

2010 / 2011



# Marine Generators



**Fischer Panda**

Power - wherever you are



**Power - wherever you are**

Installation, Custom Services  
 Powerful Energy Systems  
 Service and Support  
 Global Service Directory

**Fischer Panda Marine Generators**

Compact, Lightweight and Quiet 6  
 Super-Silent Sound Insulation System 6  
 Water-cooled 7  
 Performance stability through dual-circuit cooling 7  
 Reliable 8  
 All the benefits of the asynchronous generator and more.... 8  
 High Performance 9  
 Clean sine wave, voltage stability and signal interface 10  
 Monitoring and Operation 11

**Professional Solutions**

Up to 6 kW Power Requirements 14  
 6-12 kW Power Requirements 16  
 12-20 kW Power Requirements 18  
 20-40 kW Power Requirements 20  
 Over 40 kW Power Requirements 22

**System Components**

4 AC Distribution Box 24  
 4 Automatic AC Transfer Unit 25  
 5 Parallel Transfer Unit 26  
 5

**The Fischer Panda Warranty Plus**

Basic Guarantee, Warranty Packs and Warranty Refit 27



## Power - wherever you are

You will always have sufficient power with a Fischer Panda generator onboard

- 3 kW to 200 kW Generators
- Worldwide partners near you
- Very low vibration and quiet installations
- Up to 40% weight and 60% space savings possible
- Parallel operation with multiple generators
- Integration with ship's main control systems

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 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. Featuring an effective water-cooling system and a lightweight compact construction. This ensures Fischer Panda generators are one of the leaders 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.

The company, based in Paderborn-Germany, was originally founded in 1977 under the name Icemaster GmbH and renamed to Fischer Panda GmbH in 2007.

### Worldwide Distributors and Partners

Our worldwide distributors and partners are able to help you to choose the best generator for your requirements.





## Installation and Custom Services

### Installation Kits

Fischer Panda supplies installation kits to match your requirements and provide you with all the necessary cables, hoses, connection pieces and accessories to ensure that the system can be correctly installed. This even includes when you require specific hose and cable lengths.



### Custom services for special requirements

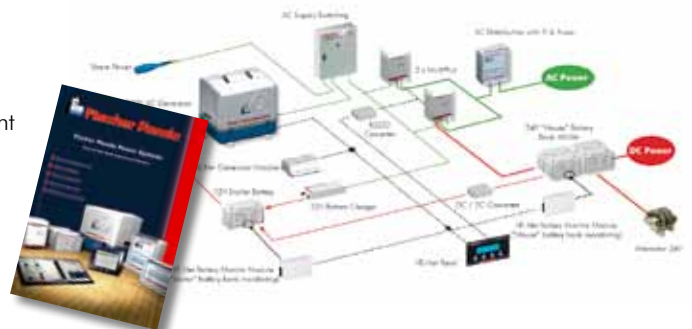
Fischer Panda offers a wide range of services for customizing and adapting generators for use with special equipments and commercial applications.



### Powerful Energy Systems

Fischer Panda Marine Generators form the backbone of our intelligent and innovative solutions ensuring you have sufficient energy even when there is no shore power connection available. It is possible to enhance an existing installation and interface with the ship's control system.

(see Fischer Panda Systems Brochure for more info).





## Service and Support

### Service Kits

Fischer Panda **Service Kits** include only original spare parts which meet their required specifications. The Fischer Panda Service Kits are suited for the type of servicing normally carried out by workshops.

Fischer Panda **Service Plus Kits** include only the original spare parts which meet their required specifications and all the relevant spare parts for the first 600 h service intervals. The Fischer Panda Service Kits are suited for the type of servicing which customers will be carrying out on board boats and vehicles. Service Plus kits are supplied in a handy waterproof plastic box so all the items are protected while storing until they are required.

The Fischer Panda Installation Guide can be downloaded for free from the company website at: <http://www.fischerpanda.de/installation>

### Global Service Directory

With a coordinated network of distributors, dealers and service stations, Fischer Panda has trained specialists worldwide ready to help you. In many countries around the world, Fischer Panda has an exclusive distributor responsible for a branch of the service network. They will be able to advise and recommend the best service station depending on your location, your vehicle and the type of generator system installed onboard. They will also be able to organise, coordinate resources and spares (if required) so we can provide you with the best service - wherever you are.

The Global Service Directory can be downloaded for free from the company website at: <http://www.fischerpanda.de/globalservice>



## Compact, Lightweight and Quiet

### Super-Silent Sound Insulation System

- Less space required for installation
- Can be installed anywhere on-board
- Generator can be fitted in centre of gravity
- Hermetically sealed capsule
- All connections pre-fitted on capsule

Panda Marine generators up to 25 kW are delivered with a GFK sound insulation capsule with "3D" sound insulation material as standard. An optional sound insulation material ("4DS") is also available on request.

For generators from 30 kW and above, the capsule is delivered as a stainless steel-version "Metal-Professional Line" (MPL). The MPL sound insulation casing consists of 6-11 parts (depending on the size of the generator) which makes it easier to dismantle and access certain areas within. 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 depending on application requirements:

- "3D" - 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



GFK Sound insulation capsule is standard for generators up to 25 kW.



Stainless steel sound-insulation capsule "MPL" for generators from 30 kW.



