max (mm)				
0.3f	19/0.160	0.3820	0.8	0.3	1.4	1.5	48.8	8	5.0	1500
0.5f	19/0.190	0.5387	1.0	0.3	1.6	1.7	34.6	10	6.9	1000
0.75f	19/0.230	0.7890	1.2	0.3	1.8	1.9	23.6	14	10	1000
1.25f	37/0.210	1.2810	1.5	0.3	2.1	2.2	14.6	15	19	500
2f	37/0.260	1.9644	1.8	0.4	2.6	2.7	9.50	15	26	500

The "f" in the nominal size column indicates a flexible conductor with a finer wire diameter.

FLRY

CU/PVC



Single core Low-Tension cable with thin wall Insulation

Construction

Conductor: Copper conductor fine wire stranded as per DIN ISO 6722 part 3 . Type A&B

Insulation: Soft-PVC with properties according to ISO 6722-1, Class B

Insulation colour: ● Black, ● Blue, ● Orange, ● Red, ○ White
Other colours available upon request

Abbreviations

FL: automotive wire

R: Reduced insulation wall

Y: PVC

Type A: : Conductor make-up symmetrical

Type B: : Conductor make-up unsymmetrical

Properties :

Oil and fuel resistant as per DIN ISO 6722 part 2

Special characteristics: Place and weight saving by using the Reduced insulation wall thickness.

Technical data

Temperature range:

Max Working Temperature : +105 °C

Min Working Temperature : - 40 °C

Hot-pressure resistance test at: +120 °C

Nominal voltage:

25V AC - 60V DC

Test voltage:

3kv i.e < 0.5mm²

5kv i.e > 0.5mm²

Minimal inner bending radius:

single core :8 x D

Withstand Voltage test :

Spark :5000V for 15sec

Immersion :1000V for 1Min

DESIGN STANDARDS

ISO 6722
GMW 15626

APPLICATION

Low-tension electric wire for Automobiles. Used in Motorcycles and other motor vehicles for starting, charging, lighting, signal and instrument panel circuits. Flame retardant. Highly resistant against acids, Petrol and diesel. Flexible conductors with thin wall insulation.

FLRY -Type A $\times (0.22-2.5)mm^2$

CU/PVC

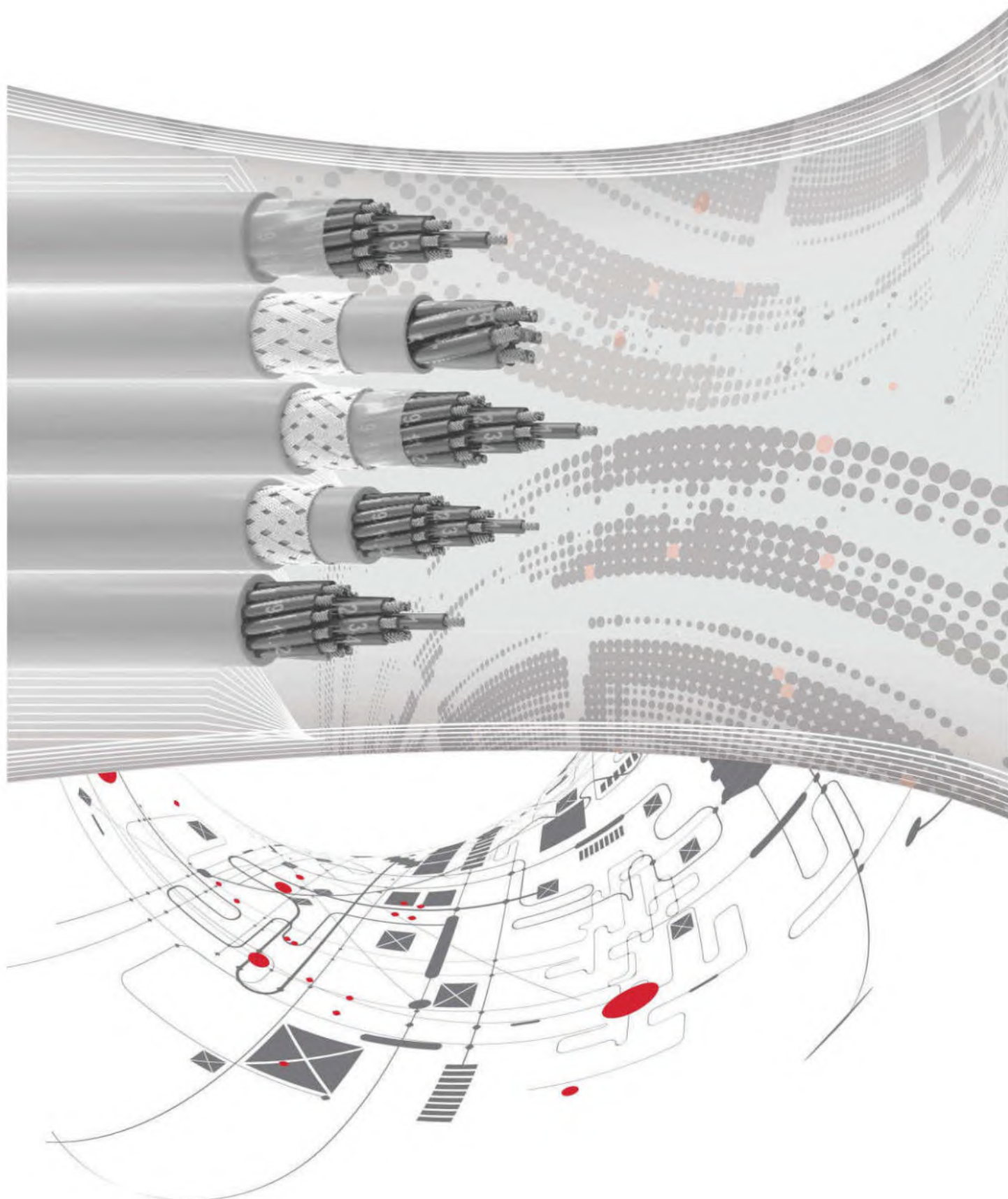
Nominal Size mm ²	No of Single Wires	Conductors	Resistance at 20 °C (Max.), Ω/km	Nominal Thickness (mm)	Insulation		Approx. weight (Kg/Km)	Standard Packing Length (m)
		Diameter of single Wire Max(mm)			Outside diameter Min (mm)	Max (mm)		
0.22	7	0.21	84.8	0.25	1.10	1.20	3.5	1500
0.35	7	0.27	54.4	0.25	1.20	1.30	5	1500
0.5	19	0.19	37.1	0.28	1.40	1.60	7	1000
0.75	19	0.24	24.7	0.30	1.70	1.90	10	1000
1.0	19	0.27	18.5	0.30	1.90	2.10	11	1000
1.5	19	0.33	12.7	0.30	2.20	2.40	16	700
2.5	37	0.28	7.6	0.35	2.70	3.00	27	400

FLRY -Type B $\times (0.35-25)mm^2$

CU/PVC

Nominal Size mm ²	No of Single Wires	Conductors	Resistance at 20 °C (Max.), Ω/km	Nominal Thickness (mm)	Insulation		Approx. weight (Kg/Km)	Standard Packing Length (m)
		Diameter of single Wire Max(mm)			Outside diameter Min (mm)	Max (mm)		
0.35	12	0.21	54.4	0.25	1.2	1.40	5	2000
0.5	16	0.21	37.1	0.28	1.4	1.60	7	2000
0.75	24	0.21	24.7	0.3	1.7	1.90	9	1500
1.0	32	0.21	18.5	0.3	1.9	2.10	12	1000
1.5	30	0.26	12.7	0.3	2.20	2.40	16	1000
2.0	28	0.31	9.42	0.35	2.50	2.80	22	1000
2.5	50	0.26	7.6	0.35	2.70	3.00	27	1000
4	56	0.31	4.71	0.4	3.40	3.70	43	1000
6	84	0.31	3.14	0.4	4.00	4.30	62	500
10	80	0.41	1.82	0.6	5.30	6.00	109	500
16	126	0.41	1.16	0.65	6.40	7.20	171	500
25	196	0.41	0.743	0.65	7.90	8.70	265	500

CONTROL CABLES



YSLCY x (0.5-0.75)mm²

CU/PVC/OSC/SWB/ PVC



Flexible Control Cable / Small Bending Radius / Flame Retardant Characteristic

Construction

Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Separator:	transparent plastic foil
Screen:	braid of tinned copper wires of 0,16 mm diameter, with min 85% overlap
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5
sheath colour:	grey (RAL 7001) or transparent

Abbreviations

G = with green-yellow conductor
 x = without green-yellow conductor (OZ)
 FI: reduced flame propagation



Application:

Optimized control and instrumentation cable for industry and machinery environment with increased requirements to electromagnetic compatibility for indoor applications. The inner sheath has been replaced by a separating foil, hence diameter, bending radius and weight are less. For installation in dry and damp rooms. The cable is resistant to most commonly used chemicals, oil and grease..

Technical data

Temperature range:	
During installation:	-5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
Short circuit temperature	+150 °C
ambient temperature at storage:	up to 40 °C
Working Voltage:	300/500 V
Test voltage :core/core	2000 V AC for 5 Min
Min. Bending Radius:	15x Ø x Cable ;
Min Insulation Resistance:	≥ 0.50 mm ² = 20 MΩ .km
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A

Cross Section mm ²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE
0.5	39	6 A	0.6	20 MΩ.km
0.75	26	13 A	0.6	
1.0	19.5	16 A	0.6	
1.5	13.3	20 A	0.6	
2.5	7.98	25 A	0.7	

Design Standards:

DIN VDE 0250
 Generally to BS EN 50525-2-51
 IEC 60227-7

YSLCY x (0.5-0.75)mm²

CU/PVC/OSC/SWB/ PVC

Cross section: 0.5 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4825	2 x 0,5	16 x 0.19	0.6	0.8	6.8	65	CUT
4835	3 x 0,5	16 x 0.19	0.6	0.8	7.0	75	CUT
4845	4 x 0,5	16 x 0.19	0.6	0.8	7.8	85	CUT
4855	5 x 0,5	16 x 0.19	0.6	1.0	8.7	110	CUT
4865	6 x 0,5	16 x 0.19	0.6	1.0	9.4	130	CUT
4875	7 x 0,5	16 x 0.19	0.6	1.0	9.4	140	CUT
4885	8 x 0,5	16 x 0.19	0.6	1.2	11.1	220	CUT
4895	9 x 0,5	16 x 0.19	0.6	1.2	11.1	180	CUT
48125	12 x 0,5	16 x 0.19	0.6	1.2	12.3	210	CUT
48155	15 x 0,5	16 x 0.19	0.6	1.2	13.8	260	CUT
48185	18 x 0,5	16 x 0.19	0.6	1.2	14.1	300	CUT
48195	19 x 0,5	16 x 0.19	0.6	1.2	14.5	340	CUT
48205	20 x 0,5	16 x 0.19	0.6	1.2	14.9	350	CUT
48215	21 x 0,5	16 x 0.19	0.6	1.2	14.9	360	CUT
48255	25 x 0,5	16 x 0.19	0.6	1.5	17.1	420	CUT
48325	32 x 0,5	16 x 0.19	0.6	1.8	19.1	540	CUT
48345	34 x 0,5	16 x 0.19	0.6	1.8	19.8	570	CUT
48375	37 x 0,5	16 x 0.19	0.6	1.8	19.8	590	CUT
48405	40 x 0,5	16 x 0.19	0.6	1.8	20.8	630	CUT
48425	42 x 0,5	16 x 0.19	0.6	1.8	21.3	670	CUT
48505	50 x 0,5	16 x 0.19	0.6	1.8	22.8	770	CUT
48615	61 x 0,5	16 x 0.19	0.6	2.1	24.8	900	CUT
48655	65 x 0,5	16 x 0.19	0.6	2.1	25.6	950	CUT

Cross section: 0.75 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4827	2 x 0.75	24 x 0.195	0.6	0.8	7.2	75	CUT
4837	3 x 0.75	24 x 0.195	0.6	0.8	7.5	85	CUT
4847	4 x 0.75	24 x 0.195	0.6	0.8	8.2	100	CUT
4857	5 x 0.75	24 x 0.195	0.6	1.0	8.3	130	CUT
4867	6 x 0.75	24 x 0.195	0.6	1.0	9.9	150	CUT
4877	7 x 0.75	24 x 0.195	0.6	1.0	9.9	160	CUT
4887	8 x 0.75	24 x 0.195	0.6	1.2	11.8	215	CUT
4897	9 x 0.75	24 x 0.195	0.6	1.2	11.8	210	CUT
48127	12 x 0.75	24 x 0.195	0.6	1.2	13.1	260	CUT
48157	15 x 0.75	24 x 0.195	0.6	1.2	14.8	340	CUT
48197	19 x 0.75	24 x 0.195	0.6	1.2	15.3	390	CUT
48207	20 x 0.75	24 x 0.195	0.6	1.5	16.8	440	CUT
48217	21 x 0.75	24 x 0.195	0.6	1.2	15.1	340	CUT
48257	25 x 0.75	24 x 0.195	0.6	1.8	18.9	530	CUT
48327	32 x 0.75	24 x 0.195	0.6	1.8	20.6	640	CUT
48347	34 x 0.75	24 x 0.195	0.6	1.8	21.3	690	CUT
48377	37 x 0.75	24 x 0.195	0.6	1.8	21.3	720	CUT
48407	40 x 0.75	24 x 0.195	0.6	1.8	21.9	760	CUT
48427	42 x 0.75	24 x 0.195	0.6	1.8	22.8	820	CUT
48507	50 x 0.75	24 x 0.195	0.6	2.1	25.4	970	CUT
48617	61 x 0.75	24 x 0.195	0.6	2.1	26.8	1110	CUT
48657	65 x 0.75	24 x 0.195	0.6	2.1	27.8	1200	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

YSLCY x (1.0-1.5)mm²

CU/PVC/OSC/SWB/ PVC



Flexible Control Cable / Small Bending Radius / Flame Retardant Characteristic

Construction

Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Separator:	transparent plastic foil
Screen:	braid of tinned copper wires of 0,16 mm diameter, with min 85% overlap
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5
sheath colour:	grey (RAL 7001) or transparent

Abbreviations

G = with green-yellow conductor
x = without green-yellow conductor (OZ)
Fl: reduced flame propagation



Application:

Optimized control and instrumentation cable for industry and machinery environment with increased requirements to electromagnetic compatibility for indoor applications. The inner sheath has been replaced by a separating foil, hence diameter, bending radius and weight are less. For installation in dry and damp rooms. The cable is resistant to most commonly used chemicals, oil and grease..

Technical data

Temperature range:	
During installation:	-5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
Short circuit temperature	+150 °C
ambient temperature at storage:	up to 40 °C
Working Voltage:	300/500 V
Test voltage :core/core	2000 V AC for 5 Min
Min. Bending Radius:	15x Φ x Cable ;
Min Insulation Resistance:	$\geq 0.50 \text{ mm}^2 = 20 \text{ M}\Omega \cdot \text{km}$
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A

Cross Section mm ²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE
0.5	39	6 A	0.6	20 M Ω .km
0.75	26	13 A	0.6	
1.0	19.5	16 A	0.6	
1.5	13.3	20 A	0.6	
2.5	7.98	25 A	0.7	

Design Standards:

DIN VDE 0250
Generally to BS EN 50525-2-51
IEC 60227-7

YSLCY x (1.0-1.5)mm²

CU/PVC/OSC/SWB/ PVC

Cross section: 1.0 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4821	2 x 1.0	31 x 0.195	0.6	0.8	7.5	85	CUT
4831	3 x 1.0	31 x 0.195	0.6	1.0	8.3	100	CUT
4841	4 x 1.0	31 x 0.195	0.6	1.0	9.0	125	CUT
4851	5 x 1.0	31 x 0.195	0.6	1.0	9.7	150	CUT
4861	6 x 1.0	31 x 0.195	0.6	1.2	10.9	190	CUT
4871	7 x 1.0	31 x 0.195	0.6	1.2	10.9	195	CUT
4881	8 x 1.0	31 x 0.195	0.6	1.2	12.4	250	CUT
4891	9 x 1.0	31 x 0.195	0.6	1.2	12.5	240	CUT
48121	12 x 1.0	31 x 0.195	0.6	1.2	13.8	300	CUT
48151	15 x 1.0	31 x 0.195	0.6	1.2	15.4	390	CUT
48181	18 x 1.0	31 x 0.195	0.6	1.5	16.7	460	CUT
48191	19 x 1.0	31 x 0.195	0.6	1.5	16.8	470	CUT
48201	20 x 1.0	31 x 0.195	0.6	1.5	17.6	510	CUT
48211	21 x 1.0	31 x 0.195	0.6	1.5	17.6	510	CUT
48251	25 x 1.0	31 x 0.195	0.6	1.8	19.9	620	CUT
48321	32 x 1.0	31 x 0.195	0.6	1.8	21.7	760	CUT
48341	34 x 1.0	31 x 0.195	0.6	1.8	22.5	820	CUT
48371	37 x 1.0	31 x 0.195	0.6	1.8	22.5	840	CUT
48401	40 x 1.0	31 x 0.195	0.6	1.8	23.1	900	CUT
48421	42 x 1.0	31 x 0.195	0.6	2.1	24.6	990	CUT
48501	50 x 1.0	31 x 0.195	0.6	2.1	26.5	1140	CUT
48611	61 x 1.0	31 x 0.195	0.6	2.1	28.3	1360	CUT
48651	65 x 1.0	31 x 0.195	0.6	2.1	29.1	1420	CUT

Cross section 1.5 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
48215	2 x 1.5	31 x 0.23	0.6	1.0	8.5	110	CUT
48315	3 x 1.5	31 x 0.23	0.6	1.0	8.9	125	CUT
48415	4 x 1.5	31 x 0.23	0.6	1.0	9.5	150	CUT
48515	5 x 1.5	31 x 0.23	0.6	1.2	10.8	190	CUT
48615	6 x 1.5	31 x 0.23	0.6	1.2	11.7	225	CUT
48715	7 x 1.5	31 x 0.23	0.6	1.2	11.7	240	CUT
48815	8 x 1.5	31 x 0.23	0.6	1.2	13.3	300	CUT
48915	9 x 1.5	31 x 0.23	0.6	1.2	13.4	300	CUT
481215	12 x 1.5	31 x 0.23	0.6	1.2	14.9	370	CUT
481515	15 x 1.5	31 x 0.23	0.6	1.5	17.3	500	CUT
481915	19 x 1.5	31 x 0.23	0.6	1.8	19.7	655	CUT
482015	20 x 1.5	31 x 0.23	0.6	1.8	19.7	660	CUT
482115	21 x 1.5	31 x 0.23	0.6	1.8	19.7	665	CUT
482515	25 x 1.5	31 x 0.23	0.6	1.8	21.5	770	CUT
483215	32 x 1.5	31 x 0.23	0.6	1.8	23.7	975	CUT
483415	34 x 1.5	31 x 0.23	0.6	2.1	24.9	1080	CUT
483715	37 x 1.5	31 x 0.23	0.6	2.1	24.9	1090	CUT
484015	40 x 1.5	31 x 0.23	0.6	2.1	25.9	1185	CUT
484215	42 x 1.5	31 x 0.23	0.6	2.1	26.8	1270	CUT
485015	50 x 1.5	31 x 0.23	0.6	2.1	28.9	1460	CUT
486115	61 x 1.5	31 x 0.23	0.6	2.4	31.3	1740	CUT
486515	65 x 1.5	31 x 0.23	0.6	2.4	32.1	1840	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

YSLCY x (2.5)mm²

CU/PVC/OSC/SWB/ PVC



Flexible Control Cable / Small Bending Radius / Flame Retardant Characteristic

Construction

Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Separator:	transparent plastic foil
Screen:	braid of tinned copper wires of 0,16 mm diameter, with min 85% overlap
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5
sheath colour:	grey (RAL 7001) or transparent

Abbreviations

G = with green-yellow conductor
 x = without green-yellow conductor (OZ)
 FI: reduced flame propagation



Application:

Optimized control and instrumentation cable for industry and machinery environment with increased requirements to electromagnetic compatibility for indoor applications. The inner sheath has been replaced by a separating foil, hence diameter, bending radius and weight are less. For installation in dry and damp rooms. The cable is resistant to most commonly used chemicals, oil and grease..

Technical data

Temperature range:	
During installation:	-5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
Short circuit temperature	+150 °C
ambient temperature at storage:	up to 40 °C
Working Voltage:	300/500 V
Test voltage :core/core	2000 V AC for 5 Min
Min. Bending Radius:	15x Φ x Cable ;
Min Insulation Resistance:	$\geq 0.50 \text{ mm}^2 = 20 \text{ M}\Omega \cdot \text{km}$
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A

Cross Section mm ²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE
0.5	39	6 A	0.6	20 M Ω .km
0.75	26	13 A	0.6	
1.0	19.5	16 A	0.6	
1.5	13.3	20 A	0.6	
2.5	7.98	25 A	0.7	

Design Standards:

DIN VDE 0250
 Generally to BS EN 50525-2-51
 IEC 60227-7

YSLCY x (2.5)mm²

CU/PVC/OSC/SWB/ PVC

Cross section: 2.5 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
48225	2 x 2.5	51 x 0.23	0.7	1.0	9.8	150	CUT
48325	3 x 2.5	51 x 0.23	0.7	1.2	10.7	180	CUT
48425	4 x 2.5	51 x 0.23	0.7	1.2	11.6	220	CUT
48525	5 x 2.5	51 x 0.23	0.7	1.2	12.6	270	CUT
48625	6 x 2.5	51 x 0.23	0.7	1.2	13.6	325	CUT
48725	7 x 2.5	51 x 0.23	0.7	1.2	13.6	350	CUT
48825	8 x 2.5	51 x 0.23	0.7	1.5	16.2	450	CUT
48925	9 x 2.5	51 x 0.23	0.7	1.5	16.4	455	CUT
481225	12 x 2.5	51 x 0.23	0.7	1.8	19.0	620	CUT
481525	15 x 2.5	51 x 0.23	0.7	1.8	20.9	770	CUT
481825	18 x 2.5	51 x 0.23	0.7	1.8	21.9	870	CUT
481925	19 x 2.5	51 x 0.23	0.7	1.8	21.9	890	CUT
482025	20 x 2.5	51 x 0.23	0.7	1.8	23.1	970	CUT
482125	21 x 2.5	51 x 0.23	0.7	1.8	23.1	975	CUT
482525	25 x 2.5	51 x 0.23	0.7	2.1	26.1	1165	CUT
483225	32 x 2.5	51 x 0.23	0.7	2.1	28.9	1495	CUT
483425	34 x 2.5	51 x 0.23	0.7	2.4	30.2	1550	CUT
483725	37 x 2.5	51 x 0.23	0.7	2.4	30.5	1690	CUT
484025	40 x 2.5	51 x 0.23	0.7	2.4	31.5	1810	CUT
484225	42 x 2.5	51 x 0.23	0.7	2.4	32.5	1925	CUT
485025	50 x 2.5	51 x 0.23	0.7	2.7	35.9	2270	CUT
486125	61 x 2.5	51 x 0.23	0.7	2.7	37.8	2650	CUT
486525	65 x 2.5	51 x 0.23	0.7	2.7	38.9	2805	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

YSLY x (0.5-0.75)mm²

CU/PVC/PVC



Flexible Control Cable /Small Bending Radius / Flame Retardant Characteristic

Construction		Technical data																										
Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295	Temperature range:																										
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core	During installation:	-5 °C up to +50 °C																									
		fixed installed:	-30 °C up to +70 °C																									
core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers	Short circuit temperature	+150 °C																									
		ambient temperature at storage:	up to 40 °C																									
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5	Working Voltage:	300/500 V																									
sheath colour:	grey (RAL 7001)-Black (Ral 9005)	Test voltage :core/core	2000 V AC for 5 Min																									
		Min. Bending Radius:	10x Ø x Cable ;																									
		Min Insulation Resistance:	≥ 0.50 mm² = 20 MΩ .km																									
		Behavior in fire:	IEC 60332-1																									
		Flame propagation:	IEC 60332-3 cat.A																									
Abbreviations																												
G = with green-yellow conductor																												
x = without green-yellow conductor (OZ)																												
FI: reduced flame propagation																												
																												
		<table><tr><th>Cross Section mm²</th><th>Conductor resistance at 20 °C</th><th>Current Carrying Capacity</th><th>Insulation thickness</th><th>INSULATION RESISTANCE</th></tr><tr><td>0.5</td><td>39</td><td>6 A</td><td>0.6</td><td rowspan="5">20 MΩ.km</td></tr><tr><td>0.75</td><td>26</td><td>13 A</td><td>0.6</td></tr><tr><td>1.0</td><td>19.5</td><td>16 A</td><td>0.6</td></tr><tr><td>1.5</td><td>13.3</td><td>20 A</td><td>0.6</td></tr><tr><td>2.5</td><td>7.98</td><td>25 A</td><td>0.7</td></tr></table>	Cross Section mm²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE	0.5	39	6 A	0.6	20 MΩ.km	0.75	26	13 A	0.6	1.0	19.5	16 A	0.6	1.5	13.3	20 A	0.6	2.5	7.98	25 A	0.7
Cross Section mm²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE																								
0.5	39	6 A	0.6	20 MΩ.km																								
0.75	26	13 A	0.6																									
1.0	19.5	16 A	0.6																									
1.5	13.3	20 A	0.6																									
2.5	7.98	25 A	0.7																									
		Design Standards: DIN VDE 0285-525-2-51																										



Application:

These types of cables are used in office equipment, electronic control systems, air condition systems, power stations, engineering projects for control, vision and measurement purposes. These can be used in wet or dry indoor applications but for outdoor use, UV protected PVC must be used where the cable is exposed to sunlight.

Control Cables



YSLY x (0.5-0.75)mm²

CU/PVC/PVC

Cross section: 0.5 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4725	2 x 0,5	16 x 0.19	0.6	0.8	5.8	50	CUT
4735	3 x 0,5	16 x 0.19	0.6	0.8	6.1	60	CUT
4745	4 x 0,5	16 x 0.19	0.6	0.8	6.7	70	CUT
4755	5 x 0,5	16 x 0.19	0.6	0.8	7.1	80	CUT
4775	7 x 0,5	16 x 0.19	0.6	1.0	8.1	115	CUT
4785	8 x 0,5	16 x 0.19	0.6	1.0	9.7	130	CUT
4795	9 x 0,5	16 x 0.19	0.6	1.0	9.9	140	CUT
47105	10 x 0,5	16 x 0.19	0.6	1.2	11.0	160	CUT
47125	12 x 0,5	16 x 0.19	0.6	1.2	11.5	170	CUT
47145	14 x 0,5	16 x 0.19	0.6	1.2	11.9	195	CUT
47155	15 x 0,5	16 x 0.19	0.6	1.2	12.8	220	CUT
47185	18 x 0,5	16 x 0.19	0.6	1.2	13.4	250	CUT
47215	21 x 0,5	16 x 0.19	0.6	1.2	13.9	280	CUT
27255	25 x 0,5	16 x 0.19	0.6	1.5	16.1	350	CUT
47325	32 x 0,5	16 x 0.19	0.6	1.5	17.1	390	CUT
47345	34 x 0,5	16 x 0.19	0.6	1.2	17.6	430	CUT
47405	40 x 0,5	16 x 0.19	0.6	1.8	19.3	400	CUT
47425	42 x 0,5	16 x 0.19	0.6	1.8	15,6	405	CUT
47505	50 x 0,5	16 x 0.19	0.6	1.8	17,2	490	CUT
47615	61 x 0,5	16 x 0.19	0.6	1.8	18.5	538	CUT
47655	65 x 0,5	16 x 0.19	0.6	2.1	23.5	820	CUT

Cross section: 0.75 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
47275	2 x 0.75	24 x 0.195	0.6	0.8	6.4	58	CUT
47375	3 x 0.75	24 x 0.195	0.6	0.8	6.8	70	CUT
47475	4 x 0.75	24 x 0.195	0.6	0.8	7.4	85	CUT
47575	5 x 0.75	24 x 0.195	0.6	1.0	8.5	110	CUT
47775	7 x 0.75	24 x 0.195	0.6	1.0	9.2	135	CUT
47875	8 x 0.75	24 x 0.195	0.6	1.0	10.4	195	CUT
47975	9 x 0.75	24 x 0.195	0.6	1.0	11.0	205	CUT
471075	10 x 0.75	24 x 0.195	0.6	1.2	11.9	220	CUT
471275	12 x 0.75	24 x 0.195	0.6	1.2	12.3	250	CUT
471475	14 x 0.75	24 x 0.195	0.6	1.2	13.1	265	CUT
471575	15 x 0.75	24 x 0.195	0.6	1.2	13.7	280	CUT
471875	18 x 0.75	24 x 0.195	0.6	1.2	14.4	305	CUT
472175	21 x 0.75	24 x 0.195	0.6	1.2	15.2	350	CUT
472575	25 x 0.75	24 x 0.195	0.6	1.5	17.4	420	CUT
473275	32 x 0.75	24 x 0.195	0.6	1.8	19.7	560	CUT
473475	34 x 0.75	24 x 0.195	0.6	1.8	20.4	600	CUT
474075	40 x 0.75	24 x 0.195	0.6	1.8	21.2	660	CUT
474275	42 x 0.75	24 x 0.195	0.6	1.8	21.8	710	CUT
475075	50 x 0.75	24 x 0.195	0.6	1.8	23.7	820	CUT
476175	61 x 0.75	24 x 0.195	0.6	2.1	25.8	990	CUT
476575	65 x 0.75	24 x 0.195	0.6	2.1	26.4	1050	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

YSLY x (1.0-1.5)mm²

CU/PVC/PVC



Flexible Control Cable /Small Bending Radius / Flame Retardant Characteristic

Construction

Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5
sheath colour:	grey (RAL 7001)-Black(Ral 9005)

Abbreviations

G = with green-yellow conductor
x = without green-yellow conductor (OZ)
Fl: reduced flame propagation



Technical data

Temperature range:	
During installation:	-5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
Short circuit temperature	+150 °C
ambient temperature at storage:	up to 40 °C
Working Voltage:	300/500 V
Test voltage :core/core	2000 V AC for 5 Min
Min. Bending Radius:	10x Φ x Cable ;
Min Insulation Resistance:	$\geq 0.50 \text{ mm}^2 = 20 \text{ M}\Omega \cdot \text{km}$
Behavior in fire:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat.A

Cross Section mm ²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE
0.5	39	6 A	0.6	20 M Ω .km
0.75	26	13 A	0.6	
1.0	19.5	16 A	0.6	
1.5	13.3	20 A	0.6	
2.5	7.98	25 A	0.7	

Design Standards:

DIN VDE 0285-525-2-51
Generally to BS EN 50525-2-51
IEC 60227-7

Application:

These types of cables are used in office equipment, electronic control systems, air condition systems, power stations, engineering projects for control, vision and measurement purposes. These can be used in wet or dry indoor applications but for outdoor use, UV protected PVC must be used where the cable is exposed to sunlight.

YSLY x (1.0-1.5)mm²

CU/PVC/PVC

Cross section: 1.0 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
4721	2 x 1	31 x 0.195	0.6	0.8	6.6	70	CUT
4731	3 x 1	31 x 0.195	0.6	0.8	7.1	80	CUT
4741	4 x 1	31 x 0.195	0.6	0.8	7.8	100	CUT
4751	5 x 1	31 x 0.195	0.6	1.0	8.9	130	CUT
4771	7 x 1	31 x 0.195	0.6	1.0	9.7	160	CUT
4781	8 x 1	31 x 0.195	0.6	1.0	10.9	210	CUT
4791	9 x 1	31 x 0.195	0.6	1.0	10.9	205	CUT
47101	10 x 1	31 x 0.195	0.6	1.2	12.6	260	CUT
47121	12 x 1	31 x 0.195	0.6	1.2	13.3	280	CUT
47141	14 x 1	31 x 0.195	0.6	1.2	13.8	290	CUT
47151	15 x 1	31 x 0.195	0.6	1.2	14.5	320	CUT
47181	18 x 1	31 x 0.195	0.6	1.5	15.9	385	CUT
47211	21 x 1	31 x 0.195	0.6	1.5	16.6	430	CUT
47251	25 x 1	31 x 0.195	0.6	1.8	19.0	530	CUT
47321	32 x 1	31 x 0.195	0.6	1.8	20.8	660	CUT
47341	34 x 1	31 x 0.195	0.6	1.8	21.6	710	CUT
47401	40 x 1	31 x 0.195	0.6	1.8	22.6	790	CUT
47421	42 x 1	31 x 0.195	0.6	1.8	23.1	850	CUT
47501	50 x 1	31 x 0.195	0.6	2.1	25.8	1015	CUT
47611	61 x 1	31 x 0.195	0.6	2.1	27.2	1190	CUT
47651	65 x 1	31 x 0.195	0.6	2.1	28.1	1260	CUT

Cross section: 1.5 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
47215	2 x 1.5	31 x 0.23	0.6	0.8	7.3	85	CUT
47315	3 x 1.5	31 x 0.23	0.6	0.8	7.8	100	CUT
47415	4 x 1.5	31 x 0.23	0.6	1.0	8.8	130	CUT
47515	5 x 1.5	31 x 0.23	0.6	1.0	9.8	160	CUT
47715	7 x 1.5	31 x 0.23	0.6	1.2	10.9	200	CUT
47815	8 x 1.5	31 x 0.23	0.6	1.2	12.5	280	CUT
47915	9 x 1.5	31 x 0.23	0.6	1.2	12.6	290	CUT
471015	10 x 1.5	31 x 0.23	0.6	1.2	13.8	325	CUT
471215	12 x 1.5	31 x 0.23	0.6	1.2	14.1	360	CUT
471415	14 x 1.5	31 x 0.23	0.6	1.5	15.5	385	CUT
471515	15 x 1.5	31 x 0.23	0.6	1.5	16.4	425	CUT
471815	18 x 1.5	31 x 0.23	0.6	1.5	17.2	485	CUT
472115	21 x 1.5	31 x 0.23	0.6	1.8	18.7	570	CUT
472515	25 x 1.5	31 x 0.23	0.6	1.8	20.1	670	CUT
473215	32 x 1.5	31 x 0.23	0.6	1.8	22.6	840	CUT
473415	34 x 1.5	31 x 0.23	0.6	1.8	23.6	900	CUT
474015	40 x 1.5	31 x 0.23	0.6	2.1	24.8	1040	CUT
474215	42 x 1.5	31 x 0.23	0.6	2.1	25.8	1120	CUT
475015	50 x 1.5	31 x 0.23	0.6	2.1	27.9	1290	CUT
476115	61 x 1.5	31 x 0.23	0.6	2.1	30.1	1520	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

YSLY x (2.5)mm²

CU/PVC/PVC



Flexible Control Cable /Small Bending Radius / Flame Retardant Characteristic

Construction		Technical data																											
Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295	Temperature range:																											
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core	During installation:	-5 °C up to +50 °C																										
		fixed installed:	-30 °C up to +70 °C																										
core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers	Short circuit temperature	+150 °C																										
		ambient temperature at storage:	up to 40 °C																										
Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5	Working Voltage:	300/500 V																										
sheath colour:	grey (RAL 7001)-Black (Ral 9005)	Test voltage :core/core	2000 V AC for 5 Min																										
		Min. Bending Radius:	10x Φ x Cable ;																										
		Min Insulation Resistance:	≥ 0.50 mm² = 20 MΩ .km																										
		Behavior in fire:	IEC 60332-1																										
		Flame propagation:	IEC 60332-3 cat.A																										
Abbreviations																													
G = with green-yellow conductor																													
x = without green-yellow conductor (OZ)																													
FI: reduced flame propagation																													
																													
		<table><tr><th>Cross Section mm²</th><th>Conductor resistance at 20 °C</th><th>Current Carrying Capacity</th><th>Insulation thickness</th><th>INSULATION RESISTANCE</th></tr><tr><td>0.5</td><td>39</td><td>6 A</td><td>0.6</td><td rowspan="5">20 MΩ.km</td></tr><tr><td>0.75</td><td>26</td><td>13 A</td><td>0.6</td></tr><tr><td>1.0</td><td>19.5</td><td>16 A</td><td>0.6</td></tr><tr><td>1.5</td><td>13.3</td><td>20 A</td><td>0.6</td></tr><tr><td>2.5</td><td>7.98</td><td>25 A</td><td>0.7</td></tr></table>	Cross Section mm²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE	0.5	39	6 A	0.6	20 MΩ.km	0.75	26	13 A	0.6	1.0	19.5	16 A	0.6	1.5	13.3	20 A	0.6	2.5	7.98	25 A	0.7	
Cross Section mm²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE																									
0.5	39	6 A	0.6	20 MΩ.km																									
0.75	26	13 A	0.6																										
1.0	19.5	16 A	0.6																										
1.5	13.3	20 A	0.6																										
2.5	7.98	25 A	0.7																										
		Design Standards: DIN VDE 0285-525-2-51																											



Application:

These types of cables are used in office equipment, electronic control systems, air condition systems, power stations, engineering projects for control, vision and measurement purposes. These can be used in wet or dry indoor applications but for outdoor use, UV protected PVC must be used where the cable is exposed to sunlight.

Design Standards:
 DIN VDE 0285-525-2-51
 Generally to BS EN 50525-2-51
 IEC 60227-7

Control Cables



YSLY x (2.5)mm²

CU/PVC/PVC

Cross section: 2.5 mm²

Code No.	Dimensions – number of cores x conductor cross- section	Construction	Insulation thickness	sheath thickness	External diameter	Cable weight	Packing*
	N x mm ²		nom. mm	Nom. mm	nom. mm	Nom. kg/km	
47225	2 x 2.5	51 x 0.230	0.7	1.0	8.9	130	CUT
47325	3 x 2.5	51 x 0.230	0.7	1.0	9.5	160	CUT
47425	4 x 2.5	51 x 0.230	0.7	1.2	10.8	205	CUT
47525	5 x 2.5	51 x 0.230	0.7	1.2	11.8	250	CUT
47725	7 x 2.5	51 x 0.230	0.7	1.2	12.9	320	CUT
47825	8 x 2.5	51 x 0.230	0.7	1.2	14.9	440	CUT
47925	9 x 2.5	51 x 0.230	0.7	1.2	16.8	515	CUT
471025	10 x 2.5	51 x 0.230	0.7	1.5	17.4	575	CUT
471225	12 x 2.5	51 x 0.230	0.7	1.5	17.4	575	CUT
471425	14 x 2.5	51 x 0.230	0.7	1.8	19.1	600	CUT
471525	15 x 2.5	51 x 0.230	0.7	1.8	20.1	665	CUT
471825	18 x 2.5	51 x 0.230	0.7	1.8	21.1	765	CUT
472125	21 x 2.5	51 x 0.230	0.7	1.8	22.3	865	CUT
472525	25 x 2.5	51 x 0.230	0.7	2.1	25.1	1050	CUT
473225	32 x 2.5	51 x 0.230	0.7	2.1	27.8	1320	CUT
473425	34 x 2.5	51 x 0.230	0.7	2.1	28.6	1420	CUT
474025	40 x 2.5	51 x 0.230	0.7	2.4	30.2	1625	CUT
474225	42 x 2.5	51 x 0.230	0.7	2.4	31.3	1735	CUT
475025	50 x 2.5	51 x 0.230	0.7	2.4	34.3	2025	CUT
476125	61 x 2.5	51 x 0.230	0.7	2.7	36.8	2430	CUT
476525	65 x 2.5	51 x 0.230	0.7	2.7	37.8	2570	CUT

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

YSLYCY x (0.5-2.5)mm²

CU/PVC/PVC BD/WB/ PVC



Shielded Flexible Control Cable /Small Bending Radius / Flame Retardant Characteristic

Construction		Technical data				
Conductor:	bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295	Temperature range:				
Insulation:	PVC compound TI2 acc. to HD 21.1 / DIN VDE 0281 or YI2 acc. to VDE 0207.4, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core	During installation:	-5 °C up to +50 °C			
		fixed installed:	-30 °C up to +70 °C			
core marking:	(acc. to DIN VDE 0293) black numbered or coloured	Short circuit temperature	+150 °C			
Inner sheath:	PVC Compound	ambient temperature at storage:	up to 40 °C			
Screen:	braid of Copper or tinned copper wires with min 80% Coverage	Working Voltage:	300/500 V			
External Sheath:	PVC compound TM2 acc. to HD 21.1 / DIN VDE 0281 or YM2 acc. to VDE 0207.5	Test voltage :core/core	2000 V AC for 5 Min			
sheath colour:	grey (RAL 7001) or transparent	Min. Bending Radius:	fixed installation: 6x Ø x Cable ; moved application: 20x Ø x Cable ;			
Abbreviations		Behavior in fire:	IEC 60332-1			
G = with green-yellow conductor		Flame propagation:	IEC 60332-3 cat.A			
x = without green-yellow conductor (OZ)		Conductor resistance:	Acc. to IEC 60228			
Fl: reduced flame propagation						
						
		Cross Section mm²	Conductor resistance at 20 °C	Current Carrying Capacity	Insulation thickness	INSULATION RESISTANCE
		0.5	39	6 A	0.6	20 MΩ.km
		0.75	26	13 A	0.6	
		1.0	19.5	16 A	0.6	
		1.5	13.3	20 A	0.6	
		2.5	7.98	25 A	0.7	
		Design Standards:				
		DIN VDE 0250				
		Generally to BS EN 50525-2-51				
		IEC 60227-7				

Application:

Flexible signal cable used for surveillance and control of static or mobile devices in industry, electric plants or offices. Screen of braided copper wires serves as protection against electromagnetic impacts and signal disturbances. Resistant to medium mechanical loads, used for fixed or limitedly mobile installations (not permanently mobile) without strain. Installed in dry or damp premises, outdoor application only under protection against UV-irradiation. Not intended for laying in ground or water.

