Adjustable PM systems of highly intensive magnetic field

This type of highly intensive magnetic field generator is based on the dipole Halbach structure principle and offers the possibility to vary the field value, including field polarity reversal, from $-B_{max}$ up to $+B_{max}$. The magnetic induction vector is directed transverse to a cylinder-shaped working bore. The field direction is constant; the field uniformity is ±0.5%.

The system is PC-controlled, so it is possible to assign various time profiles of the magnetic field. It is important, that it is possible, using these permanent magnet assemblies, to reach rather high field modulation rates – up to 10 T/sec.

Specifications:

Overall dimensions:	396 × 324 × 466 mm
Working bore diameter:	36 mm
Size of the homogenous field area:	Ø20 x 20 mm
Maximal field (B_{max}):	1.85 T
Maximal field changing rate:	6 T/sec

AMT&C LLC offers the production of the adjustable field systems under customer specifications.

An example of an adjustable magnetic field source, designed for operation together with optical microscope Zeiss Axio Scope A1.

An example of the adjustable magnetic field source design.

In case the high field uniformity and high field changing rate are not needed we can offer various types of simple adjustable systems. For example, the shown device has symmetrically moving poles so the inductance in the central point can be changed in limits from 0.1 to 1 T.

Specifications:

Pole size:	40 × 60 mm
Minimal interpolar distance:	10 mm

The magnetic field source, adjustable in limits 0.1 - 1.0 Tesla.

Additional information about Adjustable PM systems of highly intensive magnetic field can be found in article «Highly intensive magnetic systems», prepared by AMT&C for «Magnetics Technology International Journal».

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