

Steel

Applications

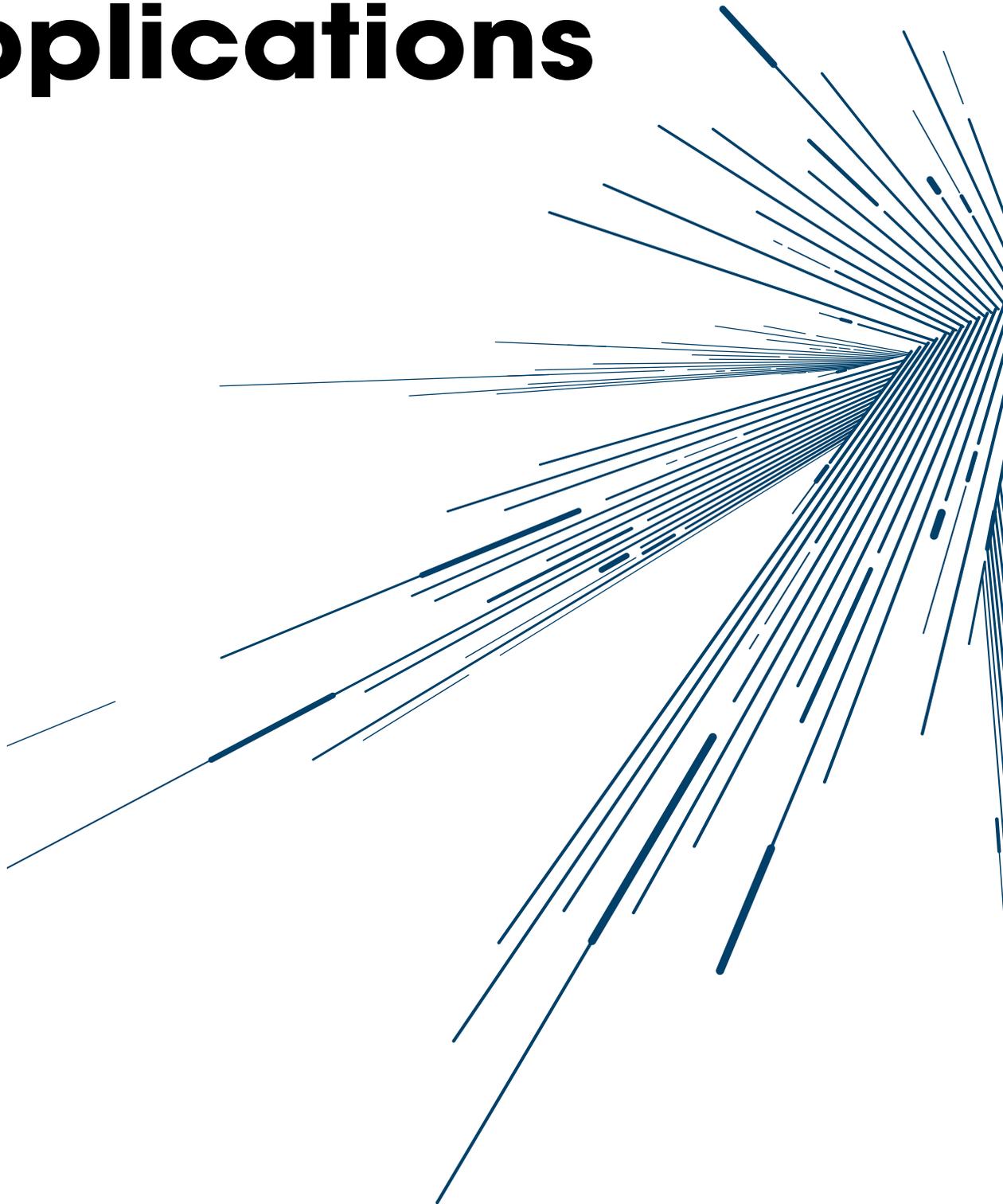


Table of Content

About Esewedy Electric	04
Esewedy Electric Steel Applications Factory ...	06
Product Range	08
Galvanized Steel Wires	08
Pre-stressed Concrete Steel Strands (PC Strands) ..	14
Pre-stressed Concrete Wires	18
Raw Materials	21
Quality Control	22
Trading Section	25
Certificates	28



Empowering Generations

ABOUT US

A global leader that has evolved from a local manufacturer of electrical products into an integrated infrastructure solutions provider; with over 17,000 employees and more than USD 3.8 billion market capitalization.