NOTE:

- With Their Flexible Design They Can Easily Be Used In Narrow Spaces
- These Cables Are Not Suitable For Outdoor Use
- YSLYCY-JZ: Black numbered conductors with yellow/green
- YSLYCY-OZ: Black numbered conductors without yellow/green.

YSLYCY $\times (0.5-2.5)mm^2$

CU/PVC/PVC BD/WB/ PVC

Code No.	No. of cores	External diameter	Sheath thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
4935	3	8.6	1.0	110	Cut
4945	4	9.4	1.0	130	Cut
4955	5	10.4	1.2	155	Cut
4975	7	11.1	1.2	180	Cut
49105	10	12.8	1.2	230	Cut
49125	12	13.9	1.2	300	Cut
49185	18	16.8	1.5	400	Cut
49255	25	19.5	1.8	520	Cut
49345	34	21.8	1.8	660	Cut
49505	50	26.1	2.1	950	Cut
49615	61	27.2	2.1	1065	Cut
Cross Section :0.75					
4937	3	9.0	1.0	120	Cut
4947	4	10.2	1.2	155	Cut
4957	5	10.9	1.2	180	Cut
4977	7	11.6	1.2	210	Cut
49107	10	13.6	1.2	290	Cut
49127	12	14.5	1.2	350	Cut
49187	18	17.6	1.5	465	Cut
49257	25	20.6	1.8	610	Cut
49347	34	23.5	1.8	810	Cut
49507	50	27.6	2.1	1120	Cut
49617	61	29.4	2.1	1300	Cut
Cross Section :1.0					
49310	3	9.6	1.0	140	Cut
49410	4	10.6	1.2	175	Cut
49510	5	11.4	1.2	200	Cut
49710	7	12.1	1.2	235	Cut
491010	10	14.1	1.5	330	Cut
491210	12	16.4	1.5	430	Cut
491810	18	19.1	1.8	555	Cut
492510	25	22.0	1.8	720	Cut
493410	34	25.5	2.1	960	Cut
495010	50	29.5	2.1	1330	Cut
496110	61	31.5	2.4	1560	Cut

Code No.	No. of cores	External diameter	Insulation thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
49315	3	1.6	1.2	175	Cut
49415	4	11.3	1.2	200	Cut
49515	5	12.1	1.2	240	Cut
49715	7	13.2	1.2	290	Cut
491015	10	15.2	1.5	420	Cut
491215	12	17.6	1.5	520	Cut
491815	18	20.3	1.8	675	Cut
492515	25	24.5	2.1	910	Cut
493415	34	27.5	2.1	1210	Cut
495015	50	32.1	2.4	1680	Cut
496115	61	34.1	2.4	1920	Cut
Cross Section :2.5					
49325	3	11.8	1.2	12.0	Cut
49425	4	13.1	1.2	285	Cut
49525	5	14.3	1.2	350	Cut
49725	7	15.4	1.2	430	Cut
491025	10	17.4	1.8	560	Cut
491225	12	20.7	1.8	760	Cut
491825	18	24.8	2.1	1015	Cut
492525	25	28.9	2.1	1360	Cut
493425	34	33.1	2.4	1820	Cut
495025	50	39.8	2.7	2520	Cut
496125	61	41.2	2.7	2960	Cut

*)Packing: CUT= cable in different lengths on drum or reel, possible cutting at required

HSLH (Cross section 0.75mm^2 - 1.0mm^2)

CU/XLHF/HFPO



Halogen-free signal cable, with improved properties under fire

Construction

Conductor:	Bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	Cross-linked halogen-free polyolefin polymer, concentrically stranded cores, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
Core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Sheath:	Halogen free compound ST8 acc. to IEC 60502-1
sheath colour:	Grey (RAL 7001)

Application

Halogen-free signal cable with improved properties under fire, suitable for different applications in control and measuring circuits, in industry and facilities where human lives or valuable property need to be protected against damages caused by fire. Suitable for fixed, same as for mobile installation, but free of mechanical stress; for dry and damp environment, not for outdoor application. Resistant to majority of most frequently used oils.

advantages:

- halogen-free, no release of toxic or corrosive gases under fire
- reduced smoke occurrence under fire
- no flame propagation in vertical cable bundle

Technical data

Temperature during installation:	-5 °C up to +50 °C
Fixed installed Temperature:	-20 °C up to +70 °C
Max. operating temperature:	70 °C
At short circuit of max. 5 s:	up to 150 °C
Nominal voltage:	U ₀ /U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	
Fixed installation:	4D
Mobile installation:	15D
Flame retardant:	IEC 60332-1
Halogen-free:	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

Design Standards

IEC 60502-1
VDE 0276-603

HSLH(Cross section 0.75mm²-1.0mm²)

CU/XLHF/FPPO

Cable code	number of cores x conductor cross-section	Construction of individual conductor	External diameter	Insulation thickness	Sheath thickness	Conductor resistance at 20 °C	Cable weight	Packing*
	N x mm ²	nominal n x mm	approx. mm	approx. mm	approx. mm	max. Ω/km	approx. kg/km	
Cross section :0.75 mm ²								
9275	2 x 0,75	24 x 0,20	5,5	0,45	0,6	26,0	35	CUT
9375	3 x 0,75	24 x 0,20	6,0	0,45	0,6	26,0	65	CUT
9475	4 x 0,75	24 x 0,20	6,5	0,45	0,7	26,0	80	CUT
9575	5 x 0,75	24 x 0,20	7,3	0,45	0,7	26,0	90	CUT
9775	7 x 0,75	24 x 0,20	7,5	0,45	0,8	26,0	125	CUT
91275	12 x 0,75	24 x 0,20	10,2	0,45	0,9	26,0	195	CUT
91875	18 x 0,75	24 x 0,20	11,9	0,45	1,1	26,0	285	CUT
92575	25 x 0,75	24 x 0,20	14,6	0,45	1,2	26,0	390	CUT
93475	34 x 0,75	24 x 0,20	16,4	0,45	1,4	26,0	650	CUT
93775	37 x 0,75	24 x 0,20	17,2	0,45	1,4	26,0	800	CUT
94175	41 x 0,75	24 x 0,20	17,6	0,45	1,4	26,0	820	CUT
94275	42 x 0,75	24 x 0,20	17,8	0,45	1,5	26,0	821	CUT
95075	50 x 0,75	24 x 0,20	19,8	0,45	1,6	26,0	825	CUT
96175	61 x 0,75	24 x 0,20	20,9	0,45	1,6	26,0	1030	CUT
Cross section :1.0 mm ²								
9210	2 x 1,0	32 x 0,20	5,7	0,45	0,6	19,5	60	CUT
9310	3 x 1,0	32 x 0,20	6,4	0,45	0,6	19,5	65	CUT
9410	4 x 1,0	32 x 0,20	7,0	0,45	0,7	19,5	90	CUT
9510	5 x 1,0	32 x 0,20	7,8	0,45	0,7	19,5	115	CUT
9710	7 x 1,0	32 x 0,20	8,1	0,45	0,8	19,5	150	CUT
9810	8 x 1,0	32 x 0,20	9,4	0,45	0,8	19,5	205	CUT
91010	10 x 1,0	32 x 0,20	10,4	0,45	0,8	19,5	250	CUT
91210	12 x 1,0	32 x 0,20	11,1	0,45	1,0	19,5	235	CUT
91610	16 x 1,0	32 x 0,20	12,0	0,45	1,0	19,5	360	CUT
91810	18 x 1,0	32 x 0,20	13,4	0,45	1,1	19,5	330	CUT
92010	20 x 1,0	32 x 0,20	13,5	0,45	1,1	19,5	440	CUT
92510	25 x 1,0	32 x 0,20	16,2	0,45	1,3	19,5	550	CUT
93410	34 x 1,0	32 x 0,20	17,4	0,45	1,4	19,5	690	CUT
93710	37 x 1,0	32 x 0,20	18,4	0,45	1,4	19,5	850	CUT
94110	41 x 1,0	32 x 0,20	18,9	0,45	1,4	19,5	930	CUT
94210	42 x 1,0	32 x 0,20	18,9	0,45	1,5	19,5	855	CUT
95010	50 x 1,0	32 x 0,20	21,0	0,45	1,6	19,5	980	CUT
96110	61 x 1,0	32 x 0,20	22,2	0,45	1,6	19,5	1150	CUT

HSLH (Cross section 1.5mm^2 - 2.5mm^2)

CU/XLHF/HFPO



Halogen-free signal cable, with improved properties under fire

Construction

Conductor:	Bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	Cross-linked halogen-free polyolefin polymer, concentrically stranded cores, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
Core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Sheath:	Halogen free compound ST8 acc. to IEC 60502-1
sheath colour:	Grey (RAL 7001)

Application

Halogen-free signal cable with improved properties under fire, suitable for different applications in control and measuring circuits, in industry and facilities where human lives or valuable property need to be protected against damages caused by fire. Suitable for fixed, same as for mobile installation, but free of mechanical stress; for dry and damp environment, not for outdoor application. Resistant to majority of most frequently used oils.

advantages:

- halogen-free, no release of toxic or corrosive gases under fire
- reduced smoke occurrence under fire
- no flame propagation in vertical cable bundle

Technical data

Temperature during installation:	-5 °C up to +50 °C
Fixed installed Temperature:	-20 °C up to +70 °C
Max. operating temperature:	70 °C
At short circuit of max. 5 s:	up to 150 °C
Nominal voltage:	Uo/U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	
Fixed installation:	4D
Mobile installation:	15D
Flame retardant:	IEC 60332-1
Halogen-free:	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

Design Standards

IEC 60502-1
VDE 0276-603

HSLH(Cross section 1.5mm²-2.5mm²)

CU/XLHF/HFPO

Cable code	number of cores x conductor cross-section	Construction of individual conductor	External diameter	Insulation thickness	Sheath thickness	Conductor resistance at 20 °C	Cable weight	Packing*
Cross section :1.5 mm ²								
9215	2 x 1,5	30 x 0,25	6,3	0,50	0,7	13,3	90	CUT
9315	3 x 1,5	30 x 0,25	7,3	0,50	0,7	13,3	100	CUT
9415	4 x 1,5	30 x 0,25	7,8	0,50	0,8	13,3	120	CUT
9515	5 x 1,5	30 x 0,25	8,9	0,50	0,8	13,3	150	CUT
9715	7 x 1,5	30 x 0,25	9,8	0,50	0,9	13,3	195	CUT
9815	8 x 1,5	30 x 0,25	10,6	0,50	1,1	13,3	280	CUT
91015	10 x 1,5	30 x 0,25	11,7	0,50	1,3	13,3	310	CUT
91215	12 x 1,5	30 x 0,25	13,2	0,50	1,5	13,3	315	CUT
91615	16 x 1,5	30 x 0,25	13,8	0,50	1,6	13,3	420	CUT
91815	18 x 1,5	30 x 0,25	15,9	0,50	1,8	13,3	560	CUT
92015	20 x 1,5	30 x 0,25	15,2	0,50	1,8	13,3	590	CUT
92515	25 x 1,5	30x0,25	19,2	0,50	1,8	13,3	640	CUT
93415	34 x 1,5	30 x 0,25	19,8	0,50	1,8	13,3	900	CUT
93715	37 x 1,5	30 x 0,25	20,2	0,50	1,8	13,3	1150	CUT
95015	50 x 1,5	30 x 0,25	23,7	0,50	1,8	13,3	1420	CUT
96115	61 x 1,5	30 x 0,25	25,3	0,50	1,8	13,3	1650	CUT
Cross section :2.5 mm ²								
9225	2 x 2,5	50 x 0,25	7,7	0,55	0,8	7,98	130	CUT
9325	3 x 2,5	50 x 0,25	9,0	0,55	0,8	7,98	155	CUT
9425	4 x 2,5	50 x 0,25	10,0	0,55	0,9	7,98	240	CUT
9525	5 x 2,5	50 x 0,25	11,0	0,55	0,9	7,98	250	CUT
9725	7 x 2,5	50 x 0,25	12,7	0,55	1,0	7,98	300	CUT
9825	8 x 2,5	50 x 0,25	13,2	0,55	1,3	7,98	380	CUT
91025	10 x 2,5	50 x 0,25	14,7	0,55	1,5	7,98	450	CUT
91225	12 x 2,5	50 x 0,25	16,5	0,55	1,7	7,98	520	CUT
91625	16 x 2,5	50 x 0,25	17,5	0,55	1,8	7,98	750	CUT
91825	18 x 2,5	50 x 0,25	18,4	0,55	1,8	7,98	760	CUT
92025	20 x 2,5	50 x 0,25	18,7	0,55	1,8	7,98	1080	CUT
92525	25 x 2,5	50 x 0,25	13,8	0,55	1,8	7,98	1030	CUT
93025	30 x 2,5	50 x 0,25	23,7	0,55	1,8	7,98	1290	CUT

HSLH (Cross section 4.0mm²-10.0mm²)

CU/XLHF/HFPO



Halogen-free signal cable, with improved properties under fire

Construction

Conductor:	Bare copper conductor, fine wired stranded, class 5 acc. to IEC 60228 / HD 383 / DIN VDE 0295
Insulation:	Cross-linked halogen-free polyolefin polymer, concentrically stranded cores, with green-yellow core, always in external layer (≥ 3 cores) or without green-yellow core
Core marking:	(acc. to DIN VDE 0293) black numbered, cores stranded in layers
Sheath:	Halogen free compound ST8 acc. to IEC 60502-1
sheath colour:	Grey (RAL 7001)

Application

Halogen-free signal cable with improved properties under fire, suitable for different applications in control and measuring circuits, in industry and facilities where human lives or valuable property need to be protected against damages caused by fire. Suitable for fixed, same as for mobile installation, but free of mechanical stress; for dry and damp environment, not for outdoor application. Resistant to majority of most frequently used oils.

advantages:

- halogen-free, no release of toxic or corrosive gases under fire
- reduced smoke occurrence under fire
- no flame propagation in vertical cable bundle

Technical data

Temperature during installation:	-5 °C up to +50 °C
Fixed installed Temperature:	-20 °C up to +70 °C
Max. operating temperature:	70 °C
At short circuit of max. 5 s:	up to 150 °C
Nominal voltage:	U _o /U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	
Fixed installation:	4D
Mobile installation:	15D
Flame retardant:	IEC 60332-1
Halogen-free:	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

Design Standards

IEC 60502-1
VDE 0276-603

HSLH(Cross section 4mm²-10mm²)

CU/XLHF/HFPO

Cable code	number of cores x conductor cross-section	Construction of individual conductor	External diameter	Insulation thickness	Sheath thickness	Conductor resistance at 20 °C	Cable weight	Packing*
Cross section :4 mm ²								
924	2 x 4	56 x 0,30	9,8	0,6	0,9	4,95	200	CUT
934	3 x 4	56 x 0,30	11,5	0,6	0,9	4,95	240	CUT
944	4 x 4	56 x 0,30	11,7	0,6	1,0	4,95	310	CUT
954	5 x 4	56 x 0,30	13,2	0,6	1,1	4,95	360	CUT
974	7 x 4	56 x 0,30	16,0	0,6	1,1	4,95	470	CUT
984	8 x 4	56 x 0,30	17,8	0,6	1,5	4,95	610	CUT
9104	10 x 4	56 x 0,30	19,6	0,6	1,8	4,95	800	CUT
9124	12 x 4	56 x 0,30	20,2	0,6	1,8	4,95	985	CUT
9164	16 x 4	56 x 0,30	22,8	0,6	1,8	4,95	1360	CUT
Cross section :6 mm ²								
926	2 x 6	84 x 0,30	12,0	0,6	0,9	3,30	260	CUT
936	3 x 6	84 x 0,30	12,7	0,6	1,0	3,30	400	CUT
946	4 x 6	84 x 0,30	14,1	0,6	1,1	3,30	470	CUT
956	5 x 6	84 x 0,30	16,5	0,6	1,2	3,30	590	CUT
976	7 x 6	84 x 0,30	17,6	0,6	1,3	3,30	790	CUT
Cross section :10mm ²								
9210	2 x 10	80 x 0,40	15,0	0,7	1,1	1,91	500	CUT
9310	3 x 10	80 x 0,40	16,2	0,7	1,2	1,91	760	CUT
9410	4 x 10	80 x 0,40	18,0	0,7	1,3	1,91	770	CUT
9510	5 x 10	80 x 0,40	19,8	0,7	1,4	1,91	920	CUT
9710	7 x 10	80 x 0,40	22,5	0,7	1,8	1,91	1290	CUT

CONDUCTORS

Class 5 Flexible Copper Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C
		Plain Wires ohms/km
0.5	0.21	39
0.75	0.21	26
1	0.21	19.5
1.5	0.26	13.3
2.5	0.26	7.98
4	0.31	4.95
6	0.31	3.3
10	0.41	1.91
16	0.41	1.21
25	0.41	0.78

The above table is in accordance with BS EN 60228 (previously BS 6360)

HSLCH (Crosssection 0.5mm²-1.5mm²)

CU/XLHF/PST/BCU/HFPO



Halogen-free signal cable with concentric protective Cu conductor, with improved properties under fire

Construction

Conductor:	Bare copper conductor, fine wired, stranded in layers, class 5 acc. to. IEC 60228 / DIN VDE 0295
Insulation:	Cross-linked halogen-free polyolefin polymer, concentrically stranded cores
Separator:	Polyester foil
Concentric conductor:	Braid of tinned copper wires, overlap >65%
Sheath:	Halogen-free polyolefin Compound ST8 Acc to IEC60502-1
Sheath colour:	Light grey (for inst. RAL 7001 or RAL 7035)
Core colour marking:	Acc. to VDE 0293-308

Application

Halogen-free signal cable with improved properties under fire, suitable for different applications in control and measuring circuits, in industry and facilities where human lives or valuable property need to be protected against damages caused by fire. Suitable for fixed, same as for mobile installation, but free of mechanical stress; for dry and damp environment, not for outdoor application. Resistant to majority of most frequently used oils.

advantages:

- halogen-free, no release of toxic or corrosive gases under fire
- reduced smoke occurrence under fire
- no flame propagation in vertical cable bundle

Technical data

Temperature during installation:	-5 °C up to +50 °C
Fixed installed Temperature:	-20 °C up to +70 °C
Max. operating temperature:	70 °C
At short circuit of max. 5 s:	up to 150 °C
Nominal voltage:	U ₀ /U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	
Fixed installation:	4D
Mobile installation:	15D
Flame retardant:	IEC 60332-1
No flame propagation in vertical cable bundle:	IEC 60332-3
Halogen-free:	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

Design Standards

IEC 60502-1
VDE 0276-603

HSLCH(Cross section 0.5mm²-1.5mm²)

CU/XLHF/PST/BCU/HFPO

Cable code	number of cores x conductor cross-section	Construction of individual conductor	External diameter	Conductor resistance at 20 °C	Cable weight	Packing*
	N x mm ²	nominal n x mm	approx. mm	max. Ω/km	approx. kg/km	
Cross section :0.5mm²						
625	2 x 0,5	16 x 0,20	5.8	39,00	50	CUT
635	3 x 0,5	16 x 0,20	6.2	39,00	60	CUT
645	4 x 0,5	16 x 0,20	6.7	39,00	65	CUT
655	5 x 0,5	16 x 0,20	7.1	39,00	85	CUT
675	7 x 0,5	16 x 0,20	8.9	39,00	110	CUT
6125	12 x 0,5	16 x 0,20	10	39,00	165	CUT
6185	18 x 0,5	16 x 0,20	11.9	39,00	230	CUT
61255	25 x 0,5	16 x 0,20	13.2	39,00	320	CUT
Cross section :0.75mm²						
61275	2 x 0,75	24 x 0,20	6.5	26,00	60	CUT
61375	3 x 0,75	24 x 0,20	6.8	26,00	75	CUT
61475	4 x 0,75	24 x 0,20	8.1	26,00	85	CUT
61575	5 x 0,75	24 x 0,20	8.9	26,00	105	CUT
61775	7 x 0,75	24 x 0,20	9.6	26,00	130	CUT
611275	12 x 0,75	24 x 0,20	11.5	26,00	210	CUT
Cross section :1.0mm²						
61210	2 x 1,0	32 x 0,20	6.7	19,50	65	CUT
61310	3 x 1,0	32 x 0,20	7.1	19,50	85	CUT
61410	4 x 1,0	32 x 0,20	7.4	19,50	100	CUT
61510	5 x 1,0	32 x 0,20	8.6	19,50	120	CUT
61710	7 x 1,0	32 x 0,20	9.8	19,50	165	CUT
611210	12 x 1,0	32 x 0,20	11.9	19,50	250	CUT
611810	18 x 1,0	32 x 0,20	19.2	19,50	375	CUT
612510	25 x 1,0	32 x 0,20	16.8	19,50	510	CUT
Cross section :1.5mm²						
61315	3 x 1,5	30 x 0,25	7.8	13,30	120	CUT
61415	4 x 1,5	30 x 0,25	8.1	13,30	130	CUT
61515	5 x 1,5	30 x 0,25	8.6	13,30	185	CUT
61715	7 x 1,5	30 x 0,25	11.8	13,30	235	CUT
611215	12 x 1,5	30 x 0,25	13.2	13,30	360	CUT
611815	18 x 1,5	30 x 0,25	15.8	13,30	510	CUT
612515	25 x 1,5	30 x 0,25	19.2	13,30	690	CUT

HSLCH (Crosssection 2.5mm²-10mm²)

CU/XLHF/PST/BCU/HFPO



Halogen-free signal cable with concentric protective Cu conductor, with improved properties under fire

Construction

Conductor:	Bare copper conductor, fine wired, stranded in layers, class 5 acc. to. IEC 60228 / DIN VDE 0295
Insulation:	Cross-linked halogen-free polyolefin polymer, concentrically stranded cores
Separator:	Polyester foil
Concentric conductor:	Braid of tinned copper wires, overlap >65%
Sheath:	Halogen-free polyolefin Compound ST8 Acc to IEC60502-1
Sheath colour:	Light grey (for inst. RAL 7001 or RAL 7035)
Core colour marking:	Acc. to VDE 0293-308

Application

Halogen-free signal cable with improved properties under fire, suitable for different applications in control and measuring circuits, in industry and facilities where human lives or valuable property need to be protected against damages caused by fire. Suitable for fixed, same as for mobile installation, but free of mechanical stress; for dry and damp environment, not for outdoor application. Resistant to majority of most frequently used oils.

advantages:

- halogen-free, no release of toxic or corrosive gases under fire
- reduced smoke occurrence under fire
- no flame propagation in vertical cable bundle

Technical data

Temperature during installation:	-5 °C up to +50 °C
Fixed installed Temperature:	-20 °C up to +70 °C
Max. operating temperature:	70 °C
At short circuit of max. 5 s:	up to 150 °C
Nominal voltage:	U ₀ /U = 300/500 V
Test voltage:	2000 V
Minimal inner bending radius:	
Fixed installation:	4D
Mobile installation:	15D
Flame retardant:	IEC 60332-1
No flame propagation in vertical cable bundle:	IEC 60332-3
Halogen-free:	IEC 60754-1
Non-corrosive combustion gases:	IEC 60754-2
Low smoke density:	IEC 61034-2

Design Standards

IEC 60502-1
VDE 0276-603

HSLCH (Cross section 2.5mm²-10mm²)

CU/XLHF/PST/BCU/HFPO

Cable code	number of cores x conductor cross-section	Construction of individual conductor	External diameter	Conductor resistance at 20 °C	Cable weight	Packing*
Cross section :2.5mm ²						
61225	2 x 2,5	50 x 0,25	8.6	7,98	135	CUT
61325	3 x 2,5	50 x 0,25	9.8	7,98	165	CUT
61425	4 x 2,5	50 x 0,25	10.1	7,98	195	CUT
Cross section :4mm ²						
6124	2 x 4	56 x 0,30	10.8	4,95	210	CUT
6134	3 x 4	56 x 0,30	10.9	4,95	250	CUT
6144	4 x 4	56 x 0,30	12.1	4,95	290	CUT
6174	7 x 4	56 x 0,30	15.4	4,95	490	CUT
Cross section :6mm ²						
6126	2 x 6	84 x 0,30	11.8	3,30	280	CUT
6136	3 x 6	84 x 0,30	12.9	3,30	345	CUT
6146	4 x 6	84 x 0,30	14.8	3,30	400	CUT
6176	7 x 6	84 x 0,30	19.8	3,30	685	CUT
Cross section :10mm ²						
61210	2 x 10	80 x 0,40	15.1	1,91	450	CUT
61310	3 x 10	80 x 0,40	15.8	1,91	500	CUT
61410	4 x 10	80 x 0,40	17.9	1,91	700	CUT
61510	5 x 10	80 x 0,40	19.8	1,91	825	CUT
61710	7 x 10	80 x 0,40	21.8	1,91	1260	CUT

CONDUCTORS

Class 5 Flexible Copper Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
0.5	39
0.75	26
1	19.5
1.5	13.3
2.5	7.98

The above table is in accordance with BS EN 60228 (previously BS 6360)

ELECTRICAL CHARACTERISTICS

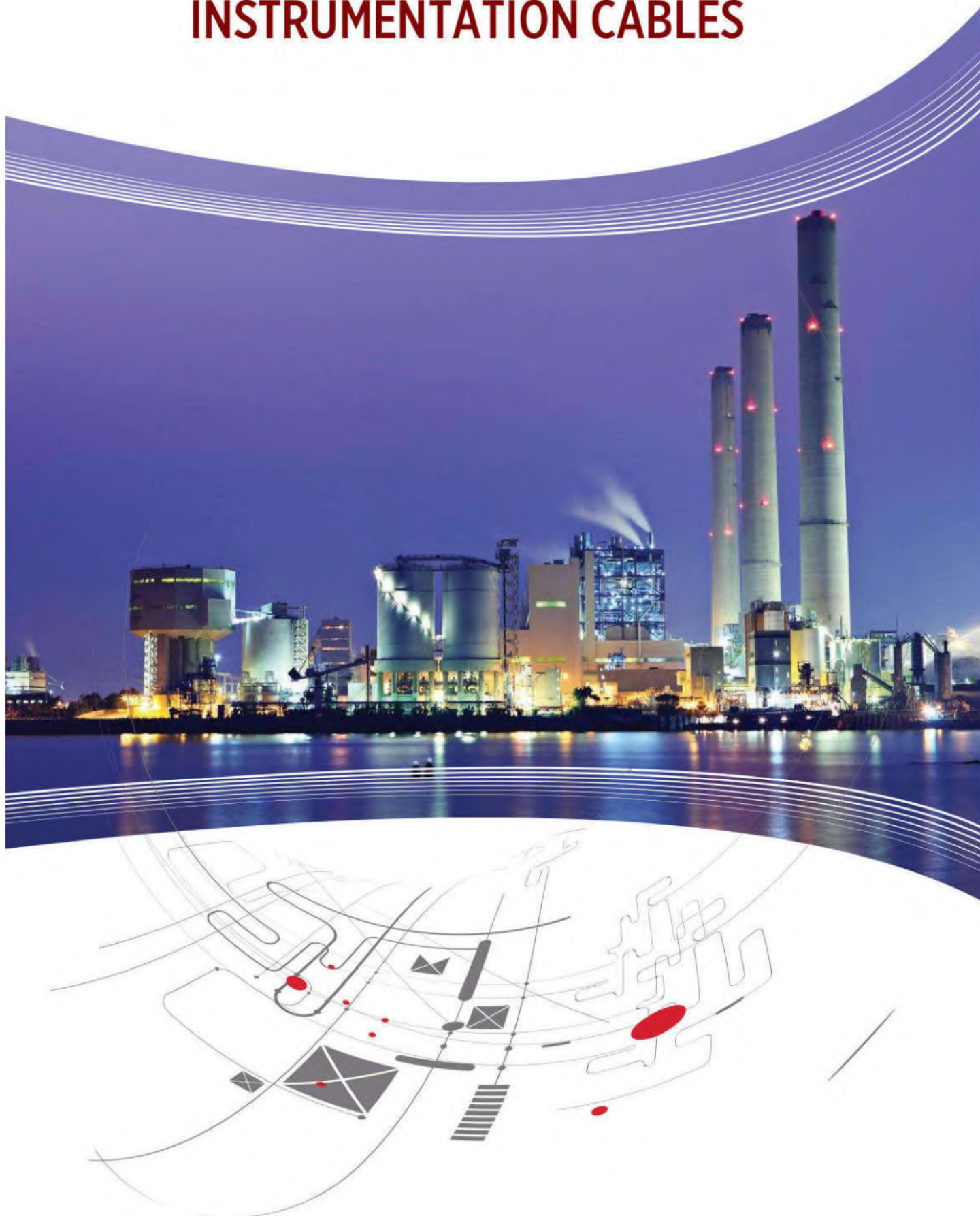
Current Carrying Capacity at 30°C

NOMINAL CROSS SECTIONAL AREA mm ²	CURRENT RATING Amps
0.5	9
0.75	12
1	15
1.5	18
2.5	26

The above table is a guide extracted from DIN VDE 0298 Part 4 and DIN 0100 Part 430

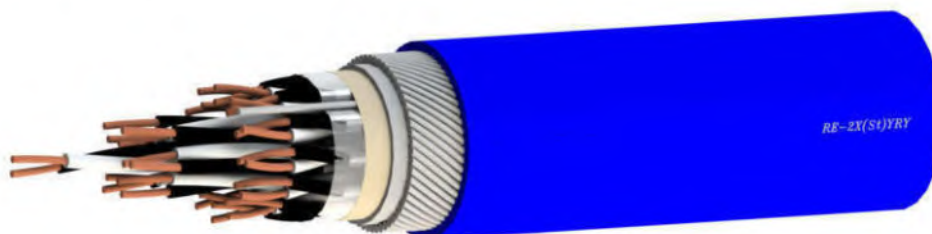


INSTRUMENTATION CABLES



RE-2X(St)YRY Multi pair

CU/XLPE /OSCR/SWA/PVC



Flame Retardant and UV Resistant / Armored Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	EN 50290-2-29 XLPE COMPOUND
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Wrapping	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC Compound
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2),
sheath colour:	Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes

NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings



Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ² pF/m	
0.5	36	5000	0.6	0.5	-30°C~+70°C (FIXED LAYING) IEC 60332-3-24 VDE 0482-332-3-24 EN 60332-3-24 BS EN 60332-3-24
0.75	24.5		0.6	0.75	
1.0	18.1		0.6	1.0	
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH / Ω	mm ²	A	
0.5	25	0.5	6	300/500V Cr./Cr.=2000 V Cr./Scrn.=2000 V 7,5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -30 °C to +90 °C ; During Installation -5 °C ~+50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-2X(St)YRY Multi pair (0.5-2.5)

CU/XLPE/OSCR/SWA/PVC

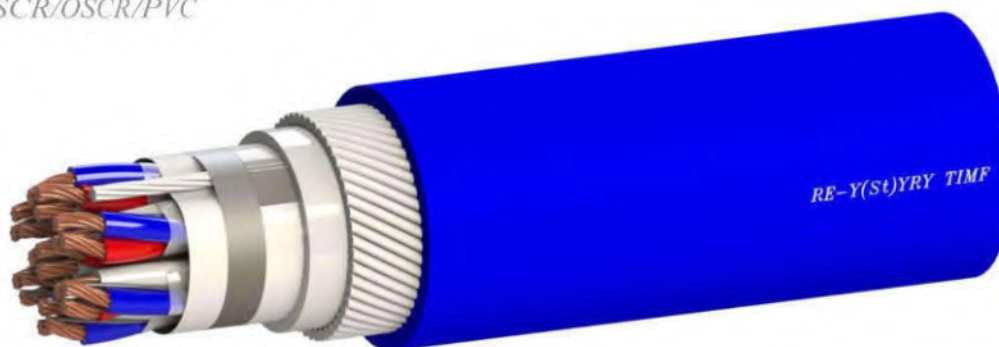
Code No.	No. of Pairs	External diameter	Wire armor diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
7315	1	11.9	0.9	255	CUT
7325	2	15.5	0.9	370	CUT
7335	3	16.1	0.9	410	CUT
7345	4	17.2	0.9	460	CUT
7355	5	18.6	0.9	520	CUT
7365	6	19.9	0.9	570	CUT
7375	7	19.9	0.9	590	CUT
73105	10	25.0	1.25	920	CUT
73125	12	25.7	1.25	980	CUT
73165	16	28.9	1.6	1325	CUT
73205	20	31.5	1.6	1515	CUT
73245	24	34.6	1.6	1715	CUT
73305	30	37.1	2.0	2155	CUT
Cross Section :0.75					
7317	1	12.3	0.9	280	CUT
7327	2	16.1	0.9	400	CUT
7337	3	16.9	0.9	450	CUT
7347	4	18.3	0.9	512	CUT
7357	5	19.5	0.9	570	CUT
7357	6	21.6	1.25	765	CUT
7377	7	21.6	1.25	790	CUT
73107	10	26.4	1.25	1035	CUT
73127	12	27.1	1.25	1105	CUT
73167	16	30.5	1.6	1490	CUT
73207	20	33.6	1.6	1715	CUT
73247	24	37.6	2.0	2230	CUT
73307	30	39.5	2.0	2480	CUT
Cross Section :1.0					
73110	1	12.7	0.9	290	CUT
73210	2	16.7	0.9	425	CUT
73310	3	17.5	0.9	481	CUT
73410	4	19.0	0.9	555	CUT
73510	5	20.3	0.9	625	CUT
73610	6	22.5	1.25	830	CUT
73710	7	22.5	1.25	860	CUT
731010	10	28.5	1.6	1310	CUT
731210	12	29.3	1.6	1415	CUT
731610	16	31.9	1.6	1630	CUT
732010	20	35.9	2.0	2160	CUT
732410	24	39.4	2.0	2445	CUT
733010	30	41.4	2.0	2730	CUT

Code No.	No. of Pairs	External diameter	Wire armor diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
73115	1	13.5	0.9	325	CUT
73215	2	17.7	0.9	485	CUT
73315	3	18.7	0.9	550	CUT
73415	4	20.2	0.9	435	CUT
73515	5	22.4	1.25	560	CUT
73615	6	24.2	1.25	955	CUT
73715	7	24.2	1.25	1000	CUT
731015	10	30.4	1.6	1515	CUT
731215	12	31.3	1.6	1625	CUT
731615	16	34.4	1.6	1945	CUT
732015	20	38.8	2.0	2520	CUT
732415	24	42.6	2.0	2905	CUT
733015	30	46.3	2.5	3760	CUT
Cross Section :2.5					
73125	1	14.8	0.9	385	CUT
73225	2	19.9	0.9	590	CUT
73325	3	21.7	1.25	820	CUT
73425	4	23.5	1.25	945	CUT
73525	5	25.3	1.25	1065	CUT
73625	6	27.4	1.25	1215	CUT
73725	7	27.4	1.25	1280	CUT
731025	10	35.5	2.0	2165	CUT
731225	12	36.7	2.0	2350	CUT
731625	16	40.2	2.0	2805	CUT
732025	20	46.0	2.5	3730	CUT
732425	24	50.5	2.5	4270	CUT
733025	30	54.6	3.15	5490	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)YRY TIMF

CU/PVC/ISCR/OSCR/PVC



Flame Retardant and UV Resistant / Armored Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Individual Screen	PES TAPE; TINNED COPPER DRAIN WIRE; AL-PES TAPE
Overall Shielding	24 µm aluminum / PETP tape over 7 -stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC Compound
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2),
sheath colour:	Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	mm	mm ² pF/m		
0.5	36	0.6	0.5	-30°C~+70°C (FIXED LAYING)	IEC 60332-3-24
0.75	24.5	0.6	0.75		VDE 0482-332-3-24
1.0	18.1	0.6	1.0		EN 60332-3-24
1.5	12.1	0.6	1.5		BS EN 60332-3-24
2.5	7.41	0.7	2.5		

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH/Ω	mm ² A		
0.5	25	0.5	6	Cr./Cr.=2000 V Cr./Scrn.=2000 V 7,5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C -+50 °C

Bending Radius 10 X Cable Ø

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)YRY TIMF (0.5-2.5)

CU/PVC/ISCR/OSCR/PVC

Code No.	No. of Triple	Armour Wire Diameter	External Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3815	1	0.9	11.7	265	CUT
3825	2	0.9	16.2	430	CUT
3835	3	0.9	16.8	480	CUT
3845	4	0.9	18.3	555	CUT
3855	5	0.9	19.6	630	CUT
3865	6	1.25	21.7	830	CUT
3875	7	1.25	21.7	865	CUT
38105	10	1.25	26.7	115	CUT
38125	12	1.25	27.4	1240	CUT
38165	16	1.6	30.6	1660	CUT
38205	20	1.6	33.7	1930	CUT
38245	24	2	37.8	2485	CUT
38305	30	2	39.7	2790	CUT
Cross Section :0.75					
3817	1	0.9	12.1	290	CUT
3827	2	0.9	17.0	470	CUT
3837	3	0.9	18.0	545	CUT
3847	4	0.9	19.3	625	CUT
3857	5	1.25	21.5	835	CUT
3867	6	1.25	23.2	945	CUT
3877	7	1.25	23.1	990	CUT
38107	10	1.6	29.1	1480	CUT
38127	12	1.6	29.9	1610	CUT
38167	16	1.6	32.8	1915	CUT
38207	20	2	37.0	2500	CUT
38247	24	2	40.9	2900	CUT
38307	30	2.5	44.2	3680	CUT
Cross Section :1.0					
38110	1	0.9	12.5	310	CUT
38210	2	0.9	18.0	520	CUT
38310	3	0.9	18.8	595	CUT
38410	4	0.9	20.2	685	CUT
38510	5	1.25	22.6	930	CUT
38610	6	1.25	24.3	1030	CUT
38710	7	1.25	24.3	1085	CUT
381010	10	1.6	30.5	1640	CUT
381210	12	1.6	31.6	1785	CUT
381610	16	1.6	34.5	2135	CUT
382010	20	2	38.9	27.85	CUT
382410	24	2.5	44.1	3620	CUT
383010	30	2.5	46.5	4115	CUT

