# NONDESTRUCTIVE TESTING EQUIPMENT

## Penetrant Inspection Systems

- Modular design provides the ultimate in customization.
- Stations are engineered for compatible shapes and sizes.

### OPTIONAL FEATURES

- Lowerators for handling heavy pieces or containers of small parts
- Pumps and fittings
- Folding stainless steel covers on tanks
- Split roofs on rinse, dryer and inspection stations
- Semi-automated or automated system operation
- Electrostatic spray modules
- Effluent treatment systems
- Galvanized rollers with corrosion resistant bearings
- Pneumatic doors

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The modular character of the Gould-Bass line of manual penetrant systems makes it possible to provide a fully customized system for each installation. The stations are constructed to mutually compatible sizes and couplings, and are made of compatible materials. As a result, they can simply be selected and mated together as systems.

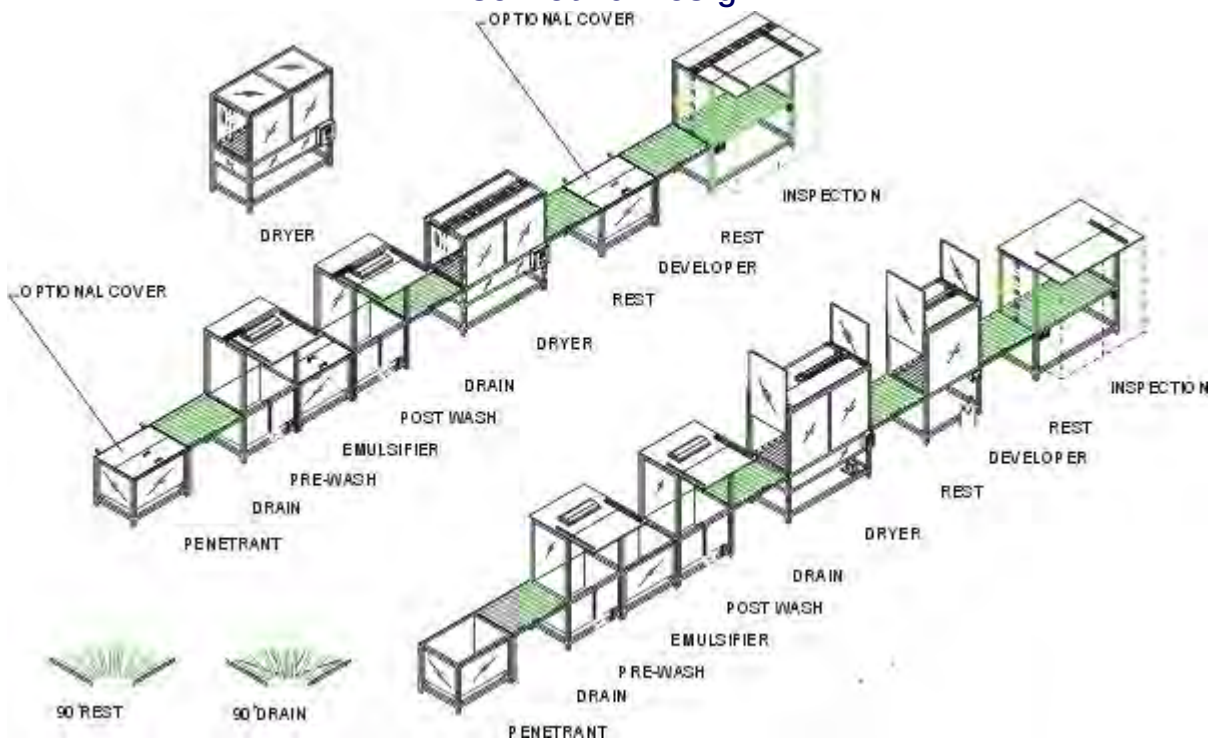
The first step is to determine the proper approach to the penetrant inspection task. Each application will depend on the kind of part to be tested, together with its characteristic defects. The types and quantities of stations can then be selected.

Station size is determined by piece part, size, weight, shape, and other characteristics. Arrangement of the stations will depend on the space availability and configuration of the production line. For some applications, optional features or customized construction may be required.

