FOERSTER

KOERZIMAT 1.097 HCJ/J-H

System for measuring coercive field strength HCJ, J(H) hysteresis and relative permeability μr(H)

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Material evaluation based on magnetic properties. The KOERZIMAT 1.097 HCJ is a PC-controlled measuring system for fast and precise determination of the coercive field strength HCJ of hard and soft magnetic materials. Measurement is performed in an open magnetic circuit in accordance with IEC 60404-7 and is largely independent of the sample geometry. This allows even complex-shaped components to be tested without extensive sample preparation while covering the entire magnetizable volume.

For measurement, the sample is magnetized inside the magnetically shielded KOERZIMAT coil. Förster probes measure the magnetic polarization while a counteracting magnetic field is applied. The field strength at which the polarization J reaches zero corresponds to the coercive field strength HCJ. Magnetic shielding reduces the influence of the Earth's magnetic field and other magnetic interference.

Typical applications include testing hard metals in accordance with ASTM B887, monitoring carbon balance, sintering degree and grain size, as well as quality control of metal powders. Changes in magnetic properties caused by annealing, machining, stamping, pressing or forming can also be reliably monitored.

With the J-H measurement extension package, the complete J-H hysteresis loop including the initial magnetization curve of soft magnetic steels can also be determined.

YOUR ADVANTAGES AT A GLANCE

Precise HCJ measurement: Automatic determination of coercive field strength in accordance with IEC 60404-7

Largely geometry-independent: Testing of complex-shaped components without extensive sample preparation

Entire sample volume: Measurement of the complete magnetizable material volume

High sensitivity: Measurement of even very small and weakly magnetic samples using the optional internal probe

Magnetically shielded: Reduced influence of the Earth's magnetic field and magnetic interference in industrial environments

Fast measurement: Automatic HCJ measurement in just 3 seconds

Measurement software: Control of individual and series measurements with evaluation, statistics, data management and export

Easy integration: Remote interface for automation and external data access

NORMS

- **ASTM B887**
- **EN IEC 60404-7:2020**

TECHNICAL INFORMATION

HCJ MEASURING RANGE:	0 – 100 kA/m
RELATIVE PERMEABILITY MR(H):	100 – 2500 (J-H measurement)
MAGNETIZING FIELD STRENGTH:	up to 200 kA/m
PULSE MAGNETIZATION:	up to 450 kA/m, optional (depending on coil type)
MAXIMUM MEASURING FIELD STRENGTH:	— 100 kA/m (Coil 40) — 50 kA/m (Coil 60)
HCJ MEASUREMENT TIME:	3 s
MAGNETIZATION TIME:	0.2 – 40 s, adjustable
HCJ MEASUREMENT UNCERTAINTY:	< ±1% of measured value in accordance with IEC 60404-7
MEASURING FIELD UNCERTAINTY:	±0.2% of measured value
COIL INNER DIAMETER:	— 40 mm (Coil 40) — 60 mm (Coil 60)
HOMOGENEOUS FIELD RANGE:	— 170 mm (Coil 40) — 120 mm (Coil 60)
COIL DIMENSIONS (L × W × H):	550 × 340 × 420 mm
MEASURING ELEMENT:	Förster probes (fluxgate)
MEASURING MODULE DIMENSIONS (L × W × H):	465 × 445 × 220 mm
MEASURING MODULE WEIGHT:	approx. 18 kg
DEGREE OF PROTECTION:	IP32
AMBIENT TEMPERATURE:	0 to +40 °C
POWER SUPPLY:	230 V, 50/60 Hz

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