3M VHB Tape
4905

Product Description

3M™ VHB™ Tape 4905 is a 0.020 inch (0.5 mm) thick clear double coated solid acrylic tape with PE film liner. The general purpose acrylic adhesive on both sides bonds to a broad range of high surface energy substrates including metals, glass and easier to bond paints and plastics. The clear tape is good for bonding transparent or translucent materials or for applications where colorless is a benefit. 3M™ VHB™ Tape 4905 is part of the 4910 tape family. Each product in this family has a general purpose clear acrylic adhesive but varies in thickness.

Technical Specifications

Adhesive Type	Acrylic
Application	Glass Bonding, Decorative Material & Trim Attachment, Bonding Header Panel
Brands	VHB
Core Size (Imperial)	3 in
Foam Type	Firm, Conformable
Indoor/Outdoor	Indoor/Outdoor, Indoor
Industries	Metalworking, Signage, Transportation, General Industrial, MRO, Appliance, Electronics
Liner Material	Polyethylene Film, Paper
Maximum Operating Temperature (Celsius)	149 ℃
Maximum Operating Temperature (Fahrenheit)	300 ℉
Product Color	Transparent
Smallest Saleable Unit	Piece

Details

LONG-TERM DURABILITY: Offers a fast and easy-to-use all-acrylic bonding method that gives immediate handling strength — no need to wait for curing

HIGH-TEMPERATURE RESISTANCE: Offers excellent indoor and outdoor performance, withstanding long-term use at a temperature up to 200 °F (93 °C) and short-term applications at 300 °F (149 °C)

SMOOTH AND SEAMLESS: With a thickness of 40 mil (1.0 mm), this tape is designed as an alternative to mechanical fasteners, such as rivets, welds, and screws, or liquid adhesives

VERSATILE APPLICATIONS: Adheres to a variety of high surface energy (HSE) substrates with minimal surface preparation

Application Techniques

Initial and Final Pressure Application:
Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure develops better adhesive contact and helps improve bond strength. Typically, good surface contact can be attained by applying enough pressure to ensure that the tape experiences approximately 100 kPa (15 psi) of pressure.
Either roller or platen pressure can be used. When bonding two rigid parts, additional final pressure is often required to ensure that the bond line experiences 100 kPa (15 psi).

Tape Application Temperature:
The ideal tape application temperature range for 3M™ VHB™ Tapes is generally 21°C to 38°C (70°F to 100°F). Pressure sensitive adhesives use viscous flow to achieve substrate contact area. The minimum suggested application temperature for most 3M™ VHB™ Tapes is 10°C to 15°C (50°F to 60°F) *Note: Initial tape application to surfaces at temperatures below these suggested minimums is not suggested because the adhesive becomes too firm to adhere readily. Ideally, all substrates and tape should be conditioned above the minimum application temperature in covered, weatherproof conditions until it is verified the substrates are at or above the minimum temperature. Once properly applied, low temperature holding is generally satisfactory.

Bond Build Rate:
After application, the bond strength will gradually increase as the adhesive flows onto to the surface (also referred to as “wet out”). The bond build rate will depend on both tape and substrate, but generally, at room temperature, approximately 50% of ultimate bond strength will be achieved after 20 minutes, 90% after 24 hours, and 100% after 72 hours. Adhesive flow is faster at higher temperatures and slower at lower temperatures. Ultimate bond strength can be accelerated (and in some cases bond strength can be increased) by exposure to elevated temperature (e.g. 66°C [150°F] for 1 hour). This can provide better adhesive wet out onto the substrates. Abrasion (~180 grit), or the use of primers/adhesion promoters can also increase both bond strength as well as the bond build rate.

Storage and Shelf Life

Store in original cartons at 4-38°C (40-100°F) and 0-95% relative humidity. Optimum storage conditions are 22°C (72°F) and 50% relative humidity. When stored under proper conditions, product retains its performance and properties for 24 months from date of manufacture.