



Plate Mounting Techniques for Cushion-Mount™ Plus Tapes with Easy Mount Adhesive

Technical Bulletin

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Description

3M™ Cushion-Mount™ Plus Tapes with Easy Mount Adhesive incorporate several unique features:

- Continuous micro channels in both adhesive surfaces allow the tape and plates to be mounted easily with virtually no air entrapment.
- A new plate side adhesive system is designed for excellent holding power during the press run and easy removal at the end of the press run

Flexographic plate mounting is a critical step in achieving optimum print quality. Using proper techniques in preparation, mounting and plate removal will allow the optimum performance of the mounting tape through the entire flexographic printing process.

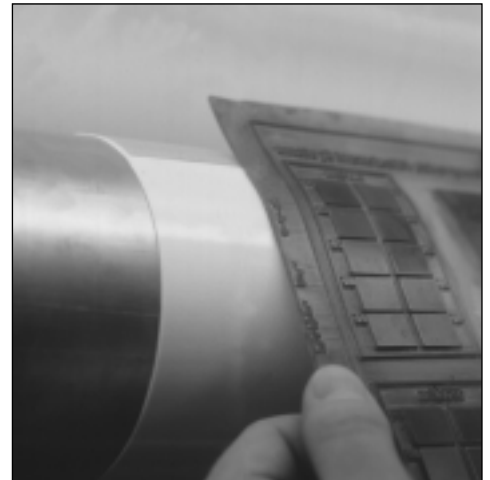
Plate Mounting – Surface Preparation

Proper surface preparation is important to ensure that the plate mounting tape will develop consistent and optimum adhesion between both the back of the photopolymer printing plate and the cylinder or sleeve.

Tools Needed:

- Razor blades
- Isopropyl alcohol (IPA) and water (50:50 mixture)
- Rags/wipes
- Hand roller or 3M™ PA-1 Wiper

Surface Inspection: Surface uniformity is important in developing consistent adhesion across the entire cylinder and plate. Scratches, nicks, dents and other surface abnormalities will create variation in adhesion levels. This variation may result in removability or flagging problems. Care and effort should be taken in maintaining a consistent uniform cylinder surface



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Plate Mounting – Surface Preparation (continued)

Cylinder or Sleeve Cleaning:

It is critical that the cylinder or sleeve surface be clean and free of contamination prior to mounting tape

- Thoroughly wash cylinders or sleeves using a 50:50 mixture of isopropanol* and water.
- If there is a significant build up of grease, oil, ink or other contaminants, a mild solvent should be used to cut the contamination, followed by a wash with 50:50 isopropanol* and water.
- Wipe surface with a clean, dry cloth.

Please note: Sleeve surfaces may absorb cleaning solvents and must be completely dry prior to mounting tape. Please consult your sleeve supplier for recommended cleaning solvents and procedures.

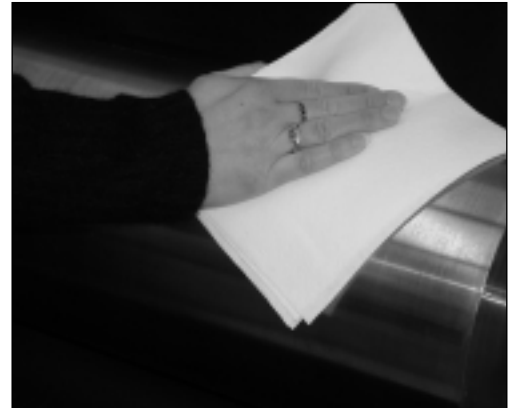


Plate Cleaning:

It is critical that the surface of the back of the plate, including new and previously run plates, be clean and free of contamination prior to mounting.

- Thoroughly wash back of plate using a 50:50 mixture of isopropanol* and water.
- If there is a significant build up of contaminants, a mild solvent should be used to cut the contamination, followed by a wash with 50:50 isopropanol* and water.
- Wipe surface with a clean, dry cloth.

Please note: New photopolymer plates may contain residues from the photopolymer plate making process. This residue can lead to plate lifting and must be removed prior to mounting plates. Wash using a 50:50 mixture of isopropanol* and water to remove this photopolymer residue.



***Note:** When using solvents be sure to follow manufacturer's directions and precautions for handling such materials.

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Plate Mounting – Application

Mounting Tape to Cylinder:

3M™ Cushion-Mount™ Plus Tapes with Easy Mount Adhesive have different adhesives on each side of the foam. Due to the different adhesives, these products should be mounted with the non-linered side to the cylinder first.

The continuous micro channels in the cylinder side (non-linered side) allow the tape to be easily applied to the cylinder with virtually no air entrapment.

- Apply tape to cylinder or sleeve by adhering the leading edge first.
- With the heel of your hand, apply tape to cylinder with a sweeping motion across the cylinder.
- Slowly turn the cylinder and continue to lay down the tape.

