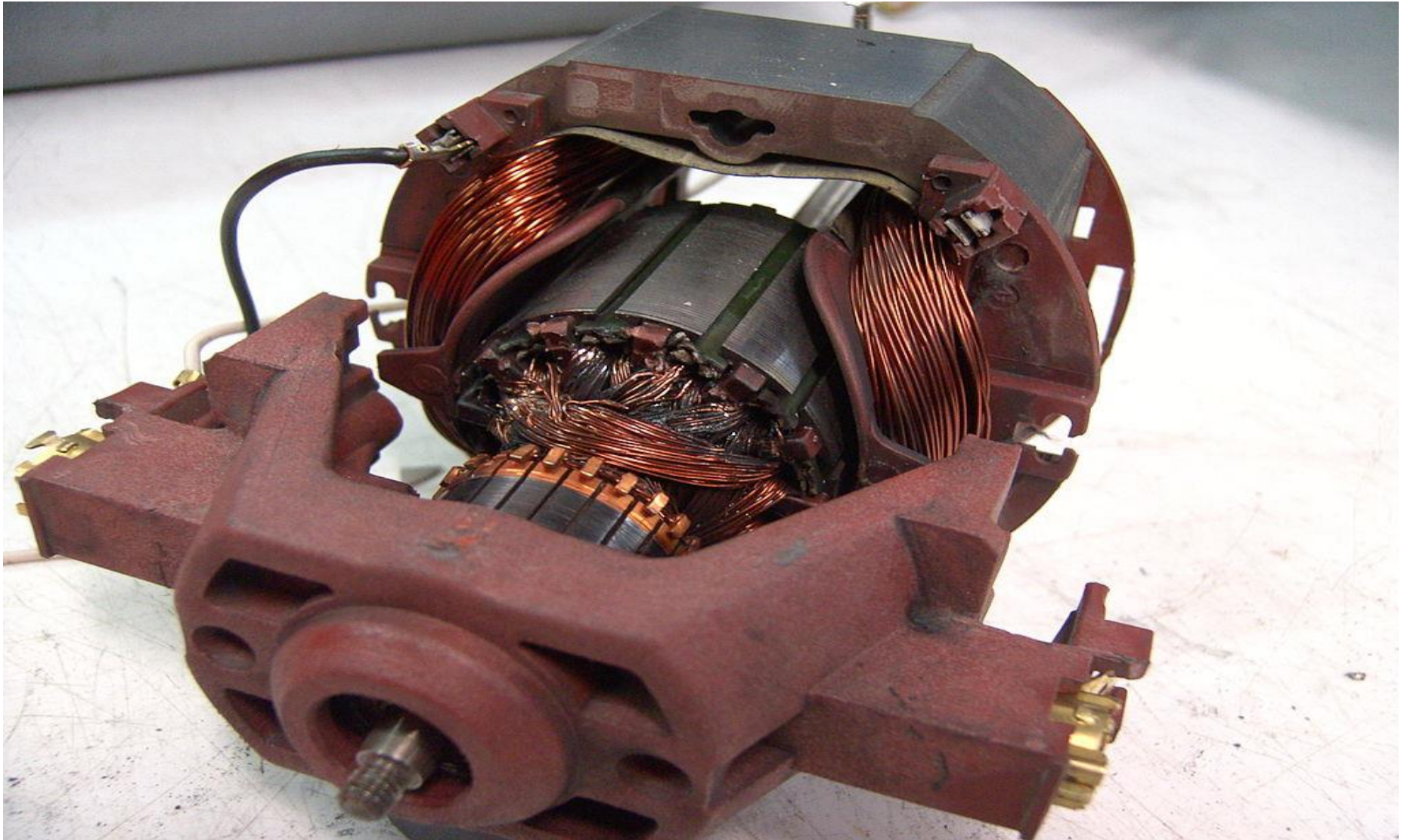
