

ELASTOSIL®

POWERSIL®

SEMICOSIL®

SILRES®



MOBILITY

e-NOVATION FOR ELECTRIC DRIVING POWERED BY SILICONES



THE POWER OF e-MOBILITY



The need to develop energy-efficient and environmentally-friendly drive technologies has led to the development of different motor concepts, ranging from mild hybrids to the full electric vehicle. This creates new challenges for the materials used. WACKER's advanced silicone products are a perfect fit for these new motor environments. They resist mechanical and thermal stress, thus minimizing the risk of operational failure. Additionally, they allow for fast production processes.

e-Novation is Our Business

As a long-term partner of the automotive industry, we are familiar with the challenges posed by e-mobility and dedicate our strength in R&D to solving them. At our state-of-the-art technical centers, we support you in developing formulations for new products or optimizing your existing ones. Rely on first-class service, provided by a strong, worldwide partner.

**Let's power up the future.
Let's put the wheels on e-Mobility.**

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DRIVEN BY RELIABILITY AND INNOVATION

Silicones are perfect for automotive applications, particularly for electric drive technologies. Compact designs result in temperature as high as 200 °C in the electric motor. Silicone products are essential here.

WACKER silicones solve the challenges of e-machines for hybrid or fully electric driving

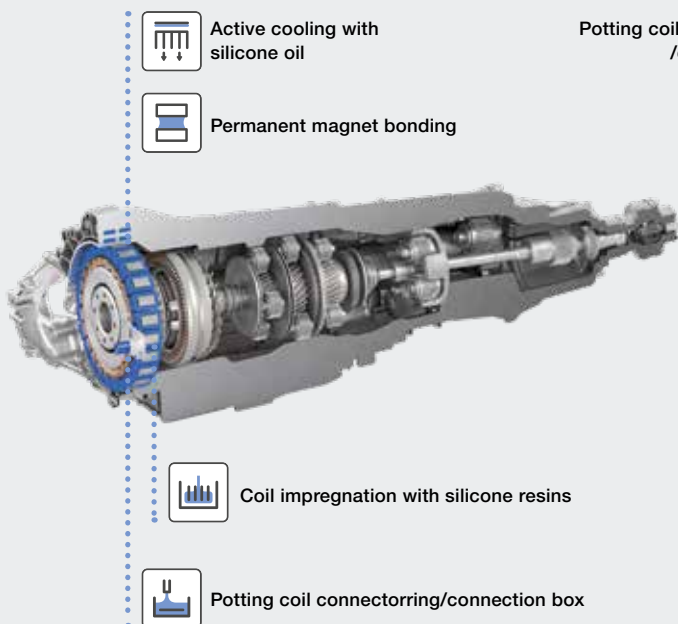
- Protection of engine components against moisture, environmental impacts, chemicals, coolants and fluids
- Vibration damping (from -45 °C up to >180 °C)
- Heat resistance (from 180 °C up to 230 °C continuous load) and active cooling support
- Longer life and performance of electric insulation over broad temperature and frequency range

Silicones for Electric Driving

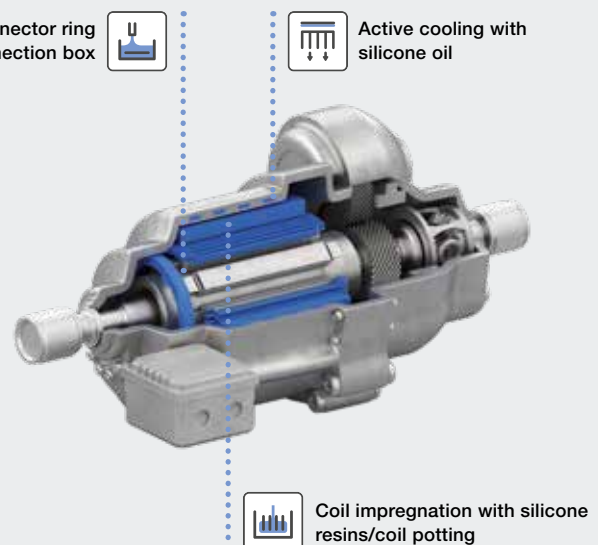
- Impregnation of electrical coils (rotor/stator) with silicone resins
- Coil potting with silicone elastomers
- Active cooling with silicone fluid
- Protection of electrical connections by potting junction boxes and connector rings with silicone elastomers
- Permanent magnet bonding with high tear-strength silicone adhesives