We operate in five key business sectors: Wire, Cables & Accessories, Electrical Products, Engineering & Construction, Digital Solutions, and Infrastructure Investments.

With a strong presence in 19 different countries, 31 production facilities spread across African and Asian countries including Egypt, Algeria, KSA, Qatar, Indonesia, Pakistan, and Tanzania. We export a wide range of high-end products to over 110 countries worldwide. At the heart of our approach is an all-in-one integrated Engineering, Procurement & Construction (EPC) service, enabling us to deliver the most complex turnkey projects on time and with the highest efficiency.

We operate in five key business sectors:

Five icons representing business sectors, each in a rounded square with a light gray background and a subtle drop shadow. The icons are: 1. A spool of wire. 2. A circuit board with a lightning bolt. 3. A gear with a wrench and a screwdriver. 4. A circular network diagram. 5. A stack of coins with a red line graph above it.

- Wire, Cable & Accessories
- Electrical Products
- Engineering & Construction
- Digital Solutions
- Infrastructure Investments





ELSEWEDY
ELECTRIC

Steel Applications Factory

Steel applications factory has joined the market of galvanized steel wires since 2006, with the mission of providing the market with the highest quality of galvanized steel wires for electrical cables armoring, and steel cores for overhead conductors' reinforcement.

Through the years we have expanded our product range by introducing PC strands and PC wires to our existing range of steel wires of low, high and black high carbon levels.

With a production facility of 90,000 m² using the most advanced technologies, fully automated control systems and a qualified team of 333 employees, we managed to reach a total annual production capacity of 100,000 tons, of which 40k tons galvanized steel wires, 40K tons PC strands, 20k tons PC wire.





Canada

USA

Costa Rica

Panama

Peru

Brazil

UK

Portugal

Romania

Lebanon

Tunisia

Malta

Cyprus

Iraq

UAE

Morocco

Algeria

Sudan

Jordan

Kuwait

Bahrain

Ivory Cost

Djibouti

Ethiopia

Kenya

Oman

- 2 Factories in Egypt
- 1 Regional office in Dubai
- 26 Export Markets

Global Export Markets

Product Range

A - Galvanized Steel Wires

A-1 Low Carbon Galvanized Steel Wires

Application

Armoring cables, barbed wires, mesh wires and all commercial applications.

Wires Diameter Range

0.80 to 5.00 mm.

Applicable Standards

BS EN 10244-2 , 10257-1 , BS 5467 , ASTM A641 or as per customer requirements.

Packaging

Air coil (Seaworthy packing for export) or as per customer requirements.

Diameter	Tolerance		Minimum Zinc Weight for Cables application	Minimum Zinc Weight for commercial market
	+	-	g / m ²	g / m ²
0.80	0.035	0.035	145	50
0.90	0.035	0.035	155	55
1.25	0.040	0.040	180	65
1.60	0.045	0.045	195	70
2.00	0.050	0.050	215	80
2.50	0.060	0.060	245	95
3.15	0.070	0.070	255	100
4.00	0.080	0.080	275	110
5.00	0.080	0.080	280	110







A-2 High Carbon Galvanized Steel Wires/ Strands

Application

Steel core for A.C.S.R in "Overhead Power Transmission", stay wires, earth wires, damper wires "Vibration Damper" and all commercial applications.

Wires Diameter Range

1.30 to 5.00 mm.

Strand Composition

1 , 2 , 3 , 4 , 7 & 19 wires constructions are applicable.

Surface Quality

Hot dipped galvanized and greased.

Applicable Standards

IEC 63248 , IEC 60888 & IEC 61089 / BS EN 50189 & BS EN 50182 / ASTM B 498 & ASTM B 232 / ASTM A 641 / DIN 48200 & DIN 48204 or as per customer requirements.

