

RENK Power Take Off (PTO) – Integrated Front-end Power System (IFPS)

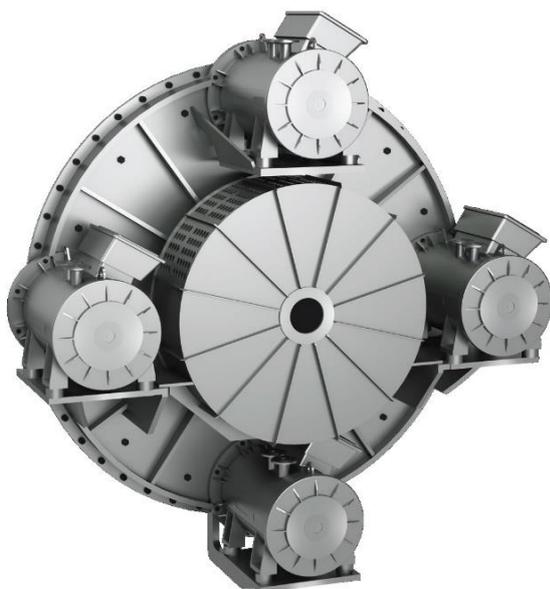
The Integrated Front-end Power System consists of a single-stage gearbox, one or multiple generators and associated frequency converters as well as the transformers for the connection to the ship's grid.

Developed for front-end mounting it can be applied where there is no space for other PTO solutions arranged between the main engine and the propeller. As the space on the front-end is in most cases also limited, the system features a flat gear unit design and specially designed short generators.

The gear unit is connected to the crankshaft via an intermediate central shaft and a highly elastic coupling. The angle encoder of the main engine is mounted to the coupling cover.

The installation of the Integrated Front-end Power System requires only a few simple alterations on the main engine housing and the crankshaft. Directly mounted on the engine's front-end, the system needs no additional foundation, thereby reducing the installation costs. The modular concept allows the adaption of multiple generators of the same size. The main advantage is that the system's power rating is scalable from 500 kW up to 2,000 kW without the demand of additional axial space.

A regenerative frequency converter with active infeed unit allows constant grid frequency at a variable main engine speed. The electrical design is intended for both paralleling with other gensets and island operation (Integrated Front-end Power System as sole source of electric power).



Benefits

- Scalable PTO power from 500 up to 2000 kW without the need of additional axial space
- Space saving due to flat gear box design and short generators length <1600mm (equals 2 frames)
- Reduced maintenance costs due to reduced operating hours of auxiliary generators
- Simple and reliable solution: Front-end mounted PTO system for 2-stroke engines based on the well-proven RENK tunnel gearbox design
- Either parallel operation with one or more gensets for peak loads or Front-end PTO solution as single power source
- FPP and CPP installations
- Fuel savings and CO2 reduction – Achieving EEDI goals