



PILLER

Power Systems



NAVAL TECHNOLOGY
Mission critical power solutions

Nothing protects quite like Piller

piller.com



Piller headquarters, Osterode, Germany.

The success of any military mission relies upon outstanding preparation and the use of the best resources available.

Naval Technology

About Piller

Since its formation by Anton Piller in 1909, the company Piller has been synonymous with electrical machines of the highest quality and reliability. Today, Piller continues that tradition into the 21st century, operating from its headquarters in Germany and through its network of regional offices, representatives, and distributors worldwide.

Piller develops and manufactures high performance power protection systems and converters. Combined with the highest levels of client support and engineering excellence available anywhere, Piller is internationally recognised as the most respected name in its field. Piller is a wholly owned subsidiary of the multi-disciplined global UK engineering group, Langley Holdings plc. (www.langleyholdings.com)

Quality

Piller provided technical consultation in the planning and specifying period to comply with national, international and customised construction regulations and specifications including BV, STANAG, MIL-STD, VDE, Lloyds Register of Shipping, RINA and ABS.

Accredited to DIN ISO 9001, Piller naval equipment is designed to withstand shock and vibration according to BV/MIL-STD and is capable of operating reliably and efficiently in extreme environmental conditions.

Milestones

- 1965** Design and building of shore to ship supply systems
- 1968** Special fans for submarines
- 1970** Frequency converters for ships
- 1972** 60Hz and 400Hz frequency converters and DC drives for submarines
- 1975** Brushless charging generators for submarines
- 1980** Hybrid converters 60Hz and 400Hz for special onboard mains supply
- 1985** 2nd generation low noise fans for submarines
- 1988** Air-cooled static 400Hz converters
- 1990** Water-cooled static converters DC to 60Hz and 400Hz
- 1993** 2nd generation low noise DC drives for submarines
- 1998** Air-/water-cooled solid state converters, UPS, new battery chargers
- 2001** New generation of static converters for submarines
- 2002** New generation of charging generators with digital control
- 2003** Electronic starters for DC motors
- 2007** Power improved charging generators for submarines
- 2010** 2nd generation of static converters, UPS Systems and battery chargers
- 2012** Study of PM motors with inverter control
- 2015** New Multi-pole charging generators for submarines with diesel Start
- 2021** New generation of PM motors with inverter control



Products for naval applications

- Air- and water-cooled AC generators
- Brushless charging generators
- Static frequency converters
- UPS systems
- Special purpose PM motors
- Battery charger system
- Helicopter supply

Generators

Piller produces mains generators and charging generators for both conventional and nuclear-powered submarines and surface vessels, charging the onboard batteries and supplying the main power network.

Piller brushless, multi-phase charging generators have a built-in rectifier system within options for enclosed water-cooled or air-cooled design and emergency operation capability.

Charging generator voltages range from 160V-1000V. These machines also feature power current and voltage controlled start phasing, over-voltage protection, power control, over-temperature protection for bearing, windings and cooling and parallel operation with equal load sharing. Efficiency ranges from 94%-97%, depending on size.

On board corvettes and frigates, Piller mains generators provide 50/60Hz electrical supply for the ship's general supply system. Piller machines are suitable for both parallel operation and single operation.



Piller produces mains generators and charging generators for both conventional and nuclear-powered submarines and surface vessels.



Converter and UPS



Static frequency converters

Piller manufactures static frequency converters for special mains distribution on submarines, frigates and corvettes, typically with a power supply of 50, 60 and 400Hz or 270V DC. Piller frequency converters are designed with a compact housing, shock mounts and water- or air-cooled with emergency operation, control and power in modularised power stages. Incorporating IGBT technology, high switching frequency over voltage and over temperature protection, current limiting and remote operation interface.



Uninterruptible power supply (UPS)

UPS systems are supplied for 60Hz mains distribution on surface vessels including frigates and corvettes. The features comprise power stages in IGBT technology, microprocessor controls, high switching frequency, high efficiency over entire operating range, 100% unbalanced load, full protection overvoltage and over temperature control, current limiting.



DC - Power supply and charger



Battery charger system

Designed with universal stainless steel compact housing in a built-in or free-standing version, mounted on anti-shock mounts, the Piller air cooled new generation 24V charger system incorporates 24V DC emergency supply network with battery back up.

Performance features include chopped input-rectifier and DC-DC converter, IGBT-technology, high switching frequency sinusoidal input current (THD < 3%), power factor 1 best efficiency and battery management for 2 battery lines (including equalised battery charging). A sophisticated microprocessor controls all functions.

28V Ground Power Unit (GPU)

The vessels are equipped with a helipad and hangar. The Piller 28V DC GPU provides a reliable power supply for these. The GPU can be configured in two different variants and has optional shock absorbers. With its small footprint, high reliability and robust design, the GPU is perfect for a wide range of applications.

