ELSEWEDY CABLES

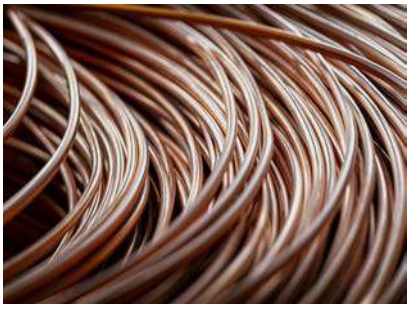
MAGNET WIRE BROCHURE

INDEX

About **Elsewedy Cables**

MAGNET WIRES FACTORY

In 1997, Elsewedy Cables established their first winding wires factory in Egypt, which is considered one of the largest factories in the Middle East specialized in manufacturing Enamelled round and paper flat wire (Copper&Aluminum) as well as plain & tinned with the capacity of 15000 ton/year, produced and quality controlled through very sophisticated devices both online and at the laboratory. The laboratory facility is equipped with almost all testing devices to meet the requirements of IEC and European norms.
Our customers in Europe, Africa and Middle East are consuming almost 50% of our production capacity in the field of Oil and Dry Transformers, Switch Gears, Motors and Compressors.



ENAMELLED ROUND **COPPER WIRES**

Technical data

Round Enamelled (From 0.1 up to 5.25 mm)

Specifications

Insulation Types

1- Solderable Polyurethane (red ,green and clear color class f155°C)

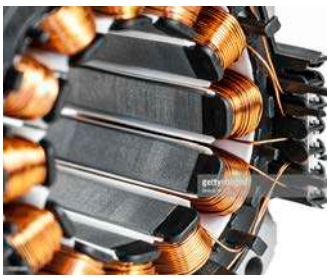
2- Polyesterimide Class (H180°C- 200°C)
and Solderable Polyesterimide Class (H180°C)

3- Polyesterimide Over Coated with Polyamideimide
Class (200°C - 220°C UL approved)

4- Polyvinyl Acetal or Poly Vinyle Formal Class (E120°C)

Grades

I, II, III According to IEC:60317 , DIN 46 435



Applications

1- Transformers Coils
2- Motor & Generators Coils
3- Compressors Coils
4- Measuring Devices Coils
5- Tv Deflection Yoke Coils
6- Relays, Solenoid Coils And Balast

Packaging

According to IEC 264,
DIN 46 383 & DIN 46 399

ENAMELLED ROUND **COPPER WIRES**





Diameter Range mm	Cylindrical Reels					Conical Reels				
	K125	K160	K200	K250	K355	K250	200/315	250/400	315/500	400/630
0.10 - 0.25	■	■	■	▫		■	■	▫	▫	
0.25 - 0.50		■	■	■		■	■	■	▫	▫
0.50 - 1.00		▫		■	▫	▫		■	■	■
1.00 - 2.00			■	■	■	▫		■	■	■
2.00 - 3.00				■	■			▫	■	■
3.00 - 3.55					■				▫	■
3.55 - 5.25					■					■

■ Preferable ▫ Available

Reels Type	Weight (kg)
K125	2 - 2.5
K160	5 - 6
K200	10 - 12
K250	18 - 21
K355	40 - 45
KK250	17 - 21
200/315	17 - 20
250/400	35 - 45
315/500	90 - 100
400/630	160 - 180

ENAMELLED ROUND **ALUMINUM WIRES**

Technical data

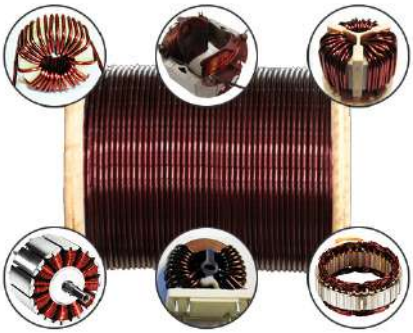
0.335: 5.00 mm

Specifications

1- IEC 60317-0-3

2- IEC 60371-15 Class 180

3- IEC 60317-25 Class 200



Grades

1- G1

2- G2

Applications

1- Lightweight Electric rotated motors

2- Transformers

3- Generator

4- Refrigerating system

5- Pumps

6- Fans

7- Switchgear

8- Lighting Fixtures

9- Induction heaters

10- Others

Packaging

Reels Type	Weight (kg)
K250	2 - 2.5
250/400	5 - 6
315/500	10 - 12
400/630	18 - 21

