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# Insulation for smaller, lighter, and more efficient motors.

Electrical Insulations for Motors and Generators

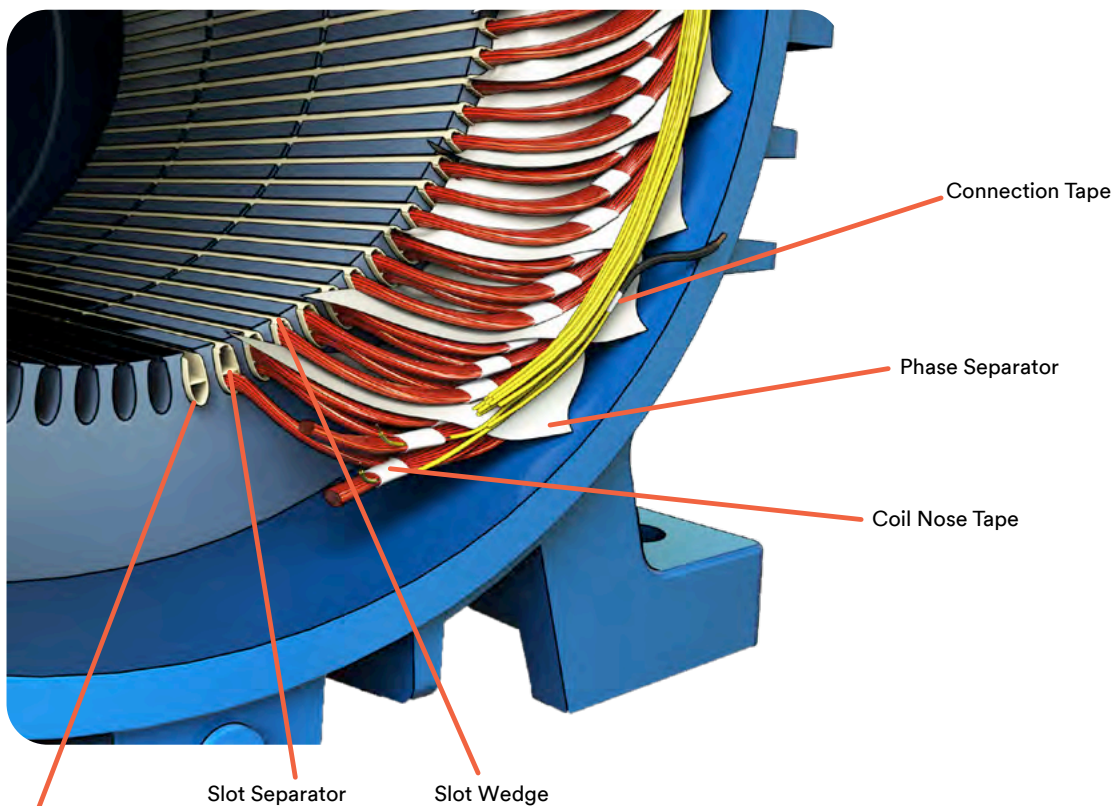
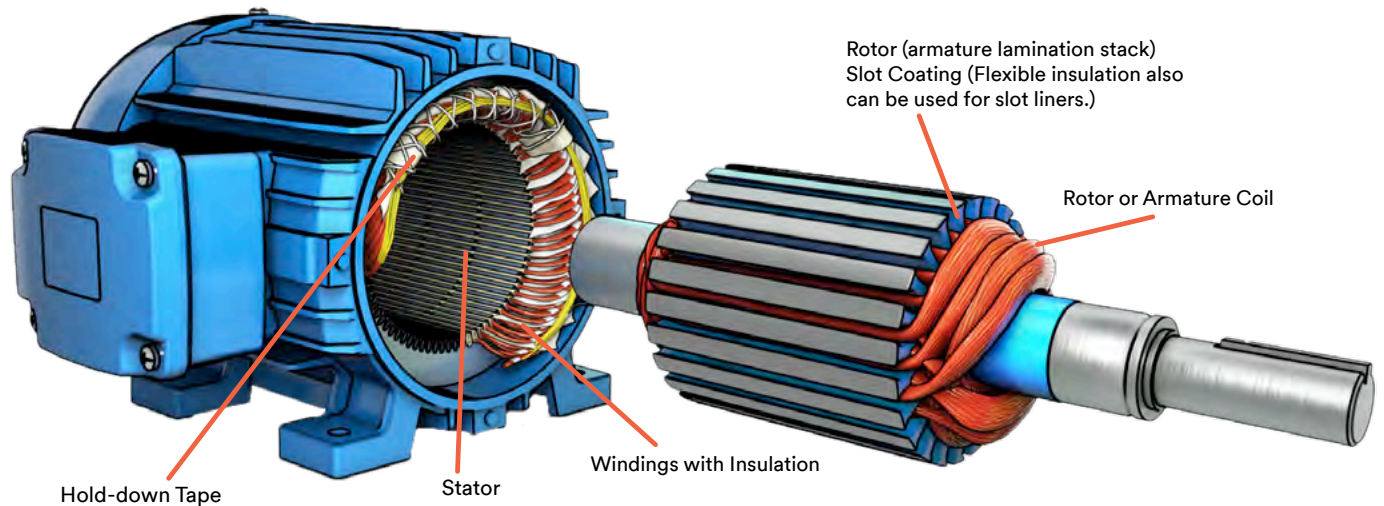


