

GPI OHTL
Conductors
Catalogue

EMPOWERING
A SUSTAINABLE FUTURE



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Company Overview

Established in 1984, GPI is a fast-growing leading player that has evolved from a local manufacturer of electrical cables into an integrated energy and infrastructure solutions provider. Our operations span across distinct energy sectors including Cables & Wires, Lighting, Advanced Metering Technologies, and Turnkey Engineering and Construction Projects.

With over 600 employees, +20 distributors in Egypt, and +400 clients spread across Europe, Middle East & Africa (EMEA) region, and backed by the heritage and experience of our holding company Electro Cable Egypt (ECE), our growth has been driven by constant innovation in technology, machinery, and talent.

We export a diverse range of high-end products to numerous countries including Egypt, the United Kingdom, Poland, the Netherlands, Cyprus, Libya, Morocco, Algeria, Iraq, Yemen, Saudi Arabia, the United Arab Emirates, Sudan, Kenya, Tanzania, Uganda, Rwanda, and Chad.



+600

Employees Experience



+20

Distributors in Egypt

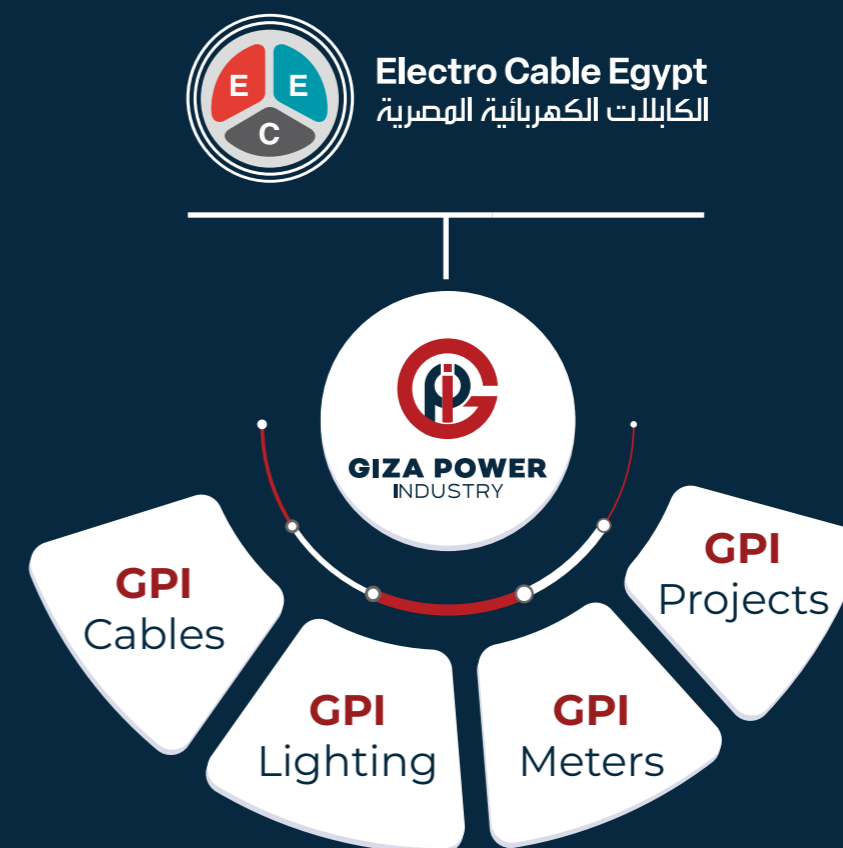


+400

Clients

EMPOWERING BUSINESSES
AND COMMUNITIES TO
DEVELOP AND FLOURISH

GPI is a subsidiary of Electro Cable Egypt (ECE), the industrial edifice that represents the origin of the cable industry in Egypt, Middle East and Africa, and it comprises of four business lines:



GPI Cables: Manufacture and supply of a wide range of high-performance LV, MV, HV, OHTL conductors and winding wires designed to meet the diverse needs of our customers with an annual production capacity of more than 25,000 tons.

GPI Lighting: Manufactures and delivers a broad range of reliable indoor and outdoor optimal lighting solutions that combine innovation and sustainability to create energy-efficient and aesthetically pleasing environments.

GPI Meters: Established in 2022 on an area of 5000 square meters with a production capacity of up to 6 million meters per year, GPI Meters plant leverages advanced metering technologies to provide accurate and reliable data collection meters to support the growing need for smart grid solutions, optimize energy usage and improve operational efficiency.

GPI Projects: Turnkey construction projects, general and electromechanical contracting, public supplies, project management and engineering consulting.

OUR HISTORY

A JOURNEY OF RESILIENCE & INNOVATION

Over more than four decades, we have faced numerous challenges, including market shifts, economic hurdles, evolving trends, and the constant march of technology.

Yet, guided by experienced leaders and a dedicated team, we have been able to transform these challenges into opportunities. We have already achieved so much, and for us, it's always just the beginning!

Key Milestones:

1984

Inception

The factory was established in 1984 to produce different varieties of power cables under the name of "Giza Cables" at the industrial sector of Abo Rawash, Giza, Egypt.

1988

Legally Commissioned

Factory was legally commissioned for commercial production under license number 986.

2015

Acquisition

"Giza Cables" was acquired by Electro Cable Egypt (ECE) and rebranded as "Giza Power Industry." This acquisition, supported by ECE's expertise and industry leadership, expanded the company's market presence and positioned it as a leader in innovation and product growth.

2018

Growth

This year marked significant growth and a stronger global presence, with the company expanding its product range, adopting advanced manufacturing and sustainable practices, and successfully entering new markets in Europe, the Middle East, and Africa (EMEA).

2020

GPI Projects Inception

GPI launched "GPI Projects" a new company with a capital of 250M EGP to provide customers with seamless, fast-track turn-key projects through integrated Engineering, Procurement, and Construction services.

2022

Meters Market Entry

The GPI Meters plant, covering 5,000 square meters, produces up to 6 million meters annually, utilizing advanced technology to manufacture single and triple prepaid smart meters, street lighting smart meters, and indirect smart meters.

2024

BASEC Certification

GPI has successfully acquired the BASEC certification for its Medium-Voltage cables range which provides our customers in the UK the best possible assurance that GPI cables will consistently meet or exceed all the required product manufacturing standards and operational performance requirements.

SUSTAINABILITY

At our core, sustainability is more than a responsibility—it's a chance to innovate and lead. Across all subsidiaries, we focus on improving efficiency and reducing our carbon footprint, driven by a team committed to protecting the planet.

Our approach includes eco-friendly manufacturing, sustainable products like energy-efficient lighting and durable cables, active community engagement, and a strong commitment to environmental responsibility on a global scale.

QHSE & Energy Management Systems

Giza Power Industry (GPI) is dedicated to maintaining the highest standards of quality, Health, safety and environmental & energy management responsibility. Our commitment to excellence is reflected in the various certifications we have earned and maintained over the years. These certificates validate our adherence to international standards and best practices across our operations.

From ISO certifications to specialized industry accreditations, our certifications demonstrate our dedication to continuous improvement and our unwavering focus on delivering superior products and services. They provide our clients and partners with the confidence that GPI is a reliable and trusted leader in the power and infrastructure sectors.

Our products and systems have been awarded certifications from ISO, KEMA, CPRI and BASEC (British Approvals Service for Cables). Our products also comply with DIN , HD , NF, IEC, BS and ASTM standards

The company has successfully achieved, implemented and maintained the following quality systems and certificates:

- Quality Management System - ISO 9001:2015
- Testing and Calibration Laboratories System - ISO/IEC 17025:2017
- Occupational Safety and Health System - ISO 45001:2018
- Environmental Management System - ISO 14001:2015
- BASEC Product Certification Requirements
- Energy Management System - ISO 50001:2018



PRODUCT INTRODUCTION

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 electrical energy. 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.



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 GPI whole range of overhead conductors including bare soft or hard drawn copper 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 accordance with the relevant DIN, IEC, ASTM, BS and BS EN standards. However, GPI 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.

GENERAL INFORMATION

DEFINITION

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

Standards

5. Direction of lay

The direction of 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%	Electrical Resistivity @ 20 °c O.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	95-97	1.741 - 1.814	0.00393
Aluminium	61	2.8264	0.00403
Lead	8	21.40	0.00400

Electrical Properties

Table 2

Property	Unit	Copper	Aluminium	Lead
Density at 20 °C	kg / m3	8890.0	2703.0	11340.00
Coe . thermal expansion	Per °C x 10-6	17.0	23.0	29.00
Melting point	°C	1083.0	659.0	327.00
Thermal conductivity	W/cm °C	3.8	2.4	0.34
Ultimate tensile strength	MN/m2	225.0	70-90	-

GENERAL INFORMATION

STANDARDS

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. IEC61232 Aluminum-clad steel wires for electrical purposes.
6. IEC61597 Overhead electrical conductors - Calculation methods for stranded bare conductors.
7. IEC 62641 Conductors for overhead lines – Aluminium and aluminium alloy wires for concentric lay stranded conductors.
8. IEC 63248 Conductors for overhead lines – Coated or clad metallic wire for concentric lay stranded 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. BS2-215 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 48201-1 Stranded conductors - Copper cable.
2. DIN 48201-5 Aluminum stranded conductors.
3. DIN 48201-6 E-AlMgSi Stranded conductors.
4. DIN 48204 Steel reinforced aluminum stranded conductors.

ASTM Standards

1. ASTM B 230 Standard Specification for Aluminum 1350-HI 9 Wire for Electrical Purpose.
2. ASTM B231 Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors.
3. ASTM B 398 Standard Specification for Aluminum Alloy6201-T81 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 Specification Aluminum 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 S-76-474 Standard for neutral-supported power cable assemblies with weather-resistant extruded insulation rated 600 volts.

GENERAL INFORMATION

Conversion Table

AWG	SI unit		Imperial unit	
	Diameter (mm)	Cross-Section (mm ²)	Diameter (mil)	Cross-Section (Cmil)
4/0	11.68	107.2	460	211600
3/0	10.40	85.03	409.6	167772
2/0	9.266	67.42	364.8	133079
1/0	8.254	53.49	324.9	195600
1	7.343	42.41	289.3	83694
2	6.544	33.63	257.6	66358
3	5.827	26.66	229.4	52624
4	5.189	21.15	204.3	41738
5	4.621	16.77	181.9	33088
6	4.115	13.30	162.0	26244
7	3.665	10.55	144.3	20822
8	3.264	8.368	128.5	16512
9	2.906	6.632	114.4	13087
10	2.588	5.262	101.9	10384
11	2.305	4.172	90.74	8234
12	2.053	3.309	80.81	6530
13	1.828	2.625	71.96	5178
14	1.628	2.081	64.08	4106
15	1.450	1.650	57.07	3257
16	1.291	1.309	50.82	2583
17	1.150	1.037	45.26	2048
18	1.024	0.8226	40.30	1624
19	0.9116	0.6529	35.89	1288
20	0.8118	0.5174	31.96	1021
21	0.7229	0.4105	28.46	810
22	0.6438	0.3256	25.35	642.6
23	0.5733	0.2581	22.57	509.4
24	0.5106	0.2047	20.10	404
25	0.4547	0.1623	17.90	320.4
26	0.4094	0.1288	15.94	254.1
27	0.3606	0.1021	14.20	201.6
28	0.3211	0.08097	12.64	159.8
29	0.2859	0.06425	11.26	126.8
30	0.2546	0.05097	10.03	100.6
31	0.2268	0.04039	8.928	79.71
32	0.2019	0.03203	7.950	63.20
33	0.1797	0.02540	7.080	50.13
34	0.1601	0.02014	6.305	39.75
35	0.1426	0.01597	5.615	31.53
36	0.1270	0.01267	5.000	25.00
37	0.1131	0.01005	4.453	19.83
38	0.1007	0.007968	3.965	15.72
39	0.08969	0.006319	3.531	12.47
40	0.07937	0.005012	3.145	9.891
41	0.07113	0.003973	2.800	7.842
42	0.06334	0.003151	2.494	6.219
43	0.05541	0.002499	2.221	4.932
44	0.05023	0.001982	1.978	3.911
45	0.04473	0.001572	1.761	3.102
46	0.03984	0.001246	1.568	2.460
47	0.03547	0.0009884	1.397	1.951
48	0.03159	0.0007838	1.244	1.547
49	0.02813	0.0006216	1.108	1.227
50	0.02505	0.0004929	0.9863	0.9728

Conversion Table

Multiply	By	To obtain
Weight-Imperial		
Ounces	28.3495	grams
Pounds (Av)	453.59	grams
Pounds (Av)	0.45359	Kilograms
Tons (short)	907.19	Kilograms
Tons (long)	1016.05	Kilograms
Weight-Metric		
Grams	0.03527	Ounces
Grams	0.002205	Pounds
Kilograms	35.274	Ounces
Kilograms	2.2046	Pounds
Kilograms	0.001102	Tons (short)
Kilograms	0.0009842	Tons (long)
Miscellaneous-Imperial		
Pounds per 1000 feet	1.48816	Kg/km
Pounds per mile	0.28185	Kg/km
Pounds per square inch	0.0007031	Kg. per square mm.
Pounds per square inch	0.07031	Kg. per square cm.
Pounds per cubic	27.68	Grams per cubic cm.
feet per second	18.288	Meters per minute.
feet per second	1.09728	Kilometers per hour.
Miles per hour	1.60935	Kilometers per hour.
Ohms per 1000 feet	3.28083	Ohms per kilometer.
Ohms per mile	0.62137	Ohms per kilometer.
Decibels per 1000 feet	3.28083	Decibels per kilometer.
Decibels per mile	0.62137	Decibels per kilometer.
Decibels	0.1153	Nepers.
Miscellaneous-Metric		
Kg/km	0.67197	Pounds per 1000 feet
Kg/km	3.54795	Pounds per mile
Kg.per square mm	1422.34	Pounds per square inch
Kg.per square cm	14.2234	Pounds per square inch
Grams per cubic cm	0.03613	Pounds per square inch
Meters per minute	0.05468	feet per second
Kilometers per hour	0.91134	feet per second
Kilometers per hour	0.62137	Miles per hour
Ohms per kilometer	0.3048	Ohms per 1000 feet
Ohms per kilometer	1.6093	Ohms per mile
Decibels per kilometer	0.3048	Decibels per 1000 feet
Decibels per kilometer	1.6093	Decibels per mile
Temperature		
	5/9 (oF)-32	oCelsius
	9/5(oC)+32	Fahrenheit
Length-Imperial		
Mils	0.001	Inches.
Mils	0.0254	mm.
Inches	1000	Mils.