Packaging

Wooden drums, Z2 coils, air coils or as per customer requirements.



2-A High Carbon Galvanized Steel Wires

Diameter mm	Tolerance		Minimum Ultimate Tensile Strength N / mm ²	Minimum Zinc Weight for Cables application g / m ²	Minimum Zinc Weight for Commercial Market g / m ²
	+	-			
1.45	0.030	0.030	1,450	200	40
2.00	0.050	0.050	1,450	215	50
2.50	0.050	0.050	1,410	230	50
2.70	0.050	0.050	1,410	230	50
3.00	0.050	0.050	1,410	230	60
3.50	0.050	0.050	1,410	245	60
4.00	0.050	0.050	1,380	245	80
4.80	0.050	0.050	1,380	260	80
5.00	0.050	0.050	1,380	260	80

2-B High Carbon Galvanized Steel Strands

No. of Wires	Diameter mm	Tolerance		Minimum Ultimate Tensile Strength N / m ²	Minimum Zinc Weight for Commercial Market g / m ²	Grease Y/N
		+	-			
7	1.45	0.030	0.030	1,450	183	Y
19	1.68	0.030	0.030	1,450	198	Y
7	2.15	0.030	0.030	1,450	214	Y
19	2.68	0.050	0.050	1,410	229	Y (7 wires layer)
7	3.00	0.050	0.050	1,410	244	Y
7	3.40	0.050	0.050	1,410	259	Y
7	4.00	0.050	0.050	1,380	274	N
7	4.45	0.060	0.060	1,380	305	N

A-3 Black High Carbon Steel Wires.

Application

Mattresses springs and all commercial applications.

Wires Diameter Range

1.30 to 5.00 mm.

Applicable Standards

As per customer requirements.

Packaging

Air coils or as per customer requirements.

Diameter	Tolerance		Tensile Strength Range
	+	-	N / m2
mm			
1.30	0.030	0.030	1,600
2.00	0.050	0.050	1,300 - 1,650
2.20	0.050	0.050	1,250 - 1,700
2.40	0.050	0.050	1,230 - 1,600
4.00	0.050	0.050	950 - 1,500
4.80	0.050	0.050	1,400
5.00	0.050	0.050	1,370





B-Pre-stressed Concrete Steel Strands (PC Strands)

Product Overview

- It is a 7 wire steel strand produced from hot-rolled, high carbon steel wire rods, which after cleaning & descaling is drawn into wire, fabricated into multi-wire strand & thermally stress-relieved.
- Used to "pre-stress" concrete structural members to improve their ability to withstand loads.
- Can be dry or oiled as per the customer's requirements.



Product Applications

Commercials buildings, bridges & tunnels, tanks & silos and parking buildings.

Advantages of Pre-stressed Slabs

- Larger slab spans allowing fewer columns.
- Savings in materials (concrete and steel) & shorter lead times due to fast installation.
- Significant reduction in building weight versus a conventional concrete building.
- Reducing the occurrence of cracks.
- Allowing extremely long span bridges to be constructed without the use of temporary intermediate supports. This minimizes the impact on the environment and avoids disruption to water or road traffic below.

ASTM A416M-2012 Low Relaxation

Grade	Nominal Diameter, d		Tolerance on Diameter	Area of Strand		Weight of Strand		Tensile Strength	Minimum Braking Load	Minimum Load at 1% Extension	Lay Length
	mm	in		mm ²	in ²	kg/1000m	lb/1000ft				
250	7.90	5/16	+/-0,40	37	0.058	294	197	1,725	64.5	58.1	(12 - 16) xd
	9.50	3/8	+/-0,40	52	0.080	405	272	1,725	89.0	80.1	
	11.10	7/16	+/-0,40	69.70	0.108	548	367	1,725	120	108.1	
	12.70	1/2	+/-0,40	92.90	0.144	730	490	1,725	160	144.1	
	15.20	6/10	+/-0,40	139	0.216	1090	737	1,725	240	216.2	
270	9.53	3/8	+0,65/-0,15	55	0.085	430	290	1,860	102	92.1	
	11.10	7/16	+0,65/-0,15	74.2	0.115	580	390	1,860	138	124.1	
	12.70	1/2	+0,65/-0,15	98.70	0.153	780	520	1,860	184	165.3	
	13.20	1/2 S	+0,65/-0,15	108	0.167	840	570	1,860	200	180.1	
	14.30	9/16	+0,65/-0,15	124	0.192	970	650	1,860	230	207.0	
	15.20	6/10	+0,65/-0,15	140	0.217	1100	740	1,860	261	234.6	
	15.70	6/10 S	+0,65/-0,15	150	0.231	1200	780	1,860	279	251.4	

