

# NDTKALÄ

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بزرگترین فروشگاه اینترنتی تجهیزات NDT نفت و گاز



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اصل با گارانتی و سرتیفیکیت

## MAGNAFLUX



## SREM



## BYCOTEST

Non-Destructive Testing



فروش کلیه دستگاه های تست UT و فیزره و  
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فروش انواع تجهیزات و دستگاه های رادیوگرافی با گارانتی





**NDTKALA**

بزرگترین فروشگاه اینترنتی تجهیزات NDT نفت و گاز

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**foma** **FOMADUX**  
**FUJIFILM**

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**Kodak** **Kodak** **Carestream**



واردات و فروش عمده و  
جزئی داروی ظهور و  
ثبوت رادیوگرافی  
کداک (Carestream) به  
صورت مستقیم و بدون  
واسطه

# HANDBOOK

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## Y1 ELECTROMAGNETIC YOKE

Part Numbers: 001Y025, 001Y026



Y1 ELECTROMAGNETIC YOKE



## Recommended Products

### Y1 Yoke Kit

In kit form, the Y1 Yoke is supplied with black magnetic ink, white contrast paint, a wire brush and a duster, all housed in a strong, attractive carrying case.



A light source, attached to one leg of the Y1 Yoke, is activated by the magnetic field and switches on automatically during testing. Ideal for darker corners.

Part number: 002L115

### L-10 Magnetising Coil

Developed for testing shafts, spindles and similar parts.

- Ideal for inspecting for transverse cracks
- Components are magnetised and demagnetised with the same coil
- 110V operation
- Suitable for wet and dry Magnetic Particle Inspection (MPI) methods
- Footswitch provides continuous control



Part number: 008C020

### Certified Test Weights

- AC Test Weight (4.5Kg) Part Number: 026T018B  
 DC Test Weight (18Kg) Part Number: 026T018A



## Certificate of Conformity



Y1 Yoke  
 Serial Number:

Date of Manufacture:

Certified that the above item conforms to and meets the requirements of the following:

EC Directives	Specifications
2006/95/EC	ASME V ART7
2014/30/EC	ASTM E709
	ASTM E1444
	EN-ISO 9934-3
	MIL-STD-271

Certificate is issued under the auspices of the Equipment Product Manager:

**Magnaflux** (A Division of ITW Ltd),  
 Faraday Road, South Dorcan Industrial Estate,  
 Swindon, Wiltshire, SN3 5HE, UK  
 Tel: +44 (0)1793 524566  
 Fax: +44 (0)1793 490459  
 Email: sales@magnaflux.co.uk  
 www.eu.magnaflux.com



## Prior to commissioning the Y1 Yoke

Check the earth-leakage circuit breaker for correct operation:

1. Plug the safety plug into a socket, ensuring that the plug cable outlet is facing down. To test the Yoke, switch on the earth-leakage circuit breaker first, by pressing the orange coloured button (with the inscription "RESET"). The red LED will light up and the Yoke is operational.
2. Pressing the red button (with the inscription "TEST") will trip out the switch; this is confirmed by an audible click and the LED going out. The Yoke is now disconnected from the electrical supply and is no longer operational.
3. Pressing the orange coloured button again (with the inscription "RESET") will make the Yoke ready for operation again.
4. After disconnecting from the power (unplugging), the earth-leakage circuit breaker switches itself off due to safety reasons and requires a restart, as described above.

## Prepared Inks

	Flash point (PMCC)	Viscosity (mm <sup>2</sup> /s)	Density (g/cm <sup>3</sup> )	Particle size (µm)	Settlement volume
<b>OIL-BASED</b> (high-flash, low-odour kerosene base)					
MAGNAGLO® 410HF	93 °C	3.45	0.81	7 - 25	0.12% V/V
MAGNAGLO® 14HF	93 °C	3.45	0.81	2 - 25	0.25% V/V
MAGNAGLO® 7HF	93 °C	3.45	0.81	0.6 - 2.5	2.5% V/V
<b>WATER-BASED</b>					
MAGNAGLO® WB-12	N/A	N/A	1.2	7 - 9	0.1 - 0.4 ml
MAGNAGLO® WB-655	N/A	N/A	1.1	3 - 5	0.13 - 0.21 ml

## Dry Powders

	Max. working temperature	Description
MAGNAVIS® 1 Grey	315 °C	MAGNAVIS dry powders have closely-controlled particle size and shape, and come in a range of colours to give the best possible contrast on a wide variety of finishes. For best results, the powder should be cloud-applied near the surface while the current is flowing.
MAGNAVIS® 3A Black	230 °C	
MAGNAVIS® 8A Red	175 °C	

## Contrast Paint

### MAGNAVIS® WCP-2 White Contrast Paint

Use WCP-2 when the contrast between the test surface and the ink/powder is not clear enough for inspection. Apply a thin coating for WCP-2 to the surface prior to testing.

