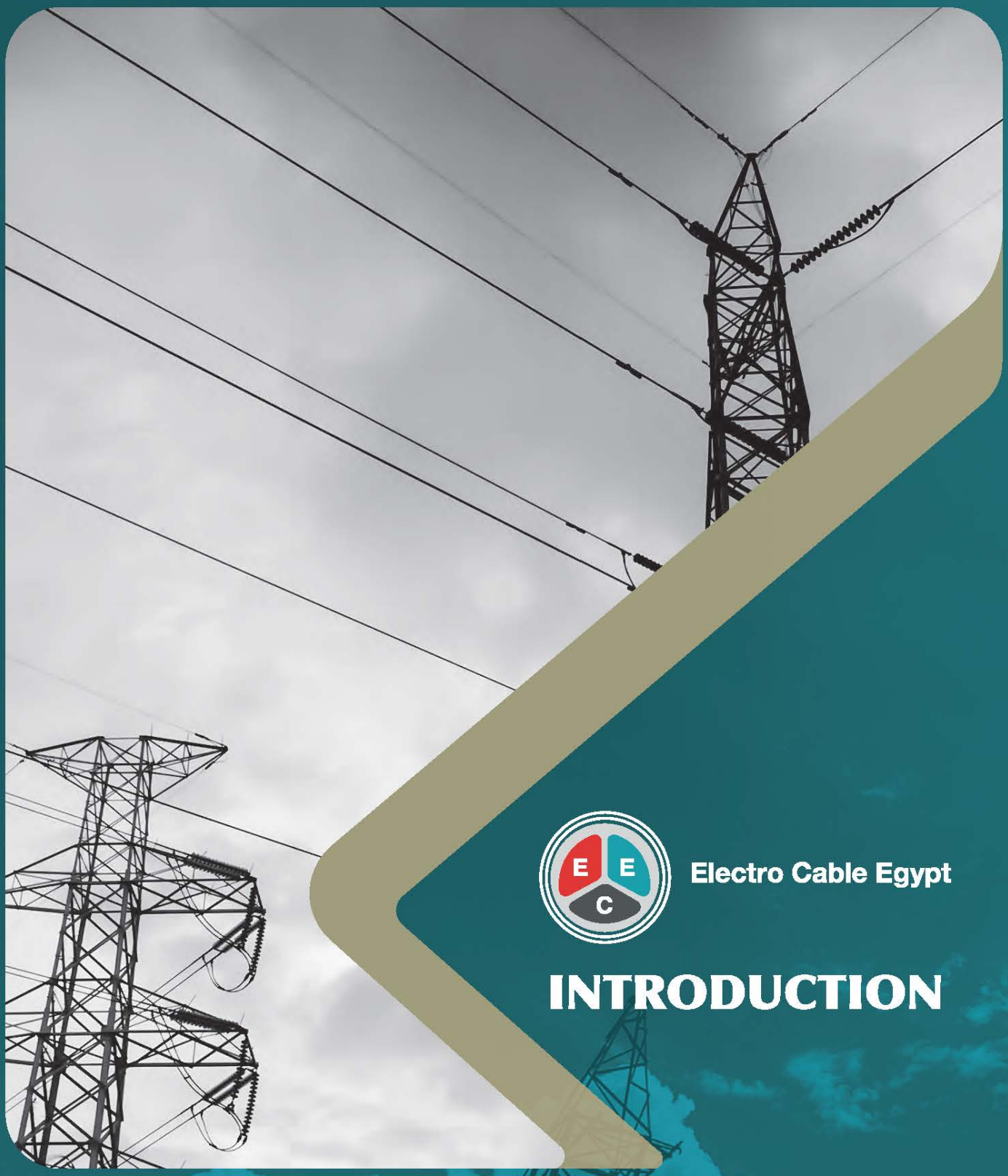
OVERHEAD TRANSMISSION CONDUCTORS

Electro Cable Egypt

GIZA POWER INDUSTRY



Electro Cable Egypt

INTRODUCTION

Electro Cable Egypt Co. SAE (ECE) is a shareholding company founded in 1954 by seventeen shareholders including two French companies (Electro Cables and Trefileries Luminaries Duhauro). With total landscape of 90 acre at Mostorod Industrial Zone 4.6 KM, 6 October Road, Ismailia Canal Road,Qualubia, Egypt.

GIZA
POWER INDUSTRY

WE BELIEVE
that we are partners
in success with our customers

In the early sixties, the company was nationalized and became a public sector entity.

In1997, witnessed the privatization of the company when a distinguished group of strategic investors decided to buy out the majority of shares.

In 2012, Pioneers holding acquired Electro Cable Egypt (ECE).

In 2015, Electro Cable Egypt (ECE) acquired Giza cable Elsewedy (GCC) And changed its name to Giza Power industry (GPI).

GPI established on 1984 to produce different varieties of power cables over total landscape of 81,745m² (20 acre) at industrial zone of Abu Rewash Giza, EGYPT.

INDTRODUCTION

In recent years, the evolution of underground cables with extruded insulations, like cross linked polyethylene (XLPE), and their enhanced performance has shifted the focus of attention from the installation of ordinary overhead lines to the installation of underground Extra-High Voltage (EHV) and High Voltage (HV) transmission circuits. The liberalization of the energy market and the need to connect new power plants to grids has stimulated growing requirements to extend existing transmission systems.

However, the choice of whether to use overhead line (OHL) or underground cable (UGC) must be consistent with safety, reliability and operational constraints to ensure that the capacity of the transmission grid efficiently matches the supply and demand of electricalenergy. The choice between OHL and UGC is driven by technical, environmental and economic considerations.

Today's transmission system is being operated at power flow levels that reach the voltage, stability and thermal limits of cables and conductors. Transmission constraints and instabilities can cause negative impacts on the entire power system. Transmission lines require endurance against higher electrical and mechanical stresses in order to maintain the reliability of system operations.

Overhead transmission networks are an essential part of a country's infrastructure and are generally massive undertakings implemented in the developing regions.

INDTRODUCTION

Overhead conductors are classified by the types of materials used for conductors, types of reinforcing cores used, and either it is bare or insulated.

This catalogue contains design, construction and technical data of **Electro Cable Egypt's** whole range of overhead conductors including bare soft or hard drawn copper conductors; aluminum conductors; aluminum-alloy conductors; aluminum conductors, steel reinforced; aluminum conductors, aluminum-clad steel reinforced; aluminum conductors, aluminum-alloy reinforced; and weather-resistant XLPE insulated service drop cables.

The conductors designs detailed in this catalogue are in The conductors designs detailed in this catalogue are in accordance with the relevant DIN, IEC, ASTM, BS and BS EN standards. However, **Electro Cable Egypt's** can also supply a range of alternative designs to meet customer specified requirements.

It is essential that the type of conductor ordered is suitable for its intended use. Conductor choice will be based on the whole range of factors including transmission voltages, installation specifications, environmental conditions in the project terrain, and the performance characteristics of appropriate conductor types. It is therefore not possible to provide a conclusive guide to conductor selection. Contact us for specialist advice on suitable conductor designs that meet your specific needs.

Approximate conductor diameters are provided in this catalogue in order to give you an idea for selecting appropriate installation accessories. However, as finished diameters may sometimes vary, please contact our technical department for actual dimensions of all finished products. Similarly, conductor weights may vary and the data supplied in this catalogue should be considered approximate.

INDEX

DEfiNITIONS

1. Aluminum

Aluminum is used as a generic term to mean hard drawn aluminum and aluminum alloy.

2. Wire

Filament of drawn metal having constant circular cross-section.

3. Conductor

Material intended to be used for carrying electric current consisting of multiple uninsulated wires twisted together.

4. Concentric-lay-stranded conductor

A conductorcomposed of a central core surrounded by one or more adjacent layers of wires laid helically in opposite directions.

Standards

5. Direction of lay

The directionof twist of a layer of wires as it moves away from the viewer. A right-hand lay is in clockwise direction and a left-hand lay is in anti-clockwise direction.

6. Lay length

The axial length of one complete turn of the helix formed by an individual wire in a stranded conductor.

7. Lay ratio

Means the ratio of the lay length to the external diameter of the corresponding layer of wires in the stranded conductor.

8. Steel ratio

The ratio of steel area to aluminum area as a percentage in ACSR conductors.

9. Rated tensile strength

Estimate of the conductor breaking load calculated using the specified tensile properties of the component wires.

ELECTRICAL AND PHYSICAL PROPERTIES OF METALS:

ELECTRICAL PROPERTIES

Table 1

Metal	IACS 100 %	Electric airesistivity @ 20 °C Ω.m (10-8)	temperature coefficient of resistance per °C
Copper (annealed)	100	1.7241	0.00393
Copper (hard drawn	97	1.777	0.00393
Tinned copper	97-95	1.814-1.741	0.00393
Aluminum	61	2.8264	0.00403
Lead	8	21.4	0.004

ELECTRICAL PROPERTIES

Table 2

Property	Units	Copper	Aluminum	Lead
Density @ 20 °C	Kg/m^3	8890	2703	11340
Coeff. Of thermal expansion	1/°C X	17	23	29
Melting point	10^{6-} °C	1083	659	327
Thermal conductivity	W/cm °C	3.8	2.4	0.34
Ultimate tensile strength	Mn/mm^2	225	90-70	—

GENERAL INFORMATION-STANDARD

IEC Standards

1. IEC 60228 : Conductors of insulated cables.
2. IEC 61089 : Round wire concentric-lay overhead electrical stranded conductors.
3. IEC 60888 : Zinc-coated steel wires for stranded conductors.
4. IEC 60889 : Hard-drawn aluminum wire for overhead line conductors.
5. IEC 61232 : Aluminum-clad steel wires for electrical purposes.
6. IEC 61597 : Overhead electrical conductors - Calculation methods for stranded bare conductors.

BS / BS EN Standards

1. BS EN 60228 : Conductors of insulated cables.
2. BS 7884 : Specification for copper and copper-cadmium stranded conductors for overhead electric traction and power transmission systems.
3. BS 1-215 : Specification for aluminum conductors and aluminum conductors, steel-reinforced for overhead power transmission. Aluminum stranded conductors.
4. BS 2-215 : Specification for aluminum conductors and aluminum conductors, steel-reinforced for overhead power transmission. Aluminum conductors, steel-reinforced.
5. BS EN 50182 : Conductors for overhead lines. Round wire concentric-lay stranded conductors.
6. BS EN 50183 : Conductors for overhead lines. Aluminum-magnesium-silicon alloy wires.
7. BS EN 50189 : Conductors for overhead lines. Zinc coated steel wires.

DIN Standards

1. DIN 1 / 48201 : Stranded conductors - Copper cable.
2. DIN 5 / 48201 : Aluminum stranded conductors.
3. DIN 6 / 48201 : E-AlMgSi Stranded conductors.
4. DIN 48204 : Steel reinforced aluminum stranded conductors.

ASTM Standards

1. ASTM B 230 : Standard Specification for Aluminum -1350H19 Wire for Electrical Purpose.
2. ASTM B 231 : Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors.
3. ASTM B 398 : Standard Specification for Aluminum Alloy -6201T81 Wire for Electrical Purpose.
4. ASTM B 399 : Standard Specification for Concentric-Lay-Stranded Aluminum Alloy -6201T81 Conductors.
5. ASTM B 232 : Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR).
6. ASTM B 498 : Standard specification for zinc-coated (galvanized) steel core wire for aluminum conductors, steel reinforced (ACSR).

7. ASTM B 549 : Standard specification for concentric-lay-stranded aluminum conductors, aluminum clad steel reinforced.
8. ASTM B 502 : Standard SpecificationAluminum clad steel core wire for aluminum conductors, aluminum clad steel reinforced.
9. ASTM B 524 : Standard Specification for concentric-lay-stranded aluminum conductors, aluminum alloy reinforced (ACAR).

ANSI / ICEA Standards

1. ANSI/ICEA S474-76- : Standard for neutral-supported power cable assemblies with weather-resistant extruded insulation rated 600 volts.

Conversion Table

Conversion from AWG to mm and Inch

AWG*	Diameter [mm]	Diameter (inch)
(4/0)	11.684	0.46
(3/0)	10.4049	0.4096
(2/0)	9.2658	0.3648
(1/0)	8.2515	0.3249
1	7.3481	0.2893
2	6.5437	0.2576
3	5.8273	0.2294
4	5.1894	0.2043
5	4.6213	0.1819
6	4.1154	0.162
7	3.6649	0.1443
8	3.2636	0.1285
9	2.9064	0.1144
10	2.5882	0.1019
11	2.3048	0.0907
12	2.0525	0.0808
13	1.8278	0.072
14	1.6277	0.0641
15	1.4495	0.0571
16	1.2908	0.0508
17	1.1495	0.0453
18	1.0237	0.0403
19	0.9116	0.0359
20	0.8118	0.032
21	0.7229	0.0285
22	0.6438	0.0253
23	0.5733	0.0226
24	0.5106	0.0201
25	0.4547	0.0179
26	0.4049	0.0159
27	0.3606	0.0142
28	0.3211	0.0126
29	0.2859	0.0113
30	0.2546	0.01
31	0.2268	0.0089
32	0.2019	0.008
33	0.1798	0.0071
34	0.1601	0.0063
35	0.1426	0.0056
36	0.127	0.005
37	0.1131	0.0045
38	0.1007	0.004
39	0.0897	0.0035
40	0.0799	0.0031

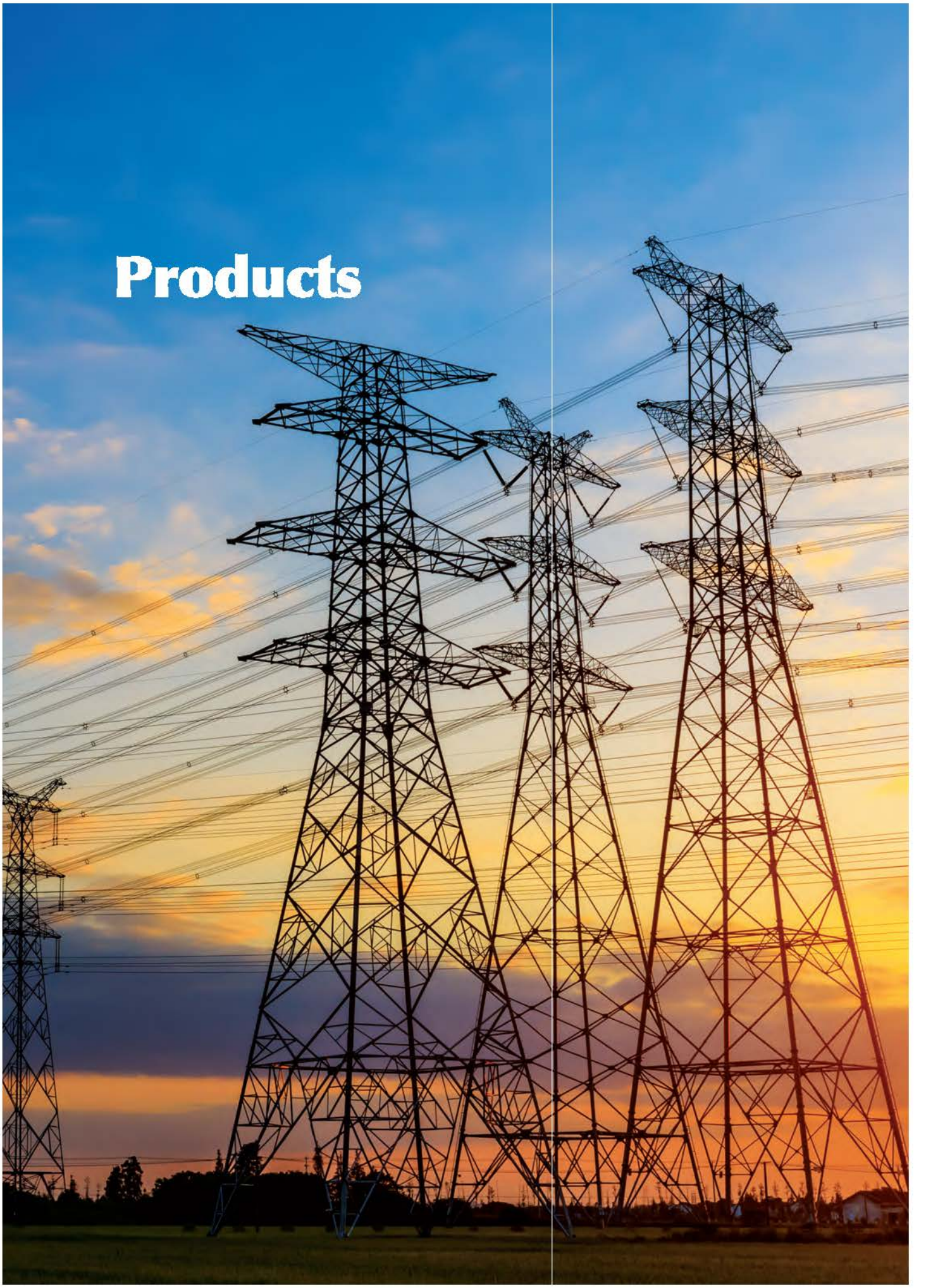
* AWG (American Wire Gauge)

Conversion from mm² to AWG*

mm²	[mm²]**	* AWG/kcmil
0.5	0.52	20
0.75	0.82	18
1.5	1.31	16
2.5	2.08	14
2.5	3.31	12
4	3.31	12
6	5.25	10
10	8.36	8
16	13.3	6
25	21.2	4
35	33.6	2
35	42.4	1
50	53.5	1/0
70	67.4	2/0
95	85.0	3/0
95	107	4/0
120	107	4/0
120	127	250
150	152	300
185	177	350
185	203	400
240	228	450
240	253	500
300	304	600
400	380	750
400	405	800
500	507	1000

* Equivalent mm² cross-sectional area

Products



OVERHEAD CONDUCTORS

Product Types:

A- Regular Overhead Conductors.

1. Bare Hard and Soft Drawn Copper Conductors.
2. All Aluminum Conductor (AAC).
3. All Aluminum Alloy Conductor (AAAC).
4. Aluminum Conductor Steel reinforced (ACSR).
5. Aluminum Conductor Aluminum Clad Steel reinforced (ACSR/AW).
6. Aluminum Alloy Conductor steel reinforced (AACSR).
7. Areal Bundled Cables (ABC)

B- High temperature low sag conductors (HTLS).

1. Aluminum Clad Steel Supported (ACSS/AW).
2. Thermal resistant Aluminum Alloy Conductor steel reinforced (TACSR).
3. Aluminum Clad Invar Reinforced (STACIR/AW).

C- Trolley Wires (Hard Drawn Copper)

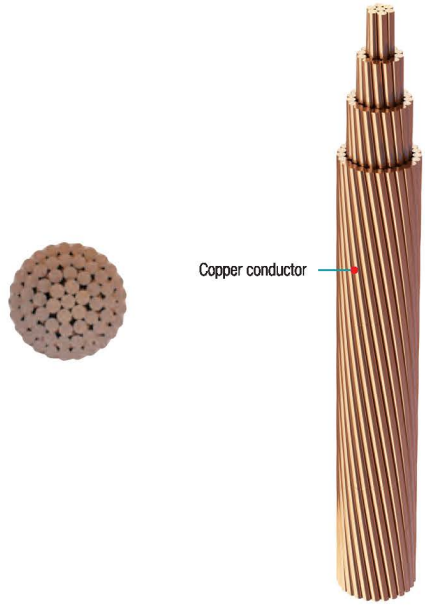
STRANDED SOFT DRAWN BARE COPPER CONDUCTOR

Description

• Plain bare soft drawn Copper conductors (Circular - Compacted).

Application

• Bare stranded soft-drawn (annealed) copper conductor is suitable for uninsulated hook up, jumpers and grounding conductors in electrical construction, where high conductivity and flexibility are required.



Tehcinal Data

• **Relevent Standard:** IEC 60228 class 2

• **Conductor:** Plain bare soft drawn copper conductors

• **Minimum bending Radius:** 10 x outer diameter

• **Packing Condition:** as per customer request on wooden drums

Product-Code	Cross Sectional Area	Minimum Number of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Approx. Weight
	mm²	No.	Ω / km	mm	kg / km
PR-CT10-00-01-U0	10	6	1.8300	3.70	85
PR-CT11-00-01-U0	16	6	1.1500	4.70	135
PR-CT12-00-01-U0	25	6	0.7270	5.80	215
PR-CT13-00-01-U0	35	6	0.5240	6.90	300
PR-CT14-00-01-U0	50	6	0.3870	8.00	410
PR-CT15-00-01-U0	70	12	0.2680	9.75	595
PR-CT16-00-01-U0	95	15	0.1930	11.30	820
PR-CT17-00-01-U0	120	18	0.1530	12.70	1030
PR-CT18-00-01-U0	150	18	0.1240	14.00	1277
PR-CT19-00-01-U0	185	30	0.0991	15.90	1600
PR-CT20-00-01-U0	240	34	0.0754	18.30	2100
PR-CT21-00-01-U0	300	34	0.0601	20.50	2650
PR-CT22-00-01-U0	400	53	0.0470	23.20	3410
PR-CT23-00-01-U0	500	53	0.0366	26.50	4400
PR-CT24-00-01-U0	630	53	0.0283	30.10	5600

The above data is approximate and subjected to manufacturing tolerance.

