



AUTOMOTIVE WIRE & CABLE

Environment-friendly cable for the safety of your car



LS Cable & System

About LS Cable & System

LS spun off from LG in 2003 as a group specializing in the Electrics, Electronics, Energy, and Material.

LS consists of about 40 affiliates including LS Cable & System, LS Electric, LS-Nikko Copper, LS Mtron, Gaon Cable, E1 and Yesco.

A leading player in the global cable industry, with over half a century of experience as a manufacturer, providing consolidated expertise in the design and production of premium quality cabling technologies.



- LS Cable & System
- LS Electric
- LS Nikko Copper
- LS Mtron
- E1
- Yesco
- Gaon Cable



- LG Electronics
- LG Chemical
- LG Display
- LG Telecom



- GS Caltex
- GS Engineering & Construction
- GS Retail
- GS Homeshopping

LS HongQi Cable & System

LS Buildwin

LS Cable & System

LS EV Korea

LS Cable & System Asia

G&P

LS ELECTRIC

Power equipment, Power supply & transmission, Industrial IT, Automation equipment, Electric Power Tools, RFID etc.

Total Solution Provider for Electric Power and Telecommunication Industries

LS Cable & System, the longtime de facto holding company of LS Group, officially transformed into a holding company in July of 2008. The company's operations now encompass a total solution for electric power and telecommunication industries.

The latest change in corporate structure comes as the company is accelerating efforts to improve management efficiency in rapidly expanding markets. The move also results from efforts to effect a more responsible and transparent management structure. Management is now prepared to take more aggressive action to enhance our businesses and to identify new growth engines. The holding company will take the lead in fostering new growth engines and in identifying lucrative investment opportunities, while the company's other business units will focus on improving management and on making operations more efficient. With the continued support of the holding company, LS Cable & System will spearhead efforts to strengthen our business expertise, corporate competitiveness and management.



LNG, CNG



Supply of LPG for residential&commercial, transportation, industrial and petrochemical uses in domestic market. Import & Export of LPG etc.

LS Mtron

Components, Machinery

LS-Nikko Copper

Electrolytic Copper Cathode, Gold, Silver, Chemicals Product etc.

GEON

Control Cable, Power Cable, Elevator Cable, etc

Enable the Cabled World!!

LS Cable & System, established in 1962, has been contributing to building power grids and communication networks first in Korea and then in countries all over the world by developing, producing and providing cables and related solutions used in daily life and throughout many industries. Furthermore, the company set the stage for industrial and economic development by capitalizing on our innovative technology to supply various special industrial cables and industrial materials.

We at LS Cable & System are now supplying state-of-the-art products, such as submarine, extra-high voltage, high temperature superconducting and communications cables to power authorities, heavy electric equipment makers and common carriers around the world. Our products can be seen throughout the Americas, Europe, the Middle East and Asia, so we are now recognized as a leading manufacturer serving global industries both in name and reality.

Based on our corporate philosophy, "LS Cable & System Way," we will go beyond simply generating profits to develop forward thinking competencies by innovating our business models, developing environment-friendly high-quality products and reinforcing our partnerships with stakeholders as the best partner that will maximize customer values. We will open a brighter future by innovating and investing in technologies that push the envelope and developing the best total solutions.

Contents

JASO Automotive Wire

Low-voltage Cable

AV/HEB/HDEB	08
AVS	09
AVSS/CAVS/CAV	10
HF	11
HFSS/CHFS	12
CAVUS	13
CHFUS	14
CIVUS	15
EB	16
AVX/AVFX/HEBX	17
IVH	18
AVSX/AVXS	19
AVSSX(F)	20
AVSSH(F)	21
IVSSH	22
EBX	23
AEX	24
AESSX(F)	25
ALV	26
ALSS/ALVSS	27
ALUS/ALVUS	28
ALEX	29

High-voltage Cable

EEX	30
TA-EEX/TEEX	31
EEHX	32
TA-EEHX	33
ALHFEX	34
EEXBS/EEXS	35
TA-EEXBS/T-EEXBS/TEEXS	36
EEXBSX	37
EEHXBSX	38
TA-EEHXBSX	39

ISO Automotive Wire

Low-voltage Cable

FLY	42
FLRY	44
FL2X	46
FLR2X	48
FL9Y	50
FLR9Y	52
FLYW	54
FLRYW	56
FL91X	58
FLR91X	60
FL2G	62
FL3G	64
FLR2G	66
FLR3G	68
FLR5Y	70
FLR6Y	71
FLR7Y	72

High-voltage Cable

FHL2X	74
FHLR2X	76
FHL91X	78
FHLR91X	80
FHL2XC2X	82
FHLR2XC2X	84
FHL91XC91X	86
FHLR91XC91X	88
FHLR2GC2G	90
FHLALR2GCB2G	92

SAE Automotive Wire

Low-voltage Cable

TWP	94
GPT	95
HDT	96
TXL	97
GXL	98
SXL	99
STT	100
SGT	101
STX	102
SGX	103

Special Cable

Coaxial Cable

AR-3.0C / 1.5C-2V	106
AR-5.0C	107
1.5CS-XLHV / 1.5CS-QEHV	108
1.5DS-CV	109
1.5D-EXHV-AS / 1.5DS-QEHB	110
RG 174 / RG 174DS	111
RG 316 / RG 316DS	112
RG 58LL	113
Ethernet Cable	114

Sensor / ADAS Cable

LEFLUX® 6E02	115
LEFLUX® 6P02	116
LEFLUX® 9N04 / 9N14	117
EPB FR	118
IEPB	119
ABS-PS	120
AKSH/ACKPH	121
ACKPH-ALS	122
AXEU/AEXEU	123

Technical Data

Permissible Current	124
Cross Reference Guide	129
Conversion Reference	132
Certificate	133

Environment-friendly cable for the safety of your car



LS Automotive Wire & Cable

LS Automotive Wire and Cable, a division of LS Cable is one of the recognized market leaders in design, test, and manufacture of harsh environment interconnection system including electric wires and connectors for wire harness.

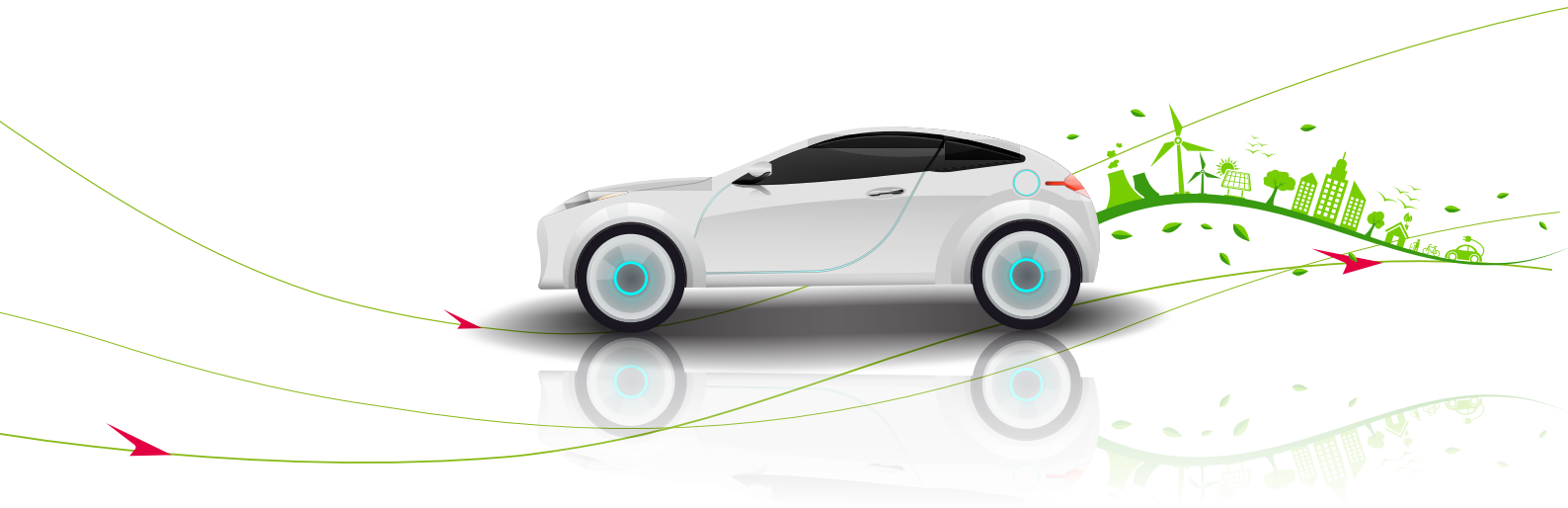
We provide ISO 9001, IATF 16949 and ISO 14001 certified wires and cables such as, PVC/XL-PE/HF-PP insulated low-tension wires, thin wall-type low voltage and light-weight wires (suitable for compact wiring), low-tension wire cross-linked by irradiation.

The shielded wires for engine harness and highly flexible battery wiring show great durability and are specially designed to resist extremely high temperature as inside automotive engines.

Particularly the irradiated wires are highly rated in terms of quality and price in the global market.

Our environment-friendly products, such as halogen-free wires and lead-free PVC wires address the elevated concerns on the environment among the global society.

Major auto-makers around the world recognize and use our products, which meet the standards of DIN in Europe, SAE in the U.S.A, and JASO in Japan.



JASO Automotive Wire



AV/HEB/HDEB

Low-voltage Cables for Automobiles

• **A** Low-voltage cable for automobiles

• **V** Polyvinyl chloride

• **H** Heavy

• **E** Earth

• **B** Bond

• **H** Heavy

• **D** Duty

• **E** Earth

• **B** Bond

Construction

Conductor

• Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C

Heat resistance : 120°C/120h

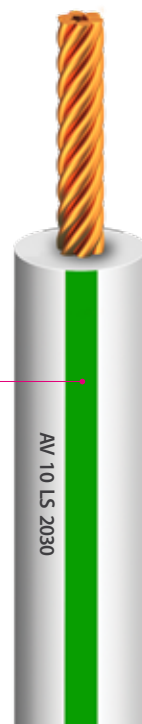
Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 611

Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
2f	37 / 0.26	1.964	1.8	9.5	0.6	0.48	3.0	3.4
3f	58 / 0.26	3.079	2.3	6.06	0.7	0.56	3.7	4.0
	61 / 0.26	3.239	2.4	5.76	0.7	0.56	3.8	4.1
5f	7 / 9 / 0.32	5.067	3.1	3.71	0.8	0.64	4.7	5.0
	7 / 30 / 0.18	5.344	3.4	3.56	0.8	0.64	5.0	5.3
8f	7 / 22 / 0.26	8.176	4.2	2.32	0.9	0.72	6.0	6.3
9f	7 / 16 / 0.32	9.008	4.2	2.09	1.0	0.80	6.2	6.5
10f	19 / 6 / 0.32	9.168	4.2	2.05	1.0	0.80	6.2	6.5
	62 / 0.45	9.861	4.1	1.87	0.9	0.72	5.9	6.2
10	63 / 0.45	10.02	4.5	1.84	1.0	0.80	6.5	6.9
	7 / 9 / 0.45	10.02	4.5	1.84	1.0	0.80	6.5	6.9
15f	19 / 9 / 0.32	13.75	5.3	1.37	1.1	0.88	7.5	8.0
20f	19 / 13 / 0.32	19.86	6.5	0.946	1.1	0.88	8.7	9.3
30f	19 / 19 / 0.32	29.03	7.8	0.647	1.4	1.12	10.6	11.3
40f	19 / 26 / 0.32	39.73	9.1	0.473	1.4	1.12	11.9	12.6
50f	19 / 32 / 0.32	48.90	10.1	0.384	1.6	1.28	13.3	14.1
60f	19 / 39 / 0.32	59.59	11.1	0.315	1.6	1.28	14.3	15.1
85f	19 / 56 / 0.32	85.57	13.1	0.220	2.0	1.60	17.1	18.1
100f	19 / 71 / 0.32	108.50	14.9	0.173	2.0	1.60	18.9	19.9

* The letter "f" indicates flexible conductors

AVS

Thin wall Low-voltage Cables

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **S** Thin wall

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C
 Heat resistance : 120°C/120h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm²	Nom.mm		mm	mm	mm	mm
0.3	7 / 0.26	0.3716	0.8	50.2	0.5	0.32	1.8	1.9
0.3f	15 / 0.18	0.3817	0.8	48.9	0.5	0.32	1.8	1.9
0.5f	20 / 0.18	0.5087	1.0	36.7	0.5	0.32	2.0	2.1
0.5	7 / 0.32	0.5629	1.0	32.7	0.5	0.32	2.0	2.1
0.75f	30 / 0.18	0.763	1.2	24.4	0.5	0.32	2.2	2.3
0.85	16 / 0.26	0.8494	1.2	22.0	0.5	0.32	2.2	2.3
	11 / 0.32	0.8846	1.2	20.8	0.5	0.32	2.2	2.3
1.25f	50 / 0.18	1.273	1.5	14.7	0.5	0.32	2.5	2.6
1.25	16 / 0.32	1.287	1.5	14.3	0.5	0.32	2.5	2.6
2f	37 / 0.26	1.964	1.9	9.50	0.5	0.32	2.9	3.1
2	26 / 0.32	2.091	1.9	8.81	0.5	0.32	2.9	3.1
3f	58 / 0.26	3.079	2.3	6.06	0.6	0.40	3.5	3.7
	61 / 0.26	3.239	2.3	5.76	0.6	0.40	3.5	3.8
3	41 / 0.32	3.297	2.4	5.59	0.6	0.40	3.6	3.8
5	65 / 0.32	5.228	3.0	3.52	0.7	0.48	4.4	4.6
5f	7 / 30 / 0.18	5.344	3.4	3.56	0.7	0.48	4.8	5.1
8	50 / 0.45	7.952	3.7	2.32	0.8	0.64	5.3	5.6
8f	7 / 22 / 0.26	8.176	4.0	2.33	0.8	0.64	5.6	5.9

* The letter "f" indicates flexible conductor

JASO

ISO

SAE

SPECIAL

AVSS/CAVS/CAV

Thin wall Low-voltage Cables

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **SS** Very Thin wall
- **C** Compressed Conductor
- **A** Low-voltage cable for Automobiles
- **V** Polyvinyl chloride
- **S** Thin wall

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C
 Heat resistance : 120°C/120h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath

AVSS 0.3 LS 2030

Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.22	7 / 0.20	0.2199	0.60	84.8	0.30	0.24	1.2	1.3
	7 / Compressed Conductor	0.2199	0.55	84.4	0.35	0.28	1.3	1.4
0.3	7 / 0.26	0.3716	0.80	50.2	0.30	0.24	1.4	1.5
	7 / Compressed Conductor	0.3716	0.70	50.2	0.35	0.28	1.4	1.5
0.3f	19 / 0.16	0.3821	0.80	48.8	0.30	0.24	1.4	1.5
0.5f	19 / 0.19	0.5387	1.00	34.6	0.30	0.24	1.6	1.7
0.5	7 / 0.32	0.5629	1.00	32.7	0.30	0.24	1.6	1.7
	7 / Compressed Conductor	0.5629	0.90	32.7	0.35	0.28	1.6	1.7
0.75f	19 / 0.23	0.7895	1.20	23.6	0.30	0.24	1.8	1.9
0.85	19 / 0.24	0.8596	1.20	21.7	0.30	0.24	1.8	1.9
	7 / 0.40	0.8796	1.10	20.8	0.30	0.24	1.8	1.9
	7 / Compressed Conductor	0.8796	1.10	20.8	0.35	0.28	1.8	1.9
	11 / Compressed Conductor	0.8846	1.10	20.8	0.35	0.28	1.8	1.9
1.25	19 / 0.29	1.255	1.50	14.9	0.30	0.24	2.1	2.2
	16 / Compressed Conductor	1.287	1.40	14.3	0.35	0.28	2.1	2.2
1.25f	37 / 0.21	1.282	1.50	14.6	0.30	0.24	2.1	2.2
2f	37 / 0.26	1.964	1.80	9.5	0.40	0.32	2.6	2.7
2	19 / 0.37	2.043	1.90	9	0.40	0.32	2.7	2.8

* The letter "f" indicates flexible conductors

* CAVS or CAV has a circular compression conductor structure

HF

Low-voltage Cables for Automobiles

• HF Halogen Free

Construction

Conductor

· Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PP, Halogen Free

Technical Data

Special Properties

Service temperature : -40~85°C

Heat resistance : 85°C/3,000h

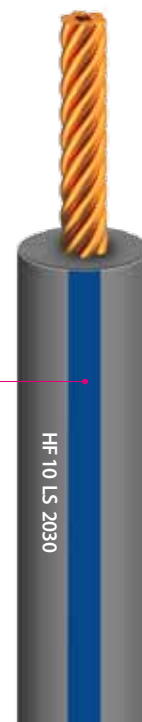
Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 611

Flame resistance : JASO D 611

Color Stripe Sheath



JASO

ISO

SAE

SPECIAL

Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
3	37 / 0.32	2.976	2.25	6.15	0.7	0.56	3.65	3.9
5	58 / 0.32	4.665	2.80	3.94	0.8	0.64	4.40	4.7
8	7 / 14 / 0.32	7.882	3.95	2.38	0.8	0.64	5.55	5.9
10	7 / 18 / 0.32	10.13	4.45	1.82	1.0	0.80	6.45	6.9
12	7 / 22 / 0.32	12.39	5.00	1.52	1.0	0.80	7.00	7.4
16	19 / 11 / 0.32	16.81	5.85	1.16	1.0	0.80	7.85	8.4
20	19 / 13 / 0.32	19.86	6.40	0.946	1.1	0.88	8.60	9.1
30	19 / 19 / 0.32	29.03	7.70	0.647	1.3	1.04	10.30	10.9
40	19 / 26 / 0.32	39.73	9.00	0.473	1.4	1.12	11.80	12.5
50	19 / 34 / 0.32	51.96	10.30	0.368	1.5	1.20	13.30	14.1
60	19 / 39 / 0.32	59.59	11.00	0.315	1.5	1.20	14.00	14.9

HFSS/CHFS

Low-voltage Cables for Automobiles

- **HF** Halogen Free
- **SS** Very Thin wall
- **C** Compressed Conductor
- **HF** Halogen Free
- **S** Thin wall

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

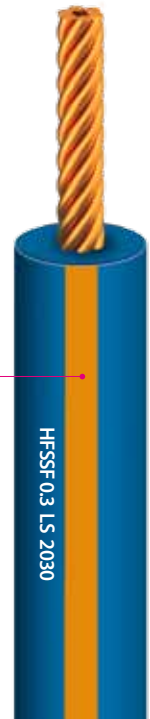
PP, Halogen Free

Technical Data

Special Properties

Service temperature : -40~85°C
 Heat resistance : 85°C/3,000h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.35	7 / Compressed Conductor	0.3436	0.70	54.4	0.25	0.20	1.20	1.40
0.35f	19 / 0.155	0.3585	0.80	54.4	0.25	0.20	1.30	1.40
0.5	7 / Compress	0.4948	0.85	37.1	0.28	0.22	1.40	1.70
0.5f	19 / 0.185	0.5107	0.95	37.1	0.28	0.22	1.51	1.70
0.75	11 / Compressed Conductor	0.7266	1.00	24.7	0.30	0.24	1.60	1.90
0.75f	19 / 0.225	0.7555	1.15	24.7	0.30	0.24	1.75	1.90
1	16 / Compressed Conductor	0.9852	1.20	18.5	0.30	0.24	1.80	2.10
1f	37 / 0.19	1.049	1.35	18.5	0.30	0.24	1.95	2.10
1.25f	37 / 0.21	1.282	1.50	14.9	0.30	0.24	2.10	2.30
1.5f	37 / 0.225	1.471	1.60	12.7	0.30	0.24	2.20	2.40
1.5	16 / Compressed Conductor	1.539	1.45	12.7	0.30	0.24	2.05	2.40
2f	37 / 0.26	1.964	1.85	9.42	0.35	0.28	2.55	2.80
3f	37 / 0.32	2.976	2.25	6.15	0.40	0.32	3.05	3.40

* The letter "f" indicates flexible conductors.

* CHFS has a circular compression conductor structure

CAVUS

Low-voltage Cables for Automobiles

- **C** Compressed Conductor
- **A** Low-voltage cable for Automobiles
- **V** Polyvinyl chloride
- **US** Ultra thin wall

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C
 Heat resistance : 120°C/120h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.22	7 / Compressed Conductor	0.2199	0.55	84.4	0.20	0.16	1.00	1.10
0.3	7 / Compressed Conductor	0.3716	0.70	50.2	0.20	0.16	1.10	1.20
0.5	7 / Compressed Conductor	0.5629	0.90	32.7	0.20	0.16	1.30	1.40
0.85	7 / Compressed Conductor	0.8796	1.10	20.8	0.20	0.16	1.50	1.60
	11 / Compressed Conductor	0.8846	1.10	20.8	0.20	0.16	1.50	1.60
1.25	16 / Compressed Conductor	1.287	1.40	14.3	0.20	0.16	1.80	1.90

JASO

ISO

SAE

SPECIAL

CHFUS

Ultra Thin wall Low-voltage Cables

- **C** Compressed Conductor
- **HF** Halogen Free
- **US** Ultra thin wall

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PP, Halogen Free

Technical Data

Special Properties

Service temperature : -40~85°C
 Heat resistance : 85°C/3,000h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.13	7 / Compressed Conductor	0.1407	0.45	210	0.20	0.16	0.85	0.95
	9 / Compressed Conductor							
0.22	7 / Compressed Conductor	0.2199	0.55	84.4	0.20	0.16	0.95	1.05
0.35	7 / Compressed Conductor	0.3436	0.70	54.4	0.20	0.16	1.10	1.20
0.5	7 / Compressed Conductor	0.4948	0.85	37.1	0.20	0.16	1.25	1.40
0.75	11 / Compressed Conductor	0.7266	1.00	24.7	0.20	0.16	1.40	1.60
1	16 / Compressed Conductor	0.9852	1.20	18.5	0.20	0.16	1.60	1.75
1.25	16 / Compressed Conductor	1.247	1.40	14.9	0.20	0.16	1.80	2.00
1.5	16 / Compressed Conductor	1.539	1.45	12.7	0.20	0.16	1.85	2.10

CIVUS

Ultra Thin wall Low-voltage Cables

- **C** Compressed Conductor
- **I** ISO Standard
- **V** Polyvinyl chloride
- **US** Ultra thin wall

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~85°C
 Heat resistance : 85°C/3,000h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.13	7 / Compress Conductor	0.1407	0.45	210	0.20	0.16	0.85	0.95
0.22	7 / Compress Conductor	0.2199	0.55	84.4	0.20	0.16	0.95	1.05
0.35	7 / Compress Conductor	0.3436	0.70	54.4	0.20	0.16	1.10	1.20
0.5	7 / Compress Conductor	0.4948	0.85	37.1	0.20	0.16	1.25	1.40
0.75	11 / Compress Conductor	0.7266	1.00	24.7	0.20	0.16	1.40	1.60
1	16 / Compress Conductor	0.9852	1.20	18.5	0.20	0.16	1.60	1.75
1.25	16 / Compress Conductor	1.247	1.40	14.9	0.20	0.16	1.80	2.00
1.5	16 / Compress Conductor	1.539	1.45	12.7	0.20	0.16	1.85	2.10

- E Earth
- B Bond

Construction

Conductor

· Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C

Heat resistance : 120°C/120h

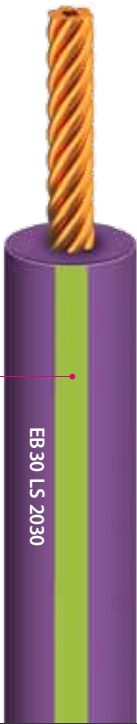
Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 611

Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
5	7/9/0.32	5.067	3.1	3.71	0.6	0.48	4.3	4.7
9	7/16/0.32	9.008	4.2	2.09	0.6	0.48	5.4	5.8
10	19/6/0.32	9.168	4.2	2.05	0.6	0.48	5.5	5.9
15	19/9/0.32	13.75	5.3	1.37	0.6	0.48	6.5	6.9
20	19/13/0.32	19.86	6.5	0.946	0.6	0.48	7.7	8.1
30	19/19/0.32	29.03	7.8	0.647	0.6	0.48	9.0	9.4
40	19/26/0.32	39.73	9.1	0.473	0.6	0.48	10.3	10.8
50	19/32/0.32	48.90	10.1	0.384	0.6	0.48	11.3	11.9
60	19/39/0.32	59.59	11.1	0.315	0.6	0.48	12.3	12.9
85	19/56/0.32	85.57	13.1	0.220	0.6	0.48	14.3	15.0

AVX/AVFX/HEBX

Cross-linked Vinyl Heat Resistant Low-voltage Cables

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **X** Cross-linked

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **F** Flexible
- **X** Cross-linked

