

MAGNETS

B-E 15

General Description

The magnet B-E 15 is a C-yoke magnet. The material consists of magnetically soft, ultra-pure steel of low C-, P-, and S-content. The air gap is continuously adjustable and the pole pieces can be locked in any position thus allowing rapid and simple air gap variation to suit individual experiments.

The large dimensions of the iron circuit guarantee a favourable conversion of excitation H into field intensity B .

Three cooling discs are mounted on two soft iron cylinders which in turn are fitted into the two yoke arms, resulting in two coil chambers for the energizing coils. The cylinders enlarge the diameter of the iron circuit at the pole pieces, thus increasing the maximum field strength.

Heat generated in the energizing coils is removed through a cooling system with a large water flow cross-section, requiring in all cases only normal tap water system. Danger of dirt accumulation and calcification are reduced to a minimum.

The energizing coils are protected from overheating by thermal relays which automatically turn off the power supply. The two coils attached to each of the poles are taken separately to the outside where they can be connected for either series or parallel operation. This permits a changing of the resistance when different power supplies or batteries are available.

A large selection of field shaping pole caps for many applications is available. All pole caps are carefully heat treated, ground and polished to obtain the required precision.

A wide range of accessories complements this universal standard magnet and allows its use in a large variety of applications. In addition to this program, BRUKER is prepared to produce all kinds of specially designed magnets.

Technical Data

Mechanical Data

Pole diameter	150 mm (6")
Coil spacing	125 mm (5")
Variable air gap	5-100 mm (0.2-4")

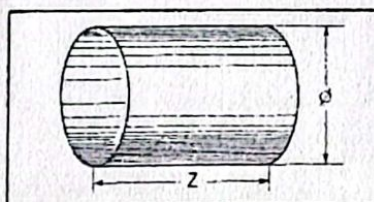
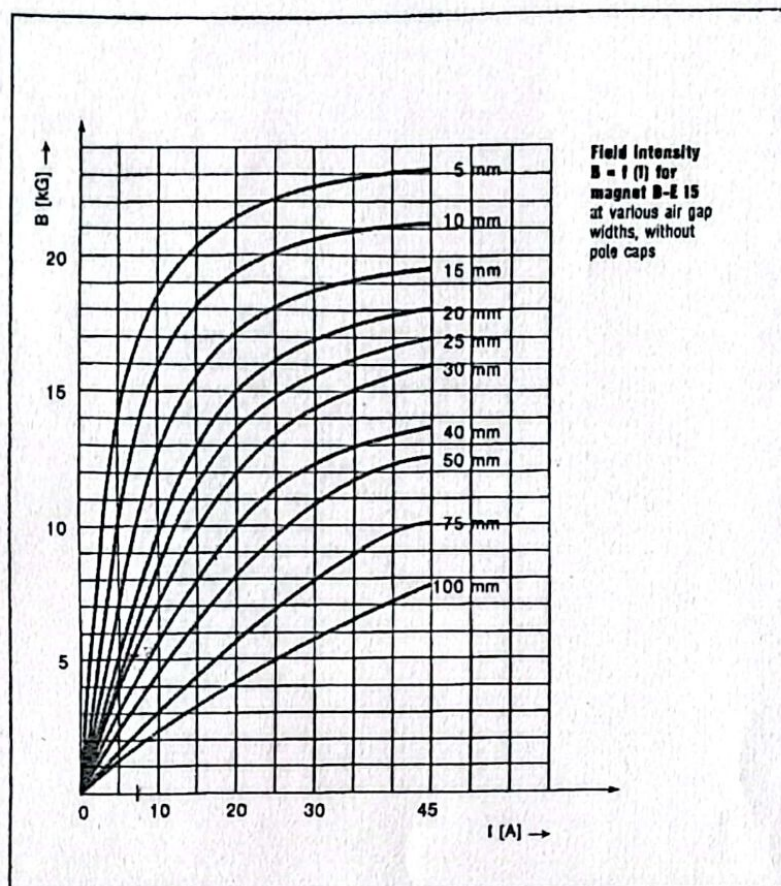
Electrical Data

Number of turns	2 x 800
Resistance at 20°C	2 x 1.4 Ohm
Continuous current / coil	30 Amps
Maximum current / coil	45 Amps

Cooling

Maximum inlet pressure	8 bar
Suggested inlet pressure at 3 kW power consumption	3 bar
Hose connection	1/2"

Total Weight	430 kp (950 lbs)
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B_0 [T]	$\Delta B/B_0$	Gap [mm]	ϕ [mm]	Z [mm]
0.1	$1 \cdot 10^{-4}$	30	60	20
0.5	$1 \cdot 10^{-4}$	50	60	30
0.5	$5 \cdot 10^{-4}$	80	40	30
1.0	$1 \cdot 10^{-3}$	30	80	40

