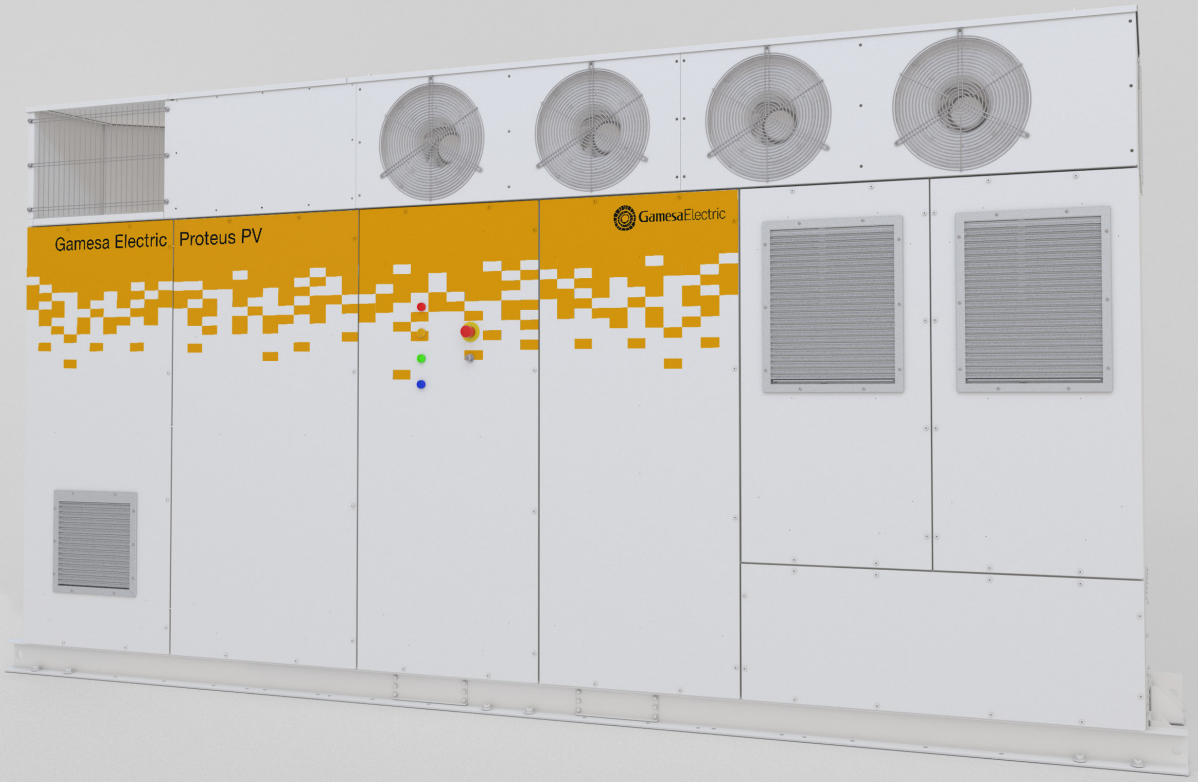
GamesaElectric



Gamesa Electric
Proteus PV Inverters

Maximum energy and versatility for utility-scale projects

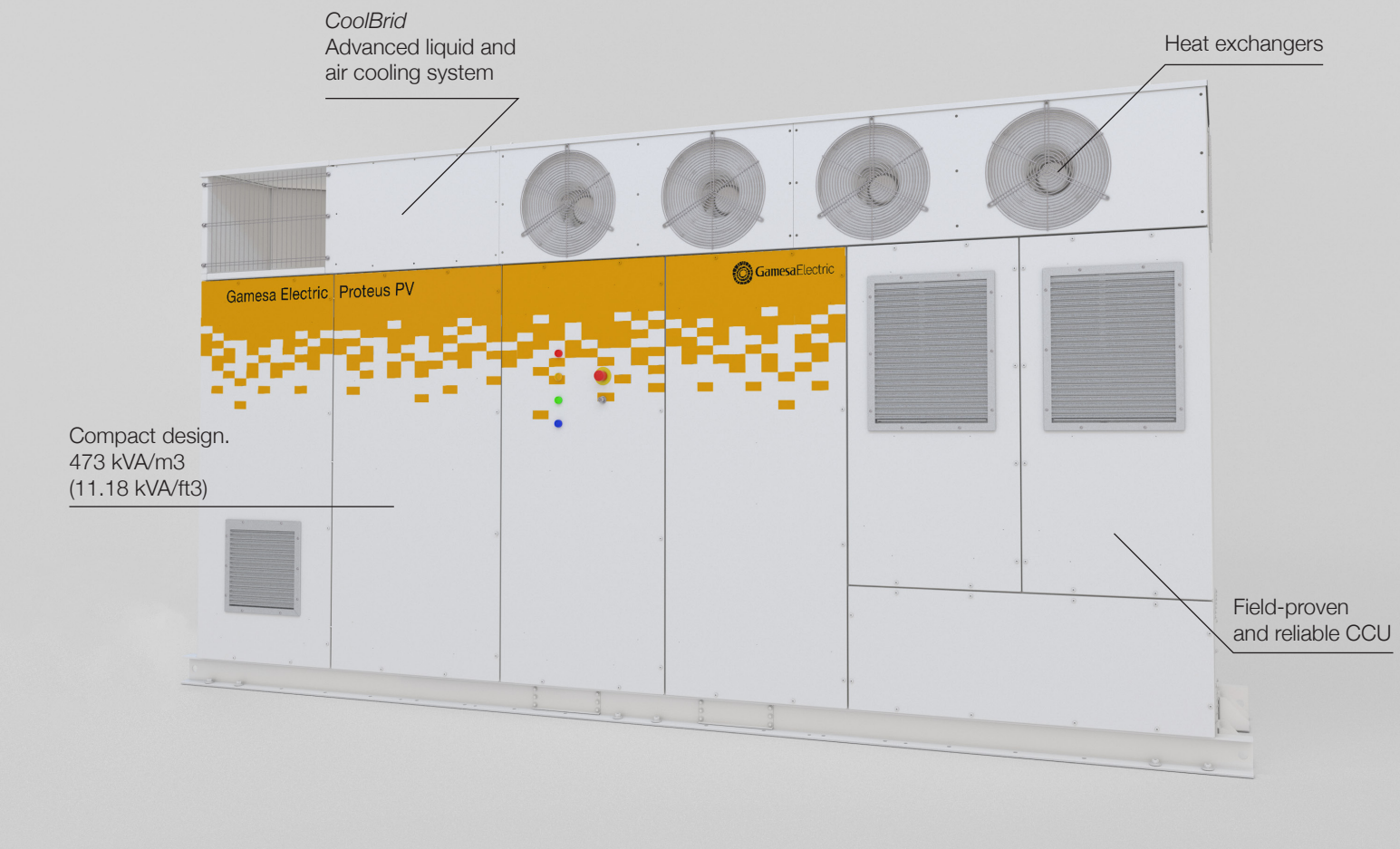
2022 | Datasheet

Up to 200% DC/AC ratio

TDHI <1%

MPPT efficiency 99.9%

Outdoor solution



Gamesa Electric
Proteus PV Inverters

Better LCoE

Largest single inverter power block in the market with 4,700 KVA

