

Ultraviolet light (Black light)



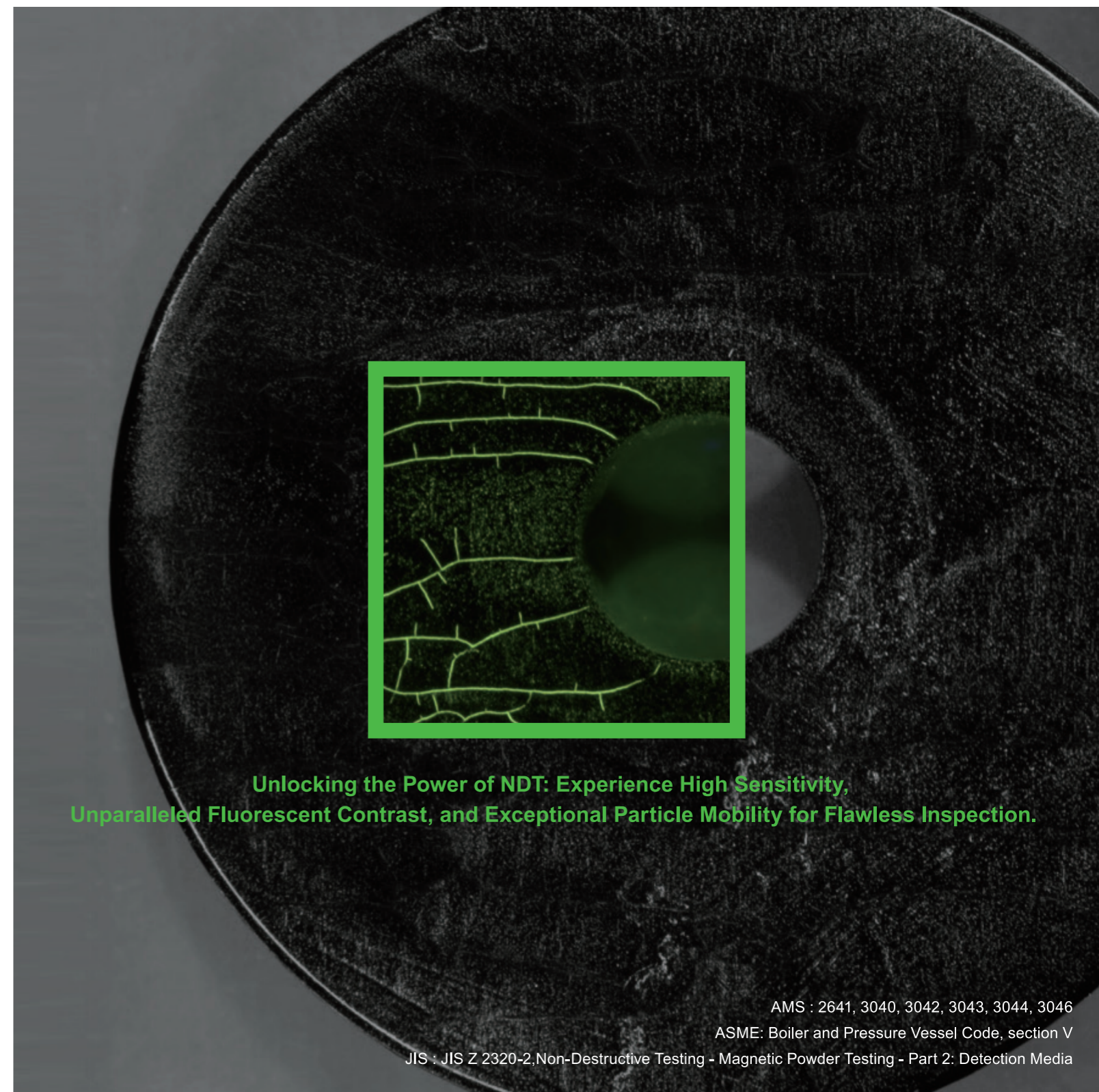
Type	S-60LC	S-65LC/LCE	ZB-365J	L-500LC/LCE	LV-9
Power consumption	20W	20W	-	40W (Max)	170W (100V)
Dimensions	φ94×150×245mm	φ94×150×245mm	Φ38(Head)	220×220×160(mm)	30×171×188(mm)
Weight	Approx. 0.6kg	stabilizer: W340×D295×H152mm Approx. 0.5kg (stabilizer 3.0 kg)	φ25(Grip)×147(mm) Approx. 0.18kg	Approx. 6kg	stabilizer: 119×304×202(mm) Approx. 8.2kg
UV intensity	3,000μw/cm2 (range 381mm)	4,000μw/cm2 ,LCE: 3,500μw/cm2 (range 381mm)	~19,990μw/cm2 (range 381mm)	4,200μw/cm2 (range 600mm)	6,000μw/cm2 (range 600mm)
Power Source	AC100V±10% 50/60Hz	AC100V±10% 50/60Hz	(Li-ion battery)	AC100V±10% 50/60Hz	AC90~264V (50Hz/60Hz)
Voltage					
Power Source Voltage	AC100V±10% 50/60Hz	AC100V±10% 50/60Hz	(Li-ion battery)	AC100V±10% 50/60Hz	AC90~264V (50Hz/60Hz)
Power Current	0.2A	0.2A	-	0.4A	1.7A
Power Cord	3.0m	Primary side 2.5m/Secondary side 3m	none	3.0m	Primary side 5m/Secondary side 3m
Specification	JIS Z 2323	JIS Z 2323, ASTM E3022(LCE) RRES 90061(LCE)	JIS Z 2323	JIS Z 2323, ASTM E3022(LCE) RRES 90061(LCE)	JIS Z 2323
Compliance					

