SHERWIN TWIN KDS PANELS™

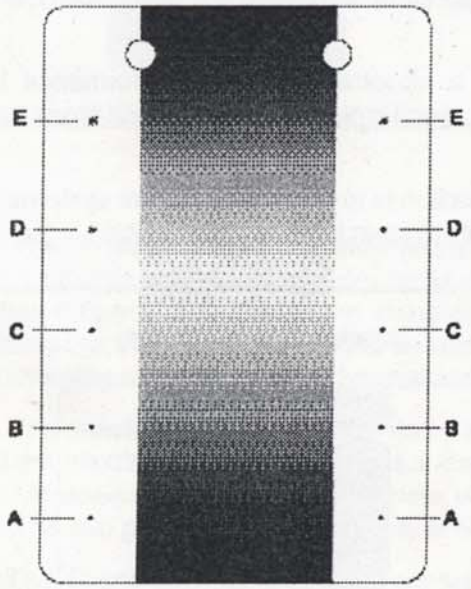
Twin Known Defect Standards*

- **Penetrant System Monitoring**
- **Sensitivity Comparison**
- **System Performance Evaluation**

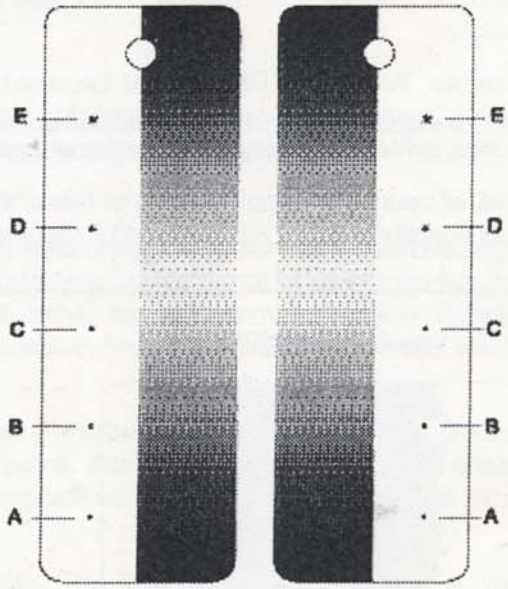
SHERWIN TWIN KDS PANELS are a major improvement over other panels used to monitor fluorescent penetrant system performance and to compare penetrant sensitivity; e.g., TAM and NiCr panels.

Using a new manufacturing process, it is possible to control crack size and depth, while producing panels that are sufficiently rugged to withstand being routinely sent down the penetrant inspection line.

TWIN KDS PANEL MANUFACTURING PROCESS



Plating, grit blasting and cracks induced when the panel is in one piece.



After shearing into two sections, the panel is converted into twins, a matching set.

So precise is the process that Sherwin Twin KDS Panels can be manufactured in pairs of nearly identical twins, permitting the side-by-side comparison of in-use penetrant with unused penetrant, as required by ASTM E-1417.

Users of the fluorescent penetrant inspection (FPI) method of detecting cracks on critical surfaces will find that Sherwin Twin KDS Panels do a far better job of system monitoring. Sherwin Twin KDS Panels are discriminating: they are better at detecting diminished sensitivity and brightness. They are rugged and easy to clean.

Sherwin Twin KDS Panels are the preferred sensitivity and performance comparison tool.

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Sherwin Twin KDS Panels Comply With ASTM E-1417

ASTM E-1417 requires a daily penetrant system check using a known defect standard. The purpose of the daily check is to assure that the penetrant system is functioning properly: that there has been no system breakdown, e.g., over-heated oven, inadequate developer application, elevated rinse water temperature, penetrant degradation, etc. After processing the known defect standard through the penetrant system, results must be compared to a similar known defect standard, processed with unused penetrant, or to a photograph.

Sherwin Twin KDS Panels meet the ASTM E-1417 comparison requirement in real time: side-by-side comparison of in-use and new penetrant material, using matching twin panels, not photographs which inaccurately portray fluorescent colors.

No other panel—not the TAM or the NiCr panel—can meet the requirements of being both a true penetrant comparison tool and system monitor, and of being sufficiently rugged to be sent down the penetrant line.

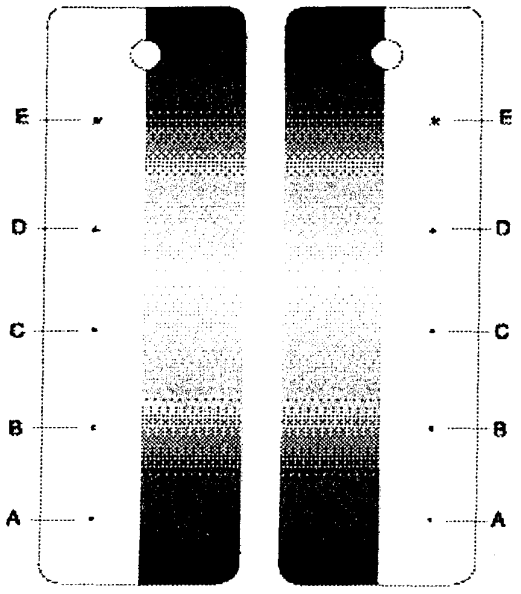
Sherwin Twin KDS Panels Are Multi-Purpose Comparators

As the Sherwin Twin KDS Panels are "twins," they may be used to judge relative penetrant sensitivity and relative system performance. They also may be used to compare penetrant removability and washability.

Sherwin Twin KDS Panels can be used to maximize a penetrant system's performance by examining the effects of varying processing parameters; e.g., dwell times, rinse or removal times and pressures, emulsifier strengths, developer application, etc.

