

Overview on Application of 3M™ Stamark™ Durable Pavement Marking Tapes

Temperatures

Air and surface Temperature: Minimum (10°C) and rising.

Overnight Air Temperature: Minimum (10°C) the night before tape application is recommended.

If the temperature falls below (10°C) , inspect the pavement surface for visible signs of moisture (dew, frost, etc.).

Determine road surface conditions

If surface is new concrete open to traffic less than 90 days, remove curing compound by sandblasting, shotblasting, light grinding, or hydroblasting.

Remember that if hydroblasting is used, you must wait 24 hours before application of the pavement marking.

Determine road surface conditions

If markings exist on the roadway, remove markings from the surface by sandblasting or grinding. A minimum of 90 percent of the road surface under the existing markings must be exposed prior to tape application.



Determine road surface conditions

Again a minimum of 90 percent of the road surface under the existing markings must be exposed prior to tape application.



Not enough



Good

Determine road surface conditions

Because none of us wants to show up on a job that's been completed to find this



Determine road surface conditions

Applying Stamark Tape over longitudinal joints is not recommended.

Premature tape failure can occur as joints can shift and degrade over time.

Concrete joints that are wider or deeper than normal can prevent the tape from conforming to the road surface.

Determine road surface conditions

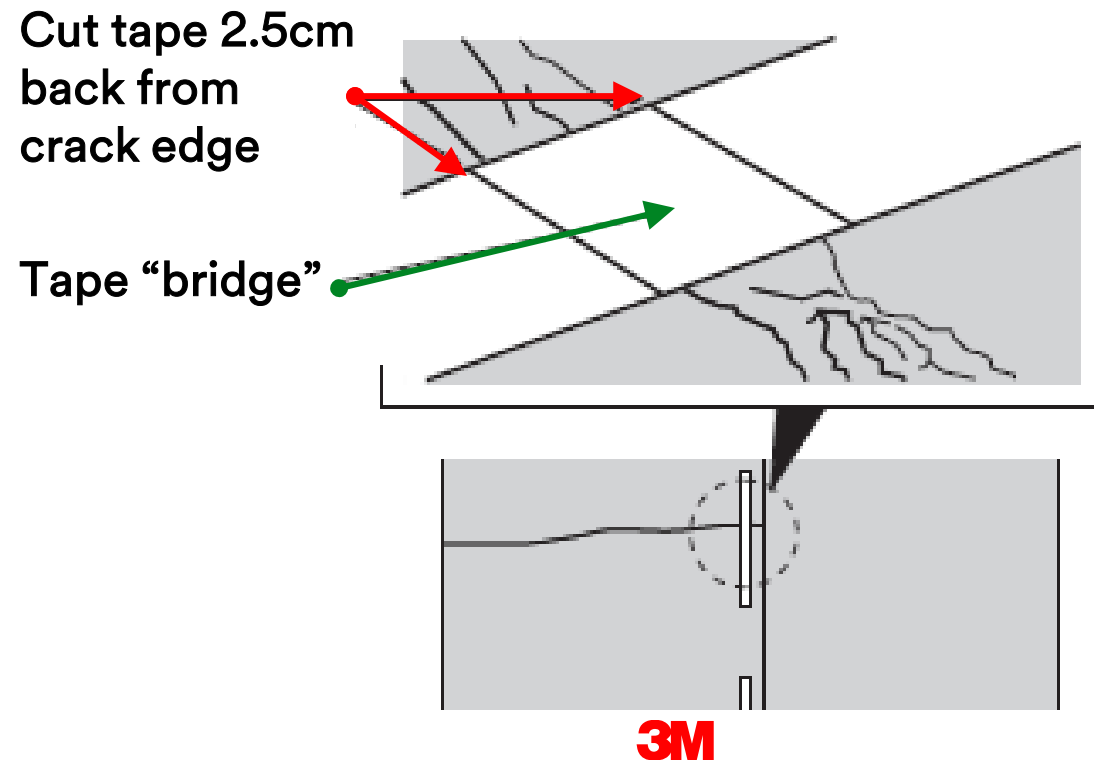
As joint maintenance is required, the markings can be damaged by maintenance equipment and joint fillers.



