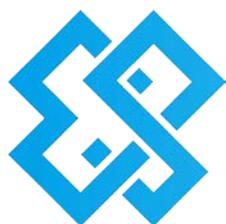


NDT Materials and Solutions



We solve Non Destructive Testing Problems



EISHIN KAGAKU



Quality & Security

Eishin contributes to the 21-century society
with the cutting-edge NDT technologies

Quality, the foundation of all industry fields. Non-Destructive testing technologies assure the quality, and support the industrial infrastructures.

As technology innovation has produced highly-advanced and complicated products, the needs of NDT have been getting higher for quality assurance purpose.

Eishin was found in 1957, and the company has been growing along with the development of Japanese industries and has been supporting the expansion of industries.

We now are recognized as an NDT specialist in a wide range of fields such as Nuclear power plants, steel, aviation, automobile, power generation, electronics, architecture, and food industries.

Eishin leads the NDT industry with its comprehensive ability to cover all technologies of Penetrant, Magnetic Particle, Ultrasonic and Eddy Current inspections, as well as to make full use of “Know-how” cultivated in abundant experiences over so many years.

Not only high quality and high accuracy, we also focus on the safety of the products, workability improvement and environmental protection. From the viewpoint of users, we are dedicated to developing the products that meet the needs of the age.

Eishin export advanced technology and products overseas, and our business stage is expanding worldwide.

Eishin promises to continue making the best effort to contribute to the realization of more affluent society through advanced NDT technologies as the most reliable brand.

Our Ibaraki factory has been certified according to ISO 9001:2015 to confirm the establishment of quality assurance system.

Company History

1957 Eishin Kagaku Established

1961 Penetrant and Fluorescent approval MIL Standard and Ministry of defense Japan

1970 High Sensitivity Fluorescent Water Washable Penetrant approval Douglas USA and Boeing

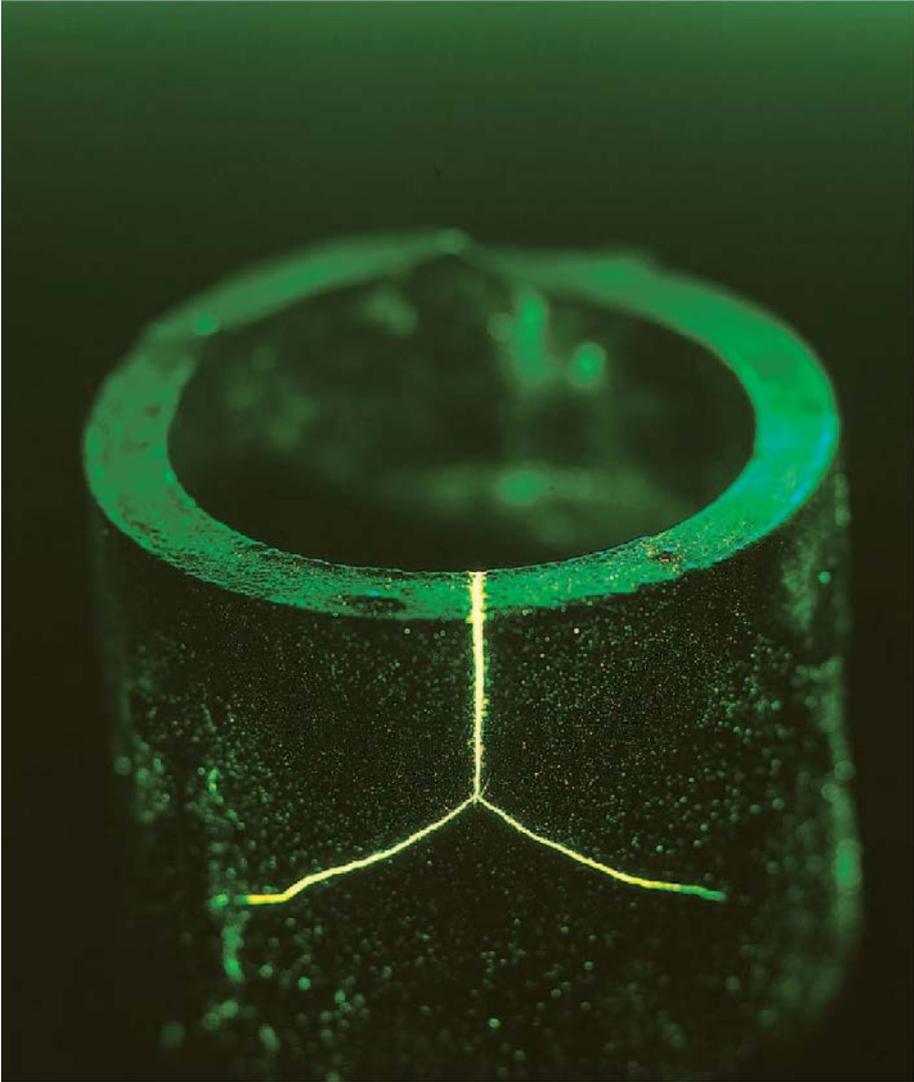
1973 High Sensitivity Fluorescent Water Washable Penetrant approval MIL Standard