Magnetic Particle Testing

MAGNATRON

Enhance Your Magnetic Particle Inspection with MAGNATRON

Brilliant Fluorescent Powders, Vibrant Colors, and Innovative Solutions for Unbeatable Mag Particle Testing



Unlocking the Power of NDT: Experience High Sensitivity,
Unparalleled Fluorescent Contrast, and Exceptional Particle Mobility for Flawless Inspection.

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<https://www.eishinkagaku.co.jp/>

AMS : 2641, 3040, 3042, 3043, 3044, 3046

ASME: Boiler and Pressure Vessel Code, section V

JIS : JIS Z 2320-2, Non-Destructive Testing - Magnetic Powder Testing - Part 2: Detection Media

Fluorescent Magnetic Powder - Wet type

	Product name	Particle size (μm)	Features	Compatible standards※		
				AMS	ASME	JIS
Powder	SY-6000	5~30	Often used for material inspection of rolled products, cast products. Coarsest grain size among fluorescent magnetic powders.			
	SY-7000	5~20	Used for relatively large defects such as castings.			
	SY-7000S	1~15	Slightly wider adjustment to smaller grain sizes than SY-7000. Enhanced detection performance.			
	SY-7500	2~5	General-purpose product widely used in general.	○	○	
	SY-8000	3以下	Often used for machined end products such as forgings. Finest particle size among general-purpose fluorescent magnetic powders.	○	○	
	SY-8000A/1	3以下	Widely used for detecting minute defects in aircraft.			
	SY-6000Br T2	1~15	High-luminance type of SY-7000.			
	SY-6000BrSP	3~8	High-luminance type of SY-7500.		○	○
	SY-25	4~21	Relatively large grain size. Belongs to high-luminance and high durability type.		○	○
	SY-35	4~19	General-purpose type. Belongs to high-luminance and high durability type.		○	○
SY-45	3~15	Relatively small grain size type. Belongs to high-luminance and high durability type.		○	○	
Aerosol	SY-7500	2~5	Oil-dispersed aerosol product of SY-7500.		○	○
	SY-7500	2~5	Oil-dispersed aerosol product of SY-7500. Low irritation to skin.		○	○
	SY-7500 Special	2~5	Controlled and refined type of halogen and sulfur content in the material of SY-7500.	○	○	○
	SY-8000	3以下	Oil-dispersed aerosol product of SY-8000.			
	SY-8000XB	3以下	Aerosol product dispersed in a quick-drying solvent. suitable for flaw detection on steeply inclined surfaces, where dichens adsorbed on cracks tend to flow.		○	○
	SY-8000W	3以下	Water-dispersed aerosol product of SY-8000.			

