Marine Generators

- High Performance
- Extremely Quiet
- Water-Cooled
- Compact
- Light
Fischer Panda GmbH manufactures compact and quiet diesel generators for marine and vehicle applications. These are sold in over sixty countries worldwide under the trade name “Fischer Panda.” The company, based in Paderborn-Germany, was originally founded in 1977 under the name Icemaster GmbH and renamed to Fischer Panda GmbH in 2007. The water-cooled diesel generators from Fischer Panda are renowned worldwide for being innovative, reliable and extremely quiet. The product range includes over two hundred different generators and covers a performance range from 2.5 kW to 100 kW.

Fischer Panda Generators feature an effective water-cooling system and a lightweight compact construction. This ensures Fischer Panda generators are the No. 1 in Europe for mobile super-silent diesel generators. These highly-proven marine and vehicle generators supply power to on-board electrical systems, electric drives and complete mobile energy systems.

Water-cooled
Compact - Lightweight - Quiet
Super-silent

Reliable
Voltage Stability
High Performance

Complete Program
AC Marine Generators
DC Marine Generators

Representatives Worldwide
Distributors Worldwide
Service Stations Worldwide

Super-Silent Sound Insulation System
Less space required for installation
Can be installed anywhere onboard
Generator can be fitted in centre of gravity
Hermetically sealed capsule
All connections prefitted on capsule

Panda Marine generators up to 25 kW, are delivered with a GFK sound insulation capsule with “3DS” sound insulation material as standard (optional: sound insulation material: “4DS”).

From 30 kW, the capsule is delivered as a stainless steel-version MPL. The MPL sound insulation casing can be split up and consists of 6 - 11 parts, depending on the size of the generator. The MPL capsules are also available at an extra cost for generators from 6 kW to 25 kW.

The sound insulation material is available in three different versions:
- “3DS” - 3 layers, up to 25 mm thick
- “4DS” - up to 5 layers, up to 40 mm thick
- “6DS” - up to 6 layers, up to 60 mm thick

Even a very small current can have a destructive effect. Therefore, Fischer Panda uses for all Panda generators from 3.2 kW upwards, a dual-circuit cooling system. The engine and generator are cooled by freshwater. Seawater only comes into contact with the heat exchanger, which is manufactured from a top quality alloy (CuNi10Fe).

Water-cooled Generators

Performance stability through dual-circuit cooling
- Water-cooled windings
- Dual-circuit cooling
- Water-cooling for engine and generator
- No appreciable warming of engine room

Since 1988, Fischer Panda has manufactured more than 18,000 marine generators with this technology. One of the reasons for the superior efficiency of Panda generators is the very effective cooling system, it ensures that the temperatures inside the sound insulation capsule remains within an acceptable range even in tropical conditions at the same time achieving the best possible sound insulation as free-flowing cooling air is not required.

Dual-circuit cooling for generator and engine
Seawater with high-salt content and tropical temperatures increases the danger that metal can be affected by galvanic corrosion (Electrolysis).
All the benefits of the asynchronous generator and more....

- Overload protection
- Water-cooled
- Short-circuit stability
- Perfect sine wave
- High protection rating
- Precise control
- No rotating coils
- No diodes
- No signal noise
- Highly efficient
- Brushless
- Highest operating protection
- Patented (VCS) Voltage Control System

The Panda offers all the advantages of the classic asynchronous generator and with the patented Voltage Control System (VCS), produces control precision that cannot be beaten by a conventional synchronous generator. The excellent qualities of the controlled Panda asynchronous generator have been impressively proven in many tests over the past years. The asynchronous generator has always set high standards with regard to operational security and operational life. Therefore, the asynchronous generator is often the compulsory choice where a high degree of safety and reliability is demanded.

Water-cooled

Overload Protection

This is of particular importance for professional applications, emergency services and technical response units. Fischer Panda even warrants the rotor with a lifetime guarantee - the rotor is often the most sensitive part of other generator systems. As the components which produce the most heat are located on the stator, the asynchronous generator continues to be the best suited for water-cooling. The electrical generator is warranted with a 5-year guarantee against corrosion.

Monitoring and Operation

The standard version remote control panel (from Panda 6000 ND upwards) monitors the following eight functions:

- Engine coolant temperature
- Engine exhaust temperature
- Engine oil temperature
- Engine oil pressure
- Battery charging
- 230 Volt AC
- Insufficient AC voltage
- Cooling-water leakage (optional)

The generator switches itself off when any of these functions are not in the normal state. The standard remote control panel can be upgraded with an addition automatic module to enable the generator to be started (and stopped) by external devices such as timers.