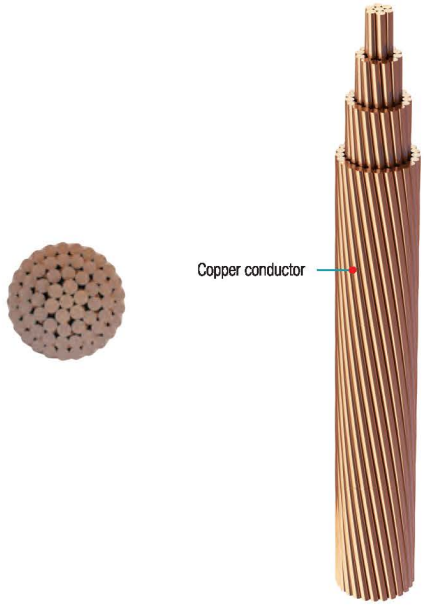
STRANDED HARD DRAWN BARE COPPER CONDUCTOR

Description

• Plain bare hard drawn Copper conductors (Circular - Non Compacted).

Application

• Bare stranded hard-drawn copper conductor is suitable for overhead transmission and distribution networks applications, where the highest electrical conductivity per unit area and good strength to weight ratio are required.



Tehcinal Data

• **Relevent Standard:** DIN 48201-1, BS 7884

• **Conductor:** Plain bare hard draw copper conductors

• **Minimum bending Radius:** 10 x outer diameter

• **Packing Condition:** as per customer request on wooden drums

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
a- DIN 48201							
PR-HT10-00-01-U0	10	7 x 1.35	1.82900	4.10	4.02	90	90
PR-HT11-00-01-U0	16	7 x 1.70	1.15400	5.10	6.37	143	125
PR-HT12-00-01-U0	25	7 x 2.10	0.75630	6.30	9.72	218	160
PR-HT13-00-01-U0	35	7 x 2.50	0.53370	7.50	13.77	310	200
PR-HT14-00-01-U0	50	7 x 3.00	0.37060	9.00	19.84	446	260
PR-HT14-00-01-U0	50	19 x 1.80	0.38190	9.00	19.38	437	250
PR-HT15-00-01-U0	70	19 x 2.10	0.28060	10.50	26.38	596	310
PR-HT16-00-01-U0	95	19 x 2.50	0.19800	12.50	37.39	843	380
PR-HT17-00-01-U0	120	19 x 2.80	0.15780	14.00	46.90	1060	440
PR-HT18-00-01-U0	150	37 x 2.25	0.12640	15.75	58.96	1337	510
PR-HT19-00-01-U0	185	37 x 2.50	0.10240	17.50	72.81	1649	589
PR-HT20-00-01-U0	240	61 x 2.25	0.07528	20.30	97.23	2209	700
PR-HT21-00-01-U0	300	61 x 2.50	0.06097	22.50	120.04	2725	800
PR-HT22-00-01-U0	400	61 x 2.89	0.04560	26.00	160.42	3640	960
PR-HT23-00-01-U0	500	61 x 3.23	0.03650	29.10	200.38	4545	1110
PR-HT24-00-01-U0	630	61 x 3.62	0.02900	32.58	251.69	5700	1274

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec.

REGULAR OVERHEAD CONDUCTORS

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
			b - BS 7884				
PR-HT10-00-01-U0	10	7 x 1.35	1.8290	4.05	3.752	89.82	90
PR-HT42-00-01-U0	14	7 x 1.60	1.3030	4.80	5.267	126.20	113
PR-HT11-00-01-U0	16	7 x 1.70	1.1540	5.10	5.946	142.40	125
PR-HT12-00-01-U0	25	7 x 2.10	0.7563	6.30	9.073	217.30	160
PR-HT43-00-01-U0	32	7 x 2.46	0.5497	7.38	12.442	298.20	197
PR-HT13-00-01-U0	35	7 x 2.50	0.5337	7.50	12.860	308.00	200
PR-HT14-00-01-U0	50	7 x 3.0	0.3706	9.00	18.520	443.50	260
PR-HT14-00-01-U0	50	19 x 1.80	0.3819	9.00	17.700	435.80	250
PR-HT15-00-01-U0	70	7 x 3.55	0.2646	10.65	25.930	621.10	314
PR-HT15-00-01-U0	70	19 x 2.10	0.2806	10.50	24.090	593.20	310
PR-HT16-00-01-U0	95	19 x 2.50	0.1980	12.50	34.140	840.70	380
PR-HT46-00-01-U0	100	7 x 4.30	0.1810	12.90	36.540	911.20	401
PR-HT17-00-01-U0	120	19 x 2.80	0.1578	14.00	42.830	1055.00	440
PR-HT47-00-01-U0	125	19 x 2.90	0.1471	14.50	45.940	1131.00	459
PR-HT18-00-01-U0	150	19 x 3.20	0.1208	16.00	55.940	1377.00	521
PR-HT18-00-01-U0	150	37 x 2.25	0.1264	15.75	53.880	1334.00	510
PR-HT19-00-01-U0	185	19 x 3.55	0.0982	17.75	68.860	1695.00	595
PR-HT19-00-01-U0	185	37 x 2.50	0.1024	17.50	66.490	1647.00	589

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec.

ALL ALUMINUM CONDUCTORS (AAC)

Description

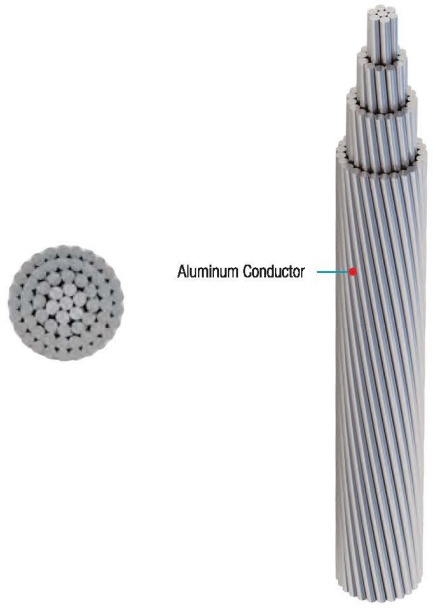
Hard drawn Aluminum wires , stranded in successive layers , in opposite direction to form the Aluminum stranded AAC conductor.

Application

* All Aluminum Conductors (AAC) can be used as a bare overhead conductor for distribution lines. Because of its low strength-to-weight ratio, (AAC) has limited use in transmission lines. AAC is extensively used in urban areas where spans are usually short but high conductivity isrequired.

Tehcinal Data

- **Relevent Standard:** BS EN 50182, BS 215-1, DIN 48201-5, IEC 61089, ASTM B 231
- **Conductor:** Plain bare hard drawn Aluminum - H14
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** as per customer request on wooden drums



Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
A - BS EN 50182 (GREMANY) & DIN 48201-5							
AL1 -16	16	7 x 1.70	1.7986	5.10	3.02	43.4	110
AL1 - 24	25	7 x 2.10	1.1787	6.30	4.36	66.3	145
AL1 - 34	35	7 x 2.50	0.8317	7.50	6.01	93.9	180
AL1 - 49	50	7 x 3.00	0.5776	9.00	8.41	135.2	225
AL1 - 48	50	19 x 1.80	0.5944	9.00	8.94	132.9	225
AL1 - 66	70	19 x 2.10	0.4367	10.50	11.85	180.9	270
AL1 - 93	95	19 x 2.50	0.3081	12.50	16.32	256.3	340
AL1 - 117	120	19 x 2.80	0.2456	14.00	19.89	321.5	390
AL1 - 147	150	37 x 2.25	0.1960	15.80	26.48	405.7	455
AL1 - 182	185	37 x 2.50	0.1588	17.50	31.78	500.9	520
AL1 - 243	240	61 x 2.25	0.1193	20.30	43.66	671.1	625
AL1 - 299	300	61 x 2.50	0.0966	22.50	52.40	828.5	710
AL1 - 400	400	61 x 2.89	0.0723	26.00	68.02	1107.1	855
AL1 - 500	500	61 x 3.23	0.0579	29.10	82.47	1382.9	990

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
B - BS EN 50182 (United Kingdom)							
MIDGE	23.3	7 x 2.06	1.2249	6.18	4.20	63.8	139
GNAT	26.9	7 x 2.21	1.0643	6.63	4.83	73.4	153
MOSQUITO	36.9	7 x 2.59	0.7749	7.77	6.27	100.8	187
LADYBIRD	42.8	7 x 2.79	0.6678	8.37	7.28	117.0	205
ANT	52.8	7 x 3.1	0.5409	9.30	8.72	144.4	234
FLY	63.6	7 x 3.4	0.4497	10.20	10.49	173.7	264
BLUEBOTTLE	73.6	7 x 3.66	0.3880	11.00	11.78	201.3	291
EARWING	78.6	7 x 3.78	0.3638	11.30	12.57	214.7	302
GRASSHOPPER	84.1	7 x 3.91	0.3400	11.70	13.45	229.7	315
CLEGG	95.6	7 x 4.17	0.2989	12.50	15.30	261.3	343
WASP	106	7 x 4.39	0.2697	13.20	16.95	289.6	366
BEETLE	106.4	19 x 2.67	0.2701	13.40	18.08	292.4	368
BEE	132	7 x 4.90	0.2165	14.70	21.12	360.8	421
HORNET	157.6	19 x 3.25	0.1823	16.30	26.01	433.2	473
CATERPILLER	185.9	19 x 3.53	0.1546	17.70	29.75	511.1	526
CHAFER	213.2	19 x 3.78	0.1348	18.90	34.12	586.0	574
SPIDER	237.6	19 x 3.99	0.1210	20.00	38.01	652.9	615
COCKROACH	265.7	19 x 4.22	0.1081	21.10	42.52	730.0	660
BUTTERFLY	322.7	19 x 4.65	0.0891	23.30	51.63	886.8	748
DRONE	372.4	37 x 3.58	0.0774	25.10	59.59	1027.1	821
CENTIPEDE	415.2	37 x 3.78	0.0695	26.50	66.43	1145.1	879
MAYBUG	486.1	37 x 4.09	0.0593	28.60	77.78	1340.6	972
SCORPION	529.8	37 x 4.27	0.0544	29.90	84.77	1461.2	1026
CICADA	628.3	37 x 4.65	0.0459	32.60	100.54	1732.9	1143

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAC)

Product-Code	Gross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
			C - IEC 61089				
A1 - 16	16	7 x 1.71	1.7896	5.12	3.04	43.8	146
A1 - 25	25	7 x 2.13	1.1453	6.40	4.50	68.4	194
A1 - 40	40	7 x 2.70	0.7158	8.09	6.80	109.4	262
A1 - 63	63	7 x 3.39	0.4545	10.20	10.39	172.3	351
A1 - 100	100	19 x 2.59	0.2877	12.90	17.00	274.8	472
A1 - 125	125	19 x 2.89	0.2302	14.50	21.25	343.6	545
A1 - 160	160	19 x 3.27	0.1798	16.40	26.40	439.8	638
A1 - 200	200	19 x 3.66	0.1439	18.30	32.00	549.7	737
A1 - 250	250	19 x 4.09	0.1151	20.50	40.00	687.1	852
A1 - 315	315	37 x 3.29	0.0916	23.00	51.97	867.9	987
A1 - 400	400	37 x 3.71	0.0721	26.00	64.00	1102.0	1152
A1 - 450	450	37 x 3.94	0.0641	27.50	72.00	1239.8	1240
A1 - 500	500	37 x 4.15	0.0577	29.00	80.00	1377.6	1327
A1 - 560	560	37 x 4.39	0.0515	30.70	89.60	1542.9	1425
A1 - 630	630	61 x 3.63	0.0458	32.60	100.80	1738.3	1535
A1 - 710	710	61 x 3.85	0.0407	34.60	113.60	1959.1	1653
A1 - 800	800	61 x 4.09	0.0361	36.80	128.00	2207.4	1783
A1 - 900	900	61 x 4.33	0.0321	39.00	144.00	2483.3	1914
A1 - 1000	1000	61 x 4.57	0.0289	41.00	160.00	2759.2	2039

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 20 °C , final temperature of 80 °C, wind velocity of 1.0 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
D - BS 215-1							
MIDGE	22	7 x 2.06	1.2270	6.18	3.99	64	139
ANT	50	7 x 3.10	0.5419	9.30	8.28	145	234
FLY	60	7 x 3.40	0.4505	10.20	9.90	174	264
WASP	100	7 x 4.39	0.2702	13.17	16.00	290	366
HORNET	150	19 x 3.25	0.1825	16.25	25.70	434	472
CHAFER	200	19 x 3.78	0.1349	18.90	32.40	587	573
COCKROACH	250	19 x 4.22	0.1083	21.10	40.40	731	660
BUTTERFLY	300	19 x 4.65	0.0892	23.25	48.75	888	748
CENTIPEDE	400	37 x 3.78	0.0694	26.46	63.10	1145	879

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
E - ASTM B 231							
PEACHBELL	13.3	7 x 1.56	2.1402	4.68	2.53	36.6	98
ROSE	21.1	7 x 1.96	1.3558	5.88	3.91	58.2	130
IRIS	33.6	7 x 2.47	0.8537	7.41	5.99	92.6	175
PANSY	42.4	7 x 2.78	0.6740	8.34	7.30	116.6	204
POPPY	53.5	7 x 3.12	0.5351	9.36	8.84	147.2	236
ASTER	67.4	7 x 3.50	0.4252	10.50	11.10	185.7	273
PHLOX	85	7 x 3.93	0.3373	11.79	13.50	233.9	317
OXLIP	107.2	7 x 4.42	0.2666	13.26	17.00	295.2	369
VALERIAN	126.7	19 x 2.91	0.2277	14.55	20.70	348.6	410
SNEEZEWORT	126.7	7 x 4.80	0.2261	14.40	20.10	348.8	410
LAUREL	135.2	19 x 3.01	0.2129	15.05	22.10	372.2	428
PEONY	152	19 x 3.19	0.1895	15.95	24.30	418.3	461
TULIP	170.5	19 x 3.38	0.1688	16.90	27.30	469.5	497
DAFFODIL	177.3	19 x 3.45	0.1620	17.25	28.40	487.9	510
CANNA	201.4	19 x 3.67	0.1432	18.35	31.60	554.9	552
GOLDENTUFT	228	19 x 3.91	0.1262	19.55	35.00	627.6	599
SYRINGA	241.7	37 x 2.88	0.1197	20.16	38.60	664.8	620
COSMOS	241.7	19 x 4.02	0.1194	20.10	37.00	664.8	620
HYACINTH	253.3	37 x 2.95	0.1141	20.65	40.50	696.8	640
ZINNIA	253.3	19 x 4.12	0.1136	20.60	38.90	697.1	640
MISTLETOE	282	37 x 3.12	0.1020	21.84	44.30	775.7	687
DAHLIA	282	19 x 4.35	0.1019	21.75	43.30	775.8	687
MEADOWSWEET	304	37 x 3.23	0.0952	22.61	47.50	836.3	718
ORCHID	322.3	37 x 3.33	0.0893	23.31	50.40	886.9	748
HEUCHERA	329.4	37 x 3.37	0.0874	23.59	51.70	907.4	759

to be continued

FLAG	354.7	61 x 2.72	0.0815	24.48	57.10	975.8	793
VERBENA	354.7	37 x 3.49	0.0815	24.43	55.40	975.7	793
NASTURTIUM	362.6	61 x 2.75	0.0798	24.75	58.40	998.5	805
VIOLET	362.6	37 x 3.53	0.0797	24.71	56.70	998.5	805
CATTAIL	380	61 x 2.82	0.0759	25.38	60.30	1046.0	831
PETUNIA	380	37 x 3.62	0.0758	25.34	58.60	1046.0	831
LILAC	402.8	61 x 2.90	0.0717	26.10	63.80	1110.0	860
ARBUTUS	402.8	37 x 3.72	0.0718	26.04	61.80	1109.0	860
SNAPDRAGON	456	61 x 3.09	0.0632	27.81	70.80	1256.0	932
COCKSCOMB	456	37 x 3.96	0.0633	27.72	68.40	1256.0	932
GOLDENNROD	483.4	61 x 3.18	0.0597	28.62	75.00	1331.0	968
MAGNOLIA	483.4	37 x 4.08	0.0597	28.56	72.60	1331.0	968
CAMELLIA	506.7	61 x 3.25	0.0571	29.25	78.30	1394.0	996
HAWKWEED	506.7	37 x 4.18	0.0569	29.26	76.20	1395.0	996
LARKSPUR	523.7	61 x 3.31	0.0551	29.79	81.30	1442.0	1019
BLUEBELL	523.7	37 x 4.25	0.0550	29.75	78.80	1441.0	1019
MARIGOLD	564	61 x 3.43	0.0513	30.87	87.30	1553.0	1066
HAWTHORM	604.2	61 x 3.55	0.0479	31.95	93.50	1662.0	1113
NARCISSUS	644.5	61 x 3.67	0.0448	33.03	98.10	1774.0	1161
COLUMBINE	694.8	61 x 3.78	0.0422	34.02	104.00	1884.0	1205
CARNATION	725.1	61 x 3.89	0.0399	35.01	108.00	1997.0	1247
GLADIOLUS	765.4	61 x 4.00	0.0377	36.00	114.00	2108.0	1292
COREOPSIS	805.7	61 x 4.10	0.0359	36.90	120.00	2216.0	1331
JASSAMINE	886.7	61 x 4.30	0.0327	38.70	132.00	2442.0	1410

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

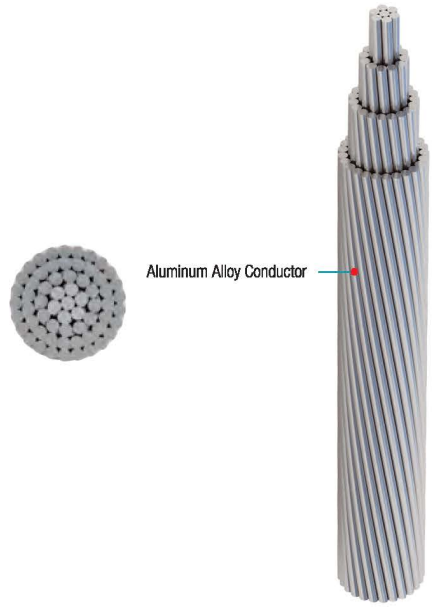
ALL ALUMINUM ALLOY CONDUCTORS (AAAC)

Description

All Aluminum Alloy wires , stranded in successive layers , in opposite direction to form the Aluminum stranded AAAC conductor.

Application

- All Aluminum-Alloy Conductors (AAAC) can be used in Medium, High and Extra-High voltage transmission lines.
- AAAC offers better sag performance due to the high strength-to-weight ratio provided by the aluminum-alloy.
- In addition, AAAC provides a higher corrosion resistance than ACSR conductors.
- They are also used a messenger to support overhead electrical cables.