- **H** Heavy
- **E** Earth
- **B** Bond
- **X** Cross-linked

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

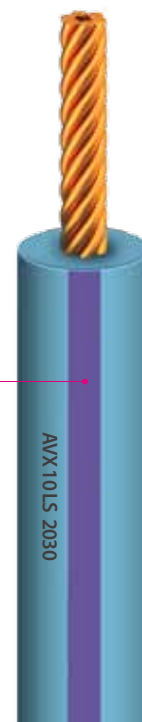
XL-PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
 Heat resistance 1 : 120°C/168h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)		Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter			Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm	Annealed copper	Tinned copper	mm	mm	mm	mm
0.5f	20/0.18	0.5087	1.0	36.7	38.6	0.5	0.32	2.0	2.2
0.5	7/0.32	0.5629	1.0	32.7	34.6	0.5	0.32	2.0	2.2
0.75f	30/0.18	0.763	1.2	24.4	25.8	0.5	0.32	2.2	2.4
0.85	11/0.32	0.8846	1.2	20.8	22	0.5	0.32	2.2	2.4
1.25f	50/0.18	1.273	1.5	14.7	15.5	0.6	0.40	2.7	2.9
1.25	16/0.32	1.287	1.5	14.3	15.1	0.6	0.40	2.7	2.9
2f	37/0.26	1.964	1.8	9.5	10.1	0.6	0.40	3.0	3.3
2	26/0.32	2.091	1.9	8.81	9.3	0.6	0.40	3.1	3.4
3	41/0.32	3.297	2.4	5.59	5.9	0.7	0.48	3.8	4.1
5f	98/0.26	5.203	3.0	3.59	-	0.8	0.64	4.6	4.9
5	65/0.32	5.228	3.0	3.52	3.72	0.8	0.64	4.6	4.9
8	50/0.45	7.952	3.7	2.32	2.45	0.8	0.64	5.3	5.6
8f	7/22/0.26	8.176	4.0	2.33	2.43	0.8	0.64	5.6	5.9
9	7/16/0.32	9.008	4.2	2.09	-	1.0	0.80	6.2	6.5
10	63/0.45	10.02	4.5	1.84	-	1.0	0.80	6.5	6.9
	7/9/0.45	10.02	4.5	-	2.03	1.0	0.80	6.5	6.9
10f	7/27/0.26	10.03	4.5	1.9	1.98	1.0	0.80	6.5	6.9
12f	7/22/0.32	12.39	5.0	1.52	-	1.0	0.80	7.0	7.4
15f	7/36/0.26	13.38	5.3	-	1.48	1.2	0.96	7.7	8.2
	19/9/0.32	13.75	5.3	1.37	-	1.1	0.88	7.5	8.0
20f	19/13/0.32	19.86	6.5	0.946	-	1.1	0.88	8.7	9.3
30f	19/19/0.32	29.03	7.8	0.647	-	1.4	1.12	10.6	11.3
40f	19/26/0.32	39.73	9.1	0.473	-	1.4	1.12	11.9	12.6
50f	19/32/0.32	48.9	10.1	0.384	-	1.6	1.28	13.3	14.1
60f	19/39/0.32	59.59	11.1	0.315	-	1.6	1.28	14.3	15.1
85f	19/56/0.32	85.57	13.1	0.220	-	2.0	1.60	17.1	18.1
100f	19/71/0.32	108.5	14.9	0.173	-	2.0	1.60	18.9	19.9

JASO

ISO

SAE

SPECIAL

IVH

Low-voltage Cables for Automobiles

- I ISO standard
- V Polyvinyl chloride
- H Heat resistant

Construction

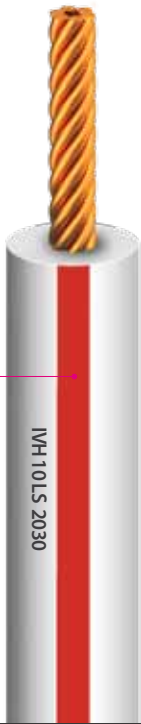
Conductor
· Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
PVC, Lead Free

Technical Data

Special Properties
Service temperature : -40~100°C
Long term ageing : 100°C/3,000h
Short term ageing : 125°C/240h
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : JASO D 611
Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
5	58/0.32	4.665	2.80	3.94	0.8	0.64	4.40	4.7
8	7/14/0.32	7.882	3.95	2.38	0.8	0.64	5.55	5.9
10	7/18/0.32	10.13	4.45	1.82	1.0	0.80	6.45	6.9
12	7/22/0.32	12.39	5.00	1.52	1.0	0.80	7.00	7.4
16	19/11/0.32	16.81	5.85	1.16	1.0	0.80	7.85	8.4
20	19/13/0.132	19.86	6.40	0.946	1.1	0.88	8.60	9.1
30	19/19/0.32	29.03	7.70	0.647	1.3	1.04	10.30	10.9
40	19/26/0.32	39.73	9.00	0.473	1.4	1.12	11.80	12.5
50	19/34/0.32	51.96	10.30	0.368	1.5	1.20	13.30	14.1
60	19/39/0.32	59.59	11.00	0.315	1.5	1.20	14.00	14.9

AVSX/AVXS

Low-voltage Cables for Automobiles

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **S** Thin wall
- **X** Cross-linked

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

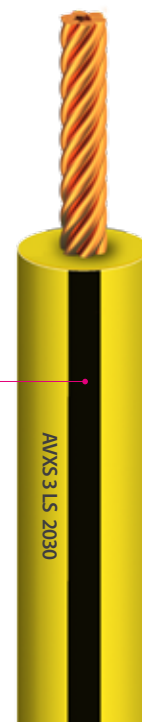
XL-PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
 Heat resistance 1 : 120°C/168h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)		Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter			Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm	Annealed copper	Tinned copper	mm	mm	mm	mm
3	41/0.32	3.297	2.4	5.59	-	0.6	0.40	3.6	3.8
5	65/0.32	5.228	3.0	3.52	-	0.7	0.48	4.4	4.6
15f	19/9/0.32	13.75	5.3	1.37	1.44	0.85	0.68	7.0	7.5
20f	19/13/0.32	19.86	6.5	0.946	1.04	0.9	0.72	8.3	8.8

* The letter "f" indicates flexible conductors.

JASO

ISO

SAE

SPECIAL

AVSSX(F)

Very Thin Heat Resistant Low-voltage Cables

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **SS** Very thin wall
- **X** Cross-linked

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
 Heat resistance 1 : 120°C/168h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath

AVSSX 0.5 LS 2030

Product List

Size	Conductor			Maximum conductor resistance (20°C)		Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter			Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm	Annealed copper	Tinned copper	mm	mm	mm	mm
0.3f	19/0.16	0.3821	0.8	48.8	-	0.30	0.24	1.4	1.5
0.5f	19/0.19	0.5387	1.0	34.6	38.8	0.3	0.24	1.6	1.7
0.75f	19/0.23	0.7895	1.2	23.6	25.8	0.3	0.24	1.8	1.9
1.25f	37/0.21	1.282	1.5	14.6	15.5	0.3	0.24	2.1	2.2
2f	37/0.26	1.964	1.8	9.50	10.0	0.4	0.32	2.6	2.7

* 0.3f size is not included in JASO and it's only used in KOREA.

AVSSH(F)

Low-voltage Cables for Automobiles

- **A** Low-voltage cable for automobiles
- **V** Polyvinyl chloride
- **SS** Very thin wall
- **H** Heat resistant

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
 Heat resistance : 120°C/168h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.3f	19/0.16	0.3821	0.8	48.8	0.3	0.24	1.4	1.5
0.5f	19/0.19	0.5387	1.0	34.6	0.3	0.24	1.6	1.7
0.75f	19/0.23	0.7895	1.2	23.6	0.3	0.24	1.8	1.9
1.25f	37/0.21	1.2820	1.5	14.6	0.3	0.24	2.1	2.2
2f	37/0.26	1.9640	1.8	9.50	0.4	0.32	2.6	2.7

* The letter "f" indicates flexible conductors.

JASO

ISO

SAE

SPECIAL

IVSSH

Low-voltage Cables for Automobiles

- **I** ISO standard
- **V** Polyvinyl chloride
- **SS** Very thin wall
- **H** Heat resistant

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

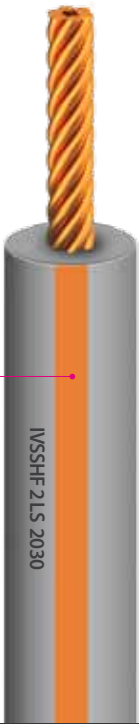
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
Heat resistance : 100°C/3,000h
Heat resistance 1 : 120°C/168h
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : JASO D 611
Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.35f	19/0.155	0.3585	0.80	54.4	0.25	0.20	1.30	1.40
0.5f	19/0.185	0.5107	0.95	37.1	0.28	0.22	1.51	1.70
0.75f	19/0.225	0.7555	1.15	24.7	0.30	0.24	1.75	1.90
1.25f	37/0.210	1.2820	1.50	14.9	0.30	0.24	2.10	2.30
2f	37/0.260	1.9640	1.85	9.42	0.35	0.28	2.55	2.80
3	37/0.320	2.9760	2.25	6.15	0.40	0.32	3.05	3.40

* The letter "f" indicates flexible conductors.

EBX

Low-voltage Cables for Automobiles

- E Earth
- B Bond
- X Cross-linked

Construction

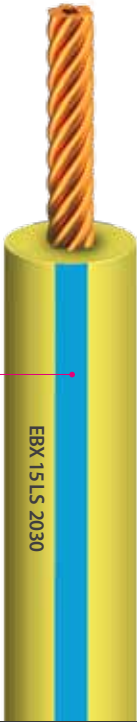
Conductor
· Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
XL-PVC, Lead Free

Technical Data

Special Properties
Service temperature : -40~100°C
Heat resistance 1 : 120°C/168h
Heat resistance 2 : 200°C/30min
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : JASO D 611
Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
15	19/9/0.32	13.75	5.3	1.370	0.6	0.48	6.5	6.9
20	19/13/0.32	19.86	6.5	0.946	0.6	0.48	7.7	8.1
30	19/19/0.32	29.03	7.8	0.647	0.6	0.48	9.0	9.4

JASO

ISO

SAE

SPECIAL

AEX

Heat Resistant Low-voltage cables

- **A** Low-voltage cable for automobiles
- **E** Polyethylene
- **X** Cross-linked

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~120°C
 Heat resistance 1 : 150°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath

AEX 0.5 LS 2030

Product List

Size	Conductor			Maximum conductor resistance (20°C)		Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter			Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm	Annealed copper	Tinned copper	mm	mm	mm	mm
0.5f	20/0.18	0.5087	1.0	36.7	38.6	0.5	0.32	2.0	2.2
0.5	7/0.32	0.5629	1.0	32.7	34.6	0.5	0.32	2.0	2.2
0.75f	30/0.18	0.7630	1.2	24.4	25.8	0.5	0.32	2.2	2.4
0.85	11/0.32	0.8846	1.2	20.8	22.0	0.5	0.32	2.2	2.4
1.25f	50/0.18	1.273	1.5	14.7	15.5	0.6	0.40	2.7	2.9
1.25	16/0.32	1.287	1.5	14.3	15.1	0.6	0.40	2.7	2.9
2f	37/0.26	1.964	1.8	9.50	10.1	0.6	0.40	3.0	3.3
2	26/0.32	2.091	1.9	8.81	9.3	0.6	0.40	3.1	3.4
3	41/0.32	3.297	2.4	5.59	5.9	0.7	0.48	3.8	4.1
5	65/0.32	5.228	3.0	3.52	3.72	0.8	0.64	4.6	4.9
8	50/0.45	7.952	3.7	2.32	2.45	0.8	0.64	5.3	5.6
15f	19/9/0.32	13.75	5.3	1.37	-	1.1	0.88	7.5	8.0
20f	19/13/0.32	19.86	6.5	0.946	-	1.1	0.88	8.7	9.3
30f	19/19/0.32	29.03	7.8	0.647	-	1.4	1.12	10.6	11.3
40f	19/26/0.32	39.73	9.1	0.473	-	1.4	1.12	11.9	12.6
50f	19/32/0.32	48.90	10.1	0.384	-	1.6	1.28	13.3	14.1
60f	19/39/0.32	59.59	11.1	0.315	-	1.6	1.28	14.3	15.1
85f	19/56/0.32	85.57	13.1	0.220	-	2.0	1.60	17.1	18.1
100f	19/71/0.32	108.5	14.9	0.173	-	2.0	1.60	18.9	19.9

* The letter "f" indicates flexible conductors.

AESSX(F)

Very Thin wall Low-voltage

- **A** Low-voltage cable for automobiles
- **E** Polyethylene
- **SS** Very thin wall
- **X** Cross-linked

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

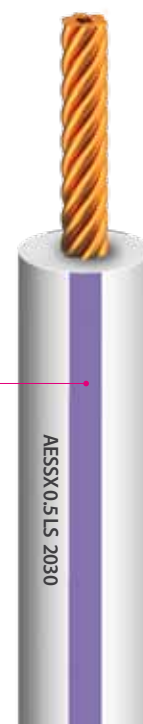
XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~120°C
 Heat resistance 1 : 150°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611

Color Stripe Sheath



Product List

Size	Conductor			Maximum conductor resistance (20°C)	Insulation thickness		Insulation diameter	
	Construction	Calculated Cross Sectional area	Diameter		Nom.	Min.	Nom.	Max.
	No./mm	mm ²	Nom.mm		mm	mm	mm	mm
0.3f	19/0.16	0.3821	0.8	48.8	0.3	0.24	1.4	1.5
0.5f	19/0.19	0.5387	1.0	34.6	0.3	0.24	1.6	1.7
0.75f	19/0.23	0.7895	1.2	23.6	0.3	0.24	1.8	1.9
1.25f	37/0.21	1.2820	1.5	14.6	0.3	0.24	2.1	2.2
2f	37/0.26	1.9640	1.8	9.5	0.4	0.32	2.6	2.7

JASO

ISO

SAE

SPECIAL

ALV

Low-tension Cables for Automobiles

- **AL** Low-voltage aluminum cable for automobiles
- **V** Polyvinyl chloride

Construction

Conductor

Aluminium conductor acc. to EN 573

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~85°C

Heat resistance : 85°C/3,000h

Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 603

Flame resistance : JASO D 603



Product List

Size	Conductor			Maximum conductor resistance (20°C) mΩ/m	Insulation thickness		Insulation diameter	
	Construction No.mm	Calculated cross sectional area mm ²	Diameter Nom.mm		Nom. mm	Min. mm	Nom. mm	Max. mm
5	58/0.32	4.665	2.80	6.76	0.80	0.64	4.40	4.70
8	7/14/0.32	7.882	3.95	4.08	0.80	0.64	5.55	5.90
10	7/18/0.32	10.13	4.45	3.18	1.00	0.80	6.45	6.90
12	7/22/0.32	12.39	5.00	2.6	1.00	0.80	7.00	7.40
16	19/11/0.32	16.81	5.85	1.91	1.00	0.80	7.85	8.40
20	19/13/0.32	19.86	6.40	1.62	1.10	0.88	8.60	9.10
25	19/17/0.32	25.98	7.25	1.24	1.30	1.04	9.85	10.40
30	19/19/0.32	29.03	7.70	1.11	1.30	1.04	10.30	10.90
35	19/24/0.32	36.67	8.65	0.877	1.30	1.04	11.25	11.60
40	19/26/0.32	39.73	9.00	0.810	1.40	1.12	11.80	12.50
50	19/34/0.32	51.95	10.30	0.619	1.50	1.20	13.30	14.10
60	19/39/0.32	59.59	11.00	0.540	1.50	1.20	14.00	14.90
70	19/45/0.32	68.76	11.80	0.468	1.50	1.20	14.80	15.50
85	19/56/0.32	85.57	13.10	0.376	1.60	1.28	16.30	17.10
95	19/62/0.32	94.74	13.90	0.343	1.60	1.28	17.10	18.00
100	19/71/0.32	108.5	14.90	0.299	1.60	1.28	18.10	19.10

ALSS/ALVSS

Low-tension Cables for Automobiles

- **AL** low-voltage aluminum cable for automobiles
- **SS** Very Thin wall

- **AL** low-voltage aluminum cable for automobiles
- **V** Polyvinyl chloride
- **SS** Very Thin wall

Construction

Conductor

Aluminium conductor acc. to EN 573

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~85°C

Heat resistance : 85°C/3,000h

Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 603

Flame resistance : JASO D 603



Product List

Size	Conductor			Maximum conductor resistance (20°C) mΩ/m	Insulation thickness		Insulation diameter	
	Construction No.mm	Calculated cross sectional area mm ²	Diameter Nom.mm		Nom. mm	Min. mm	Nom. mm	Max. mm
2	19/0.36	1.934	1.80	16.3	0.35	0.28	2.50	2.80
2.5	19/0.42	2.632	2.10	12.0	0.35	0.28	2.80	3.00
3	37/0.32	2.976	2.25	10.6	0.40	0.32	3.05	3.40

JASO

ISO

SAE

SPECIAL

ALUS/ALVUS

Low-tension Cables for Automobiles

- **AL** low-voltage aluminum cable for automobiles
- **US** Ultra thin wall

- **AL** low-voltage aluminum cable for automobiles
- **V** Polyvinyl chloride
- **US** Ultra thin wall

Construction

Conductor

Aluminium conductor acc. to EN 573

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~85°C

Heat resistance : 85°C/3,000h

Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 603

Flame resistance : JASO D 603



Product List

Size	Conductor			Maximum conductor resistance (20°C) mΩ/m	Insulation thickness		Insulation diameter	
	Construction No.mm	Calculated cross sectional area mm ²	Diameter Nom.mm		Nom. mm	Min. mm	Nom. mm	Max. mm
0.5	7/Compressed conductor	0.4948	0.85	77.0	0.20	0.16	1.25	1.40
0.75	11/Compressed conductor	0.7266	1.00	43.4	0.20	0.16	1.40	1.60
	19/Compressed conductor	0.7555	1.00	43.4	0.20	0.16	1.40	1.60
1	16/Compressed conductor	0.9852	1.20	32.0	0.20	0.16	1.60	1.75
	19/Compressed conductor	1.009	1.20	32.0	0.20	0.16	1.60	1.75
1.25	16/Compressed conductor	1.247	1.40	25.3	0.20	0.16	1.80	2.00
	19/Compressed conductor	1.255	1.40	25.3	0.20	0.16	1.80	2.00
1.5	16/Compressed conductor	1.539	1.45	20.5	0.20	0.16	1.85	2.10

ALEX

Low-tension Cables for Automobiles

- **AL** low-voltage aluminum cable for automobiles
- **E** Polyethylene
- **X** Cross-linked

Construction

Conductor

Aluminium conductor acc. to EN 573

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C

Heat resistance 1 : 125°C/3,000h

Heat resistance 2 : 150°C/240h

Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 603

Flame resistance : JASO D 603



Product List

Size	Conductor			Maximum conductor resistance (20°C) mΩ/m	Insulation thickness		Insulation diameter	
	Construction No.mm	Calculated cross sectional area mm ²	Diameter Nom.mm		Nom. mm	Min. mm	Nom. mm	Max. mm
20	19/13/0.32	19.86	6.40	1.62	1.10	0.88	8.60	9.10
35	37/1.100	35.16	7.7	0.92	1.10	0.88	9.9	10.2

* '30' Size is not included in JASO and it follows the standard ES9110-09

JASO

ISO

SAE

SPECIAL

EEX

Hybrid & Electric Vehicle Cables

- E Electric vehicle cable
- E Polyethylene insulation
- X Cross-linked

Construction

Conductor

• Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~120°C

Heat resistance 1 : 150°C/240h

Heat resistance 2 : 200°C/30min

Cold resistance : -45°C/3h

Oil resistance : OK

Abrasion resistance : JASO D 624

Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance				
	(N/mm)	(Nom.mm)	(mΩ /m @20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
0.5f	20/0.18	1.00	36.7	0.5	0.40	2.0	2.2
1.25f	50/0.18	1.50	14.7	0.6	0.48	2.7	2.9
2f	37/0.26	1.80	9.50	0.6	0.48	3.0	3.3
3*	37/0.32	2.25	6.15	0.7	0.56	3.65	4.0
3f	58/0.26	2.30	6.06	0.7	0.56	3.7	4.0
5*	58/0.32	2.80	3.94	0.8	0.64	4.4	4.7
5f	98/0.26	3.00	3.59	0.8	0.64	4.6	4.9
8*	7/14/0.32	3.95	2.38	0.8	0.64	5.55	5.9
8	50/0.45	3.70	2.32	0.8	0.64	5.3	5.6
8f	7/22/0.26	4.00	2.33	0.8	0.64	5.6	5.9
10f	7/27/0.26	4.50	1.90	1.0	0.80	6.5	6.9
10*	7/18/0.32	4.45	1.82	1.0	0.80	6.45	6.9
12*	7/22/0.32	5.00	1.52	1.0	0.80	7.0	7.4
15	84/0.45	4.80	1.41	1.1	0.88	7.0	7.5
	19/9/0.32	5.30	1.37	1.1	0.88	7.5	8.0
20	19/13/0.32	6.50	0.946	1.1	0.88	8.7	9.3
30	19/19/0.32	7.80	0.647	1.4	1.12	10.6	11.3
40f	37/92/0.12	8.90	0.494	1.4	1.12	11.7	12.4
40	19/26/0.32	9.10	0.473	1.4	1.12	11.9	12.6
50	19/32/0.32	10.10	0.384	1.6	1.28	13.3	14.1
50f	19/50/0.26	10.20	0.377	1.6	1.28	13.4	14.2
60	19/39/0.32	11.10	0.315	1.6	1.28	14.3	15.1

* ISO6722-1 type conductor

TA-EEX/TEEX

Hybrid & Electric Vehicle Cables

- **TA** Tinned copper conductor
- **E** Electric vehicle cable
- **E** Polyethylene insulation
- **X** Cross-linked

Construction

Conductor

- Tinned
- Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~120°C
 Heat resistance 1 : 150°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance				
	(N/mm)	(Nom.mm)	(mΩ /m @20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
1.25f	50/0.18	1.5	15.5	0.6	0.48	2.7	2.9
2f	37/0.26	1.8	10.1	0.6	0.48	3.0	3.3
3f	58/0.26	2.3	6.32	0.7	0.56	3.7	4.0
	65/0.26	2.4	5.65	0.7	0.56	3.8	4.1
5f	98/0.26	3.0	3.74	0.8	0.64	4.6	4.9
5	65/0.32	3.0	3.72	0.8	0.64	4.6	4.9
8f	7/22/0.26	4.0	2.43	0.8	0.64	5.6	5.9
10*	7/18/0.32	4.45	1.96	1.0	0.80	6.45	6.9
12*	7/22/0.32	5.0	1.59	1.0	0.80	7.0	7.4
15	19/9/0.32	5.3	1.44	1.1	0.88	7.5	8.0
15f	19/30/0.18	5.5	1.38	1.1	0.88	7.7	8.2
20	19/13/0.32	6.5	0.999	1.1	0.88	8.7	9.3
20f	19/42/0.18	6.5	0.988	1.1	0.88	8.7	9.3
30	19/19/0.32	7.8	0.684	1.4	1.12	10.6	11.3
30f	19/63/0.18	7.9	0.659	1.4	1.12	10.7	11.4
40f	19/80/0.18	8.9	0.519	1.4	1.12	11.7	12.4
50f	37/54/0.18	10.2	0.395	1.6	1.28	13.4	14.2

* ISO6722-1 type conductor

JASO

ISO

SAE

SPECIAL

EEHX

Hybrid & Electric Vehicle Cables

- **E** Electric vehicle cable
- **E** Polyethylene insulation
- **H** Heat resistant
- **X** Cross-linked

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 180°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance				
	(N/mm)	(Nom.mm)	(mΩ /m @20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
2f	37/0.26	1.8	9.5	0.6	0.48	3.0	3.2
3*	37/0.32	2.25	6.15	0.7	0.56	3.65	4.0
5*	58/0.32	2.8	3.94	0.8	0.64	4.4	4.7
6*	74/0.32	3.2	3.14	0.8	0.64	4.8	5.0
8*	7/14/0.32	3.95	2.38	0.8	0.64	5.55	5.9
8	50/0.45	3.7	2.32	0.8	0.64	5.3	5.6
10*	7/18/0.32	4.45	1.82	1.0	0.80	6.45	6.9
12*	7/22/0.32	5.0	1.52	1.0	0.80	7.0	7.4
12	78/0.45	4.6	1.52	1.0	0.80	6.6	7.0
15	84/0.45	4.8	1.41	1.1	0.88	7.0	7.5
	19/9/0.32	5.3	1.37	1.1	0.88	7.5	8.0
20	124/0.45	5.8	0.946	1.1	0.88	8.0	8.6
	19/13/0.32	6.5	0.946	1.1	0.88	8.7	9.3
30	19/19/0.32	7.8	0.647	1.4	1.12	10.6	11.3
40	19/26/0.32	9.1	0.473	1.4	1.12	11.9	12.6
50	19/32/0.32	10.1	0.381	1.5	1.20	13.1	13.9
	19/32/0.32	10.1	0.381	1.6	1.28	13.3	14.1

* ISO6722-1 type conductor

TA-EEHX

Hybrid & Electric Vehicle Cables

- **TA** Tinned copper conductor
- **E** Electric vehicle cable
- **E** Polyethylene insulation
- **H** Heat resistant
- **X** Cross-linked

Construction

Conductor

- Tinned
- Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 180°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance				
	(N/mm)	(Nom.mm)	(mΩ / m @20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
2f	37/0.26	1.8	10.1	0.6	0.48	3.0	3.3
3f	58/0.26	2.3	6.32	0.7	0.56	3.7	4.0
	65/0.26	2.4	5.65	0.7	0.56	3.8	4.1
5f	98/0.26	3.0	3.74	0.8	0.64	4.6	4.9
5	65/0.32	3.0	3.72	0.8	0.64	4.6	4.9
8f	7/22/0.26	4.0	2.43	0.8	0.64	5.6	5.9
10*	7/18/0.32	4.45	1.96	1.0	0.80	6.45	6.9
12*	7/22/0.32	5.0	1.59	1.0	0.80	7.0	7.4
15	19/9/0.32	5.3	1.44	1.1	0.88	7.5	8.0
15f	19/30/0.18	5.5	1.38	1.1	0.88	7.7	8.2
20	19/13/0.32	6.5	0.999	1.1	0.88	8.7	9.3
20f	19/42/0.18	6.5	0.988	1.1	0.88	8.7	9.3
30	19/19/0.32	7.8	0.684	1.4	1.12	10.6	11.3
30f	19/63/0.18	7.9	0.659	1.4	1.12	10.7	11.4
40f	19/80/0.18	8.9	0.519	1.4	1.12	11.7	12.4
50f	37/54/0.18	10.2	0.395	1.6	1.28	13.4	14.2

* ISO6722-1 type conductor

JASO

ISO

SAE

SPECIAL

ALHFEX

Hybrid & Electric Vehicle Cables

- **AL** Aluminum conductor
- **HF** Halogen Free
- **EX** Cross-linked Polyethylene insulation