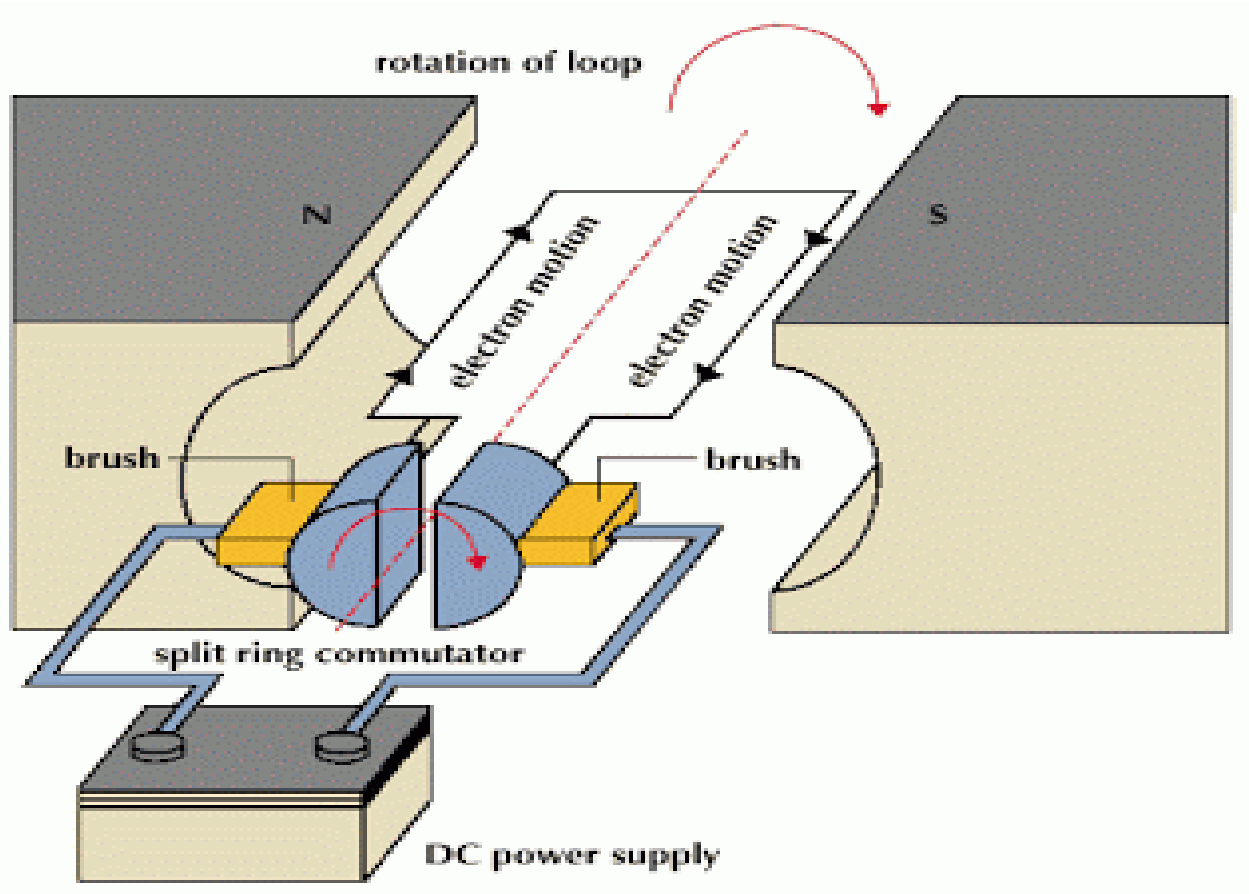
