

3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720

Product Description

3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 - one of 3M's ECATT (Electrically Conductive Adhesive Transfer Tape) products - is a thin (ca. 30um thickness) and isotropically electrical conductive pressure sensitive adhesive tape. 3M ECATT 9720 conducts electricity through the thickness (Z-axis) and in the plane of the adhesive (X-Y planes). It is ideal for EMI/RFI shielding/grounding and EMI/RFI gasket attachment to metal surfaces (including metal plated substrates) in electronic and electrical devices. The tape consists of a high performance 3M adhesive loaded with conductive particles and scrim fibers. The result is a double-sided tape providing both higher adhesion and better electrical performance (lower surface resistance) than previous 3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape. The conductive scrim fibers in 3M ECATT 9720 also provide good handling characteristics.

3M ECATT 9720 may be used with many types of foil laminate shields, such as aluminum/PVC or copper/PVC laminates, to provide a customized shielding/grounding solution. This tape may also be used to attach conductive fabric/ foam core EMI gaskets to electronic cabinetry. 3M ECATT 9720 may be applied in strips or die cut to specific shapes and sizes. Compared to screws or other mechanical fasteners/connectors, 3M ECATT 9720 provides reduced assembly time and a solid bond line with no gaps which might result in EMI emission.

Construction

| Product | 3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 |
|----------------|--|
| Adhesive Type | Filled Acrylic |
| Filler Type | Conductive Particles and Scrim Fibers |
| Tape Thickness | 0.030 mm (0.00119 in.) ± 0.010 mm (0.0004 in.) |
| Release Liner | Dual Liners with 50µm Transparent PET film (Easy side) / 75µm Blue PET film (Tight side) |
| Roll Length | Standard: 50MT Custom sizes can be supplied by request |



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Typical Physical Properties and Performance Characteristics

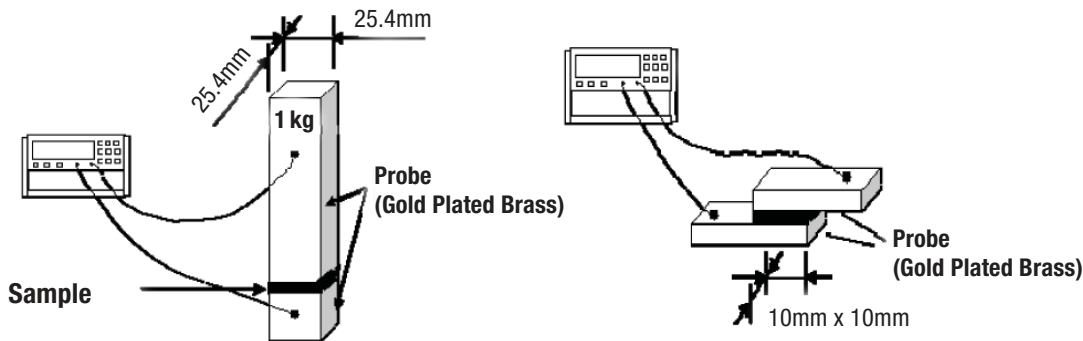
Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

| Product | 3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 | Test Method |
|---|--|---|
| Electrical Properties | | |
| Z-axis Resistance ¹ (1 inch x 1 inch) | < 0.1 Ω | 3M TS-EMC-0001 |
| Z-axis Resistance ² (10 mm x 10 mm) | < 0.5 Ω | 3M TS-EMC-0001 |
| Surface Resistance ³ | < 1.0 Ω / □ | 3M TS-KOR-939 |
| Outgassing | Total Mass Loss (TML): 1.0% Collected Volatile Condensed Material (CVCM): 0.02% Water Vapor Recovered (WVR): 0.25% | ASTM E-595 |
| Minimum Overlap Length | 3.0 mm | |
| Minimum Overlap Width | 3.0 mm | |
| Adhesion Properties | | |
| 180° Peel Adhesion (FS) ⁴ | 1.0 Kg / 25mm | 3M TS-EMC-0002 |
| 180° Peel Adhesion (BS) ⁵ | 1.0 Kg / 25mm | 3M TS-EMC-0002 |
| Operating Temperature Range & Shelf Life | | |
| Short Term Exposure (minutes, hours) | | Long Term Exposure (days, weeks) |
| 120°C | | 70°C |
| Shelf Life of Tape in Roll Form: | | 24 months from date of manufacture when stored in original cartons at 23°C and 50% relative humidity. |

¹Z-axis Resistance: Measured between gold plated brass probes with 1 kg load. Contact area: 25.4 mm x 25.4 mm, Dwell time: 60 seconds.

²Z-axis Resistance: Measured between gold plated brass probes without load. Contact area: 10 mm x 10 mm, Dwell time: 60 seconds.

³Surface Resistance: Cu Plate size 25 mm x 25 mm. Dwell time: 10 seconds.



