

Generators and Motors
for energy special projects

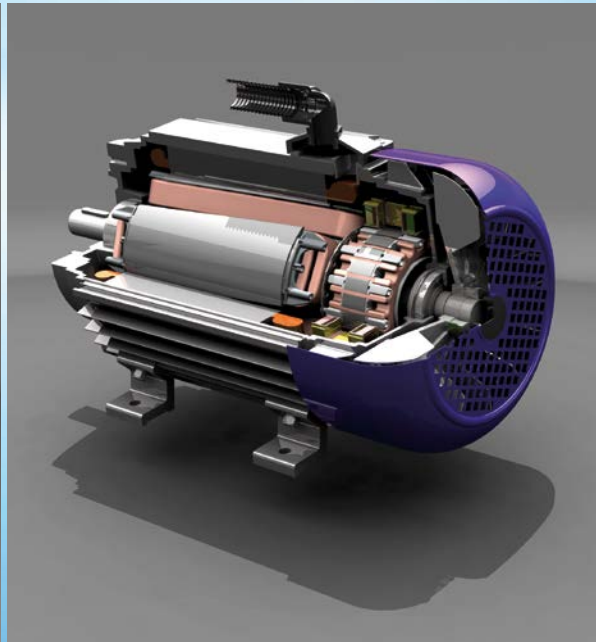
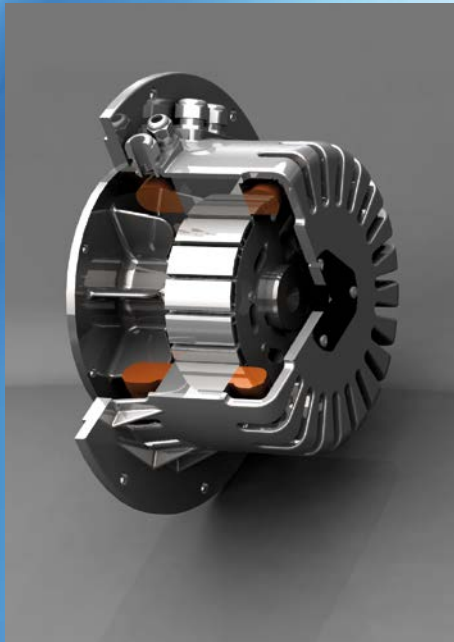


2016



ENERGY SPECIAL PROJECTS

CUSTOM-MADE EXECUTIONS



• PERMANENT MAGNET, HYBRID AND IP54 GENERATORS • SPECIAL ELECTRIC MOTORS FOR HIGHLY SPECIALIZED AND SEVERE INDUSTRIES

SOGA SpA company, located in the North-East of Italy, is the head-quarter of **Soga Energy Team** industrial group. With our dedicated **divisions Sogaenergies and Soga** we are focused on the developing of solutions for **special, severe and variable speed applications** such as: renewables (wind, hydro, cogeneration), hybrid systems, automotive, fire brigades, rescue operations, military, railway and other highly specialized industries.

- **Synchronous generators** with **Permanent Magnet (PMG)** or **Hybrid** technology and with **IP54 (TEFC)** protection degree,
- **Asynchronous IP54 generators**,
- **Tailor-made special asynchronous motors** fitting perfectly the needs of manufacturers.

PRODUCTS FEATURED BY RELEVANT TECHNOLOGICAL CONTENT, RESULT OF 50 YEARS OF EXPERIENCE IN MANUFACTURING ROTATING ELECTRIC MACHINES. **SINCE 1966.**