Application Pressure:

Apply pressure to mounting tape on the sleeve/cylinder to increase the contact area and adhesion using either:

- Hand-held rubber roller
- 3M™ PA-1 wiper



Mounting Plate to Tape:

Remove the film liner from the tape, mount and register the plate. The micro channels in the plate side adhesive allow the plate to be easily mounted to the tape with virtually no air entrapment.

- Using a rubber roller, roll down the entire plate surface, including image area, floor and especially the lead and trail edges of the plate.
- This will ensure uniform and intimate contact is achieved between the plate and the tape.



Trim excess tape:

The total tape area used should exceed the size of the plate by a minimum of 0.5 inches (12.7 mm) around the perimeter of the plate. Using a 0.5-inch margin of tape will help disperse the stress of plate memory and minimize plate lifting. Talcum powder can be applied to exposed tape to detackify the adhesive if necessary.

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Plate Edge Priming

Edge primers may be used to build the bond between the plate and the tape to prevent plate edges from lifting. This technique can be used for added confidence that plate edges will not lift on press.

- 3M™ Tape Primer 94 can be applied under the lead and trail edge of the plate to increase the tape adhesion to the plate.
- Use 3M primer 94 on small repeat lengths, thick plates, or long press runs to reduce the chances of plate lifting on-press.
- Follow the plate cleaning procedures described above.
- Shake 3M primer 94 well before using. Apply a thin, uniform coating to the bonding surface.
- Allow 3M primer 94 to dry thoroughly before applying tape. This is usually accomplished in 5 minutes at room temperature.
- Clean 3M primer 94 from the back of the plate after demounting using isopropanol.



Plate Edge Sealing

Edge sealing may also be used to prevent inks and other solvents from migrating between the tape and plate causing plate lifting during the press operation.

- 3M™ Jet-melt™ Low Melt Adhesive 3792LM can be applied to the perimeter of the plate to form a seal between the tape and plate.
- Use the 3M™ Polygun™ LT Applicator with an optional 3M™ Quadrack™ Converter Palm Trigger and the 9922 or 9785 applicator tip to deliver a thin bead of adhesive.
- To get a thinner bead, the tip can be ground at an angle. Alternate adhesives are 3M™ Jet-melt™ Low Melt Adhesive 3762LM and 3776LM.
- Jet-melt low melt adhesives cool quickly and can be removed easily by peeling, leaving a clean area to reapply. These adhesives are solvent free and are ready to go out to press immediately
- 3M™ Aluminum Foil Tape 425, 3M™ Vinyl Tape 471 and 3M™ Polyester Tape 850 can also be used as a barrier to help prevent ink and cleaning solvents from penetrating between the plate and the mounting tape.



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Removal Techniques

Upon removal of the plate/tape system from the cylinder or sleeve:

- First remove the plate from the tape.
- The plate should be removed using a natural 90° angle.
- Remove the plate at a natural removal rate.
- Slow removal rate will have the highest removal force, increasing removal rate will decrease the force required to remove plate.
- Then remove tape from the cylinder or sleeve.



Other Mounting Tips

Wrap Mounted Cylinder:

After the tape and plate have been bonded to the cylinder or sleeve a thin poly film should be tightly wrapped around the whole system. Wrapping the plate/tape/cylinder system helps reduce stress on the tape/plate bond by holding the plate against the tape to alleviate the stress induced by the plate's memory to return to its original flat geometry. Wrapping the system enables the plate/tape bond to build to its optimum level without the stress of the plate memory working against the adhesion bond. The cylinder should remain wrapped until it is installed in the press.

Bevel Plate Edges: Plate edges can be bevel-cut to minimize plate lifting.

Storage of mounted cylinder or sleeve should be in a controlled environment. Excess heat and humidity can significantly increase adhesion levels.

A solvent-based marker or adhesive primer can be used on plate edges or on sleeves to promote adhesion where lifting is occurring.

Cylinder/Sleeve Storage: Storage of mounted cylinders or sleeves should be in a controlled environment. Excess heat and humidity can significantly increase adhesion.

Forming a Butt Splice:

It is often necessary to cover the entire cylinder with tape, and a uniform butt splice is required.

- Allow tape edges to overlap.
- Cut through both layers of tape, angling the blade slightly away from tape edge.
- Remove the trimmed excess.



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Tips with Sleeves

Because many sleeves are thin and flexible, care must be taken to preserve the sleeve – tape – plate bond.

- Mount the tape while the sleeve is on the mandrel.
- Use minimum air pressure to inflate the sleeve. Too much air pressure causes the bond between the sleeve and tape or the tape and plate to break. Use only enough air pressure to allow the sleeve to slide on and off.
- Keep mounted sleeve tightly wrapped with thin poly film when not in press.
- Sleeve surfaces vary in material type, surface roughness, and surface condition. Extra care and preparation of the surface may be necessary to achieve good bond strength.

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