PENETRANT TESTING MATERIALS

LPI Fluorescent Materials

LPI Non-Fluorescent (Visible) Materials

"We trust in MAGNAFLUX Zyglo® fluorescent and Spotcheck® visible brand penetrant testing materials to deliver the level of quality performance that inspires customers to do business with us."

inspire

MAGNAFLUX®

Magnaflux® certified fluorescent and visible dye penetrant inspection materials deliver unmatched performance in the detection of small defects and discontinuities in almost any non-porous material.

Delivering Quality

ZYGLO® FLUORESCENT PENETRANTS

POST EMULSIFIABLE FLUORESCENT PENETRANTS

Zyglo® ZL-2C Post Emulsifiable Fluorescent Penetrant

Zyglo® ZL-2C is designed to be impervious to water to protect it from over-washing and to allow more penetrant to remain in discontinuities for improved detection of small defects. It and other post emulsifiable penetrants require the application of a lipophilic or hydrophilic emulsifier to render them washable with water.

Zyglo® ZL-2C fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS-2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271.

Applications: Zyglo® ZL-2C is typically used on castings, forgings, extrusions and rough machined surfaces to find cracks, seams, laps, laminations and porosity.

Classification: Type 1, Method B Penetrant when using ZE-4B emulsifier. Type 1, Method D Penetrant when using ZR-10B (20%) remover.

Penetrant Sensitivity Level: Level 2 - Normal Sensitivity.

Part Number & Container Size:

01-3123-40 5 Gal. Pail
01-3123-30 20 Gal. Drum
01-3123-45 55 Gal. Drum

PENETRANT TESTING MATERIALS

Magnaflux Zyglo® fluorescent and Spotcheck® visible liquid penetrant testing materials are the industry's most preferred and widely used NDT products employed in the detection of cracks and fine surface discontinuities in ferrous and non-ferrous test materials. Formulated from superior quality dyes and solvents they produce vivid indications in virtually all non-porous materials, and are supported by an expansive line-up of certified penetrants, cleaners, developers, emulsifiers, accessories and equipment.

Zyglo® ZL-27A Post Emulsifiable Fluorescent Penetrant

Zyglo® ZL-27A is designed to be impervious to water to protect it from over-washing and to allow more penetrant to remain in discontinuities for improved detection of small defects. It and other post emulsifiable penetrants require the application of a lipophilic or hydrophilic emulsifier to render them washable with water.

Zyglo® ZL-27A fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-27A is typically used on castings, forgings, extrusions and rough machined surfaces to find cracks, seams, laps, laminations and porosity.

Classification: Type 1, Method B Penetrant when using ZE-4B emulsifier. Type 1, Method D Penetrant when using ZR-10B (20%) remover.

Penetrant Sensitivity Level: Level 3 - High Sensitivity.

Part Number & Container Size:

01-3187-40 5 Gal. Pail
01-3187-30 20 Gal. Drum
01-3187-45 55 Gal. Drum
Also available in 16 oz. aerosol cans.

Zyglo® ZL-37 Post Emulsifiable Fluorescent Penetrant

Zyglo® ZL-37 is designed to be impervious to water to protect it from over-washing and to allow more penetrant to remain in discontinuities for improved detection of small defects. It and other post emulsifiable penetrants require the application of a lipophilic or hydrophilic emulsifier to render them washable with water.

Zyglo® ZL-37 fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-37 is ideal for titanium turbine components, investment castings, and other high stress critical components where detection of fine, tight discontinuities is required.

Classification: Type 1, Method B Penetrant when using ZE-4B emulsifier. Type 1, Method D Penetrant when using ZR-10B (20%) remover.

Penetrant Sensitivity Level: Level 4 - Ultra High Sensitivity.

Part Number & Container Size:

01-3188-40 5 Gal. Pail
01-3188-30 20 Gal. Drum
01-3188-45 55 Gal. Drum
01-3188-75 Penetrant Pens (Case of 12)

WATER WASHABLE FLUORESCENT PENETRANTS

Zyglo® ZL-15B Water Washable Fluorescent Penetrant

Zyglo® ZL-15B is a water washable fluorescent penetrant that is safe for use on most engineering and aerospace alloys including aluminum, steel, nickel and titanium.

Zyglo® ZL-15B fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-15B exhibits excellent rough surface washability and is typically used on castings, forgings, extrusions and rough machined surfaces to find cracks, seams, laps, cold shuts, laminations and porosity.

Classification: Type 1, Method A, Water Washable (Non Water Based) Penetrant.

Penetrant Sensitivity Level: Level 1/2 - Very Low Sensitivity.

Part Number & Container Size:

01-3159-40 5 Gal. Pail
01-3159-30 20 Gal. Drum
01-3159-45 55 Gal. Drum

Zyglo® ZL-19 Water Washable Fluorescent Penetrant

Zyglo® ZL-19 is a water washable fluorescent penetrant that is safe for use on most engineering and aerospace alloys including aluminum, steel, nickel and titanium.

Zyglo® ZL-19 fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-19 exhibits excellent rough surface washability and is typically used on castings, forgings, extrusions and rough machined surfaces to find cracks, seams, laps, cold shuts, laminations and porosity.

Classification: Type 1, Method A, Water Washable (Non Water Based) Penetrant.

Penetrant Sensitivity Level: Level 1 - Low Sensitivity.

Part Number & Container Size:

01-3263-40 5 Gal. Pail
01-3263-30 20 Gal. Drum
01-3263-45 55 Gal. Drum

Zyglo® ZL-60D Water Washable Fluorescent Penetrant

Zyglo® ZL-60D is a water washable fluorescent penetrant that is safe for use on most engineering and aerospace alloys including aluminum, steel, nickel and titanium.

Zyglo® ZL-60D fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-60D exhibits excellent rough surface washability and is typically used on castings, forgings, extrusions and rough machined surfaces to find cracks, seams, laps, cold shuts, laminations and porosity.

Classification: Type 1, Method A, Water Washable (Non Water Based) Penetrant.

Penetrant Sensitivity Level: Level 2 - Medium Sensitivity.

Part Number & Container Size:

01-3272-40 5 Gal. Pail
01-3272-30 20 Gal. Drum
01-3272-45 55 Gal. Drum
Also available in 16 oz. aerosol cans.

Zyglo® ZL-67 Water Washable Fluorescent Penetrant

Zyglo® ZL-67 is a water washable fluorescent penetrant that is safe for use on most engineering and aerospace alloys including aluminum, steel, nickel and titanium.

Zyglo® ZL-67 fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-67 is typically used on critical applications including investment castings, jet engine components, and highly machined surfaces to find cracks, seams and porosity.

Classification: Type 1, Method A, Water Washable (Non Water Based) Penetrant.

Penetrant Sensitivity Level: Level 3 - High Sensitivity.

Part Number & Container Size:

01-3274-40 5 Gal. Pail
01-3274-30 20 Gal. Drum
01-3274-45 55 Gal. Drum

Zyglo® ZL-56 Water Washable Fluorescent Penetrant

Zyglo® ZL-56 is a water washable fluorescent penetrant that is safe for use on most engineering and aerospace alloys including aluminum, steel, nickel and titanium.

Zyglo® ZL-56 fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm. It possesses a high flash point and meets OSHA requirements for Class III B liquids allowing it to be used in open dip tanks.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing BAC 5423 PSD 6-46 or 8-4, AECL, Boeing PS 21202.

Applications: Zyglo® ZL-56 is typically used on smooth, nonporous, highly machined surfaces to find cracks, seams and scratches on critical parts.

Classification: Type 1, Method A, Water Washable (Non Water Based) Penetrant.

Penetrant Sensitivity Level: Level 4 - Ultra High Sensitivity.

Part Number & Container Size:

01-3267-40 5 Gal. Pail
01-3267-30 20 Gal. Drum
01-3267-45 55 Gal. Drum

WATER BASED FLUORESCENT PENETRANTS

Zyglo® ZL-4C Water Based Penetrant

Zyglo® ZL-4C is a water based penetrant that contains no petroleum based solvents. It fluoresces bright greenish-yellow under an ultraviolet light source with a peak wavelength of 365 nm.

The use of aqueous developers is not recommended with Zyglo® ZL-4C as they tend to wash the penetrant out of discontinuities. Dry powder developer (ZP-4B Dry Powder Developer) is applied after the test surface has been dried.

Specification Compliance: ASME B & PV Code Sec. V, ASTM E165.

Applications: Zyglo® ZL-4C is typically used on plastics and ceramics to find cracks. Zyglo® ZL-4C is also used as a leaker penetrant to detect through leaks. (Use with plastic parts should be tested to confirm Zyglo® ZL-4C compatibility.)

Part Number & Container Size:

01-3137-40 5 Gal. Pail
01-3137-45 55 Gal. Drum

EMULSIFIERS

Zyglo® ZE-4B Lipophilic Emulsifier

Zyglo® ZE-4B is a lipophilic emulsifier. It is non-corrosive and can be used in open tank operations due to its low volatility and high flash point.

Specification Compliance: AMS 2644, MIL-STD-271, ASME B & PV Code Sec. V, ASTM E165, Boeing BAC 5423 PSD 6-46 or 8-4, MIL-STD-2132, ASTM E1417, Boeing PS 21202, AECL.

Applications: Zyglo® ZE-4B is used as a Method B lipophilic emulsifier for Magnaflux post emulsifiable penetrants.

Classification: Method B - Lipophilic Emulsifier.

Part Number & Container Size:

01-3546-40 5 Gal. Pail
01-3546-30 20 Gal. Drum
01-3546-45 55 Gal. Drum

Zyglo® ZR-10B Hydrophilic Emulsifier

Zyglo® ZR-10B is a hydrophilic emulsifier. It offers the advantages of minimization of fluorescent background on rough surfaces, minimization of bleed-out from hollow parts, and reduced consumption of expendable materials.

Specification Compliance: AMS 2644, MIL-STD-271, ASME B & PV Code Sec. V, ASTM E165, Boeing BAC 5423 PSD 6-46 or 8-4, MIL-STD-2132, ASTM E1417, Boeing PS 21202, AECL, Honeywell EMS 52309, AMS 2647, General Electric P3TF2, Pratt & Whitney.

Applications: Zyglo® ZR-10B is used as a Method D hydrophilic emulsifier for Magnaflux® post emulsifiable penetrants.

Classification: Method D - Hydrophilic Emulsifier.

Part Number & Container Size:

01-3620-40 5 Gal. Pail
01-3620-30 20 Gal. Drum
01-3620-45 55 Gal. Drum

DEVELOPERS

Zyglo® ZP-4B Dry Powder Developer

Zyglo® ZP-4B is a free flowing, white fluffy powder used as a highly sensitive dry powder developer for Zyglo® Penetrants. When applied, ZP-4B forms a thin film on parts, enhancing indications of ultrafine discontinuities. Its high purity allows it to be used in applications where purity is essential to the testing process.

Specification Compliance: AMS 2644, MIL-STD-271, ASME B & PV Code Sec. V, ASTM E165, Boeing BAC 5423 PSD 6-46 or 8-4, MIL-STD-2132, ASTM E1417, Boeing PS 21202, AECL, Honeywell EMS 52309, AMS 2647, General Electric P3TF2, Pratt & Whitney.

Zyglo® ZP-4B Dry Powdered Developer Continued.

Applications: Zyglo® ZP-4B is typically used on automobile parts, off-road equipment, farm equipment, welds, castings, forgings, leak testing, pressure vessels, aircraft, marine, construction, maintenance, petroleum pipelines, power plant inspections and general metalwork.

Classification: Form a - Dry Powder Developer.

Part Number & Container Size:

01-3328-69 10 lb. Pail

01-3328-75 20 lb. Container

Zyglo® ZP-5B Water Suspendible Developer

Zyglo® ZP-5B Water Suspendible Developer disperses quickly in water to form an opaque white suspension. At higher concentrations, Zyglo® ZP-5B forms an opaque white coating which provides contrasting background for Spotcheck® penetrant indications.

Specification Compliance: AMS 2644, MIL-STD-271, ASME B & PV Code Sec. V, ASTM E165, Boeing BAC 5423 PSD 6-46 or 8-4, MIL-STD-2132, ASTM E1417, Boeing PS 21202, AECL, AMS 2647, General Electric P3TF2.

Applications: Zyglo® ZP-5B is typically used on automobile parts, off-road equipment, farm equipment, welds, castings, forgings, leak testing, pressure vessels, aircraft, marine, construction, maintenance, petroleum pipelines, power plant inspections and general metalwork.

Classification: Form c - Water Suspendible Developer.

Part Number & Container Size:

01-3341-81 25 lb. Pail

Zyglo® ZP-9F Developer

Zyglo® ZP-9F is a dispersion of organic particles in isopropyl alcohol and acetone that produces an opaque white coating which provides an excellent contrasting background for Spotcheck® or Zyglo® penetrant indications.

Specification Compliance: AMS 2644, MIL-STD-271, ASME B & PV Code Sec. V, ASTM E165, ASTM E1417, Boeing PS 21202, AECL, AMS 2647, NAVSEA 250-1500-1.

Applications: Zyglo® ZP-9F is typically used on automobile parts, off-road equipment, farm equipment, welds, castings, forgings, leak testing, pressure vessels, aircraft, marine, construction, maintenance, petroleum pipelines, power plant inspections and general metalwork.

Classification: Form d - Non-Aqueous Type 1 Fluorescent (solvent based). Form e - Non-Aqueous Type 2 Visible Dye (solvent based).

Part Number & Container Size:

01-3354-40 5 Gal. Pail

Also available in 16 oz. aerosol cans.

Zyglo® ZP-14A Aqueous Soluble Developer

Zyglo® ZP-14A is used as a water soluble developer for enhancing indications formed by Zyglo® penetrants. It produces a uniform white coating when dry which is easily removed in post inspection cleaning by water spray. Once the developer bath has been prepared, no in use agitation is required to maintain developer uniformity.

Specification Compliance: AMS 2644, MIL-STD-271, ASME B & PV Code Sec. V, ASTM E165, ASTM E1417, Boeing BAC-5423 PSD 6-46 or 8-4, AMS 2647, General Electric P3TF2, AECL.

Applications: Zyglo® ZP-14A is recommended for use with Zyglo® ZL-2C, ZL-27A , and ZL-37 penetrants.

Classification: Form b - Water Soluble Developer.

Part Number & Container Size:

01-3381-75 20 lb. Pail

01-3381-89 50 lb. Container

Zyglo® ZA-70 Portable Fluorescent Penetrant Inspection Kit

The Zyglo® ZA-70 Portable (aerosol) Fluorescent Inspection Kit offers improved sensitivity over our Spotcheck® visible red dye inspection kit.

Each kit contains:

- ZB-100F Ultraviolet Black Light
- 1 Can ZL-27A PE Fluorescent Penetrant
- 1 Can ZP-9F Developer
- 2 Cans SKC-S Cleaner
- Paint Marker
- SCRUBS® Hand Towels
- Plastic Carrying Case
- Instruction Booklet

Applications: The Zyglo® ZA-70 Portable Fluorescent Inspection Kit is typically used on machined surfaces to find cracks, seams, laps, laminations and porosity.

Part Number:

600047 Kit with 115V ZB-100F UV Black Light

600045 Kit with 230V-60Hz ZB-100F UV Black Light

600047

Zyglo® ZA-70R (16 oz.) Refill Kit

Each kit contains:

- 2 Cans ZL-27A PE Fluorescent Penetrant
- 2 Cans ZP-9F Developer
- 4 Cans SKC-S Cleaner
- Heavy Duty Wiping Cloth
- Paint Marker
- SCRUBS® Hand Towels
- Plastic Carrying Case
- Instruction Booklet

Part Number:

01-3930-48 Zyglo® ZA-70R Refill Kit

01-3930-48

SPOTCHECK® VISIBLE PENETRANTS

SOLVENT REMOVABLE VISIBLE PENETRANT

Spotcheck® SKL-SP2 Solvent Removable Penetrant

Spotcheck® SKL-SP2 is a solvent removable, post emulsifiable, red color contrast penetrant with outstanding penetrating characteristics. It offers maximum reliability in locating surface-open flaws and discontinuities and has been successfully used on non-porous ceramics and other similar materials.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271.

Applications: Spotcheck® SKL-SP2 is typically used on welds, forgings, pressure vessels, castings, general metal work, leak testing, power plants and construction.

Classification: Type 2, Method B, C or D.

Part Number & Container Size:

01-5155-35 1 Gal. (Case of 4)
01-5155-40 5 Gal. Pail
01-5155-45 55 Gal. Drum
01-5155-75 Penetrant Pen (Case of 12)
Also available in 16 oz. aerosol cans.

WATER WASHABLE VISIBLE PENETRANT

Spotcheck® SKL-WP2 Water Washable Penetrant

Spotcheck® SKL-WP2 is a water washable, red color contrast penetrant with outstanding penetrating characteristics and discontinuity identification. Water wash removable, it eliminates the need for solvent removers or emulsifiers in the elimination of excess surface penetrant.

Specification Compliance: AMS 2644, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing PS 21202, AECL, NAVSEA 250-1500-1, AECL, Boeing BAC 5423 PSD 6-46 or 8-4.

Applications: Spotcheck® SKL-WP2 is typically used on welds, forgings, pressure vessels, castings and general metal work.

Classification: Type 2, Method A.

Part Number & Container Size:

01-5190-35 1 Gal. (Case of 4)
01-5190-40 5 Gal. Pail
01-5190-45 55 Gal. Drum
Also available in 16 oz. aerosol cans.

WATER BASED VISIBLE PENETRANT

Spotcheck® SKL-4C Water Based Penetrant

Spotcheck® SKL-4C is a water based, water washable, red dye penetrant used for leak testing and in the inspection of ceramic and chemically sensitive plastic parts. (Use with plastic parts should be tested to confirm Spotcheck® SKL-4C compatibility.)

Spotcheck® SKL-4C indications appear dark purplish-red under visible light and fluorescent orange under UV Black Light to provide dual range inspection flexibility. It can be diluted infinitely with water, but a dilution of 1:1 is generally recommended.

Specification Compliance: ASME B & PV Code Sec. V, ASTM E165.

Applications: Spotcheck® SKL-4C is typically used for leak testing, and ceramic and plastic part inspection.

Part Number & Container Size:

01-5125-40 5 Gal. Pail

01-5125-45 55 Gal. Drum

CLEANER / REMOVER

Spotcheck® SKC-S Cleaner / Remover

Spotcheck® SKC-S is a non-halogenated material used in the liquid penetrant inspection process. It is used on a moist cloth to remove surface penetrant from the inspection area prior to applying developer.

Specification Compliance: AMS 2644, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing PS 21202, NAVSEA 250-1500-1, AECL, Boeing BAC 5423 PSD 6-46 or 8-4.

Applications: Spotcheck® SKC-S is typically used to remove excess surface penetrant from the inspection area prior to applying developer.

Classifications: Class 2.

Part Number & Container Size:

01-5750-35 1 Gal. (Case of 4)

01-5750-40 5 Gal. Pail

01-5750-45 55 Gal. Drum

Also available in 16 oz. aerosol cans.

DEVELOPER

Spotcheck® SKD-S2 Non-Halogenated Solvent Developer

Spotcheck® SKD-S2 is a non-halogenated solvent developer that meets major requirements for special alloy and nuclear applications. It is a ready to use suspension of white developing particles in a fast drying solvent. It produces an opaque white coating which provides an excellent contrasting background for penetrant indications.

Specification Compliance: AMS 2644, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD-2132, ASTM E165, MIL-STD-271, Boeing PS 21202, NAVSEA 250-1500-1, AECL, Boeing BAC 5423 PSD 6-46 or 8-4.

Applications: Spotcheck® SKD-S2 is used as a developer for the liquid penetrant inspection process.

Classification: Form d - Non-Aqueous Type 1 Fluorescent (solvent based). Form e - Non-Aqueous Type 2 Visible Dye (solvent based).

Part Number & Container Size:

01-5352-35 1 Gal. (Case of 4)
01-5352-40 5 Gal. Pail
01-5352-45 55 Gal. Drum
Also available in 16 oz. aerosol cans.

VISIBLE PENETRANT INSPECTION KITS

Spotcheck® SK-416 AND SK-816 Penetrant Inspection Kits

Spotcheck® SK-416 and SK-816 penetrant inspection kits contain everything needed to perform visible red dye liquid penetrant inspections. No UV Black Light is required for inspection.

Specification Compliance: AMS 2644, AECL, ASME B & PV Code Sec. V, ASTM E1417, MIL-STD 2132, ASTM E165, MIL-STD 271.

Applications: Spotcheck® SK-416 and SK-816 penetrant inspection kits are used in the inspection of automobile parts, off-road equipment, farm equipment, welds, castings, forgings, leak testing, pressure vessels, aircraft, marine, construction, maintenance, petroleum pipelines, power plants and general metalwork.

Part Number:

01-5970-48 - Spotcheck® SK-416: Each kit contains:

- 1 Can SKL-SP2 Penetrant
- 1 Can SKD-S2 Developer
- 2 Cans SKC-S Remover
- Paint Marker
- SCRUBS® Hand Towels
- Plastic Carrying Case

01-5970-48

01-5920-48 - Spotcheck® SK-816: Each kit contains:

- 2 Cans SKL-SP2 Penetrant
- 2 Can SKD-S2 Developer
- 4 Cans SKC-S Remover
- Paint Marker
- SCRUBS® Hand Towels
- Plastic Carrying Case

01-5920-48

SPECIFICATIONS

ZYGLO® PENETRANTS

	Water Washable					Post Emulsifiable		
SPECIFICATIONS	**ZL-15B**	**ZL-19**	**ZL-60D**	**ZL-67**	**ZL-56**	**ZL-2C**	**ZL-27A**	**ZL-37**
NAVSEA T9074-AS-GIB-010/271	X	X	X	X	X	X	X	X
MIL-STD-2132	X	X	X	X	X	X	X	X
AECL	X	X	X	X	X	X	X	X
AMS-2644	X	X	X	X	X	X	X	X
AMS-2647			X	X	X	X	X	X
ASME B & PV Code, Sec. V	X	X	X	X	X	X	X	X
ASTM E165	X	X	X	X	X	X	X	X
ASTM E1417	X	X	X	X	X	X	X	X
Boeing BAC 5423 PSD 6-46 or 8-4	X	X	X	X	X	X	X	X
Honeywell EMS 52309	X	X	X	X	X	X	X	X
General Electric P3TF2			X	X	X	X	X	X
Boeing PS 21202	X	X	X	X	X	X	X	X
Pratt & Whitney FPM		X	X	X		X	X	X

ZYGLO® EMULSIFIERS, REMOVERS and DEVELOPERS

	Emulsifiers & Removers			Developers			
SPECIFICATIONS	**ZE-4B**	**ZR-10B**	**SKC-S**	**ZP-4B**	**ZP-14A**	**ZP-5B**	**ZP-9F**
NAVSEA T9074-AS-GIB-010/271	X	X	X	X	X	X	X
MIL-STD-2132	X	X	X	X	X	X	X
AECL	X	X	X	X	X	X	X
AMS-2644	X	X	X	X	X	X	X
AMS-2647	X	X	X	X	X	X	X
ASME B & PV Code, Sec. V	X	X	X	X	X	X	X
ASTM E165	X	X	X	X	X	X	X
ASTM E1417	X	X	X	X	X	X	X
Boeing BAC 5423 PSD 6-46 or 8-4	X	X	X	X	X	X	X
Honeywell EMS 52309	X	X	X	X	X	X	X
General Electric P3TF2	X	X	X	X	X	X	X
Boeing PS 21202	X	X	X	X	X	X	X
Pratt & Whitney FPM		X		X			X

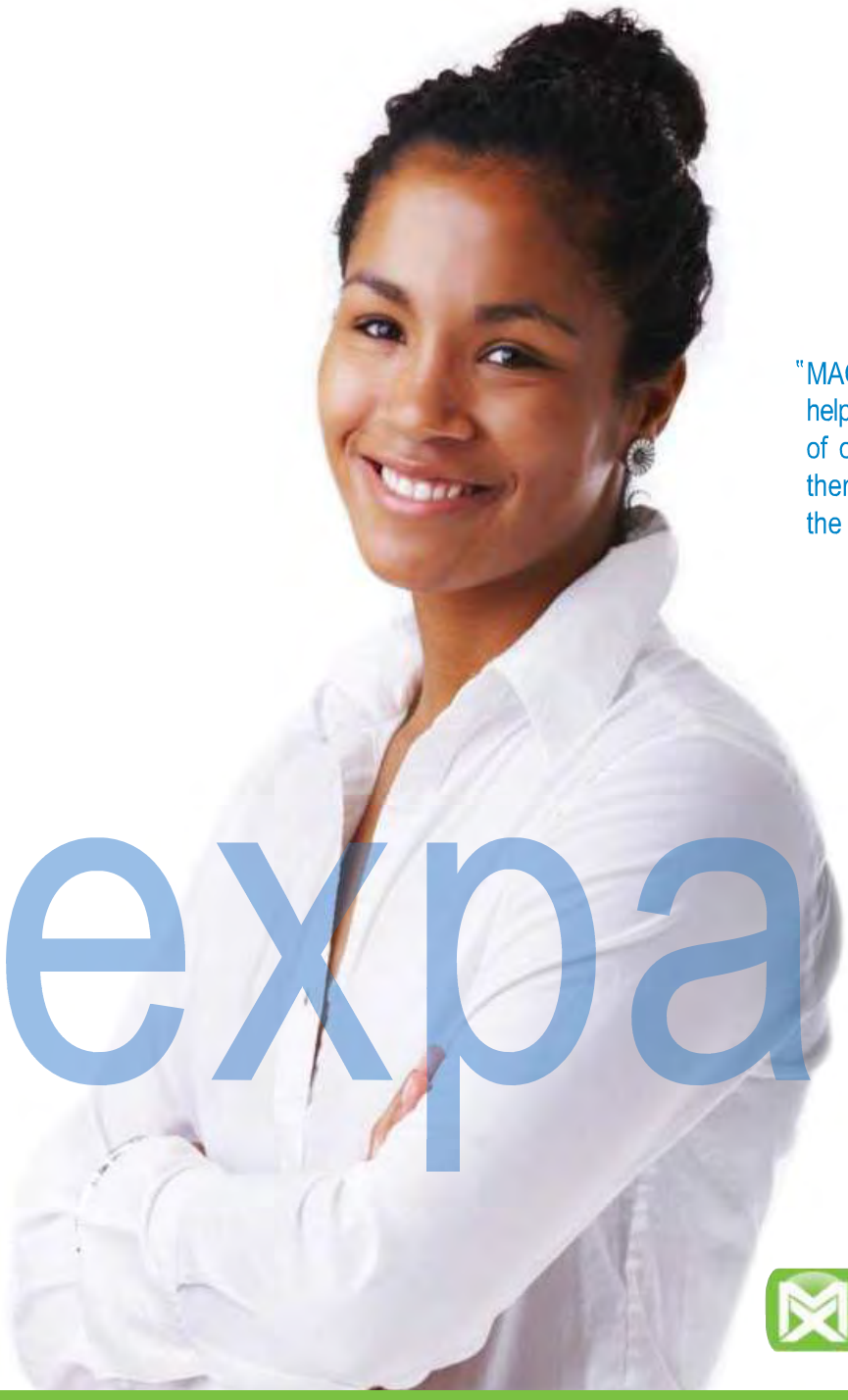
MAGNAFLUX®

SPOTCHECK® PENETRANTS, CLEANERS and DEVELOPERS

	Penetrants			Cleaners	Developers	
SPECIFICATIONS	SKL-SP2	SKL-WP2	SKL-4C	SKC-S	SKD-S2	ZP-5B
NAVSEA T9074-AS-GIB-010/271	X	X		X	X	X
NAVSEA 250-1500-1	X			X	X	
MIL-STD-2132	X	X		X	X	X
AECL	X	X		X	X	X
AMS-2644	X	X		X	X	X
ASME B & PV Code, Sec. V	X	X	X	X	X	X
ASTM E165	X	X	X	X	X	X
ASTM E1417	X	X		X	X	X
Boeing BAC 5423 PSD 6-46 or 8-4	X	X		X	X	X
Boeing PS 21202	X			X	X	X

PENETRANT TESTING ACCESSORIES

LPI Accessories



"MAGNAFLUX® penetrant testing accessories helped to increase the speed and effectiveness of our NDT process and literally paid for themselves in time and labor savings within the first year."

expand

MAGNAFLUX®

Magnaflux® Penetrant Testing Accessories have been designed to simplify and enhance the penetrant testing process and to make sure that the highest process control standards are maintained throughout the entire NDT test sequence.

Expanding Capabilities

TIMERS & MONITORING DEVICES

Hydrometer

A hydrometer is a lab or field device used to measure the specific gravity of a liquid solution and, therefore, its strength. When used for water based developers such as ZP-14A Water Soluble Developer and ZP-5B Water Suspendible Developer, it will give the specific concentration range for optimum performance.

If the hydrometer reading is high (based upon the supplied concentration graph), water is generally added. If the reading is low, developer is added to the bath.

Part Number:

5857 Hydrometer

Specifications Compliance: ASTM E1417-11

5857

Refractometer

A refractometer is an easy to use laboratory or field device used to measure the concentration of the Hydrophilic Remover (ZR-10B) in water and is required to meet Pratt and Whitney and GE concentration specifications for hydrophilic removers.

A chart for converting refractive index to percent concentration of ZR-10B can be found and is available for downloading on the Magnaflux® website.

Part Number:

513829-01 Refractometer

Specifications Compliance: Pratt & Whitney and GE specifications, ASTM E1417-11.

513829

Multi-Station Process Control Digital Timer

Battery operated multi-station digital timer shows MS/HM and station number with corresponding color LEDs. Timer displays up to 4 separate time cycles running at one time.

- Set audible and visual alarms for up to four (4) different dwell times: penetrant, rinse, emulsification and developer
- Features large easy to read LCD screen
- Count-up and count-down functions
- Wall mountable

Part Number:

522099 Multi-Station Process Control Digital Timer

522099

PENETRANT TESTING ACCESSORIES

Manufacturers and quality experts count on Magnaflux® penetrants to maintain their customer's rigid quality standards and to make sure that their parts, components and processes meet major industry certification requirements. The Accessories Group manufacturers and maintains a broad inventory of products and support equipment designed to expand and enhance the penetrant inspection process for NDT professionals. From test panels and rinse sprayers to refractometers, Magnaflux® accessories help keep penetrant process control operations performing at peak productivity and quality levels.

HAND SPRAYERS

Dry Developer Spray Gun

Manual spray gun that delivers a light, even dry developer coating.

- Uses shop compressed air (dry)
- Features mix, jet and spread controls
- 1 quart capacity

Part Number:

521339 Dry Developer Spray Gun

521339

Hydro-Wash Spray Gun

For pre and post rinsing of parts using either the water-wash or post-emulsifiable processes.

- Air injection boosts velocity to permit faster rinsing of hollow or rough-surface parts
- Advantageous for areas with low or fluctuating water pressure

Part Number:

518992 Hydro-Wash Spray Gun

518992

Portable Pressure Sprayer

Lightweight pressure sprayer for spot application of penetrants, developers, and cleaners.

- 1 quart capacity
- Easy disassembly for cleaning
- Pressurize with compressed air to 80 - 200 psi

Part Number:

625774 Portable Pressure Sprayer

625774

Water Spray Gun

For pre and post rinsing of parts using either the water-wash or post-emulsifiable processes.

- Provides optimal coarse spray to help prevent part over-washing

Part Number:

520090 Water Spray Gun

520090

CRACK COMPARATORS

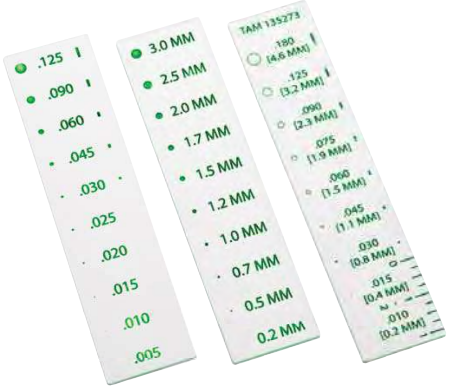
Inch and Metric Crack Comparators

Magnaflux® crack comparators are used to measure the actual size of indications identified during the liquid penetrant inspection process.

Part Number: 514048 - General Purpose Comparator. Measures indications in increments between .005" and 0.125"

Part Number: 514049 - General Purpose Metric Comparator. Measures indications in increments between 0.2mm and 3.0mm

Part Number: 514050 - Pratt & Whitney Crack Comparator. Measures indications in increments between 0.010" and 0.180" and meets Pratt & Whitney requirements (P&W Reference - TAM 135273)



514048 514049 514050

TEST BLOCKS

Aluminum Test Block

The Aluminum Test Block is an aluminum test piece measuring 3" x 2" x 3/8" with a 1/8" wide groove that splits the face in half. The test block is used to check the strength of "in-use" penetrants. This is done by processing one half of the block with "used" penetrant, and the other half with "fresh" penetrant.

Part Number:

14755 Aluminum Test Block

Specifications Compliance: Complies with ASTM E 165, E1417-11, ASME Boiler and Pressure Vessel Code.

14755

Stainless Steel Test Block

The stainless steel test block offers a simple and convenient comparator for monitoring the washability of water-wash or post-emulsified penetrants.

The "grit blasted" finish provides a rough surface which will retain fluorescent background when the in-use penetrant has decreased when compared to fresh (unused) penetrant. The test block should be thoroughly cleaned with SKC-S Cleaner/Remover, as well as periodically refinished grit blast.

Part Number:

154400 Stainless Steel Test Block

Specifications Compliance: Complies with ASTM E 165, E1417-11.

154400

TEST PANELS

NiCr Penetrant Test Panels

Magnaflux® NiCr test panels are ideal penetrant sensitivity comparators. They come in pairs, with panel set crack depths available in 10, 20, 30 and 50 microns. NiCr test panels allow "in use" Zyglo® penetrants to be compared against "new, unused" product to determine if the penetrant is performing properly.

Dimensions: Length 100mm ± 2mm X Width 35mm ± 2mm X Thickness 2mm ± 0.2mm

Part Number:

506251 1 pair of 10 micron panels
506252 1 pair of 20 micron panels
506253 1 pair of 30 micron panels
506254 1 pair of 50 micron panels

Specifications Compliance: Complies with ASTM E1417-11.

506251

TAM Panel / Z5 Test Panel

The Magnaflux® TAM Panel (Pratt and Whitney TAM #146040) monitors both sensitivity and washability of Zyglo® liquid penetrants. The test panel is meant to detect "sudden" penetrant system changes and to ascertain that all parts of the penetrant processing system are functioning in the proper manner.

Part Number:

198055 TAM Panel / Z5 Test Panel

Specifications Compliance: Meets Pratt and Whitney TAM #146040 specifications, ASTM E1417-11.

198055

KDS Test Panel

The Magnaflux® KDS Panel is a Known Defect Standard used for daily system performance analysis. The test panel is used to monitor a penetrant system for sudden changes and verify performance of in-use materials.

Part Number:

625557 KDS Panel

Specifications Compliance: ASTM E1417-11, SAE/AMS 2647.

625557

MISCELLANEOUS ACCESSORIES

TAM Panel Ultrasonic Cleaning Unit

Compact, table-top, ultrasonic cleaning unit with integrated heater and timer provides precision cleaning of TAM panels. Unit available in 115 or 230 volt versions.

Kit Includes:

- Table-top (toaster size) ultrasonic cleaning unit
- 1 gallon of MagnaVu® alkaline cleaner concentrate

Part Number:

01-7500-00 115V Cleaning Unit
01-7501-00 230V Cleaning Unit

01-7500-00

Purified Wiping Cloths

Magnaflux® Purified Penetrant Wiping Cloths are ideally suited for penetrant inspection work in the nuclear industry or wherever lint free, low-contamination wiping cloths are required or mandated. The unique crimped finish of the "Rymple Cloth" provides more surface area for collecting dirt particles, and better absorbency for collecting fluids. Each bulk dispensing roll is made from 100 square yards of cloth and yields 100 cloths per roll.

- Super absorbent
- Lint-free
- Soft texture will not scratch parts
- Cloths come with manufacturer certification
- Chemically pure, does not contain binders or silicone

Part Number:

512302 Case of 12 rolls and dispensing rack

512302

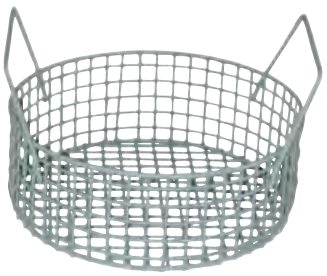
Wire Basket

Sturdy 12" diameter ¾" wire mesh basket designed to enable processing of numerous small parts at one time.

- Epoxy coated mesh protects parts from scratching

Part Number:

1962 Wire Basket



1962

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E 1417-11 REQUIRED TESTS and FREQUENCY

TESTS	FREQUENCY	PARAGRAPH
Penetrant Contamination[1]	Daily	7.8.2.1
Penetrant Brightness	Quarterly	7.8.2.2
Water Content: Water Based Penetrant (Method A)	Weekly	7.8.2.3
Water Content: Non-Water Based Penetrant (Method A)	Monthly	7.8.2.4
Lipophilic Emulsifier Water Content[2]	Monthly	7.8.2.5
Hydrophilic Emulsifier Concentration[2]	Weekly	7.8.2.6
Dry Developer Condition[2]	Daily	7.8.2.7
Aqueous Developer Contamination: Soluble and Suspendible	Daily	7.8.2.8
Aqueous Developer Concentration: Soluble and Suspendible	Weekly	7.8.2.9
Penetrant System Performance[3]	Daily	7.8.3
Water-Washable Penetrant Removability	As Required Per 7.8.3	7.8.3.2
Emulsifier Removability	As Required Per 7.8.3	7.8.3.3
Comparative Penetrant Sensitivity	As Required Per 7.8.3	7.8.3.4
Black Light Intensity[2]	Daily	7.8.4.1
Black Light Integrity	Weekly	7.8.4.1
Special UV Lighting	Daily	7.8.4.2
Battery Powered UV-A Lights	Prior to Use	7.8.4.2.1
Visible Light Intensity	Weekly	7.8.4.3
Light Meter Calibration[2]	Semi-Annually	7.8.4.4
Inspection Area Cleanliness[1]	Daily	7.8.4.5
Inspection Area Ambient Light Intensity	Quarterly	7.8.4.5
Water Wash Pressure Check[1]	Start of Each Shift	7.8.4.6
Water Pressure Gauge Calibration[2]	Semi-Annually	7.8.4.6
Water Wash Temperature Check[1]	Start of Each Shift	7.8.4.6
Water Temperature Gauge Calibration[2]	Semi-Annually	7.8.4.6
Drying Oven Calibration[2]	Quarterly	7.8.4.7
Air Pressure Gauge Check	Start of Each Shift	7.8.4.9
Air Pressure Gauge Calibration	Semi-Annually	7.8.4.9

[1] Need not be recorded.
[2] The maximum time between verifications or checks may be extended when substantiated by technical data and approved by the Cognizant Engineering Organization.
[3] Not required for Method C Examinations.

PENETRANT INSPECTION EQUIPMENT

LPI Equipment

"MAGNAFLUX® penetrant testing equipment has significantly advanced the productivity of our NDT operations. We couldn't be more satisfied."

improve

MAGNAFLUX®

Magnaflux® Penetrant Inspection Equipment is designed to enhance the quality inspection of critical parts and is widely used within the automotive, aerospace and energy markets to increase NDT productivity.

Boosting Productivity

LIQUID PENETRANT INSPECTION EQUIPMENT

Magnaflux Liquid Penetrant Inspection (LPI) Systems are designed for testing everything from small, high volume automotive parts and tolerance critical surgical implants, to large turbine blades. Offered in a variety of configurations and supported with materials and accessories to meet the most demanding applications, they are among the most flexible and accurate NDT equipment available today.

Our ZA-1227 Series LPI system offers sequenced processing capabilites and versatility in the inspection of high volume, extremely small parts and low to moderate volume, small to mid-size parts. With all stations welded into a single uni-frame body, its compact design helps to minimize floor space for easy production line integration. The ZA-1633 Series system comes with a larger penetrant tank to accommodate a greater volume and variety of parts, drain racks for increased productivity, and a standalone inspection booth.

