GE VERNOVA

Power Conversion & Storage

MV8

NEXT GEN MEDIUM VOLTAGE DRIVE
UP TO 13.8KV/ 30MVA

gevernova.com

GE VERNOVA

GE Vernova Power Conversion & Storage
As innovators in advanced energy conversion and storage systems, we empower our utility and industrial customers by solving their most challenging electrification problems and accelerating their transition to a sustainable, decarbonized future.

THE ENERGY TO CHANGE THE WORLD

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WHAT WE DO

Innovation is our DNA. More than 2,000 engineers and R&D associates collaborate with GE Vernova's Global Research Business to advance fundamental energy conversion technologies.

Our expertise includes pioneering developments in superconductivity, energy storage, power systems, high-speed motors, permanent magnet generators and high-voltage direct current systems.

Our mission is to transform energy to improve customer processes. We solve recurring problems such as turning electrical energy into mechanical energy by a motor, turning mechanical energy into electrical energy by a generator or adjusting the frequency and current by means of a converter or inverter

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ALIGNING GE VERNOVA'S BUSINESS SUCCESS WITH SUSTAINABILITY SUCCESS

OUR SUSTAINABILITY FRAMEWORK

Catalyze access to more secure, sustainable, reliable, and affordable electricity, and help drive global economic development

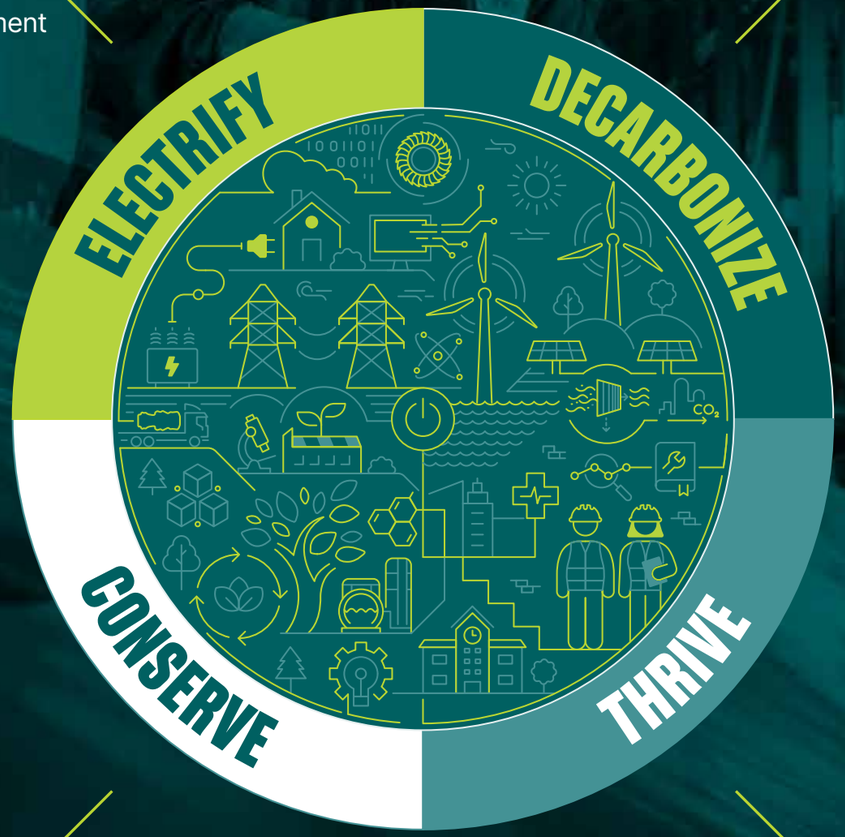
LEADING GOALS

- Be a leading provider of new power generating capacity and grid capacity for the world
- Address electrification in regions underserved by reliable, affordable, and sustainable electricity
- Support workforce development, with a focus on underserved populations globally

Invent, deploy, and service the technology to help decarbonize and electrify the world

LEADING GOALS

- Improve the trajectory on carbon intensity for near-term impact
- Innovate toward our 2050 Scope 3 net zero ambition for use of sold products



Innovate more while using less, safeguarding natural resources

LEADING GOALS

- Carbon neutrality for Scope 1 and 2 GHG emissions by 2030
- 90% of our top products covered by our 4R circularity framework by 2030