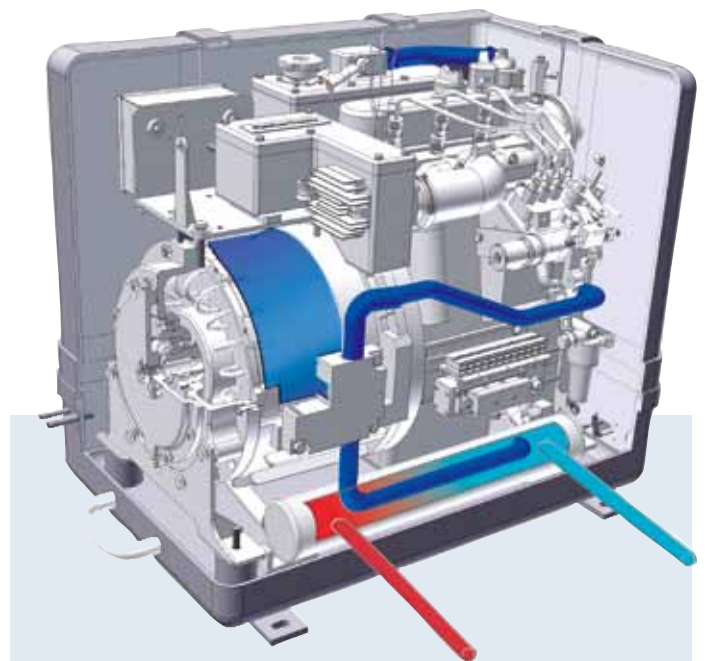
## Water-cooled

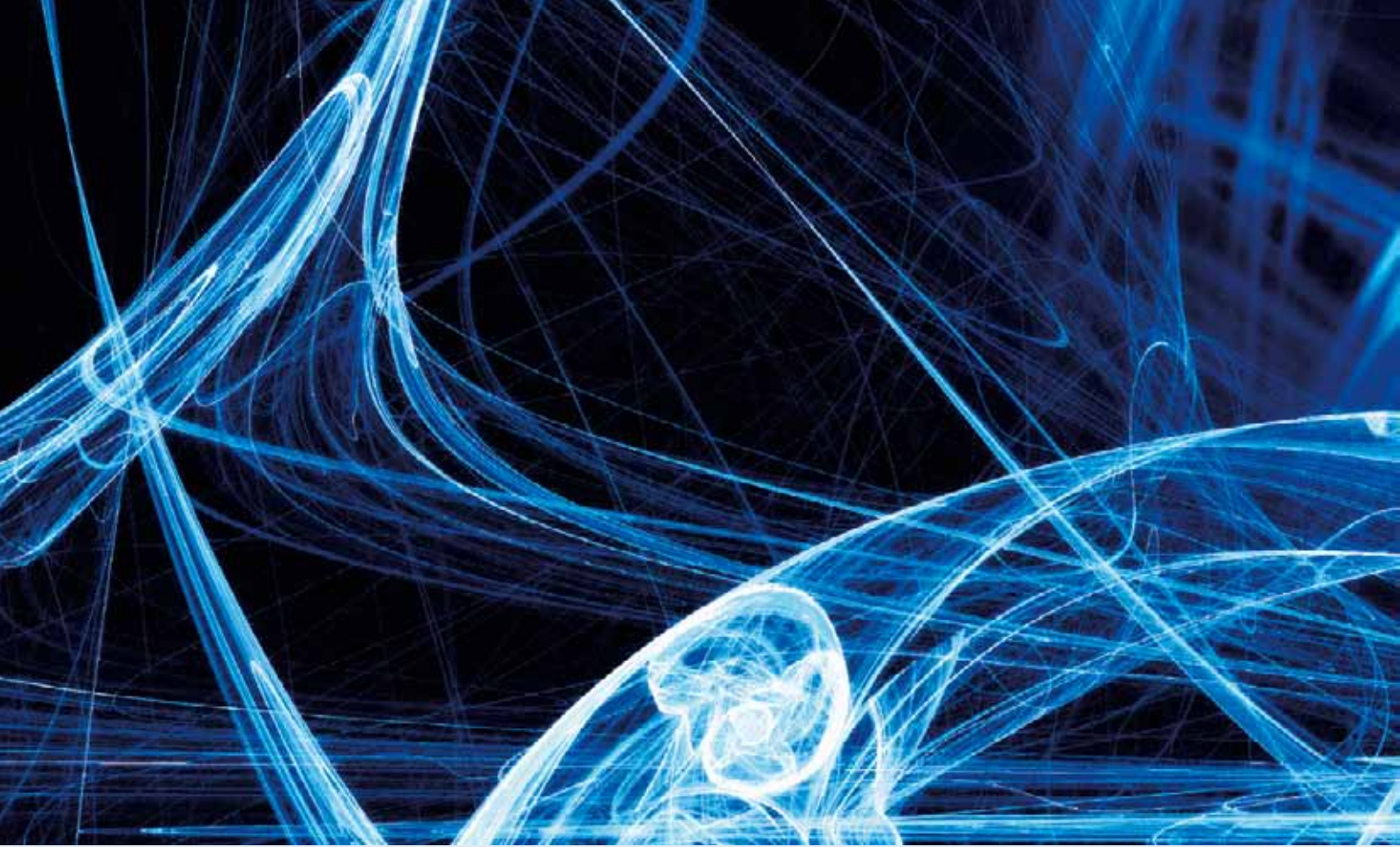
### Performance stability through dual-circuit cooling

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

Fischer Panda has manufactured more than 18.000 marine generators since 1988 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.

Seawater with high-salt content and tropical temperatures increase the danger that metal can be affected by galvanic corrosion (Electrolysis). Even a very small current can have a destructive effect. To prevent this, Fischer Panda uses dual-circuit cooling for generator and engine on all Panda generators from 3.2 kW upwards. The engine and generator are cooled by freshwater. Seawater only comes into contact with the heat exchanger, which is manufactured from a high quality alloy (CuNi10Fe).





## Reliable

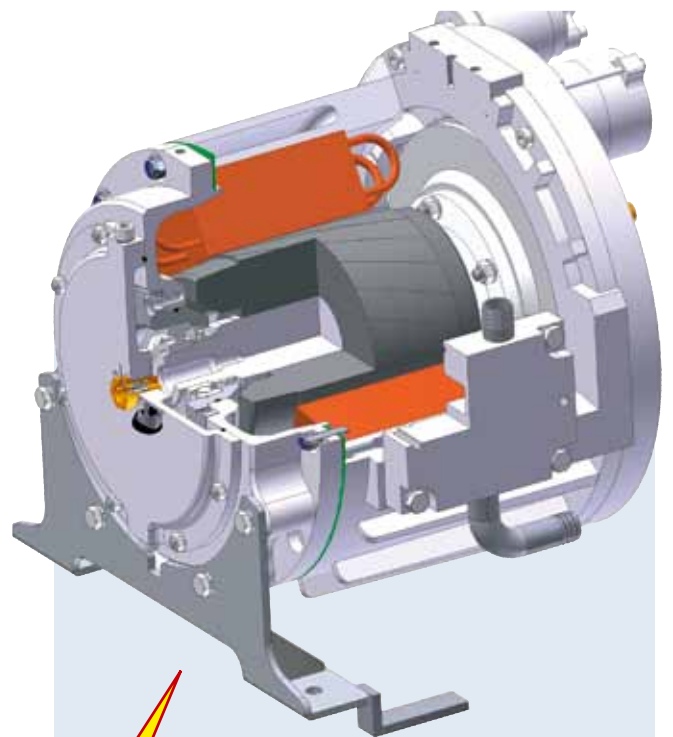
### All the benefits of the asynchronous generator and more....

- 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 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 only choice where a high degree of safety and reliability is demanded. 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.



**Water-cooled**

**Overload Protection**





**Dual Voltage System (DVS) - only from Fischer Panda**

# High Performance

AC Windings available in three different versions to suit your needs:

- **Single-phase winding HP1 230V - 50 Hz AC or 120V / 240V - 60 Hz**

The HP1 is the standard version for 230V AC 50 Hz, (120 / 240V - 60 Hz). This is available up to 25 kW. From 12 kW, a three-phase version should be considered, as the Panda generator permits dissymmetrical loads up to 50% per phase. A check should always be made as to whether a DC-AC Power System would be the better solution (see DAPS DC-AC Power System) for small to middle range on-board power systems.





- **Three-phase windings HP3 400V - 50 Hz AC or 208V - 60 Hz AC**

The 400V three-phase winding has the highest level of efficiency and the best qualities. This winding can also supply single-phase AC with the appropriate phase distribution. This enables each phase to be overloaded by up to 50%. A three-phase generator should always be chosen above 25 kW (from Panda 30 NE).