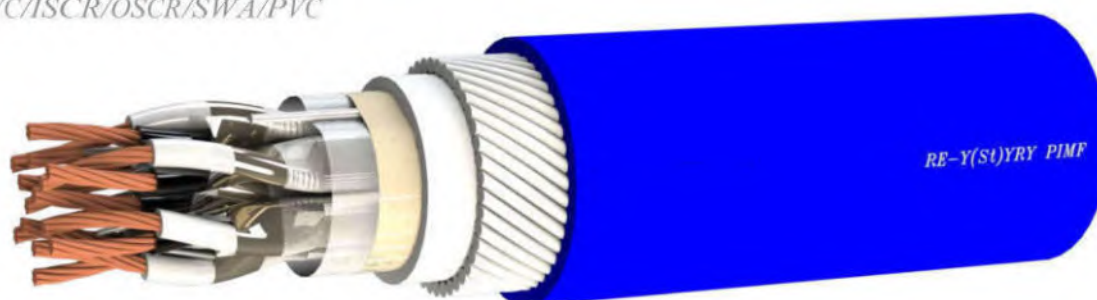
Code No.	No. of Triple	Armour Wire Diameter	External Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
38115	1	0.9	13.4	350	CUT
38215	2	0.9	19.2	590	CUT
38315	3	0.9	20.1	690	CUT
38415	4	1.25	22.6	945	CUT
38515	5	1.25	24.3	1080	CUT
38615	6	1.25	26.3	1220	CUT
38715	7	1.25	26.3	1295	CUT
381015	10	1.6	33.1	1930	CUT
381215	12	1.6	34.1	2120	CUT
381615	16	2	38.4	2835	CUT
382015	20	2.5	44.0	3790	CUT
382415	24	2.5	48.0	4340	CUT
383015	30	2.5	50.6	4910	CUT
Cross Section :2.5					
38125	1	0.9	14.7	430	CUT
38225	2	1.25	22.6	880	CUT
38325	3	1.25	23.8	1020	CUT
38425	4	1.25	25.8	1210	CUT
38525	5	1.6	28.6	1555	CUT
38625	6	1.6	31.0	1770	CUT
38725	7	1.6	31.0	1875	CUT
381025	10	2	39.4	2820	CUT
381225	12	2	41.0	3135	CUT
381625	16	2.5	46.1	4190	CUT
382025	20	2.5	50.9	4955	CUT
382425	24	3.15	57.8	6480	CUT
383025	30	3.15	61.0	7330	CUT

) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

GGT Instrumentation Cables

RE-Y(St)YRY PIMF

CU/PVC/ISCR/OSCR/SWA/PVC



Flame Retardant and UV Resistant / Armored Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Individual Screen	PES TAPE; TINNED COPPER DRAIN WIRE; AL-PES TAPE
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC COMPOUND
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2),
sheath colour:	Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable

FI*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ² pF/m	
0.5	36		0.6	0.5	
0.75	24.5		0.6	0.75	
1.0	18.1	100	0.6	1.0	250
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH/Ω	mm ²	A	
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to+70 °C ; During Installation -5 °C -+50 °C

Bending radius 7.5 x D

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)YRY PIMF (0.5-2.5)

CU/PVC/ISCR/OSCR/SWA/PVC

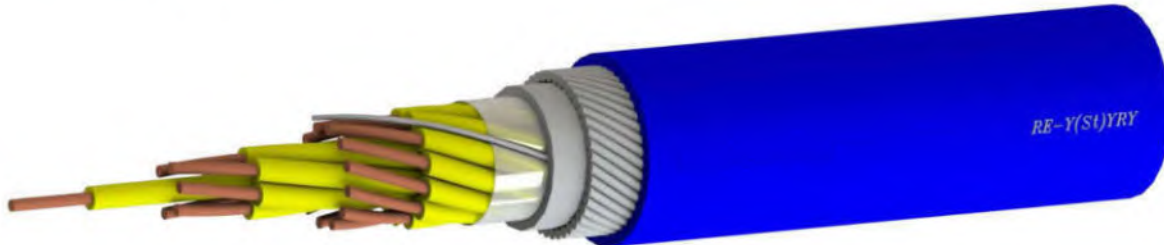
Code No.	No. of Pairs	External diameter	Armour Wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3515	1	11.3	0.9	245	CUT
3525	2	15.1	0.9	375	CUT
3535	3	15.7	0.9	425	CUT
3545	4	16.8	0.9	480	CUT
3555	5	18.1	0.9	540	CUT
3565	6	19.3	0.9	600	CUT
3575	7	19.3	0.9	425	CUT
35105	10	24.3	1.25	975	CUT
35125	12	25.0	1.25	1045	CUT
35165	16	27.3	1.25	1230	CUT
35205	20	30.6	1.6	1615	CUT
35245	24	33.5	1.6	1845	CUT
35305	30	36.2	2.0	2345	CUT
Cross Section :0.75					
3517	1	11.8	0.9	270	CUT
3527	2	15.8	0.9	410	CUT
3537	3	16.6	0.9	465	CUT
3547	4	17.9	0.9	540	CUT
3557	5	19.1	0.9	405	CUT
3567	6	20.5	0.9	670	CUT
3577	7	20.5	0.9	705	CUT
35107	10	25.8	1.25	1090	CUT
35127	12	26.7	1.25	1195	CUT
35167	16	29.8	1.6	1590	CUT
35207	20	32.8	1.6	1850	CUT
35247	24	36.8	2.0	2385	CUT
35307	30	38.6	2.0	2650	CUT
Cross Section :1.0					
35110	1	12.1	0.9	285	CUT
35210	2	16.5	0.9	445	CUT
35310	3	17.2	0.9	505	CUT
35410	4	18.7	0.9	585	CUT
35510	5	20.0	0.9	655	CUT
35610	6	22.3	1.25	875	CUT
35710	7	22.3	1.25	915	CUT
351010	10	27.3	1.25	1205	CUT
351210	12	28.7	1.6	1490	CUT
351610	16	31.5	1.6	1750	CUT
352010	20	34.5	1.6	2040	CUT
352410	24	38.7	2.0	2605	CUT
353010	30	40.8	2.0	2955	CUT

Code No.	No. of Pairs	External diameter	Armour Wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
35115	1	12.9	0.9	320	CUT
35215	2	17.7	0.9	505	CUT
35315	3	18.6	0.9	580	CUT
35415	4	20.0	0.9	665	CUT
35515	5	22.3	1.25	900	CUT
35615	6	23.9	1.25	1010	CUT
35715	7	23.9	1.25	1060	CUT
351015	10	30.1	1.6	1585	CUT
351215	12	31.2	1.6	1745	CUT
351615	16	34.0	1.6	2070	CUT
352015	20	38.3	2.0	2700	CUT
352415	24	42.5	2.0	3155	CUT
353015	30	45.8	2.5	3980	CUT
Cross Section :2.5					
35125	1	14.2	0.9	380	CUT
35225	2	20.0	0.9	615	CUT
35325	3	21.9	1.25	860	CUT
35425	4	23.5	1.25	990	CUT
35525	5	25.3	1.25	1130	CUT
35625	6	27.4	1.25	1290	CUT
35725	7	27.4	1.25	1360	CUT
351025	10	35.7	2.0	2300	CUT
351225	12	36.7	2.0	2490	CUT
351625	16	40.8	2.0	3040	CUT
352025	20	46.0	2.5	3960	CUT
352425	24	50.5	2.5	4545	CUT
353025	30	54.6	3.15	5840	CUT

) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)YRY Multicore

CU/PVC/OSCR/SWA/PVC



Flame Retardant and UV Resistant / Instrumentation Control Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Yellow INSULATED CORES[other colors upon request]
Stranding	IN LAYERS OF OPTIMUM PITCH
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC Compound
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Blue Ral 5005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame	Propagat
mm ²	Ω/km	mm	mm ² pF/m			
0.5	36	0.6	0.5	160	-30°C~+70°C (FIXED LAYING)	IEC 60332-3-24
0.75	24.5	0.6	0.75	160		VDE 0482-332-3-7
1.0	18.1	0.6	1.0	160		EN 60332-3-24
1.5	12.1	0.6	1.5	170		BS EN 60332-3-24
2.5	7.41	0.7	2.5	170		

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH /Ω	mm ²	A	
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Capacitance Unbalance (max) (800Hz) 500 pF/500m

Temperature Range Fixed -40 °C to+70 °C ; During Installation -5 °C -+50 °C

Bending Radius 10 X Cable Ø

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)YRY Multicore (0.5-2.5)

CU/PVC/OSCR/SWA/PVC

Code No.	No. of cores	External diameter	Armour wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3425	2	11.0	0.9	230	CUT
3435	3	11.3	0.9	245	CUT
3445	4	11.9	0.9	270	CUT
3455	5	12.5	0.9	295	CUT
3465	6	13.3	0.9	330	CUT
3475	7	13.3	0.9	335	CUT
3485	8	14.5	0.9	380	CUT
34105	10	15.4	0.9	420	CUT
34125	12	15.7	0.9	445	CUT
34165	16	16.9	0.9	515	CUT
34205	20	18.4	0.9	590	CUT
34245	24	19.8	0.9	665	CUT
34305	30	21.3	1.25	865	CUT
Cross Section :0.75					
3427	2	11.4	0.9	255	CUT
3437	3	11.8	0.9	270	CUT
3447	4	12.4	0.9	300	CUT
3457	5	13.2	0.9	335	CUT
3467	6	13.9	0.9	365	CUT
3477	7	13.9	0.9	380	CUT
3487	8	15.3	0.9	430	CUT
34107	10	16.2	0.9	475	CUT
34127	12	16.5	0.9	510	CUT
34167	16	18.0	0.9	600	CUT
34207	20	19.5	0.9	690	CUT
34247	24	21.9	1.25	915	CUT
34307	30	22.9	1.25	1015	CUT
Cross Section :1.0					
34210	2	11.8	0.9	270	CUT
34310	3	12.2	0.9	290	CUT
34410	4	13.0	0.9	330	CUT
34510	5	13.7	0.9	360	CUT
34610	6	14.5	0.9	400	CUT
34710	7	14.5	0.9	410	CUT
34810	8	16.0	0.9	470	CUT
341010	10	16.9	0.9	525	CUT
341210	12	17.5	0.9	570	CUT
341610	16	18.9	0.9	670	CUT
342010	20	20.5	0.9	775	CUT
342410	24	23.0	1.25	1025	CUT
343010	30	24.0	1.25	1140	CUT

Code No.	No. of cores	External diameter	Armour wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
34215	2	12.4	0.9	295	CUT
34315	3	13.0	0.9	330	CUT
34415	4	13.7	0.9	375	CUT
34515	5	14.5	0.9	415	CUT
34615	6	15.4	0.9	460	CUT
34715	7	15.4	0.9	480	CUT
34815	8	17.2	0.9	550	CUT
341015	10	18.3	0.9	625	CUT
341215	12	18.8	0.9	675	CUT
341615	16	20.3	0.9	800	CUT
342015	20	23.0	1.25	1075	CUT
342415	24	24.8	1.25	1230	CUT
343015	30	26.0	1.25	1390	CUT
Cross Section :2.5					
34225	2	13.8	0.9	355	CUT
34325	3	14.4	0.9	405	CUT
34425	4	15.2	0.9	455	CUT
34525	5	16.2	0.9	520	CUT
34625	6	17.4	0.9	590	CUT
34725	7	17.4	0.9	620	CUT
34825	8	19.5	0.9	710	CUT
341025	10	21.7	1.25	950	CUT
341225	12	22.3	1.25	1030	CUT
341625	16	24.1	1.25	1215	CUT
342025	20	26.5	1.25	1435	CUT
342425	24	29.4	1.6	1825	CUT
343025	30	31.0	1.6	2075	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)Y TIMF

CU/PVC/ISCR/OSCR/PVC



Flame Retardant and UV Resistant / Instrumentation Control Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/E 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Individual Screen	PES TAPE; TINNED COPPER DRAIN WIRE; AL-PES TAPE
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Blue Ral 5005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ² pF/m	
0.5	36		0.6	0.5	
0.75	24.5		0.6	0.75	
1.0	18.1	100	0.6	1.0	250
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH/Ω	mm ²	A	
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C to +50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)Y TIMF (0.5-2.5)

CU/PVC/ISCR/OSCR/PVC

Code No.	No. of cores N x mm ²	External diameter approx. mm	Insulation thickness nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :0.5					
3815	1	7.1	0.6	65	CUT
3825	2	11.6	0.6	125	CUT
3835	3	12.3	0.6	160	CUT
3845	4	13.7	0.6	205	CUT
3855	5	15.0	0.6	250	CUT
3865	6	16.6	0.6	295	CUT
3875	7	16.6	0.6	330	CUT
38105	10	21.4	0.6	465	CUT
38125	12	22.1	0.6	540	CUT
38165	16	24.8	0.6	700	CUT
38205	20	27.9	0.6	870	CUT
38245	24	31.2	0.6	1040	CUT
38305	30	33.3	0.6	1275	CUT
Cross Section :0.75					
3817	1	7.5	0.6	75	CUT
3827	2	12.4	0.6	145	CUT
3837	3	13.4	0.6	200	CUT
3847	4	14.7	0.6	250	CUT
3857	5	16.4	0.6	310	CUT
3867	6	17.9	0.6	360	CUT
3877	7	17.9	0.6	405	CUT
38107	10	23.2	0.6	580	CUT
38127	12	24.1	0.6	675	CUT
38167	16	27.0	0.6	880	CUT
38207	20	30.4	0.6	1090	CUT
38247	24	33.9	0.6	1305	CUT
38307	30	36.2	0.6	1600	CUT
Cross Section :1.0					
38110	1	7.9	0.6	90	CUT
38210	2	13.4	0.6	175	CUT
38310	3	14.2	0.6	230	CUT
38410	4	15.6	0.6	290	CUT
38510	5	17.3	0.6	360	CUT
38610	6	19.0	0.6	420	CUT
38710	7	19.0	0.6	475	CUT
381010	10	24.7	0.6	680	CUT
381210	12	25.6	0.6	795	CUT
381610	16	28.7	0.6	1040	CUT
382010	20	32.3	0.6	1290	CUT
382410	24	36.3	0.6	1550	CUT
383010	30	38.5	0.6	1890	CUT

Code No.	No. of cores N x mm ²	External diameter approx. mm	Insulation thickness nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :1.5					
38115	1	8.6	0.6	110	CUT
38215	2	14.6	0.6	215	CUT
38315	3	15.5	0.6	295	CUT
38415	4	17.3	0.6	380	CUT
38515	5	19.0	0.6	460	CUT
38615	6	21.0	0.6	550	CUT
38715	7	21.0	0.6	620	CUT
381015	10	27.4	0.6	895	CUT
381215	12	28.3	0.6	1045	CUT
381615	16	31.8	0.6	1365	CUT
382015	20	36.0	0.6	1705	CUT
382415	24	40.2	0.6	2040	CUT
383015	30	42.8	0.6	2510	CUT
Cross Section :2.5					
38125	1	10.1	0.7	155	CUT
38225	2	17.3	0.7	310	CUT
38325	3	18.5	0.7	420	CUT
38425	4	20.5	0.7	550	CUT
38525	5	22.8	0.7	675	CUT
38625	6	25.0	0.7	800	CUT
38725	7	25.0	0.7	905	CUT
381025	10	32.8	0.7	1310	CUT
381225	12	34.0	0.7	1535	CUT
381625	16	38.3	0.7	2025	CUT
382025	20	43.1	0.7	2515	CUT
382425	24	48.3	0.7	3025	CUT
383025	30	51.5	0.7	3720	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)Y PIMF

CU/PVC/ISCR/OSCR/PVC



Flame Retardant and UV Resistant / Instrumentation Control Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/E 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Individual Screen	PES TAPE; TINNED COPPER DRAIN WIRE; AL-PES TAPE
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Blue Ral 5005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE: Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ² pF/m	
0.5	36		0.6	0.5	-30°C~+70°C (FIXED LAYING) IEC 60332-3-24 VDE 0482-332-3-24 EN 60332-3-24 BS EN 60332-3-24
0.75	24.5		0.6	0.75	
1.0	18.1		0.6	1.0	
1.3	13.9	100	0.6	1.3	
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH /Ω	mm ²	A	
0.5	25	0.5	6	Cr./Cr.=2000 V Cr./Sern.=2000 V 7,5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.3	40	1.3	18	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C to +50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)Y PIMF (0.5-2.5)

CU/PVC/ISCR/OSCR/PVC

Code No.	No. of cores N x mm ²	External diameter approx. mm	Insulation thickness nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :0.5					
3215	1	6.7	0.6	55	CUT
2325	2	10.5	0.6	100	CUT
3235	3	11.1	0.6	125	CUT
3245	4	12.2	0.6	155	CUT
3255	5	13.5	0.6	192	CUT
3265	6	14.7	0.6	225	CUT
3275	7	14.7	0.6	250	CUT
32105	10	19.0	0.6	355	CUT
32125	12	19.9	0.6	415	CUT
32165	16	22.0	0.6	530	CUT
32205	20	24.8	0.6	660	CUT
32245	24	27.7	0.6	785	CUT
32305	30	29.6	0.6	965	CUT
Cross Section :0.75					
3217	1	7.2	0.6	60	CUT
3227	2	11.2	0.6	115	CUT
3237	3	12.0	0.6	150	CUT
3247	4	13.3	0.6	190	CUT
3257	5	14.5	0.6	230	CUT
3267	6	16.1	0.6	275	CUT
3277	7	16.1	0.6	310	CUT
32107	10	20.7	0.6	435	CUT
32127	12	21.4	0.6	505	CUT
32167	16	24.0	0.6	655	CUT
32207	20	27.0	0.6	810	CUT
32247	24	30.1	0.6	970	CUT
32307	30	32.0	0.6	1175	CUT
Cross Section :1.0					
32110	1	7.5	0.6	70	CUT
32210	2	11.9	0.6	130	CUT
32310	3	12.6	0.6	170	CUT
32410	4	14.1	0.6	220	CUT
32510	5	15.4	0.6	265	CUT
32610	6	17.0	0.6	320	CUT
32710	7	17.0	0.6	355	CUT
321010	10	22.0	0.6	505	CUT
321210	12	22.9	0.6	595	CUT
321610	16	25.5	0.6	765	CUT
322010	20	28.6	0.6	945	CUT
322410	24	32.0	0.6	1135	CUT
323010	30	34.2	0.6	1390	CUT

Code No.	No. of cores N x mm ²	External diameter approx. mm	Insulation thickness nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :1.3					
32113	1	7.9	0.6	75	CUT
32213	2	12.8	0.6	155	CUT
32313	3	13.1	0.6	210	CUT
32413	4	15.1	0.6	265	CUT
32513	5	16.9	0.6	320	CUT
32613	6	18.1	0.6	380	CUT
32713	7	18.1	0.6	430	CUT
321013	10	23.8	0.6	620	CUT
321213	12	24.3	0.6	740	CUT
321613	16	28.1	0.6	910	CUT
322013	20	31.2	0.6	1212	CUT
322413	24	34.9	0.6	1390	CUT
323013	30	37.8	0.6	1701	CUT
Cross Section :1.5					
32115	1	8.1	0.6	85	CUT
32215	2	13.1	0.6	165	CUT
32315	3	14.0	0.6	220	CUT
32415	4	15.4	0.6	275	CUT
32515	5	17.0	0.6	340	CUT
32615	6	18.6	0.6	400	CUT
32715	7	18.6	0.6	450	CUT
321015	10	24.3	0.6	650	CUT
321215	12	25.2	0.6	760	CUT
321615	16	28.2	0.6	990	CUT
322015	20	31.7	0.6	1225	CUT
322415	24	35.6	0.6	1480	CUT
323015	30	37.8	0.6	1805	CUT
Cross Section :2.5					
32125	1	9.6	0.7	120	CUT
32225	2	15.4	0.7	225	CUT
32325	3	16.6	0.7	310	CUT
32425	4	18.2	0.7	395	CUT
32525	5	20.2	0.7	490	CUT
32625	6	22.3	0.7	580	CUT
32725	7	22.3	0.7	660	CUT
321025	10	29.1	0.7	945	CUT
321225	12	30.1	0.7	1100	CUT
321625	16	33.8	0.7	1440	CUT
322025	20	38.2	0.7	1795	CUT
322425	24	42.7	0.7	2150	CUT
323025	30	45.5	0.7	2640	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)Y Multicore

CU/PVC/OSCR/PVC



Flame Retardant and UV Resistant / Instrumentation Control Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/E 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11) Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Colour code:	Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816- 2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Black Ral 9005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE: Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame	Propagatio
mm ²	Ω/km	mm	mm ²	pF/m		
0.5	36	0.6	0.5	160	-30°C~+70°C (FIXED LAYING)	IEC 60332-3-24
0.75	24.5	0.6	0.75	160		VDE 0482-332-3-24
1.0	18.1	0.6	1.0	160		EN 60332-3-24
1.3	13.9	0.6	1.3	170		BS EN 60332-3-24
1.5	12.1	0.6	1.5	170		
2.5	7.41	0.7	2.5	170		

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH/Ω	mm ²	A	
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.3	40	1.3	18	
1.5	40	1.5	20	
2.5	60	2.5	25	

Capacitance Unbalance (max) (800Hz)

500 pF/500m

Temperature Range

Fixed -40 °C to +70 °C ; During Installation -5 °C to +50 °C

Oxygen Index

Min. 29%

Flame Test
332-1-2)

IEC/EN/BS/DIN 60332-1-2 (VDE 0482-

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)Y Multicore (0.5-2.5)

CU/PVC/OSCR/PVC

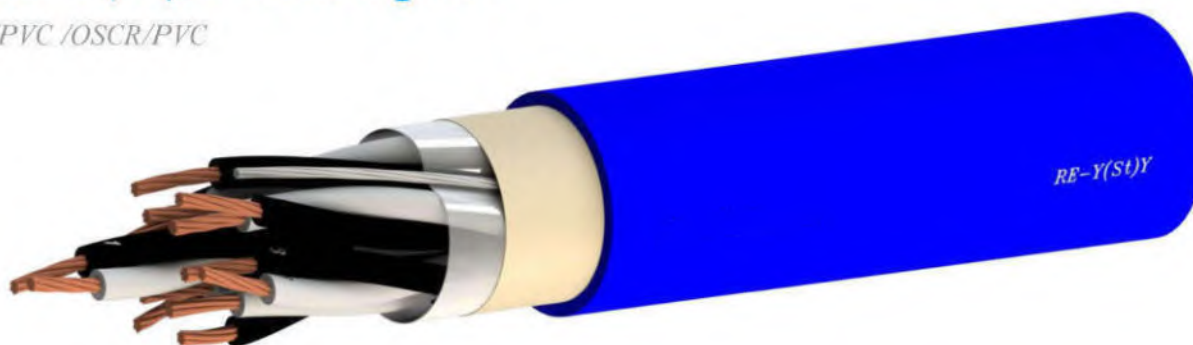
Code No.	No. of cores	External diameter	Insulation thickness	Cable weight	Packing*
N x mm ²		approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3125	2	6.2	0.9	50	CUT
3135	3	6.5	0.9	65	CUT
3145	4	7.0	0.9	70	CUT
3155	5	7.6	0.9	80	CUT
3165	6	8.1	0.9	90	CUT
3175	7	8.2	0.9	100	CUT
3185	8	9.1	1.0	120	CUT
31105	10	10.4	1.0	140	CUT
31125	12	10.7	1.0	160	CUT
31145	14	11.3	1.0	185	CUT
31165	16	11.8	1.0	200	CUT
31205	20	13.3	1.1	250	CUT
31245	24	14.7	1.1	290	CUT
31275	27	15.0	1.1	320	CUT
31305	30	15.7	1.2	355	CUT
31375	37	16.9	1.2	420	CUT
31405	40	17.6	1.2	450	CUT
Cross Section :0.75					
3127	2	6.5	0.9	55	CUT
3137	3	6.9	0.9	75	CUT
3147	4	7.4	0.9	80	CUT
3157	5	8.1	0.9	105	CUT
3167	6	8.7	0.9	115	CUT
3177	7	8.7	0.9	120	CUT
3178	8	9.7	1.0	145	CUT
31107	10	11.1	1.0	170	CUT
31127	12	11.5	1.0	200	CUT
31147	14	12.2	1.1	255	CUT
31167	16	12.9	1.1	255	CUT
31207	20	14.3	1.1	305	CUT
31247	24	16.0	1.2	365	CUT
31277	27	16.3	1.2	400	CUT
31307	30	16.9	1.2	440	CUT
31377	37	18.2	1.2	5525	CUT
31407	40	19.1	1.3	570	CUT
Cross Section :1.0					
31210	2	6.9	0.9	65	CUT
31310	3	7.3	0.9	90	CUT
31410	4	7.9	0.9	95	CUT
31510	5	8.6	0.9	120	CUT
31610	6	9.5	1.0	140	CUT
31710	7	9.5	1.0	150	CUT
31810	8	10.3	1.0	170	CUT
311010	10	11.9	1.0	210	CUT
311210	12	12.2	1.0	240	CUT
311410	14	13.0	1.1	270	CUT
311610	16	13.7	1.1	315	CUT
312010	20	15.2	1.1	375	CUT
312410	24	17.0	1.2	450	CUT
312710	27	17.4	1.2	495	CUT
313010	30	18.0	1.2	540	CUT
313710	37	19.6	1.3	660	CUT
314010	40	20.4	1.3	705	CUT

Code No.	No. of cores	External diameter	Insulation thickness	Cable weight	Packing*
N x mm ²		approx. mm	nominal mm	approx. kg/km	
Cross Section :1.3					
31213	2	7.4	0.9	75	CUT
31313	3	7.9	0.9	105	CUT
31413	4	8.5	0.9	115	CUT
31513	5	9.5	1.0	145	CUT
31613	6	10.3	1.0	160	CUT
31713	7	10.3	1.0	180	CUT
31813	8	11.2	1.0	200	CUT
311013	10	13.2	1.1	250	CUT
311213	12	13.6	1.1	290	CUT
311413	14	14.3	1.1	330	CUT
311613	16	15.0	1.1	380	CUT
312013	20	16.9	1.2	460	CUT
312413	24	18.7	1.2	550	CUT
312713	27	19.3	1.3	605	CUT
313013	30	20.0	1.3	665	CUT
313713	37	21.6	1.3	810	CUT
314013	40	22.7	1.4	865	CUT
Cross Section :1.5					
31215	2	7.7	0.9	82	CUT
31315	3	8.1	0.9	105	CUT
31415	4	8.8	0.9	130	CUT
31515	5	9.8	1.0	155	CUT
31615	6	10.7	1.0	170	CUT
31715	7	10.7	1.0	200	CUT
31815	8	11.6	1.0	225	CUT
311015	10	13.7	1.1	285	CUT
311215	12	14.1	1.1	325	CUT
311415	14	14.8	1.1	375	CUT
311615	16	15.6	1.1	415	CUT
312015	20	17.6	1.2	515	CUT
312415	24	19.6	1.3	610	CUT
312715	27	20.1	1.3	680	CUT
313015	30	20.8	1.3	740	CUT
313715	37	22.6	1.4	905	CUT
314015	40	23.6	1.4	970	CUT
Cross Section :2.5					
31225	2	8.9	0.9	115	CUT
31325	3	9.7	1.0	165	CUT
31425	4	10.5	1.0	180	CUT
31525	5	11.5	1.0	215	CUT
31625	6	12.7	1.1	260	CUT
31725	7	12.7	1.1	290	CUT
31825	8	13.9	1.1	340	CUT
311025	10	16.3	1.2	420	CUT
311225	12	16.9	1.2	480	CUT
311425	14	17.7	1.2	550	CUT
311625	16	18.9	1.3	625	CUT
312025	20	21.1	1.3	765	CUT
312425	24	23.6	1.4	925	CUT
312725	27	24.1	1.4	1020	CUT
313025	30	25.2	1.5	1130	CUT
313725	37	27.2	1.5	1375	CUT
314025	40	28.5	1.6	1480	CUT

) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)Y Multi pair

CU/PVC /OSCR/PVC



Flame Retardant and UV Resistant / Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2),
sheath colour:	Blue Ral 5005 Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes

NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings



Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ²	pf/m
0.5	36		0.6	0.5	
0.75	24.5		0.6	0.75	
1.0	18.1		0.6	1.0	
1.3	13.9	100	0.6	1.3	250
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH / Ω	mm ²	A	
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.3	40	1.3	18	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C -+50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)Y Multi pair (0.5-2.5)

CU/PVC/OSCR/PVC

Code No.	No. of Pairs N x mm ²	External diameter approx. mm	Insulation thickness nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :0.5					
3215	1	6.4	0.6	45	CUT
3225	2	9.1	0.6	75	CUT
3235	3	9.8	0.6	95	CUT
3245	4	10.6	0.6	120	CUT
3255	5	11.6	0.6	140	CUT
3265	6	12.9	0.6	165	CUT
3275	7	12.9	0.6	185	CUT
32105	10	15.6	0.6	260	CUT
32125	12	17.1	0.6	300	CUT
32165	16	19.0	0.6	380	CUT
32205	20	21.3	0.6	470	CUT
32245	24	32.9	0.6	560	CUT
32305	30	25.3	0.6	675	CUT
Cross Section :0.75					
3217	1	6.8	0.6	50	CUT
3217	2	10.0	0.6	90	CUT
3237	3	10.6	0.6	120	CUT
3247	4	11.6	0.6	145	CUT
3257	5	12.8	0.6	180	CUT
3267	6	14.0	0.6	210	CUT
3277	7	14.0	0.6	235	CUT
32107	10	17.9	0.6	330	CUT
32127	12	18.5	0.6	380	CUT
32167	16	20.8	0.6	495	CUT
32207	20	23.4	0.6	615	CUT
32247	24	26.1	0.6	735	CUT
32307	30	27.7	0.6	885	CUT
Cross Section :1.0					
32110	1	7.2	0.6	60	CUT
32210	2	10.6	0.6	105	CUT
32310	3	11.2	0.6	140	CUT
32410	4	12.3	0.6	175	CUT
32510	5	13.6	0.6	215	CUT
32610	6	14.8	0.6	250	CUT
32710	7	14.8	0.6	280	CUT
321010	10	19.1	0.6	395	CUT
321210	12	20.0	0.6	465	CUT
321610	16	22.2	0.6	600	CUT
322010	20	25.0	0.6	740	CUT
322410	24	27.9	0.6	885	CUT
323010	30	29.8	0.6	1090	CUT

Code No.	No. of Pairs N x mm ²	External diameter approx. mm	Insulation thickness nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :1.3					
32113	1	6.8	0.6	64	CUT
32213	2	10.1	0.6	115	CUT
32313	3	10.9	0.6	145	CUT
32413	4	11.8	0.6	194	CUT
32513	5	13.4	0.6	250	CUT
32613	6	14.6	0.6	295	CUT
32713	7	14.6	0.6	330	CUT
311013	10	18.1	0.6	439	CUT
321213	12	18.9	0.6	525	CUT
321613	16	21.1	0.6	650	CUT
322013	20	23.9	0.6	822	CUT
322413	24	26.1	0.6	987	CUT
323013	30	30.1	0.6	1250	CUT
Cross Section :1.5					
32115	1	7.8	0.6	75	CUT
32215	2	11.5	0.6	135	
32315	3	12.3	0.6	180	CUT
32415	4	13.7	0.6	230	CUT
32515	5	14.9	0.6	280	CUT
32615	6	16.5	0.6	335	CUT
32715	7	16.5	0.6	375	CUT
321015	10	21.3	0.6	530	CUT
321215	12	22.0	0.6	620	CUT
321615	16	24.7	0.6	810	CUT
322015	20	27.8	0.6	1010	CUT
322415	24	31.0	0.6	1205	CUT
323015	30	33.1	0.6	1480	
Cross Section :2.5					
32125	1	9.0	0.7	105	CUT
32225	2	13.8	0.7	195	CUT
32225	3	14.7	0.7	265	CUT
32425	4	16.3	0.7	345	CUT
32525	5	17.9	0.7	420	CUT
32625	6	19.8	0.7	500	CUT
32725	7	19.8	0.7	565	CUT
321025	10	25.8	0.7	810	CUT
321225	12	26.7	0.7	945	CUT
321625	16	29.9	0.7	1235	CUT
322025	20	33.6	0.7	1535	CUT
322425	24	37.5	0.7	1840	CUT
323025	30	40.0	0.7	2260	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)Y Multi Triple

CU/PVC /OSCR/PVC



Flame Retardant and UV Resistant / Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/Blue, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Blue Ral 5005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes

NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings



Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	mm	mm ² pF/m		
0.5	36	0.6	0.5	-30°C~+70°C (FIXED LAYING)	IEC 60332-3-24
0.75	24.5	0.6	0.75		VDE 0482-332-3-2
1.0	18.1	0.6	1.0		EN 60332-3-24
1.3	13.9	0.6	1.3		BS EN 60332-3-24
1.5	12.1	0.6	1.5		
2.5	7.41	0.7	2.5		

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ² μH/Ω	mm ² A			
0.5	25	0.5	6	Cr./Cr.=2000 V Cr./Scrn.=2000 V 7,5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.3	40	1.3	18	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C to +50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)Y Multi Triple (0.5-2.5)

CU/PVC/OSCR/PVC

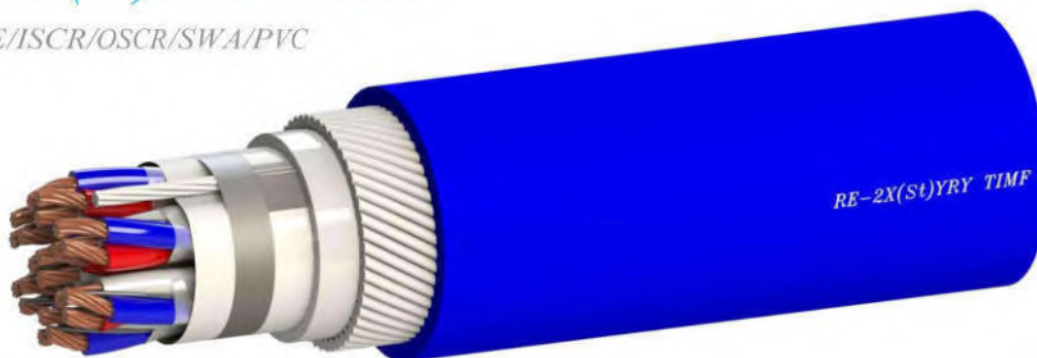
Code No.	No. of cores	External diameter	Insulation thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3315	1	6.7	0.6	55	CUT
3325	2	10.2	0.6	100	CUT
3335	3	10.9	0.6	130	CUT
3345	4	11.9	0.6	160	CUT
3355	5	13.2	0.6	195	CUT
3365	6	14.4	0.6	225	CUT
3375	7	14.4	0.6	255	CUT
33105	10	18.5	0.6	360	CUT
33125	12	19.1	0.6	415	CUT
33165	16	21.4	0.6	540	CUT
33205	20	24.1	0.6	670	CUT
33245	24	26.9	0.6	805	CUT
33305	30	28.5	0.6	970	CUT
Cross Section :0.75					
3317	1	7.2	0.6	65	CUT
3327	2	11.0	0.6	120	CUT
3337	3	11.7	0.6	160	CUT
3347	4	13.0	0.6	205	CUT
3357	5	14.2	0.6	245	CUT
3367	6	15.5	0.6	290	CUT
3377	7	15.5	0.6	325	CUT
33107	10	20.2	0.6	470	CUT
33127	12	20.9	0.6	545	CUT
33167	16	23.5	0.6	710	CUT
33207	20	26.4	0.6	880	CUT
33247	24	29.5	0.6	1055	CUT
33307	30	31.3	0.6	1280	CUT
Cross Section :1.0					
33110	1	7.6	0.6	75	CUT
33210	2	11.7	0.6	140	CUT
33310	3	12.4	0.6	190	CUT
33410	4	13.8	0.6	245	CUT
33510	5	15.1	0.6	300	CUT
33610	6	16.7	0.6	355	CUT
33710	7	16.7	0.6	400	CUT
331010	10	21.6	0.6	565	CUT
331210	12	22.3	0.6	660	CUT
331610	16	25.1	0.6	860	CUT
332010	20	28.2	0.6	1070	CUT
332410	24	31.5	0.6	1280	CUT
333010	30	33.6		1575	CUT

Code No.	No. of cores	External diameter	Insulation thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
33115	1	8.1	0.6	100	CUT
33215	2	13.0	0.6	190	CUT
33415	3	13.8	0.6	255	CUT
33515	4	15.2	0.6	325	CUT
33615	5	16.9	0.6	400	CUT
33715	6	18.4	0.6	475	CUT
33815	7	18.4	0.6	535	CUT
331015	10	24.0	0.6	765	CUT
331215	12	24.9	0.6	895	CUT
331615	16	27.9	0.6	1175	CUT
332015	20	31.4	0.6	1460	CUT
332415	24	35.1	0.6	1745	CUT
333015	30	37.3	0.6	2150	
Cross Section :2.5					
33125	1	9.8	0.7	140	CUT
33225	2	15.3	0.7	270	CUT
33325	3	16.5	0.7	380	CUT
33425	4	18.2	0.7	485	CUT
33525	5	20.2	0.7	600	CUT
33625	6	22.3	0.7	715	CUT
33725	7	22.3	0.7	815	CUT
331025	10	29.1	0.7	1165	CUT
331225	12	30.1	0.7	1370	CUT
331625	16	33.7	0.7	1800	CUT
332025	20	38.1	0.7	2245	CUT
332425	24	42.6	0.7	2690	CUT
333025	30	45.4	0.7	3315	CUT

) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-2X(St)YRY TIMF

CU/XLPE/ISCR/OSCR/SWA/PVC



Flame Retardant and UV Resistant / Armored Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	EN 50290-2-29 XLPE COMPOUND
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Individual Screen	PES TAPE; Tinned Copper Drain Wire; AL-PES TAPE
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC COMPOUND
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2),
sheath colour:	Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes

**NOTES**

RE Instrumentation Cable

FI*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ²	pF/m
0.5	36		0.6	0.5	
0.75	24.5		0.6	0.75	
1.0	18.1	100	0.6	1.0	250
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH /Ω	mm ²	A	
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -30 °C to +90 °C ; During Installation -5 °C -+50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-2X(St)YRY TIMF (0.5-2.5)

CU/XLPE/ISCR/OSCR/SWA/PVC

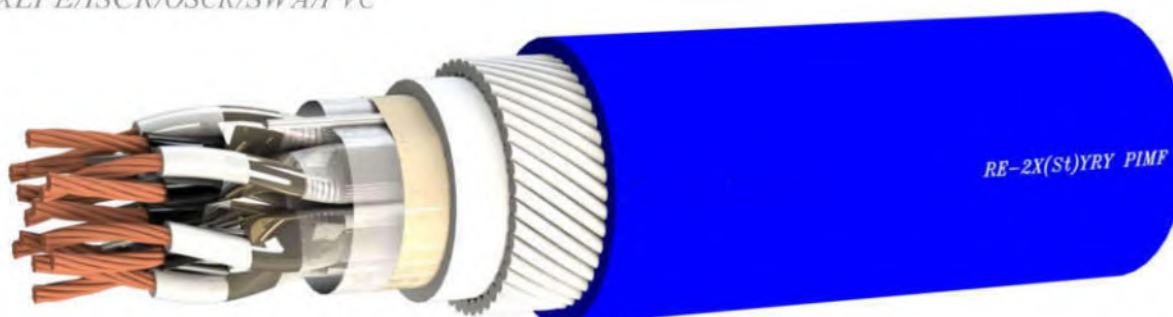
Code No.	No. of elements	External diameter	Insulation thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
7515	1	12.7	0.9	295	CUT
7525	2	18.1	0.9	485	CUT
7535	3	19.2	0.9	555	CUT
7545	4	21.4	1.25	755	CUT
7555	5	22.9	1.25	850	CUT
7565	6	24.8	1.25	950	CUT
7575	7	24.8	1.25	990	CUT
5105	10	31.3	1.6	1490	CUT
75125	12	32.2	1.6	1610	CUT
75165	16	36.2	2	2150	CUT
75205	20	39.9	2	2485	CUT
75245	24	45.2	2.5	3310	CUT
75305	30	47.7	2.5	3665	CUT
Cross Section :0.75					
7517	1	13.4	0.9	320	CUT
7527	2	19.2	0.9	530	CUT
7537	3	20.1	0.9	605	CUT
7547	4	22.4	1.25	835	CUT
7557	5	24.3	1.25	950	CUT
7567	6	26.1	1.25	1055	CUT
7577	7	26.1	1.25	1100	CUT
75107	10	33.2	1.6	1670	CUT
75127	12	34.1	1.6	1805	CUT
75167	16	38.4	2	2420	CUT
75207	20	42.4	2	2800	CUT
75247	24	48.0	2.5	3710	CUT
75307	30	50.4	2.5	4110	CUT
Cross Section :1.0					
75110	1	13.8	0.9	345	CUT
75210	2	19.9	0.9	570	CUT
75310	3	21.6	1.25	780	CUT
75410	4	23.5	1.25	905	CUT
75510	5	25.3	1.25	1025	CUT
75610	6	27.2	1.25	1140	CUT
75710	7	27.2	1.25	1195	CUT
751010	10	35.4	2	2075	CUT
751210	12	36.5	2	2225	CUT
751610	16	40.1	2	2635	CUT
752010	20	45.7	2.5	3535	CUT
752410	24	50.2	2.5	4040	CUT
753010	30	53.0	2.5	4555	CUT

