

**DEMOSTRADOR DE CAMPO MAGNÉTICO, BUCLE
MAGNETIC FIELD DEMONSTRATOR, CIRCULAR COIL
DÉMONSTRATEUR DE CHAMP MAGNÉTIQUE, BOUCLE**

REF. / CODE / RÉF QLL009

Nahita



Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

INDEX OF LANGUAGES

Spanish	2-7
Inglés	4-5
French	6-7

DESCRIPTION

A set of 1 turn and 5 turn coils mounted side-by side on the base, each with separate pair of socket terminals for the electric connections. Maximum current for 1 turn coil is 8A and for 5 turn coil is 5A. By making the current flow through both of them, the cumulative effect of magnetic field of each can be investigated.

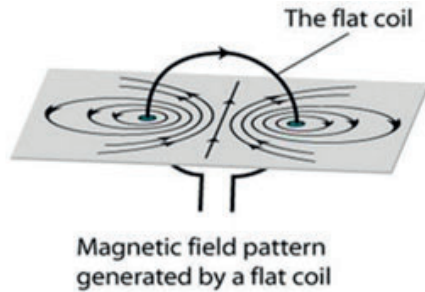
INTRODUCTION

Electromagnetic field, a property of space caused by the motion of an electric charge. A stationary charge will produce only an electric field in the surrounding space. If the charge is moving, a magnetic field is also produced. An electric field can be produced also by a changing magnetic field. The mutual interaction of electric and magnetic fields produces an electromagnetic field, which is considered as having its own existence in space apart from the charges or currents (a stream of moving charges) with which it may be related. Under certain circumstances, this electromagnetic field can be described as a wave transporting electromagnetic energy.

MAGNETIC FIELD PATTERNS ASSOCIATED WITH A RECTANGULAR WIRE

The magnetic field lines are concentric circles at every point of a current carrying circular loop. The direction of magnetic field of every section of the circular loop can be found by using the right-hand thumb rule.

- At the centre of the circular loop, the magnetic field lines are straight.
- Each segment of circular loop carrying current produces magnetic field lines in the same direction within the loop.
- The direction of magnetic field at the centre of circular coil is perpendicular to the plane of the coil. i.e. along the axis of the coil.



OTHER COMPONENTS REQUIRED

- Iron Filings
- Compasses
- Patch Cords
- Power Supply

PROCEDURE

1. Connect the power supply with the vertical coils through the banana sockets.
2. Scatter iron filings on the stand of the vertical coils in such a way that only the surface around the vertical coils is covered.
3. Demonstrate the magnetic field using the magnetic needle.
4. Switch on the power supply and gently tap the stand.
5. You will observe the ring-shaped magnetic lines of force around the vertical coils.
6. As soon as you observe the magnetic lines of force, switch off the power supply.

In this experiment using vertical coils, you will observe ring shaped magnetic field lines around the vertical coils, which become weaker with increasing distance. According to Fleming's right hand rule if the thumb of your right hand is pointing up in the direction of the current then, your fingers point in the direction of the magnetic field.