



The New Experience of Winding Wires in India



ESS ELL CABLES

AN ISO 9001:2015 COMPANY



CO.

DAMAN



Ensured accuracy
Superior flexibility
Strong adherence
Excellent quality
Latest technology
Long lasting

Established in 1997, ESS ELL CABLES CO. Started its operation at Daman (UT) to serve the Indian electrical industry with installed capacity of around 3000 MT of copper Wires and strips per annum.

The locational advantage is a major contributing factor in company's growth due to close proximity of major raw material suppliers. Well built infrastructure and excellent connectivity through transportation systems ensures lessor time for procurement as well as deliveries.

Our Products Range Includes

- Enamelled Round Copper / Aluminium Winding Wires
- Enamelled Rectangular Copper / Aluminium Winding Wires (Strips)
- Fibre Glass Covered Rectangular Wires
- Fibre Glass Covered Round Copper Wires
- Submersible Copper Winding Wires
- Bare Round Copper Wires
- Bare Rectangular Copper Wires (Strips) and Profiles.



Excellence through innovation is our policy to satisfy the customer's growing needs.

All our products are manufactured in a closed supervision of highly qualified experienced and devoted personnel. Wire and strips are drawn by using CONFORM extrusion machine based on SCADA control system which results in high level of accuracy

Catalytic converter installed machines carries out enamelling which ensures uniform baking and also helps in creating pollution free atmosphere. Strict checks being carried out in well equipped quality control before certifying it for delivery.

Our customer base includes public sector units, irrigation department, government undertaking, electricity boards, telecommunication as well as OEM's manufacturing transformers, electric motors, alternators, electrical appliances etc.

We are an ISO 9001:2008 company and are proud to have prestigious accreditations like:



Packaging: Standard

* also available as per customer's specific requirement

ENAMELLED ROUND COPPER WINDING WIRES

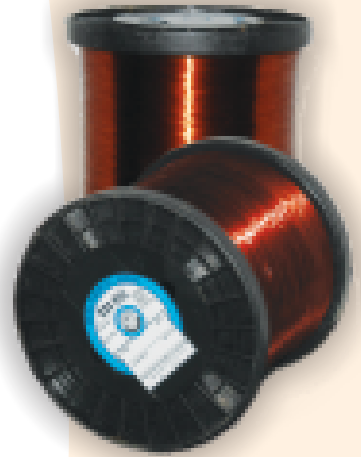
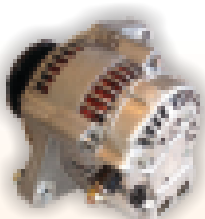
PARTICULARS		SPECIFICATION	RANGE
Polyesterimide over coated with Polyamide-imide Enamelled Round Copper Wire, Class 200		IS 13730/ IEC 60317 Part-13: 1993	5 swg to 38swg 5.00mm to 0.150mm
Polyesterimide Enamelled Round Copper Wire, Class 180	IS-13730  CML-7594797	IS 13730/ IEC 60317 Part-8: 1996	5 swg to 38swg 5.00mm to 0.150mm
Polyester Enamelled Round Copper Wire , Class 155	IS-13730  CML-7594801	IS 13730/ IEC 60317 Part-3: 1996	5 swg to 38swg 5.00mm to 0.150mm
Polyester Enamelled Round Copper Wire, Class 130		IS 13730/ IEC 60317 Part-45: 1999	5 swg to 38swg 5.00mm to 0.150mm