- Maximum relaxation loss after 1000 hrs \leq 2.5 % when initial load is at 70% of specified breaking load, and 3.5% when initial load is at 80% of specified breaking load.
- Minimum elongation, LO=610 mm: 3.5%.

BS5896-2012 Relaxation Class 2



Steel Name	Steel Number	Diameter, d	Tensile Strength	Cross Sectional Area	Mass per meter	Deviation on Mass per meter	Characteristic Value of Max. Force Fm	Maximum Value of Max. Force	Fp 0,1%	Curvature of Strand	Lay Length mm
-	-	mm	N/mm ²	mm ²	g/m	%	KN	KN	KN		mm
Y1670S7	1.1364	15.2	1,670	139	1086	± 2	232	267	204	Max Bow Height=25mm /1meter	(14 - 18)xd
Y1770S7	1.1365	9.3	1,770	52	406.1	± 2	92	106	81		
Y1770S7	1.1365	11.0	1,770	70	546.7	± 2	124	143	109		
Y1770S7	1.1365	12.5	1,770	93	726.3	± 2	165	190	145		
Y1770S7	1.1365	12.9	1,770	100	781	± 2	177	204	156		
Y1770S7	1.1365	15.7	1,770	150	1172	± 2	266	306	234		
Y1860S7	1.1366	9.3	1,860	52	406.1	± 2	96.7	111	85.1		
Y1860S7	1.1366	9.6	1,860	55	429.6	± 2	102	117	89.8		
Y1860S7	1.1366	11.0	1,860	70	546.7	± 2	130	150	114		
Y1860S7	1.1366	12.5	1,860	93	726.3	± 2	173	199	152		
Y1860S7	1.1366	12.9	1,860	100	781	± 2	186	214	164		
Y1860S7	1.1366	15.2	1,860	139	1086	± 2	259	298	228		
Y1860S7	1.1366	15.7	1,860	150	1172	± 2	279	321	246		

- Max relaxation loss after 1000 hrs ≤ 2,5 % when initial load is at 70% of specified breaking load, 3,5% when initial load at 80% of specified breaking load.
- The diameter of central wire shall be at least 3% greater than the diameter of outer helical wire.
- Minimum elongation, LO=500 mm: 3.5%.



prEN10138 - 3:2011

Steel Name	Steel Number	Diameter, d	Tensile Strength	Cross Sectional Area	Mass per meter	Deviation on Mass per meter	Characteristic Value of Max. Force Fm	Maximum Value of Max. Force Fm	Fp 0,1%	Curvature of Strand	Lay Length mm
-	-	mm	N/mm ²	mm ²	g/m	%	KN	KN	KN		mm
Y1770S7	1.1365	9.3	1770	52	406.1	± 2	92	106	81	Max bow height=25mm /1meter	(14 - 18)xd
Y1770S7	1.1365	12.5	1770	93	726.3	± 2	165	190	145		
Y1860S7	1.1366	9.3	1860	52	406.1	± 2	96.7	111	85.1		
Y1860S7	1.1366	9.6	1860	55	429.6	± 2	102	117	89.8		
Y1860S7	1.1366	12.5	1860	93	726.3	± 2	173	199	152		
Y1860S7	1.1366	12.9	1860	100	781	± 2	186	214	164		
Y1860S7	1.1366	15.2	1860	139	1086	± 2	259	298	228		
Y1860S7	1.1366	15.7	1860	150	1172	± 2	279	321	246		

- The diameter of central wire shall be at least 3% greater than the diameter of outer helical wire.
- Minimum elongation, LO=500 mm: 3.5%

Packaging Dimensions

Inner Diameter = (800) mm. **Outer Diameter** = (1000 - 1500) mm. **Width** = (750) mm. **Weight** = (3 - 4) Tons.

