

CONSTRUCTION DETAILS:

CLASS 240(S) INSULATION SYSTEM DESIGNATION S81

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: 1. WP-60-10S, 24 mils (0.60 mm) minimum thickness of silicone rubber with polyester braid. 2. WPT-60-10S, 24 mils (0.60 mm) minimum thickness of silicone rubber with polyester braid.
	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 (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 Interwinding Insulation	<p>A. The following materials manufactured by E. I. DuPont:</p> <ol style="list-style-type: none"> 1. Nomex 410, 414, 416 or 464, 5 mils (0.13 mm) minimum thickness. 2. Nomex 411, 10 mils (0.25 mm) minimum thickness. 3. Nomex 418, 3 mils (0.076 mm) minimum thickness. 4. Nomex 419, E-56 or E-56A, 7 mils (0.18 mm) minimum thickness. 5. Nomex 992, 63 mils (1.6 mm) minimum thickness. 6. Nomex 993 or 994, 40 mils (1.0 mm) minimum thickness.
	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="587 479 1142 508">C. The following materials by P. Leo:</p> <ol data-bbox="644 555 1251 1234" style="list-style-type: none"> 1. N410 Mica, 16 mils (0.40 mm) minimum thickness. 2. Mica SM61, 10.0 mil (0.25 mm) minimum thickness. 3. N###MN *&* 4. N###M *& 5. N###MN-FR*&* 6. N###M-FR*& 7. N###K *& 8. N###KN *&* 9. N###PEN/N *&* 10. N###PEN/MICA *&* (%) 11. N###MICA/N*&* 12. N###MICA **(%) 13. N###/1P801 (**) 14. N###/1P802 (**) 15. N###/1PEN2 (**) 16. N###/1PNR2 (**) 17. N###/1K220 (**) 18. N###/1K06A (**) <p data-bbox="576 1279 1283 1361">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="576 1368 1337 1424">* - represents each layer thickness in mils & * containing total minimum thickness of Nomex in mils.</p> <p data-bbox="576 1431 1326 1487">(**) - total minimum thickness of Nomex, thickness in mil.</p> <p data-bbox="576 1494 959 1523">(%) - mica thickness in mm</p> <p data-bbox="576 1529 1283 1585">& - 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 materials manufactured by E. I. DuPont: 1. Nomex 410 2. Kapton HN	
	B. The following from P. Leo: 1. SM61 2. SM62 3. 8M81 4. PB-2 5. DMD 6. DM 7. DKD 8. TP5013 9. TP5008 10. 6MPR** FR Polyester film (**03= 3mil, 04=4mil)	
6. Tape (Optional)	A. The following from P. Leo:	
	1. 1N012 2. 1N155 3. 1N008 4. 1P801 5. 1P802 6. 1PEN2 7. 1PEN3 8. 1PN2R 9. 1PN3R 10. 1K220 11. 1K063 12. 1K063CR 13. 1K06A 14. 1K125 15. 1K7170 16. 1K7270	17. 1P9FR 18. 1P130 19. 1P830 20. 1G006 21. 1G015 22. 1G220 23. 1A025 24. 1H860 25. 1H818 26. 1H866 27. 0L50 28. 1PENS 29. 1PETS 30. 1PFRS 31. 1PCBS

Insulation Function	Insulating Material
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: 1. 2R-SG 2. 2R-SG-1 3. 2R-SG-2 4. 2R-SG-3
8. Lead Wire (Optional)	A. Silicone Rubber with Glass braid, 200°C
	B. TFE, 200°C
9. Wedge (Optional)	A. Z611H, Nihon Nica
	B. MG630823, KET
	C. 660-1F, Donghai Insulation
	D. SM61, SM62, or 8M81 by P. Leo
10. Core Tube or Bobbin (Mechanical Support 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	A. Pedigree 50(+3), 50S(+3), 50VT(+3), 50VTC(+3), 5183(+3), or 50SM(+3), with or without silica filler, P. D. George Company
	(+3)- May be followed by XXF. Where XX designates level of inorganic filler and letter F or filler.