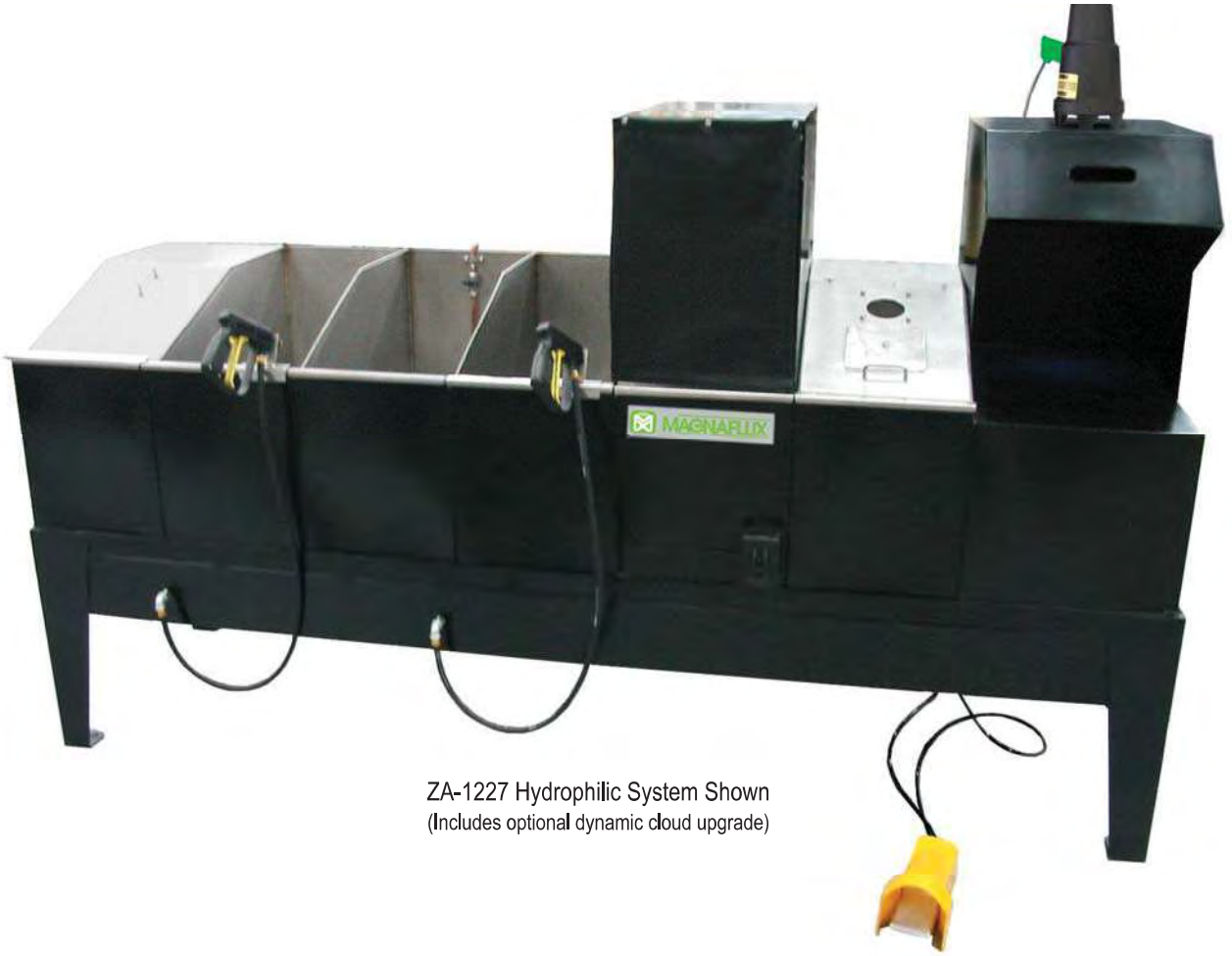
Both series offer three models designed to accommodate different inspection methods; Water Wash, Post Emulsified Lipophilic and Post Emulsified Hydrophilic. The Water Wash method is the simplest unit as water can be used directly to wash excess penetrant from parts without additional steps. The Lipophilic method can locate extremely shallow flaws but requires an extra processing step, applying an emulsifier to make the penetrant washable. The Hydrophilic method delivers the highest inspection sensitivity but also requires the application of an emulsifier, and an additional processing station for pre-rinsing parts.

Should you have a special need not met by any of our standard units detailed in the following pages, our engineering group will happily design a custom LPI system to meet your exact requirements and application. Simply contact a Magnaflux Customer Service Representative at (847) 657-5300 to discuss your system needs.

PENETRANT INSPECTION EQUIPMENT

Magnaflux® Liquid Penetrant Inspection (LPI) Systems are engineered for critical part testing in industries with high inspection tolerances that require easy-to-operate equipment built tough enough to standup to years of use. Offering outstanding design flexibility and proven performance advantages over less technologically advanced systems, Magnaflux® LPI equipment remains the leading choice among global automotive, aerospace and energy parts manufacturers who trust in their outstanding repeatability to uphold their rigid quality standards.

ZA-1227 SERIES LIQUID PENETRANT INSPECTION EQUIPMENT



ZA-1227 Hydrophilic System Shown
(Includes optional dynamic cloud upgrade)

Zyglo® ZA-1227 Method A, Water Wash Fluorescent Penetrant Inspection System

The Zyglo® ZA-1227 Water Wash Penetrant Inspection System is a compact, standalone 5-station system designed for batch and low volume fluorescent inspection of small to medium size parts.

Dimensions: 56"L x 28"W x 36"H (142.2cm x 71.1cm x 91.4cm)

Core Features:

- Compact size
- 304 stainless steel tanks (16 gauge)
- Durable welded steel frame
- Adaptable to multiple applications
- 3 year warranty
- Global authorized service centers

General Specifications:

- Elec. Requirements - 115V, 60Hz, single phase
- Tank Size - 12.88"L x 27.63"W x 16"H (32.7cm x 70.2cm x 40.6 cm)
- Tank Capacity - 10 gallons (37.9L)
- Dryer - Thermostatically controlled
- Black Light - Zyglo® ZB-100F handheld, 100 Watt fan-cooled
- Stations:
  1) Penetrant
  2) Rinse
  3) Dryer
  4) Developer
  5) Inspection

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Zyglo® ZA-1227 Method B, Post Emulsified Lipophilic Fluorescent Penetrant Inspection System

The Zyglo® ZA-1227 Post Emulsified Lipophilic Penetrant Inspection System is a compact, standalone 6-station system designed for batch and low volume fluorescent inspection of small to medium size parts.

Dimensions: 70"L x 28"W x 36"H (177.8cm x 71.1cm x 91.4cm)

Core Features:

- Compact size
- 304 stainless steel tanks (16 gauge)
- Durable welded steel frame
- Adaptable to multiple applications
- 3 year warranty
- Global authorized service centers

General Specifications:

- Elec. Requirements - 115V, 60Hz, single phase
- Tank Size - 12.88"L x 27.63"W x 16"H (32.7cm x 70.2cm x 40.6 cm)
- Tank Capacity - 10 gallons (37.9L)
- Dryer - Thermostatically controlled
- Black Light - Zyglo® ZB-100F handheld, 100 Watt fan-cooled
- Stations:
  1) Penetrant
  2) Emulsifier
  3) Rinse
  4) Dryer
  5) Developer
  6) Inspection

Zyglo® ZA-1227 Method D, Post Emulsified Hydrophilic Fluorescent Penetrant Inspection System

The Zyglo® ZA-1227 Post Emulsified Hydrophilic Penetrant Inspection System is a compact, standalone 7-station system designed for batch and low volume fluorescent inspection of small to medium size parts.

Dimensions: 83"L x 28"W x 36"H (210.8cm x 71.1cm x 91.4cm)

Core Features:

- Compact size
- 304 stainless steel tanks (16 gauge)
- Durable welded steel frame
- Adaptable to multiple applications
- 3 year warranty
- Global authorized service centers

General Specifications:

- Elec. Requirements - 115V, 60Hz, single phase
- Tank Size - 12.88"L x 27.63"W x 16"H (32.7cm x 70.2cm x 40.6 cm)
- Tank Capacity - 10 gallons (37.9L)
- Dryer - Thermostatically controlled
- Black Light - Zyglo® ZB-100F handheld, 100 Watt fan-cooled
- Stations:
  1) Penetrant
  2) Pre-Rinse
  3) Remover
  4) Final Rinse
  5) Dryer
  6) Developer
  7) Inspection

ZA-1633 SERIES LIQUID PENETRANT INSPECTION EQUIPMENT

Zyglo® ZA-1633 Method A, Water Wash Fluorescent Penetrant Inspection System

The Zyglo® ZA-1633 Water Wash Penetrant Inspection System is a standalone 6-station system designed for batch and low volume fluorescent inspection of small to medium size parts. The system comes with a standalone inspection booth with black light, white light, ventilating fan, and digitally calibrated dryer control.

Dimensions: 132"L x 34"W x 36"H (335.3 cm X 86.4 cm X 91.4 cm)

Core Features:

- Stand alone inspection booth
- 304 stainless steel tanks (16 gauge)
- Adaptable to multiple applications
- Durable welded steel frame
- 3 year warranty
- Global authorized service centers

General Specifications:

- Elec. Requirements - 230V or 460V, 60Hz, single phase
- Tank Size - 15.75"L x 33"W x 14.75"H (40 cm x 83.8 cm x 37.5 cm)
- Tank Capacity - 27 gallons (102.2 L)
- Dryer - Digitally calibrated temperature control
- Black Light - Zyglo® ZB-100F handheld, 100 Watt fan-cooled
- Stations:
  1) Penetrant
  2) Drain
  3) Rinse
  4) Dryer
  5) Developer
  6) Inspection

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Zyglo® ZA-1633 Method B, Post Emulsified Lipophilic Fluorescent Penetrant Inspection System

The Zyglo® ZA-1633 Post Emulsified Lipophilic Penetrant Inspection System is a standalone 8-station system designed for batch and low volume fluorescent inspection of small to medium size parts. The system comes with a standalone inspection booth with black light, white light, ventilating fan, and digitally calibrated dryer control.

Dimensions: 165"L x 34"W x 36"H (419.1 cm X 86.4 cm X 91.4 cm)

Core Features:

- Stand alone inspection booth
- 304 stainless steel tanks (16 gauge)
- Adaptable to multiple applications
- Durable welded steel frame
- 3 year warranty
- Global authorized service centers

General Specifications:

- Elec. Requirements - 230V, 60Hz, single phase
- Tank Size - 15.75"L x 33"W x 14.75"H (40 cm x 83.8 cm x 37.5 cm)
- Tank Capacity - 27 gallons (102.2L)
- Dryer - Digitally calibrated temperature control
- Black Light - Zyglo® ZB-100F handheld, 100 Watt fan-cooled
- Stations:
  1) Penetrant
  2) Drain #1
  3) Emulsifier
  4) Rinse
  5) Drain #2
  6) Dryer
  7) Developer
  8) Inspection

Zyglo® ZA-1633 Method D, Post Emulsified Hydrophilic Fluorescent Penetrant Inspection System

The Zyglo® ZA-1633 Post Emulsified Hydrophilic Penetrant Inspection System is a standalone 9-station system designed for batch and low volume fluorescent inspection of small to medium size parts. The system comes with a standalone inspection booth with black light, white light, ventilating fan, and digitally calibrated dryer control.

Dimensions: 182"L x 34"W x 36"H (462.3 cm X 86.4 cm X 91.4 cm)

Core Features:

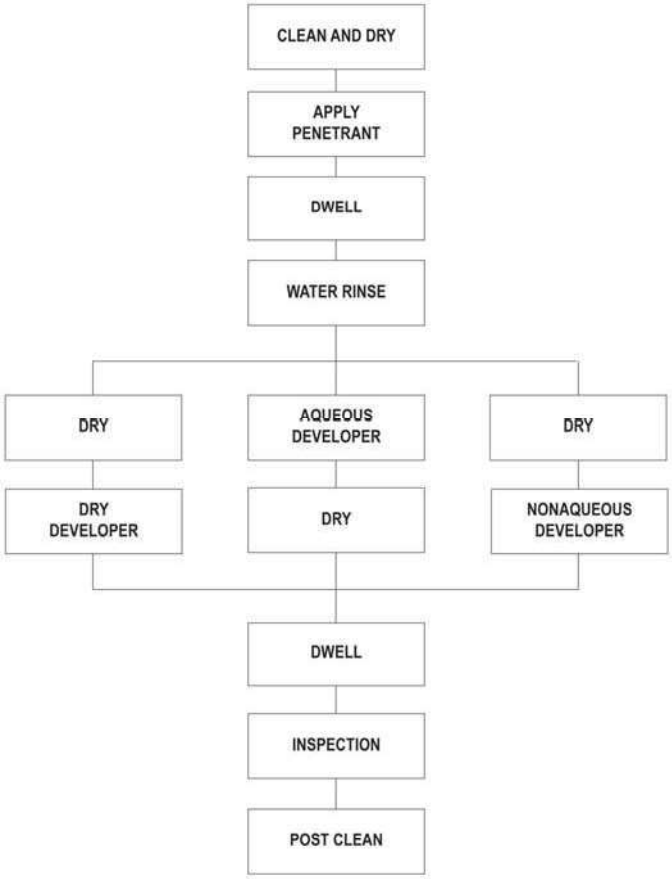
- Stand alone inspection booth
- 304 stainless steel tanks (16 gauge)
- Adaptable to multiple applications
- Durable welded steel frame
- 3 year warranty
- Global authorized service centers

General Specifications:

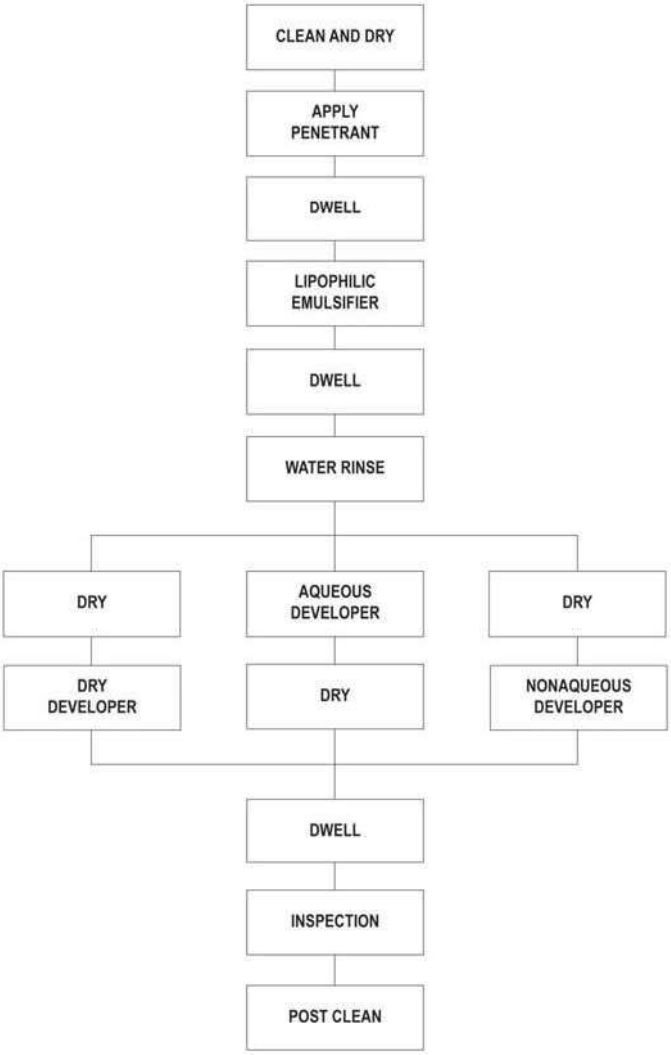
- Elec. Requirements - 230V or 460V, 60Hz, single phase
- Tank Size - 15.75"L x 33"W x 14.75"H (40 cm x 83.8 cm x 37.5 cm)
- Tank Capacity - 27 gallons (102.2L)
- Dryer - Digitally calibrated temperature control
- Black Light - Zyglo® ZB-100F handheld, 100 Watt fan-cooled
- Stations:
  1) Penetrant
  2) Drain #1
  3) Pre-Rinse
  4) Drain #2
  5) Remover
  6) Final Rinse
  7) Dryer
  8) Developer
  9) Inspection

PROCESS FLOW FOR PENETRANT INSPECTION METHODS

METHOD A, WATER-WASHABLE



METHOD B, LIPOPHILIC



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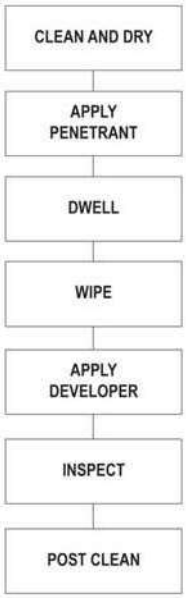
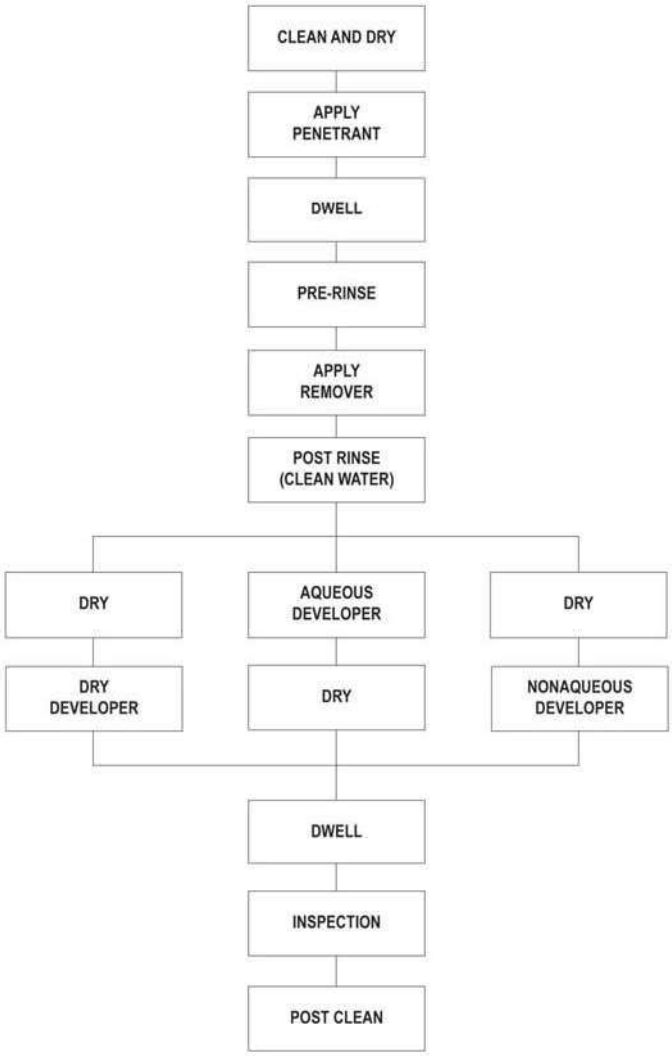
METHOD C, SOLVENT REMOVABLE



METHOD D, HYDROPHILIC



AQUEOUS CLEANERS & ADDITIVES

Aqueous Cleaners

"MAGNAFLUX Daraclean® brand cleaners and corrosion inhibiting additives are multi-metal safe and packed with soil rejecting properties that promote self-cleaning and prolong bath life."

effective

MAGNAFLUX®

Magnaflux Daraclean® brand aerospace approved cleaners and corrosion inhibiting additives have been formulated to deliver superior performance effectiveness across a broad range of soils and surfaces.

Superior Formulations

NEUTRAL CLEANERS

Daraclean® 121 Industrial Cleaner

Daraclean® 121 Industrial Cleaner is a mild, neutral cleaning solution formulated with a blend of surfactants and corrosion inhibitors. It is effective on most surfaces, and all components are FDA approved for indirect contact with food.

Applications: Designed to be used by hand and with immersion and ultrasonic applications, Daraclean® 121 is an excellent cleaner for use on a broad spectrum of soils. It has been proven excellent at removing food grade lubricants, machining fluids, lube oils, motor oils, and buffing compounds. Using mild, neutral surfactant chemistry, oils and solids are broken down and pulled free from part surfaces. Foaming action allows the cleaner to penetrate into crevices and holes, rinsing freely with no remaining residue.

Part Number & Container Size:

01-6140-45 55 Gal. Drum

Daraclean® 212 Aerospace Cleaner

Daraclean® 212 Aerospace Cleaner is an aerospace approved foaming, all-purpose neutral cleaning solution. Formulated with a blend of surfactants, emulsifiers, and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for ultrasonic applications, Daraclean® 212 is safe for use with most metals and is non-aggressive towards aluminum and titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 212 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 212 has been tested and certified to meet and exceed most Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing and Douglas. Independent laboratory tests confirm that Daraclean® 212 complies with AMS 1526 (except dichromated magnesium), ARP 1755, and ASTM F-331, F-483, F-484, F-485, F-502, F-519, F-945, F-1110, and F-1111.

Part Number & Container Size:

01-6030-40 5 Gal. Pail

01-6030-45 55 Gal. Drum

AQUEOUS CLEANERS & ADDITIVES

Daraclean® aerospace cleaners make up one of the industry's broadest and most trusted lines of aqueous cleaners with formulas designed to meet or exceed almost every specification and need. Multi-metal safe and packed with soil-rejection technologies that promote self-cleaning and extend bath life, Daraclean® cleaners can improve the effectiveness of your NDT application process and help keep labor and material costs in check.

Daraclean® 235 Aerospace Cleaner

Daraclean® 235 Aerospace Cleaner is an aerospace approved low foaming, all-purpose neutral cleaning solution. Formulated with a blend of surfactants, emulsifiers and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and light spray applications, Daraclean® 235 is safe for use with most metals and is non-aggressive towards aluminum, brass, copper, titanium and zinc alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 235 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 235 has been tested and certified to meet and exceed Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing and Douglas. Independent laboratory tests confirm that Daraclean® 235 complies with AMS 1526 (except dichromated magnesium), ARP 1755, and ASTM F-331, F-483, F-484, F-485, F-502, F-519, F-945, F-1110, and F-1111.

Part Number & Container Size:

01-6050-40	5 Gal. Pail
01-6050-45	55 Gal. Drum

Daraclean® 236 Aerospace Cleaner

Daraclean® 236 Aerospace Cleaner is an aerospace approved low foaming, all-purpose neutral cleaning solution. Formulated with a blend of surfactants, emulsifiers, and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and spray applications, Daraclean® 236 is safe for use with most metals and is non-aggressive towards aluminum, brass and copper alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 236 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 236 has been tested and certified to meet and exceed Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing and Douglas. Independent laboratory tests confirm that Daraclean® 235 complies with AMS 1526 (except dichromated magnesium), ARP 1755, and ASTM F-331, F-483, F-484, F-485, F-502, F-519, F-945, F-1110, and F-1111.

Part Number & Container Size:

01-6040-40	5 Gal. Pail
01-6040-45	55 Gal. Drum

ALKALINE CLEANERS

Daraclean® 232 Aerospace Cleaner

Daraclean® 232 Aerospace Cleaner is an aerospace approved moderately foaming, all-purpose alkaline cleaning solution. Formulated with a blend of surfactants and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and light spray applications, Daraclean® 232 is safe for use with most metals and is non-aggressive towards aluminum, magnesium and titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 232 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 232 has been tested and certified to meet and exceed Aerospace industry specifications for aqueous and alkaline cleaners. OEM certification includes Pratt & Whitney requirements. Independent laboratory tests confirmed that Daraclean® 232 complies with ARP 1755 and ASTM F-945.

Part Number & Container Size:

01-6070-45 55 Gal. Drum

Daraclean® 257 Aerospace Cleaner

Daraclean® 257 Aerospace Cleaner is an aerospace approved low foaming, heavy duty alkaline cleaning solution. Formulated with a blend of surfactants, corrosion inhibitors and phosphates, it is an excellent cleaner for use on a broad spectrum of tough soils.

Applications: Designed for immersion, ultrasonic and spray applications, Daraclean® 257 is safe for use with hard metals and is non-aggressive towards aluminum, magnesium and titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 257 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 257 has been tested and certified to meet and exceed most Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing, Douglas, GE, Canadair, and Pratt & Whitney. Independent laboratory tests confirm that Daraclean® 257 complies with AMS 1526, ARP 1755, and ASTM F-483, F-484, F-485, F-502, F-519, F-945, F-1110, and F-1111. Daraclean® 257 is also SCAQMD Clean Air Certified.

Part Number & Container Size:

01-6090-40 5 Gal. Pail

01-6090-45 55 Gal. Drum

Daraclean® 282 Aerospace Cleaner

Daraclean® 282 is an aerospace approved low foaming, all-purpose alkaline cleaning solution. Formulated with a blend of surfactants, emulsifiers and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and spray applications, Daraclean® 282 is safe for use with hard metals and is non-aggressive towards aluminum, magnesium and titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 282 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 282 has been tested and certified to meet and exceed most Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing, Douglas, GE, Honeywell, Lockheed, Pratt & Whitney, Raytheon, Rolls Royce and Sunstrand. Independent laboratory tests confirm that Daraclean® 282 complies with AMS 1526, AMS 1537, ARP 1755, and ASTM F-483, F-484, F-485, F-502, F-519, F-945, F-1110, and F-1111.

Part Number & Container Size:

01-6000-40	5 Gal. Pail
01-6000-45	55 Gal. Drum

Daraclean® 282GF Aerospace Cleaner

Daraclean® 282GF (Glycol-Free) is an aerospace approved low foaming, all-purpose alkaline cleaning solution. Formulated with a blend of surfactants and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and spray applications, Daraclean® 282GF is safe for use with most metals and is non-aggressive towards aluminum, magnesium and titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 282GF far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 282GF has been tested and certified to meet and exceed most Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing, Douglas, GE, Pratt & Whitney, and Rolls Royce. Independent laboratory tests confirm that Daraclean® 282GF complies with AMS 1526, ARP 1755, and ASTM F-483, F-484, F-485, F-502, F-519, F-945, F-1110 and F-1111. Daraclean® 282GF is SCAQMD Clean Air Certified and is approved to MIL-C-29602.

Part Number & Container Size:

01-6010-40	5 Gal. Pail
01-6010-45	55 Gal. Drum

HEAVY DUTY CLEANERS

Daraclean® 200 Industrial Cleaner

Daraclean® 200 is a low foaming, all-purpose alkaline cleaning solution. Formulated with a blend of surfactants, emulsifiers, and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and spray applications, Daraclean® 200 is safe for use with most metals and is non-aggressive towards brass, copper, and titanium alloys. It has been proven effective at removing machine oils, lube oils, cutting fluids, buffing compounds, and even tough, carbonized soils. Using aggressive alkaline chemistry, heavy petroleum-based oils and carbonized soils are broken down and pulled free from part surfaces.

Specification Compliance: Daraclean® 200 is easy to use and maintain and is Clean Air Certified to SCAQMD requirements.

Part Number & Container Size:

01-6020-40 5 Gal. Pail
01-6020-45 55 Gal. Drum

Daraclean® 238 Aerospace Cleaner

Daraclean® 238 is an aerospace approved foaming, heavy duty alkaline cleaning solution. Formulated with a blend of surfactants, corrosion inhibitors, and phosphates, it is an excellent cleaner for use on a broad spectrum of tough soils.

Applications: Designed for immersion and ultrasonic applications, Daraclean® 238 is safe for use with hard metals and is non-aggressive towards aluminum, magnesium, and titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 238 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 238 has been tested and certified to meet and exceed Aerospace industry specifications for aqueous and alkaline cleaners. OEM certifications include Boeing, Douglas, Lockheed, and Pratt & Whitney. Independent laboratory tests confirm that Daraclean® 238 complies with AMS 1526, ARP 1755, and ASTM F-483, F-484, F-485, F-502, F-519, F-945, F-1110, and F-1111. Daraclean® 238 is also SCAQMD Clean Air Certified.

Part Number & Container Size:

01-6080-45 55 Gal. Drum

Daraclean® 259 Optic Cleaner

Daraclean® 259 Optic Cleaner is a low foaming, all-purpose alkaline cleaning solution formulated with a blend of surfactants, corrosion inhibitors, and phosphates. It is an excellent cleaner for use on a broad spectrum of soils and is safe to use with glass, ceramics, plastics, and metal.

Applications: Designed for immersion, spray, and ultrasonic applications, Daraclean® 259 has been proven effective at removing machine oils, lube oils, cutting fluids, buffing compounds, and even tough, carbonized soils. Using aggressive alkaline chemistry, heavy petroleum- based oils and carbonized soils are broken down and pulled free from part surfaces.

Part Number & Container Size:

01-6160-45 55 Gal. Drum

Daraclean® 283 Aerospace Cleaner

Daraclean® 283 is an aerospace approved low foaming, heavy duty alkaline cleaning solution. Formulated with a blend of surfactants, emulsifiers and corrosion inhibitors, it is an excellent cleaner for use on a broad spectrum of soils.

Applications: Designed for immersion, ultrasonic and spray applications, Daraclean® 283 is safe for use with most metals and is non-aggressive towards titanium alloys. It possesses excellent soil-rejecting qualities, suspending soils in the cleaner for a short period of time after lifting from a part's surface. Over time, solids will settle out, and oil and grease droplets will coalesce and float on the surface of the solution. Removal of soils can easily be accomplished using filters or skimmers as necessary. This action extends the useful life of Daraclean® 283 far beyond that of emulsion-type cleaning solutions.

Specification Compliance: Daraclean® 283 has been tested and certified to meet and exceed Aerospace industry specifications for aqueous and alkaline cleaners. OEM Certifications include Boeing, Canadair, and Pratt & Whitney. Independent laboratory tests confirm that Daraclean® 283 complies with AMS 1526†, ARP 1755, and ASTM F-483, F-484, F-485†, F-502, F-519, F-945, F-1110†, and F-1111.

†Except dichromated magnesium, anodized aluminum, and zinc.

Part Number & Container Size:

01-6060-40 5 Gal. Pail

01-6060-45 55 Gal. Drum

HEAVY DUTY POWDER CLEANERS

Daraclean® LC5 Industrial Cleaner

Daraclean® LC5 Industrial Cleaner is a heavy duty powder detergent for use with most metals and hard surfaces. It has proven highly effective at removing dirt, grease, grime, oil, waxes, and buffing compounds. Using powerful chemical action, oils and solids are broken down and pulled free from part surfaces while inhibitors prevent surface pitting and corrosion.

Part Number & Container Size:

01-6400-87 45 lb. Pail

MAGNAVU® CLEANERS

MagnaVu® Dip & Spray Cleaners

MagnaVu® formula cleaners are comprised of alkaline builders, surfactants, a corrosion inhibitor, pH adjuster and coupler, and come in both dip and spray formulas to meet all application needs. MagnaVu® cleaners have been tested in pre-cleaning and post-cleaning phases of NDT and determined to have no effect on processing if the part is thoroughly rinsed after cleaning.

Part Number & Container Size:

01-5731-40 MagnaVu® Dip Cleaner - 5 Gal. Pail
01-5731-45 MagnaVu® Dip Cleaner - 55 Gal. Drum
01-5733-45 MagnaVu® Spray Cleaner - 55 Gal. Drum

ADDITIVES

Daraclean® 615 Inhibitor

Daraclean® 615 is a non-foaming additive that prevents rust and corrosion. Formulated with a blend of inhibitors and emulsifiers, it is hard water tolerant, free-rinsing, and will not leave mineral films on part surfaces. Daraclean® 615 provides excellent broad-spectrum corrosion resistance to critical part surfaces, without depositing any mineral scale or insoluble films. It forms a monomolecular layer over clean metal surfaces, providing a barrier between the metal and environmental oxidizers and humidity. The monomolecular film rinses away cleanly with solvent, coating prep, or aqueous cleaning.

Applications: Daraclean® 615 is designed to be used with immersion and spray rinses and is safe for use with most metals, and non-aggressive towards aluminum, brass,copper, and titanium alloys.

Part Number & Container Size:

01-6120-40 5 Gal. Pail
01-6120-45 55 Gal. Drum

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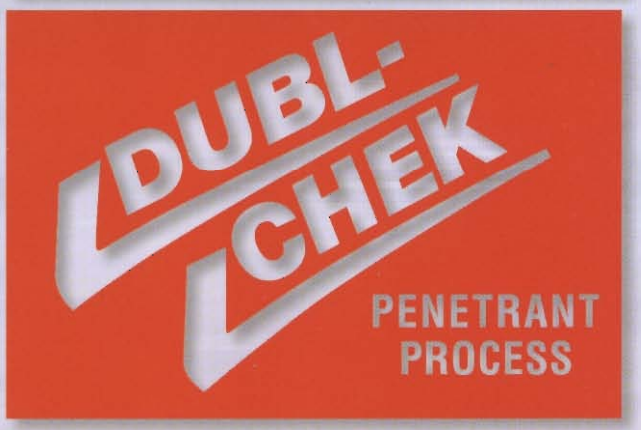

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MATERIALS GUIDE

PRODUCTS	CLASSIFICATION TO AMS-2644	BIODEGRADABLE	DESCRIPTION	TYPICAL APPLICATION	SPECIAL FEATURES
FLUORESCENT PENETRANT Water-washable (Method A & C)					
TRI-A	N/A		surfactant-based	ceramic, plastic, and porous parts	crack detection without staining or use of developer
HM-1	Level 1/2		low sensitivity	non-ferrous metal casting	excellent washability, low penetrant consumption due to low viscosity, excellent electrostatic spray capability flash point over 200 degrees F
HM-2D	Level 1		low sensitivity		
HM-220	Level 1	X	low sensitivity		
HM-3A	Level 2		medium sensitivity	welds, castings forging and extrusions of automotive and aerospace, ferrous and non-ferrous, air frame and turbine engine components	
HM-406	Level 2		medium sensitivity		
HM-412	Level 2		high level 2 sensitivity		
HM-440	Level 2	X	medium sensitivity		
HM-602	Level 2	X	medium sensitivity		
HM-430	Level 3		high sensitivity	turbine engine components including turbine blades and critical welds, castings, forging and extrusions	resists over-washing, low background and excellent electrostatic spray capability flash point over 200 degrees F
HM-604	Level 3	X	high sensitivity		
HM-607	Level 3	X	high sensitivity		
HM-704	Level 4	X	ultra-high sensitivity		
HM-707	Level 4	X	ultra-high sensitivity		
FLUORESCENT PENETRANT Post-Emulsifiable (Method B, C & D)					
RC-29	Level 1		low sensitivity	welds, castings, forging in automotive, airframe and turbine engine	low penetrant consumption due to low viscosity, excellent electrostatic spray capability, superior heat resistance, fully approved and proven over two decades flash point over 200 degrees F
FP-228	Level 2		medium sensitivity		
RC-50	Level 2		medium sensitivity		
RC-65	Level 3		high sensitivity	critical turbine engine components, e.g. turbine blades, turbine engine rotating parts, discs, fan-blades	
RC-77	Level 4		ultra-high sensitivity		
RC-88	Level 4		ultra-high sensitivity		
FLUORESCENT PENETRANT Water-based (Method A & C)					
I-319 Water-based	N/A	X		liquid oxygen applications	water-base, LOX compatible
WB-100 Water-based	Level 1	X	low sensitivity	castings, forging in automotive airframe and turbine engine	first approved water-based fluorescent penetrants biodegradable, resists over-washing, non-flammable
WB-200 Water-based	Level 2	X	medium sensitivity		
EMULSIFIERS					
ER-83A	Method D	X	hydrophilic	use with P.E. penetrants and DP-40	qualified to 30% max. concentration – high tolerance to contamination
ER-85	Method B		lipophilic	use with P.E. penetrants and DP-40	slow diffusion with lower risk of over-emulsification
DEVELOPERS					
D-90G	form a		dry powder	dust chamber – hand application, or powder bulb	stabilizes and enhances brilliance to indications
D-90G.1					
D-90H					
D-100	form d & e		nonaqueous alcohol	aerosol, sprayer	refined white particles give thin, more uniform layer refined white particles, dries fast into uniform layer nonhazardous, economical developer for testing large number of parts
D-104A	form d & e		nonaqueous acetone/alcohol	aerosol, sprayer	
D-106	form d & e		nonaqueous acetone	aerosol, sprayer	
D-110A.1	form c		water-suspendible	dip tank	
D-113G.1	form b		water-soluble	dip tank	
CLEANERS / REMOVERS					
DR-60	Class 2		hydrocarbon based	use with all visible or fluorescent	excellent solvent action- pre-cleaner and remover more volatile than DR-60, excellent pre-cleaner
DR-62	Class 2		hydrocarbon based		
LA-1 Cleaner	N/A		hot tank - alkaline	dilution, spray or immersion	non-corrosive, non-toxic, sodium-free
VISIBLE DYE PENETRANT					
DP-40	Method B & C & D		P.E. type	welding, castings, forging and extrusions of both ferrous and non-ferrous components and some plastics and ceramics	sharp indications through high color content resist over-washing, high color content flash point over 200 degrees
DP-50	Method A & C		water washable		
DP-51	Method A & C		water washable		
DP-52	N/A		water washable		
DP-54	Method A & C	X	easily water washable	rough castings	easy wash-off for use on heavily textured parts
BY-LUX	N/A		visible and fluorescent	second look with black light	no second application when closer look needed
HIGH TEMPERATURE SYSTEM					
K-017 Penetrant	Method A & C	X	high temp. visible dye	welding, castings, forging at high temperature	inspection on hot surfaces, no need to cool down parts reducing processing time and inspection costs dwell up to 350 degrees
K-019 Remover	Class 2		high temp. remover		
D-350 Developer	form d & e		high temp. developer		

APPROVALS & SPECIFICATIONS

SHERWIN GUIDE TO PENETRANT PROCESSES

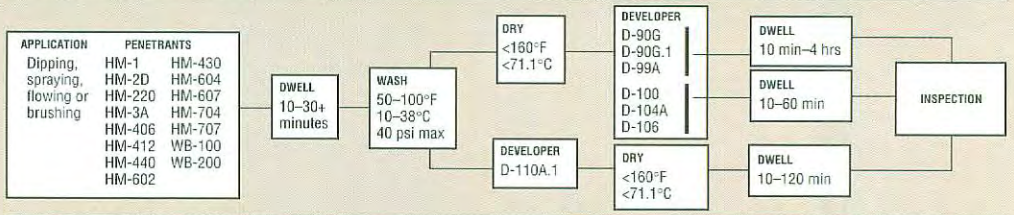
SHERWIN penetrant materials are listed in the Qualified Product List (QPL) of MIL-I-25135E and AMS-2644-1

*NOTE: Some **specialty** products do not meet requirements and are only used for special inspections.*

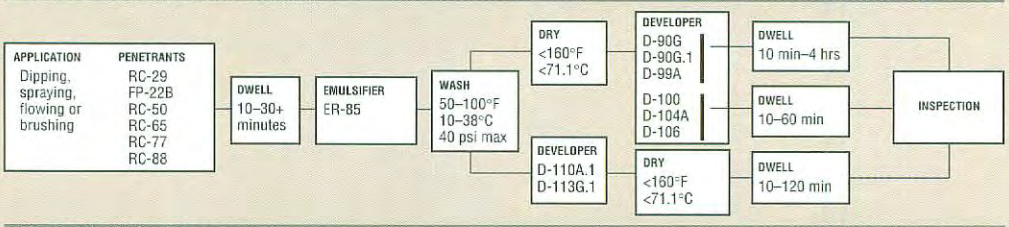
Rolls-Royce
Pratt & Whitney
General Electric
Snecma DMC
Aerospatiale
Turbomeca
FIAT Aviazone
Augusta
MTU
Garrett EMS
Allison
Douglas DMS
Airbus Industry
Boeing BAC 5423
Sikorsky Aircraft
Lockheed
General Dynamics
Northrop
ASME Code Sec V
RDT-F3-6T
AMS/SAE 2647
AMS-3155
AMS-3156
AMS-3157
Embraer
Bombardier

TYPE I-FLUORESCENT PENETRANTS

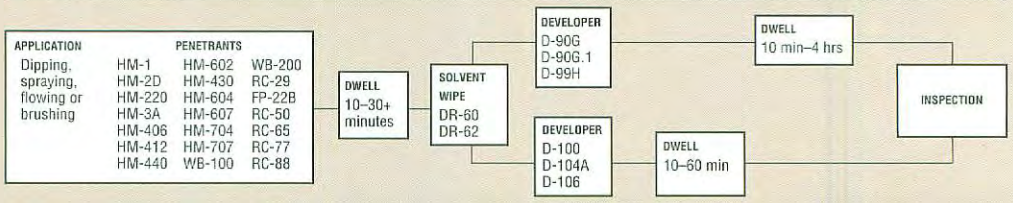
Method A – Water Washable



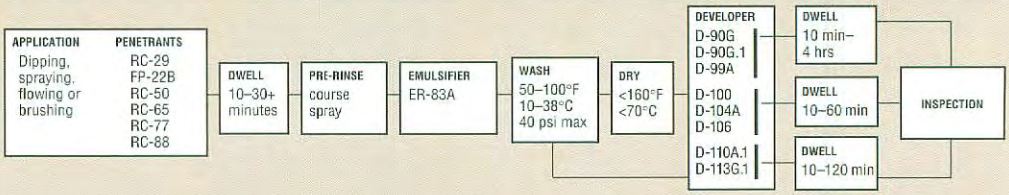
Method B – Post-Emulsifiable, Lipophilic



Method C – Solvent Removal

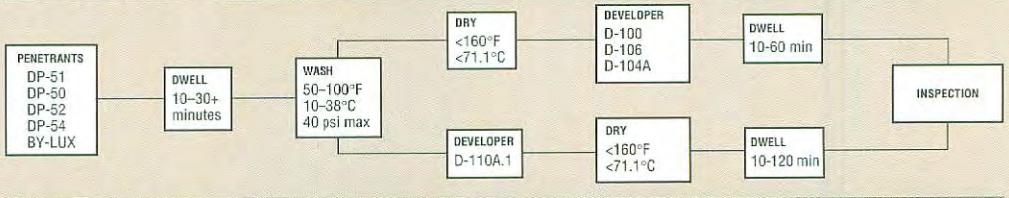


Method D – Post-Emulsifiable, Hydrophilic

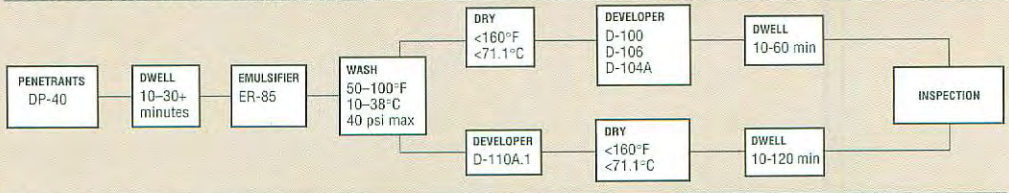


TYPE II-VISIBLE PENETRANTS

Method A – Water Washable



Method B – Post-Emulsifiable, Lipophilic



Method C – Solvent Removal

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Penetrant Classification System

Penetrants:	Type I	Fluorescent
	Type II	Visible (Red)
Removal Method:	Method A	Water Removable
	Method B	Lipophilic Emulsifier (oil base)
	Method C	Solvent Wipe
	Method D	Hydrophilic Emulsifier (water base)
Removers:	Class (1)	Halogenated (nonflammable)
	Class (2)	Nonhalogenated (flammable)
Developers:	Form a	Dry powder
	Form b	Water Soluble
	Form c	Water Suspendable
	Form d	Nonaqueous
	Form e	Nonaqueous
Fluorescent Sensitivity:	Level 1/2	Ultra Low
	Level 1	Low
	Level 2	Medium
	Level 3	High
	Level 4	Ultra High

Frequency of In-Use Penetrant Tests ASTM E-1417

Each Shift
Water Wash Pressure and Temperature

Daily
Penetrant Contamination
Dry Developer Condition
Developer Contamination (form b & c)
System Performance
Black Light: Intensity, Reflectors & Filters
Examination Area Cleanliness

Weekly
Emulsifier (hydrophilic) Concentration
Penetrant Sensitivity*
Water Content (water based)
Aqueous Developer Concentration (b & c)
Visable & Black Light Integrity

Monthly
Penetrant Water Content (method a only)
Penetrant Removability* (method a only)
Emulsifier Water Content (lipophilic only)
Emulsifier Removability*

Quarterly
Penetrant Brightness*
Calibrate Drying Oven

Semi-Annually
Calibrate Light Meter
Water Pressure Gage Calibration
Water Temperature Gage Calibration

Note: Table as it appears is not a complete summary of the required in-use material tests.

