

## CONSTRUCTION DETAILS:

## CLASS 240(S) INSULATION SYSTEM DESIGNATION S82

Insulation thickness as indicated below are minimums.

The use of this insulation system is limited to the combination of materials specified below. Where more than one item is designated under Insulation Function, they may be used together, unless otherwise indicated, or they may be used as alternates to one another. Functions designated "optional" are not necessarily required for every design. If more than one material is specified for a nonoptional function, at least one of the materials must be used. If thickness is specified for these nonoptional materials, the material chosen must be used in at least the minimum thickness specified.

| Insulation Function       | Insulating Material   |
|---------------------------|---|
| 1. Magnet Wire            | Aluminum or copper, round or rectangular.   |
| 2. Magnet Wire Insulation | Recognized Component - Magnet Wire (OBMV2), single build or greater.  |
|                           | Magnet wire types Listed below may be used in combination within a single product.  |
|                           | A. Polyester basecoat with a polyamide-imide topcoat, rated 220°C or ANSI MW 35A, MW 36A, MW 73A, MW 37C and MW 38C type, various manufacturers.  |
| 3. Filament Wire          | A. YSRP-W, 24 mils (0.60 mm) minimum thickness of silicone rubber, Young Chang.   |
|                           | B. The following manufactured by Nikkan Industries: <ol style="list-style-type: none"> <li data-bbox="651 1267 1342 1361">1. WP-60-10S, 24 mils (0.60 mm) minimum thickness of silicone rubber with polyester braid.</li> <li data-bbox="651 1368 1342 1462">2. WPT-60-10S, 24 mils (0.60 mm) minimum thickness of silicone rubber with polyester braid.</li> </ol> |
|                           | C. HKSW-1, 28 mils (0.70 mm) minimum thickness of silicone rubber with polyester braid, Han Kyung Co., Ltd.   |
|                           | D. BPTS, 24 mils (0.60 mm) minimum thickness of silicone rubber with polyester braid, Jones Stroud.   |

| Insulation Function                         | Insulating Material   |
|---|---|
| 3. Filament Wire<br>(continued)             | E. #3122/MW37, silicone rubber extruded over MW 37C, P. Leo (B. C.) Co., Ltd.   |
|   | F. SRPW, silicone rubber extruded over MW 37C, Bo Sung Silicone Co.   |
| 4. Ground and<br>Interwinding<br>Insulation | <p>A. The following materials manufactured by E. I. DuPont:</p> <ol style="list-style-type: none"> <li>1. Nomex 410, 414, 416 or 464, 5 mils (0.13 mm) minimum thickness.</li> <li>2. Nomex 411, 10 mils (0.25 mm) minimum thickness.</li> <li>3. Nomex 418, 3 mils (0.076 mm) minimum thickness.</li> <li>4. Nomex 419, E-56 or E-56A, 7 mils (0.18 mm) minimum thickness.</li> <li>5. Nomex 992, 63 mils (1.6 mm) minimum thickness.</li> <li>6. Nomex 993 or 994, 40 mils (1.0 mm) minimum thickness.</li> <li>7. Zenite 6130 or 6130L, 16 mils (0.40 mm) minimum thickness.</li> <li>8. Zenite 7130 or 7130L, 16 mils (0.40 mm) minimum thickness.</li> </ol> |
|   | B. CeQuin I, 10 mils (0.25 mm) minimum thickness, Quin-T.   |

| Insulation Function                               | Insulating Material   |
|---|---|
| 4. Ground and Interwinding Insulation (continued) | <p data-bbox="603 450 1157 479">C. The following materials by P. Leo:</p> <ol data-bbox="655 488 1262 1171" style="list-style-type: none"> <li>1. N410 Mica, 16 mils (0.40 mm) minimum thickness.</li> <li>2. Mica SM61, 10.0 mil (0.25 mm) minimum thickness.</li> <li>3. N###MN *&amp;*</li> <li>4. N###M *&amp;</li> <li>5. N###MN-FR*&amp;*</li> <li>6. N###M-FR*&amp;</li> <li>7. N###K *&amp;</li> <li>8. N###KN *&amp;*</li> <li>9. N###PEN/N *&amp;*</li> <li>10. N###PEN/MICA *&amp;* (%)</li> <li>11. N###MICA/N*&amp;*</li> <li>12. N###MICA **(%)</li> <li>13. N###/1P801 (**)</li> <li>14. N###/1P802 (**)</li> <li>15. N###/1PEN2 (**)</li> <li>16. N###/1PNR2 (**)</li> <li>17. N###/1K220 (**)</li> <li>18. N###/1K06A (**)</li> </ol> <p data-bbox="592 1211 1294 1301">Where N### indicates Nomex type containing total minimum thickness 5 mils for 410, 414, 416, 464 N650 or 3 mil for 418 or 10 mils for 411</p> <p data-bbox="592 1305 1350 1417">* - represents each layer thickness in mils &amp; * containing total minimum thickness of Nomex in mils.<br/> (**) - total minimum thickness of Nomex, thickness in mil.</p> <p data-bbox="592 1429 975 1458">(%) - mica thickness in mm</p> <p data-bbox="592 1464 1294 1516">&amp; - any thickness of Polyester (PET) film. PEN film, Mica or "K" (Polyimide film)</p> |