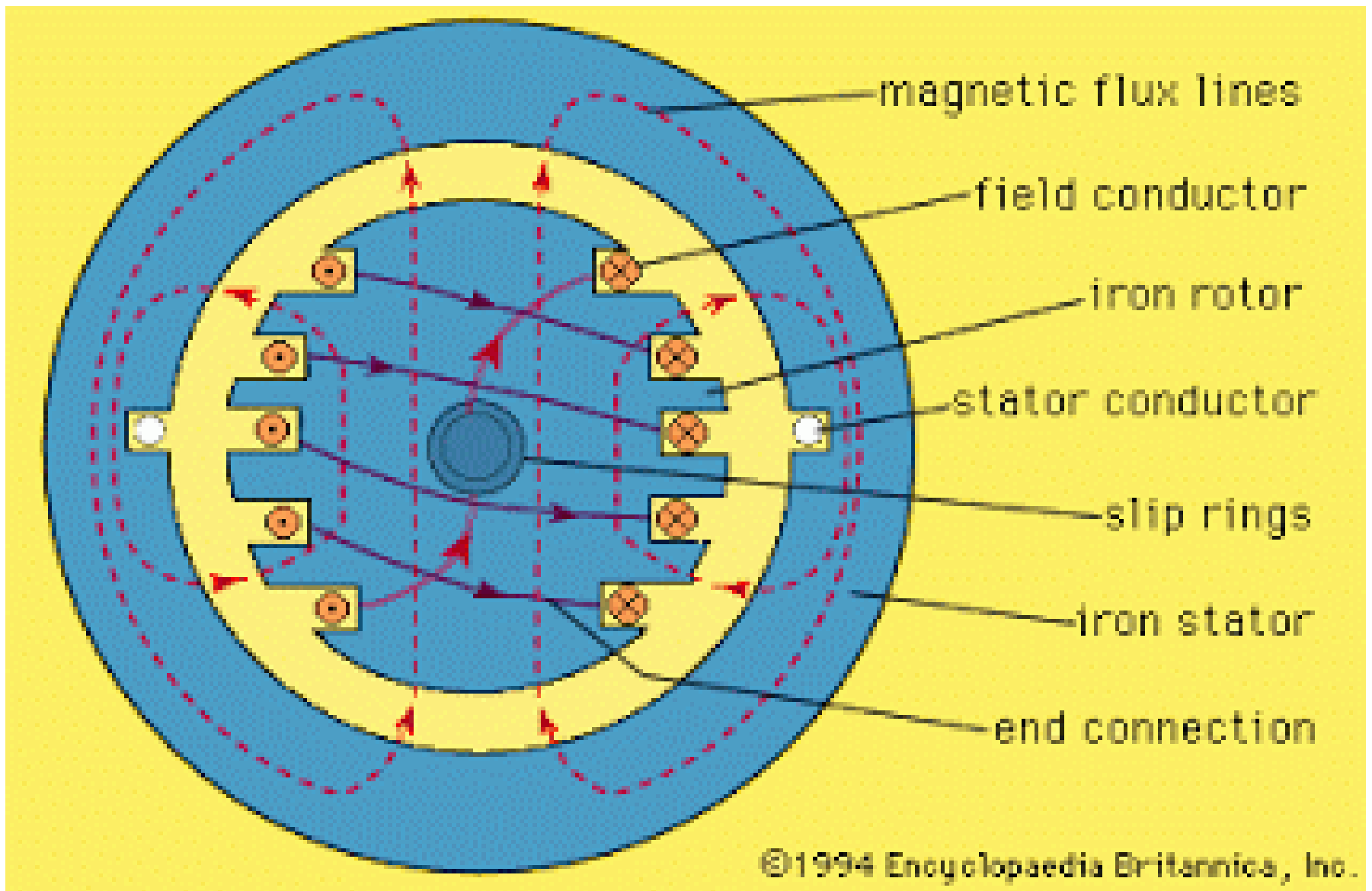


