

The 3M logo is displayed in its characteristic red, bold, sans-serif font.The VHB logo features the letters 'VHB' in a large, white, stylized font with a vertical line through the 'V'. Below it, the word 'Tape' is written in a smaller, white, sans-serif font, followed by 'Since 1980' in an even smaller font.

3M™ VHB™ TAPE SOLUTIONS FOR DISPLAY BONDING

The background of the advertisement is a photograph of a person's hands holding a smartphone up to take a picture of a display. The display shows a grid of small, colorful objects, possibly a product or a piece of art. The scene is lit with warm, golden light, and the background is blurred, showing other people in a crowd.

**Design with the
resilience our
world demands.**

What the world's top devices are made of.

Every day, in every corner of the world, devices are challenged to survive the most extreme conditions and hostile environments imaginable.

Using 3M™ VHB™ Tape in your design sets you free to create strong, long-lasting bonds that give enclosures — and the sensitive components beneath — an amazingly protective backup for the life of your product.

- ▶ Viscoelastic properties provide shock and vibration resistance
- ▶ Closed-cell foam technology seals out liquid and dust
- ▶ Conformable foam allows for enhanced design flexibility

Combined with the unprecedented advantages of our global reach, proven performance and support when you need it, 3M™ VHB™ Tape gives you the freedom to dream, design, deliver.

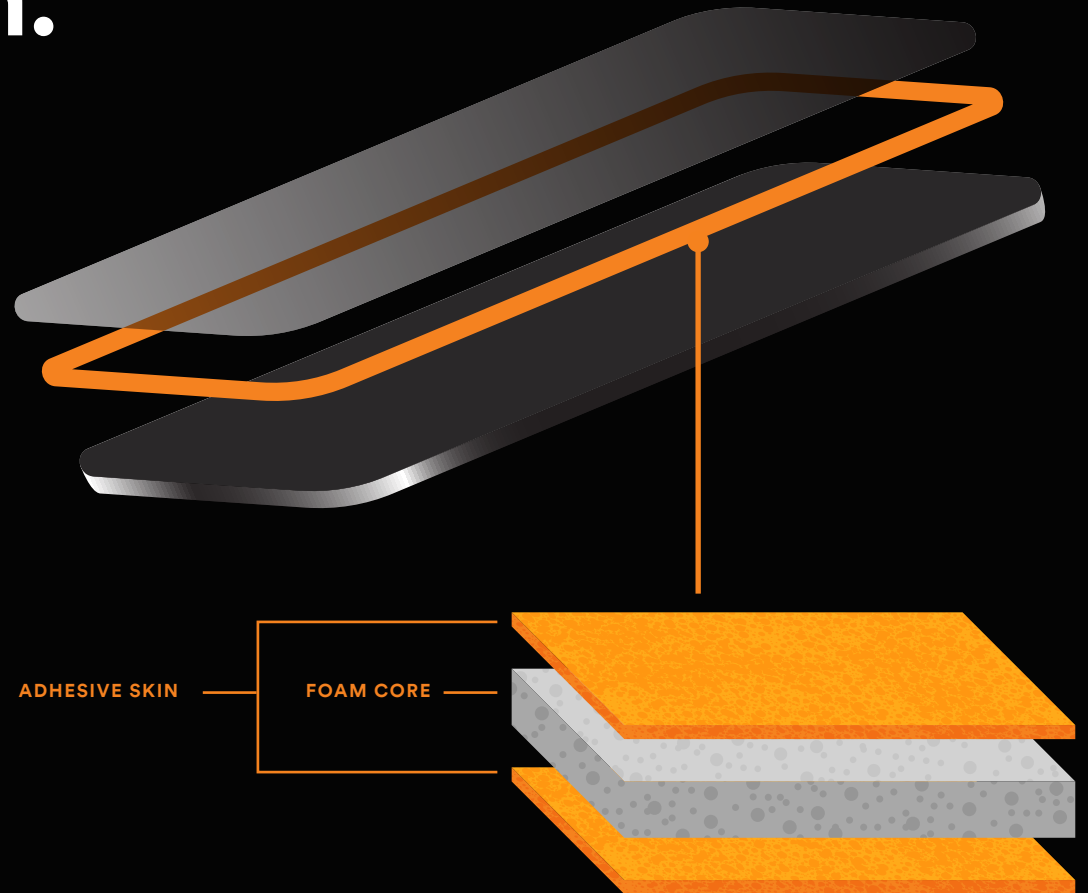


Stunning strength.

