

**LITMUS**  
INDUSTRIES LIMITED

— **ENAMEL WIRES  
&  
COPPER STRIPS**

[www.litmus.com.np](http://www.litmus.com.np)

# INTRODUCTION

## Founded in 1977, Litmus Industries Limited. (formerly Lumbini Vidyut) had the vision to tap into Nepal's boundless hydropower potential

It was far ahead of its time to identify the enormous need for conductor based transmission lines that could be a catalyst for change by distributing electricity to all regions in Nepal. Upon acquiring Litmus Industries in 1977, Lucky Group (now Ramesh Comtrp.) underwent a 360-degree change in management and policies. Over the years, Litmus Industries gradually transformed into a profitable organization based on the consistent efforts of the new management and the group's commitment to quality and innovation. With a large area of land in Butwal Industrial Estate, near the border of Sunauli, the company has now established itself as one of the leading names in the Cables & Conductors Industry in Nepal, and has exported its products once to India for over 15 years. As a result of our diverse product portfolio, relentless dedication, expertise in the market, and the trust of our growing customer base has placed in us, we have been able to reap immense rewards. From the prestigious NS Quality Award in 2010 to the most coveted ISI certification for our Cables in 2015, Litmus Industries is the only cable company in Nepal that has an ISI (Indian Standard) mark.

### OUR MISSION

- Innovate for a brighter future.
- To work towards safe, energy efficient products and solutions for our customers
- To create deep connections, value creation and growth for our people, partners and stakeholders.

### OUR VISION

To maintain Leadership by being the largest and most diversified cables and electrical company in Nepal through commitment in quality, advance technology and best customer service.

### AT A GLANCE

#### FOUNDED

1977

#### EMPLOYEE

500+ Personnel

#### Corporate office

Tripureshwor, Kathmandu

#### Factory Office

BID, Butwal

#### Technology

Advance German Technology

#### Production Capacity

Annual Capacity of over 72000 KMPA



# QUALITY POLICY/ QUALITY STANDARD

Implementation of a Total Quality Management System that is reviewed on a regular basis and communicated to every employee as a means of continuous improvement.

Providing quality service and products conforming to relevant specifications at a competitive price to meet or exceed customer expectations is Litmus Industries' motto, the best resources will be used in order to achieve continuous improvement in the quality of the work and to enhance employee involvements at all levels.

Quality Management Policy is regularly reviewed and communicated to all those who work for and on behalf of the Company along with the provision of Critical to Quality (CTQ) trainings to supervisors and operators. By doing so, the quality management policy will be transferred into an ongoing, ceaseless procedure. Prospective raw materials will be cautiously inspected from arriving companies for their performance parameters and conformance to the quality management policy. Throughout the entire production process, strict quality parameters are checked consistently at each stage of production. Regular internal quality checks are conducted in different section to monitor the effectiveness of Total Quality Management. onitor the efficiency of the Total Quality Management.

## **Some Salient Features of LITMUS Wires and Cables**

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- Made from imported quality raw materials

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- ISO 9001: 2015 certified

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- Awarded with NS mark by the department of Nepal Bureau of Standard & Metrology

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- Well-equipped machinery to produce 1.5 sq mm to 1000 sq mm power cables

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- In-house testing facility and opportunity to inspect at every stage of manufacturing

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- Managed by highly experienced and trained engineers and professionals

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- Well-established packaging and delivery system

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- Quality products and services at a competitive price

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- Clientele ranging from the giant private sector to the public sector

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# PRODUCT RANGE OF WINDING WIRES

- ⚡ ENAMELLED WINDING WIRES.
- ⚡ PAPER INSULATED STRIPS.



# ENAMEL WINDING WIRES

Enamel Winding Wires are the Enamel Insulated Conductors that are widely used in construction and electrical equipments. Lumbini Vidyut Udyog makes Enamelled Wires conforming to IS:13730. In addition, enamelled wires conforming to International Standards such as the British Standards (BS), IEC, etc. are also manufactured. The Customer base comprises of companies manufacturing electrical goods, and all other industrial application wherein copper wire winding is essential.