Illustrations



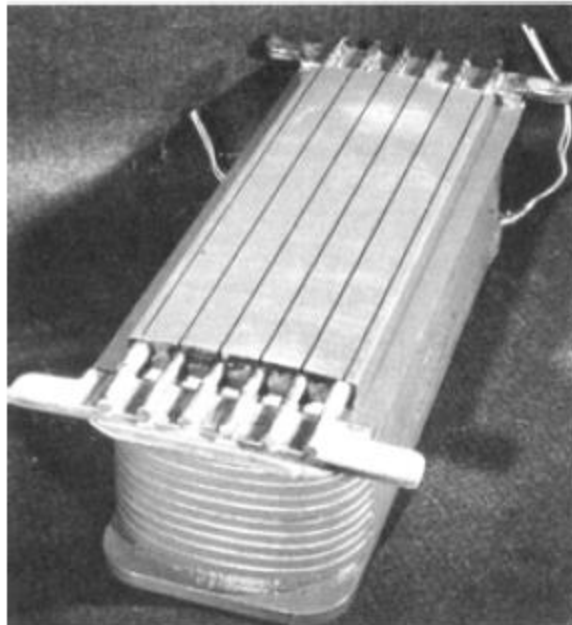




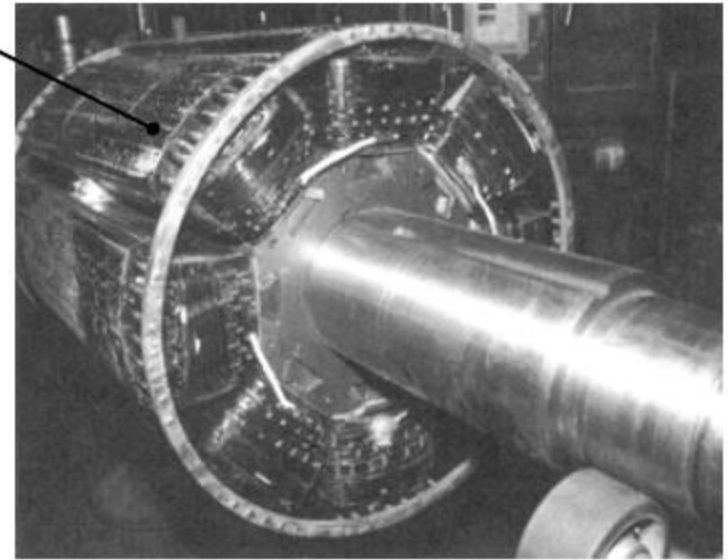
A cross-sectional model of a synchronous generator

Construction of synchronous machines

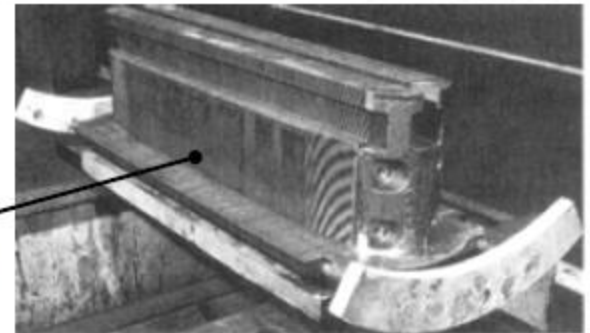
A synchronous rotor with 8 salient poles



Salient pole with field windings



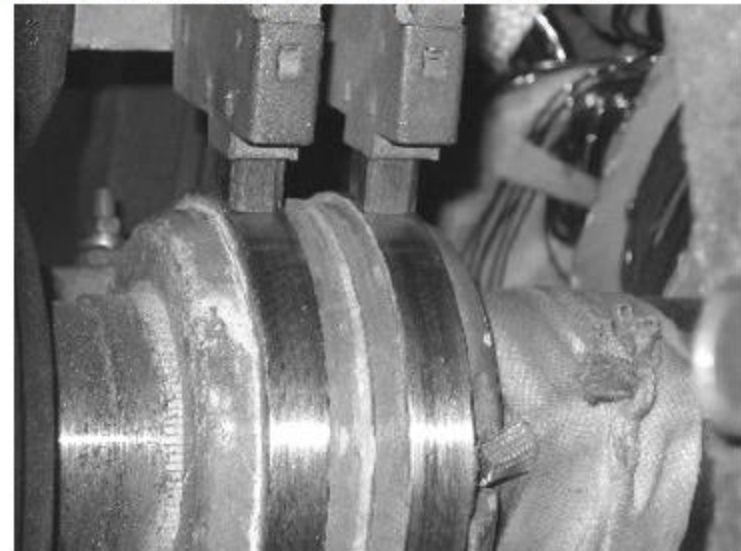
Salient pole without field windings – observe laminations



