

MAGNAVIS® 7HF, WB-27



Visible Wet Method Magnetic Particles

General Description

Our MAGNAVIS® visible magnetic inks are used for wet method magnetic particle testing of ferrous materials. They give clear black indications when viewed in daylight.

- **7HF** is an oil-based, ready-to-use black ink.
- **WB-27** is a liquid concentrate used to prepare water-based black ink.

Applications

When used in conjunction with suitable magnetising equipment, MAGNAVIS inks will locate fine surface and slightly subsurface defects such as: shrink cracks, welding defects, grinding cracks, quenching cracks, and fatigue cracks.

Composition

7HF is a suspension of magnetic particles in a high-flash petroleum distillate.

WB-27 is made up of a black magnetic powder, a wetting agent, a defoamer and a corrosion inhibitor.

Typical Properties (not a specification)

Property	7HF	WB-27
Flash point	> 93°C (bulk product)	N/A
SAE sensitivity	6 - 7	6 - 7
Viscosity at 38°C	2.5 mm ² /s	-
Density	0.8 g/cm ³	1.4 g/cm ³
Particle size range	0.2 - 2.0 µm	0.2 - 2.0 µm
Settlement volume (1 hour)	1.5 - 2.4 ml	1.5 - 2.4 ml
pH (2% solution)	Neutral	9.0
Storage temperature	10°C to 30°C	10°C to 30°C
Usage temperature	-5°C to 50°C	5°C to 50°C

Like all Magnaflux materials, 7HF and WB-27 are closely controlled to ensure batch-to-batch consistency, optimum process control and inspection reliability.

Specification Compliance

Specification	7HF	WB-27
AMS2641	✓	
AMS3041	✓	
AMS3042		✓
ASM3043 (Aerosols only)	✓	
ASME B & PV Code, Sec V	✓	✓
ASTM E709	✓	✓
ASTM E1444/E1444M	✓	✓
EN ISO 9934-2	✓	✓
GOST R ISO 9934-2-2011	✓	✓
MIL-STD-271F		✓
MIL-STD-2132D	✓	✓
NAVSEA 250-1500-1		✓
SAE AS4792		✓

Recommended Products

Product type	Product Name(s)
White contrast paint	MAGNAVIS® WCP-2 TIEDE® 695.1
Water bath additives	WA-1 water conditioner
	WA-2 antifoam
Cleaner/remover	SPOTCHECK® SKC-S
Centrifuge Tube for visible ink (part no. 044C003)	

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General Method of Use

Clean the component before testing to reduce the risk of contamination and to provide a suitable test surface.

If the test surface is a dark colour, apply a thin coating of a suitable white **contrast paint**, such as MAGNAVIS® WCP-2, to provide a contrasting background.

If using **WB-27**, **make up the ink bath** based on the guide volumes below (**7HF** is supplied ready-mixed so you can skip this step).

Quantity of WB-27	Quantity of water
0.5 litres (500 ml)	25 litres
0.75 litres (750 ml)	37.5 litres
1 litre (1,000 ml)	50 litres

Before using, **agitate the ink** to ensure uniformity of mix and check the correct settlement volume (see table opposite).

Apply the ink by spraying, flooding or immersion, depending on your chosen method (see below):

Wet continuous method

Apply the ink to all surfaces of the component and apply a magnetising current. Remember to stop the flow of ink **before** the current is switched off, otherwise the force of the ink flood can wash away indications.

Wet residual method

This method is generally less sensitive than the continuous method and is more susceptible to rapid particle depletion and bath contamination.

- Pre-magnetise the part that needs to be tested.
- Immerse the part in a bath of the ink.
- Remove it and allow it to drain.
- Inspect the part.

Remember to **agitate the ink regularly** during use to ensure uniformity of mix. If you are using a bath and it appears contaminated, or if it has been in use for a long time, replace the contents.

During use, the magnetic content of any ink (apart from aerosols) will become depleted so you will need to check your ink strength at least once each day. The most widely-used way of checking an ink's settlement volume is by using a graduated ASTM pear-shaped centrifuge tube.

WB-27 only: if the settlement volume approaches the lower limit (see the 'Typical Properties' table on the previous page), you can add more WB-27 to the bath as long as it is still clean and uncontaminated.

After inspection, remember to completely demagnetise your components before cleaning, to ensure easy removal of any residual powder particles.

Availability and Part Numbers

7HF	WB-27
	
008A103 (x 10)	058C001 (x 4)
	
	058C036 (x 6)

Health and Safety

Read the relevant Safety Data Sheet for this product before use. Safety Data Sheets are available on request from your Magnaflux distributor or via the Magnaflux website:

www.eu.magnaflux.com