

MAGNETIC FLUX INDICATORS

PRIMARY APPLICATION

Magnetic Flux Indicator strips are widely used to indicate the presence of induced magnetic fields during the magnetic particle inspection method of ferromagnetic materials. Flux indicators give evidence of an external field in the air above the magnetized surface, and in some circumstances, can be used to obtain a semi-qualitative estimate of the tangential field strength H .

Type I indicators are typically used for general engineering applications and **Type II** Indicators are used for aerospace applications. Both types consist of three laminations measuring 50 X 12 mm which are fixed together to form a sandwich structure which is nominally 0.15 mm thick. The outer lamination has 3 interruptions which are parallel to the long side. The width of these interruptions and the material of the outer lamination mean's that Type I indicators respond to a weaker field than Type II strips. Both types are protected by a polymeric layer and can be differentiated by the Roman numeral next to the logo.



Flux indicators have the advantage of being flexible enough so that they can be bent to fit the contours of a work piece, but robust enough to enable them to be used many times. They may also be cut into smaller pieces to allow them to be fixed in recesses and otherwise inaccessible locations on the work piece.



PRINCIPLE

All simple flux indicators rely on the fact that when an induced magnetic field B in a ferromagnetic material is interrupted by a non-ferromagnetic material, there is a flux leakage. When magnetic particles are applied to such a device during magnetization, then visible indications will be formed, provided that the directions of the interruptions are not parallel to that of the induced magnetic field. In order to make practical use of this simulation of the magnetic particle inspection process, the material containing the

interruptions is covered by an entire piece of material.

Flux indicator strips are ideal for confirming that an induced field exists across the surface of the work piece, as well as indicating the direction of that field. The design of the Magnetic Flux indicators allow estimates of the field strength to be made when work pieces are magnetized by use of alternating current (AC) at 50 or 60 Hz.

INTERPRETATION

The direction of the induced magnetic field is seen readily from the response of the flux indicators. If one indicator shows indications and the other none, the induced magnetic field is in the direction parallel to the indicator showing no indications. If both flux indicators strips show indications, this shows that the direction of the induced magnetic field is at an angle of between 30 and 60 degrees to them. The exact direction can be checked by re-orienting the indicators with respect to the direction of the field. If neither flux indicator shows any indications, there is insufficient field for the test to take place.

Interruption of the strength of the magnetic field can only be made when alternating current of 50 or 60 Hz frequency is used by direct contact to magnetize the work piece.

ASSOCIATED PRODUCTS

ARDROX®	Magnetic Particle Products
SUPRAMOR™	Black or Red Magnetic Particles
LUMOR™	Fluorescent Magnetic Particles
FERROMOR™	Visual Dry Powders

KEEP OUT OF REACH OF CHILDREN

STORAGE

Suitable for general indoor storage.

SHELF LIFE

None

DISPOSAL

Any disposal of the materials referenced in this document should be in accordance with all applicable federal, state, and local regulations. The process solution can contain components other than those present in the materials as supplied. Analysis of process solutions may be required prior to disposal.

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