6805 COOLRIDGE DR ■ TEMPLE HILLS MD 20748
301-449-7300 ■ 800-638-0554 ■ FAX 301-449-7011
EMAIL: sales@detek.com

# NONDESTRUCTIVE TESTING EQUIPMENT

## Isometric Design

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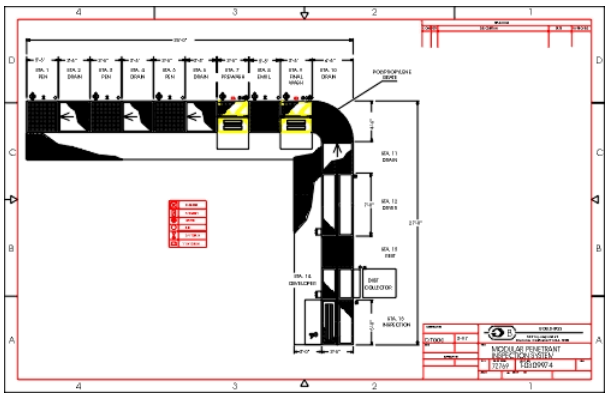
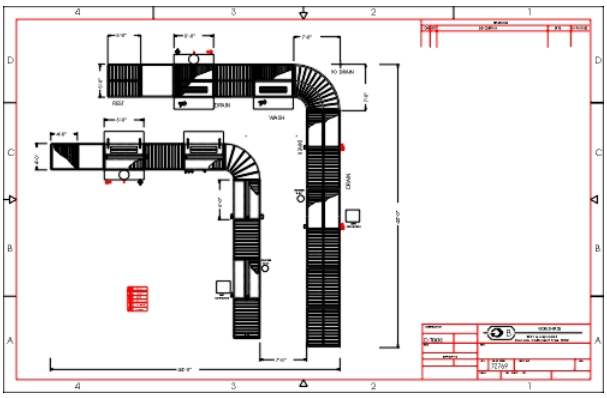
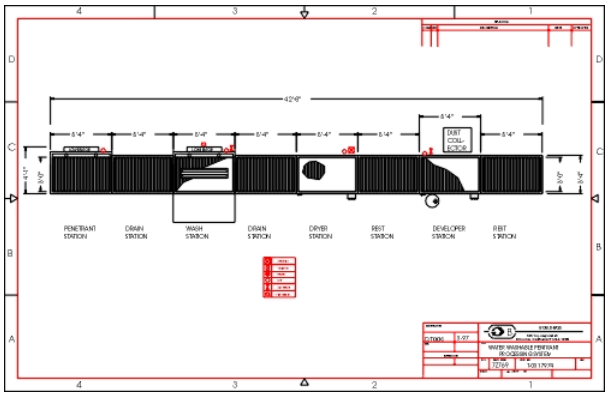
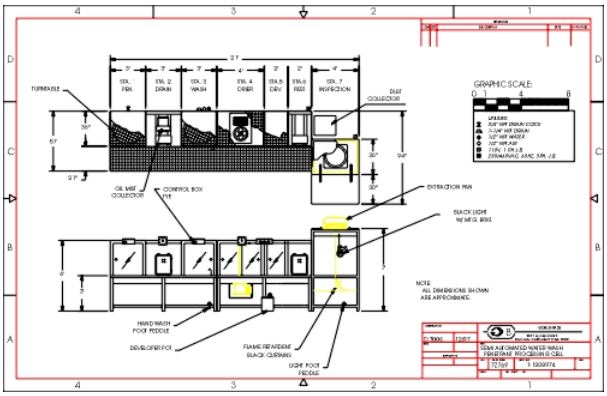
# NONDESTRUCTIVE TESTING EQUIPMENT

## Sample Layouts









**If you are considering a liquid penetrant inspection system,** a Gould-Bass applications engineer will work with you to determine the proper system to meet your requirements. With your design approval, we can fabricate the system, prove it out, and instruct your personnel in its proper use.

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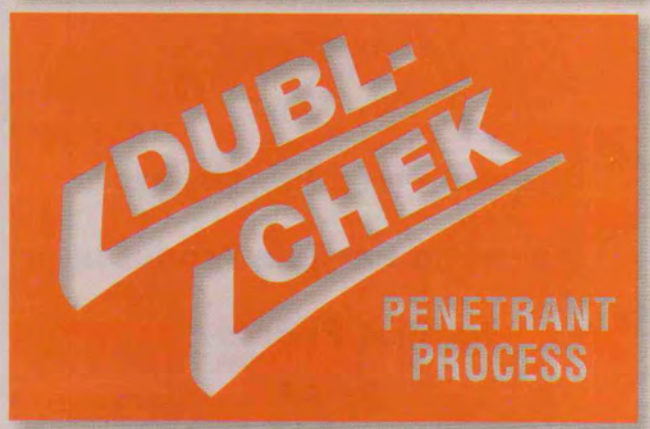
SHERWIN




INCORPORATED

# PENETRANT ACCESSORIES


## Sherwin, Incorporated provides a full line of products and related services, including:

### Penetrant Products

Visible & Fluorescent

Cleaners & Removers

Emulsifiers

Developers

### Specialized Penetrants

### Magnetic Particle Products

### Test Panels

PSM-5

Twin KDS Panels

Panel Recalibration

### Laboratory Services

In-Use Testing

Annual Contract Available

UV-A/Visible Meter Calibration

### *Penetrant Progress* Newsletter

SHERWIN INCORPORATED

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Kentucky Office: 1615 Distribution Dr., Burlington, KY 41005 • (859) 525-6881 • FAX (859) 525-6887
www.sherwininc.com sherwininc@aol.com

# PENETRANT ACCESSORIES

### WG-1 WASH GUN complete (shown)

A sturdy spray wash gun meeting MIL-I-6866 and ASTM E-1417 requirements. The wash gun is available with or without the full jet nozzle that emits coarse spray without air pressure.

**Also:** **WG-O** **Wash Gun only**
**WG-N** **Nozzle only** (shown)
**WG-R** **Washer Repair Kit**

### 2C715 WATER TEMPERATURE GAUGE*

Thermometer, dial size 3 inches, temperature range 0 to 250 degrees fahrenheit, stem length 2.5 inches, 1 percentage dual scale accuracy.