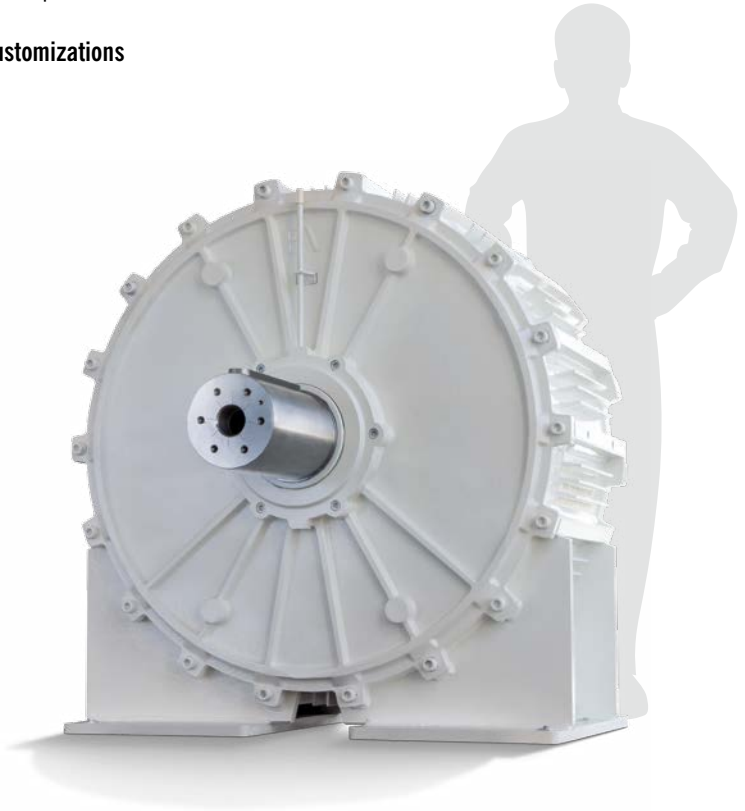


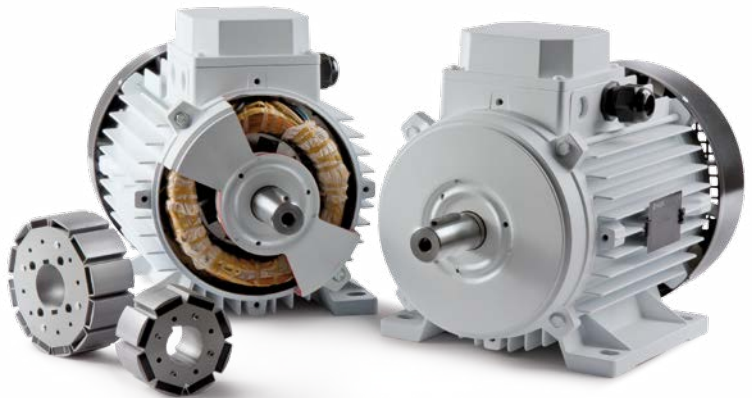
1) PERMANENT MAGNET SYNCHRONOUS GENERATORS

GENERATORS FOR VARIABLE SPEED (LOW/MEDIUM)

- Permanent magnet multipole, modular technology for variable, low and medium speed applications
- From 0 to 500 RPM
- **Powers up to 300 kW** with diameter 1420 mm (EV 710 frame size)
- IP54
- Examples of applications: direct-drive wind turbines (low-speed) and turbines with gearbox (medium -speed), horizontal axis (HAWT) or vertical axis (VAWT). In railway, on trains as electric traction motors
- Patented design of stator lamination, determining **the market best efficiencies (nominal values up to 96%)**
- Much lighter and more compact than common PMGs
- Low cogging torque
- **Huge possibility of customizations**

EV



PMg

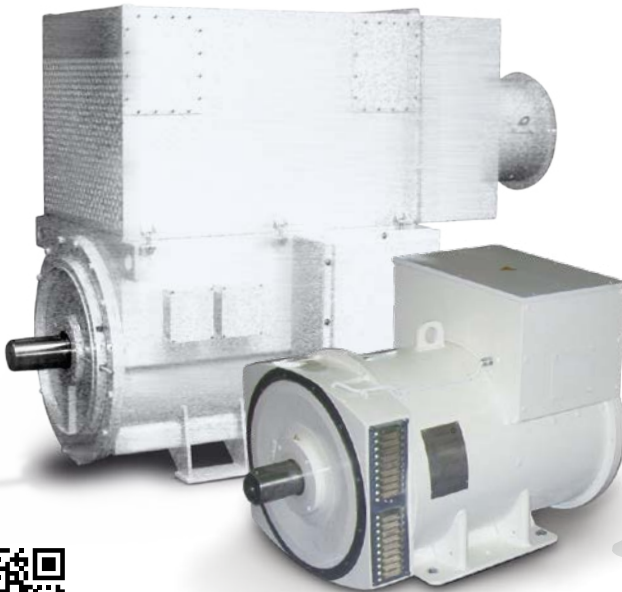
GENERATORS FOR VARIABLE SPEED (MEDIUM/HIGH)

- Permanent magnet multipole, modular technology for variable, medium and high speed applications
- From 200 to 4,500 RPM
- **Powers up to 30 kW** (PMg 160 mm frame size)
- IP54
- Examples of applications: automotive, hydro-turbines, other variable speed applications
- High efficiency
- Compactness
- **Customizations on request**

2) HYBRID TECHNOLOGY SYNCHRONOUS GENERATORS

GENERATORS FOR VARIABLE SPEED (MEDIUM/HIGH)

- Hybrid technology for variable speed applications
- Wide RPM range
- **Powers up to 1 MW** with diameter 1000 mm (VS 500 frame size)
- Active control on the output voltage
- Example of applications: wind turbines with gearbox
- High efficiency also with low speed wind conditions
- The alternator and the control system are in operation even in case of over-speed, assuring the turbine safety and full efficiency
- **Customizations on request**



3) IP54 SYNCHRONOUS AND ASYNCHRONOUS GENERATORS

SYNCHRONOUS GENERATORS 2 AND 4 POLES | IP54 (TEFC)

- TEFC execution for gen-sets used by fire brigades, in rescue operations, military and other severe applications
- **Powers up to 17 kVA** (frame sizes 112 and 132 mm)
- Versions: Single & Three phase | Brushless / Capacitor | Brushless / AVR
- According to DIN 14685-1
- Analogic AVR and EMI filter
- Cone, SAE, IM B34 couplings
- **On request:** special voltage, tropicalization, 12 leads, outcoming cables & loose AVR, digital AVR, 2/3 pitch, control panel with 1 CEE 400V + 3 CEE 230V + switch + thermal protections