Skip lines are completely covered by crack sealant

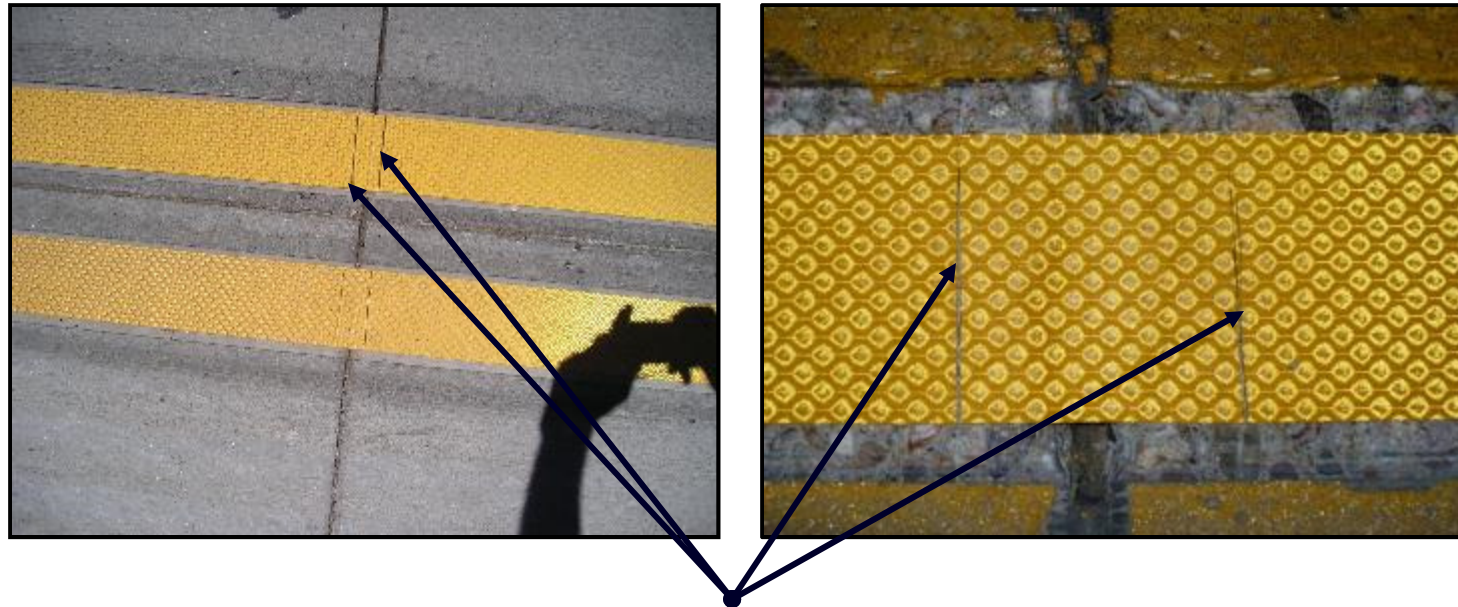
Determine road surface conditions

If there is a crack in the pavement or if the tape is to be applied over a bridge expansion joint, lay the tape over the crack or joint, then cut the tape one inch away from the crack or joint on each side.



Determine road surface conditions

If application over any joint is necessary, cut the tape 2.5cm (1 inch) away from the joint on both sides.



Tape Shall be Cut 2.5cm on Each Side of Joint

Layout

The layout should all ready be determined.

Will the job be string lined or will the paving seam or concrete expansion joint be used as a guide?

If using seam lines or concrete expansion joints it is important to stay a minimum of 5cm from the seam / joint.

Layout

If the layout is going to be string lined, use 60-70m (200-250 feet) of sash, chain or thin wire cable as a guide for long line applications. A snap chalk line can also be used but is more time constraining and more difficult when laying out radiuses.

When using a sash, chain or thin wire for skip line application, mark the skip sequence (10-40) on the item being used with paint. When applying the skip lines with a Miniature Highway Tape Applicator (MHTA) or by hand the proper sequence is there and prevents having to measure every skip line.

Layout

- 3M Model 2000W Walk Behind Automatic Applicator is programmable.
- 3M Model 3000T Automatic Applicator. Attachment for Toolcat is programmable
- Highway Tape Applicator (HTA) tow behind applicator is programmable

Cleaning Pavement Surface

When is Surface Preparation Needed?

- New concrete open to traffic less than 90 days. The curing compound will need to be removed
- Oil drip zones, not as common on long line applications but can cause a difficult bonding surface
- Remove old markings, old markings must be removed to expose 90% of the pavement surface underneath.
- Scarify old, polished concrete or asphalt surfaces.

Cleaning Pavement Surface

Grinding is usually the preferred method for removal of existing markings and scarifying a polished surface

Shot blasting, hydro blasting, and sand blasting is also acceptable



Cleaning Pavement Surface

A street sweeper or pick-up broom may be an effective way to remove larger or adhered debris.

If using a street sweeper or pick-up broom the area where tape is going to be applied will require a final pass with an air compressor to completely clean the surface.

Cleaning Pavement Surface

- Clean the surface using a high pressure, high velocity compressed air blower with minimum 185 cfm airflow and 120 psi at the air nozzle.
- There should be no more than 15m of 3/4-inch ID hose from the compressor to the air nozzle and the air nozzle should be no less than 1/2-inch ID.
- The compressor should also be equipped with a moisture and oil trap.
- It is recommended that the air nozzle be no more than 0.5m from the ground.

Cleaning Pavement Surface



Cleaning Pavement Surface

If the premarked area has been left open for a period of time, a street sweeper or pick-up broom may be effective to remove larger or adhered debris.

The pavement surface must be clean and dry. No rainfall within 24 hours prior to application. Other visible signs of moisture (dew or frost) cannot be present.