### CPB94 PRESSURE SPRAYER

Portable, lightweight pressure sprayer for spot application of penetrants, developers, and cleaners. Interchangeable nozzles for mist or pin spray. One quart capacity. Uses shop compressed air. Chrome-plated brass.

Measures 9"H x 4"Dia.

### 10431VP HAND HELD REFRACTOMETER*

Has a built-in temperature compensator to insure accurate readings. Meets MIL-STD-6866 and ASTM E-1417 requirements for weekly testing of hydrophilic emulsifier bath concentration and control of water base penetrants.

*Calibration available at Kentucky facility.*

### 244C DEMA INJECTOR

For spraying hydrophilic emulsifier. The emulsifier is drawn into the water stream by the Dema valve, emitting an emulsifier/water spray. The Dema Injector allows the penetrant user to process parts with the hydrophilic method without adding large dip tanks.

### N-50 REFRACTOMETER*

Measures hydrophilic emulsifier concentrations. Hand held and equipped with a rubber grip and adjustable eyepiece. Meets MIL-STD-6866 and ASTM E-1417 requirements for weekly testing of hydrophilic emulsifier concentration.

*Calibration available at Kentucky facility.*

### 2A645 WATER PRESSURE REGULATOR*

Valve Water Pressure Regulator, brass body, 1/2 FNPT inlet and outlet, 1/4 FNPT in gauge port, adjustable from 3 to 50 PSI, maximum 300 PSI, maximum temperature 140 degrees fahrenheit.

### 11-555G HYDROMETER*

Monitors aqueous developer concentration and, with the help of a graph, facilitates developer concentration adjustments. Meets the requirements of MIL-STD-6866 and ASTM E-1417 requirements for weekly concentration monitoring.

Sp. Gravity Range 1.00 – 1.07

### 5WZ19 WATER PRESSURE GAUGE*

For use with water regulators. Standard Pressure Gauge, range 100 PSI, dial size 2 inches, pipe size NPT 1/4 inch, smallest graduation 2 PSI, lower mount.

### 300 DARKROOM TIMER

Plastic boot over the power switch prevents corrosion from chemicals or water. Easy-to-read numerals on a large 6 1/2 inch diameter face. Numerals, dial and hands are luminous. Setting knob for fast fingertip control. Precision accuracy assured by electric synchronous motor. Buzzer automatically signals end of period. One second to sixty minutes.

### 2A606 WATER TEMPERATURE GAUGE*

Thermometer, dial size 3 inches, temperature range 0 to 250 degrees fahrenheit, stem length 2.5 inches, back connection.

### 314F SURFACE TEMPERATURE THERMOMETER*


A dual magnet surface temperature thermometer, designed to measure temperatures of many different surfaces. The bimetallic sensor is a specially processed alloy, preconditioned and pre-tested for permanent calibration and maximum stability. The thermometer reaches sensing equilibrium within three minutes, and is accurate within 2%.

** Calibration certificate not provided.*

# PENETRANT ACCESSORIES (CONTINUED)

### APRON

Helps protect clothing.

One size fits all.

### NORTH VITON GLOVES

Provides excellent protection from a broad range of chemicals, Penetrants and Mag Particle solutions.

Measures 11 inches long.

### SCG 100 CAN GUN

Sherwin Incorporated's Spray Can Gun is an essential accessory for penetrant spray can users. The Can Gun precisely controls the flow of penetrants and developer; improves performance; reduces waste and sloppiness; and speeds production. The Can Gun fits any standard spray can and is reusable.

### 8998 DISPENSER JAR

Flip up cap and press the 1 1/2 inch diagonal dish—pump fills the dish with enough fluid.

4 oz., 2 1/8 inch diameter, 4 3/16 inch overall height, amber color.

### RECTANGULAR STAINLESS STEEL BASKET

304 stainless steel, 4 x 4 mesh

**Sizes:**

**181206 - 18"L x 12"W x 6"H, 3" handles**
**181806 - 18"L x 18"W x 6"H, 3" handles**
**181812 - 18"L x 18"W x 12"H, 3" handles**
**201206 - 20"L x 12"W x 6"H, 3" handles**
**242412 - 24"L x 24"W x 12"H, 3" handles**


### ROUND STAINLESS STEELBASKET

304 stainless steel, 4 x 4 mesh

**Sizes:**

**1010 - 10"W x 10"H, 3" handles**
**1212 - 12"W x 12"H, 3" handles**
**1512 - 15"W x 12"H, 3" handles**

### EXPANDED STAINLESS STEEL BASKET

18 ga. metal basket, 303 stainless steel, 1/2 inch mesh openings.

**Sizes:**

**161004 - 16"L x 10"W x 4 1/2"H**
**211306 - 21"L x 13 1/4"W x 6"H**
**241306 - 24"L x 13 1.4"W x 6"H**

### 300D RINSE WATER MANAGEMENT SYSTEM

State-of-the-art ozone injection technology which is designed to breakdown the hydrocarbons and greases of your penetrant waste water to levels low enough to allow you to go directly to drain. Converts the petroleum hydrocarbons to $H_20$ and $CO_2$ and destroys the fluoroscopic dye in the penetrant wastewater. **No** oil-filled filters to replace and **no** hazardous waste to dispose of. Quiet and odorless.