## Specifications

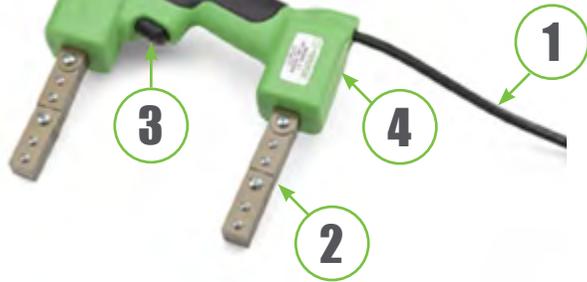
MAGNAGLO and MAGNAVIS concentrates, prepared inks and dry powders meet the requirements of ASTM E1444. Our oil-suspended inks and concentrates meet AMS specifications, plus appropriate industrial and Government specifications, Certifications are available on request.

## Technical Specification

Part number		001Y025	001Y026
AC voltage (V)		230	110
Frequency (Hz)		50/60	50/60
Supply current (A) in air	AC	2.6	4.5
Weight (kg) lifted at 140 mm pole spacing	AC	4.5	6.2

The light source and leg assembly, which are activated by the magnetic field, are switched on automatically during testing - ideal for dark corners.

## Parts List



Item	Description	Part number	Quantity
1	Cable, 3 core	001C004	3.75 metres
2	Leg/foot assembly	623485	2
3	Switch	016S004	1
4	Case	623480	1

**WARNING:** DO NOT REPLACE ANY PARTS WITH ANYTHING OTHER THAN THOSE RECOMMENDED BY MAGNAFLUX.

## Using the Y1 Yoke

1. Place the Yoke on the workpiece perpendicular to the direction of the cracks. The double-jointed articulated legs can be moved in two directions at each joint.
2. Adjust the spacing between the legs to between 25 and 250mm. If the part is an irregular shape, contour the feet to ensure a good flat contact point.
3. Trigger the switch and apply the inspection medium (wet or dry). Surface crack indications will form immediately. For enhanced sensitivity, use a fluorescent magnetic ink with a high-intensity black light.
4. Repeat as required, moving the Yoke over the part. Each placement of the Yoke will find cracks in a 150 x 150mm area.

Laminar magnetic iron provides maximum efficiency with light weight. The trigger switch is easily operated without changing hand positions.

Magnetic contact exists only between the Yoke and the test piece, so the switch, which is completely enclosed by a rubber gasket, is the only break in the electrical circuit. This means that arcing on the part itself is impossible.

To detect transverse cracks in mounted spindles, rear axles and other light parts, the Y1 Yoke can be supplemented by a magnetising coil (e.g. Magnaflux L-10 Magnetising Coil).

021-71053888

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# Safety Data

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## Flammability

The Y1 Yoke is designed to be used in conjunction with appropriate chemicals as a means of non-destructive testing for defects, such as cracks, on a wide range of manufactured components. Some chemicals may produce a flammable atmosphere at the point of use so it is important that the testing is carried out in a well-ventilated place and that all sources of ignition are excluded.

Good-quality NDT chemicals, such as Magnaflux magnetic inks and powders, are formulated to minimise the risk of a flammable atmosphere when correctly used.

## Electrical

Ensure that the protective conductor (earth) is continuous from the Y1 laminations through suitable connections to the electrical supply.

Recommendations:

- Use a Residual Current Circuit Breaker (RCCB) or Earth Leakage Circuit Breaker (ELCB).
- If the switch area of the Yoke becomes wet with kerosene or water, disconnect it from its supply until the area has dried.
- If the Y1 shows signs of malfunctioning, or if cracks appear in the casing, take the Yoke out of service immediately and have it examined by a qualified electrician. Cracking is usually caused by dropping the Yoke or by twisting the articulated legs.

## Maintenance

Before using the Yoke:

- Ensure it is physically undamaged.
- Ensure the cable is free from cuts which expose the wiring.
- Tighten the articulated joints if they are excessively loose.

In many countries, it is a legal requirement that the electrical safety of equipment is checked periodically, commensurate with use, but at least once a year. The basic tests required are to check the condition and effectiveness of the electrical insulation and the continuity of the protective conductor (earth). These tests can be performed using a Portable Appliance Tester (PAT) or Portable Appliance Checker (PAC).

## Warnings

- **MAGNETIC FIELD RISK:** persons susceptible to strong magnetic fields, including those with pacemakers, are advised not to use or approach this equipment without seeking professional advice.
- DO NOT smoke while performing Non Destructive Testing (NDT).
- DO NOT operate the Y1 Yoke for longer than 3 seconds ON followed by 10 seconds OFF (i.e. a 23% duty cycle).
- If the Yoke becomes too hot to hold in your bare hand, this is a sign that the duty cycle has been exceeded. Stop your inspection and wait for the Yoke to cool before continuing.
- DO NOT use any means to permanently operate the Yoke switch.
- DO NOT use the supply cable to pull, lift or carry the equipment.
- When the Yoke is switched OFF, the magnetic attraction to the tested component will be weakened and either the part or the Yoke could fall and cause injury,