PERM MOTOR

Technical Specs
PMG 132

Voltage	**24 V**	**36 V**	**48 V**	**60 V**	**72 V**
Operation mode	**S 1**	**S 1**	**S 1**	**S 1**	**S 1**
Current	**110 A**	**110 A**	**110 A**	**110 A**	**110 A**
Power	**2,5 kW**	**3,5 kW**	**4,74 kW**	**5,97 kW**	**7,22 kW**
rpm	**1080 min-1**	**1700 min-1**	**2300 min-1**	**2870 min-1**	**3480 min-1**
torque	**20 Nm**				
inertia	**0,025 kgm²**				
inductance	**0,019 mH**				
resistance	**16 mOhm**				
protection	**IP 20**				
weight	**11 kg**				
Short time operation	**200 A**	**S2 10 min**			
peak torque	**38 Nm**				

TECHNICAL DESCRIPTION
PMG MOTOR SCOPE

Subject motor is a high poled, permanently excited direct-current disc motor.

To create the main field, high powered rare earth permanent magnets are used , which are attached to the flanges on the right and left hand side of the motor.

The armature is constructed as a disc and consists of Cu-profile-lamellas at the end of which in its centre a disc commutator is connected. Between the windings are tapered core sheet layers, which are made out of christal core sheet material. The torque transmission from the rotor to the shaft is handled by a special modelling compound connecting the rotor with the shaft.
On the exterior circumference of the winding ends, soldering connectors are mounted, which simultaneously serve for self-ventilation.

The power transmission occurs through tapered carbon graphite brushes, which are adjusted to the commututator form and are carried by a special brush holder design. The brush holder serves simultaneously as the connecting element to the power supply and has in its interior area a bore hole to incorporate the B-side ball bearing. The drive sided ball bearing is fitted in the mounted flange on the opposite side.

The magnetic flux created in the permanent magnets runs axially through the sheet layers placed between the armature conductors. Through this design air gaps are reduced to a mechanically minimum; the magnetic losses are minimal. Furthermore, the thickness of the disc is independent of the air gap - hence an extremely high Cu-profile can therefor be used, so that the current density is controllable in the armature conductors

ADVANTAGES

The described motor construction yields a very small power to weight ratio, which is about 1/3rd of that of a traditional direct-current-motor. The compact construction allows small exterior measurements, i.e. less space requirements. an additional advantage is the high efficiency degree (around 90 %) covering a broad range of operational conditions.

Application of the motor as a generator results in the same determining features. The motor can therefore be used in a traction application as electric brake, resp. be used for energy-recovery.

COSTS

The low power to weight ratio and the fully integrated commutator result in cost advantages comparing most favourable with a traditional direct-current-motor.

AREAS OF APPLICATION

Basically all battery powered drives, e.g. electric vehicles of all types, ventilators, boat drives, wind generators, lawn mowers, go-karts, golf cars, forklifts etc.