How to make wet magnetic powder solution

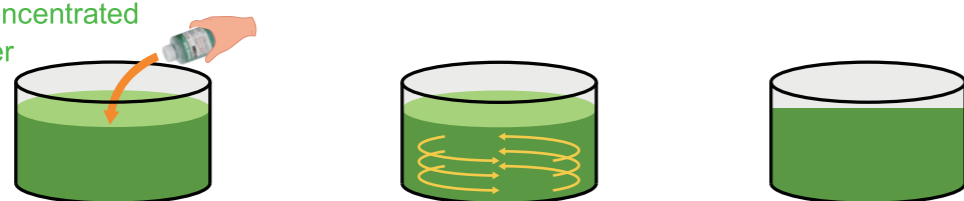


- ① Calculate the amount of magnetic powder and dispersant required and measure them into a container.
- ② While adding a small amount of dispersant to the magnetic powder, knead well to make a paste.
- ③ Put into the paste-like magnetic powder to the tank then stirring.
- ④ After stirring thoroughly, confirm that the test solution is evenly dispersed and start the inspection.

※)Conformity standard name AMS : 2641, 3040, 3042, 3043, 3044, 3046 ASME: Boiler and Pressure Vessel Code, section V JIS : JIS Z 2320-2,非破壊試験-磁粉探傷試験- 第2部:検出媒体

	Product name	Particle size (μm)	Features	Compatible standards※		
				AMS	ASME	JIS
Concentration magnetic powder	SY-25WD	4~21	Pre-mixed fluorescent magnetic powder and dispersant.		○	
	SY-35WD	4~19			○	
	SY-45WD	3~15	Can be used by simply diluting it in water. Product names are listed in descending order of particle size.		○	
	SY-75WD	2~5			○	

How to make concentrated magnetic powder solution



- ① Add 500 ml of concentrated magnetic powder solution to 100 L of water. (using a test solution concentration of 1 g/l as an example)
- ② Stirring can be used to adjust the solution to a uniform magnetic powder solution. (Concentration 1.0 g/l)
- ③ After stirring thoroughly, confirm that the test solution is evenly dispersed and start the inspection.

	Product name	Particle size (μm)	Features	Compatible standards※		
				AMS	ASME	JIS
Instant magnetic powder	SY-7500WS-3	2~5	Pre-mixed fluorescent magnetic powder and powder dispersant. Throw into water and use.			

Non-fluorescent magnetic powder - for wet type

	Color	Product name	Particle size (μm)	Features	Compatible standards※		
					AMS	ASME	JIS
Powder	Red	MA-30	5~30	Suitable for use on test surfaces that offer more contrast than black or white magnetic powder, such as a gray surface of the object to be inspected.			
	White	MS-30	5~30	Suitable for use on dark colored surfaces of inspection objects.			
	Black	MK-15	2~5	Suitable for use on brightly colored surfaces of inspection objects.	○		○
Aerosol	Black	MK-10	~3	Smaller grain size than MK-15. Using Contrast Enhancement paint can be easier to see.	○		○
	Black	MK-15	2~5	Oil-dispersed aerosol product of MK-15.	○	○	○
	-	Contrast Enhancement paint	-	White background paint for black magnetic powder. Applied thinly to the test surface.			