Code No.	No. of elements	External diameter	Insulation thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
75115	1	14.4	0.9	385	CUT
75215	2	21.8	1.25	765	CUT
75315	3	23.1	1.25	895	CUT
75415	4	25.0	1.25	1025	CUT
75515	5	26.9	1.25	1170	CUT
75615	6	29.9	1.6	1515	CUT
75715	7	29.9	1.6	1590	CUT
751015	10	38.1	2	2375	CUT
751215	12	39.2	2	2595	CUT
751615	16	44.5	2.5	3545	CUT
752015	20	49.1	2.5	4125	CUT
752415	24	54.0	2.5	4710	CUT
753015	30	58.4	3.15	6025	CUT
Cross Section :2.5					
75125	1	15.8	0.9	455	CUT
75225	2	24.5	1.25	935	CUT
75325	3	25.9	1.25	1090	CUT
75425	4	28.9	1.6	1460	CUT
75525	5	31.4	1.6	1675	CUT
75625	6	33.9	1.6	1895	CUT
75725	7	33.9	1.6	2000	CUT
751025	10	44.7	2.5	3450	CUT
751225	12	46.1	2.5	3785	CUT
751625	16	50.9	2.5	4500	CUT
752025	20	57.9	1.15	6005	CUT
752425	24	63.9	3.15	6890	CUT
753025	30	67.2	3.15	7790	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-2X(St)YRY PIMF

CU/XLPE/ISCR/OSCR/SWA/PVC



Flame Retardant and UV Resistant /Armored Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	EN 50290-2-29 XLPE COMPOUND
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Individual Screen	PES Tape; Tinned Copper Drain Wire; AL-PES Tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC Compound
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2).
sheath colour:	Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable
 FI*: Flame retardant outer sheath
 Yv*: Reinforced sheath version available on request
 Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe
 Ral 9005 black sheath*: Places where UV resistance is required
 Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation	
mm ²	Ω/km	MΩxKm	mm	mm ²	pF/m	
0.5	36	5000	0.6	0.5	- 30°C~+70°C (FIXED LAYING)	IEC 60332-3-24
0.75	24.5		0.6	0.75		VDE 0482-332-3-2
1.0	18.1		0.6	1.0		EN 60332-3-24
1.5	12.1		0.6	1.5		BS EN 60332-3-24
2.5	7.41		0.7	2.5		

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH/Ω	mm ²	A	
0.5	25	0.5	6	Cr./Cr.=2000 V Cr./Sern.=2000 V 7,5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +90 °C ; During Installation -5 °C - +50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
 EN 50288-7
 DIN VDE 819-7

RE-2X(St)YRY PIMF (0.5-2.5)

CU/XLPE/ISCR/OSCR/SWA/PVC

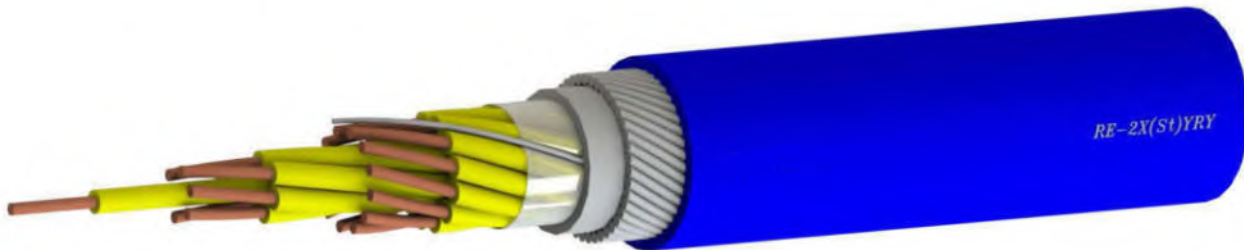
Code No.	No. of pairs	External diameter	Armour wire diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
7215	1	12.3	0.9	280	CUT
7225	2	16.8	0.9	425	CUT
7235	3	17.6	0.9	475	CUT
7245	4	19.1	0.9	540	CUT
7255	5	20.4	0.9	615	CUT
7265	6	22.6	1.25	815	CUT
7275	7	22.6	1.25	840	CUT
72105	10	28.6	1.6	1275	CUT
72125	12	29.4	1.6	1375	CUT
72165	16	32.1	1.6	1600	CUT
72205	20	36.1	2.0	2105	CUT
72245	24	39.6	2.0	2400	CUT
72305	30	41.6	2.0	2665	CUT
Cross Section :0.75					
7217	1	12.7	0.9	295	CUT
7227	2	17.5	0.9	460	CUT
7237	3	18.6	0.9	525	CUT
7247	4	20.0	0.9	595	CUT
7257	5	22.1	1.25	805	CUT
7267	6	23.9	1.25	905	CUT
7277	7	23.9	1.25	940	CUT
72107	10	30.1	1.6	1410	CUT
72127	12	31.0	1.6	1525	CUT
72167	16	34.0	1.6	1785	CUT
72207	20	38.3	2.0	2345	CUT
72247	24	41.9	2.0	2660	CUT
72307	30	45.6	2.5	3440	CUT
Cross Section :1.0					
72110	1	1.3	0.9	315	CUT
72210	2	18.4	0.9	495	CUT
72310	3	19.3	0.9	560	CUT
72410	4	21.4	1.25	765	CUT
72510	5	23.2	1.25	870	CUT
72610	6	24.9	1.25	970	CUT
72710	7	24.9	1.25	1010	CUT
721010	10	31.4	1.6	1520	CUT
721212	12	32.3	1.6	1645	CUT
721616	16	36.3	2.0	2195	CUT
722020	20	40.0	2.0	2545	CUT
722424	24	45.4	2.5	3380	CUT
723030	30	47.9	2.5	3950	CUT

Code No.	No. of pairs	External diameter	Armour wire diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
72115	1	13.9	0.9	345	CUT
72215	2	19.5	0.9	550	CUT
72315	3	20.4	0.9	635	CUT
72415	4	22.9	1.25	870	CUT
72515	5	24.7	1.25	980	CUT
72615	6	26.5	1.25	2000	CUT
72715	7	26.5	1.25	1155	CUT
721015	10	33.7	1.6	1745	CUT
721215	12	35.5	2.0	2145	CUT
721615	16	39.0	2.0	2540	CUT
722015	20	44.5	2.5	3410	CUT
722415	24	48.8	2.5	3895	CUT
723015	30	51.5	2.5	4385	CUT
Cross Section :2.5					
72125	1	15.1	0.9	405	CUT
72225	2	22.6	1.25	810	CUT
72325	3	32.7	1.25	915	CUT
72425	4	25.6	1.25	1060	CUT
72525	5	28.5	1.6	1380	CUT
72625	6	30.7	1.6	1550	CUT
72725	7	30.7	1.6	1625	CUT
721025	10	39.1	2.0	2460	CUT
721225	12	40.3	2.0	2680	CUT
721625	16	46.0	2.5	3650	CUT
722025	20	50.8	2.5	4275	CUT
722425	24	57.1	3.15	5532	CUT
723025	30	60.7	3.15	6295	CUT

) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-2X(St)YRY Multicore

CU/XLPE/OSCR/SWA/PVC



Flame Retardant and UV Resistant /Armored Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	EN 50290-2-29 XLPE COMPOUND
Colour code:	Yellow [other colors upon request]
Stranding	IN LAYERS OF OPTIMUM PITCH
Wrapping	Polyester tape
Overall Screen	24 µm aluminum / PETP tape over 7 -stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC COMPOUND
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2),
sheath colour:	Black or Blue (RAL 5015) [other colors upon request]

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable
 FI*: Flame retardant outer sheath
 Yv*: Reinforced sheath version available on request
 Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe
 Ral 9005 black sheath*: Places where UV resistance is required
 Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ² pF/m	
0.5	36		0.6	0.5	160
0.75	24.5		0.6	0.75	160
1.0	18.1	1000	0.6	1.0	160
1.5	12.1		0.6	1.5	170
2.5	7.41		0.7	2.5	170

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH /Ω	mm ² A		
0.5	25	0.5	6	
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Capacitance Unbalance (max) (800Hz) 500 pF/500m

Temperature Range Fixed -30 °C to +90 °C ; During Installation -5 °C -+50 °C

Oxygen Index Min. 29%

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
 EN 50288-7
 DIN VDE 819-7

RE-2X(St)YRY Multicore (0.5-2.5)

CU/XLPE/OSCR/SWA/PVC

Code No.	No. of cores N x mm ²	External diameter approx. mm	Armour wire Diameter nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :0.5					
7425	2	11.9	0.9	255	CUT
7435	3	12.4	0.9	280	CUT
7445	4	13.0	0.9	305	CUT
7455	5	14.0	0.9	335	CUT
7465	6	14.7	0.9	370	CUT
7475	7	14.7	0.9	380	CUT
7485	8	16.3	0.9	430	CUT
74105	10	17.3	0.9	475	CUT
74125	12	14.7	0.9	510	CUT
74165	16	19.3	0.9	590	CUT
75205	20	21.6	1.25	800	CUT
74245	24	23.6	1.25	905	CUT
74305	30	24.6	1.25	990	CUT
Cross Section :0.75					
7427	2	12.4	0.9	280	CUT
7437	3	12.8	0.9	300	CUT
7447	4	13.7	0.9	340	CUT
7457	5	14.5	0.9	370	CUT
7467	6	15.4	0.9	405	CUT
7477	7	15.4	0.9	420	CUT
7487	8	17.0	0.9	475	CUT
74107	10	18.3	0.9	540	CUT
74127	12	18.8	0.9	575	CUT
74167	16	20.3	0.9	660	CUT
75207	20	23.0	1.25	905	CUT
74247	24	24.8	1.25	1025	CUT
74307	30	26.0	1.25	1140	CUT
Cross Section :1.0					
74210	2	12.7	0.9	290	CUT
74310	3	13.4	0.9	320	CUT
74410	4	14.2	0.9	360	CUT
74510	5	15.0	0.9	400	CUT
74610	6	15.9	0.9	440	CUT
74710	7	15.9	0.9	455	CUT
74810	8	17.7	0.9	510	CUT
741010	10	19.1	0.9	590	CUT
741210	12	19.5	0.9	630	CUT
741610	16	22.8	1.25	860	CUT
752010	20	23.9	1.25	1000	CUT
742410	24	25.9	1.25	1125	CUT
743010	30	27.1	1.25	1260	CUT

Code No.	No. of cores N x mm ²	External diameter approx. mm	Armour Wire Diameter nominal mm	Cable weight approx. kg/km	Packing*
Cross Section :1.5					
74215	2	13.5	0.9	325	CUT
74315	3	14.1	0.9	360	CUT
74415	4	14.9	0.9	400	CUT
74515	5	15.8	0.9	450	CUT
74615	6	16.8	0.9	500	CUT
74715	7	16.8	0.9	520	CUT
74815	8	19.0	0.9	600	CUT
741015	10	20.3	0.9	675	CUT
741215	12	21.5	1.25	855	CUT
741615	16	23.5	1.25	1015	CUT
752015	20	25.5	1.25	1160	CUT
742415	24	28.6	1.6	1505	CUT
743015	30	29.9	1.6	1695	CUT
Cross Section :2.5					
74225	2	14.8	0.9	380	CUT
74325	3	15.4	0.9	430	CUT
74425	4	16.4	0.9	490	CUT
74525	5	17.7	0.9	555	CUT
74625	6	18.9	0.9	620	CUT
74725	7	18.9	0.9	655	CUT
74825	8	21.9	1.25	875	CUT
741025	10	23.6	1.25	1005	CUT
741225	12	24.3	1.25	1095	CUT
741625	16	26.4	1.6	1285	CUT
752025	20	29.7	1.6	1685	CUT
742425	24	32.5	1.6	1935	CUT
743025	30	34.1	1.6	2195	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)YRY Multi Triple

CU/PVC /OSCR/SWA/PVC



Flame Retardant and UV Resistant / Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11)
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/Blue, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC Compound
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816- 2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Blue Ral 5005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes

NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings



Technical data

Conductor Resistance class2 (Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	mm	mm ²	pF/m	
0.5	36	0.6	0.5	-30°C~+70°C (FIXED LAYING)	IEC 60332-3-24
0.75	24.5	0.6	0.75		VDE 0482-332-3-
1.0	18.1	0.6	1.0		EN 60332-3-24
1.5	9	0.6	1.5		BS EN 60332-3-2
2.5	12.1	0.7	2.5		
	7.41				

L/R(Ratio) (Max)		Current Load(25°C)		Operating Voltage	Test Voltage	Bending Radius
mm ²	µH /Ω	mm ²	A			
0.5	25	0.5	6	300/500V	Cr./Cr.=2000 V Cr./Scrn.=2000 V	7,5 X Cable Ø
0.75	25	0.75	13			
1.0	25	1.0	16			
1.5	40	1.5	20			
2.5	60	2.5	25			

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C to +50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)YRY Multi Triple (0.5-2.5)

CU/PVC/OSCR/SWA/PVC

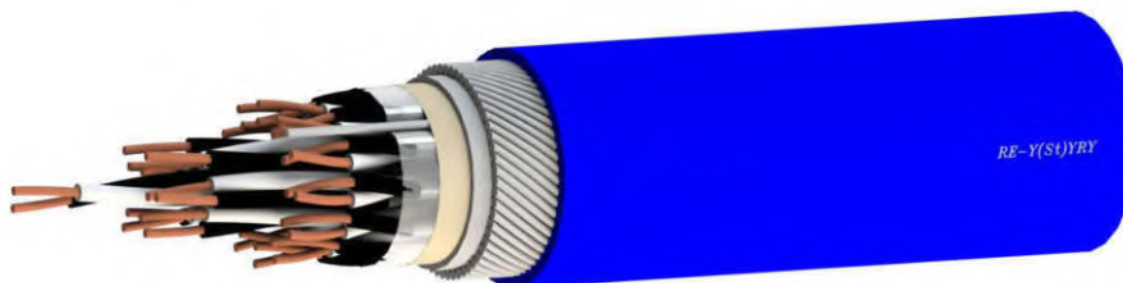
Code No.	No. of cores	External diameter	Armour wire diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3615	1	11.3	0.9	250	CUT
3625	2	14.8	0.9	375	CUT
3635	3	15.5	0.9	415	CUT
3645	4	16.5	0.9	475	CUT
3655	5	17.8	0.9	535	CUT
3665	6	19.0	0.9	595	CUT
3675	7	19.0	0.9	625	CUT
36105	10	23.8	1.25	960	CUT
36125	12	24.4	1.25	1040	CUT
36165	16	26.7	1.25	1230	CUT
36205	20	29.9	1.6	1610	CUT
36245	24	32.7	1.6	1840	CUT
36305	30	34.3	1.6	2070	CUT
Cross Section :0.75					
3617	1	11.8	0.9	275	CUT
3627	2	15.6	0.9	415	CUT
3637	3	16.2	0.9	470	CUT
3647	4	17.5	0.9	545	CUT
3657	5	18.7	0.9	615	CUT
3667	6	20.1	0.9	685	CUT
3677	7	20.1	0.9	720	CUT
36107	10	25.4	1.25	1110	CUT
36127	12	26.0	1.25	1210	CUT
36167	16	29.3	1.6	1625	CUT
36207	20	32.2	1.6	1895	CUT
36247	24	36.1	2.0	2430	CUT
36307	30	37.9	2.0	2725	CUT
Cross Section :1.0					
36110	1	12.2	0.9	290	CUT
36210	2	16.3	0.9	450	CUT
36310	3	17.0	0.9	510	CUT
36410	4	18.4	0.9	600	CUT
36510	5	19.6	0.9	685	CUT
36610	6	22.0	1.25	900	CUT
36710	7	22.0	1.25	945	CUT
361010	10	26.9	1.25	1255	CUT
361210	12	28.3	1.6	1545	CUT
361610	16	30.9	1.6	1820	CUT
362010	20	34.0	1.6	2145	CUT
362410	24	38.1	2.0	2725	CUT
363010	30	40.0	2.0	3095	CUT

Code No.	No. of cores	External diameter	Armour wire diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
36115	1	13.0	0.9	335	CUT
36215	2	17.6	0.9	530	CUT
36315	3	18.4	0.9	610	CUT
36415	4	19.8	0.9	710	CUT
36515	5	22.2	1.25	960	CUT
36615	6	23.7	1.25	1065	CUT
36715	7	23.7	1.25	1130	CUT
361015	10	29.8	1.6	1705	CUT
361215	12	30.9	1.6	1870	CUT
361615	16	33.7	1.6	2235	CUT
362015	20	38.0	2.0	2905	CUT
362415	24	42.1	2.0	3405	CUT
363015	30	45.4	2.5	4330	
Cross Section :2.5					
36125	1	14.4	0.9	410	CUT
36225	2	19.9	0.9	660	CUT
36325	3	21.8	1.25	925	CUT
36425	4	23.5	1.25	1085	CUT
36525	5	25.3	1.25	1240	CUT
36625	6	27.4	1.25	1410	CUT
36725	7	27.4	1.25	1510	CUT
361025	10	35.7	2.0	2525	CUT
361225	12	36.7	2.0	2755	CUT
361625	16	40.7	2.0	3395	CUT
362025	20	45.9	2.5	4410	CUT
362425	24	50.4	2.5	5080	CUT
363025	30	54.5	3.15	6510	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-Y(St)YRY Multi pair

CU/PVC /OSCR/SWA/PVC



Flame Retardant and UV Resistant / Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	PVC (BS/EN 50290-2, VDE 0207 Y11) Pair: Black / white , numbered ; Triple: Black/white/red, numbered
Colour code:	Black/white/red, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC Compound
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2), Black or Blue (RAL 5015) [other colors upon request]
sheath colour:	Blue Ral 5005

APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes



NOTES

RE Instrumentation Cable

Fl*: Flame retardant outer sheath

Yv*: Reinforced sheath version available on request

Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe

Ral 9005 black sheath*: Places where UV resistance is required

Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ² pF/m	
0.5	36		0.6	0.5	-30°C~+70°C (FIXED LAYING) IEC 60332-3-24 VDE 0482-332-3-2 EN 60332-3-24 BS EN 60332-3-24
0.75	24.5		0.6	0.75	
1.0	18.1		0.6	1.0	
1.5	12.1	100	0.6	1.5	
2.5	7.41		0.6	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH/Ω	mm ²	A	
0.5	25	0.5	6	Cr./Cr.=2000 V Cr./Scrn.=2000 V 7,5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -40 °C to +70 °C ; During Installation -5 °C to +50 °C

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
EN 50288-7
DIN VDE 819-7

RE-Y(St)YRY Multi pair (0.5-2.5)

CU/PVC/OSCR/SWA/PVC

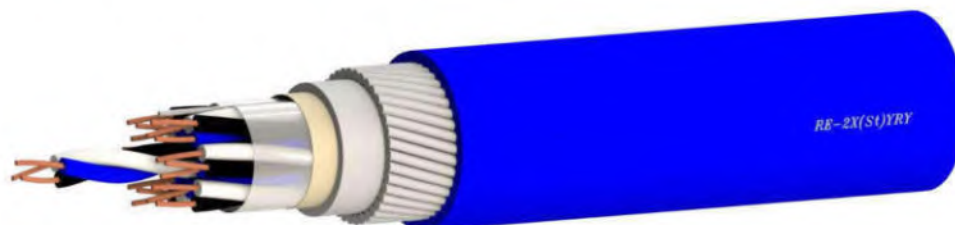
Code No.	No. of cores	External diameter	Armour Wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
3715	1	11.0	0.9	235	CUT
3725	2	13.9	0.9	330	CUT
3735	3	14.4	0.9	360	CUT
3745	4	15.3	0.9	405	CUT
3755	5	16.3	0.9	450	CUT
3765	6	17.5	0.9	500	CUT
3775	7	17.5	0.9	515	CUT
37105	10	21.7	1.25	800	CUT
37125	12	22.4	1.25	860	CUT
37165	16	24.3	1.25	1000	CUT
37205	20	26.6	1.25	1160	CUT
37245	24	29.7	1.6	1480	CUT
37305	30	31.3	1.6	1665	CUT
Cross Section :0.75					
3717	1	11.4	0.9	250	CUT
3727	2	14.6	0.9	360	CUT
3737	3	15.2	0.9	400	CUT
3747	4	16.2	0.9	450	CUT
3757	5	17.4	0.9	510	CUT
3767	6	18.6	0.9	570	CUT
3777	7	18.6	0.9	595	CUT
37107	10	23.2	1.25	915	CUT
37127	12	23.8	1.25	990	CUT
37167	16	25.9	1.25	1150	CUT
37207	20	29.2	1.6	1515	CUT
37247	24	32.0	1.6	1730	CUT
37307	30	33.5	1.6	1945	CUT
Cross Section :1.0					
37110	1	11.8	0.9	270	CUT
37210	2	15.2	0.9	390	CUT
37310	3	15.8	0.9	435	CUT
37410	4	16.9	0.9	500	CUT
37510	5	18.2	0.9	570	CUT
37610	6	19.4	0.9	630	CUT
37710	7	19.4	0.9	670	CUT
371010	10	24.4	1.25	1020	CUT
371210	12	25.1	1.25	1095	CUT
371610	16	27.5	1.25	1310	CUT
372010	20	30.8	1.6	1700	CUT
372410	24	33.7	1.6	1945	CUT
373010	30	36.4	2.0	2470	CUT

Code No.	No. of cores	External diameter	Armour Wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
37115	1	13.4	0.9	295	CUT
37215	2	16.1	0.9	440	CUT
37315	3	16.9	0.9	500	CUT
37415	4	18.3	0.9	585	CUT
37515	5	19.5	0.9	660	CUT
37615	6	21.8	1.25	880	CUT
37715	7	21.8	1.25	920	CUT
371015	10	26.6	1.25	1225	CUT
371215	12	27.3	1.25	1325	CUT
371615	16	30.7	1.6	1780	CUT
372015	20	33.6	1.6	2065	CUT
372415	24	37.6	2.0	2645	CUT
373015	30	39.7	2.0	3015	CUT
Cross Section :2.5					
37125	1	13.8	0.9	360	CUT
37225	2	18.4	0.9	555	CUT
37325	3	19.3	0.9	645	CUT
37425	4	21.6	1.25	880	CUT
37525	5	23.2	1.25	1000	CUT
37625	6	24.9	1.25	1130	CUT
37725	7	24.9	1.25	1190	CUT
371025	10	21.6	1.6	1790	CUT
371225	12	32.5	1.6	1970	CUT
371625	16	36.4	2.0	2625	CUT
372025	20	40.6	2.0	3135	CUT
372425	24	45.5	2.5	4010	CUT
373025	30	48.0	2.5	4540	CUT

) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

RE-2X(St)YRY Multi Triple

CU/XLPE /OSCR/SWA/PVC



Flame Retardant and UV Resistant / Instrumentation Cable

Construction

Conductor:	Plain annealed stranded copper wires (IEC/BS/EN 60228, VDE 0295 Class 2)
Insulation:	EN 50290-2-29 XLPE COMPOUND
Colour code:	Pair: Black / white , numbered ; Triple: Black/white/Blue, numbered
Lay-up	Pairs/Triples are stranded in layers
Separator	Polyester tape
Overall Shielding	24 µm aluminum / PETP tape over 7-stranded tinned copper drain wire, 0.5 mm ²
Inner Sheath	EN 50290-2-22 PVC COMPOUND
Armour	Galvanized Round Steel Wires
Outer Sheath:	UV resistant, Flame retardant PVC (BS/EN 50290-2, VDE 0207 YM1, thickness VDE 0816-2)
sheath colour:	RAL 5015* BLUE; RAL 9005* BLACK [other colors upon request]

APPLICATION

- Instrumentation and control engineering analog and digital signal transmission
- Petroleum refineries
- Petrochemistry industry
- Power plants
- Natural gas pump stations
- Indoors and outdoors, dry, damp and wet environments
- Gas Stations
- Water Conveyance Systems



NOTES

RE Instrumentation Cable
 FI*: Flame retardant outer sheath
 Yv*: Reinforced sheath version available on request
 Ral 5015 blue sheath*: At ex-proof connections in explosive and in flammable environments, intrinsically safe
 Ral 9005 black sheath*: Places where UV resistance is required
 Ral 7032 grey sheath*: Inside of buildings

Technical data

Conductor Resistance class2(Max)	Insulation Resistance (Min)	Insulation Thickness (Nom)	MUTUAL CAPACITY (Max)	Temperature Range	Flame Propagation
mm ²	Ω/km	MΩxKm	mm	mm ²	pF/m
0.5	36	5000	0.6	0.5	-30°C~+70°C (FIXED LAYING) IEC 60332-3-24 VDE 0482-332-3-2 EN 60332-3-24 BS EN 60332-3-24
0.75	24.5		0.6	0.75	
1.0	18.1		0.6	1.0	
1.5	12.1		0.6	1.5	
2.5	7.41		0.7	2.5	

L/R(Ratio) (Max)	Current Load(25°C)	Operating Voltage	Test Voltage	Bending Radius
mm ²	µH / Ω	mm ²	A	
0.5	25	0.5	6	300/500V Cr./Cr.=2000 V Cr./Sern.=2000 V 7.5 X Cable Ø
0.75	25	0.75	13	
1.0	25	1.0	16	
1.5	40	1.5	20	
2.5	60	2.5	25	

Temperature Range Fixed -30 °C to +90 °C ; During Installation -5 °C -+50 °C
 Bending Radius 10 x D

Flame Test IEC/EN/BS/DIN 60332-1-2 (VDE 0482-332-1-2)

Design Standards

IEC 60092-376
 EN 50288-7
 DIN VDE 819-7

RE-2X(St)YRY Multi Triple (0.5-2.5)

CU/XLPE/OSCR/SWA/PVC

Code No.	No. of cores	External diameter	Armour Wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :0.5					
7115	1	12.4	0.9	280	CUT
7125	2	16.6	0.9	425	CUT
7135	3	17.4	0.9	475	CUT
7145	4	18.9	0.9	545	CUT
7155	5	20.2	0.9	610	CUT
7165	6	22.3	1.25	805	CUT
7175	7	22.3	1.25	830	CUT
71105	10	27.4	1.25	2000	CUT
71125	12	29.0	1.6	1365	CUT
71165	16	31.6	1.6	1590	CUT
71205	20	35.7	2.0	2085	CUT
71245	24	39.1	2.0	2380	CUT
71305	30	41.1	2.0	2655	CUT
Cross Section :0.75					
7117	1	12.8	0.9	300	CUT
7127	2	17.4	0.9	465	CUT
7137	3	18.4	0.9	530	CUT
7147	4	19.8	0.9	605	CUT
7157	5	22.0	1.25	820	CUT
7167	6	23.7	1.25	910	CUT
7177	7	23.7	1.25	945	CUT
71107	10	29.8	1.6	1440	CUT
71127	12	30.7	1.6	1545	CUT
71167	16	33.7	1.6	1820	CUT
71207	20	38.0	2.0	2385	CUT
71247	24	41.5	2.0	2710	CUT
71307	30	45.2	2.5	3535	CUT
Cross Section :1.0					
71110	1	13.4	0.9	325	CUT
71210	2	18.1	0.9	500	CUT
71310	3	19.2	0.9	580	CUT
71410	4	21.3	1.25	790	CUT
71510	5	22.9	1.25	890	CUT
71610	6	24.7	1.25	1005	CUT
71710	7	24.7	1.25	1050	CUT
711010	10	31.2	1.6	1575	CUT
711210	12	32.1	1.6	1715	CUT
711610	16	36.1	2.0	2290	CUT
712010	20	39.8	2.0	2660	CUT
712410	24	44.7	2.5	3440	CUT
713010	30	47.6	2.5	3925	CUT

Code No.	No. of cores	External diameter	Armour Wire Diameter	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Cross Section :1.5					
71115	1	14.0	0.9	361	CUT
71215	2	19.4	0.9	575	CUT
71315	3	20.4	0.9	665	CUT
71415	4	22.9	1.25	910	CUT
71515	5	24.6	1.25	1035	CUT
71615	6	26.4	1.25	1165	CUT
71715	7	26.4	1.25	1235	CUT
711015	10	33.6	1.6	1860	CUT
711215	12	35.4	2.0	2280	CUT
711615	16	38.9	2.0	2720	CUT
712015	20	44.4	2.5	3635	CUT
712415	24	48.6	2.5	4125	CUT
713015	30	51.4	2.5	4680	CUT
Cross Section :2.5					
71125	1	15.4	0.9	430	CUT
71225	2	22.6	1.25	850	CUT
71325	3	23.8	1.25	980	CUT
71425	4	25.7	1.25	1150	CUT
71525	5	28.6	1.6	1490	CUT
71625	6	30.8	1.6	1675	CUT
71725	7	30.8	1.6	1775	CUT
711025	10	39.3	2.0	2675	CUT
711225	12	40.4	2.0	2935	CUT
711625	16	46.1	2.5	3989	CUT
712025	20	50.9	2.5	4705	CUT
712425	24	57.3	3.15	6045	CUT
713025	30	60.9	3.15	6940	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

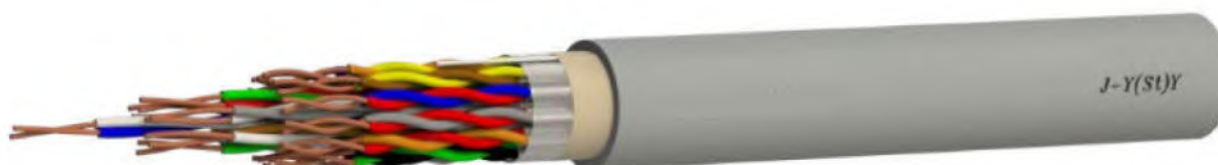


TELECOMMUNICATION CABLES



J-Y(St)Y

CU/PVC/OSC/PVC



Telecommunications installation cable with PVC insulation and sheath and Al-foil screen

Construction

Conductor:	bare solid copper conductor, of 0.4 ,0.5 , 0.6 or 0.8 mm diameter
Insulation:	PVC-compound of type YI1, acc. to DIN VDE 0207, of 0.2 mm or 0.4 mm thickness, per two conductors are stranded in pair, and pairs are stranded in layers, core colour marking is defined acc. to DIN VDE 0815
Separator:	plastic tape
Electrostatic screen:	AL-PES foil 100 % Coverage
Sheath:	PVC-compound YM1 acc. to DIN VDE 0207 part 5, of thickness conforming with DIN VDE 0815
sheath colour:	For Fire Alarm Cables : RAL 3000 Red; For Indoor Telephone Cables : RAL 7070 Grey



Technical data

Temperature range:	
During installation :	+5 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
Operating voltage:	max. 300 V
Nominal voltage:	Uo/U = 300/500 V
Test voltage:	
	core – core 800 V
	core - screen::
Minimal inner bending radius:	to DIN VDE 0891 part 5 during delivery 7,5x cable Ø single bending without tension 5x cable Ø repeated bending under tension 7,5x cable Ø
Behavior in fire:	IEC 60332-1
Insulation resistance:	min. 100 MΩ/km
Mutual capacitance:	max. 100 nF/km
Capacitance unbalance:	(at 800 Hz) max. 300 pF/100m

No Conductor diameter	Maximum resistance	Minimum Insulation resistance
mm	Ohm/km	MΩm.km
0.4	153	
0.5	97.8	500
0.6	6.9	
0.8	37.5	

APPLICATION

Installation cable for transmission of telephone and data (analogue and digital) signals, for fixed installation within dry or damp premises, under or on plaster, also for fixed installation on external walls. Not for direct laying in ground or water, not intended for supply purposes. Electrostatic screen protects transmission circuits against external disturbing electromagnetic impacts.

DESIGN STANDARDS

DIN VDE 0815

Telecommunication Cables

J-Y(St)Y

CU/PVC/OSC/PVC



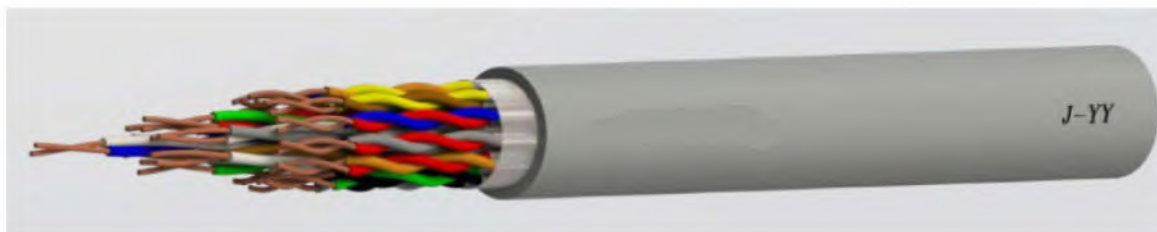
Code No.	NO of Pairs	External diameter	Sheath thickness	Cable weight	Packing*
		approx. mm	nominal mm	approx. kg/km	
Conductor diameter :0.4mm					
21124	1	3.2	0.7	15	R250
21224	2	4.2	0.7	25	R250
21324	3	4.3	0.7	25	R250
21424	4	4.6	0.7	30	c.100
21524	5	5.0	0.7	35	c.100
21624	6	5.2	0.7	35	c.100
21824	8	5.7	0.7	50	c.100
211024	10	6.3	0.8	60	CUT
211524	15	8.2	1.0	90	CUT
212024	20	9.1	1.0	115	CUT
212524	25	10.2	1.2	140	CUT
213024	30	11.0	1.2	170	CUT
214024	40	12.2	1.2	205	CUT
215024	50	13.4	1.2	250	CUT
216024	60	14.7	1.4	300	CUT
2110024	100	17.5	1.6	460	CUT
2120024	200	23.6	1.8	860	CUT
Conductor diameter :0.5mm					
21125	1	3.6	3.6	20	R250
21225	2	4.7	4.7	25	R250
21325	3	4.9	4.9	35	R250
21425	4	5.4	5.4	40	c.100
21525	5	5.7	5.7	45	c.100
21625	6	6.0	6.0	50	c.100
21825	8	6.6	6.6	65	CUT
211025	10	7.3	7.3	80	CUT
211525	15	8.9	1.0	115	CUT
212025	20	9.9	1.0	145	CUT
212525	25	10.8	1.0	175	CUT
213025	30	12.0	1.2	220	CUT
214025	40	13.4	1.2	275	CUT
215025	50	14.8	1.2	335	CUT
216025	60	16.2	1.4	405	CUT
2110025	100	20.4	1.6	640	CUT
2120025	200	27.9	1.8	1,210	CUT

Code No.	NO of Pairs	External diameter	Sheath thickness	Cable weight	Packing*
		approx. mm	nominal mm	approx. kg/km	
Conductor diameter :0.6 mm					
21126	1	3.8	0.7	20	R250
21226	2	4.0	0.7	30	R250
21326	3	5.4	0.7	40	R250
21426	4	5.7	0.7	45	c.100
21526	5	6.2	0.7	55	c.100
21626	6	6.5	0.7	65	c.100
21826	8	7.1	0.7	80	c.100
211026	10	7.9	0.8	100	CUT
211526	15	9.6	1.0	145	CUT
212026	20	10.7	1.0	185	CUT
212526	25	12.1	1.2	235	CUT
213026	30	13.0	1.2	275	CUT
214026	40	14.6	1.2	350	CUT
215026	50	17.2	1.4	455	CUT
216026	60	17.8	1.4	525	CUT
2110026	100	22.0	1.6	1,009	CUT
2120026	200	30.5	1.8	1,620	CUT
Conductor diameter :0.8 mm					
21128	1	5.6	1.0	40	c.100
21228	2	7.6	1.0	65	c.100
21328	3	7.9	1.0	80	CUT
21428	4	8.6	1.0	100	CUT
21528	5	9.4	1.0	115	CUT
21628	6	9.9	1.0	130	CUT
21828	8	10.9	1.0	165	CUT
211028	10	11.8	1.0	200	CUT
211528	15	14.4	1.2	290	CUT
212028	20	16.1	1.2	365	CUT
212528	25	17.7	1.2	445	CUT
213028	30	19.5	1.4	545	CUT
214028	40	22.3	1.6	715	CUT
215028	50	24.7	1.6	720	CUT
216028	60	26.9	1.6	1,040	CUT

*) Packing: c.100 = coil 100 m c.250 = coil 250 m CUT = cable in different lengths on drum or reel, possible cutting at required length

J-YY

CU/PVC/PVC



Telecommunications installation cable with PVC insulation and sheath

Construction

Conductor: solid copper conductor Class I. acc to IEC 60228

Insulation: PVC-compound of type YI1, acc. to DIN VDE 0207, of 0,2 mm or 0,4 mm thickness, per two conductors are stranded in pair, and pairs are stranded in layers, core colour marking is defined acc. to DIN VDE 0815

Separator: plastic tape

Sheath: PVC-compound YM1 acc. to DIN VDE 0207 part 5, of thickness conforming with DIN VDE 0815

sheath colour: grey (RAL 7040),PVC,type YM1

Technical data

Temperature range:

During installation : +5 °C up to +50 °C
fixed installed: -30 °C up to +70 °C
Loop resistance: max. 130 Ohm/km @ 20°C
Operating voltage: max. 300 V
Nominal voltage: 300 V
Test voltage: core/core U eff. 800 V

Minimal inner bending radius: to DIN VDE 0891 part 5 during delivery
7,5x cable Ø single bending without tension 5x cable Ø repeated bending under tension 7,5x cable Ø

Behavior in fire: IEC 60332-1

Insulation resistance: min. 100 MΩ/km
Mutual capacitance: max. 100 nF/km
Capacitance unbalance: (at 800 Hz) max. 3002) pF/100m



APPLICATION

J-YY installation cables are preferably used as telephone cables in telephone stations and sub-extensions, suitable for installation in dry and damp environments in, on and under plaster as well as in the open air for fixed installation on outer walls of buildings. Telephone-Installation cables are not allowed for purposes of high current and power installation.