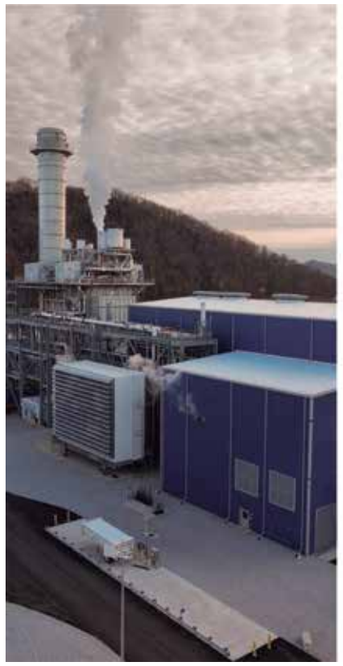
Advance safe, responsible, and fair working conditions in our operations and across our value chain

LEADING GOALS

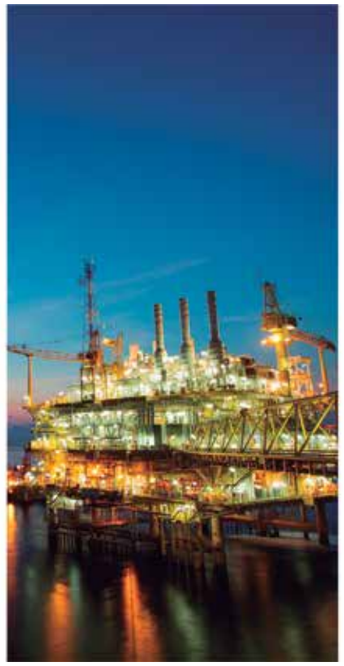
- Fatality-free operations
- Demonstrate progress on inclusive culture and equal employment opportunity for all employees
- Embed and implement ethical decision-making into business decisions
- Partner with suppliers to promote and uphold human rights in our value chain

APPLICATIONS

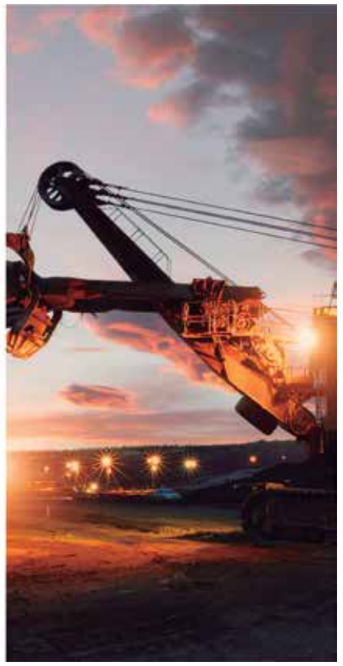
INDUSTRIAL



MARINE



MINING



OIL & GAS

POWER QUALITY

METAL INDUSTRY

BENEFITS

Consolidated LV IGBT Design: Incorporates a robust low-voltage IGBT for enhanced performance.

Maintenance-Friendly: Simplified design results in fewer repairs and reduced spare parts requirements. Front access only.

Superior Output Quality: Achieves low THD without the need for a sinus filter.

Reduced Voltage Stress: Offers low output dV/dT, 1 kV/µs, for improved system reliability.

Integrated Input Transformer: Facilitates seamless integration and efficiency.