Non-fluorescent magnetic powder - for dry type

Color	Product name	Particle size (μm)	Features	Compatible standards※		
				AMS	ASME	JIS
Red	MA-100B	40~100	Suitable for use on test surfaces that offer more contrast than black or white magnetic powder, such as a gray surface of the object to be inspected. Product names are listed in descending order of particle size.	○	○	
	MA-100	5~50		○	○	
	MA-200	5~30		○	○	
White	MS-300M	40~100	Widely used in general, Suitable for use on dark colored surfaces of inspection objects. Product names are listed in descending order of particle size.	○	○	
	MS-200	5~50		○	○	
	MS-300	5~40		○	○	
Black	MK-300	30~50	Suitable for use on bright colors such as metallic luster on the surface of the object to be inspected.	○	○	

■ Magnetic powder dispersant Blendex

Dispersing magnetic powder in water requires a dispersing material.
Please knead the dispersant (Blendex) and magnetic powder well in advance to make a paste, and then add it to the water.

Product name	Appearance	Quantity	Features
Blendex-B		Against water	Standard product, good dispersibility of magnetic powder
Blendex-D	Pale milky viscous	0.5~2.0%	Foam-resistant type, Use when bubbling during circulation of magnetic powder solution
Blendex-RH	liquid	3~5%	Strong rust-preventive, can be painted without cleaning the parts after inspection

■ Dispersion oil Magnatron oil

Use when dispersing magnetic powder in oil.
Since its flash point is above 94°C, compared to kerosene, it is odorless and has no risk of ignition at room temperature.