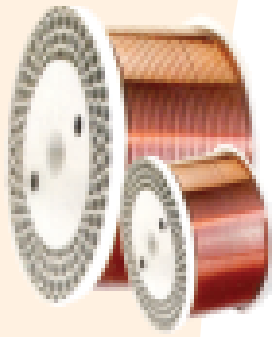
TECHNICAL DATA FOR ENAMELLED WINDING WIRES

SIZE (SWG)	SIZE (MM)	CONDUCTOR TOLERANCE (MM)	RESISTANCE AT 20 °C (OHM/MTR)			GRADE - 1		GRADE - 2		GRADE - 3		BREAK DOWN VOLTAGE			Elongatio n Min	Weight of Enamelled Wire Per 1000 Mtrs For Grade 2 Wires	SIZE (SWG)
						Min Ins. Thickness	Max Overall Dia	Min Ins. Thickness	Max Overall Dia	Min Ins. Thickness	Max Overall Dia	Grade-1	Grade-2	Grade-3			
			Nom	Min	Max	(MM)	(MM)	(MM)	(MM)	(MM)	(MM)	(KV)	(KV)	(KV)	(%)	(KG)	
5	5.384	0.054	0.00075	N/A	N/A	0.051	5.479	0.096	5.528	0.145	5.574	1.30	2.50	3.80	36	204.138	5
6	4.876	0.049	0.00092	N/A	N/A	0.050	4.969	0.094	5.018	0.143	5.064	1.30	2.50	3.80	36	140.659	6
7	4.470	0.045	0.00109	N/A	N/A	0.050	4.375	0.094	4.611	0.142	4.657	1.30	2.50	3.80	36	116.310	7
8	4.064	0.041	0.00132	N/A	N/A	0.049	4.155	0.092	4.201	0.138	4.246	1.30	2.50	3.80	36	94.228	8
9	3.657	0.037	0.00163	N/A	N/A	0.047	3.745	0.089	3.794	0.138	3.837	1.30	2.50	3.80	35	74.540	9
10	3.251	0.033	0.00206	N/A	N/A	0.046	3.336	0.086	3.380	0.130	3.422	1.30	2.50	3.80	35	61.241	10
11	2.946	0.029	0.00251	N/A	N/A	0.045	3.029	0.084	3.072	0.127	3.113	1.30	2.50	3.80	34	49.304	11
12	2.642	0.026	0.00312	N/A	N/A	0.043	2.722	0.081	2.764	0.123	2.803	1.30	2.50	3.80	34	43.759	12
12.5	2.489	0.025	0.00351	N/A	N/A	0.042	2.568	0.079	2.608	0.119	2.646	2.70	5.00	7.60	33	38.617	12.5
13	2.337	0.023	0.00399	N/A	N/A	0.042	2.415	0.079	2.455	0.119	2.493	2.70	5.00	7.60	33	33.726	13
13.5	2.184	0.022	0.00456	N/A	N/A	0.041	2.261	0.077	2.300	0.117	2.338	2.70	5.00	7.60	33	29.224	13.5
14	2.032	0.020	0.00527	N/A	N/A	0.041	2.108	0.077	2.147	0.116	2.184	2.70	5.00	7.60	33	26.363	14
14.5	1.930	0.019	0.00584	N/A	N/A	0.040	2.005	0.075	2.043	0.114	2.080	2.70	5.00	7.60	33	23.700	14.5
15	1.829	0.018	0.00651	N/A	N/A	0.040	1.903	0.075	1.941	0.113	1.977	2.70	5.00	7.60	33	21.121	15
15.5	1.727	0.017	0.00730	N/A	N/A	0.039	1.799	0.073	1.837	0.112	1.873	2.70	5.00	7.60	32	18.750	15.5
16	1.626	0.016	0.00823	N/A	N/A	0.039	1.698	0.073	1.735	0.110	1.770	2.70	5.00	7.60	32	16.472	16
16.5	1.524	0.015	0.00937	N/A	N/A	0.038	1.595	0.072	1.631	0.108	1.666	2.70	5.00	7.60	32	14.370	16.5
17	1.422	0.014	0.01076	N/A	N/A	0.038	1.492	0.071	1.528	0.107	1.562	2.70	5.00	7.60	32	12.382	17
17.5	1.321	0.013	0.01247	N/A	N/A	0.036	1.388	0.069	1.423	0.103	1.456	2.70	5.00	7.60	32	10.582	17.5
18	1.219	0.012	0.01465	N/A	N/A	0.035	1.285	0.067	1.318	0.100	1.350	2.70	5.00	7.60	31	8.884	18