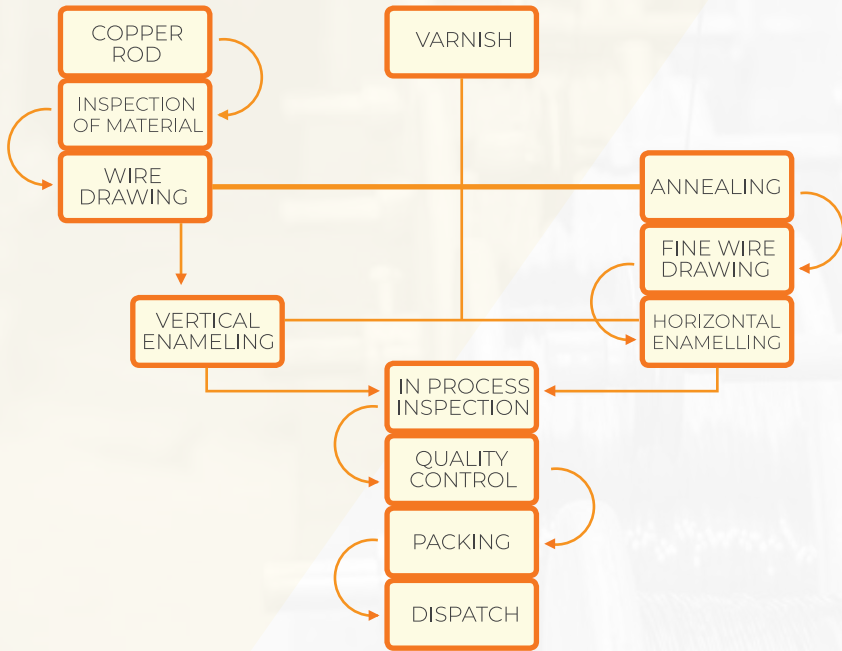
RANGE & APPLICATION OF ENAMELLED WINDING WIRES		
DESCRIPTION	SPECIFICATION	APPLICATION
Polyester enamelled copper wire	IS-13730 (PART 34)	General purposes, motors, transformers, fan etc
Modified Polyester Enamelled Copper Wire	IS-13730 (PART 3)	Special motors, handtools, generators etc.
Polyesterimide Enamelled Copper Wire	IS-13730 (PART 8)	Hermetic application & all thermal 'H' class equipment
Polyesterimide Enamelled Copper Wire (self-Solderable)	IS-13730 (PART 20) IS-13730 (PART 4)	Telecommunication, television & electronic equipment
Polyvinyl Acetal (PVA) Enamelled Copper Wire	IS-13730 (PART 1)	All general quipment requiring high mechanical properties
Dual Coated Enamelled Copper Wire Base Coat: Polyesterimide Top Coat: Polyamide-Imide	IS-13730 (PART 13)	Hermetic application, special purpose motors, refrigerators, handtools etc.

## FEATURES OF ENAMELLED WINDING WIRES

- ▶ High flexibility of the enamel.
- ▶ Good resistance to abrasion.
- ▶ High mechanical and thermal properties.
- ▶ Suitable for windings that are subjected to constantly high temperature and mechanical stress.
- ▶ Good chemical resistance.