| Insulation Function   | Insulating Material  |
|---|--|
| 5. Minor Sheet Insulation (Layer Outerwrap, etc.) (Optional)  | Any sheet insulation or tape described in this table with no minimum thickness.  |
|   | A. The following from QuintT:<br>1. CeQuin IG<br>2. QuintT   |
|   | B. The following materials manufactured by E. I. DuPont:<br>1. Nomex 410<br>2. Kapton HN   |
|   | C. The following from P. Leo:<br>1. SM61<br>2. SM62<br>3. 8M81<br>4. PB-2<br>5. DMD<br>6. DM<br>7. DKD<br>8. TP5013<br>9. TP5008<br>10. MFR** FR (**03= 3mil, 04=4mil) |
|   | D. SK661, Sung Won Electric  |
|   | E. J-5661-1, Jia-Xing Insulation   |
|   | F. The following from Isovolta:<br>1. Isonom NMN 0881<br>2. Isonom NMN 2796  |
| G. The following from Von Roll Shanghai Co., Ltd.<br>1. Myoflex 2N50<br>2. Myoflex 2N80<br>3. Myoflex NHN |  |

| Insulation Function               | Insulating Material   |  |
|-----------------------------------|---|--|
| 6. Tape (Optional)                | A. DTS-204A, Duck Sung Tape   |  |
|                                   | B. The following from P. Leo:   |  |
|                                   | 1. 1N012<br>2. 1N155<br>3. 1N008<br>4. 1P801<br>5. 1P802<br>6. 1PEN2<br>7. 1PEN3<br>8. 1PN2R<br>9. 1PN3R<br>10. 1K220<br>11. 1K063<br>12. 1K063CR<br>13. 1K06A<br>14. 1K125<br>15. 1K7170<br>16. 1K7270 | 17. 1P9FR<br>18. 1P130<br>19. 1P830<br>20. 1G006<br>21. 1G015<br>22. 1G220<br>23. 1A025<br>24. 1H860<br>25. 1H818<br>26. 1H866<br>27. 0L50<br>28. 1PENS<br>29. 1PETS<br>30. 1PFRS<br>31. 1PCBS |
| 7. Sleeving and Tubing (Optional) | A. Y-GT, Young Chang Silicone Co.   |  |
|                                   | B. GSHS-1625, LG Cable  |  |
|                                   | C. The following Silicone Rubber Sleeving by P. Leo:<br>5. 2R-SG<br>6. 2R-SG-1<br>7. 2R-SG-2<br>8. 2R-SG-3  |  |
| 8. Lead Wire(Optional)            | A. Silicone Rubber with Glass braid, 200°C  |  |
|                                   | B. TFE, 200°C   |  |

| Insulation Function  | Insulating Material   |
|--|---|
| 9. Wedge(Optional)   | A. SK641, Sung Won  |
|  | B. SK661, Sung Won  |
|  | C. Z611H, Nihon Mica  |
|  | D. MG630823, KET  |
|  | E. 660-1F, Donghai Insulation   |
|  | F. SM61, SM62, or 8M81 by P. Leo  |
|  | G. J-5661-1, Jia Xing   |
| 10. Core Tube or Bobbin<br>(Mechanical Support<br>Only) (Optional) | A. FR530 from DuPont  |
|  | B. 420 SEO, GE  |
|  | C. 1401, Toray  |
|  | D. 2016, Wintech Polymer  |
|  | E. 3226, Wintech Polymer  |
|  | F. GP2306F, LG Chemical   |
| 11. Varnish  | H. 301-G30, Beijing Chemical  |
|  | A. Pedigree 50(+3), 50S(+3), 50VT(+3), 50VTC(+3), 5183(+3), or 50SM(+3), with or without silica filler, P. D. George Company<br><br>(+3)- May be followed by XXF. Where XX designates level of inorganic filler and letter F or filler. |