18.5	1.118	0.011	0.01741	N/A	N/A	0.035	1.182	0.066	1.215	0.099	1.247	2.70	5.00	7.60	30	7.372	18.5
19	1.016	0.010	0.02108	0.02050	0.02169	0.034	1.080	0.065	1.113	0.098	1.144	2.70	5.00	7.60	30	6.651	19
19.5	0.965	0.010	0.02337	0.02270	0.02407	0.034	1.028	0.064	1.060	0.098	1.091	2.70	5.00	7.60	30	5.973	19.5
20	0.914	0.009	0.02605	0.02528	0.02686	0.034	0.976	0.063	1.008	0.095	1.038	2.70	5.00	7.60	30	5.833	20
21	0.813	0.009	0.03293	0.03194	0.03396	0.032	0.872	0.060	0.902	0.090	0.931	2.70	5.00	7.60	29	4.615	21
22	0.711	0.008	0.04305	0.04175	0.04442	0.030	0.766	0.056	0.795	0.085	0.822	2.60	4.90	7.40	28	3.530	22
23	0.610	0.006	0.05848	0.05687	0.06017	0.027	0.659	0.050	0.684	0.075	0.708	2.60	4.80	7.10	27	2.598	23
24	0.559	0.006	0.06965	0.06760	0.07178	0.025	0.605	0.047	0.629	0.071	0.652	2.50	4.60	7.10	26	2.182	24
25	0.508	0.006	0.08434	0.08168	0.08711	0.025	0.554	0.047	0.578	0.071	0.601	2.50	4.60	7.10	26	1.802	25
26	0.457	0.005	0.10420	0.10110	0.10750	0.024	0.501	0.045	0.523	0.067	0.544	2.40	4.60	7.00	25	1.458	26
27	0.417	0.005	0.12520	0.12120	0.12930	0.022	0.458	0.042	0.480	0.064	0.500	2.30	4.40	6.80	25	1.214	27
28	0.376	0.005	0.15390	0.14870	0.15950	0.021	0.417	0.040	0.435	0.060	0.454	2.30	4.40	6.60	24	0.987	28
29	0.345	0.004	0.18290	0.17720	0.18880	0.020	0.382	0.038	0.401	0.057	0.418	2.30	4.30	6.40	23	0.831	29
30	0.315	0.004	0.21930	0.21210	0.22690	0.019	0.349	0.035	0.367	0.053	0.384	2.20	4.10	6.10	23	0.693	30
31	0.295	0.004	0.25010	0.24140	0.25920	0.019	0.329	0.035	0.347	0.053	0.364	2.20	4.10	6.10	23	0.608	31
32	0.274	0.004	0.28990	0.27920	0.30110	0.018	0.306	0.033	0.323	0.050	0.339	2.20	4.00	5.80	22	0.524	32
33	0.254	0.004	0.33740	0.32420	0.35120	0.018	0.286	0.033	0.303	0.050	0.319	2.20	4.00	5.80	22	0.450	33
34	0.234	0.004	0.39740	0.38090	0.41490	0.017	0.265	0.032	0.281	0.048	0.296	2.10	3.90	5.50	22	0.382	34
35	0.213	0.003	0.47980	0.46250	0.49780	0.015	0.241	0.029	0.255	0.043	0.269	1.90	3.70	5.20	21	0.317	35
36	0.193	0.003	0.58420	0.56180	0.60810	0.014	0.219	0.027	0.232	0.039	0.245	1.80	3.50	5.10	21	0.260	36
37	0.173	0.003	0.72710	0.69670	0.75960	0.013	0.197	0.025	0.210	0.036	0.222	1.70	3.30	4.70	20	0.209	37
38	0.152	0.003	0.94180	0.89820	0.98880	0.012	0.174	0.023	0.186	0.033	0.197	1.70	3.20	4.40	19	0.161	38
39	0.132	0.003	1.24960	1.18410	1.31920	0.011	0.152	0.021	0.162	0.030	0.171	1.60	3.00	4.20	18	0.122	39
40	0.122	0.003	1.46230	1.38110	1.55020	0.010	0.141	0.019	0.151	0.028	0.160	1.50	2.80	4.10	17	0.104	40