Construction

Conductor

Aluminium conductor acc. to EN 573

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
Heat resistance 1 : 180°C/240h
Heat resistance 2 : 200°C/30min
Cold resistance : -45°C/3h
Oil resistance : OK
Abrasion resistance : JASO D 624
Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance				
	(N/mm)	(Nom.mm)	(mΩ /m @20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
15	19/1.0	5	1.93	1.1	0.88	7.2	7.7
16*	19/11/0.32	5.85	1.91	1.0	0.80	7.85	8.4
50	61/1.0	9	0.682	1.5	1.20	12	12.8

* ISO6722-1 type conductor

EEXBS/EEXS

Hybrid & Electric Vehicle Cables

- E Electric vehicle cable
- E Polyethylene insulation
- X Cross-linked
- BS Braided Shield

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~120°C
 Heat resistance 1 : 150°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



JASO

ISO

SAE

SPECIAL

Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Insulation diameter		Braid shield	Sheath thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance									
	(N/mm)	(Nom.mm)	(mΩ/m @ 20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)	(N/N/mm)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
0.5f	20/0.18	1.0	36.7	0.5	0.4	2.0	2.2	5/16/0.12	0.5	0.4	3.5	3.8
1.25f	50/0.18	1.5	14.7	0.6	0.48	2.7	2.9	4/24/0.12	0.5	0.4	4.2	4.5
2f	37/0.26	1.8	9.50	0.6	0.48	3.0	3.3	5/24/0.12	0.5	0.4	4.5	4.8
3*	37/0.32	2.25	6.15	0.7	0.56	3.65	4.0	6/24/0.12	0.5	0.4	5.2	5.5
3f	58/0.26	2.3	6.06	0.7	0.56	3.7	4.0	6/24/0.12	0.5	0.4	5.2	5.5
5*	58/0.32	2.8	3.94	0.8	0.64	4.4	4.7	7/24/0.12	0.5	0.4	5.9	6.3
5f	98/0.26	3.0	3.59	0.8	0.64	4.6	4.9	7/24/0.12	0.5	0.4	6.1	6.5
8*	7/14/0.32	3.95	2.38	0.8	0.64	5.55	5.9	8/24/0.12	0.5	0.4	7.1	7.5
8f	7/22/0.26	4.0	2.33	0.8	0.64	5.6	5.9	8/24/0.12	0.5	0.4	7.1	7.5
10*	7/18/0.32	4.45	1.82	1.0	0.80	6.45	6.9	6/24/0.18	1.0	0.8	9.3	9.7
10f	7/27/0.26	4.5	1.90	1.0	0.80	6.5	6.9	6/24/0.18	0.8	0.64	8.8	9.2
12*	7/22/0.32	5.0	1.52	1.0	0.80	7.0	7.4	6/24/0.18	1.0	0.8	9.8	10.2
15	19/9/0.32	5.3	1.37	1.1	0.88	7.5	8.0	7/24/0.18	1.0	0.8	10.3	10.8
20	19/13/0.32	6.5	0.946	1.1	0.88	8.7	9.3	8/24/0.18	1.0	0.8	11.5	12.0
30	19/19/0.32	7.8	0.647	1.4	1.12	10.6	11.3	9/24/0.18	1.0	0.8	13.4	13.9
40f	37/92/0.12	8.9	0.494	1.4	1.12	11.7	12.4	10/24/0.12	1.5	1.2	15.2	15.8
40	19/26/0.32	9.1	0.473	1.4	1.12	11.9	12.6	10/24/0.18	1.5	1.2	15.7	16.3
50	19/32/0.32	10.1	0.384	1.6	1.28	13.3	14.1	10/24/0.18	1.5	1.2	17.1	17.7
50f	19/50/0.26	10.2	0.377	1.6	1.28	13.4	14.2	10/24/0.18	1.5	1.2	17.2	17.8
60	19/39/0.32	11.1	0.315	1.6	1.28	14.3	15.1	10/24/0.18	1.5	1.2	18.1	18.8

* ISO6722-1 type conductor

TA-EEXBS/T-EEXBS/TEEXS

Hybrid & Electric Vehicle Cables

- TA Tinned copper conductor
- E Electric vehicle cable
- E Polyethylene insulation
- X Cross-linked
- BS Braided Shield

Construction

Conductor

- Tinned
- Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~120°C
 Heat resistance 1 : 150°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Insulation diameter		Braid shield	Sheath thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance									
	(N/mm)	(Nom.mm)	(mΩ /m @ 20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)	(N/N/mm)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
0.5f	20/0.18	1.0	36.7	0.5	0.4	2.0	2.2	5/16/0.12	0.5	0.4	3.5	3.8
1.25f	50/0.18	1.5	15.5	0.6	0.48	2.7	2.9	4/24/0.12	0.5	0.4	4.2	4.5
2f	37/0.26	1.8	10.1	0.6	0.48	3.0	3.3	5/24/0.12	0.5	0.4	4.5	4.8
3f	65/0.26	2.4	5.65	0.7	0.56	3.8	4.1	6/24/0.12	0.5	0.4	5.3	5.6
	58/0.26	2.3	6.32	0.7	0.56	3.7	4.0	6/24/0.12	0.5	0.4	5.2	5.5
5f	98/0.26	3.0	3.74	0.8	0.64	4.6	4.9	7/24/0.12	0.5	0.4	6.1	6.5
8f	7/22/0.26	4.0	2.43	0.8	0.64	5.6	5.9	8/24/0.12	0.5	0.4	7.1	7.5
10*	7/18/0.32	4.45	1.96	1.0	0.8	6.45	6.9	6/24/0.18	1.0	0.8	9.3	9.7
12*	7/22/0.32	5.0	1.59	1.0	0.8	7.0	7.4	6/24/0.18	1.0	0.8	9.8	10.2
15	19/9/0.32	5.3	1.44	1.1	0.88	7.5	8.0	7/24/0.18	1.0	0.8	10.3	10.8
15f	19/30/0.18	5.5	1.38	1.1	0.88	7.7	8.2	7/24/0.18	1.0	0.8	10.5	11.0
20	19/13/0.32	6.5	0.999	1.1	0.88	8.7	9.3	8/24/0.18	1.0	0.8	11.5	12.0
20f	19/42/0.18	6.5	0.988	1.1	0.88	8.7	9.3	8/24/0.18	1.0	0.8	11.5	12.0
30	19/19/0.32	7.8	0.684	1.4	1.12	10.6	11.3	9/24/0.18	1.0	0.8	13.4	13.9
30f	19/63/0.18	7.9	0.659	1.4	1.12	10.7	11.4	9/24/0.18	1.0	0.8	13.5	14.0
40f	19/80/0.18	8.9	0.519	1.4	1.12	11.7	12.4	10/24/0.18	1.5	1.2	15.2	16.1
50f	37/54/0.18	10.2	0.395	1.6	1.28	13.4	14.2	10/24/0.18	1.5	1.2	17.2	17.8

* ISO6722-1 type conductor

EEXBSX

Hybrid & Electric Vehicle Cables

- **E** Electric vehicle cable
- **E** Polyethylene insulation
- **X** Cross-linked
- **BS** Braided Shield
- **X** Cross-linked sheath

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~120°C
 Heat resistance 1 : 150°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



JASO

ISO

SAE

SPECIAL

Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Insulation diameter		Braid shield	Sheath thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance									
	(N/mm)	(Nom.mm)	(mΩ /m @ 20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)	(N/N/mm)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
2f	37/0.26	1.8	9.5	0.6	0.48	3.0	3.3	5/24/0.12	0.5	0.4	4.5	4.8
3f	58/0.26	2.3	6.06	0.7	0.56	3.7	4.0	6/24/0.12	0.5	0.4	5.2	5.5
5	58/0.32	2.8	3.94	0.8	0.64	4.4	4.7	7/24/0.14	0.8	0.64	6.7	7.1
15	19/9/0.32	5.3	1.37	1.1	0.88	7.5	8.0	7/24/0.18	1.0	0.8	10.3	10.8

* ISO6722-1 type conductor

EEHXBSX

Hybrid & Electric Vehicle Cables

- **E** Electric vehicle cable
- **E** Polyethylene insulation
- **H** Heat resistant
- **X** Cross-linked
- **BS** Braided Shield
- **X** Cross-linked sheath

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 180°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Insulation diameter		Braid shield	Sheath thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance									
	(N/mm)	(Nom.mm)	(mΩ /m @ 20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)	(N/N/mm)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
2f	37/0.26	1.8	9.5	0.6	0.48	3.0	3.2	5/24/0.12	0.5	0.4	4.5	4.8
3*	37/0.32	2.25	6.15	0.7	0.56	3.65	4.0	6/24/0.12	0.5	0.4	5.2	5.5
5*	58/0.32	2.8	3.94	0.8	0.64	4.4	4.7	7/24/0.12	0.5	0.4	5.9	6.3
6*	74/0.32	3.2	3.14	0.8	0.64	4.8	5.0	7/24/0.12	0.5	0.4	6.4	6.8
8*	7/14/0.32	3.95	2.38	0.8	0.64	5.55	5.9	7/24/0.12	0.5	0.4	7.1	7.5
10*	7/18/0.32	4.45	1.82	1.0	0.80	6.45	6.9	6/24/0.18	1.0	0.8	9.3	9.7
12*	7/22/0.32	5.0	1.52	1.0	0.80	7.0	7.4	6/24/0.18	1.0	0.8	9.8	10.2
15	19/9/0.32	5.3	1.37	1.1	0.88	7.5	8.0	7/24/0.18	1.0	0.8	10.3	10.8
20	19/13/0.32	6.5	0.946	1.1	0.88	8.7	9.3	8/24/0.18	1.0	0.8	11.5	12.0
30	19/19/0.32	7.8	0.647	1.4	1.12	10.6	11.3	9/24/0.18	1.0	0.8	13.4	13.9
40	19/26/0.32	9.1	0.473	1.4	1.12	11.9	12.6	10/24/0.18	1.5	1.2	15.7	16.3
50	19/32/0.32	10.1	0.381	1.5	1.20	13.1	13.9	10/24/0.18	1.5	1.2	17.0	17.6
50	19/32/0.32	10.1	0.381	1.6	1.28	13.3	14.1	10/24/0.18	1.5	1.2	17.1	17.7

* ISO6722-1 type conductor

TA-EEHXSX

Hybrid & Electric Vehicle Cables

- TA Tinned copper conductor
- E Electric vehicle cable
- E Polyethylene insulation
- H Heat resistant
- X Cross-linked
- BS Braided Shield
- X Cross-linked sheath

Construction

Conductor

- Tinned
- Cu-ETP1-A017/018-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 180°C/240h
 Heat resistance 2 : 200°C/30min
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Abrasion resistance : JASO D 624
 Flame resistance : JASO D 624



Product List

SQ MM (mm ²)	Conductor			Insulation thickness		Insulation diameter		Braid shield	Sheath thickness		Cable outside diameter	
	No. of Wire	Diameter	Resistance									
	(N/mm)	(Nom.mm)	(mΩ/m @ 20°C)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)	(N/N/mm)	(Nom.mm)	(Min.mm)	(Nom.mm)	(Max.mm)
2f	37/0.26	1.8	9.5	0.6	0.48	3.0	3.2	5/24/0.12	0.5	0.4	4.5	4.8
3*	37/0.32	2.25	6.15	0.7	0.56	3.65	4.0	6/24/0.12	0.5	0.4	5.2	5.5
5*	58/0.32	2.8	3.94	0.8	0.64	4.4	4.7	7/24/0.12	0.5	0.4	5.9	6.3
6*	74/0.32	3.2	3.14	0.8	0.64	4.8	5.0	7/24/0.12	0.5	0.4	6.4	6.8
8*	7/14/0.32	3.95	2.38	0.8	0.64	5.55	5.9	7/24/0.12	0.5	0.4	7.1	7.5
10*	7/18/0.32	4.45	1.82	1.0	0.80	6.45	6.9	6/24/0.18	1.0	0.8	9.3	9.7
12*	7/22/0.32	5.0	1.52	1.0	0.80	7.0	7.4	6/24/0.18	1.0	0.8	9.8	10.2
15	19/9/0.32	5.3	1.37	1.1	0.88	7.5	8.0	7/24/0.18	1.0	0.8	10.3	10.8
20	19/13/0.32	6.5	0.946	1.1	0.88	8.7	9.3	8/24/0.18	1.0	0.8	11.5	12.0
30	19/19/0.32	7.8	0.647	1.4	1.12	10.6	11.3	9/24/0.18	1.0	0.8	13.4	13.9
40	19/26/0.32	9.1	0.473	1.4	1.12	11.9	12.6	10/24/0.18	1.5	1.2	15.7	16.3
50	19/32/0.32	10.1	0.381	1.5	1.20	13.1	13.9	10/24/0.18	1.5	1.2	17.0	17.6
50	19/32/0.32	10.1	0.381	1.6	1.28	13.3	14.1	10/24/0.18	1.5	1.2	17.1	17.7

* ISO6722-1 type conductor

JASO

ISO

SAE

SPECIAL





ISO Automotive Wire

FLY

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **Y** Polyvinyl-chloride insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
 Long term ageing : 100°C/3,000h
 Short term ageing : 125°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLY-A : Symmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)		Insulation thickness	Cable outside diameter	
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper		mm	
		mm	mΩ/m		mm	mm	
mm ²		max.	max.		min.	max.	min.
0.50	7	0.32	37.1	38.2	0.48	2.30	2.00
	19	0.19					
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20
1	19	0.27	18.5	19.1	0.48	2.70	2.40
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70
2	19	0.38	9.42	9.69	0.48	3.30	3.00
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30
3	37	0.34	6.15	6.36	0.56	4.10	3.80
4	37	0.38	4.71	4.85	0.64	4.40	4.00
5	37	0.43	3.94	4.02	0.64	4.90	4.50
6	37	0.45	3.14	3.23	0.64	5.00	4.60
8	98	0.33	2.38	2.52	0.64	5.90	5.00
10	63	0.46	1.82	1.85	0.80	6.50	5.90
12	154	0.33	1.52	1.60	0.80	7.40	6.60
16	105	0.46	1.16	1.18	0.80	8.30	7.70
20	247	0.33	0.955	0.999	0.88	9.10	8.10
25	154	0.46	0.743	0.757	1.04	10.40	9.40
30	361	0.33	0.647	0.684	1.04	10.90	9.70
35	551	0.30	0.527	0.538	1.04	11.60	9.60
40	494	0.33	0.473	0.500	1.12	12.40	11.20
50	798	0.30	0.368	0.375	1.20	13.50	11.50
60	741	0.33	0.315	0.333	1.20	14.60	13.40
70	1140	0.30	0.259	0.264	1.20	15.50	13.50
95	836	0.40	0.196	0.200	1.28	18.00	16.00
120	1064	0.40	0.153	0.156	1.28	19.70	17.70

FLY-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FLY-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20
1	54	0.16	18.5	19.1	0.48	2.70	2.40
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70
2	105	0.16	9.42	9.69	0.48	3.30	3.00
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30
3	160	0.16	6.15	6.36	0.56	4.10	3.80
4	224	0.16	4.71	4.85	0.64	4.40	4.00
5	250	0.16	3.94	4.02	0.64	4.90	4.50
6	320	0.16	3.14	3.23	0.64	5.00	4.60
8	240	0.21	2.38	2.52	0.64	5.90	5.00
10	320	0.21	1.82	1.85	0.80	6.50	5.90
12	380	0.21	1.52	1.60	0.80	7.40	6.60
16	512	0.21	1.16	1.18	0.80	8.30	7.70
20	610	0.21	0.955	0.999	0.88	9.10	8.10
25	790	0.21	0.743	0.757	1.04	10.40	9.40
30	900	0.22	0.647	0.684	1.04	10.90	9.70
35	1070	0.21	0.527	0.538	1.04	11.60	9.60
40	1200	0.21	0.473	0.500	1.12	12.40	11.20
50	1600	0.21	0.368	0.375	1.20	13.50	11.50
60	1200	0.26	0.315	0.333	1.20	14.60	13.40
70	1427	0.26	0.259	0.264	1.20	15.50	13.50
95	1936	0.26	0.196	0.200	1.28	18.00	16.00
120	2450	0.26	0.153	0.156	1.28	19.70	17.70

FLRY

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **Y** Polyvinyl-chloride insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

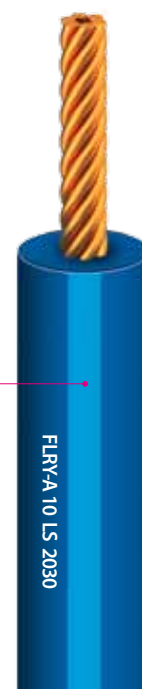
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~100°C
 Long term ageing : 100°C/3,000h
 Short term ageing : 125°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLRY-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLRY-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLRY-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FL2X

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **2X** Cross-linked polyethylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

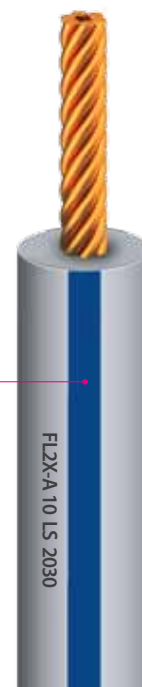
XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Long term ageing : 125°C/3,000h
 Short term ageing : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FL2X-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.5	7	0.32	37.1	38.2	0.48	2.30	2.00	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20	
1	19	0.27	18.5	19.1	0.48	2.70	2.40	
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40	
1.5	19	0.33	12.7	13	0.48	3.00	2.70	
2	19	0.38	9.42	9.69	0.48	3.30	3.00	
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30	
3	37	0.34	6.15	6.36	0.56	4.10	3.80	
4	37	0.38	4.71	4.85	0.64	4.40	4.00	
5	37	0.43	3.94	4.02	0.64	4.90	4.50	
6	37	0.45	3.14	3.23	0.64	5.00	4.60	
8	98	0.33	2.38	2.52	0.64	5.90	5.00	
10	63	0.46	1.82	1.85	0.80	6.50	5.90	
12	154	0.33	1.52	1.60	0.80	7.40	6.60	
16	105	0.46	1.16	1.18	0.80	8.30	7.70	
20	247	0.33	0.955	0.999	0.88	9.10	8.10	
25	154	0.46	0.743	0.757	1.04	10.40	9.40	
30	361	0.33	0.647	0.684	1.04	10.90	9.70	
35	551	0.30	0.527	0.538	1.04	11.60	9.60	
40	494	0.33	0.473	0.50	1.12	12.40	11.20	
50	798	0.30	0.368	0.375	1.20	13.50	11.50	
60	741	0.33	0.315	0.333	1.20	14.60	13.40	
70	1140	0.30	0.259	0.264	1.20	15.50	13.50	
95	836	0.40	0.196	0.20	1.28	18.00	16.00	
120	1064	0.40	0.153	0.156	1.28	19.70	17.70	

FL2X-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm		mΩ/m		mm		mm	
mm²		max.	max.		min.	max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FL2X-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.50	26	0.16	37.1	38.2	0.48	2.30	2.00	
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20	
1	54	0.16	18.5	19.1	0.48	2.70	2.40	
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40	
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70	
2	105	0.16	9.42	9.69	0.48	3.30	3.00	
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30	
3	160	0.16	6.15	6.36	0.56	4.10	3.80	
4	224	0.16	4.71	4.85	0.64	4.40	4.00	
5	250	0.16	3.94	4.02	0.64	4.90	4.50	
6	320	0.16	3.14	3.23	0.64	5.00	4.60	
8	240	0.21	2.38	2.52	0.64	5.90	5.00	
10	320	0.21	1.82	1.85	0.80	6.50	5.90	
12	380	0.21	1.52	1.60	0.80	7.40	6.60	
16	512	0.21	1.16	1.18	0.80	8.30	7.70	
20	610	0.21	0.955	0.999	0.88	9.10	8.10	
25	790	0.21	0.743	0.757	1.04	10.40	9.40	
30	900	0.22	0.647	0.684	1.04	10.90	9.70	
35	1070	0.21	0.527	0.538	1.04	11.60	9.60	
40	1200	0.21	0.473	0.500	1.12	12.40	11.20	
50	1600	0.21	0.368	0.375	1.20	13.50	11.50	
60	1200	0.26	0.315	0.333	1.20	14.60	13.40	
70	1427	0.26	0.259	0.264	1.20	15.50	13.50	
95	1936	0.26	0.196	0.200	1.28	18.00	16.00	
120	2450	0.26	0.153	0.156	1.28	19.70	17.70	

FLR2X

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **2X** Cross-linked polyethylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

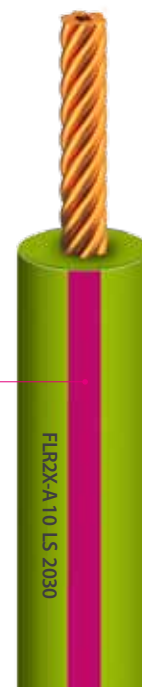
XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Long term ageing : 125°C/3,000h
 Short term ageing : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLR2X-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLR2X-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLR2X-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FL9Y

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **9Y** Polypropylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

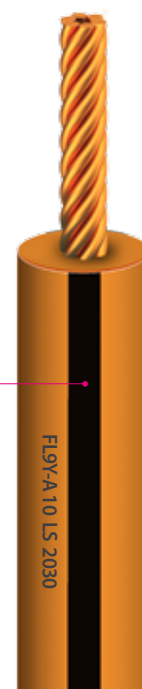
PP, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Long term ageing : 125°C/3,000h
 Short term ageing : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FL9Y-A : Symmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)		Insulation thickness	Cable outside diameter	
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper		mm	
		mm	mΩ/m		mm	mm	
mm ²		max.	max.		min.	max.	min.
0.50	7	0.32	37.1	38.2	0.48	2.30	2.00
	19	0.19					
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20
1	19	0.27	18.5	19.1	0.48	2.70	2.40
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70
2	19	0.38	9.42	9.69	0.48	3.30	3.00
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30
3	37	0.34	6.15	6.36	0.56	4.10	3.80
4	37	0.38	4.71	4.85	0.64	4.40	4.00
5	37	0.43	3.94	4.02	0.64	4.90	4.50
6	37	0.45	3.14	3.23	0.64	5.00	4.60
8	98	0.33	2.38	2.52	0.64	5.90	5.00
10	63	0.46	1.82	1.85	0.80	6.50	5.90
12	154	0.33	1.52	1.60	0.80	7.40	6.60
16	105	0.46	1.16	1.18	0.80	8.30	7.70
20	247	0.33	0.955	0.999	0.88	9.10	8.10
25	154	0.46	0.743	0.757	1.04	10.40	9.40
30	361	0.33	0.647	0.684	1.04	10.90	9.70
35	551	0.30	0.527	0.538	1.04	11.60	9.60
40	494	0.33	0.473	0.500	1.12	12.40	11.20
50	798	0.30	0.368	0.375	1.20	13.50	11.50
60	741	0.33	0.315	0.333	1.20	14.60	13.40
70	1140	0.30	0.259	0.264	1.20	15.50	13.50
95	836	0.40	0.196	0.200	1.28	18.00	16.00
120	1064	0.40	0.153	0.156	1.28	19.70	17.70

FL9Y-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00	
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20	
1	32	0.21	18.5	19.1	0.48	2.70	2.40	
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40	
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70	
2	28	0.31	9.42	9.69	0.48	3.30	3.00	
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30	
3	44	0.31	6.15	6.36	0.56	4.10	3.80	
4	56	0.31	4.71	4.85	0.64	4.40	4.00	
5	65	0.33	3.94	4.02	0.64	4.90	4.50	
6	84	0.31	3.14	3.23	0.64	5.00	4.60	
8	50	0.46	2.38	2.52	0.64	5.90	5.00	
10	80	0.41	1.82	1.85	0.80	6.50	5.90	
12	96	0.41	1.52	1.60	0.80	7.40	6.60	
16	126	0.41	1.16	1.18	0.80	8.30	7.70	
20	152	0.41	0.955	0.999	0.88	9.10	8.10	
25	196	0.41	0.743	0.757	1.04	10.40	9.40	
30	224	0.41	0.647	0.684	1.04	10.90	9.70	
35	276	0.41	0.527	0.538	1.04	11.60	9.60	
40	308	0.41	0.473	0.500	1.12	12.40	11.20	
50	396	0.41	0.368	0.375	1.20	13.50	11.50	
60	296	0.51	0.315	0.333	1.20	14.60	13.40	
70	360	0.51	0.259	0.264	1.20	15.50	13.50	
95	475	0.51	0.196	0.200	1.28	18.00	16.00	
120	608	0.51	0.153	0.156	1.28	19.70	17.70	

FL9Y-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.50	26	0.16	37.1	38.2	0.48	2.30	2.00	
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20	
1	54	0.16	18.5	19.1	0.48	2.70	2.40	
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40	
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70	
2	105	0.16	9.42	9.69	0.48	3.30	3.00	
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30	
3	160	0.16	6.15	6.36	0.56	4.10	3.80	
4	224	0.16	4.71	4.85	0.64	4.40	4.00	
5	250	0.16	3.94	4.02	0.64	4.90	4.50	
6	320	0.16	3.14	3.23	0.64	5.00	4.60	
8	240	0.21	2.38	2.52	0.64	5.90	5.00	
10	320	0.21	1.82	1.85	0.80	6.50	5.90	
12	380	0.21	1.52	1.60	0.80	7.40	6.60	
16	512	0.21	1.16	1.18	0.80	8.30	7.70	
20	610	0.21	0.955	0.999	0.88	9.10	8.10	
25	790	0.21	0.743	0.757	1.04	10.40	9.40	
30	900	0.22	0.647	0.684	1.04	10.90	9.70	
35	1070	0.21	0.527	0.538	1.04	11.60	9.60	
40	1200	0.21	0.473	0.500	1.12	12.40	11.20	
50	1600	0.21	0.368	0.375	1.20	13.50	11.50	
60	1200	0.26	0.315	0.333	1.20	14.60	13.40	
70	1427	0.26	0.259	0.264	1.20	15.50	13.50	
95	1936	0.26	0.196	0.200	1.28	18.00	16.00	
120	2450	0.26	0.153	0.156	1.28	19.70	17.70	

