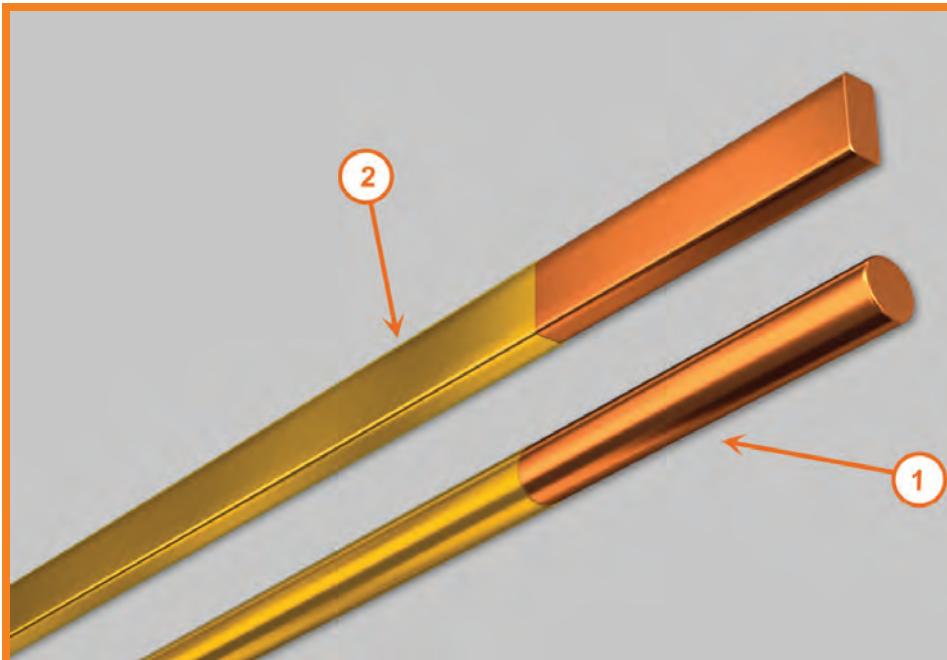


Magnet Wire

FORMANEL™ 105 °C



Description:

1. Round, square or rectangular soft copper wire
2. Modified polyvinyl acetal base coat

Application:

- Oil filled transformers for control, distribution and high power
- Hermetic motors

Features:

- Excellent flexibility
- Excellent adherence
- Excellent resistance to abrasion
- Excellent chemical resistance to dielectric mineral oil used on transformers
- Formanel™ is resistant to Freon 22 and environmental friendly freons as 134-A, 141-B, 404-A, 407-C, 410-A and 507.

Special Features:

Avoid contact of polar solvents and Formanel™ magnet wire, because it can damage enamel film. Xilol, toluene, acetone are polar solvents among others.

Standards:

This product may be designed according to any of the following standards:

- IEC 60317-1, NMX-J-072-ANCE y NEMA MW 1000: MW 15-C (round wire)
- IEC 60317-17, NMX-J-063-ANCE y NEMA MW-1000: MW 18-C (shaped wire)

Please contact our Technical Department if the requested product should fulfill a different standard from those shown.

Thermal Class:

105 °C, class A

Color:

clear

Certification:

Product certified by Underwriters Laboratories Inc. Records are available on File E87331.

How to order:

Formanel™ magnet wire, round wire, gauge (AWG) or cross-section area (mm²), built (single or heavy), color, weight and package

Magnet Wire

FORMANEL™ 105 °C



Round wire production range Formanel™

Build	Range	Bare wire diameter			
		Minimum		Maximum	
	AWG	mm	in	mm	in
Single	14-30	0,251	0,0099	1,643	0,0647
Heavy	4-30	0,251	0,0099	5,227	0,2058

These data may vary due to manufacturing tolerances.



Shaped wire production range Formanel™

	Dimensions			
	Minimum		Maximum	
	mm	in	mm	in
Bare thickness	1,0	0,040	5,2	0,204
Bare width	2,5	0,100	14,00	0,551

Maximum width/thickness ratio	Maximum cross-section area	
	mm ²	in ²
6	40,3	0,0625

(1) Width/thickness ratio has not units.

Magnet Wire

FORMANEL™ 105 °C



Typical performance *

THERMAL PROPERTIES			MECHANICAL PROPERTIES		
Test	Requirement **	Results	Test	Requirement **	Results
Thermal endurance	Minimum 20 000 h @ 105 °C	118 °C	Adherence and flexibility	20% / 3d	No breaks
Thermoplastic flow	Minimum 100 °C	215 °C	Elongation	Minimum 32%	40%
Heat shock	20% / 3d / 175 °C	No breaks	Springback	Maximum 58°	50°
			Scrape resistance	Minimum average 1 150 g	1 520 g
			Static coefficient of friction	-----	0,120
			Dynamic coefficient of friction	-----	0,090

