Safe Reinforcing Solutions

United Steel Wires

Elsewedy Electric

About Us

75 years ago, we started with a clear vision to position Elsewedy Electric for successful growth, inspired by innovation, determination and spirit of hardworking staff, empowered and liberated by a strong enterprise system.

Since Elsewedy Electric started, we made the decision to never sacrifice integrity for growth; this same motto did not change till today… Behind our success is a professional dedicated team and latest technologies which deliver comprehensive product portfolio and unmatched services. Elsewedy Electric always delivers top-rated products and services customers need with the best results they deserve. Our creative solutions help corporations and organizations to quickly adapt to new technologies that enhance business productivity and enable them to stay ahead of the competition.

At Elsewedy Electric, we focus on three pillars of sustainability: Human, Environment, and Technology.
We are working to produce the best products and offer a wider selection of solutions in order to meet growing energy demands. We are striving to reduce our impact on the environment, conserve natural resources, and reducing our operating costs in the process.

Our heritage, as an energy solutions provider, runs deep. What began with Elsewedy Cables more than 30 years ago and became Elsewedy Electric has transformed into a global diversified company with more than 10,000 employees and 30 production facilities. We are one of the top Energy Solutions companies in Middle East and Africa operating in 5 diversified energy segments; Cables & Accessories, Electrical Products, Energy Measurement & Management, Transformers, Engineering & Construction.

We are proud of what we have achieved so far but recognize that there is much work to be done to meet the aggressive goals we have set for ourselves. Elsewedy Electric has the capacity and the will to lead. We will continue to work and fight for those things that make the worlda better place.

We remain dedicated to penetrate new markets with a vision of providing the best products and services to our clients and shareholders and create a good working environment for our employees. That's Performance with purpose. That's what every business owner should strive for.

United Steel Wires

About Us

United steel wires Factory has joined the market of galvanized steel wires since 2006 with the mission of providing the manufacturers of electrical cables with the best quality galvanized steel wires for electrical cables armoring and providing the steel cores for overhead conductors reinforcement. This is achieved over a production facility of 35000 m2 using the most advanced technologies, fully automated control systems and a qualified team of 350 employee.

United steel wires team constantly seeks the expansion of the factory product range & to serve a wider segments of the market. This was achieved via introducing steel products with high & low carbon levels to serve the more common commercial applications in addition to the black high carbon steel wires.

United steel wires is also proud to be the first manufacturer in the Egyptian market to launch the prestressed concrete strands within its facility located in 10th of Ramadan. PC strands are the essential component of the prestressing technique which is considered to be a global trend due to the great benefits it provides in terms of cost savings & other architectural benefits

Product Range:

A- Steel Products:

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 10244-2/2001, 10257-1/98 OR as per customer requirements

Packaging

Air Coils (Sea worthy Packing for Export) or as per customer requirement

Diameter	Tolerance		Minimum Zinc Weight for armoring application	Minimum Zinc Weight for commercial market
mm	+	-	g / m2	g / m2
0.80	0.035	0.035	145	100
0.90	0.035	0.035	155	100
1.25	0.040	0.040	180	60
1.60	0.045	0.045	195	60
2.00	0.050	0.050	215	60
2.50	0.060	0.060	245	60
3.15	0.070	0.070	255	60
4.00	0.080	0.080	275	60
5.00	0.080	0.080	280	60

2- High Carbon Galvanized Steel Wires/ Strands

Application:

Steel Core for A.C.S.R “In Overhead Power Transmission”, stay wires, Earth wires and Damper Wires “Vibration Damper” and all commercial applications

Wires Diameter Range

1.45 to 5.00 mm

Strand Composition

From 1 wire up to 19 wires

Surface Quality: Hot Dipped Galvanized and Greased

Applicable Standards

IEC 60888 & IEC 1089 / BS EN 50189 & BS EN 50182 /
ASTM B 498 & ASTM B 232 / DIN 48200 & 48204
OR as per customer requirements.