Voltage Stability with patented Voltage Control System (VCS) Tolerance ± 3V

For more than ten years, Fischer Panda Generators have used their own patented electronic Voltage Control System (VCS) for controlling the generator and engine. The engine speed is progressively controlled. This ensures that the output voltage of the asynchronous generator has a tolerance of ± 3V. The Panda combines all the advantages of the asynchronous generator with the voltage control of a synchronous generator.

Extremely Clean Sine Wave

The Panda asynchronous generator supplies a particularly clean sine wave and has achieved the best results during numerous tests in this category. This is essential for the smooth running of sensitive electronic devices such as air conditioners, charging devices, laser printers etc.
Generators for battery charging and on-board power supply

Panda Advanced Generator Technology Heavy Duty (AGT-HD) DC Marine Generators
- 48V DC

Generators for drive purposes and on-board power supply

Panda Advanced Generator Technology Diesel Electric (AGT-DE) AC Marine Generators
- 40-480V AC variable speed

DC-AC Power System (DAPS)

Fischer Panda’s innovative and integrated energy systems provide on-board power for vehicles and marine vessels without the requirement to have a permanently running generator. The extremely robust AGT Generators have proven their reliability under extremely adverse conditions.

This Fischer Panda technology impressively solves problems with independent power supplies and empty batteries. The 75 lifeboats of the Royal Navy Lifeboat Institute are a great example of their reliability. These boats which are equipped with Fischer Panda AGT generators, have been operating problem-free since 1997.

Now even better with VICTRON Energy

Reduce maintenance costs
Reduced environmental pollution
Reduced exhaust emissions
Reduced fuel consumption
Less noise onboard and outside
Longer lifespan for generator
Smaller battery bank possible
Up to 30% smaller and lighter
Automatic start is standard AGT 4000
Automatic start as option for AGT 4000
Dual-circuit cooling as standard

Professional solutions for all recreational and commercial marine applications

In order to offer optimal power solution for your marine application, we provide two main types of generators for providing on-board power.

1. Panda Asynchronous Generators (PSA and PSA-HD) directly produce alternating current whilst running. These generators are ideal for continual operation.

2. Permanent Magnet Generators (AGT and AGT-HD) produce direct current and function as part of a DC-AC Power System (DAPS). A battery bank is used with an inverter within this system to supply the on-board power circuit. The level of the batteries are monitored and automatically charged by an AGT Generator. This system is optimal when power is required and the generator should not always be running.

“Fast runners” - the ideal alternative up to 30 kW

- Reduced weight
- Smaller dimensions
- Reduced fuel consumption
- Reduced purchase price

The application and installation should be considered in each individual case.

3000 / 3600 rpm = fast-runner (Panda PSA)
1500 / 1800 rpm = slow-runner (Panda PSA-HD)

Low frequencies contain more energy and their energy-rich vibrations are transmitted to all components within the surrounding area. The generator is “noticeable” throughout the whole ship. A correctly installed fast-runner that is housed within an insulation capsule is quieter than a slow runner (often the opposite is presumed).

Slow-runners are heavier and larger than their fast-running counterparts. As weight and space play such an important role in modern ship’s construction the fast-runner has considerable advantages.

Normally, a yacht’s generator is not usually used for more than 500 hours per year and therefore the question concerning an increase in engine life (exceeding 10,000 hours) is hardly relevant.

The high reliability and longer life of a slow-runner is not always an important aspect because the modern diesel engine operates within its ideal speed range. This is closer to 3000 / 3600 revolutions per minute than 1500 / 1800.

As a result of their effective water-cooling, even at higher surrounding temperatures, Panda generators can be up to 20% more efficient than other units of a comparable size.

1V / 4V / 48V DC

(Other voltages on request)

Generators for on-board power supply

Panda Standard Asynchronous (PSA)
AC Marine Generators
- 3000 rpm - 50 Hz - 230V
- 3600 rpm - 60 Hz - 120 / 240V AC
- 3600 rpm - 60 Hz - 230V AC

Panda Standard Asynchronous Heavy Duty (PSA-HD)
AC Marine Generators
- 1500 rpm - 50 Hz - 230V
- 1800 rpm - 60 Hz - 120 / 240V AC
- 1800 rpm - 60 Hz - 230V AC

Professional solutions for all recreational and commercial marine applications

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Smaller dimensions
Reduced fuel consumption
Reduced purchase price

Reduced maintenance costs
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Generators for drive purposes and on-board power supply