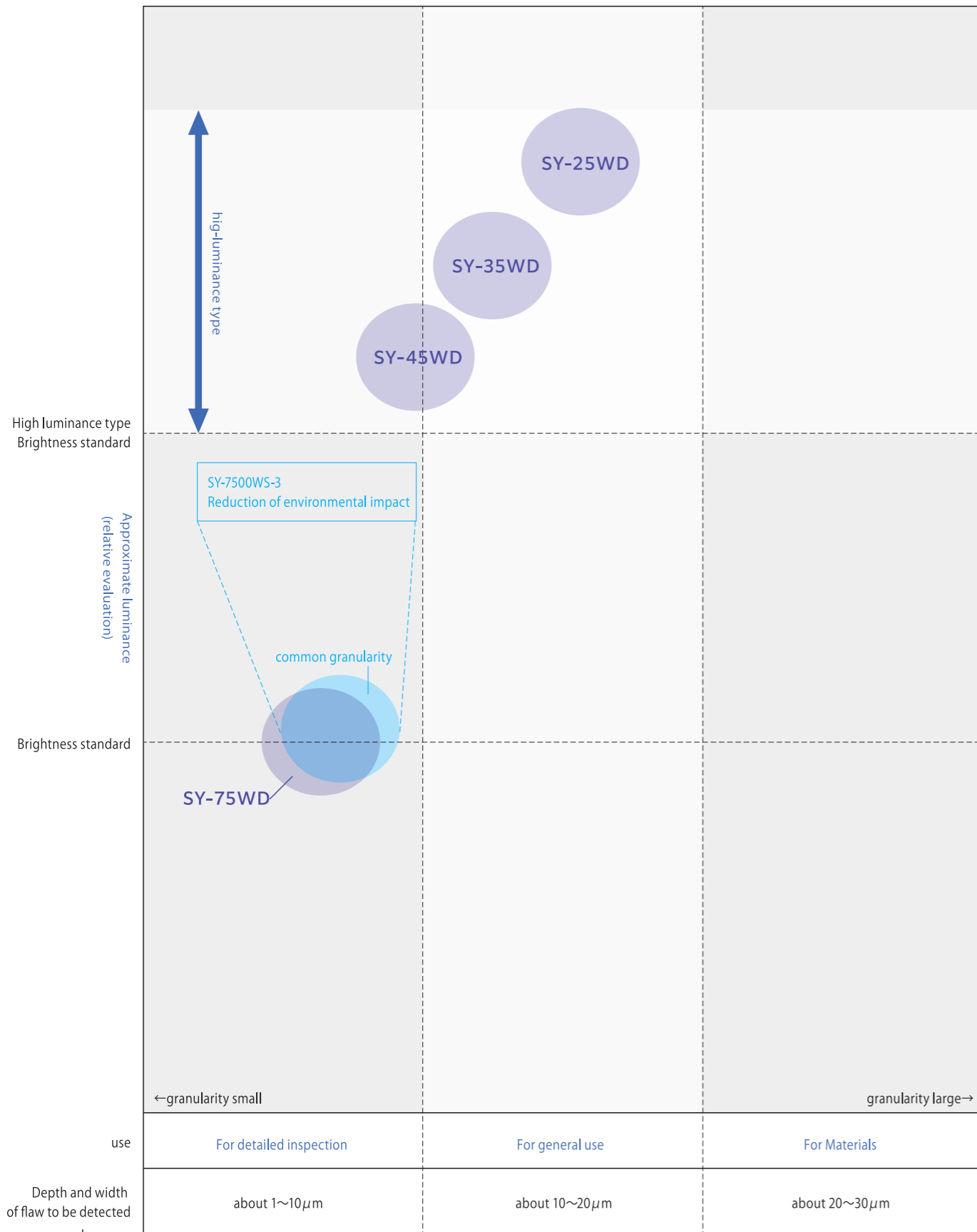
■ Rust inhibitor Resmin

When added to a water-dispersed magnetic powder solution, it prevents rusting of the inspected object for several days after the inspection. (Increase or decrease the amount added depending on the degree of rust prevention.)
Resmin..... For general steel, 1-5% added to magnetic powder solution
Resmin C.....For casting, 0.5% to 5% added to magnetic powder liquid



Quick Guide to Brand Selection and Classification for Instant (WS) Magnetic Powder and Concentrated (WD) Magnetic Powder Liquid

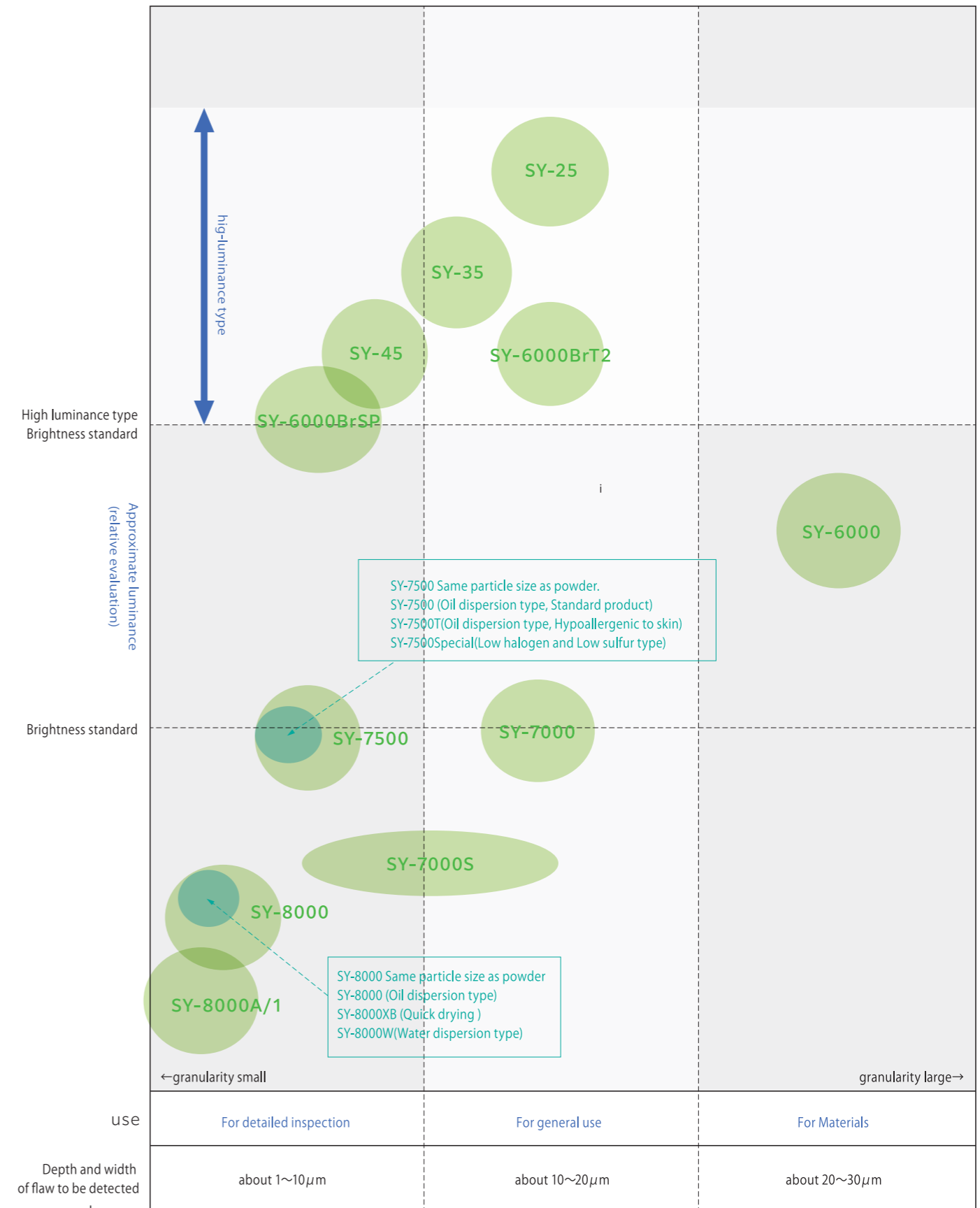
Instant (WS) Magnetic ● Concentrated (WD) Magnetic Powder Liquid ●



