



# VHB™ Acrylic Foam Tape

## V10, V41, V50 and V81

### Technical Data

August, 2019

#### Product Description

3M™ VHB™ Tapes provide the convenience and simplicity of a tape fastener and are ideal for use in many interior and exterior bonding applications. In many situations, they can replace rivets, spot welds, liquid adhesives and other permanent fasteners.

These 3M™ VHB™ Tapes are made with acrylic foam which is viscoelastic in nature. This gives the foam energy absorbing and stress relaxing properties which provides these tapes with their unique characteristics. The acrylic chemistry provides outstanding durability performance.

#### Construction

Product Number	V10	V41	V50	V81
Adhesive Type	Acrylic			
Tape Color	Clear	Gray	White	Gray
Density ( $kg/m^3$ ) (Foam Type)	960 (Solid)	720 (Conform)	800 (Firm)	650 (Very Conform)
Tape Thickness ( $mm$ )	1.0	1.1	1.1	0.8
Liner Type	Film	Paper	Paper	Paper

#### Typical Properties

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

Product Number	V10	V41	V50	V81
90° Peel Adhesion on Metal ( $N/cm$ ) ASTM D-3330	26	38	44	27
Dynamic overlap shear on Metal ( $N/cm^2$ ) ASTM D-1002	48	48	55	87
Temperature Resistance ( $^{\circ}C$ ) Shot Term (Minutes, Hours) Long Term (Days, Weeks)	149 93			

#### Available Size

Standard Widths and Lengths: 12 mm x 5 m and 18 mm x 3 m

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### Feature

- V10** VHB clear tapes is excellent for applications where clear or colorless is desired. The general purpose adhesive on both sides is suitable for high surface energy substrates.
- V41** The utilizes multi-purpose VHB tape on both sides of conformable foam. The adhesive provides excellent adhesion to a broad range of high and medium surface energy substrates including metals, glass, and a wide variety of plastics, as well as plasticized vinyl. The conformable foam provides good contact, even with mismatched substrates.
- V50** The general purpose VHB tape on both sides of firm type foam. This tape is typically used on metal, glass and high surface energy plastic substrates.
- V81** Very conformable foam, providing adhesion to the broadest range of low surface energy substrates, including most powder coated paints, polypropylene, polyethylene and concrete. Good contact with rough surfaces.
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### Application Techniques

the Surface Preparation Suggestions

- Most substrates common to VHB Tape applications are best prepared by wiping (in one direction) with a 70:30 mixture of isopropyl alcohol (IPA) and water.
- Where heavy oils or greases are present there may be a need to first cut the oil with a “degreasing” solvent, e.g. 3M Citrus Cleaner or white spirits, but this should always be followed with IPA/water cleaning to remove any residue.
- Abrasion of the surface will in many instances enhance adhesion by increasing the surface area available for bonding. Scuffing must be followed by cleaning with IPA/water mixture.
- The surface must be dry.

A good way to assess cleanliness is that a surface prepared for VHB Tape application should be as clean as one being prepared for painting.

Time/Temperature

- Bond strengths at the minimum application temperature will be achieved as follows:  
20 minutes 50%    24 hours 90%    3 days 100%  
Assemblies can be handled within 10 minutes but bonds should not be stressed before 72 hours
- Ideal application temperature range is 70°F to 100°F (21°C to 38°C). Pressure sensitive adhesives use viscous flow to achieve substrate contact area. Minimum suggested application temperatures is 60°F (15°C).

How much tape use?

In shear (e.g. holding a sign or panel to a wall) the suggested amount of tape to hold up 1 kg is about  $55\text{cm}^2$

These amounts of tape include a significant factor of safety to allow for the different properties of the tapes in the VHB Tape range. These amounts can be reduced by up to 50% depending on the tape type, if customer evaluation gives satisfactory results.

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**Shelf Life**

All 3M™ VHB™ Tapes have a shelf life of 24 months from date of shipment 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.

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**Technical Information**

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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**Product Use**

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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