



# POLY 180B AND NYLON WIRE INSULATIONS AND COATINGS

## DATASHEET

Poly 180B is a Thermal Class 180 polyurethane wire enamel that meets the requirements of NEMA MW1000, 82-C or 83-C (when applied with a Nylon overcoat, Poly 180B/Nylon). The Nylon top coat is applied to reduce the coefficient of friction during winding and/or insertion.

This coating combination can be applied as a basecoat when self-bonding magnet wire is required for a customer's specific coil winding/forming operation.

Poly 180B/Nylon can be soldered without the use of flux (on copper substrates), and solderability times are greatly reduced with this coating combination versus products that have been coated with Tri-2-sod.

### ELECTRICAL PROPERTIES

#### Electrical properties

|                                      | NEMA<br>MW1000 | ASTM<br>D1676 | IEC 851    | JIS C3003 | MW<br>82-C<br>(Heavy),<br>24 AWG | MW<br>83-C<br>(Heavy),<br>24 AWG |
|--------------------------------------|----------------|---------------|------------|-----------|----------------------------------|----------------------------------|
| Dielectric strength<br>@ 25°C        | 3.8.1.1        | 69-75         | 13-4.2,3,4 | 11.1      | 10.5 kV                          | 9.4 kV                           |
| Dissipation factor<br>@ 220°C - 1kHz |                | 107-114       |            |           | 0.04                             | 0.15                             |
| Tangent delta (DIN)                  |                |               |            |           | 168°C                            | 66/<br>167°C                     |

### MECHANICAL PROPERTIES

#### Mechanical properties

|                               | NEMA<br>MW1000 | ASTM<br>D1676 | IEC 851 | JIS C3003 | MW<br>82-C<br>(Heavy),<br>24 AWG | MW<br>83-C<br>(Heavy),<br>24 AWG |
|-------------------------------|----------------|---------------|---------|-----------|----------------------------------|----------------------------------|
| Adherence and flexibility     |                |               |         |           |                                  |                                  |
| No snap                       | 3.3.1.1        | 141-148       | 8.5.1.1 | 8.1       | Pass                             | Pass                             |
| 20% snap                      | 3.3.1.1        | 141-148       |         | 9.1       | Pass                             | Pass                             |
| Cut-through temperature       | 3.50.1.1       | 61-68         |         |           | 263°C                            | 248°C                            |
| Solderability 455°C (no flux) | 3.13.1.1       | 178-185       |         |           | 5 sec.                           | 4.5 sec.                         |

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**Disclaimer:** Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.