Piller manufactures Ground Power Units for helicopter and aircraft supply in various applications.



Special purpose PM motors



High efficiency PM motors are totally enclosed, maintenance-free and surface- or liquid-cooled. The magnetic flux is distributed over the whole lamination area without any critical point of high flux density. The shaft is not involved in the magnetic field and is therefore free for different kinds of material (non-magnetic steel for example) to be used. With their sinus poles, embedded prismatic magnets, skewed slots and low harmonic windings the noise is as low as possible and fulfils all requirements. Sealed (maintenance-free) ceramic bearings handle shaft forces and prevent the bearings from electric current flow and will therefore guaranty a long operating lifetime.



The PM motors are operated exclusively with frequency inverters drives. The electric drive with its high switching frequency, sinus filter, field oriented control and operation with or without Hall sensors enables the lowest noise and highest efficiency possible. An integrated control panel, serial interfaces and automatic motor type detection (Plug and Drive) complete the system design and offer maximum flexibility.

The experience that Piller has gained in the construction of several thousand electrical machines was utilised during development.

Advantages

- Highest energy efficiency
- Robust and low-vibration magnetic (aluminium) design
- Compact design with minimised dimensions
- Low-noise operation
- Colour systems for climate groups 'world-wide'
- High operational reliability by modern production technologies
- Maintenance-free operation

Technical characteristics

- Synchronous high-power PM motors PBM
- Power range 5kW to >70kW
- 500 to 5,000 r.p.m.
- Torque up to 1,000Nm
- Degree of protection IP56



Unrivalled after sales service

Naval Predictive Service and Life Cycle Management powered by Piller

Whether oversea vessels or submarines, seagoing vessels of all kinds are required to achieve and maintain the highest standards across all aspects. The perfect interaction of all processes on board and the marine technology, which must always be adequate and thoroughly available, determines the success of the vessel and the crew. Seagoing vessels combine maximum power with high reliability, availability, and robustness. Piller Predictive Service and Life Cycle Management provides the reliable performance of Piller Naval products.

With comprehensive global support and a full range of services throughout the life cycle of your vessel, Piller empowers you to improve an excellent availability and reliability. We offer a comprehensive range of services, including modernisation, conversion, maintenance, repair, and spare parts logistics, as well as technical support.

Piller Naval Support Contract

Unlimited global access to technical support, spare parts and on-site service is essential to ensure high availability of all technical products in critical applications. We provide maximum availability of the necessary resources worldwide through our Piller Naval Support Contract.

- 24/7/365 Call out services
- Preventive and predictive maintenance
- Remote system diagnosis and support
- Fault analysis
- Operator training
- Technical consultation
- Machine overhaul
- More than 90 technicians
- Over 50 years of experience in naval application

On demand
24 hours a day,
365 days a year





HEADQUARTERS

Piller Group GmbH

Abgunst 24

37520 Osterode

Germany

Tel: +49 5522 311 0

E: info@piller.com

NAVAL POWER SUPPLIES

FREQUENCY CONVERTERS

AIRCRAFT GROUND POWER SYSTEMS

STATIC UPS SYSTEMS

ROTARY UPS SYSTEMS

DIESEL ROTARY UPS SYSTEMS

KINETIC ENERGY STORAGE

STABILISERS

CONTAINERISED UPS

SYSTEM INTEGRATION

A Langley Holdings Company



Subsidiaries:

AUSTRALIA | CHINA | FRANCE | GERMANY | INDIA | ITALY | SINGAPORE | SPAIN | UK | USA

Sales & Service:

AUSTRIA | BRAZIL | CANADA | MEXICO | NETHERLANDS | SWEDEN | SOUTH KOREA | SWEDEN | TAIWAN | USA

Agents & Distributors:

BAHRAIN | BELGIUM | BRAZIL | CHILE | CHINA | COLUMBIA | CZECH REPUBLIC | EGYPT | DENMARK | FINLAND | ICELAND | INDONESIA | IRAN | ISRAEL | JAPAN | KAZAKHSTAN | KENYA | LATVIA | MALAYSIA | NIGERIA | NORWAY | POLAND | ROMANIA | QATAR | SAUDI ARABIA | SLOVAKIA | SLOVENIA | SOUTH AFRICA | SOUTH KOREA | SWITZERLAND | TAIWAN | TANZANIA | THAILAND | TÜRKIYE | UAE | USA

Nothing protects quite like Piller

piller.com



Piller Naval Technology (EN) Issue 4 04/2024. Due to a policy of continued improvement, we reserve the right to change any specification without prior notice.
ERRORS & OMISSIONS EXCEPTED.