Flexographic Mounting Systems

Plate Mounting Techniques

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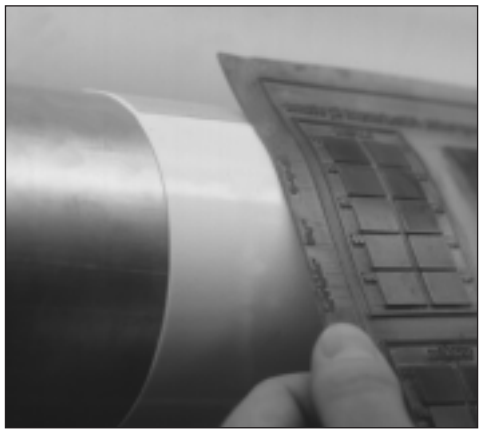
Description

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 to be achieved, both in the mounting room, on press and post press.

Plate Mounting Preparation



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

Tools Needed:

- Razor blades
- Isopropanol 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.

Surface Cleaning:

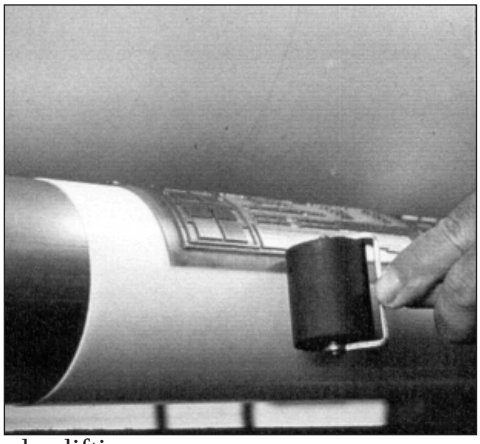
Cylinders, sleeves and plates should be clean and dry before the tape is applied. Removal of dirt, oils, residual inks and general contaminants from the cylinder and plate surfaces is important in developing optimum adhesion results. A thorough wash using a 50:50 mixture of isopropanol and water should be sufficient for cleaning cylinders, sleeves and plates, unless there is a significant build up of grease, oils, ink, or other contaminants. A mild solvent should be used to cut the grease, oil or ink build up, followed by a wash with 50:50 isopropanol and water. Note: When using solvents be sure to follow manufacturer’s directions and precautions for handling such materials

Mounting

Mounting Tape to cylinder first:
All of the 3M™ Cushion-Mount™ and Cushion-Mount™ Plus products have different adhesives on each side of the carrier. Due to the different adhesives, these products should be mounted with the non-linered side to the cylinder first. Flexomount™ double-linered products should have the clear poly liner removed before applying to the cylinder.

Lamination:
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. Keep the tape bowed to allow air to escape as the tape is applied.

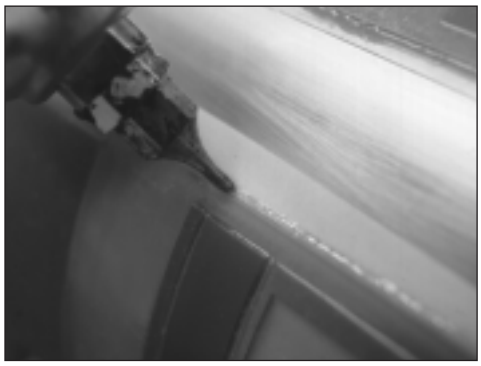
Butt Splice:
Allow tape edges to overlap, cut through both layers of tape and remove the trimmed excess.



Roll Down/Rub Down:
Roll down (pressurize) the mounting tape on the sleeve/cylinder to increase the contact area and adhesion. Use a hand-held rubber roller (wallpaper type roller will work) or 3M PA-1 wiper while paper liner is still in place.

Mount Plate:
Remove the paper liner from the tape, and mount and register the plate. Roll down plate edges with hand-held roller to help minimize the potential for plate edge lifting.

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.



Edge Seal Plate:
Edge sealers may be used to prevent inks and other solvents from migrating between the tape and plate causing plate lifting during the press operation. This becomes more important during long press runs where plates are cleaned during the press run. 3M™ Jet-melt™ low melt adhesives 3792LM or 3M single coated tapes 425, 471 or 850 can be used as edge sealers in some applications.

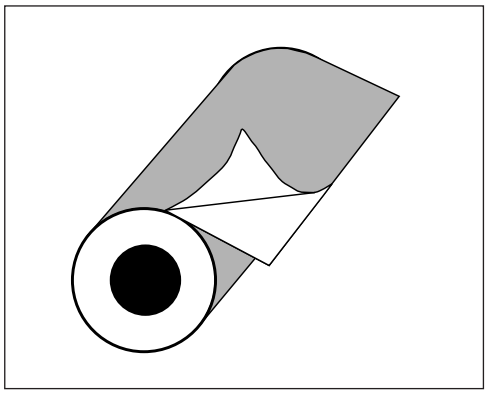
Mounting cont.

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.