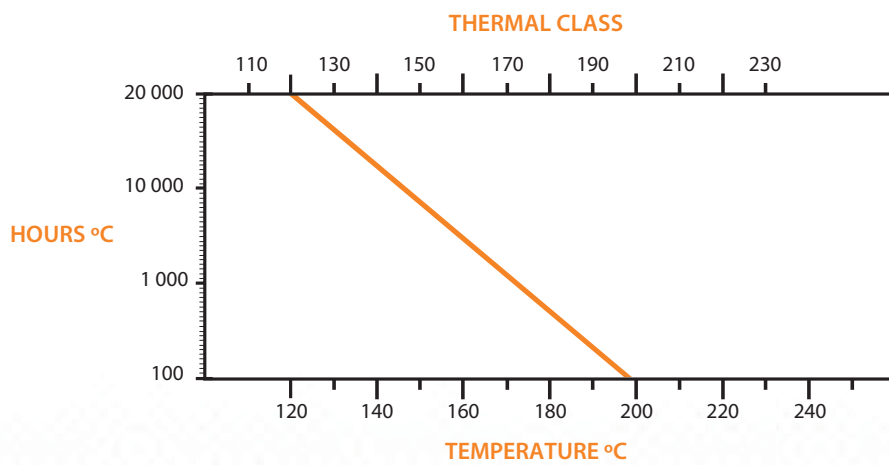
CHEMICAL PROPERTIES			ELECTRICAL PROPERTIES		
Test	Requirement**	Valores obtenidos	Test	Requirement **	Results
Solubility	Xilol, Xilol/Butil Celosolve	Ok	Dielectric Breakdown	Minimum 5 700 V	9 300 V
Transformer oil resistance	5 700 V	8 150 V	Dielectric Breakdown at rated temperature	Minimum 4 275 V	7 500 V
Compatibility	Toluene/Ethanol	No swelling or blistering	Continuity	Maximum 5 discontinuities @ 1 500 V	Maximum 1 discontinuity
Refrigerant (R-22) extraction	Not greater than 0,25% of weight of film insulation	0,05%			
Dielectric Breakdown after R-22 conditioning	Minimum 5 700 V	7 200 V			

NOTES: * Typical performance for a Formanel™ Heavy Build, 18 AWG

** Standard used: : NEMA MW-1 000 : MW 15-C

Magnet Wire

FORMANEL™ 105 °C

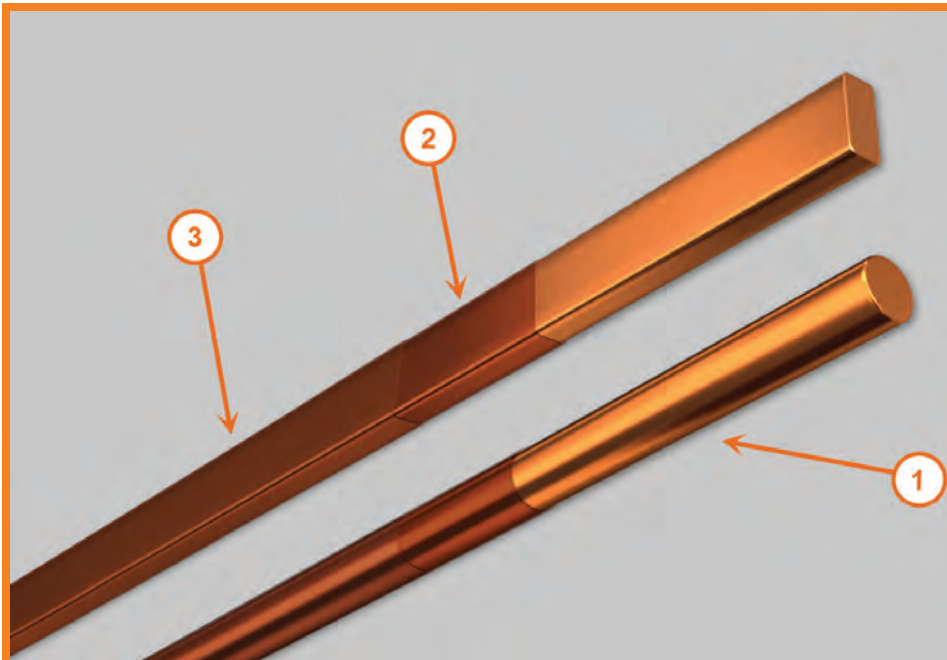


The plot above shows thermal endurance performance for a Formanel™ Magnet Wire, Heavy build, 18 AWG, tested according to ASTM D 2307. Plot was drawn using data obtained during test procedure until 5 000 h and extrapolated to 20 000 h.

Formanel™ Magnet Wire fulfills thermal requirements to get thermal class 105°C.

Magnet Wire

AMIDANEL™ 200 °C



Description:

- 1.Round, square or rectangular soft copper wire
2. Polyester imide resin as base coat
- 3.Polyamideimide resin as top coat

Application:

- Open-type motors
- Enclosed motors
- Hermetic motors
- Dry-type transformers
- Automotive coils
- Ballast
- Motors for portable tools

Features:

- Excellent thermal stability, excellent dielectric and mechanical performance, very good chemical resistance to usual solvents and very good chemical resistance to coolants
- Mechanical performance has been improved on round larger gauge (4-10 AWG) and shaped wires to avoid damage during tough winding processes. Improved product trademark is Amidanel™ Premium.
- Amidanel™ is resistant to Freon 22 and environmental friendly freons as 134-A, 141-B, 404-A, 407-C, 410-A and 507.

Special Features:

- Coils produced with Amidanel™ should not be exposed to extreme humidity.
- Amidanel™ is not a solderable product by immersion in soldering pot.

Standards:

This product may be designed according to any of the following standards:

- NMX-J-482-ANCE, NMX-J-489-ANCE, IEC 60317-13, NEMA MW 1000: MW 35-C y MW 73-C (round wire)
- NMX-J-485-ANCE, IEC 60317-29 y NEMA MW 1000: MW 36-C (shaped wire)

Please contact our Technical Department if the requested product should fulfill a different standard from those shown.

Thermal Class:

- 200 °C, class N

Colors:

- clear (typical)
- green
- blue

Certification:

Product certified by Underwriters Laboratories Inc. Records are available on File E87331.

How to order:

Amidanel™ magnet wire, round, square or rectangular wire, gauge (AWG) or cross-section area (mm²), or dimensions (thickness and width in case of rectangular wire), built (single or heavy), color, weight and package