Multiply	By	To obtain
Inches	25.40	mm
Inches	2.54	cm.
Feet	30.48	cm.
Feet	0.3048	Meters.
Feet (thousands of)	0.3048	Kilometers.
Yards	0.9144	Meters.
Miles	1.6093	Kilometers
Length- Metric		
millimeters	39.37	Mils.
millimeters	0.03937	Inches.
centimeters	0.3937	Inches.
centimeters	0.032808	Feet.
meters	39.37	Inches.
meters	3.2808	Feet.
meters	1.0936	Yards.
kilometers	3280.83	Feet.
kilometers	0.62137	Miles.
Area-Imperial		
Square mils	1.2732	Circular mils
Square mils	0.000001	Square inches
Circular mils	0.7854	Circular mils
Circular mils	0.0000007854	
Square mils	0.0005067	Square mm.
Square inches	1000000	Circular mils
Square inches	1273240	Circular mils
Square inches	654.16	Square mm.
Square inches	6.4516	Square cm.
Square feet	0.09290	Square meters.
Square yards	0.8361	Square meters.
Area-Metric		
Square millimeters	1973.52	Circular mils
Square millimeters	0.00155	Square inches
Square centimeters	0.155	Square inches
Square meters	10.7638	Square feet
Square meters	1.19599	Square yards
Volume-Imperial		
Cubic inches	16.38716	Cubic cm.
Cubic feet	0.028317	Cubic meters
Volume-U.S.		
Quarts (liquid)	0.9463	liters
Quarts	3.7854	liters
Volume-Metric		
Cubic cm	0.06102	Cubic inches.
Cubic meters	35.3145	Cubic feet.
Liters	1.05668	Quarts (liquid u.s)
Liters	0.26417	Gallons (U.S.)



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. Aerial Bundled Cables (ABC)

**BARE HARD
& SOFT DRAWN
COPPER CONDUCTORS**



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.

Technical Data

Relevant Standard	IEC 60228 class 2
Conductor	Plain bare soft drawn Copper conductors
Minimum bending Radius	25 x outer diameter
Packing Condition	Our standard length on Wooden Drum / or according to customer request

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No.	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Approx. Weight 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 subject to manufacturing tolerances

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.

Technical Data

Relevant Standard

DIN 48201-1, BS 7884

Conductor

Plain bare hard drawn copper

Minimum bending Radius

25 x outer diameter

Packing Condition

Our standard length on Wooden Drum / or according to customer request



Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
A- DIN 48201-1							
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 subject to manufacturing tolerances

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. emissivity coefficient of 0.6, solar radiation absorption coefficient of 0.5

Stranded Hard Drawn Bare

Copper Conductor



Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
B - BS 7884							
HDC - 10	10	7 x 1.35	1.8290	4.05	3.752	89.82	90
HDC - 14	14	7 x 1.60	1.3030	4.80	5.267	126.20	113
HDC - 16	16	7 x 1.70	1.1540	5.10	5.946	142.40	125
HDC - 25	25	7 x 2.10	0.7563	6.30	9.073	217.30	160
HDC - 32	32	7 x 2.46	0.5497	7.38	12.442	298.20	197
HDC - 35	35	7 x 2.50	0.5337	7.50	12.860	308.00	200
HDC - 50	50	7 x 3.0	0.3706	9.00	18.520	443.50	260
HDC - 50	50	19 x 1.80	0.3819	9.00	17.700	435.80	250
HDC - 70	70	7 x 3.55	0.2646	10.65	25.930	621.10	314
HDC - 70	70	19 x 2.10	0.2806	10.50	24.090	593.20	310
HDC - 95	95	19 x 2.50	0.1980	12.50	34.140	840.70	380
HDC - 100	100	7 x 4.30	0.1810	12.90	36.540	911.20	401
HDC - 120	120	19 x 2.80	0.1578	14.00	42.830	1055.00	440
HDC - 125	125	19 x 2.90	0.1471	14.50	45.940	1131.00	459
HDC - 150	150	19 x 3.20	0.1208	16.00	55.940	1377.00	521
HDC - 150	150	37 x 2.25	0.1264	15.75	53.880	1334.00	510
HDC - 185	185	19 x 3.55	0.0982	17.75	68.860	1695.00	595
HDC - 185	185	37 x 2.50	0.1024	17.50	66.490	1647.00	589

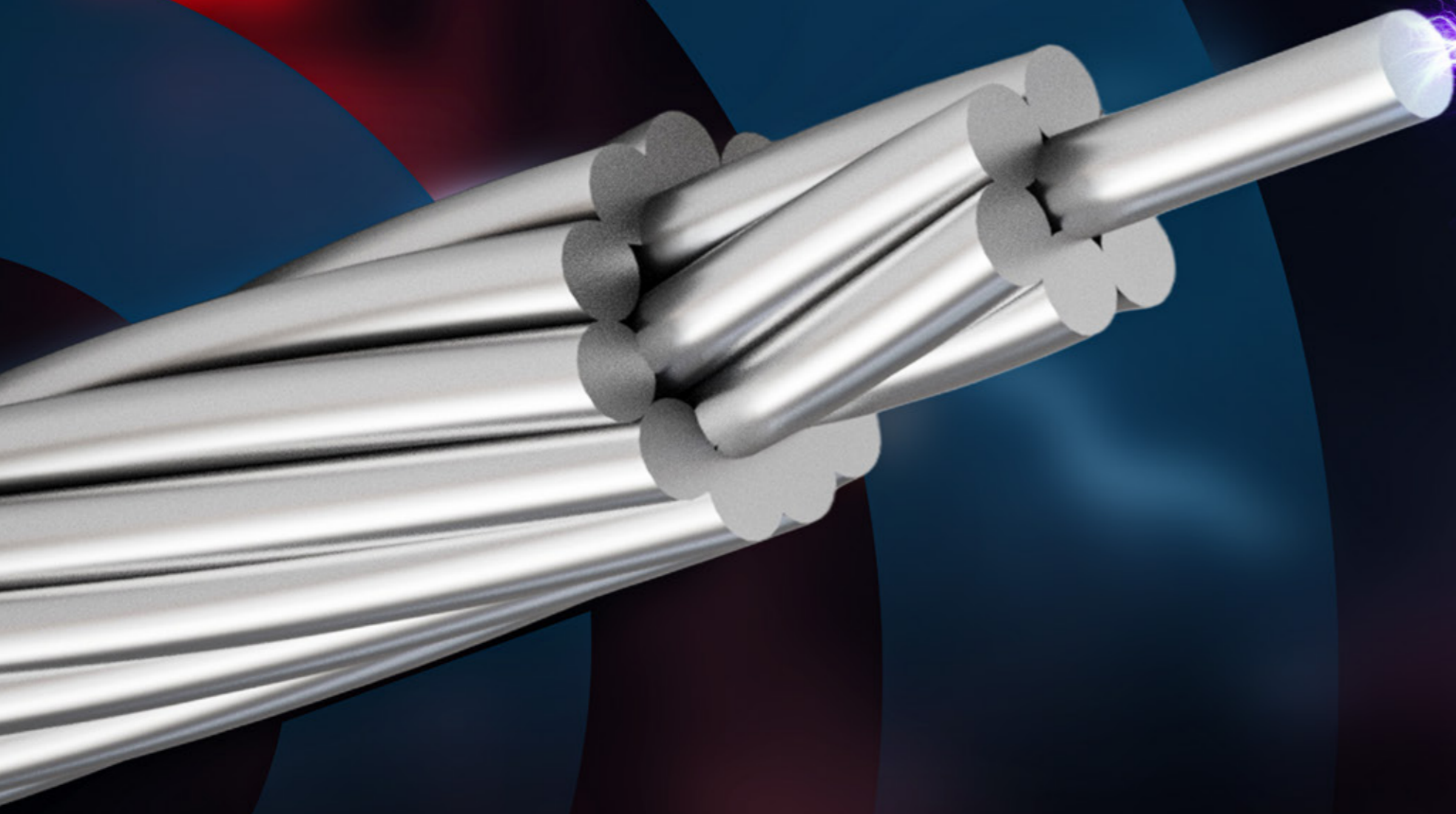
The above data is approximate and subject to manufacturing tolerances

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, emissivity coefficient of 0.6, solar radiation absorption coefficient of 0.5



**ALL ALUMINUM
CONDUCTOR (AAC)**



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 is required.

Technical Data

Relevant 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	25 x outer diameter
Packing Condition	Our standard length on Wooden Drum / or according to customer request

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
A - BS EN 50182 (GERMANY) & DIN 48201-5							
PO-BT11-00-01-U0	16	7 x 1.70	1.7986	5.10	3.02	43.4	110
PO-BT12-00-01-U0	25	7 x 2.10	1.1787	6.30	4.36	66.3	145
PO-BT13-00-01-U0	35	7 x 2.50	0.8317	7.50	6.01	93.9	180
PO-BT14-00-01-U0	50	7 x 3.00	0.5776	9.00	8.41	135.2	225
PO-BT14-00-01-U0	50	19 x 1.80	0.5944	9.00	8.94	132.9	225
PO-BT15-00-01-U0	70	19 x 2.10	0.4367	10.50	11.85	180.9	270
PO-BT16-00-01-U0	95	19 x 2.50	0.3081	12.50	16.32	256.3	340
PO-BT17-00-01-U0	120	19 x 2.80	0.2456	14.00	19.89	321.5	390
PO-BT18-00-01-U0	150	37 x 2.25	0.1960	15.80	26.48	405.7	455
PO-BT19-00-01-U0	185	37 x 2.50	0.1588	17.50	31.78	500.9	520
PO-BT20-00-01-U0	240	61 x 2.25	0.1193	20.30	43.66	671.1	625
PO-BT21-00-01-U0	300	61 x 2.50	0.0966	22.50	52.40	828.5	710
PO-BT22-00-01-U0	400	61 x 2.89	0.0723	26.00	68.02	1107.1	855
PO-BT23-00-01-U0	500	61 x 3.23	0.0579	29.10	82.47	1382.9	990

The above data is approximate and subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

All Aluminum Conductors

(AAC)



Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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

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 0.6, solar radiation absorption coefficient of 0.5

The above data is approximate and subject to manufacturing tolerances

All Aluminum Conductors

(AAC)



Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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
Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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
SNEEZEWORD	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

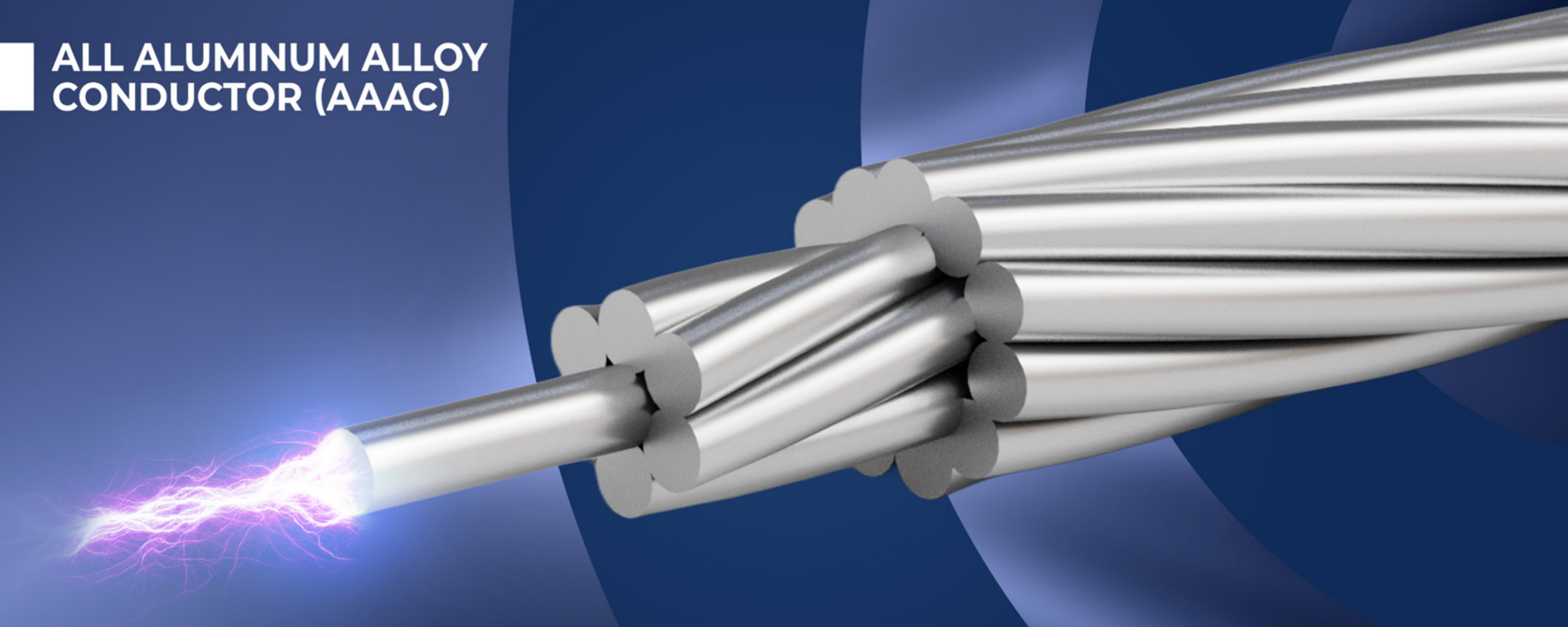
Note:-

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 0.6, solar radiation absorption coefficient of 0.5

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
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
GOLDENROD	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
HAWTHORN	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 subject to manufacturing tolerances

ALL ALUMINUM ALLOY
CONDUCTOR (AAAC)



All Aluminum 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 as a messenger to support overhead electrical cables.

