

Motor Solution

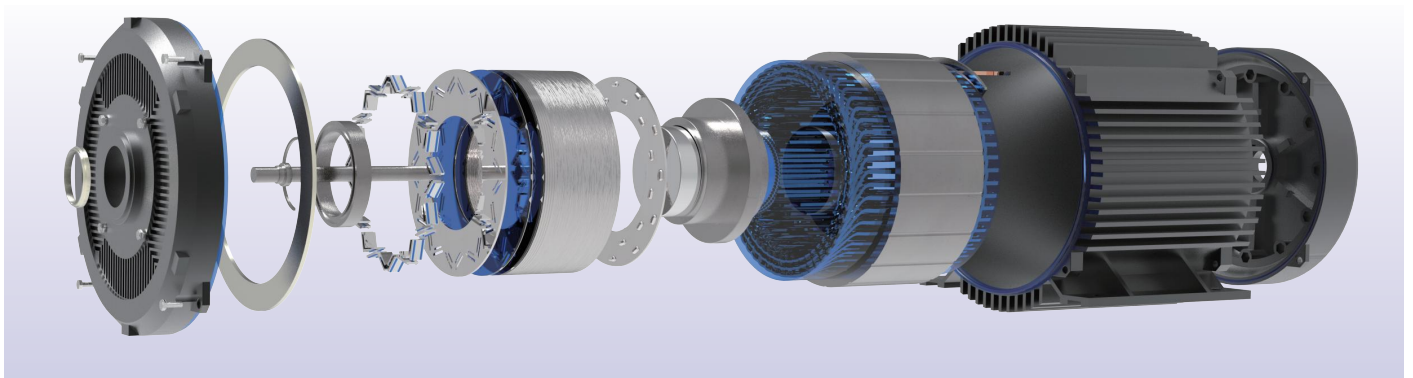
Innovative Adhesive Solutions for E-Motor

Adhesive solution

Adhesive Solutions for E-Motor

As the size of the E-motor getting smaller and the power getting larger, the efficiency of E-motor is continuously improving as expected. In some specific situations, challenges arise in parts potting, thermal conductivity, bonding, and other areas, which affect both the motor itself and its production process. CollTech has developed innovative adhesive specifically for motors that can help solve these challenges. They have the characteristic of filling gaps and balancing tensions, while providing maximum strength and resistance to temperature, media, and impact. Various curing methods allow the adhesive to be flexibly and efficiently applied.

Please feel free to contact us, and our technical experts can help you find the most suitable solution for your motor and its application.



Housing Sealing

Cost reduction of new technology has formed a final replacement advantage over traditional technology, deepening the product demand in the new energy vehicle field, and optimizing the production process of new energy vehicle products. Faced with the precision, air-tightness, and integration requirements of the automotive industry, a new type of automotive sealing connector has been designed and developed, which is suitable for automotive motors, electronic controls, oil pump controllers, and steering pumps. At the same time, the sealing connector has high-temperature resistance, low-temperature resistance, high-pressure resistance, and high humidity resistance with sophisticated structure. It makes the main-stream direction for the future development and application of automotive sealing connectors. CollTech's CIPG/FIPG material has stable performance and can meet the stringent application requirements of automotive industry.

Product Features:

- Applicable to CIPG/FIPG process, replacing traditional sealing ring
- High compression resilience, high-temperature resistance
- Suitable viscosity and thixotropy, with no interface for dispensing
- IPX7&UL94V0
- Compliant with ROHS/REACH/HF/VOC requirements



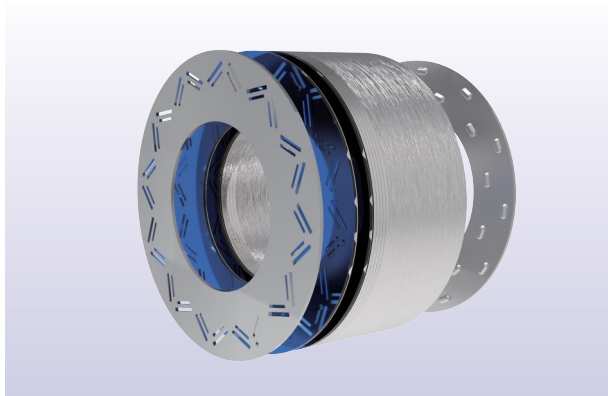
Expected Benefits:

- Efficient production, capable of achieving sealed 3D complex structures
- Good dust-proof, waterproof, and air-tightness
- Customizable width-to-height ratio can be met.

