



GE VERNOVA

GE Vernova
Power Conversion & Storage

M-TIER

MV SWITCHGEAR

3.6KV-17.5KV AIR INSULATED SYSTEM



THE ENERGY TO CHANGE THE WORLD

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.

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



PRODUCT DESCRIPTION

A compact and reliable hybrid MV Switchgear

Both load center and motor control center built in a same lineup.

Indoor metal-enclosed switchgear (according to IEC 62271-200), service continuity category LSBC2B PM, designed for the MV section of HV/MV, MV/MV and MV/LV substations. Innovative in its design, M-Tier MV Switchgear is a compact air insulated switchgear, housing up to 3 switching devices in one enclosure, improving safety, reliability, performance and sustainability.



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M-Tier MV Switchgear Series
M-Tier is rated for 3.6kV – 17.5kV applications, 400A - 4000A and up to 40kA-3s short time current, metal-enclosed, arc resistant switchgear, developed to meet the applications of IEC standards.

- Air insulated switchgear with a compact design;
- Safe and reliable switchgear for universal indoor applications;
- Designed with full metallic segregation of its internal compartments (partition class PM);
- Tested in accordance with the IEC international standards;
- Complete interlocking system to prevent incorrect operation and improve safety.

DEVELOPED IN THREE DIFFERENT CONFIGURATIONS

M-Tier is a versatile solution designed to accommodate up to three different functional units, such as circuit breakers, contactors, and voltage transformers (VTs), within a single enclosure.

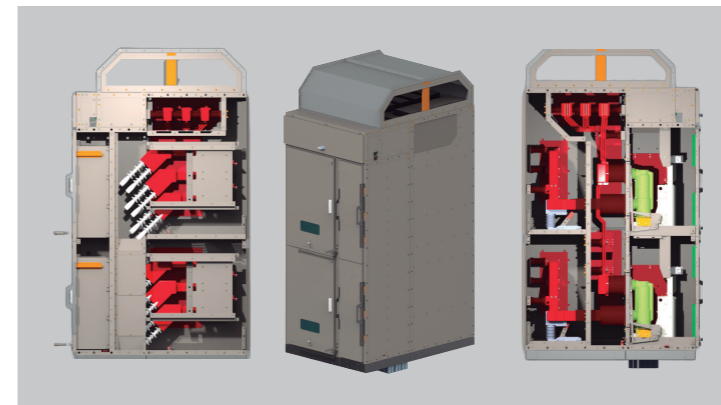
T1 - Configuration with one functional unit



Incoming and outgoing sections, voltage transformers and bus-ties, among other applications.

Rated voltage from 3.6kV to 17.5kV
Rated current from 400A to 4000A
Short time current up to 40kA-3s

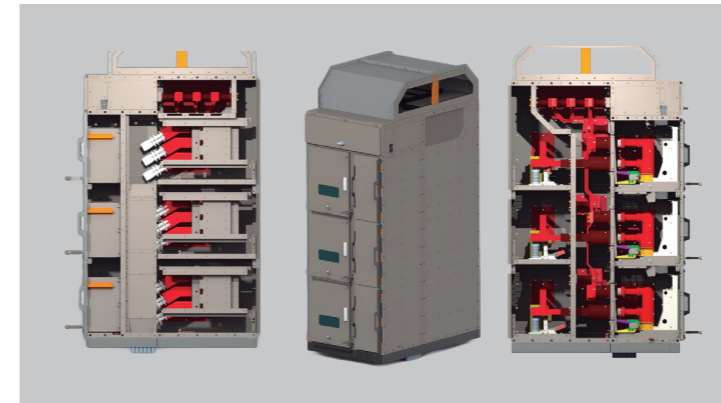
T2 - Configuration with two functional units



Outgoing sections and voltage transformers, among other applications.