Technical Data

Relevant Standard BS EN 50182, DIN 48201-6, IEC 61089, ASTM B 399

Conductor Plain bare All Aluminum Alloy

Minimum bending Radius 25 x outer diameter

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

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
A- BS EN 50182 (GERMANY) & 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

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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 subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

All Aluminum Alloy Conductors

(AAAC)

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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 mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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

All Aluminum Alloy Conductors

(AAAC)



Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
E - IEC 61089 (Aluminum Alloy A3 - Type A)							
A3 - 16	18.6	7 x 1.84	1.7896	5.52	6.04	50.8	151
A3 - 25	29	7 x 2.30	1.1453	6.90	9.44	79.5	200
A3 - 40	46.5	7 x 2.91	0.7158	8.72	15.10	127.1	270
A3 - 63	73.2	7 x 3.65	0.4545	10.90	23.06	200.2	361
A3 - 100	116	19 x 2.79	0.2877	14.00	37.76	319.3	488
A3 - 125	145	19 x 3.12	0.2302	15.60	42.20	399.2	563
A3 - 160	186	19 x 3.53	0.1798	17.60	58.56	511.0	659
A3 - 200	232	19 x 3.95	0.1439	19.70	73.20	638.7	761
A3 - 250	290	19 x 4.41	0.1151	22.10	91.50	798.4	880
A3 - 315	366	37 x 3.55	0.0916	24.80	115.29	1008.4	1020
A3 - 400	465	37 x 4.00	0.0721	28.00	146.40	1280.5	1190
A3 - 450	523	37 x 4.24	0.0641	29.70	164.70	1440.5	1283
A3 - 500	581	37 x 4.47	0.0577	31.30	183.00	1600.6	1371
A3 - 560	651	61 x 3.69	0.0516	33.20	204.96	1795.3	1474
A3 - 630	732	61 x 3.91	0.0458	35.20	230.58	2019.8	1587
A3 - 710	825	61 x 4.15	0.0407	37.30	259.86	2276.2	1708
A3 - 800	930	61 x 4.40	0.0361	39.60	292.80	2564.8	1841

The above data is approximate and subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

All Aluminum Alloy Conductors

(AAAC)

Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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 subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

All Aluminum Alloy Conductors

(AAAC)



Product Code	Cross Sectional Area mm ²	Minimum Number of Wires No. x mm	Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current 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
Gereeley	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 subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

**ALUMINUM CONDUCTOR
STEEL REINFORCED (ACSR)**



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.

Technical Data

Relevant 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 25 x outer diameter

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

Product Code	Cross Sectional Area mm ²	Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
		Aluminum No. x mm	Steel No. x mm					
A - BS EN 50182 (GERMANY) & 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 2.0	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
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 subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

**Aluminum Conductor Steel Reinforced
(ACSR)**



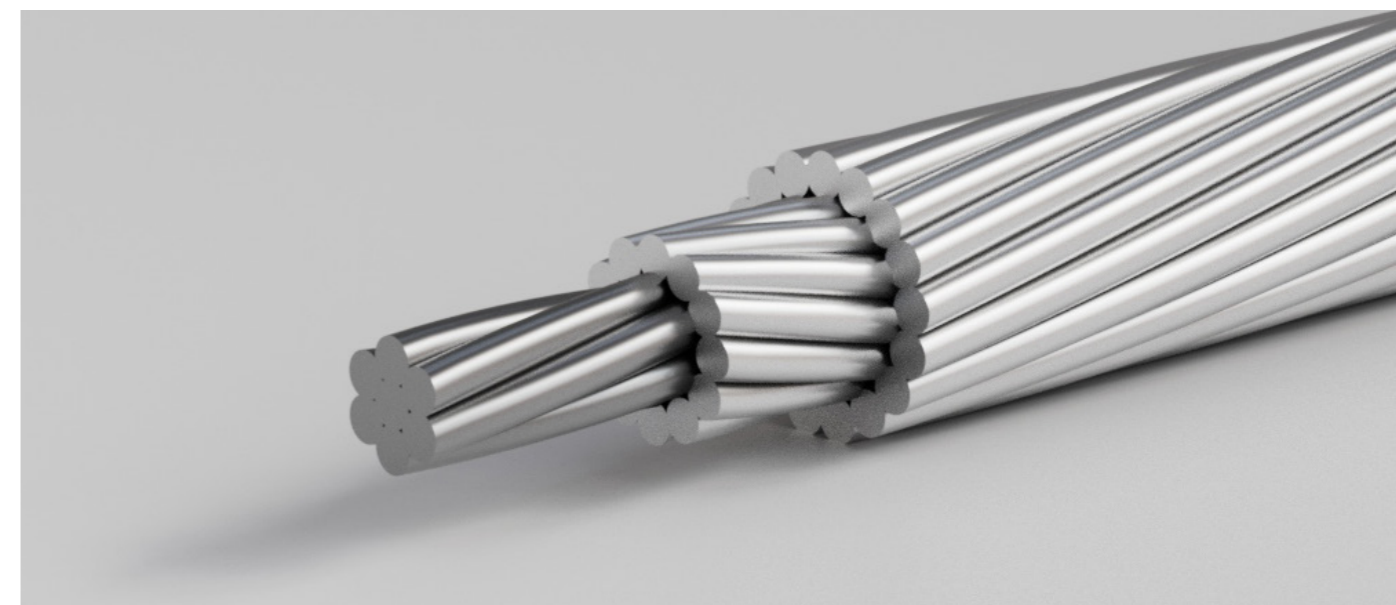
Product Code	Cross Sectional Area mm ²	Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
		Aluminum No. x mm	Steel No. x mm					
B - BS EN 50182 (United Kingdom)								
MOLE	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
RACCOON	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 subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5



Aluminum Conductor Steel Reinforced

(ACSR)



Product Code	Cross Sectional Area mm ²	Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
		Aluminum No. x mm	Steel No. x mm					
C - IEC 61089 (Al/S1A)								
Al/S1A - 16	18.7	6 x 1.84	1 x 1.84	1.7934	5.53	6.08	64.6	149
Al/S1A - 25	29.2	6 x 2.30	1 x 2.30	1.1478	6.91	9.13	100.9	198
Al/S1A - 40	46.7	6 x 2.91	1 x 2.91	0.7174	8.74	14.40	161.5	267
Al/S1A - 63	73.5	6 x 3.66	1 x 3.66	0.4555	11.00	21.63	254.4	358
Al/S1A - 100	117	6 x 4.61	1 x 4.61	0.2869	13.80	34.33	403.8	481
Al/S1A - 125	132	18 x 2.97	1 x 2.97	0.2304	14.90	29.17	397.9	549
Al/S1A - 125	145	26 x 2.47	7 x 1.92	0.231	15.70	45.69	503.9	557
Al/S1A - 160	169	18 x 3.36	1 x 3.36	0.18	16.80	36.18	509.3	643
Al/S1A - 160	186	26 x 2.80	7 x 2.18	0.1805	17.70	57.69	644.9	652
Al/S1A - 200	211	18 x 3.76	1 x 3.76	0.144	18.80	44.22	636.7	743
Al/S1A - 200	233	26 x 3.13	7 x 3.43	0.1444	19.80	70.13	806.2	754
Al/S1A - 250	275	22 x 3.80	7 x 2.11	0.1154	21.60	68.72	880.6	865
Al/S1A - 250	291	26 x 3.50	7 x 2.72	0.1155	22.20	87.67	1007.7	872
Al/S1A - 315	337	45 x 2.99	7 x 1.99	0.0917	23.90	79.03	1039.6	998
Al/S1A - 315	366	26 x 3.93	7 x 3.05	0.0917	24.90	106.83	1269.7	1012
Al/S1A - 400	428	45 x 3.36	7 x 2.24	0.0722	26.90	98.36	1320.1	1164
Al/S1A - 400	452	54 x 3.07	7 x 3.07	0.0723	27.90	123.04	1510.3	1173
Al/S1A - 450	481.0	45 x 3.57	7 x 2.38	0.0642	28.50	107.47	1485.2	1255
Al/S1A - 450	508.0	54 x 3.26	7 x 3.26	0.0643	29.30	138.42	1699.1	1266
Al/S1A - 500	535.0	45 x 3.76	7 x 2.51	0.0578	30.10	119.41	1650.2	1343

Al/S1A - 500	565.0	54 x 3.43	7 x 3.43	0.0578	30.90	153.80	1887.9	1355
Al/S1A - 560	599.0	45 x 3.98	7 x 2.65	0.0516	31.80	133.74	1848.2	1444
Al/S1A - 560	631.0	54 x 3.63	19 x 2.18	0.0516	32.70	172.59	2103.4	1458
Al/S1A - 630	674.0	45 x 4.22	7 x 2.81	0.0459	33.80	150.45	2079.2	1557
Al/S1A - 630	710.0	54 x 3.85	19 x 2.31	0.0459	34.70	191.77	2366.3	1572
Al/S1A - 710	759.0	45 x 4.48	7 x 2.99	0.0407	35.90	169.56	2343.2	1680
Al/S1A - 710	800.0	54 x 4.09	19 x 2.45	0.0407	36.80	216.12	2666.8	1696
Al/S1A - 800	901.0	54 x 4.34	19 x 2.61	0.0362	39.10	243.52	3004.9	1828

Note:-

1) Other types of ACSR as per IEC 61089 (Al/S1B, Al/S2A, Al/S2B & Al/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 0.6, solar radiation absorption coefficient of 0.5

Product Code	Cross Sectional Area mm ²	Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
		Aluminum No. x mm	Steel No. x mm					
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 subject to manufacturing tolerances

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 0.6, solar radiation absorption coefficient of 0.5

Aluminum Conductor Steel Reinforced (ACSR)



Product Code	Aluminum Cross Sectional Area		Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm²	Calculated Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
	kcmil	mm2	Aluminum No. x mm	Steel No. x mm					
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	25.25	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
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

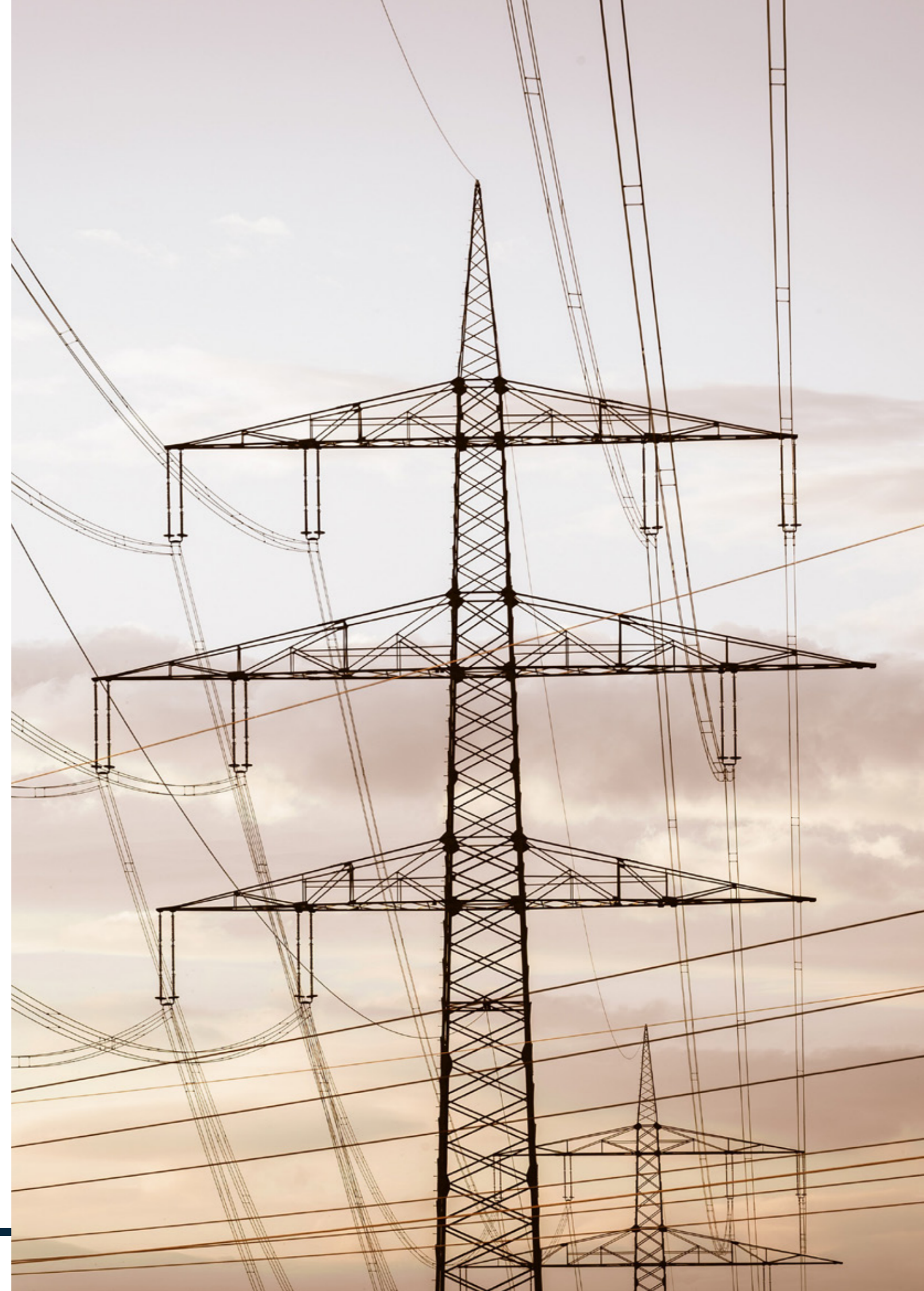
Product Code	Aluminum Cross Sectional Area		Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Calculated Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
	kcmil	mm ²	Aluminum No. x mm	Steel No. x mm					
RUDDY	900.00	456.0	45 x 3.59	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 subject to manufacturing tolerances