- **Panda "DVS" (Duo Voltage System) 1-phase plus 3-phase**

The "DVS" Combined-Winding is a special version consisting of two separate coils without the additional cost. A 400V three-phase winding is combined with a single-phase winding. This permits the use of three-phase motors such as water making units and diving compressors. The separate one-phase winding can supply the full nominal performance of the generator without "dissymmetrical load problems" on a phase, which simplifies the electrical installation.





**Note: Generators with DVS windings supply only 85% of the nominal performance compared with the HP1 or HP3 windings.**

	
lighting	satellite receivers
	
boilers	ventilators

	
air conditioners	ovens
	
compressors	electric motors

		+
lighting	satellite receivers	
		
air conditioners	ovens	

Single Phase

Three Phase

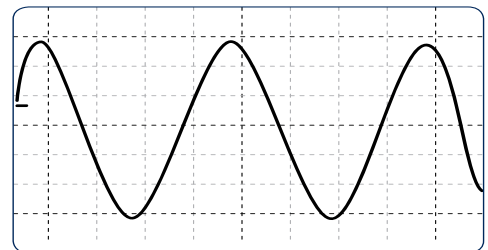
Single Phase + Three Phase



## Monitoring and Operation

### Perfect Sine Wave

The Panda combines all the advantages of the asynchronous generator with the voltage control of a synchronous generator. Asynchronous Panda Generators supply a particularly clean sine wave and have 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.



*The outstanding sine wave of the Fischer Panda Generator*

### Voltage Stability with patented Voltage Control System (VCS) tolerance $\pm 3V$

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  $\pm 3V$ .

### Generator Signal Interface

The Generator Signal Interface (GSI) control module enables the Fischer Panda Generator to be connected into a power management and control network. The generator can then be controlled and monitored remotely using other devices such as programmable logic controllers (PLCs). The potential-free contacts of the module enable external applications to access the status signals from the generator and even start and stop the generator.

*The patented Voltage Control System (VCS) from Fischer Panda*



*Generator Signal Interface (GSI) for Fischer Panda generators*



## Fischer Panda panels for ease of use and operation

Fischer Panda panels allow the generator to be operated from the comfort of the cabin. Important operating information is displayed. Options are available for connecting panels in parallel or with a slave panel. The generator can then be operated from multiple locations for even more flexibility. A panel can be installed in the cabin and another panel can be installed on the flybridge or in the engine room.



Remote Control Panel for Panda 4500



iControl Panel for i-Series Generators



"AGT Control" Remote Control Panel

The standard version remote control panel (for models Panda 6000ND and upwards) monitors the following six functions:

- Engine coolant temperature
- Engine exhaust temperature
- Engine oil pressure
- Battery charging
- 230 Volt AC
- 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 additional automatic module to enable the generator to be started (and stopped) by external devices such as timers.



Remote Generator Control Panel for Panda 6000 and above

# Professional Solutions

## A complete program for all recreational and commercial marine applications

In order to provide you with an optimal power solution for your marine application, we offer different types of generators for providing on-board power:

### AC indirect

**Fischer Panda DC Generators** produce direct current and generally function as part of a DC-AC Hybrid Power System. Battery levels are monitored and automatically charged by the generator. An inverter supplies energy to the on-board power circuit. These systems are ideal for typical power demands and do not require the generator to constantly run throughout the day.



Heavy-duty and intensive battery-charging applications

Extremely compact battery-charging generators

Entry level generators for powerful motor-starting capability with easier installation

### Permanent Magnet DC Generators

### Synchronous Generators



Panda **AGT-DC** Marine Generators **Heavy Duty Versions** with enhanced water-cooling (from model AGT 10.000 upwards)

12V / 24V / 48V DC  
(other voltages request)



Panda **AGT-DC** Marine Generators

12V / 24V DC  
(other voltages request)



Panda **s-Series** Marine Synchronous Generators

3000 rpm - 50 Hz - 230V



Frequency Converter

### Drive Systems



Battery  
12 / 24 / 48V DC



Inverter

### Battery Powered On-board Systems



Fischer Panda Drives



12V / 24 V / 48V DC



## AC direct

**Fischer Panda AC Generators** are designed for continual operation. They produce alternating current directly while running. Not only for operating domestic electrical appliances and electric cooking, they are the right choice for operating demanding consumers such as **air conditioning and diving compressors**. They also produce an extremely clean sine wave for sensitive electronic equipment.

Generators with variable speed for lower fuel consumption, quieter operation and reduced exhaust emissions

Suited for typical power applications onboard requiring continuous power and high starting capabilities.

Suited for applications requiring continuous power and high starting capabilities with a very stable voltage supply

Suited for heavier commercial applications with long life spans

### Variable Speed Generators

### Asynchronous Generators



Panda **i-Series** Marine Generators with variable speed technology

Panda **Basic Line** Marine Asynchronous Generators without voltage control  
Voltage tolerance  $\pm 8\%$

Panda **Premium Line** Asynchronous Marine Generators with voltage control  
Voltage tolerance  $\pm 3V$

Panda **1500/1800 Series** Asynchronous Marine Generators with voltage control  
Voltage tolerance  $\pm 3V$

50 Hz - 230V  
variable speed - load dependent

3000 rpm - 50 Hz - 230V  
3000 rpm - 50 Hz - 400V  
3600 rpm - 60 Hz - 120 / 240V  
3600 rpm - 60 Hz - 208V AC

3000 rpm - 50 Hz - 230V  
3000 rpm - 50 Hz - 400V  
3600 rpm - 60 Hz - 120 / 240V  
3600 rpm - 60 Hz - 208V AC

1500 rpm - 50 Hz - 230V  
1500 rpm - 50 Hz - 400V  
1800 rpm - 60 Hz - 120 / 240V  
1800 rpm - 60 Hz - 208V AC

## Power for Domestic Electrical Consumers



230V / (120/240V) AC



# Up to 6 kW Power Requirements



Model	DC Series			s-Series		i-Series	
	AGT-DC 4000-12V PMS	AGT-DC 4000-24V PMS	AGT-DC 5000-12V PMS	Panda 4000s FC PMS	Panda 4000s SC PMS	Panda 5000i* PMS	
Nominal Performance	kW	4	4	4.5	3.8 kW	3.8 kW	0-4.0 kW
Continuous Performance	kW	3.2	3.2	3.6	3.5 kW	3.5 kW	0-3.5 kW
Nominal Voltage	DC	12	24	12			
Constant Current Rate	A	220	110	250			
Peak Current Rate	A	280	140	280			
Engine Speed	rpm	2400-3000	2400-3000	1800-2200	3000	3000	2800 - (from 2200 optional)
Voltage Tolerance					230V ±5%	230V ±5%	230 V ± 3%
Cooling Circuits		2	2	2	2	1	2
Sound Insulation		3D	3D	3D	3D	3D	3D
Capsule Type		GFK	GFK	GFK	GFK	GFK	GFK
Engine Manufacturer		Kubota	Kubota	Kubota	Farymann	Farymann	Kubota
Engine Type		EA300	EA300	Z482	18W430	18W430	EA 300
Engine Displacement	cm <sup>3</sup>	309	309	479	298	298	309
Number of Cylinders		1	1	2	1	1	1
Sound Level 7m/3m/1m	dbA				54/64/69	54/64/69	54/64/68
Approx. Capsule Dimensions	mm	595 390 405	595 390 405	590 520 600	575 365 550	575 365 550	595 390 410
Approx. Weight incl. Capsule	kg	90	90	139	97	93	79 + Inverter 10