PAPER WRAPPED RECTANGULAR **COPPER WIRES**

Technical data

Width		**Flat Wire (mm) Tickness**		**Cross Section Area**
min	max	min	max	max
6	25	1.2	8	120m2

Flang dia.	**Spools Capacity**	**Type**
K355	45	Plastic
500	90	Wooden
710	200	Plastic
750	225	Wooden

* All dimensions in mm

Specifications

According to DIN 46434 - IEC:60317-27

Insulation type

1- Kraft and epoxy paper class 5A 105˚C
2- Polyimide film class 180˚C
3- Nomex T410 class 220˚C

Applications

1- Oil filled Transformers
2- Power & Distribution Transformers
3- Choke Coils

Packaging

Wooden spool

Raw Material Quality

Electrolytic Tough Pitch Copper
according to ASTM-B49

Purity

99.95% High Conductivity

* Thickness of Insulation From 0.1 to 4.0 mm

PAPER INSULATED **ROUND WIRES**

Technical data

Conductors range
Copper Diameter
1.50 to 6.00 mm

Types of paper or tapes

Kraft - Diamant kraft - Nomex - Mylar Mica Glass Special papers or Tapes on request Copper Proof Stress 0.2 % soft Range 60 to 100 N/mm2

Specification

E-AL UNI EN 9001 Al - CU-EPTP1 UNI EN 1977 Cu - IEC 60554-2 - Customer specification

Applications

Windings for oil transformers or dry transformers

General packing

Plastic reels or on request

BARE **COPPER WIRES**

Technical data

Size (mm)	Min. diameter (mm)	Max.diameter (mm	Cross section area (mm)	Weight of 1km (Kg)	Elongation %
1.24	1.2	1.24	1.21	10.7	
1.38	1.34	1.38	1.5	13.3	22-28
1.5	1.46	1.5	1.77	15.7	

Specifications

		Electrolytic Copper
Int. Standard		ASTM B 49
Cooper Purity	%	Min 99.95%
Tensile Strenght Max	N/mm2	200-250%
Density	g/cm3	8.9
Specific Heat	15-100 C Cal/gc	0.093
Thermal conductivity	Cal cm/cm3C	1.22
Electric Conductivity Min. (IACS) at 20°C	%	≥100%
Resistivity at 20°C (at 10% Iacs)	ohm mm2/m	0.017241

Applications

Copper Welding Wires are mainly used for the welding process of all types of Metal Cans

Product Range

Wires are packaged in a cylindrical steel baskets (returnable or non-returnable), covered by a plastic bag for protection against oxidation and shocks. A cilica gel bag is enclosed inside the basket to achieve humidity absorption.

TINNED **COPPER WIRES**

Technical data

An Electrolytically Tin Coated Annealed Copper Wires.

Applications

1- Electrical Conductors for Cables Industry

2- Electronic Circuits

Specifications

High Conductivity Electrolytic Tough Pitch Copper 99.95%

Quality Control (Tests)

Tensile Strength, Resistivity, Dimensions, Coating Thickness, Elongation %, Coating Adherence & Continuity of Coating.

Packaging

Product type	**Standard (Design & Testing)**	**Dim. Range**	**Tin Thickness**	**Mode of Delivery**	
				Packing Type	**Capacity**
Drawn Tinned	ASTM B33	0.27-1.60 mm	Up to (3 micron mt)	Plastic spools	Up to (20kg) IEC 264-2
Tinned	ASTM B33	1.35-3.00 mm	1.35-3.00 mm	Light basckets Plastic spools	Up to (1000 kg) Up to (45 kg) IEC 264-2

* Other types as per customer request.