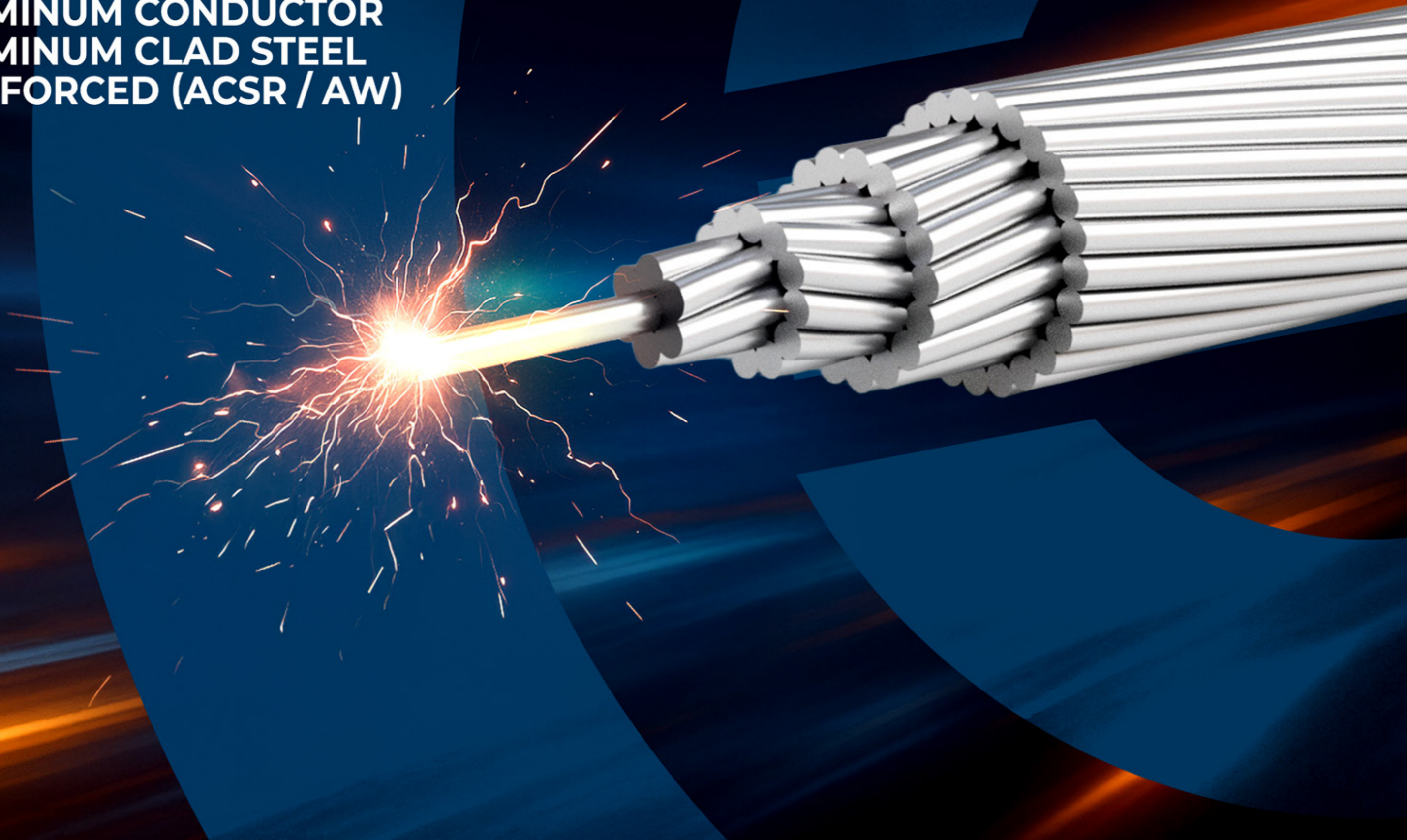
Note:-

** 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 0.6, solar radiation absorption coefficient of 0.5



**ALUMINUM CONDUCTOR
ALUMINUM CLAD STEEL
REINFORCED (ACSR / AW)**



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 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.

Technical Data

Relevant 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	25 x outer diameter
Packing Condition	Our standard length on Wooden Drum / or according to customer request

Product Code	Aluminum Cross Sectional Area		Aluminum Cross Sectional Area		Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Calculated Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
	kcmil	mm ²	kcmil	mm ²	Aluminum No. x mm	Steel No. x mm					
A - ASTM B 549											
4 SWAN / AW	41.74	21.20	42.70	21.60	6 x 2.12	1 x 2.12	1.2822	6.35	8.0	81.0	137
4 SWANATE / AW	41.74	21.20	43.00	21.80	7 x 1.96	1 x 2.61	1.2511	6.53	10.0	93.0	140
3 SWALLOW / AW	52.62	26.70	53.90	27.30	6 x 2.38	1 x 2.38	1.0174	7.14	10.0	103.0	159
2 SPARROW / AW	66.36	33.60	67.10	34.00	6 x 2.67	1 x 2.67	0.8084	8.03	12.0	129.0	184
2 SPARATE / AW	66.36	33.60	67.60	34.30	7 x 2.47	1 x 3.3	0.7874	8.26	16.0	149.0	188
GROUSE / AW **	80.00	40.50	82.70	41.90	8 x 2.54	1 x 4.24	0.6359	9.32	22.0	205.0	216
1 ROBIN / AW	83.69	42.40	85.40	43.30	6 x 3	1 x 3	0.6403	8.99	15.0	162.0	213
PETREL / AW **	101.80	51.60	107.80	54.60	12 x 2.34	7 x 2.34	0.4684	11.71	44.0	342.0	269
RAVEN / AW	105.60	63.50	107.70	54.60	6 x 3.37	1 x 3.37	0.5074	10.11	19.0	205.0	248
MINORCA / AW **	110.80	56.10	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	133.10	67.40	135.20	68.50	6 x 3.78	1 x 3.78	0.4033	11.35	23.0	259.0	287
LEGHORN / AW **	134.60	68.20	142.70	72.30	12 x 2.69	7 x 2.69	0.3544	13.46	58.0	452.0	321
GUINEA / AW **	159.00	80.60	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	167.80	85.00	170.70	86.50	6 x 4.25	1 x 4.25	0.3191	12.75	28.0	326.0	333
DOTTEREL / AW **	179.60	89.60	187.10	95.00	12 x 3.08	7 x 3.08	0.2704	15.42	75.0	594.0	382
DORKING / AW **	190.80	96.70	201.90	102.00	12 x 3.2	7 x 3.2	0.2505	16.03	81.0	641.0	402
BRAHMA / AW **	203.20	103.00	220.70	112.00	16 x 2.86	19 x 2.48	0.2163	18.14	121.0	894.0	448
COCHIN / AW **	211.30	107.00	223.00	113.00	12 x 3.37	7 x 3.37	0.2258	16.87	88.0	710.0	429
4/0 PENGUIN / AW	211.60	107.00	215.40	109.00	6 x 4.77	1 x 4.77	0.2533	14.30	34.0	412.0	387
WAXWING / AW	266.80	135.00	268.40	136.00	18 x 3.09	1 x 3.09	0.2096	15.47	30.0	421.0	435
PARTRIDGE / AW	266.80	135.00	271.20	137.00	26 x 2.57	7 x 2	0.2035	16.31	48.0	519.0	448
OSTRISH / AW	300.00	152.00	304.80	154.00	26 x 2.73	7 x 2.12	0.1804	17.27	54.0	583.0	483
MERLIN / AW	336.40	170.00	337.80	171.00	18 x 3.47	1 x 3.47	0.1662	17.37	38.0	531.0	504
LINNET / AW	336.40	170.00	341.30	173.00	26 x 2.89	7 x 2.25	0.1609	18.29	60.0	655.0	520
ORIOLE / AW	336.40	170.00	343.70	174.00	30 x 2.69	7 x 2.69	0.1578	18.82	74.0	737.0	530
CHICKADEE / AW	397.50	201.00	399.20	202.00	18 x 3.77	1 x 3.77	0.1408	18.87	44.0	628.0	561

The above data is approximate and subject to manufacturing tolerances

Note:-

The above values based on Aluminum clad steel (normal strength), different type of Aluminum clad steel core are also according to customer request as per ASTM B 502

** ACSR / AW 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 0.6, solar radiation absorption coefficient of 0.5

Product Code	Aluminum Cross Sectional Area		Aluminum Cross Sectional Area		Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Calculated Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
	kcml	mm2	kcml	mm2	Aluminum No. x mm	Steel No. x mm					
A - ASTM B 549											
BRANT / AW	397.50	201.00	403.00	204.00	24 x 3.27	7 x 2.18	0.1377	19.61	63.0	731.0	574
IBIS / AW	397.50	201.00	403.30	204.00	26 x 3.14	7 x 2.44	0.1363	19.89	70.0	774.0	579
LARK / AW	397.50	201.00	406.00	206.00	30 x 2.92	7 x 2.92	0.1339	20.47	87.0	869.0	589
PELICAN / AW	477.70	242.00	479.60	243.00	18 x 4.14	1 x 4.14	0.1168	20.68	51.0	755.0	632
FLICKER / AW	477.70	242.00	483.00	245.00	24 x 3.58	7 x 2.39	0.1148	21.49	74.0	877.0	645
HAWK / AW	477.70	242.00	484.60	246.00	26 x 3.44	7 x 2.68	0.1136	21.79	84.0	929.0	651
HEN / AW	477.70	242.00	487.90	247.00	30 x 3.2	7 x 3.2	0.1115	22.43	104.0	1043.0	663
OSPREY / AW	556.50	282.00	559.00	283.00	18 x 4.47	1 x 4.47	0.1002	22.33	59.0	880.0	698
PARAKEET / AW	556.50	282.00	564.00	286.00	24 x 3.87	7 x 2.58	0.0983	23.22	86.0	1022.0	713
DOVE / AW	556.50	282.00	564.80	286.00	26 x 3.72	7 x 2.89	0.0971	23.55	97.0	1083.0	720
EAGLE / AW	556.50	282.00	569.70	289.00	30 x 3.46	7 x 3.46	0.0954	24.21	119.0	1217.0	732
PEACOCK / AW	605.00	307.00	612.70	310.00	24 x 4.03	7 x 2.69	0.0906	24.21	93.0	111.0	751
SQUAB / AW	605.00	307.00	614.60	311.00	26 x 3.87	7 x 3.01	0.0898	24.54	105.0	1177.0	757
WOOD DUCK / AW	605.00	307.00	618.80	314.00	30 x 3.61	7 x 3.61	0.0876	25.25	126.0	1323.0	773
TEAL / AW	605.00	307.00	618.40	313.00	30 x 3.61	19 x 2.16	0.0878	23.98	127.0	1314.0	761
KINGBIRD / AW	636.00	322.00	639.40	324.00	18 x 4.78	1 x 4.78	0.0876	23.88	67.0	1006.0	773
SWIFT / AW	636.00	322.00	637.70	323.00	36 x 3.38	1 x 3.38	0.0884	23.62	61.0	946.0	775
ROOK / AW	636.00	322.00	644.00	326.00	24 x 4.14	7 x 2.76	0.0859	24.82	98.0	1168.0	777
GROSBEAK / AW	636.00	322.00	646.10	327.00	26 x 3.97	7 x 3.09	0.0853	25.15	110.0	1238.0	783
SOOTER / AW	636.00	322.00	650.50	330.00	30 x 3.7	7 x 3.7	0.0834	25.88	130.0	1391.0	798
EGRET / AW	636.00	322.00	650.20	329.00	30 x 3.7	19 x 2.22	0.0835	25.88	133.0	1381.0	798
FLAMINGO / AW	666.60	338.00	675.40	342.00	24 x 4.23	7 x 2.82	0.0823	25.40	103.0	1225.0	799
GANNET / AW	666.60	338.00	676.60	343.00	26 x 4.07	7 x 3.16	0.0812	25.76	116.0	1298.0	807
STILT / AW	715.50	363.00	725.00	367.00	24 x 4.39	7 x 2.92	0.0764	26.31	110.0	1314.0	837
STARLING / AW	715.50	363.00	727.40	369.00	26 x 4.21	7 x 3.28	0.0758	26.70	122.0	1393.0	844
REDWING / AW	715.50	363.00	730.90	370.00	30 x 3.92	19 x 2.35	0.0744	27.46	149.0	1552.0	859
COOT / AW	795.00	403.00	797.20	404.00	36 x 3.77	1 x 3.77	0.0711	26.42	74.0	1183.0	868
CUCKOO / AW	795.00	403.00	805.00	408.00	24 x 4.62	7 x 3.08	0.0690	27.74	122.0	1460.0	894
DRAKE / AW	795.00	403.00	807.60	409.00	26 x 4.44	7 x 3.45	0.0682	28.14	136.0	1549.0	903
TERN / AW	795.00	403.00	800.40	406.00	45 x 3.38	7 x 2.25	0.0701	27.00	96.0	1298.0	880
CONDOR / AW	795.00	403.00	805.00	408.00	54 x 3.08	7 x 3.08	0.0690	27.74	124.0	1458.0	894
MALLARY / AW	795.00	403.00	812.70	412.00	30 x 4.14	19 x 2.48	0.0667	28.96	165.0	1726.0	921