1980 Fluorescent Penetrant approval GE and Rolls-Royce

1986 With MIL revision, got approval GE and Rolls Royce

1990 Fluorescent Penetrant approval P&W

2015 Approval ISO9001, ISO14000



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RED MARK



● SOLVENT REMOVABLE TYPE

STANDARD Type	Penetrant	R-1A(NT)
	Developer	R-1S(NT)
	Remover	R-1M(NT)
AMS Qualified Type	Penetrant	R-1A(NT)/1
	Developer	R-1S(NT)/1
	Remover	R-1M(NT)/1
LOW HALOGEN /LOW SULPHUR Type Used for stainless steel, Ni, Ti alloys	Penetrant	R-1A(NT)Special
	Developer	R-1S(NT)Special
	Remover	R-1M(NT)Special
HIGH TEMPERATURE Type Used for High Temp (90-200°C) Note: Contained in 3.8 liter and 18-liter cans	Penetrant	R-1AH(NT)
	Developer	R-1SH(NT)
	Remover	R-1MH(NT)

● WATER WASHABLE PENETRANT

Standard Type	R-3B(NT)PLUS	Casting, keyway, and screw thread
LOW HALOGEN / LOW SULPHUR Type	R-3B(NT)SpecialPLUS	Welding bead on stainless steel and Ti-alloys
WATERBASE Type	R-3B(NT)W-1PLUS	Raw materials, Slab Non-flammable

● SPECIAL DEVELOPER

Easy REMOVABLE Type	R-1SB	Easy removal of developer coating after inspection
FAST DRYING Type	R-1SD(NT) R-1SD(NT)Special	Used at high humidity, low temperature Low halogen/Sulphur
WET SUSPENDABLE Type	R-3W	Developer particles suspend in water Non-flammable
PASTE Type	DP-1S	Applied with sprayer High viscosity, non-flammable

● SPECIAL REMOVER

SLOW DRYING TYPE	R-1MS(NT) R-1MS(NT)Special	Slow Volatilization Low halogen/Sulphur
WATER SUSPENDABLE	R-3MT(NT) R-3MT(NT)Special	Filled with purified water Low halogen/Sulphur

● WATER WASHABLE DYE PENETRANT

WATER WASHABLE TYPE	RB-300	Easy waste water treatment and recycling
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NEO GLO



Ideal for detecting fine defects.
Fluorescent patterns of defects are more perceptible to naked eye.

NEO GLO series have been qualified by U.S. Air Force, Japan Self-Defense Force, Aircraft manufacturers in U.S. and U.K., etc. as highly reliable inspection materials. The Scope of NEO GLO has been expanded to inspections for auto parts, new materials, semiconductors, and rocket parts.