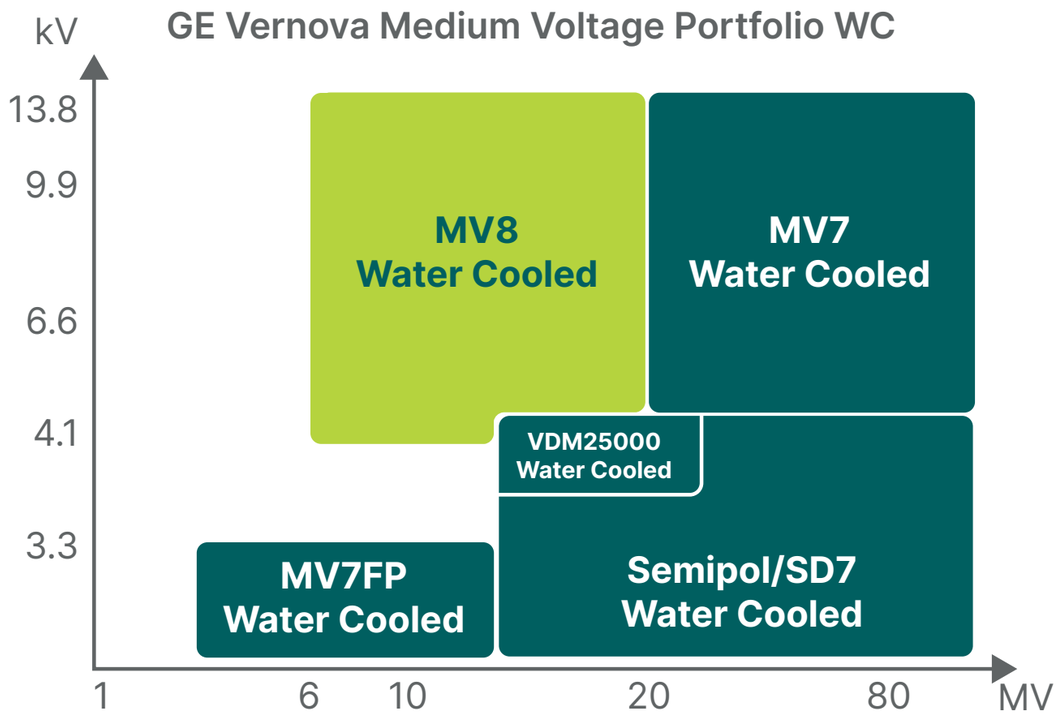
Modular Submodule Components: Features replaceable submodules for easy servicing.

High Efficiency: Designed to minimize switching losses, ensuring energy efficiency.

Cost-Effective Solution: Balances performance with economical operation.

MV8 PORTFOLIO

MV8 represents the next generation of GE Vernova's medium voltage drives, designed to address the portfolio gap from 4.16 kV to 13.8 kV and 8-20 MW water-cooled products. The modular design features standardized cell configurations that offer enhanced flexibility. Each additional cell increases the achievable voltage, facilitating straightforward customization to meet specific client requirements.



The following table illustrates the relationship between output power and output voltage across various configurations, as well as the minimum number of cells required as a function of output voltage.

OUTPUT CHARACTERISTICS	MV8408	MV8612	MV8713	MV8816	MV8B20	MV8D26
Rated Power (MW) PF=0.85	8	12	13	16	20	26
Rated Output Voltage (3-phase)	4.16 kV	6.6 kV	7.2 kV	8.8 kV	11 kV	13.8 kV
Rated Output Power	9 MVA	14 MVA	15 MVA	19 MVA	24 MVA	30 MVA
Converter Supply	Integrated Dry-Type Transformer 9 Secondaries	Integrated Dry-Type Transformer 12 Secondaries	Integrated Dry-Type Transformer 15 Secondaries	Integrated Dry-Type Transformer 18 Secondaries	Integrated Dry-Type Transformer 21 Secondaries	Integrated Dry-Type Transformer 27 Secondaries
Converter Input Voltage	9 × 875 V ± 10%	12 × 875 V ± 10%	15 × 875 V ± 10%	18 × 875 V ± 10%	21 × 875 V ± 10%	27 × 875 V ± 10%

ORDER CODE

MV8 can be ordered by specifying both the rated output voltage and the rated output power.