RUDDY / AW	795.00	403.00	906.10	459.00	45 x 3.59	7 x 2.4	0.0621	28.73	107.0	1470.0	951
CANARY / AW	900.00	456.00	911.40	462.00	54 x 3.28	7 x 3.28	0.0608	29.51	138.0	1653.0	969
CATBIRD / AW	900.00	456.00	956.60	485.00	36 x 4.14	1 x 4.14	0.0589	28.96	87.0	1420.0	978
RAIL / AW	954.00	483.00	960.40	487.00	45 x 3.7	7 x 2.47	0.0585	29.59	113.0	1558.0	988
CARDINAL / AW	954.00	483.00	966.10	490.00	54 x 3.38	7 x 3.38	0.0573	30.38	146.0	1752.0	1006
TANAGER / AW	1033.50	524.00	1035.80	525.00	36 x 4.3	1 x 4.3	0.0546	30.12	94.0	1537.0	1027
ORTOLAN / AW	1033.50	524.00	1040.00	527.00	45 x 3.85	7 x 2.57	0.0540	30.78	121.0	1688.0	1039
CURLEW / AW	1033.50	524.00	1046.10	530.00	54 x 3.51	7 x 3.51	0.0531	31.62	158.0	1896.0	1056
BLUEJAY / AW	1113.00	564.00	1120.50	568.00	45 x 4	7 x 2.66	0.0501	31.98	130.0	1819.0	1090
FINCH / AW	1113.00	564.00	1127.80	571.00	54 x 3.65	19 x 2.19	0.0494	32.84	167.0	2043.0	1106
BUNTING / AW	1192.50	604.00	1201.00	609.00	45 x 4.14	7 x 2.76	0.0467	33.07	139.0	1948.0	1138
GRACKLE / AW	1192.50	604.00	1206.70	611.00	54 x 3.77	19 x 2.27	0.0463	33.99	179.0	2188.0	1152
SKYLARK / AW	1272.00	645.00	1275.40	646.00	36 x 4.78	1 x 4.78	0.0442	33.43	114.0	1893.0	1172
BITTERN / AW	1272.00	645.00	1280.60	649.00	45 x 4.27	7 x 2.85	0.0439	34.16	149.0	2078.0	1184
PHEASANT / AW	1272.00	645.00	1287.70	652.00	54 x 3.9	19 x 2.34	0.0433	35.10	189.0	2333.0	1201
DIPPER / AW	1351.50	685.00	1360.10	689.00	45 x 4.4	7 x 2.93	0.0414	35.20	158.0	2207.0	1228
MARTIN / AW	1351.50	685.00	1367.70	693.00	54 x 4.02	19 x 2.41	0.0407	36.17	201.0	2478.0	1248
BOBOLINK / AW	1431.00	725.00	1440.20	730.00	45 x 4.53	7 x 3.02	0.0390	36.25	167.0	2336.0	1274
PLOVER / AW	1431.00	725.00	1448.90	734.00	54 x 4.14	19 x 2.48	0.0384	37.21	212.0	2625.0	1294
NUTHATCH / AW	1510.50	765.00	1520.50	770.00	45 x 4.65	7 x 3.1	0.0370	37.24	177.0	2467.0	1317
PARROT / AW	1510.50	765.00	1528.20	774.00	54 x 4.25	19 x 2.55	0.0364	38.23	224.0	2768.0	1337
LAPWING / AW	1590.00	806.00	1601.20	811.00	45 x 4.78	7 x 3.18	0.0351	38.20	186.0	2598.0	1360
FALCON / AW	1590.00	806.00	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 subject to manufacturing tolerances

Note:-

The above values based on Aluminum clad steel (normal strength), different type of Aluminum clad steel core are also according to customer request as per ASTM B 502

** ACSR / AW 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 0.6, solar radiation absorption coefficient of 0.5

Aluminum Conductor Aluminum Clad Steel Reinforced (ACSR / AW)



A1/SA1A - 630	662.00	45 x 4.19	7 x 2.79	0.0458	33.50	150.47	1992.8	1548
A1/SA1A - 630	688.00	54 x 3.79	19 x 2.28	0.0459	34.20	190.52	2200.9	1557
A1/SA1A - 710	746.00	45 x 4.44	7 x 2.96	0.0407	35.60	169.57	2245.8	1668
A1/SA1A - 710	775.00	54 x 4.03	19 x 2.42	0.0407	36.30	214.72	2480.3	1678
A1/SA1A - 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 subject to manufacturing tolerances

Product Code	Total Sectional Area mm ²	Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Calculated Breaking Load KN	Approx. Weight Kg/Km	Rated Current Amps
		Aluminum No. x mm	Aluminum Clad Steel No. x mm					
B - IEC 61089 (A1/SA1A)								
A1/SA1A - 16	17.90	6 x 1.81	1 x 1.81	1.7923	5.43	5.91	59.0	148
A1/SA1A - 25	28.00	6 x 2.26	1 x 2.26	1.1471	6.78	9.00	92.1	197
A1/SA1A - 40	44.80	6 x 2.85	1 x 2.85	0.7169	8.55	14.21	147.4	265
A1/SA1A - 63	70.60	6 x 3.58	1 x 3.58	0.4552	10.70	21.17	232.2	355
A1/SA1A - 100	112.00	6 x 4.51	1 x 4.51	0.2868	13.50	31.84	368.6	478
A1/SA1A - 125	130.00	18 x 2.95	1 x 2.95	0.2304	14.80	29.18	384.3	548
A1/SA1A - 125	140.00	26 x 2.43	7 x 1.89	0.2308	15.40	44.49	460.8	554
A1/SA1A - 160	167.00	18 x 3.34	1 x 3.34	0.1800	16.70	36.38	491.9	642
A1/SA1A - 160	179.00	26 x 2.74	7 x 2.13	0.1803	17.40	56.18	589.8	649
A1/SA1A - 200	208.00	18 x 3.74	1 x 3.74	0.1440	18.70	43.62	614.9	741
A1/SA1A - 200	223.00	26 x 3.07	7 x 2.39	0.1443	19.40	69.27	737.2	749
A1/SA1A - 250	268.00	22 x 3.76	7 x 2.09	0.1153	21.30	67.80	830.9	861
A1/SA1A - 250	279.00	26 x 3.43	7 x 2.67	0.1154	21.70	86.58	921.5	865
A1/SA1A - 315	331.00	45 x 2.96	7 x 1.97	0.0917	23.70	78.33	996.4	995
A1/SA1A - 315	352.00	26 x 3.85	7 x 2.99	0.0916	24.40	107.58	1161.1	1004
A1/SA1A - 400	420.00	45 x 3.34	7 x 2.22	0.0722	26.70	97.50	1265.3	1160
A1/SA1A - 400	438.00	54 x 3.02	7 x 3.02	0.0723	27.20	124.20	1402.9	1166
A1/SA1A - 450	473.00	45 x 3.54	7 x 2.36	0.0642	28.30	107.48	1423.4	1250
A1/SA1A - 450	492.00	54 x 3.21	7 x 3.21	0.0642	28.90	139.72	1578.2	1258
A1/SA1A - 500	525.00	45 x 3.73	7 x 2.49	0.0578	29.80	119.42	1581.6	1336
A1/SA1A - 500	547.00	54 x 3.38	7 x 3.38	0.0578	30.40	153.99	1753.6	1344
A1/SA1A - 560	589.00	45 x 3.95	7 x 2.63	0.0516	31.60	133.75	1771.4	1437
A1/SA1A - 560	612.00	54 x 3.58	19 x 2.15	0.0516	32.20	169.36	1956.3	1445

Note:-

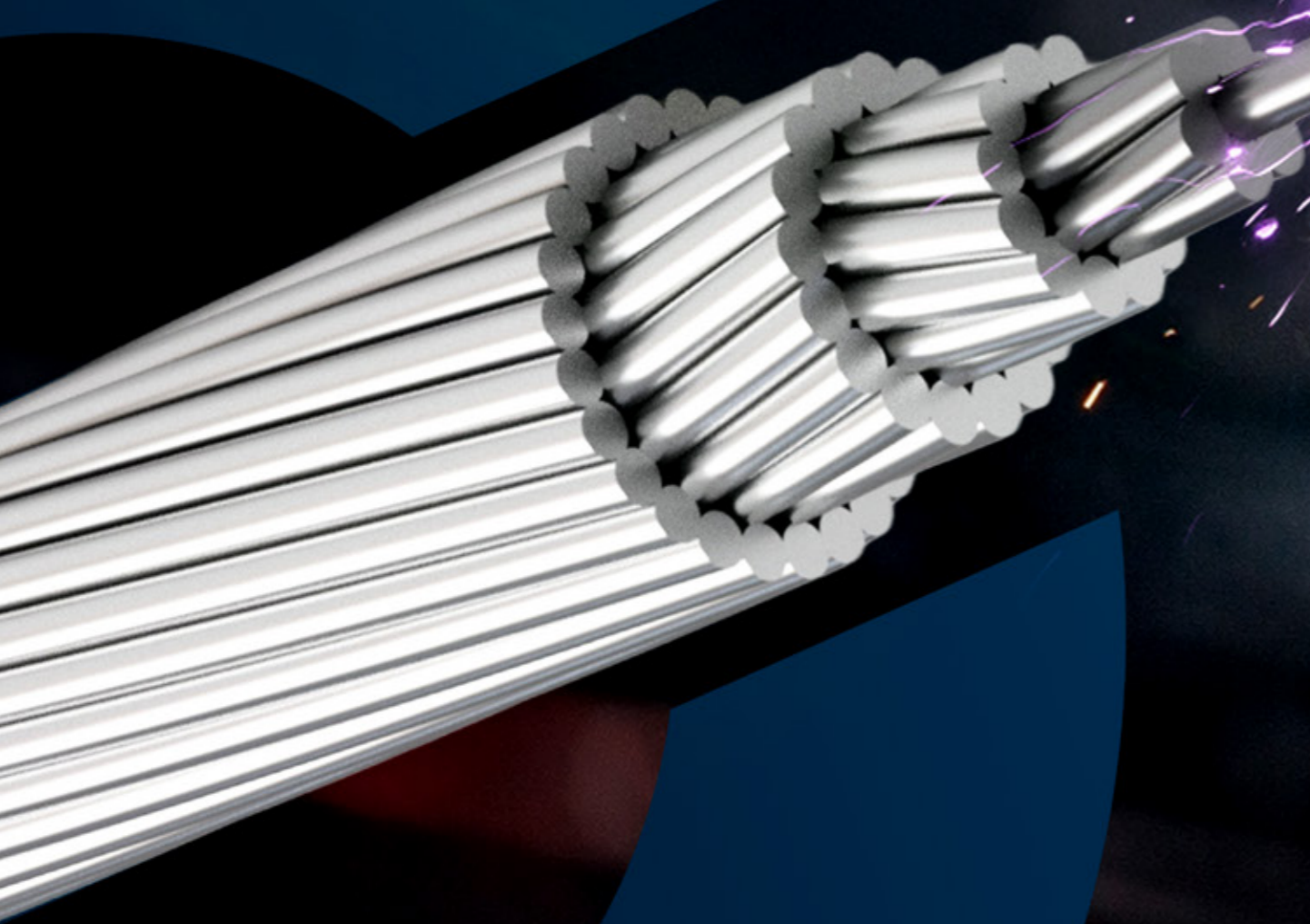
The above values based on Aluminum clad steel 20SA-Type A (regular tesnile strength), different type of Aluminum clad steel core are also according to customer request as per IEC 61232

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 0.6, solar radiation absorption coefficient of 0.5



**ALUMINUM ALLOY
CONDUCTOR STEEL
REINFORCED (AACSR)**



Aluminum Alloy 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

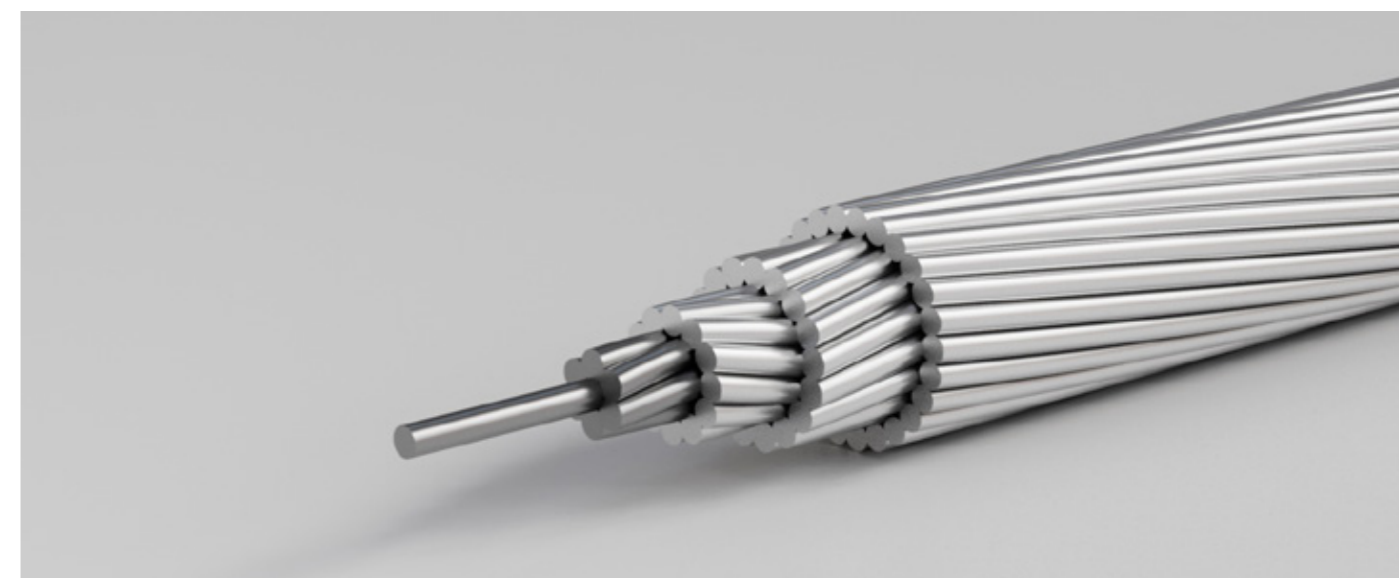
AACSR conductors are widely used for electrical power transmission over long distance (as an earthing Conductor). It could be used as a messenger for supporting overhead electrical cables.

