



Lamination of Tape to Part

Liner Removal Methods and Tabbing

Application Guidelines for 3M™ Acrylic Foam Tape and 3M™ Acrylic Plus Tape

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General Description Some taped parts are required to have a tab on the liner to facilitate liner removal by line operators. This is most commonly done using an extended liner tab, heat bond tab, or pressure-sensitive adhesive (PSA) tab.

Recommendations The most reliable tabbing method is the extended liner, followed by the heat-bond tab and then a PSA tab.

EXTENDED-LINER TABS

Extended-liner tabs are produced by leaving a small excess of tape past the end of the part. The tape is then removed from this area, leaving just the liner to be used as the tab. This is considered the most reliable because it does not require any secondary process to form the tab, and the liner is continuous. Pre-cut strips or die-cuts with extended liners can be also be ordered through a 3M preferred converter.

HEAT-BOND TABS

Heat bond tabs are formed by using heat and pressure to bond a film to the top surface of the liner near the end of the part. The most common heat-bond tapes used for this purpose are [3M™ Tabbing Tape 5400](#) and [3M™ Heat Tabbing Tape 5081](#). These are typically applied using the [WL-50 Heat Bond Laminator](#). The parameters of temperature, pressure, and dwell time are controlled to ensure a good bond of tabbing tape to the liner. Done properly, the tabbing tape forms a permanent bond to the liner. The table below shows the recommended process conditions for both tabbing tapes:

	3M Tabbing Tape 5400	3M Tabbing Tape 5081
Temperature	149 – 204 ° C (300 – 400 ° F)	150 – 170 ° C (302 – 338 ° F)
Time	0.2 – 2.0 sec	1 – 2 sec
Pressure	10 – 60 psi	~ 94 psi

The liners used on 3M™ Acrylic Plus Tape PT 1100 and PT 1500 are not receptive to heat bond tabbing without additional processing. See section on “3M™ Acrylic Plus Tape Heat-Bond Tabbing” for further information.

PRESSURE-SENSITIVE ADHESIVE (PSA) TABS

PSA tabs are made using a pressure-sensitive adhesive tape bonded to the end of the liner. For 3M Acrylic Foam Tapes, the most commonly used PSA tapes are [3M™ Tabbing and Splicing Tape 5300](#) and [3M™ Splicing Tape 4240](#). 3M Acrylic Plus Tapes require the use of [3M™ Tabbing and Splicing Tape 5699](#). Accurate placement and full contact are required when using a PSA tab. The reliability can be increased greatly with the use of an “over-under” tab – one that is folded and applied such that it contacts both sides of the liner.

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Troubleshooting

QUALITY CHECKS

When evaluating tab performance, care should be taken to minimize the amount of liner that is lifted and achieve full contact of the liner with the tape when replaced.

HEAT-BOND TABS

If one or more of the heat-bond settings (temperature, time or pressure) is too low, the tabbing tape will not adequately bond to the liner surface and the tabbing tape will peel from the liner during removal.

Excessive temperature and/or time may cause the liner to shrink or melt, which can cause the tabbed area of the liner to release from the tape and increase the chance of tape contamination.

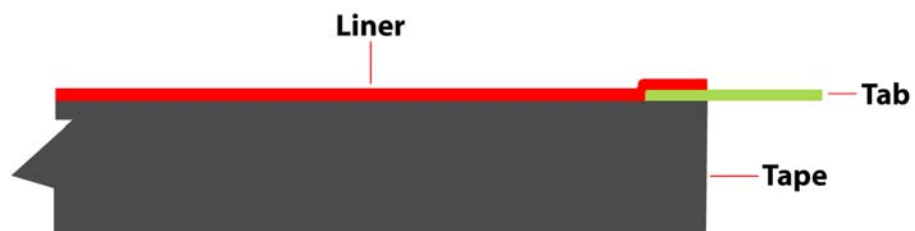
Excessive pressure coupled with higher temperatures could cause the 3M™ Acrylic Foam Tape to take a compression set – not allowing it to return to its original thickness. The reduced thickness may limit the ability of the tape to make full contact with the vehicle.

PSA TABS

PSA tape tabs require more precise placement in order to be reliable. PSA tabs should be applied such that the adhesive makes full contact, especially out to the leading edge of the liner. Ideally the tab should be oriented at an angle to encourage the liner to be pulled from one corner:



Under tabs, while taking longer to apply, are significantly more reliable than PSA tabs applied only the top surface of the liner. In this tab the leading edge of the liner is lifted and the tab is applied to the underside of the liner:



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3M™ Acrylic Plus Tape Heat-Bond Tapping Standard rolls of 3M Acrylic *Plus* Tapes will not accept a heat-bond tab with traditional methods. If no other tapping options exist, there are two solutions available:

TABBABLE TAPES

PT T tapes have been introduced to address this issue. These tapes, available in either planetary or levelwound rolls, employ a secondary liner that is removed during tape lamination to the part. The top surface of the liner that stays with the tape is receptive to standard heat-bond tapping methods. 3M recommends the use of [3M™ Heat Tapping Tape 5081](#) with these products (see previous “Heat-Bond Tabs” section).

LINER SCUFFING

The easy-release coating on 3M Acrylic *Plus* Tape liners can be removed effectively by scuffing the surface with a Scotch-Brite™ Wheel or 3M™ Radial Bristle Disc. This quick operation can then be followed with the standard heat-bond tapping operation. The [3M Tabber/Abrader UW500](#) performs these operations in a single step. This equipment is available through your 3M Tech Service representative.

[Debris generated by this operation should be handled similar to plant dust.](#)

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