



Technical Data Sheet

3M™ VHB™ Architectural Panel Tape B90F



[Product Details](#)



[Regulatory Info/SDS](#)

Product Description

Finite Element Analysis (FEA) data is available for this product at: 3m.com/FEA

3M™ VHB™ Architectural Panel Tapes are durable, high performance double-sided pressure sensitive acrylic foam tapes. These tapes have been used for many applications in the construction industry, including the manufacture of architectural panels for curtain walls, exterior building cladding and interior panel and trim attachment. In many situations, 3M™ VHB™ Architectural Panel Tapes can replace rivets, spot welds, liquid adhesives, sealants and other permanent fasteners and provide immediate handling strength during the fabrication process.

Technical Information Note

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

Typical Physical Properties

| Attribute Name | Test Method | Value |
|----------------------|-------------|---|
| Adhesive Type | | Multi-purpose |
| Adhesive Carrier | | Acrylic Foam (closed cell) |
| Total Tape Thickness | ASTM D3652 | 2.3 mm (90 mil) |
| Density | ASTM D3574 | 720 kg/m ³ (45 lb/ft ³) ¹ |
| Liner | | Film |
| Color | | Black |
| Primary Liner Color | | Red (printed) |

¹ Foam with adhesive

Typical Performance Characteristics

Temperature: 22 °C (72 °F)

| Attribute Name | Test Method | Substrate | Value |
|------------------------|-------------|-------------------|-----------------------------------|
| 90° Peel Adhesion | ASTM D3330 | Anodized Aluminum | 52.5 N/cm (30 lb/in) ¹ |
| Overlap Shear Strength | ASTM D1002 | Anodized Aluminum | 450 kPa (65 lb/in ²) |
| Normal Tensile | ASTM D897 | Aluminum T-block | 480 kPa (70 lb/in ²) |

¹ 12 in/min (300 mm/min)

Static Shear

Test Method: ASTM D3654

| Temperature | Value |
|----------------|--|
| 22 °C (72 °F) | 1000 g/3.2cm ² (2.2 lb/0.5 in ²) ¹ |
| 66 °C (150 °F) | 500 g/3.2cm ² (1.1 lb/0.5 in ²) ¹ |
| 93 °C (200 °F) | 500 g/3.2cm ² (1.1 lb/0.5 in ²) ¹ |

¹ Holds 10,000 min.

| Attribute Name | Value |
|-----------------------------------|------------------------------|
| Minimum Application Temperature | 15 °C (60 °F) |
| Short Term Temperature Resistance | 121 °C (250 °F) ¹ |

| Attribute Name | Value |
|----------------------------------|-----------------------------|
| Long Term Temperature Resistance | 93 °C (200 °F) ² |

¹ No change in room temperature dynamic shear properties following 4 hour conditioning at indicated temperature with 100 g/static load. (Represents minutes, hour in a process type temperature exposure).

² Maximum temperature where tape supports at least 250 g load per 0.5 in² in static shear for 10,000 minutes. (Represents continuous exposure for day or weeks).

Application Guidelines

Application Examples:

Typical applications include stiffener bonding, architectural panel bonding in cladding or curtain wall systems, interior panel bonding, break-metal bonding and decorative trim bonding. These tapes are not to be used for structural glazing applications.

Application Testing:

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Fabrication Guidelines:

A shop work environment is appropriate for bonding applications with 3M™ VHB™ Architectural Panel Tape. Tape application temperature should be at least 60°F (15°C). Field bonding may be considered if the exterior temperature meets this guideline. It is also important to provide adequate pressure to the tape after it has been applied to the first prepared substrate surface and after the two parts are joined together. A pressure of 15 lb/in² (100 kPa) or greater should be applied over the whole tape area to facilitate good contact of the adhesive to both substrates. Rigid surfaces may require 2 or 3 times more pressure to achieve >15 lb/in² (100 kPa) at the tape bond line. 3M channel partners are available to provide training of operators for 3M™ VHB™ Architectural Panel Tape bonding applications.

Design Considerations

Note: For tape area calculations the following guidelines can be used.

Dynamic Loads:

For dynamic tensile or shear loads, such as wind loads, a design strength of 12 lb/in² (85 kPa) is used for 3M™ VHB™ Architectural Panel Tapes. This design strength guideline provides a safety factor of at least 5 and was established based on material property testing as well as ASTM dynamic load testing for curtain wall applications.

Static Loads:

For static tensile or shear loads, such as dead weight loads with no mechanical support, snow loads and other long-term loads, a design strength of 0.25 lb/in² (1.7 kPa) is used for 3M™ VHB™ Architectural Panel Tapes. This means 4 in² of tape per 1 lb load (60 cm² of tape per 1 kg load) should be used to support constant stress loads. This guideline provides a safety factor of at least 5.

Differential Movement:

3M™ VHB™ Architectural Panel Tapes can tolerate shear movement up to 3 times its original thickness (300% shear strain). This means 0.090 in (2.3 mm) thick tapes can tolerate shear strain up to 0.27 in (6.9 mm), 0.062 in (1.6 mm) thick tapes can tolerate shear strain up to 0.19 in (4.8 mm), and 0.045 in (1.1 mm) thick tapes can tolerate shear strain up to 0.14 in (3.3 mm).

Force/Stress Types:

In general, when designing with 3M™ VHB™ Architectural Panel Tapes, forces acting on the tape should consist of either shear or tensile type stress loads. This allows the stress or force to be applied over the entire tape area. Applications placing cleavage or peel type stress on the tape should be avoided as this will place the stress on the leading edge of the peel or cleaving.

Storage and Shelf Life

3M™ VHB™ Architectural Panel Tapes have a shelf life of 24 months from date of manufacture when stored at 40°F to 100°F (4°C to 38°C) and 0-95% relative humidity. The optimum storage conditions are 72°F (22°C) and 50% relative humidity.

Available Sizes

| Attribute Name | Value |
|---------------------------|--|
| Core Size (ID) | 76.2 mm (3 in) |
| Normal Slitting Tolerance | ± 0.8 mm (± 1/32 in) |
| Standard Roll Length | 32.9 m (36 yd) |
| Standard Width | 15, 20, 25, 30 mm (1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4 in) |

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ISO Statement

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