Silicone Application Fields

Gear Box Mounted Hybrid Module



Direct Drive



PRODUCT OVERVIEW

SILICONES FOR e-MOTOR

Coil Potting

Flexible, conductive silicone encapsulants for reliable thermal management

Product	Features	Curing Type	Curing Initiated by	Product Type	Thermal Conductivity [W/mK]	Viscosity, 25 °C [mPa·s]	Potlife, 25 °C	Hardness Shore A	Tensile Strength [N/mm ²]	Max. Elongation [%]	Density, cured [g/cm ³]	Linear CTE [m/(m·K)]	Dielectric Strength [kV/mm]	Volume Resistivity IEC 60093 [Ωcm]	Rel. Permittivity [ε]	Recommended Max. Temp. for Continuous Operation [°C] ¹	Color
ELASTOSIL® RT 607*		Addition	RT or higher	2-part, 9:1	0.6	12,000	80 min	55	3.0	100	1.43	200·10 ⁻⁶	> 23	> 10 ¹⁴	3.7	210	Reddish brown
ELASTOSIL® RT 675*		Addition	RT or higher	2-part, 9:1	1.2	50,000	150 min	80	2.0	20	2.30	150·10 ⁻⁶	> 23	> 10 ¹⁵	5.0	180	Reddish brown
ELASTOSIL® RT 744 TC		Addition	50 °C or higher	2-part, 10:1**	1.0	9,500 (D=1 s ⁻¹)	20 min	70	3.1	70	2.2	110·10 ⁻⁶	> 23	> 10 ¹⁵	5.3	180	White
ELASTOSIL® RT 747 TC	LOI > 40%; conforms to UL94 V-0	Addition	130 °C or higher	1-part	1.4	45,000 (D=0.5 s ⁻¹)	6 months	70	2.0	50	2.45	120·10 ⁻⁶	> 23	> 10 ¹⁵	5.5	180	White

* Products may require WACKER® PRIMER G790 TOLUENE FREE to improve adhesion

** Base component to be combined with ELASTOSIL® CAT PT or ELASTOSIL® CAT PT-F to allow curing at room temperature or under heat (For details, please see product's technical data sheet.)

Coil Impregnation

Durable silicone resins for optimal coil protection

Product	Features	Curing Type	Curing Initiated by	Product Type	Thermal Conductivity [W/mK]	Viscosity [mPa·s]	Gelling Time	Hardness Shore D	Flexural Strength [N/mm ²]	Density, cured [g/cm ³]	Linear CTE [m/(m·K)]	Dielectric Strength [kV/mm]	Volume Resistivity IEC 60093 [Ωcm]	Rel. Permittivity [ε]	Recommended Max. Temp. for Continuous Operation [°C] ¹	Color
SILRES® H60	Optimized for trickling impregnation	Addition	150 °C or higher	2-part, 10:1	0.2	900 (25 °C)	12 min / 150 °C	65	30	1.16	180·10 ⁻⁶				210	Yellowish
SILRES® H62 C	Optimized for VPI or dipping impregnation; RTI: 239°C (25,000 hrs); conforms to UL94 V-0	Addition	180 °C or higher or UV*	1-part	0.2	1,000 (25 °C)	26 min / 200 °C	65	30	1.16	180·10 ⁻⁶	82	1.8·10 ¹⁷	2.5	230	Yellowish
SILRES® H68 TC	Optimized for trickling impregnation; LOI > 40%; conforms to UL94 V-0	Addition	120 °C or higher	2-part, 10:1	1.0	6,500 (60 °C; D=1 s ⁻¹)	5 min / 150 °C	80	35	2.60	100·10 ⁻⁶				210	White

* Fast-curing I/UV version available on request

¹ Temperature stability is highly dependent on the specific application conditions. We therefore recommend performing tests that take into account the actual application conditions..