Product	Chemical Resin Type	Composition	Curing Condition	Type	Hardness	Elongation	Flammability Rating
PW 1446	AR	1C	UVcuring	Non-foam	A32	>400%	-
N-SIL8901	Silicone	1C	UVcuring	Non-foam	A30	>400%	UL94HB
N-SIL8063G	Silicone	2C	Heat curing/IRcuring	Non-foam	A30	>250%	UL94HB
N-SIL8068-HS01	Silicone	1C	Heat curing/IRcuring	Non-foam	A40	>350%	UL94HB
N-SIL8068-HS12	Silicone	1C	Heat curing/IRcuring	Non-foam	A15	>400%	UL94HB
N-SIL8069-HS51	Silicone	2C	Heat curing/IRcuring	Foam	00 65	>100%	UL94HB

Lamination Bonding

The current challenge for the motor of new energy vehicles is to improve motor efficiency so that electric vehicles can travel further without increasing the existing battery capacity. The lamination bonding combines the advantages of slotting/welding and traditional bonding techniques, ensuring low loss and high magnetic conductivity of the silicon steel.



Adhesive Features:

- Excellent bonding strength
- Excellent insulation for stator and rotor
- Complete bonding between lamination
- Elimination of air between lamination and steel wires
- Higher tensile strength for silicon steel lamination structure

Expected Benefits:

- Better thermal conductivity
- More compact and stronger structure
- Lower noise during high-speed rotation
- Reduced eddy current loss
- High productivity
- High power density
- High efficiency
- Lower system cost/expense.

Feature EP M 6345 Stage-A

color	white/milky white
solvent	water
drying parameters	80° C - 120° C PMT 10min -15min
Solid components	DIN EN ISO 325140 - 50% 2h, 130° C.lg
density	DIN EN ISO 28811.05 — 1,10g/cm³20° C
viscosity	DIN 5321160 - 80 s 4mm.23° C
pH value	DIN ISO 976 7.5-9.5

Feature EPM 6345 Stage-B

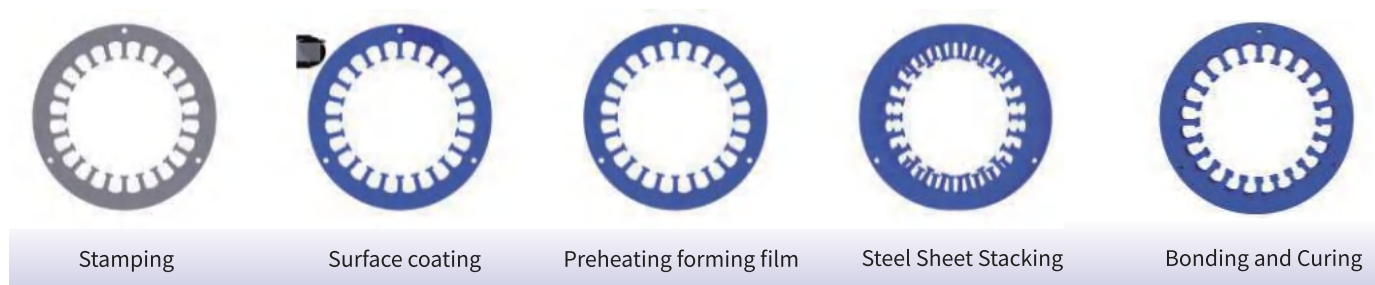
Drying parameters	180° C-200° C PMT 50min-60min
color	colorless/transparent
Film thickness	1 -6um/side (about 2-4um)
Insulation performance	ASTMA717>1000Q·cm²
Bending test	DIN 1519(0 cylinder 3mm)no cracking
hardness	DINEN 13523-4 5H
Surface usage per square meter	1.1g/m²/um layer thickness

Feature EP M 6345 Stage - C

color	colorless/transparent
Insulation performance	ASTM A717 > 1000 O*cm²
Bending test	DIN 1519(0 cylinder 3 mm)no cracking
hardness	DINEN 13523-4 9H
Oil resistant	>2000hr@150° C inATFoil
Temperature resistance	180° C-long times300° C-short term
color	colorless/transparent

Process Flow

04



Stator Potting

Sensitive motor components require protective measures to resist humidity, dielectrics, or mechanical loads. It is best achieved through potting with sealant. The high-reliability epoxy potting adhesive from CollTech is particularly suitable for the automotive industry and is applied to motor stator potting to meet its stringent requirements.