Rated voltage from 3.6kV to 17.5kV
Rated current from 400A to 4000A
Short time current up to 40kA-3s

T3 - Configuration with three functional units



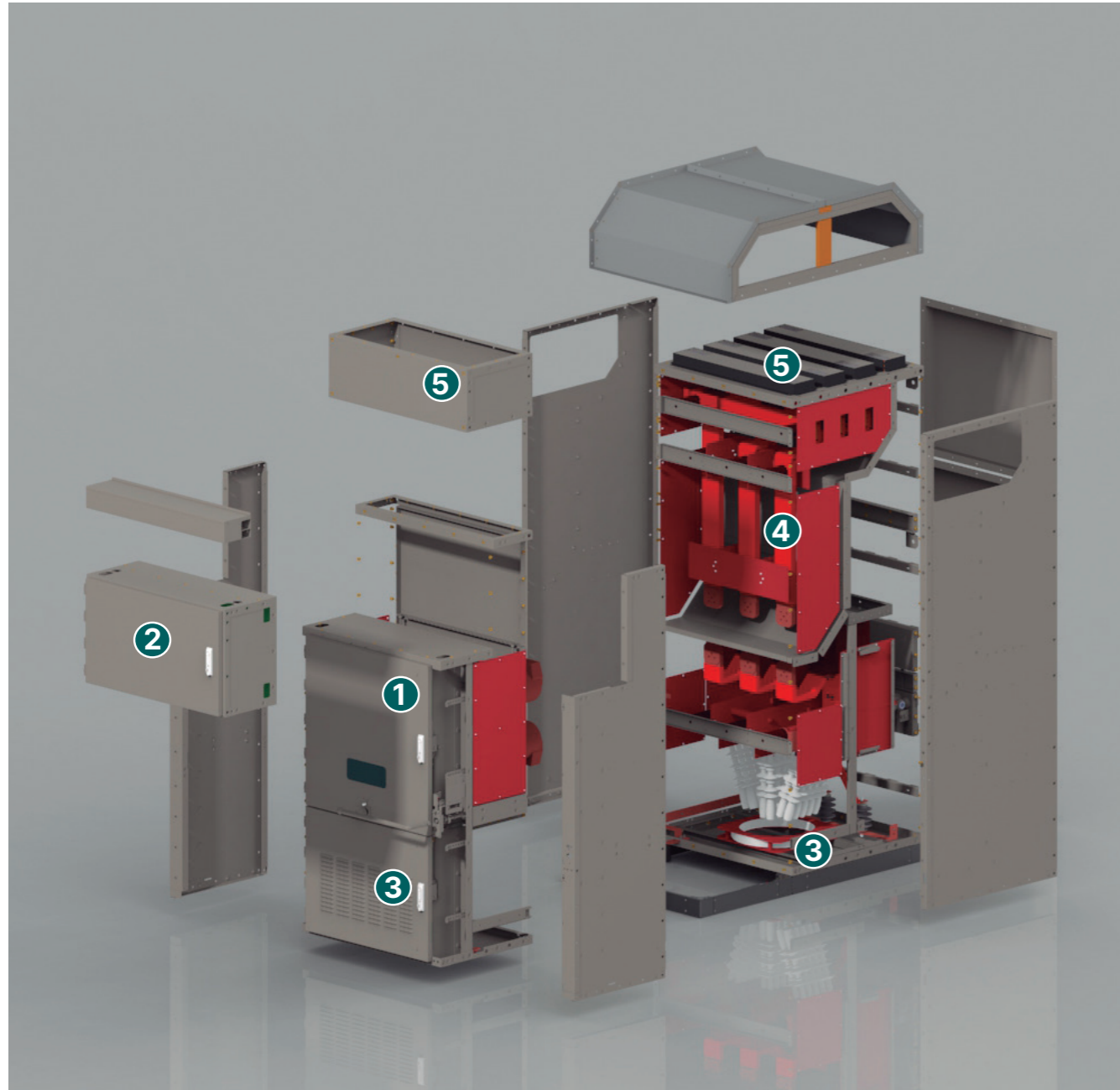
T3.1) VCBs

Rated voltage from 3.6kV to 12kV
Rated current for 630A each compartment
Short time current up to 31.5kA-3s