ASYNCHRONOUS GENERATORS 2 AND 4 POLES | IP54 (TEFC)

- Asynchronous technology for small co-generation or portable gen-sets, supplying resistive loads, equipment and devices
- **Powers up to 30 kVA** (frame sizes 80 to 180 mm)
- Versions: Single & Three phase
- Excellent wave form
- Housing made in die-cast aluminum, assuring IP54 cooling
- Strong and reliable
- SAE and cone couplings
- **Special executions on request**



SSG

ASg



STARTING FROM OUR RANGE OF STANDARD MOTORS WITH OVER 350 MODELS UP TO 37 KW, WE CAN DEVELOP NEW TAILOR-MADE VERSIONS BY TAKING ACTION ON EACH COMPONENT WITH ELECTRIC OR MECHANICAL CUSTOMIZATIONS, FOLLOWING OUR CUSTOMER'S SPECIFICATIONS OR FULLY DESIGNED BY OUR TECHNICIANS, FITTING PERFECTLY THE NEEDS OF MANUFACTURERS.



EXAMPLES OF ELECTRICAL EXECUTIONS

- Windings (double impregnation, double speed rotation, encapsulation, insulation systems, double phase executions, tropicalization, voltages and frequencies for any market, VPI)
- Encoder

EXAMPLES OF MECHANICAL EXECUTIONS

- Shafts (hollow shaft, ceramic coating, hardening, stainless steel and other special materials, splined shafts...)
- Housings (upon drawing or made in any material)
- Outcoming cables
- Special flanges
- Safety brakes
- Gearboxes

STANDARDS AND REGULATIONS

- CSA/UL
- UL 1446 insulation system
- ECA
- Reach
- RoHs
- SASO
- ATEX (zone 22)

TECHNICAL QUALIFICATIONS

- CP/CIM ESF/2009 – 3464 (SNCF high-speed rail)
- PSW 10399
- PSW 54 00636
- IMQ/CSV



STANDARD AND EXTRA-ORDINARY SOLUTIONS. SINCE 1966

Soga SpA is the leading company of **Soga Energy Team**, an Italy-based industrial group specialized in the design and manufacturing of **electric motors, alternators and welders**, recognized in 80 countries worldwide as reliable partner boosting the success of OEMs in many different markets and applications.

Besides one of the most complete and diversified range of **standard** models on the entire market up to 2,600 kVA / 50 Hz, our offering extends to **customized executions** and the development of **special projects**, for **creating exclusive products with a wide innovative content**.

The **high level of insourcing** of the production phases is aided by the use of highly-automatized equipment and advanced methods (**Lean**), to ensure optimum flexibility and full control over the entire manufacturing process.

The first core of our company was established in the **Northern-East of Italy in 1966** when our founder, Lino Soga, started his own activity producing the first electric motors in special version.

Today, half a century later and led by the second generation of his family, we are a leading international company specialized in the development of solutions for energy special projects.

4

Commercial brands

5

Production sites, with automatized equipment

50

Half a century of experience in the production of motors and alternators

80

We have customers in 80 countries

220

Collaborators

650

Over 650 models up to 2,6 MW in our catalogues.

One of the widest ranges in the world.

300.000

Units in terms of yearly production capacity



Our deep know-how in developing and manufacturing rotating electric machines in many configurations, for the most different applications, allow us to focus on new unreleased solutions and special projects, fully conceived by our R&D team or designed in close cooperation with our customers (also in co-design).

Generators and motors with great technical and innovation contents as well as tailor-made with the highest level of customization, intended for setting new market standards: the result also of the dynamism of our group, the flexibility of our production equipment and the passion of all our staff.

We are the technology partner contributing to differentiation and success of OEMs in their own sectors, by creating exclusive, state-of-the-art products exceeding the concept of “components” to become real innovation-drivers. Products featured by excellence, to realize unrivaled machineries and systems.





Soga Energy Team. Solutions for any application

With a range of powers up to 2,600 kVA among the most comprehensive in the industry, along with our great know-how and deep technical expertise in the design and production of electric motors and alternators dating back to 1966, we are specialized in the development of standard and tailor-made solutions, for the most different customers, markets and applications.

Our products are manufactured in our plants in Europe with the most advanced technologies.

Thanks to our brands and an international sales network, today we are recognized all over the world as a leading company for our innovative and dynamic skills in the creation of rotating electric machines.

soga  energyteam



AC electric motors



AC and DC alternators and welders



PTO tractor-driven generators



AC generators for renewable energies and special projects

Soga S.p.A.
Via Della Tecnica, 15 • 36075 Montecchio Maggiore (VI) • ITALY
Phone +39 0444 747700 • Fax +39 0444 499269
sales.soga@sogaenergyteam.com

www.sogaenergyteam.com/sogaenergies
www.sogaenergyteam.com/soga



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PROJECTS 04.2016