Please use as a reference for initial selection of brand names, as they vary greatly depending on actual testing conditions.

Quick Guide to Brand Selection and Classification for Fluorescent magnetic powder, aerosol

Fluorescent magnetic powder ● Aerosol ●



Please use as a reference for initial selection of brand names, as they vary greatly depending on actual testing conditions.

Magnetic Powder Scratch Testing Process

The testing method and type of testing agent are selected based on the type of material, surface condition, and type of defect.

*The following is an example of a pole-to-pole method flaw detection procedure

Test procedures	Fluorescence	Non-Fluorescent
1 Pretreatment Performed to ensure that pre-treatment and subsequent steps are effective. •Remove foreign matter (oxides, oil, water, paint, rust, etc.) from the test surface using a cleaning solution or other means. •If the specimen has strong residual magnetism, demagnetize it.		
2 Magnetization Magnetize the test piece using a magnetizing device, etc.		
3 Application of magnetic powder Expose to ultraviolet light, Apply the test solution uniformly	 Apply the test solution uniformly	 Apply the test solution uniformly
4 Observation Observe by irradiating ultraviolet light from a black light in a dark room.	 The test surface should be as bright as possible in a bright environment (for example illumination of 500 lx or more).	 The test surface should be as bright as possible in a bright environment (for example illumination of 500 lx or more).
5 Aftertreatment Cleaning, demagnetization, and rustproofing of the test surface, if necessary.	 Cleaning, demagnetization, and rustproofing of the test surface, if necessary.	 Cleaning, demagnetization, and rustproofing of the test surface, if necessary.
reference JIS Z 2320-2 Contrast specimen type 1	Fluorescent magnetic powder 	Non-fluorescent magnetic powder (white)

Magnetization method

In JIS Z 2320-1:2007, magnetization methods are classified into the following types and contents, The most suitable method is selected considering the shape of the specimen and the expected direction of defects.