T3.2) Fuse Contactors

Rated voltage from 3.6kV to 12kV
Rated current for 400A each compartment
Short time current up to 6kA-1s or 50kA (with fuse)

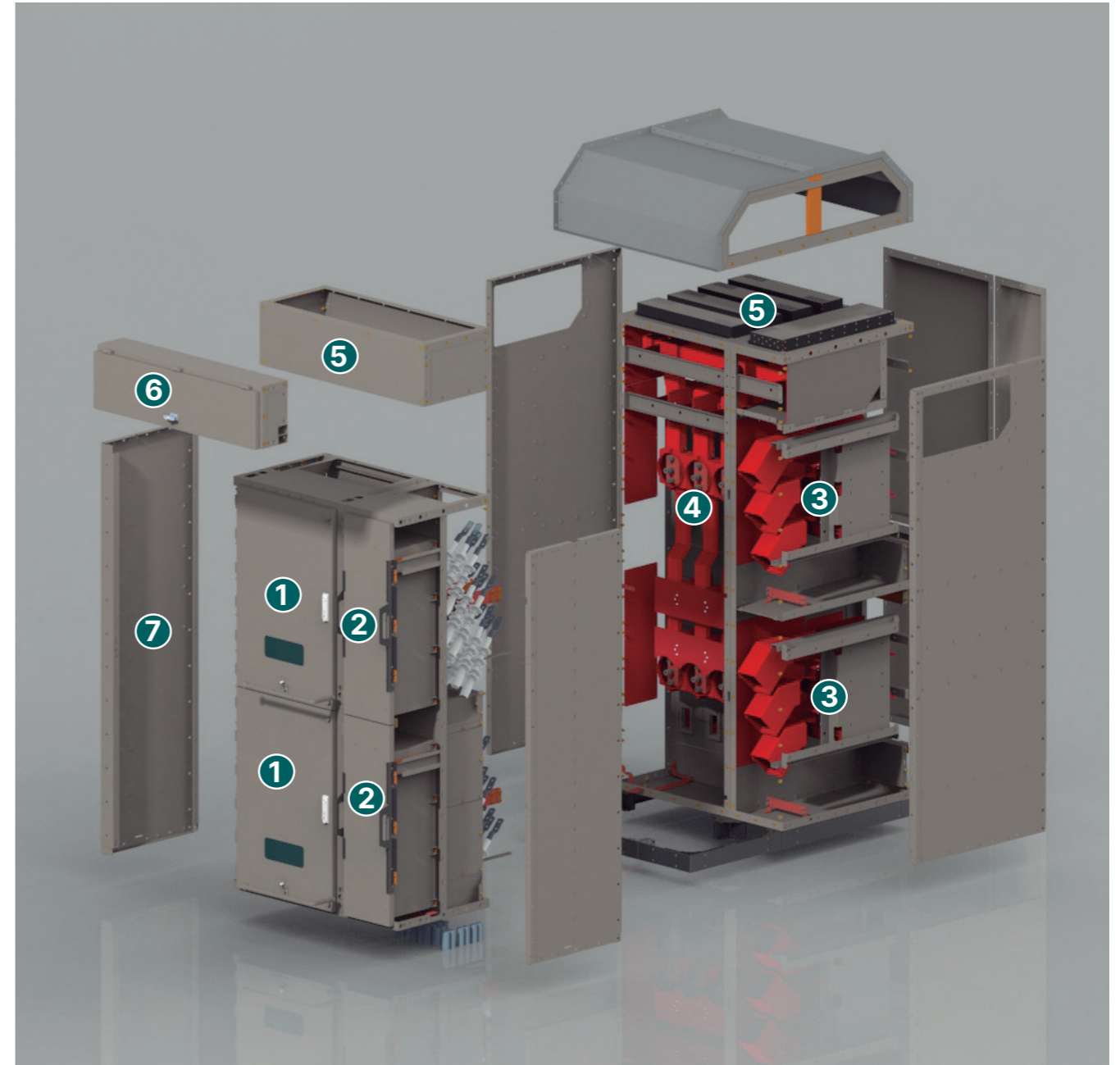
T1 - FEATURES



- 1 Circuit breaker compartment
- 2 Control compartment