For standard generator models from Panda 4500 SCB/FCB and 5000 LPE up to 18NE, the VCS and the capacitors which are used for boosting the starting current are fitted in an external AC control box. \*) With effect from 01.01.2011, the 4000i generator will be replaced by the 5000i

<sup>1</sup>1: Single circuit (Generator and Engine cooled directly with seawater) / <sup>2</sup>2: Dual circuit (Generator and Engine cooled with freshwater via heat exchanger)

With up to 6kW, you can spend more time out of the harbour without having to return early to recharge your batteries .



**Basic Series**

**Premium Series**

Model		Panda 4.5 PMS	Panda 4500 SCB PMS	Panda 4500 FCB PMS	Panda 4200 PMS
<b>Nominal Performance</b>	<b>HP1 230V</b> 1-phase 50 Hz	kW 3.8	3.8	3.8	
		kVA 4.5	4.5	4.5	
	<b>HP3 400V</b> 3-phase 50 Hz	kW 3.8	3.8	3.8	
		kVA 4.5	4.5	4.5	
	<b>DVS 230/400V</b> 1- plus 3-phase 50Hz	kW (1-ph.) 3.3	3.3	3.3	
		kW (3-ph.) 3.3	3.3	3.3	
	<b>HP1 120V / 240V</b> 1-phase 60 Hz	kW 4.1			4.1
		kVA 4.1			4.1
	<b>HP3 208V</b> 3-phase 60 Hz	kW 4.1			4.1
		kVA 4.1			4.1
Engine Speed	rpm	3000	3000	3000	3600
Voltage Tolerance		±8%	±8%	±8%	±3V
Cooling Circuits <sup>1) 2)</sup>		1		2	2
Sound Insulation		3D	3D	3D	3D
Capsule Type		GFK	GFK	GFK	GFK
Engine Manufacturer		Farymann	Farymann	Farymann	Farymann
Engine Type		18W430	18W430	18W430	18W430
Engine Displacement	cm <sup>3</sup>	298	298	298	298
Number of Cylinders		1	1	1	1
Sound Level 7m/3m/1m	dbA	54/64/68	54/64/68	54/64/68	54/64/68
Approx. Capsule Dimensions	mm	520 365 525	520 365 525	520 365 525	520 365 525
Approx.Weight incl.Capsule	kg	100	100	110	110

<sup>3</sup>Please note: the performance of an AGT generator must be limited to the constant performance when batteries are used.

Disclaimer: The information contained here is to the best of our knowledge accurate at the date of publication. All products are subject to continuous development. Fischer Panda GmbH reserves the right to alter technical specifications without prior notice.

# 6-12 kW Power Requirements



## DC Series

## i-Series

Model		AGT-DC 6000-24V PMS	AGT-DC 8000-24V PMS	AGT-DC 10000 PMS	AGT-DC 11000 PMS
Nominal Performance	kW	6.0	8.0		
Continuous Performance	kW	4.8	6.4	9.1 <sup>3)</sup>	10.6 <sup>3)</sup>
Nominal Voltage	DC	24	24	12V - 400V versions available. Current dependant upon voltage	
Constant Current Rate	A	170	220		
Peak Current Rate	A	210	280		
Engine Speed	rpm	2400-3200	2200-2600	request	request
Voltage Tolerance					
Cooling Circuits		2	2	2	2
Capsule Type		GFK	GFK	GFK	GFK
Sound Insulation		3D	3D	3D	3D
Engine Manufacturer		Kubota	Kubota	Kubota	Kubota
Engine Type		Z482	D722	D722	D902
Engine Displacement	cm <sup>3</sup>	479	719	719	898
Number of Cylinders		2	3	3	3
Sound Level (7m/3m/1m)	dbA	request	request	request	request
Approx. Capsule Dimensions LxWxH	mm	590 520 600	655 505 600	660 515 610	660 515 610
Approx. Weight incl. Capsule	kg	139	156	160	165

Model		Panda 8000i* PMS
Nominal Performance	kW	0-6.0
Continuous Performance	kW	0-5.5
Engine Speed	rpm	2200 - 2800
Voltage Tolerance		230V ± 3%
Cooling Circuits		2
Capsule Type		GFK
Sound Insulation		3D
Engine Manufacturer		Kubota
Engine Type		Z482
Engine Displacement	cm <sup>3</sup>	479
Number of Cylinders		2
Sound Level (7m/3m/1m)	dbA	52/62/67
Approx. Capsule Dimensions LxWxH	mm	520 440 550
Approx. Weight incl. Capsule	kg	108+12

Model		Nominal Performance
HP1 230V	1-phase 50 Hz	
HP3 400V	3-phase 50 Hz	
DVS 230/400V	1- plus 3-phase 50Hz	
HP1 120V / 240V	1-phase 60 Hz	
HP3 208V	3-phase 60 Hz	
Engine Speed	rpm	
Voltage Tolerance		
Cooling Circuits <sup>1) 2)</sup>		
Capsule Type		
Sound Insulation		
Engine Manufacturer		
Engine Type		
Engine Displacement	cm <sup>3</sup>	
Number of Cylinders		
Sound Level (7m/3m/1m)	dbA	
Approx. Capsule Dimensions LxWxH	mm	
Approx. Weight incl. Capsule	kg	

For standard generator models from Panda 4500 SCB/FCB and 5000 LPE up to 18NE, the VCS and the capacitors which are used for boosting the starting current are fitted in an external AC control box. \*) With effect from 01.01.2011, the 6000i generator will be replaced by the 8000i.