Fewer inverters per project thus lower Capex and Opex

DC/AC ratio of up to 200%

Higher yield

Market-leading efficiency with 99.45%

THDi < 1% which reduces losses

Enhanced temperature derating: keeping full power up to 40ºC [104ºF]

Built to last

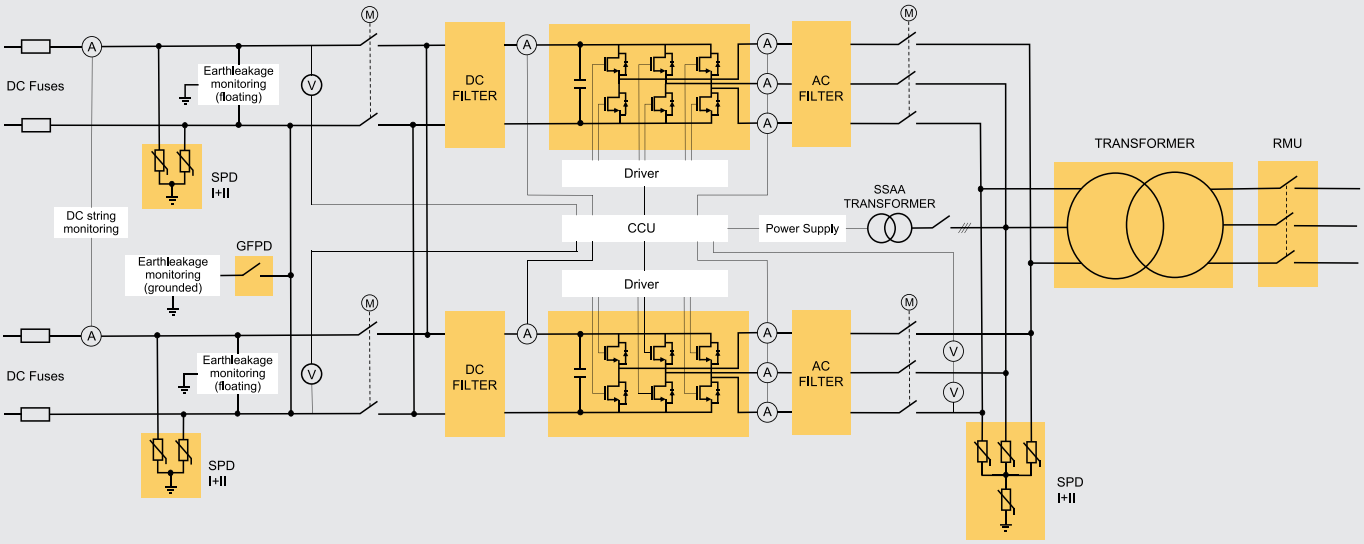
Designed and manufactured for a 30 year life span