* These tests may be combined and performed during the "system performance" test in accordance with 7.8.4.

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DUBL-CHEK PENETRANT PROCESS

10/1/06

SHERWIN
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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

KDS Twin Panels

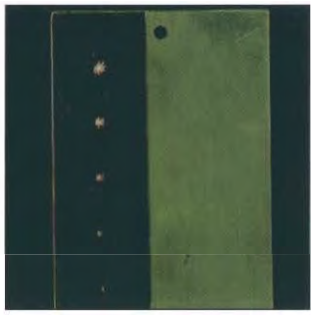
Panel Recalibration

Laboratory Services

In-Use Testing

Custom Products

Penetrant Inspection Accessories



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DETEK

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VISIBLE DYE PENETRANT MATERIALS

DUBL-CHEK PENETRANT PROCESS

PRODUCT SUMMARY

VISIBLE PENETRANTS

Sherwin Incorporated produces two standard, visible dye penetrants; one nonwater-washable, and the other water-washable or water-removable.

DP-40 Dye Penetrant (nonwater-washable): Approved Type II, Method B post-emulsifiable and Method C solvent wipe-off penetrant MIL-I-25135 and AMS-2644. (Also, approved Group I and II under MIL-I-25135-C.) Intense red color for maximum color contrast. Meets all applicable codes and standards; ASTM E-1417, ASME, NAVSHIPS, MIL-STD-6866, etc.

DP-51 Dye Penetrant (water-washable): Approved Type II, Method A water-washable or water wipe-off and Method C solvent wipe-off penetrant under MIL-I-25135 and AMS-2644. A water-removable visible dye penetrant with sensitivity equivalent or superior to most nonwater-washable Type II penetrants. Meets all applicable codes and standards; ASTM E-1417, ASME, NAVSHIPS, MIL-STD-6866, ASTM E-1417, etc.

K0-17 HI-TEMP® Penetrant: Visible dye penetrant, approved under MIL-I-25135 and AMS-2644. Finds flaws on surfaces at elevated temperatures, up to 350°F. Saves time; for weldment inspection before complete cooling (maintain pre-heat temperature); in-service inspection of chemical processing equipment, etc. Used with Hi-Temp KO-19 Remover and either D-100 or Hi-Temp D-350 Developer. ASME Code qualification procedure compliance.

(Under certain circumstances, two other Sherwin Incorporated visible dye penetrants, **DP-50** and **By-Lux** may be appropriate. **DP-50** is similar to **DP-51**, but less bright; and may be appropriate for dip tank procedures. By-Lux may be useful in operations that combine visible and black light procedures. See "Product Summary — Specialty Penetrant Materials" for a description of these and other specialty products.)

REMOVER/CLEANERS

Three standard "Remover/Cleaners" are provided. All are volatile solvents. Two are nonchlorinated solvents and flammable. A third "Remover/Cleaner" is specially formulated for use on hot surfaces.

DR-60 Cleaner/Remover: Clear solvent. Method C, Class (2) Remover (nonchlorinated) MIL-I-25135/AMS-2644. Flash point about 110°F. Used both for cleaning prior to penetrant application and for penetrant removal by wipe-off method. Evaporates clean without residue. Meets applicable codes and specifications.

DR-62 Cleaner/Remover: Clear solvent. Method C, Class (2) Remover (nonchlorinated) MIL-I-25135 and AMS-2644. Use both to clean prior to penetrant application and to remove penetrant by wipe-off method. Evaporates more rapidly than DR-60. Leaves no residue. Meets applicable codes and specifications.

KO-19 FOAM Remover: Used for removal of both Type I and II penetrants when shallow, wide cracks are suspected. Foam — similar to shaving lather — is emitted from the KO-19 spray can directly on the penetrant treated surface. Foam lifts penetrant from the surface, but not from the cracks. Dry toweling is used to wipe surface clean.

EMULSIFIERS

Two emulsifiers are offered. **ER-85**, a "lipophilic" type, is oil-based and used full strength, and **ER-83A**, a "hydrophilic" type, is detergent-based and used highly diluted with water.

ER-85 Emulsifier (Lipophilic): For use with nonwater-washable visible dye (and fluorescent) penetrants (Method B, MIL-I-25135/AMS-2644). Applied full strength as an over-layer to penetrant following penetrant dwell. Makes possible the removal of nonwater-washable penetrant with water spray.

ER-83A Emulsifier (Hydrophilic): Hydrophilic emulsifier (Method D) is also offered for use with nonwater-washable penetrants including **DP-40**. Process includes a plain water pre-wash before **ER-83A** application. Process provides greater reliability where shallow flaws are suspected.

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revised 13 April 1998

DEVELOPERS

Sherwin Incorporated offers three nonaqueous (volatile solvent carrier) developers. **D-100,** is more sensitive, uses alcohol as the carrier, and is flammable. **D-106** is a nonchlorinated solvent based developer that dries more quickly than **D-100. D-350** is designed to be used at high temperatures.

D-100 Developer (nonaqueous): Approved MIL-I-25135/AMS-2644 for both Type I and II penetrants. (Also, approved Groups I through VII.) Adsorbent white particles suspended in volatile solvent (alcohol). Maximum sensitivity. Lays on surface in thinner, more uniform coat. Flash point about 60°F. Apply by spraying. Meets all applicable codes and standards.

D-106 Developer (nonaqueous): Approved MIL-I-25135-E/AMS-2644 for Type I and Type II penetrants. Adsorbent white particles suspended in volatile solvent. Lays on surface in thinner, more uniform coat. Apply by spraying. Meets all applicable codes and standards.

D-350 HI-TEMP® Developer: Nonaqueous. Hi-Temp D350 is used with Hi-Temp K0-17 Penetrant and Hi-Temp KO-19 Remover. White adsorbent particles suspended in nonchlorinated, volatile solvent (alcohol). Available only in spray cans. Performs on elevated temperature surfaces; 200°F to 350°F. Approved Group I and III under MIL-I-25135-C.

PRECAUTIONARY INFORMATION

Materials described on this Product Summary should be used in accordance with instructions. Use with adequate ventilation and away from sparks, fire and open flame. Avoid contact with skin. Avoid breathing vapors or spray mist. Do not get in eyes. Do not take internally.

The products listed are for industrial use by qualified personnel only. Like all nondestructive testing methods, the penetrant process has limitations and no penetrant manufacturer claims that the use of these materials will show all dangerous cracks or defects under all conditions.

LIMITED WARRANTY

Buyer agrees that if any of these products are defective, manufacturer's and seller's only obligation shall be to replace the product or refund its purchase price.

FLUORESCENT PENETRANT MATERIALS

DUBL-CHEK PENETRANT PROCESS

MIL-I-25135 - TYPE 1

PRODUCT SUMMARY

Fluorescent penetrants show surface cracks and porosity as glowing lines or dots in a darkened area under "black" (ultra-violet) light. A developing agent is not always necessary but is generally required to amplify the glowing lines or dots.

Fluorescent penetrants come in two basic formulas: "water-washable" and "nonwater-washable." Water-washable penetrants have an integral emulsifying agent and can be removed from the surface by washing with plain water. Nonwater-washable penetrants are not water-miscible and, while a plain water pressure wash will mechanically remove most of the penetrant, a separate emulsifying step is needed for a clean surface.

Water-washable fluorescent penetrants are classified under MIL-I-25135 as Type 1, Method A, while nonwater-washables are classified as Type 1, Method B and/or Method D, depending upon whether a lipophilic (oil base) or hydrophilic (water base) emulsifier is designated. Both water-washable and nonwater-washable penetrants can be classified as Method C, as this solvent wipe-off method is effective with both.

Fluorescent penetrants are also classified according to their "sensitivity," or their ability to detect the smallest flaws, with Level 1/2 being the least sensitive and Level 4 being the highest. The presecribed sensitivity level depends on manufacturing specifications.

WATER-WASHABLE PENETRANTS - METHOD A and C

SENSITIVITY LEVEL 1/2

HM-1 Fluorescent Penetrant — (approved Group V, MIL-I-25135-D & E) For relatively noncritical work. Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Low cost.

SENSITIVITY LEVEL 1

HM-2D Fluorescent Penetrant — (approved Group V, MIL-I-25135-D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Recommended for magnesium and aluminum castings with difficult surfaces.

HM-220 Fluorescent Penetrant — (approved Group V, MIL-I-25135-C, D & E) Flash Point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Very free rinsing for extremely difficult surfaces. Does **not** contain petroleum distillates and **more** likely to be accepted by sewage treatment facilities.

SENSITIVITY LEVEL 2

HM-3A Fluorescent Penetrant — (approved Group V, MIL-I-25135-C, D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Versatile, general purpose material; used extensively on aluminum and magnesium castings. Competitively priced.

HM-406 Fluorescent Penetrant — (approved Group VI, MIL-I-25135-C, D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Well recognized penetrant, approved and used by prime aerospace contractors on magnesium, aluminum and titanium castings and extrusions. More sensitive than HM-3A.

HM-412 Fluorescent Penetrant — (approved Group V, MIL-I-25135-D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. General purpose penetrant, used on aluminum, magnesium, and titanium castings and extrusions. More sensitive than HM-406.

HM-440 Fluorescent Penetrant — (approved Group VI, MIL-I-25135-C, D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Free rinsing. Does **not** contain petroleum distillates and **more** likely to be accepted by sewage treatment facilities.

SENSITIVITY LEVEL 3

HM-420C Fluorescent Penetrant — (approved Group V, MIL-I-25135-D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Low viscosity, Level 3 penetrant designed for machined, smooth surfaces.

HM-430 Fluorescent Penetrant — (approved Group V, MIL-I-25135-D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. High sensitivity penetrant, formulated for rough surfaces; the four wheel drive penetrant for rough terrain.

HM-604 Fluorescent Penetrant — (approved Group VI, MIL-I-25135-C, D & E) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Where water-washable Level 3 penetrant is designated, **HM-604** is favored, as it does not leave an interfering fluorescent background. Competitively priced! Does **not** contain petroleum distillates and **more** likely to be accepted by sewage treatment facilities.

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SENSITIVITY LEVEL 3

HM-430 Fluorescent Penetrant — Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. High sensitivity penetrant, formulated for rough surfaces; the four wheel drive penetrant for rough terrain.

HM-604 Fluorescent Penetrant — (Group VI) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Where water-washable Level 3 penetrant is designated, **HM-604** is favored, as it does not leave an interfering fluorescent background. Competitively priced! Does **not** contain petroleum distillates and is more likely to be accepted by sewage treatment facilities. Resists over-washing.

HM-607 Fluorescent Penetrant — (Group VI) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Similar to HM-604 in formulation but more sensitive, not quite as free rinsing, and somewhat more expensive. Does **not** contain petroleum distillates and is more likely to be accepted by sewage treatment facilities. Resists over washing.

SENSITIVITY LEVEL 4

HM-704 Fluorescent Penetrant — Flash Point 200°F, OSHA Class IIIB. Low sulfur and low halogen. Ultra-high sensitivity penetrant used on very smooth surfaces. Does **not** contain petroleum distillates and is more likely to be accepted by sewage treatment facilities.

NONWATER-WASHABLE PENETRANTS - METHODS B, & D, and C

The following nonwater-washable penetrants, RC-29, RC-50, RC-65 and RC-77, are approved as Method B with ER-85 Emulsifier, Method D with ER-83A Emulsifier, or as Method C with any approved "cleaner/ remover."

SENSITIVITY LEVEL 1

RC-29 Fluorescent Penetrant — (Group V) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Competitively priced.

SENSITIVITY LEVEL 2

RC-50 Fluorescent Penetrant — (Group V) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Approved by major turbine engine manufacturers in addition to DoD.

SENSITIVITY LEVEL 3

RC-65 Fluorescent Penetrant — (Group VI, VIA, & VII) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Approved by major turbine engine manufacturers in addition to DoD.

SENSITIVITY LEVEL 4

RC-77 Fluorescent Penetrant — (Group VI, VIB, & VII) Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Approved by major turbine engine manufacturers in addition to DoD.

RC-88 Fluorescent Penetrant — Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Ultra-high sensitivity penetrant formulated for critical inspections; increases the visibility of microscopic flaw indications.

EMULSIFIERS FOR FLUORESCENT PENETRANTS - METHODS B & D

Two emulsifiers are offered. One, a lipophilic type, or Method B, is oil based and used full strength. The other, a hydrophilic type, or Method D, is detergent based and used highly diluted with water.

ER-85 Emulsifier (lipophilic): Method B Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. For use with all of the above listed nonwater-washable, fluorescent penetrants. Used in the post-emulsification process. Relatively viscous. Minimizes over-emulsification risk by slow diffusion properties.

ER-83A Emulsifier (hydrophilic): Method D Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. For use with all of the above listed nonwater-washable, fluorescent penetrants. Used in the pre-wash hydrophilic emulsifier process. **ER-83A** is "non-aggressive" with minimum solvent action. It provides greater reliability. A majority of major turbine engine manufacturers have selected **ER-83A** together with RC-77 Penetrant for use on their most critical rotating parts.

ER-83A is diluted with water before use. As shown on the Qualified Products List, **ER-83A** Emulsifier may be used at a solution strength as high as 30% in water by volume. Normally, it is used at a lower strength than the 30% maximum, and for immersion applications, a 20% solution strength is typical. In the spray mode, the solution strength varies from less than 1% to no higher than 5%. (See Product Bulletin **ER-83A** for details.)

Note: QPL-25135 and AMS-2644 specifications do not establish a minimum emulsifier solution concentration, only a maximum. The maximum for **ER-83A** is 30% when used with all of the nonwater-washable penetrants listed above. User established minimum concentrations vary according to surface conditions and pre-wash completeness. For example, smooth surfaces, which accommodate effective pre-washes, may only require a 5% solution.

CLEANER/REMOVERS FOR FLUORESCENT PENETRANTS - METHOD C

Two standard "Remover/Cleaners" are provided. They are nonchlorinated solvents and are flammable

DR-60 Cleaner/Remover: Clear solvent. Method C, Class 2 Remover (nonchlorinated). Flash point about 110°F. Used both for cleaning prior to penetrant application and for penetrant removal by wipe-off method. Evaporates clean without residue. Meets applicable codes and specifications.

DR-62 Cleaner/Remover: Clear solvent. Method C, Class 2 Remover (nonchlorinated). Used both for cleaning before penetrant application and for penetrant removal by wipe-off method. Evaporates more rapidly than DR-60. Leaves no residue. Meets applicable codes and specifications.

Special Note: In accordance with MIL-I-25135/AMS-2644 and MIL-STD-6866/ASTM E-1417, the Class 1 and Class 2 Removers are outside of the "family," or same brand, concept. Sherwin's Cleaner/Removers DR-60, and DR-62 may be used with any QPL-approved penetrants.

DEVELOPERS FOR FLUORESCENT PENETRANTS

Dry Powder

D-9OG Developer: Approved "form a." Low sulfur and low halogen. Excellent surface cling.

NonAqeous Developers

Sherwin Incorporated offers two nonaqueous (volatile solvent carrier) developers. One, **D-100**, uses alcohol as the carrier, and is flammable, but gives higher sensitivity performance. The other, **D-106**, is a non- chlorinated solvent carrier formulation, and flammable. It dries more rapidly than the alcohol solvent carrier developer.

D-100 Developer: Approved for both Type I and Type II penetrants. Adsorbent white particles suspended in volatile solvent (alcohol). Maximum sensitivity performance. Lays on surface in thinner, more uniform coat. Flash point about 60°F. Apply by spraying. Meets all applicable codes and standards.

D-106 Developer: Approved for Type I and II penetrants. Adsorbent white particles suspended in volatile solvent. Lays on surface in thinner, more uniform coat. Apply by spraying. Meets all applicable codes and standards.

Water Soluble

D-113G.1 Developer (water soluble): Approved "form b." Low sulfur and low halogen. A powder which dissolves completely in water, typically one pound per gallon. After application and drying, it forms a uniform, thin white coat on the surface. Normally, only used with nonwater-washable penetrants.

Water Suspendable

D-110A.1 Developer—approved "form c" developer. Low sulfur and low halogen. A powder typically mixed with water at one pound per gallon to form a suspension. After application and drying, **D-110A.1** leaves a uniform, thin, white coating on the surface. Exercise care in choosing the proper circulating equipment for keeping developer particles in suspension.

Special Note: In accordance with MIL-I-25135/AMS-2644, MIL-STD-6866, and ASTM E-1417, developers are outside of the "family," or same brand, concept. All Sherwin developers may be used with <u>any</u> QPL-approved penetrant systems.

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FLUORESCENT PENETRANT MATERIALS

PRODUCT SUMMARY

PRECAUTIONARY INFORMATION

The materials described on this Product Summary should be used in accordance with instructions. Use with adequate ventilation and away from sparks, fire and open flame. Avoid contact with skin. Avoid breathing vapors or spray mist. Do not get in eyes. Do not take internally.

The products listed are for industrial use by qualified personnel only. Like all nondestructive testing methods, the penetrant process has limitations and no penetrant manufacturer claims that the use of these materials will show all dangerous cracks or defects under all conditions.

LIMITED WARRANTY

Buyer agrees that if the product proves to be defective, the manufacturer's and seller's only obligation shall be to replace the the product or refund its purchase price.

HI-TEMP® PENETRANT INSPECTION SYSTEM

DUBL-CHEK PENETRANT PROCESS

PRODUCT INFORMATION

Description: Sherwin Incorporated's **Hi-temp®** Penetrant System is designed to work at temperatures above which ordinary penetrants are ineffective. Three products comprise the system: **K-019** Remover, **K-017** Penetrant, and **D-350** Developer.

Special Features: The **Hi-temp®** Penetrant System is effective at higher temperatures. Using the system can *reduce inspection costs*; waiting times are reduced.

Temperatures rise during welding processes. They also rise under normal operating conditions for certain kinds of equipment, such as pressure vessels, or simply, when inspection work is done in the sun. Often, before moving to a new piece, welders must wait for the current piece to cool before inspecting it. Similarly, some fabrication processes require as much as 24 hours between steps because parts must cool enough to allow inspection with ordinary penetrants. Waiting for parts to cool — generally to less than 140°F— increases processing time, and production costs.

Heat actually enhances the **Hi-temp®** Penetrant System's performance. Heat drives contaminants from flaws; and heat-expanded flaws trap more penetrant, giving stronger indications after developer is applied. Additionally, **Hi-temp® K-017** Penetrant requires less dwell time than ordinary penetrants in order to locate equivalent sized flaws. Finally, **Hi-temp® K-017** Penetrant is water washable, so removing excess penetrant does not require a "remover" under most conditions, and post-cleaning of spillage and over-spray is easy.

The **Hi-temp®** Penetrant System reduces processing time and production costs.

Container Sizes:
case of 12 spray cans
one-gallon cans
case of 4 one-gallon cans
five-gallon pails

Basic Instructions: (These instructions describe the basic process. They may be amended by the user to comply with applicable specifications and/or inspection criteria provided by the contracting agency.)

1. **Cleaning:** Cleaning may be unnecessary prior to applying **Hi-temp® K-017** Penetrant because the penetrant itself is highly detergent and dissolves organic contaminants, especially on heated surfaces. In addition, at higher temperatures certain contaminants, such as oils, greases, and waxes, will liquify and be easily displaced, while other contaminants, such as water and solvents, will evaporate. Even so, it may be necessary to use **Hi-temp® K-019** Remover before applying the penetrant.

   a. **K-019** Application: Spray or brush **Hi-temp® K-019** Remover on the surface and allow to dwell for 1 to 4 minutes; use shorter times for higher temperatures and less contamination.

      Wipe **K-019** Remover from the surface with clean, dry cloth or paper towels. Then, wipe with water saturated towels. A final wipe with dry towels in order to speed drying may be required at lower temperatures.

      Repeat the application/wiping procedure if necessary. Wire brushing may be required to remove scale or other deposits. Paint is generally removed with a torch.

   b. **Drying:** The part must be dry before applying **Hi-temp® K-017** Penetrant. Hotter parts dry more quickly than cooler parts.

2. **Apply Penetrant:** Spray or brush **Hi-temp® K-017** Penetrant on a limited area. It is important that the area to which the penetrant is applied not be too large so processing can be completed within penetrant and developer dwell time restraints. The acceptable area size will vary with inspection temperatures, part geometry, and operator experience.

   The penetrant must dwell on the part in order to penetrate surface flaws. At higher temperatures, penetration occurs more quickly. The following table suggests how **K-017** dwell times vary with temperature. Allowances must be made for contamination levels and flaw sizes.

225° - 350°F	30 seconds to 1 minute
175° - 225°F	1 - 2 minutes
125° - 175°F	2 - 3 minutes
75° - 125°F	3 - 10 minutes
50° - 75°F	10 - 30 minutes

3. **Remove Excess Penetrant:** It is important that all excess penetrant be removed, otherwise the developer step may be adversely affected.

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a. **Wipe Surface:** Remove as much **Hi-temp® K-017** Penetrant as possible using paper or soft, clean cloth towels to wipe the surface.

b. **Apply Remover:** Use **Hi-temp® K-019** Remover to clean remaining penetrant from the surface. **K-019** may be directly sprayed in a thin coat and immediately wiped from the surface. If part surfaces are smooth, using **K-019** may be unnecessary. In either case, as a final step, the part should always be wiped with a water saturated towel or cloth to remove the last traces of penetrant. Immediately follow water wipe with a dry wipe.

Note: The surface must be completely free of both penetrant and remover, or **Hi-temp® D-350** Developer will not lay in an even coat. Generous water usage is suggested.

c. **Drying:** Use paper or cloth toweling to dry the part's surface thoroughly. Special drying time before applying developer to heated parts should not be required.

4. **Apply Developer:** Two non-aqueous developers may be used with the **Hi-temp®** system: **D-100**, a conventional developer which is recommended for temperatures from 50° - 250°F, and **D-350** which is recommended for temperatures between 175°F and 350°F. When temperatures exceed 175°F, and the more they approach 250°F, the more **D-350** is preferred. (A separate information sheet is available for **D-100**.)

The developer should be sprayed on the part surface from a distance of 6-8 inches immediately after the excess penetrant has been removed and the part has dried. Apply a thin even coat over the entire surface to which **K0-17** Penetrant was originally applied; two or three thin coats are preferred to a single, heavy coat. If penetrant removal is incomplete, the developer will not go evenly on the part.

5. **Observe Indications:** Observe the surface for defect indication formation while the developer is applied.

At high temperatures, flaw indications appear almost instantly. Color depth is greatest within a few seconds after applying developer. Therefore, final surface examination should begin within a minute or two after developer application.

At high temperature, developed indications have a tendency to spread and lose their definition more rapidly. Moreover, some color fading with extended development times must be anticipated. Surface examination should be completed as quickly as practical, and within ten or fifteen minutes.

Red lines usually indicate cracks or lack of fusion. Red dots in a line or curved pattern usually indicate a tight crack. And, scattered dots usually denote porosity.

General Information: Do not attempt to inspect large areas that cannot be processed quickly. Permitting the penetrant to dwell longer than maximum times produces color degradation and excess vapors. Also, penetrant indications loose their resolution and tend to fade when exposed to heat.

At high temperatures, **D-350** Developer may be removed by simple brushing. However, at lower temperatures, complete removal may require wiping with towels dampened with water or **K-019** Remover.

PRECAUTIONARY INFORMATION

All **Hi-temp®** Penetrant System products —**K-017**, **K-019**, **D-350**, and **D-100**— should be used with adequate ventilation and away from sparks and flame, especially when these products are applied to heated surfaces.

D-350 and **D-100** are flammable. Their vapors may cause drowsiness or unconsciousness. Victims should be removed to fresh air; commence CPR if necessary; seek medical attention. In the event of a **D-350** or **D-100** spill, eliminate all sources of ignition, stand-by with fire extinguisher, and contact authorities.

Be careful not to place spray cans containing **Hi-temp®** Penetrant System materials on heated surfaces; heated containers may explode. Never burn, puncture, or heat spray cans: store at less than 120°F; keep out of direct sun.

Wear protective clothing and equipment. Eye contact will cause severe pain and may result in injury. Flush eyes with water and seek immediate medical attention.

K-017 and **K-019** have strong detergent properties and may cause severe skin irritations. Promptly remove from skin by washing with water. Do not wear clothes contaminated with **Hi-temp®** Penetrant System products.

Read and follow safety instructions presented on container labels and on the manufacturer's Material Safety Data Sheets.

QUESTIONS AND ANSWERS ABOUT USING THE HI-TEMP® SYSTEM

Do Hi-temp® penetrants meet sulfur and halogen restrictions of specifications such as ASME Codes III and V, RDT F3-6T, and NAVSHIPS 250-1500?

Definitely. Analyses by a recognized laboratory yielded the following determinations, well below the 1.00% (10,000 ppm) and 0.50% (5,000 ppm) limits:

Hi-temp® Material	Halogens (ASTM D808)	Sulfur (ASTM D129)
K-017Dye Penetrant	0.002% (20 ppm)	0.02% (200 ppm)
K-019Remover	0.002% (20 ppm)	0.01% (100 ppm)
D-100 Developer	0.002% (20 ppm)	0.01% (100 ppm)
D-350 Developer	0.005% (50 ppm)	0.01% (100 ppm)

Complete certification available upon request.

Does the Hi-temp® Dye Penetrant process conform to Article 6, paragraph T-660, "Qualification of Procedures for Nonstandard Temperatures" of ASME Code Section V, as well as comparable paragraphs in Section III and RDT F3-6T?

Yes. An independent laboratory confirmed that K-017Visible Penetrant at elevated temperatures performs as well as conventional visible dye penetrants perform at ambient temperature. After tests, the laboratory concluded that the sensitivity yield of K-017Dye Penetrant with K-019Remover and D-100 Developer on surfaces maintained at 250°F was equivalent to the Mil-I-25135 Group I "Standard" on ambient (about 80°F) surfaces. (Aluminum block comparators, cut into two sections, were used in these tests.)

Similar tests with equally good results have been performed on surfaces of 350°F using **Hi-temp®** K-017Dye Penetrant and K-019Remover, but substituting D-350 Developer for D-100.

What are the provisions for using the Hi-temp® Penetrant System on NAVSHIPS contracts?

The system is now used in the NAVSHIPS program. Contractors can arrange to use the **Hi-temp®** process by demonstrating the system's efficacy under a particular contract. The U.S. Military has shown substantial interest in processes which improve performance and lower costs.

In a multi-pass weldment situation, what is the effect of residues from Hi-temp® products on the subsequent weld layer?

In one NAVSHIPS approval program, tests were made where heavy residues of all material were purposely left between weld layers. Subsequent microsectioning and examination revealed no harmful effect.

What are the personal hazards when using the Hi-temp® System?

Wear suitable gloves for protection against contact with heated surfaces during wipe-off step.

At higher temperatures, some irritating vapors will be produced. Where practical, a fan should direct the vapors away from the technician, and, to minimize any adverse effects, small part segments should be inspected at a time. Considering the small area inspected and the brief penetrant dwell before wipe-off —30 to 60 seconds— vapor quantities will be minimal.

In addition, K-017and K-019have strong detergent properties and should immediately be flushed from skin and eyes with fresh water.

What about the fire hazard?

Again, very small areas and quantities of material are involved. For example, less than one half ounce of **Hi-temp®** K-017 Penetrant is required to paint 20 linear feet of 1.5 inch wide weldment. Such small quantities should not alarm safety engineers. Also, **Hi-temp®** K-017 Penetrant and **Hi-temp®** K-019 Remover have flash points in the 400°F range. Both developers, D-100 and D-350, are invariably applied from pressurized spray cans, so, even though they are alcohol based, quantities of exposed flammable material in the area are negligible.

The greatest personnel risk would be from leaving a pressurized can on a heated surface.

Why are there two developers, D-100 and D-350? What is the difference between the two?

D-100 Developer, Sherwin Incorporated's standard, normal temperature developer, is effective with the **Hi-temp®** process on surfaces as hot as 250°F. However, above 250°F, the developer's white particles tend to flake from the surface, so the effective limit of D-100 Developer is 250°F.

SPECIALTY PENETRANT MATERIALS

DUBL-CHEK PENETRANT PROCESS

PRODUCT SUMMARY

The products listed on this summary have been specially formulated by Sherwin Incorporated to meet non-routine penetrant application requirements; i.e., when our more general purpose products may be inappropriate. Descriptions of Sherwin Incorporated's more general purpose products are described in other product summaries.

VISIBLE DYE PENETRANTS

DP-50 Dye Penetrant (Water-Washable): Widely accepted for use without developer to find cracks on surfaces of light colored technical ceramics. Has unusual affinity for ceramic surfaces. Also used extensively on metal surfaces, including weldments. Removable by water-spray, water wipe-off and by solvent wipe-off. Not as sensitive as DP-51—a non-specialty—visible dye penetrant for metal surface inspection. Approved Group III under MIL-I-25135-C. Flash point approximately 160°F.

DP-54 DYE PENETRANT (Water-Washable): Approved Type II, Method A and C, MIL-I-25135-E. "Biodegradable." Contains **no** petroleum distillates and is more likely to be accepted by sewage treatment facilities. Flash point over 200°F, OSHA Class IIIB. Low sulfur and low halogen. Removable by water spray; water wipe-off; or solvent wipe-off. Free rinsing.

DUAL RESPONSE PENETRANT

BY-LUX™ PENETRANT #1: Approved Group III, MIL-I-25135-C. Remove with water. Flaw marks show red on white D-100 Developer background under normal, or "white light," and glow orange under "black light." Provides two levels of sensitivity. Flash point over 200°F. Also may be used with the hydrostatic leak test. (See "Hydrostatic Leak Detection" below.)

WATER-BASE FLUORESCENT PENETRANT

I-319 FLUORESCENT PENETRANT: Water-washable, water-base penetrant. Uses distilled water; no petroleum solvents or distillates. Considered insensitive to liquid oxygen in its diluted state, so-called "LOX-Compatibility." Has good acceptance for use on plastics. Meets most sanitation districts effluent disposal requirements. Not recommended for finding shallow, or wide cracks. Approved Group VI, MIL-I-25135-C.

HIGH TEMPERATURE PENETRANT MATERIALS

K0-17 HI-TEMP® PENETRANT: Visible dye penetrant, approved Groups I and III, MIL-I-25135-C, D & E. Finds flaws on surfaces at elevated temperatures, up to 350°F. Saves time; for weldment inspection before complete cooling (maintain pre-heat temperature); in-service inspection of chemical processing equipment, etc. Used with Hi-Temp KO-19 Remover and either D-100 or Hi-Temp D-350 Developer. ASME Code qualification procedure compliance.

KO-19 HI-TEMP® REMOVER: For use with Hi-Temp KO-17 Penetrant. Approved Group I remover, MIL-I-25135-C, D & E. Use as a wipe-off remover.

D-350 HI-TEMP® DEVELOPER: Nonaqueous. Hi-Temp D350 is used with Hi-Temp K0-17 Penetrant and Hi-Temp KO-19 Remover. White adsorbent particles suspended in nonchlorinated, volatile solvent (alcohol). Available only in spray cans. Performs on elevated temperature surfaces; 200°F to 350°F. Approved Group I and III under MIL-I-25135-C.

FOAM REMOVER

KO-19 FOAM REMOVER: Used for removal of both Type I and II penetrants when shallow, wide cracks are suspected. Foam — similar to shaving lather — is emitted from the KO-19 spray can directly on the penetrant treated surface. Foam lifts penetrant from the surface, but not from the cracks. Dry toweling is used to wipe surface clean.

(OVER)

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FOAM REMOVER

KO-19 FOAM REMOVER: Used for removal of both Type I and II penetrants when shallow, wide cracks are suspected. Foam — similar to shaving lather — is emitted from the KO-19 spray can directly on the penetrant treated surface. Foam lifts penetrant from the surface, but not from the cracks. Dry toweling is used to wipe surface clean.

HYDROSTATIC LEAK DETECTION

A-416 FLUORESCENT ADDITIVE: Additive for hydrostatic leak testing; provides fluorescent color to the water. When wet, water fluoresces blue; after drying, water fluoresces yellow. A-416 also lowers surface tension and increases water's penetration capability. (A-416 does not contain corrosion inhibiting agents.) Requires "black light" and semi-darkened conditions.

BY-LUX™ PENETRANT #1: By-Lux™ Penetrant is essentially a colorless liquid that turns bright red in contact with water. In hydrostatic leak testing, By-Lux™ enhances leak visibility. By-Lux™ is applied to the seams of the vessel after it is charged with water. By-Lux™ turns bright red where there are even only traces of water seepage.

HOT TANK CLEANER

LA-1 CLEAR CLEANER®: An aqueous cleaner. Use it to replace solvent-based pre-cleaners in the penetrant process and for general cleaning where solvent cleaners might otherwise be used.

PRECAUTIONARY INFORMATION

Materials described on this Product Summary should be used in accordance with instructions. Use with adequate ventilation and away from sparks, fire and open flame. Avoid contact with skin. Avoid breathing vapors or spray mist. Do not get in eyes. Do not take internally.

The products listed are for industrial use by qualified personnel only. Like all nondestructive testing methods, the penetrant process has limitations and no penetrant manufacturer claims that the use of these materials will show all dangerous cracks or defects under all conditions.

LIMITED WARRANTY

Buyer agrees that if the product proves to be defective, manufacturer's and seller's only obligation shall be to replace or refund the purchase price of such product.

With the 350°F preheat temperature required for most multi-pass welds, there is a critical need for a process effective at this higher temperature. D-350 Developer fills this need. With D-350 Developer, the **Hi-temp®** System performs at temperatures slightly in excess of 350°F; D-350 adheres to the surface at this higher temperature.

When should D-100 be used and when should D-350 be used?

The recommendation is to use D-100 Developer from normal temperatures to 250°F, and D-350 from 175°F to 350°F.

There is an overlap between the two developers. Which should be used at, say, 200°F?

If D-100 is already being used with Sherwin Incorporated's normal temperature process, continue using D-100. Otherwise, D-350 is preferred.

Can D-350 Developer be used at temperatures lower than 175°F, say as low as 70°F?

D-350 is not recommended for use at temperatures lower than 175°F. At lower temperatures, D-350 dries more slowly. Also, the particles are more adhering at lower temperatures and require greater effort to remove upon completion of the inspection process. Removing D-350 requires wiping with water dampened toweling.

Is the Hi-temp® System effective at normal temperatures?

Yes. **Hi-temp®** K-017Dye penetrant with K-019 Remover and D-100 Developer do an excellent job of finding cracks at normal and even low temperatures. K-017does a better job of showing the shallow flaw than conventional penetrants, but the penetrant is not as fluid at lower temperatures. Thus, penetration time should be longer. Also, in a manual wipe (Group I) method, at lower temperatures, the penetrant removal step is too laborious for routine use.

Can chemical processing plants or refineries gain from using the Hi-temp® System?

Absolutely. Such facilities circulate hot fluids. Leaks occur in equipment which produces revenue of hundreds of dollars per hour, or more. Allowing the equipment to cool to 125°F in order to pinpoint and repair leaks as is required by conventional penetrants may take hours. Finding a leak and verifying the repair without cooling saves valuable production time.

Why is the Hi-temp® penetrant dwell time so short —30 to 60 seconds— when conventional penetrants require 10 minutes?

At elevated temperatures, such as 250°F, molecular movement greatly speeds penetration.

If K-017 Penetrant dwelled on a 250°F surface for 10 minutes, what would happen? Would the penetrant volatilize? Would the color be destroyed?

There was no discernible difference between sections of an aluminum comparative test block maintained at 250°F when K-017 dwelled on one section for a full 11 minutes, and on the other section for only 60 seconds. K-017 on both sections was equally fluid and easily removed. Color depth was identical. Sensitivity was the same. The longer dwell time seems to have little effect, either harmful or beneficial. However, 15 minutes is the suggested maximum penetrant dwell time at higher temperatures.

How are developed flaw indications affected by high temperatures?

At high temperatures, flaw indications develop almost instantly. The initial deep red color of an indication is greatest within a few seconds after developer is applied. After a few minutes, the indication tends toward an orange-red shade. However, even after 30 minutes with surfaces maintained at 250°F, flaw marks are still pronounced and well defined with good color contrast.

Do Hi-temp® materials come in spray cans as well as gallons and pails?

Yes. **Hi-temp®** K-017 Penetrant, K-019 Remover, and both D-100 and D-350 Developers are packaged in gallons, pails, and spray cans.

NONDESTRUCTIVE TESTING

LIQUID PENETRANT INSPECTION RANGE

All ARDROX® products meet AMS 2644 requirements.

PENETRANTS

Type	Classification	Sensitivity	Product	Remover/Emulsifier	Developer
Type 1, Fluorescent	Water Washable	Level 1	**Ardrox 970P22**	- Method A: Water - Method C: Ardrox 9PR50, Ardrox PR1	All developers except Ardrox 9D75
		Level 1+	**Ardrox P131E***		
		Level 2	**Ardrox P133D**		
		Level 2+	**Ardrox 970P24**		
		Level 2+	**Ardrox P134E***		
		Level 3	**Ardrox 970P25E†**		
		Level 3+	**Ardrox P6F4***		
		Level 4	**Ardrox P136E***		
	Post Emulsifiable	Level 2	**Ardrox 985P12**	- Method B: Ardrox 9PR3 - Method C: Ardrox 9PR50, Ardrox PR1 - Method D: Ardrox 9PR12 (10% concentration)	All developers
		Level 3	**Ardrox 985P13**		
		Level 4	**Ardrox 985P14†**		
		Level 3+	**Ardrox P7F3***	- Method C: Ardrox 9PR50, Ardrox PR1 - Method D: Ardrox E1 (10% concentration)	All developers except Ardrox 9D75
Type 2 Visible	Water Washable	NA	**Ardrox P6R†** **Ardrox 906†**	- Method A: Water - Method C: Ardrox 9PR50, Ardrox PR1	Ardrox 9D1B Ardrox NQ1
	Post Emulsifiable	NA	**Ardrox 996†**	- Method C: Ardrox 9PR50, Ardrox PR1	

EMULSIFIERS & REMOVERS

Removal Method	Product
Method B: Post Emusifiable, lipophilic	**Ardrox 9PR3**
Method C: Solvent removable	**Ardrox 9PR50†** **Ardrox PR1†**
Method D: Post Emulsifiable, hydrophilic	**Ardrox 9PR12** **Ardrox E1**

DEVELOPERS

Form	Product
Form a: Dry powder	**Ardrox 9D4A**
Form b: Water soluble	**Ardrox 9D75**
Form c: Water suspendible	**Ardrox 9D76**
Form d: Nonaqueous (solvent based)	**Ardrox 9D1B†**
Form e: Nonaqueous (solvent based)	**Ardrox NQ1†**

*Volatile Organic Compound free (VOC-free) and Ozone Layer Depleting Substance free (OLDS-free) products. †Available in aerosols.

MAGNETIC PARTICLE INSPECTION RANGE

All ARDROX® products meet AMS and Military standards.