Panda Advanced Generator Technology Diesel Electric (AGT-DE) AC Marine Generators
- 240-480V AC, variable speed

Battery
- 12V / 24V DC
- 12V / 24V / 48V DC
(Other voltages on request)

Frequency Converter
- 400V 3-phase

Inverter
- 230V / (120/240V) AC

Generators for on-board power supply

Panda Standard Asynchronous (PSA)
AC Marine Generators
- 3000 rpm - 50 Hz - 230V
- 3600 rpm - 60 Hz - 120 / 240V AC
- 3600 rpm - 60 Hz - 230V AC

Panda Standard Asynchronous Heavy Duty (PSA-HD)
AC Marine Generators
- 1500 rpm - 50 Hz - 230V
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- 1800 rpm - 60 Hz - 230V AC

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## Pandas AC Generators 50 Hz

### Generator Nominal Performance

<table>
<thead>
<tr>
<th>Pandora Generator Model / Type</th>
<th>Generator Nominal Performance</th>
<th>Engine Type</th>
<th>Cooling</th>
<th>Voltage Tolerance</th>
<th>Engine Manufacturer</th>
<th>7m / 3m / 1m (kVA)</th>
<th>Sound Insulation</th>
<th>Capable Dimensions L x W x H (mm)</th>
<th>Weight incl. Capsule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HP1 230V 1-phase 50 Hz</strong></td>
<td><strong>Nominal Performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. Pandora 3.8 ND PMS</td>
<td>3.8 3.8 3.8 3.3 3.8 3.3</td>
<td>GK 3D</td>
<td>-</td>
<td>+8 %</td>
<td>Furmann</td>
<td>18W 298</td>
<td>54 64 68</td>
<td>520x365x325</td>
<td>100</td>
</tr>
<tr>
<td>2. Pandora 4.5 ND PMS</td>
<td>4.5 4.5 4.5 3.8 4.5 3.8</td>
<td>GK 3D</td>
<td>-</td>
<td>+8 %</td>
<td>Furmann</td>
<td>18W 298</td>
<td>54 64 68</td>
<td>520x365x325</td>
<td>100</td>
</tr>
<tr>
<td>3. Pandora 4500 SCB PMS</td>
<td>4.5 4.5 4.5 3.8 4.5 3.8</td>
<td>GK 3D</td>
<td>-</td>
<td>+8 %</td>
<td>Kubota</td>
<td>Z48 479</td>
<td>52 62 67</td>
<td>595x440x590</td>
<td>164</td>
</tr>
<tr>
<td>4. Pandora 4500 FCB PMS</td>
<td>4.5 4.5 4.5 3.8 4.5 3.8</td>
<td>GK 3D</td>
<td>-</td>
<td>+8 %</td>
<td>Kubota</td>
<td>Z482 719</td>
<td>53 63 67</td>
<td>705x445x595</td>
<td>195</td>
</tr>
<tr>
<td>5. Pandora 6000 ND PMS</td>
<td>5.1 6.0 5.1 6.0 6.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>6. Pandora 9000 ND PMS</td>
<td>7.7 9.0 7.7 9.0 9.0</td>
<td>-</td>
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</tbody>
</table>

**A. 3000 rpm - 50 Hz: Pandas Marine Generators without electronic regulation**

**B. 3000 rpm - 50 Hz: Pandas Marine Generators with VCS Voltage Control**

**C. 1500 rpm - 50 Hz: Pandas Marine Heavy Duty Generators with VCS Voltage Control**

### ND Versions

The Pandora Generator ND version is an ideal solution for those interested in gaining a fair price. The generators are identical to the corresponding NE models in respect of all main components, such as motor, generator, sound insulation casing, water-cooling etc. In the case of ND generators, the electronic speed control is not fitted. The voltage tolerance lies therefore within an acceptable range of ±8 %. This is similar to a land power connection.

### NE (and HD) Versions

The Pandora Generator NE version has been fitted for many years with the tried and tested VCS (Voltage Control System) whereby the motor speed is progressively controlled. This has an enormously positive effect on the exhaust emission and ensures that the generator achieves up to 15 % more effective performance than other non-controlled generators. The VCS adjusts the voltage with a tolerance of ±8 %. This is similar to a land power connection.