Construction of synchronous machines

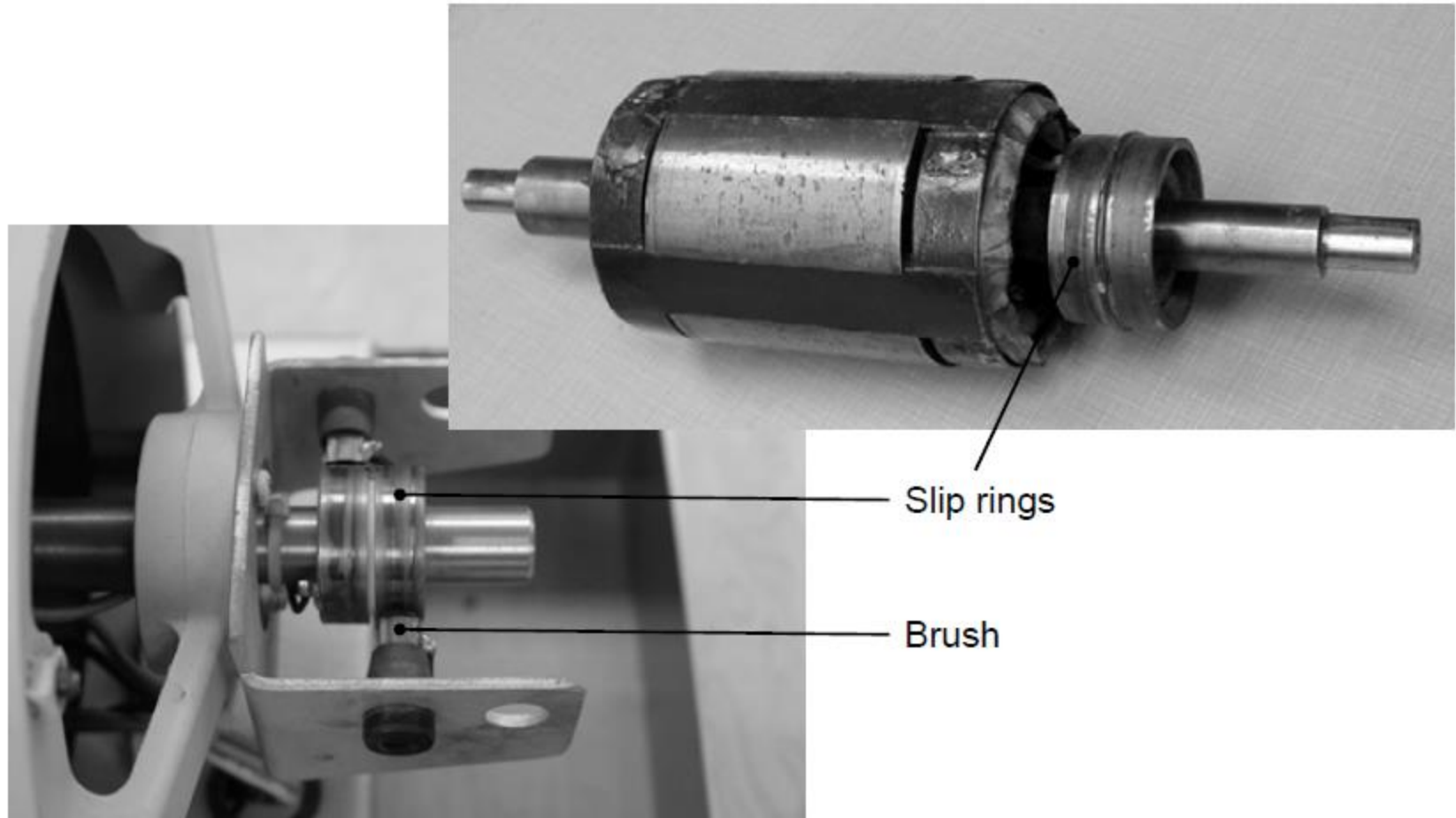
Two common approaches are used to supply a DC current to the field circuits on the rotating rotor:

1. Supply the DC power from an external DC source to the rotor by means of slip rings and brushes;
2. Supply the DC power from a special DC power source mounted directly on the shaft of the machine.



