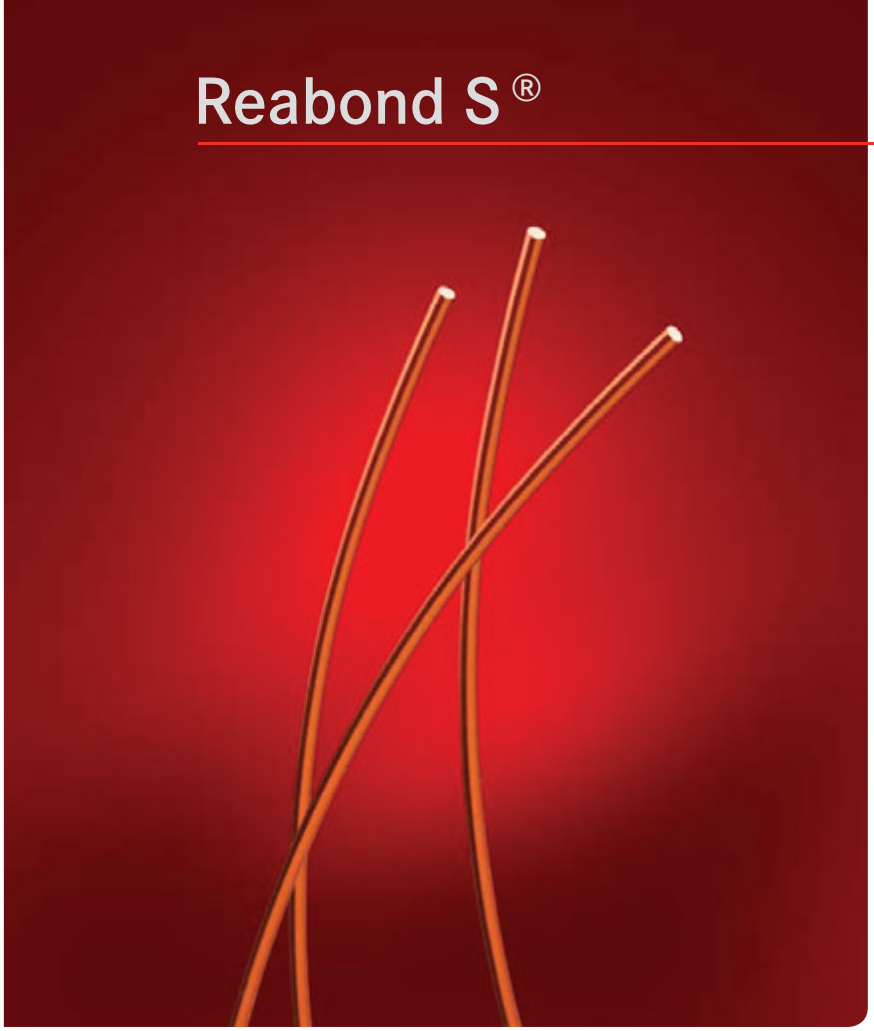
Reabond S®

RSTAI + RSI

Thermal Class: 180°C



Product Description

- Cement forms a strong turn-to-turn bond throughout a winding and often eliminates the need for impregnating varnish
- High resoftening temperature of outer cement allows this product to compete with many varnish-impregnated heavy-grade magnet wires

Retained bond strength @ 180°C

Minimum of 3 lb. retained bond strength of 18 RSTAI on copper

General Information

References are provided for comparative purposes

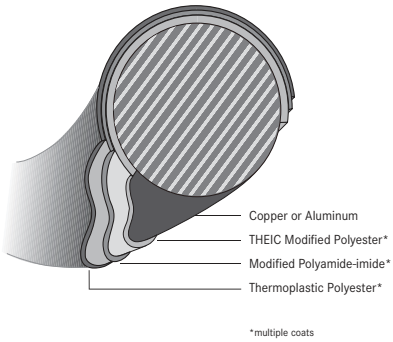
UL: File No. E37683
NEMA: MW-1000:MW102A or C

Availability

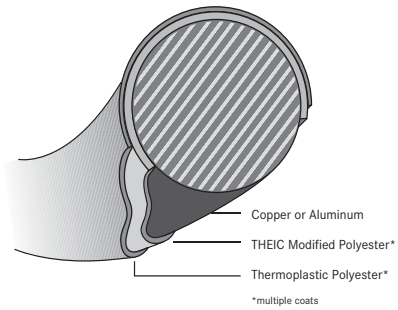
Round	
copper	14-30 AWG Grade 1&2
aluminum	14-23 AWG Grade 1&2

Typical Applications

Fractional and integral horsepower motors, including universal motor fields and induction motor stators, high temperature coils, clutches and solenoids