<sup>1)</sup>1:Single circuit (Generator and Engine cooled directly with sea water) / <sup>2)</sup>2: Dual circuit (Generator and Engine cooled with freshwater via heat exchanger)



“perfect for starting a diving compressor or a 24.000 BTU air conditioner”



	Basic Series	Premium Series					1500/1800 Series		
	Panda 6000 PMS	Panda 8000 NE PMS	Panda 8 Mini PMS	Panda 10000 NE PMS	Panda 12000 NE PMS	Panda 12 Mini PMS	Panda 7,5-4 HD PMS	Panda 9-4 HD PMS	Panda 12-4 HD PMS
kW		6.5		8.0	10.2		6.5	8.0	10.5
kVA		8.0		9.4	12.0		7.6	9.4	12.3
kW		6.5			10.2		6.5	8.0	10.5
kVA		8.0			12.0		7.6	9.4	12.3
kW (1-ph.)		6.0			9.0				
kW (3-ph.)		6.0			9.0				
kW			7.5			11.2	(7.8)	(9.6)	(12.6)
kVA			7.5			11.2	(7.8)	(9.6)	(12.6)
kW	6.0		7.5			11.2	(7.8)	(9.6)	(12.6)
kVA	6.0		7.5			11.2	(7.8)	(9.6)	(12.6)
	3600	3000	3600	3000	3000	3600	1500/(1800)	1500/(1800)	1500/(1800)
	±8 %	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V
	2	2	2	2	2	2	2	2	2
	GFK	GFK	GFK	GFK	GFK	GFK	GFK	GFK	GFK
	3D	3D	3D	3D	3D	3D	3D	3D	3D
	Kubota	Kubota	Kubota	Kubota	Kubota	Kubota	Kubota	Kubota	Kubota
	Z482	Z482	Z482	Z602	D722	D722	D1005	D 1105	V1505
cm3	479	479	479	599	719	719	1001	1123	1498
	2	2	2	2	3	3	3	3	4
dbA	53/63/68	52/62/67	53/63/68	52/62/67	53/63/67	54/64/68	52/62/66	52/62/66	52/62/66
	595	595	595	680	705	705	830	830	950
mm	440	440	440	460	445	445	515	515	515
	590	590	590	580	590	590	660	665	665
kg	164	164	164	178	195	199	278	289	315

<sup>3)</sup>Please note: the performance of an AGT generator must be limited to the constant performance when batteries are used.

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# 12-20 kW Power Requirements



Model	DC Series		i-Series	Model AC Generators	
	AGT-DC 13000 PMS	AGT-DC 18000 PMS		Panda 15000i PMS	
Nominal Performance	kW		0-12.0		<b>HP1 230V</b> kW 1-phase 50 Hz kVA
Continuous Performance	kW	13.1 <sup>3)</sup>	0-10.8		<b>HP3 400V</b> kW 3-phase 50 Hz kVA
Nominal Voltage	DC	12V - 400V versions available. Current dependant upon voltage			<b>DVS 230/400V</b> kW (1-ph.) 1- plus 3-phase 50 Hz kW (3-ph.)
Constant Current Rate	A				<b>HP1 120V / 240V</b> kW 1-phase 60 Hz kVA
Peak Current Rate	A				<b>HP3 208V</b> kW 3-phase 60 Hz kVA
Engine Speed	rpm	request	2200-2800		Engine Speed rpm
Voltage Tolerance			230V ± 3%		Voltage Tolerance
Cooling Circuits		2	2		Cooling Circuits <sup>1) 2)</sup>
Capsule Type		GFK	GFK		Capsule Type
Sound Insulation		3D	3D		Sound Insulation
Engine Manufacturer		Kubota	Kubota		Engine Manufacturer
Engine Type		D1105	V1505		Engine Type
Engine Displacement	cm3	1123	1498		Engine Displacement cm3
Number of Cylinders		3	4		Number of Cylinders
Sound Level 7m/3m/1m	dbA	request	request		Sound Level 7m/3m/1m (dbA)
Approx. Capsule Dimensions	mm	760 540 670	870 540 670		Approx. Capsule Dimensions mm
Approx. Weight incl. Capsule	kg	230	265		Approx. Weight incl. Capsule kg
			162		

For standard generator models from Panda 4500 SCB/FCB and 5000 LPE up to 18NE, the VCS and the capacitors which are used for boosting the starting current are fitted in an external AC control box.

<sup>1)</sup>1: Single circuit (Generator and Engine cooled directly with sea water) / <sup>2)</sup>2: Dual circuit (Generator and Engine cooled with freshwater via heat exchanger)

“Continuous power for cooling, cooking, freezing and air conditioning”



Premium Series				1500/1800 Series		
Panda 15000 NE PMS	Panda 16 PMS	Panda 18 NE PMS	Panda 22 PMS	Panda 17-4 HD PMS	Panda 22-4 HD PMS	
12.7		15.3		14.7	18.6	
15.0		18.0		17.5	21.9	
12.7		15.3		14.7	18.6	
15.0		18.0		17.5	21.9	
11.1		13.5				
13.0		13.5				
	15.5		21.6	(17.6)	(22.3)	
	15.5		21.6	(17.6)	(22.3)	
	15.5		21.6	(17.6)	(22.3)	
	15.5		21.6	(17.6)	(22.3)	
3000	3600	3000	3600	1500/(1800)	1500/(1800)	
±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	
2	2	2	2	2	2	
GFK	GFK	GFK	GFK	MPL	MPL	
3D	3D	3D	3D	4DS	4DS	
Kubota	Kubota	Kubota	Kubota	Kubota	Kubota	
D902	D1005	D1105	V1305	V2203	V2403M	
898	1001	1123	1335	2197	2434	
3	3	3	3	4	4	
54/64/68	55/65/69	55/65/69	55/65/69	53/63/67	53/63/67	
740	830	830	1010	1130	1200	
480	510	515	515	650	690	
600	660	660	670	780	760	
248	294	297	355	553	request	

<sup>3</sup>Please note: the performance of an AGT generator must be limited to the constant performance when batteries are used.

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# 20-40 kW Power Requirements



## DC Series

Model		AGT-DC 22000 PMS	AGT-DC 25000 PMS	AGT-DC 30000 PMS	AGT-DC 35000 PMS	AGT-DC 38000 PMS
Nominal Performance	kW					
Continuous Performance	kW	21.9 <sup>3)</sup>	24.13 <sup>3)</sup>	29.5 <sup>3)</sup>	35.5 <sup>3)</sup>	38.6 <sup>3)</sup>
Nominal Voltage	V DC	12V - 400V versions available. Current dependant upon voltage				
Constant Current Rate	A					
Peak Current Rate	A					
Engine Speed	rpm	request	request	request	request	request
Voltage Tolerance						
Cooling Circuits		2	2	2	2	2
Capsule Type		MPL	MPL	MPL	MPL	MPL
Sound Insulation		4DS	4DS	4DS	4DS	4DS
Engine Manufacturer		Kubota	Kubota	Yanmar	Kubota	Yanmar
Engine Type		V1505T	V2203	4JH4E	V3300	4JH4TE
Engine Displacement	cm3	1498	2197	1995	3318	1995
Number of Cylinders		4	4	4	4	4
Sound Level 7m /3m /1m	dbA	request	request	request	request	request
Approx. Capsule Dimensions	mm	980	request	request	request	request
L x W x H		600	request	request	request	request
Weight incl.Capsule	kg	700	request	request	request	request
		295	request	request	request	request

## Model

- HP1 230V**  
1-phase 50 Hz
- HP3 400V**  
3-phase 50 Hz
- DVS 230/400V**  
1- plus 3-phase 50 Hz
- HP1 120V / 240V**  
1-phase 60 Hz
- HP3 208V**  
3-phase 60 Hz

Engine Speed	
Voltage Tolerance	
Cooling Circuits <sup>1) 2)</sup>	
Capsule Type	
Sound Insulation	
Engine Manufacturer	
Engine Type	
Engine Displacement	
Number of Cylinders	
Sound Level 7m / 3m / 1m	
Approx. Capsule Dimensions	
L x W x H	
Approx. Weight incl.Capsule	

For standard generator models from Panda 4500 SCB/FCB and 5000 LPE up to 18NE, the VCS and the capacitors which are used for boosting the starting current are fitted in an external AC control box.

