

System Component, Electrical Insulation - Component

E210549

EFI POLYMERS

4600 HOLLY ST DENVER CO 80216

System Component	System Designation	System Temp(Class)
11T201-/7H016-, 11T202-7H002-, 11G203-/7H015-, 11G203-/7H016-, 11F209-/7H202-, 11Z001-, 11T206-/7H013-	Octagon H1	180(H)

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Construction Details (Table I)

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. Insulation thicknesses and/or layers indicated below are minimum.

Winding Wire

- Recognized Component - Magnet wire (OBMW2), single build or greater, round or rectangular, copper or aluminum unless stated otherwise for the types listed below

- Recognized Component - Single and Multi-Layer Insulated Winding Wire (OBJT2) listed below

- Recognized Component - Appliance Wiring Material (AVLV2) listed below

- Bare conductors wrapped or interleaved with a paper or film listed below need not be a Recognized Component

(unless otherwise noted, winding wire types listed below may be used in combination within a single product)

MW 35 or 200C Polyester-amide-imide (Polyamide-imide)

MW 73 or 200C Polyester-amide-imide (Polyamide-imide)

MW 74 or 200C Polyester-amide-imide

Ground & Interwinding Insulations

Designation (no.)	mils(mm)	comments
3M (Minnesota Mining & Mfg Co)		
92	3 (0.08)	Recognized Component - Insulating Tape (OANZ2) 1mil (0.025mm) min backing 3turns, 3mil(0.076) min thickness
3M Innovative Paper Technologies		
TufQuin 110	7 (0.18)	
TufQuin 120	7 (0.18)	
E. I. Dupont de Nemours & Co.		
Nomex® 410	5 (0.13)	aramid insulating paper
Nomex® 411	12 (0.3)	aramid insulating paper
Nomex® 414	5 (0.13)	aramid insulating paper
Nomex® 416	5 (0.13)	aramid insulating paper
Nomex® 418	5 (0.13)	aramid insulating paper
Nomex® 992	10 (0.25)	aramid insulating paper
Nomex® 993	8 (0.2)	aramid insulating paper
Nomex® 994, 994 NPT	8 (0.2)	aramid insulating paper
Nomex® E56	8 (0.2)	aramid insulating paper
Rynite 935	15 (0.38)	polyethylene terephthalate (PET)
Rynite FR515	15 (0.38)	polyethylene terephthalate (PET)
Rynite FR530	15 (0.38)	polyethylene terephthalate (PET)
Rynite FR530L	15 (0.38)	polyethylene terephthalate (PET)
Rynite FR945	15 (0.38)	polyethylene terephthalate (PET)
Rynite RE9057	15 (0.38)	polyethylene terephthalate (PET)

Lead Wires (optional)

150 PTFE - polytetrafluoroethylene +
 150 XLPE - chemically crosslinked polyethylene +
 200 PTFE - polytetrafluoroethylene
 200 SI - silicone rubber - with or without glass braid
 200 TFE - tetrafluoroethylene - +

+ To be isolated from direct contact with windings (magnet wire) by any insulating material (tape, layer insulation, sleeving, etc.) listed in this table - unless specifically excluded from this requirement by a special note at the beginning of this table.

Minor Sheet Insulations

(optional) **layer, outer, wrap etc.**

Designation (no.)	comments
3M Innovative Paper Technologies	
CeQuin 30F, 30F30, F30F	
CeQuin 500	
CeQuin IF, IFI, FIF	
CeQuin IG, IGI, GIG	
CeQuin X	
Dupont -Teijin Films	
Mylar	
E. I. Dupont de Nemours & Co.	
Nomex 410	
Zytel 70G33L	
Von Roll USA Inc. (Bedford Materials)	
Memco 100 DMD	
Pyroglas	
Pyrolam 100X	

Tapes (optional)

Designation (no.)	comments
3M (Minnesota Mining & Mfg Co)	
10	thermosetting rubber, polyester nonwoven/epoxy resin composite
12	
1350	polyester film
27	thermosetting rubber adhesive, glass cloth
46	thermosetting rubber adhesive, web reinforced polyester film
56	thermosetting rubber adhesive, polyester film
57	thermosetting rubber adhesive, polyester film
60	thermosetting silicone adhesive, PTFE film
69	thermosetting silicone adhesive, glass cloth
90	glass cloth
92	thermosetting silicone adhesive, polyimide film
MR94B	thermosetting rubber adhesive, reinforced polyester film
Super 10	polyester film/epoxy resin composite
Super 20	polyester film/epoxy resin composite
Electro Tape Specialties Inc	
ETS-149-21	
ETS-21 FR	
ETS-23	
ETS-269	woven fiberglass
ETS-29	
ETS-418	
ETS-451	
ETS-92	
ETS-94	
ETS-95	
ETS-97	
Ideal Tape Co Inc	