FLR9Y

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **9Y** Polypropylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

PP, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Long term ageing : 125°C/3,000h
 Short term ageing : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLR9Y-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLR9Y-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLR9Y-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FLYW

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **YW** Polyvinyl-chloride heat resistance

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

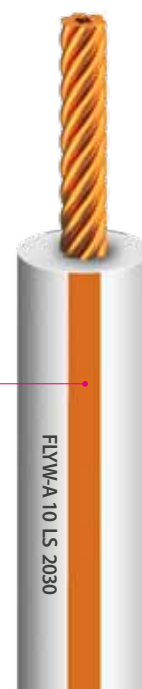
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Long term ageing : 125°C/3,000h
 Short term ageing : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLYW-A : Symmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)		Insulation thickness	Cable outside diameter	
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper		mm	
		mm	mΩ/m		mm	mm	
mm ²		max.	max.		min.	max.	min.
0.50	7	0.32	37.1	38.2	0.48	2.30	2.00
	19	0.19					
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20
1	19	0.27	18.5	19.1	0.48	2.70	2.40
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70
2	19	0.38	9.42	9.69	0.48	3.30	3.00
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30
3	37	0.34	6.15	6.36	0.56	4.10	3.80
4	37	0.38	4.71	4.85	0.64	4.40	4.00
5	37	0.43	3.94	4.02	0.64	4.90	4.50
6	37	0.45	3.14	3.23	0.64	5.00	4.60
8	98	0.33	2.38	2.52	0.64	5.90	5.00
10	63	0.46	1.82	1.85	0.80	6.50	5.90
12	154	0.33	1.52	1.60	0.80	7.40	6.60
16	105	0.46	1.16	1.18	0.80	8.30	7.70
20	247	0.33	0.955	0.999	0.88	9.10	8.10
25	154	0.46	0.743	0.757	1.04	10.40	9.40
30	361	0.33	0.647	0.684	1.04	10.90	9.70
35	551	0.30	0.527	0.538	1.04	11.60	9.60
40	494	0.33	0.473	0.500	1.12	12.40	11.20
50	798	0.30	0.368	0.375	1.20	13.50	11.50
60	741	0.33	0.315	0.333	1.20	14.60	13.40
70	1140	0.30	0.259	0.264	1.20	15.50	13.50
95	836	0.40	0.196	0.200	1.28	18.00	16.00
120	1064	0.4	0.153	0.156	1.28	19.7	17.7

FLYW-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FLYW-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00	
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20	
1	54	0.16	18.5	19.1	0.48	2.70	2.40	
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40	
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70	
2	105	0.16	9.42	9.69	0.48	3.30	3.00	
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30	
3	160	0.16	6.15	6.36	0.56	4.10	3.80	
4	224	0.16	4.71	4.85	0.64	4.40	4.00	
5	250	0.16	3.94	4.02	0.64	4.90	4.50	
6	320	0.16	3.14	3.23	0.64	5.00	4.60	
8	240	0.21	2.38	2.52	0.64	5.90	5.00	
10	320	0.21	1.82	1.85	0.80	6.50	5.90	
12	380	0.21	1.52	1.60	0.80	7.40	6.60	
16	512	0.21	1.16	1.18	0.80	8.30	7.70	
20	610	0.21	0.955	0.999	0.88	9.10	8.10	
25	790	0.21	0.743	0.757	1.04	10.40	9.40	
30	900	0.22	0.647	0.684	1.04	10.90	9.70	
35	1070	0.21	0.527	0.538	1.04	11.60	9.60	
40	1200	0.21	0.473	0.500	1.12	12.40	11.20	
50	1600	0.21	0.368	0.375	1.20	13.50	11.50	
60	1200	0.26	0.315	0.333	1.20	14.60	13.40	
70	1427	0.26	0.259	0.264	1.20	15.50	13.50	
95	1936	0.26	0.196	0.200	1.28	18.00	16.00	
120	2450	0.26	0.153	0.156	1.28	19.70	17.70	

FLRYW

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **YW** Polyvinyl-chloride heat resistance

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

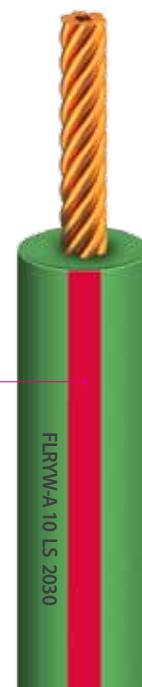
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Long term ageing : 125°C/3,000h
 Short term ageing : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLRYW-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLRYW-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLRYW-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FL91X

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **91X** Cross-linked Polyethylene (150°C)

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

- Service temperature : -40~150°C
- Long term ageing : 150°C/3,000h
- Short term ageing : 175°C/240h
- Cold resistance : -40°C/4h
- Oil resistance : OK
- Abrasion resistance : ISO 6722/19642
- Flame resistance : ISO 6722/19642



FL91X-A : Symmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm		mΩ/m		mm		mm	
mm²		max.	max.		min.	max.	min.
0.50	7	0.32	37.1	38.2	0.48	2.30	2.00
	19	0.19					
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20
1	19	0.27	18.5	19.1	0.48	2.70	2.40
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70
2	19	0.38	9.42	9.69	0.48	3.30	3.00
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30
3	37	0.34	6.15	6.36	0.56	4.10	3.80
4	37	0.38	4.71	4.85	0.64	4.40	4.00
5	37	0.43	3.94	4.02	0.64	4.90	4.50
6	37	0.45	3.14	3.23	0.64	5.00	4.60
8	98	0.33	2.38	2.52	0.64	5.90	5.00
10	63	0.46	1.82	1.85	0.80	6.50	5.90
12	154	0.33	1.52	1.60	0.80	7.40	6.60
16	105	0.46	1.16	1.18	0.80	8.30	7.70
20	247	0.33	0.955	0.999	0.88	9.10	8.10
25	154	0.46	0.743	0.757	1.04	10.40	9.40
30	361	0.33	0.647	0.684	1.04	10.90	9.70
35	551	0.30	0.527	0.538	1.04	11.60	9.60
40	494	0.33	0.473	0.500	1.12	12.40	11.20
50	798	0.30	0.368	0.375	1.20	13.50	11.50
60	741	0.33	0.315	0.333	1.20	14.60	13.40
70	1140	0.30	0.259	0.264	1.20	15.50	13.50
95	836	0.40	0.196	0.200	1.28	18.00	16.00
120	1064	0.40	0.153	0.156	1.28	19.70	17.70

FL91X-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FL91X-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm		
max.			max.		min.		max.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20
1	54	0.16	18.5	19.1	0.48	2.70	2.40
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70
2	105	0.16	9.42	9.69	0.48	3.30	3.00
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30
3	160	0.16	6.15	6.36	0.56	4.10	3.80
4	224	0.16	4.71	4.85	0.64	4.40	4.00
5	250	0.16	3.94	4.02	0.64	4.90	4.50
6	320	0.16	3.14	3.23	0.64	5.00	4.60
8	240	0.21	2.38	2.52	0.64	5.90	5.00
10	320	0.21	1.82	1.85	0.80	6.50	5.90
12	380	0.21	1.52	1.60	0.80	7.40	6.60
16	512	0.21	1.16	1.18	0.80	8.30	7.70
20	610	0.21	0.955	0.999	0.88	9.10	8.10
25	790	0.21	0.743	0.757	1.04	10.40	9.40
30	900	0.22	0.647	0.684	1.04	10.90	9.70
35	1070	0.21	0.527	0.538	1.04	11.60	9.60
40	1200	0.21	0.473	0.500	1.12	12.40	11.20
50	1600	0.21	0.368	0.375	1.20	13.50	11.50
60	1200	0.26	0.315	0.333	1.20	14.60	13.40
70	1427	0.26	0.259	0.264	1.20	15.50	13.50
95	1936	0.26	0.196	0.200	1.28	18.00	16.00
120	2450	0.26	0.153	0.156	1.28	19.70	17.70

FLR91X

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **91X** Cross-linked Polyethylene (150°C)

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

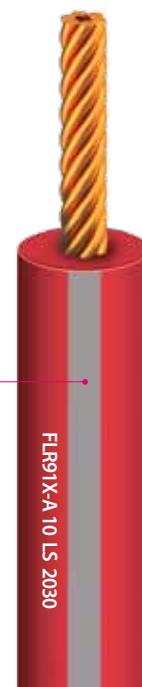
XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Long term ageing : 150°C/3,000h
 Short term ageing : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642

Color Stripe Sheath



FLR91X-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLR91X-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLR91X-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FL2G

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **2G** Silicone insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

Silicone, Halogen Free

Technical Data

Special Properties

Service temperature : -40~180°C
 Long term ageing : 180°C/3,000h
 Short term ageing : 210°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FL2G-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.50	7	0.32	37.1	38.2	0.48	2.30	2.00	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20	
1	19	0.27	18.5	19.1	0.48	2.70	2.40	
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40	
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70	
2	19	0.38	9.42	9.69	0.48	3.30	3.00	
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30	
3	37	0.34	6.15	6.36	0.56	4.10	3.80	
4	37	0.38	4.71	4.85	0.64	4.40	4.00	
5	37	0.43	3.94	4.02	0.64	4.90	4.50	
6	37	0.45	3.14	3.23	0.64	5.00	4.60	
8	98	0.33	2.38	2.52	0.64	5.90	5.00	
10	63	0.46	1.82	1.85	0.80	6.50	5.90	
12	154	0.33	1.52	1.60	0.80	7.40	6.60	
16	105	0.46	1.16	1.18	0.80	8.30	7.70	
20	247	0.33	0.955	0.999	0.88	9.10	8.10	
25	154	0.46	0.743	0.757	1.04	10.40	9.40	
30	361	0.33	0.647	0.684	1.04	10.90	9.70	
35	551	0.30	0.527	0.538	1.04	11.60	9.60	
40	494	0.33	0.473	0.500	1.12	12.40	11.20	
50	798	0.30	0.368	0.375	1.20	13.50	11.50	
60	741	0.33	0.315	0.333	1.20	14.60	13.40	
70	1140	0.30	0.259	0.264	1.20	15.50	13.50	
95	836	0.40	0.196	0.200	1.28	18.00	16.00	
120	1064	0.40	0.153	0.156	1.28	19.70	17.70	

FL2G-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FL2G-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00	
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20	
1	54	0.16	18.5	19.1	0.48	2.70	2.40	
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40	
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70	
2	105	0.16	9.42	9.69	0.48	3.30	3.00	
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30	
3	160	0.16	6.15	6.36	0.56	4.10	3.80	
4	224	0.16	4.71	4.85	0.64	4.40	4.00	
5	250	0.16	3.94	4.02	0.64	4.90	4.50	
6	320	0.16	3.14	3.23	0.64	5.00	4.60	
8	240	0.21	2.38	2.52	0.64	5.90	5.00	
10	320	0.21	1.82	1.85	0.80	6.50	5.90	
12	380	0.21	1.52	1.60	0.80	7.40	6.60	
16	512	0.21	1.16	1.18	0.80	8.30	7.70	
20	610	0.21	0.955	0.999	0.88	9.10	8.10	
25	790	0.21	0.743	0.757	1.04	10.40	9.40	
30	900	0.22	0.647	0.684	1.04	10.90	9.70	
35	1070	0.21	0.527	0.538	1.04	11.60	9.60	
40	1200	0.21	0.473	0.500	1.12	12.40	11.20	
50	1600	0.21	0.368	0.375	1.20	13.50	11.50	
60	1200	0.26	0.315	0.333	1.20	14.60	13.40	
70	1427	0.26	0.259	0.264	1.20	15.50	13.50	
95	1936	0.26	0.196	0.200	1.28	18.00	16.00	
120	2450	0.26	0.153	0.156	1.28	19.70	17.70	

FL3G

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **3G** EPDM insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

EPDM, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Long term ageing : 150°C/3,000h
 Short term ageing : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FL3G-A : Symmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm		
max.			max.		min.		max.
0.50	7	0.32	37.1	38.2	0.48	2.30	2.00
	19	0.19					
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20
1	19	0.27	18.5	19.1	0.48	2.70	2.40
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70
2	19	0.38	9.42	9.69	0.48	3.30	3.00
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30
3	37	0.34	6.15	6.36	0.56	4.10	3.80
4	37	0.38	4.71	4.85	0.64	4.40	4.00
5	37	0.43	3.94	4.02	0.64	4.90	4.50
6	37	0.45	3.14	3.23	0.64	5.00	4.60
8	98	0.33	2.38	2.52	0.64	5.90	5.00
10	63	0.46	1.82	1.85	0.80	6.50	5.90
12	154	0.33	1.52	1.60	0.80	7.40	6.60
16	105	0.46	1.16	1.18	0.80	8.30	7.70
20	247	0.33	0.955	0.999	0.88	9.10	8.10
25	154	0.46	0.743	0.757	1.04	10.40	9.40
30	361	0.33	0.647	0.684	1.04	10.90	9.70
35	551	0.30	0.527	0.538	1.04	11.60	9.60
40	494	0.33	0.473	0.500	1.12	12.40	11.20
50	798	0.30	0.368	0.375	1.20	13.50	11.50
60	741	0.33	0.315	0.333	1.20	14.60	13.40
70	1140	0.30	0.259	0.264	1.20	15.50	13.50
95	836	0.40	0.196	0.200	1.28	18.00	16.00
120	1064	0.40	0.153	0.156	1.28	19.70	17.70

FL3G-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm		mΩ/m		mm		mm	
mm²		max.	max.		min.	max.	min.
0.50	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FL3G-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20
1	54	0.16	18.5	19.1	0.48	2.70	2.40
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70
2	105	0.16	9.42	9.69	0.48	3.30	3.00
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30
3	160	0.16	6.15	6.36	0.56	4.10	3.80
4	224	0.16	4.71	4.85	0.64	4.40	4.00
5	250	0.16	3.94	4.02	0.64	4.90	4.50
6	320	0.16	3.14	3.23	0.64	5.00	4.60
8	240	0.21	2.38	2.52	0.64	5.90	5.00
10	320	0.21	1.82	1.85	0.80	6.50	5.90
12	380	0.21	1.52	1.60	0.80	7.40	6.60
16	512	0.21	1.16	1.18	0.80	8.30	7.70
20	610	0.21	0.955	0.999	0.88	9.10	8.10
25	790	0.21	0.743	0.757	1.04	10.40	9.40
30	900	0.22	0.647	0.684	1.04	10.90	9.70
35	1070	0.21	0.527	0.538	1.04	11.60	9.60
40	1200	0.21	0.473	0.500	1.12	12.40	11.20
50	1600	0.21	0.368	0.375	1.20	13.50	11.50
60	1200	0.26	0.315	0.333	1.20	14.60	13.40
70	1427	0.26	0.259	0.264	1.20	15.50	13.50
95	1936	0.26	0.196	0.200	1.28	18.00	16.00
120	2450	0.26	0.153	0.156	1.28	19.70	17.70

FLR2G

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **2G** Silicone insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

Silicone, Halogen Free

Technical Data

Special Properties

Service temperature : -40~180°C
 Long term ageing : 180°C/3,000h
 Short term ageing : 210°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FLR2G-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLR2G-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare or Ag plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLR2G-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FLR3G

Single Core Low-tension Cable with Thick Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **3G** EPDM insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

EPDM, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Long term ageing : 150°C/3,000h
 Short term ageing : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FLR3G-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

FLR3G-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare or Ag plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

FLR3G-C : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20	
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40	
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70	
1	54	0.16	18.5	19.1	0.24	2.10	1.90	
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10	
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20	
2	105	0.16	9.42	9.69	0.28	2.80	2.50	
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70	
3	160	0.16	6.15	6.36	0.32	3.40	3.10	
4	224	0.16	4.71	4.85	0.32	3.70	3.40	
5	250	0.16	3.94	4.02	0.32	4.20	3.90	
6	320	0.16	3.14	3.23	0.32	4.30	4.00	
8	240	0.21	2.38	2.52	0.32	5.00	4.60	
10	320	0.21	1.82	1.85	0.48	6.00	5.30	
12	380	0.21	1.52	1.60	0.48	6.50	5.80	
16	512	0.21	1.16	1.18	0.52	7.20	6.40	
20	610	0.21	0.955	0.999	0.52	7.80	7.00	
25	790	0.21	0.743	0.757	0.52	8.70	7.90	
30	900	0.22	0.647	0.684	0.64	9.60	8.70	
35	1070	0.21	0.527	0.538	0.64	10.40	9.40	
40	1200	0.21	0.473	0.500	0.71	11.10	10.00	
50	1600	0.21	0.368	0.375	0.71	12.20	11.00	
60	1200	0.26	0.315	0.333	0.80	13.30	12.00	
70	1427	0.26	0.259	0.264	0.80	14.40	13.00	
95	1936	0.26	0.196	0.200	0.90	16.70	15.30	

FLR5Y

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **5Y** Polytetrafluoroethylene

Construction

Conductor
· Nickel plated copper
ASTM B355

Insulation
PTFE

Technical Data

Special Properties
Service temperature : -40~280°C
Long term ageing : 280°C/3,000h
Short term ageing : 300°C/240h
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : ISO 6722/19642
Flame resistance : ISO 6722/19642



FLR5Y-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	

FLR6Y

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **6Y** Fluorinated ethylene propylene copolymer insulated

Construction

Conductor

- Tinned
- Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

FEP

Technical Data

Special Properties

Service temperature : -40~200°C
 Long term ageing : 200°C/3,000h
 Short term ageing : 225°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



JASO

ISO

SAE

SPECIAL

FLR6Y-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.13	7	0.16	136	140	0.20	1.05	0.95	
0.22	7	0.21	84.8	86.5	0.20	1.20	1.10	
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.50	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	

FLR7Y

Single Core Low-tension Cable with Thin Wall Insulation

- **FL** Low-voltage cable for road vehicles
- **R** Reduced wall thickness
- **7Y** Ethylene tetrafluoroethylene

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

ETFE

Technical Data

Special Properties

Service temperature : -40~175°C
 Long term ageing : 175°C/3,000h
 Short term ageing : 200°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FLR7Y-A : Symmetrical type conductor

Size	Conductor			Insulation			
	Construction		Conductor resistance (20°C)	Insulation thickness		Cable outside diameter	
	Number of strands	Strand diameter	Sn plated Copper	mm		mm	
		mm	mΩ/m	nom.	min.	max.	min.
0.35	7	0.27	55.5	0.25	0.20	1.40	1.20
0.5	19	0.19	38.2	0.28	0.22	1.60	1.40
0.75	19	0.24	25.4	0.30	0.24	1.90	1.70
1	19	0.27	19.1	0.30	0.24	2.10	1.90
1.25	19	0.3	15.9	0.30	0.24	2.30	2.10
1.5	19	0.33	13	0.30	0.24	2.40	2.20
2	19	0.38	9.69	0.35	0.28	2.80	2.50
2.5	37	0.28	7.82	0.35	0.28	3.00	2.70
3	37	0.34	6.36	0.40	0.32	3.40	3.10
4	37	0.38	4.85	0.40	0.32	3.70	3.40
5	37	0.43	4.02	0.40	0.32	4.20	3.90
6	37	0.45	3.23	0.40	0.32	4.30	4.00
8	98	0.33	2.52	0.40	0.32	5.00	4.60
16	105	0.46	1.16	1.18	0.52	7.20	6.40



FHL2X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **2X** Cross-linked polyethylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Heat resistance 1 : 125°C/3,000h
 Heat resistance 2 : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHL2X-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.5	7	0.32	37.1	38.2	0.48	2.30	2.00	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20	
1	19	0.27	18.5	19.1	0.48	2.70	2.40	
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40	
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70	
2	19	0.38	9.42	9.69	0.48	3.30	3.00	
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30	
3	37	0.34	6.15	6.36	0.56	4.10	3.80	
4	37	0.38	4.71	4.85	0.64	4.40	4.00	
5	37	0.43	3.94	4.02	0.64	4.90	4.50	
6	37	0.45	3.14	3.23	0.64	5.00	4.60	
8	98	0.33	2.38	2.52	0.64	5.90	5.00	
10	63	0.46	1.82	1.85	0.80	6.50	5.90	
12	154	0.33	1.52	1.60	0.80	7.40	6.60	
16	105	0.46	1.16	1.18	0.80	8.30	7.70	
20	247	0.33	0.955	0.999	0.88	9.10	8.10	
25	154	0.46	0.743	0.757	1.04	10.40	9.40	
30	361	0.33	0.647	0.684	1.04	10.90	9.70	
35	551	0.30	0.527	0.538	1.04	11.60	9.60	
40	494	0.33	0.473	0.500	1.12	12.40	11.20	
50	798	0.30	0.368	0.375	1.20	13.50	11.50	
60	741	0.33	0.315	0.333	1.20	14.60	13.40	
70	1140	0.30	0.259	0.264	1.20	15.50	13.50	
85	1197	0.31	0.219	0.225	1.28	16.80	14.80	
95	836	0.40	0.196	0.200	1.28	18.00	16.00	
120	1064	0.40	0.153	0.156	1.28	19.70	17.70	

FHL2X-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.5	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FHL2X-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20
1	54	0.16	18.5	19.1	0.48	2.70	2.40
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70
2	105	0.16	9.42	9.69	0.48	3.30	3.00
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30
3	160	0.16	6.15	6.36	0.56	4.10	3.80
4	224	0.16	4.71	4.85	0.64	4.40	4.00
5	250	0.16	3.94	4.02	0.64	4.90	4.50
6	320	0.16	3.14	3.23	0.64	5.00	4.60
8	240	0.21	2.38	2.52	0.64	5.90	5.00
10	320	0.21	1.82	1.85	0.80	6.50	5.90
12	380	0.21	1.52	1.60	0.80	7.40	6.60
16	512	0.21	1.16	1.18	0.80	8.30	7.70
20	610	0.21	0.955	0.999	0.88	9.10	8.10
25	790	0.21	0.743	0.757	1.04	10.40	9.40
30	900	0.22	0.647	0.684	1.04	10.90	9.70
35	1070	0.21	0.527	0.538	1.04	11.60	9.60
40	1200	0.21	0.473	0.500	1.12	12.40	11.20
50	1600	0.21	0.368	0.375	1.20	13.50	11.50
60	1200	0.26	0.315	0.333	1.20	14.60	13.40
70	1427	0.26	0.259	0.264	1.20	15.50	13.50
85	2660	0.21	0.219	0.225	1.28	16.80	14.80
95	1936	0.26	0.196	0.200	1.28	18.00	16.00
120	2450	0.26	0.153	0.156	1.28	19.70	17.70

FHLR2X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **R** Reduced wall thickness
- **2X** Cross-linked polyethylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Heat resistance 1 : 125°C/3,000h
 Heat resistance 2 : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHLR2X-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20	
0.5	7	0.32	37.1	38.2	0.22	1.60	1.40	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70	
1	19	0.27	18.5	19.1	0.24	2.10	1.90	
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10	
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20	
2	19	0.38	9.42	9.69	0.28	2.80	2.50	
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70	
3	37	0.34	6.15	6.36	0.32	3.40	3.10	
4	37	0.38	4.71	4.85	0.32	3.70	3.40	
5	37	0.43	3.94	4.02	0.32	4.20	3.90	
6	37	0.45	3.14	3.23	0.32	4.30	4.00	
8	98	0.33	2.38	2.52	0.32	5.00	4.60	
10	63	0.46	1.82	1.85	0.48	6.00	5.30	
12	154	0.33	1.52	1.60	0.48	6.50	5.80	
16	105	0.46	1.16	1.18	0.52	7.20	6.40	
20	247	0.33	0.955	0.999	0.52	7.80	7.00	
25	154	0.46	0.743	0.757	0.52	8.70	7.90	
30	361	0.33	0.647	0.684	0.64	9.60	8.70	
35	551	0.30	0.527	0.538	0.64	10.40	9.40	
40	494	0.33	0.473	0.500	0.71	11.10	10.00	
50	798	0.30	0.368	0.375	0.71	12.20	11.00	
60	741	0.33	0.315	0.333	0.80	13.30	12.00	
70	1140	0.30	0.259	0.264	0.80	14.40	13.00	
85	1197	0.31	0.219	0.225	0.90	15.80	14.40	
95	836	0.40	0.196	0.200	0.90	16.70	15.30	

* ISO conductor size 0.35 mm² shall not be used for 1000 V ac or 1500 V dc cables.

FHLR2X-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm		mΩ/m		mm		mm	
mm²		max.	max.		min.	max.	min.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70
1	32	0.21	18.5	19.1	0.24	2.10	1.90
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20
2	28	0.31	9.42	9.69	0.28	2.80	2.50
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70
3	44	0.31	6.15	6.36	0.32	3.40	3.10
4	56	0.31	4.71	4.85	0.32	3.70	3.40
5	65	0.33	3.94	4.02	0.32	4.20	3.90
6	84	0.31	3.14	3.23	0.32	4.30	4.00
8	50	0.46	2.38	2.52	0.32	5.00	4.60
10	80	0.41	1.82	1.85	0.48	6.00	5.30
12	96	0.41	1.52	1.60	0.48	6.50	5.80
16	126	0.41	1.16	1.18	0.52	7.20	6.40
20	152	0.41	0.955	0.999	0.52	7.80	7.00
25	196	0.41	0.743	0.757	0.52	8.70	7.90
30	224	0.41	0.647	0.684	0.64	9.60	8.70
35	276	0.41	0.527	0.538	0.64	10.40	9.40
40	308	0.41	0.473	0.500	0.71	11.10	10.00
50	396	0.41	0.368	0.375	0.71	12.20	11.00
60	296	0.51	0.315	0.333	0.80	13.30	12.00
70	360	0.51	0.259	0.264	0.80	14.40	13.00
95	475	0.51	0.196	0.200	0.90	16.70	15.30

* ISO conductor size 0.35 mm² shall not be used for 1000 V ac or 1500 V dc cables.

