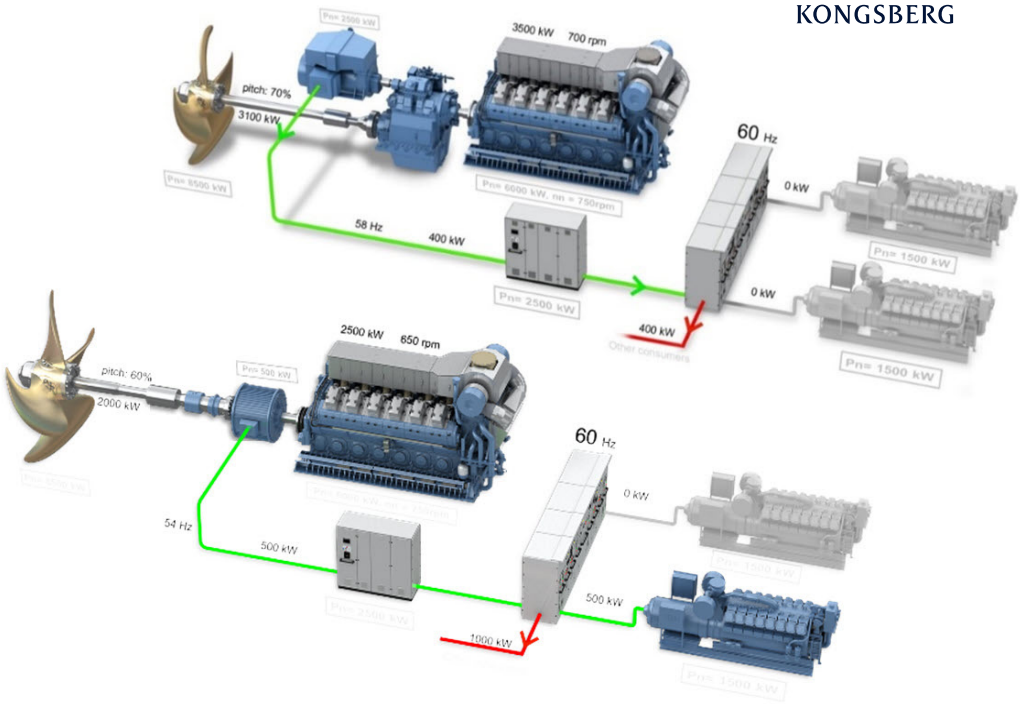
HYBRID SHAFT GENERATOR DRIVE

KONGSBERG



Hybrid Shaft Generator drive (standalone version)

The main benefits

- Fuel savings of up to 30%
- Smaller environmental footprint
- Safety and comfort

Power and efficient propulsion

The Hybrid Shaft Generator (HSG) drive provides electrical power to the vessel's main swithboard by converting variable voltage and frequency input to fixed voltage and frequency output.

This allows the main engine and propulsion systems to operate at variable speeds – including at optimal engine speed and propeller pitch – without affecting the availability of electrical power on the vessel.

When it is able to operate at optimal engine speed and propeller pitch, a vessel sails more efficiently (using less fuel) and smoothly (with minimum propeller vibrations, which cause wear and tear).

By enabling the vessel to sail in this way, the HSG drive reduces fuel consumption and emissions, and – by reducing vibrations – it also reduces the cost of maintenance to the propulsion system.

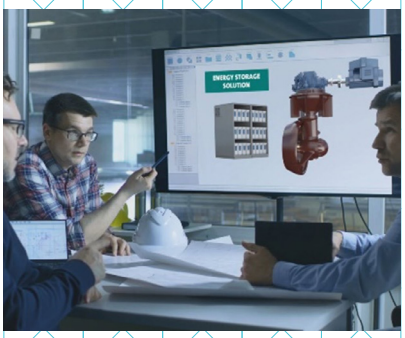
Extra power or propulsion

If energy requirements on-board change (from the steady electrical power and efficient propulsion required for normal transit), the HSG drive can be switched to provide:

- Boost — for maximum vessel speed.
- Parallel-power — for sudden power requirements by heavy consumers.
- Diesel-electric propulsion — for fuel-efficient sailing at lower speeds.

BENEFITS

- Reduced fuel consumption
- Reduced emissions
- Reduced vibrations
- Reduced maintenance
- Reduced noise



Technical highlights

- Based on SAVe+ LINE propulsion drive series
- Liquid cooled
- Degree of protection: IP54
- Internal air-liquid heat exchanger
- No internal-external air exchange (suitable for harsh environments)
- Separate cable termination section
- Modular design
- Redundant cooling pumps
- Simplified interfaces to external control systems
- Prepared for remote access
- Applicable to both new-builds and retro-fits
- Suitable for implementation in all categories of propulsion systems:
  - — Synchronous (incl. PM) and asynchronous shaft generators
  - — Geared and inline generator integration
  - — Low-, medium- and high-speed main engines
  - — Fixed and controllable pitch propellers

Engineering and commissioning services

Kongsberg Maritime has extensive experience of hybrid shaft generator installations. Our engineering, commissioning and technical support teams are ready to support your project from start to finish!

Table 1 Technical overview (preliminary data)

Type	Power (kW)*	Dimensions (H x W x D mm)**	Voltage (V)	Weight (kg)†
HSG-1LAS-1B09-6	1200	2138 x 2472 x 791	690	2389
HSG-1LAS-1B10-6	1600	2138 x 2472 x 791	690	2389
HSG-1LAS-2B09-6	2300	2138 x 4183 x 791	690	3989
HSG-1LAS-2B10-6	3100	2138 x 4183 x 791	690	3989
HSG-1LAS-3B09-6	3500	2138 x 5893 x 791	690	5769
HSG-1LAS-3B10-6	4700	2138 x 5893 x 791	690	5769
HSG-1LAS-4B10-6	6200	2138 x 7604 x 791	690	7369
HSG-1LAS-1B09-5	900	2138 x 2472 x 791	440	2389
HSG-1LAS-1B10-5	1000	2138 x 2472 x 791	440	2389
HSG-1LAS-2B09-5	1700	2138 x 4183 x 791	440	3989
HSG-1LAS-2B10-5	2000	2138 x 4183 x 791	440	3989
HSG-1LAS-3B09-5	2500	2138 x 5893 x 791	440	5769
HSG-1LAS-3B10-5	2900	2138 x 5893 x 791	440	5769
HSG-1LAS-4B09-5	3400	2138 x 7604 x 791	440	7369
HSG-1LAS-4B10-5	3900	2138 x 7604 x 791	440	7369

* Ratings based on load power factor of 0,9.

** Cooling skid dimensions: 2177 x 768 x 822 mm (not included in table).

† Cooling skid weight: 389–569 kg (not included in table).

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