Elsewedy Cables

Copper Welding Wires are mainly used for the welding process of all types of Metal Cans

Elsewedy Cables Winding Wires

Are precisely inspected and tested through a series of sophisticated online instrumentations, followed by laboratory tests according to the International Standards Specifications.

Quality Control for Winding Wires

Testing procedures
according to IEC:60815

- (Uni & Bi) Abrasion Test
- Peel Test
- Heat Shock Test
- Spring Back Test
- Cut Through Test
- Elongation % Test
- Electric Resistance Test
- Break Down Voltage Test
- On Line Continuity Tester
- Solderability Test
- Solvent Test
- Oil Resistance Test
- Pin Hole Test
- Tangent Delta Test
- Mandrel Test
- Flexibility and Adherance “Flat Wire”
- Thermal Heat Cut Through Test
- Continuity Test
- Abrasion Test

Certifications


ISO 9001-2008 (UIC)


0.6 Tinned Copper Wire Test Report

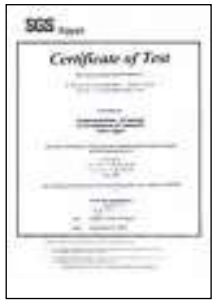

0.132 Enamelled Wire Test Report


3.35 Enamelled Wire Test Report


ISO 17025 - 2005


UL Certificates Magnit Wire


0.5 Tinned Copper Wire Test Report


0.7 Enamelled Wire Test Report

This study aims to layout and calculate the carbon footprint in the Magnet Wires factory:

Power related emissions

These emissions are linked to purchased electricity the corporate used, as well as its diesel and petrol consumption.

a) Diesel

The United Industries consumed 144,000 liters of diesel annually. Diesel is a direct emission accounted for under scope 1. This amount was used in forklifts. The results are shown in Table 12.

Table 12: Direct Emissions - scope 1 Diesel

Scope 1		Consumption	UNIT	$KgCO_2e$
2017	Diesel	144,000	l/year	384,480
2018		144,000		384,480
2019		144,000		384,480

b) Natural Gas

United Industries consumed 715,476 m^3 of natural gas in 2017, 765,662 m3 in 2018, and 451,714 m3 in 2019. Natural as is direct emission accounted for under scope 1. This amount used in chillier.
The results are shown in Table 13.

Table 13: Direct Emissions - scope 1 Gas

Scope 1		Consumption	UNIT	$KgCO_2e$
2017	Gas	715,476	m^3/year	1,455,707
2018		765,662		1,557,816
2019		451,714		919,057

c) Company owned cars

United Industries owned cars travelled 683,309 km in 2017, 579,000 km in 2018, and 1,889,287 km in 2019. The company-owned car emissions are a direct emission accounted for under scope 1. The results are shown in Table 14.

Table 14: Direct Emissions - scope 1 company-owned cars

Scope 1		Consumption	UNIT	$KgCO_2e$
2017	Company owned cars (Petrol)	683,309	km/year	136,887
2018		579,000		115,991
2019		1,889,287		134,522

d) Electricity

Electricity is an indirect emission under scope 2. United Industries used electricity from the grid as an energy source for production, lighting, cooling, etc.
In 2017 United Industries consumed 25,954,800 kWh, 26,025,600kwh in 2018, and 23,803,200 kWh in 2019. The results are shown in Table 15.

Table 15: Indirect Emissions - scope 2 Electricity

Scope 2		Consumption	UNIT	$KgCO_2e$
2017	Electricity	25,954,800	kWh/year	12,977,400
2018		26,025,600		13,012,800
2019		23,803,200		11,901,600

Travel related emissions

These emissions consist of the corporate's employee's daily travel, as well as their business travel.

a) Business Travel

In 2017 United Industries' total number of flights was 28. All flights were short-haul (flights up to 3,700km), and 19,200 km were business travel – no flights. In 2018 the total number of flights was 58. Fifty-six flights were short-haul, and two flights were long-haul and 29,690 km were business travel – no flights. In 2019 the total number of fights was 62, all were short-haul, and 72,414 km were business travel – no flights.
The results are shown in Table 16. Business travel is indirect emission under scope 3