# BLACK LIGHTS & ACCESSORIES

### SB-100P SPECTROLINE HAND-HELD BLACK LIGHT

Super-high ultraviolet lamp with transformer base. 100-watt. Stay-cool handle. Eight-foot cord. Produces 4,800 $\mu W/cm^2$ at 15 inches.

Replacement Bulb #100S

### BIB-150P SPECTROLINE BLACK LIGHT

Super-high ultraviolet lamp. 150-watt Built-In-Ballast™ bulb eliminates the need for a heavy, external transformer. Lightweight design. Concentrated spot bulb. Eight-foot power cord. Produces 6.000 $\mu W/cm^2$ at 15 inches.

Replacement Bulb #BLE-150CS

# BLACK LIGHTS & ACCESSORIES (CONTINUED)

**FC-100 SPECTROLINE BLACK LIGHT**

Built-in fan reduces running temperatures and allows faster and easier restarting of lamp. Transformer based, 100-watts. Eight-foot cord. Produces 5,000 μW/cm² at 15 inches.

Replacement bulb #100S

**Maxima 3500 SPECTROLINE ULTRA-HIGH INTENSITY BLACK LIGHT**

Micro discharge light (MDL) technology produces a steady-state UV-A intensity of 60,000 μW/cm² at 15 inches—*up to 10 times* the output of conventional HID inspection lamps. Exposes even the smallest defects, resulting in a more accurate inspection.

Total weight 6.1 lbs. Instant-on eleminates waiting. Replacement bulb #BLE-35RA

# REPLACEMENT ULTRAVIOLET BULBS & FILTERS

**100S REPLACEMENT 100-WATT BULB AD-MEDIUM BASE** (Larger Base)

Replacement spot bulb for use on Spectroline SB-100P and FC100.

Also used on UVP Inc., B-100A & all B-100 lamps.

**2F958 REPLACEMENT UV FILTER LENS**

For use on Spectroline SP100-P, BIB-150P, FC-100 and ML-3500.

Also, Magnaflux ZB 100, ZB100F and UVP, all models.

**100S/M REPLACEMENT BULB MEDIUM BASE** (Standard Lamp Base)

Also used on:

Gould-Bass (Ardrox) 1025 & 1040M

Magnaflux ZB-100, ZB23, ZB24, ZB26 & ZB27.

**BLE-150CS REPLACEMENT BULB** (Self-Ballasted)

For use on:

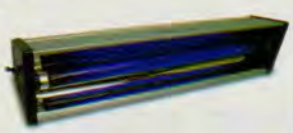
Spectroline BIB-150

Gould-Bass (Ardrox) #1010

# SPECTROLINE BLACK LIGHT BENCH LAMPS

**X-15A FLUORESCENT LAMP**

Single 15-watt lamp 4.5 x 18.75 x 3.5 inches that produces 1250 μW/cm² at 12 inches.



**BLE-1800B Replacement Tube**

**XX-15A FLUORESCENT LAMP**

Two 15-watt BLB tubes 4.5 x 18.75 x 3.5 inches that produce 1600 μW/cm² at 12 inches.

**BLE-1800B Replacement Tube**

**X-40 FLUORESCENT LAMP**

Single 40-watt lamp 6 x 49 x 4 inches that produces 1500 μW/cm² at 12 inches.

**BLE-7900B Replacement Tube**

40-watt four-foot tube (long wave)

**XX-40 FLUORESCENT LAMP**

Two 40-watt BLB tubes 6 x 49 x 4 inches that produce 1,570 μW/cm² at 12 inches.

**BLE-7900B Replacement Tube**

40-watt four-foot tube (long wave)

# BLACK LIGHT METERS

### DSE-2000A VISIBLE AND UV DIGITAL METER

Designed to measure long wave ultra violet radiation (black light) in the range of 320 to 380nm, with an accuracy of ± 5%. Visible Light 380-760 nm ± 5%.

*Recalibration available at Kentucky facility.*

### DM-365XA ULTRA VIOLET RADIOMETER

Provides unmatched overall accuracy of better than ± 5%, traceable to NIST. Complies with both MIL and ASTM standards. Easy to read LED display. Water/liquid-resistant.

*Recalibration available at Kentucky facility.*

### J-221 BLACK LIGHT METER

An inexpensive meter designed to measure overall black light intensity between 300nm and 400nm with a peak sensitivity at 365nm. The J-221 is supplied with a sensor cell, a four-foot extension cord for the sensor cell, reduction screen, contrast filter, certification report, and instructions.

Filter Contrast Shield

*Recalibration available at Kentucky facility.*

# EYE PROTECTION

### UVS-30 SPECTROLINE SPECTACLES

Protects eyes from exposure to sporadic, low-intensity ultraviolet sources. The well-proportioned frames fit easily over regular prescription glasses.

### UVF-80 SPECTROLINE FACE SHIELD

Provides eye protection from exposure to extended or high-intensity ultraviolet sources. Meets both ANSI Specification Z87.1 for safety eye wear and OSHA Standard 1910.133 for eye and face protection.