FHLR2X-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm		mΩ/m		mm		mm	
mm²		max.	max.		min.	max.	min.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70
1	54	0.16	18.5	19.1	0.24	2.10	1.90
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20
2	105	0.16	9.42	9.69	0.28	2.80	2.50
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70
3	160	0.16	6.15	6.36	0.32	3.40	3.10
4	224	0.16	4.71	4.85	0.32	3.70	3.40
5	250	0.16	3.94	4.02	0.32	4.20	3.90
6	320	0.16	3.14	3.23	0.32	4.30	4.00
8	240	0.21	2.38	2.52	0.32	5.00	4.60
10	320	0.21	1.82	1.85	0.48	6.00	5.30
12	380	0.21	1.52	1.60	0.48	6.50	5.80
16	512	0.21	1.16	1.18	0.52	7.20	6.40
20	610	0.21	0.955	0.999	0.52	7.80	7.00
25	790	0.21	0.743	0.757	0.52	8.70	7.90
30	900	0.22	0.647	0.684	0.64	9.60	8.70
35	1070	0.21	0.527	0.538	0.64	10.40	9.40
40	1200	0.21	0.473	0.500	0.71	11.10	10.00
50	1600	0.21	0.368	0.375	0.71	12.20	11.00
60	1200	0.26	0.315	0.333	0.80	13.30	12.00
70	1427	0.26	0.259	0.264	0.80	14.40	13.00
85	2660	0.21	0.219	0.225	0.90	15.80	14.40
95	2450	0.26	0.196	0.200	0.90	16.70	15.30

* ISO conductor size 0.35 mm² shall not be used for 1000 V ac or 1500 V dc cables.

FHL91X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **91X** Cross-linked polyethylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 150°C/3,000h
 Heat resistance 2 : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHL91X-A : Symmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.		min.		max.	min.
0.5	7	0.32	37.1	38.2	0.48	2.30	2.00	
	19	0.19						
0.75	19	0.24	24.7	25.4	0.48	2.50	2.20	
1	19	0.27	18.5	19.1	0.48	2.70	2.40	
1.25	19	0.30	14.9	15.9	0.48	2.95	2.40	
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70	
2	19	0.38	9.42	9.69	0.48	3.30	3.00	
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30	
3	37	0.34	6.15	6.36	0.56	4.10	3.80	
4	37	0.38	4.71	4.85	0.64	4.40	4.00	
5	37	0.43	3.94	4.02	0.64	4.90	4.50	
6	37	0.45	3.14	3.23	0.64	5.00	4.60	
8	98	0.33	2.38	2.52	0.64	5.90	5.00	
10	63	0.46	1.82	1.85	0.80	6.50	5.90	
12	154	0.33	1.52	1.60	0.80	7.40	6.60	
16	105	0.46	1.16	1.18	0.80	8.30	7.70	
20	247	0.33	0.955	0.999	0.88	9.10	8.10	
25	154	0.46	0.743	0.757	1.04	10.40	9.40	
30	361	0.33	0.647	0.684	1.04	10.90	9.70	
35	551	0.30	0.527	0.538	1.04	11.60	9.60	
40	494	0.33	0.473	0.500	1.12	12.40	11.20	
50	798	0.30	0.368	0.375	1.20	13.50	11.50	
60	741	0.33	0.315	0.333	1.20	14.60	13.40	
70	1140	0.30	0.259	0.264	1.20	15.50	13.50	
85	1197	0.31	0.219	0.225	1.28	16.80	14.80	
95	836	0.40	0.196	0.200	1.28	18.00	16.00	
120	1064	0.40	0.153	0.156	1.28	19.70	17.70	

FHL91X-B : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm		
max.			max.		min.		max.
0.5	16	0.21	37.1	38.2	0.48	2.30	2.00
0.75	24	0.21	24.7	25.4	0.48	2.50	2.20
1	32	0.21	18.5	19.1	0.48	2.70	2.40
1.25	16	0.33	14.9	15.9	0.48	2.95	2.40
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70
2	28	0.31	9.42	9.69	0.48	3.30	3.00
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30
3	44	0.31	6.15	6.36	0.56	4.10	3.80
4	56	0.31	4.71	4.85	0.64	4.40	4.00
5	65	0.33	3.94	4.02	0.64	4.90	4.50
6	84	0.31	3.14	3.23	0.64	5.00	4.60
8	50	0.46	2.38	2.52	0.64	5.90	5.00
10	80	0.41	1.82	1.85	0.80	6.50	5.90
12	96	0.41	1.52	1.60	0.80	7.40	6.60
16	126	0.41	1.16	1.18	0.80	8.30	7.70
20	152	0.41	0.955	0.999	0.88	9.10	8.10
25	196	0.41	0.743	0.757	1.04	10.40	9.40
30	224	0.41	0.647	0.684	1.04	10.90	9.70
35	276	0.41	0.527	0.538	1.04	11.60	9.60
40	308	0.41	0.473	0.500	1.12	12.40	11.20
50	396	0.41	0.368	0.375	1.20	13.50	11.50
60	296	0.51	0.315	0.333	1.20	14.60	13.40
70	360	0.51	0.259	0.264	1.20	15.50	13.50
95	475	0.51	0.196	0.200	1.28	18.00	16.00
120	608	0.51	0.153	0.156	1.28	19.70	17.70

FHL91X-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm		mΩ/m		mm		mm	
mm²		max.	max.		min.	max.	min.
0.5	26	0.16	37.1	38.2	0.48	2.30	2.00
0.75	38	0.16	24.7	25.4	0.48	2.50	2.20
1	54	0.16	18.5	19.1	0.48	2.70	2.40
1.25	50	0.19	14.9	15.9	0.48	2.95	2.40
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70
2	105	0.16	9.42	9.69	0.48	3.30	3.00
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30
3	160	0.16	6.15	6.36	0.56	4.10	3.80
4	224	0.16	4.71	4.85	0.64	4.40	4.00
5	250	0.16	3.94	4.02	0.64	4.90	4.50
6	320	0.16	3.14	3.23	0.64	5.00	4.60
8	240	0.21	2.38	2.52	0.64	5.90	5.00
10	320	0.21	1.82	1.85	0.80	6.50	5.90
12	380	0.21	1.52	1.60	0.80	7.40	6.60
16	512	0.21	1.16	1.18	0.80	8.30	7.70
20	610	0.21	0.955	0.999	0.88	9.10	8.10
25	790	0.21	0.743	0.757	1.04	10.40	9.40
30	900	0.22	0.647	0.684	1.04	10.90	9.70
35	1070	0.21	0.527	0.538	1.04	11.60	9.60
40	1200	0.21	0.473	0.500	1.12	12.40	11.20
50	1600	0.21	0.368	0.375	1.20	13.50	11.50
60	1200	0.26	0.315	0.333	1.20	14.60	13.40
70	1427	0.26	0.259	0.264	1.20	15.50	13.50
85	2660	0.21	0.219	0.225	1.28	16.80	14.80
95	1936	0.26	0.196	0.200	1.28	18.00	16.00
120	2450	0.26	0.153	0.156	1.28	19.70	17.70

FHLR91X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
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- **91X** Cross-linked polyethylene insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 150°C/3,000h
 Heat resistance 2 : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHLR91X-A : Symmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm	mm	
max.			max.		min.	max.	min.
0.35	7	0.27	54.4	55.5	0.20	1.40	1.20
0.5	7	0.32	37.1	38.2	0.22	1.60	1.40
	19	0.19					
0.75	19	0.24	24.7	25.4	0.24	1.90	1.70
1	19	0.27	18.5	19.1	0.24	2.10	1.90
1.25	19	0.30	14.9	15.9	0.24	2.30	2.10
1.5	19	0.33	12.7	13.0	0.24	2.40	2.20
2	19	0.38	9.42	9.69	0.28	2.80	2.50
2.5	37	0.30	7.60	7.82	0.28	3.00	2.70
3	37	0.34	6.15	6.36	0.32	3.40	3.10
4	37	0.38	4.71	4.85	0.32	3.70	3.40
5	37	0.43	3.94	4.02	0.32	4.20	3.90
6	37	0.45	3.14	3.23	0.32	4.30	4.00
8	98	0.33	2.38	2.52	0.32	5.00	4.60
10	63	0.46	1.82	1.85	0.48	6.00	5.30
12	154	0.33	1.52	1.60	0.48	6.50	5.80
16	105	0.46	1.16	1.18	0.52	7.20	6.40
20	247	0.33	0.955	0.999	0.52	7.80	7.00
25	154	0.46	0.743	0.757	0.52	8.70	7.90
30	361	0.33	0.647	0.684	0.64	9.60	8.70
35	551	0.30	0.527	0.538	0.64	10.40	9.40
40	494	0.33	0.473	0.500	0.71	11.10	10.00
50	798	0.30	0.368	0.375	0.71	12.20	11.00
60	741	0.33	0.315	0.333	0.80	13.30	12.00
70	1140	0.30	0.259	0.264	0.80	14.40	13.00
85	1197	0.31	0.219	0.225	0.90	15.80	14.40
95	836	0.40	0.196	0.200	0.90	16.70	15.30

* ISO conductor size 0.35 mm² shall not be used for 1000 V ac or 1500 V dc cables.

FHLR91X-B : Asymmetrical type conductor

Size	Conductor				Insulation			
	Construction		Conductor resistance (20°C)					
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter	
mm			mΩ/m		mm		mm	
max.			max.				min.	max.
0.35	12	0.21	54.4	55.5	0.20	1.40	1.20	
0.5	16	0.21	37.1	38.2	0.22	1.60	1.40	
0.75	24	0.21	24.7	25.4	0.24	1.90	1.70	
1	32	0.21	18.5	19.1	0.24	2.10	1.90	
1.25	16	0.33	14.9	15.9	0.24	2.30	2.10	
1.5	30	0.26	12.7	13.0	0.24	2.40	2.20	
2	28	0.31	9.42	9.69	0.28	2.80	2.50	
2.5	50	0.26	7.60	7.82	0.28	3.00	2.70	
3	44	0.31	6.15	6.36	0.32	3.40	3.10	
4	56	0.31	4.71	4.85	0.32	3.70	3.40	
5	65	0.33	3.94	4.02	0.32	4.20	3.90	
6	84	0.31	3.14	3.23	0.32	4.30	4.00	
8	50	0.46	2.38	2.52	0.32	5.00	4.60	
10	80	0.41	1.82	1.85	0.48	6.00	5.30	
12	96	0.41	1.52	1.60	0.48	6.50	5.80	
16	126	0.41	1.16	1.18	0.52	7.20	6.40	
20	152	0.41	0.955	0.999	0.52	7.80	7.00	
25	196	0.41	0.743	0.757	0.52	8.70	7.90	
30	224	0.41	0.647	0.684	0.64	9.60	8.70	
35	276	0.41	0.527	0.538	0.64	10.40	9.40	
40	308	0.41	0.473	0.500	0.71	11.10	10.00	
50	396	0.41	0.368	0.375	0.71	12.20	11.00	
60	296	0.51	0.315	0.333	0.80	13.30	12.00	
70	360	0.51	0.259	0.264	0.80	14.40	13.00	
95	475	0.51	0.196	0.200	0.90	16.70	15.30	

* ISO conductor size 0.35 mm² shall not be used for 1000 V ac or 1500 V dc cables.

FHLR91X-C : Asymmetrical type conductor

Size	Conductor				Insulation		
	Construction		Conductor resistance (20°C)				
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter
mm			mΩ/m		mm		
max.			max.		min.		max.
0.35	19	0.16	54.4	55.5	0.20	1.40	1.20
0.5	26	0.16	37.1	38.2	0.22	1.60	1.40
0.75	38	0.16	24.7	25.4	0.24	1.90	1.70
1	54	0.16	18.5	19.1	0.24	2.10	1.90
1.25	50	0.19	14.9	15.9	0.24	2.30	2.10
1.5	76	0.16	12.7	13.0	0.24	2.40	2.20
2	105	0.16	9.42	9.69	0.28	2.80	2.50
2.5	140	0.16	7.60	7.82	0.28	3.00	2.70
3	160	0.16	6.15	6.36	0.32	3.40	3.10
4	224	0.16	4.71	4.85	0.32	3.70	3.40
5	250	0.16	3.94	4.02	0.32	4.20	3.90
6	320	0.16	3.14	3.23	0.32	4.30	4.00
8	240	0.21	2.38	2.52	0.32	5.00	4.60
10	320	0.21	1.82	1.85	0.48	6.00	5.30
12	380	0.21	1.52	1.60	0.48	6.50	5.80
16	512	0.21	1.16	1.18	0.52	7.20	6.40
20	610	0.21	0.955	0.999	0.52	7.80	7.00
25	790	0.21	0.743	0.757	0.52	8.70	7.90
30	900	0.22	0.647	0.684	0.64	9.60	8.70
35	1070	0.21	0.527	0.538	0.64	10.40	9.40
40	1200	0.21	0.473	0.500	0.71	11.10	10.00
50	1600	0.21	0.368	0.375	0.71	12.20	11.00
60	1200	0.26	0.315	0.333	0.80	13.30	12.00
70	1427	0.26	0.259	0.264	0.80	14.40	13.00
85	2660	0.21	0.219	0.225	0.90	15.80	14.40
95	2450	0.26	0.196	0.200	0.90	16.70	15.30

* ISO conductor size 0.35 mm² shall not be used for 1000 V ac or 1500 V dc cables.

FHL2XC2X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **2X** Cross-linked polyethylene insulated
- **C** Braid shielded
- **2X** Cross-linked polyethylene sheathed

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Heat resistance 1 : 125°C/3,000h
 Heat resistance 2 : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHL2XC2X-A : Symmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter						
		mm	mΩ/m		mm	mm						
max.		max.		min.	max.	min.						
mm²												
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70	0.13	0.9	0.72	5.3	4.9
2	19	0.38	9.42	9.69	0.48	3.30	3.00	0.13	0.9	0.72	5.6	5.2
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30	0.13	1.0	0.80	6.1	5.5
3	37	0.34	6.15	6.36	0.56	4.10	3.80	0.16	1.0	0.80	6.7	6.1
4	37	0.38	4.71	4.85	0.64	4.40	4.00	0.16	1.1	0.88	7.2	6.6
5	37	0.43	3.94	4.02	0.64	4.90	4.50	0.16	1.1	0.88	7.7	7.1
6	37	0.45	3.14	3.23	0.64	5.00	4.60	0.16	1.1	0.88	7.8	7.2
8	98	0.33	2.38	2.52	0.64	5.90	5.00	0.19	1.2	0.96	9.1	8.5
10	63	0.46	1.82	1.85	0.80	6.50	5.90	0.19	1.2	0.96	9.7	9.1
12	154	0.33	1.52	1.60	0.80	7.40	6.60	0.19	1.3	1.04	10.8	10.2
16	105	0.46	1.16	1.18	0.80	8.30	7.70	0.19	1.3	1.04	11.7	11.1
20	247	0.33	0.955	0.999	0.88	9.10	8.10	0.19	1.4	1.12	12.7	12.1
25	154	0.46	0.743	0.757	1.04	10.40	9.40	0.21	1.4	1.12	14.0	13.4
30	361	0.33	0.647	0.684	1.04	10.90	9.70	0.21	1.5	1.20	14.7	14.1
35	551	0.30	0.527	0.538	1.04	11.60	9.60	0.21	1.5	1.20	15.4	14.8
40	494	0.33	0.473	0.500	1.12	12.40	11.20	0.21	1.5	1.20	16.2	15.6
50	798	0.30	0.368	0.375	1.20	13.50	11.50	0.21	1.6	1.28	17.5	16.7
60	741	0.33	0.315	0.333	1.20	14.60	13.40	0.21	1.6	1.28	18.6	17.8
70	1140	0.30	0.259	0.264	1.20	15.50	13.50	0.21	1.6	1.28	19.7	18.9
85	1197	0.31	0.219	0.225	1.28	16.80	14.80	0.26	1.7	1.36	21.2	20.4
95	836	0.40	0.196	0.200	1.28	18.00	16.00	0.26	1.7	1.36	22.4	21.6
120	1064	0.40	0.153	0.156	1.28	19.70	17.70	0.26	1.7	1.36	24.1	23.3

FHL2XC2X-B : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm		mm
mm			mΩ/m		mm	mm		mm	mm		mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70	0.13	0.9	0.72	5.3	4.9
2	28	0.31	9.42	9.69	0.48	3.30	3.00	0.13	0.9	0.72	5.6	5.2
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30	0.13	1.0	0.80	6.1	5.5
3	44	0.31	6.15	6.36	0.56	4.10	3.80	0.16	1.0	0.80	6.7	6.1
4	56	0.31	4.71	4.85	0.64	4.40	4.00	0.16	1.1	0.88	7.2	6.6
5	65	0.33	3.94	4.02	0.64	4.90	4.50	0.16	1.1	0.88	7.7	7.1
6	84	0.31	3.14	3.23	0.64	5.00	4.60	0.16	1.1	0.88	7.8	7.2
8	50	0.46	2.38	2.52	0.64	5.90	5.00	0.19	1.2	0.96	9.1	8.5
10	80	0.41	1.82	1.85	0.80	6.50	5.90	0.19	1.2	0.96	9.7	9.1
12	96	0.41	1.52	1.60	0.80	7.40	6.60	0.19	1.3	1.04	10.8	10.2
16	126	0.41	1.16	1.18	0.80	8.30	7.70	0.19	1.3	1.04	11.7	11.1
20	152	0.41	0.955	0.999	0.88	9.10	8.10	0.19	1.4	1.12	12.7	12.1
25	196	0.41	0.743	0.757	1.04	10.40	9.40	0.21	1.4	1.12	14.0	13.4
30	224	0.41	0.647	0.684	1.04	10.90	9.70	0.21	1.5	1.20	14.7	14.1
35	276	0.41	0.527	0.538	1.04	11.60	9.60	0.21	1.5	1.20	15.4	14.8
40	308	0.41	0.473	0.500	1.12	12.40	11.20	0.21	1.5	1.20	16.2	15.6
50	396	0.41	0.368	0.375	1.20	13.50	11.50	0.21	1.6	1.28	17.5	16.7
60	296	0.51	0.315	0.333	1.20	14.60	13.40	0.21	1.6	1.28	18.6	17.8
70	360	0.51	0.259	0.264	1.20	15.50	13.50	0.21	1.6	1.28	19.7	18.9
95	475	0.51	0.196	0.200	1.28	18.00	16.00	0.26	1.7	1.36	22.4	21.6
120	608	0.51	0.153	0.156	1.28	19.70	17.70	0.26	1.7	1.36	24.1	23.3

FHL2XC2X-C : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm	mm	mm
mm			mΩ/m		mm	mm		mm	mm	mm	mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70	0.13	0.9	0.72	5.3	4.9
2	105	0.16	9.42	9.69	0.48	3.30	3.00	0.13	0.9	0.72	5.6	5.2
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30	0.13	1.0	0.80	6.1	5.5
3	160	0.16	6.15	6.36	0.56	4.10	3.80	0.16	1.0	0.80	6.7	6.1
4	224	0.16	4.71	4.85	0.64	4.40	4.00	0.16	1.1	0.88	7.2	6.6
5	250	0.16	3.94	4.02	0.64	4.90	4.50	0.16	1.1	0.88	7.7	7.1
6	320	0.16	3.14	3.23	0.64	5.00	4.60	0.16	1.1	0.88	7.8	7.2
8	240	0.21	2.38	2.52	0.64	5.90	5.00	0.19	1.2	0.96	9.1	8.5
10	320	0.21	1.82	1.85	0.80	6.50	5.90	0.19	1.2	0.96	9.7	9.1
12	380	0.21	1.52	1.60	0.80	7.40	6.60	0.19	1.3	1.04	10.8	10.2
16	512	0.21	1.16	1.18	0.80	8.30	7.70	0.19	1.3	1.04	11.7	11.1
20	610	0.21	0.955	0.999	0.88	9.10	8.10	0.19	1.4	1.12	12.7	12.1
25	790	0.21	0.743	0.757	1.04	10.40	9.40	0.21	1.4	1.12	14.0	13.4
30	900	0.22	0.647	0.684	1.04	10.90	9.70	0.21	1.5	1.20	14.7	14.1
35	1070	0.21	0.527	0.538	1.04	11.60	9.60	0.21	1.5	1.20	15.4	14.8
40	1200	0.21	0.473	0.500	1.12	12.40	11.20	0.21	1.5	1.20	16.2	15.6
50	1600	0.21	0.368	0.375	1.20	13.50	11.50	0.21	1.6	1.28	17.5	16.7
60	1200	0.26	0.315	0.333	1.20	14.60	13.40	0.21	1.6	1.28	18.6	17.8
70	1427	0.26	0.259	0.264	1.20	15.50	13.50	0.21	1.6	1.28	19.7	18.9
85	1197	0.31	0.219	0.225	1.28	16.80	14.80	0.26	1.7	1.36	21.2	20.4
95	1936	0.26	0.196	0.200	1.28	18.00	16.00	0.26	1.7	1.36	22.4	21.6
120	2450	0.26	0.153	0.156	1.28	19.70	17.70	0.26	1.7	1.36	24.1	23.3

FHLR2XC2X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **R** Reduced wall thickness
- **2X** Cross-linked polyethylene insulated
- **C** Braid shielded
- **2X** Cross-linked polyethylene sheathed

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Heat resistance 1 : 125°C/3,000h
 Heat resistance 2 : 150°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHLR2XC2X-A : Symmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter						
mm²		mm	mΩ/m		mm	mm		mm	mm		mm	
		max.	max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	19	0.33	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	19	0.38	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	37	0.30	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	37	0.34	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	37	0.38	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	37	0.43	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	37	0.45	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	98	0.33	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	63	0.46	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	154	0.33	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	105	0.46	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	247	0.33	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	154	0.46	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	361	0.33	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	551	0.30	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	494	0.33	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	798	0.30	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	741	0.33	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	1140	0.30	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
85	1197	0.31	0.219	0.225	0.90	15.8	14.4	0.26	1.1	0.88	19.0	18.2
95	836	0.40	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR2XC2X-B : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm		mm
mm			mΩ/m		mm	mm		mm	mm		mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	30	0.26	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	28	0.31	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	50	0.26	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	44	0.31	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	56	0.31	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	65	0.33	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	84	0.31	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	50	0.46	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	80	0.41	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	96	0.41	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	126	0.41	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	152	0.41	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	196	0.41	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	224	0.41	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	276	0.41	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	308	0.41	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	396	0.41	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	296	0.51	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	360	0.51	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
95	475	0.51	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR2XC2X-C : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm		mm
mm			mΩ/m		mm	mm		mm				
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	76	0.16	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	105	0.16	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	140	0.16	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	160	0.16	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	224	0.16	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	250	0.16	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	320	0.16	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	240	0.21	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	320	0.21	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	380	0.21	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	512	0.21	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	610	0.21	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	790	0.21	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	900	0.22	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	1070	0.21	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	1200	0.21	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	1600	0.21	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	1200	0.26	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	1427	0.26	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
85	2660	0.21	0.219	0.225	0.90	15.8	14.4	0.26	1.1	0.88	19.0	18.2
95	1936	0.26	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHL91XC91X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **91X** Cross-linked polyethylene insulated
- **C** Braid shielded
- **91X** Cross-linked polyethylene sheathed

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 150°C/3,000h
 Heat resistance 2 : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHL91XC91X-A : Symmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter						
		mm	mΩ/m		mm	mm						
max.		max.		min.	max.	min.						
mm²												
1.5	19	0.33	12.7	13.0	0.48	3.00	2.70	0.13	0.9	0.72	5.3	4.9
2	19	0.38	9.42	9.69	0.48	3.30	3.00	0.13	0.9	0.72	5.6	5.2
2.5	37	0.30	7.60	7.82	0.56	3.60	3.30	0.13	1.0	0.80	6.1	5.5
3	37	0.34	6.15	6.36	0.56	4.10	3.80	0.16	1.0	0.80	6.7	6.1
4	37	0.38	4.71	4.85	0.64	4.40	4.00	0.16	1.1	0.88	7.2	6.6
5	37	0.43	3.94	4.02	0.64	4.90	4.50	0.16	1.1	0.88	7.7	7.1
6	37	0.45	3.14	3.23	0.64	5.00	4.60	0.16	1.1	0.88	7.8	7.2
8	98	0.33	2.38	2.52	0.64	5.90	5.00	0.19	1.2	0.96	9.1	8.5
10	63	0.46	1.82	1.85	0.80	6.50	5.90	0.19	1.2	0.96	9.7	9.1
12	154	0.33	1.52	1.60	0.80	7.40	6.60	0.19	1.3	1.04	10.8	10.2
16	105	0.46	1.16	1.18	0.80	8.30	7.70	0.19	1.3	1.04	11.7	11.1
20	247	0.33	0.955	0.999	0.88	9.10	8.10	0.19	1.4	1.12	12.7	12.1
25	154	0.46	0.743	0.757	1.04	10.40	9.40	0.21	1.4	1.12	14.0	13.4
30	361	0.33	0.647	0.684	1.04	10.90	9.70	0.21	1.5	1.20	14.7	14.1
35	551	0.30	0.527	0.538	1.04	11.60	9.60	0.21	1.5	1.20	15.4	14.8
40	494	0.33	0.473	0.500	1.12	12.40	11.20	0.21	1.5	1.20	16.2	15.6
50	798	0.30	0.368	0.375	1.20	13.50	11.50	0.21	1.6	1.28	17.5	16.7
60	741	0.33	0.315	0.333	1.20	14.60	13.40	0.21	1.6	1.28	18.6	17.8
70	1140	0.30	0.259	0.264	1.20	15.50	13.50	0.21	1.6	1.28	19.7	18.9
85	1197	0.31	0.219	0.225	1.28	16.80	14.80	0.26	1.7	1.36	21.2	20.4
95	836	0.40	0.196	0.200	1.28	18.00	16.00	0.26	1.7	1.36	22.4	21.6
120	1064	0.40	0.153	0.156	1.28	19.70	17.70	0.26	1.7	1.36	24.1	23.3