# THE PRODUCTION PROCESS



## PARAMETER OF DIFFERENT TYPES OF ENAMELLED WINDING WIRES

TYPES OF TEST	POLYESTER PART 34	POLYESTER PART 3	PVA PART 1	POLYURETHANE PART 4	POLYURETHANE PART 4	POLYURETHANE PART 4	DUAL COATED PART 13
Thermal Class	130	155	105	130	155	180	200
Mandrel Winding	1 X d	1 X d	1 X d	1 X d	1 X d	1 X d	1 X d
Elongation	30% (Min)	30% (Min)	30% (Min)	30% (Min)	30% (Min)	30 % (Min)	30% (Min)
Springiness	4l (Max)	4l (Max)	4l (Max)	4l (Max)	4l (Max)	4l (Max)	4l (Max)
Jerk	No loss of adhesion	No loss of adhesion	No loss of adhesion	No loss of adhesion	No loss of adhesion	No loss of adhesion	No loss of adhesion
Break Down Voltage	5 KV (Min)	5 KV (Min)	5 KV (Min)	5 KV (Min)	5 KV (Min)	5 KV (Min)	5 KV (Min)
Cut - Through	240°C,18N for 2 mins	240°C,18N for 2 mins	170°C,18N for 2 mins	170°C,18N for 2 mins	200°C,18N for 2 mins	300°C,18N for 2 mins	320°C,18N for 2 mins
Heat - Shock	155°C,6xd 30 mins	175°C, .24mm 30 mins	155°C, 1xd 30 mins	155°C, 2.24 mm 30 mins	175°C, 2.24 mm 30 mins	200°C, 2.24 mm 30 mins	202°C, 2.24 mm 30 mins
Resistance at 20°C per meter	0.02116Ω (Min.) 0.02240Ω (Max.)	0.02116Ω (Min.) 0.02240Ω (Max.)	0.02116Ω (Min.) 0.02240Ω (Max.)	0.02116Ω (Min.) 0.02240Ω (Max.)	0.02116Ω (Min.) 0.02240Ω (Max.)	0.02116Ω (Min.) 0.02240Ω (Max.)	0.02116Ω (Min.) 0.02240Ω (Max.)
Resistance to abrasion	Min : 8.8 N Av : 10.4 N	Min : 8.8 N Av : 10.4 N	Min : 9.6 N Av : 11.3 N	Min : 7.9 N Av : 9.3 N	Min : 7.9 N Av : 9.3 N	Min : 9.2 N Av : 10.9 N	Min : 9.6 N Av : 11.3 N
Continuity of covering	5 Faults/ 30m(Max.) at 1500 volts	5 Faults/ 30m(Max.) at 1500 volts	5 Faults/ 30m(Max.) at 1500 volts	5 Faults/ 30m(Max.) at 1500 volts	5 Faults/ 30m(Max.) at 1500 volts	5 Faults/ 30m(Max.) at 1500 volts	5 Faults/ 30m(Max.) at 1500 volts
Swg range	12-38	12-38	12-38	20-38	20-38	12-38	22-28

NOTE: ABOVE VALUES ARE AS PER IS:13730 SPECIFICATIONS FOR 1.0 MM WIRE OF GRADE 2 (MEDIUM COVERING)

