



Paul N. Gardner Company

CROSS HATCH RADIUS KIT ADHESION

Cross Hatch Radius Kit
instructions on how to perform
adhesion tests for curved
surfaces.



Cross Hatch Kit



The Cross Hatch Radius Test Kit is the curved-surface version of GARDCO's paint adhesion kit, made for testing coatings on pipe and other rounded parts that cannot be evaluated with standard flat-surface cross-hatch cutters.

It is designed for simple curved surfaces where standard multi-tooth cutters for flat panels cannot be used. It uses a special 1 mm radiused tooth cutter and is intended for surfaces with a radius of curvature of no less than 0.75 inches.

The kit is supplied with two handles to help the user make both trans-radius and circumferential cuts, while **blades must be purchased separately**.

Included in Kit



Two Blade handles

Used to support cutting in different directions on curved surfaces



Scrub Brush

Removes detached coating flakes after cutting



Hex wrench

Used to tighten and loosen the blade set screws



Magnifier

Helps inspect the cut grid for coating removal



Adhesive Tape

Applied over the grid as part of ASTM D3359 Method B



ASTM D3359 Guide

Full test method reference for interpreting results

Note: The radius kit blades are sold separately. This kit uses a 1 mm blade only for curved-surface testing.

Blade Accuracy Check

Before shipment, all blades pass a cutter blade tooth accuracy inspection. You can verify your blade periodically using the following method:

1. Hold a small piece of polished plate glass.
2. Using a match or lighter, smoke a portion of the glass — this leaves a thin black film.
3. With the blade mounted in the handle, pull it across the smoked film.
4. All teeth should leave visible tracks. If all teeth do not touch when used on a coated surface, it may indicate that the surface is not uniform or that one or more teeth have been damaged.

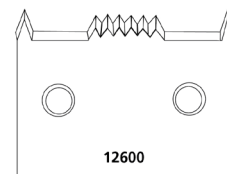
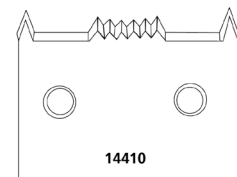
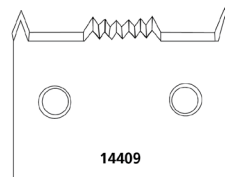
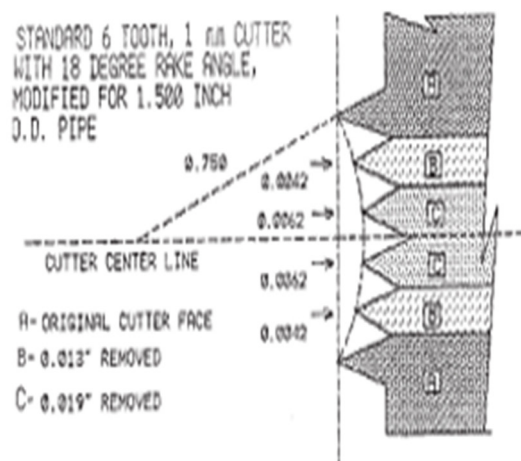
Troubleshooting: Uneven Cuts

If the blade is not cutting evenly through the coating, the most common cause is an unsupported or uneven test surface.

- Support the specimen on a firm, stable surface whenever possible
- Apply sufficient and even pressure during the cut
- If the part is not supported well enough, additional pressure may simply flex the surface rather than improve the cut

Blade Cutter Options

Available at GARDCO.COM



Installing Blade

1. Select the correct 1 mm radius cutter blade for the test surface.
2. Position the blade in the handle with the holes facing the securing set screws.
3. Tighten the set screws with the hex wrench — **do not over-tighten**.

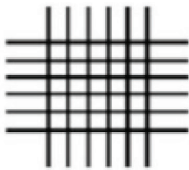
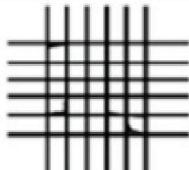
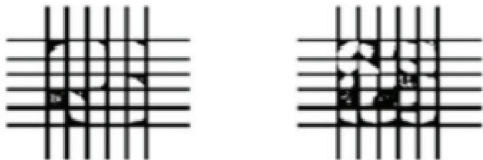


Instructions for Use

1. Prepare your coated test panel as outlined in ASTM D3359.
2. Place the cutter assembly on the test specimen so that both the guide and the cutter rest on the substrate.
3. Grasp the handle and rotate it upward with respect to the line of contact between the guide and the test surface. During this motion, the cutter tips first contact the surface when the top of the handle is at about 7 degrees. Continue rotating until the top of the handle is elevated to about 15 degrees, which is the correct cutting attitude for the test.
4. Apply enough pressure on the handle to ensure all cutter tips penetrate the coating to the supporting base, then pull the assembly along the test surface through 0.75 to 1 inch in one steady motion.
5. Repeat the procedure with a second cut intersecting the first pattern at 90° ($\pm 5^\circ$).
6. Lightly brush the cut area to remove any detached flakes before evaluation.
7. Cut a piece of tape approximately 3 inches long. Place the center of the tape over the cut pattern and smooth it into place firmly.
8. Remove the free end of the tape rapidly at as close to a 180° angle as possible.
9. Use the illuminated magnifier to inspect the cut area for coating removal and evaluate the results according to ASTM D3359 Method B.

Classification of Adhesion Test

Use the ASTM D3359 adhesion rating chart on this page to match your test pattern to the appropriate rating and easily determine the percentage of coating removed and overall adhesion level.

Classification	% Of Area Removed	Surface Of Cross-cut Area From Which Flaking Has Occurred For 6 Parallel Cuts & Adhesion Range By %
5B	0% None	
4B	Less than 5%	
3B	5-15%	
2B	15-35%	
1B	35-65%	
0B	Greater than 65%	