



SICMEMOTORI
FROM HI-TECH TO PASSION



Hydro Generators

Blue Powered Green Energy

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ORANGE1 HOLDING

A dynamic, strong and ambitious Group:

Orange1 Holding is an international renown Group, one of the most important European manufacturers of single-phase and three-phase asynchronous electric motors. It has an annual capacity of more than 1 million motors and 5 million electric stators with an annual turnover of approx 200 million euro and more than 1200 workers in 11 production facilities. The group, established in 1971 by Leone Donazzan, chaired today by his son Armando Donazzan, is strongly focused on technological innovation, performance and customization to meet individual clients requirements. As a group of 13 companies it has a powerful advantage: the strength in numbers.

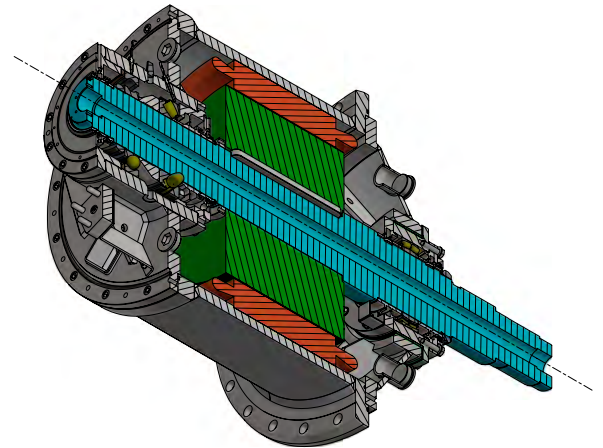


SICMEMOTORI

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Orange1 with Sicme Motori S.r.l. strenghtens its leadership in vectorial and synchronous motors. Sicme has been producing AC motors, variable speed and high quality DC motors for 50 years and it represents a benchmark of excellence for its technology providing the best economical solutions for many different applications. It produces asynchronous motors up to 3700 kW, synchronous motors up to 2700 kW, hydroelectric generators up to 3000 kW and mini-wind generators up to 200 kW. And among many other projects we have developed and built the motor wheels for the Rover which will land on Mars. This was made possible thanks to our high technology. Since 2002 it has been cooperating actively with the Institute of Electrical Engineering of the Polytechnic of Turin and it has been one of the world's largest producers of wind generators. In the mini-wind market it has developed a production of 20-25-50 kW and ready-to-use products for 60 to 200 kW. That's the reason why SICME is one of the most famous producers of wind generators. Since 2008, it has developed motors with ASR technology, the most revolutionary type of electric machine in the world, and in 2014 it has developed an innovative range of synchronous reluctance IE4 motors with a specific patent. In the last 5 years Sicme Motori, thanks to its experience on the synchronous motors technologies, extended the range of synchronous products with various permanent magnet motors (SQ series) and various synchronous reluctance motors (SR series).



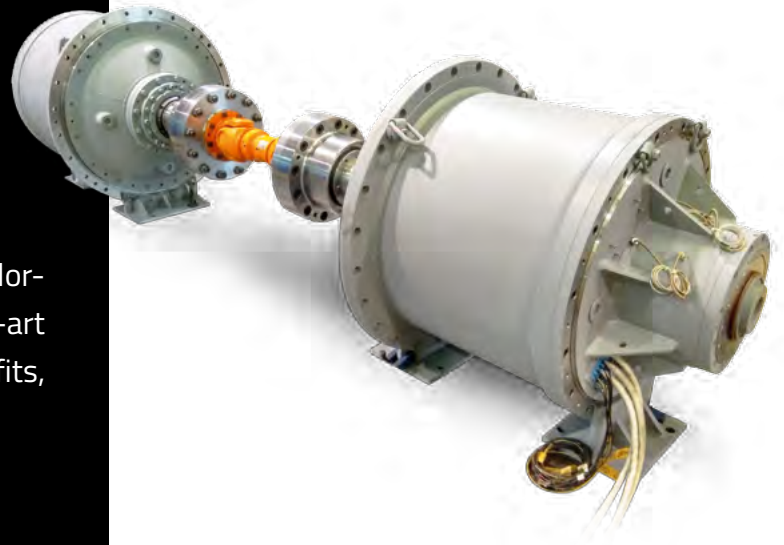


Product portfolio

Starting from a wide product range and an historical technical knowledge, Sicme Motori highly customizes PMG generators for the hydroelectric application.