7017	thermosetting acrylic adhesive, polyester film glass filament
7177	thermosetting acrylic adhesive, polyimide film
720	thermosetting rubber adhesive, woven polyester cloth
725	thermosetting rubber adhesive, polyester knit
7300	thermosetting silicone adhesive, glass cloth
750	thermosetting rubber adhesive, polyester film glass filament
7807	acrylic adhesive, polyester/glass
Intertape Polymer Group (Tesa, Tuck, Spinnaker)	
4428	polyimide film
4616-00	glass cloth
51337	crepe paper
51580-00	polyester film laminated to polyester nonwoven mat
51582	
51596	polyester film laminated to polyester nonwoven mat
51597	polyester film with glass filament coating
Nitto Denko Corp	
156	
188 UL	silicone adhesive, glass cloth
315	rubber adhesive, polyester film
3161F	polyester
31B	
354E	epoxy resin impregnated polyester nonwoven adhesive
360 UL	silicone adhesive, polyimide film
360N UL	synthetic polymer adhesive, polyimide film
380	
903	PTFE
Permacel	
P-21	thermosetting rubber adhesive, glass cloth
P-224	thermosetting silicone adhesive, polyimide film
P-234	
P-245	thermosetting rubber adhesive, polyester film/non-woven mat
P-248	thermosetting rubber adhesive, polyester film/paper
P-256	semi-cured rubber adhesive, polyester film
P-262	flame retardant thermosetting acrylic adhesive, aramid paper
P-277	thermosetting rubber adhesive, paper (creped kraft)
P-286	thermosetting acrylic adhesive, polyester film
P-422	thermosetting silicone adhesive, PTFE film
Saint-Gobain Performance Plastics Corp.	
G551	thermosetting rubber adhesive, glass cloth
G565	silicone adhesive, flame retardant fiberglass cloth
K103	acrylic adhesive, polyimide film
K250	silicone adhesive, polyimide film flame retardant
M54	thermosetting rubber adhesive, polyester film
M97	acrylic adhesive, printable polyester film
Symbio Inc	
GL06	silicone adhesive, glass cloth
GL15	acrylic adhesive, glass cloth
KA00	
NM13	aramid (Nomex) paper

Spacers and Wedges

(optional)

Designation (no.)	comments
Glastic Corp.	
1412	
1911	
FHT	

MTS rod	
SG-200	
TSF	polyester/glass
UTR	
UTS	
Haysite	
EFM	flexible, glass reinforced thermosetting polyester
EHC	glass reinforced thermosetting polyester
EMD	
ETS	NRMA GPO-1 130
H755	NRMA GPO-1 155
HST-II	glass reinforced thermosetting polyester
HTF	flexible, glass reinforced thermosetting polyester
Various Manufacturers	
Wood, Untreated	

Sleevings (optional)

Designation (no.)	comments
Atkins & Pearce Inc.	
Ben Har 1151-FR	
Ben Har 1151-XL-200	silicone rubber coated fiberglass
Ben Har 1151-XL-240	
Ben Har 1151-XL-FR-1	
Ben Har Acryl	
Ben Har Ex-Flex 1500	
Suflex Acrylflex F	
Suflex Flexicone 200	
Suflex Silicone Resin	
Suflex Silicone Rubber	
1062	silicone rubber coated fiberglass
Delfingen US, Inc. (Sofanou)	
Nu-Flex HT1220 (Thermoflex 1200)	
Nu-Sleeve SG200-C1 (SR 398 H-C-1)	
Hilec	
Hilec 310	
Hilec 410	
Hilec 540	
Hilec 710	
Turbo 117F	
Varflex	
Varglas A397 acrylic	
Varglas Non-Fray Type HO	
Varglas Silicone Resin 500	
Varglas Silicone Rubber	
Varglas Silicone Rubber ES 4400	
Varglas Viton 231	
Siflex	

Potting Compounds

Designation (no.)	comments
EFI Polymers	
11F209-/7H202-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment
11G203-/7H015-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment
11G203-/7H016-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment

11T201-/7H016-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment
11T202-7H002-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment
11T206-/7H013-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment
11Z001-	- 5or 6 digit alphanumeric suffix indicating type and amount of filler and pigment