



VHB™ Tapes

Design Guide for Metal Fabrication



*Proven worldwide since 1980 to
improve process, improve products*



Replace welds and rivets with 3M™ VHB™ Tapes to improve productivity

For 25 years, engineers have been specifying 3M™ VHB™ Tapes to permanently bond and seal many metals, plastics, and other surfaces for increased productivity, high strength, long term durability, and improved appearance.

PRODUCTIVITY

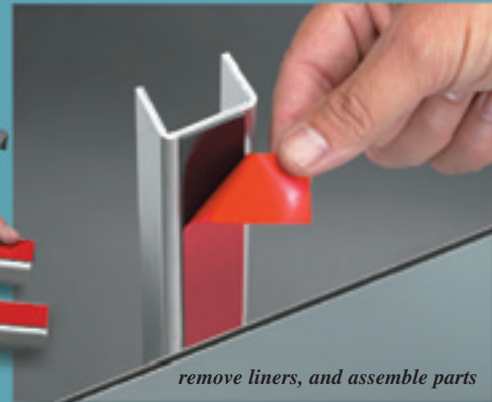
- Bond on contact with no drying time or fixturing
- Save processing steps and cost for drilling, screwing, welding, clean-up, and refinishing
- Easy-to-apply with minimal training and no investment in expensive application equipment



Prepare surface



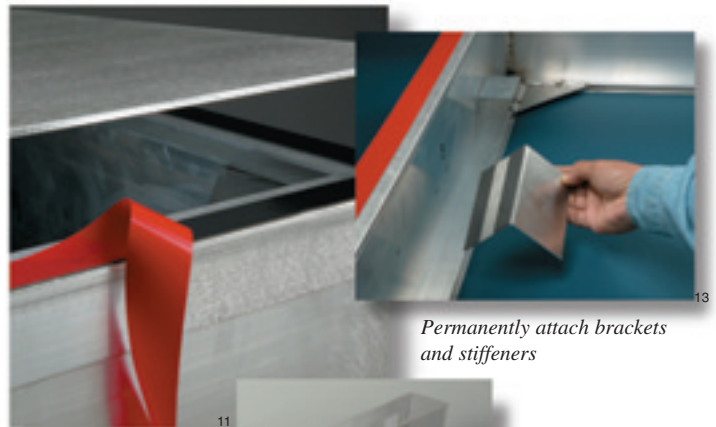
apply 3M™ VHB™ Tapes...



remove liners, and assemble parts

STRENGTH

- Bond with high holding strength for static and dynamic loads indoors and out
- Distribute stress evenly over a greater area unlike concentrated stress points of rivets and screws

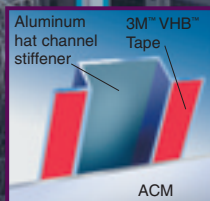


Permanently attach brackets and stiffeners

Permanently bond metal skin to enclosure frame

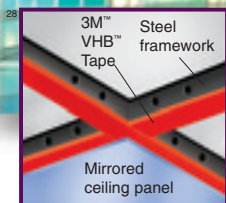
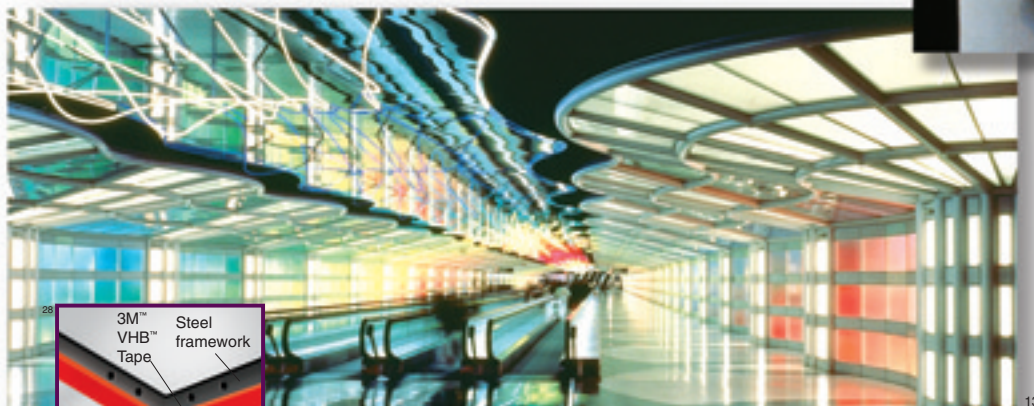


Permanently attach plastic pocket to enclosure panel

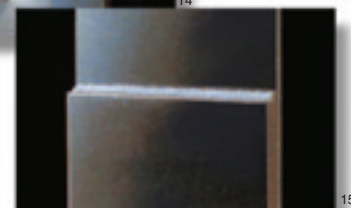


DURABILITY

- Viscoelasticity absorbs shock and flexing for long-term reliability against impact, vibration, gravity, and thermal expansion/contraction
- Seal against the environment



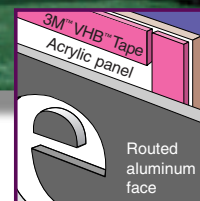
Hold reflective ceiling panels in O'Hare Airport since 1987.