MV8 4 08

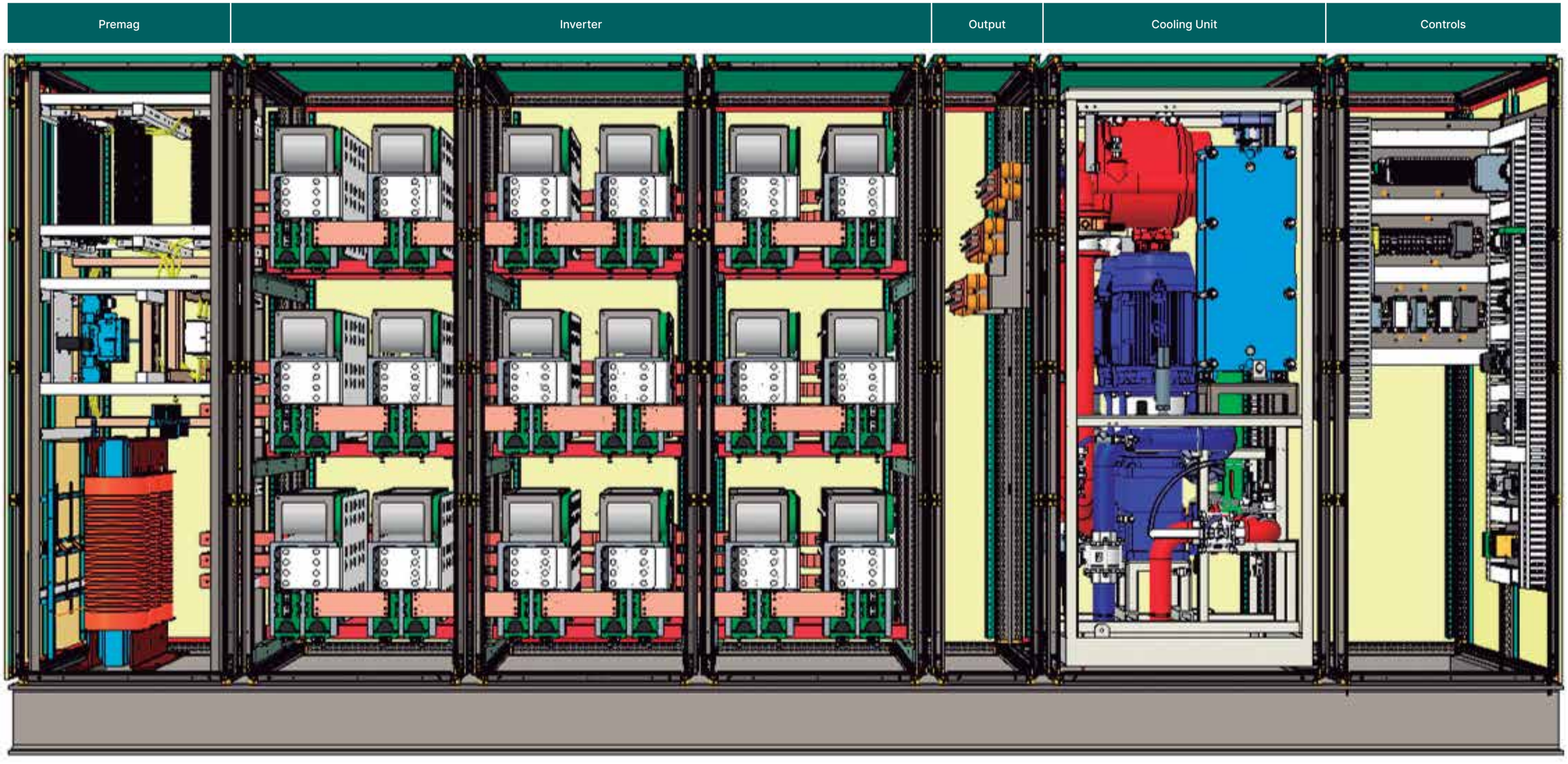
Medium Voltage Drive Model
Fixed digits that cannot be changed

Medium Voltage Drive Model	
4	4.16 kV
6	6.6 kV
7	7.2 kV
8	8.8 kV
B	11 kV
C	12 kV
D	13.8 kV