Adjusts to fit all head sizes.

### UVG-50 SPECTROLINE GOGGLES

Protects eyes from exposure to extended or high-intensity ultraviolet sources. Meets both ANSI Specification Z87.1 for safety eye wear and OSHA Standard 1910.133 for eye protection. Adjustable, well proportioned frames fit easily over regular prescription glasses.

# PENETRANT TEST PIECES

### SHERWIN PSM-5 PENETRANT SYSTEM MONITOR PANEL

A stainless steel panel, 0.090 inch thick, and measuring 4 x 6 inches. A chrome-plated strip runs the length of one side of the panel. Five crack centers are evenly spaced in the chrome plating in order of magnitude; the largest is easily visible with low-sensitivity penetrants, while the smallest is difficult to observe even with high-sensitivity materials. Adjacent to the chrome-plated section is a grit-blasted area of "medium roughness" to judge penetrant wash characteristics.

The **PSM-5 Panel** comes in two versions. One version **TAM #146040-1** has a polished-chrome strip and a grit-blasted side used for background analysis. The other version **TAM #146040-2** has the polished-chrome strip lightly grit blasted in order to dull the surface. Both versions are manufactured to the Pratt & Whittney TAM #146040 specification.

# PENETRANT TEST PIECES (CONTINUED)

### SHERWIN TWIN KDS PANELS

A pair of nearly identical panels measuring 2 x 6 inches and 0.090 inch thick with matching crack patterns. Being rugged, Sherwin Twin KDS Panels may be used to satisfy MIL-STD-6866 and ASTM E-1417 requirements for daily system checks. And, having matching cracks of known sizes, the panels may be used to compare penetrant performance.

### WTP-1 SHERWIN WASH TEST PANEL

A stainless steel panel measuring 4 x 6 inches and 0.090 inch thick with two parallel, "medium rough" strips, each 6 x 1 1/2 inches separated by a smooth 1 inch strip. The wash panel is used to meet monthly removability testing required by MIL-STD-6866 and ASTM E-1417.

### WTP-2 SHERWIN WASH TEST PANEL

The 1.5 x 2 inch panel is made from 16 gauge 301 or 302 stainless steel by grit blasting with 80 mesh aluminum oxide grit and 60 psi of air pressure. The roughened surface that is produced is free of scratches and blemishes. This panel is used to run removability tests, in a laboratory setting.

### Twin NiCr SENSITIVITY PANELS

A set of two panels, each measuring 3.875 x 1.875 inches (100 x 35mm), sheared from the same stock with matching crack patterns. Makes simultaneous comparison of two penetrant batches practical. Specify crack sizes of 10µm, 20µm, 30µm, and 50µm.

### KC-KIT KLEEN CHEK Q-PON TESTING KIT

Cleaning system monitor helps assure that parts are thoroughly clean and ready to receive penetrant. Nickel-plated coupons with induced cracks to which is applied a soil having a fluorescent tracer. Kit contains four Q-pons and three bottles of soil.

### KLEEN CHEK Q-PONS

Replacement coupons for Kleen Chek Testing Kit. Nickel-plated coupons with induced cracks to which is applied a soil having a fluorescent tracer. Each coupon measures 1 x 3 inches.

**KC-3** 3 Q-pons
**KC-6** 6 Q-pons
**KC-12** 12 Q-pons

### CAB CRACKED ALUMINUM BLOCK (or "Penetrant Comparator")

Pressure Code, Section V & III, MIL-I-25135 and AMS-2644. The cracked aluminum block is made from SB-211 Type 2024 aluminum, rolled 3/8 inch thick with dimensions of 2 x 3 inches. A notch separates the block's two sides to facilitate side-by-side comparisons.

### FC-1 FLUORESCENT COMPARATOR


A plastic ruler with linear and circular fluorescent marks in inches for flaw dimension comparison under UV light. The tool measures graded flaw markings from .005 to .125 inches.

General purpose model.

### ADP-1 PANEL FOR AQUEOUS DEVELOPER

Aqueous developer check panel made from aluminum.

Measures 3 x 10 inches.

ASTM E-1417 (Sec. 7.8.2.5).

### FC-3 FLUORESCENT COMPARATOR (TAM #135273)

A plastic ruler with linear and circular fluorescent marks in inches and millimeters for flaw dimension comparison under UV light. The tool measures graded flaw markings from .010 to .180 inches (.2 to 4.6mm).

Pratt-Whitney model.

### FC-13 FLAW DIMENSION TOOL (TAM #190466A)

Plastic swing-away keys, tapered and angled for tight radius comparisons. Linear and circular fluorescent marks in inches for flaw dimension comparison under UV light. The tool measures graded flaw markings from .010 to .180 inches.

Pratt-Whitney model.

### FC-4 FLUORESCENT COMPARATOR (G.E.)

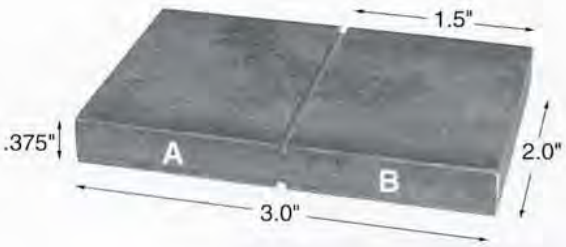
A plastic ruler with linear and circular fluorescent marks in inches for flaw dimension comparison under UV light. The tool measures graded flaw markings from .005 to .125 inches.