Packaging

Wooden drums, air coils or as per customer requirements

Product Range:

2-A High Carbon Galvanized Steel Wires

Diameter	Tolerance		Minimum Ultimate Tensile strength	Minimum Zinc Weight for armoring application	Minimum Zinc Weight for commercial market
mm	+	-	N / mm2	g / m2	g / m2
1.45	0.030	0.030	1450	200	60
2.00	0.050	0.050	1400	215	60
2.50	0.050	0.050	1400	230	60
2.70	0.050	0.050	1400	230	60
3.00	0.050	0.050	1350	230	60
3.50	0.050	0.050	1350	245	60
4.00	0.050	0.050	1300	245	60
4.80	0.050	0.050	1300	260	60
5.00	0.050	0.050	1300	260	60

2-B High Carbon Galvanized Steel Strands

No. of Wires	Diameter	Tolerance		Minimum Ultimate Tensile strength	Minimum Zinc Weight for armoring application	Grease
	mm	+	-	g / m2	g / m2	Y/N
7	1.45	0.030	0.030	1450	200	Y
19	1.68	0.030	0.030	1400	215	Y
7	2.15	0.030	0.030	1400	215	Y
19	2.68	0.050	0.050	1350	230	Y (7 wires layer)
7	3.00	0.050	0.050	1350	230	Y
7	3.40	0.050	0.050	1350	245	Y
7	4.00	0.050	0.050	1300	245	N
7	4.45	0.060	0.060	1300	260	N

Product Range:

3- Black High Carbon Galvanized Steel Wires

Application

Mattresses springs and all commercial applications

Wires Diameter Range

1.45 to 5.00 mm

Strand Composition

From 1 wire up to 19 wires

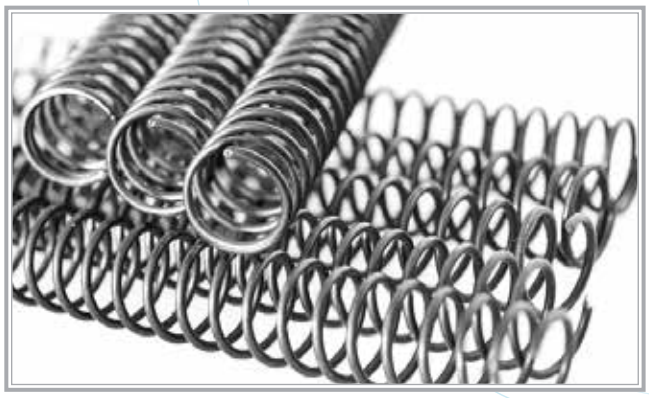
Applicable Standards:

As per customer requirements

Packaging

Air coils or as per customer requirements

Diameter	Tolerance		Minimum Ultimate Tensile strength
mm	+	-	g / m2
1.30	0.030	0.030	1500
2.00	0.050	0.050	1500
2.20	0.050	0.050	1500
2.40	0.050	0.050	1500
4.00	0.050	0.050	1500
4.80	0.050	0.050	1500
5.00	0.050	0.050	1500



Product Range:

4- Prestressed Concrete Steel Strands (PC Strands)

Product Overview

• PC strand 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.
• PC strand is used to “prestress” concrete structural members to improve their ability to withstand loads.

Product Applications

*Commercials Buildings *Bridges & Tunnels *Tanks & Silos *Parking Buildings

Advantages of Prestressed 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 A416 Low Relaxation

Nominal Diameter	Center Wire Diameter	Outer Wire Diameter	Weight	Nominal Area	Min. Diameter	Max. Diameter	Tensile Strength	B.I	Min. Elongation Lo=600
(mm).	(mm).	(mm).	(g/m).	(mm2).	(mm).	(mm).	(N/mm2).	(KN)	mm%
9.53	3.23	3.09	405	51.61	9.12	9.94	1725	89	3.5
11.11	3.76	3.61	548	69.68	10.7	11.52	1725	120.1	3.5
12.7	4.29	4.13	730	92.9	12.29	13.11	1725	160.1	3.5
15.24	5.28	5.1	1094	139.35	14.83	15.65	1725	240.2	3.5
9.53	3.3	3.17	432	54.84	9.38	10.19	1860	102.3	3.5
11.11	3.86	3.71	582	74.19	10.96	11.79	1860	137.9	3.5
12.7	4.43	4.27	775	98.71	12.55	13.36	1860	183.7	3.5
15.24	5.28	5.1	1102	140	15.09	15.9	1860	260.7	3.5