Technical Data

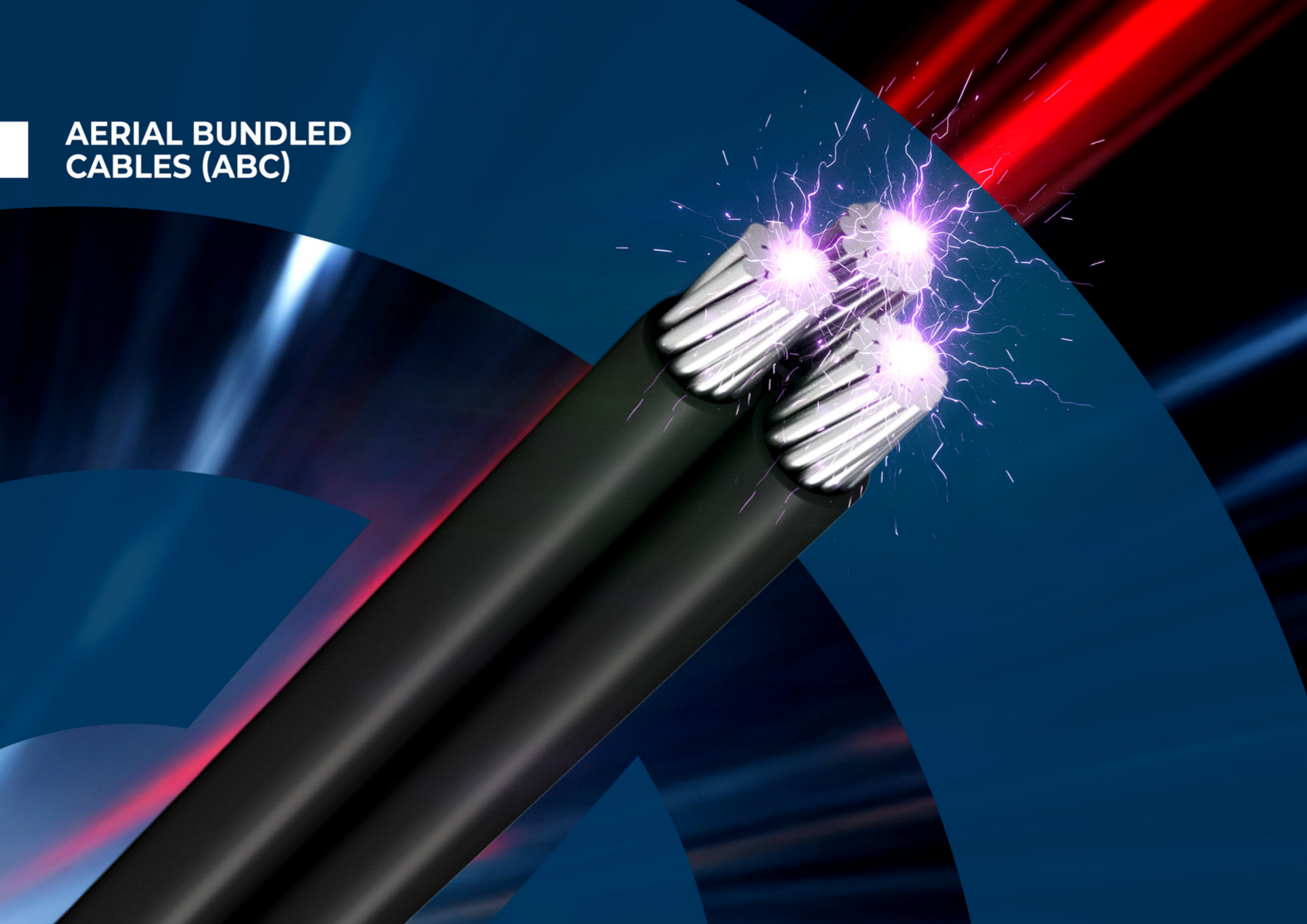
Relevant Standard	BS EN 50182
Conductor	Aluminum Alloy over the central core of galvanized solid or stranded steel wires
Minimum bending Radius	25 x outer diameter
Packing Condition	Our standard length on Wooden Drum / or according to customer request

Product Code	Total Cross Sectional Area mm ²	Number and Nominal Diameter of wires		Max. D.C. Conductor Resistance at 20 °C Ω/km	Approx. Overall Diameter mm ²	Minimum Breaking Load KN	Approx. Weight Kg/Km
		Aluminum No. x mm	Steel No. x mm				
A - 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 subject to manufacturing tolerances



**AERIAL BUNDLED
CABLES (ABC)**



Aerial 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) insulated by Weather-Resistant XLPE +2.5% Carbon Black

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.

Technical Data

Relevant 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 °C

Assembly
(in case of more than one phase) The insulated Cores are assembled together with suitable lay length.

Minimum bending Radius 12 x outer diameter

Notes

1) Extruded High Density Polyethyelene (HDPE) rated 90 °C or Low Linear Density Polyethyelene (LLDPE) rated 90 °C or PVC Compound + 2.5 % Carbon Black Rated 70 °C or 85 °C 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 (self supported)
- 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



Product Code	Phase			Approx. Overall Diameter mm ²	Approx. Weight Kg/Km
	Total Cross Sectional Area mm ²	Insulation Thickness mm	Max. D.C. Conductor Resistance at 20 °C Ω/km		
A) One Core					
PA-BT11-W3-01-U0	16.0	0.7	1.9100	3.50	60.0
PA-BT12-W3-01-U0	25.0	0.9	1.2000	8.10	95.0
PA-BT13-W3-01-U0	35.0	0.9	0.8680	9.30	130.0
PA-BT14-W3-01-U0	50.0	1.0	0.6410	11.00	180.0
PA-BT15-W3-01-U0	70.0	1.1	0.4430	12.70	230.0
PA-BT16-W3-01-U0	95.0	1.1	0.3200	14.70	320.0
PA-BT17-W3-01-U0	120.0	1.2	0.2530	16.40	395.0
B) Two Cores (Duplex)					
PA-BT11-W3-02-U0	16.0	1.2	1.9100	15.00	145.0
PA-BT12-W3-02-U0	25.0	1.2	1.2000	17.40	205.0
PA-BT13-W3-02-U0	35.0	1.2	0.8680	19.80	275.0
PA-BT14-W3-02-U0	50.0	1.5	0.6410	24.00	400.0
PA-BT15-W3-02-U0	70.0	1.5	0.4430	27.00	500.0
PA-BT16-W3-02-U0	95.0	1.5	0.3200	31.00	675.0
PA-BT17-W3-02-U0	120.0	1.7	0.2530	34.80	850.0
C) Three Cores (Triplex)					
PA-BT11-W3-03-U0	16.0	1.2	1.9100	16.20	220.0
PA-BT12-W3-03-U0	25.0	1.2	1.2000	18.80	305.0
PA-BT13-W3-03-U0	35.0	1.2	0.8680	21.40	410.0
PA-BT14-W3-03-U0	50.0	1.5	0.6410	25.90	600.0
PA-BT15-W3-03-U0	70.0	1.5	0.4430	29.20	745.0
PA-BT16-W3-03-U0	95.0	1.5	0.3200	33.50	1015.0
PA-BT17-W3-03-U0	120.0	1.7	0.2530	37.60	1275.0
D) Four Cores (Quadruplex)					
PA-BT11-W3-04-U0	16.0	1.2	1.9100	18.20	290.0
PA-BT12-W3-04-U0	25.0	1.2	1.2000	21.10	410.0
PA-BT13-W3-04-U0	35.0	1.2	0.8680	24.00	550.0
PA-BT14-W3-04-U0	50.0	1.5	0.6410	29.00	800.0
PA-BT15-W3-04-U0	70.0	1.5	0.4430	32.70	995.0
PA-BT16-W3-04-U0	95.0	1.5	0.3200	37.50	1355.0
PA-BT17-W3-04-U0	120.0	1.7	0.2530	42.10	1700.0

The above data is approximate and subject to manufacturing tolerances



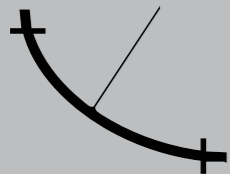
LAYING, HANDLING & STORAGE INSTRUCTIONS

(A) LAYING INSTRUCTIONS

1) Preparation for the cable

1. The cable should, wherever, be de-coiled from the top of the drum. For this the drum must be positioned such that the arrow on the drum points opposite to the direction of rotation for de-coiling. The drum is lifted on its axle by the aid of winches such that the plank used for braking cannot become wedged beneath.
2. The cable must be inspected for external damage which, e.g. may have been incurred by incorrect rolling of the drum. Since the laying of cables is often carried out by unskilled labor it is necessary to emphasize that the cable is a high-value commodity and is very sensitive to damage and must be handled with the necessary care.
3. In order to avoid damage to the corrosion protection and the insulation. The cables must not be dragged over sharp objects and must not be bent too sharply (see Table 1).
4. It must be possible to brake the drum at any time in order to avoid, in the event of a sudden stoppage, continuation of de-coiling which would result in sharp bending of the cable. Avoidance of kinking is especially critical under all circumstances.
5. Cables must be heated prior to laying where the cable temperature is below (- 5 C) for polymer insulated cables, otherwise the insulation and corrosion protection will be damage during bending. These values apply to the cables themselves and not to the ambient temperature. Either the drums must be stored for several days in a heated building or heaters or hot air blowers applied at a sufficient distance. During this warming process the drums should be rotated at intervals.
6. To avoid ingress of moisture it must be observed that the end capping of the cable is not damaged. Cut points of cables must be immediately capped.

Table 1
Minimum permissible bending radii (r) when laying cables

	800 R
Over $U_0 / U = 1.9 / 3.3$ KV - PE or LSHF Jacket - Lead Sheathed - PVC Jacket	20 X D 20 X D 15 X D
<u>Up to $U_0 / U = 1.9 / 3.3$ KV</u> - PE or LSHF Jacket - Lead Sheathed - PVC Jacket single core or multi core armored wire or unarmored - PVC Jacket single core or multi core armored tape or shield tape	20 X D 20 X D 12 X D 15 X D

2) Laying of Cables in the Ground

2.1 Cable Route

1. For the progression of a cable route in built-up areas it is most suitable to use a paved pedestrian area or in overland routes to follow a foot path. The depth of trench is dependent on the number of cable to be laid above one another in the same trench, furthermore in urban areas and on industrial sites it also depends on any gas or water pipes which exist or may be laid in the future.
2. The cable laying uppermost below a paved pedestrian area or foot path should be at a depth not less than 0.6m and below roads at a depth of not less than 0.8m. Where cable are laid at shallower depths they must be protected by e.g. concrete slabs of sufficient thickness.
3. The cables are normally covered with a layer of sand or stone-free (sieved) soil 10 cm thick and then, to protect against surface damage during subsequent earth workings, are covered with bricks, plastic plates or similar devices. If covers are not provided warning tapes of plastic are normally used to mark the cable route.
4. Where high-voltage and low-voltage cables are laid in the same trench, it is the practice to lay the high-voltage cable in the lowest position. The high-voltage cables are then embedded in sand and covered by protective slabs. Above these on an additional layer of sand the low-voltage cables are laid. In such a cable arrangement the current load capacity, because of the mutual heating effect and drying out of the soil, is reduced.
5. If control cables and high-voltage cables run on parallel routes for any great distance the magnitude of interference must be investigated. The same applies where the route is in close proximity to or crosses railway installations or communication networks of the post office.

2.2 Crossing of Roads

1. When the route crosses a roadway, the cables must be drawn into pipes or cable duct blocks which extend beyond and under the pavements.
2. It is advisable always to provide reserve space in pipes or pipe ducts to avoid the necessity to re-excavate when adding cable at a later date. Pipe cavities which are not occupied immediately should be sealed off.
3. The pipe bore should have a diameter of at least 1.5 times the outer diameter d of the cable. Pipe bends should, in respect of pulling the cable through.

3) Cable Laying Methods

The following methods may be employed for laying cables:

1. Paying out from a cable trailer
2. Laying by hand
3. Laying by motor driven rollers
4. Pulling off by winches
5. Ploughing in.

3.1 Paying out from a Cable Trailer

Providing there are no obstructions in the trench or its vicinity, cable may be paid out direct from the cable trailer. However it must be ensured that during the paying out the drum is manually rotated and braked in accordance with the laying speed to avoid high-tensile force or sharp bending of the cable.

3.2 Laying by Hand

Cable rollers placed at distances of between 3 to 4 m make laying easier. Corner rollers or similar devices should be provided at any bend in the route, always maintaining the minimum bending radii of the cable.

If the cable is not guided by rollers it must be guided by hand. The men supporting the cable should be spaced at between 4 to 6 m along the cable.

3.3 Laying by Motor Driven Rollers

Motorized rollers are used to pull the cable off the jacked up drum. It is advantageous to use rollers driven by electric motors installed in the cable trench at distances of 20 to 30 m. Where sharp bends occur it may be necessary to place such a roller at both the commencement and the end of the bend.

3.4 Pulling off by winches

Pulling off by winch is possible only if there are very few bends or other obstructions in the route. After releasing the cable end from the drum a pulling stocking is placed over the end and tied in position. A rope is secured to the eye of the pulling stocking.

When laying unarmored cables or steel-tape armored cables with the aid of a winch, the rope can be secured to the cable via a pulling head which grips directly on to the conductors. All cables, in particular single-core cables should not be straightened after laying, but left slightly meandering, to allow for longitudinal expansion and contraction during thermal cycling (changes in current loading).

Table 2 : Minimum permissible bending radii (r) for pipes

Means of pulling	Type of cable	Formula	Factor
With pulling head attached to conductors	All type of cable	$P = \sigma.A$	$\sigma = 50 \text{ N/mm}^2$ (Cu-conductor) $\sigma = 30 \text{ N/mm}^2$ (Al- conductor) (but the maximum value = 20 KN)
With pulling stocking	Cable with metal sheath without pull resistant Armoring.	$P = K.d^2$	$K = 3 \text{ N/mm}^2$ (but the maximum value = 8.5 KN)

When laying 3 single-core cable simultaneously with a common pulling stocking the same maximum pulling force applies, whereas the pulling force for 3 laid-up single-core cables is 3 times that of a single-core and for 3 non-laid-up single-core cable is 2 time that of a single core.

- P Pull in N
- A Total cross-sectional area in mm of all conductors (but not screen or concentric conductor)
- d Outside diameter of cable in mm
- σ Permissible tensile stress of conductor in N/ mm²
- K Empirically derived factor in N/ mm²

3.5 Plough-laying of Cables

In open terrain the cables may be plough-laid directly into the ground where circumstances permit, no obstructions, e.g. pipe runs which cross the route, and where protection of the cable with plastic plates or similar is not acceptable. This type of cable laying is particularly cost effective. Cables with PE sheath are particularly suitable for this form of laying.

4) Laying of Single-Core Cables

For the laying of single-core cables under practical conditions, depending on local circumstances several methods have proved effective:

Pulling-off and laying individual lengths in sequence,

Simultaneously pulling-off three lengths from three cable drums.

laying of three pre-laid-up cables,

Plough laying of three bunched cables.

If the three lengths are laid in sequence care must be taken that the cable already laid is not damaged by the cables following (e.g. by chaffing or abrasive action).

If on site sufficient space is available the simultaneous pulling off of three single-core cables from three individual drums has advantages. In a bunching bench the three cables are brought together for bunching in triangular formation for bunching and can then be laid as a single cable. The system is also proven where the three drums are carried on a suitably adapted flat back lorry.