Inspection Description	Product	Form	Bath Vehicle / Solvent Carrier
Fluorescent	**Ardrox 8800**	Powder	Ardrox Base Oil HF or Water & Ardrox 8771
	Ardrox 8800A	Aerosol	Ardrox Base Oil HF
	Ardrox 8800B	Premixed Bath	Ardrox Base Oil HF
	Ardrox 8810	Powder	Water
	Ardrox 8810L	Liquid Concentrate	Water
Water Conditioner	**Ardrox 8771**	Liquid	Water
Visible Black	**Ardrox 800/3**	Aerosol	Ardrox Base Oil HF
White Background	**Ardrox 8901W**	Aerosol	NA
Petroleum Bath Vehicle	**Ardrox Base Oil HF**	Liquid	NA

Chemetall Oakite

QS-9000 / ISO 9001

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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

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
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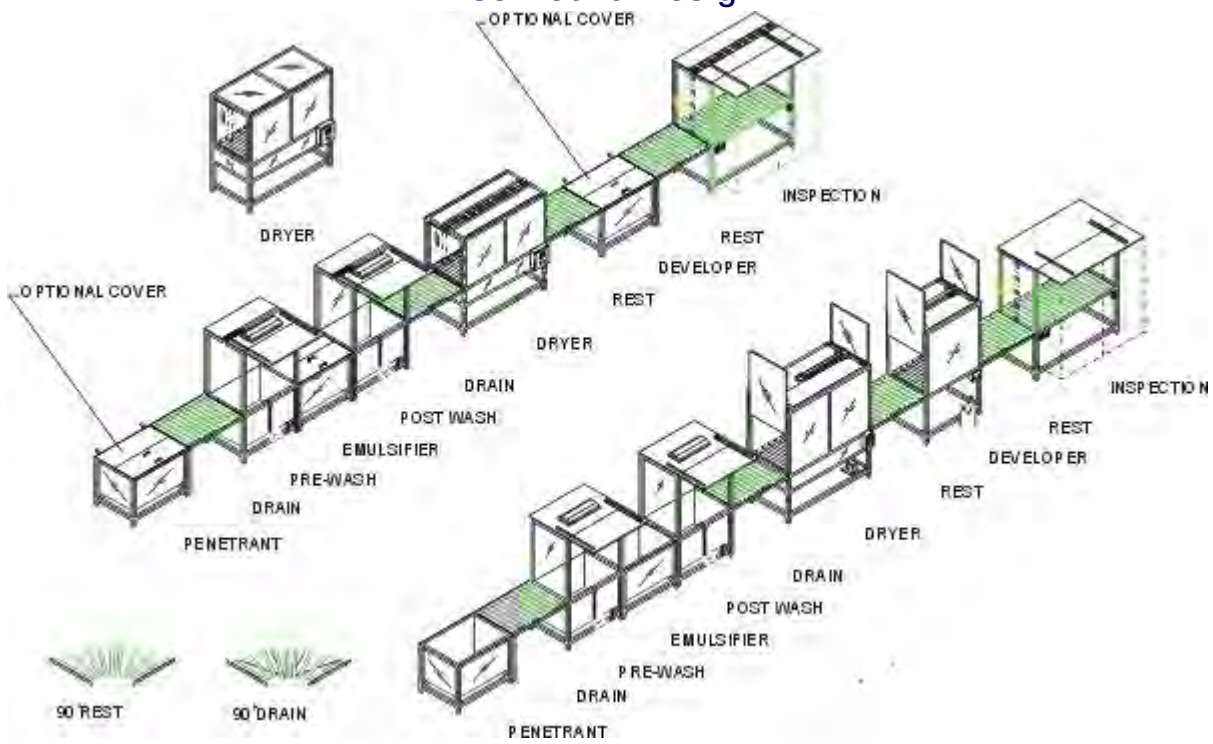
EMAIL: sales@detek.com

NONDESTRUCTIVE TESTING EQUIPMENT

Isometric Design



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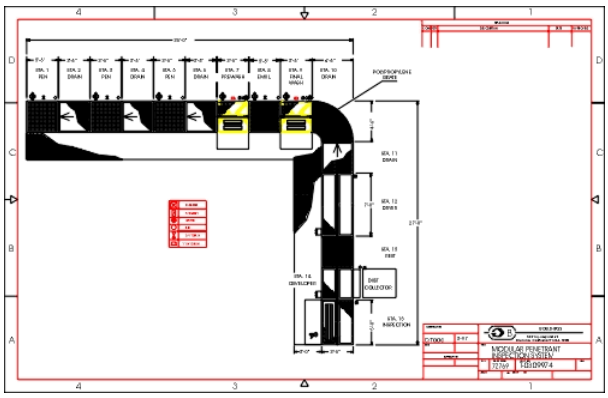
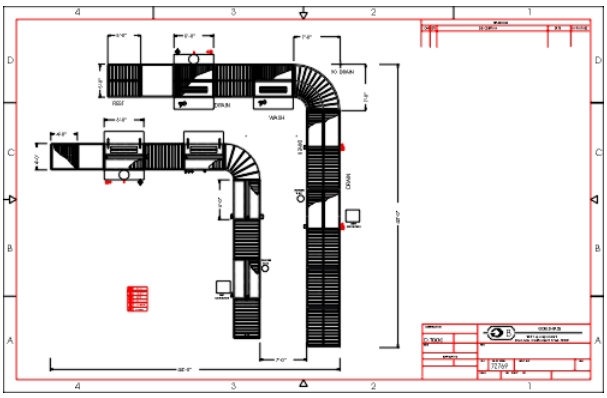
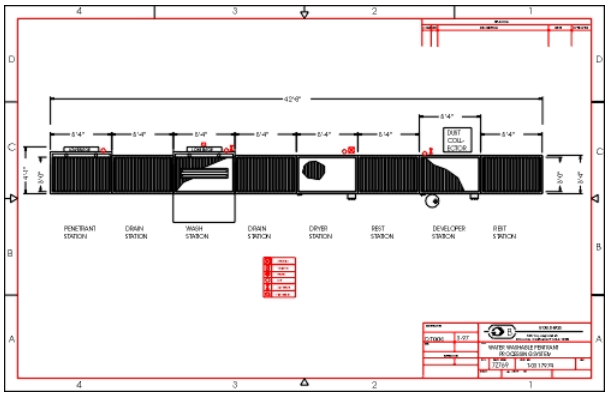
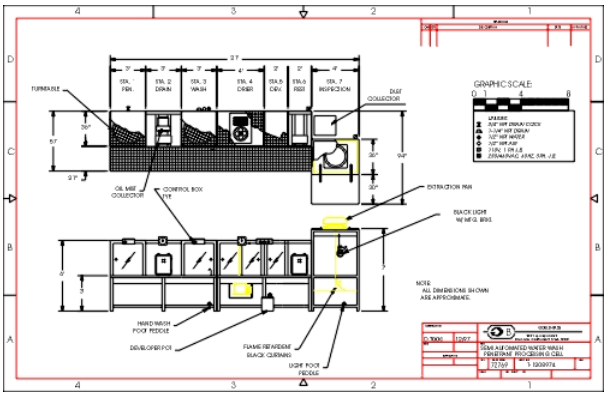
NONDESTRUCTIVE TESTING EQUIPMENT

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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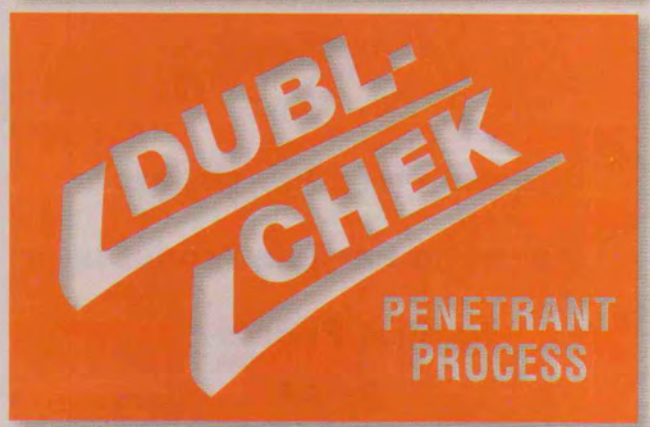
SHERWIN



INCORPORATED

PENETRANT ACCESSORIES

DUBL-CHEK PENETRANT PROCESS

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

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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.

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

Also used on:

Gould-Bass (Ardrox) 1025 & 1040M

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

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.

BLE-150CS REPLACEMENT BULB (Self-Ballasted)

For use on:

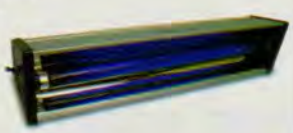
Spectroline BIB-150

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.)

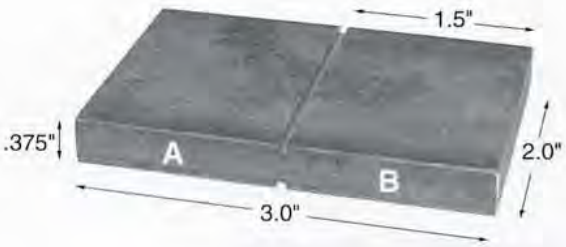
A plastic ruler with linear and circular fluorescent marks in inches for flaw dimension comparison under UV light. The tool measures graded flaw markings from .005 to .125 inches.

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.

SHERWIN
INCORPORATED
5530 Borwick Ave.
South Gate, CA 90280
(562) 861-6324 FAX (562) 923-8370
email: sherwininc@aol.com

SHERWIN TWIN KDS PANELS™

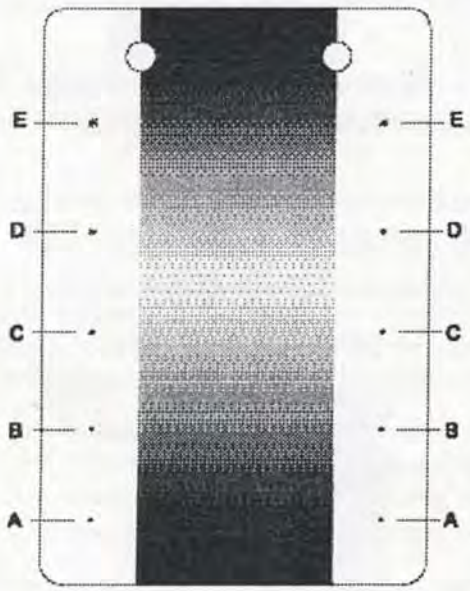
Twin Known Defect Standards*

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

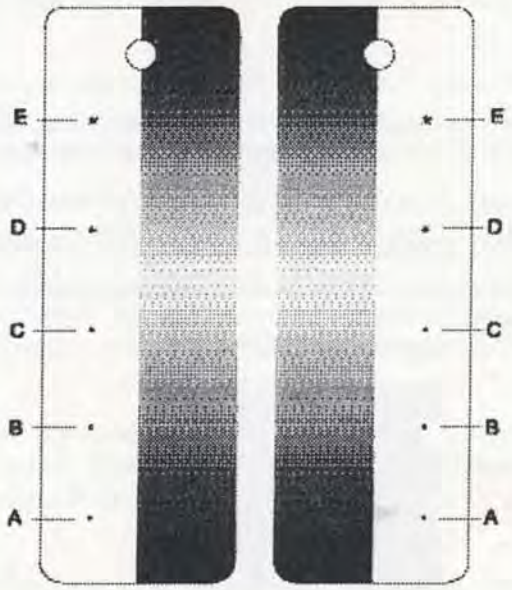
SHERWIN TWIN KDS PANELS are a major improvement over other panels used to monitor fluorescent penetrant system performance and to compare penetrant sensitivity; e.g., TAM and NiCr panels.

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.

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.

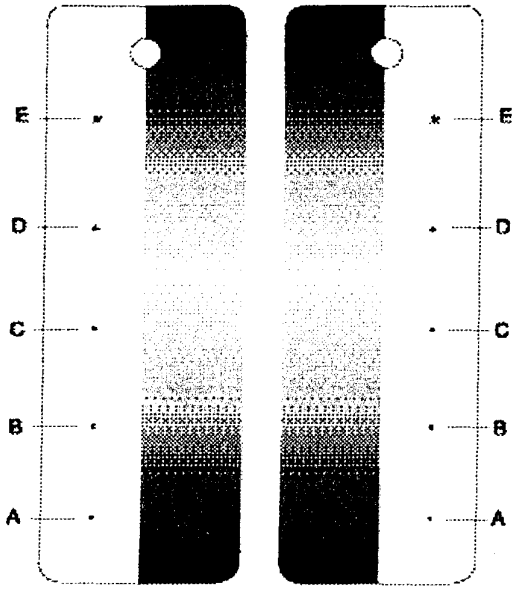
Sherwin Twin KDS Panels Are Multi-Purpose Comparators

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.

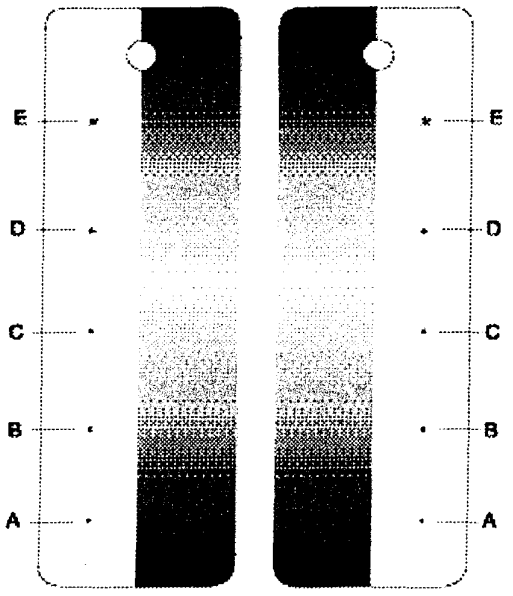
And, of course, as single panels or twins, their primary function is to monitor penetrant systems in order to comply with the ASTM E-1417 requirement for a daily system performance check.

COMPARE SENSITIVITY



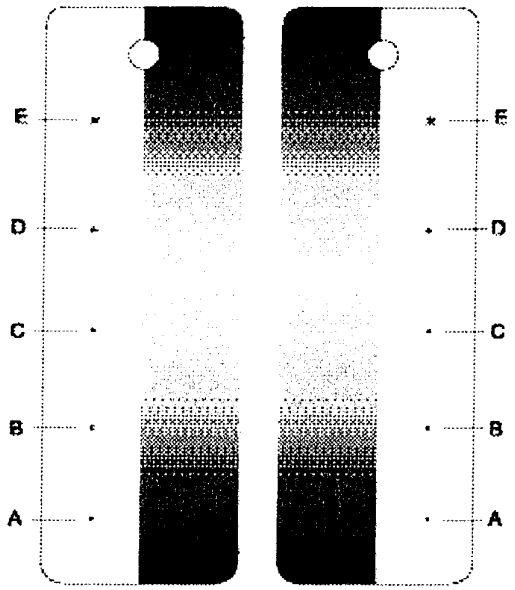
Twin KDS Panels, with the cracked sections side by side, facilitate quick and accurate determination of relative defect visibility.

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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Crack Comparators

Distributed By:
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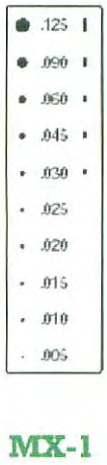
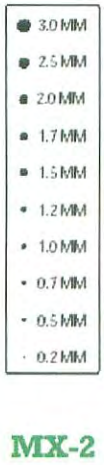
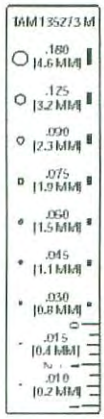
sales@detek.com www.detek.com



MX-1

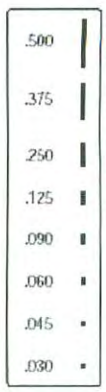


MX-2



MX-3

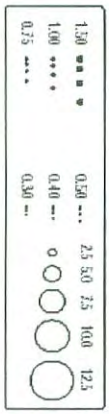
MX-4



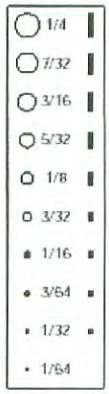
MX-5

MX-6

MX-7

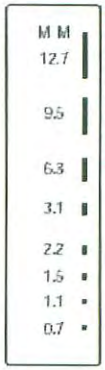


MX-8



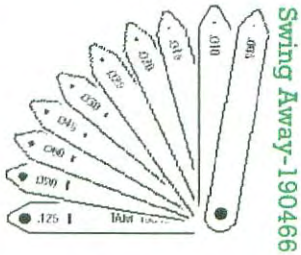
MX-9

MX-10

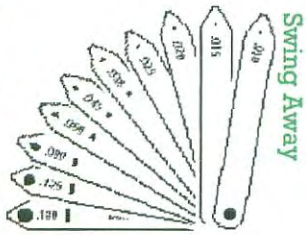


MX-11

MX-12



MX-13



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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THE SENSIBLE ALTERATIVE TO AEROSOLS

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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UV-LED-Handlamp H-224

RRES 90061 Qualified | Extreme Large Irradiated Area

Revolutionary UV Features:

- Electronic UV-LED Monitoring to use LED-Sources as Discharging Bulb-based UV-Sources without Additional Checks and Records
- Adaption Time Signalization (1, 3 or 5 minutes pre-adjustable)
- Battery Monitoring with Pre-Warning and Security Switch-Off Before Output Drops
- Temperature Monitoring With Pre-Warning and Overheat Protection
- Temperature Regulated and Electronic Monitored Cooling System
- ECO-Mode for Maximum Life-Time and Power-Saving
- Auto Switch-Off When Not Used, Instant ON when Resuming Work, (Can be Deactivated and Pre-Adjusted)
- Qualified and Approved According to Rolls-Royce Engineering Specification RRES 90061
- Guaranteed Requalification Possibility for Upcoming ASTM and ISO Standards (at Least Until 2017)
- Conform to All Actual Major Standards(August 2015)

Revolutionary Whitelight Option:

- Stepless Soft White Light Dimming and Crossfade Features for Maximum Interpretation Capability Instead of Showing Different Picture AND Flash Blinding the Eyes
- UV/VIS Toggling and White Light Shiftable in Addition to UV
- Finely In-Use Adjustable White Light Output With Fallback And Configuration Options

Configuration Option:

- Focussed Spot With Hard Radiation Drop at the Edges
- Flood Lamp With Soft Radiation Drop Extremly Uniform Beam Pattern and Short Minimum Working Distance
- High Quality White Light Options
- All Worldwide Mains Plugs and Voltage Versions Available

Detailled Specification:

- Real Peak 365 ± 5 nm, also at maximum qualified ambient temperature
- Acoustic and Visual Indicators
- Qualified and Approved for Ambient Temperatures from 5° to 50°C (40° - 122° F)
- Exceptional Life-Time
- Robust Design for Reliable Operation Even Under Rough Industrial Conditions
- Engineered and Made in Germany by NDT-experts
- Integrated UV-Pass Filter
- Optional Mains Operation or Rechargeable Battery
- Qualification Report and Certificate of Compliance Stating All Relevant Lamp Individual Results

Technical Data

Lamp Type	UVE-H224		UVE-H224W	
Beam Pattern FL: Flood with soft radiation drop at the edges - FO: Focussed spot	FL	FO	FL	FO
Specification UV-A Radiation				
Number of UV-LEDs	8 Highpower UV-LEDs			
Peak-Wavelength	365 ± 5 nm (within the approved ambient temperature range)			
Approved ambient temperature	5 - 50° C (40 - 122° F)			
Full Width Half Maximum (FWHM) UV-Spectrum	maximal ± 10 nm of the peak-wavelength			
Integrated, automatic adaption time signalization	pre-selectable: 1, 3 or 5 minutes after switch-on of UV			
Advanced Electronic UV-LED Monitoring for maximum process reliability and usage of LED lamps without additionel checks and records	✓			
Automated shutdown when lamp is not in use (ECO-Mode)	after 3 minutes, immediate reconnection by movement, deactivatable			
Connection possibility for external foot paddels	✓			
Battery monitoring and security switch-off	integrated, with early-warning			
Electronic fan monitoring	✓			
Temperature-sensitive fan control	✓			
Standard conformance, approvals and qualifications (^= ready for upcoming standards)*	ASTM E1444, ASTM E1417, ASTM E2297, ASTM E0709, ASTM E165, ASME, EN ISO 3059, EN ISO 3452, EN ISO 9934, NADCAP^, Pratt & Whittney^			
Rolls-Royce RRES 90061 conform	✓	-	✓	-
UV-A intensity (µW/cm²) in 15 in. (38 cm) distance	> 2,600	> 9,000	> 2,600	> 9,000
Irradiated area in 15 in. (38 cm) distance (> 1,000 µW/cm²)	ø 36 - 38 cm	ø 19 - 22 cm	ø 36 - 38 cm	ø 19 - 22 cm
Irradiated area in 15 in. (38 cm) distance (> 100 µW/cm²)	ø 50 - 58 cm	ø 13 - 28 cm	ø 50 - 58 cm	ø 13 - 28 cm
Minimum working distance	7 cm	25 cm	7 cm	25 cm
Typical Lifetime T_{70} / T_{50}	> 15.000 h / > 18.000 h			
Stability of UV-intensity	> 85 %			
Amount of visible light	< 0,5 fc (< 5 Lux), not visible			
Risk Class acc. DGZfP EM6	2 (up to 9.000 µW/cm²); 3 (more than 9.000 µW/cm²)			
Specification high quality, integrated whitelight functions for daylight inspection (W versions)				
Illuminance in 15 in. (38 cm) distance	-		> 115 fc (> 1.250 lx)	
Pre-adjustable white light output	-		0.5 - 100 %, fine adjustable	
In-use illumincance adjustment	-		0.5 - 100 %, fine adjustable	
UV / VIS toggling	-		✓	
Shiftable white light (UV + VIS)	-		✓	
Automated stepless white light dimming in addition to UV	-		2 dimming speeds or white light switching selectable	
Automated stepless crossfading (UV / VIS)	-			
Color temperature TCP (Light color)	5.300 K - 6.000 K (similar to daylight)			
Color Rendering Index (CRI)	-		Ra > 80	
Technical Specification				
Power Supply	100 - 230V AC/DC-power supply and optional battery			
Status Indicators	1 separate multicolor LED for UV and VIS*, acoustic signal			
Power Consumption (only UV / with VIS)	35 W / 60 W			
Operating Voltage lamp unit	< 50 V DC (SELV)			
Electric Protection Class	III (Safety extra-low voltage, SELV)			
Weight*: (Lamp unit / complete with power supply)	1.65 lbs / 2.85 lbs			

* model/type specific | We reserve the right of error, improvement and technical modification without notice.
CSF2H-2-5104

Accesories

- Foot-Paddle for Handsfree Operation of the Whitelight Options
- Extra Robust Power Supply in Metal Casing, Made in Germany
- High Power Rechargebale Li-Ion Battery Pack
- UV-Pass Filter
- Advanced Power Supply
- Various Mounting Equipment and Stands
- UV Protection Glasses
- Robust Carrying Case

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info@secu-chek.de
www.secu-chek.com

H1 UV LED HANDLAMPS

advanced and professional tools for enhanced fluorescent inspection

GROUNDBREAKING INNOVATION

uncompromising better than bulb-based UV lamps

The Perfect UV-A LED Blacklight for Every Specific Application

REVOLUTIONARY INTERPRETATION

Automatic Stepless
White Light Dimming and
Crossfade Features

Uninterrupted, relaxed and enhanced observation of indications by viewing films of transition between the 3 possible illuminations:
UV only / UV and VIS together / VIS only
NO Flash Blinded Eyes, NO Loss of Sharpness, NO Unneeded Stress for the Eyes

ORIENTATION AND CLEAR VISION

REAL Floodlamps with Soft Radiation Drop and
NO Inhomogeneity Within the Beam
Even When Moving the Lamp

UV LED lamps WITHOUT any compromises, always BETTER than using bulb-based UV sources.
Clear and sharp display, even of tiny indications.
WITHOUT loss of inspection performance by using the full detection capability of the human eye for fast, secure, easy and tireless inspection
NO hotspots even in very short distances

INVESTMENT SECURITY

Guaranteed Requalification
Possibility for Upcoming Standards (until 2017)
Conform to All Actuall Major Standards

Using UV LED Technology by NOW without worries and NO waste of money! Paper requalification and necessary technical upgrades free of charge for upcoming ASTM, ISO and NADCAP requirements (at least until 2017)

MAXIMUM PROCESS SECURITY

MORE Secure Inspection due to
Electronic System Monitoring and
Adaption Time Signalization

Easier, better and more reliable inspection by additional integrated process support and security features

HIGH QUALITY

For NDT Professionals
Engineered and
Made in Germany

Completely designed, manufactured, assembled and qualified in Germany

1H1D16v

SECU-CHEK® GmbH
An der Faehre 9
66271 Kleinblittersdorf/Germany

+49 6805-942859-0
+49 6805-942859-95

info@secu-chek.de
www.secu-chek.com

Further Highlights of UVE Series

SECU-CHEK

- Electronic UV-LED Monitoring to Use UV LED Sources At Least As Secure As Bulb-based UV Sources
- Programmable Adaption Time Signalization (1, 3 or 5 minutes)
- Individually Configurable by the User
- Exceptional Life-Time
- Optional Stepless Soft White Light Dimming and Crossfade Features for Maximum Interpretation Capability
- High-End White Light in Daylight Quality (5,700 K | CRI > 90)
- ECO-Mode for Maximum Life-Time and Power-Saving
- Battery Monitoring with Pre-Warning and Security Switch-Off Before Output drops

Additional Highlights of UVN Series

- Adaption Time Signalization
- In-Use Adjustable White Light. Shiftable in Addition to UV UV / VIS Toggling
- Qualified and Approved According to Aerospace Standards
- Qualification Report and Certificate of Compliance Stating All Relevant Lamp Individual Results
- Guaranteed Requalification Possibility for Upcoming Aerospace, ASTM and ISO Standards (at Least Until 2017, for Selected Models)
- Enhanced Ambient Temperature Range 40 - 122°F (5 to 50°C)
- Temperature Monitoring and Overheat Protection With Pre-Warning
- Integrated UV Pass Filter

Highlights of All Series

- Real Peak 365 ± 5 nm Always During Operation Within the Qualified Temperature Range
- Optional UV / White Light Toggling
- Wearless Touch Switches (Work Also When Wearing Gloves)
- Monitored Fan Cooling
- Battery Monitoring with Security Switch-Off Before Output Drops
- Acoustic and Visual Indicators
- Mains Supply by AC/DC Transformer and Mobile Battery Supply by Rechargeable NiMH or LiIon Battery Packs
- Easy and Tireless Long-Term Usage Based on Groundbreaking Ergonomic and Lightweight Design
- Conform to All Actual Major Standards (November 2015)
- High Stability of Intensity and Wavelength
- Exchangeable Rubber Bumper With Integrated Protective Sheave
- Integrated Holder for Standard Mount and Fixation Possibility
- Robust Design For Reliable Operation Even Under Rough Industrial Conditions
- Designed for NDT Applications by NDT-Experts for NDT-Professionals
- Safety Extra Low Voltage (SELV) at Hand Set
- Engineered, Manufactured, Assembled and Qualified in Germany

1H1D16v

SECU-CHEK® GmbH
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+49 6805-942859-95

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www.secu-chek.com

Select the perfect UV LED lamp for your needs from 48 different models and many options:

3 Series

UVS — Basic Series for Standard Applications

UVN — Advanced Series for Applications with Enhanced Requirements

UVE — Professional Series with Advanced Monitoring Features for Maximum Process Security

Optional White Light Features

Automatic Stepless White Light Dimmung and Crossfade Features

UV / White Light Toggling and White Light Shiftable in Addition to UV

IN USE — In-Use Adjustable White Light Output, With Fallback Option

Beam Style

Focussed Spot With Hard Radiation Drop at the Edges

Flood Lamp With Soft Radiation Drop at the Edges and Extreme Homogeneity of the Beam

Number of UV LED Elements

3 to 6 UV-LEDs to Select Various Intensities (1,700 to 12,500 µW/cm²) and Irradiation Area Sizes

Power Supply

All Worldwide Mains Plugs and Voltages Versions Available

AC/DC — External Standard Transformer with Permanently Fixed Cables Made in Europe

Lilon — Extra Lightweight, High Power Rechargeable Li-Ion Battery Pack

Extra Robust Metal Cased Transformer Made in Germany

Aluminium Cased Transformer for Expanded Connections Made in Germany

NiMH — Rechargeable NiMH Battery Pack

Accessories

Foot-Paddle for Handsfree Operation of the White Light Options

Robust Carrying Case

MOUNT + HOLD — Various Mounting Equipments

UV — UV Pass Filter

UV Protection Glasses

Qualified Retractile Coiled and Straight Extension Cords

1H3161v

Detailled UV Specification:

- Real Peak 365 ± 5 nm
  Always During Operation
  Within the Qualified Temperature Range
- Battery Monitoring With
  Security Switch-Off
  Before Output Drops
- Robust Design for Reliable
  Operation Even Under
  Rough Industrial Conditions
- Conform to Actual Major Standards
  (November 2015)
  ASTM E1417 / ISO 3059
  ASTM E1444 / ISO 3452
  ASTM E2297 / ISO 9934
  ASTM E3022 / ASME CODE
- Groundbreaking Ergonomic and
  Lightweight Design for
  Easy and Tireless Long-Term Usage
- Monitored
  Fan Cooling
- Temperature Monitoring
  and Overheat Protection
- T50 12,5K / T70 10K
  10,000 Hours Typical Operation Time with
  At Least 70% of the Output at Delivery
  Under Real Conditions
- 40°C 5°C / 105°F 40°F
  Qualified and Approved for Ambient Temperature from
  5° to 40° C (40° - 105° F)
- Mains Supply by AC/DC Transformer and
  Mobile Battery Supply by
  Rechargeable NiMH or LiIon Battery Packs
- RGB
  Acoustic and
  Visual Indicators
- Standard Qualification Report and
  Certificate

High Quality White Light Option:

- UV / White Light Toggling
- Multi-Level Pre-Adjustable
  White Light Output
- 5.000 KELVIN / CRI >80
  High Quality Cool White Light
  (5,000 K | CRI > 80)
  Large Illumination Area

1H1016v

For detailed product and qualification information, contact or visit us at www.secu-chek.com/uvs-h1

UVN-Series (Advanced)

SECU CHEK

Advanced UV Features:

- Qualified and Approved According to Rolls-Royce RRES 90061
- Adaption Time Signalization 1 Minute
- Ideal for NDT
- Qualified and Approved for Ambient Temperatures from 5° to 50° C (40° - 122° F)
- Temperature Monitoring and Overheat Protection With Pre-Warning
- Guaranteed Requalification Possibility for Upcoming Aerospace, ASTM and ISO Standards (at Least Until 2017, for Selected Models)
- Conform to All Actual Major Standards (November 2015)
- Integrated UV-Pass Filter
- Superior Life-Time
- Detailed Qualification Report and Certificate of Compliance Stating All Lamp Individual Results

Advanced White Light Option:

- White Light Shiftable in Addition to UV
- In-Use Adjustable White Light Output
- High Quality Cool White Light (5,000 K | CRI > 80) Large Illumination Area
- UV / White Light Toggling

Basic Specification:

- Real Peak 365 ± 5 nm Always During Operation within the Qualified Temperature Range
- Mains Supply by AC/DC Transformer and Mobile Battery Supply by Rechargeable NiMH or LiIon Battery Packs
- Groundbreaking Ergonomic and Lightweight Design for Easy and Tireless Long-Term Usage
- Acoustic and Visual Indicators
- Robust Design for Reliable Operation even under Rough Industrial Conditions
- Battery Monitoring with Security Switch-Off Before Output Drops
- Monitored Fan Cooling

For detailed product and qualification information, contact or visit us at www.secu-chek.com/uvn-h1

UVE-Series (Pro)

SECU CHEK

Revolutionary UV Features:

- Electronic UV-LED Monitoring to Use UV LED Sources At Least As Secure As Bulb-based UV Sources
- Programmable Adaption Time Signalization (1, 3 or 5 minutes)
- Qualified and Approved According to Rolls-Royce RRES 90061
- Individually Configurable by the User
- Guaranteed Requalification Possibility for Upcoming Aerospace, ASTM and ISO Standards (at Least Until 2017, for Selected Models)
- Conform to All Actual Major Standards (November 2015)
- ECO-Mode for Maximum Life-Time and Power-Saving, Auto Switch-OFF and Switch-ON
- Acoustic, Visual and Tactile (Vibrating) Indicators
- Exceptional Life-Time of more than 18.000 hours Time of Usage Under Real Conditions
- Retractile Coiled Power Cord
- Detailed Qualification Report and Certificate of Compliance Stating All Lamp Individual Results

Revolutionary White Light Option:

- Stepless Soft White Light Dimming and Crossfade Features for Maximum Interpretation Capability Instead of Showing Different Pictures and Flash Blinding the Eyes
- In-Use Adjustable White Light Output, With Fallback Option
- White Light Funtions Additionally Hands-free Operable by Foot Paddles
- High-End White Light in Daylight Quality (5,700 K | CRI > 90) Extreme Uniform and Large Illumination
- White Light Shiftable in Addition to UV UV / White Light Toggling

Basic Specification:

- Real Peak 365 ± 5 nm Always During Operation Within the Qualified Temperature Range
- Battery Monitoring with Pre-Warnung and Security Switch-Off Before Output Drops
- Qualified and Approved for Ambient Temperatures from 5° to 50° C (40° - 122° F)
- Groundbreaking Ergonomic and Lightweight Design for Easy and Tireless Long-Term Usage
- Temperature Monitoring and Overheat Protection With Pre-Warning
- Integrated UV-Pass Filter
- Robust Design for Reliable Operation Even Under Rough Industrial Conditions
- Mains Supply by AC/DC Transformer and Mobile Battery Supply by Rechargeable NiMH or Lilon Battery Packs

For detailed product and qualification information, contact or visit us at www.secu-chek.com/uve-h1

RIL CHEMIE
www.uv-led-lamp.com

UV-LED-Floodlamps
UVED-S

- extra long-lasting, state-of-the-art LED-Technology
- Peak-Wavelength: 365 nm (± 5 nm)
- extra large irradiation area for optimal examination performance
- exceptional uniform distribution of the UV-radiation
- instant ON/OFF
- any irratiation area feasible
- low heat development
- tough industrial-grade for 24/7 and heavy duty use
- optional finely dimmable white light, shiftable in addition to UV or autonomous usable
- NO visible reflections, also on shining surfaces
- maximum contrast
- maximum stability of intensity and wavelength
- high-quality fan-cooling
- according to ISO/DIS 3059, ISO 9934, ISO 3452, ASTM- und ASME-standards
- engineered and manufactured in Germany

exceptional uniform distribution of the radiation

UV-intensity adjustable ex works

shiftable + dimmable white light up to 185 fc (2.000 lux)

further product information on the back side and www.uv-led-lamp.com/uved-s

UVED-S stationary UV-LED-Floodlamps for industrial usage

Type:	Focus:**	UVED-S712W	UVED-S712	UVED-S710S	UVED-S710SW	UVED-S610	UVED-S608S	UVED-S508	UVED-S507S
Order Number:		800-UVED-S712W	800-UVED-S712	800-UVED-S710S	800-UVED-S710SW	800-UVED-S610	800-UVED-S608S	800-UVED-S508	800-UVED-S507S
Peak-Wavelength:		365 nm (± 5nm)							
FWHM (Full Width Half Maximum):		< 15 nm							
UV-A-Intensity in 38 cm (15 in.) Distance (high level):	FL	> 3,000 µW/cm² (30 W/m²)		> 2,200 µW/cm² (22 W/m²)		> 3,000 µW/cm² (30 W/m²)	> 2,000 µW/cm² (20 W/m²)	> 2,600 µW/cm² (26 W/m²)	> 2,000 µW/cm² (20 W/m²)
	F1	> 5,500 µW/cm² (55 W/m²)		> 4,000 µW/cm² (40 W/m²)		> 5,500 µW/cm² (55 W/m²)	> 4,000 µW/cm² (40 W/m²)	> 5,000 µW/cm² (50 W/m²)	> 4,000 µW/cm² (40 W/m²)
	F2	> 6,700 µW/cm² (67 W/m²)		not available		> 7,500 µW/cm² (75 W/m²)	not available	> 6,300 µW/cm² (63 W/m²)	not available
Minimum Working Distance:	FL	14 cm (5.5 in.)		15 cm (6 in.)		10 cm (4 in.)	15 cm (6 in.)	20 cm (8 in.)	15 cm (6 in.)
	F1	23 cm (9 in.)		25 cm (10 in.)		20 cm (8 in.)	25 cm (10 in.)	31 cm (12 in.)	25 cm (10 in.)
	F2	26 cm (10 in.)		not available		34 cm (13 in.)	not available	34 cm (13 in.)	not available
Irradiated Area in 38 cm (15 in.): > 1,000µW/cm² (10 W/m²)	FL	70 x 40 cm (28 x 16 in.)		65 x 35 cm (26 x 14 in.)		60 x 40 cm (24 x 16 in.)	55 x 35 cm (22 x 14 in.)	50 x 40 cm (20 x 16)	45 x 35 cm (18 x 14 in.)
	F1								
	F2	65 x 35 cm (26 x 14 in.)		not available		55 x 35 cm (22 x 14 in.)	not available	45 x 35 cm (18 x 14 in.)	not available
Irradiated Area in 38 cm (15 in.) > 100µW/cm² (1 W/m²) (realized area):	FL	105 x 95 cm (41 x 37 in.)		90 x 80 cm (35 x 32 in.)		95 x 85 cm (37 x 33 in.)	90 x 80 cm (35 x 32 in.)	85 x 75 cm (33 x 30 in.)	70 x 60 cm (28 x 24 in.)
	F1	90 x 65 cm (35 x 26 in.)		70 x 50 cm (28 x 20 in.)		80 x 60 cm (32 x 24 in.)	70 x 55 cm (28 x 22 in.)	60 x 50 cm (24 x 20 in.)	50 x 40 cm (20 x 16 in.)
	F2	85 x 60 cm (33 x 24 in.)		not available		70 x 55 cm (28 x 22 in.)	not available	55 x 45 cm (22 x 18 in.)	not available
UV Intensity Levels:		1							
Stability of UV-Intensity		> 90%							
Number of UV-LEDs:		39		33			28	26	24
Visible Output:		< 2 Lux		< 5 Lux		< 2 Lux	< 5 Lux	< 2 Lux	< 5 Lux
Visible Reflections:*		NO Reflections		minimal, substantial less than HID-UV-Sources		NO Reflections	minimal, substantial less than HID-UV-Sources	NO Reflections	minimal, substantial less than HID-UV-Sources
Typical Life Time T70		> 10,000 h		> 8,000 h		> 10,000 h	> 8.000 h	> 10,000 h	> 8,000 h
Typical Life Time T50		> 15,000 h		> 12,000 h		> 15,000 h	> 12.000 h	> 15,000 h	> 12,000 h
Risk Class according to DGZfP EM-6:		2							
Allowed Ambient Conditions:		Temperature: 0 - 55 °C (35 - 135 °F), Humidity: 20 - 80 % (non-condensing)							
Shiftable and Autonomous Usable White Light:		finely dimmable	not available		finely dimmable	not available			
Dimmable White Light		stepless 20 - 800 Lux via control dial	not available		stepless 20 - 800 Lux via push button	not available			

* when using ISO/DIS 3059 conform, clear UV-Protection-Glasses (Article 800-UV-SB-NR)

** Fl: Floodlamp F1: softly focussed F2: focussed

We reserve the right of error, improvement and technical modification without notice.

robust, multipurpose fixture
for easy and stable mounting
800-UVED-S-Z-UH500
800-UVED-S-Z-UH6007

protection-pane attachment set
800-UVED-S-Z-SSBS

UV-permeable protection-pane
3 different sizes
800-UVED-S500-XSS3
800-UVED-S600-XSS3
800-UVED-S700-XSS3

high-quality white-light filter
for zero VIS-emission and
NO reflections
800-UVED-SFG-XXX-YY

foot-operated dimmer for all
UVED-lamp types to dimm
UV or VIS (customizable)
800-UVED-SW-FR

customizable
ON/OFF-foot-switch
for UV and/or VIS
800-UVED-SW-FS-UVWL

RIL CHEMIE

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info@uv-led-lamp.com

further information and accessories:
www.uv-led-lamp.com/uved-s

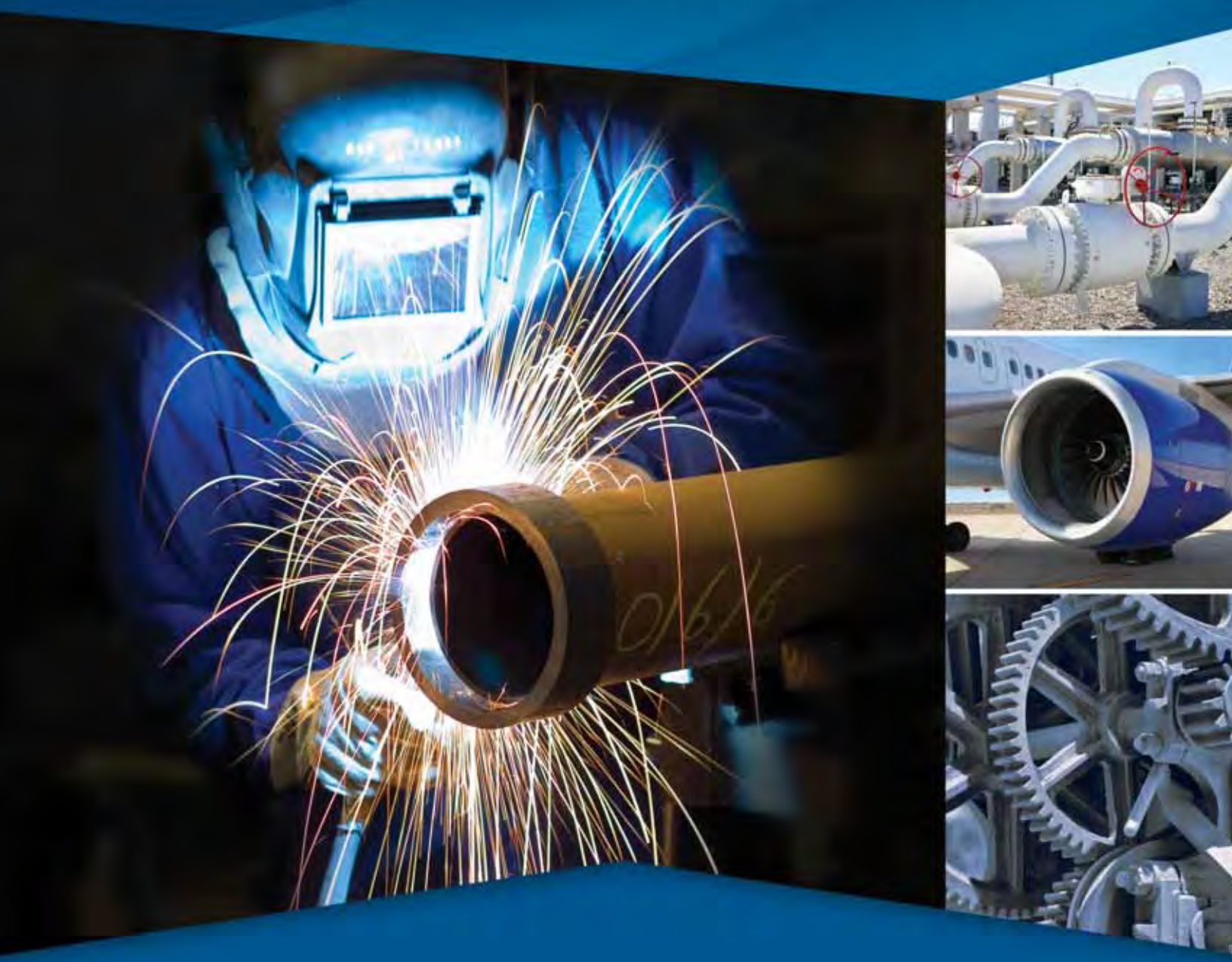
Version: 10.2012

Catalog 303 (March 2016)

SPECTROLINE®

Inspection Products for Nondestructive Testing

Solutions for the NDT Technician



ISO 9001:2008
CERTIFIED COMPANY

NDT: AN OVERVIEW

Nondestructive testing (NDT) is a procedure used to examine and/or inspect materials and components to locate surface and subsurface defects in a way that allows such materials to be examined without changing or destroying their original design or structure.