BS 5896

Nominal Diameter	Center Wire Diameter	Outer Wire Diameter	Weight	Nominal Area	Min. Diameter	Max. Diameter	Tensile Strength	B.I	Min. Elongation Lo=600
(mm).	(mm).	(mm).	(g/m).	(mm2).	(mm).	(mm).	(N/mm2).	(KN)	mm%
9.3	3.23	3.09	406.1	52	81	130 -167	1770	92	3.5
11	3.76	3.61	546.7	71	106	154 -198	1770	125	3.5
12.5	4.29	4.13	726.3	93	145	175 - 225	1770	165	3.5
15.7	5.42	5.24	1172	150	234	220 - 282	1770	266	3.5
9.3	3.23	3.09	406.1	52	85.1	130 -167	1860	96.7	3.5
11.3	3.86	3.71	590	75	123	158 - 203	1860	140	3.5
12.5	4.29	4.13	726.3	93	152	175 - 225	1860	173	3.5
15.7	5.42	5.24	1172	150	246	220 - 282	1860	279	3.5

PC Strands Production Lines:

Machines Suppliers: 1- Pickling plant: DRT - Italy 2- Drawing & stranding lines: Mario Fregerio - Italy 3- Testing lab: MetroCom - Italy

PC Strands Packaging:

PC Strands Production line: all machines are from “Mario Fregerio - MFL Italy”

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

Product Range:

B- Aluminum Products

1- All Aluminum Conductors (AAC)

Description:

Hard drawn Aluminium wires, stranded in successive layers, in opposite direction to form the Aluminium stranded A.A.C. conductor. As per BS EN 50182 or IEC 61089.

Application:

All Aluminium bare conductors are used for aerial distribution lines having relatively short spans, aerial feeders and bus bars of substations.

Nominal cross sectional area	Number and nominal diameter of wires	Max. DC resistance at 20 °C	Rated strength	Approx. overall diameter	Approx. Weight	Current carrying capacity
mm2	NoXΦ(mm)	Ω/Km	KN	mm	Kg/Km	Amp
16	7X1.7	1.7986	3.02	5.1	43.4	110
25	7X2.1	1.1787	4.36	6.3	66.3	145
35	7X2.5	0.8317	6.01	7.5	93.9	180
50	7x3	0.5776	8.41	9	135.2	225
50	19X1.8	0.5944	8.94	9	132.9	225
70	19X2.1	0.4367	11.85	10.5	180.9	270
95	19X2.5	0.3081	16.32	12.5	256.3	340
120	19x2.8	0.2456	19.89	14	321.5	390
150	37X2.25	0.196	26.48	15.8	405.7	455
185	37X2.5	0.1588	31.78	17.5	500.9	520
240	61X2.25	0.1193	43.66	20.3	671.1	625
300	61X2.5	0.0966	52.4	22.5	828.5	710
400	61X2.89	0.0723	68.02	26	1107.1	855
500	61X3.23	0.0579	82.47	29.1	1382.9	990
625	91X2.96	0.0464	106.45	32.6	1739.7	1140
800	91x3.35	0.0362	132.34	36.9	2228.3	1340
1000	91X3.74	0.0291	159.95	41.1	2777.3	1540

Product Range:

2- All Aluminum Alloy Conductors (A.A.A.C.)

Description:

All Aluminium alloy (ALMELEC) conductors, stranded in successive layers to form the stranded A.A.A.C. conductor. As per IEC 61089 or BS EN 50182 or ASTM B 399.

Application:

A.A.A.C. are mainly used for overhead lines, in transmission and distribution electrical networks, having relatively long spans. They are also used a messenger to support overhead electrical cables.

Nominal cross sectional area	Number and nominal diameter of wires	Max. DC resistance at 20 °C	Rated strength	Approx. overall diameter	Approx. Weight	Current carrying capacity
mm2	NoXΦ(mm)	Ω/Km	KN	mm	Kg/Km	Amp
16	7X1.7	2.0701	4.69	5.1	43.4	105
25	7X2.1	1.3566	7.15	6.3	66.2	135
35	7X2.5	0.9572	10.14	7.5	93.8	170
50	7x3	0.6647	14.6	9	135.1	210
50	19X1.8	0.6841	14.26	9	132.7	210
70	19X2.1	0.5026	19.41	10.5	180.7	255
95	19X2.5	0.3546	27.51	12.5	256	320
120	19x2.8	0.2827	34.51	14	321.2	365
150	37X2.25	0.2256	43.4	15.8	405.3	425
185	37X2.5	0.1827	53.58	17.5	500.3	490
240	61X2.25	0.1373	71.55	20.3	670.3	585
300	61X2.5	0.1112	88.33	22.5	827.5	670
400	61X2.89	0.0832	118.04	26	1105.9	810
500	61X3.23	0.0666	147.45	29.1	1381.4	930
625	91X2.96	0.0534	184.73	32.6	1737.7	1075
800	91x3.35	0.0417	236.62	36.9	2225.8	1255
1000	91X3.74	0.0334	294.91	41.1	2774.3	1450

Product Range:

3- Aluminum Conductor Steel Reinforced (A.C.S.R.)