CoolBrid: Smart hybrid cooling system that allows critical components to work far below the temperature limit

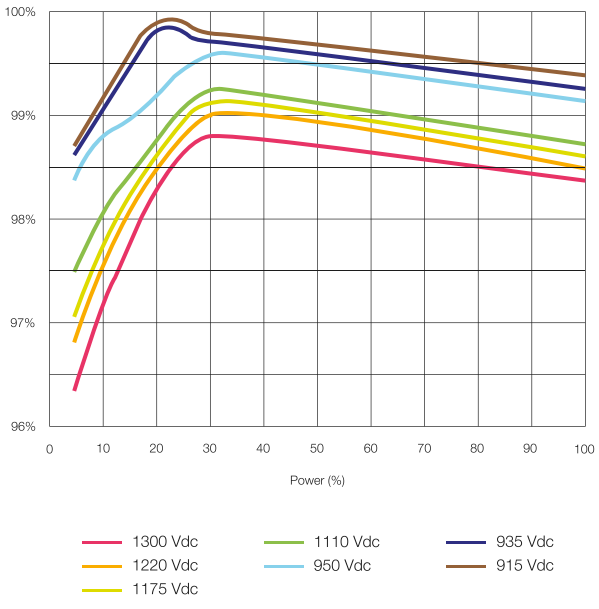
Lowest THDi in the market helps to extend power transformers lifespan

The Gamesa Electric Proteus PV Inverters combine high power with maximum versatility for PV plants LCoE reduction.

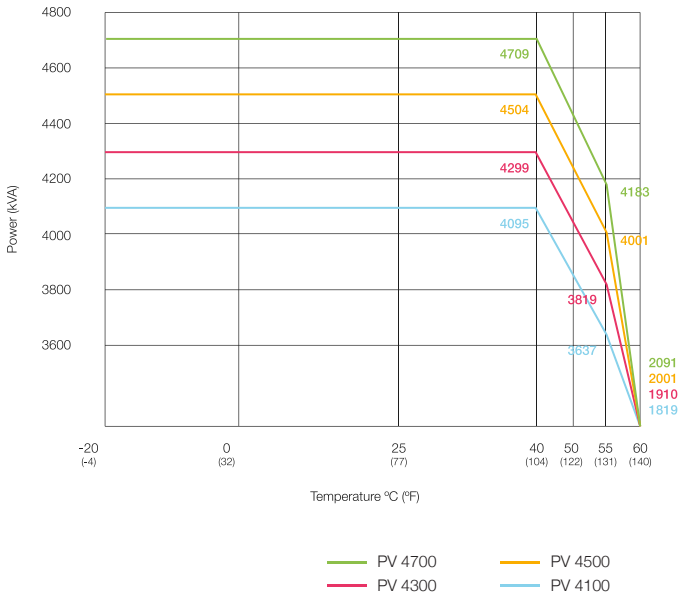
Different product configurations available to optimize performance in demanding environments as well as different voltage levels to fit customers' needs.



