

## HYDROELECTRICITY



### Alternators and generators for the production of hydroelectric power

**A**s part of a sustainable development approach, **LEROY-SOMER**, a world leader in drive systems and industrial alternators, is actively involved in rolling out new sources of renewable energy. Hence, over a number of years, **LEROY-SOMER** has acquired expertise in the field of wind power by supplying alternators and generators that are currently installed on numerous sites throughout the world.

**LEROY-SOMER** is also heavily involved in other alternative energies, such as **hydroelectricity**, the main source of world production of clean electricity, which is making a growing contribution to energy produced. In fact, only 15% of the technical potential in the world has been harnessed, leaving numerous hydroelectric deposits as yet unexploited.

Relying on its recognised expertise in the field of rotating machines and low, medium, and high-voltage alternators, **LEROY-SOMER** is determined to stay at the cutting edge of development of hydroelectric production by proposing **innovative and reliable solutions** which are ideally suited to the specific requirements of this market:

## ◆ POWER alternators

Covering a range of power ratings between 1 and 20 MVA, the **POWER** range has been specially designed for hydraulic turbine drives.

Based on a modular design, the **POWER** alternator is sure to respond perfectly to any type of need. Hence it can adapt to the site characteristics (type of drop, statutory, environmental and mechanical constraints, etc) and the most diverse specifications.

The **POWER** alternator is an essential link in a hydroelectric installation, and can cope with the most demanding operating conditions:

- Speed of rotation (333 to 1800 min<sup>-1</sup>) and adaptation to different turbines (Pelton, Francis, Kaplan type, etc)
- Voltages from 380 V to 15 kV
- High overspeed
- High axial and/or radial forces
- Horizontal and vertical mounting

Nonetheless, the **POWER** alternator has all the advantages of an industrial product: standard components, optimised costs and lead times, maximum performance, safety and feasibility.

Currently, more than 500 hydraulic power plants worldwide are equipped with **POWER** alternators for the production of hydroelectric power.

## ◆ G and SLSHR asynchronous generators

The **G** and **SLSHR** asynchronous generator ranges are ideally suited to the production of hydraulic power. Thanks to a multitude of technical solutions, they can cope with the specific constraints of each installation.

### ◆ G range:

Fabricated steel construction, air-cooled

Protection index: 23

### ◆ SLSHR range:

Fabricated steel frame, water-cooled with double casing (cooled bearings from frame size 315 mm upwards)

Protection index: 55/56

**SLSHR** is a compact solution, particularly suited to applications requiring a low noise level.

Both these ranges have the following characteristics:

- Voltages:
  - 380 V to 690 V
- Power ratings:
  - 11 kW to 1500 kW
- Number of poles:
  - Between 4 and 12 (others on request)
- Mechanical and electrical options:
  - IM 1001 (B3), IM 3011 (V1) versions
  - Speed detector fitted for overspeed control
  - Winding temperature sensors (PTC, PT100, etc)
  - Bearing sensors (DE and NDE)
  - Space heaters
  - Hollow shaft running across main shaft
  - Special shafts
  - Special bearing unit for overspeed
  - Mechanical adaptation for high axial and/or radial forces

**LEROY-SOMER** views innovation, technological expertise, product reliability and accessible service as the essential tenets of its business, relying on its experience of more than 50 years in machines for the production of hydroelectric power.