PRODUCT OVERVIEW

SILICONES FOR e-MOTOR

Bonding of Permanent Magnets

Fast-curing silicone adhesives for long-lasting bonding applications

Product	Features	Curing Type	Curing Initiated by	Product Type	Viscosity, 25 °C [mPa·s]	Potlife, 25 °C	Hardness Shore A	Tensile Strength [N/mm ²]	Max. Elongation [%]	Tear Resistance [N/mm]	Siloxane Content D4-D8*	Recommended Max. Temp. for Continuous Operation [°C] ¹	Color
ELASTOSIL® RT 722	UV fluorescent; curing at moderate temperature; advanced level of cohesive strength	Addition	85 °C or higher	2-part, 1:1	Non-slump	6 h	45	6.0	300	6.0	< 350 ppm	180	Gray
ELASTOSIL® RT 702	Highly heat stable	Addition	130 °C or higher	1-part	Non-slump	6 months	40	6.1	500	10.1	> 350 ppm	250	Black
SEMICOSIL® 988/1K		Addition	130 °C or higher	1-part	Non-slump	6 months	35	4.5	350	24.0	> 350 ppm*	180	Translucent
SEMICOSIL® 811	UV fluorescent	Addition	RT or higher/UV	2-part, 10:1**	Non-slump	45 min/32 min/ 0.5 min**	30	3.3	330	8.3		180	Translucent

* Low volatile version available on request

** Base component to be combined with ELASTOSIL® CAT PT, ELASTOSIL® CAT PT-F or ELASTOSIL® CAT UV to allow curing at room temperature, under heat or by UV light (For details, please see product's technical data sheet.)

Potting of Electrical Component Parts

Flowable, self-adhesive silicone encapsulants for a safe protection of connector ring, connecting box and soldering or welding points

Product	Features	Curing Type	Curing Initiated by	Product Type	Viscosity, 25 °C [mPa·s]	Potlife, 25 °C	Hardness Shore A	Tensile Strength [N/mm ²]	Max. Elongation [%]	Density, cured [g/cm ³]	Siloxane Content D4-D8*	Recommended Max. Temp. for Continuous Operation [°C] ¹	Color
ELASTOSIL® RT 720	UV fluorescent; curing at moderate temperature; advanced level of cohesive strength	Addition	85 °C or higher/UV*	2-part, 1:1	35,000	6 h	40	6.0	300	1.10	< 350 ppm	180	Gray
ELASTOSIL® RT 772		Condensation	RT	2-part, 10:1**	32,500***	5 min/10 min**	35	2.2	200	1.26	> 350 ppm	230	Black
ELASTOSIL® RT 705		Addition	130 °C or higher	1-part	72,500	6 months	42	3.5	200	1.24	> 350 ppm	230	Black

* UV curing version available on request

** Base component to be combined with WACKER® Catalyst T 77 or WACKER® Catalyst T 77 PLUS (For details, please see product's technical data sheet.)

*** Mixing viscosity with WACKER® Catalyst T 77 or WACKER® Catalyst T 77 PLUS (mixing ratio 10:1, in parts by weight)

Active Cooling of Electrical Devices

Silicone fluid with excellent viscosity temperature index for optimal cooling of batteries, motors and power modules – both at cold start and under maximum load

Product	Product Type	Recommended Operational Temperature Range [°C]	Viscosity, 25 °C [mm ² /s]	Viscosity, 50 °C [mm ² /s]	Viscosity, -40 °C [mm ² /s]	Flash Point [°C]	Ignition Temperature [°C]	Breakdown Voltage [kV]	Rel. Permittivity, 90 °C/50 Hz	Specific Volume Resistance, 90 °C [Ωcm]	Specific Heat Capacity	Thermal Conductivity [W/mK]
POWERSIL® Fluid TR 50	Silicone fluid	-50 to +150 °C	50	35	150	> 240	> 340	> 40	2.55	> 10 ¹³	1.7J/(g·K)	0.15
WACKER® AK 20	Silicone fluid	-50 to +150 °C	20	10	70	> 240	> 340	> 40	2.55	> 10 ¹³	1.7J/(g·K)	0.15

¹¹ Temperature stability is highly dependent on the specific application conditions. We therefore recommend performing tests that take into account the actual application conditions.



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