Efficiency



Configurations
Up to 4700 kVA



	Gamesa Electric **Proteus PV 4100**	Gamesa Electric **Proteus PV 4300**	Gamesa Electric **Proteus PV 4500**	Gamesa Electric **Proteus PV 4700**
DC Input				
DC Voltage Range[1]	835 - 1500 V	875 - 1500 V	915 - 1500 V	955 - 1500 V
DC Voltage Range MPPT[1]	835 - 1300 V	875 - 1300 V	915 - 1300 V	955 - 1300 V
Number of Power Modules	2, not galvanically isolated, 1 MPPT			
Max. DC Current @40ºC [104ºF]	2 x 2500 A			
Max. DC Current @50ºC [122ºF]	2 x 2313 A			
Max. DC Current @55ºC [131ºF]	2 x 2220 A			
Max. DC Current @60ºC [140ºF]	2 x 1110 A			
Maximum Short-circuit Current, I_{sc} PV	Up to 9000 A			
Nr of DC Ports[1]	max 24 fuse +/- monitored max 36 fuse + monitored			
Fuse Dimensions	125 A to 500 A			
Max. Wire Cross Section per DC Input	2 x 400 mm^2 - 800 AWG			
Energy Production from	0.5% Pn approx.			
AC Output				
Number of phases	Three-phase			
Nominal AC Power Total @40ºC [104ºF]	4095 kVA	4299 kVA	4504 kVA	4709 kVA
Nominal AC Power Total @50ºC [122ºF]	3790 kVA	3979 kVA	4169 kVA	4358 kVA
Nominal AC Power Total @55ºC [131ºF]	3637 kVA	3819 kVA	4001 kVA	4183 kVA
Nominal AC Power Total @60ºC [140ºF]	1819 kVA	1910 kVA	2001 kVA	2091 kVA
Maximum AC Current @40ºC [104ºF]	3940 Arms			
Nominal AC Voltage[1]	600 Vrms	630 Vrms	660 Vrms	690 Vrms
Nominal Voltage Allowance Range[1]	+/-10%			
Frequency Range[1]	47.5 - 53/57 - 63 Hz			
THD of AC Current	< 1% @Sn			
Power Factor Range	0 (reactive) - 1 - 0 (capacitive)			
Maximum Wire Cross Section per AC Output Phase	6 x 400 mm^2			
Performance				
Max. Efficiency	99.45%			
Euro Efficiency	99.24%			
CEC Efficiency	99.02%	99.07%	99.11%	99.14%
Stand-by Power Consumption	< 200 W			
General Data				
Temperature Range - Operation[2]	-20°C / +60°C [-4°F / +140°F]			
Maximum Altitude[3]	< 2,000 m [6,561 ft] (w/o derating)			
Cooling System	Liquid & forced air			
Relative Humidity	4% – 100% (w/o condensation)			
Seismic[1]	Zone 4 IBC 2012			
Max. wind speed[1]	288 km/h (179 mph)			
Snow load[1]	2.5 kN/m2			
Protection Class	IP55 class 1, NEMA3R			
Dimensions (W/H/D)	4,325 x 2,250 x 1,022 mm [170.3” x 88.5” x 40.2”]			
Weight	4,045 kg [8,918 lb]			

AC Protections	
AC Side Disconnection & Short-circuit Current Protection	Two motorized AC circuit breakers - one per each power module
AC Overvoltage Protection	Type 1 + 2 SPD
Anti-islanding	Included (SW)
Grid Voltage Fluctuations (LVRT, HVRT)(1)	Included (SW)
Frequency Failure	Included (SW)

Other Protections
Over-temperature Protection
Emergency Push Button

DC Protections	
DC Disconnection	Two motorized DC switches (on-load) - one per each power module
DC Short-circuit Protection	DC fuses
DC Over-voltage Protection	Type 1 + 2 SPD
Reverse Polarity Detection	Included
DC Ground Fault and Insulation Detection	Included

Optional
Low Temperature Kit up to -30°C [-22°F]
Enhanced corrosion protection

Communications	
Control[1]	Modbus TCP/IP (Profinet upon request)
Monitoring[1]	Modbus TCP/IP
Webserver	Included

Standards/Directives[4]			
IEC 62109-1	IEC 62920	IEC 60529	NEC 2020
IEC 62109-2	EN 50530	IEC 61727	CEA 2007
IEC 61000-6-2/4	IEC 62116	NTS 631 v1.1 SENP, v2.1 SEPE	Rule 14, Rule 21
IEEE 1547	IEC 61683	UL 1741-SA	PRC 024
EN 55011	IEEE 519	CSA C22.2	UL 62109-1