<sup>1)</sup>1:Single circuit (Generator and Engine cooled directly with sea water) / <sup>2)</sup>2: Dual circuit (Generator and Engine cooled with freshwater via heat exchanger)

“Having to run the ship’s main engine just to generate electricity can be expensive”



	Premium Series			1500/1800 Series			
	Panda 24 NE PMS	Panda 30 NE PMS	Panda 40 YA PMS	Panda 22-4 HD PMS	Panda 30-4 HD PMS	Panda 40-4 HD PMS	Panda 50-4 HD PMS
kW	20.4	25.5	-	18.6	25.0	-	
kVA	24.0	30.0	-	21.9	29.4	-	
kW	20.4	25.5	35.0	18.6	25.0	35.0	40.0
kVA	24.0	30.0	41.1	21.9	29.4	41.1	47.0
kW (1-ph.)	18.0	22.4	-				
kW (3-ph.)	18.0	22.4	-				
kW				(22.3)	(30.0)		
kVA				(22.3)	(30.0)		
kW						(40.9)	(50.0)
kVA						(40.9)	(50.0)
rpm	3000	3000	3000	1500 / (1800)	1500 / (1800)	1500 / (1800)	1500 / (1800)
	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V
	2	2	2	2	2	2	2
	GFK	GFK	MPL	MPL	MPL	MPL	MPL
	3D	3D	4DS	4DS	4DS	4DS	4DS
	Kubota	Kubota	Yanmar	Kubota	Kubota	Kubota	Kubota
	V1505	V1505T	4TNV84T	V2403M	V3300	V3300T	V3800T
cm3	1498	1498	1995	2434	3318	3318	3769
	4	4	4	4	4	4	4
dbA	55/65/69	55/65/69	57/67/71	53 / 63 / 67	request	request	request
	1010	1010	1220	1200	1270	1320	request
mm	515	515	650	690	680	700	
	670	670	820	760	880	900	
kg	355	403	704	request	781	809	request

<sup>3</sup>Please note: the performance of an AGT generator must be limited to the constant performance when batteries are used.

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# Over 40 kW Power Requirements



Model		DC Series	
		AGT-DC 44000 PMS	AGT-DC 48000 PMS
Nominal Performance	kW		
Continuous Performance	kW	43.4 <sup>3)</sup>	48.4 <sup>3)</sup>
Nominal Voltage	V DC	12V - 400V versions available. Current dependant upon voltage	
Constant Current Rate	A		
Peak Current Rate	A		
Engine Speed	rpm	request	request
Voltage Tolerance			
Cooling Circuits		2	2
Capsule Type		MPL	MPL
Sound Insulation		4DS	4DS
Engine Manufacturer		Kubota	Yanmar
Engine Type		V3300T	4JH4HTE
Engine Displacement cm <sup>3</sup>	cm <sup>3</sup>	3318	1995
Number of Cylinders		4	4
Sound Level 7m/3m/1m	dbA	request	request
Approx. Capsule Dimensions L x W x H	mm	request	request
Approx. Weight incl.Capsule	kg	request	request

Model		Premium Series	
			Panda P40 YA PMS
<b>Nominal Performance</b>	<b>HP1 230V</b>	kW	-
	1-phase 50 Hz	kVA	-
	<b>HP3 400V</b>	kW	35.0
	3-phase 50 Hz	kVA	41.1
	<b>DVS 230/400V</b>	kW (1-ph.)	-
	1- plus 3-phase 50 Hz	kW (3-ph.)	-
<b>HP1 120V / 240V</b>	1-phase 60 Hz	kW	
		kVA	
<b>HP3 208V</b>	3-phase 60 Hz	kW	
		kVA	
Engine Speed	rpm		3000
Voltage Tolerance			±3 V
Cooling Circuits <sup>1) 2)</sup>			2
Capsule Type			MPL
Sound Insulation			4DS
Engine Manufacturer			Yanmar
Engine Type			4TNV84T
Engine Displacement	cm <sup>3</sup>		1995
Number of Cylinders			4
Sound Level 7m/3m/1m	dbA		57/67/71
Approx. Capsule Dimensions L x W x H	mm		1220 650 820
Approx. Weight incl.Capsule	kg		704

For standard generator models from Panda 4500 SCB/FCB and 5000 LPE up to 18NE, the VCS and the capacitors which are used for boosting the starting current are fitted in an external AC control box.

<sup>1)</sup>1:Single circuit (Generator and Engine cooled directly with sea water) / <sup>2)</sup>2: Dual circuit (Generator and Engine cooled with freshwater via heat exchanger)

“up to 200 kW power for super yachts”



1500/1800 Series

Panda P50 YA PMS	Panda P65 YA PMS	Panda P75 YA PMS	Panda P50-4 HD PMS	Panda P60-4 DZ PMS	Panda P70-4 DZ PMS	Panda P85-4 DZ PMS	Panda P110-4 DZ PMS	Panda P130-4 DZ PMS
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
42.5	55.2	67.0	40.0	50.4	61.6	73.6	92.8	111.2
50.0	65.0	78.8	47.0	59.3	72.5	86.6	109.2	130.8
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
			(50.0)	(60.0)	(70.9)	(85.9)	(110.7)	(130.9)
			(50.0)	(60.0)	(70.9)	(85.9)	(110.7)	(130.9)
3000	3000	3000	1500 / (1800)	1500 / (1800)	1500 / (1800)	1500 / (1800)	1500 / (1800)	1500 / (1800)
±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V	±3 V
2	2	2	2	2	2	2	2	2
MPL	MPL	MPL	MPL	MPL	MPL	MPL	MPL	MPL
4DS	4DS	4DS	4DS	6DS	6DS	6DS	6DS	6DS
Yanmar	Yanmar	Yanmar	Kubota	Deutz	Deutz	Deutz	Deutz	Deutz
4JH4TE	4JH4HTE	4JH4HTE	V3800T	BF4M2012C	BF4M1013E	BF4M1013EC	BF6M1013E	BF6M1013EC
1995	1995	1995	3769	4040	4764	4764	7146	7146
4	4	4	4	4	4	4	6	6
57/67/71	57 / 67 / 71	57/67/71	request	request	request	request	request	request
1200	1260	1500		1500	1650			
730	700	700	request	790	830	request	request	request
800	800	800		1000	1100			
713	735	750	request	request	request	request	request	request

<sup>3</sup>Please note: the performance of an AGT generator must be limited to the constant performance when batteries are used.