PC Strands Manufacturing Process





C - Pre-stressed Concrete Wires (PC Wires)

Specifications

- Pre-stressed concrete wire (PC wire) is a high-grade, low-relaxation steel wire that is primarily used to counter the low-tension qualities inherent in concrete.
- The process involves the continuous heating and stretching of a cold drawn high-carbon steel wire, to produce a finished product with a much improved yield stress and greatly reduced load relaxation.

Applications

- Concrete pipes
- Railway track sleepers
- Concrete floor beams
- Precast hollow core floor slabs



Product Name : PCW

Description: Prestressed concrete wire

Size (mm): 4, 5, 6, 7, 8, 9.40

Surface: Smooth or indented

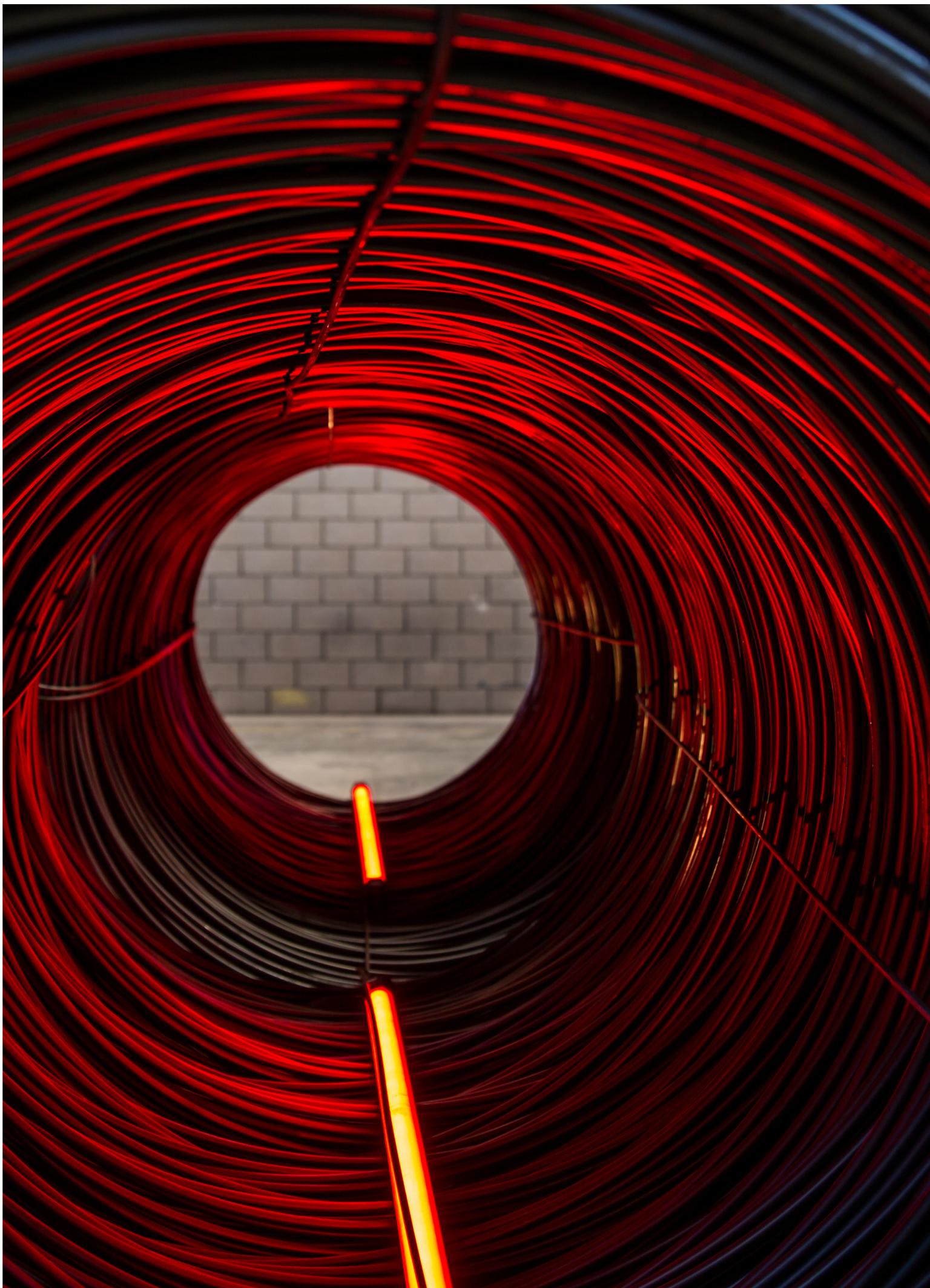
Standards: BS 5896 - ASTM A421 - En 10138-2 - Customer specification