DESIGN STANDARDS

DIN VDE 0815

Telecommunication Cables

J-YY

CU/PVC/PVC



Code No.	number of pairs x conductor diameter	External diameter	Sheath thickness	Cable weight	Packing*
	N x mm ²	approx. mm	nominal mm	approx. kg/km	
Conductor size :0.4 mm					
24124	1 x 2 x 0,4	3.0	0.7	15	R250
24224	2 x 2 x 0,4	3.9	0.7	20	R250
24324	3 x 2 x 0,4	4.1	0.7	30	R250
24424	4 x 2 x 0,4	4.4	0.7	35	c.100
24524	5 x 2 x 0,4	4.7	0.7	35	c.100
24624	6 x 2 x 0,4	5.0	0.7	20	c.100
24824	8 x 2 x 0,4	5.5	0.7	20	c.100
241024	10 x 2 x 0,4	6.1	0.8	60	CUT
Conductor size :0.5 mm					
24125	1 x 2 x 0,5	3.3	0.7	20	R250
24225	2 x 2 x 0,5	4.4	0.7	25	R250
24325	3 x 2 x 0,5	4.7	0.7	30	R250
24425	4 x 2 x 0,5	5.0	0.7	40	c.100
24525	5 x 2 x 0,5	5.5	0.7	45	c.100
24625	6 x 2 x 0,5	5.7	0.7	50	c.100
24825	8 x 2 x 0,5	6.3	0.7	60	c.100
241025	10 x 2 x 0,5	7.0	0.8	75	CUT
Conductor size :0.6 mm					
24126	1 x 2 x 0,6	3.5	0.7	20	R250
24226	2 x 2 x 0,6	4.7	0.7	30	R250
24326	3 x 2 x 0,6	5.0	0.7	40	R250
24426	4 x 2 x 0,6	5.4	0.7	50	c.100
24526	5 x 2 x 0,6	5.9	0.7	55	c.100
24626	6 x 2 x 0,6	6.2	0.7	60	c.100
24826	8 x 2 x 0,6	6.9	0.7	75	c.100
241026	10 x 2 x 0,6	7.6	0.8	95	CUT

*) Packing: c.100 = coil 100 m R.250 = coil 250 m CUT = cable in different lengths on drum or reel, possible cutting at required length

A-2Y(St)2Y

CU/PE/OSC/PE



Telecommunications installation cable with PE insulation and sheath and Al-foil screen

Construction

Conductor: Solid copper (Class 1)

Insulation: Polyethylene (PE) according to BS EN 50290

Color code: As IEC 60708

Separator: plastic tape

Individual and collective screen: Polyester tape (PET) Aluminum / polyester tape (Al/PET)

Sheath: Polyethylene (PE)

sheath colour: blue (RAL 5015) or black



ELECTRICAL CHARACTERISTICS

Nominal Cross Sectional Diameter mm ²	Electrical resistance of conductor (ohm/Km)	Mutual capacitance Maximum average nF/km(20 pair or more)	Capacitance unbalance Individual value PF Pair-to-pair
0.4	150		250
0.6	66.6	55	250
0.8	36.8		160

Insulation Resistance : >5000MΩXKm

bending radius, fixed installation: 7.5 x D

Temperature range:

during installation: -5 °C up to +50 °C

fixed installed (construction 2Y): -30 °C up to +70 °C

fixed installed (construction 2X): -30 °C up to +90 °C

Nominal voltage: 300 V

Test voltage:

core - core: 1500 V

core - screen: 1500 V

APPLICATION

These multi-element metallic cables are designed for the signal transmission in instrumentation, analogue and digital communication, and control applications in process plants such as those found in the petrochemical and power generation industries. This range of cables is particularly suitable for applications requiring the cable to withstand electromagnetic interference due to their protective screen. RE-2Y(st)2Y are suitable for both fixed and mobile installations. Their low values of signal attenuation and low mutual capacitance enable signal transmission over long distances.

DESIGN STANDARDS

DIN VDE 0816
IEC 60708

A-2Y(St)2Y

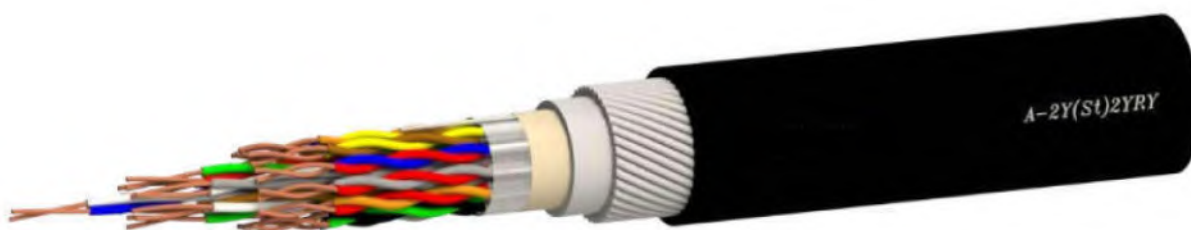
CU/PE/OSC/PE

Code No.	Dimensions - number of cores x conductor diameter	External diameter	Sheath thickness	Cable weight	Packing*
	N x mm ²	Approx. mm	nominal mm	approx. kg/km	
22224	2 x 2 x 0,4	4.7	1,0	19	CUT
22424	4 x 2 x 0,4	5.2	1,0	27	CUT
22624	6 x 2 x 0,4	5.8	1,0	35	CUT
22824	8 x 2 x 0,4	6.2	1,0	42	CUT
221024	10 x 2 x 0,4	6.5	1,0	49	CUT
222024	20 x 2 x 0,4	9.1	1,4	95	CUT
223024	30 x 2 x 0,4	11	1,4	138	CUT
224024	40 x 2 x 0,4	12.2	1,4	175	CUT
225024	50 x 2 x 0,4	12.7	1,8	202	CUT
227024	70 x 2 x 0,4	16.1	1,8	302	CUT
2210024	100 x 2 x 0,4	17.4	1,8	390	CUT
2215024	150 x 2 x 0,4	21.2	1,8	580	CUT
2220024	200 x 2 x 0,4	24.9	2,0	769	CUT
22226	2 x 2 x 0,6	5.8	1.0	30	CUT
22426	4 x 2 x 0,6	6.6	1.0	46	CUT
22626	6 x 2 x 0,6	7.4	1.0	62	CUT
22826	8 x 2 x 0,6	8.1	1.0	77	CUT
221026	10 x 2 x 0,6	8.6	1.0	92	CUT
222026	20 x 2 x 0,6	12.0	1.4	182	CUT
223026	30 x 2 x 0,6	14.4	0.6	264	CUT
224026	40 x 2 x 0,6	16.6	1.8	348	CUT
225026	50 x 2 x 0,6	18.8	1.8	433	CUT
227026	70 x 2 x 0,6	20.7	1.8	575	CUT
2210026	100 x 2 x 0,6	24.4	2.0	811	CUT
2215026	150 x 2 x 0,6	29.0	2.0	1173	CUT
2220026	200 x 2 x 0,6	33.1	2.2	1536	CUT
22228	2 x 2 x 0,8	6.8	1.0	47	CUT
22428	4 x 2 x 0,8	7.7	1.0	73	CUT
22628	6 x 2 x 0,8	8.9	1.0	100	CUT
221028	10 x 2 x 0,8	11.1	1.4	163	CUT
222028	20 x 2 x 0,8	15.2	1.8	309	CUT
223028	30 x 2 x 0,8	17.8	1.8	436	CUT
224028	40 x 2 x 0,8	19.9	1.8	563	CUT
225028	50 x 2 x 0,8	22.2	1.9	706	CUT
227028	70 x 2 x 0,8	25.8	2.0	961	CUT
2210028	100 x 2 x 0,8	30.4	2.2	1360	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

A-2Y(St)2YRY

CU/PE/OSC/PE Bedding/SWA/PVC



Armored Telecommunications installation cable with PE insulation and PVC sheath and Al-foil screen

Construction

Conductor:	Solid copper (Class 1)
Insulation:	Polyethylene (PE) according to BS EN 50290
Color code	As IEC 60708
Separator:	plastic tape
Individual and collective screen :	Polyester tape (PET) Aluminum / polyester tape (Al/PET)
Armour	galvanized round steel wires, acc. to EN 10257-1
Sheath:	Polyvinyl Chloride (PVC)
sheath colour:	blue (RAL 5015) or black



APPLICATION

Cable with protective screen against electromagnetic impacts, for reliable and quick (up to 200 kB/s) transmission of analogue and digital signals, suitable for fixed and mobile installations in process control and data processing systems, mostly in chemical and petrochemical industrial plants and electric power plants. Low values of signal attenuation and low mutual capacitance enable large-distance signal transmission. Steel wire armour ensures resistance to mechanical damages. Laid in dry and damp premises, also outdoor, in air or ground. Not intended for supply purposes.

ELECTRICAL CHARACTERISTICS

Nominal Cross Sectional Diameter mm ²	Electrical resistance of conductor (ohm/Km)	Mutual capacitance Maximum average nF/km(20 pair or more)	Capacitance unbalance Individual value PF Pair-to-pair
0.6	66.6		250
0.8	36.8	55	160

Insulation Resistance : >5000MΩXKm

bending radius, fixed installation: 10 x D

Temperature range:

during installation: -5 °C up to +50 °C

fixed installed
(construction 2Y): -30 °C up to +70 °C

fixed installed
(construction 2X): -30 °C up to +90 °C

Nominal voltage: 300 V

Test voltage:

core - core: 1500 V

core - screen: 1500 V

DESIGN STANDARDS

Generally as IEC 60708

A-2Y(St)2YRY

CU/PE/OSC/PE Bedding/SWA/PVC

Code No.	Dimensions - number of cores x conductor diameter	Diameter Under Armor	Armour wire Diameter	External diameter	Sheath thickness	Cable weight	Packing*
	N x mm ²	Approx. mm	mm	Approx. mm	nominal mm	approx. kg/km	
Conductor size : 0.6 mm							
23226	2 x 2 x 0,6	5.9	0.9	10.5	1.4	205	CUT
23426	4 x 2 x 0,6	6.7	0.9	11.1	1.4	240	CUT
23626	6 x 2 x 0,6	7.5	0.9	12.2	1.4	275	CUT
231026	10 x 2 x 0,6	9.2	0.9	13.8	1.4	350	CUT
231526	15 x 2 x 0,6	10.9	0.9	15.7	1.6	450	CUT
232026	20 x 2 x 0,6	11.9	1.6	17.2	1.6	520	CUT
233026	30 x 2 x 0,6	14.2	1.6	19.1	1.6	640	CUT
235026	50 x 2 x 0,6	17.5	1.8	23.5	1.8	1035	CUT
2310026	100 x 2 x 0,6	23.7	2.0	30.9	2.0	1820	CUT
2315026	150 x 2 x 0,6	28.5	2.0	36.8	2.2	2640	CUT
2320026	200 x 2 x 0,6	32.1	2.0	40.8	2.2	3185	CUT
Conductor size : 0.8 mm							
23228	2 x 2 x 0,8	6.9	0.9	11.5	1.4	245	CUT
23428	4 x 2 x 0,8	7.8	0.9	12.4	1.4	305	CUT
23628	6 x 2 x 0,8	9.0	0.9	13.8	1.4	355	CUT
23828	8 x 2 x 0,8	9.7	0.9	14.5	1.4	405	CUT
231028	10 x 2 x 0,8	11.2	0.9	15.8	1.4	465	CUT
231528	15 x 2 x 0,8	13.1	0.9	17.8	1.4	570	CUT
232028	20 x 2 x 0,8	14.5	1.3	20.2	1.6	805	CUT
232528	25 x 2 x 0,8	15.8	1.3	21.2	1.6	895	CUT
233028	30 x 2 x 0,8	17.1	1.3	22.4	1.6	985	CUT
235028	50 x 2 x 0,8	21.7	1.6	28.2	1.6	1580	CUT
2310028	100 x 2 x 0,8	29.8	2.0	37.2	1.8	2810	CUT

*) Packing: CUT = cable in different lengths on drum or reel, possible cutting at required length

Cat 6S/FTP

CU/HDPE/ISC/TWB/PVC(HFFR)



LAN cable with 4 pairs, category 6, with individual Al-foil screen and common braid

Construction

Conductor:	copper (bare, single wired/solid), diameter 0,57mm, AWG23
Insulation:	polyethylene (PE), external diameter 1,2 mm,
Pairs Screen:	(around one or two pairs) aluminum-laminated plastic foil
Common screen:	braid of Aluminium wires, covering min. 65%
Sheath	PVC; halogen-free (LSHF, LSOH, FRNC); resistant to flame propagation acc. to IEC 60332-3 (LSHF-FR, LSFROH, FRNC-C)
sheath Color	Orange Ral 2000
external diameter	7.3-7.9 mm
Conductor colour marking:	
1. pair:	blue / white
2. pair:	orange / white
3. pair:	green / white
4. pair:	brown / white

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
maximum operation temperature :	+60 °C
Nominal voltage:	250V
Test voltage:	1200V
Minimal inner bending radius:	8 X D
DC Resistance(Ω/100m):	≤9,5
Capacitance(nf/100m)	≤5,6
Capacitance Unbalance	2%
Propagation Velocity	67-69%
Behavior in fire:	IEC 60332-1
Maximal tensile strength:	Max 100N
Cable Weight(approx.)	
	PVC: 45kg/km
	LSHF: 50 kg/km

APPLICATION

Cable applied in structured local networks of class E for high speed data and voice transmission, at primary, secondary (vertical) and tertiary (horizontal) level. Standardized for application up to 250 MHz (in certain configurations even up to 500 MHz).

Length of this cable in 1000BASE-T networks is restricted at max. 100 m (ordinarily installed cables max. 90 m, with connecting cables of up to 5 m at both ends). Applicable in 10GBASE-T networks too, but with max. length of 55 m.

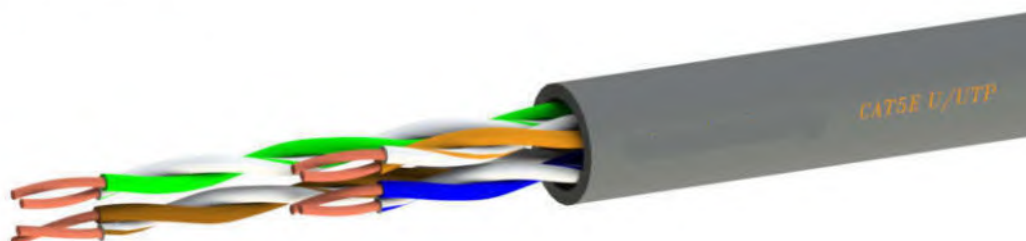
DESIGN STANDARDS

ISO/IEC 11801
IEC 61156-5
EN 50173
EN 50288-5-1
TIA/EIA-568-B

Frequency	Attenuation	NEXT	PS-NEXT	ACR	PS-ACR	ELFEXT	PS-ELFEXT	Return losses
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB/100m	dB/100m	dB
1	1,8	100	97	98	95	105	105	
4	3,4	100	97	97	94	105	102	27
10	5,4	100	97	95	92	97	94	30
16	6,8	100	97	93	90	93	90	30
20	7,7	100	97	92	89	91	88	30
31,2	9,6	100	97	90	87	87	84	30
62,5	13,7	100	97	86	83	81	78	30
100	17,4	100	97	83	80	77	74	30
125	19,5	95	92	75	72	75	72	26
155,5	21,9	94	91	72	69	73	70	26
175	23,3	93	90	70	67	72	69	25
200	25,0	92	89	67	64	71	68	25
250	28,1	90	87	62	59	69	66	24

Cat 5e U/UTP

CU/HDPE/PVC(HFFR)



LAN cable with 4 pairs, category 5e, without screen

Construction

Conductor:	copper (bare, single wired/solid), diameter 0,51mm, AWG24
Insulation:	polyethylene (PE), external diameter 0.9 mm, per two conductors twisted in pairs
Sheath	PVC; halogen-free (LSHF, LSOH, FRNC); resistant to flame propagation acc. to IEC 60332-3 (LSHF-FR, LSFROH, FRNC-C)
sheath Color	Grey Ral 7043
external diameter	4.9-5.1 mm

Conductor colour marking:

1. pair: blue / white
2. pair: orange / white
3. pair: green / white
4. pair: brown / white

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
maximum operation temperature :	+60 °C
Nominal voltage:	250V
Test voltage:	1200V
Minimal inner bending radius:	8 X D
DC Resistance(Ω/100m):	≤9.5
Capacitance(nf/100m)	≤5.6
Capacitance Unbalance	2%
Propagation Velocity	67-69%
Behavior in fire:	IEC 60332-1
Maximal tensile strength:	Max 100N
Cable Weight(approx.)	
	PVC: 35 kg/km
	LSHF: 36 kg/km

APPLICATION

Cable applied in structured local networks of class D for high speed data and voice transmission, at primary, secondary (vertical) and tertiary (horizontal) level. Standardized for application up to 100 MHz

Length of this cable in Ethernet networks is restricted at max. 100 m (ordinarily installed cable max. 90 m, with connecting cables up to 5 m at both ends). Can be laid in cable canals.

DESIGN STANDARDS

ISO/IEC 11801
IEC 61156-5
EN 50173
EN 50288-5-1
TIA/EIA-568-B



Frequency	Attenuation	NEXT	PS-NEXT	ACR	PS-ACR	ELFEXT	PS-ELFEXT
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB/100m	dB/100m
1	1,9	71	68	69,1	66,1	68	65
4	3,7	62	59	58,3	55,3	56	53
10	6,0	56	53	50,0	47,0	48	45
16	7,6	53	50	45,4	42,4	44	41
20	8,5	51	48	42,5	39,5	42	39
31,2	10,7	49	46	38,3	35,3	38	35
62,5	15,7	44	41	28,3	25,3	32	29
100	19,8	41	38	21,2	18,2	28	25

Cat 6SF/UTP

CU/HDPE/OSC/AWB/PVC(HFFR)



LAN cable with 4 pairs, category 6, with Overall Al-foil screen and Aluminium wire braid

Construction

Conductor:	copper (bare, single wired/solid), diameter 0,57mm, AWG23
Insulation:	polyethylene (PE), external diameter 1,2 mm,
overall Screen:	aluminum-laminated plastic foil
Common screen:	braid of Aluminium wires, covering min. 65%
Sheath	PVC; halogen-free (LSHF, LSOH, FRNC); resistant to flame propagation acc. to IEC 60332-3 (LSHF-FR, LSFROH, FRNC-C)
sheath Color	Orange Ral 2000
external diameter	7.3-7.9 mm
Conductor colour marking:	
1. pair:	blue / white
2. pair:	orange / white
3. pair:	green / white
4. pair:	brown / white

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
maximum operation temperature :	+60 °C
Nominal voltage:	250V
Test voltage:	1200V
Minimal inner bending radius:	8 X D
DC Resistance(Ω/100m):	≤9,5
Capacitance(nf/100m)	≤5,6
Capacitance Unbalance	2%
Propagation Velocity	67-69%
Behavior in fire:	IEC 60332-1
Maximal tensile strength:	Max 100N
Cable Weight(approx.)	
	PVC: 55kg/km
	LSHF: 65 kg/km

APPLICATION

Cable applied in structured local networks of class E for high speed data and voice transmission, at primary, secondary (vertical) and tertiary (horizontal) level. Standardized for application up to 250 MHz (in certain configurations even up to 500 MHz).

Length of this cable in 1000BASE-T networks is restricted at max. 100 m (ordinarily installed cables max. 90 m, with connecting cables of up to 5 m at both ends). Applicable in 10GBASE-T networks too, but with max. length of 55 m.

DESIGN STANDARDS

ISO/IEC 11801
IEC 61156-5
EN 50173
EN 50288-5-1
TIA/EIA-568-B

Data Cables



Nominal characteristics of signal transmission (at 20 °C)

Frequency	IL	NEXT	PS.NEXT	ACR	PS.ACR	ACRF	PS.ACRF	RL	Propagation Delay	Delay Skew
(MHz)	Max. dB/100 m	Min. dB/100m	Min. dB/100m	Min. dB/100m	Min. dB/100m	Min. dB/100m	Min. dB/100m	Min. dB/100 m	Max. ns/100m	Max. ns/100m
1	2.03	74.3	72.30	72.28	70.28	67.8	64.8	20	570	45
4	3.78	65.27	63.27	61.49	59.49	55.76	52.76	23.01	552	
8	5.32	60.75	58.75	55.43	53.43	49.74	46.74	24.52	546.73	
10	5.95	59.3	57.3	53.35	51.35	47.8	44.8	25	545.38	
16	7.55	56.24	53.24	48.68	46.68	43.72	40.72	25	543	
20	8.47	54.78	52.78	46.31	44.31	41.78	38.78	25	542.05	
25	9.51	53.33	51.33	43.83	41.83	39.84	36.84	24.32	541.2	
31.25	10.67	51.88	49.88	41.2	39.2	37.9	34.9	23.64	540.44	
62.5	15.38	47.36	45.36	31.98	29.98	31.88	29.88	21.54	538.55	
100	19.8	44.3	42.3	24.5	22.5	27.8	24.8	20.11	537.6	
150	24.71	41.66	39.66	16.95	14.95	24.28	21.28	18.87	536.94	
200	28.98	39.78	47.78	10.8	8.8	21.78	18.78	18	536.55	
250	32.85	38.33	36.33	5.48	3.48	19.84	16.84	17.32	536.28	

Cat 6U/FTP

CU/HDPE/FTP/PVC



LAN cable with 4 pairs, category 6, with individual Al-foil screen

Construction

Conductor:	copper (bare, single wired/solid), diameter 0,57 mm, AWG23
Insulation:	polyethylene (PE), external diameter 1,2 mm,
Pairs screen:	(around one or two pairs) aluminum-laminated plastic foil + tinned copper contact conductor of 0,48 mm diameter, AWG26
Stranding	4-PAIR COMMON TWIST WITH CENTRAL ELEMENT
Sheath	PVC; halogen-free (LSHF, LSOH, FRNC); resistant to flame propagation acc. to IEC 60332-3 (LSHF-FR, LSFROH, FRNC-C)
sheath Color	By Request
external diameter	6,2 - 6,8 mm
Conductor colour marking:	
1. pair:	blue / white
2. pair:	orange / white
3. pair:	green / white
4. pair:	brown / white

APPLICATION

Category 6 supports a frequency range of up to 250MHz and is designed for transmission speeds of up to 1 gigabit per second (Gigabit Ethernet). Cat6 offer improved performance and transmission reliability, especially in connection with the 1000BaseT and 1000BaseTX protocols.

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
maximum operation temperature :	+60 °C
Nominal voltage:	250V
Test voltage:	1200V
Minimal inner bending radius:	8 X D
DC Resistance(Ω/100m):	≤9,5
Mutual Capacitance	56 Nf/Km
Capacitance Unbalance	2%
Propagation Velocity	67-69%
Behavior in fire:	IEC 60332-1
Fire load:	PVC: 542 MJ/km LSHF: 501 MJ/km
Maximal tensile strength:	Max 100N
Cable Weight(approx.)	PVC: 41 kg/km LSHF: 44 kg/km

DESIGN STANDARDS

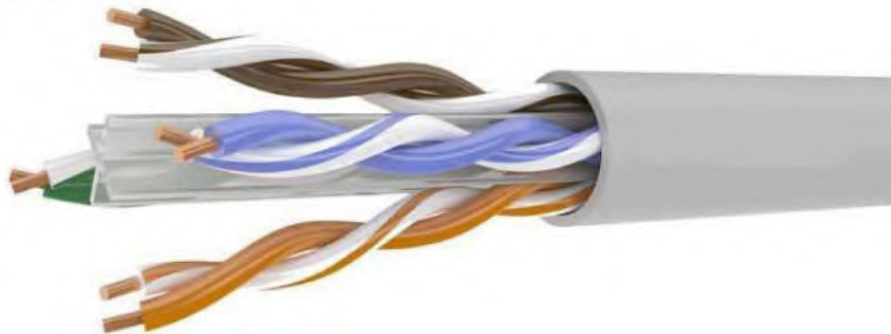
ISO/IEC 11801
IEC 61156-5
EN 50173
EN 50288-5-1
TIA/EIA-568-B

Nominal characteristics of signal transmission (at 20 °C)

Frequency	Insertion Loss	NEXT	PS-NEXT	ACR	PS-ACR	ELFEXT	PS-ELFEXT	Return losses
MHz	dB/100m	dB	dB	dB/100m	dB/100m	dB/100m	dB/100m	dB
	nominal	nominal	nominal	nominal	nominal	nominal	nominal	min.
1	1,8	100	97	98	95	105	105	25
4	3,4	100	97	97	94	105	102	27
10	5,4	100	97	95	92	97	94	30
16	6,8	100	97	93	90	93	90	30
20	7,7	100	97	92	89	91	88	30
31,2	9,6	100	97	90	87	87	84	30
62,5	13,7	100	97	86	83	81	78	30
100	17,4	100	97	83	80	77	74	30
125	19,5	95	92	75	72	75	72	26
155,5	21,9	94	91	72	69	73	70	26
175	23,3	93	90	70	67	72	69	25
200	25,0	92	89	67	64	71	68	25
250	28,1	90	87	62	59	69	66	24
300	30,9	89	86	58	55	67	64	24
400	38,3	87	84	48	45	64	61	23

Cat 6U/UTP

CU/HDPE/PVC(HFFR)



LAN cable with 4 pairs, category 6

Construction

Conductor:	copper (bare, single wired/solid), diameter 0,57mm, AWG23
Insulation:	polyethylene (PE), external diameter 1 mm, per two conductors twisted in pairs
Pairs separator:	polyethylene of cross-shaped cross-section
Sheath	PVC; halogen-free (LSHF, LSOH, FRNC); resistant to flame propagation acc. to IEC 60332-3 (LSHF-FR, LSFROH, FRNC-C)
sheath Color	Orange Ral 2000
external diameter	6.7-6.9 mm

Conductor colour marking:

1. pair: blue / white
2. pair: orange / white
3. pair: green / white
4. pair: brown / white

APPLICATION

Cable applied in structured local networks of class E for high speed data and voice transmission, at primary, secondary (vertical) and tertiary (horizontal) level. Standardized for application up to 250 MHz (in certain configurations even up to 400 MHz).

Length of this cable in 1000BASE-T networks is restricted at max. 100 m (ordinarily installed cable max. 90 m, with connecting cables of up to 5 m at both ends).

Technical data

Temperature range:	
During installation :	-5 °C up to +50 °C
maximum operation temperature :	+60 °C
Nominal voltage:	250V
Test voltage:	1200V
Minimal inner bending radius:	8 X D
DC Resistance(Ω/100m):	≤9,5
Capacitance(nf/100m)	≤5,6
Capacitance Unbalance	2%
Propagation Velocity	67-69%
Behavior in fire:	IEC 60332-1
Fire load:	PVC: 358 MJ/km LSHF: 329 MJ/km
Maximal tensile strength:	Max 100N
Cable Weight(approx.)	PVC: 40 kg/km LSHF: 42 kg/km

DESIGN STANDARDS

ISO/IEC 11801
IEC 61156-5
EN 50173
EN 50288-5-1
TIA/EIA-568-B

Nominal characteristics of signal transmission (at 20 °C)

Frequency (MHz)	Insertion Loss (dB)	NEXT (dB)	ACR-N (dB)	RL (dB)	PS NEXT (dB)	PS ACR-N (dB)	ACR-F (dB)	PS ACR-F (dB)
1	1.6	86.9	85.3	44.8	85.1	83.5	70.6	70.3
4	3.2	79	75.7	33.8	75.5	72.3	59	58.5
10	5.1	66.6	61.3	39.2	65.5	60.4	51.4	51.1
16	6.5	66.5	59.8	39.6	66	59.5	48	47.4
18	6.9	63.4	56.3	37.9	63.2	56.3	47.1	46.5
25	8.2	73.8	65.3	39.2	72.2	64	44.3	43.9
32.5	9.4	62.5	52.8	36.9	61.7	52.3	41.9	41.8
45	11.2	62	50.5	34.8	59.4	48.2	40	39.9
62.25	13.3	55.4	41.8	37.7	55	41.7	39.6	38.5
100	17.1	52.8	35.3	39.7	52.7	35.6	40.5	37.1
110	17.9	54.5	36.1	36.6	53.4	35.5	42.7	36.7
125	19.2	51.1	31.4	31.9	50.3	31.1	42.4	35.7
150	21.1	53.6	32	34.9	53.5	32.4	36.6	33.4
175	22.9	54.9	31.4	39.5	51.5	28.6	31.8	29.6
200	24.6	44.5	19.2	33.5	43.9	19.3	28.4	27.2
225	26.2	50.6	23.6	35.1	49.7	23.5	27.9	25.6
250	27.6	53.4	24.9	28.9	50.3	22.7	27.5	26.3

Drop Wire

CU/PE or PVC+ Galvanized Steel Wire



Self-Supporting Drop Wires

Construction

Conductor: Solid annealed bare copper 0.6 mm or 0.9mm as per ASTM B-3/class 1 of IEC 60228.

Steel Bearer Wire: Galvanized steel wire, solid.

Insulation :

- Black PE Type 1 Class C Category 4 or 5 Grade J-3 as per ASTM D1248
- High density black PVC which can be made ultraviolet resistant by addition of carbon black.



Technical data

Temperature range	
During installation :	-20 °C up to +50 °C
fixed installed:	-30 °C up to +70 °C
ambient temperature at storage:	up to 40 °C
Test voltage:	15KV DC / 5Sec
Minimal inner bending radius:	8D
Nominal Insulation Thickness :	0.8mm
Insulation Resistance 500v/1min:	2000 MΩ/km
Nominal Diameter of Steel Wire Core :	0.7 mm
Tensile Strength of Steel Wire :	1400N/mm ²
Maximum Breaking Strength :	155 Kg

APPLICATION

The drop wires are designed for extending a distribution cable pair from a pole or cable terminal to a subscriber premises. The cables are suitable for aerial installation.

DESIGN STANDARDS

TC1

Code No	conductor Size	Diameter of Supporting Wire	Nominal Insulation Diameter	Insulation thickness	Conductor resistance at 20 °C	Cable weight	Mutual Capacitance	Packing*
	mm	nominal n x mm	min-max. mm	nominal mm	max. Ω/km	approx. kg/km	nf/km	
11415	2 x 0.6	1 x 0.7	2.2-2.3	0.8	63.0	19	39±2	c.500
11425	2 x 0.9	1 x 1.2	3.05-3.1	1.0	28.0	29	39±2	c.500

*)Packing: c.500 = coil 500 m ; Other length as request

Jumper Wires (Y,YV)

CU/PVC

TCU/PVC



In Telephone and signaling Installations

Construction

Conductor: solid plain or tinned annealed copper conductor

Insulation: PVC-compound

APPLICATION

Y: in telephone wiring and signal installations.

YV: in telephone exchange for cross connection of frames and equipment.

Technical data

Operating Temperature : -30 °C up to +70 °C

Nominal Voltage :
400V (Y wire)
500V (0.5/0.9 YV wire)
1500V (1.8/2.8 YV wire)

Design Standards : VDE 0812/VDE 0815/TCI

Electrical data for Y wires

Conductor diameter / wire diameter (mm)	Max. conductor resistance at 20°C (Ω/km)	Min. insulation resistance at 20°C (MΩ.km)	Operating voltage, peak(V)	Test voltage, DC (kV)
0.5 / 0.9	95	500	400	1.5 (for 1 min.)
0.5 / 1.1	95	500	400	1.5 (for 1 min.)
0.6 / 1.1	65	500	400	1.5 (for 1 min.)

Electrical data for YV wires

Conductor diameter / wire diameter (mm)	Max. conductor resistance at 20°C (Ω/km)	Min. insulation resistance at 20°C(MΩ.km)	Operating voltage, peak(V)	Test voltage, DC(kV)
0.5 / 0.9	95	500	500	1.5 (for 1 min.)
0.5 / 1.1	95	500	900	1.5 (for 1 min.)
0.6 / 1.1	66.5	500	900	1.5 (for 1 min.)

Dimensional data

No x Conductor Diameter	Insulation Thickness	Overall Diameter	Weight
mm	mm	mm	Kg/Km
2x0.6	0.25	1.1 2.2	7
2x0.5	0.2	0.9 1.8	4.8

Microphone Cable 2x0.22

CU/PE(PVC)/SCR/PVC



Microphone cable with Spiral Screen

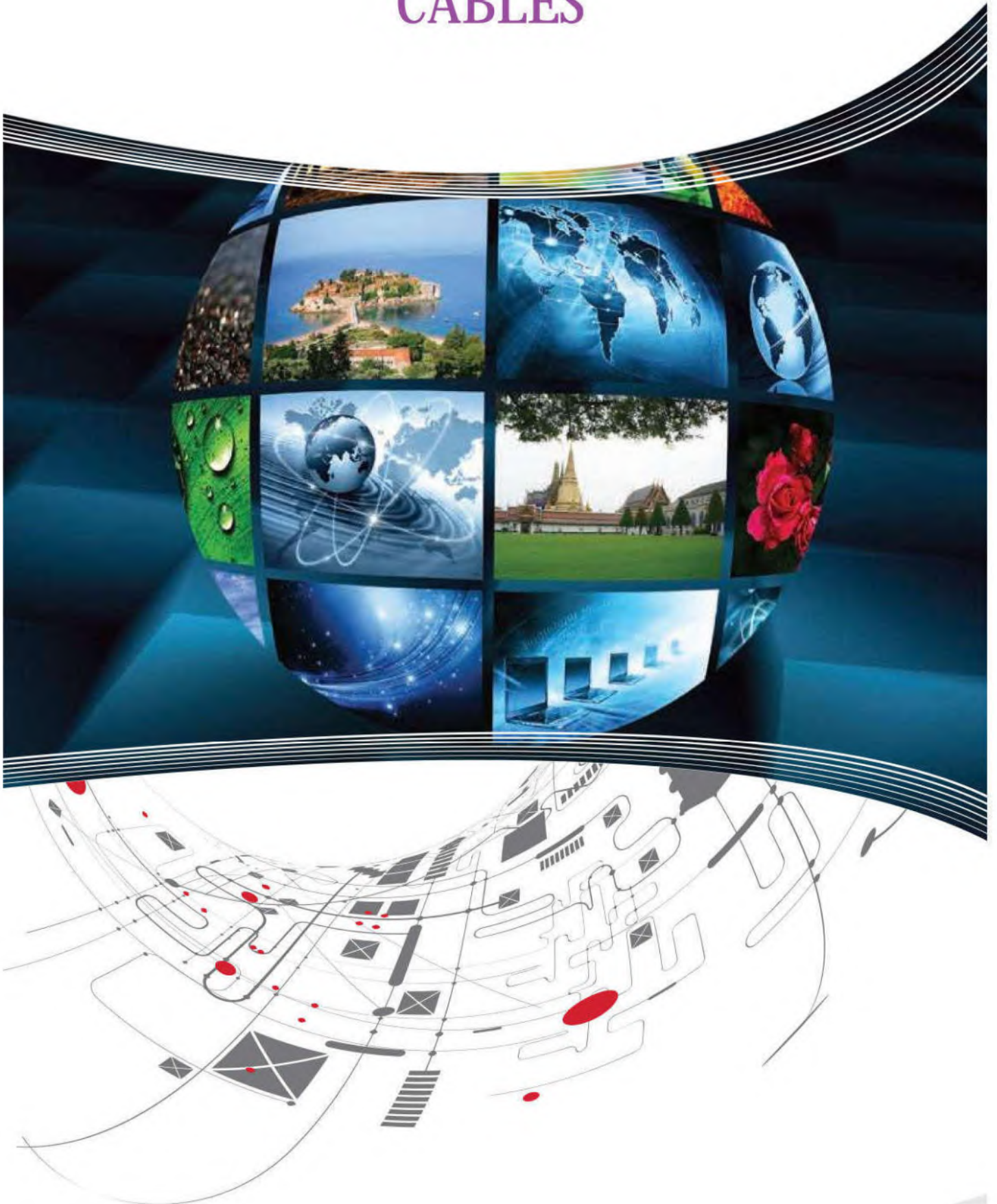
Construction	Technical data
Conductor: Stranded Bare copper Class 5 Acc to IEC 60228	Weight: approx. 46 kg/km
Insulation: PE or PVC	Min. bending radius for laying 60 mm
Core colours: Blue - Red	Operating temperature range min -25°C
Stranding Element 2 cores with textile filler stranded	Operating temperature range max. +70°C
Common screen: Spiral Screen of copper wires	Conductor resistance, max. 78 Ohm/km
Sheath PVC or Halogen free	Insulation resistance, min. 1 GOhm x km
sheath Color Red or by request	
external diameter 6.4 mm (nom)	

APPLICATION

The 2-core ZMC 222 microphone cable with spiral screen made of bare copper wires is suitable for use in professional stage and studio operation.