Cleaning Pavement Surface

Pavement Strength and Cleanliness Test



Roll down or foot
tamp a piece of
tape on the
prepared surface



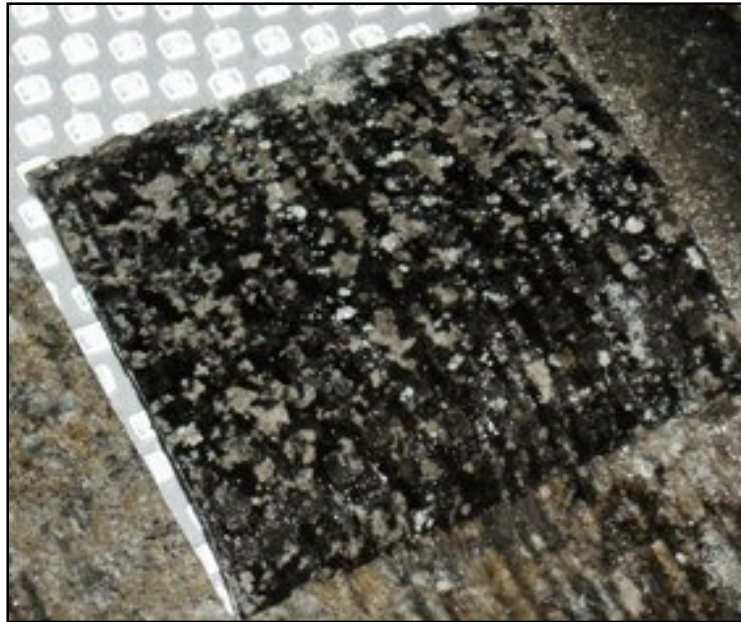
Remove tape
quickly at 90°
angle



Inspect tape adhesive
surface for presence of
dirt or debris

Cleaning Pavement Surface

Pavement Strength and cleanliness test



Application

The road **MUST** be clean & dry and the surface and air temperature is 10°C or above.

Working out side the climate guide is allowed with as long as the road surface and air temperature is 10°C or above with the use of surface applied adhesive P50 or SPA 60.

No Moisture with in the last 24 hours. If sky remains overcast / damp should wait 48 hours. **“MUST BE DRY!”**

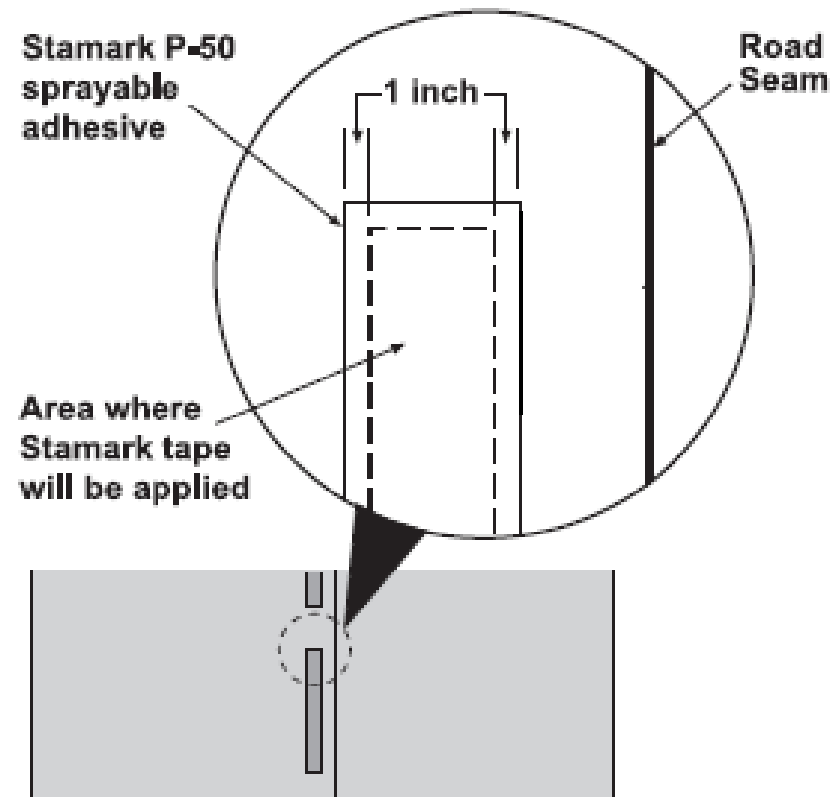
Application – P-50

P-50 sprayable adhesive is applied using the PS-14 spray applicator or a compressed air sprayer. For a compressed air sprayer, adjust as needed to achieve target application rate.

The target application rate for one coat sprayed at a 15cm width for surface preparation for a 10cm line covers approximately 450 lineal ft./gallon (35 lineal meters/liter) or 225 sq. ft./gallon (5.3 sq. m/liter)

Application – P-50

Apply a thin, uniform coat of P-50 adhesive to the pavement. The adhesive should extend at least 2.5cm from each edge of the tape to be applied.

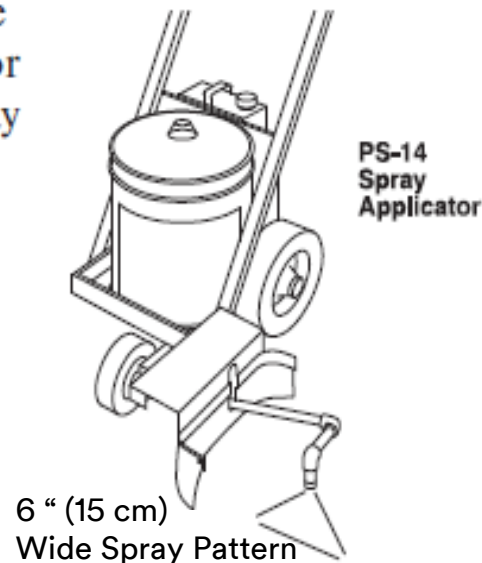


Application – P-50

The PS-14 applicator is designed to spray a 15cm wide pattern for application of 10cm wide tape. The typical wet thickness is 6-7 mil.