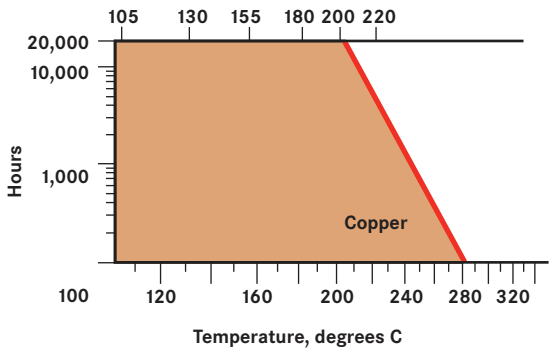
RSTAI



RSI

Measured Thermal Endurance

18 AWG Copper

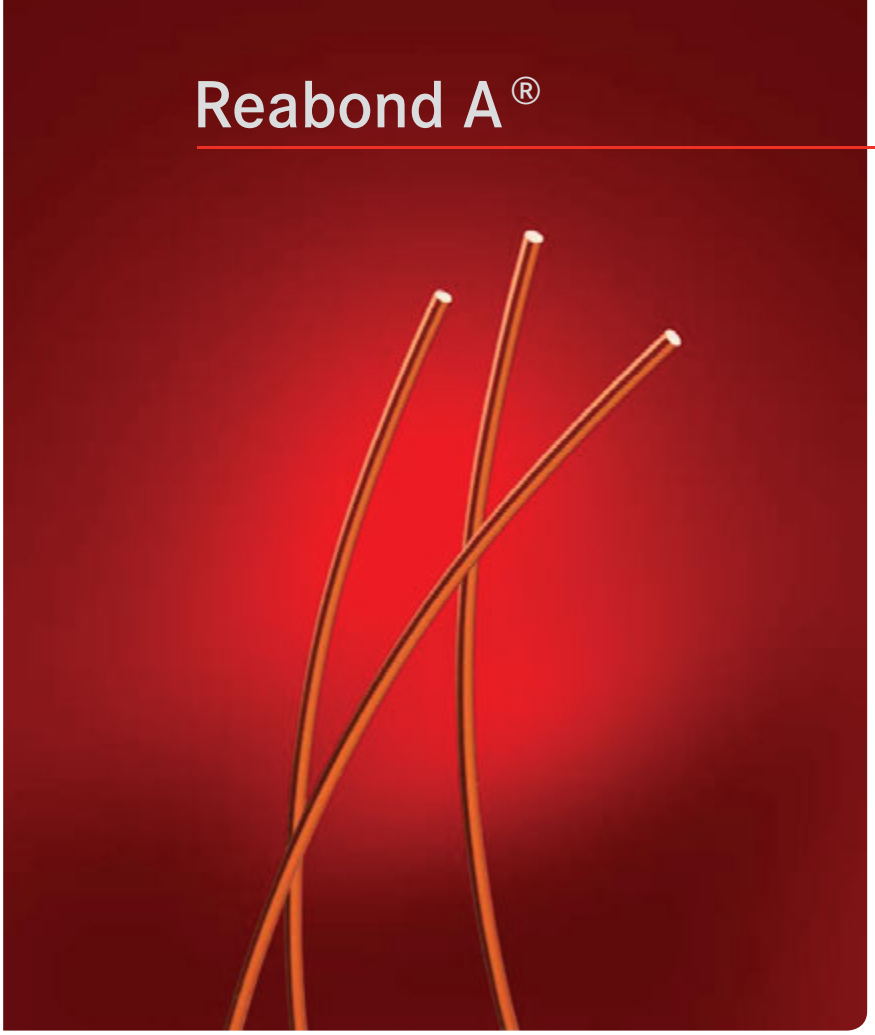


Rea

Reabond A®

RANS

Thermal Class: 130°C



Product Description

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Retained bond strength @ 130°C

