

# Formacon<sup>®</sup> Magnet Wire

## General description

The FORMACON<sup>®</sup> magnet wire is manufactured using an enamel based on modified polyvinyl formal resins. The enamel film is applied onto the wire by passing it through dies with perfectly controlled dimensions and curing it in special ovens through a continuous process. Due to a careful process control, excellent product quality is obtained.

FORMACON<sup>®</sup> is made in two enamel builds: Single and Heavy.

FORMACON<sup>®</sup> magnet wire is recommended for application in electrical equipment with operating temperatures of up to 120°C.

## Specifications

Satisfies the requirements established in the following standards:

- NMX-J-072
- NEMA MW 1000, MW 15 and MW 18

## Characteristics

- Presents great flexibility and resistance to abrasion
- Allows high winding speeds
- Has a very high dielectric strength
- Presents excellent resistance to heat shock
- Is compatible with a great number of oils, varnishes, waxes, and impregnating compounds
- Is excellent for use in oil transformers

## Range of gauges

Insulation build	AWG	mm
Single	4 - 28	5.190 - 0.321
Heavy	4 - 28	5.190 - 0.321

Also available in Square and Rectangular shapes. Please inquire for specific details.

## Principal applications:

### DISTRIBUTION TRANSFORMERS

- In oil

### POWER TRANSFORMERS

- In oil

## TYPICAL TEST VALUES FOR A HEAVY-BUILD FORMACON® 18 AWG WIRE

Typical values only, not intended to be used as a specification

TEST	SPECIFICATION (ANSI / NEMA MW 1000) MW 15	TEST METHOD	RESULT
<b>Electrical</b>			
Dielectric strength	≥ 5,700 V.	NEMA	11500 V
Continuity	≤ 5 discontinuities per 100 feet @ 1500 V	NEMA	0 (Zero)
<b>Mechanical</b>			
Elongation	Minimum of 32%	NEMA	40%
Adherence & Flexibility	20% sudden jerk, rolling wire 10 times around mandrel 3 times the diameter of the wire, visual inspection, no cracks or visible bare copper.	NEMA	Passes
Springback	≤ 58°	NEMA	52°
Unidirectional abrasion	Average of 3 readings @ 0°, 120°, and 240° with a test weight of 882 grams, ≥ 635 grams	NEMA	1411
<b>Chemical</b>			
Resistance to transformer oil	1000 hours immersion at 150°C in sealed tube	NEMA (a)	Passes
Resistance to Solvents	Immersion for 24 hours, after heating to 125 °C Naphtha Toluene Ethylic Alcohol 5% Sulfuric Acid 1% Potassium Hydroxide	Not soften sufficiently to expose the bare conductor	Passes Passes Passes Passes Passes
Solubility	30 minutes immersion @ 60°C in Xylene after drying sample for 10 minutes @ 150°C	NEMA	Passes
Curing	Boiling in Alcohol/Toluene 70/30 for 5 minutes		Passes
<b>Thermal</b>			
Thermal stability	20,000 hours @ 200 °C	ASTM	120 °C
Heat shock	20% sudden jerk, rolling wire 10 times around mandrel 3 times the diameter of the wire before heating ½ hour @ 175°C	NEMA	Passes
Thermoplastic flow	≥ 180°C	NEMA	220 °C