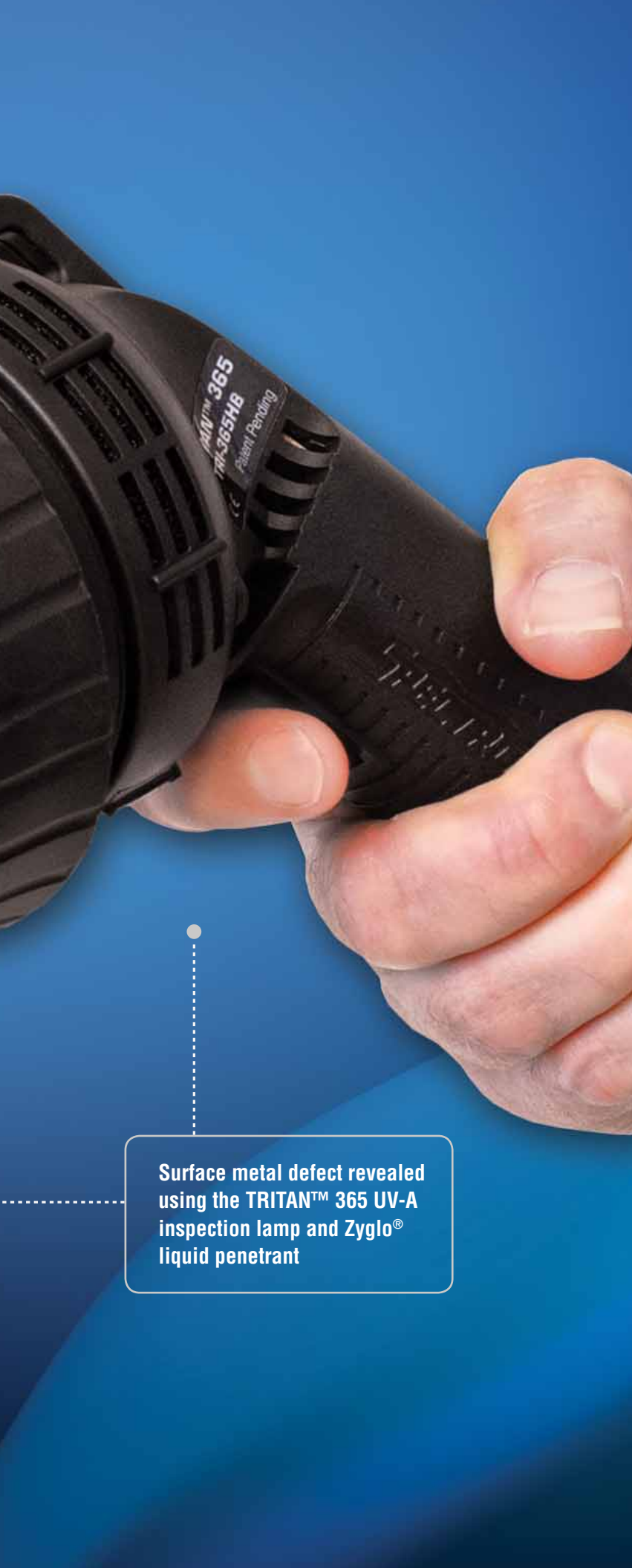
NDT plays a crucial role in everyday life. It is necessary to ensure structural integrity, safety and reliability in aircraft, motor vehicles, pipelines, seafaring vessels, bridges, trains, tunnels, power stations, refineries and oil platforms. All are inspected using some method of nondestructive testing.

Nondestructive testing is also a quality assurance production and management tool which can provide impressive results when used correctly. It requires an understanding of the various methods available, their capabilities and limitations, knowledge of the relevant standards and specifications for performing the tests.

Materials, products and equipment that fail to achieve their design requirements or projected life due to undetected defects may require expensive repair or early replacement. Such defects may also be the cause of unsafe conditions or catastrophic failure, as well as the loss of revenue due to unplanned shutdowns.

Nondestructive testing can be applied to each stage of an item's development, manufacture or construction. The item's materials and assembly can be examined using NDT and either accepted, rejected or repaired. NDT techniques can then be used to monitor the integrity of the item or structure throughout its service life.

The most commonly used NDT methods are visual inspection, liquid penetrant inspection, magnetic particle inspection, Eddy current inspection, acoustic emission, ultrasonic inspection and radiography.



Surface metal defect revealed using the TRITAN™ 365 UV-A inspection lamp and Zyglo® liquid penetrant

TABLE OF CONTENTS

Spectronics Corporation manufactures a wide array of medium and high-intensity inspection lamps and products that are used to detect and identify surface and subsurface flaws in the performance of nondestructive testing utilizing the visual inspection, liquid penetrant and magnetic particle methods. For more information see www.spectroline.com.

OLX-365 Series

OPTI-LUX™ 365 UV-A LED Inspection Flashlights

Affordable, Super-Compact and Designed Specifically for NDT!

Feature a powerful UV-A (365 nm) LED light source coupled with a rugged anodized lamp body. Lightweight and compact, they reduce user fatigue while providing an extremely uniform beam profile that surpasses those of more expensive lamps.

Available in four models to suit your specific NDT needs: high-intensity or standard-intensity versions, each with or without an internal black light filter.

- Choice of nominal steady-state UV-A intensity of ***10,000 µW/cm²*** or maximum of ***4,500 µW/cm²*** at 15 inches (38 cm)
- Coverage area up to 2.5 inch (6.3 cm) diameter at 15 inches (38 cm), with minimum UV-A intensity of ***2,000 µW/cm²***
- Anodized aluminum lamp body minimizes corrosion and stands up to years of heavy use
- Instant-on operation; lamp reaches full intensity immediately!
- Convenient on/off switch for easy, one-handed operation
- Powered by one rechargeable lithium-ion battery with an extra battery included with the lamp. Each provides 4 hours of continuous inspection between charges.
- Meets ASTM UV-A intensity and wavelength specifications for LPT and MPT
- Both high- and standard-intensity versions are available with internal black light filter. Externally mounted black light filter with rubber bumper can be purchased as an accessory.
- ***Certificate of compliance*** for both wavelength and output measurements supplied with every lamp

OPTI-LUX™ 365 flashlight with **BF-365LX** external black light filter accessory

Model	Nominal steady-state UV-A (365 nm) intensity at 15 inches (38 cm) ①	Visible light measurement	Diameter of UV-A coverage area at 15 inches (38 cm)
OLX-365 High intensity, with clear filter	10,000 µW/cm^2	0.8 foot-candles (8.6 lux)	2 inch (5.0 cm)
OLX-365B High intensity, with internal black light filter	10,000 µW/cm^2	0.4 foot-candles (4.3 lux)	2 inch (5.0 cm)
OLX-365FL Standard intensity, with clear filter	4,500 µW/cm^2 maximum ②	0.3 foot-candles (3.2 lux)	2.5 inch (6.3 cm)
OLX-365BFL Standard intensity, with internal black light filter	4,500 µW/cm^2 maximum ②	0.2 foot-candles (2.1 lux)	2.5 inch (6.3 cm)

Light Source:	UV-A LED
Lamp Style:	Cordless flashlight
Lamp Head Diameter:	1.25 in (3.2 cm)
Length:	5.9 in (15 cm)
Weight (*w/Battery*):	4.6 oz (130 g)
Power Requirement:	One 3.7V 2200mA/Hr lithium-ion battery (rechargeable)
Run Time:	4 hours (continuous)
Charge Time:	4 hours (one or two batteries)
Charging Cradle:	Two-battery capability with AC and DC cord sets

① All UV-A intensity readings taken with Spectroline® AccuMAX™ Series meter, and are factory set to the values shown

② To address aerospace industry concerns

CE

OPTI-LUX™ 365 Series flashlights come complete with lanyard, belt holster, two rechargeable batteries, smart charging cradle with AC and DC cord sets, UV-absorbing spectacles and a padded carrying case.

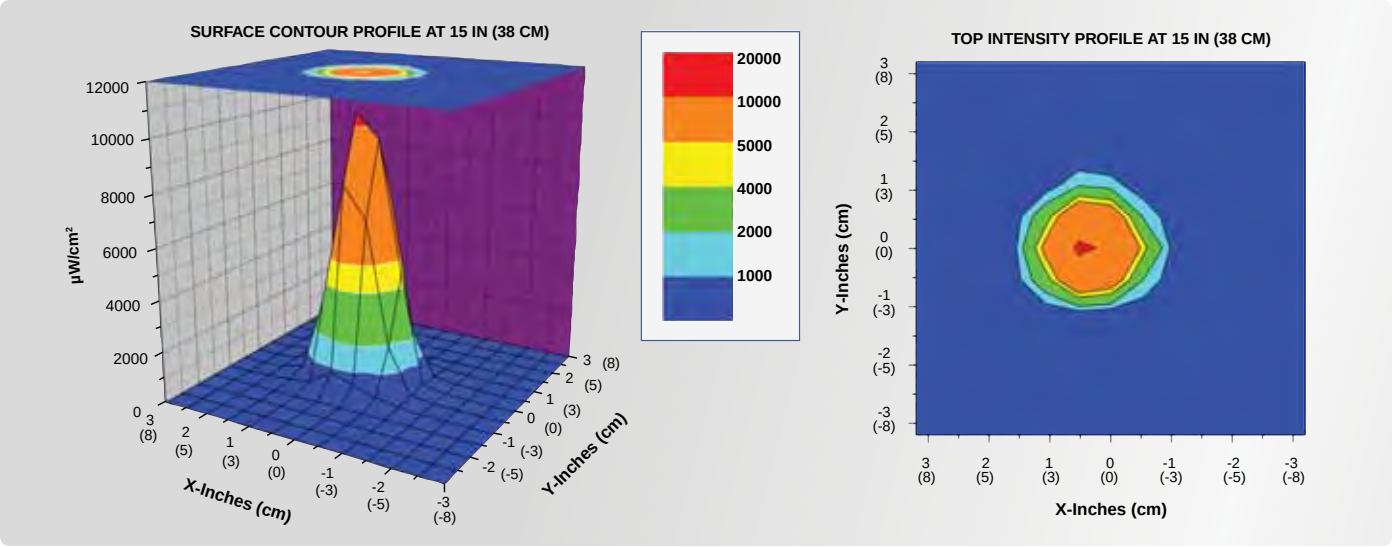
Replacement Parts & Accessories

BF-365LX	External black light filter with rubber bumper
127423	Dome lens
127568	Lithium-ion battery (rechargeable)
127607	Internal black light filter
127785	Internal clear filter
128217	Battery charging cradle with AC cord
128225	DC cord set
127574	Belt holster
UVS-30	UV-absorbing spectacles
CC-365	Carrying case

HIGH-INTENSITY MODELS

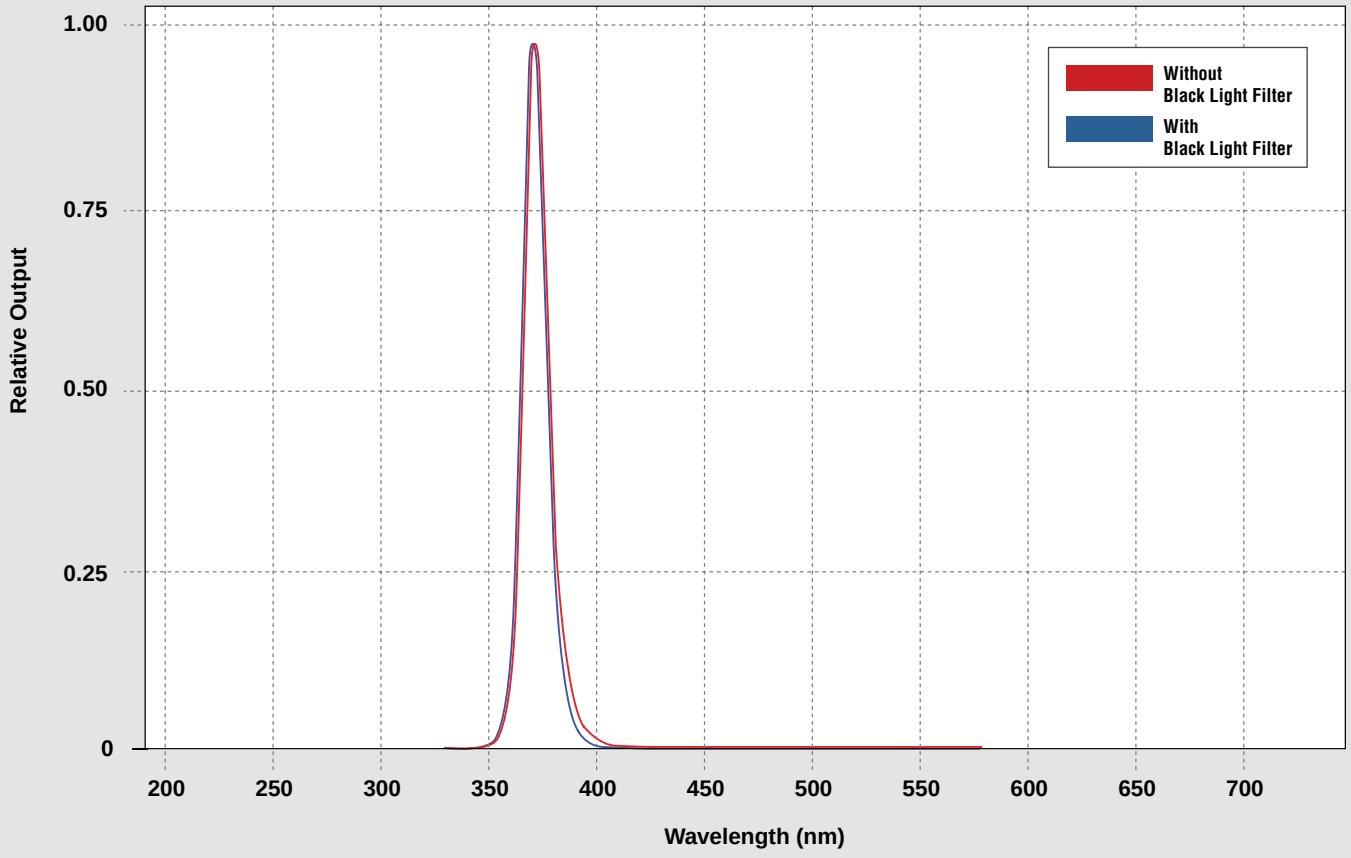
OPTI-LUX™ 365 Series flashlights are available in two ***high-intensity*** models that are designed for NDT inspection applications requiring high UV-A output. The **OLX-365** is equipped with a clear filter, while the **OLX-365B** comes with an internal black light filter that reduces the output of wavelengths longer than 400 nm. Both versions provide a nominal steady-state UV-A intensity of ***10,000 µW/cm²*** at 15 inches (38 cm).

UV-A BEAM PROFILE



NORMALIZED UV IRRADIANCE

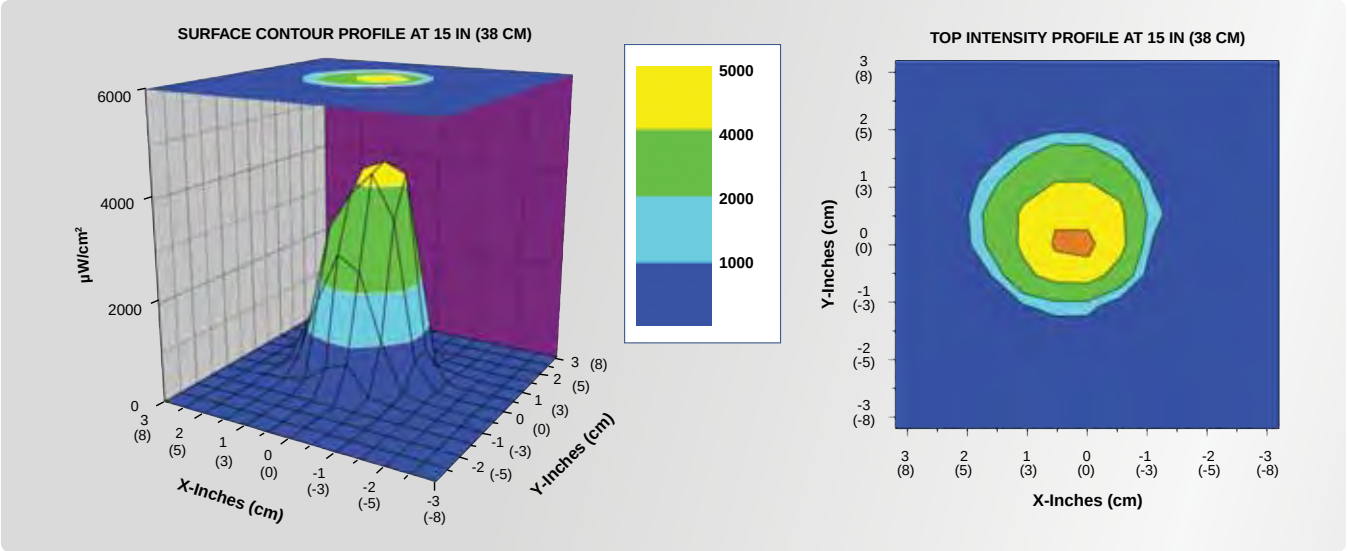
Typical wavelength output profile of OPTI-LUX™ 365 with and without black light filter, with peak at 365 nm.



STANDARD-INTENSITY MODELS

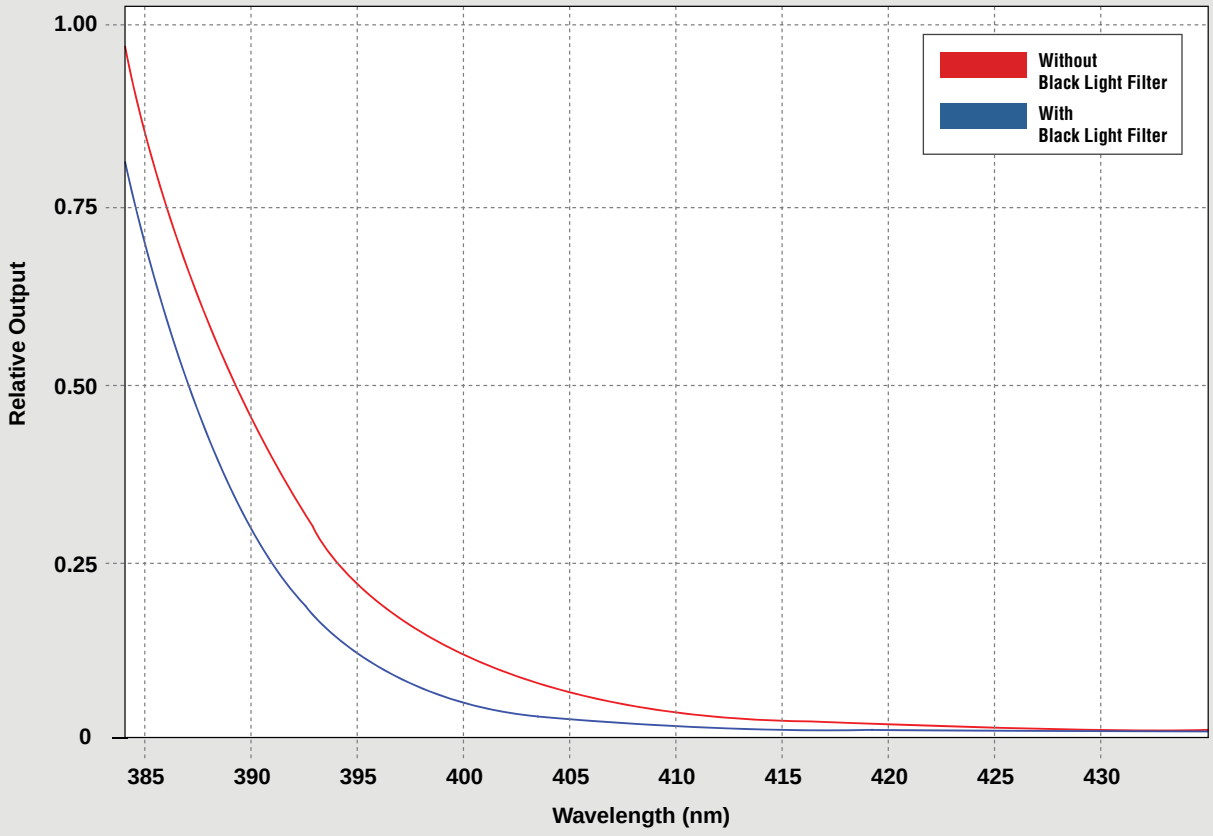
OPTI-LUX™ 365 flashlights are also available in two ***standard-intensity*** models that are designed for inspection applications requiring limited UV-A output. The **OLX-365FL** is equipped with a clear filter, while the **OLX-365BFL** comes with an internal black light filter that reduces the output of wavelengths longer than 400 nm. These lamps also offer a larger coverage area compared to high-intensity models. Both versions provide a nominal steady-state UV-A intensity of ***4,500 µW/cm²*** maximum at 15 inches (38 cm), and comply with aerospace industry standards.

UV-A BEAM PROFILE



SELECT WAVELENGTHS WITH AND WITHOUT BLACK LIGHT FILTER

As the wavelength of the OPTI-LUX™ 365 moves into the visible light range, the black light filter significantly reduces the UV-A output of the lamp by as much as 50% at 400 nm.



OPX-365

OPTIMAX™ 365 UV-A LED Inspection Flashlight

(U.S. and foreign patents pending)

Powerful, rechargeable, high-intensity UV-A inspection flashlight featuring state-of-the-art, ultra-hi-flux LED technology!

- Nominal steady-state UV-A intensity of ***18,000 µW/cm²*** at 15 inches (38 cm)
- Low visible light emission — less than 2 foot-candles (22 lux)
- Electronic Intensity Stabilizer assures consistent performance. Beam strength will not weaken between charges!
- Instant-on operation. Lamp reaches full intensity immediately!
- Rubber lamp protector prevents damage to LED head
- Ergonomic, portable and rugged. Anodized aluminum lamp body minimizes corrosion and stands up to years of heavy use.
- Powered by a rechargeable NiMH battery. Provides 90 minutes of continuous inspection between charges.

Also available: DF-365 diffusing filter (sold separately).

OPTIMAX™ 365 UV-A LED Inspection Flashlight comes complete with rubber lamp protector, smart AC and DC chargers, UV-absorbing spectacles, belt holster and padded carrying case.

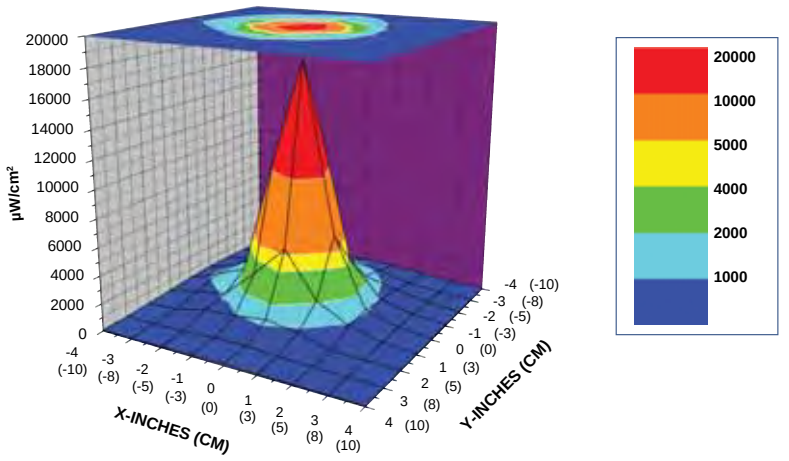
LAMP SPECIFICATIONS

Style	Cordless flashlight body with UV-A LED lamp head
Length	8.0 inch (20.3 cm)
Weight *(with Battery)*	11.8 oz (335 g)
Power Requirement	3.6V, 2 AH NiMH internal battery stick (rechargeable)
Run Time	90 minutes (continuous)
Charge Time	4 hours
Spectacles	UVS-30 UV-absorbing, clear

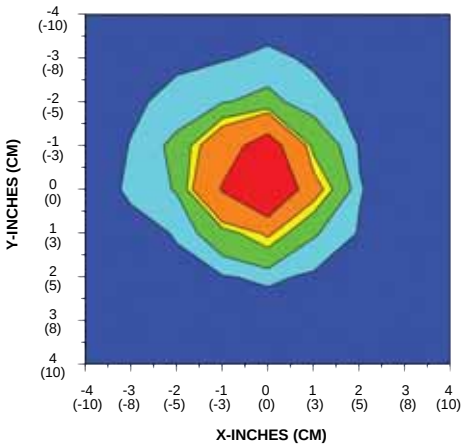
CE

UV-A BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)



TOP INTENSITY PROFILE AT 15 IN (38 CM)



OPK-300N

OPTIMAX™ Multi-Lite™ NDT Inspection Kit

(U.S. patent no. 5,905,268; foreign patents pending)

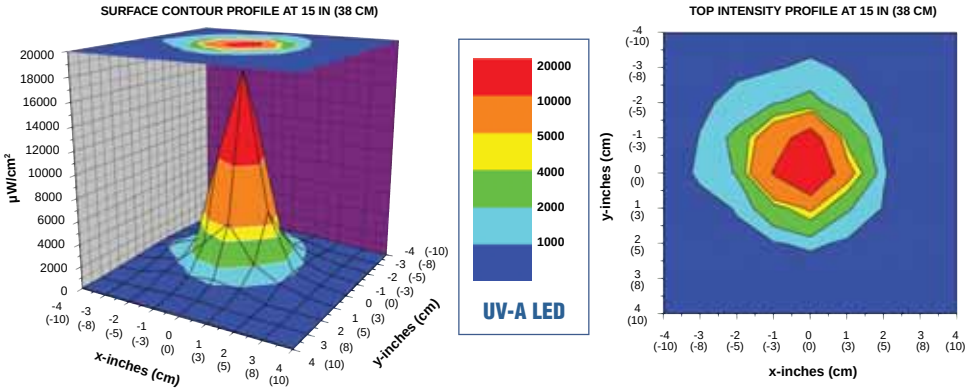
A New Powerful, Versatile, Multi-LED, NDT Light Source!

Features three Qwik-Connect™ interchangeable LED lamp heads that connect to a rugged, black-anodized flashlight body. It provides single-wavelength illumination in UV-A and blue light, and is ideal for both pre-screening of fluorescent particles in ambient light conditions and full-fledged NDT inspections utilizing magnetic particles or fluorescent penetrants. A convenient white light LED provides general illumination of dark work areas.

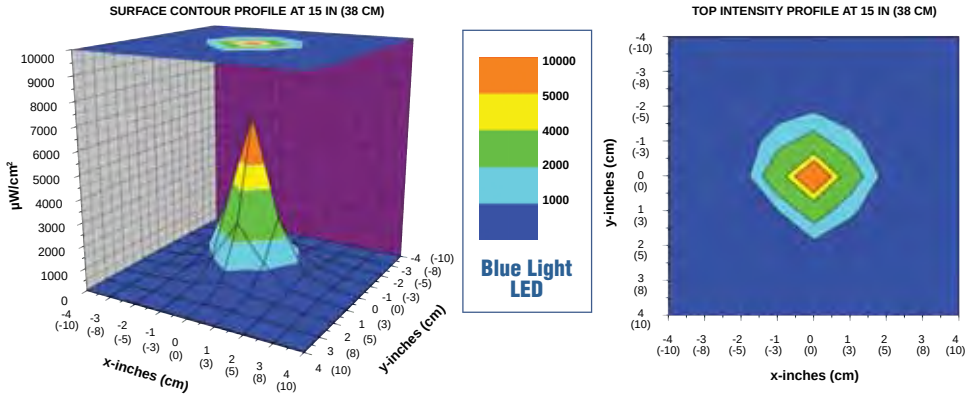
- Super-powerful LED optical output with ultra-high intensity 365 nm UV-A and 450 nm blue light performance
- Provides nominal steady-state intensity of ***18,000 µW/cm²*** (UV LED) or ***7,000 µW/cm²*** (blue light LED) at 15 inches (38 cm)
- Blue light LED with patented thin-film dichroic lens filters out long-wave visible light
- Electronic Intensity Stabilizer ensures consistent performance. Beam strength will not weaken between charges!
- Instant-on operation. Lamp reaches full intensity immediately!
- Lightweight, cordless, ergonomic design eliminates fatigue
- Powered by a rechargeable NiMH battery. Provides 90 minutes of continuous inspection between charges (smart AC and DC chargers included).

OPK-300N Multi-Lite™ Inspection Kit comes complete with three storage pouches for the LED lamp heads, smart AC and DC battery chargers, UV-absorbing spectacles, fluorescent-enhancing, yellow spectacles and a padded carrying case.

UV-A BEAM PROFILE



BLUE LIGHT BEAM PROFILE



LAMP SPECIFICATIONS

Style	Cordless flashlight body with three interchangeable LED lamp heads
Length	9.0 inch (22.9 cm)
Weight *(with Battery)*	15.3 oz (434 g)
Power Requirement	3.6V, 2 AH NiMH internal battery stick (rechargeable)
Run Time	90 minutes (continuous)
Charge Time	4 hours
Spectacles	UVS-30 UV-absorbing, clear UVS-40 fluorescent-enhancing, yellow

CE

TRI-365 Series

TRITAN™ 365 Multi-LED, Broad-Beam UV-A Inspection Lamps

Feature three ultra-hi-flux UV-A LEDs for fluorescent inspection, plus a convenient white light LED to scan for surface flaws and illuminate dark work areas. Their broad-beam configuration provides an extremely wide coverage area, while a compact head design allows access into areas inaccessible to larger UV inspection lamps.

Available in three models to meet your specific NDT inspection requirements: high-intensity, standard-intensity and standard-intensity with integral black light filters.

- Choice of one high-intensity model with a nominal steady-state UV-A intensity of ***9,000 µW/cm²*** or two standard-intensity models, both with a maximum UV-A intensity of less than ***5,000 µW/cm²*** at 15 inches (38 cm)
- Large 4 inch (10 cm) diameter coverage area at 15 inches (38 cm), with a minimum UV-A intensity of ***2,000 µW/cm²***
- Low visible light emission — less than 2 foot-candles (22 lux)
- Grip-mounted, three-way rocker switch (white light/off/UV) for easy control of light sources
- Built-in fans keep LEDs cool to maintain optimum light output during extended use
- Long-lasting UV-A lenses reduce the rate of solarization
- Rubber bumper with Borofloat® glass lens protects LEDs from damage
- Modular construction for easy servicing in the field
- Choice of standard 8 foot (2.4 m) or extra-long 20 foot (6.1 m) heavy-duty power cord with AC plug and rubber boot. Also available: Optional in-line power supply or industrial power supply with cord sets (sold separately).
- Meets ASTM UV-A intensity and wavelength specifications for LPT and MPT
- ***Certificate of compliance*** for both wavelength and output measurements supplied with every lamp
- UV-absorbing spectacles and soft carrying case included

TRITAN™ 365 faceplate shown with (left) and without (right) integral black light filters.

TRITAN™ 365 shown with optional PS-200A (above) and PS-300A (below) power supplies.

Model	Nominal steady-state UV-A (365 nm) intensity at 15 inches (38 cm) ①	Visible light measurement	Diameter of UV-A coverage area at 15 inches (38 cm)
TRI-365HB High intensity, with clear filter	9,000 µW/cm^2	< 2 foot-candles (22 lux)	4 inch (10 cm)
TRI-365DB Standard intensity, with clear filter	< 5,000 µW/cm^2 maximum ②	< 1 foot-candle (11 lux)	4 inch (10 cm)
TRI-365DBB Standard intensity, with integral black light filters	< 5,000 µW/cm^2 maximum ②	< 0.5 foot-candle (5 lux)	4 inch (10 cm)

Light Source:	3 UV-A LEDs, 1 White Light LED
Lamp Style:	Pistol grip
Lamp Head Diameter:	3.25 in (8.25 cm)
Length:	8.0 in (20.3 cm)
Weight:	1 lb (454 g)
White Light LED Intensity:	400 foot-candles (4,306 lux)
Power Requirements:	
AC Lamp (TRI-365DB, TRI-365DBB, TRI-365HB)	120VAC*
AC/DC Lamp (TRI-365MDB, TRI-365MDBB, TRI-365MHB)	120VAC*/12VDC
Battery Pack:	
Type	12V, NiMH (rechargeable)
Run Time	3.5 hours (continuous)
Charge Time	2 hours

*Also available in 230V, 240V and 100V versions.

① All UV-A intensity readings were taken with the Spectroline® AccuMAX™ Series meter, and are factory set to the values shown

② To address aerospace industry concerns

CE

Also Available:

TRITAN™ 365 M-Series portable, battery-operated AC/DC lamp kits. Include TRITAN™ 365 UV lamp, rechargeable NiMH battery pack, power supply adapter with AC and DC cord sets, smart AC charger, UV-absorbing spectacles and soft carrying case.

Replacement Parts & Accessories

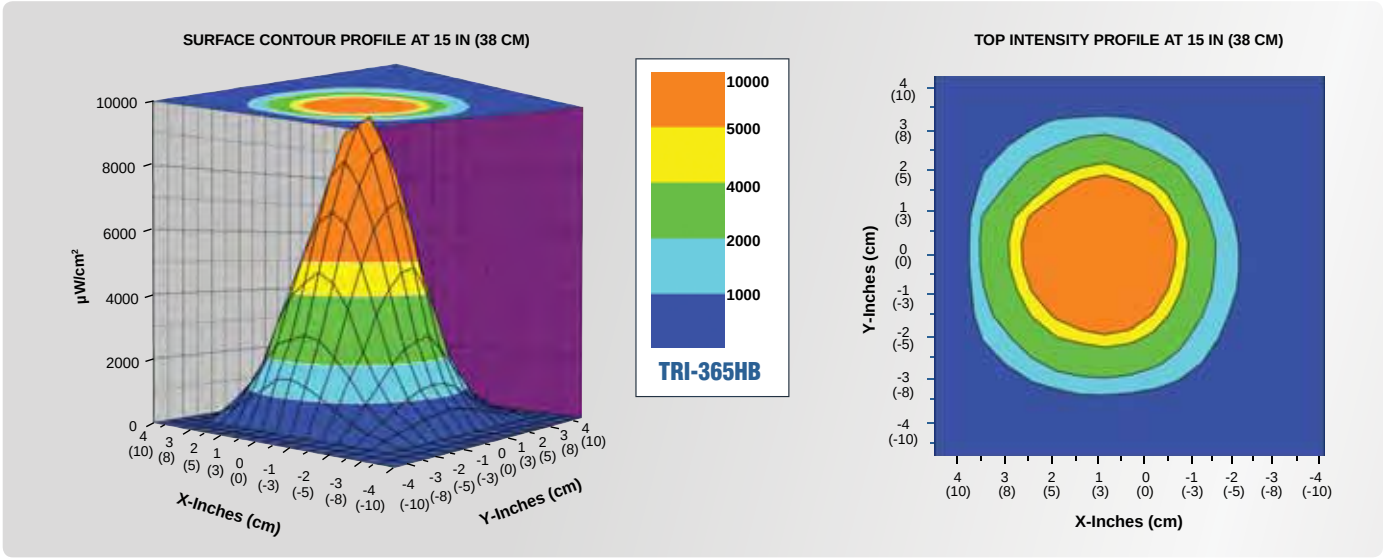
129141	Standard, 8 foot (2.4 m) AC power cord
129145	Extra-long, 20 foot (6.1 m) AC power cord
129162	3.5 foot (1.1 m) DC power cord for “M” series lamps
127933	Particulate filter assembly
127955	Standard faceplate
128196	Faceplate with integral black light filters
BP-30	Battery pack with 12V rechargeable NiMH battery
BR-150A	Smart AC charger
CC-370A	Soft carrying case
FP-365	Rubber bumper with Borofloat® glass
PSA-250A	AC/DC power supply adapter for “M” series lamps
PS-200A	Industrial power supply. Primary cord: 8 feet (2.4 m); secondary cord: 20 feet (6.1 m).
PS-300A	In-line power supply. Primary cord: 8 feet (2.4 m); secondary cord: 8 feet (2.4 m).
UL-100	UV-A Lens
UVS-30	UV-absorbing spectacles

HIGH-INTENSITY MODEL

UV-A BEAM PROFILE

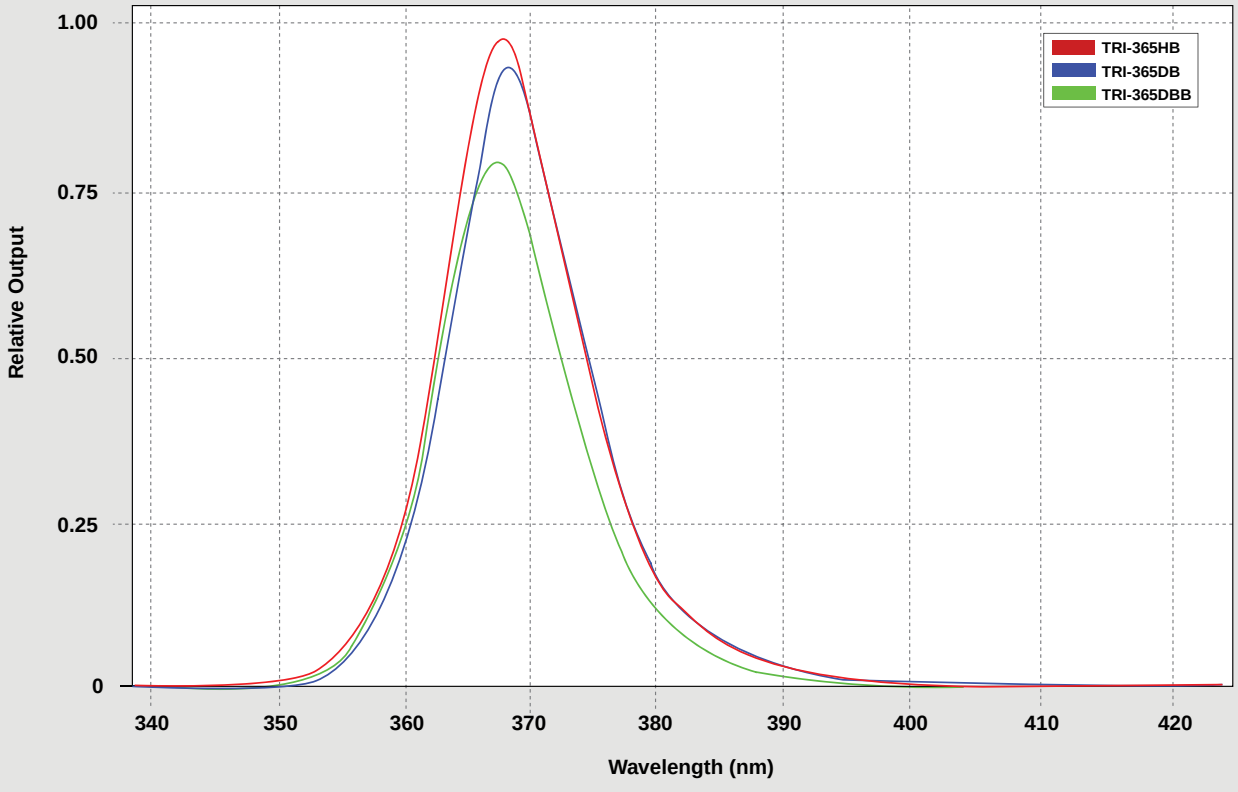
The **TRITAN™ 365** lamp is available in a ***high-intensity*** model specifically designed for NDT inspection applications requiring high UV-A output.

The **TRI-365HB** comes equipped with a clear glass filter and is "tuned" to provide a nominal steady-state UV-A intensity of ***9,000 µW/cm²*** at 15 inches (38 cm).