Tehcinal Data

- **Relevent Standard:** BS EN 50182, DIN 48201-6, IEC 61089, ASTM B 399
- **Conductor:** Plain bare All Aluminum Alloy
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** as per customer request on wooden drums

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
A- BS EN 50182 (GREMANY) & DIN 48201-6							
PO-LT11-00-01-U0	16	7 x 1.70	2.0710	5.10	4.69	43.4	105
PO-LT12-00-01-U0	25	7 x 2.10	1.3566	6.30	7.15	66.2	135
PO-LT13-00-01-U0	35	7 x 2.50	0.9572	7.50	10.14	93.8	170
PO-LT14-00-01-U0	50	7 x 3.00	0.6647	9.00	14.60	135.1	210
PO-LT14-00-01-U0	50	19 x 1.80	0.6841	9.00	14.26	132.7	210
PO-LT15-00-01-U0	70	19 x 2.10	0.5026	10.50	19.41	180.7	255
PO-LT16-00-01-U0	95	19 x 2.50	0.3546	12.50	27.51	256.0	320
PO-LT17-00-01-U0	120	19 x 2.80	0.2827	14.00	34.51	321.2	365
PO-LT18-00-01-U0	150	37 x 2.25	0.2256	15.80	43.40	405.3	425
PO-LT19-00-01-U0	185	37 x 2.50	0.1827	17.50	53.58	500.3	490
PO-LT20-00-01-U0	240	61 x 2.25	0.1373	20.30	71.55	670.3	585
PO-LT21-00-01-U0	300	61 x 2.50	0.1112	22.50	88.33	827.5	670
PO-LT22-00-01-U0	400	61 x 2.89	0.0832	26.00	118.04	1105.9	810
PO-LT23-00-01-U0	500	61 x 3.23	0.0666	29.10	147.45	1381.4	930

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
B - BS EN 50182 (United Kingdom)							
BOX	18.8	7 x 1.85	1.7480	5.55	5.55	51.4	112
ACACIA	23.8	7 x 2.08	1.3828	6.24	7.02	64.9	130
ALMOND	30.1	7 x 2.34	1.0926	7.02	8.88	82.2	151
CEDAR	35.5	7 x 2.54	0.9273	7.62	10.46	96.8	168
DEODAR	42.2	7 x 2.77	0.7797	8.31	12.44	115.2	187
FIR	47.8	7 x 2.95	0.6875	8.85	14.11	130.6	202
HAZEL	59.9	7 x 3.30	0.5494	9.90	17.66	163.4	233
PINE	71.6	7 x 3.61	0.4591	10.80	21.14	195.6	261
HOLLY	84.1	7 x 3.91	0.3913	11.70	24.79	229.5	289
WILLOW	89.7	7 x 4.04	0.3665	12.10	26.47	245.0	301
OAK	118.9	7 x 4.65	0.2767	14.00	35.07	324.5	360
MULBERRY	150.9	19 x 3.18	0.2192	15.90	44.52	414.3	420
ASH	180.7	19 x 3.48	0.183	17.40	53.31	496.1	471
ELM	221	19 x 3.76	0.1568	18.80	62.24	579.2	519
POPLAR	239.4	37 x 2.87	0.1387	20.10	70.61	659.4	562
SYCAMORE	303.2	37 x 3.23	0.1095	22.60	89.40	835.2	654
UPAS	362.1	37 x 3.53	0.0917	24.70	106.82	997.5	732
YEW	479	37 x 4.06	0.0693	28.40	141.31	1319.6	874
TOTARA	498.1	37 x 4.14	0.0666	29.00	146.93	1372.1	895
RUBUS	586.9	61 x 3.50	0.0567	31.50	173.13	1622.0	991
SORBUS	659.4	61 x 3.71	0.0505	33.40	194.53	1822.0	1066
ARAUCARIA	821.1	61 x 4.14	0.0406	37.30	242.24	2269.4	1221
REDWOOD	996.2	61 x 4.56	0.0334	41.00	293.88	2753.2	1373

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
C - BS EN 50182 (France)							
ASTER - 22	22	7 x 2.00	1.4989	6.00	7.15	60.0	126
ASTER - 34.4	34.4	7 x 2.50	0.9593	7.50	11.17	93.8	168
ASTER - 54.6	54.6	7 x 3.15	0.6042	9.45	17.73	148.9	225
ASTER - 75.5	75.5	19 x 2.25	0.4388	11.30	24.55	207.4	278
ASTER - 117	117	19 x 2.80	0.2833	14.00	38.02	321.2	367
ASTER - 148.1	148.1	19 x 3.15	0.2239	15.80	48.12	406.5	427
ASTER - 181.6	181.6	37 x 2.50	0.1831	17.50	59.03	500.3	487
ASTER - 227.8	227.8	37 x 2.80	0.1460	19.60	74.04	627.6	563
ASTER - 288.3	288.3	37 x 3.15	0.1154	22.10	93.71	794.3	655
ASTER - 266.2	266.2	37 x 3.55	0.0908	24.90	115.36	1008.9	764
ASTER - 570.2	570.2	61 x 3.45	0.0585	31.10	185.33	1576.0	1013

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
D - IEC 61089 (Aluminum Alloy A2 - Type B)							
A2 - 16	18.4	7 x 1.83	1.7896	5.49	5.43	50.4	150
A2 - 25	28.8	7 x 2.29	1.1453	6.86	8.49	78.7	200
A2 - 40	46	7 x 2.89	0.7158	8.68	13.58	125.9	270
A2 - 63	72.5	7 x 3.63	0.4545	10.90	21.39	198.3	361
A2 - 100	115	19 x 2.78	0.2877	13.90	33.95	316.3	487
A2 - 125	144	19 x 3.10	0.2302	15.50	42.44	395.4	562
A2 - 160	184	19 x 3.51	0.1798	17.60	54.32	506.1	659
A2 - 200	230	19 x 3.93	0.1439	19.60	67.91	632.7	760
A2 - 250	288	19 x 4.39	0.1151	22.00	84.88	790.8	879
A2 - 315	363	37 x 3.53	0.0916	24.70	106.95	998.9	1019
A2 - 400	460	37 x 3.98	0.0721	27.90	135.81	1268.4	1188
A2 - 450	518	37 x 4.22	0.0641	29.60	152.79	1426.9	1282
A2 - 500	575	37 x 4.45	0.0577	31.20	169.76	1585.5	1370
A2 - 560	645	61 x 3.67	0.0516	33.00	190.14	1778.4	1472
A2 - 630	725	61 x 3.89	0.0458	35.00	213.90	2000.7	1585
A2 - 710	817	61 x 4.13	0.0407	37.20	241.07	2254.8	1706
A2 - 800	921	61 x 4.38	0.0361	39.50	271.62	2540.6	1840

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 20 °C , final temperature of 80 °C, wind velocity of 1.0 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
E - IEC 61089 (Aluminum Alloy A3 - Type A)							
16	18.6	7 x 1.84	1.7896	5.52	6.04	50.8	151
25	29	7 x 2.30	1.1453	6.90	9.44	79.5	200
40	46.5	7 x 2.91	0.7158	8.72	15.10	127.1	270
63	73.2	7 x 3.65	0.4545	10.90	23.06	200.2	361
100	116	19 x 2.79	0.2877	14.00	37.76	319.3	488
125	145	19 x 3.12	0.2302	15.60	42.20	399.2	563
160	186	19 x 3.53	0.1798	17.60	58.56	511.0	659
200	232	19 x 3.95	0.1439	19.70	73.20	638.7	761
250	290	19 x 4.41	0.1151	22.10	91.50	798.4	880
315	366	37 x 3.55	0.0916	24.80	115.29	1008.4	1020
400	465	37 x 4.00	0.0721	28.00	146.40	1280.5	1190
450	523	37 x 4.24	0.0641	29.70	164.70	1440.5	1283
500	581	37 x 4.47	0.0577	31.30	183.00	1600.6	1371
560	651	61 x 3.69	0.0516	33.20	204.96	1795.3	1474
630	732	61 x 3.91	0.0458	35.20	230.58	2019.8	1587
710	825	61 x 4.15	0.0407	37.30	259.86	2276.2	1708
800	930	61 x 4.40	0.0361	39.60	292.80	2564.8	1841

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 20 °C , final temperature of 80 °C, wind velocity of 1.0 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
			F - ASTM B 399				
6	13.2	7 x 1.55	2.53610	4.65	4.18	36.2	91
4	21.1	7 x 1.96	1.58600	5.88	6.69	57.9	122
2	33.5	7 x 2.47	0.99870	7.41	10.65	92.0	164
0	53.5	7 x 3.12	0.62592	9.36	17.00	146.8	221
2 / 0	67.3	7 x 3.50	0.49738	10.50	20.40	184.8	256
3 / 0	84.9	7 x 3.93	0.39450	11.79	25.70	233.0	296
4 / 0	107	7 x 4.42	0.31188	13.26	32.50	294.7	345
250	126	19 x 2.91	0.26509	14.55	38.80	346.7	384
300	152	19 x 3.19	0.22059	15.95	46.60	416.7	432
350	178	19 x 3.45	0.18860	17.25	52.00	487.3	1020
450	203	19 x 3.69	0.16486	18.45	59.50	557.5	521
500	228	19 x 3.91	0.14683	19.55	66.80	626.0	561
550	253	19 x 4.12	0.13224	20.60	74.20	695.0	600
600	279	37 x 3.10	0.11995	21.70	83.90	766.2	640
650	303	37 x 3.23	0.11049	22.61	91.00	831.9	674
700	330	37 x 3.37	0.10150	23.59	94.90	905.5	712
750	354	37 x 3.49	0.09464	24.43	101.00	971.2	745
800	381	37 x 3.62	0.08796	25.34	109.00	1045.0	781
850	404	37 x 3.73	0.08285	26.12	116.00	1109.0	811
900	456	37 x 3.96	0.07351	27.72	131.00	1250.0	876
1000	508	37 x 4.18	0.06597	29.26	146.00	1393.0	938
1250	631	61 x 3.63	0.05306	32.67	179.00	1732.0	1078
1500	759	61 x 3.98	0.04414	35.82	215.00	2082.0	1210
1750	886	61 x 4.30	0.03781	38.70	251.00	2431.0	1332

The above data is approximate and subjected to manufacturing tolerance.

Note:

the size 404 mm² may be requested 405 mm² as per customer request with the same above specification.
the size 508 mm² may be requested 506.7 mm² as per customer request with the same above specification.

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(AAAC)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires	Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	No. x mm	Ω / km	mm	KN	kg / km	Amps
G - ASTM B 399 (ALCOA American Sizes)							
Akron	15.5	7 x 1.68	2.1590	5.04	4.92	42.6	100
Alton	24.7	7 x 2.12	1.3560	6.36	7.83	67.8	135
Ames	39.2	7 x 2.67	0.8547	8.01	12.40	107.5	181
Azusa	62.4	7 x 3.37	0.5365	10.11	18.90	171.3	243
Anaheim	78.6	7 x 3.78	0.4264	11.34	23.80	215.6	282
Amherst	99.3	7 x 4.25	0.3373	12.75	30.00	272.5	328
Alliance	125	7 x 4.77	0.2678	14.31	37.80	343.2	380
Butte	159	19 x 3.26	0.2112	16.30	46.50	435.1	444
Canton	200	19 x 3.66	0.1670	18.30	58.60	548.5	516
Cairo	236	19 x 3.98	0.1417	19.90	69.20	648.6	1020
Darien	284	19 x 4.36	0.1181	21.80	83.10	778.3	645
Elgin	331	19 x 4.71	0.1012	23.55	97.00	908.3	713
Flint	375	37 x 3.59	0.0894	25.13	107.00	1028.0	772
Gerseley	470	37 x 4.02	0.0713	28.14	135.00	1289.0	893
1077.4	547	37 x 3.38	0.0612	23.66	156.00	1502.0	914
1165.1	590	61 x 3.51	0.0568	31.59	167.00	1620.0	1033
1259.6	638	61 x 3.65	0.0525	32.85	181.00	1751.0	1085
1348.8	685	61 x 3.78	0.0489	34.02	194.00	1878.0	1134
1439.2	729	61 x 3.90	0.0460	35.10	207.00	1999.0	1179

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

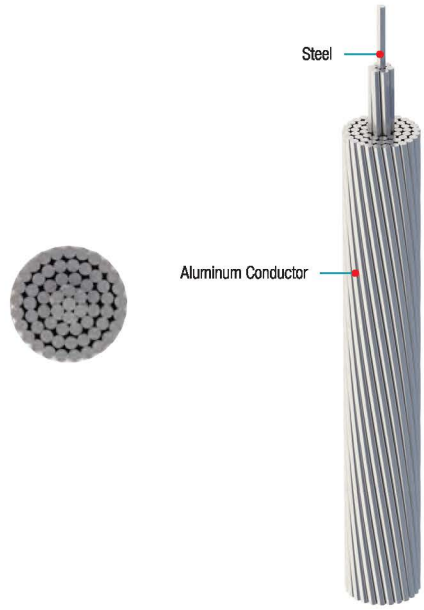
ALUMINUM CONDUCTOR STEEL REINFORCED (ACSR)

Description

An outer layer of Aluminum conductor concentrically stranded over the central core of galvanized solid or stranded steel wires to form Aluminum steel reinforced conductor.

Application

- Aluminum Conductors, Steel-Reinforced (ACSR) can be used in Medium, High and Extra-High voltage transmission lines; also used for primary and secondary distribution lines.
- The combination of aluminum and steel in the conductor design offers both efficient conductivity and high tensile strength making ACSR the most economical solution for overhead power transmission and distribution projects.



Tehcinal Data

- **Relevent Standard:** BS EN 50182, BS 215-2, DIN 48204, IEC 61089, ASTM B 232
- **Conductor:** Plain bare hard drawn Aluminum - H14 over the central core of galvanized solid or stranded steel wires
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** as per customer request on wooden drums

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	Aluminum No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
A - BS EN 50182 (GREMANY) & DIN 48204								
PO-RTAA-00-01-U0	16 / 2.5	6 x 1.80	1 x 1.80	1.8769	5.40	5.80	61.60	105
PO-RTAB-00-01-U0	25 / 4	6 x 2.25	1 x 2.25	1.2012	6.75	8.95	96.30	140
PO-RTAC-00-01-U0	35 / 6	6 x 2.70	1 x 2.70	0.8342	8.10	12.37	138.70	170
PO-RTAD-00-01-U0	44 / 32	14 x 20	7 x 2.40	0.6574	11.20	44.24	369.30	209
PO-RTAE-00-01-U0	50 / 8	6 x 3.20	1 x 3.20	0.5939	9.60	16.81	194.80	210
PO-RTAF-00-01-U0	50 / 30	12 x 2.33	7 x 2.33	0.5644	11.70	42.98	374.70	227
PO-RTAG-00-01-U0	70 / 12	26 x 1.85	7 x 1.44	0.4132	11.70	26.27	282.20	290
PO-RTAH-00-01-U0	95 / 15	26 x 2.15	7 x 1.67	0.3060	13.60	34.93	380.60	350
PO-RTAI-00-01-U0	95 / 55	12 x 3.20	7 x 3.20	0.2992	16.00	77.85	706.80	367
PO-RTAJ-00-01-U0	105 / 75	14 x 3.10	19 x 2.25	0.2742	17.50	105.82	885.30	394
PO-RTAK-00-01-U0	120 / 20	26 x 2.44	7 x 1.90	0.2376	15.50	44.50	491.00	410
PO-RTAL-00-01-U0	120 / 70	12 x 3.60	7 x 3.60	0.2364	18.00	97.92	894.50	427
PO-RTAM-00-01-U0	125 / 30	30 x 2.33	7 x 2.33	0.2260	16.30	56.41	587.00	425
PO-RTAN-00-01-U0	150 / 25	26 x 2.70	7 x 2.10	0.1940	17.10	53.67	600.80	470
PO-RTAO-00-01-U0	170 / 40	30 x 2.70	7 x 2.70	0.1683	18.90	74.89	788.20	520
PO-RTAP-00-01-U0	185 / 30	26 x 3.00	7 x 2.33	0.1571	19.00	65.27	741.00	535
PO-RTAQ-00-01-U0	210 / 35	26 x 3.20	7 x 2.49	0.1381	20.30	73.36	844.10	590
PO-RTAR-00-01-U0	210 / 50	30 x 3.00	7 x 3.00	0.1363	21.00	92.46	973.10	610
PO-RTAS-00-01-U0	230 / 30	24 x 3.50	7 x 2.33	0.1250	21.00	72.13	870.90	630
PO-RTAT-00-01-U0	240 / 40	26 x 3.45	7 x 2.68	0.1188	21.80	85.12	980.10	645

to be continued

PO-RTAU-00-01-U0	265 / 35	24 x 3.74	7 x 2.49	0.1095	22.40	81.04	994.40	680
PO-RTAV-00-01-U0	300 / 50	26 x 3.86	7 x 3.00	0.0949	24.40	105.09	1227.30	740
PO-RTAW-00-01-U0	305 / 40	54 x 2.68	7 x 2.68	0.0949	24.10	96.80	1151.20	740
PO-RTAX-00-01-U0	340 / 30	48 x 3.00	7 x 2.33	0.0852	25.00	91.71	1171.20	790
PO-RTAY-00-01-U0	380 / 50	54 x 3.00	7 x 3.00	0.0758	27.00	121.30	1442.50	840
PO-RTAZ-00-01-U0	385 / 35	48 x 3.20	7 x 2.49	0.0749	26.70	102.56	1333.60	850
PO-RTBA-00-01-U0	435 / 55	54 x 3.20	7 x 3.20	0.0666	28.80	133.59	1641.30	900
PO-RTBB-00-01-U0	450 / 40	48 x 3.45	7 x 2.68	0.0644	28.70	119.05	1549.10	920
PO-RTBC-00-01-U0	490 / 65	54 x 3.40	7 x 3.40	0.0590	30.60	150.81	1852.90	960
PO-RTBD-00-01-U0	495 / 35	45 x 3.74	7 x 2.49	0.0584	29.90	117.96	1632.60	985
PO-RTBE-00-01-U0	510 / 45	48 x 3.68	7 x 2.87	0.0566	30.70	133.31	1765.30	995
PO-RTBF-00-01-U0	550 / 70	54 x 3.60	7 x 3.60	0.0526	32.40	166.32	2077.20	1020
PO-RTBG-00-01-U0	560 / 50	48 x 3.86	7 x 3.00	0.0515	32.20	146.28	1939.50	1040
PO-RTBH-00-01-U0	570 / 40	45 x 4.02	7 x 2.60	0.0506	32.20	136.40	1887.10	1050
PO-RTBI-00-01-U0	650 / 45	45 x 4.30	7 x 2.87	0.0442	34.40	156.18	2159.90	1120
PO-RTBJ-00-01-U0	680 / 85	54 x 4.00	19 x 2.40	0.0426	36.00	206.56	2549.70	1150

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

to be continued

REGULAR OVERHEAD CONDUCTORS

(ACSR)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	Aluminum No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
B - BS EN 50182 (United Kingdom)								
MOLE	12.4	6 x 1.50	1 x 1.50	2.7027	4.50	4.14	42.8	86
SQUIRREL	24.5	6 x 2.11	1 x 2.11	1.3659	6.33	7.87	84.7	133
GOPHER	30.6	6 x 2.36	1 x 2.36	1.0919	7.08	9.58	106.0	153
WEASEL	36.9	6 x 2.59	1 x 2.59	0.9065	7.77	11.38	127.6	172
FOX	42.8	6 x 2.79	1 x 2.79	0.7812	8.37	13.21	148.1	189
FERRET	49.5	6 x 3.00	1 x 3.00	0.6757	9.00	15.27	171.2	208
RABBIT	61.7	6 x 3.35	1 x 3.35	0.5419	10.10	18.42	213.5	240
MINK	73.6	6 x 3.66	1 x 3.66	0.454	11.00	21.67	254.9	268
SKUNK	100.1	12 x 2.59	7 x 2.59	0.4568	13.00	52.79	463.0	280
BEAVER	87.5	6 x 3.99	1 x 3.99	0.382	12.00	25.76	302.9	300
HORSE	116.2	12 x 2.79	7 x 2.79	0.3936	14.00	61.26	537.3	308
RACOON	92.0	6 x 4.09	1 x 4.09	0.3635	12.30	27.06	318.3	309
OTIER	97.9	6 x 4.22	1 x 4.22	0.3415	12.70	28.81	338.8	322
CAT	111.3	6 x 4.50	1 x 4.50	0.3003	13.50	32.76	385.3	349
HARE	122.5	6 x 4.72	1 x 4.72	0.273	14.20	36.04	423.8	372
DOG	118.5	6 x 4.72	7 x 1.57	0.2733	14.20	32.65	394.0	371
COYOTE	151.8	26 x 2.54	7 x 1.91	0.2192	15.90	45.86	520.7	428
COUGAR	138.8	18 x 3.05	1 x 3.05	0.2188	15.30	29.74	418.8	424
TIGER	161.9	30 x 2.36	7 x 2.36	0.2202	16.50	57.87	602.2	432
WOLF	194.9	30 x 2.59	7 x 2.59	0.1829	18.10	68.91	725.3	487
DINGO	167.5	18 x 3.35	1 x 3.35	0.1814	16.80	35.87	505.2	478
LYNX	226.2	30 x 2.79	7 x 2.79	0.1576	19.50	79.97	841.6	536
CARACAL	194.5	18 x 3.61	1 x 3.61	0.1562	18.10	40.74	586.7	526
PANTHER	261.5	30 x 3.00	7 x 3.00	0.1363	21.00	92.46	973.1	588
JAGUAR	222.3	18 x 3.86	1 x 3.86	0.1366	19.30	46.57	670.8	573
LION	293.9	30 x 3.18	7 x 3.18	0.1213	22.30	100.47	1093.4	634
BEAR	326.1	30 x 3.35	7 x 3.35	0.1093	23.50	111.50	1213.4	678
GOAT	400.0	30 x 3.71	7 x 3.71	0.0891	26.00	135.13	1488.2	773
SHEEP	462.6	30 x 3.99	7 x 3.99	0.0771	27.90	156.30	1721.3	848
ANTELOPE	422.6	54 x 2.97	7 x 2.97	0.0773	26.70	118.88	1413.8	836
BISON	431.2	54 x 3.00	7 x 3.00	0.0758	27.00	121.30	1442.5	847
DEER	529.8	30 x 4.27	7 x 4.27	0.0673	29.90	179.00	1971.4	925
ZEBRA	484.5	54 x 3.18	7 x 3.18	0.0674	28.60	131.92	1620.8	913
ELK	588.5	30 x 4.50	7 x 4.50	0.0606	31.50	198.80	2189.5	989
CAMEL	538.7	54 x 3.35	7 x 3.35	0.0608	30.20	146.40	1798.8	975
MOOSE	597.0	54 x 3.53	7 x 3.53	0.0547	31.80	159.92	1997.3	1043

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec., solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(ACSR)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	Aluminum No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
C - IEC 61089 (A1/S1A)								
16	18.7	6 x 1.84	1 x 1.84	1.7934	5.53	6.08	64.6	149
25	29.2	6 x 2.30	1 x 2.30	1.1478	6.91	9.13	100.9	198
40	46.7	6 x 2.91	1 x 2.91	0.7174	8.74	14.40	161.5	267
63	73.5	6 x 3.66	1 x 3.66	0.4555	11.00	21.63	254.4	358
100	117	6 x 4.61	1 x 4.61	0.2869	13.80	34.33	403.8	481
125	132	18 x 2.97	1 x 2.97	0.2304	14.90	29.17	397.9	549
125	145	26 x 2.47	7 x 1.92	0.231	15.70	45.69	503.9	557
160	169	18 x 3.36	1 x 3.36	0.18	16.80	36.18	509.3	643
160	186	26 x 2.80	7 x 2.18	0.1805	17.70	57.69	644.9	652
200	211	18 x 3.76	1 x 3.76	0.144	18.80	44.22	636.7	743
200	233	26 x 3.13	7 x 3.43	0.1444	19.80	70.13	806.2	754
250	275	22 x 3.80	7 x 2.11	0.1154	21.60	68.72	880.6	865
250	291	26 x 3.50	7 x 2.72	0.1155	22.20	87.67	1007.7	872
315	337	45 x 2.99	7 x 1.99	0.0917	23.90	79.03	1039.6	998
315	366	26 x 3.93	7 x 3.05	0.0917	24.90	106.83	1269.7	1012
400	428	45 x 3.36	7 x 2.24	0.0722	26.90	98.36	1320.1	1164
400	452	54 x 3.07	7 x 3.07	0.0723	27.90	123.04	1510.3	1173
450	481.0	45 x 3.57	7 x 2.38	0.0642	28.50	107.47	1485.2	1255
450	508.0	54 x 3.26	7 x 3.26	0.0643	29.30	138.42	1699.1	1266
500	535.0	45 x 3.76	7 x 2.51	0.0578	30.10	119.41	1650.2	1343
500	565.0	54 x 3.43	7 x 3.43	0.0578	30.90	153.80	1887.9	1355
560	599.0	45 x 3.98	7 x 2.65	0.0516	31.80	133.74	1848.2	1444
560	631.0	54 x 3.63	19 x 2.18	0.0516	32.70	172.59	2103.4	1458
630	674.0	45 x 4.22	7 x 2.81	0.0459	33.80	150.45	2079.2	1557
630	710.0	54 x 3.85	19 x 2.31	0.0459	34.70	191.77	2366.3	1572
710	759.0	45 x 4.48	7 x 2.99	0.0407	35.90	169.56	2343.2	1680
710	800.0	54 x 4.09	19 x 2.45	0.0407	36.80	216.12	2666.8	1696
800	901.0	54 x 4.34	19 x 2.61	0.0362	39.10	243.52	3004.9	1828

The above data is approximate and subjected to manufacturing tolerance.