General Electric model.

# PENETRANT TEST PIECES

SHERWIN

DUBL-CHEK PENETRANT PROCESS




## Cracked Aluminum Block (Penetrant Comparator):

Meets ASME boiler Pressure Code, Section V & III, MIL-1-25135 and AMS-2644. The cracked aluminum block is made from SB-211 Type 2024 aluminum, rolled 3/8" thick with dimensions of 2 x 3 inches. A notch separates the block's two sides to facilitate side by side comparisons.

## Sherwin PSM-5 Penetrant System Monitor Panel:

PSM-5 Panel (Polished)

PSM-5 Panel (Grit)

A stainless steel panel, 0.090" thick and measuring 4 x 6 inches. A chrome plated strip runs the length of one side of the panel. Five crack centers are evenly spaced in the chrome plating in order of magnitude; the largest is readily visible with low sensitivity penetrants, while the smallest is difficult to observe even with high sensitivity materials. Adjacent to the chrome plated section is a grit blasted area of "medium roughness" to judge penetrant wash characteristics.

The **PSM-5 Panel** comes in two versions. Both versions are manufactured to Pratt-Whitney P/N TAM 146040 specifications. One has a chrome strip which has been lightly grit blasted in order to dull the surface. The chrome plated strip of the second version is not grit blasted. Sherwin Incorporated is an authorized manufacturer of TAM 146040 panels.

**PSM-5 Panel** processing meets MIL-STD-6866 and ASTM E-1417 requirements for daily system check.

## Sherwin WTP-1 Wash Test Panel:

A stainelss steel panel measuring 4 x 6 inches and 0.090" thick with two parallel, "medium rough" strips, each 6 x 1.5 inches separated by a smooth 1 inch strip. The wash panel is used to evaluate removability testing required by MIL-STD-6866 and ASTM E-1417.

## Sherwin Twin KDS Panels:

A pair of nearly identical panels with matching crack patterns. Being rugged, **Sherwin Twin KDS Panels** may be used to satisfy MIL-STD-6866 and ASTM E-1417 requirements for daily system checks. And, having matching cracks of known sizes, the panels may be used to compare penetrant performance.

## Twin NiCr Sensitivity Panels:

A set of two panels, each measuring 3.875 x 1.875 inches (100 x 35mm), sheared from the same stock with matching crack paterns. Makes simultaneous comparison of two penetrant batches practical. Available in sets having crack depths of 10µm, 20µm, 30µm, and 50µm.

## Sherwin WTP-2 Wash Test Panel:

The 1.5 x 2 inch panel is made from 16 guage 301 or 302 stainless steel by grit blasting with 80 mesh aluminum oxide grit and 60 psi of air pressure. The roughened surface that is produced is free of scratches and blemishes. This panel is used to run removability tests.

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email: sherwininc@aol.com

# 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.

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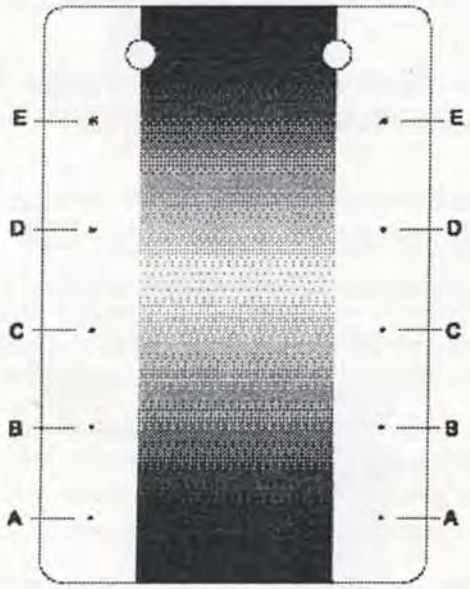
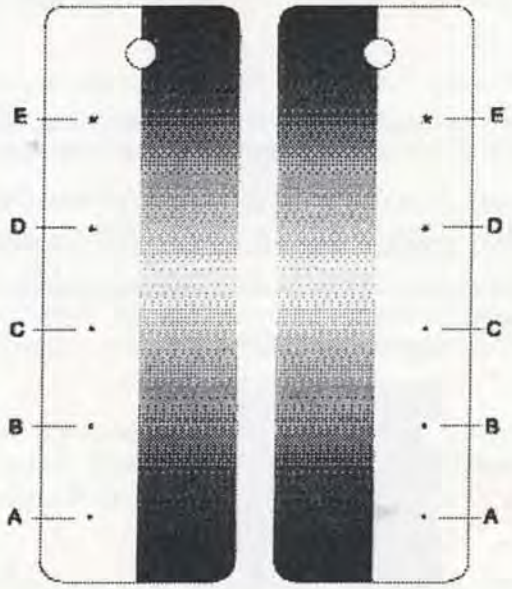
### *TWIN KDS PANEL MANUFACTURING PROCESS*