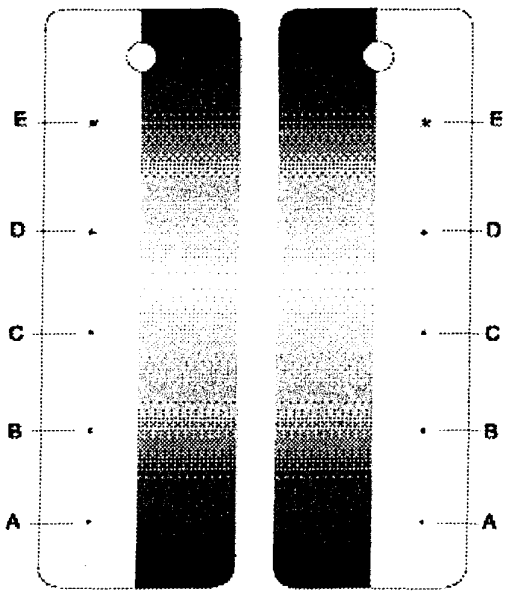
And, of course, as single panels or twins, their primary function is to monitor penetrant systems in order to comply with the ASTM E-1417 requirement for a daily system performance check.

COMPARE SENSITIVITY



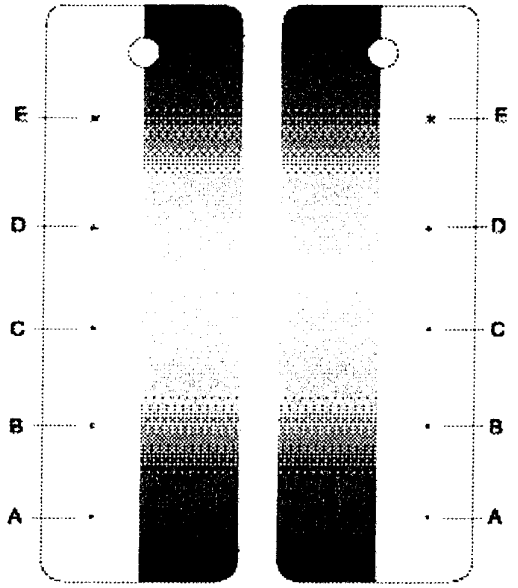
Twin KDS Panels, with the cracked sections side by side, facilitate quick and accurate determination of relative defect visibility.

COMPARE WASHABILITY



Twin KDS Panels, with the grit-blasted sections side by side, make fluorescent background comparison simple.

TWIN KDS-TAM MODEL



Twin KDS Panels come in a TAM model for use with Method A water-washable penetrants and for use with nonwater-washable Method B, C & D penetrants.

Crack Size Reference Scale		
Crack No.	**Inches**	**MM**
A	.015 - .031	0.38 - 0.79
B	.046 - .062	1.17 - 1.59
C	.075 - .093	1.91 - 2.36
D	.125 - .171	3.18 - 4.34
E	.180 - .250	4.57 - 6.35

Description

The Sherwin Twin KDS Panels are two panels, each measuring two by six inches and having five sunburst style cracks induced in a brittle metal plating, which itself has a depth of approximately 0.001 inches (26µm). The cracks run along one side of each panel, top to bottom, in varying diameters. Adjacent to the cracked portion is an unplated strip of medium rough, grit blasted stainless steel for removability evaluation. (See illustrations.)

The panels are produced as twins by accomplishing all of the processing steps—plating, cracking, and grit blasting—while the metal is a single, 4 x 6 inch piece. After processing, the metal is sheared into two separate, twin 2 x 6 inch panels, which share a common serial number and are labeled "A" and "B". The two panels are nearly identical twins.

The Sherwin Twin KDS Panel comes in a TAM model. The TAM Model is for Method A, water washable penetrants, and for Methods B, C and D, post-emulsifiable penetrants. (See illustration above.) In addition, the manufacturing process is so controlled that Sherwin Twin KDS Panels can be custom manufactured.

Proprietary Manufacturing

Proprietary manufacturing methods insure that the "A" and "B" panels are nearly identical. Our method controls the crack-inducing force, insuring that crack sizes on one panel closely match the crack sizes on the other panel. In addition, the plating bath is specially formulated to insure that the plating holds fast to the substrate without cavities that would retain penetrant or would lead to unpredictable varying crack sizes.

The plating's brittleness is also controlled so that crack size resulting from applied force is predictable.

Sherwin Twin KDS Panels Excel Over TAM Panels

- **Sherwin Twin KDS Panels** have special advantages over other system monitoring test pieces, such as TAM (PSM-5) Panels.
- They do a better job of detecting system malfunctions, e.g., over-emulsification, over-washing, excessive temperatures. They are more sensitive to processing errors.
- Being nearly identical twins and having defects of known size and depth, **Sherwin Twin KDS Panels** can legitimately be used as relative sensitivity and performance comparators.
- Their plated surfaces are typically metallic and without glare. They are not shiny or reflective, giving less distortion.
- They are easily cleaned. A thirty minute soak in a volatile solvent, such as isopropyl alcohol, is all that is required; there is no overnight soaking or residual penetrant to interfere with accurate reading. Testing reliability and speed are improved.

Sherwin Twin KDS Panels Excel Over NiCr Panels

- **Sherwin Twin KDS Panels** are better for testing real life penetrant removal techniques. Their flaws are not open-ended troughs which readily flush free of penetrant and require restricted removal techniques.
- **Sherwin Twin KDS Panels'** base metal is corrosion resistant stainless steel, not brass.
- **Sherwin Twin KDS Panels** are rugged and designed to be sent down penetrant lines, whereas NiCr panels are fragile laboratory tools.
- **Sherwin Twin KDS Panels** have a roughened section to gauge fluorescent background; NiCr panels do not.

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