COAXIAL CABLES



Coaxial Cables

RG 8 A/U – 50Ω



Construction:

- **Inner Conductor** : stranded bare copper construction: 7 x 0,72mm
- **Insulation (dielectric)**: core insulation of polyethylene (PE) Ø ca. 7,4mm
- **External conductor**: screen of bare copper braiding
- **Sheath**: PVC, external diameter 10.3 ± 0,10 mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (52 mm)
- under load: 10D (103 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 470 N

Cable weight: 170 kg/km

Design Standard

US Standard MIL -C - 17

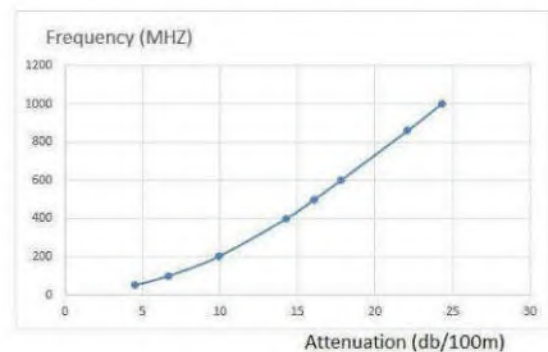
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance		[MΩ/km]	>2000
Impedence	ZL	[Ohm]	50 +/-2
Attenuation	100 MHz	[dB / 100 m]	6.7
Mutual capacitance		[PF/m]	97
Rel. velocity ratio	V rel	%	66
Electric strength	50 Hz	[KV] eff.	10
Test/Operatig Voltage(max)		[kV]	10/5KV
Inner conductor Resistance @20°C		[Ω/km]	<6.2

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG8 coaxial cable is applied for inst. for radio signal transmission. Suitable for larger distances. Polyethylene of low dielectric constant enables high-speed signal diffusion, and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C
MHz	dB/100
50	4.5
100	6.7
200	9.9
400	14.3
500	16.1
600	17.8
860	22.1
1000	24.3



RG 11/U 75Ω



Construction:

- **Inner Conductor** : tinned copper, multi wire stranded, diameter 1,17 mm, 7 x 0,39 mm
- **Insulation (dielectric)**: polyethylene, external
- **External conductor**: copper wires braid, 96% optical covering
- **Sheath**: PVC, external diameter 10,1 ± 0,2 mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (50 mm)
- under load: 10D (100 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 345 N

Cable weight: 137 kg/km

Design Standard

US Standard MIL -C - 17

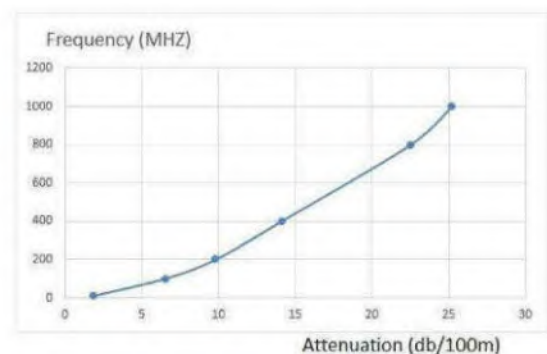
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance	R iso	[MΩ/km]	10000
Impedence	ZL	[Ω]	75 +/-3
Attenuation	100 MHz	[dB / 100 m]	7.7
Capacitance	C	[NF/km]	67
Rel. velocity ratio	V rel	%	67
Electric strength	50 Hz	[KV] eff.	10
Operating peak voltage		[kv]	5.2

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG11 coaxial cable is applied for inst. in video surveillance systems, but can be also used for larger distances. Foamed polyethylene of low dielectric constant enables high-speed signal diffusion, and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C	Max. permitted strength (at outdoor temperature of 25 °C and max. conductor temperature of 70 °C)
MHz	dB/100	W
10	1.8	2800
100	6.5	810
200	9.8	450
400	14.1	370
800	22.5	65
1000	25.2	40



Coaxial Cables



RG 58/U 50Ω



Construction:

- Inner Conductor : tinned copper, fine wired stranded, diameter $0,9 \pm 0,01$ mm, $19 \times 0,18$ mm
- Insulation (dielectric): polyethylene, external diameter $2,95 \pm 0,05$ mm
- External conductor: braid of tinned copper wires $0,10$ mm, 96% optical overlap
- Sheath: PVC, external diameter $4,95 \pm 0,10$ mm
- sheath colour: black

Technical Data :

Temperature range:

- ✓ during installation: -15°C up to $+55^{\circ}\text{C}$
- ✓ operating temp.: -40°C up to $+85^{\circ}\text{C}$

Min. inner bending radius:

- ✓ without load: 5D (25 mm)
- ✓ under load: 10D (50 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 120 N

Cable weight: 37 kg/km

Design Standard

US Standard MIL -C - 17

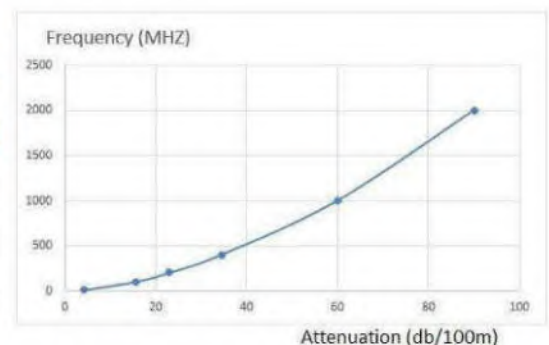
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance	R iso	[MΩ/km]	10000
Impedance	ZL	[Ω]	50 +/- 2
Attenuation	100 MHz	[dB / 100 m]	15,3
Capacitance	C	[nF/km]	100
Rel. velocity ratio	V rel	%	67
Electric strength	50 Hz	[KV] eff.	5
Operating peak voltage		[kV]	2,5

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG58 coaxial cable is applied for inst. in two-way radio systems and for connection of measurement equipment. Earlier applied as Ethernet cable, which was replaced with CAT 5e cable. Polyethylene of low dielectric constant enables high-speed signal diffusion and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C	Max. permitted strength (at outdoor temperature of 25 °C and max. conductor temperature of 70 °C)
MHz	dB/100	W
10	4,2	750
100	15,7	230
200	23,0	180
400	34,5	110
1000	60,0	65
2000	90,0	40
3000	120,0	30



Coaxial Cables

RG 59/U 75Ω



Construction:

- **Inner Conductor** : bare copper diameter $0,59 \pm 0,01$ mm (20 AWG)
- **Insulation (dielectric)**: PE, external diameter $3,70 \pm 0,05$ mm
- **External conductor**: braid of bare copper wires $0,16$ mm, 95% optical overlap
- **Sheath**: PVC, external diameter $6,15 \pm 0,10$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to $+55$ °C
- operating temp.: -40 °C up to $+85$ °C

Min. inner bending radius:

- without load: 5D (31 mm)
- under load: 10D (62 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 145 N

Cable weight: 57kg/km

Design Standard

US Standard MIL -C - 17

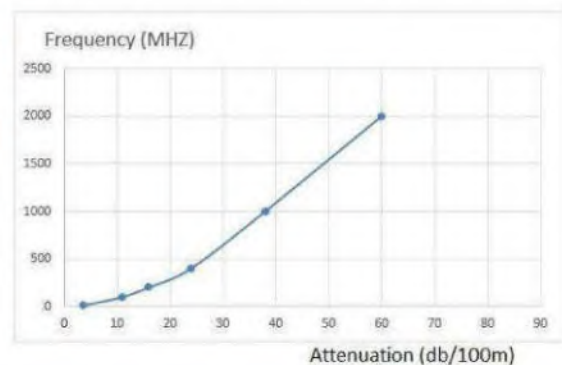
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance	R iso	[MOhm/km]	10000
Impedence	ZL	[Ohm]	75 +/-3
Attenuation	100 MHz	[dB / 100 m]	11.1
Mutual capacitance		[Ohm/km]	180
Capacitance	C	[NF/km]	67
Rel. velocity ratio	V rel	%	67
Electric strength	50 Hz	[KV] eff.	7
Operating peak voltage		[kV]	3.5

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG59 coaxial cable is applied for inst. for video-signal, but not at larger distances. Foamed polyethylene of low dielectric constant enables high-speed signal diffusion, and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C	Max. permitted strength (at outdoor temperature of 25 °C and max. conductor temperature of 70 °C)
MHz	dB/100	W
10	3.5	1100
100	11.0	340
200	16.0	230
400	24.0	180
1000	38.0	105
2000	60.0	58
3000	78.0	45



RG 213 – 50Ω



Construction:

- **Inner Conductor** : stranded bare copper construction: 7 x 0,75mm
- **Insulation (dielectric)**: core insulation of polyethylene (PE) Ø ca. 7,3mm
- **External conductor**: screen of bare copper braiding
- **Sheath**: PVC, external diameter 10.2 ± 0,10 mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (52 mm)
- under load: 10D (103 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 470 N

Cable weight: 87kg/km

Test Voltage : 10Kv

Design Standard

US Standard MIL -C - 17

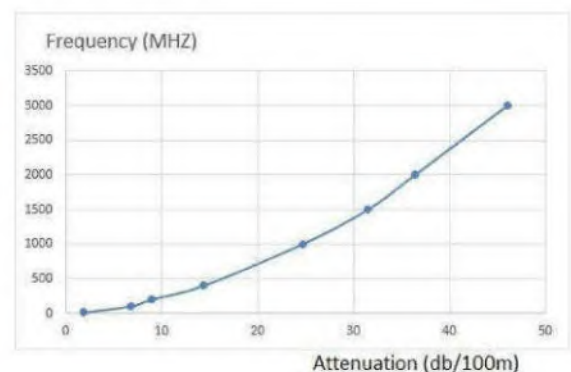
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance		[MΩ/km]	>2000
Impedence	ZL	[Ohm]	50 +/-2
Attenuation	100 MHz	[dB / 100 m]	6.8
Mutual capacitance		[PF/km]	100
Rel. velocity ratio	V rel	%	67
Electric strength	50 Hz	[KV] eff.	10
Operating peak voltage		[kV]	5.2
Inner conductor Resistance @20°C		[Ω/km]	<5.7

Application:

Concentric conductors, insulation (dielectric) and sheath. Cable retains its function if inner and external conductor are at exact constant distance, without any cable bending.

Frequency	Attenuation at 20 °C	Max. permitted strength (at outdoor temperature of 25 °C and max. conductor temperature of 70 °C)
MHz	dB/100	W
10	1.8	2300
100	6.8	920
200	9.0	570
400	14.4	380
1000	24.7	210
1500	31.5	170
2000	36.4	140
3000	46.6	100
5200	62.0	73
5800	67.0	67



RG 216 – 75Ω



Construction:

- **Inner Conductor** : tinned copper, multi wire stranded, diameter $1,17 \pm 0,05$ mm, $7 \times 0,4$ mm
- **Insulation (dielectric)**: polyethylene, external diameter $7,25 \pm 0,05$ mm
- **External conductor**:
 1. Braid : bare copper, 97% Shield coverage
 2. braid : bare copper, 96% Shield coverage
- **Sheath**: PVC, external diameter $10,8 \pm 0,15$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15°C up to $+55^{\circ}\text{C}$
- operating temp.: -40°C up to $+85^{\circ}\text{C}$

Min. inner bending radius:

- without load: 5D (54 mm)
- under load: 10D (108 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 605 N

Cable weight: 180kg/km

Test Voltage : 10Kv

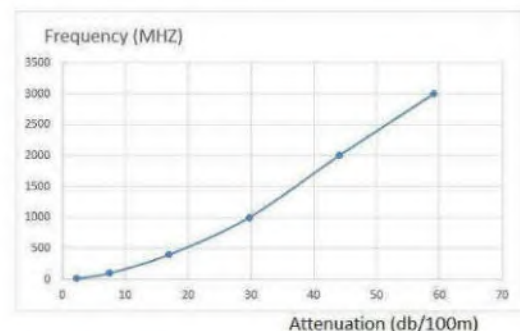
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance		[MΩ/km]	>2000
Impedence	ZL	[Ohm]	75 +/-3
Attenuation	100 MHz	[dB / 100 m]	6.6
Mutual capacitance		[PF/km]	67
Rel. velocity ratio	V rel	%	66
Electric strength	50 Hz	[KV] eff.	10
Operating peak voltage		[kV]	5.0
Inner conductor Resistance @20°C		[Ω/km]	<20.5

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG216 coaxial cable is applied for inst. in video surveillance systems. Suitable for larger distances and in all circumstances requiring special protection against signal interferences. Polyethylene of low dielectric constant enables high-speed signal diffusion, and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C	Max. permitted strength (at outdoor temperature of 25 °C and max. conductor temperature of 70 °C)
MHz	dB/100	W
10	2.2	2100
100	7.5	650
400	17.0	270
1000	29.7	150
2000	44.0	90
3000	59	70



Coaxial Cables

RG 223/U – 50Ω



Construction:

- **Inner Conductor** : Silver plated copper, diameter $\Phi 0.90 \pm 0.025$ mm
- **Insulation (dielectric)**: polyethylene, external diameter $\Phi 3.0 \pm 0.10$ mm
- **External conductor**:
 1. Braid : Silver plated copper, 98% Shield coverage
 2. braid : Silver plated copper, 97% Shield coverage
- **Sheath**: PVC, external diameter $5.4 \pm 0,10$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (26mm)
- under load: 10D (54 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 240 N

Cable weight: 57 kg/km

Test/Operating Voltage(max) : 5.0 KV/2.0 KV

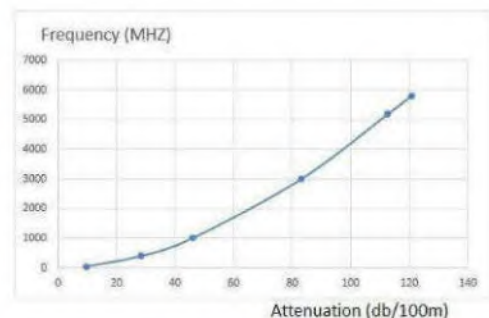
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance		[MΩ/km]	>2000
Impedence	ZL	[Ohm]	50 +/-2
Attenuation	100 MHz	[dB / 100 m]	13.8
Nominal capacitance		[PF/m]	100
Rel. velocity ratio	V rel	%	67
Electric strength	50 Hz	[KV] eff.	10
Operating peak voltage		[kV]	5.0
Inner conductor Resistance @20°C		[Ω/km]	<28.0

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG223 coaxial cable is applied for inst. for radio signal transmission, or as coaxial audio-cable. Suitable for larger distances and in all circumstances requiring special protection against signal interferences. Polyethylene of low dielectric constant enables high-speed signal diffusion, and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C	Max. permitted strength (at outdoor temperature of 25 °C and max. conductor temperature of 70 °C)
MHz	dB/100	W
50	9.8	350
400	28.4	86
1000	45.9	50
3000	83.1	32
5200	112.7	24
5800	120.6	22



Coaxial Cables



RG 6/U 75Ω



Construction:

- **Inner Conductor** : solid copper, diameter 1,0 mm
- **Insulation (dielectric)**: Foam polyethylene, external Diameter 4.6mm
- **Screen** : AL-PES TAPE (100% COVERAGE)
- **External conductor**: Aluminium wires braid, 96% optical covering
- **Sheath**: PVC, external diameter $6.8 \pm 0,2$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (34 mm)
- under load: 10D (68 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 145 N

Cable weight: 52 kg/km

Design Standard

US Standard MIL -C - 17

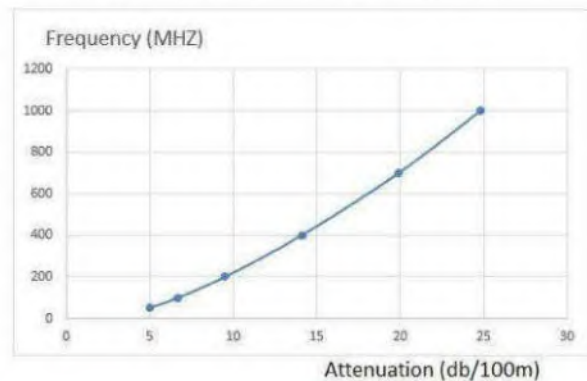
Electrical Data:

Frequency range	F max.	[GHz]	3
Insulation resistance		[MΩ/km]	>5000
Impedence	ZL	[Ohm]	75 +/-3
Attenuation	100 MHz	[dB / 100 m]	6.7
Capacitance	C	[PF/m]	54
Rel. velocity ratio	V rel	%	83
Test and Operating voltage		[kV]	2.5/1.1

Application:

Coaxial cables are applied for broadband transmission of radio, TV, video and data signals. Applicable up to GHz-a level, with low attenuation and low signal distortion. RG6 coaxial cable is applied for inst. in video surveillance systems, but can be also used for larger distances. Foamed polyethylene of low dielectric constant enables high-speed signal diffusion, and good flexibility at installation. Permitted only indoor application, exceptionally also outdoor, under protection against sunlight.

Frequency	Attenuation at 20 °C
MHz	dB/100
50	5.0
100	6.7
200	9.5
400	14.1
700	19.9
1000	24.8



Coaxial Cables



1.5C-2V 75Ω



Construction:

- **Inner Conductor** : solid copper, diameter 0.26 mm
- **Insulation (dielectric)**: Solid polyethylene, external Diameter 1.6mm
- **External conductor**: Copper wires braid, 95% optical covering
- **Sheath**: PVC, external diameter $2.9 \pm 0,2$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (15 mm)
- under load: 10D (30 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 75 N

Cable weight: 14 kg/km

Design Standard

JIS - C- 3501

Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	968
Insulation resistance		[MΩ/km]	>10000
Impedence	ZL	[Ohm]	75 +/-3
Attenuation	200 MHz	[dB / Km]	393
Capacitance	C	[PF/m]	69+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/100m
1	2.7
10	9.6
30	14.3
200	39



Coaxial Cables

2.5C-2V 75Ω



Construction:

- **Inner Conductor** : solid copper, diameter 0.4 mm
- **Insulation (dielectric)**: Solid polyethylene, external Diameter 2.4mm
- **External conductor**: Copper wires braid, 95% optical covering
- **Sheath**: PVC, external diameter $3.1 \pm 0,2$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (16 mm)
- under load: 10D (31 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 89 N

Cable weight: 17 kg/km

Design Standard

JIS - C- 3501

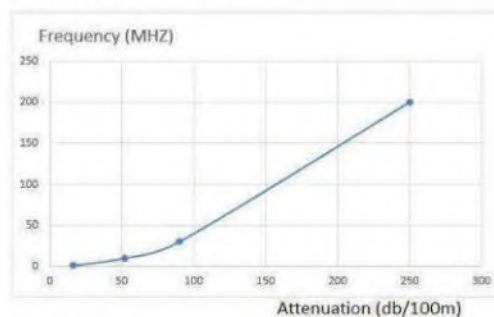
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	145
Insulation resistance		[MΩ/km]	>5000
Impedence	ZL	[Ohm]	75 +/-3
Attenuation	100 MHz	[dB / 100 m]	6.7
Capacitance	C	[PF/m]	69+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/Km
1	16
10	52
30	90
200	250



Coaxial Cables



2.5D-2V 50Ω



Construction:

- **Inner Conductor** : solid copper, diameter 0.8 mm
- **Insulation (dielectric)**: Solid polyethylene, external Diameter 2.7mm
- **External conductor**: Copper wires braid, 75% optical covering
- **Sheath**: PVC, external diameter $4.38 \pm 0,2$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (22 mm)
- under load: 10D (44 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 80 N

Cable weight: 31 kg/km

Design Standard

JIS - C- 3501

Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	110
Insulation resistance		[MΩ/km]	>1000
Impedence	ZL	[Ohm]	50 +/-3
Attenuation	10 MHz	[dB / Km]	85
Capacitance	C	[PF/m]	104+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/Km
1	22
10	85
30	142
200	385



Coaxial Cables

3C-2V 75Ω



Construction:

- **Inner Conductor** : solid copper, diameter 0.5 mm
- **Insulation (dielectric)**: Solid polyethylene, external Diameter 3.1mm
- **External conductor**: Copper wires braid, 95% optical covering
- **Sheath**: PVC, external diameter $5.4 \pm 0,2$ mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (27 mm)
- under load: 10D (54 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 110 N

Cable weight: 42 kg/km

Design Standard

JIS - C- 3501

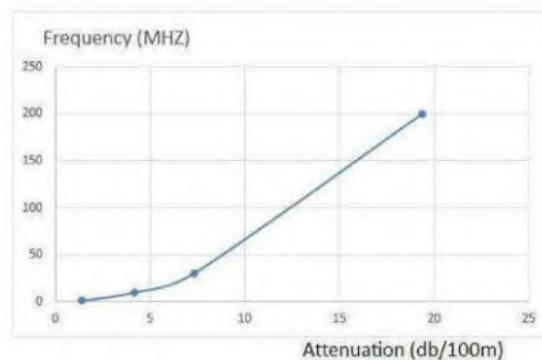
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	91.4
Insulation resistance		[MΩ/km]	>10000
Impedence	ZL	[Ohm]	75 +/-3
Capacitance	C	[PF/m]	67+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/100m
1	1.4
10	4.2
30	7.3
200	19.4



Coaxial Cables

3D-2V 50Ω



Construction:

- **Inner Conductor** : multi copper wire stranded, diameter 0.96 ± 0.05 mm, 7×0.32 mm
- **Insulation (dielectric)**: solid polyethylene, external Diameter 3.1 mm
- **External conductor**: Copper wires braid, 65% optical covering
- **Sheath**: PVC, external diameter 5.4 ± 0.2 mm
- **sheath colour**: Black

Technical Data :

Temperature range:

- during installation: -15°C up to $+55^{\circ}\text{C}$
- operating temp.: -40°C up to $+85^{\circ}\text{C}$

Min. inner bending radius:

- without load: 5D (26 mm)
- under load: 10D (54 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 150 N

Cable weight: 31 kg/km

Design Standard

JIS - C- 3501

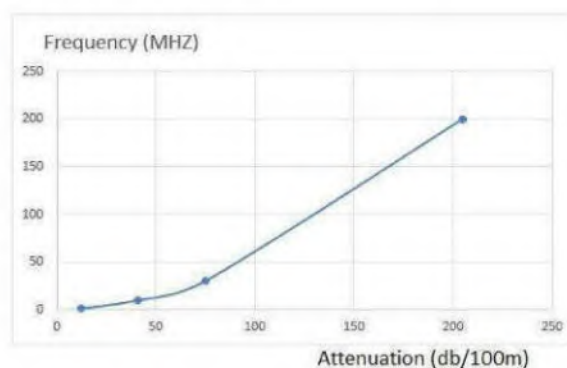
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	33.3
Insulation resistance		[MΩ/km]	>1000
Impedence	ZL	[Ohm]	50 +/-3
Capacitance	C	[PF/m]	100+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/Km
1	12
10	41
30	75
200	205



Coaxial Cables

4.5C-2V 75Ω



Construction:

- **Inner Conductor** : solid copper, diameter 1.0 mm
- **Insulation (dielectric)**: Foam polyethylene, external Diameter 4.5mm
- **External conductor**: Copper wires braid, 95% optical covering
- **Sheath**: PVC, external diameter $6.2 \pm 0,2$ mm
- **sheath colour**: White

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (31 mm)
- under load: 10D (62 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 130 N

Cable weight: 40 kg/km

Design Standard

JIS - C- 3501

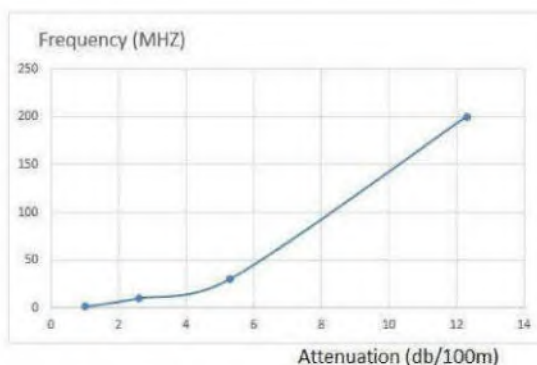
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	24
Insulation resistance		[MΩ/km]	>10000
Impedence	ZL	[Ohm]	75 +/-3
Capacitance	C	[PF/m]	54+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/100m
1	1.0
10	2.6
30	5.3
200	12.3



Coaxial Cables

5C-2V 75Ω



Construction:

- **Inner Conductor** : solid copper, diameter 0.8 mm
- **Insulation (dielectric)**: solid polyethylene, external Diameter 4.9mm
- **External conductor**: Copper wires braid, 95% optical covering
- **Sheath**: PVC, external diameter $7.4 \pm 0,2$ mm
- **sheath colour**: Black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (36 mm)
- under load: 10D (74 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 130 N

Cable weight: 71 kg/km

Design Standard

JIS - C- 3501

Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	36
Insulation resistance		[MΩ/km]	>10000
Impedence	ZL	[Ohm]	75 +/-3
Capacitance	C	[PF/m]	67+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/100m
1	1.0
10	2.7
30	5.4
200	13.1



Coaxial Cables



5D-2V 50Ω



Construction:

- **Inner Conductor** : solid copper, diameter 1.4 mm
- **Insulation (dielectric)**: Solid polyethylene, external Diameter 4.8mm
- **External conductor**: Copper wires braid, 75% optical covering
- **Sheath**: PVC, external diameter 7.3 ± 0,2 mm
- **sheath colour**: black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (36 mm)
- under load: 10D (73 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 440 N

Cable weight: 80 kg/km

Design Standard

JIS - C- 3501

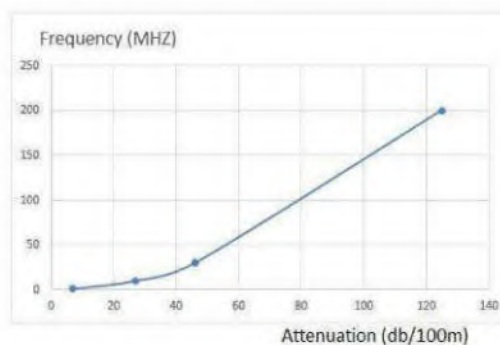
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	11.7
Insulation resistance		[MΩ/km]	>1000
Impedence	ZL	[Ohm]	50 +/-3
Attenuation	10 MHz	[dB / Km]	27
Capacitance	C	[PF/m]	100+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/Km
1	7
10	27
30	46
200	125



Coaxial Cables



7C-2V 75Ω



Construction:

- **Inner Conductor** : multi copper wire stranded, diameter $1,17 \pm 0,05$ mm, $7 \times 0,4$ mm
- **Insulation (dielectric)**: solid polyethylene, external Diameter 7.3 mm
- **External conductor**: Copper wires braid, 65% optical covering
- **Sheath**: PVC, external diameter $10.4 \pm 0,2$ mm
- **sheath colour**: Black

Technical Data :

Temperature range:

- during installation: -15°C up to $+55^{\circ}\text{C}$
- operating temp.: -40°C up to $+85^{\circ}\text{C}$

Min. inner bending radius:

- without load: 5D (51 mm)
- under load: 10D (102 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 450 N

Cable weight: 143 kg/km

Design Standard

JIS - C- 3501

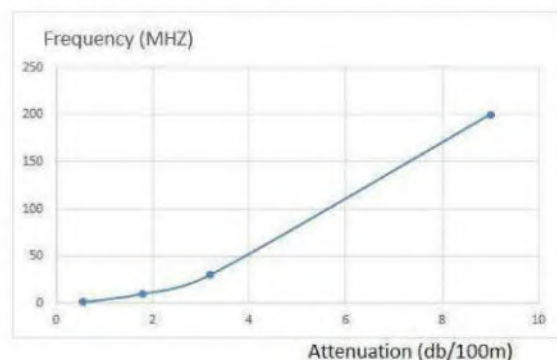
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	20.7
Insulation resistance		[MΩ/km]	>1000
Impedence	ZL	[Ohm]	75 +/-3
Capacitance	C	[PF/m]	67+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0
Return Loss:			20dB min (5-200MHz)

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/100m
1	0.55
10	1.8
30	3.2
200	9.00



Coaxial Cables

8D-2V 50Ω



Construction:

- **Inner Conductor** : multi copper wire stranded, diameter $2,38 \pm 0,05$ mm, 7×0.8 mm
- **Insulation (dielectric)**: solid polyethylene, external Diameter 7.9 mm
- **External conductor**: Copper wires braid, 65% optical covering
- **Sheath**: PVC, external diameter $11.4 \pm 0,2$ mm
- **sheath colour**: Black

Technical Data :

Temperature range:

- during installation: -15°C up to $+55^{\circ}\text{C}$
- operating temp.: -40°C up to $+85^{\circ}\text{C}$

Min. inner bending radius:

- without load: 5D (57 mm)
- under load: 10D (114 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 850 N

Cable weight: 183 kg/km

Design Standard

JIS - C- 3501

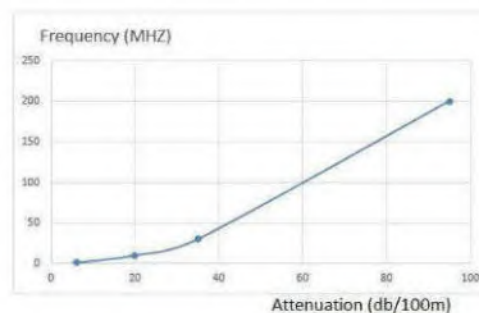
Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	5.13
Insulation resistance		[MΩ/km]	>1000
Impedence	ZL	[Ohm]	50 +/-3
Capacitance	C	[PF/m]	100+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/Km
1	6
10	20
30	35
200	95



Coaxial Cables

10C-2V 75Ω



Construction:

- **Inner Conductor** : multi copper wire stranded, diameter $1,49 \pm 0,05$ mm, 7 x 0.5 mm
- **Insulation (dielectric)**: solid polyethylene, external Diameter 9.4 mm
- **External conductor**: Copper wires braid, 65% optical covering
- **Sheath**: PVC, external diameter $13.1 \pm 0,2$ mm
- **sheath colour**: Black

Technical Data :

Temperature range:

- during installation: -15 °C up to +55 °C
- operating temp.: -40 °C up to +85 °C

Min. inner bending radius:

- without load: 5D (65 mm)
- under load: 10D (130 mm)

Behavior in fire: IEC 60332-1

Maximal tensile strength: 650 N

Cable weight: 220 kg/km

Design Standard

JIS - C- 3501

Electrical Data:

Conductor DC Resistance @20°C		[Ω/km]	13.1
Insulation resistance		[MΩ/km]	>1000
Impedence	ZL	[Ohm]	75 +/-3
Capacitance	C	[PF/m]	67+/-4
Rel. velocity ratio	V rel	%	85
Test voltage		[kV]	1.0
Return Loss:			20dB min (5-200MHz)

Application:

Radio Applications Interior lines for communication, Wireless equipment for personal radio, MCA, AVM, and amateur radio, Antenna feeder line, Wiring between or inside high frequency transmission units.

Frequency	Attenuation at 20 °C
MHz	dB/100m
1	0.44
10	1.6
30	2.7
200	7.6



CCTV – 75 Ω



Construction:

Conductor:

- **Coaxial** : solid copper , diameter $\Phi 0.70 \pm 0.05$ mm
- **External conductor**: braid of CCA wires 0,1 95% optical overlap
- **Power** : Stranded Copper, 0.35 mm^2 (12 x $\Phi 0.19 \pm 0.05$ mm)

Insulation:

- **Coaxial**: Foam PE, external diameter 3.5 ± 0.20 mm
- **Power** : PVC/C – ID : 1.8 ± 0.20 mm

Sheathing:

- **Coaxial**: PVC/ST5 – OD: 5.9 ± 0.50 mm
- **Power** : PVC/ST5 – OD: 5.0 ± 0.50 mm

Screen Tape: AL-PES TAPE (100% COVERAGE)

Technical Data :

Temperature range:

- during installation: -15°C up to $+55^\circ\text{C}$
- operating temp.: -40°C up to $+85^\circ\text{C}$

Min. inner bending radius:

- without load: 5D
- under load: 10D

Behavior in fire: IEC 60332-1

Maximal tensile strength: 240 N

Cable weight: 58 kg/km

Test/Operating Voltage (max) : 5.0 KV/2.0 KV

Electrical Data:

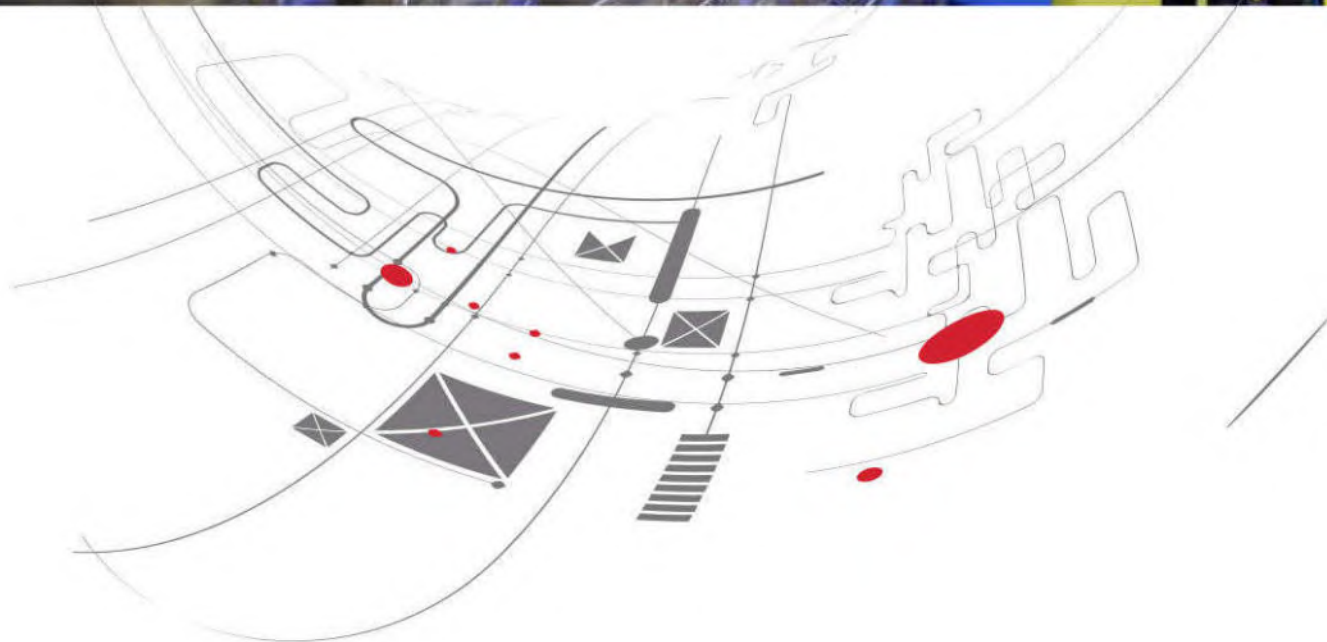
Frequency range	F max.	[GHz]	3
Insulation resistance		[M Ω /km]	>10000
Impedence	ZL	[Ohm]	75 +/-3
Attenuation	100 MHz	[dB / 100 m]	11.1
Nominal capacitance		[PF/m]	180
Rel. velocity ratio	V rel	%	67
Operating peak voltage		[kV]	3.5

Application:

They are used in closed-circuit tv and camera systems, video, sound and signal transmission in short range. These composite cables are produced in different sections according to their respective applications.



TECHNICAL DATA



Construction

Conductor

IEC 60228 specifies four different classes of conductors; classes 1, 2, 5 and 6. Power and control cables normally have conductors of class 1 (solid conductors) or class 2 (stranded conductors).

Power and control cables have plain annealed copper conductors.

Conductor forms:



RE = circular solid



RM = circular stranded



SE = sector shaped solid

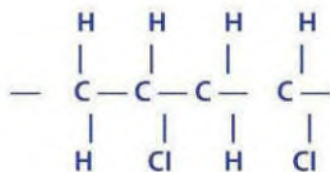


SM = sector shaped stranded

Insulation

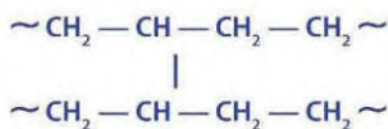
The insulation materials for power and control cables are

polyvinyl chloride (PVC)



or

cross-linked polyethylene (XLPE)



Laying Up

The cores of cables are laid up with suitable filling elements (if necessary) to form a compact circular assembly. Suitable binder tape(s) may be applied.

Bedding

Cables incorporating an armour layer have an extruded bedding of polyvinyl chloride (PVC) or zero halogen material (LSZH).

Armor

The primary purpose of armor is to protect the cable against mechanical damage during installation and operation. Apart from this mechanical armor, it can also fulfil various electrical functions, e.g. earth conductor, screen of inductive protection.

Armouring of single core cables is provided by round aluminium wires, multicore cables will have galvanized round steel wires.

Outer Sheath

The outer sheath of cables consists of extruded polyvinyl chloride (PVC) or zero halogen material (LSZH). The colour is primarily black.

Abbreviation code

Cable type	Code
Power and control cable	
Insulation and/or sheath materials	
Insulation, inner or outer sheath of polyvinylchloride (PVC)	Y
Insulation made of cross linked polyethylene (XLPE)	2X
Inner or outer sheath made of zero halogen, flame-retardant compound (LSZH)	H
Metal sheath	
Sheath made of lead	K
Armor	
Galvanized round steel wires	R
Double layer made of galvanized steel tapes	B
Braid made of galvanized round steel wires	Q
Further properties	
Circuit Integrity (resistance to fire)	CI
Increased flame retardancy; meets requirements for IEC 60332-3-24 (cat. C) fulfilled	-fl

Application

Range of use

Cables in accordance with IEC 60502-1 are intended for fixed installation:

- indoors
- outdoors
- underground
- in water

(Note: The relevant national installation regulations must be observed)

Nominal and highest cable voltages

Nominal rated voltage U_0/U (kV)	Highest system voltage U_m		
	three phase system	single phases system both phases insulated	single phase system one phase grounded
Low Voltage L.V.			
0.6 / 1	1.2	1.41)	0.7
1.8 / 3	3.6	4.2	2.1
Medium Voltage M.V.			
3.6 / 6	7.2	8.3	4.2
6.0 / 10	12.0	14.0	7.0
8.7 / 15	17.5	20.0	10.0
12.0 / 20	24.0	28.0	14.0
18.0 / 30	36.0	42.0	21.0

¹max. voltage in d.c. systems 1.8 kV

U: Rated power-frequency voltage between phase conductors for which the cable is suitable.

U_0 : Rated power-frequency voltage between conductor and earth or armour, metal sheath or screen for which the cable is suitable.

U_m : Maximum value of the „highest system voltage“ between phase conductors for which the cable is suitable.

Network-Systems

The rated voltage of the cable for a given application shall be suitable for the operating conditions in the system in which the cable is used. To facilitate the selection of the cable, systems are divided into three categories (IEC 60502-1):

Category A

This category comprises those systems in which any phase conductor that comes in contact with earth or an earth conductor, is disconnected from the system within 1 min.

Category B

This category comprises those systems which, under fault conditions, are operated for a short time with one phase earthed. This period, according to IEC 60183, should not exceed 1 h. For cables covered by IEC 60502-1 a longer period, not exceeding 8 h on any occasion, can be tolerated. The total duration of earth faults in any year should not exceed 125 h.

Category C

This category comprises all systems which do not fall into category A or B.

Recommended rated voltages U_0 for cables used in three-phase systems:

Highest system voltage (U_m)	Rated Voltage (U_0)	
	Categories A and B	Category C
1.2 kV	0.6 kV	0.6 kV
3.6 kV	1.8 kV	3.6 kV*

*This category is covered by 3.6/6 (7.2) kV cables to IEC 60502-2.

Note: It should be realised that in a system where an earth fault is not automatically and promptly isolated, the extra stresses on the insulation of cables during the earth fault reduce the life of the cables to a certain degree. If the system is expected to be operated fairly often with a permanent earth fault, it may be advisable to classify the system in category C.

ELECTROMAGNETIC COMPATIBILITY AND CABLES

EMC: Capability of a system or device to maintain its functions (without irreparable electromagnetic failure) in the electromagnetic environment it is present.

Device should not emit undesired EM signals that affect other devices nearby, and at the same time, it should not be affected by undesired signals emitted by the other devices.

Cables that connect devices to each other are amongst the main factors that determine EMC quality. Because cables not only transmit undesired signals from one point to another (conductivity interference) but also emit signals, which travel through them, to the environment like an aerial (radiation interference). Quality of shielding material and cable shield earthing are two basic elements that determine cable performance.

1-SHIELDING

Screening is defined as isolating two medium from each other with respect to electromagnetic aspect. In order to understand if screening applied well, screening effectiveness is calculated or measured. Screening effectiveness is calculated by using the ratio of the signal received without the shield, to signal received inside the shield. Data obtained by the measurement procedures are converted to shielding effectiveness in different frequency range by mathematical relationships defined in table below.

FREQUENCY RANGE	MEASURED QUANTITIES	UNITS	SHIELDING EFFECTIVENES (dB)	
LINEAR UNITS				
9 kHz-20 MHz (extendable down to 50 Hz)	H ₁ , H ₂	μA/m, μT	$S_H = 20 \log_{10} \frac{H_1}{H_2} \text{ (B.1)}^a$	H ₁ is the magnetic field in the absence of the enclosure (reference reading)
	V ₁ , V ₂	μV	$S_H = 20 \log_{10} \frac{V_1}{V_2} \text{ (B.2)}$	H ₂ is the magnetic field within the enclosure.
20-300 MHz	E ₁ , E ₂	μV/m	$S_E = 20 \log_{10} \frac{E_1}{E_2} \text{ (B.3)}$	V ₁ is the voltage reading in the absence of the enclosure (reference reading)
1.7-18 GHz (extendable up to 100 GHz)	P ₁ , P ₂	watt	$S_P = 10 \log_{10} \frac{P_1}{P_2} \text{ (B.4)}$	V ₂ is the voltage reading within the enclosure.
LOGARITHMIC UNITS				
Tüm frekanslar (as listed above)	All, in dB related values	dB	$SE = E_1 \text{ (dB)} - E_2 \text{ (dB)} \text{ (B.5a)}$ $SE = H_1 \text{ (dB)} - H_2 \text{ (dB)} \text{ (B.5b)}$ $SE = V_1 \text{ (dB)} - V_2 \text{ (dB)} \text{ (B.5c)}$ $SE = P_1 \text{ (dB)} - P_2 \text{ (dB)} \text{ (B.5d)}$	E ₁ is the electric field in the absence of the enclosure (reference reading) E ₂ is the electric field within the enclosure; P ₁ is the power detected in absence of the enclosure (reference reading) P ₂ is the power detected within the enclosure.

Materials to be chosen for screening purposes can be divided into three groups;

1-High-performance materials:

100% covering made of materials like steel, copper and stainless steel
(Screening effectiveness of 80-120 dB)

2-Standard-performance materials:

Conductive metal tapes (screening effectiveness of 20-40 dB)

3-Low-performance materials:

Metallized fabric structures, conductive paper materials (conductive polymers), (screening effectiveness of 15-30 dB)

In practice, many problems can be solved by screening effectiveness of 40 dB.

Screening effectiveness of 100-120 dB can be required for military systems. The values required in specifications for instrument cables, coaxial cables, data transmission cables are around 80- 100 dB.

2-EARTHING

It is defined as either voluntary or involuntary connection of an electric circuit or device to earth or a surface big enough to be a substitute for earth by means of a conductive interconnection.

Earthing is accepted as absolute reference zero volt. For the earthing to be accomplished in a real sense of a word, all devices must be brought to this absolute zero point.

Some structures that can substitute earthing in practice:

- Steel construction buildings
- Vehicle body (car, plane, ship)
- Water pipes
- Earthing electrode systems
- Earthing plate, grid, etc.

Direction of screening and earthing are important since cables are generally used to transmit signals between source and load. Unwanted electric fields are well-screen in a cable which is shielded only on the load side.

However, this is not sufficient for screening the magnetic fields. Electric field shielding is better when earthing is applied on both load and source sides, and by doing so magnetic shielding is obtained as well.

(Screening effectiveness increases by 10-20 dB) Magnetic leak is decreased by using twisted pair conductor (by diminishing the area between the conductors and allowing reverse current flows by means of twists).

When earthing is applied on both sides, effective electric and magnetic screening is obtained.

COAXIAL CABLE ELECTRICAL CHARACTERISTIC

ELECTRICAL CHARACTERISTIC

1) CHARACTERISTIC IMPEDANCE

The most general feature of coaxial cables is impedance. It does not depend on length. It depends on cable size and insulation material. It is expressed in Ohms. Coaxial cables are generally produced as 50 ohm, 75 ohm and 93 ohm cables.

A simple formula to determine impedance of a coaxial cable;

$$Z_0 = 183 \times V_p \times \log(D/d) \text{ ohm}$$

Z_0 = Characteristic Impedance

V_p = Velocity of propagation

D = Dielectric (Insulation) Diameter

d = Conductor inner diameter

2) CAPACITY (pF/m)

It is electric energy accumulated by insulation material, and depends on conductor, insulation and dielectric constant of the insulation material

$$C = \frac{2\pi \times 8,85 \times \epsilon_r}{\ln(D/d)} \text{ pF/m}$$

ϵ_r : Dielectric Constant

MATERIAL	Dielectric Constant
AIR	1
PE SOLID	2,3
FOAM PE	1,5
PTFE	1,95
FEP	2,15

$$d = \frac{L}{(C \times VOP)}$$

3) VELOCITY OF PROPAGATION

Cable's velocity of diffusion is equal to the ratio of the velocity of a signal inside the cable to the velocity of light.

