

Magnet Wire Insulation Guide

| THERMAL CLASS | INSULATION TYPE | MWS PRODUCT CODE | NEMA STANDARD (MW1000) | IEC STANDARD (60317) | FEDERAL SPECIFICATION (JW 1177) |
|---------------|------------------------------------|------------------|-------------------------------------|------------------------------------|--|
| 105°C | Plain Enamel | PEI | NONE | NONE | NONE |
| | Formvar | F | MW 15 (RD) MW 18 (SQ & RECT) | 60317-1 (RD) 60317-17 (SQ & RECT) | JW 1177/4 (RD) JW 1177/16 (SQ & RECT) |
| | Formvar Bondable | FB | MW 19 | 60317-5 | JW 1177/6 |
| 130°C | Polyurethane Bondable - 130 | PB130 | MW 130 | 60317-2 | NONE |
| | Polyurethane Nylon Bondable - 130 | PNB130 | MW 135 | NONE | NONE |
| 155°C | Polyurethane - 155* | P155 | MW 79 | 60317-20 | JW 1177/41 |
| | Polyurethane Nylon - 155* | PN155 | MW 80 | 60317-21 | JW 1177/42 |
| | Polyurethane Bondable - 155 | PB155 | MW 131 | 60317-35 | NONE |
| | Polyurethane Nylon Bondable - 155 | PNB155 | MW 136 | NONE | NONE |
| | Dacron Glass - 155 | DGLASS155 | MW 45 (RD) MW 46 (SQ & RECT) | NONE (RD) 60317-60 (SQ & RECT) | JW 1177/20 (RD) JW 1177/25 (SQ & RECT) |
| 180°C | Polyurethane - 180* | P180 | MW 82 | 60317-51 | NONE |
| | Polyurethane Nylon - 180* | PN180 | MW 83 | 60317-55 | NONE |
| | Polyester-imide | PT | MW 30 | 60317-8 | JW 1177/12 |
| | Polyester Nylon* | PTN | MW 76 | 60317-22 | JW 1177/38 |
| | Solderable Polyester* | SPT | MW 77 | 60317-23 | JW 1177/39 |
| | Solderable Polyester Nylon* | SPTN | MW 78 | NONE | JW 1177/40 |
| | Polyester-imide Bondable* | PTB | NONE | 60317-37 | NONE |
| | Polyester-amide-imide Bondable* | APTB | MW 102 | 60317-38 | NONE |
| | Solderable Polyester Bondable | SPTB | NONE | 60317-36 | NONE |
| | Dacron Glass High Temp | DGLASS HT | MW 51 (RD) MW 53 (SQ & RECT) | NONE (RD) 60317-61 (SQ & RECT) | JW 1177/24 (RD) JW 1177/26 (SQ & RECT) |
| 200°C | Polyester - 200* | PT200 | MW 74 | 60317-42 | JW 1177/43 |
| | Polyester A/I Topcoat* | APT | MW 35 | 60317-13 (RD) 60317-29 (SQ & RECT) | JW 1177/14 (RD) JW 1177/13 (SQ & RECT) |
| | Polyester A/I Polyamideimide | APTIG | MW 35, MW 73 (RD) MW 36 (SQ & RECT) | 60317-13 | NONE |
| | Polytetrafluoroethylene (Teflon**) | TEFLON | NONE | NONE | NONE |
| 240°C | Polyimide - ML* | ML | MW 16 (RD) MW 20 (SQ & RECT) | 60317-46 (RD) 60317-47 (SQ & RECT) | JW 1177/15 (RD) JW 1177/18 (SQ & RECT) |

* UL Recognized Insulations

** Registered trademark of E. I. duPont de Nemours and Company

General Product Information

| INSULATION CODE NO. | INSULATION TYPE | THERMAL CLASS | DIELECTRIC CONSTANT | NEMA MW 1000 DESIGNATION | AVAILABLE COLORS |
|---------------------|----------------------|---------------|---------------------|--------------------------|--|
| 1 | Polyurethane 155 | 155 | 3.70 | MW 79-C | Red, Green, Natural, Blue, Yellow Black, Violet, Orange, White, Brown |
| 1 | Polyurethane 180 | 180 | 3.70 | MW 82-C | |
| 2 | Poly-Nylon 155 | 155 | 3.81 | MW 80-C | Red, Green, Natural, Blue, Yellow Black, Violet, Orange, White, Brown |
| 2 | Poly-Nylon 180 | 180 | 3.81 | MW 83-C | |
| 4 | Polyester 200 | 200 | 3.82 | MW 74-C | Red, Green, Natural, Black |
| 5 | Armored Polyester | 200 | 3.86 | MW 35-C | Red, Green, Natural, Black |
| 6 | Solderable Polyester | 180 | 3.76 | MW 77-C | Red, Green, Natural, Black |
| 7 | Formvar | 105 | 7.40 | MW 15-C | Red, Green, Natural, Black |
| 8 | Polyimide (ML) | 240 | 3.90 | MW 16-C | Red, Green, Natural, Black |

| BOND CODE NO. | BOND COAT | SOLVENT* |
|---------------|-------------------|----------------|
| 1 | Polyvinyl Butyral | Alcohol |
| 2 | Nylon | None |
| 3 | Epoxy | MEK or Acetone |

| BOND THICKNESS STANDARDS | | |
|--------------------------|-----------|-------------|
| AWG SIZE | THICKNESS | TOLERANCE |
| 16-20 | .0007" | ± .0002" |
| 21-28 | .0005" | ± .0002" |
| 29-32 | .0004" | ± .0001" |
| 33-36 | .0003" | ± .0001" |
| 37-41 | .0002" | ± .0001" |
| 42-finer | .0001" | + .0001"/-0 |

* Bonding films can be softened and removed by immersion in the solvent noted, except nylon which is non-soluble. Wiping with a soft cloth dampened with solvent may be necessary to separate wires.

Finished wire thermal class based on the underlying enamel of the individual strand.

NOTE: Other insulations, bond coats and thicknesses are available on request.

Part Number Ordering System — Make your own part number by following the guidelines outlined below