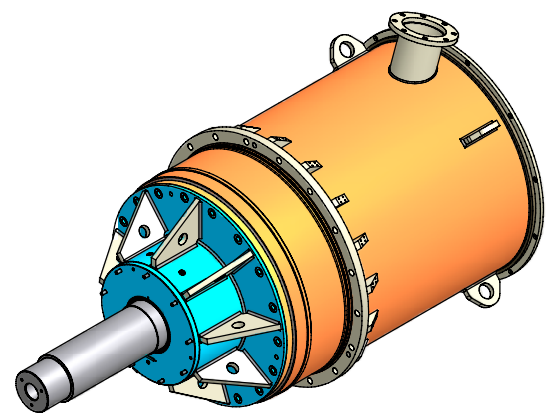
Product description

From customers specific needs to tailor-made generators. A state-of-the-art technology to reach the highest benefits, performances and efficiency levels.



Few reference

Complete generators or active parts into customer housing with tailor-made solutions to perfectly match application and customer requirements.

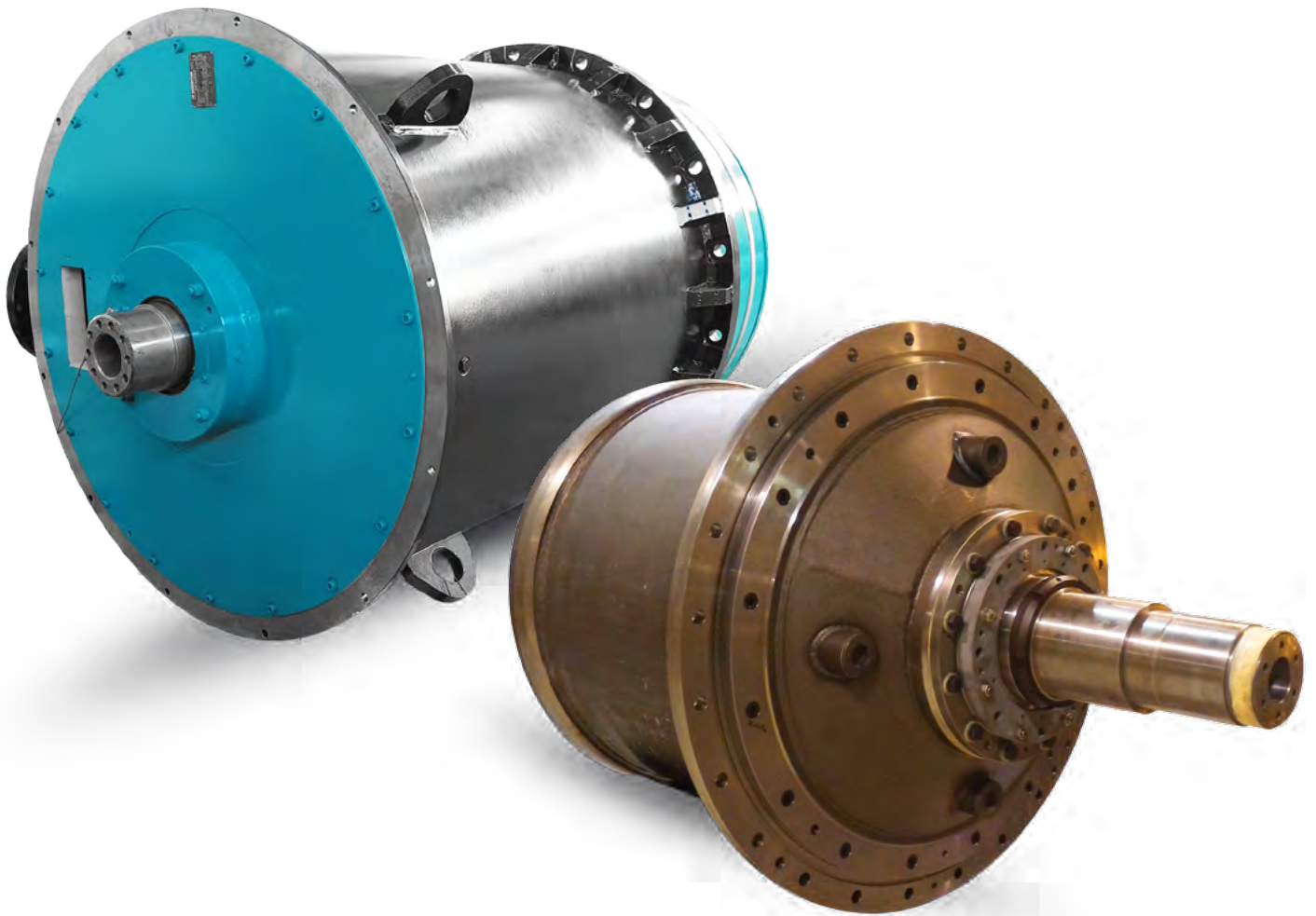


Product portfolio

Sicme Motori produces customized PMG generators for hydro application within the following range:

- Power : from 10 to 3000 kW about
- Frame size : from 180 to 710 mm about
- Type : for VFD use (connected to inverter) or for DOL use (parallel to the grid)
- Voltage : low voltage (< 1000 V)
- Speed / Frequency : 50/60 Hz with customized pole number according to turbine speed (DOL version), nominal speed at request (VFD version)
- Cooling : water cooled, air cooled or submerged
- Coupling : direct mechanical and/or electrical
- Supply : Complete solutions, co-engineered solutions or active parts

Sicme Motori can perfectly replace standard induction generators (round self ventilated) at low efficiency (IE1-IE2-IE3) with Super Premium IE4 synchronous reluctance generators, with same Unel Mec dimensions and for inverter use.

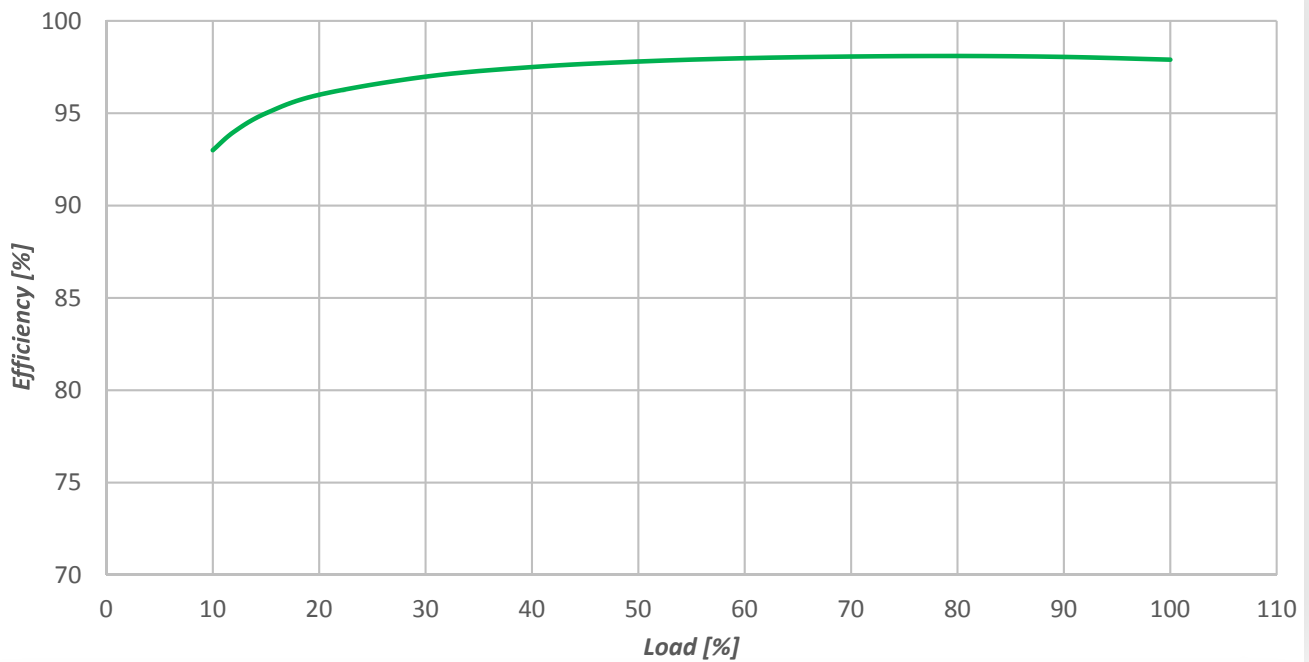


Product description

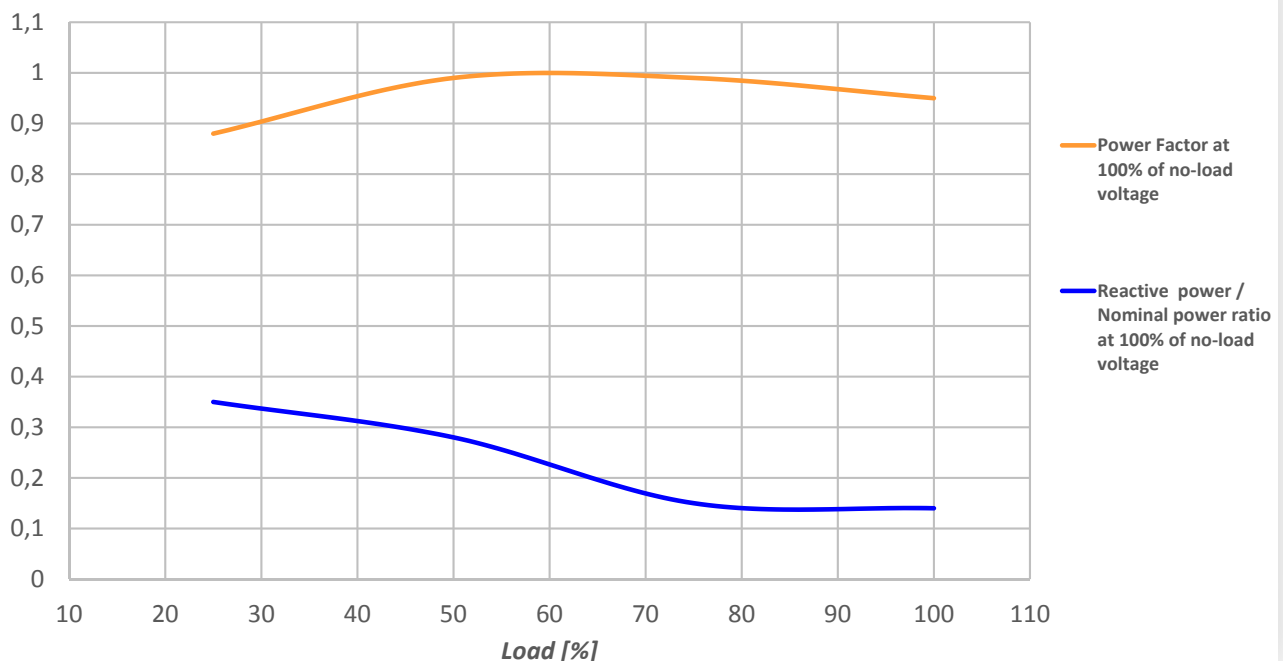
Sicme Motori produces PMG generators for hydro application with the following benefits:

- Highest efficiency on all the load and/or speed range, meaning more benefits for the customer and greater ease in obtaining funds;