Minimum of 3 lb. retained bond strength of 18 RANS on copper

General Information

References are provided for comparative purposes

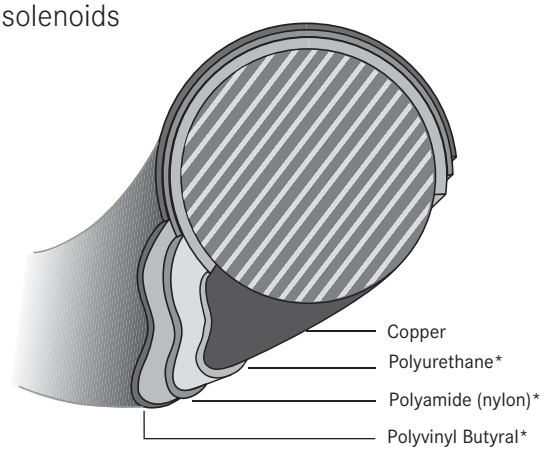
NEMA: MW-1000:MW135 C

Availability

Round	
copper	14-30 AWG Grade 1&2

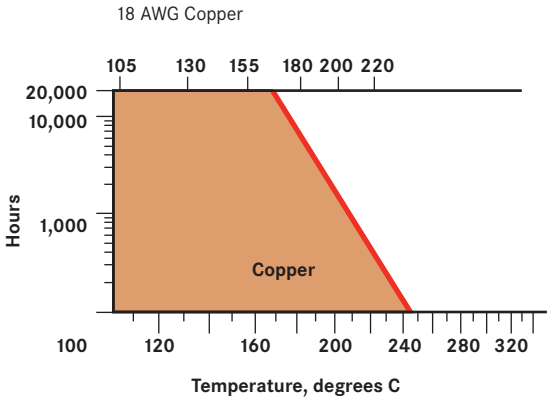
Typical Applications

Fractional and integral horsepower motors, including universal motor fields and induction motor stators, high temperature coils, clutches and solenoids



*multiple coats

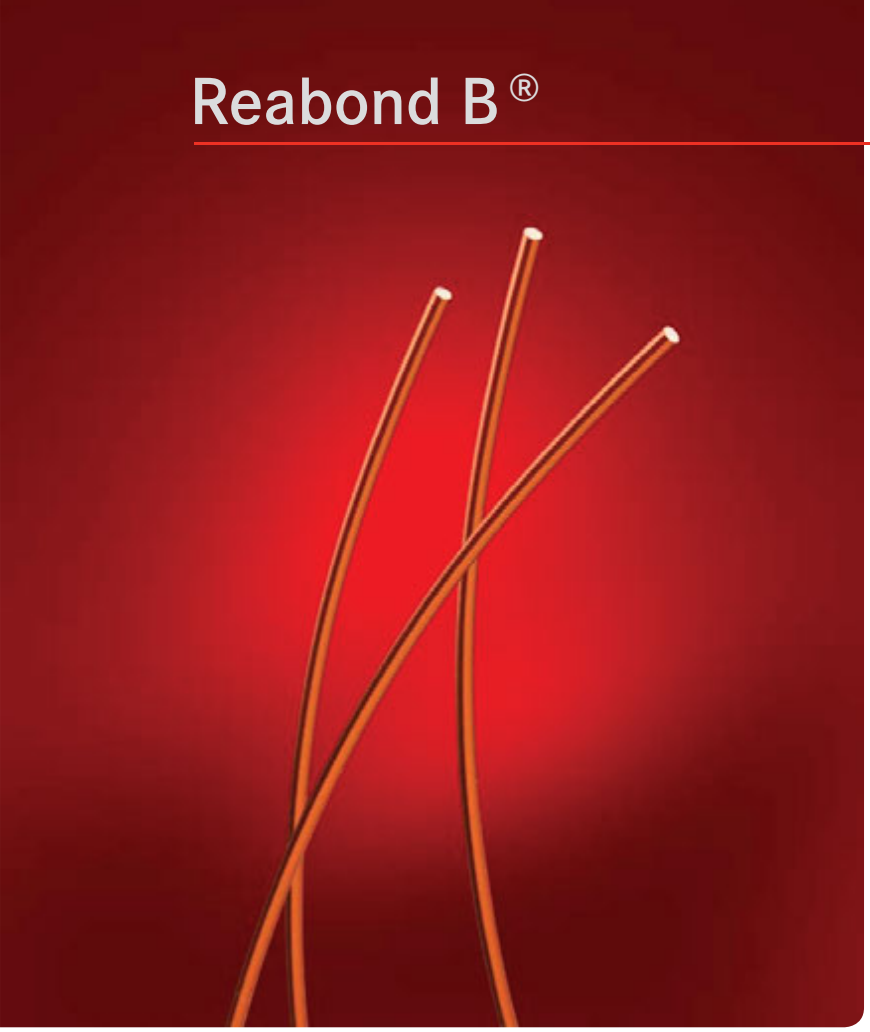
Measured Thermal Endurance



Reabond B®

RBI

Thermal Class: 180°C



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General Information

References are provided for comparative purposes

UL: File No. E37683

Availability

Round	
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aluminum	14-23 AWG Grade 1&2