Adjust the arm of the PS-14 applicator up or down so that the spray pattern is 15cm wide.

Adjust the arm of the PS-14 applicator up or down so that the spray pattern is 6 inches (15.2 cm) wide.



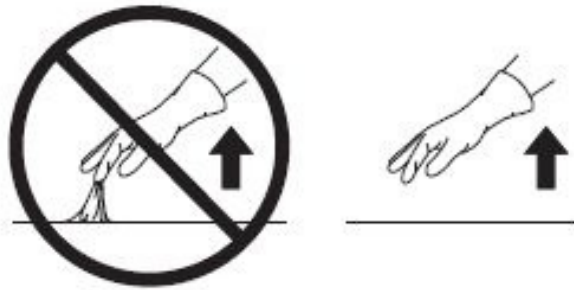
Application – P-50

If you are using tape wider than 4 inches, spray multiple passes, overlapping the previous pattern by 2.5-5cm.

Allow additional time for overlapped areas to set.

Application – P-50

- The adhesive is “Set” when it feels tacky but will not lift or string when touched Firmly with hearing protector or fingertips protected by gloves.



- It will no longer be in liquid form and has a matte finish rather than a glossy wet appearance.
- The time needed for the adhesive to set varies considerably with temperature, sunlight, and humidity differences.
- Typical time for P-50 to set is 2 to 3 minutes under optimal conditions of 21°C and medium to low humidity levels.

Application – P-50

Tape application to the SPA must be accomplished within the “bonding range”

Do Not allow the adhesives to over dry, become tack-free, or get dirty

Traffic must be kept off of pavement surfaces coated with P-50 prior to tape application to prevent damage and contamination of the P-50 coating.

Application – P-50

PS-14 Adhesive Spray Applicator



Application – P-50

Graco EZ Liner

A
P
P
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G



P 50

Application – P-50

Paint Truck



Application – SPA60

Bulk 3M™ Stamark™ Low VOC Surface Preparation Adhesive is intended to be applied using the PS-14 Adhesive Spray Applicator with an 8004E tip.

When opening the can of SPA60 it is very important to lubricate the inside of the cap and the area the cap screws onto. Failure to do this will result in the container and cap being permanently bonded together.

Using the PS-14 applicator and correctly applying a 6 inch wide spray pattern, SPA60 will cover about 450 lineal feet per gallon. The applied wet thickness is about 6-7 mils.

Application – SPA60

SPA60 is best applied at temperatures of 16°C or above and low to moderate humidity. However, it can be used successfully at temperatures of 4°C or above and higher humidity, but drying times can be substantially longer.

SPA60 cannot be applied on asphalt less than 4 days old, as it can weaken fresh asphalt pavement surfaces.

Traffic must be kept off of pavement surfaces coated with SPA60 prior to tape application to prevent damage and contamination of the SPA60 coating.

Application – SPA 60

Allow the applied SPA60 to dry and set fully before applying pavement marking tape. Typical dry time during average summer conditions can be 5 minutes.

SPA is fully dry and set when it is slightly tacky and does not transfer when touched. Test the adhesive by firmly pressing your knuckle onto the adhesive and then pulling straight up; if the adhesive transfers to your skin, it is too wet.

Application – SPA 60

After SPA60 is fully dry and set, it has an open time of about 30 minutes when the pavement marking tape should be applied for maximum bond strength.

Pavement marking tapes can be applied after this open time, but bond strengths may be lower.

Do not allow SPA60 to remain on the pavement without tape application for extended times such as 2 hours or more.

The lengthy open time will reduce the initial bond strength and the adhesive surface often becomes contaminated with dirt, dust and debris that will reduce adhesion performance.

Application – **SPA 60**

Refer to IF 5.21

For clean up and more information on 3M™ Stamark™ Low VOC
Surface Preparation Adhesive SPA60

The Following Requirements Apply to **All** Stamark Tape Applications

Traffic **MUST** be kept off of pavement surfaces coated with a surface preparation adhesive prior to tape application.

Traffic should be kept off tape until tamped to prevent tape from shifting



Installation of 3M™ Stamark™ Tape

3M™ Stamark™ Pavement Marking Tape may be applied using any of the following methods or equipment:

1. Hand application
2. MHTA (manual highway tape applicator)
3. MMHTA (motorized manual highway tape applicator)
4. 3 HTA (highway tape applicator)
5. 3 2000W
6. 3 3000T

Note: This list is not inclusive and other tape application equipment has been used successfully to apply 3M Stamark tapes.