[1] Consult Gamesa Electric for a specific configuration

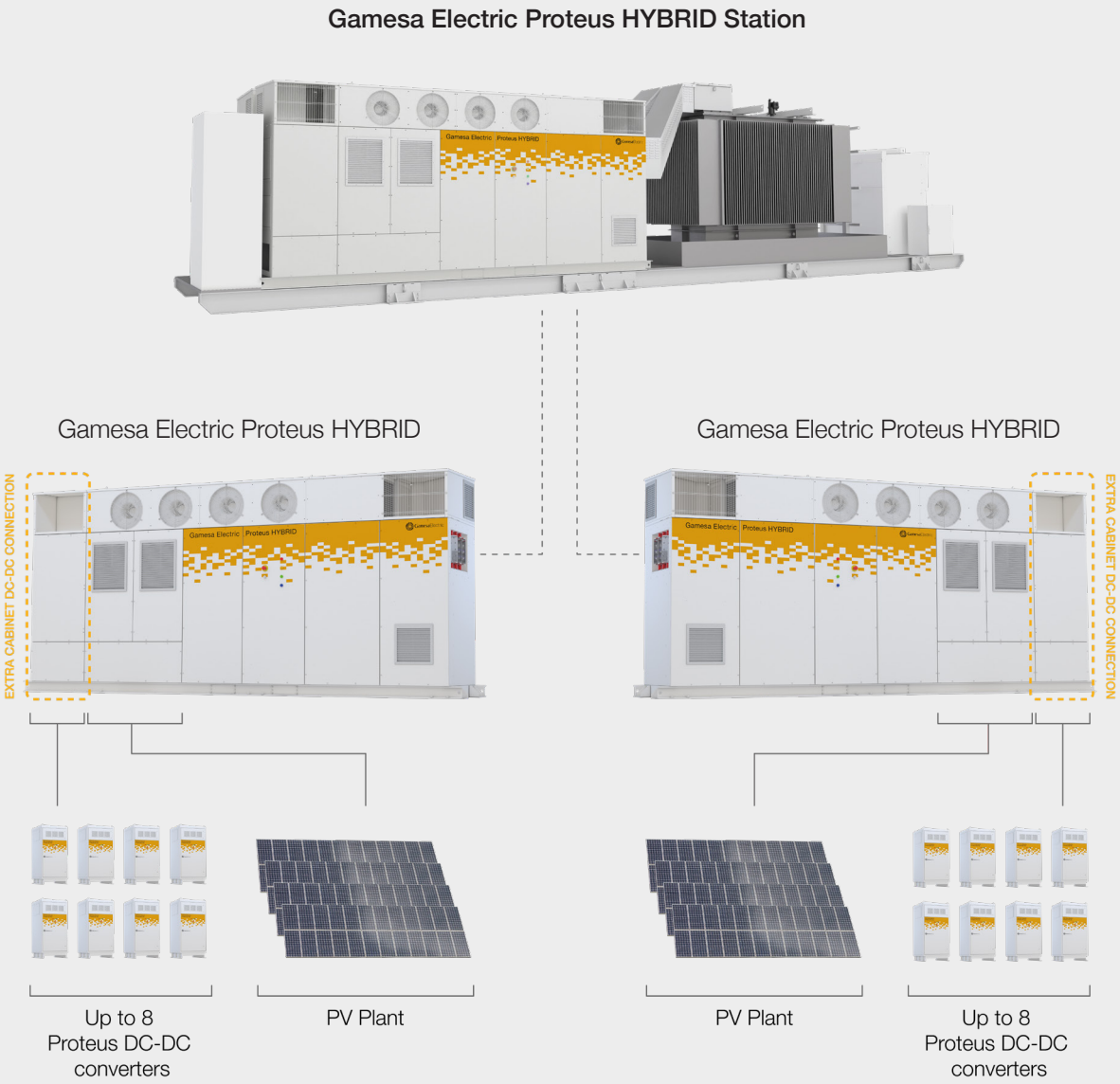
[2] With derating from 40°C [104°F]