Note:

1) Other types of ACSR as per IEC 61089 (A1/S1B, A1/S2A, A1/S2B & A1/S3A) are available as per customer request.

2) The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 20 °C , final temperature of 80 °C, wind velocity of 1.0 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(ACSR)

Product-Code	Cross Sectional Area	Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	Aluminum No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
				D - BS 215-2				
GOPHER	25.0	6 x 2.36	1 x 2.36	1.093	7.08	9.61	106.0	153
WEASEL	30.0	6 x 2.59	1 x 2.59	0.9077	7.77	11.45	128.0	172
FERRET	40.0	6 x 3.00	1 x 3.00	0.6766	9.00	15.20	172.0	208
RABBIT	50.0	6 x 3.35	1 x 3.35	0.5426	10.05	18.35	214.0	240
HORSE	70.0	12 x 2.79	7 x 2.79	0.3936	13.95	61.20	538.0	308
DOG	100.0	6 x 4.72	7 x 1.57	0.2733	14.15	32.70	394.0	371
WOLF	150.0	30 x 2.59	7 x 2.59	0.1828	18.13	69.20	726.0	487
DINGO	150.0	18 x 3.35	1 x 3.35	0.1815	16.75	35.70	506.0	478
LYNX	175.0	30 x 2.79	7 x 2.79	0.1576	19.53	79.80	842.0	536
CARACAL	175.0	18 x 3.61	1 x 3.61	0.1563	18.05	41.10	587.0	526
PANTHER	200.0	30 x 3.00	7 x 3.00	0.1363	21.00	92.25	974.0	588
JAGUAR	200.0	18 x 3.86	1 x 3.86	0.1367	19.30	46.55	671.0	573
ZEBRA	400.0	54 x 3.18	7 x 3.18	0.0674	28.62	131.90	1621.0	913

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

REGULAR OVERHEAD CONDUCTORS

(ACSR)

Product-Code	Cross Sectional Area		Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	kcmil	mm²	Aluminum No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
				E - ASTM B 232					
TURKEY	26.24	13.3	6 x 1.68	1 x 1.68	2.1569	5.03	5.29	53.60	99
SWAN	41.74	21.2	6 x 2.12	1 x 2.12	1.3545	6.35	8.27	85.34	133
SWANATE	41.74	21.2	7 x 1.96	1 x 2.61	1.3583	6.53	10.50	99.62	134
SPARROW	66.36	33.6	6 x 2.67	1 x 2.67	0.8540	8.03	12.68	135.71	179
SPARATE	66.36	33.6	7 x 2.47	1 x 3.3	0.8553	8.26	16.19	158.67	180
GROUSE **	80.00	40.5	8 x 2.54	1 x 4.24	0.7112	9.32	25.49	221.41	204
ROBIN	83.69	42.4	6 x 3	1 x 3	0.6764	8.99	15.79	171.12	208
PETREL**	101.80	51.6	12 x 2.34	7 x 2.34	0.5614	11.71	49.82	377.65	245
RAVEN	105.60	53.5	6 x 3.37	1 x 3.37	0.5360	10.11	19.48	216.06	241
MINORCA **	110.80	56.1	12 x 2.44	7 x 2.44	0.5163	12.22	54.27	411.13	259
QUAIL	133.10	67.4	6 x 3.78	1 x 3.78	0.4261	11.35	23.57	272.01	279
LEGHORN **	134.60	68.2	12 x 2.69	7 x 2.69	0.4248	13.46	65.83	499.22	293
GUINEA **	159.00	80.6	12 x 2.92	7 x 2.92	0.3605	14.63	77.40	589.69	326
PIGEON	167.80	85.0	6 x 4.25	1 x 4.25	0.3370	12.75	29.45	342.98	324
DOTTEREL**	176.90	89.6	12 x 3.08	7 x 3.08	0.3240	15.42	84.07	656.06	349
DORKING **	190.80	96.7	12 x 3.2	7 x 3.2	0.3002	16.03	90.74	707.84	367
BRAHMA **	203.20	103.0	16 x 2.86	19 x 2.48	0.2818	18.14	138.33	1003.80	392
COCHIN **	211.30	107.0	12 x 3.37	7 x 3.37	0.2707	16.87	100.52	783.88	392
PENGUIN	211.60	107.0	6 x 4.77	1 x 4.77	0.2676	14.30	37.14	432.71	376
WAXWING	266.80	135.0	18 x 3.09	1 x 3.09	0.2136	15.47	30.69	430.18	430
PARTRIDGE	266.80	135.0	26 x 2.57	7 x 2	0.2148	16.31	50.26	545.95	436
OSTRISH	300.00	152.0	26 x 2.73	7 x 2.12	0.1904	17.27	56.49	613.35	471
MERLIN	336.40	170.0	18 x 3.47	1 x 3.47	0.1694	17.37	38.70	542.82	500
LINNET	336.40	170.0	26 x 2.89	7 x 2.25	0.1699	18.29	62.72	687.46	506
ORIOLE	336.40	170.0	30 x 2.69	7 x 2.69	0.1703	18.82	76.95	783.28	510
CHICKADEE	397.50	201.0	18 x 3.77	1 x 3.77	0.1435	18.87	44.04	641.33	556
BRANT	397.50	201.0	24 x 3.27	7 x 2.18	0.1437	19.61	64.94	760.96	562
IBIS	397.50	201.0	26 x 3.14	7 x 2.44	0.1439	19.89	72.50	812.45	564
LARK	397.50	201.0	30 x 2.92	7 x 2.92	0.1446	20.47	90.29	925.24	567
PELICAN	477.00	242.0	18 x 4.14	1 x 4.14	0.1190	20.68	52.49	769.74	627
FLICKER	477.00	242.0	24 x 3.58	7 x 2.39	0.1199	21.49	76.51	913.48	631
HAWK	477.00	242.0	26 x 3.44	7 x 2.68	0.1199	21.79	86.74	975.09	631
HEN	477.00	242.0	30 x 3.2	7 x 3.2	0.1204	22.43	105.86	1110.64	638
OSPREY	556.50	282.0	18 x 4.47	1 x 4.47	0.1021	22.33	60.94	897.71	691
PARAKEET	556.50	282.0	24 x 3.87	7 x 2.58	0.1026	23.22	88.07	1065.56	695
DOVE	556.50	282.0	26 x 3.72	7 x 2.89	0.1025	23.55	100.52	1138.62	701
EAGLE	556.50	282.0	30 x 3.46	7 x 3.46	0.1030	24.21	123.65	1295.60	705
PEACOCK	605.00	307.0	24 x 4.03	7 x 2.69	0.0946	24.21	96.08	1158.85	735
SQUAB	605.00	307.0	26 x 3.87	7 x 3.01	0.0947	24.54	108.09	1236.97	738
WOOD DUCK	605.00	307.0	30 x 3.61	7 x 3.61	0.0946	25.25	128.55	1408.39	735
TEAL	605.00	307.0	30 x 3.61	19 x 2.16	0.0946	23.98	133.44	1396.64	735
KINGBIRD	636.00	322.0	18 x 4.78	1 x 4.78	0.0893	23.88	69.83	1026.57	753
SWIFT	636.00	322.0	36 x 3.38	1 x 3.38	0.0892	23.62	61.38	956.49	751
ROOK	636.00	322.0	24 x 4.14	7 x 2.76	0.0897	24.82	100.52	1217.48	760
GROSBEAK	636.00	322.0	26 x 3.97	7 x 3.09	0.0900	25.15	112.09	1300.81	762

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SCOTER	636.00	322.0	30 x 3.7	7 x 3.7	0.0900	25.88	135.22	1480.71	762
EGRET	636.00	322.0	30 x 3.7	19 x 2.22	0.0900	25.88	140.11	1468.95	762
FLAMINGO	666.60	338.0	24 x 4.23	7 x 2.82	0.0859	25.40	105.42	1276.56	782
GANNET	666.60	338.0	26 x 4.07	7 x 3.16	0.0856	25.76	117.43	1363.31	787
STILT	715.50	363.0	24 x 4.39	7 x 2.92	0.0797	26.31	113.42	1370.45	820
STARLING	715.50	363.0	26 x 4.21	7 x 3.28	0.0800	26.70	126.32	1463.75	822
REDWING	715.50	363.0	30 x 3.92	19 x 2.35	0.0802	27.46	153.90	1650.64	828
COOT	795.00	403.0	36 x 3.77	1 x 3.77	0.0717	26.42	74.73	1195.76	865
CUCKOO	795.00	403.0	24 x 4.62	7 x 3.08	0.0720	27.74	124.10	1522.22	876
DRAKE	795.00	403.0	26 x 4.44	7 x 3.45	0.0720	28.14	140.11	1626.38	876
TERN	795.00	403.0	45 x 3.38	7 x 2.25	0.0717	27.00	98.30	1331.76	865
CONDOR	795.00	403.0	54 x 3.08	7 x 3.08	0.0720	27.74	125.43	1520.74	876
MALLARD	795.00	403.0	30 x 4.14	19 x 2.48	0.0719	28.96	170.80	1836.04	887
RUDDY	900.00	456.0	45 x 3.59	7 x 2.4	0.0636	28.73	108.53	1507.34	940
CANARY	900.00	456.0	54 x 3.28	7 x 3.28	0.0635	29.51	141.89	1723.10	948
CATBIRD	954.00	483.0	36 x 4.14	1 x 4.14	0.0595	28.96	88.07	1434.43	973
RAIL	954.00	483.0	45 x 3.7	7 x 2.47	0.0599	29.59	115.20	1598.11	976
CARDINAL	954.00	483.0	54 x 3.38	7 x 3.38	0.0598	30.38	150.34	1825.92	985
TANAGER	1033.50	524.0	36 x 4.3	1 x 4.3	0.0551	30.12	95.19	1553.47	1022
ORTOLAN	1033.50	524.0	45 x 3.85	7 x 2.57	0.0553	30.78	123.21	1730.54	1027
CURLEW	1033.50	524.0	54 x 3.51	7 x 3.51	0.0554	31.62	162.80	1977.55	1034
BLUEJAY	1113.00	564.0	45 x 4	7 x 2.66	0.0512	31.98	132.55	1865.95	1078
FINCH	1113.00	564.0	54 x 3.65	19 x 2.19	0.0515	32.84	173.92	2127.84	1084
BUNTING	1192.50	604.0	45 x 4.14	7 x 2.76	0.0478	33.07	142.34	1996.90	1126
GRACKLE	1192.50	604.0	54 x 3.77	19 x 2.27	0.0483	33.99	186.37	2278.13	1129
SKYLARK	1272.00	645.0	36 x 4.78	1 x 4.78	0.0446	33.43	117.43	1913.57	1167
BITTERN	1272.00	645.0	45 x 4.27	7 x 2.85	0.0450	34.16	151.68	2130.82	1170
PHEASANT	1272.00	645.0	54 x 3.9	19 x 2.34	0.0451	35.10	193.93	2431.39	1178
DIPPER	1351.50	685.0	45 x 4.4	7 x 2.93	0.0423	35.20	161.02	2263.25	1216
MARTIN	1351.50	685.0	54 x 4.02	19 x 2.41	0.0425	36.17	205.94	2581.68	1223
BOBOLINK	1431.00	725.0	45 x 4.53	7 x 3.02	0.0399	36.25	170.36	2397.17	1261
PLOVER	1431.00	725.0	54 x 4.14	19 x 2.48	0.0400	37.21	218.40	2734.94	1269
NUTHATCH	1510.50	765.0	45 x 4.65	7 x 3.1	0.0379	37.24	178.36	2529.60	1302
PARROT	1510.50	765.0	54 x 4.25	19 x 2.55	0.0380	38.23	229.96	2883.74	1311
LAPWING	1590.00	806.0	45 x 4.78	7 x 3.18	0.0359	38.20	187.71	2663.52	1345
FALCON	1590.00	806.0	54 x 4.36	19 x 2.62	0.0361	39.24	242.42	3038.50	1353

The above data is approximate and subjected to manufacturing tolerance.

Note:

**** ACSR with High Strength Steel Wires**

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

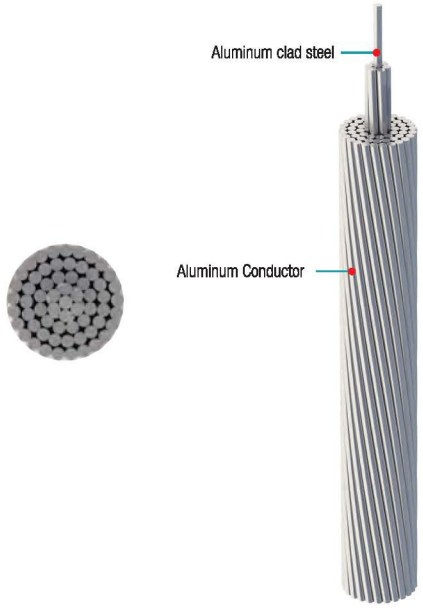
ALUMINUM CONDUCTOR ALUMINUM CLAD STEEL REINFORCED (ACSR / AW)

Description

An outer layer of Aluminum conductor concentrically stranded over the central core of Aluminum clad Steel solid or stranded to form Aluminum Conductor Aluminum Clad Steel Reinforced.

Application

- Aluminum Conductors, Aluminum-Clad Steel Reinforced (ACSR/AW) can be used in Medium, High and Extra-High voltage transmission lines; also used for earth wires.
- In comparison with ACSR conductors, ACSR/AW conductors have considerable technical and economical advantages in overhead lines.
- Its lower weight combined with its higher current carrying capacity and corrosion protection provide a longer life cycle, reduction in energy losses and significant cost saving during the operation of the line.



Tehcinal Data

- **Relevent Standard:** IEC 61089, ASTM B 549
- **Conductor:** Plain bare hard drawn Aluminum - H14 over the central core of Aluminum clad steel solid or stranded wires
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** as per customer request on wooden drums

Product-Code	Cross Sectional Area		Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	kcmil	mm²	Aluminum No. x mm	Aluminum Clad Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
A - ASTM B 549									
4 SWAN / AW	42.70	21.60	6 x 2.12	1 x 2.12	1.2822	6.35	8.0	81.0	137
4 SWANATE / AW	43.00	21.80	7 x 1.96	1 x 2.61	1.2511	6.53	10.0	93.0	140
3 SWALLOW / AW	53.90	27.30	6 x 2.38	1 x 2.38	1.0174	7.14	10.0	103.0	159
2 SPARROW / AW	67.10	34.00	6 x 2.67	1 x 2.67	0.8084	8.03	12.0	129.0	184
2 SPARATE / AW	67.60	34.30	7 x 2.47	1 x 3.3	0.7874	8.26	16.0	149.0	188
GROUSE / AW **	82.70	41.90	8 x 2.54	1 x 4.24	0.6359	9.32	22.0	205.0	216
1 ROBIN / AW	85.40	43.30	6 x 3	1 x 3	0.6403	8.99	15.0	162.0	213
PETREL / AW **	107.80	54.60	12 x 2.34	7 x 2.34	0.4684	11.71	44.0	342.0	269
RAVEN / AW	107.70	54.60	6 x 3.37	1 x 3.37	0.5074	10.11	19.0	205.0	248
MINORCA / AW **	117.30	59.40	12 x 2.44	7 x 2.44	0.4308	12.22	48.0	372.0	283
2/0 QUAIL / AW	135.20	68.50	6 x 3.78	1 x 3.78	0.4033	11.35	23.0	259.0	287
LEGHORN / AW **	142.70	72.30	12 x 2.69	7 x 2.69	0.3544	13.46	58.0	452.0	321
GUINEA / AW **	168.00	85.10	12 x 2.92	7 x 2.92	0.3008	14.63	68.0	534.0	357
3/0 PIGEON / AW	170.70	86.50	6 x 4.25	1 x 4.25	0.3191	12.75	28.0	326.0	333
DOTTEREL / AW **	187.1	95.00	12 x 3.08	7 x 3.08	0.2704	15.42	75.0	594.0	382
DORKING / AW **	201.90	102.00	12 x 3.2	7 x 3.2	0.2505	16.03	81.0	641.0	402
BRAHMA / AW **	220.70	112.00	16 x 2.86	19 x 2.48	0.2163	18.14	121.0	894.0	448
COCHIN / AW **	223.00	113.00	12 x 3.37	7 x 3.37	0.2258	16.87	88.0	710.0	429