Magnetization method	code	remarks
Axial current method	EA	Magnetizing a test piece by placing it between electrodes and passing an electric current in the axial direction.
Prod method	P	Two electrodes (prods) are pressed against the surface of a test piece with a large area and magnetized by passing an electric current.
Flux Penetration Method	I	The test specimen is made to work as the secondary side of a transformer by applying an alternating magnetic flux to a magnetic material that is passed through a hole in the test specimen, A method of magnetizing a test piece by means of an induced current generated in the test piece.
Current penetration method	B	A current is passed through a conductor through a hole in a perforated test piece, The method of magnetization by means of a circular magnetic field formed around the current.
Adjacent current method	AC	One or more conductors are placed parallel to the surface of the test piece, adjacent to the area to be tested, and energized, magnetized by the magnetic field formed around the current.
Interpole method (stationary form)	FM	A method in which the specimen or a part of the specimen is brought into contact with the magnetic poles of an electromagnet, and the magnetic flux generated by the electromagnet is injected into the specimen to magnetize it.
Interpole method (portable)	PM(Y)	Magnetic flux generated by an AC electromagnet (yoke) installed in contact with the surface of the test piece, The method in which the magnetic flux generated by an AC electromagnet (yoke) installed in contact with the surface of the test piece is fed into the test piece and magnetized.
Coil method (fixed)	RC	The test piece is placed in the coil and energized. The coil is magnetized in the axial direction by the magnetic field created by the coil.
Coil method (cable)	FC	The cable is wound around the test body so that there is no slack in the cable, the coil is formed and energized, and the magnetic field created by the coil, The method of magnetizing the test object.

You can see the video of fluorescent magnetic particle testing procedure from here.



<https://www.youtube.com/watch?v=0hf15XrQETg>

Capacity and Packaging

Capacity Unit	Powdered Magnetite	1kg・5kg
	Dispersant, Rust inhibitor	3.8L・18Lcan
	Magnatron Oil	18Lcan
	Concentrated fluorescent magnetic powder solution	500ml,4L
Shipping Unit	Aerosol Products	a set of 6cans in cardboard box 6pack, 12pack, 24pack each in cardboard box
	Canned products	3.8L square can : 2 or 4cans in cardboard box 18L square can : 1 can in cardboard box

Magnetic Powder Disperser

Used for dry magnetic powder spreading.
Put a small amount of dry magnetic powder in the rubber ball and push the rubber ball, The magnetic powder is then dispersed from the nozzle.



Pear-shaped precipitator

Measuring magnetic powder concentration from sedimentation volume
Used for control.



Magnetic Powder Yokes (Handy Magna)

Model	A-1	A-2	A-4	A-6	TE-2
Appearance					
Power	AC 100V 50/60Hz				
Amperage rating (A)	50Hz	4	2.5	4	3.5
	60Hz	3	2.3	3	2.3
Total magnetic flux (mWb)	50Hz	0.80	0.60	0.70	0.57
	60Hz	0.70	0.55	0.57	0.48
Magnetomotive force (Ampere-turn)	50Hz	2400	2100	2500	2600
	60Hz	1900	1600	1900	1800
Inner pole dimensions (mm)	50Hz	1900	1600	1900	1800
	60Hz	1900	1600	1900	1800
Magnetic pole cross-section method (mm)	140	110	140	110	70
Main unit weight (kg)	25×25	20×20	25×25	20×20	15×15
Yoke	3.2	2.0	3.6	2.0	1.2
Configuration	Removable variable universal yoke		Adjustable yoke		
	①Main unit (with waterproof micro switch) ※TE-2 is a non-waterproof switch				
	②Power cord 5m (3-core, 2-class rubber cabtyre cable) A-4 & TE-2 can be detached from the main unit.				
	③Universal Yoke (onlyA-1・A-2) ④Steel storage case				

※A-2 & A-6 are dedicated for 50Hz and 60Hz respectively. ※Amperage rating & total magnetic flux are measured by the test methods specified in JIS Z 2321 & JIS Z 2320-3.

※Repetitive use rate is 5 seconds on, 2 seconds off (70%) (TE-2 is energized for 5 seconds and deactivated for 5 seconds (50%))

※Lifting power is detachable from the main body for the TE-2 model

Type A-1	Wide magnetic field effective range, Universal yoke included
Type A-2	Small, lightweight type of A-1 type. Convenient for long-time probing. Universal yoke is optional.
Type A-4	Variable pole type, Versatile and flexible in application
Type A-6	Small, lightweight type of A-4 type.
Type HM-76	Compact and lightest weight (1 kg) for narrow and long-time inspections.
Type HM-52L	L-shaped for narrow and corner inspection.
Type TE-2	Spot type, convenient for local and on-site inspections
MAGUNA mini HK-type70	Compact and lightweight type with movable magnetic poles