Slip rings are metal rings completely encircling the shaft of a machine but insulated from it. One end of a DC rotor winding is connected to each of the two slip rings on the machine's shaft. Graphite-like carbon brushes connected to DC terminals ride on each slip ring supplying DC voltage to field windings regardless the position or speed of the rotor.

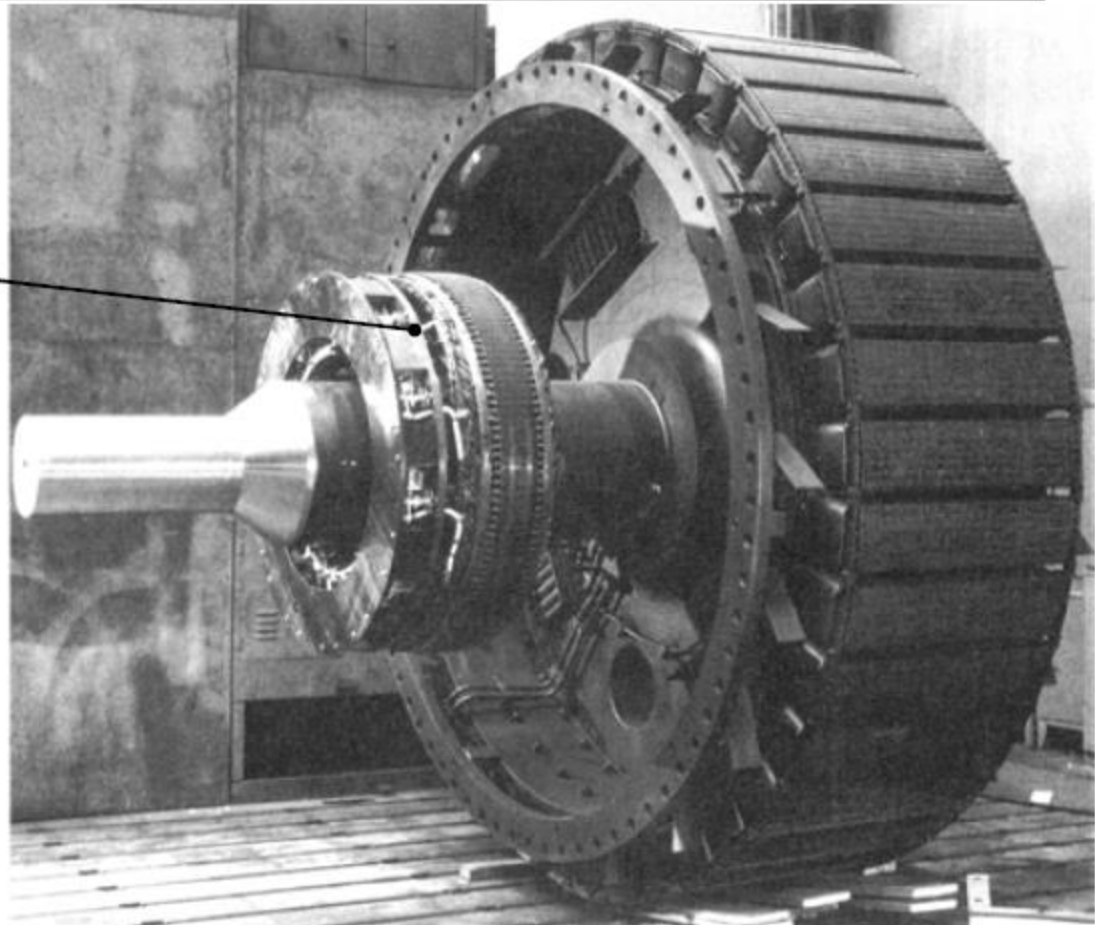
Construction of synchronous machines



Construction of synchronous machines

A rotor of large synchronous machine with a brushless exciter mounted on the same shaft.

Many synchronous generators having brushless exciters also include slip rings and brushes to provide emergency source of the field DC current.



Construction of synchronous machines

A large synchronous machine with the exciter and salient poles.