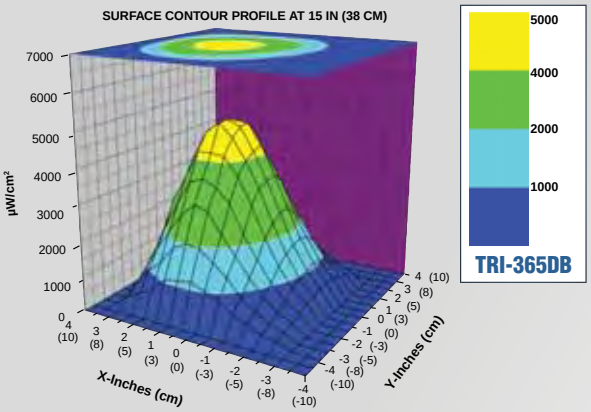
NORMALIZED UV IRRADIANCE

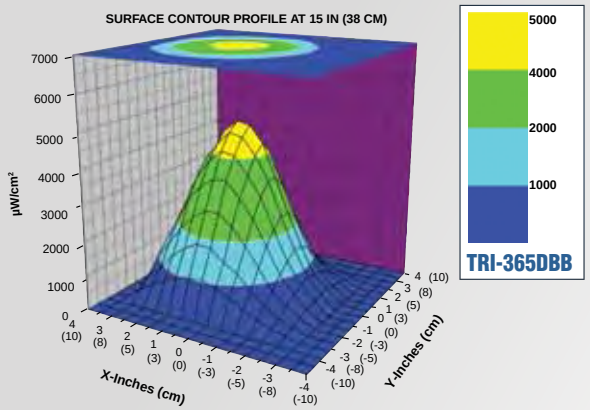
Typical wavelength output profile of TRITAN™ 365 Series with and without integral black light filters.



STANDARD-INTENSITY MODELS

UV-A BEAM PROFILES



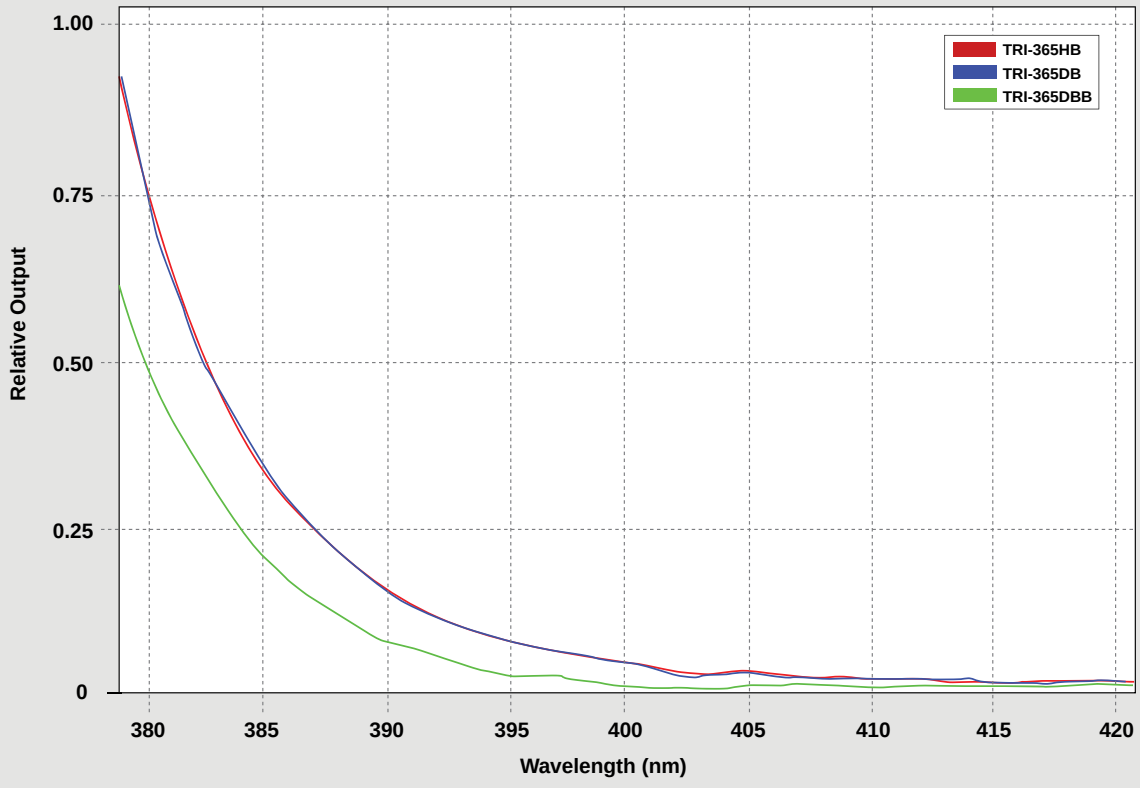


The **TRITAN™ 365** lamp is also available in two ***standard-intensity*** models that are designed for inspection applications requiring limited UV-A output.

The **TRI-365DB** is fitted with a clear glass filter. The **TRI-365DBB** is equipped with a faceplate with integral black light filters that cover each of the LEDs and reduce the output of wavelengths longer than 400 nm. This addresses aerospace industry concerns.

Both versions are "tuned" to ensure that they provide a maximum steady-state UV-A intensity of less than ***5,000 µW/cm²*** at 15 inches (38 cm).

SELECT WAVELENGTHS WITH AND WITHOUT BLACK LIGHT FILTER



As the wavelength of the TRITAN™ 365 moves into the visible light range, the black light filters significantly reduce the output of the lamp at 400 nm.

TRI-365SBLC

TRITAN™ 365 UV-A Inspection Lamp

Certified to Meet Rolls-Royce RRES 90061 Requirements

Key Features:

- Nominal steady-state UV-A intensity of less than *5,000 µW/cm²* at 15 inches (38 cm).
- Large 4 inch (10 cm) diameter coverage area at 15 inches (38 cm), with a minimum UV-A intensity of *2,500 µW/cm²*.
- Low visible light emission—less than 0.5 foot-candle (5 lux).
- Long-lasting UV-A lenses reduce the rate of solarization.
- Thermal cut-off circuitry prevents lamp from going out of compliance when internal temperature exceeds specifications.
- Certificate of compliance and ***full serialized validation report*** for both output and wavelength measurements supplied with each lamp.

TRI-365

- Faceplate with integral blacklight filters reduce output of wavelengths longer than 400 nm.
- White light LED allows for scanning of surface flaws or illuminating dark work spaces.
- Grip-mounted, three-way rocker switch (white light/off/UV) for easy control of light sources.
- Built-in fans keep LEDs cool to maintain optimum light output during extended use.
- Choice of standard 8 foot (2.4 m) or extra-long 20 foot (6.1 m) heavy-duty power cord with AC plug and rubber boot.
- Meets ASTM UV-A intensity and wavelength specifications for LPT and MPT.
- UV-absorbing spectacles and soft carrying case included.

Model	Nominal steady-state UV-A (365 nm) intensity at 15 inches (38 cm) ①	Visible light measurement	Diameter of UV-A coverage area at 15 inches (38 cm)
TRI-365SBLC	< 5,000 µW/cm^2 maximum	< 0.5 foot-candle (5 lux)	4 inch (10 cm)

Light Source:	3 UV-A LEDs, 1 White Light LED
Lamp Style:	Pistol grip
Lamp Head Diameter:	3.25 in (8.25 cm)
Length:	8.0 in (20.3 cm)
Weight:	1 lb (454 g)
White Light LED Intensity:	400 foot-candles (4,306 lux)
Power Requirements:	120VAC* Power Cord

*Also available in 230V, 240V and 100V versions.

① All UV-A intensity readings were taken with the Spectroline® AccuMAX™ Series meter, and are factory set to the values shown

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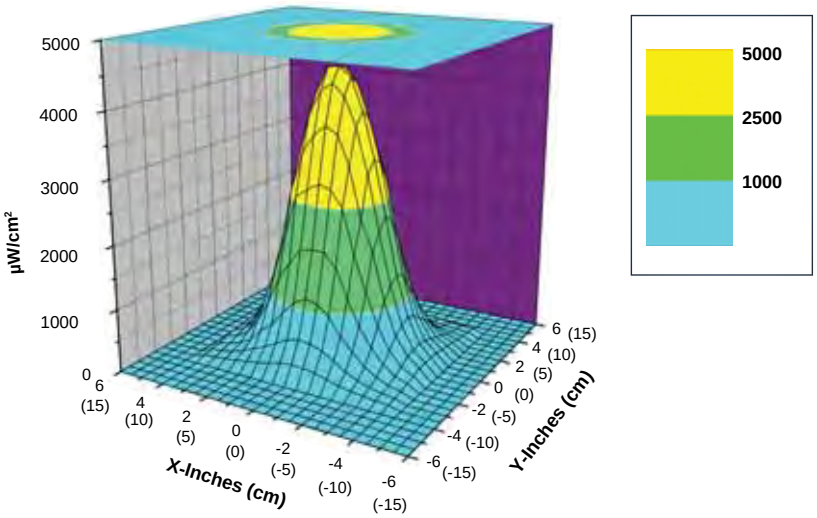
FULL SERIALIZED VALIDATION REPORT

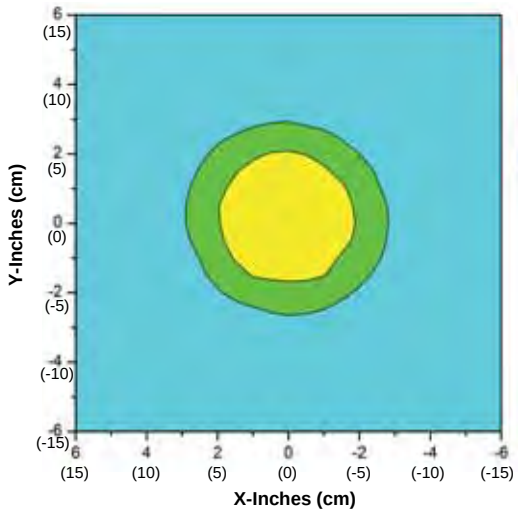
CERTIFICATE OF COMPLIANCE

UV-A BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)



TOP INTENSITY PROFILE AT 15 IN (38 CM)



QDR-365 Series

QUADRAN™ 365

Versatile, Dual-Intensity, Multi-LED, Broad-Beam NDT Inspection Lamps!

Feature four ultra-hi-flux UV-A LEDs plus a convenient white light LED to quickly switch between fluorescent inspection and flaw location. A unique dual-intensity feature provides both high and standard UV-A *and* white light output for added versatility.

The lamps' broad-beam configuration produces an extremely wide coverage area, making them ideal for both in-line and hand-held applications. Models are available either with or without integral black light filters to meet *your* specific inspection requirements.

The **QUADRAN™ 365** can be quickly mounted for in-line inspections using various Spectroline® accessories (FA-100 flexible arm shown).

- Dual-intensity capability: High setting produces a nominal steady-state UV-A intensity as high as ***8,000 µW/cm²***; standard setting produces a nominal steady-state intensity of ***4,500 µW/cm²***, both at 15 inches (38 cm)
- Extremely large coverage area of up to 6 inches (15 cm), with a minimum UV-A intensity of ***2,000 µW/cm²***
- Low visible light emission — less than 2 foot-candles (22 lux)
- Conveniently located rocker switches for quick and easy control of light sources
- Built-in fan keeps LEDs cool to maintain optimum light output during extended use
- Rubber bumper with Borofloat® glass lens protects LEDs from damage
- Rugged, modular construction allows for easy field serviceability
- Lamp handle pin receptacle allows for easy attachment of various Spectroline® mounting accessories for in-line inspection applications (accessories sold separately)
- Choice of standard 8 foot (2.4 m) or extra-long 20 foot (6.1 m) heavy-duty power cord with AC plug and rubber boot. Also available: Optional industrial power supply or in-line power supply with cord sets (sold separately).
- UV-absorbing spectacles and soft carrying case included

QUADRAN™ 365 faceplate shown with (top) and without (bottom) integral black light filters.

Model	Nominal steady-state UV-A (365 nm) intensity at 15 inches (38 cm) ①	Visible light measurement	UV-A coverage area (at minimum 2,000 µW/cm²)
QDR-365A Standard Intensity, with clear filter	4,500 µW/cm² maximum	< 1 foot-candle (11 lux)	5 in (13 cm)
High Intensity, with clear filter	8,000 µW/cm²	< 2 foot-candles (22 lux)	6 in (15 cm)
QDR-365BLA Standard Intensity, with intergral black light filters	4,500 µW/cm² maximum	< 0.5 foot-candle (5 lux)	4 in (10 cm)
High Intensity, with intergral black light filters	7,000 µW/cm²	< 1 foot-candle (11 lux)	6 in (15 cm)

Light Source: 4 UV-A LEDs, 1 White Light LED
Lamp Style: Pistol grip
Lamp Head (WxH): 6 x 5.5 in (15 x 14 cm)
Length: 10 in (25 cm)
Weight: 3 lb (1.36 kg)
White Light LED Intensity:
High setting: 300 foot-candles (3,229 lux)
Low setting: 10 foot-candles (108 lux)

Power Requirement:
AC Lamp
(QDR-365A, QDR-365BLA) 120VAC* power cord supplied with lamp
AC/DC Lamp
(QDR-365MA, QDR-365MBLA) 120VAC*/12VDC
Battery Pack:
Type 12V, NiMH (rechargeable)
Run Time
High intensity: 2.5 hours (continuous)
Standard intensity: 4.5 hours (continuous)
Charge Time 2 hours

*Also available in 230V, 240V and 100V versions.

① All UV-A intensity readings were taken with Spectroline® AccuMAX™ Series meter, and are factory set to the values shown

CE

Also Available:

QUADRAN™ 365 M-Series portable, battery-operated AC/DC lamp kits. Include QUADRAN™ 365 UV lamp, rechargeable NiMH battery pack, power supply adapter with AC and DC cord sets, smart AC charger, UV-absorbing spectacles and soft carrying case.

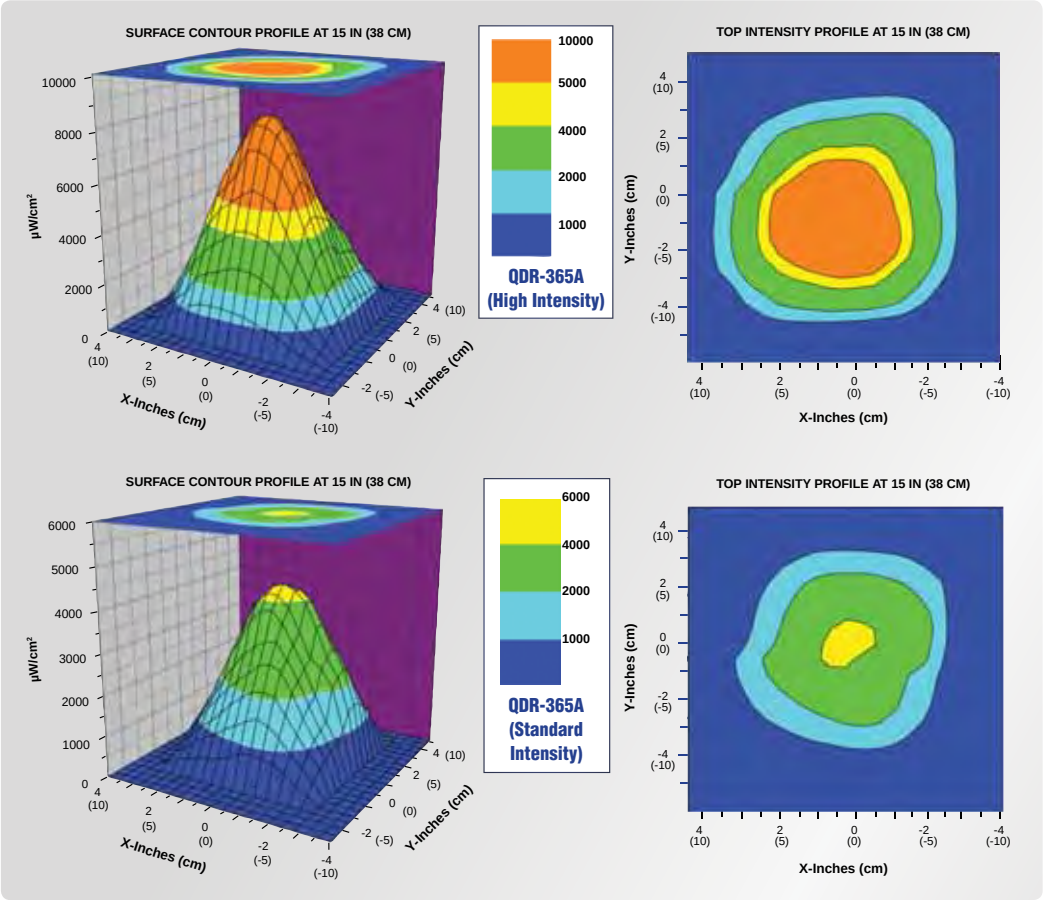
QDR-365A MODELS

UV-A BEAM PROFILES

When the **QDR-365A** is in ***high intensity*** mode, the lamp provides a nominal steady-state UV-A intensity of ***8,000 µW/cm²*** at 15 inches (38 cm).

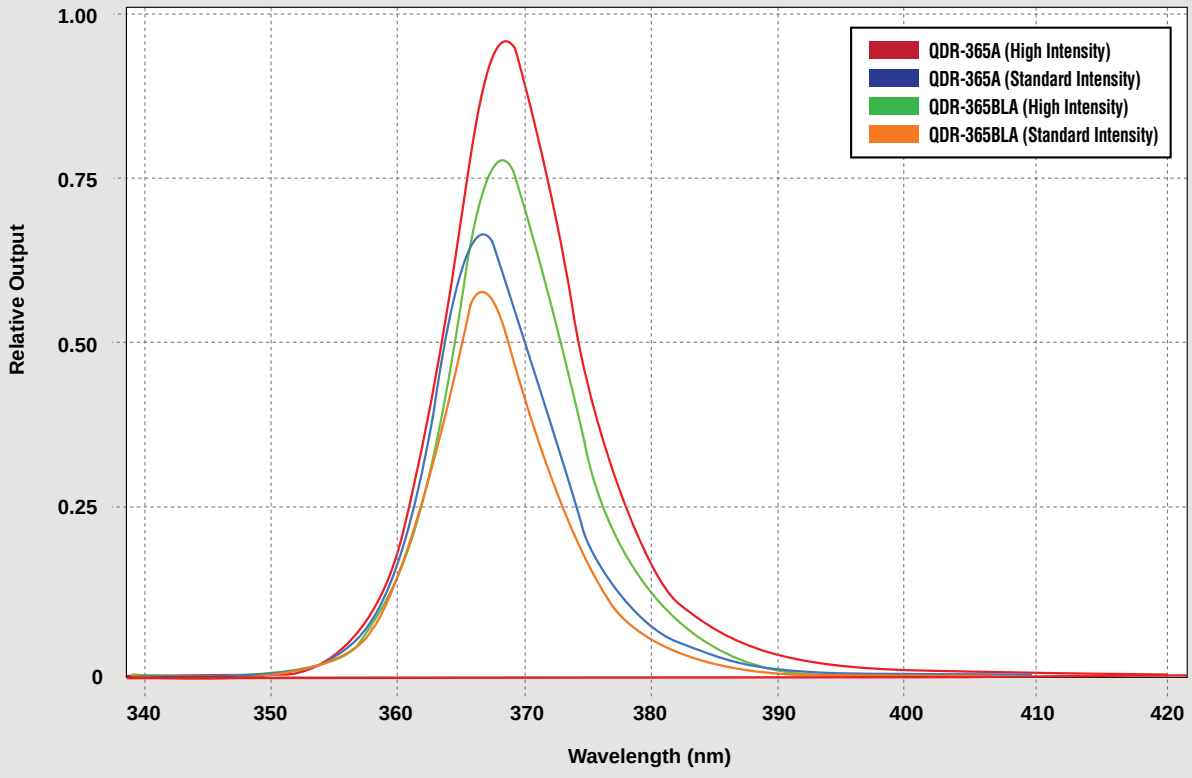
When switched to the ***standard intensity*** mode, the **QDR-365A** provides a nominal steady-state UV-A intensity of ***4,500 µW/cm²*** at 15 inches (38 cm).

In addition, the lamp has a high/low switch to control the white light LED output.



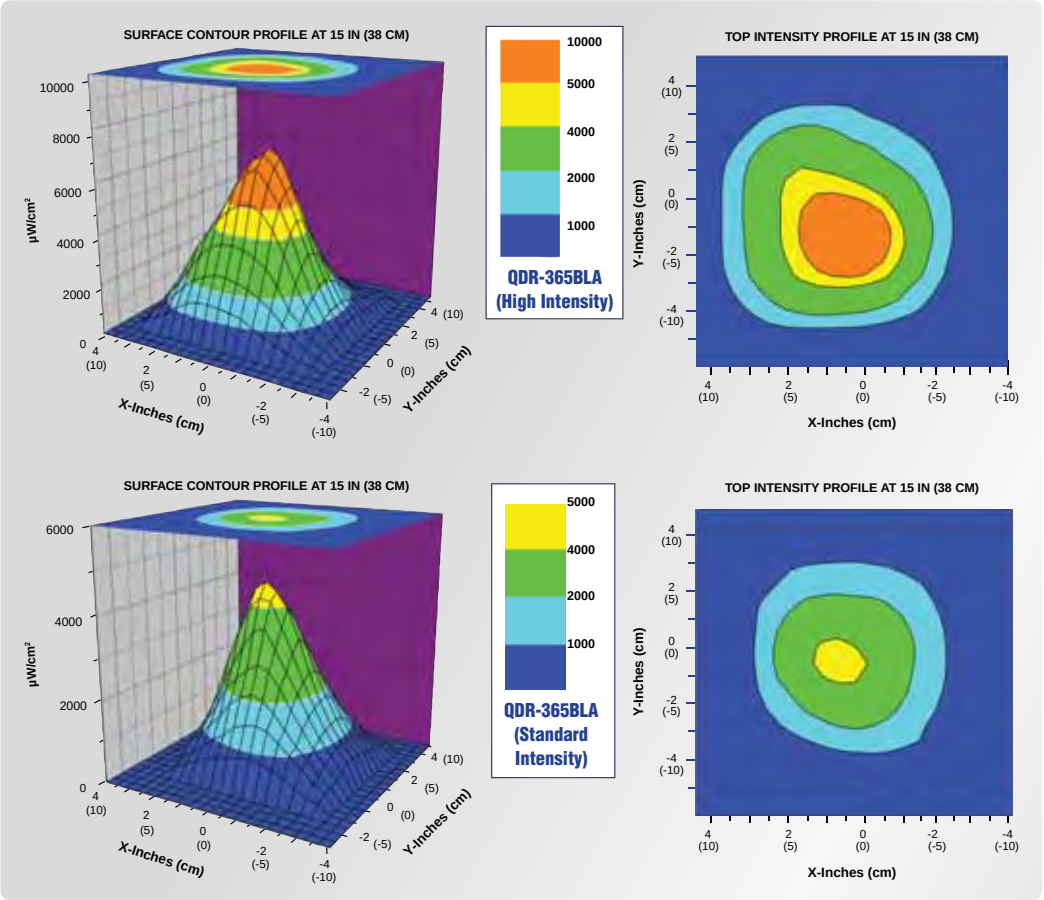
NORMALIZED UV IRRADIANCE

Typical wavelength output profile of QUADRAN™ 365 with and without intergral black light filters, with peak at 365 nm.



QDR-365BLA MODELS

UV-A BEAM PROFILES

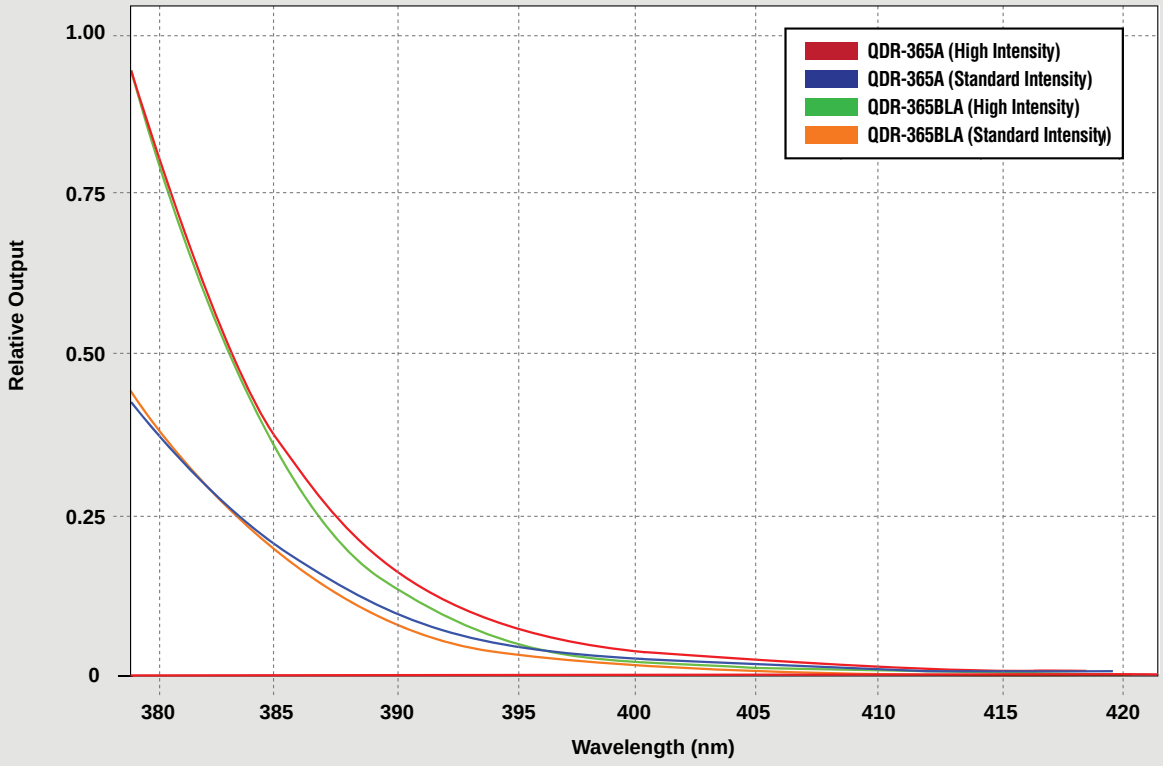


The **QDR-365BLA** is equipped with a faceplate with integral black light filters that reduce the output of wavelengths longer than 400 nm. When in the ***high intensity*** mode, the lamp provides a nominal steady-state UV-A intensity of ***7,000 µW/cm²*** at 15 inches (38 cm).

When switched to the ***standard intensity*** mode, the **QDR-365BLA** provides a nominal steady-state standard UV-A intensity of ***4,500 µW/cm²*** at 15 inches (38 cm).

In addition, the lamp has a high/low switch to control the white light LED output.

SELECT WAVELENGTHS WITH AND WITHOUT BLACK LIGHT FILTER



As the wavelength of the QUADRAN™ 365 moves into the visible light range, the black light filters significantly reduce the output of the lamp at 400 nm.

QDR-365 S-Series

QUADRAN™ 365

Powerful, Multi-LED, Broad-Beam NDT Inspection Lamps!

Feature four ultra-hi-flux UV-A LEDs plus a convenient white light LED to quickly switch between fluorescent inspection and flaw location. For increased flexibility, a unique dual-intensity feature provides high/low white light output control.

The lamps' broad-beam configuration produces an extremely wide coverage area, making them ideal for both in-line and hand-held applications. Two models are available, either with or without integral black light filters to meet *your* specific NDT inspection requirements.

QUADRAN™ 365 S-Series lamps can be quickly mounted for in-line inspections using various Spectroline® accessories *(FA-100 flexible arm shown)*.

- Choice of two models, both with a maximum standard UV-A intensity of ***4,500 µW/cm²*** at 15 inches (38 cm)
- Extremely large coverage area of up to 5 inches (13 cm), with a minimum UV-A intensity of ***2,000 µW/cm²***
- Low visible light emission — less than 1 foot-candle (11 lux)
- Conveniently located rocker switches for quick and easy control of light sources
- Built-in fan keeps LEDs cool to maintain optimum light output during extended use
- Long-lasting UV-A lenses reduce the rate of solarization
- Rubber bumper with Borofloat® glass lens protects LEDs from damage
- Rugged, modular construction allows for easy field serviceability
- Lamp handle pin receptacle allows for easy attachment of various Spectroline® mounting accessories for in-line inspection applications (accessories sold separately)
- Choice of standard 8 foot (2.4 m) or extra-long 20 foot (6.1 m) heavy-duty power cord with AC plug and rubber boot. Also available: Optional industrial power supply or in-line power supply with cord sets (sold separately).
- Meets ASTM UV-A intensity and wavelength specifications for LPT and MPT
- ***Certificate of compliance*** for both wavelength and output measurements supplied with every lamp
- UV-absorbing spectacles and soft carrying case included

QUADRAN™ 365 S-Series faceplate shown with (top) and without (bottom) integral black light filters.

Model	Nominal steady-state UV-A (365 nm) intensity at 15 inches (38 cm) ①	Visible light measurement	UV-A coverage area (at minimum 2,000 µW/cm²)
QDR-365SA	4,500 µW/cm² maximum ②	< 1 foot-candle (11 lux)	5 in (13 cm)
QDR-365SBLA With integral black light filters	4,500 µW/cm² maximum ②	< 0.5 foot-candle (5 lux)	4 in (10 cm)

Light Source: 4 UV-A LEDs, 1 White Light LED
Lamp Style: Pistol grip
Lamp Head (WxH): 6 x 5.5 in (15 x 14 cm)
Length: 10 in (25 cm)
Weight: 3 lb (1.36 kg)
White Light LED Intensity:
High setting: 300 foot-candles (3,229 lux)
Low setting: 10 foot-candles (108 lux)

Power Requirement:
AC Lamp
(QDR-365SA, QDR-365SBLA) 120VAC* power cord supplied with lamp
AC/DC Lamp
(QDR-365MSA, QDR-365MSBLA) 120VAC*/12VDC
Battery Pack:
Type 12V, NiMH (rechargeable)
Run Time 4.5 hours (continuous)
Charge Time 2 hours

*Also available in 230V, 240V and 100V versions.

① All UV-A intensity readings were taken with Spectroline® AccuMAX™ Series meter, and are factory set to the values shown
② To address aerospace industry concerns

CE

Also Available:

QUADRAN™ 365 MS-Series portable, battery-operated AC/DC lamp kits. Include QUADRAN™ 365 UV lamp, rechargeable NiMH battery pack, power supply adapter with AC and DC cord sets, smart AC charger, UV-absorbing spectacles and soft carrying case.

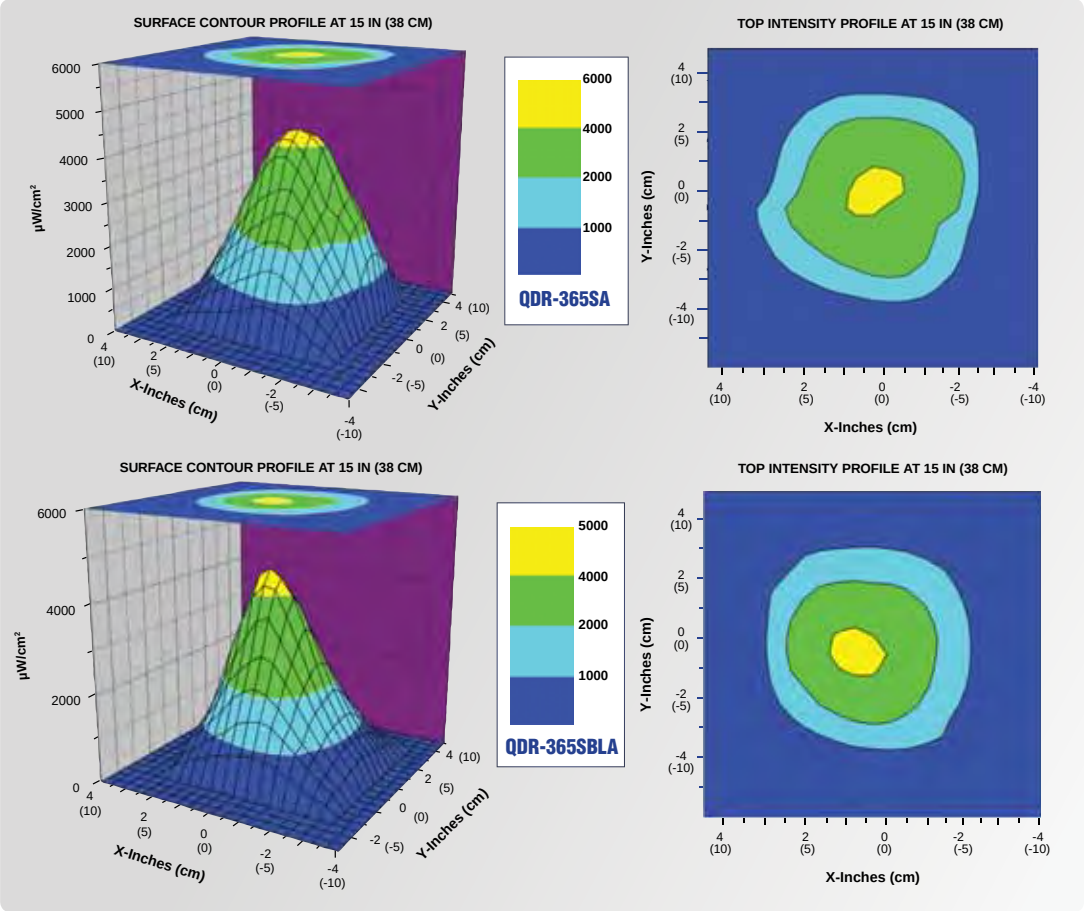
UV-A BEAM PROFILES

QUADRAN™ 365 S-Series lamps are available in two models (**QDR-365SA** and **QDR-365SBLA**).

Both are designed for NDT inspection applications requiring limited UV-A output. The **QDR-365SA** comes with a standard faceplate. The **QDR-365SBLA** is equipped with a faceplate containing integral black light filters that reduce the output of wavelengths longer than 400 nm.

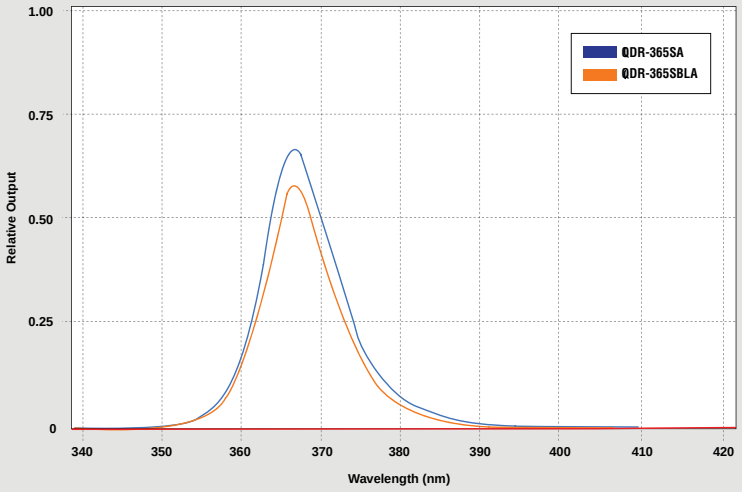
Both lamps are "tuned" to provide a nominal steady-state UV-A intensity of ***4,500 µW/cm²*** at 15 inches (38 cm). This addresses aerospace industry concerns.

In addition, both lamps have a high/low switch to control the white light LED output.



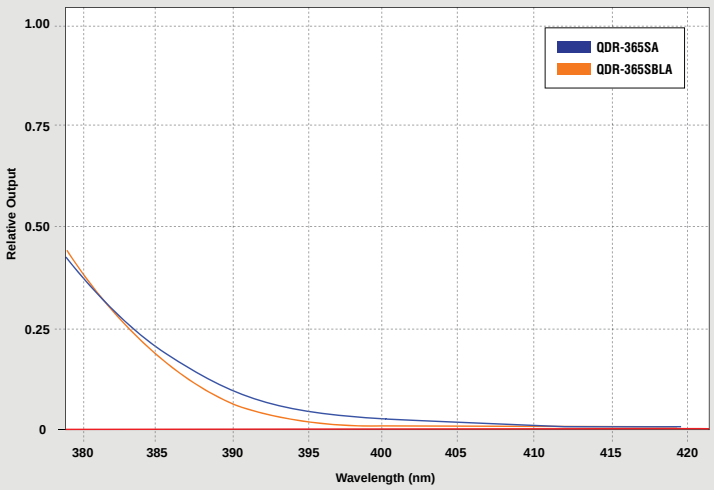
NORMALIZED UV IRRADIANCE

Typical wavelength output profile of QUADRAN™ 365 S-Series lamps with and without black light filters.



SELECT WAVELENGTHS WITH AND WITHOUT BLACK LIGHT FILTER

As the wavelength of the QUADRAN™ 365 S-Series moves into the visible light range, the black light filters significantly reduce the output of the lamp at 400 nm.



All QUADRAN™ 365 S-Series lamps are ideal for performing both in-line and hand-held inspections!

Each lamp can easily be attached to a variety of Spectroline® mounting accessories, as well as to our optional in-line power supplies.

QUADRAN™ 365 lamp shown with optional PS-200A (left) and PS-300A (right) power supplies.

Replacement Parts & Accessories for the QDR-365 & QDR-365 S-Series

129141	Standard, 8 foot (2.4 m) AC power cord
129145	Extra-long, 20 foot (6.1 m) AC power cord
129162	3.5 foot (1.1 m) DC power cord for “M” series lamps
127922	Particulate filter assembly
127944	Standard faceplate
128094	Faceplate with integral black light filters
B-6	Bench mount
BP-30	Battery pack with 12V rechargeable NiMH battery
BR-150A	Smart AC charger
CC-400	Soft carrying case
FA-100	Flexible arm
FP-550	Rubber bumper with Borofloat® glass
PSA-250A	AC/DC power supply adapter for “M” series lamps
PS-200A	Industrial power supply. Primary cord: 8 feet (2.4 m); secondary cord: 20 feet (6.1 m).
PS-300A	In-line power supply. Primary cord: 8 feet (2.4 m); secondary cord: 8 feet (2.4 m).
W-6	Wall mount with pin
WM-100	Wall mounting bracket
UL-100	UV-A Lens
UVS-30	UV-absorbing spectacles

EK-3000

EAGLE EYE™

UV-A/White Light LED Inspection Kit

(U.S. patent: 8,616,722; CN patent ZL201010265212.4)

Palm-Sized, Cool-Running, Hands-Free Light Source!

Ideal for fluorescent magnetic particle and penetrant testing, mining inspection and a variety of other specialized applications!

Spray and inspect in one simple step!

- Compact, lightweight lamp with two ultra-high intensity UV-A (365 nm) LEDs for inspection, plus a three-LED white light assembly for general illumination
- Adjustable strap allows lamp to be worn on a hard hat or directly on the head for hands-free operation
- Unique lamp mount/sprayer attachment permits lamp and spray can to be mounted together for convenient, single-handed fluorescent yoke inspection
- Built-in fan keeps lamp cool to maintain optimum UV-A intensity during extended use
- Long-lasting UV-A lenses reduce the rate of solarization
- Splash guard with integral particulate filter protects UV lenses and cooling fan from damage
- Powered by a rechargeable lithium-ion battery (included). Provides up to 75 minutes of continuous inspection between charges.
- ***Certificate of compliance*** for both wavelength and output measurements supplied with every lamp

EK-3000 EagleEye™ Kit comes with a lanyard, two replacement splash guards with integral particulate filters, two spare batteries, battery charging cradle with AC and DC cord sets, UV-absorbing spectacles and soft carrying case.

LAMP SPECIFICATIONS

Product Number:
EE-365

Light Sources:
2 UV LEDs, 3 white light LEDs

Dimensions:
Length 3.75 in (9.5 cm)
Width 2.25 in (5.7 cm)
Height 1.85 in (4.7 cm)

Weight with Battery: 8 oz (227 g)

Power Requirement:
One 3.7V 2200mA/Hr lithium-ion battery (rechargeable)

Run Time:
75 minutes (continuous)

Charge Time:
4 hours (two batteries)

Charging Cradle:
Two-battery capability with AC and DC cord sets.

Nominal Steady-State UV-A (365 nm) Intensity:
6 in (15 cm) — 20,000 µW/cm²
15 in (38 cm) — 4,500 µW/cm²
24 in (61 cm) — 2,000 µW/cm²
36 in (91 cm) — 1,000 µW/cm²

NOTE: All UV-A intensity readings taken with a Spectroline® AccuMAX™ Series meter

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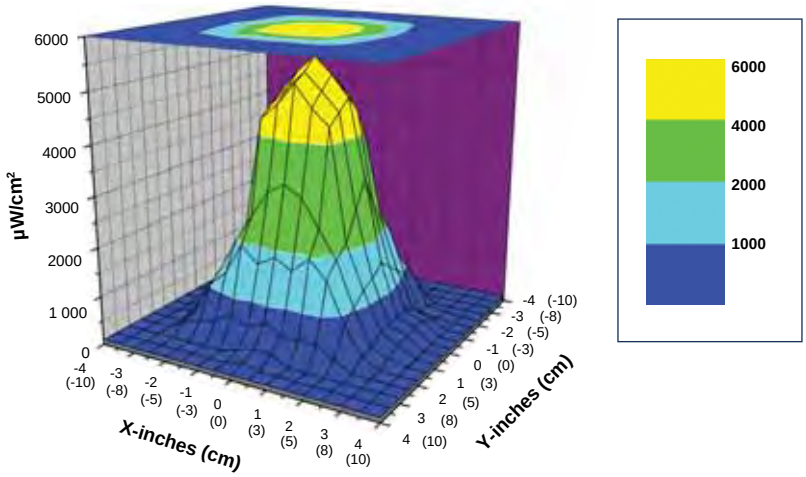
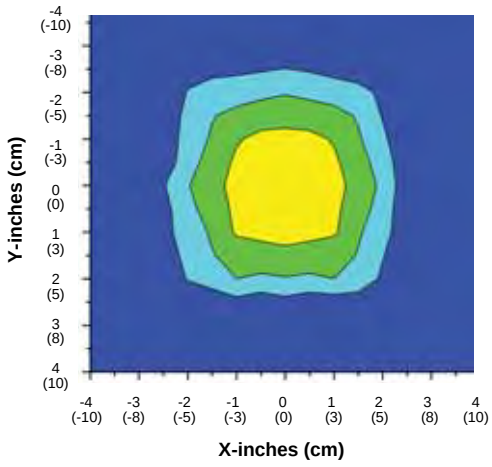
UV-A BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)



TOP INTENSITY PROFILE AT 15 IN (38 CM)



Replacement Parts & Accessories

EE-365	UV-A/white light LED lamp
LMS-100	Lamp mount/sprayer
HS-100	Head strap
SG-100	Splash guard with integral particulate filter (set of three)
128217	Battery charging cradle with AC cord
128225	DC cord set for 128217
127568	Lithium-ion battery (rechargeable)
UL-100	UV-A Lens
UVS-30	UV-absorbing spectacles
CC-370A	Soft carrying case

PM-1600 Series

PowerMAX™ 365

UV-A LED Panel Flood Lamps
Designed Specifically for NDT Professionals!

