

PCS 6000 Harbour

Frequency converter for ship power supply in harbours



PCS 6000 Harbour: 3 - 7 MVA

ABB

Introduction and Main Technical Features

The global demand for transport of goods is steadily increasing. More than 80% of the global transports are handled by ships crossing the oceans. This leads to increasing traffic in harbours and as a consequence to an increasing demand for power in harbours. To avoid CO₂ as well as noise emissions of thermal power generation units, ABB offers the PCS 6000 Harbour solution.



Figure 1: Visualization of principle

Problem description

Ships typically rely on a thermal power generation unit on board to feed light, ventilation, etc. . During their stays in harbours, the ships have to operate the thermal power generation unit in order to operate the equipment on board. This causes significant CO₂ as well as noise emissions in the harbour. In addition the costs for generating power on board are typically higher than energy from the public grid.

Due to the serious impact of CO₂, new rules and regulation prohibit the use of the thermal power generation unit in the harbour.

Solution

The PCS 6000 Harbour is a MV frequency converter allowing to connect ships operating with 50 or 60 Hz to the public grid and turn off their thermal power generation unit.

Depending on the local conditions, an indoor unit can be installed inside a harbour building or an outdoor container can be commissioned.

Reliability runs in the family

The PCS 6000 harbour design is part of ABB's family of PCS 6000 products which are used for a wide range of applications. It uses the same power technology as the ACS 6000 range of MV Drives. The standardization of these power electronic modules delivers substantial advantages in terms of cost and quality. With many PCS 6000 sold worldwide this converter has a proven track record and high reliability.

MV converter

ACS and PCS 6000 converter units are based on three-level IGCT phase modules. The IGCT (Integrated Gate Commutated Thyristor) is the state-of-the-art semiconductor element for this power range. The converter units are connected by a medium voltage DC link (intermediate circuit). The converter modules are water cooled with a virtually maintenance free closed loop water system equipped with redundant circulating pumps.

Benefits

- ✓ Compliant with new rules and regulations
- ✓ No CO₂ emission through on board generator
- ✓ Reduced noise
- ✓ Cost savings due to lower energy costs (public grid versus on board generator)

Key facts

Application:	Ship power supply
Type:	PCS 6000 Harbour
Installation:	Indoor or outdoor
Nominal output power:	3 - 7 MVA
Nominal frequency:	50 / 60 Hz
Nominal voltage:	480V - 69 kV
Ambient temperatures:	-25 ... 40 °C

Indoor	Outdoor



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