Installation of 3M™ Stamark™ Tape

by hand



Installation of 3M™ Stamark™ Tape

by hand



Installation of 3M™ Stamark™ Tape by hand



Installation of 3M™ Stamark™ Tape

Manual Highway Tape Applicators (MHTA)

MHTA-1

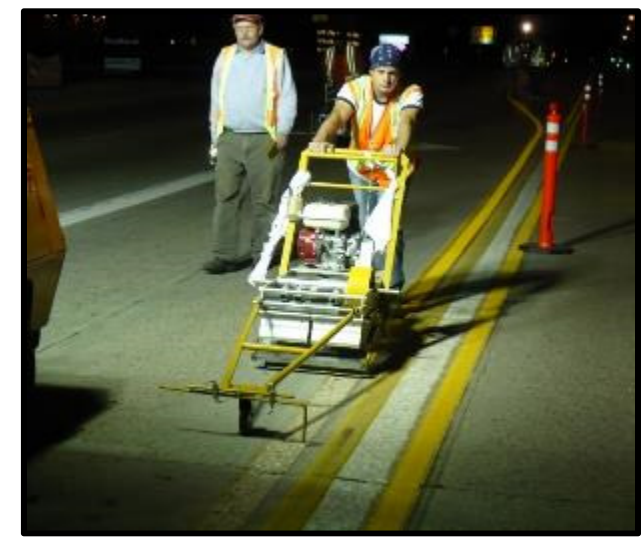
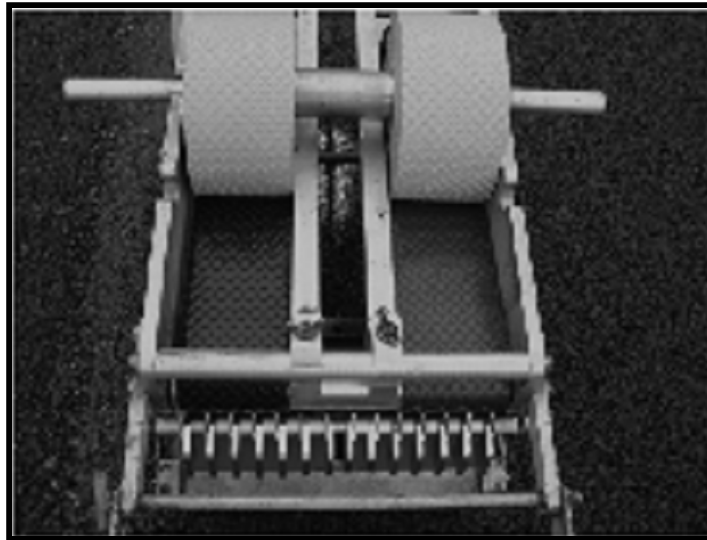
12 inch capacity

MHTA-18

18 inch capacity

MMHTA-18, Motorized

18 inch capacity



Installation of 3M™ Stamark™ Tape

Walk Behind MHTA Converted to Riding



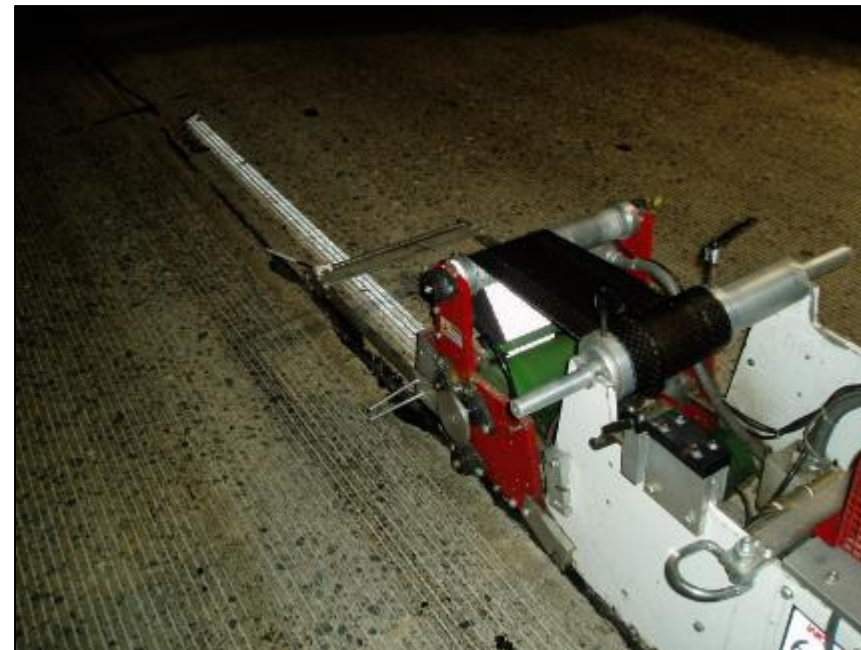
Installation of 3M™ Stamark™ Tape

Walk Behind MHTA Converted to Riding



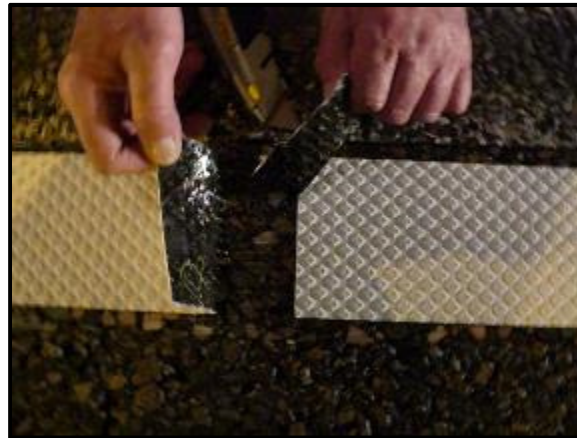
Installation of 3M™ Stamark™ Tape

Pavement Marking Tape Applicator 2000W



Installation of 3M™ Stamark™ Tape

Procedure for Butt Slice



Installation of 3M™ Stamark™ Tape

Tamping the tape is VERY IMPORTANT!