Under equal stress conditions, metal panels bonded with VHB tape show no visible signs of stress compared to those with mechanical fasteners.

APPEARANCE

- Virtually invisible fastening helps keep surfaces smooth and clean to enhance design and appearance
- Join a wider variety of materials, even dissimilar materials, for high impact visual combinations



Surfaces remain aesthetically smooth with an acrylic panel bonded to a routed aluminum sign face or a polycarbonate window bonded into an equipment door.



Hat Channel Stiffener Cost Comparison

	Spot Welding	3M VHB Tape
Attachment Time	8 minutes (weld + refinish)	3 minutes (clean + apply)
Labor Cost	\$6.67	\$2.50
Material Cost	—	\$1.67
Total Cost	\$6.67	\$4.17
Savings per stiffener		\$2.50

Figures are estimates based on \$50 per hour labor burden rate and a 6 foot long hat channel stiffener.

3M™ VHB™ Tapes Product Information

Product Number	Tape Thickness w/o liner Mils (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas	Liner Type
				Minutes Hours	Days Weeks		HSE	LSE		
4926	15 (0.4)	Gray closed-cell acrylic foam carrier. Conformable. Good adhesion to many painted metals. Plasticizer resistant. UL 746C.	Acrylic	300°F (149°C)	200°F (93°C)	High	High	Med.	Bonds and seals pre-painted metals. Mount vinyl wiring ducts and conduit channels.	A
4936	25 (0.64)									A
4936F	25 (0.64)									B
4941	45 (1.1)									A
4941F	45 (1.1)									D
4956	62 (1.6)									A
4956F	62 (1.6)									B
4991	90 (2.3)	Black version of 4936 tape.								D
4919F	25 (0.64)									D
4947F	45 (1.1)									D
4979F	62 (1.6)									B
5925	25 (0.64)	Dark gray, closed-cell acrylic foam carrier. Conformable. UL 746C.	Synthetic	300°F (149°C)	200°F (93°C)	High	High	Med	Attach stiffeners and trim to bare metal panels. Good adhesion to many painted surfaces, including powder coated paint.	D
5952	45 (1.1)									D
5962	62 (1.6)									D
4611	45 (1.1)	Dark gray, closed-cell acrylic foam carrier. High temperature resistance. UL 746C.	Acrylic	450°F (232°C)	300°F (149°C)	High	High	Low	Pre-powder coat paint applications; hat channels and stiffeners.	D
4646	25 (0.64)									D
4645	62 (1.6)									D
4920	15 (0.4)	White, closed-cell acrylic foam carrier. All-purpose adhesive. UL 746C.	Acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Attach stiffeners in air conditioners, office furniture and telecommunications equipment. Attach stiffeners and trim to bare metal panels.	A
4930	25 (0.64)									A
4950	45 (1.1)									A
4955	80 (2.0)			400°F (204°C)	300°F (149°C)				Bond architectural signs to frames.	C
4959	120 (3.0)									C

NOTE: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Liner Types:

A – 3 mil 54# Densified Kraft Paper
B – 5 mil Clear Polyethylene Film

C – 2 mil Polyester Film
D – 5 mil Red Polyethylene Film

Relative Adhesion:

HSE – High Surface Energy
LSE – Low Surface Energy

For Additional Information: To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550. Address correspondence to 3M Industrial Adhesives and Tapes Division, 3M Center, Building 21-1W-10, 900 Bush Avenue, St. Paul, MN 55144. Our fax number is 651-778-4244.

Warranty: 3M warrants for 24 months from the date of manufacture, that 3M™ VHB™ Tape will be free of defects in material and manufacture. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This warranty does not cover damage resulting from the use or inability to use 3M VHB Tape do to misuse. workmanship in application, or application or storage not in accordance with 3M recommended procedures. **Important Notice:** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of these materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application. **Limitation of Remedies and Liability:** If the 3M™ VHB™ Tape is proved to be defective within the warranty period stated above, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M™ VHB™ TAPE. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.



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