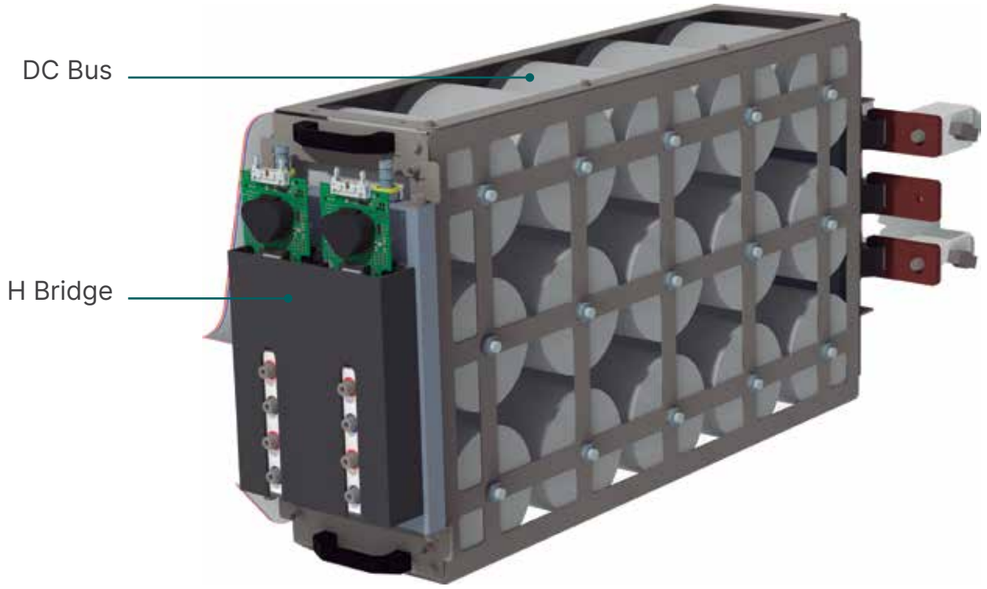
Rated Output Power	
08	8 MVA
12	12 MVA
13	13 MVA
16	16 MVA
20	20 MVA
26	26 MVA

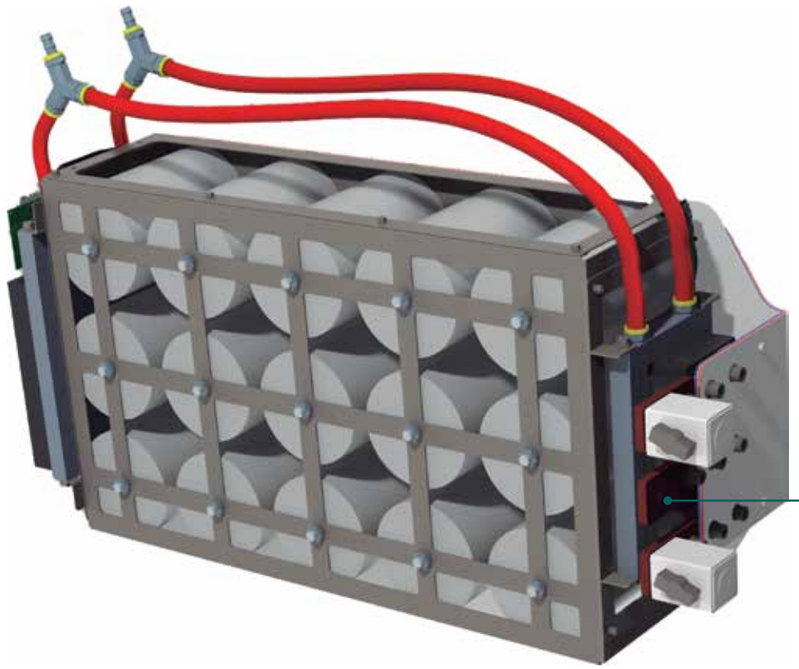
MV8 OVERVIEW

The MV8 utilizes a Cascaded H-Bridge (CHB) topology, beginning with a transformer at the input stage. Power then passes through an inverter block composed of multiple cells, each incorporating a diode rectifier bridge, a DC bus, and an H-Bridge. The system integrates water cooling for thermal management and includes a comprehensive control platform that manages drive control, system referencing, and auxiliary functions.