Example: While the velocity of diffusion in the solid PE insulated cable is 66%, in Foam PE it increases to 87%.

This feature can also be shown as delay.

$$V_p = \frac{1}{\sqrt{\epsilon_r}}$$

$$\text{delay} = 1,0167164 \times \sqrt{\epsilon_r}$$

4) ATTENUATION (dB/100mt)

All transmission lines, or coaxial cables, experience losses. In other words, there is the decrease in magnitude of a signal as it travels through any transmitting medium, such as a cable, circuitry or free air. These losses, termed attenuation, will decrease where the efficiency of the line, which in turn limits the power capabilities. They are measured as a ratio or as the logarithm of a ratio (decibel). Those losses, termed attenuation,

In order to express cable attenuation performans we need to introduce attenuation constant which is a rating for a cable or other transmitting medium, which is the relative rate of amplitude decrease of voltage or current in the direction of travel. It is measured in decibels per unit length of cable.

5) RETURN LOSS (RL)

Cable sizes, quality of insulation material and mistakes made during cable laying influence the characteristic impedance. Any single disorder or mistake results in reflections.

Return loss is equal to the ratio of output signal to the reflected signal.

■ DESIGNATION CODE FOR HARMONIZED CABLES

Construction reference

H 05 V V5 – F 25 G 0,75

Identifications of designation

- A** authorised national standards
H harmonized standards

Nominal voltage U

- 01** 100 V
03 300/300 V
05 300/500 V
07 450/750 V

Insulation material

- B** (EPR) Ethylene-propylene-rubber
G (EVA) Ethylene-Vinylacetat-Copolymer
N2 (CR) Chloroprene rubber for welding cables
R (EPR) Ethylene propylene rubber
S (SiR) Silicone rubber
V (PVC) Polyvinyl chloride
V2 (PVC) Polyvinyl chloride heat-resistant
V3 (PVC) Polyvinyl chloride low-temperature
V4 (PVC) Polyvinyl chloride cross-linked
Z (PE) Polyethylene cross-linked

Structural elements

- C4** Cooper-Screen braiding over laid-up cores
Q4 (PA) Additional polyimide core jacket
T Additional textile braiding over laid-up cores
T6 Additional textile braiding over individual cores

Sheath/jacket material

- B** (EPR) Ethylene-propylene rubber
J Glass fibre braid
N (CR) Chloroprene rubber
N2 (CR) Chloroprene rubber for welding cables
N4 (CR) Chloroprene rubber heat-resistant
Q (PUR) Polyurethane
R (NR a./o. SR) Natural- a./o. synthetic rubber
T Textile braid
T2 Textile braid with flame retardant compound
V (PVC) Polyvinyl chloride
V2 (PVC) Polyvinyl chloride heat-resistant
V3 (PVC) Polyvinyl chloride low-temperature
V4 (PVC) Polyvinyl chloride cross-linked
V5 (PVC) Polyvinyl chloride oil resistant

Special structural features

- D3** Stress-relieving elements (support wire)
D5 Centre core (no supporting element)
FM Telecommunications cores integrated in power cables
H Flat, separable cable (twin cable)
H2 Flat, non-separable cable (two-core sheathed cable)
H6 Flat, non-separable cable (multi- and multiple sheathed cable)
H7 Two-layer insulating jacket
H8 Spiral cables

Conductor type

- D** Finely stranded, for welding cables
E (very) finely stranded, for welding cables
F Finely stranded, for cables for flexible installation
H (Very) finely stranded, for flexible cables
K Finely stranded, for cables for fixed installation
R Multiple-wire, round, class 2
U Single-wire, round, class 1
Y Tinsel wire, DIN 47104

Number of cores

Earth core

- G** With earth core
X Without earth core

Conductor nominal cross section in mm²

Examples:

H07V-U 2,5 black

Harmonized PVC-insulated single-core sheathed cable, 2,5 mm² single-core, nominal voltage 750 V

H07RN-F 3G 1,5

Harmonized rubber-sheathed-cable for medium tensile loads, three-core 1,5 mm², finely stranded, green-yellow earth core, nominal voltage 750 V

CODE-DESIGNATION FOR HARMONIZED CABLES AND FLEXIBLE CORDS

Kind of Standards

Code-designation	Classified to Standards
H	cables and wires to harmonized documents
A	authorised national standards

Conductor material

without designation	Copper
- A	Aluminium
- Z	Conductor of special material and/or special shape

Type and shape of conductor

- D	fine wire stranded conductor for welding cables
- E	extra fine wire stranded conductor for welding cables
- F	fine wire stranded conductor for flexible cables according to DIN VDE 0295, class 5
- H	extra fine wire stranded conductor for flexible cables according to DIN VDE 0295, class 6
- K	fine wire stranded conductor for fixed installation (if not specified, equivalent to DIN VDE 0295, classe 5)
- M	Milliken conductor
- R	conductor of multistranded wires
- S	sector-shaped conductor of multistranded wires
- U	round conductor of single wire
- W	sector-shaped conductor of single wire
- Y	tinsel conductor
- Z	conductor of special material and/or special shape

Core numbers and cross-section of conductor

Number	number of cores n
X	Multiplication sign without green-yellow core
G	Multiplication sign for green-yellow core
Y	tinsel conductor, whereby the cross-section is not specified

Insulation and sheath materials

B	Ethylene-propylene-rubber for Temp. of +90°C
B2	Ethylene-propylene rubber, hardend
B3	Butyl rubber (isobutylene-isoprene rubber)
E	Polyethelene
E2	Polyethelene, high density
E4	Polytetrafluorethylene
E5	Perfluor (Ethylene-propylene – copolymers)
E6	Ethylene-tetrafluorethylene – copolymers
E7	Polypropylene

Insulation and sheath materials

Code-designation	Materials
G	Ethylene-vinylacetate – copolymers
J	braiding of glass fibre
J2	wrapping of glass fibre
M	mineral insulation
N	chloroprene-rubber (or equivalent material)
N2	special compound of chloroprene-rubber
N4	Sulfonated chlor or chlorinated polyethelene
N5	Nitril-rubber
N6	Florinated rubber
N7	PVC-Nitril-rubber compound
N8	Special-polychloroprene-rubber; water resistant
P	Cables with impregnated paper insulation for multicore belted cable
Q	Polyurethane
Q2	Polyethyleneterephthalate
Q3	Polystyrole
Q4	Polyamide
Q5	Polyimide
Q6	Polyvinylidene fluoride
R	Ethylene-propylene rubber or equivalent synthetic elastomer for +60°C temperature of +60°C, for permanent temperature of +60°C
S	Silicon-rubber
T	textile braiding over twisted cores, impregnated/unimpregnated
T2	textile braiding with flamme retardant impregnated composition
T3	layer of textile as core wrapping or tape
T4	layer of textile as core wrapping or tape with flame retardant impregnated composition
T5	corrosion protection
T6	textile braiding over individual core or multicore cable, impregnated/unimpregnated
V	PVC soft
V2	PVC soft, resistant to increased temperature, +90°C
V3	PVC soft, for low temperatures
V4	PVC soft, cross-linked
V5	PVC soft, oil resistant
X	cross-linked polyethylene
Z	cross-linked compound to a basis of polyolefine, for low corrosiv gas and low smoke emission in case of fire
Z1	Thermoplastic compound to a basis of polyole-fine, for low corrosiv gas and low smoke emission in case of fire

■ CODE-DESIGNATION FOR HARMONIZED CABLES AND FLEXIBLE CORDS

Metal sheath, concentric conductor and screens

Code-designation	Metal sheath
A2	Aluminium sheath, pressed or welded, smooth
A3	Aluminium sheath, pressed or welded, corrugated
A4	Aluminium sheath over individual core
A5	Aluminium sheath of Band
C2	Copper sheath
C3	Copper sheath, corrugated
F	Steel sheath
F3	Steel sheath, corrugated
K	Zinc sheath
L	Alloyed lead sheath for general use
L2	non-alloyed lead sheath, normal pure lead
L4	alloyed lead sheath over individual core
L5	non-alloyed lead sheath over individual core
L6	alloyed lead sheath, but other composition than above

Concentric conductors

A	concentric aluminium conductor
A6	concentric aluminium conductor, meander-shaped
C	concentric copper-conductor
C6	concentric copper-conductor, meander-shaped
C9	divided concentric copper conductor

Screens

A7	Aluminium screen
A8	Aluminium screen of individual core
C4	Copper screen as braid over the stranded cores
C5	Copper screen braiding over individual core
C7	Copper screen of tape, round or profile-wires over twisted cores
C8	Copper screen as C7, over individual core
D	screen of one or more thin steel tapes, laying direkt over twisted cores, in contact with a stranded plain conductor

Armouring

Code-designation	Armouring
Z2	Armouring of round steel wires, galvanized/ungalvanized
Z3	Armouring of flat steel wires, galvanized/ungalvanized
Z4	Armouring of steel tape, galvanized/ungalvanized
Z5	Braiding of steel wires, galvanized, ungalvanized
Z6	Supporting braid of steel wires
Z7	Armouring of sectional steel wires
Y2	Armouring of round aluminium wires
Y3	Armouring of flat aluminium wires
Y5	Armouring of special materials
Y6	Armouring of steel wires and/or steel tape and copper wires

Special constructive supporting elements

D2	Supporting elements of textile or steel wires over cable core
D3	Textil supporting elements of one or more elements, stranded in the core of circular cable or placed in a flat cable
D4	self-supporting cables and wires, where the conductor permits the strain-relieving function
D5	central core element (not as supporting element), used for lift cable
D7	as D3, the supporting element however is connected externally
D8	as D7, however a section horizontal to the axis of the cable forming the number "8"

Special versions

without designation	
H	round cable construction
H	flat type as seperable cables with or without sheath
H2	flat type of cables unseperable
H3	building cable, flat webbed
H4	multicore flat cable with one plain conductor
H5	two or more single core stranded, non-sheathed cables
H6	flat cables according to HD 359 or EN 50214 with 3 or more cores
H7	Cable with two-sheathed extruded insulation
H8	Coiled conductor

■ COMPARISON OF HARMONIZED CABLES WITH IEC AND DIN VDE

PVC-insulated powercables according to DIN VDE 0285-525 in comparison with IEC

Designation	according to VDE	short designation new	short designation old VDE 0250	nominal cross-section (mm ²)	nominal voltage U ₀ /U (V)	comparative design to IEC
PVC-wiring cables single wire fine wires	0285-525-2-31	H05V-U H05V-K	NYFA, NYA NYFAF, NYAF	0,5 to 1	300/500	227 IEC 05 227 IEC 06
PVC-insulated cables single wire multi-stranded wires fine wires	0285-525-2-31	H07V-U H07V-R H07V-K	NYA NYA NYAF	1,5 to 10 1,5 to 400 1,5 to 240	450/750	227 IEC 01 227 IEC 01 227 IEC 02
PVC-sheathed cables 03VV round flat	0285-525-2-11	H03VV-F H03VVH2-F	NYLHY round NYLHY flat	0,5+0,75 0,5+0,75	300/300	227 IEC 43 227 IEC 43
PVC-sheathed cables 05VV round flat	0285-525-2-11	H05VV-F H05VVH2-F	NYMHY round NYMHY flat	0,75 to 2,5 0,75	300/500	227 IEC 53 227 IEC 53
PVC-control cable	0285-525-2-51	H05VV5-F H05VVC4V5-K	NYSLYÖ NYSLYCYÖ	0,5 to 2,5 0,5 to 2,5	300/500	227 IEC 75 227 IEC 74
PVC-Flat-cable 05VVH6 PVC-Flat-cable 07VVH6	0283-2	H05VVH6-F H07VVH6-F	NYFLY NYFLY	0,75 to 1 1,5 to 25	300/500 450/750	- -

Rubber-insulated power cables according to DIN VDE 0285-525 in comparison with IEC

Designation	according to VDE	short designation new	short designation old VDE 0250	nominal cross-section (mm ²)	nominal voltage U ₀ /U (V)	comparative design to IEC
Heat-resistant rubberinsulated cable	0285-525-2-42	H07G-U H07G-K	N4GA N4GAF	1,5+2,5 0,5 to 95	450/750	- -
Heat-resistant siliconrubber cable	0285-525-2-41	H05SJ-K	N2GAFU	0,5 to 95	300/500	245 IEC 03
Rubber sheathed flexible cord 05RR	0285-525-2-21	H05RR-F	NLH, NMH	0,75 to 2,5	300/500	245 IEC 53
Rubber sheathed flexible cord 05RN	0285-525-2-21	H05RN-F	NYMHöu	0,75+1	300/500	245 IEC 57
Rubber sheathed flexible cord 07RN	0285-525-2-21	H07RN-F	NMHöu NSHöu	1 to 400	450/750	245 IEC 65 245 IEC 66

IEC-definition

IEC 227: Polyvinylchloride insulated flexible cables and cords with circular conductors and a rated voltage not exceeding 750 V

IEC 245: Rubber insulated flexible cables and cords with circular conductors and a rated voltage not exceeding 750 V

Construction reference																					
Identifications of designation																					
N	DIN VDE standard																				
(N)	similar to DIN VDE standard																				
Conductor material																					
A	aluminium conductor																				
-	copper conductor																				
Insulating materials																					
Y	PVC																				
2X	cross-linked PE (XLPE)																				
-	impregnated paper																				
Concentric conductor (screen)																					
C	concentric conductor of copper																				
CW	concentric conductor of copper in waveconal formation																				
CE	concentric conductor of copper over each individual core																				
S	screen of copper wires																				
SE	screen of copper wires over each individual core																				
H	conductive layers																				
(F)	longitudinally water-proof screen																				
Armouring																					
B	steel tape armouring																				
F	armour of galvanized flat steel wires																				
G	counter helix of galvanized steel tape																				
R	armour of galvanized round steel wires																				
Sheath Material																					
A	oversheath made of fibrous material	Y	PVC																		
K	lead sheath	2Y	PE																		
KL	aluminium sheath																				
Protective Conductor																					
I	with protective conductor																				
O	without protective conductor																				
Number of cores																					
Conductor cross section in mm²																					
Conductor type																					
r ...	circular conductor	..m	stranded conductor																		
s ...	sector conductor	..h	hollow circular conductor																		
o ...	oval conductor	/V	compact conductor																		
e ...	circular, solid conductor																				
Rating Voltage																					
0,6/1 kV																					
3,6/6 kV																					
6,0/10 kV																					
12/20 kV																					
18/30 kV																					

NA2XS2Y 1x 35 RM/16 6/10 kV

Single core XLPE-insulated cable with PE-sheath according to standard, circular, stranded aluminium conductor with nominal crosssection 35 mm², covered with copper-screen 16 mm² and rating voltage (U₀ /U) 6/10 kV

NYJ-J 12x 1,5 RE 0,6/1 kV

Cable according to standard, PVC-insulated, sheath PVC, with green-yellow marked core, 12 cores with nominal cross-section 1,5 mm², circular conductor, solid, rating voltage 0,6/1 kV

DESIGNATION CODE FOR TELEPHONE CABLES, JUMPER WIRES AND STRANDED HOOK-UP WIRES

Construction reference

Basic cable type with additional information

A	outdoor cable	IE	installation cable for industrial electronic
AB	outdoor cable with lightning protection requirements	IE-H	installation cable for industrial electronic, halogen-free
AJ	outdoor cable with induction protection requirements	S	switchboard cable
G	mining cable	T	distribution cable
I	installation cable	YV/Li...	jumper wires/hook-up wires

Insulation

P	dry paper	3Y	Styroflex
Y	PVC (Polyvinylchloride)	5Y	PTFE
2Y	PE (Polyethylene)	6Y	FEP
02Y	foamed PE (cellular)	7Y	ETFE
02YS	foam-skin insulation		

Screening

C	screen of braided copper wires	(ms)	magnetic screen steel tape
D	copper screen, helically stranded	(St)	screen of plastic coated metallic foil
F	filling of cable core with petrol-jelly	(Z)	high tensile steel wire braiding
(K)	screen of copper tape with PE-inner sheath		
(L)	aluminium tape		

Sheath Material

L	smooth aluminium sheath	M	lead sheath
(L)2Y	copolymer coated aluminium	Mz	lead alloy sheath
	moisture barrier sheath	W	corrugated steel sheath
LD	corrugated aluminium sheath		

Protective coating

Y	PVC sheath	2Y	PE sheath
Yv	reinforced protective sheath of PVC	2Yv	reinforced protective PE sheath
Yw	PVC sheath heat-resistant	E	compound with embedded plastic tape
Yu	PVC flame resistant (non-flammable)	C	protective covering of jute and compound

Number of stranding elements

.. x1x	single core	.. x4x	quad
.. x2x	pair (double cores)	.. x5x	five-core
.. x3x	triple		

Conductor diameter in mm

Type of stranding components

F	star quad with phantom circuit in railway cables	St V	star quad for transmission of $f = 550$ kHz
S	signal core in railway signal cable	St VI	star quad for transmission of $f = 17$ MHz
StO	star quad general	DM	Dieselhorst-Martin quad
St	star quad with phantom circuit for long distance	TF	carrier frequency star quad
St I	star quad without phantom circuit	P	twisted pair
St II	star quad like St III, but with increased capacitance unbalances	PiMF	pair in metal foil
St III	star quad in local (Subscriber) cable	ViMF	quad in metal foil
St IV	star quad for transmission of $f = 120$ kHz	BdiMF	unit in metal foil
		Kx	coaxial cable

Stranding layout

Lg	layer stranding concentric
Bd	unit stranding

Armouring wire

A	layer of Al-wires for inductive protection	2B 0,5	2 layers steel tape, thickness 0,5 mm
b	armouring	D	layer of copper wires for inductive protection
B	armouring of steel band for inductive protection	(T)	strain bearing of steel wires for aerial cable
1B 0,3	1 layer steel tape, thickness 0,3 mm		

CODE-DESIGNATION-EXPLANATIONS FOR CABLES AND INSULATED WIRE

A-	Outdoor cable	-OZ	cable without green-yellow earth core and cores with imprinted numbers
A	approved national design	ö	oil-resistant
AB	Outdoor cable with lighting protection	02Y	Foam-PE, insulation (cellular PE)
AD	Outdoor cable with differential protection	Q	Steel wire braiding
AJ-	Outdoor cable with induction protection	(R...)	round wire, diameter in mm
ASLH	self-supporting communication cables for high voltage overhead lines	RAGL-	Compensating cable for thermocoupling
B	armouring	RD-	Rhenomatic cable
B	spinning of textile yarn	RE	Computer cable
b	armouring	RG-	Coaxial cable according MIL specification
(1B...)	one layer of steel tape... thickness of the steel tape in mm	re	round, single wire
(2B...)	two layers of steel tape... thickness of the steel tape in mm	rm	round, multiwire
BD	unit-type stranding	RS-	computer switchboard cable
BLK	bare copper-conductor without insulation	S	silk whipping
BZ	bronze conductor	S	signal cables for railways
C	screen of copper wire braiding	(S...)	nominal value of mutual capacitance (nF /km)
C	screen of copper wire spinning	-S	signal cable for German Railway
C	outer protection of jute and viscous compound	S-	Switchboard cable
Cu	copper wire	SL	flexible sheathed cable
(-Cu)	total cross-section of copper screens (mm ²)	2S	two layers of silk whipping
D	screen of copper wires	St	star quad for phantom circuits
(D)	screen of helically applied copper wires	St I	star quad in telephone cables for larger distance
DM	Dieselhorst-Martin quad	St III	star quad in local cables
Dreier	three cores in triple stranded	(St)	static screen
E	copper drain wire	Staku	copper clad steel wire
E(e)	protective covering of viscous compound with embedded layer of plastic tape	Staku-Li	copper clad steel stranded wires
e	single wire, solid	...t	termite protection
F	cable cores assembly with petrol-jelly	T	supporting element for overhead cable
F	foil wrapping	T-	fan out cable
F	flat cable	TF	carrier frequency of pairs or quads triple
F	star quad for railway cable	TiC	triple in copper wire braid
F	star quad for phantom circuits	TiMF	triple in metal foil
(F...)	flat wire armouring... thickness in mm	U	braiding of textile fibres
OF	jelly filled cable core, filling compound of hard substances	VGD	gold-plated
FR	flame retardant	VN	nickel-plated; VS silver-plated
f	flexible, fine wire stranding	VZK	galvanized; VZN tinned
ff	extra fine wire stranding	W	corrugated steel sheath
G	insulation or sheath material of rubber (NR) or (SBR)	W	high heat resistant
G-	Mining cable	W	corrugated steel sheath
GJ	Mining cable with induction protection	X	cross-linked polyvinylchloride (X-PVC) or other materials
GS	glass fibre whipping or braiding	XPE	cross-linked polyethylene (X-PE)
2G	insulation or jacket of silicone rubber, (SIR)	2X	cross-linked polyethylene
3G	insulation or jacket of ethylene propylene rubber, (EPR)	7X	cross-linked Ethylenetetrafluorethylen (X-ETFE)
4G	insulation or jacket of ethylene vinylacetate rubber (EVA)	10X	cross-linked Polyvinylidenfluorid (X-PVDF)
5G	insulation or jacket of chloroprene rubber (CR)	Y	PVC, polyvinylchloride
6G	insulation or jacket of chlorosulphonated polyethylene (CSM), Hypalon	Yu	PVC, polyvinylchloride, non-flammable, flame-retardant
7G	insulation or jacket of Fluorelastomer (FKM)	Yv	PVC, polyvinylchloride, with reinforced sheath
8G	insulation or jacket of Nitrile rubber (NBR)	YV	Equipment wires with tinned conductor
9G	PE-C rubber (CM)	Yw	PVC, polyvinylchlorid, heat resistant upto 90°C
53G	CM, chlorinated Polyethylene	2Y	Polyethylene (PE)
H	insulation or jacket of halogen-free compound	2Yv	Polyethylene, reinforced sheath
H	Harmonized Documents	02Y	Cellular polyethylene
(H...)	maximal value of mutual capacitance (nF /km)	02YS	insulation of cellular polyethylene with outer PE-skin
(HS)	semi-conducting tape of layer	2YHQ	insulation of air-spaced polyethylene
HX	cross-linked, halogen-free polymer compound	3Y	insulation polystyrene (PS), Styroflex
...IMF	individual stranding element (pairs or single cores etc.) in metal foil and drain wire	4Y	insulation or jacket of polyamide (PA)
IMF	several stranding elements in metalfoil and drain wire	5Y	insulation or jacket of polytetrafluorethylen (PTFE), HELUFLON®
-J	cable with green-yellow earth core	5YX	Perfluoralkoxy (PFA)
-JZ	cable with green-yellow earth core and cores with imprinted numbers	6Y	Perfluoroethylene-propylene (FEP), HELUFLON®
K	copper-tape	7Y	insulation or jacket of ethylenetetrafluorethylen (ETFE)
(K)	inner sheath and longitudinally folded copper tape	8Y	insulation of polyimid (PI), Kapton®
LA	tinsel conductor (flat copper wire stranded over the thread of synthetic fibres)	9Y	polypropylen (PP)
LD	corrugated aluminium sheath	10Y	PVDF, Polyvinylidene fluoride
Lg	in layers stranding	11Y	polyurethan (PUR)
L	stranded wires conductor	12Y	TPE-E, TPE
(L)Y	laminated sheath Al-tape and PVC-jacket	13Y	TPE-EE, TPE on base of Polyester-Ester
(L)2Y	laminated sheath Al-tape and PE-jacket	31Y	TPE-S, TPE on base of Polystyrol
2L	double enamel coating as insulation	41Y	TPE-A, TPE on base of Polyamide
M	plastic-sheath cable	51Y	PFA, Perfluor-Alkoxylalkane
M	lead sheath	71Y	ECTFE, Monochlorotrifluorethylen
Mz	alloyed lead sheath	91Y	TPE-O, TPE on base of Polyester-Ester
(mS)	magnetic shield	-Z	core imprinted with numbers
N	VDE standard	Z	twin cable
(N)	in adapted to VDE standard	(Z)	high-tensile braid of steel wires
NC	non-corrosiv, smoke-gase	(ZG)	high-tensile element of glass fibre yarn
NF	natural colour	(ZN)	high-tensile of non-metallic elements
-O	cable without green-yellow earth core		

■ CURRENT CARRYING CAPACITY AND INDICATIONS FOR CALCULATION OF POWER CABLES AND WIRES

The guidelines for current carrying capacities of copper and aluminium are valid DIN VDE 0298 part 4 as well as DIN VDE 0276 part 603 and for the conversion factors DIN VDE 0276 part 1000.

The current carrying capacity of a cable should be limited in such a degree that at all locations in a cable system which causes the generated heats under given proportions to lead safely in the environment. The heat flow depends on the inner heat-resistance between conductor and outer surface of the cable and as well as from the heat emission to the surroundings.

The following recommended values are the current carrying capacity of cables for laying in earth and in air at normal operating conditions. Hints for the deviated operating conditions, see DIN VDE 0298 table 4 and DIN VDE 0276 part 603 and part 1000.

Indications for Calculation

● For laying in earth

- Deviating operating conditions with both conversion factors are to be considered, as these depend on both of specific heat-resistance and the grade of load.
- EVU-load (load grade) is the maximum load factor of 0,7. The conversion factors for the load grades 0,5, 0,6, 0,85 and 1,0 are to be taken in tables DIN VDE 0276 part 603 and part 1000. Intermediate values can be interpolate (1,0 used for permanent load).
- Laying depth 0,7 m. The load capacity decreases with increasing of the laying depth. Usual depth of laying is 0,7 to 1,2 m.
- As normal value of the specific ground thermal resistivity in moist areas is selected with $1,0 \text{ K} \cdot \text{m}/\text{W}$. For dry areas the choiced value is $2,5 \text{ K} \cdot \text{m}/\text{W}$, under consideration of the applied usual bedding materials of sands.
- For favourable ground conditions or with thermal resisted bedding materials, lower value under well consolidation can be achieved. For individual case, the values and upon that the resulted current carrying loads are to be determined.

● For laying in air

- The values stated in the tables for outdoor laying in the air are defined for permanent operation.
- The arrangement of the cables is corresponded the presentation in table 3, DIN VDE 0276 part 1000.
- Conversion factors for other laying conditions and the heaping of cables are shown in table 10 and 11, DIN VDE 0276 part 1000.
- The current carrying capacities of multi-core cables can be calculated by using the current load value for 3-core cables according to table 13 with help of the conversion factors.
- By using the cable channels or cable board underlays etc. the air temperature will be increased. In this case the conversion factors according to table 12 for deviating air temperature should be used.
- For outdoor installation in air, the ambient temperature is based on 30°C .

● Radiation of heats and solar influence must be taken into consideration, where a good air circulation is needed.

● A sufficient large distance is to retain between the cables and the heating elements, because badly insulated heating elements often raise additionally the temperature of the cable.

● Distance between the cable from the wall, floor or ceiling = 2 cm

● Distance between the cables being laid one above the other = $2 \times D$

● Distance between the cable systems being laid one above the other = 20 cm

● Distance between the cables being laid side by side = $2 \times D$

● Specific ground thermal resistivity

- very moist area = $0,7 \text{ K} \cdot \text{m}/\text{W}$
- moist area = $1,0 \text{ K} \cdot \text{m}/\text{W}$
- dry area = $2,0 \text{ K} \cdot \text{m}/\text{W}$
- very dry area = $3,0 \text{ K} \cdot \text{m}/\text{W}$

■ INSTALLATION METHODS AND OPERATING CONDITIONS

– Power cables and insulated wires for fixed installation –

Installation method type A1

- Single core cables in insulation tube in a thermally insulated wall.

Installation method A2

- Multicore cables or multicore plastic sheathed cables in the insulation tube in a thermally insulated wall, whereby the walls for the methods of installation employed comprise an outer weatherproof board, thermal insulation and an inner board of wood or materials similar to wood, having a temperature lag of $0,1 \text{ m}^2 \cdot \text{K/W}$. The plastic or metal insulation tube is mounted such that this is very close to the inner wall without actually being in contact with the wall.

Installation method B1

- Single core cables in insulation tube on a wooden wall.

Installation method B2

- Multicore cables or multicore plastic-sheathed cables in insulation tube on a wooden wall.

For both installation methods, the insulation tube must be secured such that the space between conduit and the wall surface is less than 0,3 times the diameter of the insulation tube. The plastic or metal insulation tube can be installed directly on the masonry construction or plastered surface, whereby the current carrying capacity of the cables or wires can then be higher.

This problem is still being investigated by CENELEC.

Installation method C

- Single core or multicore cables, or single core or multicore plastic-sheathed cables, on a wooden wall.

The cables or insulated wires shall be mounted such that the space from the wall surface is less than 0,3 times the outer diameter of the cable or insulated wire. The current carrying capacity can be increased when installed directly on or in the masonry construction as well as underneath the plaster.

This problem is still being investigated by CENELEC.

Installation methods E, F and G

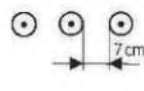
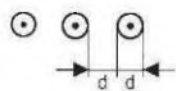
- Single core or multicore cables, or single core or multicore plastic-sheathed cables, installed in the open air.

The cable or insulated wire shall be installed such that the dissipation of heat is not impeded, whereby allowance shall be made for heating by other sources and for irradiation by sunshine. Natural convection shall not be obstructed. The space from the cable or insulated wire by each bordering surface shall be 0,3 times that of the outside diameter. A space equal to that of the outside diameter is sufficient for single core cables and plastic-sheathed wires in order to meet the current carrying requirements for an installation in the open-air.

LAYING CONDITIONS FOR POWER CABLES

As laying depth, the mathematical distance to the cable axis – for triangular bunched laying the distance of the bundle axis to the earth surface with 70 cm is choised. With increased laying depth the load ratings will be mathematically reduced. Hereby the same temperature and the same thermal earth resistances are to be presumed. Normal operation conditions and indications for deviating operation conditions.

Normal operation conditions

Laid in Earth		Laid in Air		Indications
1 Multicore cable		1 Multicore cable		Conversions factors see the following tables
1 Single core cable in direct current-system		1 Single core cable in direct current system		as of collective laying conditions see the following tables
3 Single core cables in 3-phase system, side by side, with a space of 7 cm		3 Single core cables in 3-phase system, side by side, with a space of a cable $\varnothing$		
3 Single core cables in 3-phase system, in bundle form ¹⁾		3 Single core cables in 3-phase system in bundle form ¹⁾		
Bedding in sand or earth shove and if necessary covering with bricks, cement plates or with flat to light curved thin covering of plastic		– Laid in open air, i.e. unhindered heat radiation will be ensured at: Distance of cable from wall, floor or ceiling ≥ 2 cm – For cables laying side by side: Space at least two times of the cable $\varnothing$ – For cables laying one above the other: Vertical space of the cable atleast two times of the cable $\varnothing$ cable length at least 30 cm – Consideration of thermal loss in cable, the increased air temperature of sufficient big and ventilated rooms – Protection against direct heatradiation of sunlight etc. – Air temperature 30°C	• Conversion factors for laying in earth: – covering hood with air cavat $\gamma = 0,9$ - laid in conduit = 0,85 • Conversion factors for laying in air: – alternating ambient temperatures – as of collecting laying conditions – for laying in conduits – see tables and indications according to DIN VDE 0298	
Ambient conditions – Ground temperature at installation depth: 20°C – Soil-thermal resistivity of moist area: 1,0 K · m/W – Soil-thermal resistivity of dry area: 2,5 K · m/W				
Connecting and earthing of metal sheaths or screens on both ends				Connecting and earthing of metal sheaths or screens on both sides

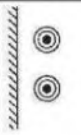
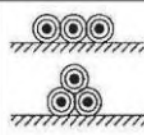
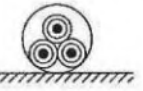
¹⁾ in "bunched" or triangle touching arrangement

■ CURRENT RATINGS FOR HELUTHERM® 145

Operating temperature at conductor 120° C

For permanent operating to the ambient temperature of 30° C. Conversion factors for the deviating site operation conditions – see tables below.

Sufficiently large or ventilated rooms in which the ambient temperature is not noticeably increased by the heat losses from the cables. Protection should be taken from the solar radiation etc.

Installation	 in open air	 on face without inter-contact	 on surface with inter-contact	 in tubes, conduits, cabinets
Conversion factors for grouping	–	to table 1	to table 2	to table 3
Cross-section, mm ²	Current ratings in Ampere (A) up to 30° C ambient temperature			
0,25	13	12	9	7
0,33	17	15	11	9
0,50	19	18	12	10
0,75	24	23	17	13
1,0	31	30	20	17
1,5	39	36	25	20
2,5	51	48	33	26
4	68	65	45	36
6	88	84	58	46
10	121	116	80	64
16	160	152	106	85
25	211	200	140	111
35	261	248	172	138
50	320	304	211	169
70	411	391	272	217
95	502	476	331	265
120	587	558	387	310
150	680	646	449	359
185	781	743	516	413
240	931	884	614	492

Conversion factors for grouping

Number of single core cables for 2-phase or 3-phase systems		1	2	3	4	5	6	7	8	9	10	12
Table 1	Factor	1,00	0,94	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90
Table 2	Factor	1,00	0,85	0,79	0,75	0,73	0,72	0,72	0,71	0,70	–	–
Table 3	Factor	1,00	0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,48	0,45

Conversion factors for deviating ambient temperatures

Temperature in °C	20	30	40	50	60	70	80	90	95	100	105	110	115
Factor	1,05	1,00	0,94	0,88	0,82	0,75	0,67	0,58	0,53	0,47	0,41	0,33	0,24

CURRENT RATINGS FOR SILICONE CABLES AND WIRES

The indicated values stated in the following table are considered as guiding values. These are to be selected each particularly for the individual application.

Heat-resistance at an ambient **temperature up to 150°C**

	Group 1	Group 2	Group 3
Nominal-cross-section	current-carrying capacity A	current-carrying capacity A	current-carrying capacity A
0,25	2,8	–	5
0,5	6	7	10
0,75	9	12	15
1,0	12	15	19
1,5	16	18	24
2,5	21	26	32
4	28	34	42
6	36	44	54
10	49	61	73
16	65	82	98
25	85	108	129
35	105	135	158
50	140	168	198
70	175	207	245
95	210	250	292
120	250	292	344
150	–	335	391
185	–	382	448
240	–	453	528
300	–	523	608

Group 1: One or more single core cables laid in duct.

Group 2: Multicore cables, flexible cables laid in open or ventilated conduits.

Group 3: Single core cables laid in open air with a spacing at least equal to cable diameter.

Power ratings for

ambient temperature over 150°C

The following conversion factors are valid:

Temperature °C	current-carrying capacity values in %
up to 150	100
over 150 to 155	91
over 155 to 160	82
over 160 to 165	71
over 165 to 170	58
over 170 to 175	41

COMPARISON OF FIRE TESTS

EN, IEC, DIN VDE AND BS FLAME RETARDANCE

EN	PART	CLAUSE	TITLE	IEC	BS	DIN VDE
60332	1	1	Test for vertical flame propagation for a single insulated wire or cable - Apparatus	60332-1-1	EN 60332-1-1	0482-332-1-1
	1	2	Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame	1-2	1-2	332-2-1
	2	2	Test for vertical flame propagation for a single small insulated wire or cable - Procedure for diffusion flame	2-2	2-2	332-2-2
EN	PART	CLAUSE	TITLE	IEC	BS	DIN VDE
60332	3	10	Test for vertical flame spread of vertical mounted bunched wires or cables - Apparatus	60332-3-10	EN 60332-3-10	0482-332-3-10
		21	Category A F/R	3-21	3-21	332-3-21
	3	22	Category A	3-22	3-22	332-3-22
		23	Category B	3-23	3-23	332-3-23
	3	24	Category C	3-24	3-24	332-3-24
		25	Category D	3-25	3-25	332-3-25

ZERO HALOGEN / CORROSIVNESS OF COMBUSTION GASES

EN	PART	CLAUSE	TITLE	IEC	BS	DIN VDE
50267	1		Test on gases evolved during combustion of materials from cables - Apparatus	60754-1	EN 50267-1	0482-267-1
	2	1	Procedures: Determination of the amount of halogen acid gas	1	2-1	267-2-1
	2	2	Procedures: Determination of degree of acidity of gases for materials by measuring pH and conductivity	2	2-2	267-2-2
	2	3	Procedures: Determination of degree of acidity of gases for cables by determination of the weighted average of pH and conductivity	2	2-3	267-2-3

SMOKE DENSITY

EN	PART	CLAUSE	TITLE	IEC	BS	DIN VDE
61034	1		Measurement of smoke density of cables burning under defined conditions - Apparatus	61034-1	EN 61034-1	0482-1034-1
	2		Measurement of smoke density of cables burning under defined conditions - Procedure	2	2	1034-2

PERFORMANCE TEST

1- IEC 60332-1, VDE 0482-332-1-2, EN 60332-1-2, BS EN 60332-1-2 TEST FOR RESISTANCE TO VERTICAL FLAME DIFFUSION OF A SINGLE INSULATED CONDUCTOR OR CABLE 1 KW PRE-MIXED FLAME

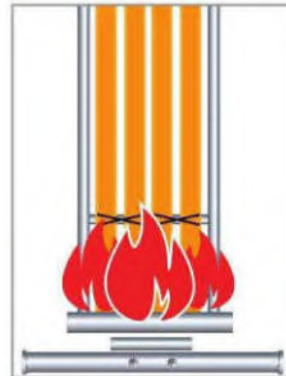
A sample cable of 600 mm will be fixed vertically in a metal chamber with exposed front side. A propane gas burner will be mounted in order to obtain a 45° angle with axis of the sample cable. The test time is dependent on the cable diameter. If the sample does not burn, or if the flame extinguishes itself, the test shall be deemed as successful.



OUTER DIAMETER (mm)	FLAME DURATION SEC
$D \leq 25$	60 ± 2
$25 < D \leq 75$	120 ± 2
$50 < D \leq 75$	240 ± 2
$75 < D$	480 ± 2

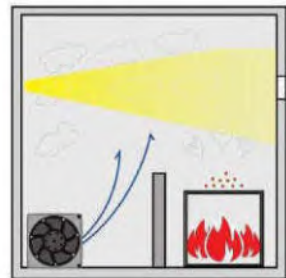
2- IEC 60332-3-22, VDE 0482-60332-3-22, EN 60332-3-22, BS EN 60332-3-22 (CAT A) TEST FOR VERTICAL FLAME DIFFUSION ON VERTICALLY FIXED WIRE OR CABLE BUNDLES

The test samples are mounted on a steel ladder. The total number of test pieces in the test sample shall be that number required to provide a nominal total volume of non-metallic material of 7 l/m of test sample. The steel ladder is placed on the rear part of a test chamber having a width of 1 m, a depth of 2 m and a height of 4 m. The test chamber should be ventilated by an air vent. The test flame is applied on the sample cable for 40 min. The test is passed if the flames extinguish on their own and no part of the samples is damaged over a length of 2,5 m.



3- IEC 61034-2, VDE 0482-1034-2, EN 61034-2, BS EN 61034-2 MEASUREMENT OF SMOKE DENSITY OF CABLES BURNT UNDER CERTAIN CONDITIONS

The volume of test chamber is 3m³. The measurement system consists of a light source (a standard 100w halogen lamp) and a selenium or silicon photo-electric cell, both installed at a height of 2,15m. A rectangular tray will be filled with alcohol. A ventilator is used to ensure the distribution of smoke. The length of the test samples is 1m. The number of test samples depends on the outer diameter. The samples should be attached horizontally above the tray which is filled with alcohol. The ventilator is started and the alcohol is ignited. Light intensity is recorded by a plotter which is connected to the photocell. The test is passed if the level of light transmission does not exceed the values given in the following table during the test.