*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.*

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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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5530 Borwick Ave.
South Gate, CA 90280

## *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.

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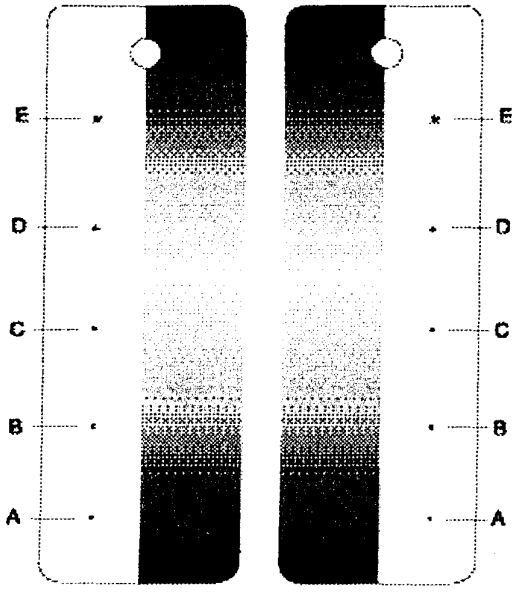
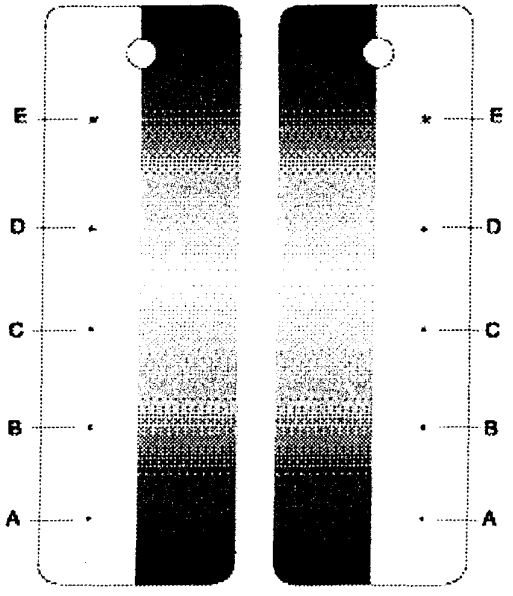
**COMPARE SENSITIVITY**




*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.*

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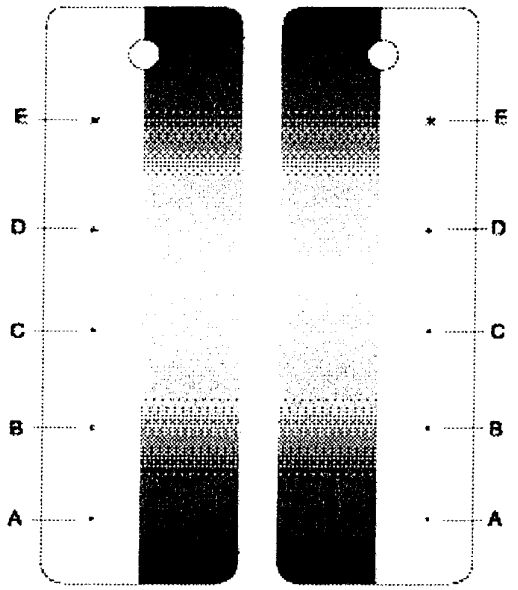
**TWIN KDS-TAM MODEL**




*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.

**SHERWIN**
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# Crack Comparators

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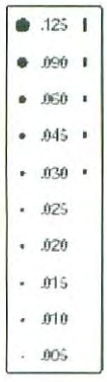


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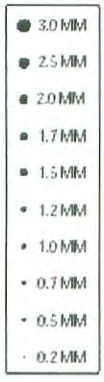


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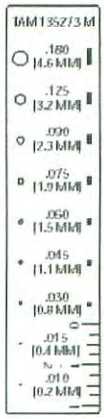


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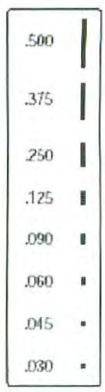
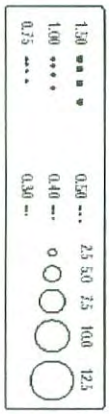



MX-5


MX-6


MX-7

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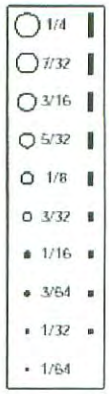
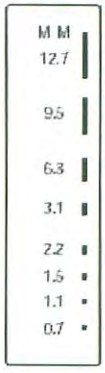


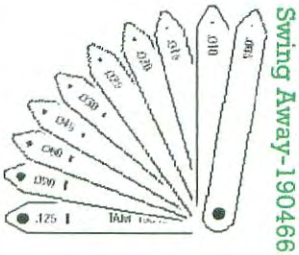

MX-9


MX-10




MX-11


MX-12

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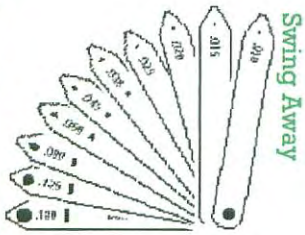


MX-14

*.005 size was removed
.180 size was added

*Available in the following colors: white, fluorescent green, black and orange.