- 3 Individual cable compartment
- 4 Busbar compartment
- 5 Gas exhaust compartment (absorbers housing)

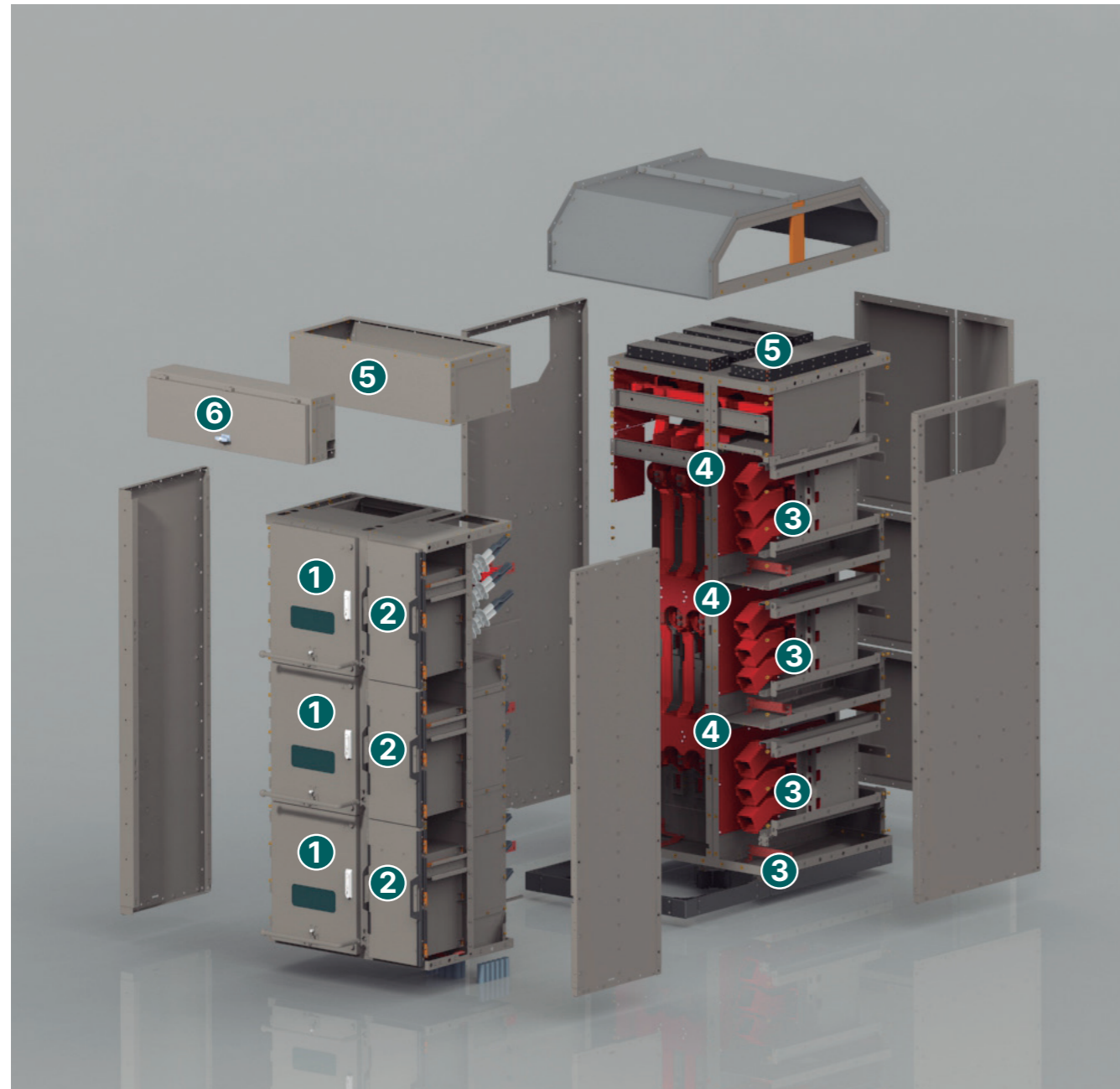
Note: Individual cable compartment can be adapted for the installation of measurement potential transformer