SUBMODULE DESIGN





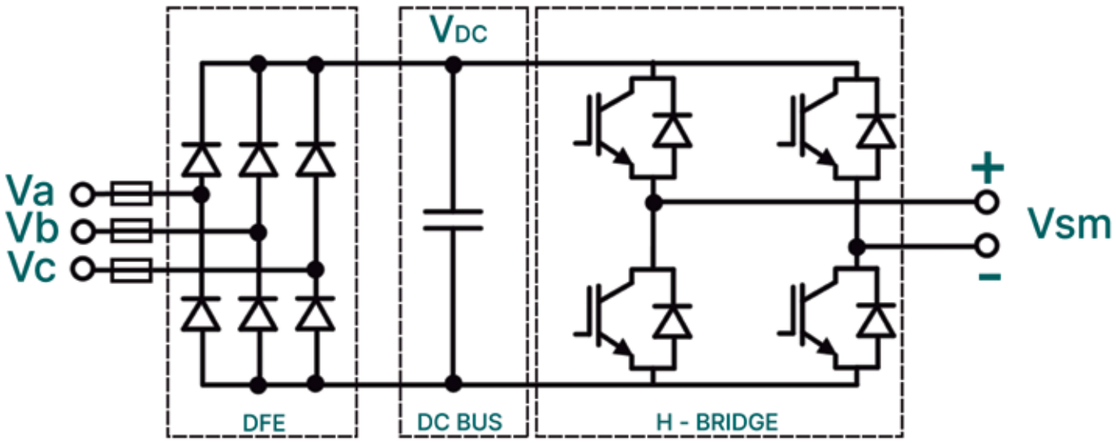
The submodule design exhibits synergy with various GEV PCS products, including Flex Inverter, among others. It is engineered for rapid and efficient maintenance, requiring less than 0.5 hours to be exchanged.

Submodule Parameters	Ratings
Rated Power (MVA)	1
VAC Output (Vrms)	850
Maximum Output Current (A)	1320
VAC Input (Vrms)	875

*can accept 10% grid variation

Dimensions	Width (mm)	330
	Depth (mm)	1045
	Height (mm)	470

The design features high-efficiency IGBT power devices and employs fiber optic communication with the main controller for reliable system integration. It is also engineered to ensure the long-term durability of critical components.



TYPICAL CHARACTERISTICS

General Characteristics	
Cooling Water	Raw water to deionized water heat exchanger Raw water inlet temp. 15°C to 38°C (>38°C or <0°C with derating)
Auxiliary Voltages	120 VAC or 220 / 480 or 400 VAC
Front End Type	Diode Front End (DFE)
Efficiency	97%
Supply Frequency	50/60 Hz
Input Power Factor (PF)	>= 0.95
Motor Type	Induction or Synchronous
Output Power Factor	0 to 1
dV/dt	< 1 kV/µs (TBC)
Motor Inverter Type / Topology	Pulse Width Modulated (PWM), Cascaded Multi-Level H-Bridge
Rated Output Frequency	0 to 230 Hz
Pressure Drop (at raw water connection point)	<1.5 bar at rated flow
Audio Noise	<85 dB (A), 1 m from cubicle line-up
Operating Ambient Temperature	5°C to 45 °C
Storage Temperature	-20 °C to 55 °C (without water in cooling circuit, with glycol flushing)
Humidity	5 to 95% (condensation not permitted)
Environmental class	Biological ambient conditions in accordance with class 3B1 according to IEC 60721-3-3 Chemical active substances in accordance with class 3C2 according to IEC 60721-3-3
Insulation coordination	Pollution degree 2 (without conductive pollution) in acc. with IEC 61800-5-1:2022
Altitude	< 1000m above mean sea level
Installation	Indoor
Paint	ANSI 61, RAL 7035
Enclosure Protection Class	IP 31 (Air-cooled Transformer), IP54 (Water-cooled Transformer)
Regulation Compliances	U347A (2022), UL 61800-5-1 (2022), CSA 22.2 No. 274:17 (2017), UL 1561, UL 1562, IEC 61800-3, IEC 61800-4, IEC 61800-5
Internal arc classification (according to IEC 62271-200: 2021)	IAC AFLR 35 kA @ 0.3s
Maintenance Access	1. Front access for main components described in user manual (submodules, controller, cooling pumps, sensors) 2. Possible rear access provided for better maintenance
Power Cabling Connections	1. Bottom entry: Input and output area are closed with removable metallic plate. – Provision for cable glands not included (Removable stainless steel shall be drilled per user requirement by the Customer).

Contact US
Use phone or mail to log your case. Use contact details listed/complete form and return via email.

Communication
Our agents will confirm a unique case reference number and explain next steps to resolve the issue.

Case Details
Provide accurate the issue details and include company name, site, location, and best contact information.

Site Intervention
If our remote support and related instructions are not suitable enough, then our team will appoint time for our Field Service Engineers to come locally.

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