PowerMAX™ 365 Series flood lamps feature a panel of 16 powerful UV-A (365 nm) LEDs specially engineered for non-destructive testing applications. These versatile, stationary light sources can be installed overhead or in-line, and can be ganged together to provide an even wider coverage area.

Available in four models to meet your specific inspection needs: high-intensity and standard-intensity versions, each with or without a black light filter. Ideal for NDT inspection booths, fluorescent penetrant and magnetic particle inspection, screening of fluorescent particles, wash station inspection and many other applications requiring maximum uniformity of UV-A coverage over a large area.

- Choice of two high-intensity models with a nominal steady-state UV-A intensity as high as ***8,000 µW/cm²*** or two standard-intensity models with a maximum UV-A intensity of ***4,500 µW/cm²*** at 15 inches (38 cm)
- Large coverage area of 15 inches by 6 inches (38 cm x 15 cm), with a minimum UV-A intensity of ***2,000 µW/cm²***
- Low visible light emission — less than 2 foot-candles (22 lux)
- Easily mountable for overhead inspection or in-line applications
- Built-in fans keep LEDs cool to maintain optimum light output during extended use
- Customizable — multiple lamp units can be "ganged" together longitudinally or back-to-back for a larger coverage area to meet *your* specific inspection requirements!
- Both high- and standard-intensity versions available with or without black light filter
- Standard-intensity lamps meet ASTM UV-A intensity and wavelength specifications for LPT and MPT, and come with a ***certificate of compliance*** for both wavelength and output measurements

Model	Nominal steady-state UV-A (365 nm) intensity at 15 inches (38 cm) ①	Visible light measurement	UV-A coverage area (at minimum 2000 µW/cm²)
PM-1600UVH High intensity, with clear filter	8,000 µW/cm²	< 2 foot-candles (22 lux)	15 in by 6 in (38 cm x 15 cm)
PM-1600BLH High intensity, with black light filter	6,500 µW/cm²	< 1 foot-candle (11 lux)	15 in by 6 in (38 cm x 15 cm)
PM-1600UV Standard intensity, with clear filter	4,500 µW/cm² maximum ②	< 1 foot-candle (11 lux)	15 in by 6 in (38 cm x 15 cm)
PM-1600BL Standard intensity, with black light filter	4,000 µW/cm² maximum ②	< 0.5 foot-candle (5 lux)	15 in by 6 in (38 cm x 15 cm)

Light Source: 16 UV-A (365 nm) LEDs

Lamp Style: Panel flood lamp

Dimensions: (W x L x H) 5.5 x 13.75 x 6 in (14 x 35 x 15 cm)

Weight: 9 lb (4 kg)

Power Requirement: AC power (main AC power cord supplied with the unit)

① All UV-A intensity readings were taken with Spectroline® AccuMAX™ Series meter, and are factory set to the values shown

② To address aerospace industry concerns

For applications requiring extremely large coverage areas, the PowerMAX™ 365 can be quickly ganged together longitudinally (top) or back-to-back (below) using customized, easy-to-install connecting plates and brackets.

Replacement Parts & Accessories

128177	AC power cord
BF-365PM	Black light filter assembly
CF-100	Clear glass filter assembly
127918	Particulate air filter
127935	Retainer, LED assembly face plate
CC-200	Connector cable for ganging lamps
CP-100	Top connecting plate for ganging lamps longitudinally
CP-200	Top connecting plate for ganging lamps back-to-back (Two required)
CP-300	Side connecting bracket for ganging lamps longitudinally (Two required)
UL-100	UV-A lens
UVF-80	Face shield, UV-absorbing
UVG-50	Goggles, UV-absorbing
UVS-30	Spectacles, UV-absorbing

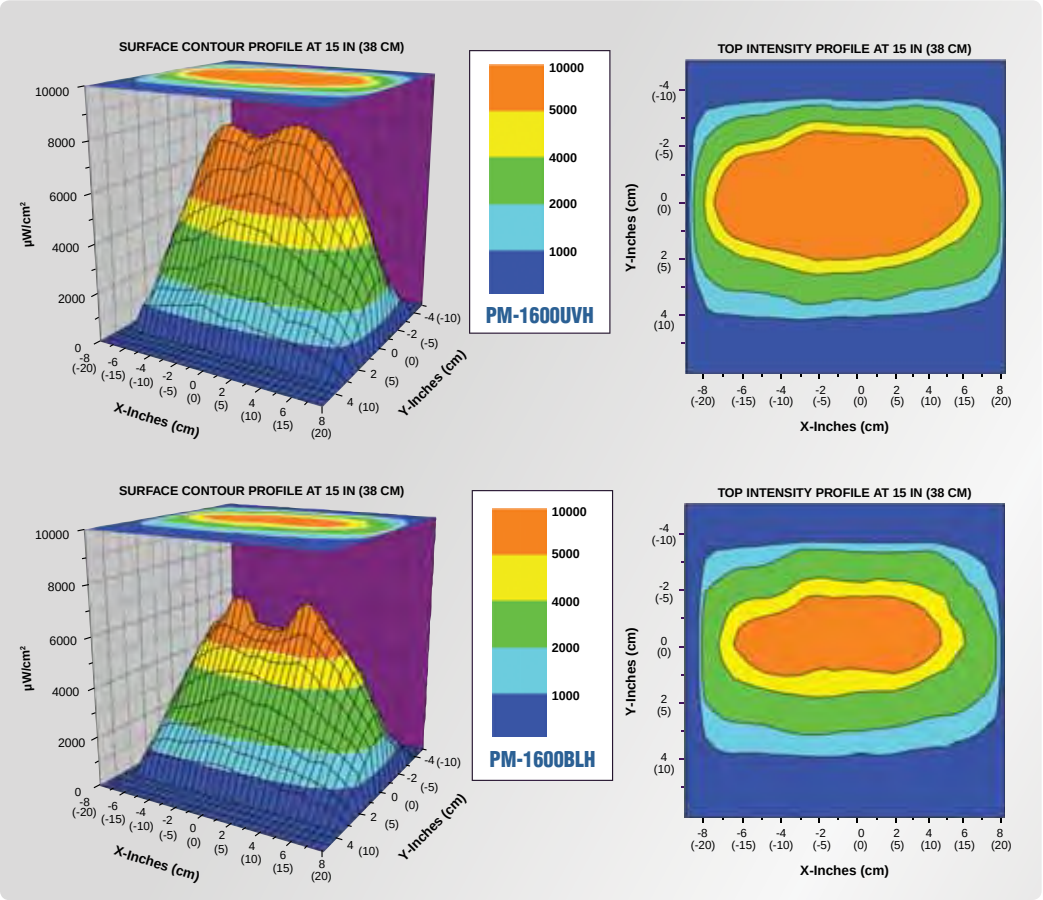
HIGH-INTENSITY MODELS

UV-A BEAM PROFILES

PowerMAX™ 365 Series UV-A LED panel flood lamps are available in two ***high-intensity*** models that are specifically designed for NDT inspection applications requiring high UV-A output.

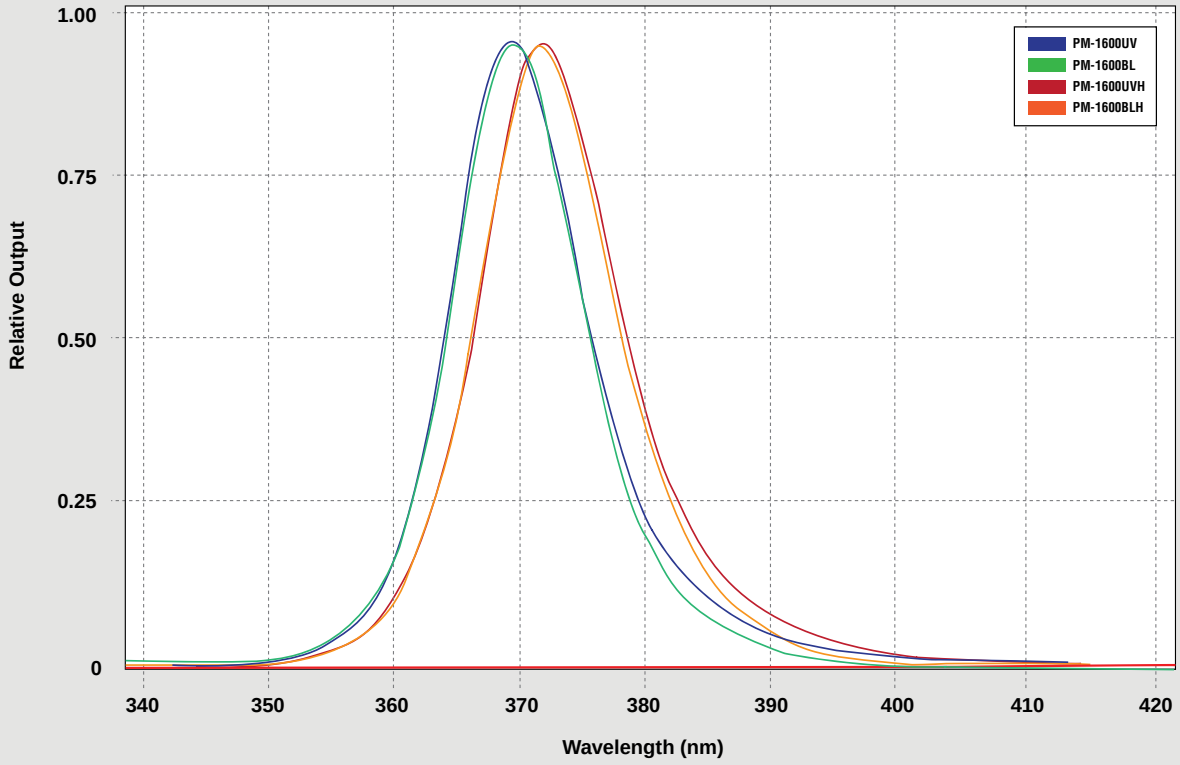
The **PM-1600UVH** is equipped with a clear glass filter and provides a nominal steady-state UV-A intensity of ***8,000 µW/cm²*** at 15 inches (38 cm).

The **PM-1600BLH** is equipped with a black light filter that reduces the output of wavelengths longer than 400 nm. It provides a nominal steady-state UV-A intensity of ***6,500 µW/cm²*** at 15 inches (38 cm).



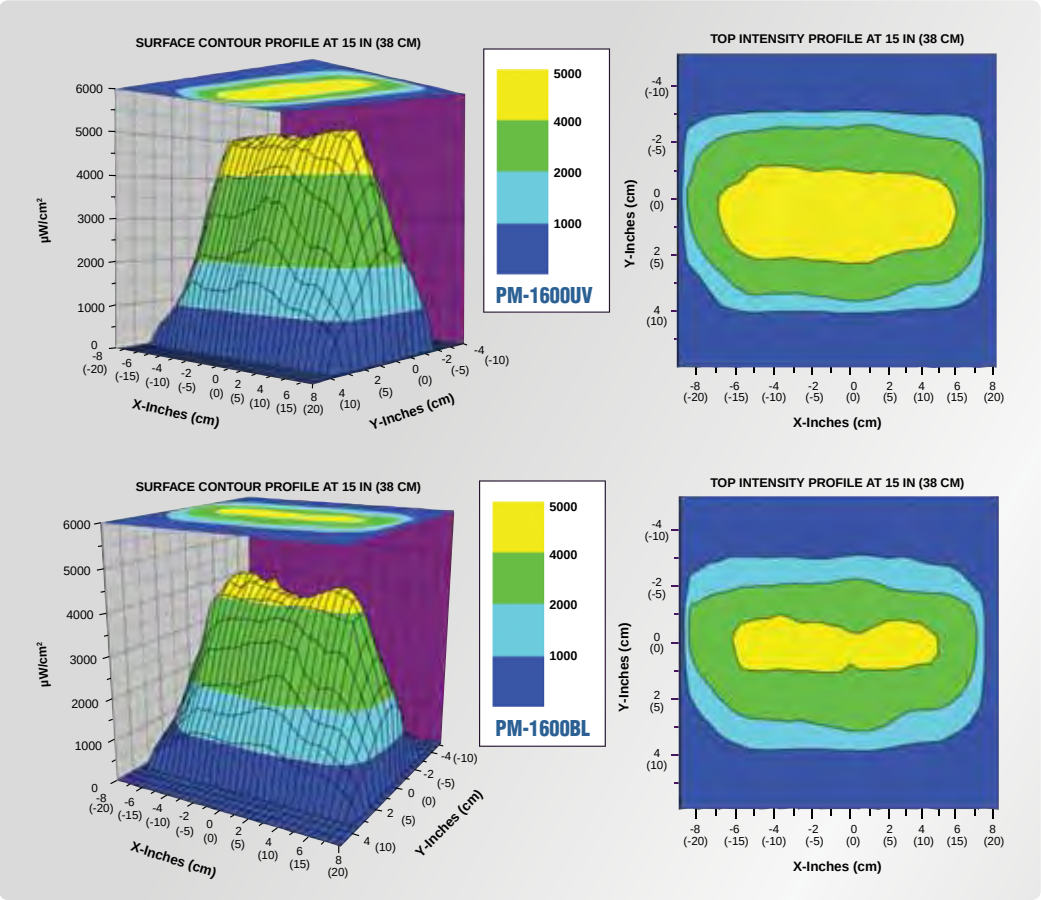
NORMALIZED UV IRRADIANCE

Typical wavelength output profile of PowerMAX™ 365 Series with and without black light filter.



STANDARD-INTENSITY MODELS

UV-A BEAM PROFILES

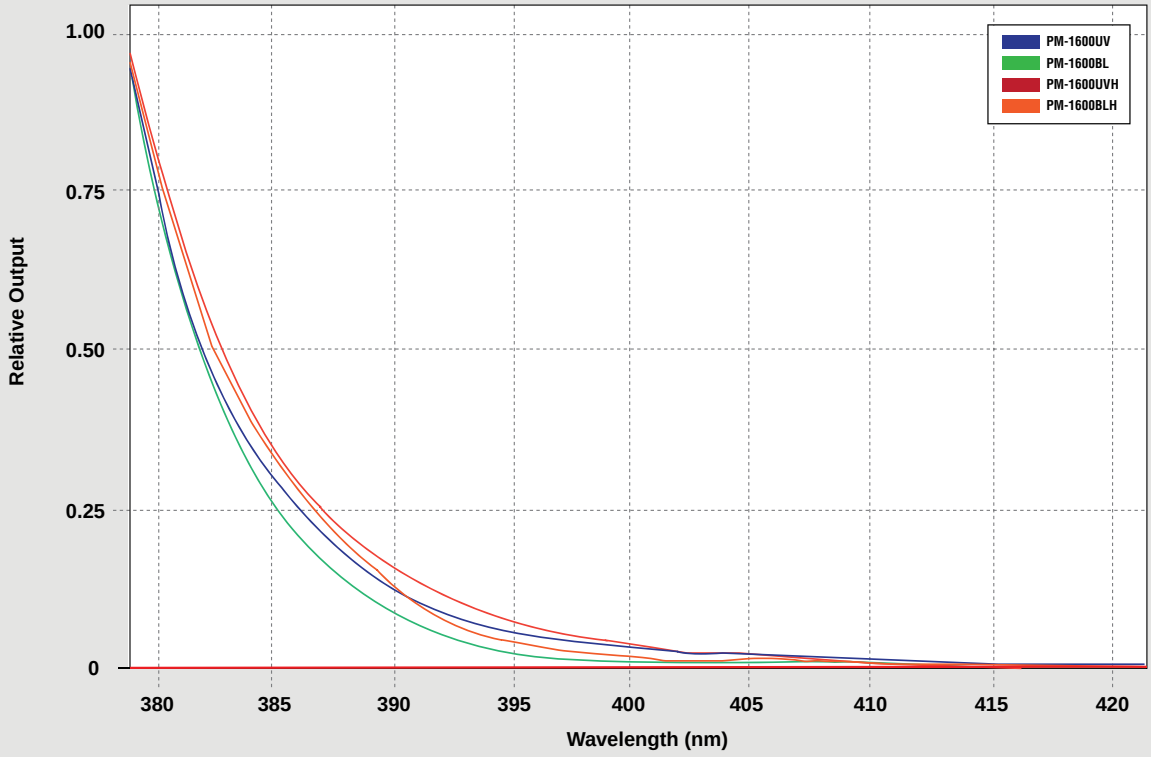


PowerMAX™ 365 Series UV-A LED panel flood lamps are also available in two ***standard-intensity*** models that are designed for NDT inspection applications requiring limited UV-A output.

The **PM-1600UV** is equipped with a clear glass filter and provides a nominal steady-state UV-A intensity of ***4,500 µW/cm²*** (maximum) at 15 inches (38 cm).

The **PM-1600BL** is equipped with a black light filter that reduces the output of wavelengths longer than 400 nm. It provides a nominal steady-state UV-A intensity of ***4,000 µW/cm²*** (maximum) at 15 inches (38 cm). This addresses aerospace industry concerns.

SELECT WAVELENGTHS WITH AND WITHOUT BLACK LIGHT FILTER



As the wavelength of the PowerMAX™ 365 moves into the visible light range, the black light filter significantly reduces the output of the lamp at 400 nm.

UV-400 Series SuperFlood™

Our Most Powerful UV-A Flood Lamps Designed Specifically for NDT

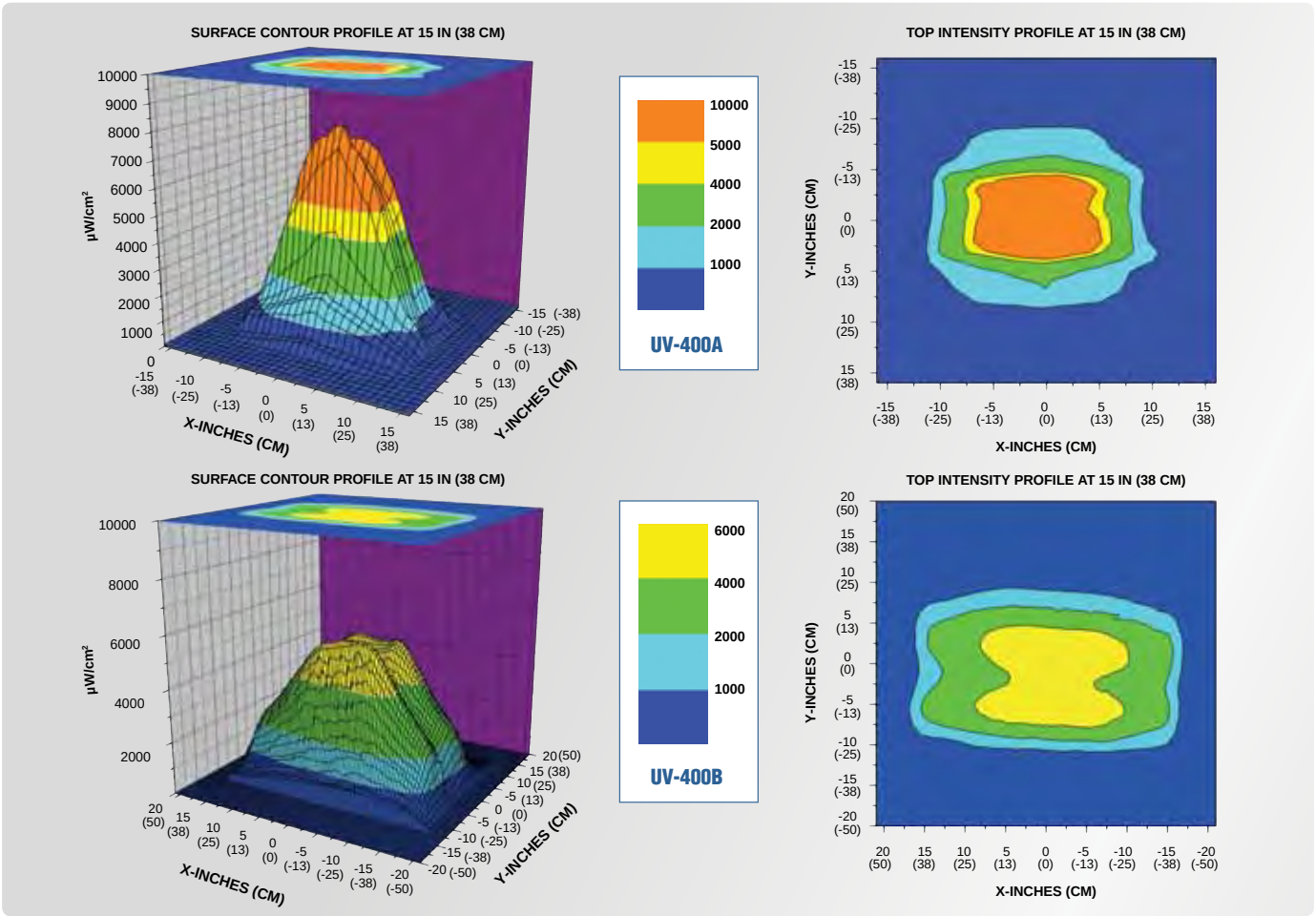
These super-powerful and versatile lamps have been specially engineered for fluorescent penetrant and magnetic particle inspection, parts degreasing inspections and wash station inspections.

- Powerful, 400-watt metal halide bulb, combined with tempered, heat-resistant low solarization UV filters provide the highest intensity over the largest area
- Unique twin-filter system eliminates hazardous UV-B and UV-C radiation escaping from lamp
- Easily mounts over automated magnetic particle systems or above penetrant inspection booths for the most accurate inspections of even the largest parts
- Compact design and built-in mounting features allow lamps to be positioned anywhere — even in previously inaccessible areas

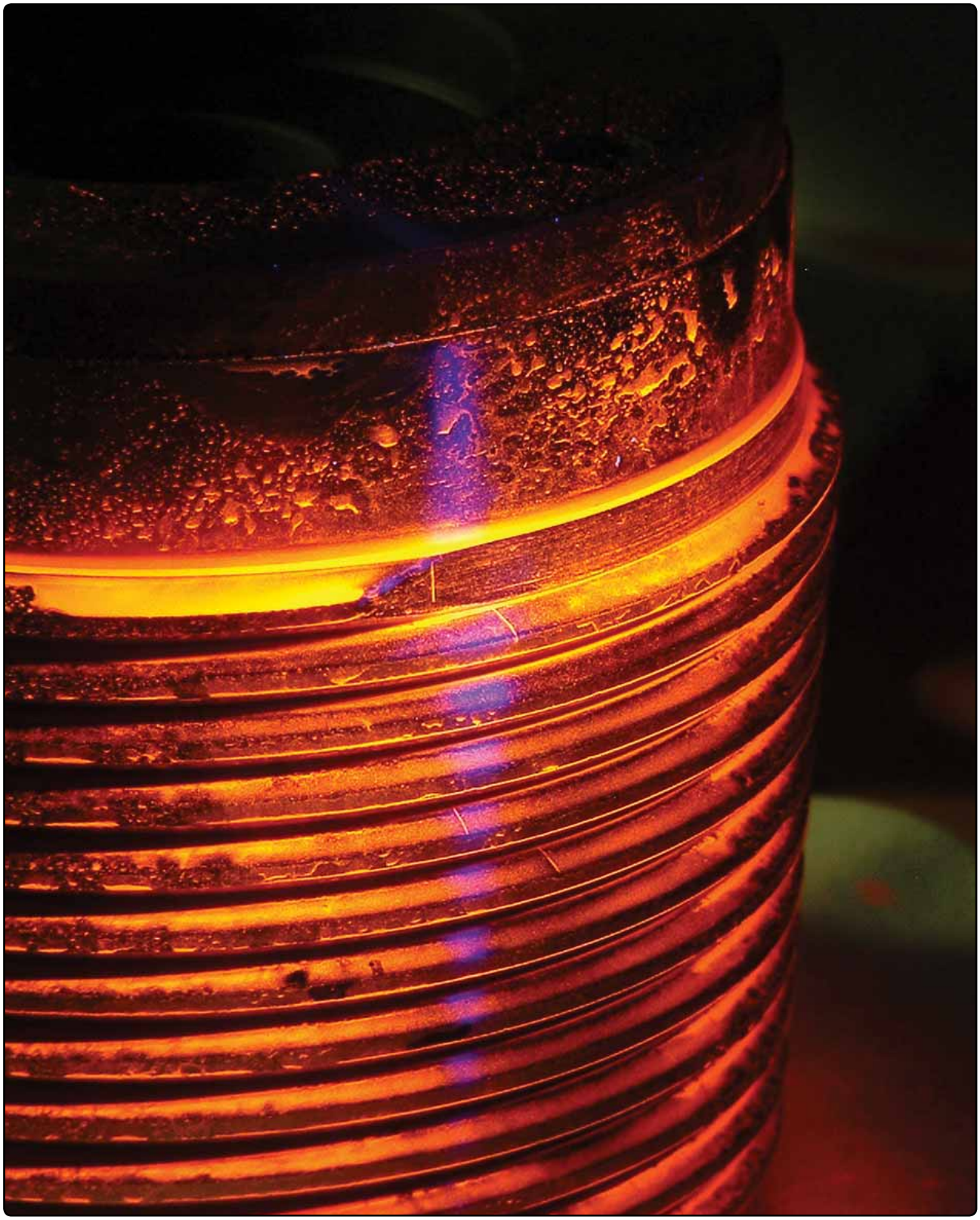
The **UV-400A** features a concentrated-beam reflector designed to assure the highest concentrated UV-A intensity available. It has a peak steady-state UV-A intensity of ***8,000 µW/cm²*** within the lamp's center area, measured at 15 inches (38 cm). The lamp irradiates an area as large as 16" x 10" (41 cm x 25 cm), producing a nominal steady-state UV-A irradiance of not less than ***2,000 µW/cm²***.

The **UV-400B** features a unique broad-beam reflector designed to provide NDT inspectors with maximum uniformity of coverage over the largest area. It has a peak steady-state UV-A intensity of ***5,000 µW/cm²*** within the lamp's center area, measured at 15 inches (38 cm). The lamp irradiates an area as wide as 27" x 15" (69 cm x 38 cm) with unmatched uniformity, producing a nominal steady-state UV-A irradiance of not less than ***2,000 µW/cm²***.

UV-A BEAM PROFILE



A weld defect...



Revealed by the MAXIMA™ ML-3500S UV-A inspection lamp using the liquid penetrant method.

ML-3500 Series MAXIMA™

Ultra-High Intensity UV-A Lamps

These super-powerful lamps make NDT inspections easier, safer and more reliable. They feature state-of-the-art micro discharge light (MDL) technology with a fatigue-free ergonomic design.

- Powerful, 35 watt high-intensity MDL bulb
- Deliver up to 10 times the UV-A output of conventional HID inspection lamps
- Prefocused at the factory
- Instant on/off/restrike
- Lightweight, solid-state ballast
- Integral bulb/reflector assembly
- Stay-cool, impact-resistant and dent-proof housing
- Battery-operated versions available
- All bulbs feature a rated life of 2,000 hours
- Come complete with both UV-absorbing and fluorescent-enhancing spectacles

The MAXIMA™ series consists of three models:

- The **ML-3500S** with a spot reflector has a nominal steady-state UV-A intensity of ***50,000 µW/cm²*** at 15 inches (38 cm). Works even in direct sunlight!
- The **ML-3500D** with a spot reflector and diffusing filter has a nominal steady-state UV-A intensity of ***14,000 µW/cm²*** at 15 inches (38 cm).
- The **ML-3500FL** with a flood reflector has a nominal steady-state UV-A intensity of ***4,500 µW/cm²*** at 15 inches (38 cm).

Line voltage model

All models come standard with 8 foot (2.4 m) primary and secondary cords. Lamps are also available with extended length primary cords or with a 35 foot (10.7 m) secondary cord housed in a retractable "flying" reel.

In addition, all MAXIMA™ lamps are available in battery-operated "M" versions. Each includes a 12-volt, 7 amp/hr rechargeable battery that will operate the lamp for a full two hours. A battery charger and carrying case are included.

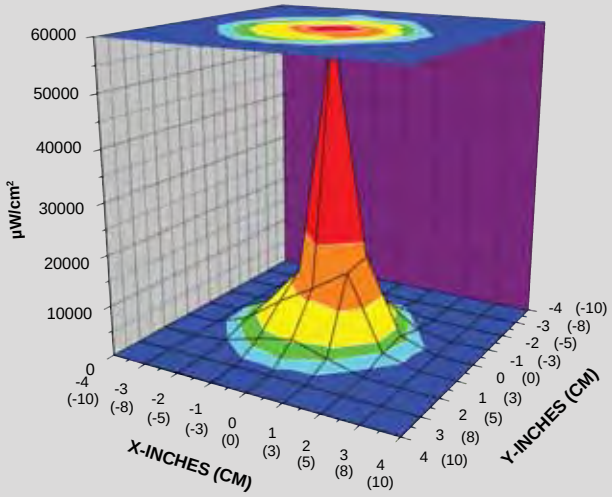
CE

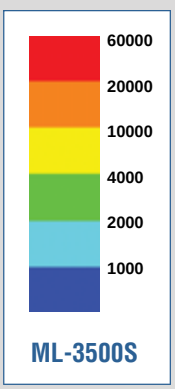
Battery-operated "M" version

ML-3500® Series lamp with 35 foot (10.7 m) secondary cord housed in a retractable "flying" reel

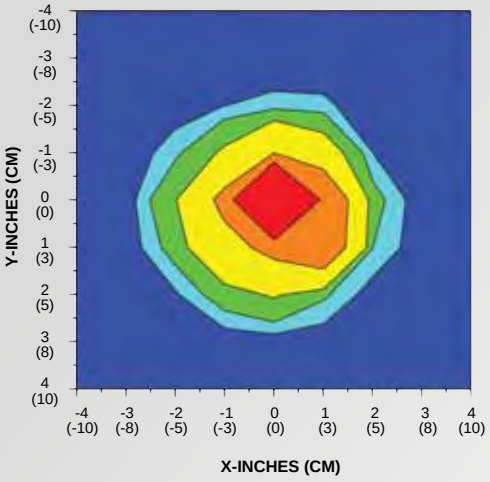
UV-A BEAM PROFILES

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)

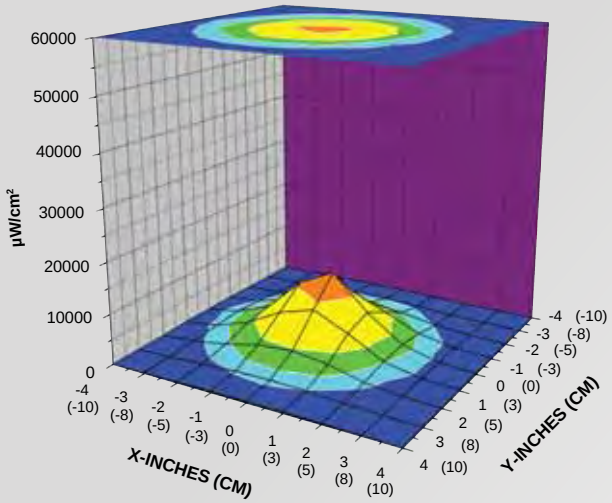


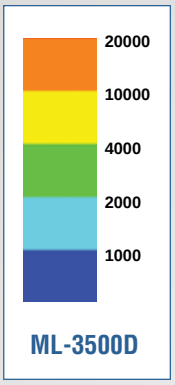


TOP INTENSITY PROFILE AT 15 IN (38 CM)

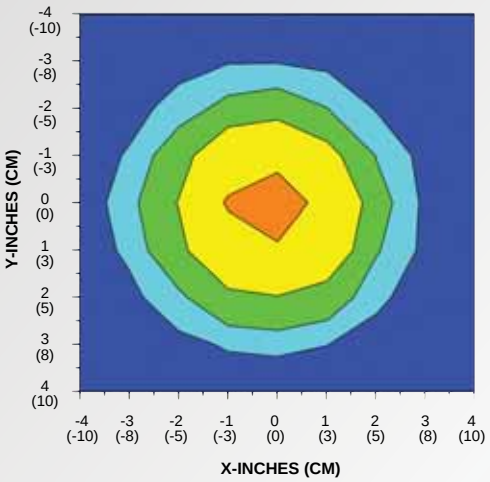


SURFACE CONTOUR PROFILE AT 15 IN (38 CM)

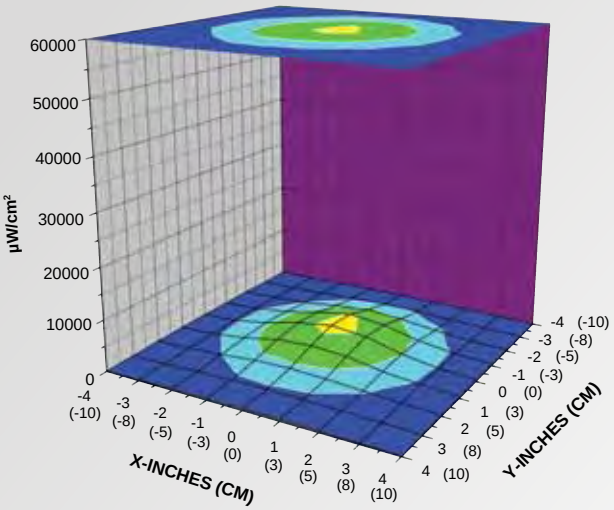


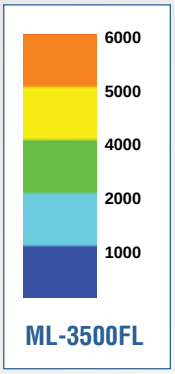


TOP INTENSITY PROFILE AT 15 IN (38 CM)

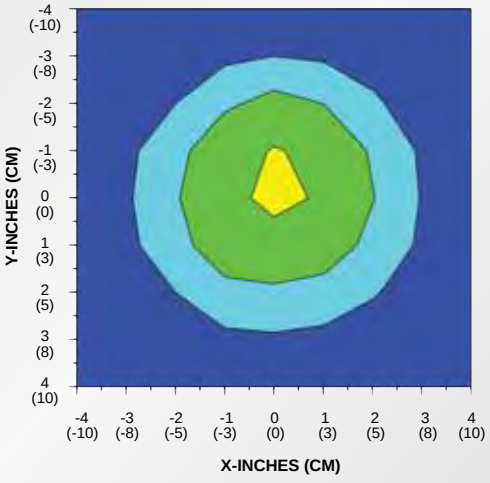


SURFACE CONTOUR PROFILE AT 15 IN (38 CM)





TOP INTENSITY PROFILE AT 15 IN (38 CM)



ONT-365 On-Trak™ Modular Inspection System

(U.S. and foreign patents pending)

The **ONT-365 On-Trak™** is an innovative, track light-style modular inspection system. It features four broad-beam lamps, each of which utilizes three powerful, ultra-high-flux UV-A (365 nm) LEDs for inspection plus one white light LED for general illumination. This overhead lighting system allows inspectors to customize lamp beam patterns to suit their individual needs. Two lamp head assemblies can be added, as desired, to increase the coverage area. Perfect for NDT inspection booths, pre-inspections and screening applications requiring maximum uniformity of coverage over large areas.

- Cool-running, energy-efficient LEDs
- Broad-beam profiles provide wide coverage area
- Electronic Intensity Stabilizers ensure consistent LED performance
- Instant-on operation; lamps reach full intensity immediately
- Built-in fans keep LEDs cool to maintain optimum UV-A intensity during extended use
- Long-lasting UV-A lenses reduce the rate of solarization
- Produces less than 2 foot-candles of visible light
- Filter protectors with rubber bumpers and Borofloat® glass lenses prevent damage to LEDs
- Easily customizable! Move, adjust and add up to two lamp heads according to *your* specific inspection requirements (additional lamp heads sold separately)
- Optional remote control with three-position rocker switch provides added convenience and versatility
- Comes complete with UVS-30 UV-absorbing spectacles

Optional remote control with three-position rocker switch adds convenience and versatility

LAMP SPECIFICATIONS

Product Number:
ONT-365

Light Sources:
3 UV-A LEDs and 1 white light LED per lamp head

System dimensions: (L x W x H)
28.5 x 18.3 x 11 in (72 x 46 x 28 cm)

Lamp:
Head diameter: 3.25 in (8.3 cm)
Length: 9.5 in (24 cm)

Platform Dimensions: (L x W x H)
28.5 x 18.3 x 2.5 in (72 x 46 x 6 cm)

Platform Weight:
13 lb (5.9 kg)

Power Supply Cord:
8 ft (2.4 m)

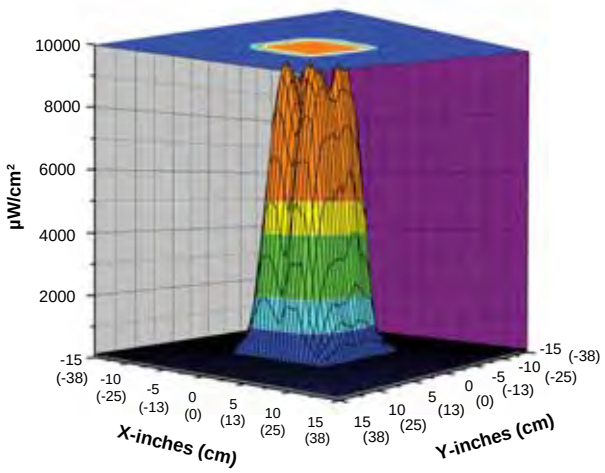
Power Supply:
Input: 100-240 VAC 50/60 Hz
Output: 12 VDC

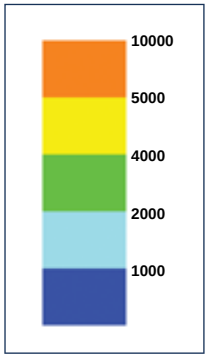
Nominal Steady-State UV-A (365 nm) Intensity:
15 in (38 cm) — 9,000 µW/cm²

NOTE: UV-A intensity reading taken with a Spectroline® AccuMAX™ Series meter

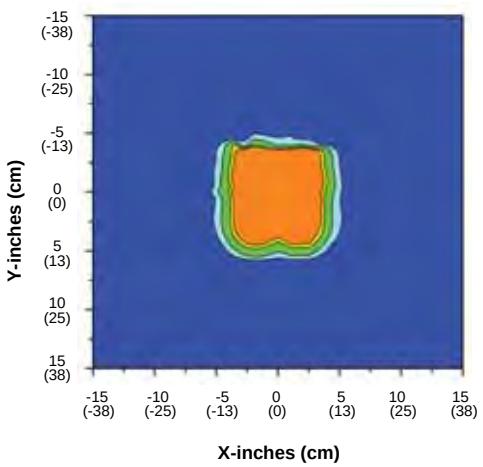
UV-A BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)





TOP INTENSITY PROFILE AT 15 IN (38 CM)



Replacement Parts & Accessories

LA-365	UV-A/white light LED lamp head assembly
PT-200	Platform and track assembly
FP-100	Filter protector with rubber bumper and Borofloat® glass lens
AF-200	Air filter (package of 24)
PS-100A	Power supply module
RC-200	AC remote control with 8 foot (2.4 m) cord
UL-100	UV-A Lens
UVS-30	Spectacles, UV-absorbing
UVG-50	Goggles, UV-absorbing
UVF-80	Face shield, UV-absorbing

LED Light Sources in Blue Light Wavelengths!

The importance of high-intensity UV-A black lights for proper magnetic particle or penetrant NDT inspection is well established. However, a concern for UV safety has always existed. Our new blue light inspection lamps and modular systems address this concern. While still no substitute for UV-A lamps, blue light does provide the safety and convenience desired for quick pre-inspection or screening of fluorescent particles in operating conditions with ambient light, saving time and limiting the use of black lights to only when necessary.

OPX-450

OPTIMAX™ 450 Rechargeable Blue Light LED Flashlight

(U.S. patent no. 5,905,268; foreign patents pending)

This versatile, cordless inspection lamp features a high-intensity, 450 nm blue light LED, a black anodized lamp body and our patented, thin-film dichroic lens to filter out long-wave visible light.

- Nominal steady-state blue light intensity of ***7,000 µW/cm²*** at 15 inches (38 cm)
- Patented, thin-film dichroic lens improve contrast and fluorescent response
- Electronic Intensity Stabilizer assures consistent performance. Beam strength will not weaken between charges!
- Instant-on operation. Lamp reaches full intensity immediately!
- Lightweight, cordless, ergonomic design eliminates fatigue
- Portable and rugged. Anodized aluminum lamp body minimizes corrosion and stands up to years of heavy use.
- Powered by a rechargeable NiMH battery. Provides 90 minutes of continuous inspection between charges.

OPTIMAX™ 450 comes complete with smart AC and DC chargers, fluorescent-enhancing, yellow spectacles, belt holster and rugged, padded carrying case.