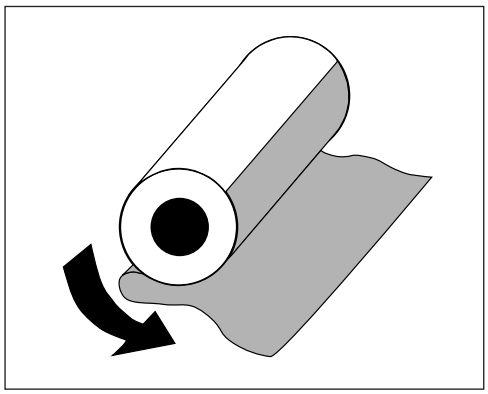
Other Mounting Tips

Tape to plate first - reversing the liner:
If you prefer to mount the tape to the plate, the liner must be reversed on 3M™ Cushion-Mount™ and Cushion-Mount™ Plus Tapes.

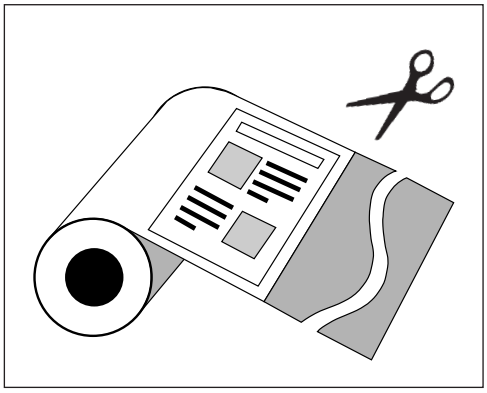
Step 1 – Peel back liner leaving tape on roll.



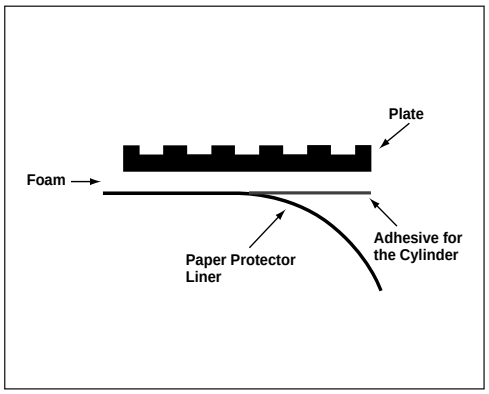
Step 2 – Unwind liner back to starting point.



Step 3 – Position plate and trim to size



Step 4 – Remove the liner and mount it on the cylinder.



Use the excess liner that was trimmed off to rewrap the roll and cover the exposed adhesive.

Other Mounting Tips cont.

Lower Adhesion:
If lower adhesion to the plate is necessary, a coating may be used on the back of the plate to facilitate clean removal. A 50:50 mixture of wood shellac and alcohol or a 50:50 mixture of ink extender (polyamide) and alcohol are common coatings that help reduce adhesion. Leave an uncoated border around the edges of the plate. This will minimize plate lifting. This technique may be needed when working with thin or low durometer photopolymer plates or with ground rubber plates where the grinding operation increases adhesion. **Note:** When using coatings, be sure to follow manufacturer's directions and precautions for handling such materials.

Increase Adhesion:
A solvent based marker or adhesive primer such as 3M Primer 94 or Fastbond™ 30 Contact Adhesive can be used on plate edges or on sleeves to promote adhesion where lifting is occurring. **Note:** 3M™ Fastbond™ 30 Contact Adhesive is not "solvent-based".

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 levels.

Tips with Sleeves

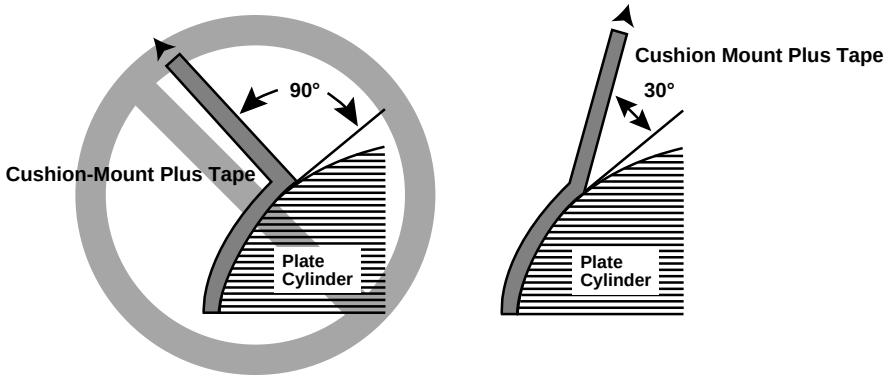
Because many sleeves are thin and flexible, care must be taken to preserve the sleeve - tape - plate bond.

- 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. For example: To increase adhesion, the sleeve surface can be lightly abraded with an emery cloth or sandpaper before adhering the tape.

Removal Techniques

Upon removal of the plate/tape system from the cylinder or sleeve, the plate should first be removed from the tape, then the tape removed from the cylinder or sleeve. When removing the plate from the tape or the tape from the cylinder a **"low and slow"** technique should be used. Tugging, jerking and folding the plate back over itself can lead to plate damage. Remove the tape and plate slowly using low angle of peel. Less than 90° (See Diagram 1) will help ensure clean removal of tape and plate.

Diagram 1



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