Table 16: Indirect Emissions - scope 3 Travel related emission

Scope 3		Consumption	UNIT	$KgCO_2e$
2017	Business travel	93,400	km/year	16,273
2018		177,390		31,415
2019		226,714		40,491

b) Commuting related emissions

The total United Industries staff count was 920 employees in 2017, 926 in 2018, and 960 employees in 2019. The staff commuting emission are shown in Table 17. Commuting emissions are indirect emissions under scope 3

Table 17: Indirect Emissions - scope 3 Office staff commuting emission

Scope 3		Consumption	UNIT	$KgCO_2e$
2017	Staff commuting	1,723,600	km/year	178,234
2018		1,522,512		154,611
2019		1,601,271		162,609

Emissions due to paper consumption

In 2017 United Industries used 750,000 sheets. In 2018 the total used sheets was 1,120,000, and in 2019, the total used sheets was 900,000. The emission results are shown in Table 18.

Table 18: Indirect Emissions - scope 3 Emissions due to paper consumption

Scope 3		Consumption	UNIT	$KgCO_2e$
2017	Paper consumption	3,742	kg/year	5,389
2018		5,588		8,047
2019		4,491		6,467

Emissions due to waste management and disposal

Emissions at this section occur through the United Industries waste management and waste disposal process. The total amount of waste in 2017 was 1,409 tons, 1,448 tons in 2018, and 1,449 tons in 2019. The emission results are shown in Table 19.

Table 19: waste management and disposal

Scope 3		Consumption	UNIT
2017	Waste management & transport	63,542	$KgCO_2e$
2018		38,825	
2019		39,117	

Results United Industries Egypt

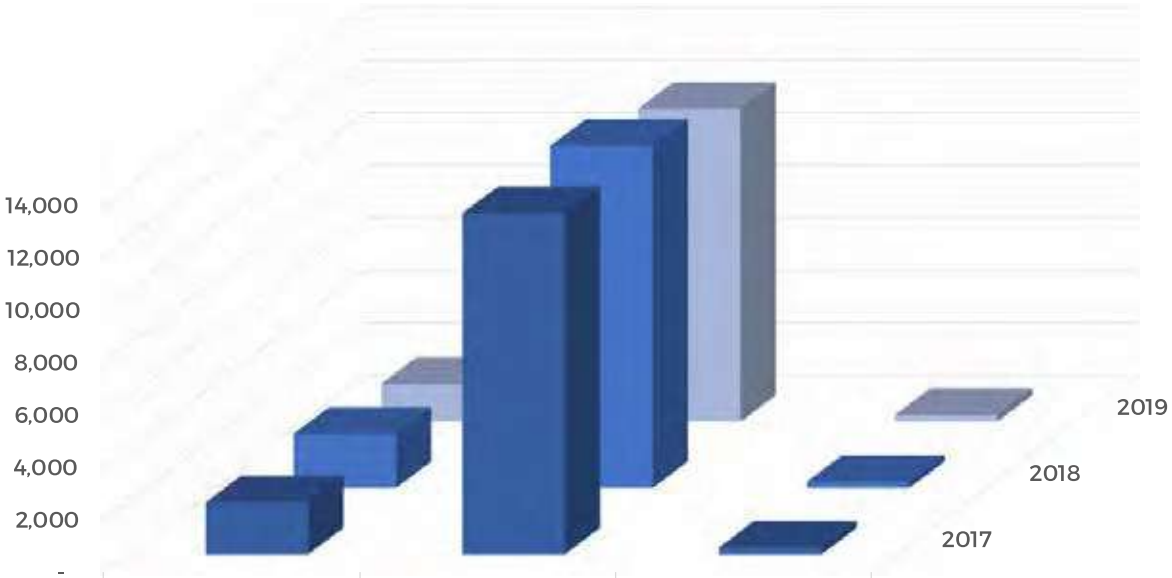
The total carbon footprint for United Industries amounts to 15,218 tons of CO2e in 2017, 15,304 tons of CO2e in 2018, and 13,832 tons of CO2e in 2019.