•FLUORESCENT WATER WASHABLE PENETRANTS

SENSITIVITY	NAME	PRTR	AMS
LOW	F-4A /1		○
	F-4A-Au PLUS	○	
	F-4A-WE PLUS	○	
MEDIUM	F-4A-B PLUS(T)	○	
	F-4A-B/1		○
HIGH	F-4A-C PLUS(N)	○	
	F-4A-C/1		○
ULTRA HIGH	F-4A-E PLUS	○	
	F-4A-E/2		○

•POST-EMULSIFIABLE FLUORESCENT PENETRANTS

SENSITIVITY	NAME	PRTR	AMS
LOW	F-5L/1		○
MEDIUM	F-5L-SP/1	○	○
HIGH	F-6A/1		○
ULTRA HIGH	F-6A-SP/1	○	○

•WATER WASHABLE FLUORESCENT PENETRANTS

Easy wastewater treatment and recycling

SENSITIVITY	NAME	PRTR	AMS
LOW	FB-3100C	○	
MEDIUM	FB-3500A	○	
HIGH	FB-3600M		

•Emulsifiers

Type	NAME	PRTR	AMS
Oil Base	F-5E-SP/1		○
Water Base	F-6E-W/1		○

•Developers

Type	NAME	PRTR	AMS
Dry Type	F-5D/1	○	○
Wet Type	F-4W-SP/1		○
Fast Dry Type	F-4S(NT)	○	
Fast Dry Type	F-4S(NT)/1	○	○

•Removers

Type	NAME	PRTR	AMS
Standard	R-1M(NT), R-1M(NT)/1	○	○



Container

Penetrants, Emulsifiers, Fast-drying Developers, Removers.....3.8, 18 liter can
 Dry Developers1, 2 kg in corrugated carton
 Water Suspensible Developer...1 kg, 6 kg can

NEOGLO-UNITS

More efficient and economical inspection systems

Fluorescent penetrant inspection systems, with that a large amount of test objects can be inspected efficiently and economically, have been widely used for precise inspections of various types of parts including those in the aviation industry. NEOGLO-UNITS have been designed and made to satisfy users' needs adequately by making full use of "know-how" cultivated in long-term experiences and abundant sales achievements.

Eishin's penetrant inspection systems are mainly divided into four types. Test objects are transferred manually by hand or with hoists. Automatic system is also available. Every inspection process can be automated from penetration to inspection, and the test objects are transferred automatically.

●EF-A type system

Small-sized penetrant testing system (about 5m in total length) for small and light weight test objects. Basically, test objects are manually transferred between the stations.

●EF-B type system

Medium-sized penetrant testing system (about 10m in total length) for large and heavy weight test objects. Usually, test objects are transferred on the roller conveyer between the stations. Each station is equipped with a lifter or a door.

●EF-C type system

Large-sized penetrant testing system (more than 10m in total length) for mass-produced parts. The test objects are automatically transferred on the independently-driving roller or chain conveyer.

●EF-D type system

EF-D type system is equipped with the waste water treatment system dedicated to separate-type water washable fluorescent penetrants. Rinse water can be recycled with this system.

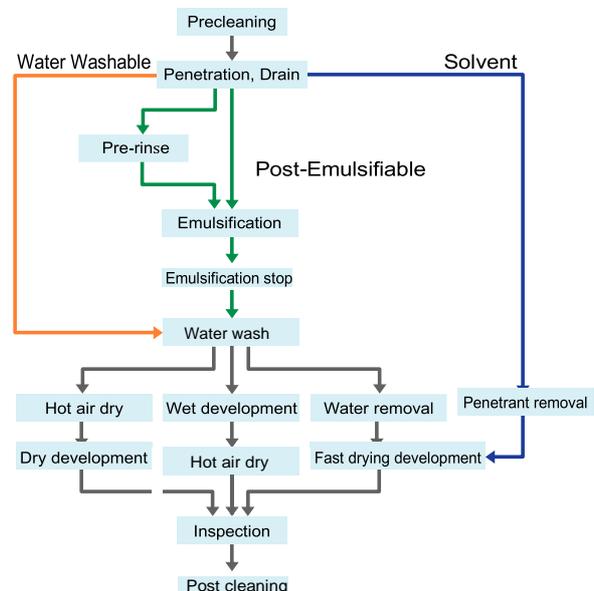
* Waste water treatment systems for standard penetrants (MIZUSUMASHI) are also available.

