# KMQ-100

## Dissectible Motors Kit

A lower cost version of the KMQ-120 this offers a reduced number of components to allow the construction of Motors (but not Generators) and therefore offers a reduced number of experiments. It does not include a tachometer or dc drive motor and inter-connections are made using standard 4mm cables.

## Recommended Accessory

### TRI-120 Three Phase Transformer

The TRI-120 provides a fixed voltage and frequency 3-phase power supply for the KMQ-120 and KMQ-100. The outputs are stepped down by a ratio of 10:1 providing fixed 22V (line to neutral) and 38V (line to line) from a 380V 3-phase supply or 12.7V and 22V from a 220V 3-phase supply.

The **KMQ** range provides a safe and convenient method for students to develop an understanding of the construction and compare the basic performance of different electrical machines. However, the performance parameters of any dissectible machine will tend to be indicative only. Comprehensive studies and measurements of the characteristics,performance and modelling of electrical machines can be conducted using the Alecop ProLAB networked Electrical Machines workstation. Please visit our website www.alecop.com or contact us by phone or email for further information.

YouTube

**Scan the QR code***
**to view a video or visit us in Youtube**


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# KMQ-120

## Dissectible Electrical Machines Workstation

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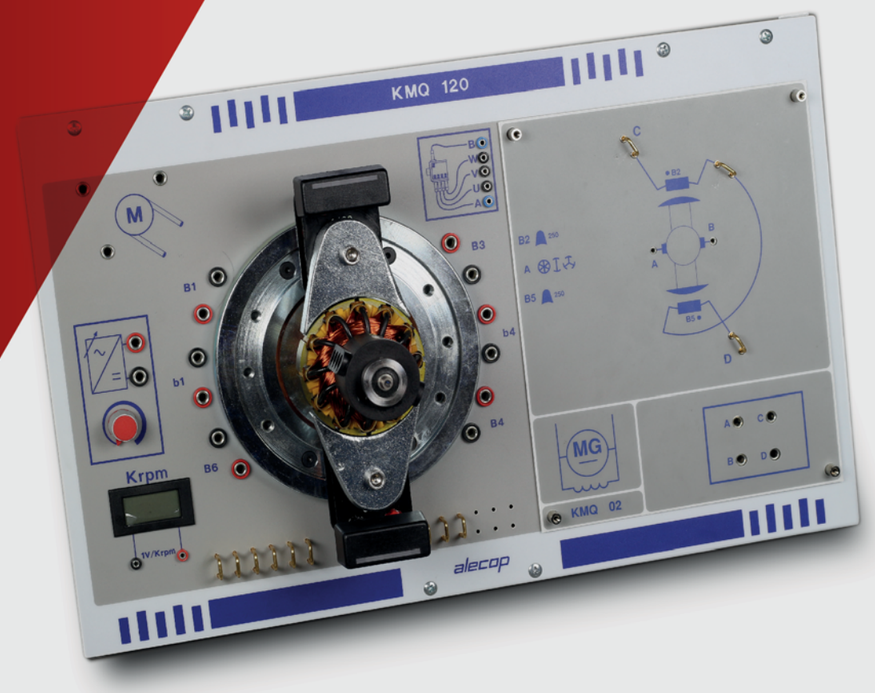


# KMQ-120

## Dissectible Electrical Machines Workstation



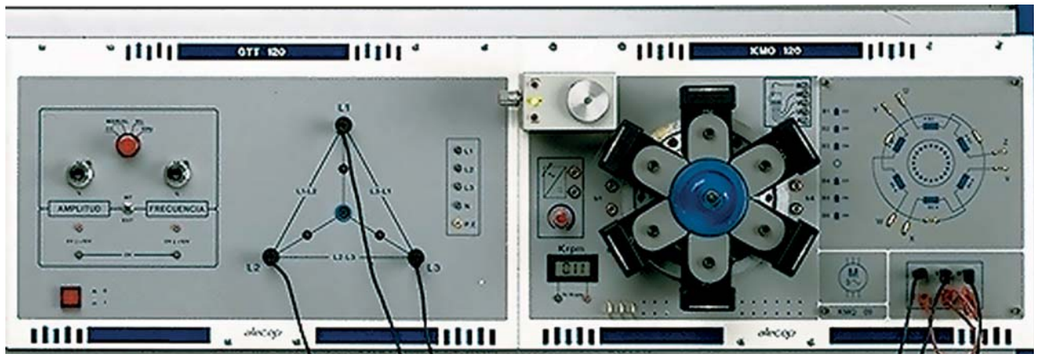
**Students can safely construct and study the operation of different types of machines and generators**

Engineers need to understand why different types of Electrical Machine, both Motors and Generators, produce different characteristics and performance. This knowledge can only be gained by studying the internal construction and operation of these machines. Gaining access to the internal workings of industrial machines can expose potentially lethal voltages and therefore presents a safety hazard. Using the Alecop KMQ-120 Dissectible Machine many different types of Motor and Generator can be constructed, and run at reduced voltages, to safely gain a fundamental appreciation of their operation and compare their performance.

The Alecop KMQ-120 comprises a construction module, which can be used on a bench or vertically rack mounted, and a selection of parts and components (poles, rotors, brushes etc.) which are used to construct many different types of machines. Machine components are assembled on a support disc on the front of the construction module from which the central shaft of each machine protrudes.

Screen printed overlays are provided to show the internal and external connections of different types of electrical machines. Interconnections are kept to a minimum, by using special connection bridges, to ensure the actual operation of each machine is easily understood. Illuminated pole pieces can clearly show field rotation when used at low frequency. All components can be stored in a convenient carrying case.

A digital tachometer is included to show rotational speed and a dc motor can act as a prime mover for generators and as a brake for motors.




*A three-phase squirrel cage motor constructed using the KMQ-120 powered by the GTT-120 low voltage variable supply*

## A comprehensive Manual contains more than 30 experiments covering the following curriculum:

- Electrical machines constituent parts
- Electromagnetic principles in electrical rotary machines
- Elementary machines principles
- DC motors and generators
- Independent excitation, shunt and series operation
- Armature reaction and auxiliary compensation poles
- AC single and three phase motors and generators
- Universal motor, single phase capacitor and repulsion motor
- Synchronous and asynchronous motors and generator
- Wound rotor and Squirrel cage three phase motors
- Dahlander pole changing motors

## Recommended Accessory

### GTT-120 Three Phase Generator

Using a single phase supply this provides a convenient variable frequency (1-100Hz) and variable voltage (0-22V phase to neutral, 0-38V phase to phase) 3-phase power supply and 3 variable voltage (0-30V, 5A) dc supplies. It is fully protected and is ideal for realising the full potential of the KMQ-120.