a) Emissions per scope

Table 20: Emissions per scope

	2017	2018	2019
Scope	Emissions in tCO2e	Emissions in tCO2e	Emissions in tCO2e
Scope 1	1,977	2,058	1,438
Scope 2	12,977	13,013	11,902
Scope 3	263	233	249
Total	**15,218**	**15,304**	**13,588**

Graphic 6: Emissions per scope



	Scope 1	Scope 2	Scope 3
2017	1,977	12,977	263
2018	2,058	13,013	233
2019	1,438	11,902	249

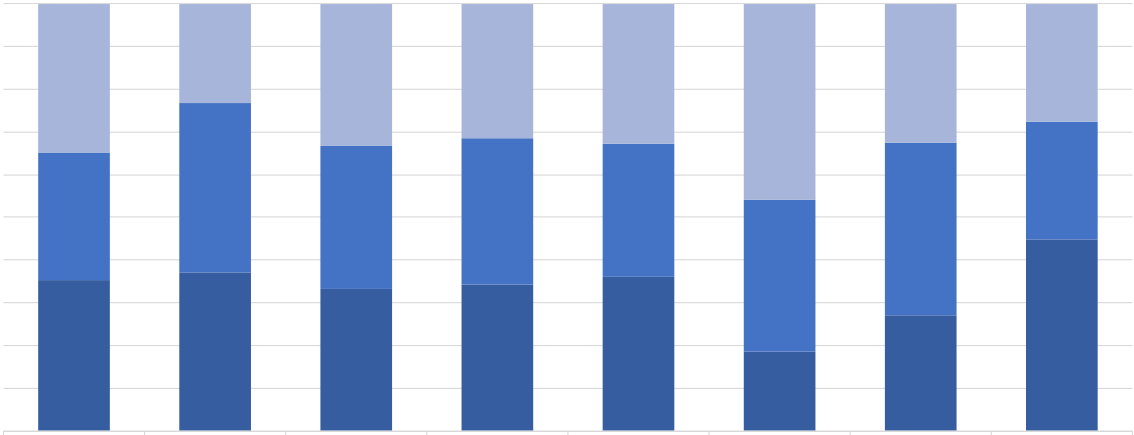
b) Emission per category

Table 21: Emissions per scope

	2017	**2018**	**2019**
Category	Emissions in tCO2e	Emissions in tCO2e	Emissions in tCO2e
Company owned cars	136.9	116.0	134.5
Gas	1,455.7	1,557.8	919.06
Diesel	384.5	384.5	384.48
Electricity	12,977.4	13,012.8	11,901.60
Commuting	178.2	154.6	162.61

	2017	2018	2019
Buiness travel	16.3	31.4	40.49
Paper consumption	5.4	8.0	6.47
Waste	63.5	38.8	39.12
TOTAL	**15,218**	**15,304**	**13,588**

Graphic 7: Emissions per category



	Company owned cars	Gas	Diesel	Electricity	Commuting	Buiness travel	Paper consumption	Waste
2019	134.5	919.1	384.5	11,901.6	162.6	40.5	6.5	39.1
2018	116.0	1,557.8	384.5	13,012.8	154.6	31.4	8.0	38.8
2017	136.9	1,455.7	384.5	12,977.4	178.2	16.3	5.4	63.5

C) Emission per employee

Table 22: Emissions per employee

Per employee	Emissions in tCO2e	tCO2e
2017	15,218	16.54
2018	15,304	16.53
2019	13,588	14.15

D) Emission per m ²

Table 23: Emissions per m2

Per m2 (office space)	Emissions in tCO2e	tCO2e
2017	15,218	0.35
2018	15,304	0.22
2019	13,588	0.19

TÜV NORD

CERTIFICATE

TÜV NORD CERT Standard TN-CC 020
"Calculation & Verification of Carbon Footprints & Carbon Neutrality"

Elsewedy Cables
A3 Industrial Zone
10th Ramadan
Al Sharqia, 44629
Egypt

ELSEWEDY CABLES

The calculation of carbon footprint encompasses the emission from manufacture of the cables in terms of the raw materials, upstream and downstream transportation and manufacturing processes

