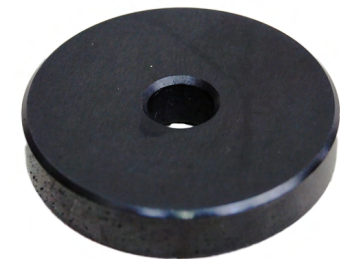




# Operating Manual



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Reference Block Type 1 (formerly MTU Nr. 3)  
according to EN ISO 9934-2

## PURPOSE

The Reference Block Type 1 is designed to test the concentration of magnetic powder suspensions while carrying out magnetic particle inspection. A sufficient concentration of magnetic powder in the test liquid is necessary for optimal error indication.

## CONSTRUCTION

The Reference Block Type 1 is produced as a disc with a diameter of 50 mm, a thickness of 10 mm and a hole with a diameter of 10 mm in the centre. This hole is used to hold a magnetising mandrel, which magnetises the test block to a field strength of 24 A/cm.

The test block is made from manganiferous steel and alloyed with vanadium. It is regarded as hard magnetic and, due to its remanent behaviour, it has a permanent residual induction, which guarantees optimal crack indication without further magnetisation.

**IMPORTANT NOTE:** To maintain the necessary residual induction, never allow the Reference Block Type 1 to come into contact with a demagnetising magnetic field.

## INDICATIONS

The crack indications on both surfaces of the test piece range from 0.1 - 1 µm in size and are produced by selective hardening and grinding. Each test piece has a unique crack pattern.

Compared to test pieces with precisely defined crack widths, the Reference Block Type 1 simulates naturally-formed cracks that are absolutely comparable with cracks produced by normal manufacturing processes.

## INSTRUCTIONS FOR USE

### Pre-cleaning

Before use, make sure the surfaces of the test block are free from dust, oil and other repellent substances. We recommend wiping with our SKC-S solvent cleaner.

### Spraying process

If you are using stationary test equipment, switch on the test equipment pump at least five minutes before checking the suspension, to ensure that the test liquid is homogeneous. The same applies to manual spraying systems where the suspension is made homogeneous by shaking, e.g. a hand spray pump.

Spray both sides of the test block with the magnetic powder suspension in use. The spray time should correspond with the cycle time of your machine, for a more accurate and analogous test.

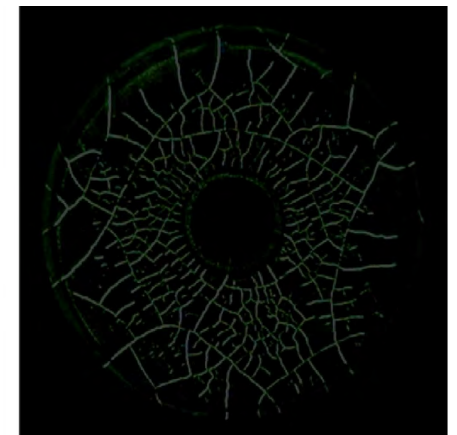
After spraying, stand the test block vertically on an absorbent cloth so the excess test liquid can run off. After that, you can visually inspect the crack pattern.

### Evaluating the crack pattern

Since each test block is unique, their crack patterns cannot be compared with each other. To assess whether the suspension is still suitable for crack indication, we recommend taking a photograph for reference, like the one below. That way, you can compare subsequent test results with the reference photo for an objective assessment of the condition of the suspension.



Magnetic suspension OK



Magnetic suspension worn out -  
replace with fresh test liquid.

### Post-cleaning

After inspection, clean the test block to remove the residual test liquid. Any residue left on the surface can cause permanent indications in pretence.