Relaxation: Low relaxation

Diameter	Tensile strength	Weight/m	Cross section area	Permissible deviation in W/m	Braking load	Min. Elongation
mm	KN	g/m	mm ²	%	KN	%
4	1860	98.4	12.6	±2	26.9	3.5
5	1860	153.1	19.6	±2	42	3.5
6	1770	221	28.3	±2	57.6	3.5
7	1770	300.7	38.5	±2	78.3	3.5
8	1670	392.8	50.3	±2	96.6	3.5
9.4	1570	542	69.4	±2	109	3.5

PC Wires Manufacturing Process





Raw Materials

To ensure high quality of finished products, we strictly apply inspection procedures for raw materials coming from the most reputable national and international suppliers, according to the international standards.

Steel

- Low Carbon Grades AISI (1006, 1008, 1010, 1012 , 1015 , 1018)
- High Carbon Grades AISI (1042, 1045, 1050, 1060, 1065, 1070, 1075, 1080 , 1085)

Zinc

- Special High Grade Zinc of purity 99,995 according to ASTM B6.

Quality Control

Quality control procedures of inspection starts with raw material, manufacturing and packaging processes using a Series of high technology on-line instruments, followed by laboratory tests according to the international standards.

1- Geometrical Tests

- Diameter checks: Guarantees that wires are correctly rounded and within specified tolerance of diameters.
- Ovality and surface finish: To ensure the best quality wire surface free from defects , roughness or discontinuities.
- For PC Strands/Wires: Tensile strength, relaxation test (120,240, 1000 hours) and bending tests are applied.