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REFILLABLE • RECHARGEABLE • COMPLETELY PORTABLE

Model "A" and "M" sprayers are our 2 most industrial lines of sprayers. They feature metal construction , brass nozzles, and corrosion resistant working parts. Model "A" Sprayers have a 32 oz. liquid capacity and the Model "M" sprayers have a 24 oz. liquid capacity. Model "A" sprayers feature a steel canister and come with either a powder coated or chrome plated exterior. Model "M" sprayers have an industrial anodized finish on both the interior and exterior. Model "A" sprayers work with oil and solvent based materials and Model "M" sprayers can also be used with water based materials. Partial and complete repair kits are available and all of the nozzles and extensions fit both "A" and "M" sprayers.

## ONE QUART CAPACITY STEEL SPRAYER (Model A)


NOT RECOMMENDED FOR PAINT

### POWDER COATED FINSH

| | |
|---|---|
| A1000 | Comes With Multi Purpose Nozzle. Nozzle Is Set For Regular Mist. For Pin Stream Remove #303 Spiral. |
| A1002 | Nozzle #602, Adjustable From Extra Fine Mist To Pin Stream. Black only. |
| A6100 | Features Relief Valve. Comes With Multi Purpose Nozzle. Nozzle Is Set For Regular Mist. For Pin Stream Remove #303 Spiral. |
| A6102 | Features Relief Valve. Nozzle #602, Adjustable From Extra Fine Mist To Pin Stream. |

### NICKEL-PLATED FINISH

| | |
|---|---|
| A1100 | Comes With Multi Purpose Nozzle. Nozzle Is Set For Regular Mist. For Pin Stream Remove #303 Spiral. |
| A1102 | Nozzle #602, Adjustable From Extra Fine Mist To Pin Stream. |

## 24 oz. CAPACITY ANODIZED ALUMNIUM SPRAYER (Model M)


### INDUSTRIAL ANODIZED FINISH

| | |
|---|---|
| M2400 | Nozzle #602, Adjustable From Extra Fine Mist To Pin Stream. |

Sure Shot Model "M" sprayers offer the same chemical resistant working parts as the Model "A" sprayers. They come standard with an adjustable nozzle and feature a chemical resistant anodized finish. Model "M" sprayers will work with water, solvent and oil based materials. Model "M" sprayers use the same nozzles and extensions as the Model "A" sprayers. Your choice of either Silver or Black Anodized finish. All Sure Shot® sprayers have a maximum pressure of 200 P.S.I.

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sure shot
MILWAUKEE SPRAYER

**NICKEL PLATED BRASS NOZZLES OFFER EXCELLENT CHEMICAL RESISTANCE.**

Milwaukee Sprayer has many different stock nozzles and extensions available for Model A sprayers. Below is a list with some brief descriptions. If you can't find exactly what you want, or if you need something different, contact us using the information on the back. Because we manufacture our parts and accessories, as well as our sprayers, we can modify or customize many items to meet your needs.

## NOZZLE / EXTENSION SELECTION
### (Available for Model A Units Only)


301 — Solid pin stream pattern. For applications where "splash" coverage is preferred or deeper penetration is required (such as penetrating oil, lubrication oil, insecticide, etc.) Ideal for distant or inaccessible areas. Effective range up to 20 feet.


302 — Standard solid cone pattern, medium density.


302-B — Solid cone pattern, heavy density. For use where heavier coverage is preferred such as whitewall tire cleaner and machinery cleaner.


302-C — Solid cone pattern, extra fine density. For use where light coverage with a fine mist is preferred such as marking dyes and ink.


305 — Solid cone pattern, fine density. For use with lighter liquids and applications that require extra uniformity such as mold release agents and dry-cleaning fluids.


501 — Flat, fan-shaped pattern, medium to heavy density. For applications that require a uniform film over a large area such as insecticides, bakers trough grease, etc. Handles heavier viscosity liquids more effectively.


602 — Adjustable spray nozzle permits finger-tip regulation of spray from extra fine mist to pin stream. Should not be used with materials harmful to plastics.


707 — Extra fine full pattern. Will spray some heavier type liquids.

### FILLER CAP


156 — "T" handle allows for easy removal and tightening by hand.

Individual parts, kits and accessories are available for all Sure Shot® sprayers. Contact us for more information. Toll Free 800.558.7035

### NOZZLE EXTENSIONS - 320/345/337


344 Hypodermic tubing 3" long

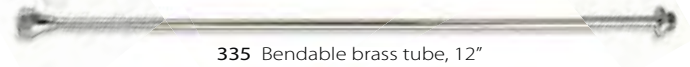

320 Rigid 3-inch with built-in solid cone medium density spray head.


345 Rigid 3 inch with pin stream spray


337 Pin stream plastic tube, 12"

### NOZZLE EXTENSIONS FOR - 301/302/302C/302B/501


325 Rigid 6-inch


335 Bendable brass tube, 12"


330 Flexible Teflon® tube, 12"

### NOZZLE EXTENSIONS FOR - 305/550/567/602/707


338 Rigid 6-inch


339 Bendable brass tube, 12"


331 Flexible Teflon® tube, 12"

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