FHL91XC91X-B : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm	mm	mm
mm			mΩ/m		mm	mm		mm	mm	mm	mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	30	0.26	12.7	13.0	0.48	3.00	2.70	0.13	0.9	0.72	5.3	4.9
2	28	0.31	9.42	9.69	0.48	3.30	3.00	0.13	0.9	0.72	5.6	5.2
2.5	50	0.26	7.60	7.82	0.56	3.60	3.30	0.13	1.0	0.80	6.1	5.5
3	44	0.31	6.15	6.36	0.56	4.10	3.80	0.16	1.0	0.80	6.7	6.1
4	56	0.31	4.71	4.85	0.64	4.40	4.00	0.16	1.1	0.88	7.2	6.6
5	65	0.33	3.94	4.02	0.64	4.90	4.50	0.16	1.1	0.88	7.7	7.1
6	84	0.31	3.14	3.23	0.64	5.00	4.60	0.16	1.1	0.88	7.8	7.2
8	50	0.46	2.38	2.52	0.64	5.90	5.00	0.19	1.2	0.96	9.1	8.5
10	80	0.41	1.82	1.85	0.80	6.50	5.90	0.19	1.2	0.96	9.7	9.1
12	96	0.41	1.52	1.60	0.80	7.40	6.60	0.19	1.3	1.04	10.8	10.2
16	126	0.41	1.16	1.18	0.80	8.30	7.70	0.19	1.3	1.04	11.7	11.1
20	152	0.41	0.955	0.999	0.88	9.10	8.10	0.19	1.4	1.12	12.7	12.1
25	196	0.41	0.743	0.757	1.04	10.40	9.40	0.21	1.4	1.12	14.0	13.4
30	224	0.41	0.647	0.684	1.04	10.90	9.70	0.21	1.5	1.20	14.7	14.1
35	276	0.41	0.527	0.538	1.04	11.60	9.60	0.21	1.5	1.20	15.4	14.8
40	308	0.41	0.473	0.500	1.12	12.40	11.20	0.21	1.5	1.20	16.2	15.6
50	396	0.41	0.368	0.375	1.20	13.50	11.50	0.21	1.6	1.28	17.5	16.7
60	296	0.51	0.315	0.333	1.20	14.60	13.40	0.21	1.6	1.28	18.6	17.8
70	360	0.51	0.259	0.264	1.20	15.50	13.50	0.21	1.6	1.28	19.7	18.9
95	475	0.51	0.196	0.200	1.28	18.00	16.00	0.26	1.7	1.36	22.4	21.6
120	608	0.51	0.153	0.156	1.28	19.70	17.70	0.26	1.7	1.36	24.1	23.3

FHL91XC91X-C : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm		mm
mm			mΩ/m		mm	mm		mm	mm		mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	76	0.16	12.7	13.0	0.48	3.00	2.70	0.13	0.9	0.72	5.3	4.9
2	105	0.16	9.42	9.69	0.48	3.30	3.00	0.13	0.9	0.72	5.6	5.2
2.5	140	0.16	7.60	7.82	0.56	3.60	3.30	0.13	1.0	0.80	6.1	5.5
3	160	0.16	6.15	6.36	0.56	4.10	3.80	0.16	1.0	0.80	6.7	6.1
4	224	0.16	4.71	4.85	0.64	4.40	4.00	0.16	1.1	0.88	7.2	6.6
5	250	0.16	3.94	4.02	0.64	4.90	4.50	0.16	1.1	0.88	7.7	7.1
6	320	0.16	3.14	3.23	0.64	5.00	4.60	0.16	1.1	0.88	7.8	7.2
8	240	0.21	2.38	2.52	0.64	5.90	5.00	0.19	1.2	0.96	9.1	8.5
10	320	0.21	1.82	1.85	0.80	6.50	5.90	0.19	1.2	0.96	9.7	9.1
12	380	0.21	1.52	1.60	0.80	7.40	6.60	0.19	1.3	1.04	10.8	10.2
16	512	0.21	1.16	1.18	0.80	8.30	7.70	0.19	1.3	1.04	11.7	11.1
20	610	0.21	0.955	0.999	0.88	9.10	8.10	0.19	1.4	1.12	12.7	12.1
25	790	0.21	0.743	0.757	1.04	10.40	9.40	0.21	1.4	1.12	14.0	13.4
30	900	0.22	0.647	0.684	1.04	10.90	9.70	0.21	1.5	1.20	14.7	14.1
35	1070	0.21	0.527	0.538	1.04	11.60	9.60	0.21	1.5	1.20	15.4	14.8
40	1200	0.21	0.473	0.500	1.12	12.40	11.20	0.21	1.5	1.20	16.2	15.6
50	1600	0.21	0.368	0.375	1.20	13.50	11.50	0.21	1.6	1.28	17.5	16.7
60	1200	0.26	0.315	0.333	1.20	14.60	13.40	0.21	1.6	1.28	18.6	17.8
70	1427	0.26	0.259	0.264	1.20	15.50	13.50	0.21	1.6	1.28	19.7	18.9
85	1197	0.31	0.219	0.225	1.28	16.80	14.80	0.26	1.7	1.36	21.2	20.4
95	1936	0.26	0.196	0.200	1.28	18.00	16.00	0.26	1.7	1.36	22.4	21.6
120	2450	0.26	0.153	0.156	1.28	19.70	17.70	0.26	1.7	1.36	24.1	23.3

FHLR91XC91X

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **R** Reduced wall thickness
- **91X** Cross-linked polyethylene insulated
- **C** Braid shielded
- **91X** Cross-linked polyethylene sheathed

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~150°C
 Heat resistance 1 : 150°C/3,000h
 Heat resistance 2 : 175°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHLR91XC91X-A : Symmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter			mm	mm		mm
mm		mΩ/m		mm	mm		mm	mm		mm		
mm²		max.	max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	19	0.33	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	19	0.38	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	37	0.30	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	37	0.34	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	37	0.38	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	37	0.43	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	37	0.45	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	98	0.33	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	63	0.46	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	154	0.33	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	105	0.46	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	247	0.33	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	154	0.46	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	361	0.33	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	551	0.30	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	494	0.33	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	798	0.30	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	741	0.33	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	1140	0.30	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
85	1197	0.31	0.219	0.225	0.90	15.8	14.4	0.26	1.1	0.88	19.0	18.2
95	836	0.40	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR91XC91X-B : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter						
		mm	mΩ/m		mm	mm						
max.		max.		min.	max.	min.						
mm²								mm	mm		mm	
								max.	nom.	min.	max.	min.
1.5	30	0.26	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	28	0.31	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	50	0.26	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	44	0.31	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	56	0.31	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	65	0.33	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	84	0.31	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	50	0.46	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	80	0.41	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	96	0.41	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	126	0.41	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	152	0.41	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	196	0.41	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	224	0.41	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	276	0.41	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	308	0.41	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	396	0.41	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	296	0.51	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	360	0.51	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
95	475	0.51	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR91XC91X-C : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter						
		mm	mΩ/m		mm	mm						
max.		max.		min.	max.	min.						
mm²												
1.5	76	0.16	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	105	0.16	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	140	0.16	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	160	0.16	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	224	0.16	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	250	0.16	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	320	0.16	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	240	0.21	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	320	0.21	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	380	0.21	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	512	0.21	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	610	0.21	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	790	0.21	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	900	0.22	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	1070	0.21	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	1200	0.21	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	1600	0.21	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	1200	0.26	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	1427	0.26	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
85	2660	0.21	0.219	0.225	0.90	15.8	14.4	0.26	1.1	0.88	19.0	18.2
95	1936	0.26	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR2GC2G

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **R** Reduced wall thickness
- **2G** Silicone insulated
- **C** Braid shielded
- **2G** Silicone insulated

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

Silicone, Halogen Free

Sheath

Silicone, Halogen Free

Technical Data

Special Properties

Service temperature : -40~180°C
 Heat resistance 1 : 180°C/3,000h
 Heat resistance 2 : 200°C/240h
 Cold resistance : -40°C/4h
 Oil resistance : OK
 Abrasion resistance : ISO 6722/19642
 Flame resistance : ISO 6722/19642



FHLR2GC2G-A : Symmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter			mm	mm		mm
mm²		mm	mΩ/m		mm	mm		mm	mm		mm	
		max.	max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	19	0.33	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	19	0.38	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	37	0.30	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	37	0.34	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	37	0.38	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	37	0.43	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	37	0.45	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	98	0.33	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	63	0.46	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	154	0.33	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	105	0.46	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	247	0.33	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	154	0.46	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	361	0.33	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	551	0.30	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	494	0.33	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	798	0.30	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	741	0.33	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	1140	0.30	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
85	1197	0.31	0.219	0.225	0.90	15.8	14.4	0.26	1.1	0.88	19.0	18.2
95	836	0.40	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR2GC2G-B : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm		mm
mm			mΩ/m		mm	mm		mm	mm		mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	30	0.26	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	28	0.31	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	50	0.26	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	44	0.31	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	56	0.31	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	65	0.33	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	84	0.31	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	50	0.46	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	80	0.41	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	96	0.41	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	126	0.41	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	152	0.41	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	196	0.41	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	224	0.41	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	276	0.41	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	308	0.41	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	396	0.41	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	296	0.51	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	360	0.51	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
95	475	0.51	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLR2GC2G-C : Asymmetrical type conductor

Size	Conductor				Insulation			Screen Strand Diameter	Sheath Thickness		Cable Outside Diameter	
	Construction		Conductor resistance (20°C)									
	mm ²	Number of strands	Strand diameter	Bare plated copper	Sn plated Copper	Insulation thickness	Cable outside diameter		mm	mm		mm
mm			mΩ/m		mm	mm		mm	mm		mm	
max.			max.		min.	max.	min.	max.	nom.	min.	max.	min.
1.5	76	0.16	12.7	13.0	0.24	2.4	2.2	0.13	0.40	0.32	3.7	3.3
2	105	0.16	9.42	9.69	0.28	2.8	2.5	0.13	0.4	0.32	4.1	3.7
2.5	140	0.16	7.60	7.82	0.28	3.0	2.7	0.13	0.4	0.32	4.3	3.9
3	160	0.16	6.15	6.36	0.32	3.4	3.1	0.16	0.4	0.32	4.8	4.2
4	224	0.16	4.71	4.85	0.32	3.7	3.4	0.16	0.4	0.32	5.1	4.5
5	250	0.16	3.94	4.02	0.32	4.2	3.9	0.16	0.6	0.48	6.0	5.4
6	320	0.16	3.14	3.23	0.32	4.3	4.0	0.16	0.6	0.48	6.1	5.5
8	240	0.21	2.38	2.52	0.32	5.0	4.6	0.19	0.65	0.52	7.1	6.5
10	320	0.21	1.82	1.85	0.48	6.0	5.3	0.19	0.65	0.52	8.1	7.5
12	380	0.21	1.52	1.60	0.48	6.5	5.8	0.19	0.65	0.52	8.6	8.0
16	512	0.21	1.16	1.18	0.52	7.2	6.4	0.19	0.8	0.64	9.6	9.0
20	610	0.21	0.955	0.999	0.52	7.8	7.0	0.19	0.8	0.64	10.2	9.6
25	790	0.21	0.743	0.757	0.52	8.7	7.9	0.21	0.9	0.72	11.3	10.7
30	900	0.22	0.647	0.684	0.64	9.6	8.7	0.21	0.9	0.72	12.2	11.6
35	1070	0.21	0.527	0.538	0.64	10.4	9.4	0.21	1.0	0.80	13.2	12.6
40	1200	0.21	0.473	0.500	0.71	11.1	10.0	0.21	1.0	0.80	13.9	13.3
50	1600	0.21	0.368	0.375	0.71	12.2	11.0	0.21	1.1	0.88	15.2	14.6
60	1200	0.26	0.315	0.333	0.80	13.3	12.0	0.21	1.1	0.88	16.3	15.5
70	1427	0.26	0.259	0.264	0.80	14.4	13.0	0.21	1.1	0.88	17.4	16.6
85	2660	0.21	0.219	0.225	0.90	15.8	14.4	0.26	1.1	0.88	19.0	18.2
95	1936	0.26	0.196	0.200	0.90	16.7	15.3	0.26	1.1	0.88	19.9	19.1

FHLALR2GCB2G

Hybrid & Electric Vehicle Cables

- **FHL** High-voltage cable for road vehicles
- **AL** Aluminum conductor
- **R** Reduced wall thickness
- **2G** Silicone insulated
- **C** Braid shielded
- **B** Foil shielded
- **2G** Silicone sheathed

Construction

Conductor
Aluminum conductor acc to EN 573

Insulation
Silicone, Halogen Free

Sheath
Silicone, Halogen Free

Technical Data

Special Properties
Service temperature : -40~180°C
Heat resistance 1 : 180°C/3,000h
Heat resistance 2 : 200°C/240h
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : ISO 6722/19642
Flame resistance : ISO 6722/19642



Product List

Size	Conductor(AL)			Insulation				Brain Shield	Tape Thickness	Sheath Thickness		Cable Outside Diameter	
	Construction												
	Number of strands	Strand diameter	Outside diameter	Insulation thickness		Cable outside diameter		Coverage					
mm		mm	mm	mm	mm	mm	%	mm	mm	mm	mm	mm	
nom.		nom.	nom.	min.	max.	min.	min.	nom.	nom.	min.	max.	min.	
50	247	0.500	10.40	0.90	0.72	12.60	11.80	85	0.03	1.20	0.96	15.80	15.20
90	463	0.500	13.80	1.30	1.04	17.20	15.80	85	0.03	1.50	1.20	20.90	20.10

SAE Automotive Wire



TWP

Low-voltage Cables for Automobiles

- T Thin
- W Wall
- P Thermoplastic insulated

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C

Heat resistance : 110°C/168h

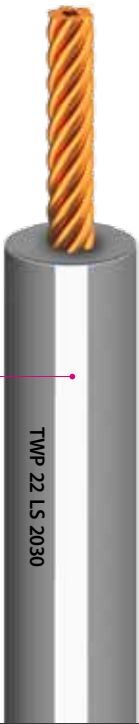
Cold resistance : -40°C/3h

Oil resistance : OK

Abrasion resistance : SAE J 1128

Flame resistance : SAE J 1128

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)
24	0.22	7	0.21	0.55	84.8	0.40	0.28	1.50
22	0.35	7	0.25	0.75	53.6	0.40	0.28	1.70
20	0.5	7	0.31	0.92	31.5	0.40	0.28	1.90
18	0.8	19	0.23	1.14	22.7	0.40	0.28	2.20
16	1.0	19	0.28	1.38	15.7	0.40	0.28	2.40
14	2.0	19	0.36	1.77	9.29	0.40	0.28	2.70
12	3.0	19	0.45	2.23	5.90	0.46	0.32	3.30
10	5.0	19	0.57	2.81	3.72	0.50	0.35	4.00
8	8.0	37	0.51	3.52	2.39	0.55	0.39	4.90

GPT

Low-voltage Cables for Automobiles

- **G** General
- **P** Purpose
- **T** Thermoplastic insulated

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

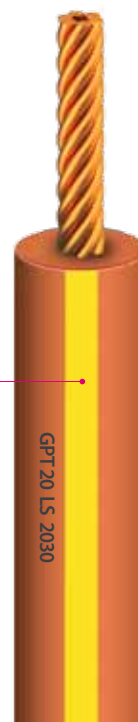
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C
 Heat resistance : 110°C/168h
 Cold resistance : -40°C/3h
 Oil resistance : OK
 Abrasion resistance : SAE J 1128
 Flame resistance : SAE J 1128

Color Stripe Sheath



JASO

ISO

SAE

SPECIAL

Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)
20	0.5	7	0.31	0.92	31.5	0.58	0.41	2.40
18	0.8	19	0.23	1.14	22.7	0.58	0.41	2.50
16	1.0	19	0.28	1.38	15.7	0.58	0.41	2.90
14	2.0	19	0.36	1.77	9.29	0.58	0.41	3.20
12	3.0	19	0.45	2.23	5.90	0.66	0.46	3.80
10	5.0	19	0.57	2.81	3.72	0.79	0.55	4.70
8	8.0	37	0.51	3.52	2.39	0.94	0.66	6.00

HDT

Low-voltage Cables for Automobiles

- H Heavy
- D Duty
- T Thermoplastic insulated

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

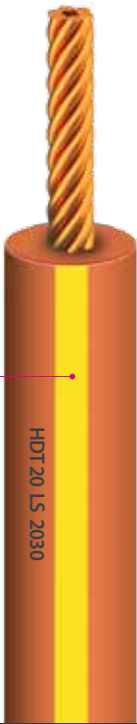
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C
Heat resistance : 110°C/168h
Cold resistance : -40°C/3h
Oil resistance : OK
Abrasion resistance : SAE J 1128
Flame resistance : SAE J 1128

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)
20	0.5	7	0.31	0.92	31.5	0.91	0.64	3.10
18	0.8	19	0.23	1.14	22.7	0.94	0.66	3.40
16	1.0	19	0.28	1.38	15.7	1.02	0.71	3.70
14	2.0	19	0.36	1.77	9.29	1.04	0.73	4.20
12	3.0	19	0.45	2.23	5.90	1.17	0.82	5.10
10	5.0	19	0.57	2.81	3.72	1.17	0.82	5.70
8	8.0	37	0.51	3.52	2.39	1.40	0.98	7.00

TXL

Low-voltage Cables for Automobiles

- T Thin wall
- X Cross-linked
- L Polyolefin insulated

Construction

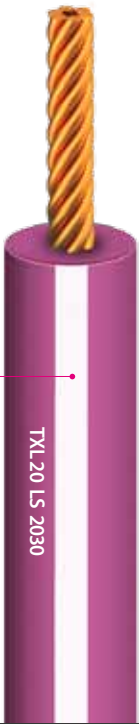
Conductor
 · Bare
 Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
 XL-PE, Halogen Free

Technical Data

Special Properties
 Service temperature : -40~125°C
 Heat resistance : 155°C/168h
 Cold resistance : -40°C/3h
 Oil resistance : OK
 Abrasion resistance : SAE J 1128
 Flame resistance : SAE J 1128

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)
24	0.2	7	0.21	0.55	84.8	0.40	0.28	1.50
22	0.4	7	0.25	0.75	53.6	0.40	0.28	1.70
20	0.5	7	0.31	0.92	31.5	0.40	0.28	1.90
18	0.8	19	0.23	1.14	22.7	0.40	0.28	2.20
16	1.0	19	0.28	1.38	15.7	0.40	0.28	2.40
14	2.0	19	0.36	1.77	9.29	0.40	0.28	2.70
12	3.0	19	0.45	2.23	5.90	0.46	0.32	3.30
10	5.0	19	0.57	2.81	3.72	0.50	0.35	4.00
8	8.0	37	0.51	3.52	2.39	0.55	0.39	4.90

GXL

Low-voltage Cables for Automobiles

- G General purpose
- X Cross-linked
- L Polyolefin insulated

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

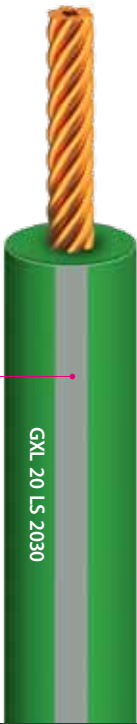
XL-PE, Halogen Free

Technical Data

Special Properties

- Service temperature : -40~125°C
- Heat resistance : 155°C/168h
- Cold resistance : -40°C/3h
- Oil resistance : OK
- Abrasion resistance : SAE J 1128
- Flame resistance : SAE J 1128

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)
20	0.5	7	0.31	0.92	31.5	0.58	0.41	2.40
18	0.8	19	0.23	1.14	22.7	0.58	0.41	2.50
16	1.0	19	0.28	1.38	15.7	0.58	0.41	2.90
14	2.0	19	0.36	1.77	9.29	0.58	0.41	3.20
12	3.0	19	0.45	2.23	5.90	0.66	0.46	3.80
10	5.0	19	0.57	2.81	3.72	0.79	0.55	4.70
8	8.0	37	0.51	3.52	2.39	0.94	0.66	6.00

SXL

Low-voltage Cables for Automobiles

- S Special purpose
- X Cross-linked
- L Polyolefin insulated

Construction

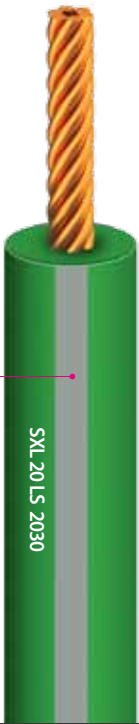
Conductor
 · Bare
 Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
 XL-PE, Halogen Free

Technical Data

Special Properties
 Service temperature : -40~125°C
 Heat resistance : 155°C/168h
 Cold resistance : -40°C/3h
 Oil resistance : OK
 Abrasion resistance : SAE J 1128
 Flame resistance : SAE J 1128

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)
20	0.5	7	0.31	0.92	31.5	0.74	0.52	2.80
18	0.8	19	0.23	1.14	22.7	0.76	0.53	3.00
16	1.0	19	0.28	1.38	15.7	0.81	0.57	3.40
14	2.0	19	0.36	1.77	9.29	0.89	0.62	3.90
12	3.0	19	0.45	2.23	5.90	0.94	0.66	4.60
10	5.0	19	0.57	2.81	3.72	1.04	0.73	5.30
8	8.0	37	0.51	3.52	2.39	1.09	0.76	6.20

STT

Low-voltage Cables for Automobiles

- S Starter or Ground
- T Thin wall
- T Thermoplastic insulated

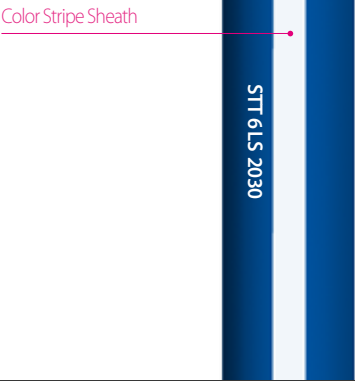
Construction

Conductor
· Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
PVC, Lead Free

Technical Data

Special Properties
Service temperature : -40~80°C
Heat resistance : 110°C/168h
Cold resistance : -40°C/3h
Oil resistance : OK
Abrasion resistance : SAE J 1127
Flame resistance : SAE J 1127



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Min. Conductor Area	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm ²)	(mΩ/m)	(mm)	(mm)	(mm)
6	13	113	0.36	12.1	1.330	1.09	0.76	7.80
4	19	113	0.45	18.3	1.100	1.12	0.78	9.50
2	32	192	0.45	31.1	0.556	1.12	0.78	11.00
1	40	235	0.45	38.1	0.459	1.12	0.78	12.00
1/0	50	299	0.45	48.3	0.360	1.12	0.78	13.00
2/0	62	1330	0.24	59.8	0.300	1.12	0.78	14.50
3/0	81	133	0.87	77.6	0.230	1.12	0.78	17.00
4/0	103	2052	0.26	98.5	0.170	1.12	0.78	18.50

SGT

Low-voltage Cables for Automobiles

- **S** Starter or Ground
- **G** General purpose
- **T** Thermoplastic insulated

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

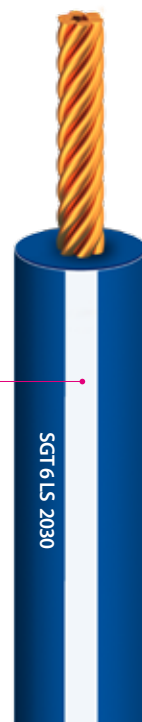
PVC, Lead Free

Technical Data

Special Properties

Service temperature : -40~80°C
 Heat resistance : 110°C/168h
 Cold resistance : -40°C/3h
 Oil resistance : OK
 Abrasion resistance : SAE J 1127
 Flame resistance : SAE J 1127

Color Stripe Sheath



JASO

ISO

SAE

SPECIAL

Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Min. Conductor Area	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm ²)	(mΩ/m)	(mm)	(mm)	(mm)
6	13	113	0.36	12.1	1.330	1.52	1.06	8.60
4	19	113	0.45	18.3	1.100	1.65	1.16	10.50
2	32	192	0.45	31.1	0.556	1.65	1.16	12.00
1	40	235	0.45	38.1	0.459	1.65	1.16	13.00
1/0	50	299	0.45	48.3	0.360	1.65	1.16	14.50
2/0	62	1330	0.24	59.8	0.300	1.65	1.16	16.00
3/0	81	133	0.87	77.6	0.230	1.98	1.39	18.50
4/0	103	2052	0.26	98.5	0.170	1.98	1.39	20.00

STX

Low-voltage Cables for Automobiles

- **S** Starter or Ground
- **T** Thin wall
- **X** Cross-linked Polyolefin insulated

Construction

Conductor
· Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
XL-PE, Halogen Free

Technical Data

Special Properties
Service temperature : -40~125°C
Heat resistance : 155°C/168h
Cold resistance : -40°C/3h
Oil resistance : OK
Abrasion resistance : SAE J 1127
Flame resistance : SAE J 1127

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Min. Conductor Area	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm²)	(mΩ/m)	(mm)	(mm)	(mm)
6	13	113	0.36	12.1	1.330	1.09	0.76	7.80
4	19	113	0.45	18.3	1.100	1.12	0.78	9.50
2	32	192	0.45	31.1	0.556	1.12	0.78	11.00
1	40	235	0.45	38.1	0.459	1.12	0.78	12.00
1/0	50	299	0.45	48.3	0.360	1.12	0.78	13.00
2/0	62	1330	0.24	59.8	0.300	1.12	0.78	14.50
3/0	81	133	0.87	77.6	0.230	1.12	0.78	17.00
4/0	103	2052	0.26	98.5	0.170	1.12	0.78	18.50

SGX

Low-voltage Cables for Automobiles

- **S** Starter or Ground
- **G** General purpose
- **X** Cross-linked Polyolefin insulated

Construction

Conductor

- Bare
- Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Technical Data

Special Properties

Service temperature : -40~125°C
 Heat resistance : 155°C/168h
 Cold resistance : -40°C/3h
 Oil resistance : OK
 Abrasion resistance : SAE J 1127
 Flame resistance : SAE J 1127