2- Zinc Tests

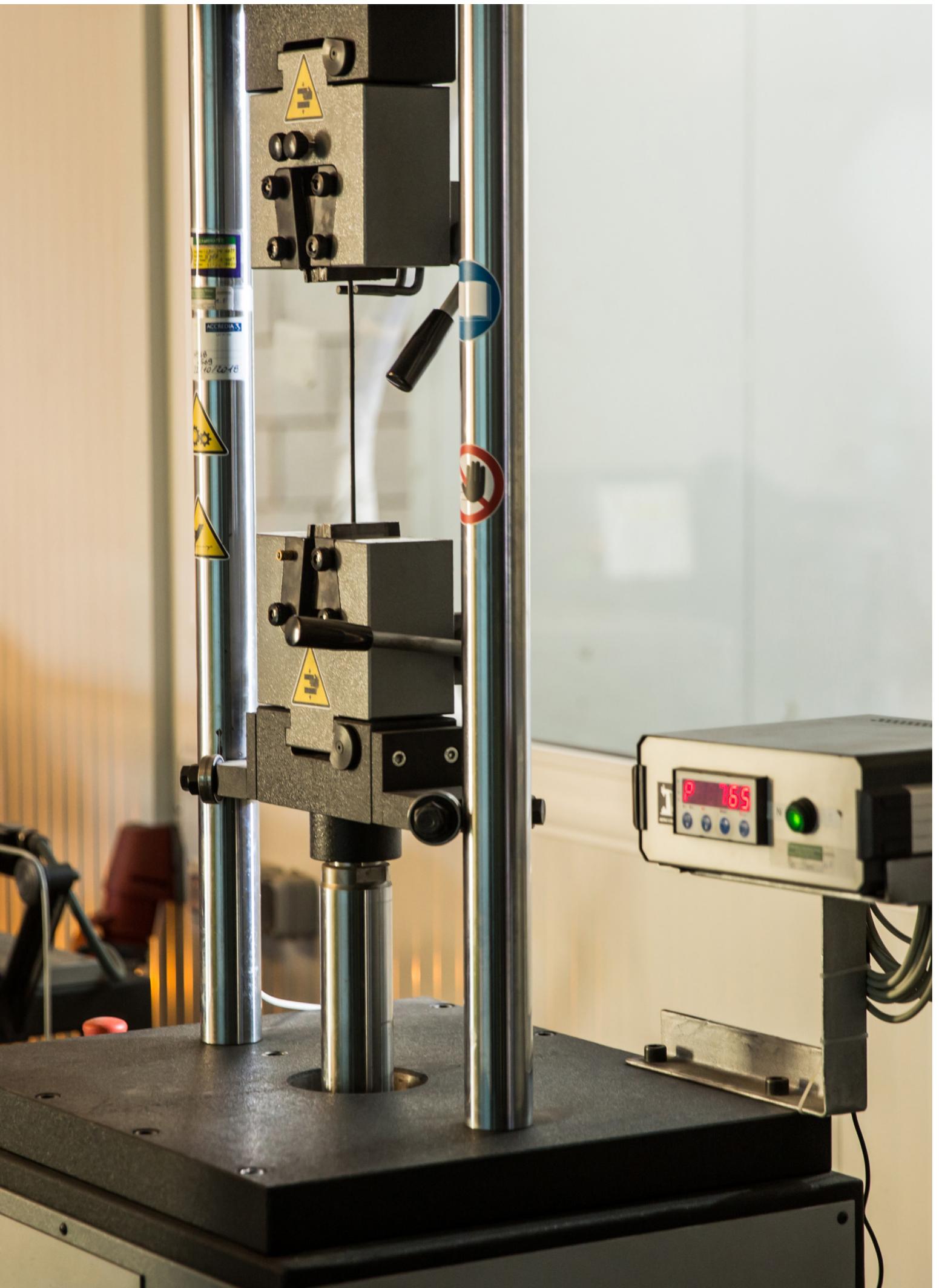
Zinc Coating: Ensures that the zinc coating over wires surface is smooth, continuous and of thickness according to international standards.

Zinc Adhesion: Ensures adhesion of zinc coating layers over wires surface or as per customer requirements.

3- Electrical Test

DC resistance test is according to international standards or as per customer requirements.







Trading Section

Eisewedy Electric Steel Applications International:

One of the fastest growing steel trading companies. Our strong alliances with global mills allow us to provide short lead time deliveries from extensive dock-side stocks.

We offer a wide range of long products and flat-rolled material, as we're highly skilled in material sourcing, supplying different markets throughout the world.

Our strong relationships with sister companies grants us great access to several special section re-rolling mills and steel service centers; which widens the range of services our business can provide.



Our Business Model

Trading

Trading is central to everything we do. Our structural partnerships within interactive networks allows us to source and supply commodities and finished steel to the market.

Distribution

Our international network of distribution hubs extends our global reach, and facilitates our business with the local and retail sectors of the market.

Production

We are also steel manufacturers. We own and operate industrial assets to enhance our supply capability.

Services

The various value-added services we offer, along with our trading, production and distribution activities, meets the needs of our customers and suppliers alike.