# Key

- **1) EC** = Single-circuit cooling (generator and engine are cooled directly with seawater)
- **2) ZK** = Dual-circuit cooling (generator and engine are cooled directly with freshwater)
- **a) LP** = Low profile (especially for low construction) **b) SC** = Seawater cooling for generator and engine
- **c) FC** = Freshwater cooling for generator and engine
- **D** = Automatic Start Booster (ASB) for boosting start-current

The dimensions apply for the sound insulation capsule only. They do not take into consideration latches, fittings etc. Also be aware that additional room will need to be calculated for installation to include hoses, cables and capsule mountings. Additional components or alternators may also affect capsule dimensions.

Due to our policy of continual product development, we reserve the right to alter these specifications without notice. Further Pandora (Gmbh) reserves the right to change technical information such as performance, dimensions, weight, material specifications without prior notice. Please note that the data in this publication reflects the technical state at time of print. All performance data relates to air and water temperatures of 20°C. Performance reduction (approx. 1% per 100m height and approx. 1% per 1°C water temperature above 20°C).

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**Notes:**

- SC = Seawater cooling for generator and engine.
- ZK = Voltage Control System.
- NE = Non-electronic version.
- ND = Non-DR version.
Deviations within the usual tolerances are permissible. Changes that serve technological advance could be carried out without notice. All performance data relates to air and water temperatures of 5°. In the case of AGT generators, the performance, when batteries are used must be limited to the constant performance.

Please note that the data in this publication reflects the technical state at time of print.

Fischer Panda is the company to consult for your individual on-board solution.

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Antigua, Australia, Austria, Bahamas, Bahrain, Bangladesh, Bermuda, Brazil, British Virgin Islands, Caribbean, China, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Estonia, Faroe Islands, France, Germany, Grand Canaries, Greece, Greenland, Grenada, Guadeloupe, Hong Kong, Hungary, Iceland, India, Iran, Israel, Italy, Japan, Kuwait, Latvia, Lebanon, Lithuania, Mallorca, Malta, Martinique, Netherlands, Netherlands Antilles, New Caledonia, New Zealand, Norway, Oman, Philippines, Poland, Portugal, Russia, Singapore, South Africa, South Korea, Spain, St. Michael, Sweden, Switzerland, Taiwan, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Venezuela, West Indies
Marine Generators - PMS
World famous Panda Generators with seawater-cooled heat exchanger, dual-circuit cooling and wet exhaust

Vehicle Generators - PVMV-N
With integrated water-cooled primary- and secondary silencers. Suitable for stationary operation. The PVMV-N generator is a compact, standard solution for use in vehicle applications.

Vehicle Generators PVK-U
Generators housed in sound-insulated stainless steel capsules which are suitable for mounting externally beneath vehicles.

Vehicle Generators PVK-UK
Extremely compact and quiet generators for vehicles which feature an integrated radiator. Suitable for mounting externally beneath vehicle.

Advanced AGT DC Battery Charging Generators
Diesel battery-charging generators with 12, 24 or 48V. The “AGT” technology is available from 2.5 to approx. 50 kW. Very efficient, compact and only available from Fischer Panda.

AGT-HD DC Generator
Special high-technology generators. Low weight and compact dimensions. Also suited for diesel-electric drive systems. The AGT-DC Generator is fitted with an enhanced cooling system.

AGT-DE Drive Generator
This generator is specifically designed for diesel-electric drive systems. High efficiency and economical running are particular characteristics of this generator.

High-Performance Alternators
Compact “High Output” alternators up to 4 kW, charging rate up to 260A at 12V DC. Available in 12V or 24V DC.

Whisperprop-System with Diesel-Electric Drive
Complete drive system comprising generator and electric motor with control. The AGT-DE Generator and permanent magnet motor are extremely efficient and compact. When combined with a Victron Power System it can completely replace the existing on-board power system.

Whisperprop Bow Thrusters
Complete bow thrusters with AC electric motors for performance ranges from 15 kW to 100 kW. A 3-phase Panda AGT generator is required for power supply.

VICTRON Inverters and Combi Units up to 12,5 kW
Victron inverters are available for 12, 24 and 48V DC. They can supply up to 12.5 kW parallel or be switched to a 3-phase system. Combi-units including high performance battery chargers are also available.

VICTRON Battery Chargers
Professional charging units in 12, 24 and 48V DC with up to 600A. Also available as combi-units (inverter and charger).

Battery Monitors
Easy to use and convenient battery monitoring. The charge level is displayed and prevents batteries from being unexpectedly discharged. This device can automatically start and stop the generator.

Radiators and Installation Parts
All vehicle and stationary generators are cooled either via an integrated or externally mounted DC or AC powered radiator. Solutions for specific customer requirements are possible. Installation parts for vehicle and marine generators are part of the standard product range.