Ultra thin and uniquely protective, our high-strength, double-sided acrylic foam creates both an exceptionally tight seal and a long-lasting bond that actually get stronger over time.

Because it adheres to a wide range of substrates, 3M™ VHB™ Tape is ideal for:

- ▶ Smartphones: screens, cameras, back covers
- ▶ Tablet lenses
- ▶ Notebook bezels
- ▶ Automotive displays
- ▶ Speaker sealing
- ▶ Medical displays
- ▶ Wearable devices



3M™ VHB™ Tape's closed-cell foam technology provides both sealing and shock absorption.

ENERGY ABSORPTION FOR IMPACT RESISTANCE

Resists shattering.

Unlike polyethylene (PE) foam tapes with lower-density open cells that can merge and leak, 3M™ VHB™ Tape has 100% closed-cell foam with virtually no chance of cell wall rupture.

Furthermore, the energy-absorbing nature of 3M™ VHB™ Tape's viscoelastic properties provides multiple levels of benefit to handheld devices throughout the product's lifecycle:

- ▶ Impact resistance from drops
- ▶ A permanent seal against water, moisture and other contaminants

3M™ VHB™ Tape 864XX provides exceptional tensile impact resistance and sealing capabilities.



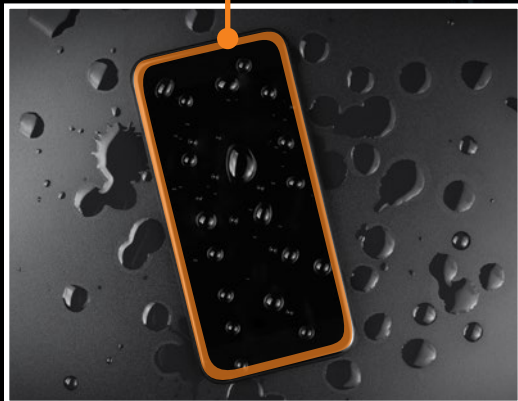
CLOSED-CELL TECHNOLOGY FOR MOISTURE &
CONTAMINANT PROTECTION

Withstand the storm.

Due to the closed-cell nature of 3M™ VHB™ Tape, it provides a high degree of protection against liquid (water) and solid particle (such as dust) intrusion of electronic enclosures.

Because the viscoelastic acrylic foam can both compress and expand throughout the life of your device, 3M™ VHB™ Tape forms a protective barrier against moisture and contaminants that simply won't quit.

Use 3M™ VHB™ Tape 590X for a good balance of drop resistance and peel adhesion.



3M™ VHB™ TAPE SOLUTIONS FOR DISPLAY BONDING

CONFORMABILITY & VERSATILITY
FOR STRIKING NEW DESIGNS

Reduce stress.

The unique combination of viscoelastic properties of the foam core and adhesive skin of 3M™ VHB™ Tape relieves stress and enables you to push the limits of your new designs.

The elastic memory of the acrylic construction allows it to elongate and relax when put under a load, then returns it back to its original state after the stress is removed, maintaining the integrity of the original design.



3M™ VHB™ Tape 5980 offers excellent peel and impact resistance and is available in black or white.

NOTEBOOK BEZEL BONDING

Holding power.

The acrylic foam core of 3M™ VHB™ Tape has a unique modulus that secures parts with strong holding power.

In cases where large displays can cause creep failure, the thick, solid core of 3M™ VHB™ Tape gives it more shear hold, lasting strength and energy-absorbing capabilities to isolate loads rather than transfer them.



3M™ VHB™ Tape 4914's firm construction delivers high holding power and easy convertibility. 3M™ Double Coated Tape 934XX offers high conformability, anti-lifting and easy die cutting.

3M™ LIQUID ADHESIVES

Create strength.

Narrow, high strength bond lines enable thin device designs that have excellent drop test performance. When designing for extremely narrow bond lines, look to the growing portfolio of 3M™ Liquid Adhesives, including polyurethanes (PUR) and epoxies.

