APPLICATION

Allex® magnet wire consists of an aromatic polyimide film that combines not only thermal stability in the 240˚C class, but unmatched chemical and burnout resistances.

Allex® is used in encapsulated windings and hermetically sealed components because of the excellent chemical resistance and low weight loss characteristics at elevated temperatures.

Allex® is resistant to unusual environments, such as radiation, can be used in many electronic devices found in aerospace, nuclear, and other such applications.

Allex® is recommended for the following high temperature and critical environment applications:

- Aerospace
- Nuclear
- Medical
- Locomotive Traction Motors
- Fractional motors in all temperatures up to 240˚C
- Integral motors in all temperatures up to 240˚C
- Hermetic and DC motors
- Extreme overload power tools
- All dry type transformers up to Class 240

ENGINEERING HIGHLIGHTS

1. THERMAL CLASSIFICATION
Allex® is a Class 240 magnet wire when measured in accordance with the ASTM D 2307 test method. Heat shock resistance exceeds 300˚C.

2. THERMOPLASTIC FLOW
The thermoplastic flow or cut-through temperature of Allex® is in the 500˚C plus range; well above the maximum process conditions found in molded coil work, trickle impregnation processes and standard preheat varnish cycles specified for systems rated up to Class 240.

3. WINDABILITY
Allex® is recommended for more forgiving winding processes where abrasion resistance is not critical.

4. ELECTRICAL
Allex® magnet wire insulation exhibits high dielectric strength retention under high moisture conditions. Hydrolysis resistance is excellent. Allex® is not recommended for inverter-duty motor applications.

5. CHEMICAL
Allex® is unsurpassed in chemical resistance.

6. AVAILABILITY
Allex® magnet wire is normally available in round, square and rectangular sizes. Round sizes include 4 AWG through 34 AWG. Square sizes include 4 through 12. Rectangular sizes include sizes with a thickness from .051 to .258 and widths between .081 and .575 (no more than a 10:1 ratio).

Please refer additional questions on availability to Essex Magnet Wire Marketing personnel.
Performance data is representative of 18 AWG heavy build copper. **

**THERMAL PROPERTIES**

**THERMOPLASTIC FLOW**

*Typical Performance:* 500°C +

*Required Performance:* 450°C†

Note: Test equipment used for this test has a maximum limit of 500°C. Samples normally do not fail this test.

**HEAT SHOCK RESISTANCE**

*Typical Performance:* No cracks @ 300°C

*Required Performance:* 20%, 3XD, no cracks†

**THERMAL STABILITY**

*Typical Performance:* 247°C

*Required Performance:* 240°C minimum†

**PHYSICAL PROPERTIES**

**ABRASION RESISTANCE: UNIDIRECTIONAL**

*Typical Performance:* 1390 g., avg

*Required Performance:* 835 g. avg

710g, minimum†

**ABRASION RESISTANCE: REPEATED SCRAPE**

*Typical Performance:* 30 strokes avg.*

**ADHESION AND FLEXIBILITY**

*Typical Performance:* No cracks

*Required Performance:* 20%, 3XD, no cracks†

**CONDUCTOR ELONGATION**

*Typical Performance:* 39%

*Required Performance:* 32% minimum†

**SPRINGBACK**

*Typical Performance:* 46 degrees

*Required Performance:* 58 degrees, maximum†

**ELECTRICAL PROPERTIES**

**DIELECTRIC BREAKDOWN VOLTAGE**

*Room Temperature*

*Typical Performance:* 14,600 volts, avg

*Required Performance:* 5700 volts, minimum†

**RATED TEMPERATURE**

*Typical Performance:* 10,400 volts, avg

*Required Performance:* 4275 volts, minimum†

**CONTINUITY**

*Typical Performance:* ≤ 1 fault/100 feet

*Required Performance:* ≤ 5 faults/100 feet†

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