



Demonstrationmodel with open motor

Motor	DT90S8 stator		
Mains voltage	1 x 230 V		
Frequency	50Hz		
Temperature sensor	TF		
Controller	MC07B-0004-2B1-4-00		
Interface	FBG11B		
Servo rotor	DY71S		
Asynchronous rotor	DT80K (half)		
Arrow	PVC with glued magnets and sleeve bearing		
Cage	Aluminium with milled grooves, Perspex disks and sleeve bearings		
Dimensions	335 x 220 x 355 mm H x W x D	Weight	ca. 15 kg

Description

This demonstration model is timeless. It demonstrates very clearly the distinction between synchronous and asynchronous motors.

The grey arrow is comparable to a synchronous rotor.

It links itself with the rotating field which the controller controls and consequently runs perfectly synchronously with the rotating field.

The aluminium cage is magnetized just at the instant the field rotates faster and consequently excites induction currents in the rods of the cage. These induction currents must result in a sufficiently strong magnetic field in order to overcome friction torque of the sleeve bearings, so that the cage will also turn along with the faster running rotation field. The cage continues to run at a lower speed which we normally call slip. The cross-section of the rotor supplied is from a DT80 motor. As it is a cross-section, it can clearly be seen that it contains a cage construction identical to the aluminium cage in the model.

The controller is mounted to the rear, since attention need not be paid to the controller.

Operation

The controller is set up very differently. Consequently, the motor is under-magnetized and the speed is restricted to 250 rpm. The parameters are locked, so that the settings are not easily modifiable. The model is ready for use immediately after it is switched on. Start the rotation by operating the green "RUN" key on the control panel. By rotating the potentiometer to the left or right, the speed can be varied from -250 to +250 rpm. Pressing "STOP" will stop the rotation.

Protection

The motor current is so low that the model can remain permanently switched on without it being thermally overloaded. Nevertheless, if this does happen the TF-sensor will switch the controller off. The winding in the motor is lacquered and thus insulated. Since the insulation lacquer can be damaged, it is necessary to leave the model's protection cover in place while it is in use. The cage and the arrow must only be removed in the power-off condition (disconnect the mains).

Demonstration movie

To see a realtime demonstration go to the following internet address:
http://www.youtube.com/watch?v=l8o_6RdwRVE.