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4/0 PENGUIN / AW	215.40	109.00	6 x 4.77	1 x 4.77	0.2533	14.30	34.0	412.0	387
WAXWING / AW	268.40	136.00	18 x 3.09	1 x 3.09	0.2096	15.47	30.0	421.0	435
PARTRIDGE / AW	271.20	137.00	26 x 2.57	7 x 2	0.2035	16.31	48.0	519.0	448
OSTRISH / AW	304.80	154.00	26 x 2.73	7 x 2.12	0.1804	17.27	54.0	583.0	483
MERLIN / AW	337.80	171.00	18 x 3.47	1 x 3.47	0.1662	17.37	38.0	531.0	504
LINNET / AW	341.30	173.00	26 x 2.89	7 x 2.25	0.1609	18.29	60.0	655.0	520
ORIOLE / AW	343.70	174.00	30 x 2.69	7 x 2.69	0.1578	18.82	74.0	737.0	530
CHICKADEE / AW	399.20	202.00	18 x 3.77	1 x 3.77	0.1408	18.87	44.0	628.0	561
BRANT / AW	403.00	204.00	24 x 3.27	7 x 2.18	0.1377	19.61	63.0	731.0	574
IBIS / AW	403.30	204.00	26 x 3.14	7 x 2.44	0.1363	19.89	70.0	774.0	579
LARK / AW	406.00	206.00	30 x 2.92	7 x 2.92	0.1339	20.47	87.0	869.0	589
PELICAN / AW	479.60	243.00	18 x 4.14	1 x 4.14	0.1168	20.68	51.0	755.0	632
FLICKER / AW	483.00	245.00	24 x 3.58	7 x 2.39	0.1148	21.49	74.0	877.0	645
HAWK / AW	484.60	246.00	26 x 3.44	7 x 2.68	0.1136	21.79	84.0	929.0	651
HEN / AW	487.90	247.00	30 x 3.2	7 x 3.2	0.1115	22.43	104.0	1043.0	663
OSPREY / AW	559.00	283.00	18 x 4.47	1 x 4.47	0.1002	22.33	59.0	880.0	698
PARAKEET / AW	564.00	286.00	24 x 3.87	7 x 2.58	0.0983	23.22	86.0	1022.0	713
DOVE / AW	564.80	286.00	26 x 3.72	7 x 2.89	0.0971	23.55	97.0	1083.0	720
EAGLE / AW	569.70	289.00	30 x 3.46	7 x 3.46	0.0954	24.21	119.0	1217.0	732
PEACOCK / AW	612.70	310.00	24 x 4.03	7 x 2.69	0.0906	24.21	93.0	111.0	751
SQUAB / AW	614.60	311.00	26 x 3.87	7 x 3.01	0.0898	24.54	105.0	1177.0	757
WOOD DUCK / AW	618.80	314.00	30 x 3.61	7 x 3.61	0.0876	25.25	126.0	1323.0	773
TEAL / AW	618.40	313.00	30 x 3.61	19 x 2.16	0.0878	23.98	127.0	1314.0	761
KINGBIRD / AW	639.40	324.00	18 x 4.78	1 x 4.78	0.0876	23.88	67.0	1006.0	773
SWIFT / AW	637.70	323.00	36 x 3.38	1 x 3.38	0.0884	23.62	61.0	946.0	775
ROOK / AW	644.00	326.00	24 x 4.14	7 x 2.76	0.0859	24.82	98.0	1168.0	777
GROSBEAK / AW	646.10	327.00	26 x 3.97	7 x 3.09	0.0853	25.15	110.0	1238.0	783
SOOTER / AW	650.50	330.00	30 x 3.7	7 x 3.7	0.0834	25.88	130.0	1391.0	798
EGRET / AW	650.20	329.00	30 x 3.7	19 x 2.22	0.0835	25.88	133.0	1381.0	798
FLAMINGO / AW	675.40	342.00	24 x 4.23	7 x 2.82	0.0823	25.40	103.0	1225.0	799
GANNET / AW	676.60	343.00	26 x 4.07	7 x 3.16	0.0812	25.76	116.0	1298.0	807
STILT / AW	725.00	367.00	24 x 4.39	7 x 2.92	0.0764	26.31	110.0	1314.0	837
STARLING / AW	727.40	369.00	26 x 4.21	7 x 3.28	0.0758	26.70	122.0	1393.0	844
REDWING / AW	730.90	370.00	30 x 3.92	19 x 2.35	0.0744	27.46	149.0	1552.0	859
COOT / AW	797.20	404.00	36 x 3.77	1 x 3.77	0.0711	26.42	74.0	1183.0	868
CUCKOO / AW	805.00	408.00	24 x 4.62	7 x 3.08	0.0690	27.74	122.0	1460.0	894
DRAKE / AW	807.60	409.00	26 x 4.44	7 x 3.45	0.0682	28.14	136.0	1549.0	903
TERN / AW	800.40	406.00	45 x 3.38	7 x 2.25	0.0701	27.00	96.0	1298.0	880
CONDOR / AW	805.00	408.00	54 x 3.08	7 x 3.08	0.0690	27.74	124.0	1458.0	894
MALLARY / AW	812.70	412.00	30 x 4.14	19 x 2.48	0.0667	28.96	165.0	1726.0	921
RUDDY / AW	906.10	459.00	45 x 3.59	7 x 2.4	0.0621	28.73	107.0	1470.0	951
CANARY / AW	911.40	462.00	54 x 3.28	7 x 3.28	0.0608	29.51	138.0	1653.0	969
CATBIRD / AW	956.60	485.00	36 x 4.14	1 x 4.14	0.0589	28.96	87.0	1420.0	978
RAIL / AW	960.40	487.00	45 x 3.7	7 x 2.47	0.0585	29.59	113.0	1558.0	988
CARDINAL / AW	966.10	490.00	54 x 3.38	7 x 3.38	0.0573	30.38	146.0	1752.0	1006
TANAGER / AW	1035.80	525.00	36 x 4.3	1 x 4.3	0.0546	30.12	94.0	1537.0	1027
ORTOLAN / AW	1040.00	527.00	45 x 3.85	7 x 2.57	0.0540	30.78	121.0	1688.0	1039
CURLEW / AW	1046.10	530.00	54 x 3.51	7 x 3.51	0.0531	31.62	158.0	1896.0	1056
BLUEJAY / AW	1120.50	568.00	45 x 4	7 x 2.66	0.0501	31.98	130.0	1819.0	1090
FINCH / AW	1127.80	571.00	54 x 3.65	19 x 2.19	0.0494	32.84	167.0	2043.0	1106
BUNTING / AW	1201.00	609.00	45 x 4.14	7 x 2.76	0.0467	33.07	139.0	1948.0	1138
GRACKLE / AW	1206.70	611.00	54 x 3.77	19 x 2.27	0.0463	33.99	179.0	2188.0	1152
SKYLARK / AW	1275.40	646.00	36 x 4.78	1 x 4.78	0.0442	33.43	114.0	1893.0	1172
BITTERN / AW	1280.60	649.00	45 x 4.27	7 x 2.85	0.0439	34.16	149.0	2078.0	1184

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PHEASANT / AW	1287.70	652.00	54 x 3.9	19 x 2.34	0.0433	35.10	189.0	2333.0	1201
DIPPER / AW	1360.10	689.00	45 x 4.4	7 x 2.93	0.0414	35.20	158.0	2207.0	1228
MARTIN / AW	1367.70	693.00	54 x 4.02	19 x 2.41	0.0407	36.17	201.0	2478.0	1248
BOBOLINK / AW	1440.20	730.00	45 x 4.53	7 x 3.02	0.0390	36.25	167.0	2336.0	1274
PLOVER / AW	1448.90	734.00	54 x 4.14	19 x 2.48	0.0384	37.21	212.0	2625.0	1294
NUTHATCH / AW	1520.50	770.00	45 x 4.65	7 x 3.1	0.0370	37.24	177.0	2467.0	1317
PARROT / AW	1528.20	774.00	54 x 4.25	19 x 2.55	0.0364	38.23	224.0	2768.0	1337
LAPWING / AW	1601.20	811.00	45 x 4.78	7 x 3.18	0.0351	38.20	186.0	2598.0	1360
FALCON / AW	1609.80	816.00	54 x 4.36	19 x 2.62	0.0346	39.24	236.0	2917.0	1380

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values based on Aluminum clad steel 20SA-Type A (regular tensile strength), different type of Aluminum clad steel core are also according to customer request as per IEC 61232

**** ACSR / AW with High Strength Steel Wire**

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 35 °C , final temperature of 80 °C, wind velocity of 0.6 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

Code Name	Cross Sectional Area	Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight	Rated Current
	mm²	Aluminum No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
B - IEC 61089 (A1/SA1A)								
16	17.90	6 x 1.81	1 x 1.81	1.7923	5.43	5.91	59.0	148
25	28.00	6 x 2.26	1 x 2.26	1.1471	6.78	9.00	92.1	197
40	44.80	6 x 2.85	1 x 2.85	0.7169	8.55	14.21	147.4	265
63	70.60	6 x 3.58	1 x 3.58	0.4552	10.70	21.17	232.2	355
100	112.00	6 x 4.51	1 x 4.51	0.2868	13.50	31.84	368.6	478
125	130.00	18 x 2.95	1 x 2.95	0.2304	14.80	29.18	384.3	548
125	140.00	26 x 2.43	7 x 1.89	0.2308	15.40	44.49	460.8	554
160	167.00	18 x 3.34	1 x 3.34	0.1800	16.70	36.38	491.9	642
160	179.00	26 x 2.74	7 x 2.13	0.1803	17.40	56.18	589.8	649
200	208.00	18 x 3.74	1 x 3.74	0.1440	18.70	43.62	614.9	741
200	223.00	26 x 3.07	7 x 2.39	0.1443	19.40	69.27	737.2	749
250	268.00	22 x 3.76	7 x 2.09	0.1153	21.30	67.80	830.9	861
250	279.00	26 x 3.43	7 x 2.67	0.1154	21.70	86.58	921.5	865
315	331.00	45 x 2.96	7 x 1.97	0.0917	23.70	78.33	996.4	995
315	352.00	26 x 3.85	7 x 2.99	0.0916	24.40	107.58	1161.1	1004
400	420.00	45 x 3.34	7 x 2.22	0.0722	26.70	97.50	1265.3	1160
400	438.00	54 x 3.02	7 x 3.02	0.0723	27.20	124.20	1402.9	1166
450	473.00	45 x 3.54	7 x 2.36	0.0642	28.30	107.48	1423.4	1250
450	492.00	54 x 3.21	7 x 3.21	0.0642	28.90	139.72	1578.2	1258
500	525.00	45 x 3.73	7 x 2.49	0.0578	29.80	119.42	1581.6	1336
500	547.00	54 x 3.38	7 x 3.38	0.0578	30.40	153.99	1753.6	1344
560	589.00	45 x 3.95	7 x 2.63	0.0516	31.60	133.75	1771.4	1437
560	612.00	54 x 3.58	19 x 2.15	0.0516	32.20	169.36	1956.3	1445
630	662.00	45 x 4.19	7 x 2.79	0.0458	33.50	150.47	1992.8	1548
630	688.00	54 x 3.79	19 x 2.28	0.0459	34.20	190.52	2200.9	1557
710	746.00	45 x 4.44	7 x 2.96	0.0407	35.60	169.57	2245.8	1668
710	775.00	54 x 4.03	19 x 2.42	0.0407	36.30	214.72	2480.3	1678
800	874.00	54 x 4.28	19 x 2.57	0.0361	38.50	241.94	2794.7	1807

The above data is approximate and subjected to manufacturing tolerance.

Note:

The above values based on Aluminum clad steel 20SA-Type A (regular tensile strength), different type of Aluminum clad steel core are also according to customer request as per IEC 61232

The above values of current carrying capacity are calculated due to frequency up to 60 Hz, assuming an ambient temperature of 20 °C , final temperature of 80 °C, wind velocity of 1.0 m/sec, solar radiation of 900 W/m², emissivity coefficient of 0.5, solar radiation absorption coefficient of 0.6

ALUMINUM ALLLOY CONDUCTOR STEEL REINFORCED (AACSR)

Description

An outer layer of Aluminum Alloy conductor concentrically stranded over the central core of galvanized solid or stranded steel wires to form Aluminum Alloy steel reinforced conductor.

Application

AACSR conductors are widely used for electrical power transmission over long distance (as an earthing Conductor). It could be used as a messenger for supporting overhead electrical cables.

Tehcinal Data

- **Relevent Standard:** BS EN 50182
- **Conductor:** Aluminum Alloy over the central core of galvanized solid or stranded steel wires
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** as per customer request on wooden drums

Code Name	Cross Sectional Area	Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Minimum Breaking Load	Approx. Weight
	mm²	Aluminum Alloy No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km
B - BS EN 50182 (France)							
PHLOX 37.7	37.7	9 x 2	3 x 2	1.175	8.30	22.86	151.4
PHLOX 59.7	59.7	12 x 2	7 x 2	0.8835	10.00	44.14	276.0
PHLOX 75.5	75.5	12 x 2.25	7 x 2.25	0.6981	11.30	55.86	349.3
PHLOX 94.1	94.1	15 x 2.1	19 x 1.38	0.6435	12.60	77.96	474.2
PHLOX 116.2	116.2	18 x 2	19 x 2	0.5921	14.00	104.93	625.0
PHLOX 147.1	147.1	18 x 2.25	19 x 2.25	0.4678	15.80	132.80	791.0
PASTEL 147.1	147.1	30 x 2.25	7 x 2.25	0.2795	15.80	79.12	547.0
PHLOX 181.6	181.6	18 x 2.50	19 x 2.50	0.3789	17.50	160.22	976.6
PASTEL 181.6	181.6	30 x 2.50	7 x 2.50	0.2264	17.50	96.31	675.3
PHLOX 228	227.8	18 x 2.80	19 x 2.80	0.3021	19.60	200.98	1225.0
PASTEL 228	227.8	30 x 2.80	7 x 2.80	0.1805	19.60	120.81	847.1
PHLOX 228	288.3	18 x 3.15	19 x 3.15	0.2387	22.10	249.93	1550.4
PASTEL 228	288.3	30 x 3.15	7 x 3.15	0.1426	22.10	151.26	1072.1
PASTEL 299	299.4	42 x 2.5	19 x 2.50	0.1622	22.50	198.51	1302.8
PHLOX 376	375.6	24 x 2.80	37 x 2.80	0.227	25.20	369.27	2202.4
PASTEL 412	411.7	32 x 3.60	19 x 2.40	0.1025	26.40	223.80	1571.1
POLYGONUM 1185	1184.0	54 x 2.80	37 x 2.80	0.0349	42.00	632.15	4430.7

The above data is approximate and subjected to manufacturing tolerance.

AREAL BUNDLED CABLES (ABC)

Voltage Grade

600 / 1000 VOLTS

Description

This type of cables are made from Aluminum Conductor (H14) insulated by Weather-Resistant XLPE +2.5% Carbon Black insulation for single core and for multi cores, the insulated phases are assambled together with one neutral (messenger) of All Aluminum Conductors (H14), Aluminum-Alloy Conductors (AAAC), Aluminum Conductors, Steel-Reinforced (ACSR), or Aluminum Conductors, Aluminum-Clad Steel Reinforced (ACSR/AW). The neutral conductor may be bare or covered with an extruded Weather-Resistant XLPE + 2.5% Carbon Black insulation

Application

They are used for secondary over head lines on poles or as feeders to Residential premises. The use of these cables is limited to circuits, not exceeding 600 volts phase-to-phase to a normal temperature rating of the service conductor temperature of 90 °C.

Tehcinal Data

- **Relevent Standard:** DIN 48201-5/6, BS EN 50182, IEC 61089, IEC 60228, IEC 60502-1, ICEA S 66-524

NFC 33-209 is also available or any other specification according to customer request

- **Conductor:** Plain hard drawn Aluminum - H14
- **Insulation:** Extruded XLPE Compound + 2.5 % Carbon Black Rated 90 ºC
- **Assembly (in case of more than one phase):** The insulated Cores are assembled together with suitable lay length.
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** Our standard length on Wooden Drum / or according to customer request

Note

1) Extruded High Density Polyethyelene (HDPE) rated 90 ºC or Low Linear Density Polyethyelene (LLDPE) rated 90 ºC or PVC Compound + 2.5 % Carbon Black Rated 70 ºC or 85 ºC are also available according to customer request.

2) Areal Bundled cables have many options in terms of:

i) the number of phase conductors used.

ii) the type of neutral (messenger) conductor if Aluminum - H14 (equally supported), or Aluminum Alloy, Aluminum Conductors Steel-Reinforced (ACSR), Aluminum Conductors Aluminum-Clad Steel-Reinforced (ACSR/AW) (self supported) and either it is bare or insulated.

iii) the insulation type & the phase identification.

3) This catalogue covers the design and construction as per the following:

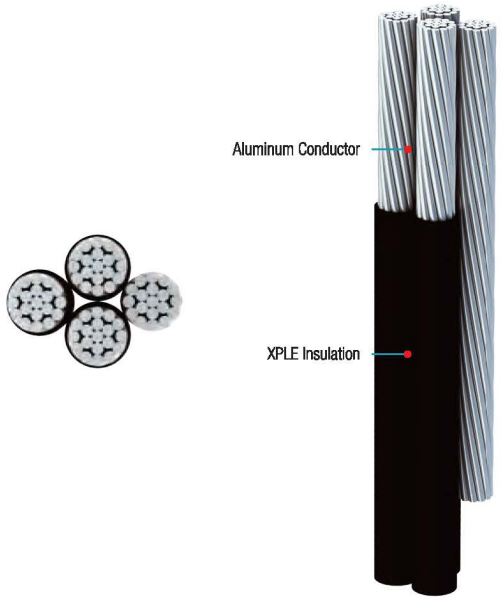
i) One Core Cable of: Aluminum Conductor (H14), insulated with XLPE+2.5 C.B.%.

ii) Duplex (Two) cores cables of: One phase of Aluminum Conductor (H14), insulated with XLPE+2.5 C.B.%., assembled with One neutral of Aluminum Conductors (H14), insulated with XLPE+2.5 C.B.%., identified with phase No.1 with one ridge & phase No.2 without ridges.

iii) Triplex (Three cores) cables of Two phases of Aluminum Conductor (H14), insulated with XLPE+2.5 C.B.%., assembled with One neutral of Aluminum Conductors (H14), insulated with XLPE+2.5 C.B.%., identified with phase No.1 with one ridge, phase No.2 with two ridges & phase No. 3 without ridges.

iv) Quadruplex (four cores) cables Three phases of Aluminum Conductor (H14), insulated with XLPE+2.5 C.B.%., assembled with One neutral of Aluminum Conductors (H14), insulated with XLPE+2.5 C.B.%., identified with phase No.1 with one ridge, phase No.2 with two ridges, phase No. 3 with three ridges and Phase No. 4 without ridges.

However, we can provide any other type or design or construction according to customer request.



REGULAR OVERHEAD CONDUCTORS

(ABC)

Product-Code	Phase			Approx. Overall Diameter	Approx. Weight
	Total Cross Sectional Area	Insulation Thickness	Max. DC. Conductor Resistance at 20 °C		
	mm²	mm	Ω / km	mm	kg / km
A) One Core					
G-PA-BT11-W3-01-U0	16.0	0.7	1.9100	3.50	60.0
G-PA-BT12-W3-01-U0	25.0	0.9	1.2000	8.10	95.0
G-PA-BT13-W3-01-U0	35.0	0.9	0.8680	9.30	130.0
G-PA-BT14-W3-01-U0	50.0	1.0	0.6410	11.00	180.0
G-PA-BT15-W3-01-U0	70.0	1.1	0.4430	12.70	230.0
G-PA-BT16-W3-01-U0	95.0	1.1	0.3200	14.70	320.0
G-PA-BT17-W3-01-U0	120.0	1.2	0.2530	16.40	395.0
B) Two Cores (Duplex)					
G-PA-BT11-W3-02-U0	16.0	1.2	1.9100	15.00	145.0
G-PA-BT12-W3-02-U0	25.0	1.2	1.2000	17.40	205.0
G-PA-BT13-W3-02-U0	35.0	1.2	0.8680	19.80	275.0
G-PA-BT14-W3-02-U0	50.0	1.5	0.6410	24.00	400.0
G-PA-BT15-W3-02-U0	70.0	1.5	0.4430	27.00	500.0
G-PA-BT16-W3-02-U0	95.0	1.5	0.3200	31.00	675.0
G-PA-BT17-W3-02-U0	120.0	1.7	0.2530	34.80	850.0
C) Three Cores (Triplex)					
G-PA-BT11-W3-03-U0	16.0	1.2	1.9100	16.20	220.0
G-PA-BT12-W3-03-U0	25.0	1.2	1.2000	18.80	305.0
G-PA-BT13-W3-03-U0	35.0	1.2	0.8680	21.40	410.0
G-PA-BT14-W3-03-U0	50.0	1.5	0.6410	25.90	600.0
G-PA-BT15-W3-03-U0	70.0	1.5	0.4430	29.20	745.0
G-PA-BT16-W3-03-U0	95.0	1.5	0.3200	33.50	1015.0
G-PA-BT17-W3-03-U0	120.0	1.7	0.2530	37.60	1275.0
D) Four Cores (Quadruplex)					
G-PA-BT11-W3-01-U0	16.0	1.2	1.9100	18.20	290.0
G-PA-BT12-W3-04-U0	25.0	1.2	1.2000	21.10	410.0
G-PA-BT13-W3-04-U0	35.0	1.2	0.8680	24.00	550.0
G-PA-BT14-W3-04-U0	50.0	1.5	0.6410	29.00	800.0
G-PA-BT15-W3-04-U0	70.0	1.5	0.4430	32.70	995.0
G-PA-BT16-W3-04-U0	95.0	1.5	0.3200	37.50	1355.0
G-PA-BT17-W3-04-U0	120.0	1.7	0.2530	42.10	1700.0

The above data is approximate and subjected to manufacturing tolerance.

(HTLS) CONDUCTORS

Overview

"our company proudly present the new section of High Temperature Low Sag (HTLS) conductors " which will help our customer and utilities to optimize the efficiency of overhead lines.

Because of high cost of installation of new transmission lines, time involved and difficulty in acquiring tower sites-right of way, HTLS is the best solution for reconductoring existing lines to increase power flow and also for new lines to accommodate future contingencies and increased demand of power.

HTLS conductors consists of new developed Aluminum materials that are able to operate continuously at higher teprature up to 150 oC - 250 oC, while materials used for traditionnal types of overhead conductors such as AAAC and ACSR are limited to maximum operating temprature of 80 oC.