As regulatory requirements for more energy-efficient motors increase, 3M is responding with insulation systems that can offer higher thermal conductivity and more corona resistance.

Unlike many insulating materials, those from 3M enable efficient, compact and reliable motor designs. Additionally, many 3M solutions are designed for making the manufacturing process efficient with good yields for both new motor OEMs and motor repair.

Use this guide to see where 3M solutions can help protect your motor and generator products.

## Let 3M Provide Solutions to Critical Insulation Challenges in Motors and Generators



Slot Liner  
(Powder resin also can be used for slot insulation.)

Please note: Stator or rotor slots may be insulated with either flexible insulation slot liner or powder resin slot coating.

# Product Solutions for Motor Applications

Application	Scotchcast™ Resins					Flexible Insulation			Tapes					Motor Lead Kit			Copper Lugs
	260 <sup>B</sup> , 263 <sup>B</sup>	5400 <sup>A</sup>	260 <sup>B</sup> , 263 <sup>B</sup> , 265 <sup>B</sup>	265 <sup>B</sup>	8, 9, 10, 208, 210	TufQUIN TTF <sup>F</sup>	CeQUIN <sup>H</sup>	DMD <sup>G</sup>	PET Tapes <sup>I</sup>	Composite Film Tapes 44 or 44HT <sup>J</sup>	Reinforced Tapes 46, 10/46, 10/39, 11/39 or 13/39 <sup>K</sup>	Glass Cloth Tapes 69 <sup>O</sup> , 90, 27 or 79 <sup>L</sup>	Polyimide Tapes 92 <sup>N</sup> or 1205 <sup>M</sup>	5300-5304 (pigtail) or 5311-5314 (inline)	5316-5319 (pigtail)	5321-5324 (pigtail), 5331-5334 (inline) or 5381-5384 (pigtail) <sup>P</sup>	30000 Series
Rotor Slot Coating	✓																
Stator Slot Coating	✓																
Starter Coil Coating		✓															
End Winding Coating			✓														
Impregnating				✓ <sup>C</sup>	✓ <sup>E</sup>												
Lamination Bonding				✓ <sup>D</sup>													
Slot Liner Insulation						✓		✓									
Slot Separator (H insulator or inner wedge)						✓		✓									
Slot Wedge Insulation						✓		✓									
Traction Motor Interpole (coil) Insulation							✓										
End Winding Phase Separator Insulation						✓	✓	✓									
Coil-nose Tape (Y-connection)									✓			✓					
Connection Tape (lead hold down tape)									✓	✓		✓					
End Turn Hold Down Tape										✓	✓		✓				
Banding Tape (bundling)									✓	✓	✓	✓	✓				
Motor Lead Connection Insulation, ≤1 kV													✓				
Motor Lead Connection Insulation, 5-8 kV unshielded cable														✓	✓		
Motor Lead Connection Insulation, 5-8 kV shielded cable															✓		
Motor Lead Lug																	✓

## NOTES

- A - Can be coated with electrostatic coating process
- B - Can be coated with either hot-dip or hot-spray coating processes
- C - Recommended for ≥16 AWG magnet wire
- D - Solvent solution application
- E - Can be brushed or troweled into slots for motor repair
- F - UL® Systems Recognition up to Class 200°C (N) with the smoothest finish for auto insertion
- G - DMD 70 & DMD 100 have UL® Systems Recognition up to Class 155°C (F) and DMD 180 has UL® Systems Recognition up to Class 180°C (H)
- H - CeQUIN X is best when applying B-stage
- I - Suitable up to Class 130°C (B)
- J - Has better resin absorption than PET tapes
- K - High holding strength
- L - Best for higher temperature class motors or those requiring higher dielectric strength
- M - Suitable up to Class 150°C
- N - Suitable up to Class 180°C (H)
- O - Suitable up to Class 200°C (N)
- P - Reusable boot allows for periodic field testing

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