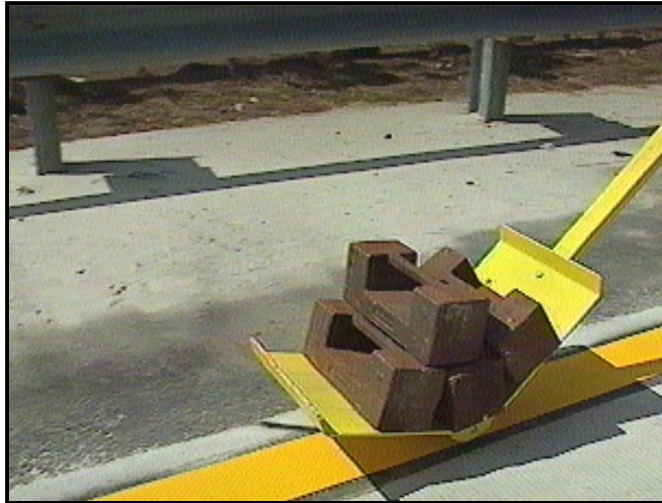
- Tamp the tape thoroughly with the RTC-2 tamper cart with a minimum 90kg load. When using the RTC-2 tamper cart
 - Do not twist or turn the tamper cart on the tape.
 - Make a minimum of six passes (three passes back and forth) over each part of the tape.
 - Make sure all edges are firmly adhered.
- Or slowly drive over the tape a minimum of three times with a vehicle. The vehicle must be equipped with a pointing device to aid in keeping the vehicle on the tape, making three passes forward over the tape.

Use a vehicle tire on long line markings only.

Installation of 3M™ Stamark™ Tape

RTC-2 Roller Tamper Cart

- Provides initial bond to the roadway.
- Three trips back and forth with 90kg load.



Installation of 3M™ Stamark™ Tape

Ride On -2 Roller Tamper Cart

- Provides initial bond to the roadway.
- Three trips back and forth with 90kg load.



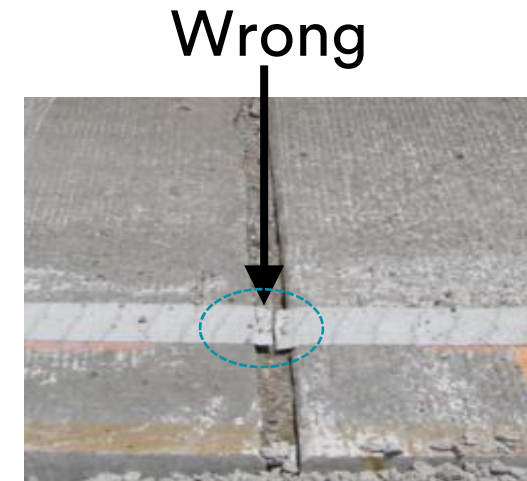
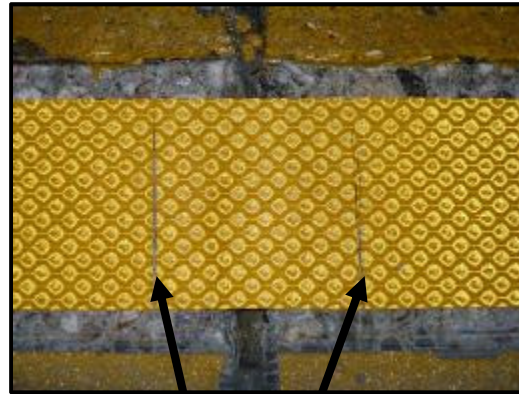
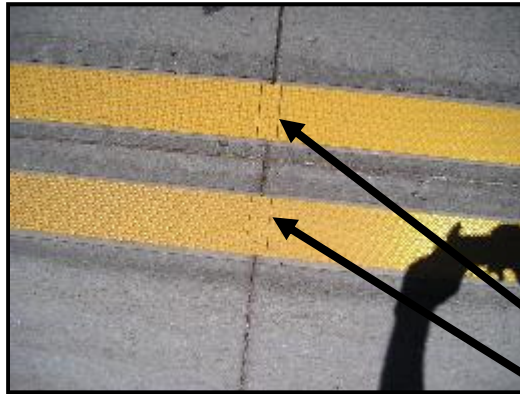
Installation of 3M™ Stamark™ Tape

Vehicle Tires

- Make 3 passes forward on each line using a vehicle tires. The vehicle should be equipped with a pointing device to aid in keeping the vehicle on the tape
- Do Not Turn or Twist the tamper cart or vehicle tire on the tape.