New materials for central core have been developed for HTLS conductors to limit the sag at high temperatures and improve mechanical properties of complete conductor (Aluminum Clad Steel, INVAR steel, Aluminum Clad INVAR)

Product Types

1. Aluminum Conductor Aluminum Clad Steel Supported (ACSS/AW)

2. Thermal Resistant Aluminum Alloy Conductor Steel Reinforced (TACSR)

3. Thermal Resistant Aluminum Alloy Conductor Aluminum Clad Steel Reinforced (TACSR/AW)

4. Super Thermal Resistant Aluminum Alloy Conductor Aluminum Clad Invar Reinforced (STACIR/AW)

Table 1

Outer Layer(s) Material Types for High Temprature Low Sag (HTLS) Conductors

		Outer Layer(s) Type				
		1350-0	AT1	AT2	AT3	AT4
			Aluminum Zirconium Alloy (Al-Zr)			
Definition	Unit	Fully Annealed Aluminum	Thermal Resistant Aluminum Alloy (TAL)	Extra High Strength Thermal Resistant Aluminum Alloy (HI - TAL)	Super Thermal Resistant Aluminum Alloy (STAL)	Extra Thermal Resistant Aluminum Alloy (XTAL)
Standard		ASTM B 609 BS EN 50540	IEC 62004			
Density at 20°C	g/cm³	2.703	2.703	2.703	2.703	2.703
Minimum tensile strength	MPa	60 - 95	159 - 169	225 - 248	159 - 176	159 - 169
Coefficient of Linear Expansion	/°C	23 x 10-6	23 x 10-6	23 x 10-6	23 x 10-6	23 x 10-6
Maximum resistivity at 20°C	n.Ω.m	27.899	28.735	31.347	28.735	29.726
Conductivity (IACS)	%	61.8	60.0	55.0	60.0	58.0
"Allowable continuous operating temperature"	°C	180 - 200	150	150	210	230

Table 2

High Temperature Low Sag Conductors Types

	Outer Layer(s) Type				
	1350-0	AT1	AT2	AT3	AT4
		Aluminum Zirconium Alloy (Al-Zr)			
Definition	Fully Annealed Aluminum	Thermal Resistant Aluminum Alloy (TAL)	Extra High Strength Thermal Resistant Aluminum Alloy (HI - TAL)	Super Thermal Resistant Aluminum Alloy (STAL)	Extra Thermal Resistant Aluminum Alloy (XTAL)
Standard	ASTM B 609 BS EN 50540	IEC 62004			
Galvanized Steel Core	ACSS	TACSR	Hi - TACSR		
Aluminum-Clad Steel Core	ACSS / AW	TACSR / AW	HI - TACSR / AW		
Galvanized Invar Core		TACIR 1)	Hi-TACIR 1)	STACIR 1)	XTACIR 1)
Aluminum-Clad Invar Core		TACIR / AW 1)	HI-TACIR / AW 1)	STACIR / AW	XTACIR / AW

Notes:

1) These types aren't commonly used.

ALUMINUM CONDUCTOR
ALUMINUM CLAD STEEL SUPPORTED (ACSS / AW)

Description

Aluminum Conductor Aluminum Clad Steel Supported (ACSS / AW) consits of one or more layers of annealed aluminum 1350-O wires stranded over a central core of aluminum Clad Steel wires that is designed to withstand most or all of the mechanical load of ACSS / AW

Advantages

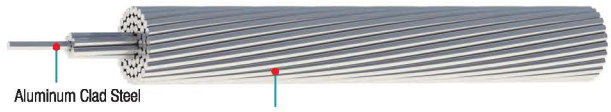
ACSS / AW can operate continously at high temprature up to 200 C without damage. The aluminum clad steel core, which consists of a thick layer of aluminum (approx. 10% of the nominal wire radius) over steel, gives ACSS/AW conductors the advantages of standard ACSS along with light weight and good conductivity of aluminum with the high tensile strength and ruggedness of steel.

Application

- ACSS/AW conductors are used for overhead distribution and transmission lines as they're especially useful in reconducting applicaqtions requiring incresead current with exisiting tensions and clearances, new lines applications where structures can be economized due to reduced conductor sag, new line applications requiring high emergency loading, and lines where vibration due to wind is a problem.
- ACSS/AW offers strength characteristics similar to ACSS, along with slightly greater ampacity and resistance to corrosion due to aluminum-cladding of the steel core wires.

Tehcinal Data

- **Relevent Standard:** ASTM B 856, other standards could be offered.
- **Conductor:** Plain bare annealed aluminum 1350-O wires stranded over a central core of aluminum Clad Steel wires
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** Our standard length on Wooden Drum / or according to customer request



Product-Code	Cross Sectional Area		Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Calculated Breaking Load	Approx. Weight	Rated Current
	kcmil	mm²	Aluminum No. x mm	Aluminum Clad Steel No. x mm	Ω / km	mm	KN	kg / km	Amps
A - ASTM B 856									
PARTRIDGE - ACSS / AW	266.80	135.20	26 x 2.57	7 x 2	0.2010	16.31	37.2	519	792
OSTRISH - ACSS / AW	300.00	152.00	26 x 2.73	7 x 2.12	0.1782	17.27	41.8	585	856
LINNET - ACSS / AW	336.40	170.50	26 x 2.89	7 x 2.25	0.1590	18.29	46.7	657	921
ORIOLE - ACSS / AW	336.40	170.50	30 x 2.69	7 x 2.69	0.1559	18.82	63.2	737	938
BRANT - ACSS / AW	397.50	201.40	24 x 3.27	7 x 2.18	0.1360	19.61	46.3	731	1015
IBIS - ACSS / AW	397.50	201.40	26 x 3.14	7 x 2.44	0.1347	19.89	55.2	774	1025
LARK - ACSS / AW	397.50	201.40	30 x 2.92	7 x 2.92	0.1323	20.47	74.3	868	1043
FLICKER - ACSS / AW	477.00	241.70	24 x 3.58	7 x 2.39	0.1134	21.49	55.6	877	1142
HAWK - ACSS / AW	477.00	241.70	26 x 3.44	7 x 2.68	0.1122	21.79	66.3	931	1153
HEN - ACSS / AW	477.00	241.70	30 x 3.2	7 x 3.2	0.1102	22.43	89.4	1043	1174
PARAKEET - ACSS / AW	556.50	282.00	24 x 3.87	7 x 2.58	0.0971	23.22	64.9	1024	1263
DOVE - ACSS / AW	556.50	282.00	26 x 3.72	7 x 2.89	0.0960	23.55	77.8	1087	1274
EAGLE - ACSS / AW	556.50	282.00	30 x 3.46	7 x 3.46	0.0942	24.21	101.9	1219	1297
PEACOCK - ACSS / AW	605.00	306.60	24 x 4.03	7 x 2.69	0.0895	24.21	70.7	1111	1330
SQUAB - ACSS / AW	605.00	306.60	26 x 3.87	7 x 3.01	0.0887	24.54	84.5	1177	1342
WOOD DUCK - ACSS / AW	605.00	306.60	30 x 3.61	7 x 3.61	0.0866	25.25	108.5	1327	1372

to be continued

HIGH TEMPRATURE LOW SAG

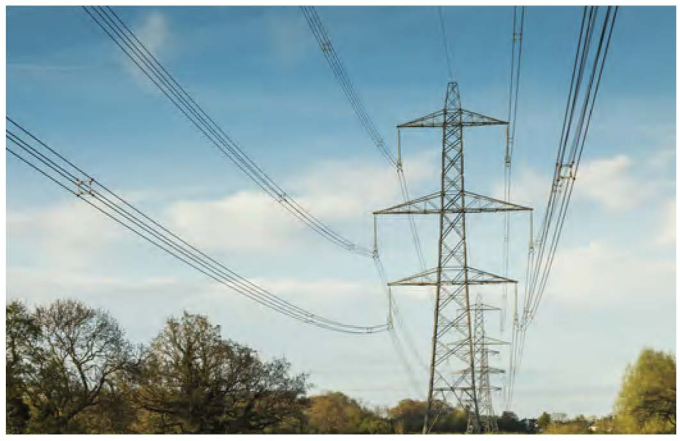
(ACSS / AW)

TEAL - ACSS / AW	605.00	306.60	30 x 3.61	19 x 2.16	0.0867	23.98	111.2	1314	1370
ROOK - ACSS / AW	636.00	322.30	24 x 4.14	7 x 2.76	0.0848	24.82	74.3	1172	1376
GROSBEAK - ACSS / AW	636.00	322.30	26 x 3.97	7 x 3.09	0.0842	25.15	88.5	1239	1388
SCOTER - ACSS / AW	636.00	322.30	30 x 3.7	7 x 3.7	0.0824	25.88	111.6	1394	1416
EGRET - ACSS / AW	636.00	322.30	30 x 3.7	19 x 2.22	0.0825	25.88	117.0	1383	1414
FLAMINGO - ACSS / AW	666.60	337.80	24 x 4.23	7 x 2.82	0.0812	25.40	77.8	1224	1416
GANNET - ACSS / AW	666.60	337.80	26 x 4.07	7 x 3.16	0.0802	25.76	93.0	1300	1433
STILT - ACSS / AW	715.50	362.60	24 x 4.39	7 x 2.92	0.0754	26.31	83.6	1317	1485
STARLING - ACSS / AW	715.50	362.60	26 x 4.21	7 x 3.28	0.0749	26.70	97.9	1394	1498
REDWING - ACSS / AW	715.50	362.60	30 x 3.92	19 x 2.35	0.0735	27.46	131.2	1552	1526
CUCKOO - ACSS / AW	795.00	402.80	24 x 4.62	7 x 3.08	0.0681	27.74	93.0	1460	1586
DRAKE - ACSS / AW	795.00	402.80	26 x 4.44	7 x 3.45	0.0674	28.14	108.5	1548	1602
TERN - ACSS / AW	795.00	402.80	45 x 3.38	7 x 2.25	0.0692	27.00	60.0	1303	1560
CONDOR - ACSS / AW	795.00	402.80	54 x 3.08	7 x 3.08	0.0681	27.74	93.0	1460	1586
MALLARD - ACSS / AW	795.00	402.80	30 x 4.14	19 x 2.48	0.0659	28.96	146.3	1730	1634
RUDDY - ACSS / AW	900.00	456.00	45 x 3.59	7 x 2.4	0.0613	28.73	68.1	1472	1687
CANARY - ACSS / AW	900.00	456.00	54 x 3.28	7 x 3.28	0.0601	29.51	103.2	1655	1720
RAIL - ACSS / AW	954.00	483.40	45 x 3.7	7 x 2.47	0.0578	29.59	72.1	1562	1755
CARDINAL - ACSS / AW	954.00	483.40	54 x 3.38	7 x 3.38	0.0566	30.38	109.4	1758	1788
ORTOLAN - ACSS / AW	1033.50	523.70	45 x 3.85	7 x 2.57	0.0533	30.78	78.3	1692	1841
CURLEW - ACSS / AW	1033.50	523.70	54 x 3.51	7 x 3.51	0.0524	31.62	116.1	1896	1872
BLUEJAY - ACSS / AW	1113.00	564.00	45 x 4	7 x 2.66	0.0494	31.98	84.1	1824	1935
FINCH - ACSS / AW	1113.00	564.00	54 x 3.65	19 x 2.19	0.0488	32.84	128.1	2048	1964
BUNTING - ACSS / AW	1192.50	604.20	45 x 4.14	7 x 2.76	0.0461	33.07	92.5	1955	2024
GRACKLE - ACSS / AW	1192.50	603.70	54 x 3.77	19 x 2.27	0.0457	33.99	137.0	2188	2051
BITTERN - ACSS / AW	1272.00	644.50	45 x 4.27	7 x 2.85	0.0434	34.16	96.1	2081	2109
PHEASANT - ACSS / AW	1272.00	644.50	54 x 3.9	19 x 2.34	0.0427	35.10	145.9	2338	2137
DIPPER - ACSS / AW	1351.00	684.40	45 x 4.4	7 x 2.93	0.0408	35.20	102.3	2208	2187
MARTIN - ACSS / AW	1351.00	684.40	54 x 4.02	19 x 2.41	0.0402	36.17	155.2	2483	2224
BOBOLINK - ACSS / AW	1431.00	725.10	45 x 4.53	7 x 3.02	0.0385	36.25	108.1	2341	2268
PLOVER - ACSS / AW	1431.00	725.10	54 x 4.14	19 x 2.48	0.0379	37.21	164.1	2632	2305
NUTHATCH - ACSS / AW	1510.50	765.40	45 x 4.65	7 x 3.1	0.0366	37.24	114.3	2467	2346
PARROT - ACSS / AW	1510.50	765.40	54 x 4.25	19 x 2.55	0.0360	38.23	173.0	2776	2386
LAPWING - ACSS / AW	1590.00	805.70	45 x 4.78	7 x 3.18	0.0346	38.20	120.1	2605	2427
FALCON - ACSS / AW	1590.00	805.70	54 x 4.36	19 x 2.62	0.0342	39.24	182.8	2924	2468

The above data is approximate and subjected to manufacturing tolerance.

Notes:

The above values based on Aluminum clad steel 20SA-Type A (regular tesnile strength), different type of Aluminum clad steel core are also according to customer request as per IEC 61232



THERMAL RESISTANT ALUMINUM ALLOY CONDUCTOR
STEEL REINFORCED (TACSR)

Description

Thermal Resistant Aluminum Alloy Conductor Steel Reinforced (TACSR) consists of one or more layers of thermal resistant aluminium zirconium alloy (AT1) wires stranded over a central core of zinc coated steel wire(s).

Advantages

- TACSR conductors are able to carry load current higher than traditional ACSR conductors about 150 % as they are designed for continuous operating temperature up to 150°C.
- TACSR conductors have same installation technique of ACSR

Application

- TACSR conductors are used for overhead distribution and transmission lines as they're especially useful in new line application requiring increased current.

Tehcinal Data

- **Relevent Standard:** IEC 62004, IEC 60888 and generally according to IEC 61089, other standards could be offered.
- **Conductor:** thermal resistant aluminium zirconium alloy (AT1) wires stranded over a central core of zinc coated steel wire(s).
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** Our standard length on Wooden Drum / or according to customer request

Product-Code	Cross Sectional Area		Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Calculated Breaking Load	Approx. Weight	Modulus of Elasticity	Coeifficient of Linear Expansion	Rated Current at 150 oC
	Stal mm2	Total mm2	TAL No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	kgf/mm²	x10-6/°C	Amps
58 - TACSR	58	67	6 x 3.5	1 x 3.5	0.5053	10.50	19.9	233	8400	18.9	378
80 - TACSR	83	97	6 x 4.2	1 x 4.2	0.3509	12.60	28.5	336	8400	18.9	476
95 - TACSR	95	111	6 x 4.5	1 x 4.5	0.3057	13.50	32.7	386	8400	18.9	520
120 - TACSR	125	154	30 x 2.3	7 x 2.3	0.2357	16.10	54.2	572	9080	18.0	621
160 - TACSR	159	196	30 x 2.6	7 x 2.6	0.1845	18.20	69.3	731	9080	18.0	726
200 - TACSR	198	244	30 x 2.9	7 x 2.9	0.1483	20.30	85.6	909	9080	18.0	834
240 - TACSR	241	298	30 x 3.2	7 x 3.2	0.1218	22.40	101.0	1107	9080	18.0	946
330 - TACSR	327	380	26 x 4	7 x 3.1	0.0899	25.30	110.1	1316	8360	19.0	1138
410 - TACSR	414	481	26 x 4.5	7 x 3.5	0.0710	28.50	139.8	1669	8360	19.0	1323
480 - TACSR	484	517	45 x 3.7	7 x 2.47	0.0607	29.61	116.6	1599	7250	20.8	1445
520 - TACSR	520	587	54 x 3.5	7 x 3.5	0.0566	31.50	158.2	1963	7990	19.5	1523
610 - TACSR	612	692	54 x 3.8	7 x 3.8	0.0480	34.20	186.5	2314	7990	19.5	1690
680 - TACSR	679	767	54 x 4	7 x 4	0.0433	36.00	204.7	2565	7990	19.5	1801
680 - TACSR	684	730	45 x 4.4	7 x 2.9	0.0429	35.10	161.5	2252	7250	20.8	1794

The above data is approximate and subjected to manufacturing tolerance.

Notes:

The above values of breaking load are based on regular steel cores, different grades of steel cores (High Strength, Extra High Strength) are available according to customer request

THERMAL RESISTANT ALUMINUM ALLOY CONDUCTOR
ALUMINUM CLAD STEEL REINFORCED (TACSR / AW)

Description

Thermal Resistant Aluminum Alloy Conductor Aluminum Clad Steel Reinforced (TACSR / AW) consists of one or more layers of thermal resistant aluminium zirconium alloy (AT1) wires stranded over a central core of zinc coated steel wire(s).

Advantages

- TACSR / AW conductors are able to carry load current higher than traditional ACSR conductors as they are designed for continuous operating temperature up to 150°C.
- additionally thay have increased corrosion resistance and lower electrical resistance & lower mass than TACSR.
- TACSR / AW conductors have same installation technique of ACSR.

Application

- TACSR / AW conductors are used for overhead distribution and transmission lines as they're especially useful in new line application requiring increased current.
- Alos they can be used at corrosive and coastal environments due to their good corrosion resistanceag.

Tehcinal Data

- **Relevent Standard:** IEC 62004, IEC 61232 and generally according to IEC 61089, other standards could be offered.
- **Conductor:** thermal resistant aluminium zirconium alloy (AT1) wires stranded over a central core of aluminum Clad Steel wires.
- **Minimum bending Radius:** 10 x outer diameter
- **Packing Condition:** Our standard length on Wooden Drum / or according to customer request

Product-Code	Cross Sectional Area		Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Calculated Breaking Load	Approx. Weight	Modulus of Elasticity	Coeifficient of Linear Expansion	Rated Current at 150 oC
	Tal mm2	Total mm2	TAL No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	kgf/mm²	x10-6/°C	Amps
120 - TACSR / AW	125	154	30 x 2.3	7 x 2.3	0.2182	16.10	56.0	537	8100	19.2	646
160 - TACSR / AW	159	196	30 x 2.6	7 x 2.6	0.1707	18.20	71.5	686	8100	19.2	755
200 - TACSR / AW	198	244	30 x 2.9	7 x 2.9	0.1372	20.30	88.4	854	8100	19.2	867
210 - TACSR / AW	241	298	30 x 3.2	7 x 3.2	0.1127	22.40	106.6	1040	8100	19.2	983
330 - TACSR / AW	327	380	26 x 4	7 x 3.1	0.0851	25.30	115.4	1252	7620	20.0	1168
410 - TACSR / AW	414	481	26 x 4.5	7 x 3.5	0.0672	28.50	142.5	1588	7630	20.0	1357
480 - TACSR / AW	484	517	45 x 3.7	7 x 2.47	0.0593	29.61	118.6	1559	6910	21.5	1454
520 - TACSR / AW	520	587	54 x 3.5	7 x 3.5	0.0542	31.50	160.9	1883	7390	20.4	1549
610 - TACSR / AW	612	692	54 x 3.8	7 x 3.8	0.0459	34.20	186.5	2220	7330	20.4	1718
680 - TACSR / AW	684	730	45 x 4.4	7 x 2.9	0.0420	35.10	164.3	2197	6900	21.5	1807

The above data is approximate and subjected to manufacturing tolerance.

Notes:

The above values based on Aluminum clad steel 20SA-Type A (regular tesnile strength), different type of Aluminum clad steel core are also according to customer request as per IEC 61232.

SUPER THERMAL RESISTANT ALUMINUM ALLOY CONDUCTOR
ALUMINUM CLAD INVAR REINFORCED (STACIR / AW)

Description

• Super Thermal Resistant Aluminum Alloy Conductor Aluminum Clad Invar Reinforced (STACIR / AW) consists of one or more layers of super thermal resistant aluminium zirconium alloy (AT3) wires stranded over a central core of staranded aluminum clad invar wire(s).

• Invar: Special Fe/Ni alloy with very low coefficent of linear expansion.

Advantages

• STACIR / AW conductors are able to carry load current higher than traditional ACSR conductors as they are designed for continuous operating temperature up to 210°C.

• Beyond Knee point STACIR/AW conductor experiences a sag increase due to the expansion of Invar core alone (extremely low value ≤ 3.7 x 10-6 / C) Which control sag at high operating temprature.

• TACSR / AW conductors have same installation technique of ACSR, additionally thay have increased corrosion resistance.

Application

• STACIR / AW conductors are used for overhead distribution and transmission lines as they're especially useful in replacing exisitng conductors for line applications requiring increased current.

• Alos they can be used at corrosive and coastal environments due to their good corrosion resistance.

Tehcinal Data

• **Relevent Standard:** IEC 62004, IEC 61232 and generally according to IEC 61089, other standards could be offered.

• **Conductor:** Super thermal resistant aluminium zirconium alloy (AT3) wires stranded over a central core of staranded aluminum clad invar wire(s).