* Custom-designed system is available.



Procedures for fluorescent penetrant inspection

Fluorescent penetrant inspections may be performed in three methods. Select any of these methods and the type of the penetrant to be used depending on the material type of test objects, the surface condition and the defect type.



MAGNATRON

MAGNATRON is high-sensitive magnetic particle and it gives a clear contrast between defects and the background.

Fluorescent magnetic particles

Fluorescent magnetic particles show brilliant fluorescent under black light. Even a lower concentration of suspension than 1g/liter achieves high sensitivity.

NAME	PARTICLE SIZE (μm)	Concentration Range(g/L)	SETTING PARTICLES (ml)
SY-6000	5 ~ 30	0.5 ~ 2.0	0.04 ~ 0.12
SY-7000	5 ~ 20	0.3 ~ 2.0	0.02 ~ 0.12
SY-7000S	1 ~ 15	0.3 ~ 2.0	0.04 ~ 0.21
SY-7500	2 ~ 5	0.3 ~ 2.0	0.03 ~ 0.20
SY-8000	Less than 3	0.1 ~ 2.0	0.02 ~ 0.40

●HIGH LUMINANCE Fluorescent Magnetic Particle

NAME	PARTICLE SIZE (μm)	Concentration Range(g/L)	SETTING PARTICLES (ml)
SY-6000Br	1 ~ 15	0.3 ~ 2.0	0.03 ~ 0.20
SY-6300	1 ~ 10	0.1 ~ 2.0	0.02 ~ 0.25
SY-8500	1 ~ 7	0.1 ~ 2.0	0.02 ~ 0.32

●Aerosol Fluorescent Magnetic Particle

Ready-to-use suspension is contained in aerosol cans. Correct amount of fluorescent magnetic particle is suspended in oil.

NAME	PARTICLE SIZE (μm)	Concentration Range(g/L)
SY-7500	2 ~ 5	2.0g/L
SY-7500 Special	2 ~ 5	2.0g/L
SY-8000	Less than 3	2.0g/L
SY-8000XB	Less than 3	2.0g/L
SY-8000W	Less than 3	2.0g/L

●Premixed Fluorescent Magnetic Particle

Premixed fluorescent magnetic particles with conditioning powder. The solution can be easily prepared by simply putting a predefined amount of particles into water and stirring. Two types, SY-7500WS-3and SY-7000SP are provided.

NAME	PARTICLE SIZE (μm)	Concentration Range(g/L)	SETTING PARTICLES (ml)
SY-7500WS-3	2 ~ 5	0.5-2.0	0.25(2.0g/L)

●Concentration Fluorescent Magnetic Particle

It can be prepared simply by pouring this solution into water. This product (500 ml per bottle) can prepare 100 liters of 1 g / L magnetic powder solution.

NAME	PARTICLE SIZE (μm)	Concentration Range(g/L)	SETTING PARTICLES (ml)
SY-25WD	4 ~ 21	0.5 (400times dilution)- 2.0 (100times dilution)	0.10(1.0g/L)
SY-35WD	4 ~ 19		0.12(1.0g/L)
SY-45WD	3 ~ 15		0.12(1.0g/L)
SY-75WD	2 ~ 5		0.13(1.0g/L)



Non-fluorescent magnetic particles

●Wet type

Wet type magnetic particle is used for observing under white light. Select the best type for your application and test conditions by color contrast against the surface of the test objects.