Our Products

Long Products

- Deformed bars
- Wire rods
- Angles
- Beams
- Channels

Flat Products

- HR sheets/coils

Semi-Finished Products

- Billets and slabs







System Approvals



BASC BS EN ISO 9001:2015



CARES BS EN ISO 9001:2015



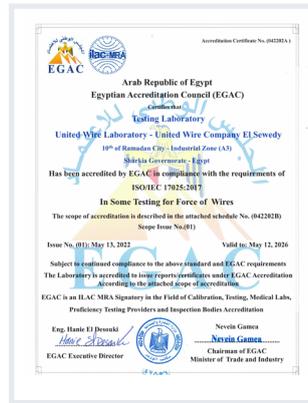
CARES BS EN 9001



Roads and Transport Authority (RTA) Approval



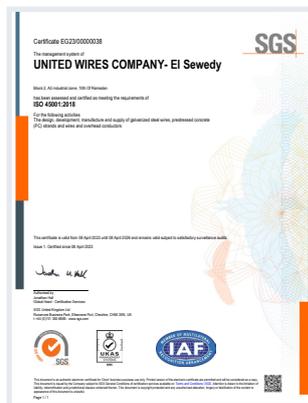
Euro Cert. EN ISO 9001:2015



EGAC- ISO 17025



ISO 14001



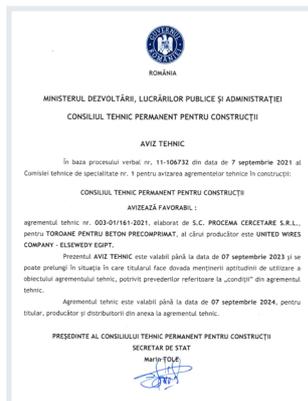
ISO 45001



EGAC ISO/IEC 17025:2017



Intertek Award



Romania Technical Approval

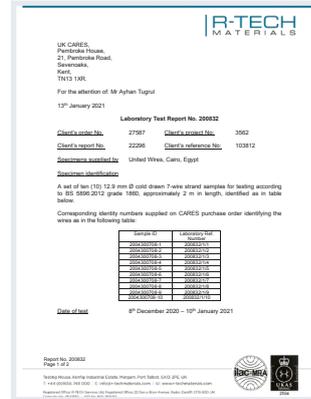
Product Approvals



BELAC Univesite de liege Belgium lab test certificate



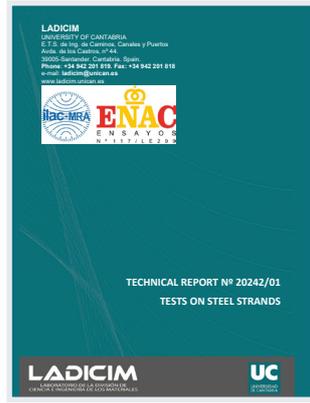
Dubai Central Laboratory Department (DCLD) product conformity



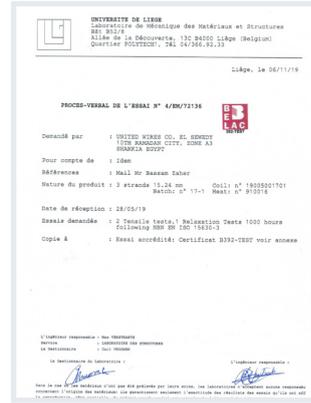
CARES 1



DCL Test Report



Stress Corrosion & Deflected tensile



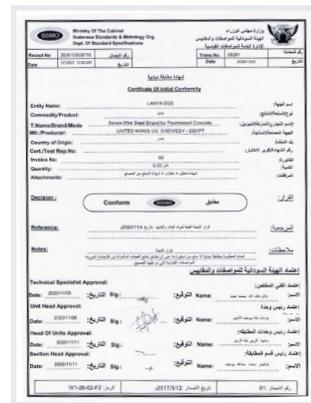
BELAC Univesite de liege Belgium lab test certificate



Relax. Test



Test Certificate Belgian lab



Sudan Approval



Head Office

Plot no. 13co3, Cairo festival city 5th settlement, New Cairo, Cairo, Egypt. P.O. Box 310
Tel: (+202) 275 99 700 / 701 Fax: (+202) 275 99 731
email: steelapplications@elsewedy.com

Factory Address

3rd industrial zone A4, 10th of Ramadan



www.elsewedyelectric.com

19159