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# System Components

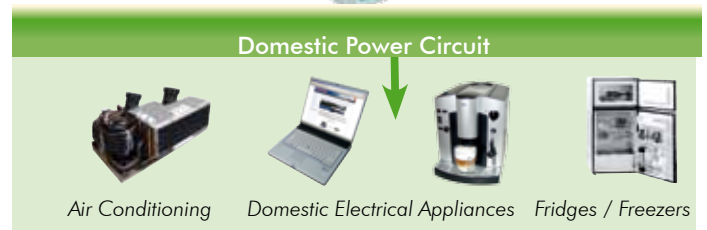
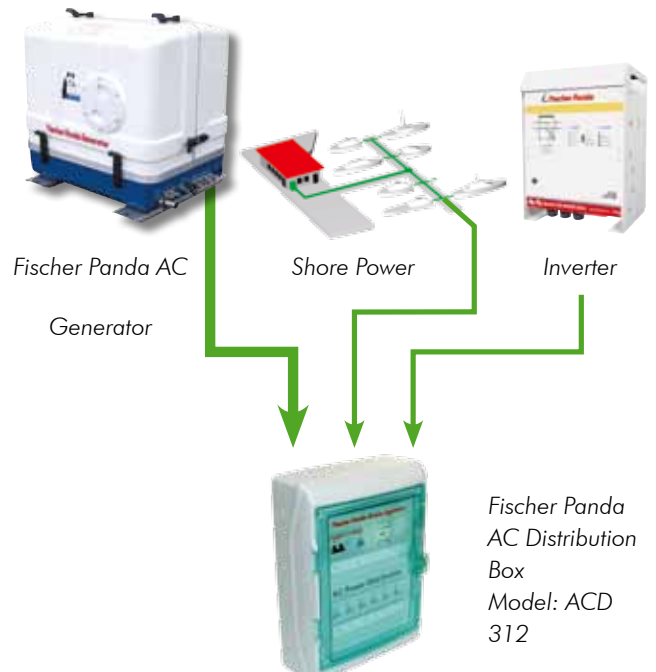


## AC Distribution Box

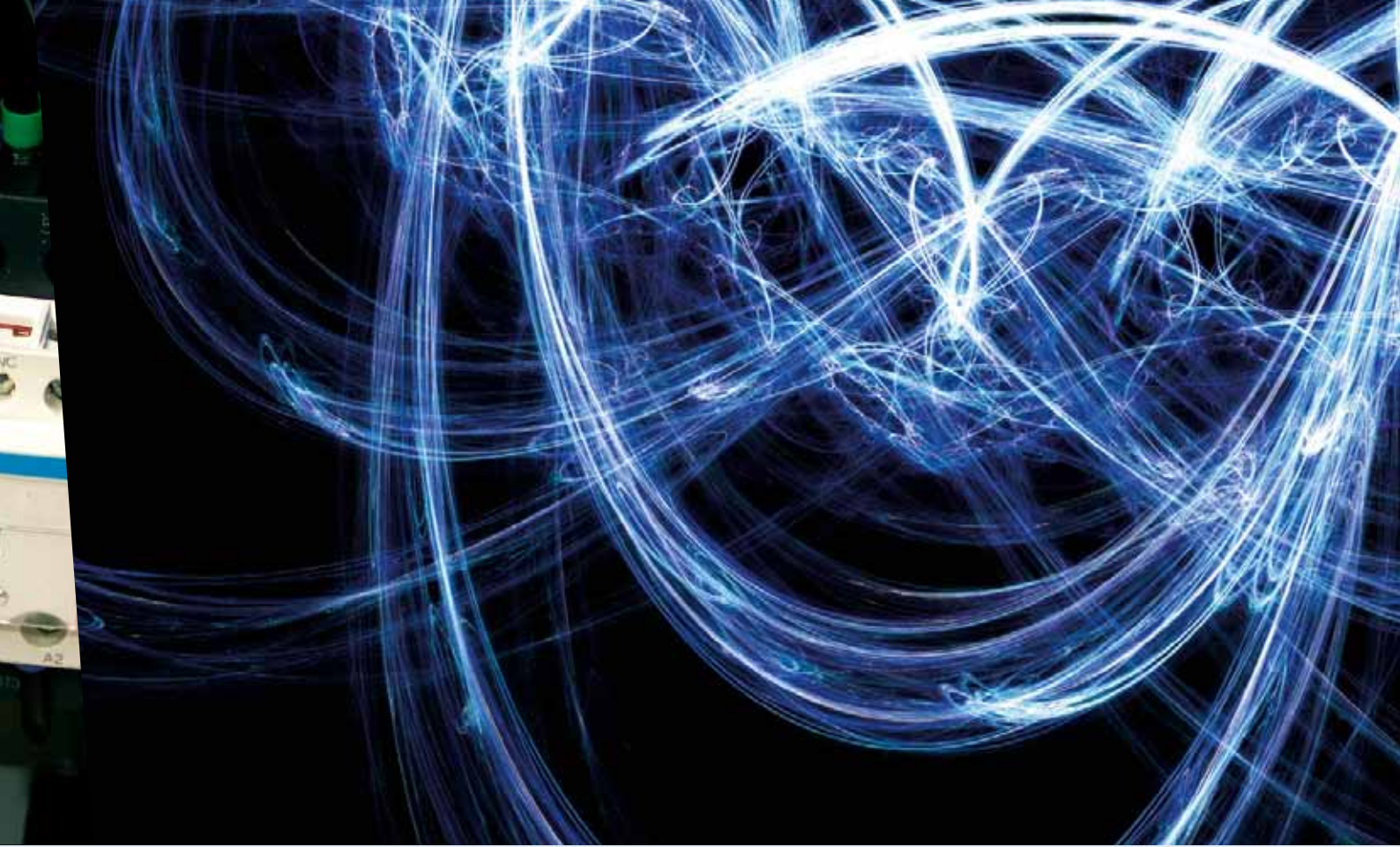
### Ensuring a safe supply from multiple power sources

A reliable and safe electrical supply is an absolute "must" on board every ship. The safe supply from multiple sources such as shore power, generator and inverter to each of the electrical consumers is controlled and the unit functions as the central location for circuit breakers within the AC system.

- Waterproof IP 65
- Earth leakage protection
- Automatic circuit breakers
  
- 40A Nominal current generator
- 12 AC Outputs
- 230V AC Nominal input voltage
- 180-250 Vac ( 50 / 60 Hz )
  