COLOR	NAME	COLOR TONE	PARTICLE SIZE (μm)	Concentration Range(g/L)	SETTING PARTICLES (ml)
Red	MA-30	Reddish Brown	5 ~ 30	10 ~ 20	0.55 ~ 1.10
Black	MK-10	Black	Less than 3	2 ~ 10	0.95 ~ 5.00
	MK-15	Black	2 ~ 5	2 ~ 10	0.15 ~ 1.40
White	MS-30	Off-White	5 ~ 30	10 ~ 20	0.70 ~ 1.40

●Dry type

Dry type is used by spraying with air on the surfaces of the test objects. Apply this type to the dry surface.

COLOR	NAME	COLOR	PARTICLE SIZE (μm)
Red	MA-100	Reddish	5 ~ 50
	MA-200	Reddish	5 ~ 30
	MA-100B	Reddish	40 ~ 100
Black	MK-300	Black	30 ~ 50
White	MS-200	Off-White	5 ~ 50
	MS-300	Off-White	5 ~ 40
	MS-400	Off-White	5 ~ 30
	MS-300M	Off-White	40 ~ 100

Remarks: High-temperature white magnetic particle MS-200H. applicable for up to 500°C tested objects.

●Transfer premixed type (Aerosol)

Black magnetic particles, MK-10, is suspended in a fast-drying solvent. Ideal for transferring and recording the defects.



●Container

Magnetic particles: 1kg, 5kg can
Conditioners, Rust preventives: 3.8-liter, 18 liter can
MAGNATRON OIL: 18 liter can

BLENDEx(Water conditioner)

To disperse magnetic particles in water, any disperser should be added. Make a paste with disperser (BLENDEx) and magnetic particles before disperse in water.

TYPE	COLOR	USAGE	FEATURES
Blendex-B	Light Milky White	0.5 ~ 2.0% to water	Regular type, Well suspended
Blendex-D	Viscous Liquid		Non-forming, use when bubbling during circulation of magnetic particles solutions
Blendex-RH	Viscous Liquid	3 ~ 5% to water	Strong rust-prevention. Can paint directly on the parts without cleaning after inspection

MAGNATRON OIL (Dispersed Oil)

Use this oil product instead of kerosene to disperse magnetic powder in oil. Since the flash point is 94 ° C or higher, there is no danger of fire at LOW temperature compared to kerosene and it is odorless.

RESMINE (Rust preventive)

By adding Remine to the magnetic particle water solution prevents rusting after inspection. (Adjust the amount depending on your requirement.)

RESMINE.....For general steel materials. Add 1-5% to magnetic particle suspension.

RESMINE C.....For casting materials. Add 0.5-5% to magnetic particle suspension.

HANDY MAGNA



A-1



A-2



A-4



A-6



TE-2

The best-selling portable yoke electromagnet HANDY MAGNA has a dominant market share for its excellent detection ability and abundant variety of types. Contact magnetic poles directly with test objects and apply magnetic particles, hold down the switch and magnetic particles indications will appear where the defects are. Best for welded area.

●Type

A-1	Standard type. Mainly used for welding, universal yoke
A-2	Small and light-weight type of A-1 convenient for long time inspections. Universal yoke is optional
A-4	Flexible yoke. Multi-purposes and wide applications
A-6	Small and light-weight type of A-4
TE-2	Ideal for local and small area, Good portability inspections

●Configuration

- Body (with a micro switch)
- 5 Meter power cord (3-core, two-type rubber cap tire cable)
- Steel carrying case

●Features

- AC continuous method achieves higher ability to detect surface defects by the skin effect.
- Yoke method suppresses an electric current flowing directly into the test objects, and avoids the possibility of sparking.
- Small, light, AC 200V or 220V (other voltage option) portable size.
- Any test objects can be inspected with HANDY MAGNA yokes.
- Waterproof switches minimize the risks of layer short or electric shock to human bodies in wet method.
- Type A-1, A-2 and A-6 are with potted cable. Tough and waterproof.

