

KDM/1mg

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ANNEX TO TECHNICAL INQUIRY FOR FERRITES FOR KICKER MAGNETS

GENERAL : APPLICATION OF FERRITES

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General : Application of ferrites

1. Electromagnetic application

The ferrites are to be used in open C-core transmission line type kicker magnets of cellular construction. The magnets will be unidirectionally pulsed, with a repetition rate of up to 100 Hz.

The ferrite pieces will be assembled by CERN into C-cores. With a single turn excitation the ferrite will be required to switch from 0 to > 2000 Gauss in < 20 nano seconds.

2. Mechanical application

The application of the complete magnet is in ultra-high vacuum ( $10^{-11}$  Torr region). Before assembly the ferrite will be heat-treated once to 1000°C preferably in vacuum to improve its outgassing characteristics.

After assembly the whole vacuum system (including kicker magnets) will be heat-treated to 300°C under vacuum. This process will be repeated every time the equipment has been exposed to air. Estimated 300°C treatments are ~ 6 times per year.

Any permanent influence which the 1000°C and 300°C bake-outs may have on the electrical and magnetic properties and the specified mechanical tolerances of the block dimensions should be indicated in your reply. The working temperature, however, will be 20°C.

3. Fabrication

During the fabrication process the ferrite must have no contact with contaminating substances (grease, etc.). Machining is to be done using demineralised water as cooling agent. By special agreement clean tap water may be used.

Handling, packing, etc. has to comply with good vacuum practice, i.e. the ferrite should first be packed into hard, non-fluffy paper and then be put into a plastic bag!