APPLICATION:

Domestic Appliances, Electric Motors, Relay Coils, Lighting Fixtures etc.





ENAMELLED ROUND ALUMINIUM WINDING WIRES

Particular	Specification	Size Range
Polyester Enamelled Round Aluminium Wire, Class-130	IS: 13730/ IEC 60317, Part-9:2000	6 SWG to 30 SWG
Modified Polyester Enamelled Round Aluminium Wire, Class-155	IS: 13730/ IEC 60317	6 SWG to 30 SWG
Polyesterimide Enamelled Round Aluminium Wire, Class-180	IS: 13730/ IEC 60317, Part-15:-1996	6 SWG to 30 SWG
Polyesterimide Over Coated With Polyamide-imide Enamelled Round Aluminium Wire, Class-200	IS: 13730/ IEC 60317, Part-25:-1993	6 SWG to 30 SWG

ENAMELLED RECTANGULAR COPPER WINDING WIRES (STRIPS)

PARTICULARS	SPECIFICATIONS	RANGE
Polyester Enamelled Rectangular Copper Wire(Strips) Class 155	IEC 60317 Part-16 : 1996	CSA* 5 Sqmm to 36 Sqmm Width 3 mm to 15 mm Thickness 1.5 mm to 5 mm
Polyesterimide Enamelled Rectangular Copper Wire (Strips) Class 180	IS 13730/ IEC 60317 Part-28 : 1996	CSA* 5 Sqmm to 36 Sqmm Width 3 mm to 15 mm Thick 1.5 mm to 5 mm
Polyesterimide over coated with Polyamide-imide Enamelled Rectangular Copper Wire (Strips) Class 200	IS 13730/ IEC 60317 Part-29 : 1996	CSA* 5 Sqmm to 36 Sqmm Width 3 mm to 15 mm Thick 1.5 mm to 5 mm

* Cross Sectional Area

TECHNICAL DATA FOR ENAMELLED RECTANGULAR COPPER WINDING WIRES (STRIPS)

Thermal Class	120	155	180	200
Chemical Bass of Enamel	Polyvinyle Acetal	Modified Polyester	Polyesterimide	Polyesterimide/ Poly amide-imide
Size Range				
Width (W) (mm)	3.00-15.00	3.00-15.00	3.00-15.00	3.00-15.00
Thickness (T) (mm)	1.50-5.00	1.50-5.00	1.50-5.00	1.50-5.00
Corner Radius (mm)	0.50-1.00	0.50-1.00	0.50-1.00	0.50-1.00
Grade of Covering				
Grade I (Fine)	0.060mm-0.110mm	0.060mm-0.110mm	0.060mm-0.110mm	0.060mm-0.110mm
Grade II (Medium)	0.120mm-0.160mm	0.12mm-0.160mm	0.120mm-0.160mm	0.120mm-0.160mm
Heat Sock c-std	155-1/2hr.-6XT No Crack	175-1/2hr.-6XT No Crack	200-1/2hr.-6XT No Crack	220-1/2hr.-6XT No Crack
Elongation %-std	Min-32	Min-32	Min-32	Min-32
Abrasion Resistance	N/A	N/A	N/A	N/A

APPLICATION:

High Rating Transformers, Electromagnets, Generators etc.



GLASS FIBRE WOUND COPPER WIRES/STRIPS

PARTICULARS	SPECIFICATION	RANGE
Glass-fibre wound over coated with Polyamide-imide Enamelled Strips Temp Index 200	IS 13730/- IEC 60317 Part-33 : 1997	Cross Sectional area 6 to 100 Sq mm Width 3 to 15mm Thick 1.0 to 5.0 mm
Glass-fibre Wound Polyester Vamish Treated, Bare or Enamelled Rectangular Copper Wire, Temp. Index 155	IS 13730/- IEC 60316 Part-32 : 1997	Cross Sectional area 6 to 100 Sq mm Width 3 to 15 mm Thick 1.0 to 5.0 mm
Glass-fibre wound over coated with Polyamide-imide Enamelled Strips Temp Index 180	IS 13730/ IEC 60317 Part-31 : 1997	Cross Sectional area 6 to 100 Sq mm Width 3 to 15 mm Thick 1.0 to 5.0 mm