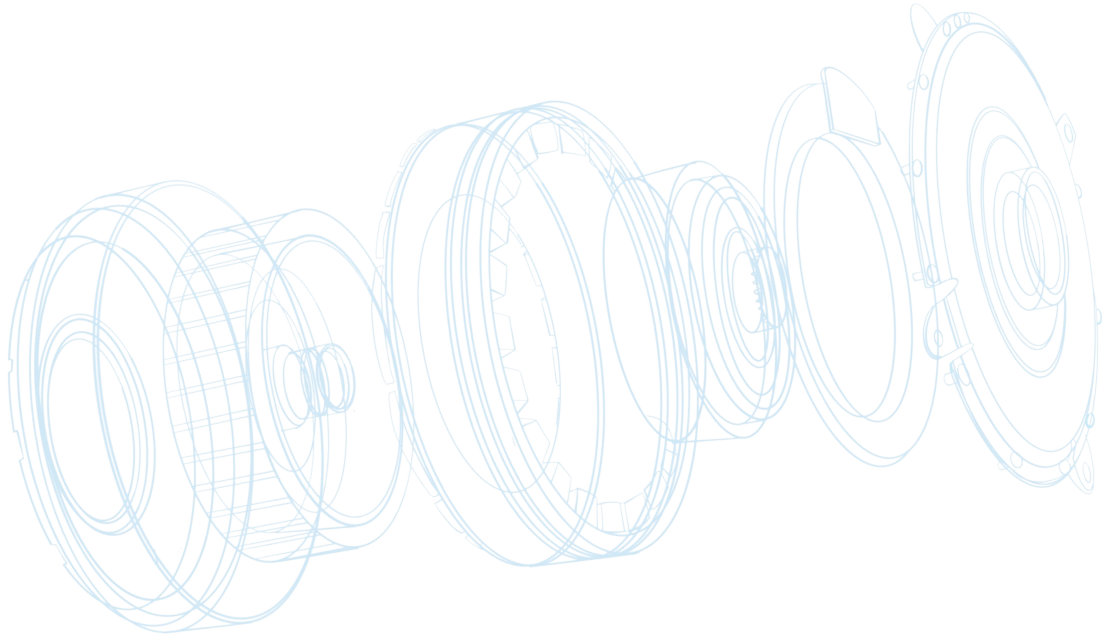
The main characteristics of the adhesive (EW6620 series)

- High thermal conductivity 1-2W/(m.k)
- Good wettability
- Low shrinkage, and thermal expansion
- Excellent anti-breakage ability

Expected Benefits:

- Excellent electrical insulation and improved power
- The high heat dissipation achieved through potting enables the motor to operate at lower temperatures, providing superior durability
- Greatly reduce vibration and noise
- Improve mechanical stability and structural strength
- Simplify the process

Feature	EW6620-10	EW6620-1.5	EW6620-20	Feature
uncured	Viscosity after mixing[mPa·s] Brookfield LVDV	25°C/14#/20rpm: 73,00060°C/14#/20rpm: 7,70080°C/14#/20rpm: 3,200	25°C/14#/10rpm: 75,00060°C/14#/20rpm: 7,80080°C/14#/20rpm: 3,400	25°C/14#/20rpm: 84,00060°C/14#/20rpm: 8,30080°C/14#/20rpm: 3,500
	Density after mixing[g/cm ³]	2.59	2.61	2.73
	Curing conditions	2hr@100°C + 3hr@150°C + 1hr@180°C	2hr@100°C + 3hr@150°C + 1hr@180°C	2hr@100°C + 3hr@150°C + 1hr@180°C
cured	Hardness	Shore D97	Shore D97	Shore D92
	Thermal conductivity[W/m·K]	1.0	1.5	2.0
	Tg[°C]	158	158	163
	CTE below Tg [ppm/K] CTE above Tg [ppm/K]	1873	1873	1858
	Yang modulus[GPa]	5.3	5.7	5.2
	Shear strength[MPa]	13	13	13
	Tensile strength[MPa]	18	18	18
	Volume resistivity[ohm·cm]	>1×10 ¹⁴	>1×10 ¹⁴	>1×10 ¹⁴
	Insulation performance[kV/mm]	20	15	15
	Temperature[°C]	-40~180	-40~180	-40~180



MCOTI

MCOTI Technologies
Adhesive Supplier



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