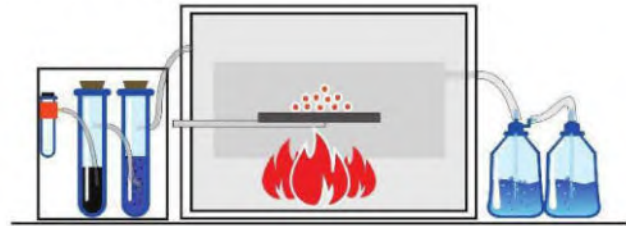
OUTER DIAMETER (mm)	NUMBER OF SAMPLE	LIGHT TRANSMISSION
$40 < D$	1	$> 60\%$
$20 < D \leq 40$	2	$> 60\%$
$10 < D \leq 20$	3	$> 60\%$
$5 < D \leq 10$	N_1	$> 60\%$
$1 < D \leq 5$	N_2	$> 60\%$

$$N_1 = \frac{45}{D}$$

$$N_2 = \frac{45}{3D}$$

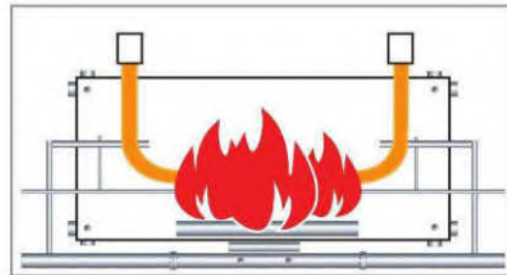
4- IEC 60754-1-2, VDE 0482-267-2-1, 2 and 3, EN 50267-2-1,2 and 3, BS EN 50267-2-1,2 and 3 DETERMINATION OF HALOGEN ACID GAS, MEASUREMENT OF PH AND CONDUCTIVITY

This test indirectly allows measuring emission of corrosive gas by insulation and sheath compounds. It is possible to measure small quantities of halogens during measurement of the pH-value and the conductivity. In a 500-600 mm long furnace, at least 1g of insulation or sheath compound should be heated up to a temperature of 935 °C. Air flow will ensure that combustion gases pass through a bottle filled with purified water. The test is passed if the pH-values is lower than 4,3 and the electrical conductivity does not exceed 100 µS/cm.



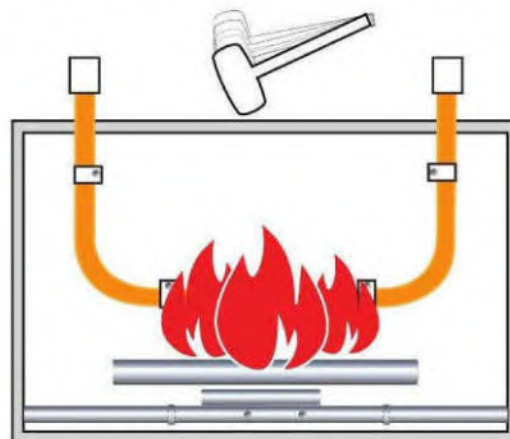
5- IEC 60331-21/23 TEST ON INSULATION INTEGRITY

This test determines insulation integrity under fire conditions. Cables which are tested according to these standards are marked as FE 180. 1,2 m long sample cable suitable for electrical connection, having outer sheath and other jackets, which are removed at both ends. The prepared sample will be fixed horizontally about 75mm above the burner. The samples will be connected (one 2 A fuse for each conductor) to a voltage source and will be tested with their rated voltage source, is slightly curled in order to prevent electrical contact. The burner is ignited and heated up to a temperature of at least 750°C by means of a thermocouple. The sample will be connected to electrical supply and placed into the flames. The sample will be tested during a period of 180. If none of the 2A fuses has blown during the test period, the test is passed.



6- IEC 60331-1/2, VDE 0482-200, BS EN 50200, BS 8434-1,2 SPECIFICATION FOR PERFORMANCE REQUIREMENTS FOR CABLES REQUIRED TO MAINTAIN CIRCUIT INTEGRITY UNDER FIRE CONDITIONS

This test is applied to cables having resident fire retardant properties used in emergency circuits such as alarm, lighting and communication. A single piece of cable is attached to a special fibre glass wall with cable at the minimum bending radius. It is burned with the 830°C propane burner. The rated tension values of the cable are applied on the conductors during the test. Every five minutes a mechanical shock of 25 kg is applied to the wall the cable is attached to. The tension values must be preserved during the test.



METRIC SIZES STANDARD FLEXIBLE CONDUCTORS VDE 0295; IEC 60228; EN 60228

CLASS OF CONDUCTOR	CROSS-SECTIONAL AREA mm ²	STRANDING NO.WIRES-SIZE WIRES mm	NOMINAL DIAMETER OF CONDUCTOR mm	NOMINAL WEIGHT kg/km
	0,05	7X0,10	0,3	0,5
	0,22	7X0,20	0,6	2,0
	0,5	7X0,30	0,9	4,5
5	0,5	16X0,20	0,93	4,5
6	0,5	28X0,15	0,94	4,5
	0,5	151X0,065	0,98	4,5
	0,65	14X0,25	1,1	5,8
5	0,75	24X0,20	1,14	6,7
6	0,75	42X0,15	1,12	6,7
5	1,0	32X0,20	1,34	8,9
5	1,25	40X0,20	1,47	11,1
5	1,35	19X0,30	1,5	12,0
5	1,5	30X0,25	1,6	13,4
	2,0	28X0,30	1,87	17,8
5	2,5	50X0,25	2,09	22,3
	3,0	44X0,30	2,4	27
5	4,0	56X0,30	2,61	36
	4,5	65X0,30	2,8	40
5	6	84X0,30	3,21	53
	8	120X0,30	3,75	71
5	10	80X0,40	4,2	89
5	16	128X0,40	5,3	142
5	25	200X0,40	7,1	223
5	35	280X0,40	8,5	312
5	50	400X0,40	10,3	445
5	70	356X0,50	12,4	623
5	95	485X0,50	14,5	846
5	120	120X0,30	16,0	1068
5	150	765X0,50	18,0	1335
5	185	944X0,50	20,0	1647
5	240	1225X0,50	23,0	2136
5	300	1530X0,50	26,0	2670
5	400	2034X0,50	30,0	3560
5	500	1768X0,60	33,5	4450

CLASS 2 STRANDED CONDUCTORS FOR SINGLE AND MULTI-CORE CABLES

Nominal cross-sectional area mm ²	The number of conductor wires						Conductor resistance at 20 °C		
	Circular		Circular compressed		Formatted		Bare copper Ω / km	Tinned copper Ω / km	Aluminum and aluminum alloy conductors Ω / km
	Cu	Al	Cu	Al	Cu	Al			
1	2	3	4	5	6	7	8	9	10
0,5	7	-	-	-	-	-	36	36,7	-
0,75	7	-	-	-	-	-	24,5	24,8	-
1	7	-	-	-	-	-	18,1	18,2	-
1,5	7	-	6	-	-	-	12,1	12,2	-
2,5	7	-	6	-	-	-	7,41	7,56	-
4	7	-	6	-	-	-	4,61	4,7	-
6	7	-	6	6	-	-	3,08	3,11	3,08
10	7	7	6	6	-	-	1,83	1,84	1,91
16	7	7	6	6	6	6	1,15	1,16	1,2
25	7	7	6	6	6	6	0,727	0,754	0,868
35	7	7	6	6	6	6	0,524	0,529	0,641
50	19	19	6	6	6	6	0,387	0,391	0,443
70	19	19	12	12	12	12	0,268	0,27	0,32
95	19	19	15	15	15	15	0,193	0,195	0,253
120	37	37	18	15	18	15	0,153	0,154	0,206
150	37	37	18	15	18	15	0,124	0,126	0,164
185	37	37	30	30	30	30	0,0991	0,1	0,125
240	37	37	34	30	34	30	0,0754	0,0762	0,1
300	61	61	34	30	34	30	0,0601	0,0607	0,0778
400	61	61	53	53	53	53	0,047	0,0475	0,0605
500	61	61	53	53	53	53	0,0366	0,0369	0,0469
630	91	91	53	53	53	53	0,0283	0,0286	0,0367
800	91	91	53	53	b	b	0,0221	0,0224	0,0291
1200	b	b	b	b	b	b	0,0151	0,0151	0,0247
1400 ^a	b	b	b	b	b	b	0,0129	0,0129	0,0212
1600	b	b	b	b	b	b	0,0113	0,0113	0,0186
1800 ^a	b	b	b	b	b	b	0,0101	0,0101	0,0165
2000	b	b	b	b	b	b	0,009	0,009	0,0149
2500	b	b	b	b	b	b	0,0072	0,0072	0,0127

a) These sizes are non-preferred. Other non-preferred sizes are recognized for some specialized applications but are not within the scope of this TS EN 60228 standard.

b) The minimum number of wires for these sizes is not specified. These sizes may be constructed from 4, 5 or 6 equal segments (Milliken).

c) For stranded aluminium alloy conductors having the same nominal cross-sectional area as an aluminium conductor the resistance value should be agreed between the manufacturer and the purchaser.

CONDUCTOR RESISTANCE VALUES ACCORDING TO VDE 0295 EN 60228/IEC 60228

Conductor Dimension	Power cables and wires						Welding cables	
	Copper Conductors				Aluminium Conductors		Copper Conductors	
	Tinned wires		Bare wires		Bare wires		Bare Wires	Tinned Wires
	Class1 Class2	Class5 Class6	Class1 Class2	Class5 Class6	Class1	Class2		
Nominal cross-sectional area mm ²	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km	Ω/km
0,05	-	-380	-	-360	-	-	-	-
0,08	-	-240	-	-230	-	-	-	-
0,09	-	-230	-	-215	-	-	-	-
0,14	-	-140	-	-138	-	-	-	-
0,20	-	-96,8	-	-95	-	-	-	-
0,25	-	-79,3	-	-78	-	-	-	-
0,34	-	-57,1	-	-56	-	-	-	-
0,50	36,70	40,10	36,00	39,00	-	-	-	-
0,75	24,80	26,70	24,50	26,00	-	-	-	-
1	18,20	20,00	18,10	19,50	-	-	-	-
1,50	12,20	13,70	12,10	13,30	-	-	-	-
2,50	7,56	8,21	7,41	7,98	-	-	-	-
4	4,70	5,09	4,61	4,95	-	-	-	-
6	3,11	3,39	3,08	3,33	-	-	-	-
10	1,84	1,50	1,83	1,91	-	-	-	-
16	1,16	1,24	1,15	1,21	-	1,910	1,160	1,190
25	0,734	0,795	0,727	0,780	1,200	1,200	0,758	0,780
35	0,529	0,565	0,524	0,554	0,868	0,868	0,536	0,552
50	0,391	0,393	0,387	0,386	0,641	0,641	0,379	0,391
70	0,270	0,277	0,268	0,272	0,443	0,443	0,268	0,276
95	0,195	0,210	0,193	0,206	0,320	0,320	0,198	0,204
120	0,154	0,164	0,153	0,161	0,253	0,253	0,155	0,159
150	0,126	0,132	0,124	0,129	0,206	0,206	0,125	0,129
185	0,1260	0,108	0,0991	0,106	0,164	0,164	0,102	0,105
240	0,0762	0,0817	0,0754	0,0801	0,125	0,125	-	-
300	0,0607	0,0654	0,0601	0,0641	0,100	0,100	-	-
400	0,0475	0,0495	0,0470	0,0486	-	0,0778	-	-
500	0,0369	0,0391	0,0366	0,0384	-	0,0605	-	-
630	0,0286	0,0292	0,0283	0,0287	-	0,0469	-	-

AWG AMERICAN WIRE GAUGE (SOLID COPPER WIRES)

CLASS CONDUCTOR (AWG)	CROSS SECTIONAL mm ²	NOMINAL DIAMETER OF CONDUCTOR mm	NOMINAL WEIGHT kg/km	WIRE RESISTANCE (Ω/km) 20 ° C
40	0,0049	0,079	0,0433	3540
39	0,0062	0,089	0,0552	2780
38	0,0081	0,102	0,0720	2130
37	0,0103	0,114	0,0912	1680
36	0,0127	0,127	0,113	1360
35	0,0159	0,142	0,141	1080
34	0,0201	0,16	0,179	857
33	0,0255	0,18	0,228	675
32	0,0324	0,203	0,289	532
31	0,0401	0,226	0,357	430
30	0,0507	0,254	0,451	340
29	0,0649	0,287	0,576	266
28	0,0806	0,32	0,716	214
27	0,102	0,361	0,908	169
26	0,128	0,404	1,14	135
25	0,162	0,455	1,44	106
24	0,205	0,511	1,82	84,2
23	0,259	0,574	2,31	66,6
22	0,324	0,643	2,89	53,2
21	0,411	0,724	3,66	41,9
20	0,519	0,813	4,61	33,2
19	0,653	0,912	5,8	26,4
18	0,823	1,02	7,32	21
18	0,897	1,22	8,26	21,2
17	1,04	1,15	9,24	16,6
16	1,31	1,29	11,6	13,6
16	1,31	1,47	11,8	13,6
14	2,08	1,63	18,5	8,28
14	2,08	1,85	18,9	8,56
12	3,31	2,052	29,5	5,21
12	3,3	2,052	30,1	5,38
12	3,08	1,99	28,9	5,59
10	5,26	2,59	46,8	3,28

AMERICAN WIRE GAUGE (STRANDED COPPER WIRE)

GAUGE (AWG)	STRANDING (NOM. AWG)	APPROX OD.		CROSS-SECTION mm ²	WEIGHT kg/km	WIRE RESISTANCE (Ω/km) 20 ° C
		INCHES	mm			
36	7 x 44	0,006	0,152	0,014	0,249	1360,6
34	7 x 42	0,075	0,191	0,022	0,397	856,0
32	7 x 40	0,0093	0,236	0,034	0,639	538,4
32	19 x 44	0,010	0,254	0,035	0,639	538,4
30	7 x 38	0,012	0,305	0,057	0,997	367,4
30	19 x 42	0,012	0,305	0,059	0,997	367,4
28	7 x 36	0,015	0,381	0,089	1,588	232,0
28	19 x 40	0,016	0,406	0,090	1,588	232,0
27	7 x 35	0,017	0,432	0,110	2,014	182,4
26	7 x 34	0,019	0,483	0,141	2,526	145,6
26	10 x 36	0,021	0,533	0,126	2,526	145,6
26	19 x 38	0,020	0,508	0,155	2,526	145,6
24	7 x 32	0,024	0,610	0,227	4,032	90,8
24	10 x 34	0,024	0,610	0,200	4,032	90,8
24	19 x 36	0,024	0,610	0,240	4,032	90,8
22	42 x 40	0,023	0,584	0,205	4,032	90,8
22	7 x 30	0,030	0,762	0,355	6,388	57,4
22	19 x 34	0,031	0,787	0,382	6,388	57,4
20	26 x 36	0,030	0,762	0,330	6,388	57,4
20	7 x 28	0,038	0,965	0,563	10,191	35,7
20	10 x 30	0,037	0,940	0,506	10,181	35,7
20	19 x 32	0,037	0,940	0,614	10,181	35,7
20	26 x 34	0,036	0,914	0,522	10,181	35,7
18	42 x 36	0,038	1,965	0,531	10,181	35,7
18	7 x 26	0,048	1,220	0,897	16,175	22,7
18	16 x 30	0,047	1,190	0,810	16,175	22,7
18	19 x 30	0,049	1,240	0,963	16,175	22,7
18	42 x 34	0,047	1,190	0,844	16,175	22,7
16	65 x 36	0,047	1,190	0,822	16,175	22,7
16	7 x 24	0,060	1,520	1,430	25,756	14,2
16	19 x 29	0,058	1,470	1,228	25,756	14,2
16	26 x 30	0,059	1,500	1,316	25,756	14,2
16	65 x 34	0,059	1,500	1,306	25,756	14,2
14	105 x 36	0,059	1,500	1,329	25,756	14,2
14	7 x 22	0,076	1,930	2,271	41,012	8,95
14	19 x 26	0,071	1,800	2,434	41,012	8,95
14	42 x 30	0,075	1,910	2,127	41,012	8,95
12	105 x 34	0,075	1,910	2,110	61,160	8,95
12	7 x 20	0,096	2,440	3,360	61,160	5,61
12	19 x 25	0,093	2,360	3,087	61,160	5,61
12	65 x 30	0,095	2,410	3,291	103,613	5,61
10	165 x 34	0,095	2,410	3,315	103,613	3,54
10	37 x 26	0,115	2,920	4,740	103,613	3,54
10	65 x 28	0,120	3,050	5,224	103,613	3,54
10	105 x 30	0,118	3,000	5,317	103,613	3,54

Voltage drop

Nominal cross-sectional area (mm ²)	DC- System (mV/A/m)	Single-phase AC-System (mV/A/m)	Three-phase AC-System (mV/A/m)
1.5	24.2	27.9	24.1
2.5	14.3	17.1	14.8
4	9.0	10.7	9.3
6	6.0	7.2	6.2
10	3.6	4.3	3.7
16	2.3	2.8	2.4
25	1.5	1.8	1.5
35	1.1	1.3	1.1
50	0.8	0.96	0.85
70	0.6	0.70	0.60
95	0.4	0.55	0.45
120	0.3	0.45	0.35
150	0.25	0.35	0.31
185	0.20	0.30	0.26
240	0.15	0.25	0.22
300	0.12	0.22	0.19
400	0.10	0.19	0.17

The voltage drop in a circuit, of which the cable forms a part, should not exceed 3 - 5% of the nominal voltage; e.g. 20.0 volts (5%) for a three-phase 400 volts supply. The above mentioned voltage drop is tabulated for a current of 1 ampere for a 1 metre run. For any cable length, the values need to be multiplied by the length of the cable (in metres) and by the current (in amperes).

Select a cross-section, such that the voltage drop is equal to or less than 0.83 mV/A/m from table 3. It has to be ensured that the selected cross-section will carry the current (see pages H5 up to H7).

The corresponding cross-section will be 50 mm².

Example:

Formula for the calculated voltage drop in mV/A/m:

$$e_{cal} = \frac{\text{permissible voltage drop (e)} \times 1000}{\text{current (I)} \times \text{length (l)}}$$

Installation length (l):	300 m
Current (I) to carry:	80 A
Nominal voltage (U):	400 V (Three-phase AC)
Permissible voltage drop (e):	20.0 V (5% of 400 V)

$$e_{cal} = \frac{20.0 \text{ V} \times 1000}{80 \text{ A} \times 300 \text{ m}} = 0.83 \text{ mV/A/m}$$

LOGISTICS

Zarcable serves with the latest technology packaging, wrapping and cutting machines in its separate logistics warehouse with 2800 m² storing capacity so can make more effective logistic activities.

Zarcable aims to make protective packaging for the cables that facilitates and accelerates the logistics activities of the business partners. The cables in accordance with international standards of production and transport are packaged and shipped pursuant to customer needs. Upon request from the customers, technical knowhow and support on the most suitable package types and cable lengths are provided. Zarcable does not require an additional fee from its customers for the standard packaging within its framework of logistics.



OUR PACKAGE TYPES



Wooden drums



Plywood drums



Plastic drums



Coils with shrink



Cardboard box



Pallet



Euro Pallet



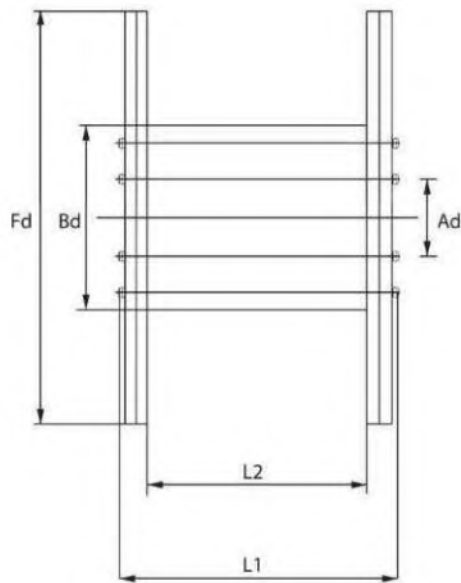
Heat Treatment Assurance: Only heat treated drums and pallets are used in our export products.



Incoterms: The shipping is made in accordance with Incoterms rules within the framework of mutual understanding with our customers.

WOODEN DRUMS (STANDARD)

DRUM CODE NUMBER	Fd mm	Bd mm	Ad mm	L1 mm	L2 mm	MAXIMUM CARRYING CAPACITY kg	DRUM WEIGHT kg
MD-40	400	200	40	310	250	100	3
MD-50	500	250	45	350	290	150	4
MD-60	600	300	50	350	300	200	5
60	630	315	56	415	315	250	17
70	710	355	80	520	400	250	25
80	800	400	80	520	400	400	31
90	900	450	80	690	560	750	47
100	1000	500	80	710	560	900	71
120	1250	630	80	890	670	1700	144
140	1400	710	80	890	670	2000	175
160	1600	800	80	1100	850	3000	280
180	1800	1000	100	1100	840	4000	380
200	2000	1250	100	1350	1045	5000	550



Fd: Flange Diameter
Ad: Arbor Hole Diameter
Bd: Barrel Diameter
L1: Overall Winding Width
L2: Inner Winding Width



CURRENT CARRYING CAPACITY OF FLEXIBLE CABLES

Nominal Cross Section	GROUP 1 One or more single-core cables installed in conduit			GROUP 2 Multi-core cables e.g. plastic sheathed cables, Building cable, mobile cables			GROUP 3 Single-core cables freely installed in air, hereby the cables are installed with in terminate spaces of the cable diameter as a minimum, as well as single-core wiring in switching and distribution systems		
	MEASURE	CURRENT CARRYING	FUSE	CURRENT CARRYING	FUSE		CURRENT CARRYING	FUSE	
	mm ²	A	A	A	A		A	A	
0,08		2,5	-	0,5	-		-	-	
0,14		6	-	1,5	-		6	-	
0,25		8,5	-	2,5	-		8,5	-	
0,34		9	-	3,5	-		10	-	
0,5		10	-	5	-		12	-	
0,75		11	-	13	10		16	16	
1		12	10	16	16		20	20	
1,5		16	16	20	20		25	25	
2,5		21	20	27	25		34	35	
4		27	25	36	35		45	50	
6		35	35	47	50		57	63	
10		48	50	65	63		78	80	
16		65	63	87	80		104	100	
25		88	80	115	100		137	125	
35		110	100	143	125		168	160	
50		140	125	178	160		210	200	
70		175	160	220	224		260	250	
95		210	200	265	250		310	310	
120		250	250	310	300		365	355	
150		-	-	355	355		415	425	
185		-	-	405	355		475	425	
240		-	-	480	425		560	500	
300		-	-	555	500		645	600	
400		-	-	-	-		770	630	
500		-	-	-	-		890	850	

MAX. CARRYING CAPACITANCE OF DRUMS DEPEND ON OUTER DIAMETER OF CABLES

CABLE D mm	MD 40	MD 50	MD 60	60	70	80	90	100	120	140	160	180	200
6	420	735	1070	1110	2024	2755							
7	310	540	780	840	1480	2340	2730						
8	235	430	590	640	1064	1463							
9	185	335	465	470	890	1152	2202	2866					
10	150	270	385	388	680	980	1768	2349					
11	14	230	330	315	564	760	1404	1910					
12		195	270	254	470	643	1206	1540	2727				
13	100	165	235	238	385	542	1032	1339	2265	2967			
14		140	210	190	360	454	880	1159					
15		130	185	180	300	430	749	1000	1990	2480			
16		115	160	140	239	358	632	860	1756	2205			
17			145	134	228	294	603	736	1545	1960			
18			130	102	218	280	505	705	1355	1737	2227		
19			120	96	172	228	485	599	1184	1535	2435	2830	
20				92	165	220	402	576	1139	1352			
21				90	159	210	387	485	990	1304	2172	2527	
22				65	122	167	315	468	856	1145	1930	2248	2954
23				62	117	160	304	389	827	999	1870	2172	
24				60	113	156	294	377	709	967	1657	1927	2608
25				58	110	150	285	365	688	839	1608	1867	2522
26				56	80	116	226	299	668	814	1420	1650	2218
27					78	113	220	290	567	700	1244	1450	2150
28					76	109	215	282	550	680	1210	1410	1880
29					73	106	209	226	462	663	1180	1370	1826
30						103	162	220	450	564	1028	1200	1583
31					70	76	157	214	438	550	1003	1166	1540
32						74	153	209	428	537	866	1009	1500
33							150	204	352	450	846	985	1289
34						72	146	158	344	440	828	962	1257
35							108	154	336	430	710	824	1227
36								150	329	422	692	806	1040
37							105	148	265	348	678	788	1017
38							103	144	259	340	664	722	994
39								110	254	334	560	653	972
40								105	249	327	549	640	812
41								102	244	264	539	627	795
42									190	259	529	615	779
43								10	187	254	437	510	763
44									183	249	430	502	750
45									180	254	422	492	610
46									177	240	415	484	600
47									174	187	408	475	589
48									130	184	330	386	578
49									127	180	325	380	568
50									125	178	319	373	558
51										175	314	367	442
52									123	172	310	360	435
53									120	170	305	356	428
54										126	230	280	420
55										124	235	276	414
56										122	232	270	408
57										121	228	267	400
58										119	225	263	304
59										117	222	260	300
60											220	256	295
61											216	252	290
62											160	190	287
63											158	187	282
64											156	184	280
65											154	182	275
66											152	180	270
67											150	178	266
68												174	264

D.C VOLTAGE DROPS

$V \text{ drop} = 2 \times I \times L \times R$ I = Face Current (A)
 L = Length (km)
 R = Maximum conductor temperature, the resistance value of the expected (Ω/km)
 X = Reactance (Ω/km)
 $\cos \phi$ = Power Factor
 f = Frequency (Hz)
 Z = Impedance (Ω/km)

A.C SINGLE PHASE VOLTAGE

$V \text{ drop} = 2 \times I \times L (R \cos \phi + X \sin \phi)$ d = Conductor Diameter (mm)
 L = Conductor Length (m)

A.C THREE PHASE VOLTAGE

$V \text{ drop} = \sqrt{3} \times I \times L \times (R \cos \phi + X \sin \phi)$

REACTANCE:

$x = 2 \times \pi \times f \times L \times l$

INDUCTANCE:

$L = 0,2 \times [\ln(2a) + 0,25] 10^{-6}$

IMPEDANCE:

$Z = \sqrt{R^2 + X^2}$

POWER CONVERSION FACTOR

$\sin \phi = \sqrt{1 - \cos^2 \phi}$

NOTE: Calculations Power Factor ($\cos \phi$) 0.8 Surface Current (I) 1 A and Length (L) is taken as 1 km.

ELECTRICAL CALCULATIONS AND FORMULAS

SHORT CIRCUIT CURRENT

0,6 / 1 kV + 90 °C ship type cables short-circuit current formula.

GENERAL FORMULA: $I_k = 226 \frac{S}{\sqrt{t}} \sqrt{\ln \frac{234 + T_k}{234 + T_b}}$

I_k = Short-circuit current (kA)
 S = Cross section (mm^2)
 T = Short circuit time (sec)
 T_k = The expected maximum conductor temperature (short time) (°C)
 T_b = Maximum conductor temperature is expected (normal conditions) (°C)

FORMULA 1:

XLPE and the HF90 standards for materials
 temperature T_k = & T_b = 90 °C to 250 °C, respectively.
 These values are placed instead of the formula, the general
 formula for XLPE and HF90 materials;

$I_k = 146 \frac{S}{\sqrt{t}}$

FORMULA 2:

The standards for PVC materials
 temperature T_k = & T_b = 70 °C to 150 °C, respectively.
 PVC materials of general formula wherein the values for
 the orthogonality;

$I_k = 31,66 \frac{S}{\sqrt{t}}$

MAX. CARRYING DISTANCE OF VARIOUS POWER IN DETERMINED VOLTAGE DROP ACCORDING TO CABLE CROSS SECTION (3-380 V THREE PHASES)

Power Current		Cos Ø	CROSS SECTION mm ²														
kW	A		1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240
2,5	5		240	400	640												
3	6		200	330	535	800											
3,5	7		170	285	455	685											
4	8		150	250	400	600	1000										
4,5	9		135	223	353	530	890										
5	10		120	200	320	480	800										
6	12		100	166	265	400	670	1070									
7	14		85	142	225	340	570	920									
8	16		75	125	200	300	500	800									
9	18		66	110	175	265	445	725	1120								
10	19	0.82		100	160	240	400	640	1000								
12	23			82	133	200	335	535	835	1170							
14	27			75	113	170	285	460	720	1050							
16	31				100	150	250	400	630	880							
18	35				88	130	220	355	560	780							
20	37					120	200	320	500	700	1000						
25	46					95	160	255	400	560	800						
30	55						130	215	335	470	670						
35	65						115	189	285	400	570	805					
40	72						100	160	250	350	500	705					
45	83							140	220	310	445	625	850				
50	93								200	280	400	560	770				
60	107								160	220	335	470	635	800			
70	125										285	400	550	690			
80	143										250	350	480	600	755		
90	160										220	310	425	535	670		
100	180										200	280	380	480	600	740	
110	197	0.85										255	340	440	550	675	
130	232											228	290	370	465	570	
150	268												250	320	400	495	640
180	320													265	335	410	535
200	350														300	370	480
250	405															295	385
300	500																310

MAX. CARRYING DISTANCE OF VARIOUS POWER IN DETERMINED VOLTAGE DROP ACCORDING TO CABLE CROSS SECTION (U-220 V SINGLE PHASE)

Power kW	Current Power A	Cross Section mm ²							
		1,5	2,5	4	6	10	16	25	35
2	9	30	50						
2.5	11	24	40						
3	14	20	33	54					
3.5	16	17	29	49	69				
4	18	15	25	40	60				
4.5	21	13	22	35	53				
5	23	12	20	32	48	80			
6	27		16	26	40	67			
7	32		15	23	34	57	92		
8	36		13	20	30	50	80		
9	41			17	26	45	72		
10	46			16	24	40	64	100	
12	55				20	38	54	83	
14	64				17	28	46	71	100
16	72					25	40	62	88
18	82					23	35	55	78
20	91						32	50	70
25	114						26	40	56
30	136							33	47
40	180								36

VOLTAGE DROP: %AU = 3

CONVERSION TABLES

Length	cm.	m.	Km.	Inch (in)	Foot (ft)	Yard (yd)	State Mile	Naut Mile
1 centimeter (cm)	1	0,01	-	0,3937	0,0328	-	-	-
1 meter (m)	100	1	0,001	39,37	3,281	1,094	-	-
1 kilometer (km)	105	1000	1	39370	3281	1094	0,6214	0,5396
1 Inch (in)	2,540	0,254	-	1	0,833	0,0278	-	-
1 foot	30,48	0,3048	-	12	1	0,3333	-	-
1 yard	91,44	0,9144	-	36	3	1	-	-
1 state mile	-	1069	1,609	63346	5280	1760	1	0,8684
1 naut mile	-	1852	1,852	72913	6080	2027	1152	-

AREA	cm ²	m ²	a (Ar)	ha	km ²	in ²	ft ²	Yard ²	mil ²	Acre
1 square centimeter (cm ²)	1	0,0001	-	-	-	0,155	-	-	-	-
1 square meter (m ²)	1000	1	0,01	-	-	1550	10,76	1,196	-	-
1 Ar (a)	-	100	1	0,01	-	-	1076	119,6	-	0,0247
1 hectare (ha)	-	1000	100	1	0,01	-	-	0,0039	2,47	-
1 square kilometer (km ²)	-	-	1000	100	1	-	-	-	0,3861	247,1
1 square inch	6,452	-	-	-	-	1	-	-	-	-
1 square foot (ft ²)	929	0,0929	-	-	-	144	1	0,111	-	-
1 square yard	8361	0,8361	-	-	-	1296	9	1	-	-
1 square mile	-	-	-	259	2,59	-	-	-	-	640
1 acre	-	4050	40,5	0,405	-	-	43640	4850	0,0016	1

WEIGHT	gr.	kg.	Metric ton	ounce	Libre pound	stone	Short ton	Big ton
1 gram (gr)	1	0,001	-	0,0332	-	-	-	-
1 kilogram (kg)	1000	1	0,001	35,27	2,205	0,157	0,0011	0,00098
1 tone (metric)	-	1000	1	35274	2204,6	157,47	1,1023	0,9842
1 ounce (oz)	28,35	0,028	-	1	0,0625	0,004	-	-
1 libre (lb.)	453,6	0,454	-	16	1	0,071	-	-
1 stone	6530	6,35	0,0064	224	14	1	0,007	0,0063
1 small tone	907,190	907,2	0,907	32000	2000	142,9	1	0,8929
1 big tone	1106050	1016	1,016	35,840	2240	160	1,120	1

VOLUME	cm ³	dm ³ liter	in ³	ft ³	Yard ³	UK ounce	USA ounce	USA gallon	UK gallon	UK pint
1 cubic centimeter (cm ³)	1	0,001	0,061	-	-	0,038	0,353	-	-	-
1 cubic decimeter (dm ³)	1000	1	61,02	0,035	-	33,81	35,3	0,2462	0,22	1,76
1 cubic inch (in ³)	16,39	0,0164	1	-	-	0,5541	0,5768	-	-	0,0288
1 cubic foot ft ³	-	28,32	1728	1	0,0370	957,5	966,6	7,481	6,232	49,83
1 cubic yard	-	764,6	46656	27	1	25853	26,909	202	168,2	1345
1 ounce (USA)	29,57	0,02296	1,805	-	-	1	1,041	-	-	0,0520
1 ounce (UK)	28,41	0,0284	1,734	-	-	0,9607	1	-	-	0,05
1 gallon (USA)	3785	3,785	231	0,1337	-	128	133,2	1	0,8327	6,662
1 gallon (UK)	4546	4,546	277,4	0,1603	-	153,7	160	1,201	1	8
1 pint (UK)	568,2	0,5682	34,68	0,02	-	19,21	20	0,1501	0,125	1

ABBREVIATIONS OF STANDARDS ASSOCIATED ACCORDING TO COUNTRIES

SHORT NAME	EXPANSION	COUNTRY	SHORT NAME	EXPANSION	COUNTRY
AFNOR	Association Française De Normalisation	France	IEEE	Institute Of Electrical And Electronic Engineers	Uk
ANSI	American National Standards Institute	Usa	IMQ	Istituto Italiano Del Marchio Di Qualità	Italy
ASTM	American Standard of Testing Materials	Usa	ISDN	Integrated Services Digital Network	Int.
BASEC	British Approvals Service For Electric Cables	Uk	ISO	International Standard Organisation	Global
BSI(BS)	British Standard Institution	Uk	KEMA	Keuring van Electrotechnische Materialen	Netherlands
BV	Bureau Veritas	France	LCIE	Laboratoire Central des Industries Electriques	France
CATV	Community Antenna Television	Int.	LLOYDS	Lloyds Register Of Shipping	Uk
CEBEC	Comité Electrotechnique Belge	Belgium	LPC	Loss Prevention Council	Uk
CEE	Commission on Rules for the approval Electrical Equipment	Int.	MESC	Material And Equipment Standards and Code	Netherlands
CEI	Comitato Electrotecnico Belge Italiano	Italy	MIL	United States Military Specification	Usa
CEN	European Committee For Standardisation	Ecc	NEC	National Electrical Code	Usa
CENELEC	Comité Européen De Normalisation Electrotechnique	Ecc	NEN	Nederlands Normalisatie-Instituut	Netherlands
CNET	Centre National d'Etude de Telecommunication	France	NF	Normes Françaises	France
CNOMO	Comité de Normalisation des Moyens de Production	France	NFC	Normes Françaises Class C	France
CMA	Cable Makers Association	Uk	NEMA	National Electrical Manufacturer Association	Usa
CSA	Canadian Standards Association	Canada	NEMKO	Norske Elektriske Materielle Kontroll	Norway
CSTB	Centre Scientifique et Technique du Bâtiment	France	NP	Portuguese Da Qualidade	Portugal
DEMKO	Denmarks Elektriske Materielle Control	Den.	NSAI	National Standards Authority of Ireland	Ireland
DIN	Deutsches Institut Für Normung	Den.	OCMA	Oil Companies Materials Association	Uk
DKE	Deutsche Elektrotechnische Kommission im DIN und VDE	Ger.	ÖVE	Österreichischer Verband für Elektrotechnik	Austria
ECMC	Electric Cable Makers Confederation	Uk	SEMKO	Svenska Elektriska Materielle Kontrollanstalten	Sweden
ELOT	Hellenic Organisation For Standardisation	Uk	SETI	Elektriska Inspektoratet	Finland
EIC	Energy Industries Council	Greece	SEV	Schweizerischer Elektrotechnischer Verein	Switzerland
EN	European Standards	Ger.	SNV	Schweizerischer Normenverband	Switzerland
ERA	Electrical Research Association	Ger.	TSE	Turkish Standard Institute	Turkey
ESI	Electrical Supply Industry	Uk	UKOOA	Uk Offshore Operators Association	Uk
FAR	Federal Air Regulation	Usa	UL	Underwriters Laboratories	Usa
FTZ	Fremmedteknisches Zentralamt	Ger.	UNEL	Unificazione Electrotechnica	Italy
GOST	USSR-Standards	Ussr	UNI	Unificazione Nazionale Italiano	Italy
HD	Harmonisierungs-Dokumente	Int.	USE	Union Technique de l'Electrotechnique (Ute)	France
HN	Harmonization des Normes	France	VDE	Verband Deutscher Elektrotechniker	Ger.
ICEA	Insulated Cable Engineers Association	Usa	VDEW	Vereinigung Deutscher Elektrizitätswerke e.V.	Ger.
IEC	International Electrotechnical Commission	Europe	ZVEH	Zentralverband der Deutschen Elektrohandwerke	Ger.
IEE	Institute Of Electrical Engineers	Uk	ZVEI	Zentralverband der Elektrotechnik- und Electronic	Ger.

Tests

No.	Tests	Requirements acc. to	Test method acc. to	Scope of test
1. Electrical properties				
1.1	Conductor resistance	IEC 60228	IEC 60502-1	R
1.2	Voltage test	IEC 60502-1	IEC 60502-1	R
1.3	Insulation resistance	IEC 60502-1	IEC 60502-1	T
1.4	Voltage test for 4 h	IEC 60502-1	IEC 60502-1	T
2. Dimensions				
2.1	Conductor examination	IEC 60228	IEC 60502-1	S
2.2	Measurement of thickness of insulation and of non-metallic sheath (excluding inner extruded coverings).	IEC 60502-1	IEC 60811-1-1	S
2.3	Measurement of armour wires and tapes	IEC 60502-1	IEC 60502-1	S
2.4	Measurement of external diameter	---	IEC 60811-1-1	S
3. Mechanical properties and thermal behaviour				
3.1	Hot set test for XLPE insulations and elastomeric sheaths.	IEC 60502-1	IEC 60811-2-1	S
3.2	Mechanical and thermal properties of insulations and sheaths.	IEC 60502-1	IEC 60811	T
4. Cable				
4.1	Flame Retardancy ^{*)}	IEC 60332-1	IEC 60332-1	T
4.2	Flame Propagation ^{*)}	IEC 60332-3	IEC 60332-3	T
4.3	Fire Resistance ^{*)}	IEC 60331-21	IEC 60331-21	T
4.4	Smoke Density ^{*)}	IEC 61034-1 and 2	IEC 61034-1 and 2	T
4.5	Amount of halogen gas acid ^{*)}	data sheet	IEC 60754-1	T
4.6	Degree of acidity of gases ^{*)}	IEC 60754-2	IEC 60754-2	T
4.7	Limiting Oxygen Index (LOI) ^{*)} (only for outer sheath material)	data sheet	IEC 60332-3 ann. B	T
4.8	Temperature Index (TI) ^{*)} (only for outer sheath material)	data sheet	ASTM-D-2863	T

^{*)} Tests are not applicable to all cable types.

R = Routine tests

Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

S = Sample tests

Tests made by the manufacturer on samples or completed cable or components taken from a completed cable, at a specified frequency, so as to verify that the finished product meets the specified requirements.

T = Type tests

Tests made before supplying, on a general commercial basis, a type of cable covered by this standard, in order to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not to be repeated, unless changes are made in the cable materials or design or manufacturing process which might change the performance characteristics.

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or other markings on the paper.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.