

5.1.02-00 Specific charge of the electron – e/m 

What you can learn about ...

- Cathode rays
- Lorentz force
- Electron in crossed fields
- Electron mass
- Electron charge

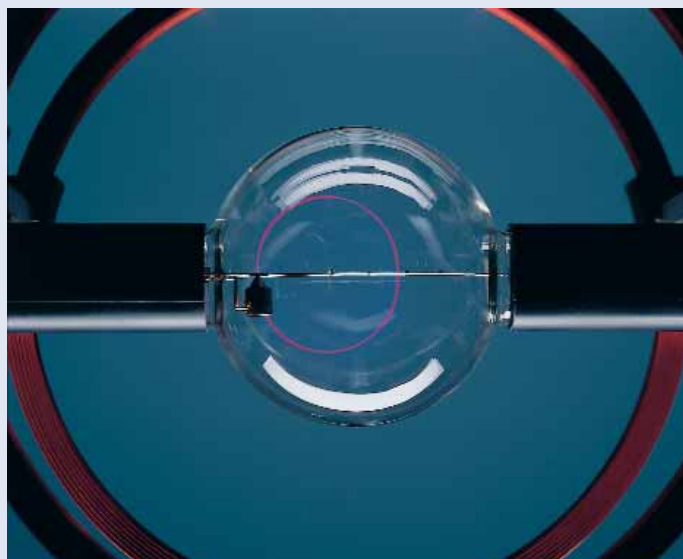
Principle:

Electrons are accelerated in an electric field and enter a magnetic field at right angles to the direction of motion. The specific charge of the electron is determined from the accelerating voltage, the magnetic field strength and the radius of the electron orbit.

What you need:

Narrow beam tube with socket	06959.00	1
Helmholtz coils, one pair	06960.00	1
Power supply, regulated, 0...600 V-	13672.93	1
Power supply, universal	13500.93	1
Digital multimeter 2010	07128.00	2
Connecting cable, 4 mm plug, 32 A, red, $l = 10$ cm	07359.01	1
Connecting cable, 4 mm plug, 32 A, blue, $l = 10$ cm	07359.04	1
Connecting cable, 4 mm plug, 32 A, red, $l = 75$ cm	07362.01	5
Connecting cable, 4 mm plug, 32 A, blue, $l = 75$ cm	07362.04	3
Connecting cable, 4 mm plug, 32 A, yellow, $l = 75$ cm	07362.02	3

Complete Equipment Set, Manual on CD-ROM included
Specific charge of the electron – e/m P2510200



Tasks:

Determination of the specific charge of the electron (e/m_0) from the path of an electron beam in crossed electric and magnetic fields of variable strength.