## DIAMETERS AND INCREASE IN DIAMETERS OF ENAMELLED ROUND WINDING WIRES

NOMINAL CONDUCT-OR DIAMETER SWG (MM)	CONDUCT-OR TOLERANCE ± (MM)	GRADE 1		GRADE 2		CONDUCTOR RESISTANCE AT 20°C FOR 1 METER (OHMS)		
		MINIMUM INCREASE (MM)	MAXIMUM OVERALL DIA. (MM)	MINIMUM INCREASE (MM)	MAXIMUM OVERALL DIA. (MM)	NOMINAL	MINIMUM	MAXIMUM
6.401	0.064	0.055	6.500	0.100	6.554	0.000531	0.000520	0.000532
5.893	0.059	0.054	5.990	0.098	6.042	0.000626	0.000630	0.000639
5.385	0.054	0.053	5.482	0.096	5.530	0.000750	0.000723	0.000765
4.877	0.049	0.052	4.970	0.094	5.018	0.000913	0.000881	0.000933
4.470	0.045	0.050	4.561	0.092	4.607	0.001089	0.000105	0.000111
4.064	0.040	0.050	4.155	0.092	4.201	0.001317	0.00127	0.00134
3.658	0.037	0.049	3.746	0.089	3.791	0.001626	0.00157	0.00166
3.251	0.032	0.048	3.336	0.086	3.380	0.002057	0.00198	0.00209
2.946	0.030	0.045	3.029	0.084	3.072	0.002508	0.00242	0.00256
2.642	0.027	0.043	2.722	0.081	2.764	0.003118	0.00300	0.00318
2.337	0.024	0.042	2.415	0.079	2.455	0.003985	0.00384	0.00407
2.032	0.020	0.041	2.108	0.077	2.147	0.005271	0.00507	0.00532
1.829	0.019	0.040	1.903	0.075	1.941	0.006506	0.00626	0.00664
1.626	0.017	0.039	1.698	0.073	1.735	0.008232	0.00742	0.00842
1.422	0.015	0.038	1.492	0.071	1.528	0.01076	0.0104	0.0109
1.219	0.013	0.035	1.285	0.067	1.318	0.01465	0.0141	0.0149
1.016	0.011	0.034	1.080	0.065	1.113	0.02108	0.0206	0.0212
0.914	0.010	0.034	0.976	0.063	1.008	0.02605	0.02528	0.02686
0.813	0.009	0.032	0.872	0.060	0.902	0.03293	0.03194	0.03396
0.711	0.008	0.030	0.766	0.056	0.795	0.04305	0.04175	0.04442
0.610	0.006	0.027	0.659	0.050	0.684	0.05848	0.05687	0.06017
0.559	0.006	0.025	0.605	0.047	0.629	0.06965	0.06760	0.07178
0.508	0.006	0.025	0.554	0.047	0.578	0.0843	0.08168	0.08711
0.457	0.005	0.024	0.501	0.045	0.523	0.1042	0.1011	0.1075
0.417	0.005	0.022	0.458	0.042	0.480	0.1252	0.1212	0.1293
0.376	0.005	0.021	0.417	0.040	0.435	0.1539	0.1487	0.1595
0.345	0.005	0.020	0.382	0.038	0.401	0.1829	0.1722	0.1888
0.315	0.004	0.019	0.349	0.035	0.367	0.2193	0.2121	0.2269
0.295	0.004	0.019	0.329	0.035	0.347	0.2501	0.2414	0.2592
0.274	0.004	0.018	0.306	0.033	0.323	0.2899	0.2792	0.3011
0.254	0.004	0.018	0.286	0.033	0.303	0.3374	0.3242	0.3512
0.234	0.004	0.017	0.265	0.032	0.281	0.3974	0.3809	0.4149
0.213	0.003	0.015	0.241	0.029	0.255	0.4798	0.4625	0.4978
0.193	0.003	0.014	0.219	0.027	0.232	0.5842	0.5618	0.6081
0.173	0.003	0.013	0.197	0.025	0.210	0.7271	0.6967	0.7596
0.152	0.003	0.012	0.174	0.023	0.186	0.9418	0.8982	0.9888
0.132	0.003	0.011	0.152	0.021	0.162	1.2496	1.1841	1.3192
0.122	0.003	0.010	0.141	0.019	0.151	1.4623	1.3811	1.5502
0.112	0.003	0.009	0.130	0.017	0.139	1.7354	1.6318	1.8477
0.102	0.003	0.009	0.119	0.017	0.128	2.0923	1.9574	2.2398
0.091	0.003	0.008	0.107	0.016	0.115	2.6298	2.4423	2.8348
0.081	0.003	0.008	0.096	0.015	0.103	3.3192	3.058	3.6082
0.071	0.003	0.007	0.084	0.012	0.091	4.3167	3.9408	4.7475
0.061	0.002	0.007	0.074	0.011	0.081	5.8541	5.3272	6.3809
0.051	0.002	0.007	0.062	0.010	0.068	8.3794	7.6253	9.1335
0.041	0.002	0.005	0.050	0.010	0.056	12.9500	11.6939	14.2062



# PAPER INSULATED STRIPS

The Paper Insulated Copper Flat/Round Wires are made from high class electrolytic copper and wrapped insulated paper. The Paper Insulated Copper is tested as per the IS, BS & IEC guidelines by the Quality Control Department. Various tests such as physical, mechanical, electrical, thermal etc. are carried out before the dispatch of the final products. The production process is demonstrated in the chart below.