Typical Applications

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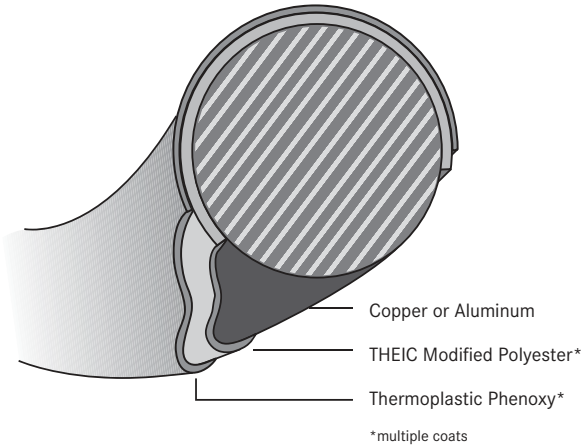
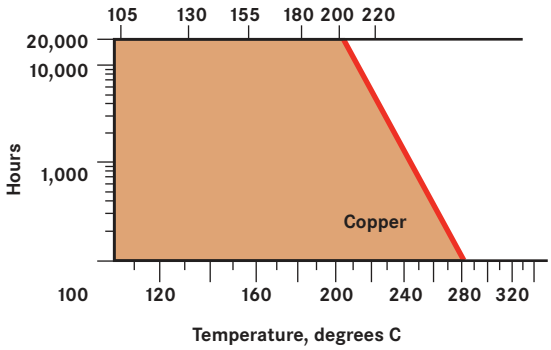


*multiple coats

Measured Thermal Endurance

18 AWG Copper



Heat Bonding

Cost-optimized manufacturing processes typically employ resistance bonding to bond coils wound with Reabond S magnet wire. Solvent bonding is not recommended for this product. The Reabond cement may be removed by Dioxolane for measuring sub-film dimensions.

Solvent Bonding

Solvent bonding is accomplished by using an alcohal based solvent to reflow the bondcoat. As the solvent evaporates the bond coat hardens and results in a formed winding. Solvents can be applied during the winding process so there is very ittle loss of productivity. Solvent bonding requires the use of forming fixtures while the solvent is drying. As a resut fixtures may be in use for an extended period of time. In cases where the winding is to be potted, the solvent must be driven from the coil to avoid long-term insulation failure.

Resistance Bonding

Resistance bonding applies a voltage that causes the winding to heat electrically to the proper bond temperature. The voltage that can be applied across a winding is limited by the current that can be passed through the wire. The current is determined by the applied voltage divided by the resistance of the winding. The maximum current that can be passed through a wire is limited by the gauge of wire (cross sectional area). The maximum voltage applied across the winding must be kept low enough so that the current does not approach the wire's fusion current (fusion current is the current at which a conductor will melt). The recommended bonding voltage should develop less than one-half the fusion current.

Fusion Current = I_f = Kd 3/2

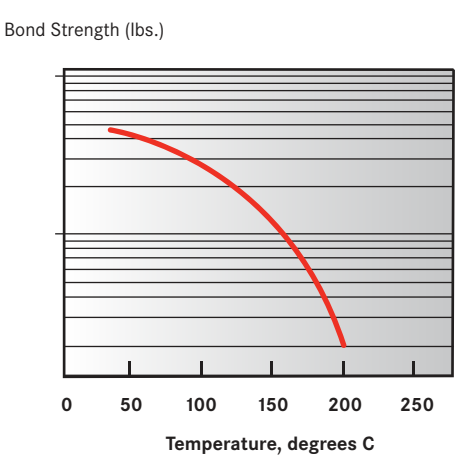
Where, K = Constant = 10244 for Copper and 7585 for Aluminum

d = bare wire diameter in inches

Current = Voltage/Resistance or I = Volts/Ohms

The bonding time is the time that the bonding voltage needs to be applied across the winding in order to generate the appropriate temperature. This will depend on the applied voltage and the total mass being heated and cooled. Therefore, the bonding time will need to be developed experimentally for each specific application. The process is very quick and may be completed on the winder without additional fixtures. This process may be automated fairly easily with very good results and control: however, there is a need for additional equipment that will deliver the desired time/voltage/current. This usually consists of a variable power supply, a timer, and special non-conductive winding arbors. There are many companies that sell automated resistance bonding power supplies and controllers. Electrical connection can usually be made by using an insulation piercing connector.

Bond Strength vs. Temperature



Test Temperature, Degrees C
Helical Coils of 18 AWG Reabond S
(Resistance Bond @ 220°C plus 175°C Oven Bake)

Bondcoat	Bonding Temp	Recommended Bond Method
Reabond A	120-140 C	Heat or Solvent (Alcohol)
Reabond B	190-210 C	Heat or Solvent (MEK)
Reabond S	220- 240 C	Heat / Resistance