5) Cable Tunnels and Ducts

The main advantage of using cable tunnels or ducts is the ease of access for replacement or extension of the installation without extensive workings.

Especially, where there is great cable massing, the cables installed in ducts can normally be subjected to higher loading than when laid in the ground. A disadvantage is the high cost of supply and installation of the ducts. For this reason installation in ducts is normally restricted to buildings and around outdoor switch gear plant.

In walk through ducts (cable tunnels) the cables are for practical reasons laid on cable trays above one another. Multi-core cables which are laid horizontally on the duct floor or on the trays do not require fixing.

The cables should be laid in the duct with a space between each approximately equal to the cable diameter. The load capacity of the cable may be determined. Since this is dependent on ambient air temperature a good natural ventilation should be provided in the duct (openings for ingoing and outgoing air). Where necessary forced ventilation must be provided.

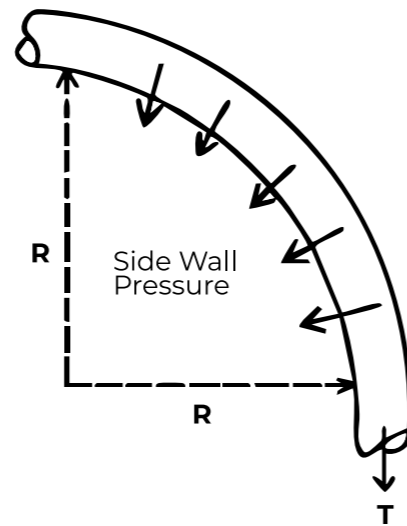
With due consideration of the possibility of spreading of fire the cable ducts must be with barriers at least at the point of entry into operation rooms, switching stations, etc.

6) Side Wall Pressure

To avoid damage to the cable from the dynamic radial pressure, which develops when a cable is pulled around a bend under pulling tension, this pressure must be kept as low as possible. Permissible maximum side wall pressure to the cable at bending point during installation is 1000 Kg/m.

$$\text{Side Wall Pressure to the cable} = \frac{\text{Pulling Tension (Kgf)}}{\text{Bending radius (R)}} = \frac{T}{R}$$

T: Pulling tension (Kgf)
R: Bending radius (m)



(B) HANDLING & STORAGE INSTRUCTIONS

Introduction:

1. Cables should be installed and stored according to International regulation by trained persons with good engineering practice to make the cable drum safe from damage & hazards due to improper handling
2. It is important that everyone involved with handling the cable keeps it in prime condition so that they perform as intended, which means that care needs to be taken with the drum's storage and handling
3. Cable are supplied on heavy drums & handling these drums can constitute a real hazardous.
4. Indicate some of the common mistakes can be committed during the handling, care should be taken during loading and unloading

1) Rolling Direction

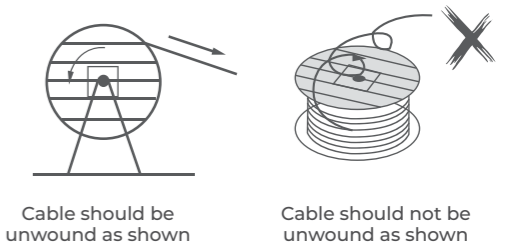
1. If the drum is required to be rolled, it should be rolled in the direction of the printed arrow on the outer flange. This direction will remain the cable safe and tight.
2. Drums should be rolled only for short distance over flat solid ground in the direction indicated by the arrow on the flange.
3. Suitable wedges in the heels of the flanges should be used to make sure that the drum is not able to move after being placed in its position.
4. Wooden lagging (if exist) of the drum should be kept safe without any stresses.
5. When moving the drums by hand, the operators should wear stout gloves and safety footwear
6. When rolling / moving reels do not "kick" the cables. Ensure that the route has no objects or uneven terrain that could damage the cable when the reel is being rolled.



2) Unwinding and Rewinding:

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

UNWINDING:



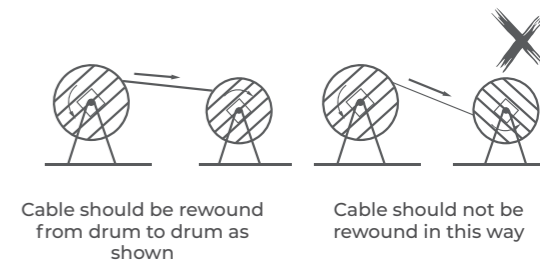
Cable should be unwound as shown

Cable should not be unwound as shown

NOTE: The arrow on the drum flange does not indicate direction of unwinding

ii) When cable rewinding is required on to another drum, the pulling force applied to the cable must be respected & the diameter of the new drum shall be compatible with the minimum bending radius of the cable and the original cable label details be copied to the new drum, the new drum shall be also in good condition so as not to cause damage to the cable sheath during the rewinding process.

REWINDING:



Cable should be rewound from drum to drum as shown

Cable should not be rewound in this way

NOTE: The arrow on the drum flange not indicate direction of unwinding

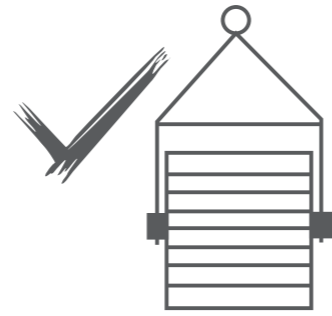
- iii) During cable rewinding, avoid any sharp edges that may damage the cable.
- iv) Maximum cable pulling force should be considered.
- v) Drums have an arrow marked on their flanges indicate both, the direction that cables is to be wound on to them and also the direction in which the drum is to be rolled.
- v) Repeated windings and excessive tension should be avoided as it might cause damage to the cable.

3) Lifting the drum

Only fork-lift trucks or cranes of sufficient size and weight limit for the drums to be lifted should be used.

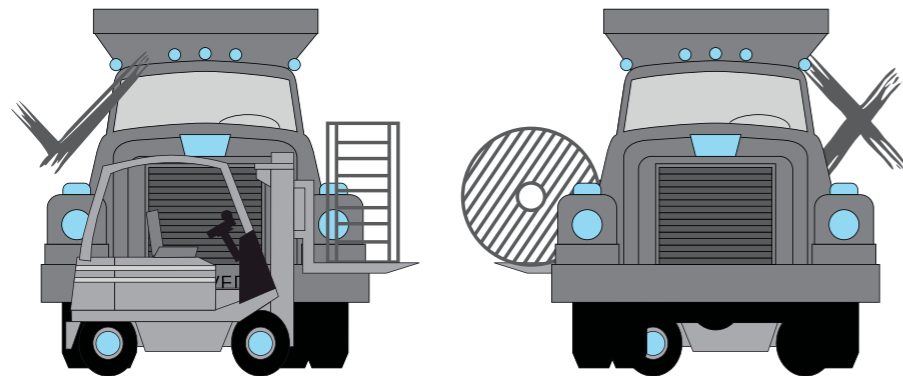
A) Crane Handling

1. When lifting drums by crane, spreader beam should be used, the spreader beam should be the weight capacity and length specified by the manufacturer for the weight & width of the drum
2. any slings or hooks should be of the correct capacity as specified by the manufacturer for the drum to be lifted.
3. On lowering the drum be sure that the drum moves as show as possible and prevent it from any hard impact with the ground.
4. The drum axle should be kept always in a horizontal position.



B) Fork lift handling

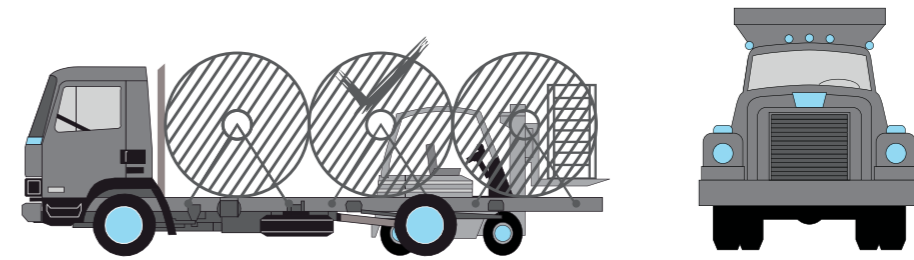
1. When lifting drums by fork lift trucks, the cable drum flanges should be at right angles to the forks, and the forks should be longer than the width of the drum (see below figure).
2. Before moving the lift. Be sure that the lift raised the drum to a sufficient space above the ground.
3. Be sure that the truck has stopped completely before releasing the drum.
4. Always refer to the relevant schedules for dimensions and weights of each cable drums.
5. Cable drums must be laid perpendicular to the direction of the moving vehicle.
6. Under no circumstances should the fork come in a contact with the cable.



Lift drums on fork trucks correctly

4) Transporting the drums:

1. Secure drums adequately before transportation by:
2. The drums should be secured by the suitable edges to safely park the drum.
3. Each drum should have a separate tight, suitable wires should be used to prevent the motion of the drums during transportation.
4. Longitudinal heavy gauge metal strips binding in two places on every drum. (If necessary)



secure drums adequately before moving

4) Storage Instructions:

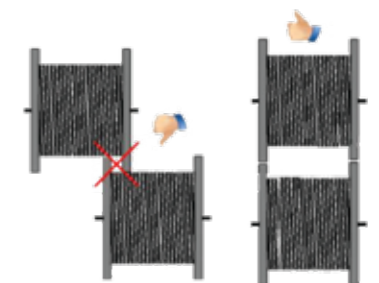
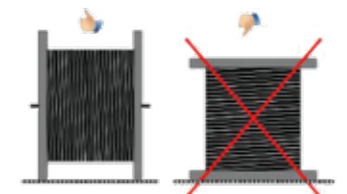
1. The cable drums should be handled and stored on a flat, firm and well-drained surface to prevent any roughness (fig. 1)
2. Drums should be handled and stored upright with wedges in the heels of the flanges to prevent them from rolling. (fig. 1)
3. No drums should be handled and stored in flat position under any circumstances, this will lead to cable damage and may cause Problems during laying. (fig. 1)
4. Sufficient spaces should be kept between drums to avoid drum flanges to be interleaved during handling and storage so that the drum flanges do not touch cables on another drums (fig. 2)
5. Sufficient spaces should be rolled to an angle of 90 periodically every six months & Bolts must be checked.
6. If a cable is stored in a space which is at a lower temperature than the temperature recommended for its installation, then care should be taken to prevent the cable being damaged by bending, impact, shocks & torsion.
7. The cable ends should remain sealed to prevent the ingress of moisture (heat shrink end caps with a moisture seals are most suitable for this purpose).
8. Avoid storing the drums in direct sunlight for long periods to protect against excessive temperatures and ultraviolet sources
9. For lagged drums: The wooden drum battens should remain fixed to the drum to shield the cable sheath from. For this reason, damaged wooden battens should be replaced.

10. For un-lagged drums: Suitable covering shall be used if the drums must be stored in direct sunlight

11. Cable drums have to be stored whenever possible away from vehicular traffic in order to minimize the risk of being accidentally damaged.

12. Inspect the cable drums regularly, if a drum has been damaged than the cable should be rewound onto a replacement drum.

13. The identification label, which confirms its credentials should remain fixed to the drum

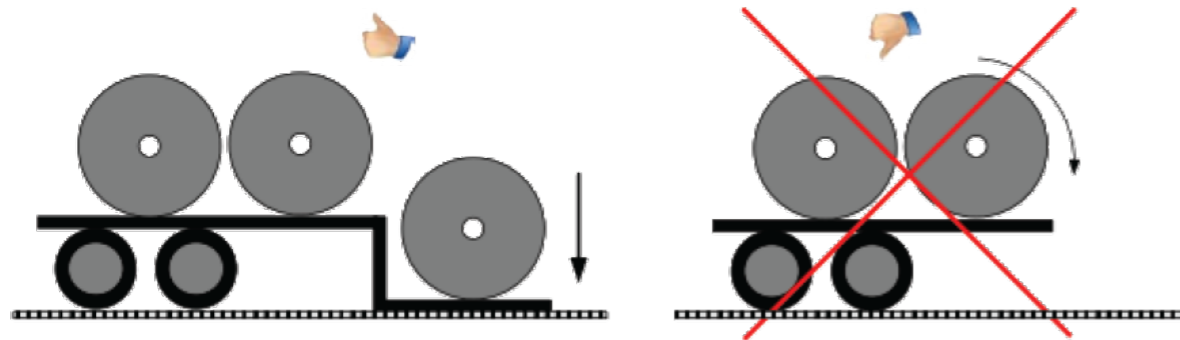


Storage and Handling at installation site:

1. Where reels are supplied with protective material fitted over the cable, the protection should remain in place until the cable is installed. If the protection is removed prior to installation (for inspection purposes for example) then it must be re-fitted as originally supplied before the reel is placed back in storage or onward shipped.
2. Storage temperature range is specified for each cable and must be respected.
3. Storing & handling the drum on its flat position under any circumstances may cause damage to the drum flange and/ or cause the cable layers to shift - This may cause cable to snag during de-reeling.
4. Tension limits, bending radius limits for different types of cables should be respected.
5. If the cables are to be installed in ducts, size of duct should correct.

General Recommendations

1. Avoid storage areas that are susceptible to flooding, or that could damage the cable, such as sharp, uneven terrain.
2. Never drop a cable reel from any height during transportation or use. Dropping a reel could affect its structural integrity and cause de-reeling issues – it may also damage the product. When unloading from a vehicle, use either the tail-lift / elevator (if fitted) or a suitable mechanical aid such as a forklift. Never let reels drop from the vehicle to the ground.
3. Before de-reeling cable, the reel should be visually inspected for possible damage caused during storage.
4. It is recommended to record the data provided on the labeling tags of all the drums/ reels/ boxes in case of any subsequent issues.
5. We recommend that cable reels should be stored in a safe, locked location.



Health & Safety

When manually handling a reel, ALWAYS make sure correct manual handling techniques are used and that consideration to mechanical lifting aids is given.

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



CERTIFICATES

APPROVED

Egyptian Electricity Holding Company
Laboratories, research and testing sector
Extra High Voltage Research Center
km 27 Cairo- Alex. Desert road
Report No. (547/2022)

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢٧ طريق القاهرة/الاسكندرية الصحراوي
رقم التقرير: (٥٤٧/٢٠٢٢)

TEST REPORT
REPORT No. (547/2022)

▪ **CLIENT : GIZA POWER INDUSTRY**
Abo Rawash Giza , Kilo 28 Alexandria

▪ **Report Date:** 21/11/2022

▪ **Place:**
- Extra High Voltage Research Center Laboratories.
- Internal code: TO - AC - 22 - 10 - 25 - 05.