Description:

An outer layer of Aluminium conductor concentrically stranded over the central core of galvanized solid or stranded steel wires to form Aluminium steel reinforced conductor. As per BS EN 50182 or ASTM B 232 or IEC 61089.

Application:

A.C.S.R conductors are widely used for electrical power transmission over long distances, since they are ideal for long overhead lines spans. They are also used as a messenger for supporting overhead electrical cables.

Nominal cross sectional area	Number and nominal diameter of wires		Max. DC resistance at 20 °C	Rated strength	Approx. overall diameter	Approx. Weight	Current carrying capacity
	Aluminum	Steel					
mm2	NoXΦ(mm)		Ω/Km	KN	mm	Kg/Km	Amp
16/2.5	6 x 1.80	1x1.80	1.8769	5.80	5.4	5.4	105
25/4	6 x 2.25	1x2.25	1.2012	8.95	6.75	6.75	140
35/6	6 x 2.70	1x2.70	0.8342	12.37	8.1	8.1	170
50/8	6 x 3.20	1x3.20	0.5939	16.81	9.6	9.6	210
70/12	26 x 1.85	7x1.44	0.4132	26.27	11.7	11.7	290
95/15	26 x 2.15	7x1.67	0.3060	34.93	13.6	13.6	350
120/20	26 x 2.44	7x1.90	0.2376	44.50	15.5	15.5	410
150/25	26 x 2.70	7x2.10	0.1940	53.67	17.1	17.1	470
185/30	26 x 3.00	7x2.33	0.1571	65.27	19.0	19.0	535
210/35	26 x 3.20	7x2.49	0.1381	73.36	20.3	20.3	590
240/40	26 x 3.45	7x2.68	0.1188	85.12	21.8	21.8	645
380/50	54 x 3.00	7x3.00	0.0758	121.30	27.0	27.0	840
490/65	54 x 3.40	7x3.40	0.0590	150.81	30.6	30.6	960

Product Range:

4- Aluminum Conductor Aluminum Clad Steel Reinforced (A.C.S.R./AW)

Description:

An outer layer of Aluminum conductor concentrically stranded over the central core of aluminum clad steel solid or stranded to form Aluminum Aluminum Clad Steel Reinforced conductor . As per ASTM B549.

Application:

ACSR/AW conductors are used for electrical power transmission, they are ideal for long overhead lines spans like ACSR but with slightly better resistance and current carrying capacity in addition to good corrosion resistance.

