Conductive Silicone Adhesives

Limitless Shieldings silicone conductive adhesives are single component, electrically conductive adhesives comprising of a silicone paste filled with electrically conductive particles. It is a room temperature vulcanizing (RTV) adhesive and sealing material that cures in the presence of atmospheric moisture.

This adhesive is specially formulated with a high quality, non-toxic, non-corrosive silicone material that will form a cured skin within 60 minutes after exposure to atmospheric moisture without the formation of corrosive by-products. This material will remain flexible and conductive and can be used in environments where temperatures range from -55°C to 160°C without degradation of physical or electrical properties.

The adhesive is in the form of a thixotropic paste that can be applied to vertical surfaces without sagging. It can be applied manually or as a form-in-place application to attach shielding windows to frames or bezels, bonding conductive elastomer gaskets, and for providing EMI and environmental protection as a sealant.

Applications

- Vibration and/or shock resistant sealant/adhesive for electronic assemblies
- Environmental Sealing (IP68 Possible)
- ESD control/grounding
- Electrical connection/bonding of materials with dissimilar thermal expansion coefficients i.e. mounting shielded windows EMI shielding with environmental sealing (IP68 possible)

Available Sizes

Our adhesives are available 10cc, 30cc, 55cc, 170cc, 310cc
(Manual or pneumatically dispensable syringes and cartridges)

Storage

It is recommended that when not in use that the material is stored in a cool dark, dry place. If the facility exists then some form of refrigerated or freezer storage is ideal.

If kept properly sealed and in a suitable location then the material will remain usable for up to 4 months.

Design Considerations

- Service conditions
- Compatibility with substrate
- Galvanic compatibility
- Rigid or flexible bond

Ordering Information

<Part number>-<Size>
(e.g. <part number>-310 for a 310cc cartridge of silver aluminium adhesive)

Instructions For Use

Surfaces should be clean dry and sound i.e. free from loose material.

It is recommended that areas to be bonded are cleaned using a suitable solvent prior to applying the sealant.

To ensure the highest level of electrical or shielding performance it is essential that the surfaces to be bonded have a low contact resistance. This means that materials that have a naturally occurring oxide layer such as aluminium alloys may need to be lightly abraded and cleaned directly prior to bonding.

Once the adhesive has been applied to one surface, assemble the parts as soon as possible. Ideally within 5 minutes. In most cases parts may be handled after 12 hours but avoid stressing the joint until full cure has been achieved. Cure rate may be controlled by means of temperature. The adhesive will fully cure within 3 hours at 60°C. If curing at elevated temperatures be careful to avoid excessive adhesive outflow due to the uncured adhesive viscosity reducing during the curing process.

Excess material should be removed by means of a spatula or similar implement. Smaller traces of the uncured material may be removed by wiping with a lint free cloth damped with methylated spirit, isopropyl alcohol or MEK taking care to observe the safety precautions required in using flammable/ harmful solvents of this type. A priming agent can be used for treating some difficult to bond surfaces.

Handling

When using this material observe usual standards of hygiene/practice. Avoid skin and eye contact, and work in a well-ventilated area. For more detailed information refer to the Material Safety Data Sheet

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Data Table

	Nickel Plated Graphite	Silver Plated Aluminium	Silver Plated Copper
Colour	Dark Grey	Light Tan	Tan
Cure Time	12 Hours	12 Hours	12 Hours
Density	2 gcm	2 gcm	2.7 gcm
Hardness	60 Shore	60 Shore	60 Shore
Volume Resistivity	<0.01 ohm/cm	<0.01 ohm/cm	<0.01 ohm/cm
Adhesion	>100Ncm	>100Ncm	>100Ncm
Attenuation 100MHz to 10 GHZ	80-115dB	80-115dB	80-115dB
Elongation	100%	100%	100%
Temperature Range	-55 to 150°C	-55 to 150°C	-55 to 125°C