• **Minimum bending Radius:** 10 x outer diameter

• **Packing Condition:** Our standard length on Wooden Drum / or according to customer request

Product-Code	Cross Sectional Area		Number and Nominal Diameter of Wires		Max. DC. Conductor Resistance at 20 °C	Approx. Overall Diameter	Calculated Breaking Load	Approx. Weight	Modulus of Elasticity	Coeifficient of Linear Expansion	Rated Current at 150 oC
	STAL mm2	Total mm2	TAL No. x mm	Steel No. x mm	Ω / km	mm	KN	kg / km	kgf/mm²	x10-6/°C	Amps
135 - STACIR / AW	133	165	30 x 2.38	7 x 2.38	0.2086	16.7	55.9	591	8040	16.0	804
160 - STACIR / AW	159	196	30 x 2.6	7 x 2.6	0.1748	18.2	65.4	706	8040	16.0	902
200 - STACIR / AW	198	244	30 x 2.9	7 x 2.9	0.1405	20.3	80.7	878	8040	16.0	1039
210 - STACIR / AW	207	247	28 x 3.07	7 x 2.7	0.1355	20.4	75.1	859	7790	16.8	1058
220 - STACIR / AW	219	270	30 x 3.05	7 x 3.05	0.1270	21.4	87.3	971	8040	16.0	1108
230 - STACIR / AW	231	276	28 x 3.24	7 x 2.85	0.1217	21.5	83.6	957	7790	16.8	1134
238 - STACIR / AW	238	335	40 x 2.75	7 x 4.2	0.1129	23.6	136.4	1362	8970	13.3	1212
240 - STACIR / AW	241	298	30 x 3.2	7 x 3.2	0.1154	22.4	96.1	1069	8040	16.0	1179
255 - STACIR / AW	256	297	26 x 3.54	7 x 2.75	0.1105	22.4	84.5	1004	7580	17.5	1205
255 - STACIR / AW	254	342	36 x 3	7 x 3.99	0.1069	24.0	128.0	1329	8650	14.2	1251
290 - STACIR / AW	291	348	28 x 3.64	7 x 3.2	0.0964	24.2	104.2	1207	7790	16.8	1320
300 - STACIR / AW	303	352	26 x 3.85	7 x 3	0.0934	24.4	100.2	1189	7580	17.5	1343
330 - STACIR / AW	327	380	26 x 4	7 x 3.1	0.0865	25.3	106.4	1279	7580	17.5	1410
340 - STACIR / AW	338	403	28 x 3.92	7 x 3.45	0.0831	26.0	121.0	1401	7790	16.8	1452
345 - STACIR / AW	345	401	26 x 4.11	7 x 3.2	0.0819	26.0	112.9	1355	7580	17.5	1462
410 - STACIR / AW	414	481	26 x 4.5	7 x 3.5	0.0684	28.5	135.1	1623	7580	17.5	1643
480 (Rail) - STACIR / AW	484	517	45 x 3.7	7 x 2.47	0.0597	29.6	114.3	1579	6900	20.2	1776

The above data is approximate and subjected to manufacturing tolerance.

Notes:
Galvanzied Invar Core is avalaible according to customer request.

TROLLEY WIRES
HARD DRAWN COPPER

Description

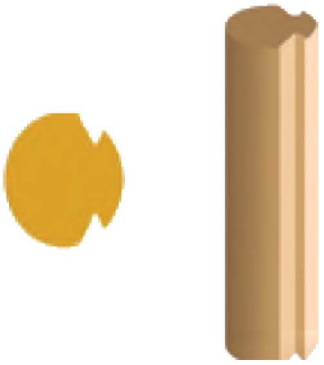
Single conductor, solid copper, having a hard drawn temper, made in the configuration of grooved

Advantages

- High corrosion resistance in areas with salt air and in industrial areas with smoke and corrosive fumes

Application

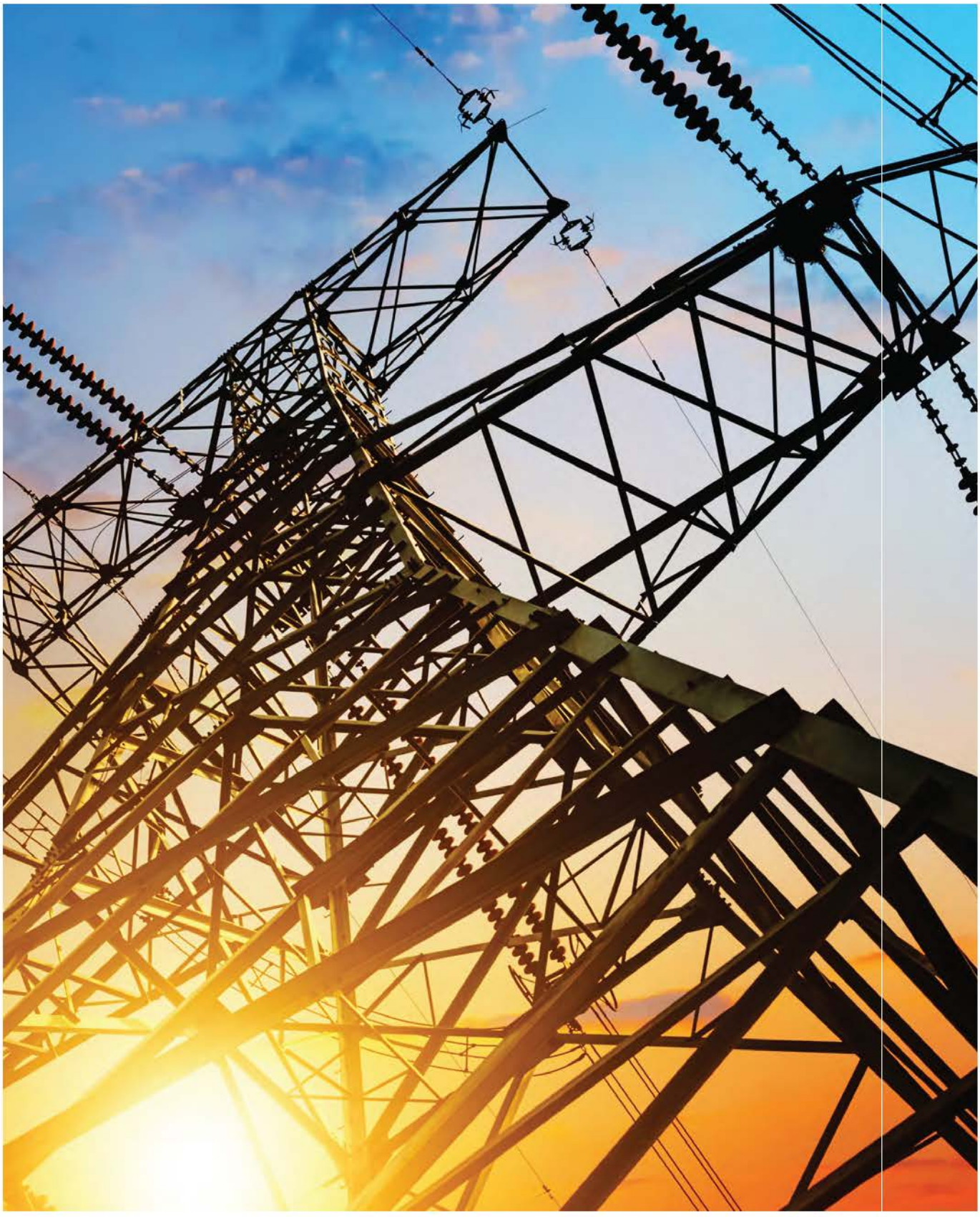
- In electric railways, trams and trolleybuses, for use in industrial and mining installations



Tehcinal Data

- **Relevent Standard:** ASTM B 47
- **Conductor:** Grooved Hard Drawn Cooper
- **Minimum bending Radius:** 20 x outer diameter
- **Packing Condition:** Our standard length on Wooden or Steel Drum

Product-Code	Cross Sectional Area	Dimensions			Approx. Weight	Tensile Strength	Max. D.C. Conductor
	mm²	e	c	d	kg / km	Kgf	Ω / km
ASTM B 47							
Trolley-85	85	7.20	4.55	12.28	760	3000	0.216
Trolley-107	107	6.35	4.53	12.24	960	3800	0.171
Trolley-113	113	4.50	6.00	12.00	1010	3900	0.162



SYSTEM'S CERTIFICATES

SYSTEM'S CERTIFICATES

DAS CERTIFICATION

DAS CERTIFICATION

Quality Management System

Certificate of Approval

This is to certify that the QMS of

Giza Power Industry Co.

Abo Rawash Giza, Kilo 28 Alexandria Desert Road,
690 Industrial Area - Giza-Egypt.

Has been assessed and found to meet the requirements of

ISO 9001:2015

This certificate is valid for the following scope of operations:

Manufacturing of Overhead, High, Medium and Low Voltage Power Cable Up to 220 Kv with all Aluminium and Copper Cross-Section from 10 mm² to 2000 mm²

Authorised by: Stan Wright
Chief Executive

Date of Certificate Issue: 07 January 2020
Certificate Valid Until: 06 January 2023

Recertification audit before 07 December 2022. Certified since 07 January 2017
This certificate is the property of DAS Certification and remains valid subject to satisfactory annual Surveillance audits

SN Registrars (Holdings) Limited
Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel: +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company number: 07659067

Certificate Number: DAS 61047496/32/Q Rev:002

DAS CERTIFICATION

DAS CERTIFICATION

Occupational Health & Safety Management System

Certificate of Approval

This is to certify that the OHSMS of

Giza Power Industry Co.

Abo Rawash Giza, Kilo 28 Alexandria Desert Road,
690 Industrial Area - Giza-Egypt.

Has been assessed and found to meet the requirements of

ISO 45001:2018

This certificate is valid for the following scope of operations:

Manufacturing of Overhead, High, Medium and Low Voltage Power Cable Up to 220 Kv with all Aluminium and Copper Cross-Section from 10 mm² to 2000 mm²

Authorised by: Stan Wright
Director

Date of Certificate Issue: 07 January 2020
Certificate Valid Until: 06 January 2023

Recertification audit before 07 December, 2022. Certified since 07 January 2020.
This certificate is the property of DAS Certification and remains valid subject to satisfactory annual Surveillance audits

SN Registrars (Holdings) Limited
Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel: +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company number: 07659067

Certificate Number: DAS 79708299/32/O Rev:001

DAS CERTIFICATION

DAS CERTIFICATION

Environmental Management System

Certificate of Approval

This is to certify that the EMS of

Giza Power Industry Co.

Abo Rawash Giza, Kilo 28 Alexandria Desert Road,
690 Industrial Area - Giza-Egypt.

Has been assessed and found to meet the requirements of

ISO 14001:2015

This certificate is valid for the following scope of operations:

Manufacturing of Overhead, High, Medium and Low Voltage Power Cable Up to 220 Kv with all Aluminium and Copper Cross-Section from 10 mm² to 2000 mm²

Authorised by: Stan Wright
Chief Executive

Date of Certificate Issue: 12 December 2019
Certificate Valid Until: 11 December 2022

Recertification audit before 12 November 2022. Certified since 12 December 2019.
This certificate is the property of DAS Certification and remains valid subject to satisfactory annual Surveillance audits

SN Registrars (Holdings) Limited
Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel: +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company number: 07659067

Certificate Number: DAS 65003060/32/E Rev:001

EGAC

Accreditation Certificate No. (220003A)

Arab Republic of Egypt

Egyptian Accreditation Council (EGAC)

Certifies that

Giza Power Industry Laboratory

Giza Power Industry Company

Kilo 28 - Cairo Alexandria Desert Road - 690 Industrial Area - Abo Rawash
Giza Governorate - Egypt

Has been accredited by EGAC in compliance with the requirements of ISO/IEC 17025:2017

In Measurement of Dimensions and Resistance for Cables Insulators and Electric Cables

The scope of accreditation is described in the attached schedule No. (220003B)
Scope Issue No. (01)

Issue No. (01): July 16, 2020 Valid to: July 15, 2024

Subject to continued compliance to the above standard and the requirements of EGAC

EGAC is an ILAC MRA Signatory in the Field of Calibration, Testing, Medical Labs, Proficiency Testing Providers and Inspection Bodies Accreditation

Eng. Hany El Desouki
EGAC Executive Director

Nevein Gamea
Chairman of EGAC
Minister of Trade and Industry

SYSTEM'S CERTIFICATES

DAS CERTIFICATION

DAS CERTIFICATION

Quality Management System

Certificate of Approval

This is to certify that the QMS of

Electro Cable Egypt Company (S.AE)

Km 4.5 Ismailia Canal Agriculture Road– Mostorod – Cairo –Egypt.

Has been assessed and found to meet the requirements of

ISO 9001:2015

This certificate is valid for the following scope of operations:

Manufacturing and testing of medium & high voltage Power Cables, Low voltage power cables, Telecommunication wires & cables enamelled copper wire & overhead conductors, cable reels

Authorised by: Stan Wright, Chief Executive

Date of Certificate Issue: 29 April 2019
Certificate Valid Until: 28 April 2022

Recertification audit before 29 March 2022. Certified since 28 August, 2016.
This certificate is the property of SN Registrars (Holdings) Limited and remains valid subject to satisfactory annual Surveillance audits

SN Registrars (Holdings) Limited Certificate Number: DAS 27943308/32/Q Rev:002

Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel : +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company number: 07659067

DAS CERTIFICATION

DAS CERTIFICATION

Occupational Health & Safety Management System

Certificate of Approval

This is to certify that the OHSMS of

Electro Cable Egypt

Km 4.5 Ismailia Canal Agriculture Road– Mostorod – Cairo –Egypt.

Has been assessed and found to meet the requirements of

ISO 45001:2018

This certificate is valid for the following scope of operations:

Manufacturing and testing of medium & high voltage Power Cables, Low voltage power cables, Telecommunication wires & cables enamelled copper wire & overhead conductors, cable reels

Authorised by: Stan Wright, Chief Executive

Date of Certificate Issue: 09 July 2019
Certificate Valid Until: 08 July 2022

Recertification audit before 09 June 2022. Certified since 09 July, 2019.
This certificate is the property of SN Registrars (Holdings) Limited and remains valid subject to satisfactory annual Surveillance audits.

SN Registrars (Holdings) Limited Certificate Number: DAS 61162119/32/O Rev:001

Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel : +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company number: 07659067

DAS CERTIFICATION

DAS CERTIFICATION

Environmental Management System

Certificate of Approval

This is to certify that the EMS of

Electro Cable Egypt

Km 4.5 Ismailia Canal Agriculture Road– Mostorod – Cairo –Egypt.

Has been assessed and found to meet the requirements of

ISO 14001:2015

This certificate is valid for the following scope of operations:

Manufacturing and testing of medium & high voltage Power Cables, Low voltage power cables, Telecommunication wires & cables enamelled copper wire & overhead conductors, cable reels

Authorised by: Stan Wright, Chief Executive

Date of Certificate Issue: 09 July 2019
Certificate Valid Until: 08 July 2022

Recertification audit before 09 June 2022. Certified since 09 July, 2019
This certificate is the property of SN Registrars (Holdings) Limited and remains valid subject to satisfactory annual Surveillance audits

SN Registrars (Holdings) Limited Certificate Number: DAS 49020474/32/Q Rev:001

Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel : +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company number: 07659067

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢٩ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢١/٢٣٣)
صفحة من ٢

تقرير اختبار

رقم التقرير : (٢٠٢١/٢٣٣)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٥/١٠ .

• مكان الاختبار :

مركز أبحاث الجهد الفائق .

الكود الداخلي : (TO – AC – 21 – 04 – 21 -01) .

• المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1) .

• العينـة :

- وصف العينة : عينة كابل الومنيوم معزول سلح جهد ٦/١ ك.ف - قطاع (٣×١٢٠+٧٠ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×120+70 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية .

- تاريخ استلام العينة : ٢٠٢١/٤/٢١

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC 60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC 60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part:501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing components.
- IEC (60811-509, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test)
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢٩ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢١/١٣٦)
صفحة من ٢

تقرير اختبار

رقم التقرير : (٢٠٢١/١٣٦)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٤/٢٠ .

• مكان الاختبار :

- مركز أبحاث الجهد الفائق .
- الكود الداخلي : (TO – AC – 21 - 02 - 23 -03) .

• المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1) .

• العينـة :

- وصف العينة : عينة كابل الومنيوم معزول سلح جهد ٦/١ ك.ف - قطاع (٤×٣٥ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 4×35 mm² AL/XLPE/STA/PVC 0.6/1kV 2020) انتاج
شركة الكابلات الكهربائية المصرية .

- تاريخ استلام العينة : ٢٠٢١/٢/٢٢

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC 60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC 60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part:501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing components.
- IEC (60811-509, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test)
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢٩ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢١/١٢٥)
صفحة من ٢

تقرير اختبار

رقم التقرير : (٢٠٢١/١٢٥)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٤/٢٠ .

• مكان الاختبار :

- مركز أبحاث الجهد الفائق .
- الكود الداخلي : (TO – AC – 21 - 02 - 23 -02) .

• المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1) .

• العينـة :

- وصف العينة : عينة كابل الومنيوم معزول سلح جهد ٦/١ ك.ف - قطاع (٤×٢٥ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 4×25 mm² AL/XLPE/STA/PVC 0.6/1kV 2020) انتاج
شركة الكابلات الكهربائية المصرية .

- تاريخ استلام العينة : ٢٠٢١/٢/٢٢

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
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- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

Egyptian Electricity Holding Company
Extra High Voltage Research Center
Laboratories, research and testing center
km 27 Cairo- Alex. Desert road
Report No. (264/2021)
Page 1 of 10

TEST REPORT

REPORT No. (264/2021)

- CLIENT: ELECTRO CABLE EGYPT.
- Report Date: 31/08/2021
- Place:
  Extra High Voltage Research Center Laboratories.
  - Internal Code : TO - AC - 21 - 03 - 07 - 03
- Requirements:
  - Type tests according to IEC 60502-2.
- Standard Specification:
  - IEC (60502-2)/(2014): Power cables with extruded insulation and their accessories for rated voltages from 1 kV (U_m= 1.2 kV) up to 30 kV (U_m = 36 kV).
- Description of Specimen:
  - 18/30 kV Power cable with the following specification:
  - Manufacturer : ELECTRO CABLE EGYPT.
  - Type : ELECTRO CABLE EGYPT CO. - 3×400 mm² - AL/XLPE/STA/PVC -18/30 kV - 2021.
  - No. of Phases : 3 Phase.
  - Insulation : XLPE
  - Conductor Material : AL Wires
  - Conductor cross-section : 400 mm²
  - Screening Material : Copper tape.
  - Sheath Material : PVC
  - Sheath Color : Black.
- Description of Equipment:
  - High voltage reactor – 400 kV – 5000 kVA – Type: (RSK) – Serial No. 204322/99, calibration certificate No. (216/23/2020)
  - PD detector – Type: (TE57) calibration certificate No. (272/23/2020).
  - Tan δ measurement devise – Type: dobel- M4000 - Serial No. 029700917.
  - Impulse voltage generator 800 kV – 40 kJ – Type: IP40/ 800M calibration certificate No. (269/23/2020).
  - Oven up to 300 °C – Type BINDER - Serial No. 02-32772 calibration certificate No. (9/1812/2017).
  - Universal testing machine 100 kN–Type Llloyd – Model LR 100K plus Serial No. 108322 calibration certificate No. (1058/14/2019).

ORIGINAL

F - 07 – 08 - 02

Egyptian Electricity Holding Company
Extra High Voltage Research Center
Laboratories, research and testing center
km 27 Cairo- Alex. Desert road
Report No. (264/2021)
Page 1 of 10

TEST REPORT

REPORT No. (264/2021)

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- Report Date: 31/08/2021
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  - Internal Code : TO - AC - 21 - 03 - 07 - 03
- Requirements:
  - Type tests according to IEC 60502-2.
- Standard Specification:
  - IEC (60502-2)/(2014): Power cables with extruded insulation and their accessories for rated voltages from 1 kV (U_m= 1.2 kV) up to 30 kV (U_m = 36 kV).
- Description of Specimen:
  - 18/30 kV Power cable with the following specification:
  - Manufacturer : ELECTRO CABLE EGYPT.
  - Type : ELECTRO CABLE EGYPT CO. - 3×400 mm² - AL/XLPE/STA/PVC -18/30 kV - 2021.
  - No. of Phases : 3 Phase.
  - Insulation : XLPE
  - Conductor Material : AL Wires
  - Conductor cross-section : 400 mm²
  - Screening Material : Copper tape.
  - Sheath Material : PVC
  - Sheath Color : Black.
- Description of Equipment:
  - High voltage reactor – 400 kV – 5000 kVA – Type: (RSK) – Serial No. 204322/99, calibration certificate No. (216/23/2020)
  - PD detector – Type: (TE57) calibration certificate No. (272/23/2020).
  - Tan δ measurement devise – Type: dobel- M4000 - Serial No. 029700917.
  - Impulse voltage generator 800 kV – 40 kJ – Type: IP40/ 800M calibration certificate No. (269/23/2020).
  - Oven up to 300 °C – Type BINDER - Serial No. 02-32772 calibration certificate No. (9/1812/2017).
  - Universal testing machine 100 kN–Type Llloyd – Model LR 100K plus Serial No. 108322 calibration certificate No. (1058/14/2019).