- Direct coupling, electrical or mechanical, avoiding any need of gearboxes or transmission systems;
- Reduced or null magnetizing current and lower speed plus no gearboxes/transmissions, meaning less noise;
- Highest power factor, meaning less kVA needed for the capacitors bank to reach grid requirements (DOL version);
- Compactness and highest power density, meaning less foundation, less space needed and greater ease of handling.

Example of Efficiency Curve



Example of Power Factor and Capability Curves



Few Reference

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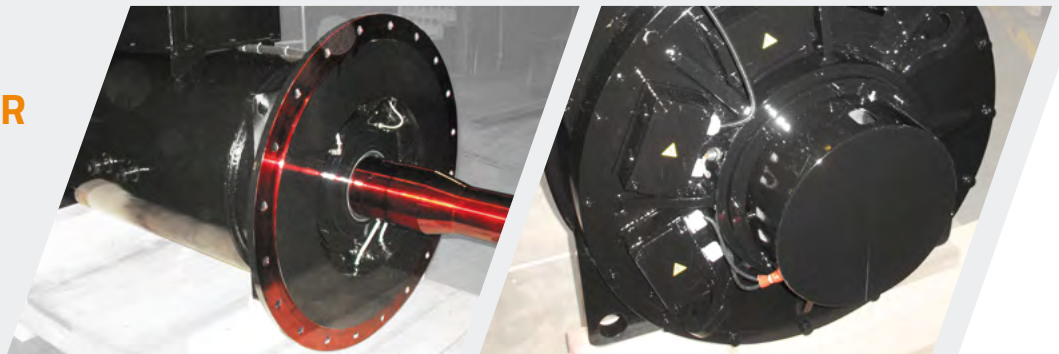
SUBMERGED PMG GENERATOR

Bulb/Kaplan turbine
VFD use
Direct coupling
Frame 450 (8000 Nm)



WATER JACKET PMG GENERATOR

Pelton turbine
VFD use
Direct coupling
Frame 400 (10000 Nm)



SUBMERGED PMG GENERATOR

Bulb/Kaplan turbine
DOL use
Direct coupling
Frame 630 (40000 Nm)





ORANGE1
HOLDING

SICME MOTORI S.r.l.

Strada del Francese 130
10156 - Torino (TO) Italy
T. +39-011-4076311
F. +39-011-4500047

info@orange1.eu
www.orange1.eu

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