

## 1.4. AC Synchronous Generator

### 1.4.1. Construction

The stator frame is made of cast iron or welded steel; the upper part supports the main terminal box.

The rotor consists of a shaft, a pole wheel, a fan, a balancing disc, an exciter and a rotating rectifier bridge.

The shaft is made of semi-hard steel, forged or rolled according to its geometrical configuration.

The pole wheel is manufactured with salient poles, or of laminated sheets.

The fan and the balancing disc are wedged and keyed to the shaft.

### 1.4.2. Cooling

The generator is provided with one shaft mounted fan taking the cooling air from ducts.

### 1.4.3. Terminals

The main terminal box is mounted on top of the generator and the cables routine is from the bottom. The terminals of the auxiliaries and detectors are brought to the control panel.

The generator is provided with neutral point. Three one phase voltage transformer and three one phase current transformer are provided for measuring, protection and control. An additional single-phase current transformer is installed for the AVR (cos phi control and booster).

### 1.4.4. Excitation and Voltage Regulation

The generator is a brushless type and the excitation power is provided by a shaft-mounted exciter and diode bridge. The excitation power for the exciter is supplied through a separate electronic voltage regulator by a transformer, compounding CTs and reactors. The regulator is provided with voltage droop for reactive power sharing in parallel operation.

The regulator is installed in the generator panel.

### 1.4.5. Generator Specification

- Manufacturer : LEROY SOMMER, ABB or equivalent
- Excitation : Brushless
- Construction standard : According to IEC 34
- Rated power output at 40°C : 6'250 kVA
- Nominal voltage : 6'300 V  $\pm$  5%
- Frequency : 50 Hz
- Rotational speed : 1500 rpm