- 3 Inputs
- 32A Nominal current inverter
- 16A Nominal current shore





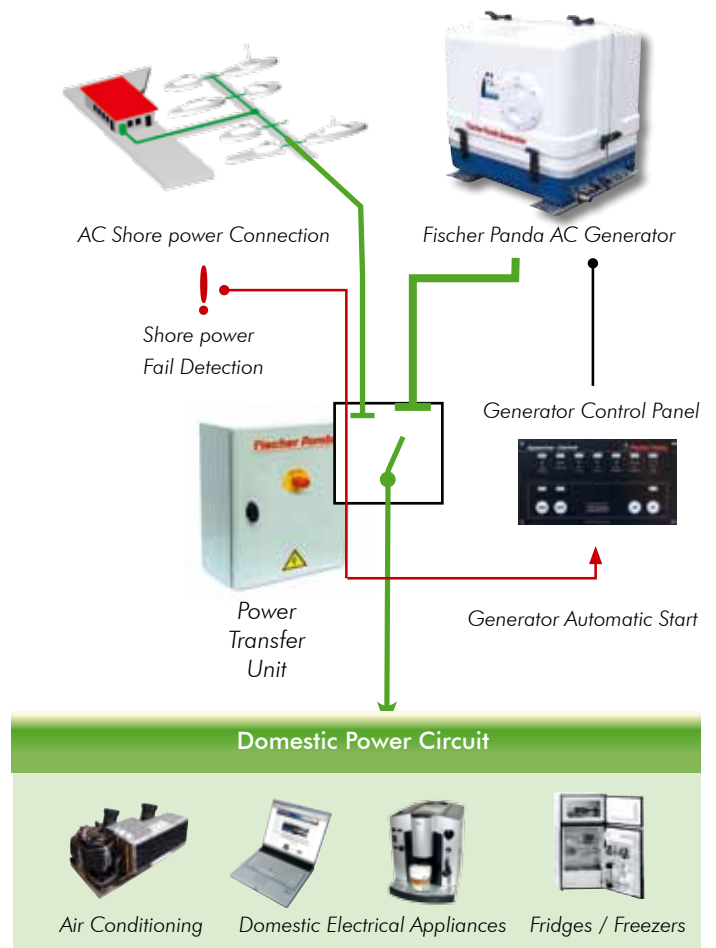


# Automatic AC Transfer Unit

## Automatic transfer if shore power fails

The Fischer Panda Automatic Transfer Unit monitors the presence of AC shore power. If the shore power supply is not available, the AC Generator is automatically started.

As soon as the shore power supply has been restored, the power can be manually switched back (if required) and the AC Generator can be stopped.





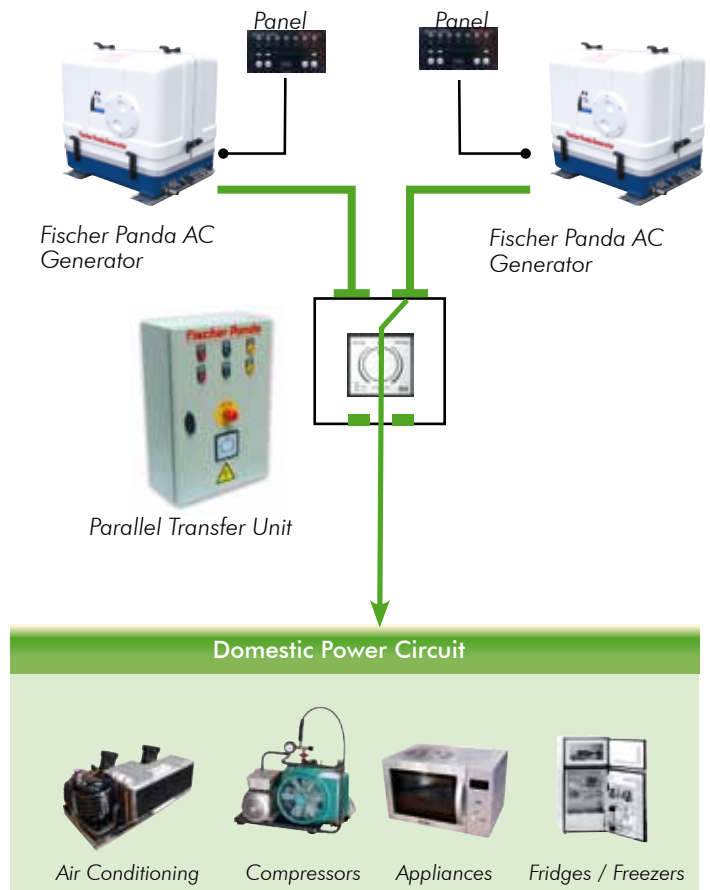
## Parallel Transfer Unit

### Loads switching or doubling power output

The Fischer Panda unit is designed for connecting two Fischer Panda AC Generators in parallel. The unit can be used to synchronize both generators to switch the load from one generator to another or both generators to run together and double the total power available.

A range of units are available to suit varying generator types and power requirements: up to 22 kW, 40 kW, 65 kW, 85 kW and 100 kW per generator. The parallel power units can be combined with the automatic AC transfer unit into a single housing on request.

The parallel transfer unit does not feature load-sharing capabilities for safety reasons. Both generators are coupled and operate together as one unit. To increase operational safety, both generators are shutdown if a system failure occurs.





## The Fischer Panda Warranty Plus

### More security and peace of mind with your Fischer Panda generator

#### What is the extended Fischer Panda Guarantee?

The extended Fischer Panda Guarantee is a component of the generator warranty. Once accepted, it applies up to the first inspection/interval service and extends thereafter automatically up to the respective next inspection/interval service at a Fischer Panda Service partner but not beyond the specified date on the certificate of guarantee\*

#### Fischer Panda generators are issued with a Basic Guarantee.

This extension is free of charge for you and applies generally from date of delivery by Fischer Panda provided that regular and proven maintenance with original Fischer Panda parts is carried out\*

**Commercial usage** 1 year or 1000 operation hours <sup>1)</sup>

**Private usage** 2 years or 1000 operation hours <sup>1)</sup>

The Basic Guarantee also provides for an additional 5 years from delivery date for electrical parts of the generator (stator with winding, alternator housing, sealing and all water-bearing parts). This extended warranty covers damage caused by cooling water to the above mentioned parts. An additional 10 years guarantee on the rotor from date of delivery is also included.\*

#### Warranty Pack 1000

If your Fischer Panda generator has been installed and commissioned by an official Fischer Panda partner and the installation is confirmed by sending the commissioning protocol to Fischer Panda GmbH Germany, a 1000 Plus Warranty can be applied for. This is free of charge and extends the Basic Guarantee by 1 years. or max. 1000 operation hours <sup>1)</sup>\*

#### Warranty Packs 1250 and 1500

Additional warranty packs can be arranged with the purchase of the generator to provide cover for generators which will be used for longer operational periods.\*

#### Options for buyers of Fischer Panda generator whereby the previous owners did not follow the specified service intervals.

Under certain circumstances, a "1250 Refit" warranty may be considered and granted for owners of a used Fischer Panda Generator if the previous owner did not follow specified service intervals.

<sup>1)</sup> Please consult the Fischer Panda Warranty Plus for the exact requirements and conditions for Extended Warranty, Guarantee and Warranty packs. Furthermore, the general Guarantee Conditions for mobile and stationary Fischer Panda generators apply. ) Whichever comes first.





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**Disclaimer:**

The information contained here is to the best of our knowledge accurate at the date of publication. Please note that the data in this publication reflects the technical state at time of print. Dimensions apply for the sound insulation capsule only and do not include latches, fittings etc. 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 technical specifications without notice. All performance data relates to air and water temperatures of 20°C. Performance reduction (approx. 1% per 100 m height and approx 2% per 5°C air temperature and approx. 1% per 1°C water temperature above 20°C)