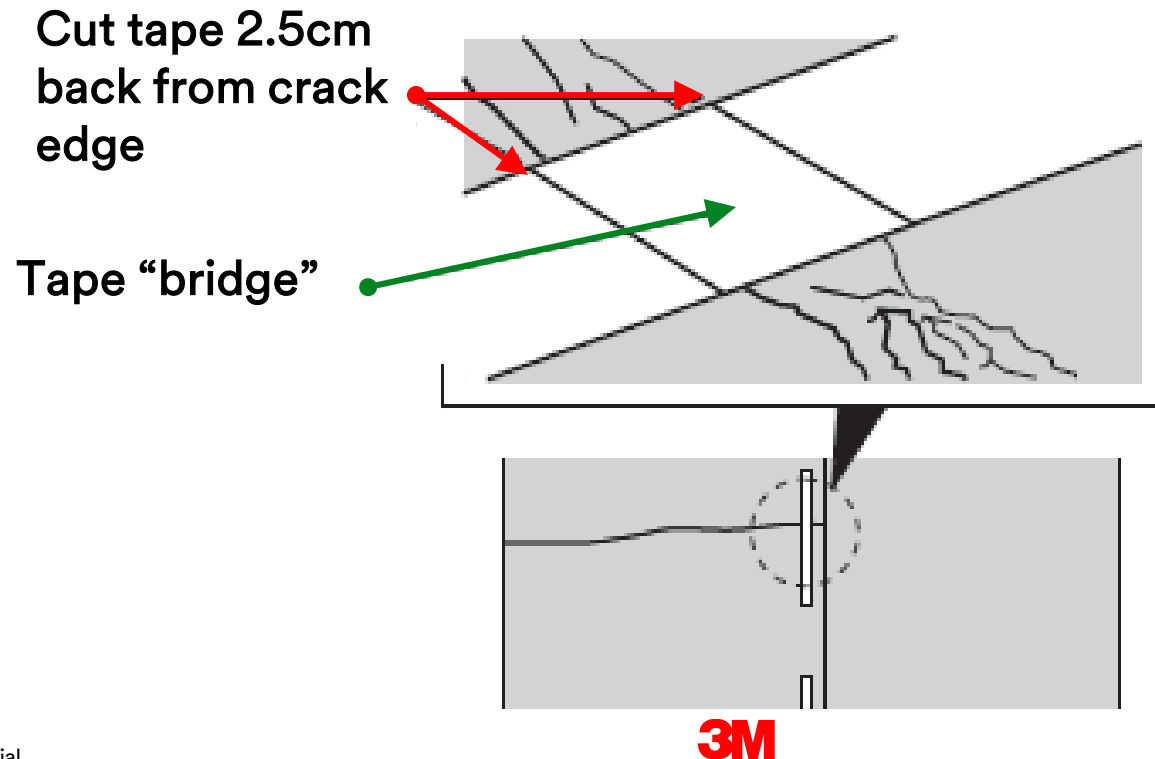
Installation of 3M™ Stamark™ Tape



Tape Shall be Cut 2.5cm on Each Side of Joint

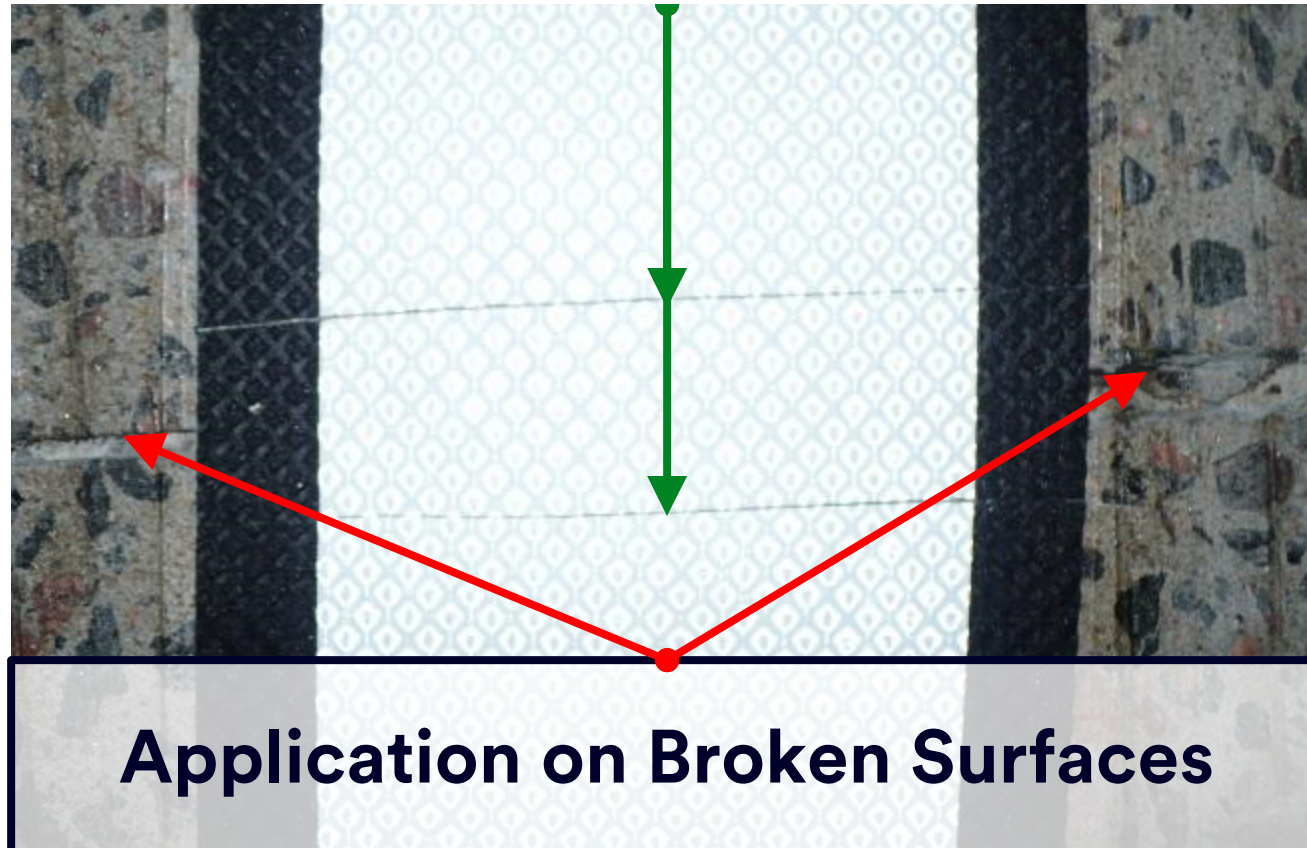
Installation of 3M™ Stamark™ Tape

If there is a crack in the pavement or if the tape is to be applied over a bridge expansion joint, lay the tape over the crack or joint, then cut the tape one inch away from the crack or joint on each side.



Installation of 3M™ Stamark™ Tape

Tape Cut 2.5cm on Each Side of Crack