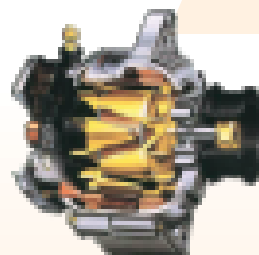


TECHNICAL DATA FOR GLASS FIBRE WOUND COPPER WIRES/STRIPS

Thermal Class		155	180	200
Specification		Polyester	Polyesterimide	Polyester amide-imide
IS		Part 32	Part 31	Part 33
IEC		IEC 317-32	IEC 317-31	IEC 317-31
Size	With (mm)	3.00-15.00	3.00-15.00	3.00-15.00
	Thickness	1.50-6.000	1.50-6.00	1.50-6.00
Corner Radius (mm)		0.50-1.00	0.50-1.00	0.50-1.00
Grade of Covering G1 mm		1.12-0.30	0.12-0.30	0.12-0.30
Grade of Covering G2 mm		0.21-2.47	0.21-0.47	0.21-0.47
H extra Covering G3 mm		0.45-0.60	0.45-0.60	0.45-0.60
Elongation		Min. 32%	Min. 32%	Min. 32%
Adherance Test		10%	10%	10%
		Covering	Covering	Covering
		Not loose	Not loose	Not loose

APPLICATION:

Alternators, Traction Motors etc.



WINDING WIRES FOR SUBMERSIBLE MOTORS

As the name says, submersible motors are made to function under water (or other fluid) and the winding wires used in them accordingly require high quality insulation which is completely impervious to liquids of any kind.

ESS EII winding wires are specially designed to meet the requirements of this application. They have proven their durability and reliability over a decade and ensure trouble-free operation and longer motor life.

Ess EII winding wires consist of a solid bare copper conductor insulated by means of a plastic sheath made of PVC of Multilayered Polyester and Polypropylene films.

Single Coated PVC Insulated Winding Wire

PVC insulated winding wires are manufactured as per IS standards and are accredited with prestigious ISI mark.

Range : 0.50 mm to 3.00 mm
Specification : IS 8783 Part 4/Section 1 : 1995

IS-8783



CM/L-7328776

Double Coated PVC Insulated Winding Wire

Double coated PVC insulated winding wires are also manufactured without increasing the overall diameter of the wire or thickness of insulation. The two layers of PVC are divided into 45:55 proportion of the total thickness of insulation. Double coated PVC insulated winding wires has an upper edge technically over single coated wires.

Range : 0.50 mm to 3.00 mm

Multilayered Polyester and Polypropylene Films Wrapped Winding Wire

Poly wrapped winding wires are insulated with high quality polyester and bi-axially oriented polypropylene films. The conductor is covered uniformly by these films with the latest machinery. These wires have excellent electrical, mechanical, thermal and chemical properties and are manufactured as per IS standards.