●SPECIFICATIONS

	A-1	A-2	A-4	A-6	TE-2
Rated current (A) 50 Hz	4.0	2.5	4.0	3.5	1.2
Rated current (A) 60 Hz	3.0	2.3	3.0	2.3	0.7
Total magnetic flux (mWb) 50 Hz	0.80	0.60	0.70	0.57	0.30
Total magnetic flux (mWb) 60 Hz	0.70	0.55	0.57	0.48	0.27
Leg Span (mm)	140	110	140	110	70
Magnetic pole section size (mm)	25X25	20X20	25X25	20X20	15X15
Weight without cable (kg)	3.2	2.0	3.6	2.0	1.2

●Duty cycle

- A-1, A-2, A-4 and A-670% (5-sec on, 2-sec off)
- TE-250% (5-sec on, 5-sec off)
- Lifting power (excluding TE-2)Above 10 pounds
- A-1 and A-6 are designed for 50 Hz • 60Hz

UV-LED Black Lights

Eishin UV-LED Black Light is specialized in performance necessary for non-destructive inspection. In addition to power saving and long life, portability is improved and heat generation is suppressed, convenience is improved, compared with conventional products. Each black light has measures to cut harmful visible light at the time of observation, and it can be used even in a demanding aircraft industry.

Hand-Held type

S-65LC/ LCE

Model S-60LC is a direct plug-in type with an integrated power supply LED / white (visible light) lamp can be turned on and off with a hand-held switch. The S-65 LCE also improves the S-65 LC to conform to ASTM E 3022 and RRES 90061 and can be used for demanding aircraft inspections. Standard equipped "V-Cut Glass" cuts unnecessary visible light on inspection.



S-65LC/LCE

Flashlight type

ZB-365J

Portable high-power flashlight come with 2 rechargeable batteries. Provides approx. 3hours of continuous inspection. Choice of range and ultraviolet light intensity by the Dimming function. Standard equipped with "synthetic quartz glass filter " cuts unnecessary visible light on inspection.



ZB-365J

Stationary type

L-500LC/L-500LCE

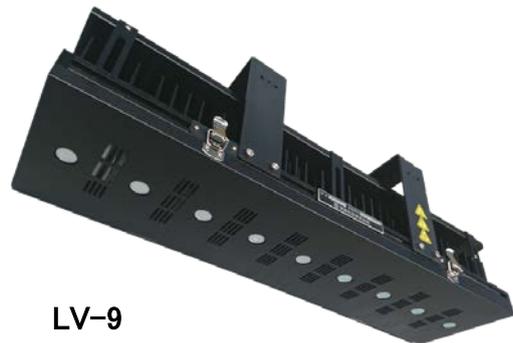
High power overhead stationary UV led with low running cost. Multiple units can be connected and used. The L-500 LCE conform to ASTM E 3022 and RRES 90061. With output adjustment function (option). Standard equipped "V-Cut Glass" cuts unnecessary visible light on inspection.



L-500LC/L-500LCE

LV-6/LV-9/LV-18/LV-24

The patented even light distribution technology, and there is no reduction in UV illumination among the lamps even during continuous lighting. In spite of being fan less, it has the high heat dissipation performance that is essential for LED lights, and eliminates the causes of failure and short LED life at a high level.



LV-9

■ Specifications

Mode	S-65LC/LCE	ZB-365J	L-500LC, L-500LCE	LV-9
Power consumption	20W	-	40W (Max)	180W
Size (mm)	340x295x152(power supply) Φ94x150x245	Φ38(Head) φ25(Grip)×14	220x220x160	119x304x202(power supply) 630x171x188
Weight (Kg)	3kg(power supply), 0.5kg	0.18kg	6kg	6.0kg (power supply) 8.2kg
UV-A Intensity (μw/cm ²)	LC:4,000(15" /381mm) LCE:3,500(15" /381mm)	Up to19,990 (15" /381mm)	LC:4,200(60cm) LCE:4,000(15" /381mm)	6,500(24" /60cm)
Power In	AC100V±10% (50/60Hz)0.3A	Li-ion Battery	AC100V±10% (50/60Hz)0.4A	AC100~240V (50Hz/60Hz)1.7A
Power Supply Cord Length	2.5m(Lamp), 3m (Power supply)	None	3m	5m(Lamp), 3m (Power supply)