T2 - FEATURES



- 1 Circuit breaker compartment
- 2 Control compartment
- 3 Individual cable compartment
- 4 Busbar compartment
- 5 Gas exhaust compartment (absorbers housing)
- 6 Junction Box
- 7 Compartment available to external control cable (junction box access)

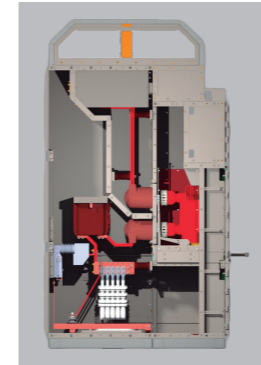
T3 - FEATURES



- 1 Circuit breaker compartment
- 2 Control compartment
- 3 Individual cable compartment
- 4 Busbar compartment
- 5 Gas exhaust compartment (absorbers housing)
- 6 Junction box

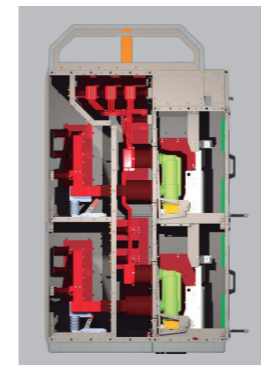
CONFIGURATIONS

M-TIER MV SWITCHGEAR HAS FOUR BASIC CONFIGURATIONS



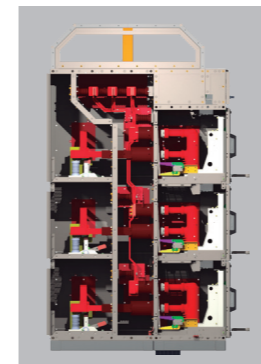
Incoming / Outgoing / Bus-tie / VT / Riser

Electrical Characteristics	Unit	Rating
Rated Voltage	kV	3.6 / 4.16 / 7.2 / 12 / 17.5
Power frequency withstand voltage	kV	10 / 20 / 28 / 38
Lightning impulse withstand voltage (BIL)	kV	40 / 70 / 80 / 95
Rated current (at 40°C)	A	1250 / 1600 / 2000 / 2500 / 3150 / 4000
Short time withstand current	kA/3s	31.5 / 40
Internal Arc Classification	kA - 1s	A FLR 31.5 / 40



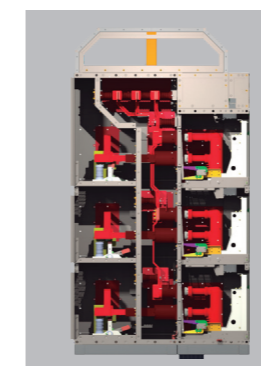
Outgoing (2x VCBs)

Electrical Characteristics	Unit	Rating
Rated Voltage	kV	3.6 / 4.16 / 7.2 / 12 / 17.5
Power frequency withstand voltage	kV	10 / 20 / 28 / 38
Lightning impulse withstand voltage (BIL)	kV	40 / 70 / 80 / 95
Rated current (at 40°C)	A	630 / 1250 / 1600 / 2000 each compartment
Short time withstand current	kA/3s	40
Internal Arc Classification	kA - 1s	A FLR 40