Nominal cross sectional area		Number and nominal diameter of wires		Max. DC resistance at 20 °C	Rated strength	Approx. overall diameter	Approx. Weight	Current carrying capacity
Aluminum	ACS	Aluminum	steel					
mm2		NoXΦ(mm)		Ω/Km	KN	mm	Kg/Km	Amp
806	102.43	54x4.36	19x2.62	0.0345	236	39.26	2917	1310
806	55.6	45x4.78	7x3.18	0.0351	186	38.22	2598	1288
765	97.03	54x4.25	19x2.55	0.0363	224	38.25	2768	1271
765	52.83	45x4.65	7x3.10	0.0369	176	37.2	2467	1245
725	91.78	54X4.14	19X2.48	0.0384	212	37.24	2625	1230
725	50.14	45X4.53	7X3.02	0.0389	167	36.24	2336	1205
685	86.67	54x4.02	19x2.41	0.0406	200	36.17	2478	1185
685	47.2	45X4.40	7X2.93	0.0412	157	35.19	2207	1164
645	81.71	54X3.90	19X2.34	0.0432	189	35.1	2333	1141
645	44.66	45x4.27	7x2.85	0.0438	148	34.17	2078	1121
645	17.95	36X4.78	1X4.78	0.0441	114	33.46	1893	1111
604	76.89	54X3.77	19X2.27	0.0461	177	33.97	2188	1093
604	41.88	45X4.14	7X2.76	0.0466	139	33.12	1948	1079
564	71.57	54X3.65	19X2.19	0.0493	168	32.85	2043	1049
564	38.9	45X4.00	7X2.66	0.0499	130	31.98	1819	1033
524	67.73	54x3.51	7x3.51	0.053	155	31.59	1896	1003
524	36.31	45X3.85	7X2.57	0.0539	121	30.81	1688	984
524	14.52	36x4.30	1x4.30	0.0545	93	30.1	1537	974
483	62.81	54x3.38	7x3.38	0.0571	146	30.42	1752	956
483	33.54	45x3.70	7x2.47	0.0583	114	29.61	1558	938
483	13.46	36X4.14	1X4.14	0.0588	87	28.98	1420	929
456	59.15	54x3.28	7x3.28	0.0607	137	29.52	1653	920
456	31.67	45x3.59	7x2.40	0.0619	107	28.74	1470	903
403	91.78	30X4.14	19x2.48	0.0666	165	28.96	1726	894
403	52.15	54x3.08	7x3.08	0.0688	123	27.72	1458	850
403	27.83	45X3.38	7x2.25	0.0699	95	27.03	1298	837
403	65.44	26x4.44	7x3.45	0.068	135	28.11	1549	877
403	52.15	24x4.62	7x3.08	0.0688	122	27.72	1460	868
403	11.16	36x3.77	1x3.77	0.0708	72	26.39	1183	825
363	82.41	30x3.92	19x2.35	0.0742	148	27.43	1552	832

General Note: Guideline values of current carrying capacity are valid up to 60 Hz, assuming an ambient temperature of 35°C, final temperature of 80 °C wind velocity of 0.6 m/sec, sun radiation of 1000 W/m2, emissivity of 0.5, absorption factor of 0.5.

Product Range:

Raw Materials:

To ensure high quality of finished products; which is the main concern of United Steel Wires, we restrictly apply inspection procedures for raw materials coming from the most reputable national and international suppliers, according to the International Standards:

Steel

- Low Carbon Grade AISI (1006, 1008, 1010).
- High Carbon Grade AISI (1045, 1060, 1070, 1085).

Zinc

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

Aluminum

- H12, H14 and Aluminum Alloys.

Production Process

The plant operates continuously environmentally friendly within the flow of Drawing, Annealing, Pre-galvanizing Treatment and Galvanization processes. The latest advanced technology in the Zinc monitoring system is used by “Nitrogen Wiping System” to ensure perfect Zinc Coating all over the wire surface.

Pickling(for PC strands only)

Drawing

Annealing

Pre Galvanizing Treatment

Galvanization

Nitrogen Auto Control Unit

Stranding

Quality Control:

Quality Control procedures of inspection start with raw material, manufacturing and packaging processes using a serial of high technology on-line instruments followed by laboratory tests according to the International Standards.

1- Mechanical Tests:

Elongation and Tensile stress tests: Zinc Coated Steel Wires are tested for elongation and for tensile strength.
Torsion Test: the most important mechanical test to ensure that the mechanical characteristics are affirmed by numbers of turns.
For PC strands: tensile strength, relaxation test (40,200, 1000 hours) and bending tests.

2- Zinc Tests:

Diameter Checks: these guarantee that the wires are correctlrounded and within specified tolerance of diameters.

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

Zinc Adhesion: to ensure adhesive Zinc Coating layers over wires surface.

*OR as per customer requirements

3- Electrical Test: DC Resistant Test is according to International Standards
*OR as per customer requirements.

Certificates:

BUREAU VERITAS
Certification

Certification

UNITED WIRES COMPANY (EL SEWEDY)

STANDARD
ISO 9001:2008
SCOPE OF CERTIFICATION

DESIGN AND MANUFACTURING OF GALVANIZED STEEL WIRES AND OVERHEAD CONDUCTORS

BASEC

CERTIFICATE OF CONFORMITY

EL SEWEDY CABLES - EGYPT

Has implemented and maintains a Management System
that fulfils the requirements of the following standard

BS EN ISO 9001: 2015

BASEC

CERTIFICATION SCHEDULE

El Sewedy Cables - Egypt
United Wires Company (El Sewedy)
10th of Ramadan City
Industrial Zone A3
Cairo
Egypt

SCOPE OF CERTIFICATION

Galvanized Steel Wires and Overhead Conductors

United Steel Wires

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