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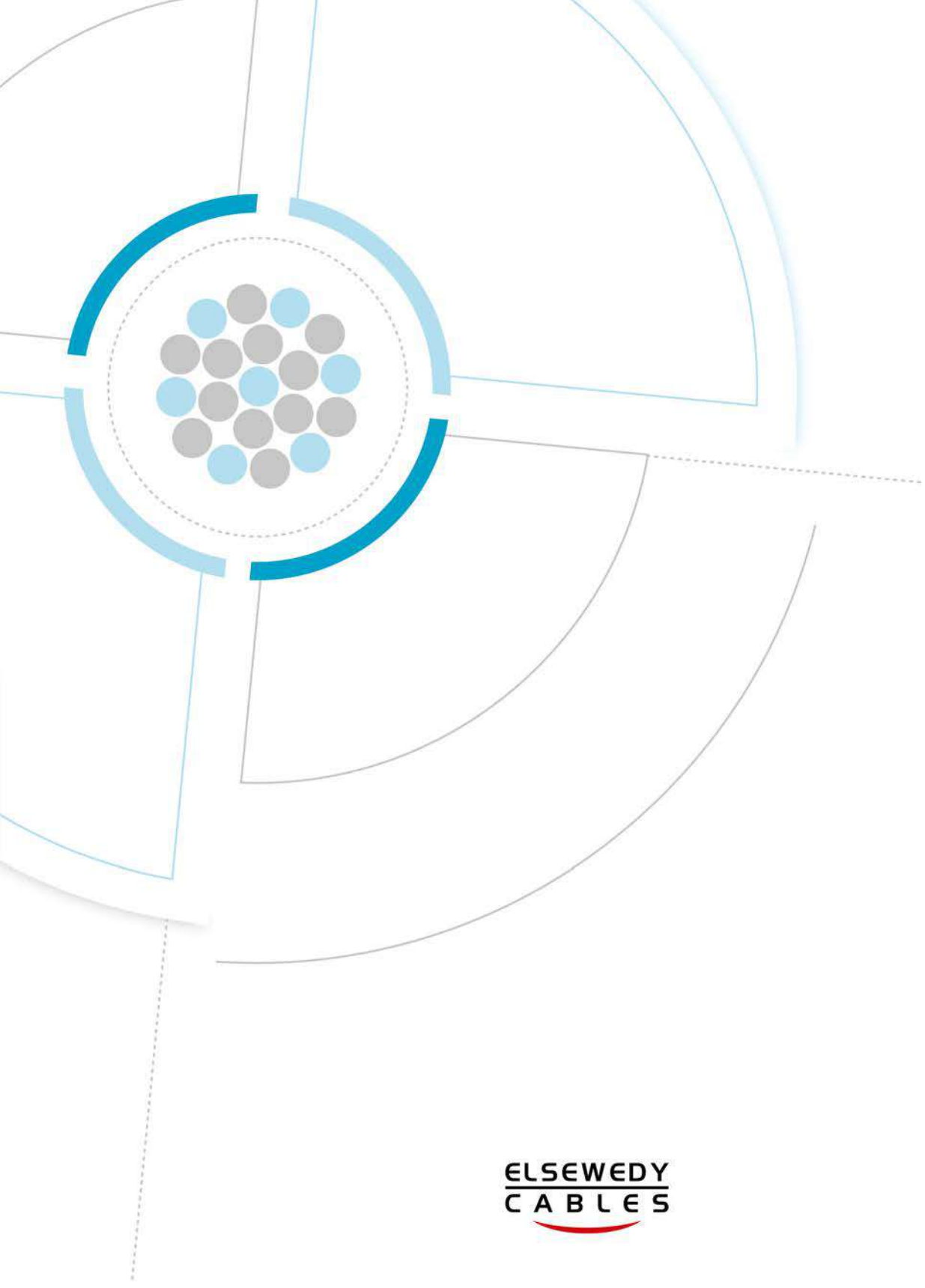

ELSEWEDY CABLES

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