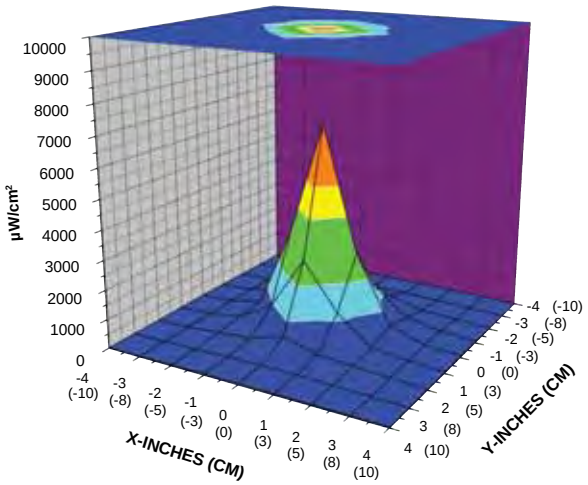
LAMP SPECIFICATIONS

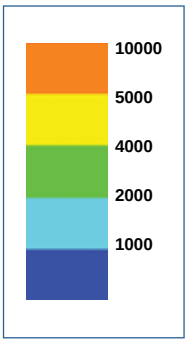
Style	Cordless flashlight
Lamp Head Diameter	2.0 inch (5.1 cm)
Length	8.0 inch (20.3 cm)
Weight *(with Battery)*	11.8 oz (335 g)
Power Requirement	3.6V, 2 AH NiMH internal battery stick (rechargeable)
Run Time	90 minutes (continuous)
Charge Time	4 hours

CE

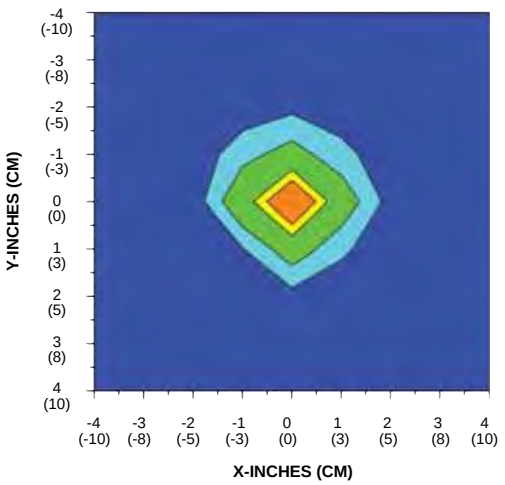
BLUE LIGHT BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)





TOP INTENSITY PROFILE AT 15 IN (38 CM)



TRI-450B Series

TRITAN™ 450 Multi-LED, Broad-Beam Blue Light Lamp

(U.S. patent no. 5,905,268; foreign patents pending)

Feature three cool-running, ultra-high flux 450 nm blue light LEDs with a broad-beam configuration. This powerful lamp provides a wider coverage area than conventional inspection lamps, while its compact head design allows access into areas inaccessible to larger inspection lamps. Ideal for most non-destructive testing applications.

- Nominal steady-state blue light intensity of ***9,500 µW/cm²*** at 15 inches (38 cm)
- Large 5 inch (13 cm) diameter coverage area at 15 inches (38 cm) with a minimum intensity of ***2,000 µW/cm²***
- Rubber bumper with patented thin-film dichroic lens filters out long-wave visible light
- Electronic Intensity Stabilizer ensures consistent LED performance
- Built-in fans keep LEDs cool to maintain optimum light output during extended use
- Instant-on operation. Lamp reaches full intensity immediately!
- Rugged, ergonomic, angled lamp body provides safe, fatigue-free handling
- Choice of standard 8 foot (2.4 m) or extra-long 20 foot (6.1 m) heavy-duty power cord with AC plug and rubber boot. Also available: Optional in-line power supply or industrial power supply with cord sets (sold separately).
- Includes fluorescent-enhancing, yellow spectacles and soft carrying case

LAMP SPECIFICATIONS

Style	Pistol grip
Light Source	3 blue light LEDs
Lamp Head Diameter	5 in (13 cm)
Length	8.0 in (20.3 cm)
Weight	1 lb (454 g)
Power Requirements:	
AC lamp	(TRI-450B) 120VAC*
AC/DC lamp	(TRI-450MB) 120VAC*/12VDC
Battery Pack:	
Type	12V, NiMH (rechargeable)
Run Time	3.5 hours (continuous)
Charge Time	2 hours

*Also available in 230V, 240V and 100V versions.

CE

Also Available:

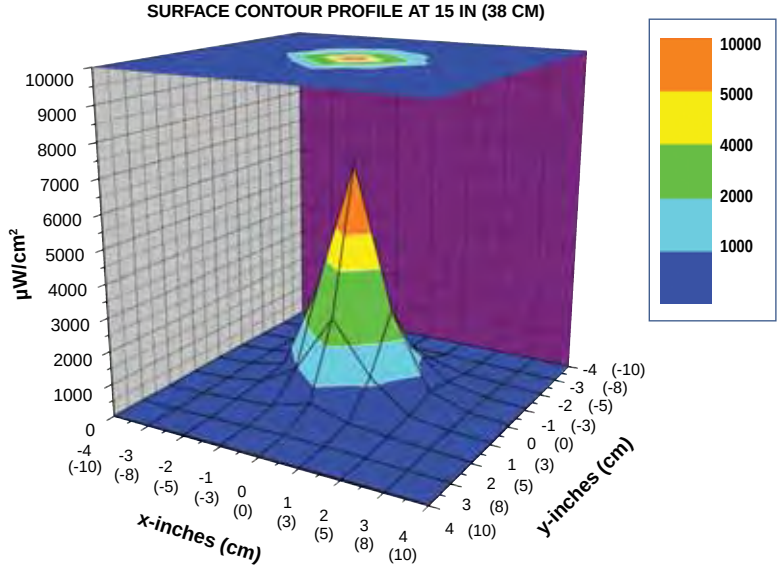
TRITAN™ 450MB portable, battery-operated AC/DC lamp kit. Includes TRITAN 450 blue light LED lamp, rechargeable NiMH battery pack, power supply adapter with AC and DC cord sets, smart AC charger, fluorescent-enhancing, yellow spectacles and soft, lightweight carrying case.

Replacement Parts & Accessories

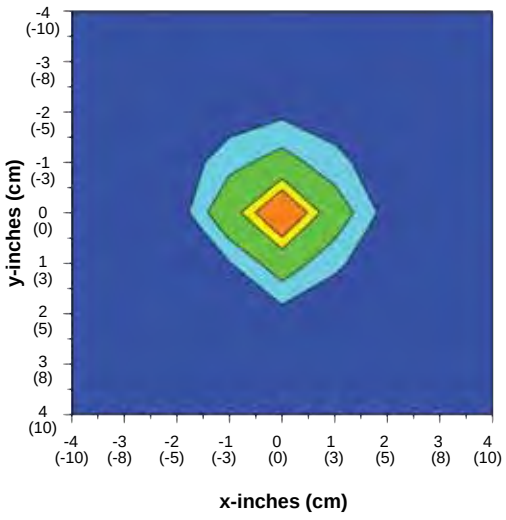
129141	Standard, 8 foot (2.4 m) AC power cord
129145	Extra-long, 20 foot (6.1 m) AC power cord
129162	3.5 foot (1.1 m) DC power cord for "M" series lamps
127933	Particulate filter assembly
BP-30	Battery pack with 12V rechargeable NiMH battery
BR-150A	Smart AC charger
CC-370A	Soft carrying case
FP-450	Rubber bumper with dichroic lens
PSA-250A	AC/DC power supply adapter for "M" series lamps
PS-200A	Industrial power supply. Primary cord: 8 feet (2.4 m); secondary cord: 20 feet (6.1 m).
PS-300A	In-line power supply. Primary cord: 8 feet (2.4 m); secondary cord: 8 feet (2.4 m).
UVS-40	Fluorescent-enhancing spectacles, yellow

BLUE LIGHT BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)



TOP INTENSITY PROFILE AT 15 IN (38 CM)



PM-1600B

PowerMAX™ 450

Blue Light LED Panel Flood Lamp

Designed Specifically for NDT Professionals!

PowerMAX™ 450 flood lamp features a panel of 16 powerful blue light (450 nm) LEDs specially engineered for non-destructive testing applications when limiting the use of UV-A light is a requirement. This versatile, stationary light source can be installed overhead or in-line, and can be ganged together to provide an even wider coverage area.

Ideal for NDT inspection booths, quick pre-inspection or screening of fluorescent particles in ambient light conditions and any other applications requiring maximum uniformity of blue light coverage over a large area.

- Nominal steady-state blue light intensity of ***14,000 µW/cm²*** at 15 inches (38 cm)
- Large coverage area of 18 inches by 8 inches (46 cm x 20 cm) with a minimum blue light intensity of ***2,000 µW/cm²***
- Patented, thin-film dichroic lens to filter out long-wave visible light
- Easily mountable for overhead inspection or in-line applications
- Built-in fans keep LEDs cool to maintain optimum light output during extended use
- Customizable — multiple lamp units can be "ganged" together longitudinally or back-to-back for a larger coverage area to meet *your* specific inspection requirements!

LAMP SPECIFICATIONS

Style	Panel flood lamp
Light Source	16 blue light (450 nm) LEDs
Dimensions (WxLxH)	5.5 x 13.75 x 6 in (14 x 35 x 15 cm)
Weight	9 lb (4 kg)
Power Requirement	AC power (main AC power cord supplied with the unit)

CE

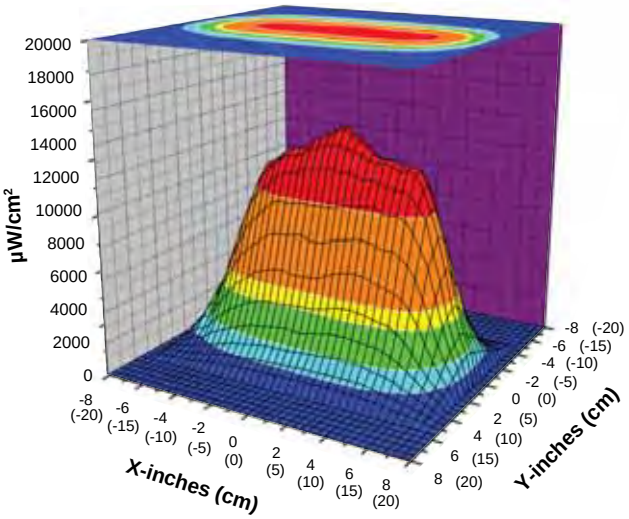
For applications requiring extremely large coverage areas, the PowerMAX™ 450 can be quickly ganged together longitudinally (top) or back-to-back (bottom) using customized, easy-to-install connecting plates and brackets.

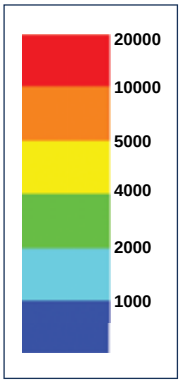
Replacement Parts & Accessories

128177	AC power cord
127918	Particulate air filter
127935	Retainer, LED assembly face plate
DF-450PM	Dichroic filter assembly
CC-200	Connector cable for ganging lamps
CP-100	Top connecting plate for ganging lamps longitudinally
CP-200	Top connecting plate for ganging lamps back-to-back (two required)
CP-300	Side connecting bracket for ganging lamps longitudinally (two required)
UVS-40	Fluorescent-enhancing spectacles, yellow

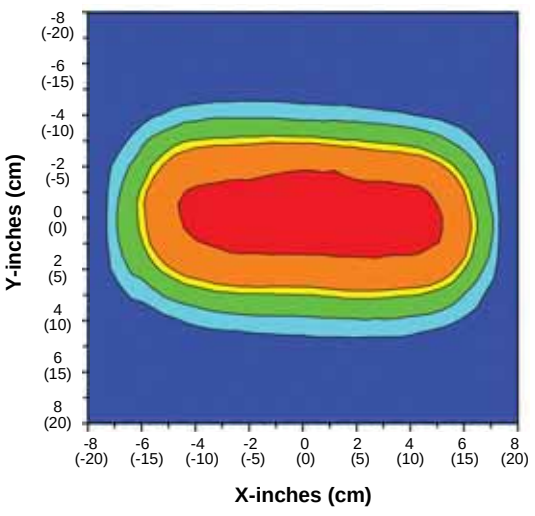
BLUE LIGHT BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)





TOP INTENSITY PROFILE AT 15 IN (38 CM)



ONT-450 On-Trak™ Modular Inspection System

(U.S. and foreign patents pending)

Blue Light LED Inspection System

The **ONT-450 On-Trak™** is an innovative, modular, track light-style inspection system. It features four broad-beam lamps, each of which utilizes three powerful, blue light (450 nm) LEDs. This overhead lighting system provides a fast, safe and effective alternative to UV-A light. It allows inspectors to customize lamp beam patterns to suit their individual needs, and provides the ability to add two additional lamp head assemblies to further increase the coverage area. Perfect for NDT inspection booths, pre-inspections and screening of fluorescent particles in operating conditions with ambient light or any application requiring maximum uniformity of coverage over large areas.

- Powerful, cool running, energy-efficient blue light LEDs
- Broad-beam profiles provide wide coverage area
- Electronic Intensity Stabilizers ensure consistent LED performance
- Instant-on operation; lamps reach full intensity immediately
- Built-in fans keep LEDs cool to maintain optimum light output during extended use
- Rubber bumpers with patented thin-film dichroic lenses filter out long-wave visible light while preventing damage to the LEDs
- Easily customizable! Move, adjust and add up to two additional lamp heads according to *your* specific inspection requirements (additional lamp heads sold separately)
- Optional remote control with two-position rocker switch provides added convenience and versatility
- Comes complete with UVS-40 fluorescence-enhancing spectacles

Optional remote control with two-position rocker switch adds convenience and versatility

LAMP SPECIFICATIONS

Product Number:
ONT-450

Light Sources:
3 blue light LEDs per lamp head

System dimensions: (L x W x H)
28.5 x 18.3 x 11 in (72 x 46 x 28 cm)

Lamp:
Head diameter: 3.25 in (8.3 cm)
Length: 9.5 in (24 cm)

Platform Dimensions: (L x W x H)
28.5 x 18.3 x 2.5 in (72 x 46 x 6 cm)

Platform Weight: 13 lb (5.9 kg)

Power Supply Cord: 8 ft (2.4 m)

Power Supply:
Input: 100-240 VAC 50/60 Hz
Output: 12 VDC

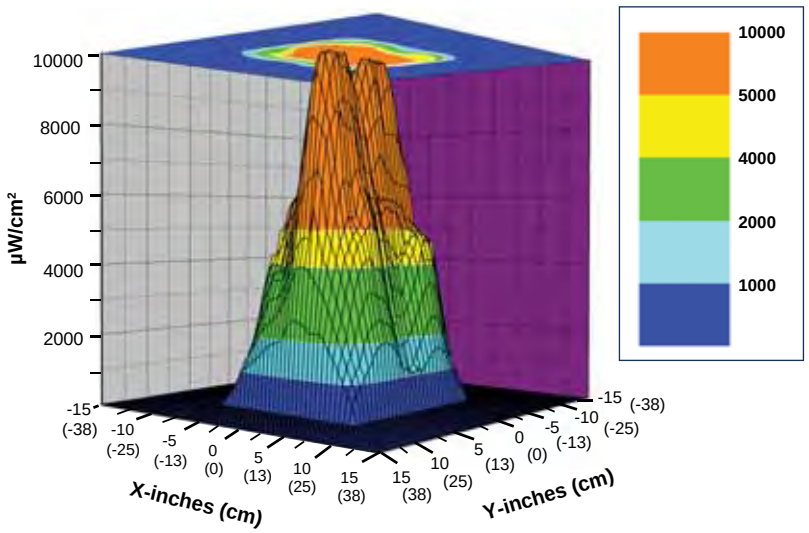
Nominal Steady-State Blue Light (450 nm) Intensity:

15 in (38 cm) — 9,500 µW/cm²

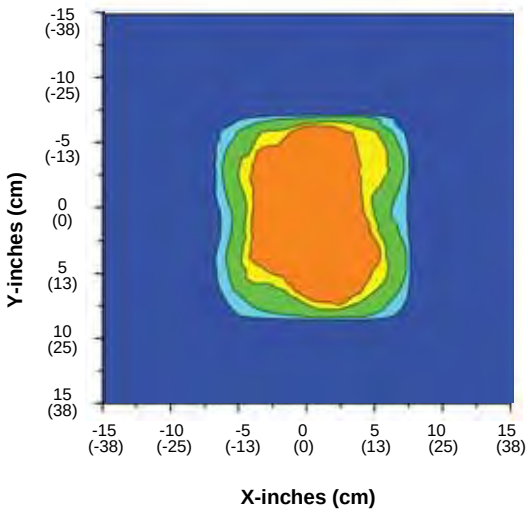
NOTE: Blue light intensity reading taken with a Spectroline® AccuMAX™ Series meter

BLUE LIGHT BEAM PROFILE

SURFACE CONTOUR PROFILE AT 15 IN (38 CM)



TOP INTENSITY PROFILE AT 15 IN (38 CM)



Replacement Parts & Accessories

LA-450	Lamp head assembly with three blue light LEDs
PS-100A	Power supply module
PT-200	Platform and track assembly
RC-300	AC remote control with 8 foot (2.4 m) cord
FP-200	Filter protector with rubber bumper and thin-film dichroic lens
UVS-40	Fluorescence-enhancing spectacles, yellow
AF-200	Air filter (package of 24)

AccuPRO™ Series
Digital Radiometer/Photometers

The **AccuPRO™ Series** meters feature an advanced, microprocessor-controlled readout unit calibrated to accurately measure and display both UV-A and visible light readings for non-destructive testing applications.

Available in <u>two versions:</u> The AccuPRO™ (**XP-2000**) readout unit features a single dual-wavelength sensor detector designed to measure both ultraviolet and visible light. The AccuPRO™ Plus (**XP-4000**) features a single 3-in-1 multi-purpose sensor that measures ultraviolet, visible and blue light.

These compact, lightweight, battery-operated units are ideal for use in the field, the factory or anywhere accurate light measurements are needed!

- Large, easy to read, LCD screen with 4-digit autoranging display
- Both units provide accurate readouts for UV-A irradiance as well as visible illuminance. AccuPRO™ Plus unit also measures blue light
- Simply to use, three-button interface. Toggle between light measurement modes.
- Overall accuracy greater than ± 5% per NIST standards
- Superior band-pass interference filter provides excellent cosine response
- One-touch PEAK with reset functions
- User-defined power save and automatic shutoff
- User-selectable, multilingual display settings at any operational level. Choose from English, French, German, Chinese and Spanish.
- Rugged meter features protective rubber housing for better grip and to help prevent accidental breakage
- Sealed sensor with water-resistant housing
- Multi-wavelength sensor directly attached to meter by 3 ft (0.9 m) cord
- Complies with ASTM specifications for LPT and MPT
- Convenient on-board recharging
- Powered by four rechargeable “AAA” nickel-metal hydride batteries (included)
- Come complete with AC charger and padded carrying case

The AccuPRO™ meter features a dual-wavelength UV/visible light sensor, while the AccuPRO™ Plus (shown) features a 3-in-1 sensor that measures UV, visible and blue light.

SPECIFICATIONS

Readout Unit

Resolution	4-digit autoranging display
Screen	128 x 64 dot pixel chip on glass STN transmissive monochrome LCD 2.25 in (5.7cm) diagonal illuminated (backlit)
Read Update	2 Hz
Overall Accuracy	Better than ± 5% with reference to NIST standards
Temperature Coefficient	± 0.025%/°C (0 to 50°C)
Power Requirements	Four "AAA" nickel-metal hydride batteries (rechargeable). AC charger included. *Available in 120V, 230V, 240V or 100V versions.*

Dimensions

Length	6.0 in (15.2 cm)
Width	3.0 in (7.6 cm)
Thickness	1.0 in (2.5 cm)
Weight	8 oz (227 g)

Sensor Detector

Length	3.0 in (7.6 cm)
Width	2.0 in (5.1 cm)
Thickness	0.5 in (1.3 cm)
Weight	5.6 oz (159 g)

Spectral Range

UV-A Sensor	320-400 nm
Visible Sensor	460-675 nm
Blue Light Sensor	410-475 nm

XP-2000 AccuPRO™

Dual Sensor (UV-A/VIS)

Sensitive to UV and Visible Light

Wavelength/Measurement Range

UV-A (365 nm) Irradiance	0-100 mW/cm²
Visible (555 nm) Illuminance	0-5,382 Lux (0-500 fc)

XP-4000 AccuPRO™ Plus

3-in-1 Sensor (UV-A/VIS/Blue)

Sensitive to UV, Visible and Blue Light

Wavelength/Measurement Range

UV-A (365 nm) Irradiance	0-100 mW/cm²
Visible (555 nm) Illuminance	0-5,382 Lux (0-500 fc)
Blue (450 nm)	0-100 mW/cm²

CE

XRP-3000 AccuMAX™

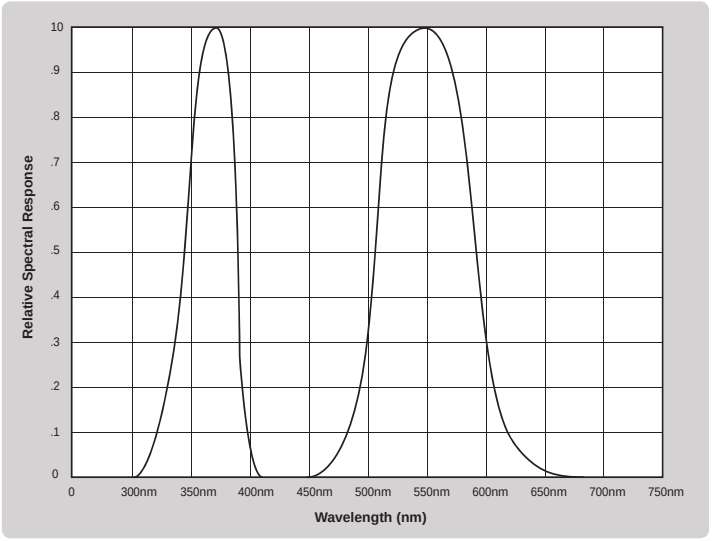
Digital Radiometer/Photometer

Features an advanced microprocessor-controlled readout unit with a dual-wavelength sensor detector to measure *both* ultraviolet and visible light.

- Large, easy-to-read LCD screen
- Provides readouts for UV-A, visible irradiance or radiance
- Overall accuracy greater than ± 5% per NIST standards
- Choice of direct or USB cable connection between sensor detector and readout unit
- Superior bandpass interference filter
- Automatic zeroing, integration and signal hold
- Excellent cosine response
- User-selectable, multilingual display settings. Choose from English, French, German and Spanish.
- User-defined power save and automatic shutoff
- Rugged meter housing features removable, protective rubber boot for better grip and to help prevent accidental breakage
- Sealed sensor housing and USB connection with water-resistant adapter
- Compact, lightweight and battery-operated for convenient use in the factory, field or anywhere measurements are needed
- Complies with ASTM specifications for LPT and MPT
- Comes complete with readout unit, dual-wavelength sensor detector, USB cable with water-resistant adapter, protective rubber boot, two 9V alkaline batteries and padded carrying case.

XR-1000 readout unit with dual-wavelength sensor detector connected directly to unit

XR-1000 readout unit with dual-wavelength sensor detector connected to unit via USB cable



SPECIFICATIONS

Readout Unit (XR-1000)

Resolution	4-digit autoranging display
Screen	128 x 64 dot pixel chip on glass STN transmissive monochrome LCD 2.8 in (7.1 cm) diagonal illuminated (backlit)
Sample Rate	7.5 Hz (single sensor) 15 Hz (dual sensor)
Read Update	2 Hz
Overall Accuracy	Better than ± 5% with reference to NIST standards
Temperature Coefficient	± 0.025%/°C (0 to 50°C)
Power Requirements	Two 9V alkaline batteries (included)

Dimensions

Length	7.75 in (19.7 cm)
Width	4.25 in (10.8 cm)
Thickness	1.25 in (3.2 cm)
Weight	0.8 lb (360 g)

CE

Dual UV-A/Visible Sensor Detector (XDS-1000)

Irradiance Range

UV-A Sensor	0-100 mW/cm² (0-100,000 µW/cm²)
Visible Sensor	0-5,300 lux (0-500 fc)

Spectral Range

UV-A Sensor	320-400 nm
Visible Sensor	460-675 nm

Dimensions

Length	4.75 in (12.1 cm)
Width	2.0 in (5.1 cm)
Thickness	7/8 in (2.2 cm)
Weight	0.22 lb (100 g)
USB Cable (Length)	5 ft (1.5 m)

DM-365XA

Digital UV-A Radiometer

Provides increased accuracy for more repeatable results.

- Measures UV-A light sources with overall accuracy of ± 5% per NIST standards
- Autozeroing, excellent linearity and cosine response, solid-state design, compact, durable, simple operation, battery-level indicator
- Sealed silicone photodiode protects against shock and humidity
- Sensor housing is constructed with series of baffles and unique self-sealing mechanism to eliminate light leakage
- Compact, lightweight and battery operated so measurements can be taken anywhere
- Complies with ASTM specifications for LPT and MPT

SPECIFICATIONS

Readout Unit

Resolution	10 µW/cm²
Screen	4½ digit, 7 segment, LED display 0.5 in (1.3 cm) high
Overall Accuracy	Better than ± 5% with reference to NIST standards
Temperature Coefficient	± 0.025%/°C (0 to 50°C)
Irradiance Range	0-19,900 µW/cm²
Spectral Range	320-400 nm
Power Requirements	Two “AA” alkaline batteries (included)
Length	7¼ in (18.4 cm)
Width	3.5 in (8.9 cm)
Thickness	2 in (5.1 cm)
Weight	1 lb (0.45 kg)

CE

Sensor Detector

Length	3 in (7.6 cm)
Width	2 in (5.1 cm)
Thickness	0.70 in (1.8 cm)
Weight	1¼ lb (0.57 kg)
Cord Length	3 ft (91.4 cm)

BP-12A
BATTERY PACK

Complete with RB-12S Smart Charger with Cordset, 12 Volt Rechargeable NiMH Battery and Nylon Carrying Case for MAXIMA™ ML-3500 Series Lamps. (120V)*

BP-30
BATTERY PACK

Complete with BR-150A Smart Charger, 12 Volt Rechargeable NiMH Battery for QUADRAN™ QDR-365M, TRITAN™ TRI-365M and TRI-450MB AC/DC Lamp Kits. (100-120V)*

CC-120A
CARRYING CASE

for BIB-150P Series. FC-Series and SB-100P Series Lamps

CC-350
CARRYING CASE

for MAXIMA™ ML-3500 Series Lamps

CC-365
CARRYING CASE

for OPTIMAX™ OPX-365 and OPX-450 Flashlights

CC-370A
CARRYING CASE

for EagleEye™ and TRITAN™ Series Lamp Kits

CC-400
CARRYING CASE

for QUADRAN™ 365 Series Lamp Kits

UVS-30
SPECTACLES

UV-Absorbing

UVS-40
SPECTACLES

Fluorescence-Enhancing

UVF-80
FACE SHIELD

UV-Absorbing

UVG-50
GOGGLES

UV-Absorbing

For other voltages, please see price list.

Using genuine Spectroline® replacement parts ensures that lamps will operate at their optimum performance.

BLE-35PRA
MDL BULB/POLISHED REFLECTOR ASSEMBLY
for MAXIMA™ ML-3500 Series Lamps

BLE-35RA
MDL BULB/COATED REFLECTOR ASSEMBLY
for MAXIMA™ ML-3500 Series Lamps

BLE-35RAF
MDL BULB/ANODIZED REFLECTOR ASSEMBLY
for MAXIMA™ ML-3500 Series Lamps
for CH-50P/12 and MAXIMA™ ML-3500 Series Lamps

BLE-400
METAL HALIDE BULB
400 Watt for SuperFlood™ UV-400 Series Lamps

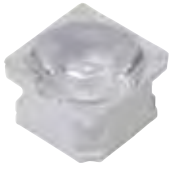
119584
MDL BULB
35 Watt for MAXIMA™ ML-3500 Series Lamps

120344
COATED SPOT REFLECTOR
for MAXIMA™ ML-3500 Series Lamps

120514
ANODIZED FLOOD REFLECTOR
for MAXIMA™ ML-3500 Series Lamps

123378
POLISHED REFLECTOR
for MAXIMA™ ML-3500 Series Lamps

127423
DOME LENS
for OPTI-LUX™ 365 Series LED Flashlights



UL-100
UV-A LENS
for all UV-A (365 nm) LED Lamps, *except* TRITAN™ 365 TRI-365SBLC

UL-110
UV-A LENS
for TRITAN™ 365 TRI-365SBLC Lamp

0F-300W
LED LAMP HEAD, WHITE LIGHT
for OPTIMAX™ OPK-300N Multi-Lite™ Lamp

0F-365UV
LED LAMP HEAD, UV (365 NM)
for OPTIMAX™ OPK-300N Multi-Lite™ Lamp

0F-450BD
LED LAMP HEAD, BLUE LIGHT (450 NM)
with dichroic lens for OPTIMAX™ OPK-300N Multi-Lite™ Lamp

2F110
UV-A FILTER
for SuperFlood™ UV-400 Series Lamps

2F350
DIFFUSING FILTER
for FC-Series and MAXIMA™ ML-3500 Series Lamps

2F400B
UV-B BLOCKING FILTER
for SuperFlood™ UV-400 Series Lamps

2F958
UV-A FILTER
for BIB-150P Series, FC-Series and MAXIMA™ ML-3500 Series Lamps

125565
RUBBER LAMP PROTECTOR
for OPTIMAX™ Flashlights

127796
RUBBER LAMP PROTECTOR
for OPTI-LUX™ 365 Flashlight

BF-365LX
EXTERNAL BLACK LIGHT FILTER WITH RUBBER BUMPER
for OPTI-LUX™ 365 Flashlight

DF-365
DIFFUSING FILTER
for OPTIMAX™ OPX-365 Flashlight

FP-100
FILTER PROTECTOR
with Rubber Bumper/Borofloat® glass lens for ONT-365 On-Trak™ Inspection System Lamps

FP-200
FILTER PROTECTOR
with Rubber Bumper/Dichoric glass lens for ONT-450 On-Trak™ blue light Inspection System Lamps

FP-365
FILTER PROTECTOR
with Rubber Bumper/Borofloat® Glass for TRITAN™ 365 Series Lamps

FP-450
FILTER PROTECTOR
with Rubber Bumper/Dichroic Filter for TRITAN™ 450 Series Lamps

HS-100
HEAD STRAP
for EagleEye™ Lamp

LMS-100
LAMP MOUNT/SPRAYER
for EagleEye™ Lamp

SG-100
SPLASH GUARDS WITH INTEGRAL PARTICULATE FILTER
for EagleEye™ Lamp (3 pack)

127243
HOLSTER
for OPTIMAX™ OPX-365 and OPX-450 Flashlights

127574
BELT HOLSTER
For OPTI-LUX™ 365 Series Flashlights

Using genuine Spectroline® replacement parts ensures that lamps will operate at their optimum performance.

124826
CORD SET
2 Foot (0.6 m), 7 Pin for MAXIMA™ ML-3500 Series Lamps. (12V DC version)

124827
CORD SET
8 Foot (2.4 m), 7 Pin for MAXIMA™ ML-3500 Series Lamps. (230V version)

124828
CORD SET
8 Foot (2.4 m), 7 Pin for MAXIMA™ ML-3500 Series Lamps. (115V and 100V versions)

129141
AC CORD SET
8 Foot (2.4 m) for QUADRAN™ A and TRITAN™ B Series Lamps. (100-120V)*

129145
AC CORD SET
20 Foot (6.1 m) for QUADRAN™ A and TRITAN™ B Series Lamps. (100-120V)*

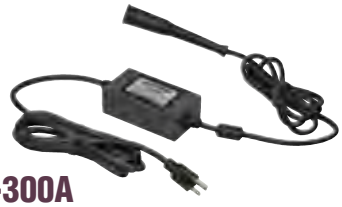
129162
DC CORD SET
3.5 Foot (1.1 m) for QUADRAN™ A and TRITAN™ B "M" Series Lamps

128217
BATTERY CHARGING CRADLE
with AC cord for Eagle-Eye™ Inspection Lamp and OPTI-LUX™ 365 Series Flashlights. (100-120V)*

128225
DC CORD SET
for Eagle-Eye™ Inspection Lamp and OPTI-LUX™ 365 Series Flashlights

BR-150A
SMART BATTERY CHARGER
for BP-30 Battery Pack. (100-120V)*

PS-200A
INDUSTRIAL POWER SUPPLY
with cord sets for QUADRAN™ 365 and TRITAN™ Series Lamps. (100-120V)*



PS-300A
IN-LINE POWER SUPPLY
for QUADRAN™ 365 and TRITAN™ Series Lamps. (100-120V)*

PSA-250A
POWER SUPPLY ADAPTER
with AC and 12V DC connections for QUADRAN™ and TRITAN™ "M" Series Lamps. (100-120V)*

RB-12S
SMART BATTERY CHARGER
for BP-12A Battery Pack. (120V)*

RB-300
SMART AC CHARGER
for OPTIMAX™ OPK-300N, OPX-365 and OPX-450 Flashlights. (100-120V)*

**For other voltages, please see price list.*

RB-300DC
12V DC CHARGER
for OPTIMAX™ OPK-300N, OPX-365 and OPX-450 Flashlights.

RC-200
AC REMOTE CONTROL
for On-Trak™ ONT-365 UV-A Inspection System with 8 foot (2.4 m) cord

RC-300
AC REMOTE CONTROL
for On-Trak™ ONT-450 Blue Light Inspection System with 8 foot (2.4 m) cord

125608
BATTERY STICK WITH TAILCAP
for OPTIMAX™ OPK-300N, OPX-365 and OPX-450 Flashlights

127568
LITHIUM-ION BATTERY
Rechargeable for EagleEye™ Lamp and OPTI-LUX™ 365 LED Flashlights

XCB-100
WATER-RESISTANT USB CABLE WITH ADAPTER
for AccuMAX™ Meter

XCC-100
CARRYING CASE
for AccuMAX™ XRP-3000 Meter

XRB-100
RUBBER BOOT
for AccuMAX™ XR-1000 Readout Unit

AB-100
ADAPTER BRACKET
for Mounting Transformer-Based Spectroline® HID Lamps onto a Magnaflux® Wet Horizontal Mag Machine

B-6
BENCH MOUNT
for all Spectroline® HID, QUADRAN™ and TRITAN™ Series Lamps

FA-100
FLEXIBLE ARM
for all Spectroline® HID, QUADRAN™ and TRITAN™ Series Lamps

LH-200
LAMP HOLDER
for OPTIMAX™ OPX-365 and OPX-450 Flashlights (for use with VF-100A)

LH-300A
LAMP HOLDER
for TRITAN™ Series Lamps (for use with VF-100A, FA-100, WM-100, B-6 and W-6)

VF-100A
SPEC-STIK™ VERIFICATION FIXTURE
for all Spectroline® sensors, as well as HID, QUADRAN™, TRITAN™ and OPTIMAX™ Series Lamps.

NOTE: Lamp mounting accessories for TRITAN™ and OPTIMAX™ Series Lamps are sold separately (see LH-200 and LH-300A)

W-6
WALL MOUNT
for all Spectroline® HID and TRITAN™ Series Lamps

WM-100
WALL MOUNTING BRACKET
for all Spectroline® HID, QUADRAN™ and TRITAN™ Series Lamps

Using genuine Spectroline® replacement parts ensures that lamps will operate at their optimum performance.

100S
SPOT BULB

Ad-Medium Base, 100 Watt for SB-100P and FC-Series Lamps

100S/M
SPOT BULB

Medium Base, 100 Watt for SB-100P and FC-Series Lamps

100S/M-PQL
UPGRADED, PREMIUM QUALITY LIGHTING SPOT BULB

Medium Base, 100 Watt for SB-100P and FC-100 Series Lamps

BLE-150BS-115/M
BROAD-BEAM BULB

Self-Ballasted, 150 Watt for BIB-150P Series Lamps (115 volt version)

BLE-150CS-100/M
CONCENTRATED SPOT BULB

Self-Ballasted, 150 Watt for BIB-150P Series Lamps (100 volt version)

BLE-150CS-115/M
CONCENTRATED SPOT BULB

Self-Ballasted, 150 Watt for BIB-150P Series Lamps (115 volt version)

BLE-150CS-230/M
CONCENTRATED SPOT BULB

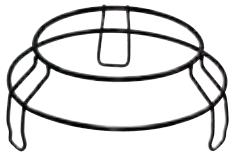
Self-Ballasted, 150 Watt for BIB-150P Series Lamps (230 volt version)

BLE-150FC-115/M
CONCENTRATED SPOT BULB

Self-Ballasted, 150 Watt for FC-150 Lamp (115 volt version)

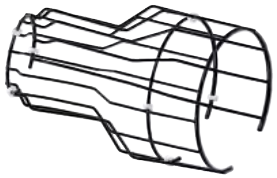
BLE-150FC-230/M
CONCENTRATED SPOT BULB

Self-Ballasted, 150 Watt for FC-150 Lamp, (230 volt version)



FP-175
FILTER PROTECTOR/LAMP STAND

for BIB-150PR and FC-Series Lamps



HGS-100A
HEAT GUARD/STAND

for SB-100P Series Lamps

HGS-150A
HEAT GUARD/STAND

for BIB-150P and BIB-150PX Lamps

***Mercury Vapor Bulbs.**

COMPANY BACKGROUND

Spectronics Corporation is the world's leading manufacturer of ultraviolet equipment and fluorescent materials. Spectronics supplies over 1,000 different products for the nondestructive testing, laboratory, biotechnology, industrial, electronics, semi-conductor, forensics, financial, automotive, HVAC/R and other markets.

Spectronics' modern, 100,000 square-foot manufacturing facility and office headquarters is located in Westbury, New York. Nearly 200 personnel are involved in all phases of research and development, manufacturing, sales, marketing, customer service, and logistical and technical support.

Over five decades since its inception, the goal of Spectronics is still the same — to produce effective, top-quality products with the utmost dedication to customer satisfaction.

SPECTRONICS CORPORATION

Warranty

All equipment is warranted against defects in manufacture. Spectronics Corporation's obligation under this warranty is limited to repairing or replacing, at the option of Spectronics Corporation, any part(s) of the product which, if properly installed, used and maintained, proves upon factory examination to have been defective in materials or workmanship within 12 months from the date of delivery to the customer, including LEDs.

This warranty does not apply to any component which (1) is normally consumed in operation or (2) has a normal life inherently shorter than the warranty stated. For example, bulbs, filters and rechargeable batteries are warranted for 30 days; the 100S/M-PQL bulb is warranteed for 90 days. In addition, Spectronics Corporation does not warrant any instrument that has been subjected to misuse, negligence or accident, or has been repaired or altered by anyone other than Spectronics Corporation.

This warranty is in place of all other warranties of quality. There are no other warranties either oral, written, express, implied or statutory. IMPLIED WARRANTIES OF FITNESS FOR PURPOSE AND MERCHANTABILITY ARE EXCLUDED. This warranty and your remedies thereunder are solely as stated in this form. In no event shall Spectronics Corporation be liable for special, indirect, incidental or consequential damages, nor for any damages arising out of delay in shipment or production.

Product Specifications

Spectronics Corporation reserves the right to alter product specifications without notice. Spectronics is under no obligation to make similar changes in its products previously produced.

Product/Customer Support & Technical Assistance

Product literature, instructions and a full staff of trained customer service representatives and technical service engineers are available for support. Additional product information and support are available on our website.

Order Information

Technical Assistance

Local Sales Representatives

Authorized Distributors

PHONE (516) 333-4840 | FAX (516) 333-4859 | WWW.SPECTROLINE.COM

UV-A LED INSPECTION LAMPS

UV-A STATIONARY LAMPS

UV-A MDL INSPECTION LAMP

UV-A/WHITE LIGHT LED MODULAR INSPECTION SYSTEM

BLUE LIGHT LED INSPECTION LAMPS

BLUE LIGHT LED MODULAR INSPECTION SYSTEM

DIGITAL RADIOMETERS

REPLACEMENT PARTS & ACCESSORIES

REPLACEMENT PARTS & ACCESSORIES (HID LAMPS)

CONTACT US:

956 Brush Hollow Road, Westbury, NY 11590
Phone (516) 333-4840 | Fax (516) 333-4859
WWW.SPECTROLINE.COM

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DETEK NONDESTRUCTIVE TESTING EQUIPMENT

BLUELINE MODEL FL5000™ INSPECTION LIGHT

The BlueLine Model FL5000 is a revolutionary new flashlight for fluorescent NDT inspection. It does the job that you are used to doing with high powered UV lights, but does it with much more ***convenience***.

- ***Compact, lightweight***
- ***Instant on/off***
- ***High intensity, low power consumption***
- ***Flashing mode for ambient light inspection***
- ***Doesn't get hot***
- ***No bulb to break or burn out***
- ***Safe blue wavelengths***
- ***Rugged, waterproof***

Three styles of filter glasses, all ANSI-certified safety glasses

Model FG1

Model FG2

Model FG3

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

Features

- Two high intensity 3W LEDs with current-regulated output
- Focusing optics for intense spot beam
- Matched with BlueLine filter glasses for maximum contrast
- Two operating modes – steady and flashing
- Non-breakable locking switch prevents accidental actuation
- Integral pistol style grip
- Front lens protected by heavy rubber boot for drop protection
- Tough, non-corroding ABS and polycarbonate plastic construction
- Rubber sleeve wrist lanyard
- Environmentally sealed - waterproof to 500 feet

Specifications

- Intensity: >3,500 $\mu W/cm^2$ at 15”
- Lamp life: >10,000 hours
- Batteries: 4 C cell alkaline
- Weight: 25 oz. (0.7 kg)
- Size: 5” L x 3.2” D (12.7 cm L x 8.1 cm D)

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