Outgoing (3x VCBs)

Electrical Characteristics	Unit	Rating
Rated Voltage	kV	3.6 / 4.16 / 7.2 / 12
Power frequency withstand voltage	kV	10 / 20 / 28
Lightning impulse withstand voltage (BIL)	kV	40 / 60 / 75
Rated current (at 40°C)	A	630 each compartment
Short time withstand current	kA/3s	31.5
Internal Arc Classification	kA - 1s	A FLR 31.5



Outgoing (3x Fuse Contactors)

Electrical Characteristics	Unit	Rating
Rated Voltage	kV	3.6 / 4.16 / 7.2 / 12
Power frequency withstand voltage	kV	10 / 20 / 28
Lightning impulse withstand voltage (BIL)	kV	40 / 60 / 75
Rated current (at 40°C)	A	up to 400 each compartment
Short time withstand current	kA/3s	31.5 / 50 (using fuse)
Internal Arc Classification	kA - 1s	A FLR 31.5

Special Applications: please ask support to GE Vernova's Power Conversion Business

TIERVAC FC

TierVac FC is GE Vernova's family of medium voltage vacuum fused contactor. It is designed to meet the standards of IEC 62271-106 for vacuum fused contactors and IEC 62271-200 for combined applications with switchgear. Its withdrawable design offers flexibility and ease of use, accommodating a diverse range of operational needs. The customizable option to include or exclude a mechanical latch provides adaptability. Engineered to support global systems operating at both 50 Hz and 60 Hz, it is ideally suited for a multitude of applications, particularly in medium voltage motor contrai. Additionally, TierVac FC is robustly constructed to perform under challenging environmental conditions, including shock, vibration, and high ambient temperatures, making it exceptionally well-suited for marine applications.



Common Characteristics	Description and Units		Ratings	
Main circuit	Rated frequency (Hz)		50/60	
	Rated making capacity (kA)		4.0	
	Rated breaking capacity (kA)		3.2	
	Rated short time withstand current (kA)		6.0	
	Rated peak withstand current (kA)		15	
	Rated short circuit duration (s)		1	
	Rated expected short circuit breaking current (kA)		≤ 50 (due to fuse)	
	Rated expected short circuit closing current (kA)		100	
	Take-over current (kA)		4.0	
Resistance (μΩ)		300		
Control circuit	Rated voltage (V)		110Vdc, 125Vdc, 220Vdc, 240Vdc, 110Vac, 127Vac, 220Vac	
	Rated power (VA)	Electric holding	≤1000/100 (absorbing/holding)	
Auxiliary circuit			Mechanical holding	
			≤1200/350 (closing/opening)	
Form		6NO+6NC		
Rated value		AC 220V/5A		
Control circuit, auxiliary circuit to earth power frequency withstand voltage (kV)			2	
Electrical endurance (10000 times)			10 (AC-3)	
Closing time (ms)			≤150	
Mechanical characteristics	Opening time (ms)		"≤150 (electric holding) ≤60 (mechanical holding) "	
	3-phase synchronism (ms)		≤3	
Technical Characteristics			7,2 kV	12 kV
Main circuit	Power frequency withstand voltage (kV)	Between phases, phase to earth	32	42
		Across Insulating Distance	32	42
	Lightning impulse withstand voltage (kV)	60	75	

TIERVAC VCB

TierVac VCB is GE Vernova's family of vacuum circuit breaker. It is engineered, manufactured, and type-tested in compliance with the IEC 62271-100 standard. It is equipped with multiple safety features that offer maximum protection. The user-friendly design ensures easy access and requires minimal inspection, making maintenance straightforward and efficient. Its flexibility is enhanced by a complete line of accessories and OEM solutions, catering to diverse needs. TierVac is compatible with both 50 Hz and 60 Hz systems, making it suitable for global applications. It serves all segments of the electrical industry, including industrial, commercial, utility, mining, shipping, and offshore sectors. Furthermore, it offers comprehensive protection for transformers, capacitor banks, motors, busbar sections, and cables.