Test Panel

Eishin Test Panels are ideal penetrant sensitivity comparators. Having matched pairs enables studies of the effects of process changes as compared to a standard process, or used material changes vs fresh material. Test panels allow "in use penetrants to be compared against "new, unused" product to determine if the penetrant is performing properly.

Liquid Penetrant Testing Accessories Category

Type 1: ISO 3452-3 JIS Z 2343-3

Twin Type: 2 mm thickness
Crack depth: 10, 20, 30, and 50 µm
Material: Brass with Ni-Cr coating

Type 2: ISO 3452-3 JIS Z 2343-3

Having two functions, crack and roughness
Material: Stainless with Ni-Cr coating

Penetrant Test Block Type 2 ENISO 3452-3

Field of application:

Reference test panel type 2 is being used for routine assessment of the system performance of both fluorescent and color contrast penetrant facilities and open containers. The difference of the state of action compared to the state of delivery will be shown. The test is carried out at the start of each work period.

Type 3: AMS 2644 JIS Z 2343-3

24S aluminum quenching crack test panel
Material: Aluminum

Aluminium Thermal Quench block

The Penetrant Cracked test piece provides a means by which penetrant may be checked for serviceability, comparison of contrast or to qualify its use outside the standard temperature range of 16-52 °C. The test piece comprises of an aluminum block, which is divided by a machined groove to provide two side by side comparison test areas. Both the areas have identical fine cracks on them which when processed with penetrant can be compared.

ASME Type: ASME Sec. 5 Art. 6

Twin Type: 10mm thickness
Material: Aluminum

●Sensitivity Level Type 1

Crack Depth	Level
50µm	1, 2, 3, 4
30µm	2, 3, 4
20µm	3, 4
10µm	4

Type 3

Crack Depth	Level
Approx.	1

Type 1



1)

ASME Type

Type 2



Type 3



Hoffmann TAM Panel

Penetrant test panels based on the Pratt & Whitney TAM drawing 146040 are one of the most popular industry approved methods of performing system performance checks on DPI systems. An alternative to Sherwin TAM panels Hoffmann are a recently Pratt & Whitney approved manufacturer of TAM panels. Made with German precision the Hoffmann TAM panel is a 2.5mm thick stainless-steel plate with half the test surface hard coated with a micro thin chrome alloy. The chrome-colored half contains five controlled and evenly spaced cracked centers – With the cracked centers in a circular pattern forming 5 star-like shapes. The non-coated side is grit blasted to give a roughness (Ra = 2.0) and is for testing the washability of penetrant and for performing background tests. Case lid includes printed photos of that panels 5-star indications for quick reference



Low-halogen and Low-sulfur type Marking pens

- Special marking pen for nuclear power equipment and related parts. (Less than 100ppm Chlorine, Less than 50ppm Fluorine and Sulfur)



•Colors and Tips

	Standard - 3mm tip	Small - 1mm tip	Fine - 0.5mm
Black	○	○	○
Red	○	○	○
White	○		
Blue	○		

•Foaming gas leakage detector GL-1B/GL-1B Special

Apply GL- 1B/GL- 1B Special, and even a minute amount of gas leakage can be instantly seen as bubbles. Widely used for gas leakage detecting for various type of tanks and piping systems. GL-1B Special is applicable for austenite stainless steels, titanium alloys and nickel alloys.



•Industrial Degreaser ACE Cleaner

- Degrease and cleaning of metal products, ceramic and plastic products
- Erase Marking pen ink and marking-off Clean off rust-preventive agent, etc.

- Container
550 type aerosols can (degreaser contained:400ml)
3.8-liter, 18 liter can





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