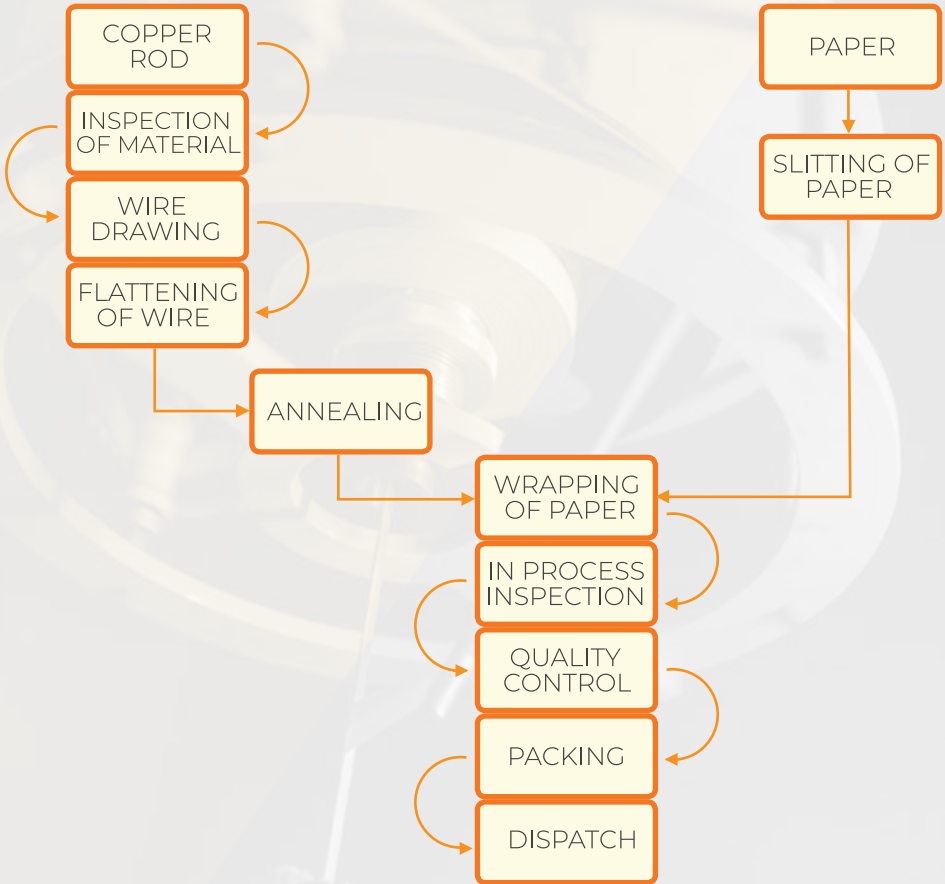
## PACKING

Available in wooden reels in weight of 20/30/50 kgs

## WRAPPING METHODS

50% overlapping as per the standard or as per the customer requirement.

# THE PRODUCTION PROCESS



# RANGE OF PRODUCTS

CATEGORY	PRODUCTS	STANDARD
<b>Overhead Conductors</b>	1. Aluminium Conductor Steel Reinforced (ACSR) upto 61 Strands for overhead electrical power transmission 2. All Aluminium Conductors (AAC) upto 61 strands for overhead transmission of power 3. All Aluminium Alloy Conductors (AAC) upto 61 Strands for overhead transmission of power 4. High Temperature Low Sag Conductors (HTLS) (Launching Soon) 5. XLPE covered conductors 6. Aerial Bunched Cables (ABC)	BS:215, NS:259, IS:398  IS: 14255, BS: 7870 IEC: 208, IEC: 502
<b>Wires &amp; Cables</b>	1. <b>House Wiring Cables</b> i. Multi Strand Cable ii. Fire Retardant Low Smoke (FRLS) iii. Ecowire- ZH (Halogen free) iv. Concentric cables v. Flexible Twin Twisted Cables  2. <b>LV Power Cables</b> i. Copper Conductor- Armoured & Unarmoured - Single core up to 1000 mm2 - Multi-core up to 400 mm2 ii. Aluminium Conductor- Armoured & Unarmoured - Single core up to 1000 mm2 - Multi-core up to 400 mm2  3. <b>Control Cables</b> Copper Conductor- Armoured and Unarmoured (Up to 61 core in size 1.5 mm2, 2.5 mm2)	IS:994, BS:6346  BS:6346, IS:1554, IS:7098  BS:6346, IS:1554
<b>Enamel wires &amp; Copper strips</b>	Enamel copper winding wires Paper insulated wires/ strips	IS:13730 IEC:60317

# Contact Us

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