Color Stripe Sheath



Product List

Size		Conductor				Wall Thickness		Max. Finished Cable O. D.
		No. of Strands	Nom. Size of strand	Min. Conductor Area	Max. Conductor Resistance	Nom.	Min.	
(AWG)	(SQ)	No.	(mm)	(mm ²)	(mΩ/m)	(mm)	(mm)	(mm)
6	13	113	0.36	12.1	1.330	1.52	1.06	8.60
4	19	113	0.45	18.3	1.100	1.65	1.16	10.50
2	32	192	0.45	31.1	0.556	1.65	1.16	12.00
1	40	235	0.45	38.1	0.459	1.65	1.16	13.00
1/0	50	299	0.45	48.3	0.360	1.65	1.16	14.50
2/0	62	1330	0.24	59.8	0.300	1.65	1.16	16.00
3/0	81	133	0.87	77.6	0.230	1.98	1.39	18.50
4/0	103	2052	0.26	98.5	0.170	1.98	1.39	20.00

JASO

ISO

SAE

SPECIAL





Special Cable

AR-3.0C / 1.5C-2V

Low-tension Cables for Automobiles

Construction

Conductor
Copper Clad Steel acc. to ASTM B452

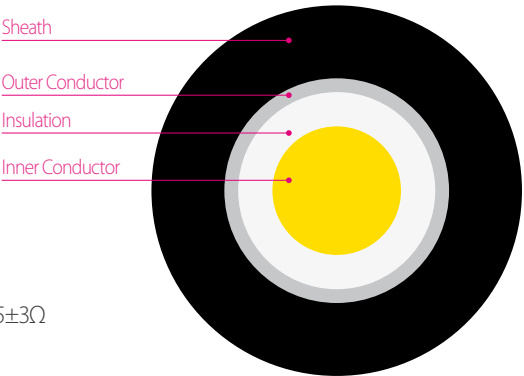
Insulation
PE, Halogen Free

Sheath
PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $75\pm3\Omega$
Nominal Capacitance : 69 ± 4 pF/m

Nominal Attenuation*	
1MHz	0.084 dB/m
10MHz	0.113 dB/m
30MHz	0.160 dB/m
200MHz	0.452 dB/m

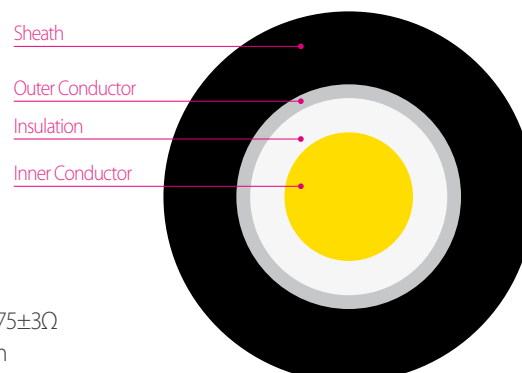


Product List

Type		Unit	AR-3.0C / 1.5C-2V
Inner Conductors	Material	-	Copper Clad Steel
	Construction	No./mm	1/0.260
	Diameter	mm	0.26
	Resistance	mΩ/m	968
Insulation	Material	-	PE
	Diameter	mm	1.60±0.06
Outer Conductor	Tape	Material	-
	Braid shield	Material	Copper
		Conductor diameter	0.102
		No./No.	5/16
		Coverage	93
		Diameter	2.10
	Sheath	Material	PVC
		Diameter	2.9±0.1

AR-5.0C

Low-tension Cables for Automobiles



Construction

Conductor

· Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

Foamed PE, Halogen Free

Sheath

PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $75 \pm 3 \Omega$

Nominal Capacitance : 57 ± 3 pF/m

Nominal Attenuation*	
50MHz	0.095 dB/m
220MHz	0.163 dB/m
300MHz	0.188 dB/m
450MHz	0.210 dB/m
770MHz	0.330 dB/m

Product List

Type		Unit	AR-5.0C
Inner Conductors	Material	-	Annealed copper
	Construction	No./mm	1/0.650
	Diameter	mm	0.650
	Resistance	m Ω /m	51.96
Insulation	Material	-	Foamed PE
	Diameter	mm	3.00 $\pm$ 0.23
Tape	Material	-	Al/Mylar
	Material	-	Annealed copper
Outer Conductor	Conductor diameter	mm	0.120
	No./No.	-	6/16
	Coverage	%	85
	Diameter	mm	3.60
	Material	mm	PVC
Sheath	Diameter	mm	4.85 $\pm$ 0.15

1.5CS-XLHV / 1.5CS-QEHV

Low-tension Cables for Automobiles

Construction

Conductor
· Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

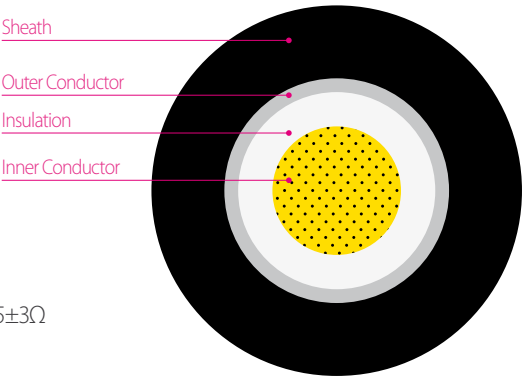
Insulation
XL-PE, Halogen Free

Sheath
PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $75\pm3\Omega$
Nominal Capacitance : 69 ± 4 pF/m

Nominal Attenuation*	
1MHz	0.031 dB/m
10MHz	0.098 dB/m
30MHz	0.178 dB/m
200MHz	0.460 dB/m

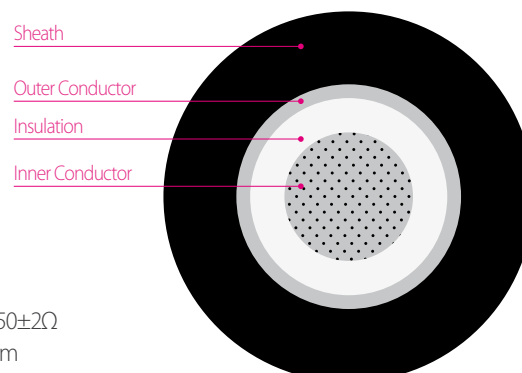


Product List

Type		Unit	1.5CS-XLHV / 1.5CS-QEHV
Inner Conductors	Material	-	Tinned copper
	Construction	No./mm	7/0.10
	Diameter	mm	0.30
	Resistance	mΩ/m	390
Insulation	Material	-	XLPE
	Diameter	mm	1.60±0.06
Tape		-	-
Outer Conductor	Material	-	Tinned copper
	Conductor diameter	mm	0.10
	No./No.	-	5/16
	Coverage	%	90
	Diameter	mm	2.00
Sheath	Material	mm	PVC
	Diameter	mm	2.9±0.1

1.5DS-CV

Low-tension Cables for Automobiles



Construction

Conductor

· Tinned

Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $50 \pm 2 \Omega$

Nominal Capacitance : 104 ± 5 pF/m

Nominal Attenuation*	
900MHz	0.76 dB/m
1500MHz	1.04 dB/m
1600MHz	1.08 dB/m
1900MHz	1.20 dB/m
2000MHz	1.23 dB/m
2500MHz	1.40 dB/m
3000MHz	1.59 dB/m

Product List

Type		Unit	1.5DS-CV
Inner Conductors	Material	-	Tinned copper
	Construction	No./mm	7/0.18
	Diameter	mm	0.54
	Resistance	m Ω /m	110
Insulation	Material	-	XLPE
	Diameter	mm	1.60 ± 0.06
Outer Conductor	Tape	Material	-
	Braid shield	Material	-
		Conductor diameter	mm
		No./No.	-
		Coverage	%
		Diameter	mm
Sheath	Material	mm	PVC
	Diameter	mm	2.9 ± 0.1

1.5D-EXHV-AS / 1.5DS-QEHB

Low-tension Cables for Automobiles

Construction

Conductor
· Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

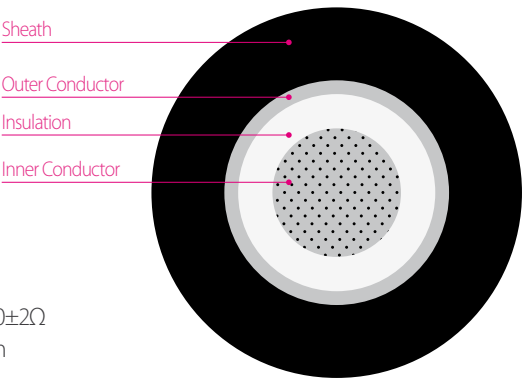
Insulation
XL-PE, Halogen Free

Sheath
PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $50\pm2\Omega$
Nominal Capacitance : 104 ± 5 pF/m

Nominal Attenuation*	
900MHz	0.76 dB/m
1500MHz	1.04 dB/m
1600MHz	1.08 dB/m
1900MHz	1.20 dB/m
2000MHz	1.23 dB/m
2500MHz	1.40 dB/m
3000MHz	1.59 dB/m

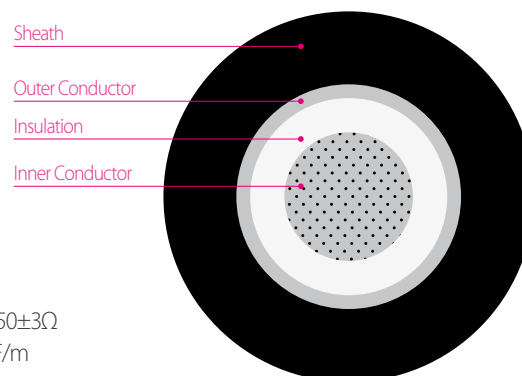


Product List

Type		Unit	1.5D-EXHV-AS / 1.5DS-QEHB
Inner Conductors	Material	-	Tinned copper
	Construction	No./mm	7/0.19
	Diameter	mm	0.54
	Resistance	mΩ/m	110
Insulation	Material	-	XLPE
	Diameter	mm	1.60±0.06
Outer Conductor	Tape	Material	-
	Braid shield	Material	-
		Conductor diameter	mm
		No./No.	-
		Coverage	%
		Diameter	mm
Sheath	Material	mm	PVC
	Diameter	mm	2.9±0.1

RG 174 / RG 174DS

Low-tension Cables for Automobiles



Construction

Conductor

Copper Clad Steel acc. to ASTM B452

· Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

PE, Halogen Free

Sheath

PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $50 \pm 3 \Omega$

Nominal Capacitance : $101 \pm 10 \text{ pF/m}$

Nominal Attenuation*	
50MHz	0.217 dB/m
100MHz	0.275 dB/m
400MHz	0.623 dB/m
1.0GHz	1.050 dB/m

Product List

Type		Unit	RG 174A/U	RG 174A/U(A)
Inner Conductors	Material	-	Copper Clad Steel	Annealed Copper
	Construction	No/mm	7/0.160	7/0.160
	Diameter	mm	0.48	0.48
	Resistance	mΩ/m	317.2	128
Insulation	Material	-	PE	PE
	Diameter	mm	1.52±0.15	1.52±0.15
Outer Conductor	Tape	Material	-	-
	Braid shield	Material	-	-
		Coverage	%	%
			85	85
Sheath	Material	mm	PVC	PVC
	Diameter	mm	2.8±0.2	2.8±0.2

RG 316 / RG 316DS

Low-tension Cables for Automobiles

Construction

Conductor
Silver Coated Copper Clad Steel acc.
to ASTM B501

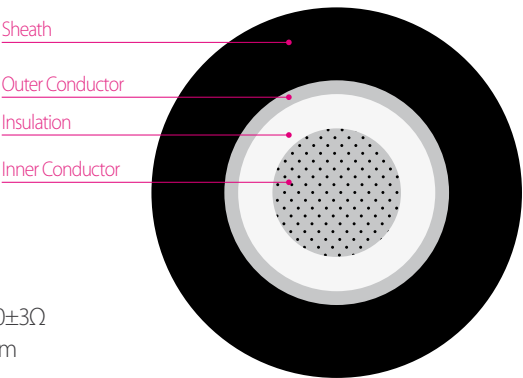
Insulation
PTFE

Sheath
FEP

Technical Data

Nom. Characteristic Impedance : $50\pm3\Omega$
Nominal Capacitance : $105\pm10\text{pF/m}$

Nominal Attenuation*	
900MHz	0.830 dB/m
1.5GHz	1.080 dB/m
1.6GHz	1.110 dB/m
1.9GHz	1.230 dB/m
2.0GHz	1.260 dB/m
2.5GHz	1.490 dB/m
3.0GHz	1.720 dB/m

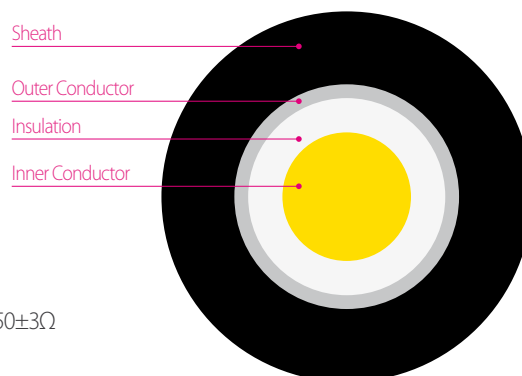


Product List

Type		Unit	RG 316	RG 316DS
Inner Conductors	Material	-	Silver Coated Copper Clad Steel	Silver Coated Copper Clad Steel
	Construction	No./mm	7/0.170	7/0.170
	Diameter	mm	0.51	0.51
	Resistance	mΩ/m	275.9	275.9
Insulation	Material	-	PTFE	PTFE
	Diameter	mm	1.53±0.05	1.53±0.05
Outer Conductor	Tape	Material	-	-
	Braid shield	Material	-	-
		Material	Silver Plated Copper	Silver Plated Copper
		Coverage	%	95/94 (Double)
Sheath	Material	mm	FEP	FEP
	Diameter	mm	2.5±0.1	2.9±0.1

RG 58LL

Low-tension Cables for Automobiles



Construction

Conductor

· Bare

Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation

Foamed PE, Halogen Free

Sheath

PVC, Lead Free

Technical Data

Nom. Characteristic Impedance : $50 \pm 3 \Omega$

Nominal Capacitance : 79.7 pF/m

Nominal Attenuation*	
900MHz	0.351 dB/m
1.5GHz	0.440 dB/m
1.8GHz	0.502 dB/m
2.0GHz	0.528 dB/m
2.5GHz	0.594 dB/m
5.8GHz	0.925 dB/m
8.0GHz	1.150 dB/m
10.0GHz	1.330 dB/m

Product List

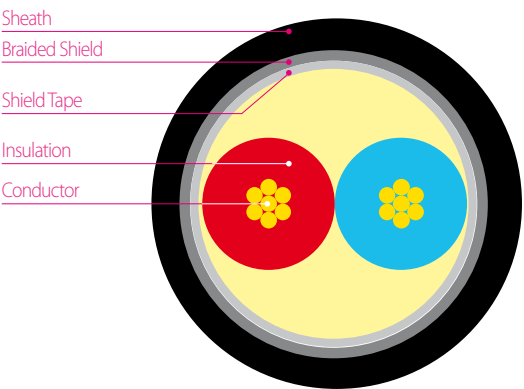
Type		Unit	RG 58LL
Inner Conductors	Material	-	Solid Bare Copper
	Construction	No./mm	1/0.940
	Diameter	mm	0.94
	Resistance	m Ω /m	24.94
Insulation	Material	-	Foamed PE
	Diameter	mm	2.79 $\pm$ 0.20
Outer Conductor	Tape	Material	-
	Braid shield	Material	Al/Mylar tape
		Material	Tinned copper
	Coverage	%	95
Sheath	Material	mm	PVC
	Diameter	mm	4.95 $\pm$ 0.2

Ethernet Cable

Low-tension Cables for Automobiles

Technical Data

Characteristic Impedance : Z(Ω) 100±10% (100Mbps)
Characteristic Impedance : Z(Ω) 100±5% (1Gbps)



Product List

Type	Size	Data transfer rate (Mbps)	Temperature range (°C)	Conductor			Insulation	Braid Shield	Sheath Diameter
				Construction	Diameter	Resistance	Diameter	Coverage	
				(No./mm)	(Max.mm)	(Max.mΩ/m)	(Nom.mm)	(Min.%)	
JUTP	2X0.22SQ	100	-40 to 100	7/0.203A	0.70	84.8	1.2±0.2	-	4.0±0.2
		100	-40 to 125	7/0.203TA	0.70	86.5	1.2±0.2	-	4.0±0.2
		1,000	-40 to 100	7/0.203A	0.70	84.8	1.2±0.2	-	4.0±0.2
		1,000	-40 to 125	7/0.203A	0.70	84.8	1.2±0.2	-	4.0±0.2
	2X0.13SQ	100	-40 to 100	7/0.160CA	0.55	210	0.9±0.2	-	3.3±0.2
		1,000	-40 to 100	7/0.160CA	0.55	210	0.9±0.2	-	3.3±0.2
		1,000	-40 to 125	7/0.160CA	0.55	210	0.9±0.2	-	3.3±0.2
		1,000	-40 to 100	7/0.160CA	0.55	210	1.1±0.2	90	4.2±0.2
JSTP	2X0.13SQ	1,000	-40 to 100	7/0.160CA	0.55	210	1.1±0.2	90	4.2±0.2

* JUTP : Unshield twisted pair with jacket
JSTP : Shield twisted pair with jacket

LEFLUX® 6E02

Low-tension Cables for Automobiles

• **LEFLUX** Fluoro polymer

• **6E02** T6(200°C) Grade, Tinned copper

Construction

Conductor

• Tinned

Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-FE

Technical Data

Special Properties

Service temperature : -40~200°C

Heat resistance 1 : 200°C/3,000h

Heat resistance 2 : 225°C/240h

Cold resistance : -40°C/4h

Oil resistance : OK

Abrasion resistance : JASO D 611

Flame resistance : JASO D 611



JASO

ISO

SAE

SPECIAL

Product List

Size (mm ²)	Conductor (TA)				Nom. Insulation thickness (mm)	Finished Cable O. D.		
	No. of Strands No.	Nom. Size of strand (mm)	Nom. Diameter (mm)	Max. Conductor Resistance (mΩ/m)		Min. (mm)	Nom. (mm)	Max. (mm)
0.3	12	0.18	0.8	64.40	0.35	1.35	1.50	1.65
0.5	20	0.18	1.0	38.60	0.35	1.55	1.70	1.85
0.75	30	0.18	1.2	25.40	0.35	1.75	1.90	2.05
0.85	34	0.18	1.2	22.70	0.40	1.85	2.00	2.15
1.25	50	0.18	1.5	15.50	0.40	2.15	2.30	2.45
2	37	0.26	1.8	9.70	0.40	2.40	2.60	2.80
3	119	0.18	2.4	6.36	0.45	3.10	3.30	3.50
5	207	0.18	3.0	4.02	0.50	3.70	4.00	4.30

LEFLUX® 6P02

Low-tension Cables for Automobiles

- **LEFLUX** Fluoro polymer
- **6P02** Anti-capillary conductor

Construction

Conductor
· Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602

Insulation
XL-FE

Technical Data

Special Properties
Service temperature : -40~200°C
Heat resistance 1 : 200°C/3,000h
Heat resistance 2 : 225°C/240h
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : JASO D 611
Flame resistance : JASO D 611



Product List

Size	Conductor (TA)				Nom. Insulation thickness	Finished Cable O. D.		
	No. of Strands	Nom. Size of strand	Nom. Diameter	Max. Conductor Resistance		Min.	Nom.	Max.
(mm²)	No.	(mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)	(mm)
0.5	19	0.18	0.9	37.10	0.40	1.55	1.70	1.85

LEFLUX® 9N04 / 9N14

Low-tension Cables for Automobiles

• **LEFLUX** Fluoro polymer

• **9N04** T9(280°C) Grade, Nickel plated copper, Reduced wall

• **9N14** T9(280°C) Grade, Nickel plated copper, Ultra thin wall

Construction

Conductor

• Nickel plated copper
ASTM B355

Insulation

PTFE

Technical Data

Special Properties

Service temperature : -40~280°C

Heat resistance 1 : 280°C/3,000h

Heat resistance 2 : 300°C/240h

Cold resistance : -40°C/4h

Oil resistance : OK



JASO

ISO

SAE

SPECIAL

Product List

Name	Size	Conductor (NA)			Insulation thickness		Finished Cable O. D.		
		No. of Strands	Nom. Strand Diameter	Max. Conductor Resistance at 20°C			Min.	Nom.	Max.
	(mm ²)	No.	(mm)	(mΩ/m)	Nom. mm	Min. mm	(mm)	(mm)	(mm)
LEFLUX 9N14	1 X 0.5	19	0.18	38.6	0.28	0.22	1.35	1.4	1.45
LEFLUX 9N04	1 X 0.61	19	0.2	32	0.35	0.3	1.63	1.7	1.77

EPB FR

Low-tension Cables for Automobiles

- **E** Electronic
- **P** Parking
- **B** Brake cable
- **FR** Flame retardant sheath

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

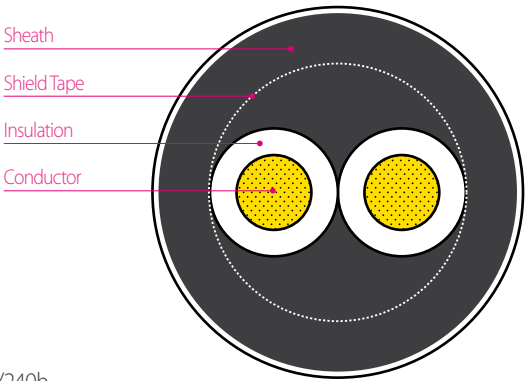
Sheath

FR-TPU

Technical Data

Special Properties

Service temperature : -40~125°C
Heat resistance (Insulation) : 150°C/240h
Heat resistance (sheath) : 136°C/168h
Cold resistance : -45°C/3h
Oil resistance : OK
Flex Endurance : Min. 50,000 cycles
Abrasion resistance : ISO 6722
Flame resistance : ISO 6722



Product List

Size	Core	Conductor			Insulation		Finished Cable	
		Construction	Nom. Diameter	Max. Conductor Resistance	Insulation Thickness	Insulation O/D	Sheath Thickness	Nom. Diameter
		(No./mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)	(mm)
1.8	2	7/52/0.08A	2.10	10.23	0.40	2.80±0.1	1.35	8.30±0.2
2.5	2	476/0.08TA	2.20	7.82	0.36	2.95±0.1	1.25	8.40±0.2

IEPB

Low-tension Cables for Automobiles

- **I** Integrated
- **E** Electronic
- **P** Parking
- **B** Brake cable

Construction

Conductor

Copper Alloy acc. to ASTM B174

· Tinned

Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation

XL-PE, Halogen Free

Sheath

TPU

Technical Data

Special Properties

Service temperature : -40~125°C

Heat resistance (Insulation) : 150°C/240h

Heat resistance (sheath) : 136°C/168h

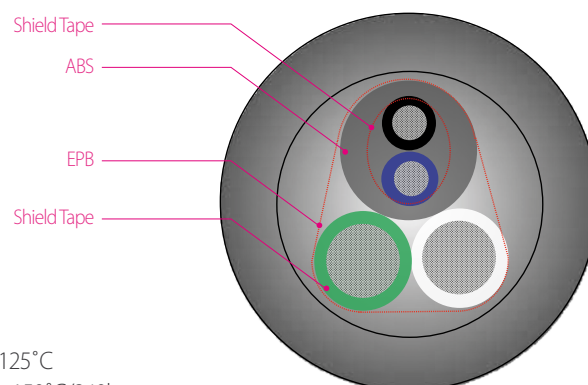
Cold resistance : -45°C/3h

Oil resistance : OK

Flex Endurance : Min. 50,000 cycles

Abrasion resistance : ISO 6722

Flame resistance : ISO 6722



Product List

	Size	Conductor		Size			Finished Cable		
		Construction	Nom. Diameter	Thickness		Insulation O/D	Sheath Thickness		Nom. Diameter
	(mm ²)	(No./mm)	(mm)	(Nom.mm)	(Min.mm)	(mm)	(Nom.mm)	(Min.mm)	(mm)
ABS	2X0.35Q	7/9/0.08CA	0.78	0.45	0.4	1.67±0.10	0.47	0.43	4.3±0.1
EPB	2X2SQ	7/57/0.08TA	2	0.45	0.4	2.9±0.10	-	-	-
Cabling	-	-	-	-	-	-	1.35	1.08	10.0±0.3

ABS-PS

Low-tension Cables for Automobiles

- **ABS** Anti-lock Brake System cables
- **PS** Passenger car

Construction

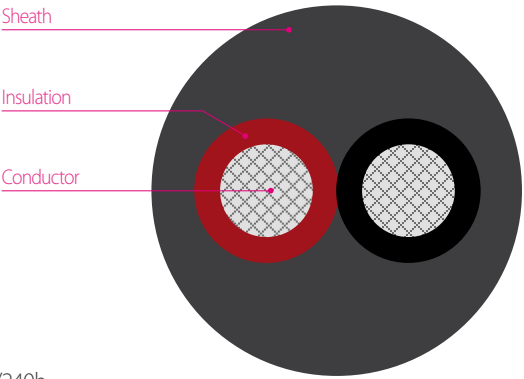
Conductor
Copper Alloy acc. to ASTM B174

Insulation
XL-PE, Halogen Free

Sheath
TPU

Technical Data

Special Properties
Service temperature : -40~125°C
Heat resistance (Insulation) : 150°C/240h
Heat resistance (sheath) : 136°C/168h
Cold resistance : -45°C/3h
Oil resistance : OK
Flex Endurance : Min. 50,000 cycles
Abrasion resistance : ISO 6722
Flame resistance : ISO 6722