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F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع معامل مركز أبحاث الجهد الفائق
الكيلو ٢٧ طريق القاهرة / الإسكندرية الصحراوي
رقم التقرير : (٢٠٢٠/٥٥٤)
Report Number

تقرير اختبار

رقم التقرير : (٢٠٢٠/٥٥١)

- العميـــــل : شركة الكابلات الكهربائية المصرية .
- تاريخ التقرير : ٢٩ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : (TO - AC - 20 - 12 - 13 - 09) .
- المتطلبات : إجراء الاختبارات النوعية طبقا للمواصفات القياسية العالمية (IEC (60502-1 .
- العينـة :
  - وصف العينة: عينة موصل حولى الومنيوم معزول (XLPE) قطاع (١×١٢٠) مم² تصنيع شركة الكابلات الكهربائية المصرية – صناعة محلية (ELECTRO CABLE EGYPT Co. 1×120 mm² AL/XLPE +C.B 2.596 0.6/1kV 2020)
  - تاريخ استلام العينة : ٢٠٢٠/١٢/١٣
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :
  - IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30 kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
  - IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
  - IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
  - IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 501: Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
  - IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
  - IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hot set test for cross – Linked Materials.
  - IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع معامل مركز أبحاث الجهد الفائق
الكيلو ٢٧ طريق القاهرة / الإسكندرية الصحراوي
رقم التقرير : (٢٠٢٠/٥٥٤)
Report Number

تقرير اختبار

رقم التقرير : (٢٠٢٠/٥٥٤)

- العميـــــل : شركة الكابلات الكهربائية المصرية
- تاريخ التقرير : ٢٩ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : (TO - AC - 20 - 12 - 13 -02) .
- المتطلبات : إجراء الاختبارات النوعية طبقا للمواصفات القياسية العالمية (IEC (60502-1 .
- العينـة :
  - وصف العينة : عينة كابل الومنيوم معزول صنع جهد (٠,٦/١ ك.ف) - قطاع (٣×٢٤٠+١٢٠ مم²) - عزل XLPE وغلاف PVC (ELECTRO CABLE EGYPT Co. 3×240+120 mm² AL/XLPE/STA/PVC 0.6/1kV 2020) انتاج شركة الكابلات الكهربائية المصرية .
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :
  - IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
  - IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
  - IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
  - IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part.501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
  - IEC (60811-509, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
  - IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
  - IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
  - IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation.

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
٢٦ طريق القاهرة / الإسكندرية الصحراوي
(رقم التقرير : (٥٥٤/ ٢٠٢٠)

تقرير اختبار

رقم التقرير : (٥٥٤/ ٢٠٢٠)

- العميـــــل : شركة الكابلات الكهربائية المصرية
- تاريخ التقرير : ٢٩ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : 02- 13 - 12 - 20 - AC - TO) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1.
- العينـة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×٢٤٠+١٢٠ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×240+120 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية .
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :
- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
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- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC (60811-509, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
٢٦ طريق القاهرة / الإسكندرية الصحراوي
(رقم التقرير : (١٢٩/ ٢٠٢١)

تقرير اختبار

رقم التقرير : (١٢٩/ ٢٠٢١)

- العميـــــل : شركة الكابلات الكهربائية المصرية
- تاريخ التقرير : ٢ / ٤ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : 06- 23 - 02 - 21 - AC - TO) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1.
- العينـة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×١٨٥+٩٥ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×185+95 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية .
- تاريخ استلام العينة : ٢٠٢١/٢/٢٢
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
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F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
٢٦ طريق القاهرة / الإسكندرية الصحراوي
(رقم التقرير : (١٢٩/ ٢٠٢١)

تقرير اختبار

رقم التقرير : (١٢٩/ ٢٠٢١)

- العميـــــل : شركة الكابلات الكهربائية المصرية
- تاريخ التقرير : ٢ / ٤ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : 06- 23 - 02 - 21 - AC - TO) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1.
- العينـة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×١٨٥+٩٥ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×185+95 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية .
- تاريخ استلام العينة : ٢٠٢١/٢/٢٢
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- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
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F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
٢٦ طريق القاهرة / الإسكندرية الصحراوي
(رقم التقرير : (٥٥٥/ ٢٠٢٠)

تقرير اختبار

رقم التقرير : (٥٥٥/ ٢٠٢٠)

- العميـــــل : شركة الكابلات الكهربائية المصرية
- تاريخ التقرير : ٢٠ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : 03- 13 - 12 - 20 - AC - TO) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية (IEC (60502-1.
- العينـة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×١٥٠+٧٠ مم٢) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×150+70 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية .
- تاريخ استلام العينة : ٢٠٢٠/١٢/١٢
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :
- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC (60811-509, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع التأمين والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢١ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢١/٦٤٨)

تقرير اختبار

رقم التقرير : (٢٠٢١/٦٤٨)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٤/٢٠

• مكان الاختبار :
- مركز أبحاث الجهد الفائق .
- الكود الداخلي : (TO - AC - 21 - 02 - 23 -05)

• المتطلبات : إجراء الاختبارات النوعية طبقا للمواصفات القياسية العالمية (IEC (60502-1.

• العينة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×٩٥+٥٠ مم²) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×95+50 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية

- تاريخ استلام العينة : ٢٠٢١/٢/٢٢

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC 60502-1, 2021 : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC 60811-201, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC 60811-401,2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC 60811-501, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC 60811-509, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC 60811-202, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC 60811-507, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC 60811-502, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع التأمين والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢١ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢٠/٥٥٦)

تقرير اختبار

رقم التقرير : (٢٠٢٠/٥٥٦)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٢/٢٠

• مكان الاختبار :
- مركز أبحاث الجهد الفائق .
- الكود الداخلي : (TO - AC - 20 - 12 - 13 -04)

• المتطلبات : إجراء الاختبارات النوعية طبقا للمواصفات القياسية العالمية (IEC (60502-1.

• العينة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×٧٠+٣٥ مم²) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×70+35 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية

- تاريخ استلام العينة : ٢٠٢٠/١٢/١٣

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC 60502-1, 2021 : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC 60811-201, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC 60811-401,2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC 60811-501, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC 60811-509, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC 60811-202, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC 60811-507, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC 60811-502, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع التأمين والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢١ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢١/٦٤٧)

تقرير اختبار

رقم التقرير : (٢٠٢١/٦٤٧)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٤/٢٠

• مكان الاختبار :
- مركز أبحاث الجهد الفائق .
- الكود الداخلي : (TO - AC - 21 - 02 - 23 -04)

• المتطلبات : إجراء الاختبارات النوعية طبقا للمواصفات القياسية العالمية (IEC (60502-1.

• العينة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٣×٥٠+٢٥ مم²) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 3×50+25 mm² AL/XLPE/STA/PVC 0.6/1kV 2020)
انتاج شركة الكابلات الكهربائية المصرية

- تاريخ استلام العينة : ٢٠٢١/٢/٢٢

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC 60502-1, 2021 : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC 60811-201, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC 60811-401,2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC 60811-501, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC 60811-509, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC 60811-202, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC 60811-507, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC 60811-502, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع التأمين والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢١ طريق القاهرة - الإسكندرية الصحراوي
رقم التقرير : (٢٠٢١/٦٥٧)

تقرير اختبار

رقم التقرير : (٢٠٢١/٦٥٧)

• العميـــــل : شركة الكابلات الكهربائية المصرية

• تاريخ التقرير : ٢٠٢١/٢/٢٠

• مكان الاختبار :
- مركز أبحاث الجهد الفائق .
- الكود الداخلي : (TO - AC - 20 - 12 - 13 -05)

• المتطلبات : إجراء الاختبارات النوعية طبقا للمواصفات القياسية العالمية (IEC (60502-1.

• العينة :
- وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٦/١٠ ك.ف - قطاع (٤×١٦ مم²) - عزل XLPE وغلاف PVC
(ELECTRO CABLE EGYPT Co. 4×16 mm² AL/XLPE/STA/PVC 0.6/1kV 2020) انتاج شركة الكابلات الكهربائية المصرية

- تاريخ استلام العينة : ٢٠٢٠/١٢/١٣

• اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .

• المواصفات القياسية العالمية المستخدمة :

- IEC 60502-1, 2021 : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC 60811-201, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC 60811-401,2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC 60811-501, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC 60811-509, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC 60811-202, 2012 : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC 60811-507, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hotset test for cross – Linked Materials .
- IEC 60811-502, 2012 : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع تعامل مركز أبحاث الجهد الفائق
الكيلو ٣ طريق القاهرة / الإسكندرية الصحراوي
رقم التقرير : (٥٥٨/ ٢٠٢٠)
صفحة ١ من ٢

تقرير اختبار

رقم التقرير : (٥٥٨/ ٢٠٢٠)

- العميـــــل : شركة الكابلات الكهربائية المصرية .
- تاريخ التقرير : ٢٩ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : (TO - AC - 20 - 12 - 13 - 07) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية IEC (60502-1) .
- العينـة :
  - وصف العينة: عينة موصل هوائي الومنيوم عزل (XLPE) . قطاع (١ × ٧٠) مم² . تصنيع شركة الكابلات الكهربائية المصرية – صناعة محلية
    (ELECTRO CABLE EGYPT Co. 1×70 mm² AL/XLPE +C.B 2.5% 0.6/1kV 2020)
  - تاريخ استلام العينة : ٢٠٢٠/١٢/١٣
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2 kV) up to 30 kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 501: Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hot set test for cross – Linked Materials.
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation.

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع تعامل مركز أبحاث الجهد الفائق
الكيلو ٣ طريق القاهرة / الإسكندرية الصحراوي
رقم التقرير : (٥٥٨/ ٢٠٢٠)
صفحة ١ من ٢

تقرير اختبار

رقم التقرير : (٥٥٨/ ٢٠٢٠)

- العميـــــل : شركة الكابلات الكهربائية المصرية .
- تاريخ التقرير : ٢٩ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : (TO - AC - 20 - 12 - 13 - 07) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية IEC (60502-1) .
- العينـة :
  - وصف العينة: عينة موصل هوائي الومنيوم عزل (XLPE) . قطاع (١ × ٧٠) مم² . تصنيع شركة الكابلات الكهربائية المصرية – صناعة محلية
    (ELECTRO CABLE EGYPT Co. 1×70 mm² AL/XLPE +C.B 2.5% 0.6/1kV 2020)
  - تاريخ استلام العينة : ٢٠٢٠/١٢/١٣
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2 kV) up to 30 kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 501: Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hot set test for cross – Linked Materials.
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation.

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع تعامل مركز أبحاث الجهد الفائق
الكيلو ٣ طريق القاهرة / الإسكندرية الصحراوي
رقم التقرير : (٥٥٨/ ٢٠٢٠)
صفحة ١ من ٢

تقرير اختبار

رقم التقرير : (٥٥٨/ ٢٠٢٠)

- العميـــــل : شركة الكابلات الكهربائية المصرية .
- تاريخ التقرير : ١٩ / ٢ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : (TO - AC - 20 - 12 - 13 - 96) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية IEC (60502-1) .
- العينـة :
  - وصف العينة: عينة موصل هوائي الومنيوم عزل (XLPE) . قطاع (١ × ٥٠) مم² . تصنيع شركة الكابلات الكهربائية المصرية – صناعة محلية
    (ELECTRO CABLE EGYPT Co. 1×50 mm² AL/XLPE +C.B 2.5% 0.6/1kV 2020)
  - تاريخ استلام العينة : ٢٠٢٠/١٢/١٣
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2 kV) up to 30 kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 501: Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hot set test for cross – Linked Materials.
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation.

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع تعامل وأبحاث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٣ طريق القاهرة / الإسكندرية الصحراوي
رقم التقرير : (٢٢٤/ ٢٠٢١)
صفحة ١ من ١

تقرير اختبار

رقم التقرير : (٢٢٤/ ٢٠٢١)

- العميـــــل : شركة الكابلات الكهربائية المصرية .
- تاريخ التقرير : ٢ / ٦ / ٢٠٢١ .
- مكان الاختبار :
  - مركز أبحاث الجهد الفائق .
  - الكود الداخلي : (TO - AC - 21 - 03 - 25 -05) .
- المتطلبات : إجراء الاختبارات النوعية طبقاً للمواصفات القياسية العالمية IEC (60502-1) .
- العينـة :
  - وصف العينة : عينة كابل الومنيوم معزول مسلح جهد ٣/٠,٦ ك.ف - قطاع (٣ × ٣٠٠ + ١٥٠ مم²) - عزل XLPE وغلاف PVC .
    (ELECTRO CABLE EGYPT CO. 3×300+150 mm² AL/XLPE/STA/PVC 0.6/1kV 2021)
    انتاج شركة الكابلات الكهربائية المصرية
  - تاريخ استلام العينة : ٢٠٢١/٥/١٥
- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسئولية العميل .
- المواصفات القياسية العالمية المستخدمة :

- IEC (60502-1, 2021) : Power Cables with Extruded Insulation and their Accessories for rated Voltages from 1kV(Um = 1.2kV) up to 30kV (Um=36kV) Part 1: Cables for Rated Voltage of 1kV (Um=1.2kV) and 3kV (Um=3.6kV)
- IEC (60811-201, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of Insulation thickness.
- IEC (60811-401,2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven.
- IEC (60811-501, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part501:Miscellaneous tests – Tests for determining the mechanical properties of insulating and sheathing compounds.
- IEC (60811-509, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 509: Miscellaneous tests – Test for resistance of insulations and sheaths to cracking (heat shock test).
- IEC (60811-202, 2012) : Electric and optical fiber cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non – Metallic Sheath.
- IEC (60811-507, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 507: Mechanical tests – Hobet test for cross – Linked Materials .
- IEC (60811-502, 2012) : Electric and optical fiber cables – Test Methods for non-Metallic Materials – Part 502: Mechanical tests – Shrinkage test for Insulation .

F - 07 – 08 - 02

الشركة القابضة لكهرباء مصر
قطاع معامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢٩ طريق القاهرة الاسكندرية الصحراوي
رقم التقرير : (٢٢٥/ ٢٠٢١)
صفحة ١ من ١

تقرير اختبار

رقم التقرير : (٢٢٥ / ٢٠٢١)

- العميـــــل : شركة الكابلات الكهربائية المصرية .
- تاريخ التقرير : ١٠ / ٨ / ٢٠٢١ .
- مكان الاختبار :

- مركز أبحاث الجهد الفائق :
- الكود الداخلي : TO - AC - 21 - 09 - 25 - 06

- المتطلبات : اجراء الاختبارات طبقا للمواصفات القياسية العالمية IEC .
- العينـة :

- وصف العينة : موصل الومنيوم مقوي بالصلب (ACSR) قطاع (٢٥/٥٠ مم٢) – إنتاج شركة الكابلات الكهربائية المصرية – صناعة محلية
- تاريخ استلام العينة: ٢٠٢١/٢/٢٥

- اختيار عينة الاختبار : تم اختيار عينة الاختبار تحت مسؤولية العميل .
- المواصفات القياسية العالمية المستخدمة :

- IEC 61089 (1991): Round wire concentric lay overhead electrical stranded conductors.
- IEC 60889 (1987): Hard-drawn aluminum wire for overhead line conductors.
- IEC 60888 (1987): Zinc-coated steel wires for stranded conductors
- EOMS 04-100-1 (2020) Specification for Overhead Aluminum Conductors Steel Reinforced (ACSR).

- توصيف معدات الاختبار :

- جهاز قياس المقاومات الصغيرة (Raytech) – طراز: (WR50 - 12) – برقم مسلسل: (303 – 174) رقم شهادة المعايرة (٢٠٢٠/٢١/٢١٠)
- ماكينة الشد الميكانيكي ١٠٠ ك نيوتن – طراز: (Lloyd) – موديل: (LK100 PLUS) رقم شهادة المعايرة (٢٠١٩/٤/١٠٥٨)

- الاختبارات :

١- تكوين الموصل وقياس الابعاد.
٢- تحديد اتجاه الجدل.
٣- قياس نسبة خطوة الجدل.
٤- قياس المقاومة النوعية للسلك الألومنيوم.
٥- تحديد اجهاد الشد الميكانيكي للأسلاك.
٦- قياس وزن طبقة الحلقة للسلك الصلب.

F - 07 – 08 - 02

HANDLING & LAYING INSTRUCTIONS

Cables should be installed and stored according to international regulation by trained persons with good engineering practice.

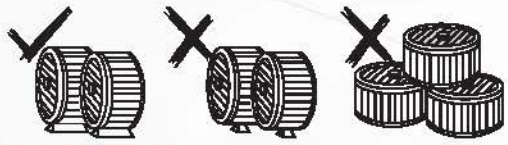
Cables are supplied on heavy wooden/steel drum and ha dling these drums can constitute real hazardous.

The below instructions provide the guidelines and procedures which should be applied to secure the cable drums from damages and any cons quence losses.

Handling Instructions

1. Upright position

All the drums should be handled and stored standing upright, no drums should be handled or stored in flat position under any circumstances. This will lead to cable damage and may cause Problems during laying.



2. Rolling Direction

2.1. If the drum is required to be rolled, it should be rolled in the direction of the printed arrow on the outer flange. This direction will remain the cable safe and tight.

2.2. Drums should be rolled only for short distance over flat solid ground in the direction indicated by the arrow on the flange.

2.3. Suitable stoppers should be used to make sure that the drum is not able to move after being placed in its position.

2.4. Wooden lagging of the drum should be kept safe without any stresses.

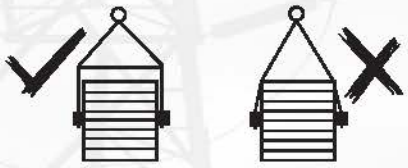
2.5. When moving the drums by hand, the operators should wear stout gloves and safety footwear

3. Lifting the drum

3.1. When lifting drums by crane, spreader beam should be used.

3.2. On lowering the drum be sure that the drum moves as slow as possible and prevent it from any hard impact with the ground.

3.3. The drum axis should be kept always in a horizontal position.



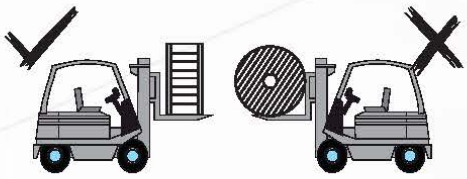
4. Fork lift handling

4.1. When lifting drums by fork lift trucks, the cable drum flanges should be at right angles to the forks, and the forks should be longer than the width of the drum (see below figure).

4.2. Before moving the lift. Be sure that the lift raised the drum to a sufficient space above the ground.

4.3. Be sure that the truck has stopped completely before releasing the drum.

4.4. Always refer to the relevant schedules for dimensions and weights of each cable drums.
4.5. Cable drums must be laid perpendicular to the direction of the moving vehicle.
4.6. Under no circumstances should the fork come in a contact with the cable.



5. Securing the drums

5.1. The drums should be secured by the suitable edges to safely park the drum.
5.2 longitudinal heavy gauge metal strips binding in two places on every drum. (If necessary)

6. Transporting the drums

Each drum should have a separate tight, suitable wires should be used to prevent the motion of the drums during transportation.

7. Long period's storage

7.1. Store the drums on a flat and dry area, prevent any roughness, this will lead to drum damages.

7.2. Sufficient spaces should be kept between drums.
7.3. Sufficient spaces should be rolled to an angle of 90 periodically .Bolts must be checked.

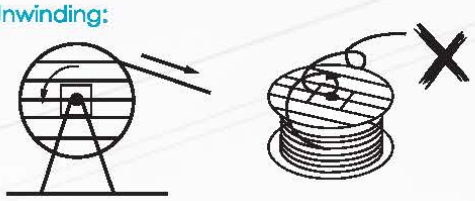
7.4. Avoid storing the drums in direct sunlight for long periods. Suitable covering shall be used if the drums must be stored in direct sunlight

7.5. Cable drums have to be stored whenever possible away from vehicular traffic in order to minimize the risk of being accidentally damaged.
7.6 In case of all above conditions are achived we recommend the period length should be one year

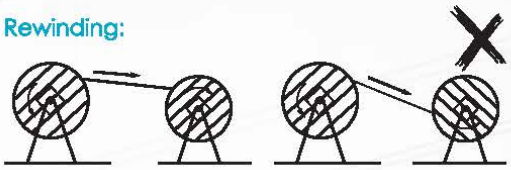
8. Unwinding and Rewinding

8.1. Unwinding and rewinding of cables should be performed as shown in the following figures.

Unwinding:



Rewinding:



8.2. When cable rewinding is required, the same drum diameter or greater should be used.
8.3. During cable rewinding, avoid any sharp edges that may damage the cable.
8.4. Maximum cable pulling force and bending radius should be considered.
8.5. Wooden drums have an arrow marked on their flanges indicate both, the direction that cables is to be wound on to them and also the direction in which the drum is to be rolled.

Note: cable handling and storage procedures is according to BS 8512

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