Installation of 3M™ Stamark™ Tape



Installation of 3M™ Stamark™ Tape



Application on Broken Surfaces

Installation of 3M™ Stamark™ Tape



Application on Broken Surfaces

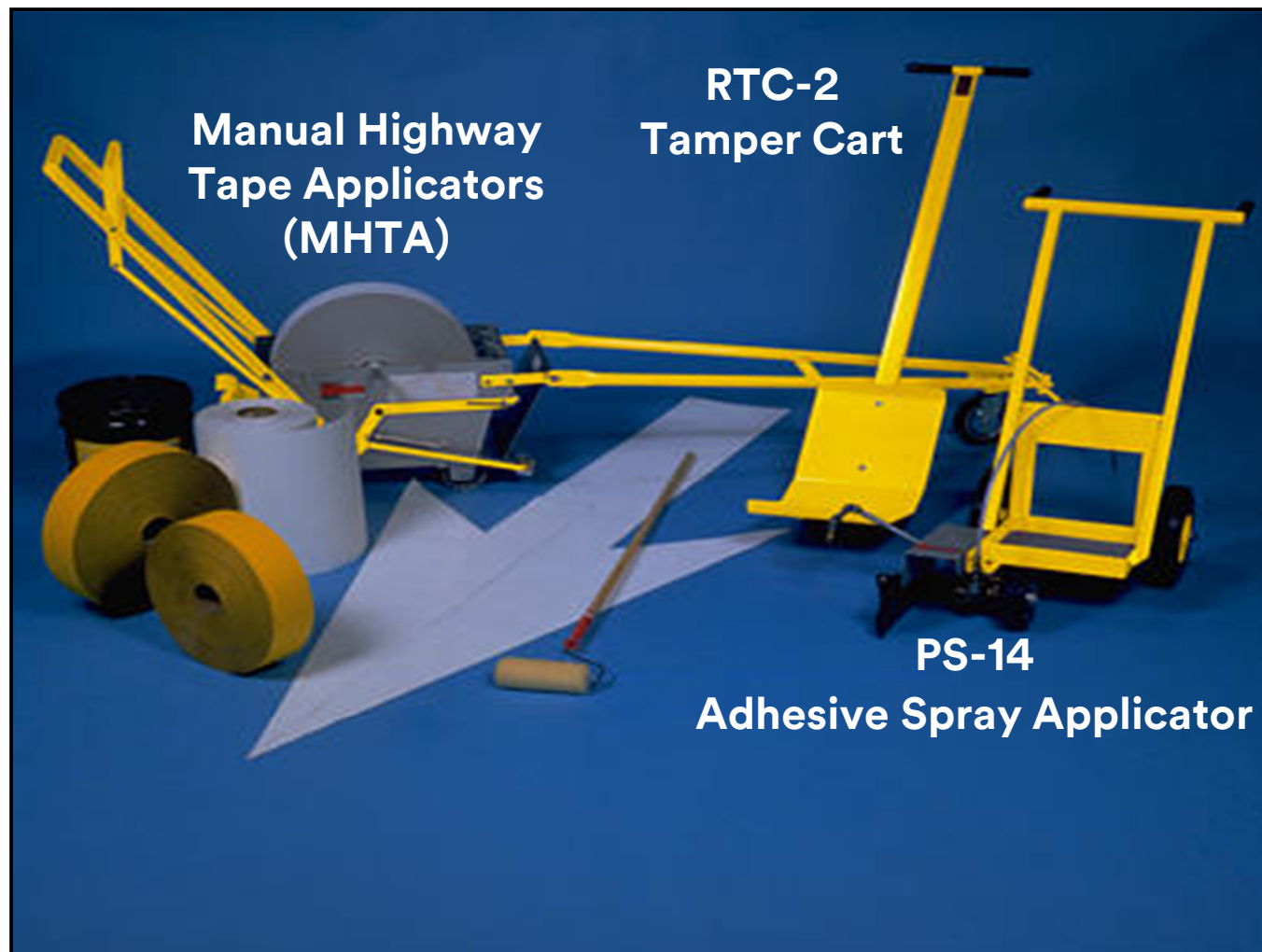
Installation of 3M™ Stamark™ Tape



Application on Broken Surfaces

Installation of 3M™ Stamark™ Tape

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Let's all work together to
ensure a
Quality a job



and not jobs like these

Thank You