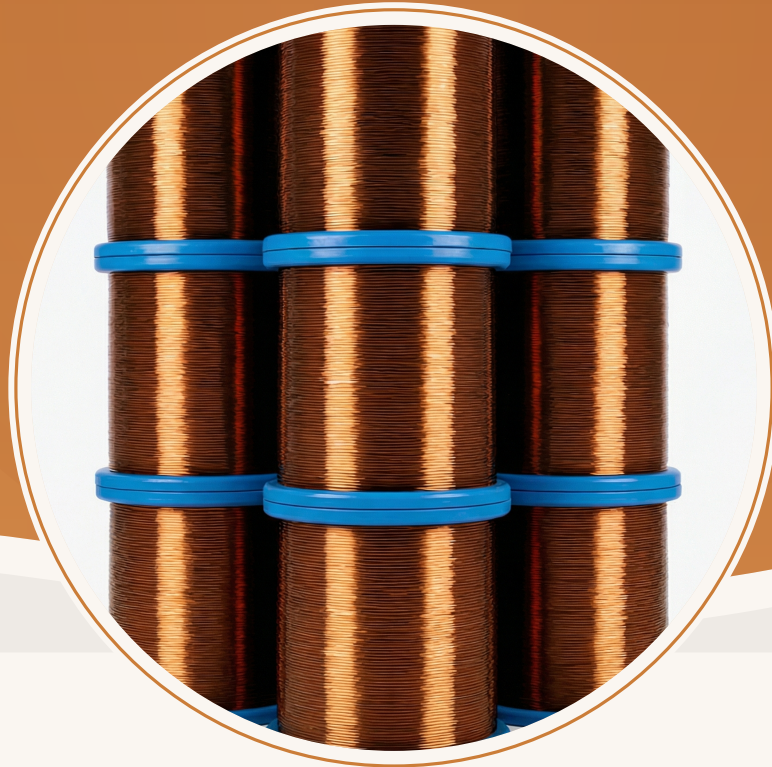




ALUMINIUM ENAMELLED WIRE

Enamelled Round Winding Wires / IEC 60317 Series



About Universal Metals

Universal Metals (Pvt.) Ltd manufactures a comprehensive range of aluminium enamelled round winding wires conforming to the IEC 60317 series and NEMA MW standards. Aluminium enamelled wire offers a lightweight, cost-effective alternative to copper – approximately 70% lighter and significantly more economical – making it the preferred choice for applications where weight reduction and material cost savings are critical.

With thermal classes spanning from 105°C to 240°C, our aluminium enamelled wires are available in multiple enamel chemistries including polyvinyl acetal, polyester, polyesterimide, polyamide-imide, and polyimide. Size ranges cover 0.37 mm to 5.0 mm nominal conductor diameter, with insulation grades from IEC Grade 1 through Grade 3 and NEMA Single through Triple build.

Applications

Aluminium enamelled winding wires are used across a broad range of electrical applications where weight and cost advantages are valued:

- Distribution Transformers
- Dry-Type Transformers
- Ballasts & Lighting
- Household Appliances
- Small Motors
- Relay Coils & Solenoids
- Inductors & Chokes
- Instrument Transformers

Applicable Standards

- IEC 60317 series – Specifications for particular types of winding wires
- IEC 60317-0-3 – General requirements for enamelled round aluminium wire
- NEMA MW 1000 – Magnet wire standards
- IEC 60264 – Packaging of winding wires (spool dimensions)

Single-Coat Enamelled Wires — IEC 60317 Series (Aluminium)

	IEC 60317-14 MW 15-A	Polyester MW 5-A	Modified Polyester MW 24-A	IEC 60317-15 MW 74-A
Enamel Base Coat	Polyvinyl Acetal	Polyester	Modified Polyester	Polyesterimide
Enamel Top Coat	N/A	N/A	N/A	N/A
Thermal Class	105°C	130°C	155°C	180°C
Size Range (mm)	0.37 – 5.00	0.37 – 5.00	0.37 – 5.00	0.37 – 5.00
Insulation Thickness	IEC Grade 1/2/3 NEMA Single/ Heavy/Triple	IEC Grade 1/2/3 NEMA Single/ Heavy/Triple	IEC Grade 1/2/3 NEMA Single/ Heavy/Triple	IEC Grade 1/2/3 NEMA Single/ Heavy/Triple
Characteristics	Good solderability and moisture resistance. Suitable for oil-filled transformers. Excellent winding properties.	Good heat shock resistance and adhesion. Cost-effective for general-purpose dry and oil-immersed transformers.	Enhanced thermal performance over standard polyester. Good for household appliances and small transformers.	High thermal endurance with balanced mechanical properties. Standard wire for motors and power transformers.

Dual-Coat & High-Performance Enamelled Wires — IEC 60317 Series (Aluminium)

	IEC 60317-24 MW 76-A	IEC 60317-25 MW 35-A	Polyamide-imide (IEC 60317-0-3)	Polyimide (IEC 60317-0-3)
Enamel Base Coat	Polyester/ Polyesterimide	Polyester/ Polyesterimide	Polyamide-imide	Polyimide
Enamel Top Coat	Polyamide	Polyamide-imide	N/A	N/A
Thermal Class	180°C	200°C	220°C	240°C
Size Range (mm)	0.37 – 5.00	Gr1: 0.25 – 3.15 Gr2: 0.37 – 5.00	0.37 – 5.00	0.37 – 5.00
Insulation Thickness	IEC Grade 1B/2B NEMA Type 1/ Type 2	IEC Grade 1/2 NEMA Single/ Heavy	IEC Grade 1/2 NEMA Single/ Heavy	IEC Grade 1/2 NEMA Single/ Heavy
Characteristics	Dual-coat with improved abrasion resistance. Good chemical and mechanical properties for demanding windings.	High heat resistance. Excellent resistance to transformer oils and solvents. Freon resistant. Lightweight alternative to copper.	Outstanding thermal and chemical resistance. For inverter-fed motors and severe-duty applications.	Highest thermal class. For aviation, marine, nuclear, and applications requiring extreme temperature performance.

Customised solutions can also be offered. Please contact our technical team to discuss specific requirements for enamel chemistry, thermal class, or conductor size outside the standard ranges listed above.

Spool standards per IEC 60264 series

Cylindrical Barrelled Spools (IEC 60264-2-2)

Size Range (mm)	IEC 60264-2-2 Spools	Indian Equivalent
2.37 – 5.00	—	500W & 410W
0.30 – 2.36	355, 200, 250 & 200	500W, 410, 265 & 250
0.37 – 2.36	160	160 PT-4/PT-5

Taper Barrelled Spools (IEC 60264-3-2)

Size Range (mm)	IEC 60264-3-2 Spools	As per JIS Spools
2.37 – 5.00	315/500, 500/630 & 630/800	—
0.500 – 2.36	160/315, 250/400, 315/500, 400/630 & 500/800	—
0.37 – 0.500	160/315, 250/400, 315/500, 400/630 & 500/800	—
0.37 – 5.00	PT4 & PT10	PT-10

Spool dimensions conform to IEC 60264-2-2 (cylindrical barrelled) and IEC 60264-3-2 (taper barrelled) standards. Detailed spool dimension drawings are available on request. Custom spool sizes and packaging can be accommodated for bulk orders.