Use precision dispensing for controlled bond line width and thickness. 3M™ Liquid Adhesives can provide immediate handling strength with PSA lamination yet retain reworkability after cure to allow for the recovery of expensive touch displays. These adhesives enable baseless lamination (adhesive laminated at the edge of glass) with high yield and are stackable to achieve high aspect ratio beads.

Choose 3M™ Plastic Bonding Adhesive 2665B and 2710p Black for bond lines below 0.5mm width.

AUTOMOTIVE DISPLAY BONDING

Designed for longevity.

Automotive products face a barrage of challenges, including dust and moisture intrusion as well as constant shock and vibration. The viscoelastic properties of 3M™ VHB™ Tape help absorb these dynamic stresses for bond reliability. And with no rivets, screws or bolts, it streamlines design, shaves weight, speeds assembly and reduces maintenance. Plus, it's virtually invisible in your final design.



Use 3M™ VHB™ Tape 590X for high impact resistance and excellent sealing.

Why choose 3M™ VHB™ Tape?

- ▶ Strong technical support
- ▶ Over 30 years of proven performance and industry innovation
- ▶ Global reach with labs and manufacturing sites around the world

3M™ VHB™ Tape has the strength it takes to give you the freedom to design and offers these major advantages over alternative foam bonding solutions:

Vs. General Purpose PE Foams

- ▶ Closed-cell technology seals out contaminants, moisture, chemicals
- ▶ Better stress relaxation for flexibility under strain
- ▶ Excellent shock and vibration control

Vs. Other Acrylic Foams

- ▶ Standard for leading smartphone brands
- ▶ Proven quality and technical service
- ▶ Global availability

3M offers a broad portfolio of adhesive solutions that are specified to meet your design and manufacturing needs. In addition to 3M™ VHB™ Tape, 3M offers:

3M™ Double Coated Tapes

- ▶ Thin profile
- ▶ Lower drop resistance compared to 3M™ VHB™ Tape
- ▶ Easy die cuttability

3M™ Liquid Adhesives

- ▶ Very narrow bond lines
- ▶ Compatible with dispensing equipment
- ▶ Excellent chemical resistance



3M™ Tape Solutions for Display Bonding

Each tape in the 3M™ VHB™ Tape family comes with its own set of strengths. For help solving your design challenge, contact a 3M rep at 1-800-362-3550.

	3M™ Thin Bonding Tape		3M™ VHB™ Tape				
Product #	950XX*, 951XX*	934XX*	4914	590X	864XX*	5980*	5981*
Key Feature	Thin Drop/ Push-Out	Conformable DCT Anti-Lift	Highest Shear	Balance Drop/ Peel Temperature	Tensile Impact	Balance Drop/ Anti-Lift Seal	Die Cutting Anti-Lift
Layers	Acrylic DCT/ATT	Rubber + Acrylic	Acrylic Foam	Acrylic Foam	Acrylic Foam	Acrylic Foam	Acrylic Foam PET
Thickness (µm)	50–100	200–300	150–3000	150–1600	150–300	150–300	200–400
Color	Black	Black	White	Black	Black	Black or White	Black
Tensile Impact	●●		●	●●	●●●	●●●	●●
Shear Impact	●	●	●●	●	●	●	●●●
Shear Hold	●	●	●●●	●●	●	●	●●
Peel Adhesion	●●	●●	●●	●●	●●	●●●	●●
Anti-Lifting	●	●●●	●●	●	●	●●	●●●
Push-Out	●●●	●	●●●	●●	●●	●●	●●●
Removability	●●	●●●	●●	●	●●	●●	●●●
Converting	●●●/●	●●	●	●			●●●
Waterproofing	●●	●●	●●●	●●●	●●●	●●●	●●●

GOOD ● BETTER ●● BEST ●●●

* Only available in Asia.

3M also offers a growing portfolio of liquid adhesives, including PUR and epoxies. Please contact a 3M rep for more details.





Product Selection and 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. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.



Industrial Adhesives and Tapes Division

3M Center, Building 225-3S-06
St. Paul, MN 55144 USA

Phone 1-800-362-3550

Web 3M.com/VHB