Magnetec

Nanoperm®

NANOPERM is a rapidly quenched, iron-based alloy with a fine Crystalline microstructure. Its typical grain size is 10 nanometers, thus the material name, "nanocrystalline". This fine material´s structure is why it has extraordinary soft magnetic properties. These properties can be controlled in a wide range by an annealing process under the presence of external magnetic fields.

Typical Values:

- Isat is calculated @ B = 1,0 T / µnom / N = 1.
- Usual tolerance of typical HF-properties is in the region of ca. -30%+40%
- Material Properties of NANOPERM (nominal values)
- Saturation Flux Density: ~ 1,2 T
- Coercivity (quasistatic, 50 Hz) < 3 A/m
- Saturation Magnetostriction: < 0,5 ppm
- Specific Electrical Resistivity: ~ 115 µOhm cm
- Specific Density: 7,35 g/cm3
- Curie Temperature: ~ 600 °C
- Operational Temperature Range: - 40 ... + 200 °C
- Material Losses (0,3 T / 100 kHz / sinus) < 110 W/kg
- Ribbon Thickness: ~ 17 ... 23 µm
- Grain Size (typ.): 10 nm
- Permeability Range: 1.000 ... 200.000
- Alloy Composition: Fe73,5 Cu1 Nb3 Si15,5 B7