Range : 0.50 mm to 3.00 mm
Specification : IS 8783 Part 4/Section 1 : 1995

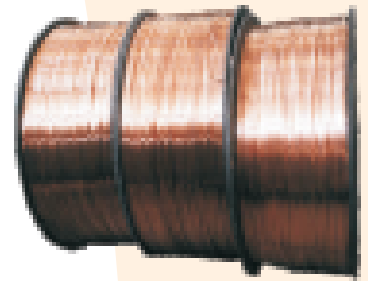
TECHNICAL DATA FOR WINDING WIRES FOR SUBMERSIBLE MOTORS

Sr. No.	Normal Conductor Diameter (mm)	Tolerance Conductor Diameter (mm)	Normal Resistance in OHMS/KM at 20°C	Elongation at Break Minimum-%	Poly Type		PVC Type		
					Size (in mm) Over all Diameter	Weight in Poly Wrapped KG/KM	Size (in mm) Over all Diameter	Weight in PVC insulated KG/KM	Weight in Double Coated Wire KG/KM
1.	0.600	0.006	60.98	27	1.00	3.170	1.15	3.500	3.500
2.	0.700	0.007	43.55	28	1.05	4.140	1.35	4.900	4.800
3.	0.800	0.008	34.30	28	1.15	5.200	1.45	6.000	5.900
4.	0.900	0.009	27.10	29	1.30	6.600	1.55	7.400	7.300
5.	1.000	0.010	21.95	30	1.40	8.000	1.65	8.900	8.800
6.	1.100	0.011	17.50	30	1.50	9.500	1.75	10.500	10.400
7.	1.200	0.012	15.26	31	1.60	11.100	1.85	12.300	12.100
8.	1.300	0.013	12.58	32	1.70	13.000	1.95	14.300	14.000
9.	1.400	0.014	11.20	32	1.90	15.500	2.15	16.650	16.400
10.	1.500	0.015	9.75	32	2.00	17.800	2.25	18.900	18.700
11.	1.600	0.016	8.57	32	2.10	20.020	2.35	21.200	21.000
12.	1.700	0.017	7.59	33	2.20	22.300	2.45	23.650	23.400
13.	1.800	0.018	6.77	33	2.30	25.000	2.55	26.300	26.000
14.	1.900	0.019	6.08	33	2.40	27.970	2.65	29.000	28.600
15.	2.000	0.020	5.48	33	2.50	30.800	2.95	32.600	32.100
16.	2.100	0.021	4.97	33	2.60	33.870	3.05	36.300	36.000
17.	2.200	0.022	4.53	33	2.70	36.980	3.15	39.500	39.000
18.	2.300	0.023	4.14	33	2.80	40.230	3.25	42.900	42.300
19.	2.400	0.024	3.81	34	2.90	43.620	3.45	47.000	46.500
20.	2.500	0.025	3.51	34	3.00	47.150	3.55	50.000	49.600



BARE COPPER WIRES

PARTICULARS	SPECIFICATION	RANGE
Bare Copper Wire (Hard or Annealed)	IS 4412	0.150 mm to 6.00 mm



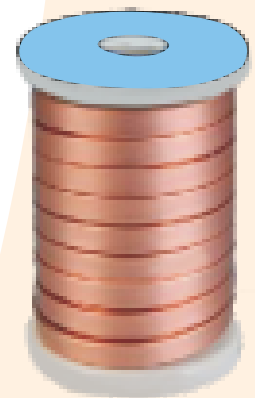
APPLICATION:

Electrical and Electronic Equipment, Cables, Earthing and General Engineering Purpose



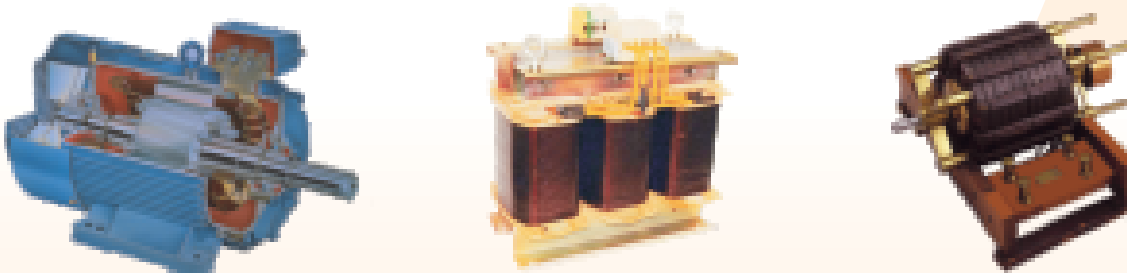
BARE COPPER STRIPS

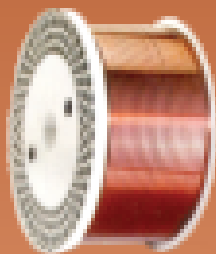
PARTICULARS	SPECIFICATION	RANGE
Bare Copper Strips and Profiles (Hard or Annealed)	IS 1897 / IS 6160	Cross Sectional Area 4 to 100 Sqmm Width 3 to 25 mm Thickness 2 to 5 mm



APPLICATION:

Alternators, Motors, Induction Motors, Pumps and Electrical and Electronic Equipment





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