⁴180° Peel Adhesion (FS): 25 mm W x 200 mm L size sample, SUS substrate, Cross-head speed - 305 mm/min. FS means faceside, non-liner side (tape inside.) Test after 1 day dwelling at RT.

⁵180° Peel Adhesion (BS): BS means back side, liner laminated side.

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Application Techniques

- To obtain maximum adhesion, the bonding surfaces must be clean and dry. Isopropyl alcohol is recommended as a cleaning solvent.*
- Bond strength is dependent upon the amount of adhesive-to-surface contact developed. This wetted area can be increased by applying 3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 firmly with a roller or finger pressure to exclude air entrapment. Adhesion is optimized when the substrates are flat or conformable substrates. Adhesion increases after application, up to 24 hours later, due to increased wetting by the tape.
- Electrical performance is dependent upon the nature of the metal and its surface. Most metal surfaces give enhanced electrical performance with 3M ECATT 9720 when the surface has been lightly abraded. Scotch-Brite™ pads are recommended for preparing the metal surface.
- 3M ECATT 9720 should be applied between 17°C - 35°C. Tape application below 10°C is not recommended because the adhesive will be too firm to wet the substrates, resulting in low adhesion. Warming the substrates to 38°C facilitates adhesion. Once properly applied, low temperature holding power is generally satisfactory.
- 3M ECATT 9720 can be removed by separating the parts using torque for rigid parts or peel for flexible ones. Remove the adhesive by pulling off as much as possible by hand. Residual adhesive may be removed by rubbing with your finger or by application of 3M™ Packaging Tape over the residual adhesive followed by removal of the packaging tape. The surfaces should be cleaned again before applying a new piece of 3M ECATT 9720. The force required to separate the parts and/or remove the adhesive can be reduced by softening the adhesive by heating to 70°C - 100°C or using solvents such as acetone.*

***Note:** Carefully read and follow the manufacturer's precautions and directions for use when handling cleaning solvents.

General Information

3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 provides good adhesion to most metal surfaces and provides low electrical resistance that is stable over time. The pressure sensitive nature and fiber reinforcement of 3M ECATT 9720 makes this product convenient to use and 3M ECATT 9720 also has very good handling properties including good liner release.

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Application Ideas

- **Attaching Foil Laminate EMI Shields**

3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 is ideal for attaching foil laminate EMI shields to electronic and electrical devices. These shields typically consist of either copper or aluminum foils laminated to PET or PVC. 3M ECATT 9720 provides good adhesion (initial and ultimate) as well as low electrical resistance. 3M ECATT 9720 may be applied in strips or die cut to specific shapes and sizes. Compared to screws or other mechanical connector, 3M ECATT 9720 provides reduced assembly time and a solid bond line with no gaps for EMI emission.

- **Attaching EMI Gaskets**

3M ECATT 9720 may also be used for attaching EMI gaskets to electronic cabinets, such as server cabinets or disk drive array cabinets. These gaskets typically consist of conductive fabric over a foam core, and come in a variety of shapes and sizes. 3M ECATT 9720 may be cut into strips as narrow as 3mm width to provide adhesion for even the narrowest of gaskets. 3M ECATT 9720 may also be pre-applied to the gasket for reduced final cabinet assembly time.

- **Grounding Mobile Hand Held and Flat Display Panel**

Key pads and display modules in Mobile Hand Held devices and Flat Display Panels as LCD and PDP need to be electrically attached to the grounding mechanism. 3M ECATT 9720 penetrates through some specially functioned layers as anti-smudge and anti-reflection coatings over the conductive layer to make an electrical connection. Placing 3M ECATT 9720 along the edges of such a screen provides many connection points to the antistatic coating resulting in good electrical performance.

- **Assembly of EMI Cages in Telecommunications Equipment**

3M ECATT 9720 is ideal for assembly of an EMI cage to PCB (printed circuit board), often required in telecommunications equipment. The EMI cages are typically constructed from aluminum frames and lids to protect components on the PCB from EMI/RFI. 3M ECATT 9720 is applied as a die cut in the shape of the etched perimeter trace, then the frame is bonded to the perimeter trace. 3M ECATT 9720 provides for rapid assembly and grounding in one step. Compared with solder attach or liquid conductive adhesive attachment of the EMI cage, 3M ECATT 9720 reduces assembly time and exposure to elevated temperatures.

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Certification/Recognition

MSDS: 3M has not prepared a MSDS for this product which is not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, the product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements.

RoHs Complaint/REACH Compliant: 3M™ XYZ-Axis Electrically Conductive Adhesive Transfer Tape 9720 complies with the European Union's "Restriction of Hazardous Substances" (RoHs) initiative and with European REACH regulations 2002/95/EC and 2005/618/EC.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-251-8634. Address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 651-778-4244 or 1-877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

Important Notice

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60-5002-0432-0