[3] Up to 4,000m [13,123 ft] with derating as optional

[4] Consult Gamesa Electric for other Standards/Directives

Gamesa Electric Proteus HYBRID

a bidirectional inverter for PV-BESS DC-Coupled projects



Up to 2 Gamesa Electric Proteus HYBRID per skid

Up to 16 Proteus DC-DC converters per skid

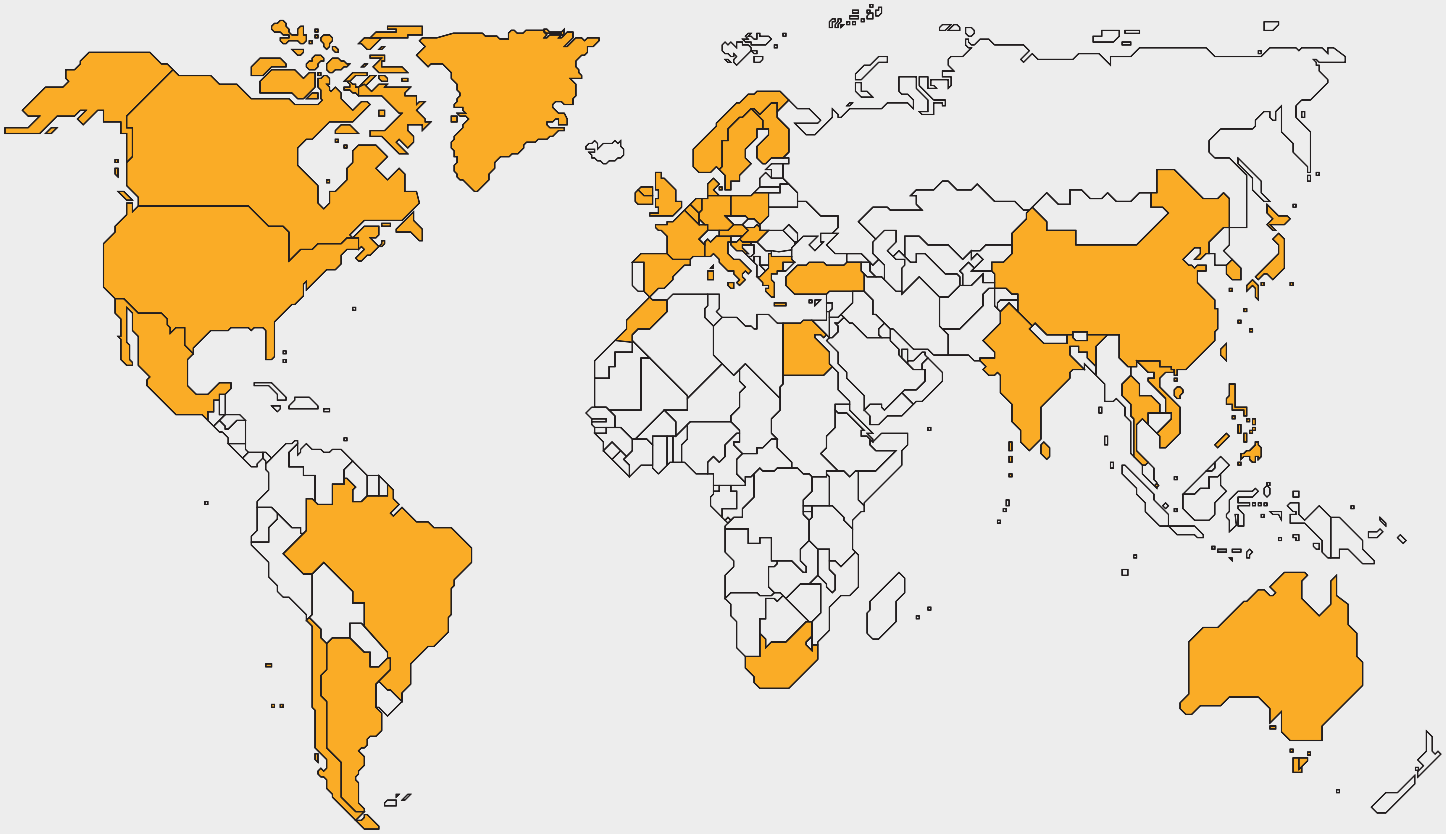
On-site retrofittable PV inverter
by adding an extra cabinet for DC-DC connection

GamesaElectric | Shaping New Energy

+4 GW
SOLAR ENERGY

+120 GW
WIND POWER

+90
COUNTRIES



Worldwide presence: commercial offices and manufacturing facilities

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Korea
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In order to minimize the environmental impact, this document has been printed on paper made from 50% pure cellulose fiber (ECF), 40% selected pre-consumer recycled fiber, and 10% post-consumer deinked recycled fiber inks based exclusively on vegetable oils with a minimum volatile organic compound (VOC) content. Varnish based predominantly on natural and renewable raw materials.

April 2022