Product List

Size	Core	Conductor			Insulation		Finished Cable	
		Construction	Nom. Diameter	Max. Conductor Resistance	Insulation Thickness	Insulation O/D	Sheath Thickness	Nom. Diameter
		(No. /mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)	(mm)
0.25	2	48/0.08CA	0.8	95	0.45	1.65±0.1	0.5	4.30±0.15
0.25	2	48/0.08CA	0.8	95	0.325	1.40±0.1	0.6	4.00±0.15
0.3	2	7/9/0.08CA	0.8	72	0.45	1.65±0.3	0.85	5.0±0.15
0.5	2	7/15/0.08CA	1.0	43.8	0.40	1.80±0.3	0.80	5.2±0.15

AKSH/ACKPH

Low-tension Cables for Automobiles

- **A** Automotive
 - **KS** Knock Sensor cable
 - **H** Heat resistant
- **A** Automotive
 - **CK** Crankshaft
 - **P** Position Sensor cable
 - **H** Heat resistant

Construction

- Conductor**

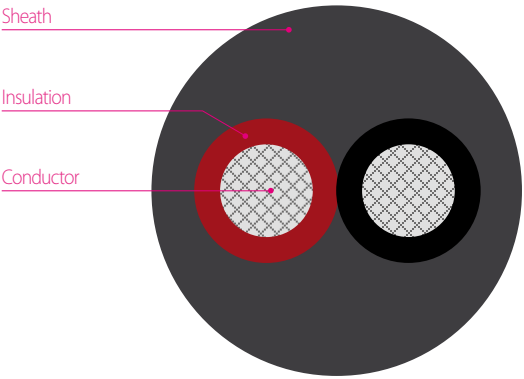
 - Tinned
 - Cu-ETP1-A017/018-C acc. to DIN EN 13602
- Insulation**

XL-PE
- Sheath**

XL-PE

Technical Data

- Special Properties**
- Service temperature : -40~150°C
 - Heat resistance 1 : 150°C/3,000h
 - Heat resistance 2 : 175°C/240h
 - Cold resistance : -40°C/4h
 - Oil resistance : OK
 - Abrasion resistance : ISO 6722
 - Flame resistance : ISO 6722



Product List

Size	Core	Conductor			Insulation		Finished Cable	
		Construction	Nom. Diameter	Max. Conductor Resistance	Insulation Thickness	Insulation O/D	Sheath Thickness	Nom. Diameter
		(No. /mm)	(mm)	(mΩ/m)	(mm)	(mm)	(mm)	(mm)
0.5	2	19/0.19TA	1.0	38.2	0.28	1.50±0.10	1.0	5.00±0.10

JASO

ISO

SAE

SPECIAL

ACKPH-ALS

Low-tension Cables for Automobiles

- **A** Automotive
- **CKP** Crank shaft Position sensor
- **H** Heat resistant
- **-ALS** Al/Mylar tape shielded

Construction

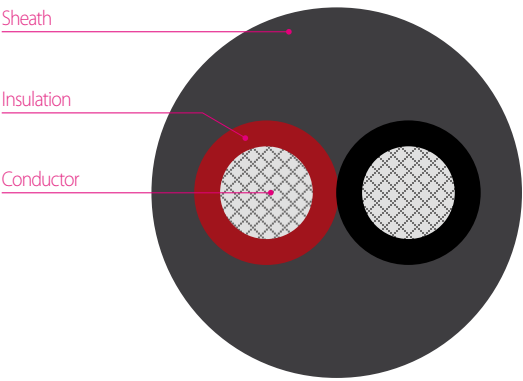
Conductor
· Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602

Insulation
XL-PE

Sheath
XL-PE

Technical Data

Special Properties
Service temperature : -40~150°C
Heat resistance 1 : 150°C/3,000h
Heat resistance 2 : 180°C/48h
Cold resistance : -40°C/4h
Oil resistance : OK
Abrasion resistance : ISO 6722
Flame resistance : ISO 6722



Product List

Size (mm²)	Core	Conductor			Insulation		Drain wire	Al/Mylar tape	Finished Cable	
		Construction	Nom. Diameter	Max. Conductor Resistance	Insulation Thickness	Insulation O/D	Construction	Thickness	Sheath Thickness	Nom. Diameter
		(No./mm)	(mm)	(mΩ/m)	(mm)	(mm)	(No./mm)	(mm)	(mm)	(mm)
0.5	2	19/0.19TA	1	38.2	0.35	1.63±0.10	19/0.19TA	0.03	0.85	5.00±0.20
0.5	3	19/0.19TA	1	38.2	0.35	1.63±0.10	-	0.03	0.70	5.00±0.20
0.5	3	19/0.19TA	1	38.2	0.35	1.63±0.10	19/0.19TA	0.03	0.85	5.50±0.20
0.5	4	19/0.19TA	1	38.2	0.35	1.63±0.10	19/0.19TA	0.03	1.00	6.00±0.20

AXEU/AEXEU

Low-tension Cables for Automobiles

- **A** Automotive
- **XE** Cross-linked Polyethylene insulated
- **U** TPU sheathed

Construction

Conductor

- Bare
Cu-ETP1-A019/020-P acc. to DIN EN 13602
- Tinned
Cu-ETP1-A017/018-C acc. to DIN EN 13602
- Copper Alloy acc. to ASTM B174

Insulation

XL-PE

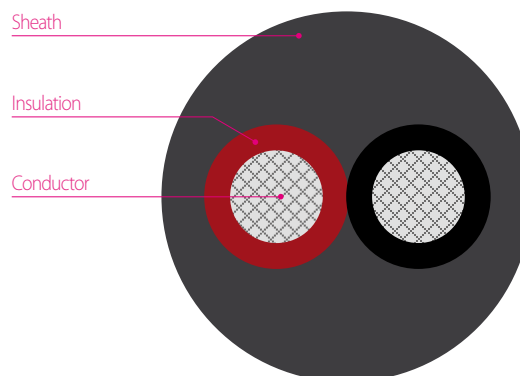
Sheath

TPU

Technical Data

Special Properties

Service temperature : -40~125°C
 Heat resistance (Insulation) : 150°C/240h
 Heat resistance (sheath) : 136°C/168h
 Cold resistance : -45°C/3h
 Oil resistance : OK
 Flex Endurance : Min. 10,000 cycles
 Abrasion resistance : JASO D 611
 Flame resistance : JASO D 611



Product List

Size (mm ²)	Core	Conductor			Insulation		Finished Cable	
		Construction (No./mm)	Nom. Diameter (mm)	Max. Conductor Resistance (mΩ/m)	Insulation Thickness (mm)	Insulation O/D (mm)	Sheath Thickness (mm)	Nom. Diameter (mm)
0.3	2	3/20/0.08CA	0.90	74.0	0.4	1.7±0.1	0.8	5.0±0.1
0.5	2	28/0.160TA	1.00	35.3	0.35	1.65±0.1	0.5	4.3±0.15
0.5	3	7/15/0.08CA	1.1	45	0.30	1.7±0.1	0.85	5.3±0.15
0.75	2	41/0.160TA	1.20	24.1	0.35	1.9±0.1	1.2	6.2±0.2
0.5	3	19/0.190A	0.95	34.6	0.35	1.65±0.1	0.95	5.3±0.15

JASO

ISO

SAE

SPECIAL

Permissible Current

Permissible Theory

Standard : JASO D 609

Equation:
$$I^2 r = (T_1 - T_2) / R$$

- I : Electric current of cable (A)
- r : Conductor Resistance of cable (Ω/cm)
- T1 : Maximum working temperature of conductor (°C)
- T2 : Ambient Temperature (°C)
- R : Thermal resistance (°C.cm/W)

Name	Size mm ²	Permissible Current (A)					
		20	30	40	50	60	70
AV/HEB/HDEB	2f	33	30	27	23	19	13
	3f	44	41	36	31	26	18
	5f	62	57	51	44	36	25
	8f	84	77	69	60	49	34
	9f	90	82	73	63	52	37
	10f	91	83	74	64	52	37
	10	97	89	79	69	56	40
	15f	117	107	96	83	68	48
	20f	147	134	120	104	85	60
	30f	185	169	151	131	107	76
	40f	224	204	183	158	129	91
	50f	253	231	207	179	146	103
	60f	285	260	233	202	165	116
	85f	352	321	287	249	203	144
	100f	405	370	331	287	234	166

Name	Size mm ²	Permissible Current (A)					
		20	30	40	50	60	70
AVS	0.3/0.3f	12	11	10	8	7	5
	0.5f	14	13	12	10	8	6
	0.5	15	14	12	11	9	6
	0.75f	18	17	15	13	11	7
	0.85	19	18	16	14	11	8
	1.25f	25	23	20	18	14	10
	1.25	25	23	21	18	15	10
	2f	33	30	27	23	19	13
	2	34	31	28	24	20	14
	3f	44	40	36	31	25	18
	3	46	42	38	33	27	19
	5	62	57	51	44	36	25
	5f	64	58	52	45	37	26
	8	81	74	66	58	47	33
	8f	83	76	68	59	48	34
AVSS	0.22	8	7	6	5	4	3
	0.3/0.3f	11	10	9	8	6	4
	0.5f	14	13	11	10	8	6
	0.5	14	13	12	10	8	6
	0.75f	18	16	14	12	10	7
	0.85	18	17	15	13	11	7
	1.25	24	21	19	17	14	10
	1.25f	24	22	19	17	14	10
	2f	32	29	26	23	18	13
	2	33	30	27	23	19	14
CAVS/CAV	0.22	8	7	6	6	5	3
	0.3	11	10	9	8	6	4
	0.5	14	13	12	10	8	6
	0.85	19	17	15	13	11	8
	1.25	24	22	20	17	14	10
CAVUS	0.22	7	7	6	5	4	3
	0.3	10	9	8	7	6	4
	0.5	13	12	11	9	8	5
	0.85	17	16	14	12	10	7
	1.25	23	21	19	16	13	9
EB	5	61	55	50	43	35	25
	9	88	80	72	62	51	36
	10	89	81	72	63	51	36
	15	115	105	94	81	66	47
	20	146	133	119	103	84	59
	30	184	168	150	130	106	75
	40	223	204	182	158	129	91
	50	253	231	207	179	146	103
	60	285	260	233	202	165	116
	85	353	322	288	250	204	144

Name	Size mm ²	Permissible Current (A)						
		20	30	40	50	60	70	80
HF	3	46	42	38	34	28	22	13
	5	61	56	51	45	38	29	17
	8	86	79	71	63	53	41	24
	10	102	94	85	75	63	49	28
	12	110	101	91	80	68	53	30
	16	136	125	113	100	84	65	38
	20	154	142	128	113	96	74	43
	30	194	178	161	142	120	93	54
	40	234	216	195	172	145	113	65
	50	273	251	227	200	169	131	76
	60	299	275	249	219	185	144	83
HFSS	0.35f	10	10	9	8	6	5	3
	0.5f	13	12	11	10	8	6	4
	0.75f	18	16	15	13	11	8	5
	1f	21	20	18	16	13	10	6
	1.25f	24	23	20	18	15	12	7
	1.5f	27	25	22	20	17	13	7
	2f	33	31	28	24	21	16	9
CHFS	3	44	40	37	32	27	21	12
	0.35	10	9	8	7	6	5	3
	0.5	13	12	11	10	8	6	4
	0.75	17	16	14	13	11	8	5
	1	21	19	17	15	13	10	6
CHFUS	1.5	26	24	22	19	16	13	7
	0.13	4	4	4	3	3	2	1
	0.22	7	7	6	5	5	4	2
	0.35	10	9	8	7	6	5	3
	0.5	13	12	10	9	8	6	3
	0.75	16	15	13	12	10	8	4
	1	20	18	16	14	12	9	5
	1.25	23	21	19	17	14	11	6
CIVUS	1.5	25	23	21	19	16	12	7
	0.13	4	4	4	3	3	2	1
	0.22	7	7	6	5	5	3	2
	0.35	10	9	8	7	6	5	3
	0.5	12	11	10	9	8	6	3
	0.75	16	15	13	12	10	8	4
	1	20	18	16	14	12	9	5
	1.25	23	21	19	17	14	11	6
	1.5	25	23	21	19	16	12	7

Name	Size mm ²	Permissible Current (A)							
		20	30	40	50	60	70	80	90
AVX/AVFX/ HEBX	0.5f	16	15	14	13	11	10	8	6
	0.5	17	16	15	13	12	10	8	6
	0.75f	21	19	18	16	14	13	10	7
	0.85	22	21	19	18	16	14	11	8
	1.25f	28	27	25	22	20	17	14	10
	1.25	29	27	25	23	20	18	14	10
	2f	37	35	32	29	26	23	18	13
	2f	39	36	34	31	28	24	19	14
	3	52	49	45	41	37	32	26	19
	5f	70	65	60	55	49	43	35	25
	5	70	66	61	56	50	43	35	25
	8	91	85	79	72	64	56	46	32
	8f	93	87	80	73	65	57	46	33
	9	100	93	86	79	70	61	50	35
	10	108	101	93	85	76	66	54	38
	10f	106	99	92	84	75	65	53	38
	12f	122	114	105	96	86	75	61	43
	15f	130	122	113	103	92	80	65	46
	20f	164	153	142	130	116	100	82	58
	30f	206	193	179	163	146	126	103	73
IVH	40f	249	233	216	197	176	152	124	88
	50f	282	263	244	223	199	172	141	100
	60f	317	296	274	250	224	194	158	112
	85f	389	364	337	307	275	238	194	137
	100f	448	419	388	354	317	275	224	158
	5	65	61	57	52	46	40	33	23
	8	91	85	79	72	65	56	46	32
	10	108	101	94	86	77	66	54	38
	12	122	114	105	96	86	75	61	43
	16	144	135	125	114	102	88	72	51
AVSX/AVXS	20	163	153	141	129	116	100	82	58
	30	206	192	178	163	145	126	103	73
	40	248	232	215	196	176	152	124	88
	50	289	270	250	228	204	177	144	102
	60	316	296	274	250	224	194	158	112
AVSSX	3	52	48	45	41	37	32	26	18
	5	70	65	60	55	49	43	35	25
	15f	130	121	112	102	92	79	65	46
	20f	164	153	142	129	116	100	82	58
AVSSH	0.5f	15	14	13	12	11	9	8	5
	0.75f	20	18	17	16	14	12	10	7
	1.25f	27	25	23	21	19	16	13	9
	2f	36	33	31	28	25	22	18	13
IVSSH	0.3f	12	11	11	10	9	7	6	4
	0.5f	15	14	13	12	11	9	8	5
	0.75f	20	18	17	16	14	12	10	7
	1.25f	27	25	23	21	19	16	13	9
	2f	36	33	31	28	25	22	18	13
EBX	3	47	44	41	37	33	29	24	17
	15	129	120	111	102	91	79	64	46
	20	163	153	141	129	115	100	82	58
	30	206	193	178	163	146	126	103	73

Name	Size mm ²	Permissible Current (A)									
		20	30	40	50	60	70	80	90	100	110
AEX	0.5f	18	17	16	15	14	12	11	10	8	6
	0.5	19	18	17	16	14	13	12	10	8	6
	0.75f	23	21	20	19	17	16	14	12	10	7
	0.85	24	23	22	20	19	17	15	13	11	8
	1.25f	31	30	28	26	24	22	20	17	14	10
	1.25	32	30	28	27	25	22	20	17	14	10
	2f	41	39	36	34	32	29	26	22	18	13
	2	43	41	38	36	33	30	27	23	19	14
	3	58	55	52	48	45	41	36	32	26	18
	5	77	73	69	65	60	55	49	42	35	24
	8	100	95	90	84	78	71	63	55	45	32
	15f	144	136	128	120	111	102	91	79	64	45
	20f	181	171	162	151	140	128	114	99	81	57
	30f	228	216	204	191	176	161	144	125	102	72
	40f	275	260	246	230	213	194	174	150	123	87
	50f	311	295	278	260	241	220	197	170	139	98
	60f	349	331	312	292	271	247	221	191	156	110
	85f	430	408	384	359	333	304	272	235	192	136
	100f	495	470	443	414	383	350	313	271	221	157
AESSX	0.3f	13	13	12	11	10	9	8	7	6	4
	0.5f	17	16	15	14	13	12	11	9	8	5
	0.75f	21	20	19	18	17	15	14	12	10	7
	1.25f	29	28	26	24	23	21	18	16	13	9
	2f	39	37	35	33	30	28	25	21	17	12

Cross Reference Guide

Society of Automotive Engineers (SAE)

Name	Type	Description
J1127	Surface Vehicles Std; Battery Cable (SAE 6 ~ 4/0, Metric 13, 19, 32, 40, 50, 62, 81, 103 mm²)	
	STT	Starter or Ground, Thin Wall, Thermoplastic Insulated
	SGT	Starter or Ground, General Purpose, Thermoplastic Insulated
	STR	Starter or Ground, Thin Wall, Thermoset Elastomer (Synthetic Rubber) Insulated
	SGR	Starter or Ground, General Purpose, Thermoset Elastomer (Synthetic Rubber) Insulated
	STX	Starter or Ground, Thin Wall, Crosslinked (X) Polyolefin Insulated
	SGX	Starter or Ground, General Purpose, Crosslinked (X) Polyolefin Insulated
J1128	Surface Vehicles Std; Low-Tension Primary Cable (SAE 8 ~ 24, Metric .22, .35, .5, .8, 1, 2, 3, 5, 8 mm²)	
	TWP	Thin Wall, Thermoplastic Insulated
	GPT	General Purpose, Thermoplastic Insulated
	HDT	Heavy-Duty, Thermoplastic Insulated
	HTS	Heavy-Duty, Thermoset Elastomer (Synthetic Rubber) Insulated
	TXL	Thin Wall, Crosslinked (X) Polyolefin Insulated
	GXL	General Purpose, Crosslinked (X) Polyolefin Insulated
	SXL	Special Purpose, Crosslinked (X) Polyolefin Insulated
J1678	Low Voltage, Ultra Thin Wall primary Cable	
	Uxx	U - 0.20mm Wall thickness
		W - 0.25mm Wall thickness
	xTx	T - Thermoplastic
		X - Thermoset
	xxA	A - 85°C; 3000 hr Temp. Class Rating
		B - 100°C; 3000 hr Temp. Class Rating
		C - 125°C; 3000 hr Temp. Class Rating
		D - 150°C; 3000 hr Temp. Class Rating
		E - 175°C; 3000 hr Temp. Class Rating
		F - 200°C; 3000 hr Temp. Class Rating
		G - 225°C; 3000 hr Temp. Class Rating
		H - 250°C; 3000 hr Temp. Class Rating

Cross Reference Guide

Japanese Automotive Standard Organization (JASO) Abbreviations

Symbol	Temperature class	Type	Insulation material
AV / HEB / HDEB	80°C	General	Polyvinyl chloride mixture
HF	85°C		Halogen-free mixture
AVS	80°C	Thin wall	Polyvinyl chloride mixture
AVSS / CAVS / CAV	80°C	Very thin wall	Polyvinyl chloride mixture
HFSS / CHFS	85°C		Halogen-free mixture
CAVUS	80°C	Ultra thin wall	Polyvinyl chloride mixture
CHFUS	85°C		Halogen-free mixture
CIVUS	85°C		Polyvinyl chloride mixture
EB	80°C	Earth	Polyvinyl chloride mixture
AVX / AVFX / HEBX	100°C	General	Crosslinked Polyvinyl chloride mixture
IVH	100°C		Crosslinked Polyvinyl chloride mixture
AVSX / AVXS	100°C	Thin wall	Crosslinked Polyvinyl chloride mixture
AVSSX	100°C	Very thin wall	Crosslinked Polyvinyl chloride mixture
AVSSH	100°C		Heat resistant Polyvinyl chloride mixture
IVSSH	100°C		Heat resistant Polyvinyl chloride mixture
EBX	100°C	Earth	Crosslinked Polyvinyl chloride mixture
AEX	120°C	Thin wall	Crosslinked Polyethylene mixture
AESSX	120°C	Very thin wall	Crosslinked Polyethylene mixture

Deutsches Institut für Normung (DIN) Abbreviations

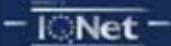
	Temperature class	Type	Insulation material
Special Design Features	F		Flat cable
	Z		Multicore cable with cores that are easily separated
	K		Compressed conductor
Shielding and Additional Processes	B		Foil shielding
	C		Braided shielding, metal
	D		Spiral wire (or served) shielding, metal
	G		Braid, nonmetallic
	L		Lacquering
Insulation and Jackets	Y	PVC	Polyvinyl-chloride
	YW	PVC	Polyvinyl-chloride heat resistant
	2Y	PE	Polyethylene
	2X	XLPE	Polyethylene, cross-linked
	2G	SiR	Silicone rubber
	3G	EPDM	Ethylene propylene rubber
	4Y	PA	Polyamide
	5Y	PTFE	Polytetrafluoroethylene
	6Y	FEP	Fluorinated ethylene propylene copolymer
	7Y	ETFE	Ethylene tetrafluoroethylene
	9Y	PP	Polypropylene
	53G	CPE	Chlorinated polyethylene
	33X	XLPEs	Polyester, cross-linked
	41X	XLPO	Polyolefin copolymer, cross-linked

Conversion Reference

AWG vs mm²

Size		GOVERNING SPECIFICATION	per SAE J1127 & SAE J1128	
AWG	mm²	DESCRIPTION	Min. cma	Min. mm²
4/0	103	SAE J1127	205500	98.5
3/0	81		158600	77.6
2/0	62		125100	59.8
1/0	50		98980	48.3
1	40		77790	38.1
2	32		62450	31.1
4	19		37360	18.3
6	13		24538	12.1
8	8		14810	7.23
10	5		9343	4.65
12	3	SAE J1128	5833	2.91
14	2		3702	1.85
16	1		2336	1.13
18	0.8		1537	0.76
20	0.5		1072	0.508
22	0.35		681	0.324
24	0.22		405	0.205

Certificate

  	CERTIFICATE	
	This is to certify that	
	LS Cable & System Ltd.	
	Gumi Plant	
	228, Suchul-daero, Gumi-si Gyeongsangbuk-do, 39369 Republic of Korea	
	with the organizational units/sites as listed in the annex	
	has implemented and maintains a Quality Management System .	
	Scope: The design and manufacture of copper telecommunication cables, power cables, power cable accessories, overhead AL conductors, OPGW (optical fiber composite ground wires) and busduct systems. Manufacturing of bare conductors, copper rods and OFC (Oxygen Free Copper).	
	Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:	
	ISO 9001 : 2015	
Certificate registration no.	20004748 QM15	 
Date of original certification	1993-07-16	
Valid from	2018-12-17	
Valid until	2021-12-16	
Date of certification	2018-12-03	
DQS Inc.		
		
Brad McGuire Managing Director		
Accredited Body: DQS Inc., 1130 West Lake Cook Road, Suite 340, Buffalo Grove, IL 60089 USA Administrative Office: DQS Korea LLC., #302, ACE Techno Tower 10-cha, 196, Gasan digital 1-ro, Geumcheon-gu, Seoul, 08502, Republic of Korea		
1 / 2		

Certificate

	CERTIFICATE	
This is to certify that		
LS Cable & System Ltd. Indong Plant 238, 3Gongdan2-ro Gumi-si, Gyeongsangbuk-do, 39395 Republic of Korea		
has implemented and maintains a Quality Management System.		
Scope: Manufacturing of aluminum micro multiport and round tubes, aluminum-alloyed billet, bars and rods, wires, cables, extruded tubings and sleeveings.		
An audit, conducted and documented in a report, has verified that this quality management system fulfils the requirements of the following International Automotive Standard:		
IATF 16949:2016 (without product design)		
Certificate registration no. Main certificate registration no. Issuing date This certificate is valid until IATF No.	20001787 IATF16 20004748 IATF16 2018-07-22 2021-07-21 0317846	 2-IAO-QMC-01001
For and on behalf of DQS		
 Nurani S. Venkatchalam Corporate Program Manager Automotive, DQS Holding GmbH	 Michael Drechsel Managing Director, DQS Holding GmbH	
IATF Contract Office: DQS Holding GmbH, Konrad-Adenauer-Allee 8-10, 61118 Bad Vilbel, Germany		
		1 / 2 2017-02-09



CERTIFICATE



This is to certify that

LS Cable & System Ltd.

Gumi Plant

228, Suchul-daero
Gumi-si, Gyeongsangbuk-do, 39369
Republic of Korea

with the organizational units/sites as listed in the annex

has implemented and maintains an **Environmental Management System**.

Scope:

The environmental activities and supporting processes, associated with the Design and manufacture of copper telecommunication cables, optical fibers and cables, power cable, power cable accessories, busduct system, distributed feedback laser diodes, aluminium extruded products, extruded tubes, electronic wires and cables, low and high voltage electric cables and the manufacture of magnet wires, aluminum billet and rods, aluminum tubes, copper rods and automotive wires

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 14001 : 2015

Certificate registration no.	20004748 UM15
Date of certification	2018-09-13
Valid until	2021-09-12



DQS Inc.

Brad McGuire
Managing Director

Global network spreading around the world

LS Cable & System has been more than 50 production subsidiaries, sales subsidiaries and branch offices in 20 countries around the world. Based on this solid network, the company is exporting its products to more than 100 countries, and developing global business markets.



KOREA



Gumi Plant

EHV, MV, LV, Overhead cable, Bus duct, UTP, Coaxial cable, SCR, Magnetic wire



Indong Plant

Optical fiber, Optical cable, Aluminum



Donghae Plant

Submarine cable, Industrial specialty cable

CHINA



LSHQ Yichang

EHV, MV, LV, Industrial specialty cable



LSCW Wuxi

Bus duct, Industrial devices cable, Automotive cable, Tubes, Harness & module, Aluminum



1 SAN FRANCISCO

1 2 UNITED STATES
LSCA FORT LEE
LSCUS TARBORO



VIETNAM



LS-VINA
Haiphong

EHV, MV, LV, Overhead
cable, ACSR, SCR

INDIA



LSCV
Ho Chi Minh

MV, LV, Optical cable,
UTP cable, Bus duct



LSCI
Bawal

EHV, MV, LV, Overhead
cable, Coaxial cable

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