Description	Units	Ratings
Rated voltage	kV	12 – 17.50 – 24
Power Frequency Withstand Voltage	kV	28 – 38 – 50
Impulse Withstand Voltage	kV	75 -95 - 125
Nominal frequency:	Hz	50-60
Rated Current:	A	630 – 1250 – 1600 – 2000 – 2500 – 3150 - 4000
Rated Breaking Capacity	kA	25* – 31.5 – 40**
Short-Time Withstand Current (3s):	kA	25* – 31.5 – 40**
Rated Peak Withstand Current	kA	65* – 82 – 104**
Percentage of DC component	%	50
Opening Time	ms	20 - 50
Closing Time	ms	30 - 70
Sequence of operation	-	O-0.3s-CO-180s-CO
Mechanical Operations	-	10000 Cycles (M2)
Electrical Endurance	-	E2
Maximum Capacitive Current	A	400

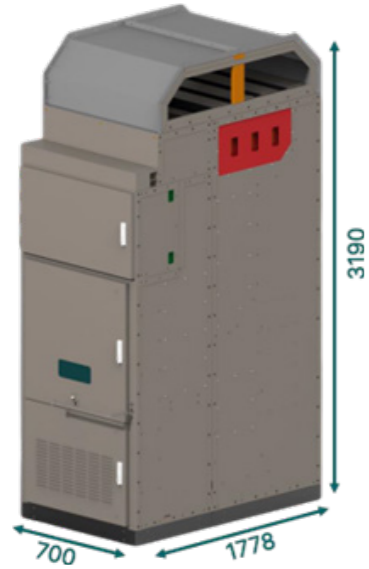
* Applicable to TierVac up to 2000A Model

** Not applicable to TierVac 630A and TierVac 24kV Model

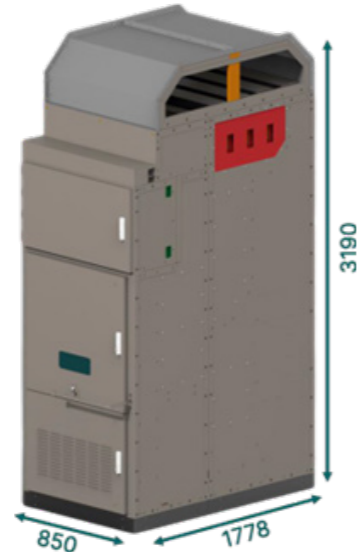
DIMENSIONS

All dimensions are in millimeters.

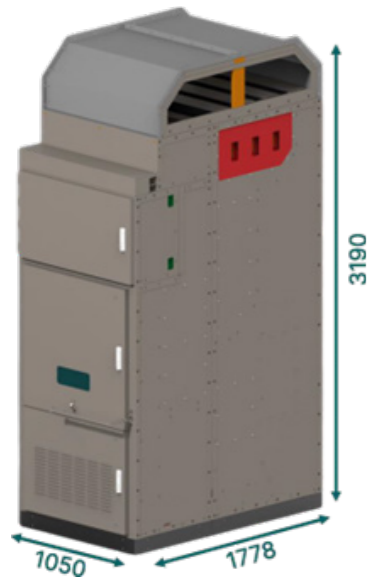
T1 1250 A



T1 2000 A



T1 4000 A



T2



T3



M-TIER CONCEPT



M-Tier was designed for back-to-back or back-to-wall installation, as its technology allows easy operation and maintenance only by its front.

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Contact US

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



Case Details

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



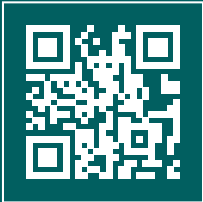
Communication

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



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.



governova.com/power-conversion
CONTACT US: salesgepclatam@governova.com

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