▪ **Requirements:**
- Type tests according to specifications standard

▪ **Standard Specifications:**
- IEC (61089) / (1991) :Round wire concentric lay over head electrical standard conductors.
- EDMS(04-101-1)/(2020):Specifications for overhead All Aluminium Alloy Conductors (AAAC).
- ASTM (B399) :Standard Specification for Concentric - Lay - Stranded Aluminum - Alloy 6201-T81 Conductors.

▪ **Description of Specimen :**
- Overhead ALL Aluminum Alloy Conductors (AAAC) - Code: (405) mm².

▪ **Description of Test Equipment:**
- Testing machine (100) kN - Type: (LLOYD) - Model: (LK100 PLUS), Calibration Certificate No.: (123/14/2022).
- Winding resistance - Type: (WR50-12) - S.N.: (303-173) - Calibration Certificate No. : (160/21/2020).
- Electronic Digital Balance (6000)g - Type: (EWJ6000-1M) - S.N.: (WF1419926) - Calibration Certificate No. : (1290/265/13/2020).

▪ **Test Sample:**
- Test sample was choosing under the Responsibility of the client.

▪ **Tests:**
1. Design and construction requirements.
2. Determination of direction lay.
3. Determination of lay ratio.
4. Resistivity test.
5. Mass per unit length.
6. Tensile test for wires.
7. Tensile test of the conductor.

▪ **Test Method and Results:**
1- **Design and Construction Requirements :**
Testing Date: 26/10/2022
- The design and construction requirements have been measured according to clause (4) of EDMS (04-101-1) and ASTM (B399) .The measured values is shown in the following table:

Testing Engineer: Samar Fathey

Hala Fouad M. Sobry

Egyptian Electricity Holding Company
Laboratories, research and testing sector
Extra High Voltage Research Center
km 27 Cairo- Alex. Desert road
Report No. (546/2022)

الشركة القابضة لكهرباء مصر
قطاع المعامل والبحوث والاختبارات
مركز أبحاث الجهد الفائق
الكيلو ٢٧ طريق القاهرة/الاسكندرية الصحراوي
رقم التقرير: (٥٤٦/٢٠٢٢)

TEST REPORT
REPORT No. (546/2022)

▪ **CLIENT : GIZA POWER INDUSTRY**
Abo Rawash Giza , Kilo 28 Alexandria

▪ **Report Date:** 21/11/2022

▪ **Place:**
- Extra High Voltage Research Center Laboratories.
- Internal code: TO - AC - 22 - 10 - 25 - 04.

▪ **Requirements:**
- Type tests according to specifications standard

▪ **Standard Specifications:**
- IEC (61089) / (1991) :Round wire concentric lay over head electrical standard conductors.
- EDMS(04-101-1)/(2020):Specifications for overhead All Aluminium Alloy Conductors (AAAC).
- ASTM (B399) :Standard Specification for Concentric - Lay - Stranded Aluminum - Alloy 6201-T81 Conductors.

▪ **Description of Specimen :**
- Overhead ALL Aluminum Alloy Conductors (AAAC) - Code: (506.7) mm².

▪ **Description of Test Equipment:**
- Testing machine (100) kN - Type: (LLOYD) - Model: (LK100 PLUS), Calibration Certificate No.: (123/14/2022).
- Winding resistance - Type: (WR50-12) - S.N.: (303-173) - Calibration Certificate No. : (160/21/2020).
- Electronic Digital Balance (6000)g - Type: (EWJ6000-1M) - S.N.: (WF1419926) - Calibration Certificate No. : (1290/265/13/2020).

▪ **Test Sample:**
- Test sample was choosing under the Responsibility of the client.

▪ **Tests:**
1. Design and construction requirements.
2. Determination of direction lay.
3. Determination of lay ratio.
4. Resistivity test.
5. Mass per unit length.
6. Tensile test for wires.
7. Tensile test of the conductor.

▪ **Test Method and Results:**
1- **Design and Construction Requirements :**
Testing Date: 26/10/2022
- The design and construction requirements have been measured according to clause (4) of EDMS (04-101-1) and ASTM (B399) .The measured values is shown in the following table:

Testing Engineer: Hala Fouad

Hala Fouad M. Sobry



TEST REPORT

REPORT No. (657/2022)

- **CLIENT : GIZA POWER INDUSTRY**
Abo Rawash Giza , Kilo 28 Alexandria.
- **Report Date:** 27/12/2022
- **Place:**
 - Extra High Voltage Research Center Laboratories.
 - Internal code: TO - AC - 22 - 12 - 19 - 01.
- **Requirements:**
 - Type tests according to IEC standard
- **Standard Specifications:**
 - IEC (61089) / (1991) :Round wire concentric lay over head electrical standard conductors.
 - IEC (60889) / (1987) :Hard-drawn aluminum wire for overhead line conductors.
 - IEC (60888) / (1987) :Zinc-coated steel wires for stranded conductors.
 - EDMS(04-100-1)/(2020):Specifications for overhead Aluminium Conductors Steel Reinforced (ACSR).
 - BS EN (50182) / (2001) :Conductors for overhead lines. Round wire stranded conductors.
- **Description of Specimen :**
 - Aluminum Conductor Steel Reinforced (ACSR) - Size: (380/50) mm².
- **Description of Test Equipment:**
 - Testing machine (100) kN - Type: (LLOYD) - Model: (LK100 PLUS) , Calibration certificate No. (123/14/2022).
 - Winding resistance - Type: (WR50-12) - S.N: (303-173) - Calibration certificate No.: (160/31/2020).
 - Electronic Digital Balance (6000)g - Type: (EWJ6000-1M) - S.N.: (WF1419926) - Calibration Certificate No. : (1290/265/13/2020).
- **Test Sample:**
 - Test sample was choosing under the responsibility of the client.
- **Tests:**
 1. Design and construction requirements.
 2. Determination of lay direction.
 3. Determination of lay ratio.
 4. Resistivity test.
 5. Determination of mass of zinc coating.
 6. Tensile test for wires.
 7. Tensile test of the conductor.



Hata Fouad

J. Sam



TEST REPORT

REPORT No. (548/2022)

- **CLIENT : GIZA POWER INDUSTRY**
Abo Rawash Giza , Kilo 28 Alexandria.
- **Report Date:** 8/12/2022
- **Place:**
 - Extra High Voltage Research Center Laboratories.
 - Internal code: TO - AC - 22 - 10 - 25 - 06.
- **Requirements:**
 - Type tests according to IEC standard
- **Standard Specifications:**
 - IEC (61089) / (1991) :Round wire concentric lay over head electrical standard conductors.
 - IEC (60889) / (1987) :Hard-drawn aluminum wire for overhead line conductors.
 - IEC (60888) / (1987) :Zinc-coated steel wires for stranded conductors.
 - EDMS(04-100-1)/(2020):Specifications for overhead Aluminium Conductors Steel Reinforced (ACSR).
 - BS EN (50182) / (2001) :Conductors for overhead lines.Round wire stranded conductors.
- **Description of Specimen :**
 - Aluminum Conductor Steel Reinforced (ACSR) - Size: (490/65) mm².
- **Description of Test Equipment:**
 - Testing machine (100) kN - Type: (LLOYD) - Model: (LK100 PLUS) , Calibration certificate No. (123/14/2022).
 - Winding resistance - Type: (WR50-12) - S.N: (303-173) - Calibration certificate No.: (160/31/2020).
 - Electronic Digital Balance (6000)g - Type: (EWJ6000-1M) - S.N.: (WF1419926) - Calibration Certificate No. : (1290/265/13/2020).
- **Test Sample:**
 - Test sample was choosing under the responsibility of the client.
- **Tests:**
 1. Design and construction requirements.
 2. Determination of direction lay.
 3. Determination of lay ratio.
 4. Resistivity test.
 5. Determination of mass of zinc coating.
 6. Tensile test for wires.
 7. Tensile test of the conductor.



Hata Fouad

M. Sabry

J. Sam





وحدة منح علامة "بكل فخر صنع في مصر" مركز تحديث الصناعة

تشهد بأن - شركة الجيزة باور للصناعة

ومقرها القطعة ٦٩٠ من ٢٩٢ - بالكيلو ٢٨ طريق مصر
اسكندرية الصحراوي - المنطقة الصناعية بأبو رواش - طريق
المحولات

محافظة الجيزة

سجل صناعي رقم ٠٦١٨٠٤٢٧٠١٠٢٠٦٦١ (١٩٨٨)

قد حصلت على علامة

بكل فخر صنع في مصر

والتي تم تقييمها طبقا للمواصفة الخاصة بمنح العلامة

واستحقت الحصول على علامة رقم G-1027-E-01-25

لاستخدامها على المنتجات طبقا لما جاء بالبيان المرفق رقم

(B-1-G-1027)

إصدار رقم (١)

بتاريخ: ٢٦ يناير ٢٠٢٥

حتى: ٢٥ يناير ٢٠٢٧

شرط الحفاظ على التوافق مع المتطلبات الخاصة بمنح العلامة

أ. دعاء سليمة

دعاء سليمة

الرئيس التنفيذي
مركز تحديث الصناعة



أ. محمد حامد

محمد حامد

مدير وحدة الإعتقاد
مركز تحديث الصناعة

شهادة إعتقاد
رقم (A-1-G-1027)



Accreditation Certificate No. (022003A)

Arab Republic of Egypt Egyptian Accreditation Council (EGAC)

Certifies that

Giza Power Industry Laboratory

Giza Power Industry Company

Kilo (28) Cairo Alexandria Desert Road

Plot (690) - Industrial Area - Abo Rawash

Giza Governorate - Egypt

Has been accredited by EGAC in compliance with the requirements of

ISO/IEC 17025:2017

**In Some Measurement Tests of Dimensions and
Resistance For Cables Insulators and Electric Cables**

The scope of accreditation is described in the attached schedule No. (022003B)

Scope Issue No. (02)

Issue No. (02): September 27, 2024

Valid to: June 15, 2028

Subject to continued compliance to the above standard and EGAC requirements

The Laboratory is accredited to issue reports / certificates under EGAC
accreditation according to the attached scope of accreditation

EGAC is an ILAC MRA Signatory in the Field of Calibration, Testing, Medical Labs,

Proficiency Testing Providers and Inspection Bodies Accreditation

1st Accreditation Date: June 16, 2020

Eng. Hanie El Desouki

Hanie El Desouki

Executive Director

Egyptian Accreditation Council

Lieutenant General \ Kamel Al Wazir

Kamel Al Wazir

Deputy Prime Minister
For Industrial Development
Minister of Transportation and Industry
Chairman of EGAC



71376



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 transmission line, low voltage, medium voltage,
High voltage and extra high voltage power cables till 200 Kv with all Aluminum
and copper cross section from 10 mm² to 2000 mm²

Authorised by:  Eng. /Mahmoud Fouad
CEO

Date of Certificate Issue: 10 December 2025

Certificate Valid Until: 06 January 2029

Recertification audit before 07 December 2028. Certified since 07 January 2017.

This certificate is the property of DAS Egypt and remains valid
subject to satisfactory annual Surveillance audits

Certificate Number: 091156/Q Rev: 02

Accreditation Number: 012222

DAS Egypt :

Address: Sec 7, Block 34, 9th Zone,
Africa Str. (Extension of Mostafa El Nahass St,
Nasr City -Cairo -Egypt.

Mobile : (+2) 01223843665 & (+2) 01281050006

Tel: (+2) 0224734135



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 transmission line, low voltage, medium voltage,
High voltage and extra high voltage power cables till 200 kv with all Aluminum
and copper cross section from 10 mm² to 2000 mm²

Authorised by:  Eng. /Mahmoud Fouad
CEO

Date of Certificate Issue: 10 December 2025

Certificate Valid Until: 06 January 2029

Recertification audit before 07 December 2028. Certified since 07 January 2017.

This certificate is the property of DAS Egypt and remains valid
subject to satisfactory annual Surveillance audits

Certificate Number: 142567/E Rev: 02

Accreditation Number: 012222

DAS Egypt :

Address: Sec 7, Block 34, 9th Zone,
Africa Str. (Extension of Mostafa El Nahass St,
Nasr City -Cairo -Egypt.

Mobile : (+2) 01223843665 & (+2) 01281050006

Tel: (+2) 0224734135





**Occupational Health & Safety
Management System
Certificate of Approval**

This is to certify that the OHS 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 transmission line, low voltage, medium voltage,
High voltage and extra high voltage power cables till 200 kv with all Aluminum
and copper cross section from 10 mm² to 2000 mm

Authorised by:

 Eng. / Mahmoud Fouad
CEO

Date of Certificate Issue: 10 December 2025

Certificate Valid Until: 06 January 2029

Recertification audit before 07 December 2028. Certified since 07 January 2017.

This certificate is the property of DAS Egypt and remains valid
subject to satisfactory annual Surveillance audits

Certificate Number: 453314/S Rev: 02
Accreditation Number: 012222

DAS Egypt :

Address: Sec 7, Block 34, 9th Zone,
Africa Str. (Extension of Mostafa El Nahass St,
Nasr City -Cairo -Egypt.

Mobile : (+2) 01223843665 & (+2) 01281050006
Tel: (+2) 0224734135



Energy Management System

Certificate of Approval

This is to certify that the EnMS 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 50001:2018

This certificate is valid for the following scope of operations:

Manufacturing of overhead transmission line, low voltage, medium voltage,
High voltage and extra high voltage power cables till 200 Kv with all Aluminum
and copper cross section from 10 mm² to 2000 mm²

Authorised by:

 Eng. / Mahmoud Fouad
CEO

Date of Certificate Issue: 13 January 2025

Certificate Valid Until: 12 January 2028

Recertification audit before 13 December 2027. Certified since 13 January 2025.

This certificate is the property of DAS Egypt and remains valid
subject to satisfactory annual Surveillance audits

Certificate Number: 72554/ En Rev: 01
Accreditation Number: 012222

DAS Egypt:

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