VERTIV.

Vertiv™ PowerBoard Flex Switchboard

Customize at Scale

Vertiv™ PowerBoard Flex Switchboard is a fully customizable solution designed to improve efficiency, enhance safety and save space in data center.

In addition to ETL certification, Vertiv™ PowerBoard Flex switchboard meets design and safety standard of UL891. All solutions are custom built using a modular design that can be configured to suit project requirements. In-house metalwork fabrication, busbars forming and plating and paintwork facilities provide a high quality and efficient solution for any specification.

Standards and Certifications

Manufactured in a certified management system environment where Quality ISO 9001, Safety ISO 45001 and Environmental ISO 14001 standards are applied to all aspects of the manufacturing and installation processes. We meet the requirements of NEMA, CSA, IEEE, ANSI, IEC & CE.

ETL Certified to UL891 Standard

- Meeting safety and design standard of UL891 for Low Voltage switchboard.
- All electrical components used for manufacturing PowerBoard Flex are UL certified.

Seismic Compliance

Independently certified to meet Seismic requirements of IBC 2021 and CBC 2019.
Independently tested to meet AC156 providing seismic protection in all zones including nuclear facilities.

C22.2 No. 244-05, NMX-J-118/2-ANCE-2006 – Standard for Safety Switchboards

UL 50 – Enclosures for Electrical Equipment, Non-Environmental Considerations

CBC-2019 – California Building Code

IBC-2021 – International Building Code

Vertiv™ PowerBoard Flex Switchboard

Compact

Vertiv™ PowerBoard Flex packs more power into a smaller footprint, this power dense design optimizes switch room space. Helping our customer to accommodate the demand for higher power capacity.

Flexible & Modular

Vertiv™ PowerBoard Flex is a modular, fully customizable solution, configurable to suit project needs. It offers flexibility and supports a wide range of breaker and relay manufacturers, helping meet both specification and timeline requirements. Its unique bus design reduces connections and installation time, while the dead-front, open-chassis construction which allows efficient access with minimal internal barriers.

Safe & Reliable

Built and tested with IEC influence, the design of our Vertiv™ UL891 switchboard is focused on achieving the highest standard of performance reliability and operator safety. Internal segregation as outlined by IEC 61439-2 reduces operator risk by limiting the propagation of internal arc fault and preserves uptime during maintenance and upgrade operations.

Product Overview

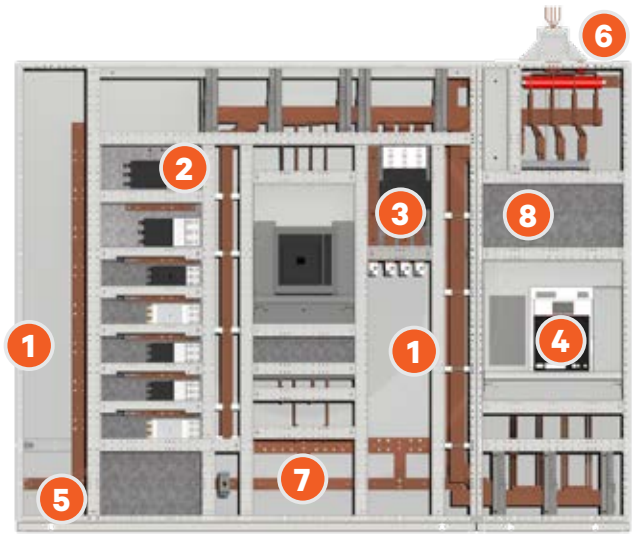
Vertiv™ PowerBoard Flex Switchboard is a custom-fit powertrain solution engineered with safety and quality at its core. It features UL 891 dead-front switchboards, designed to protect operators from accidental contact with live components. Carefully tested through multiple quality procedures, the Vertiv™ PowerBoard Flex, delivers manufacturing excellence and product quality. Which provide reliability, durability, and safety while reducing risks and maintenance.

- Full customization and design flexibility.
- NEMA 1 or NEMA 3R enclosures available.
- Switchboard Ampacity to 5000A.
- Segregation of breakers and connections are available upon request to enhance user safety and protection.
- UL489, fixed-mount breakers (MCCB) or UL1066 Draw-out, breakers from breaker manufacturers such as Schneider and ABB.
- Integration of SPD, PQM's, Protective Relays and Controls based on site specific needs.

Vertiv™ PowerBoard Flex Switchboard

Features

1. Load Wireway Section - Designed for ease of cable termination.
2. MCCB Compartment - Isolated, barriered, individually mounted breaker with isolated run back bus.
3. MCCB - UL489 individually, fixed-mounted circuit breaker equipment designed to break an electrical circuit if tripped.
4. ACB - UL1066 draw-out circuit breaker Equipment.
5. Main Bus - carries the majority of the current.
6. Busduct Connection - Designed to connect to any busduct manufacturer.
7. Ground Bar
8. Instrument Compartment - designated as the metering and control section.



Front internal view

Rear internal view

Technical Specifications

Electrical Specification	
Voltage	up to 600V
Ampacity	up to 5000A
Short Circuit Rating	up to 100KAIC
Breakers	UL1066 & UL489 – individual or group mounted construction available
Transformer	close coupled option available

Enclosure Specification	
Access	all access switchboard – access can be designed from front/rear depending on the project specification
Paint Color	RAL 7035 as standard; custom color paint is available
Enclosures	NEMA1 or NEMA 3R

ACB Specification - UL1066 draw-out, Circuit Breaker Front Access Single Stack

Front Access Single Stack

Amperage (A)	Poles	ACB's	Switchboard dimensions		
			width (")	depth (")	height (")
800 - 2000	3,4	E2.2, NW/MTZ2, NRX	22.68	30.24	90.83
2500 - 3200	3,4	E4.2, NW/MTZ2, NRX	30.24	30.24	90.83
4000	3,4	NW/MTZ2	30.24	30.24	90.83
4000- 5000	3	E6.2, NW/MTZ3, Magnum	37.8	30.24	90.83
4000- 5000	4	E6.2, NW/MTZ3, Magnum	45.35	30.24	90.83

Rear Access Single Stack

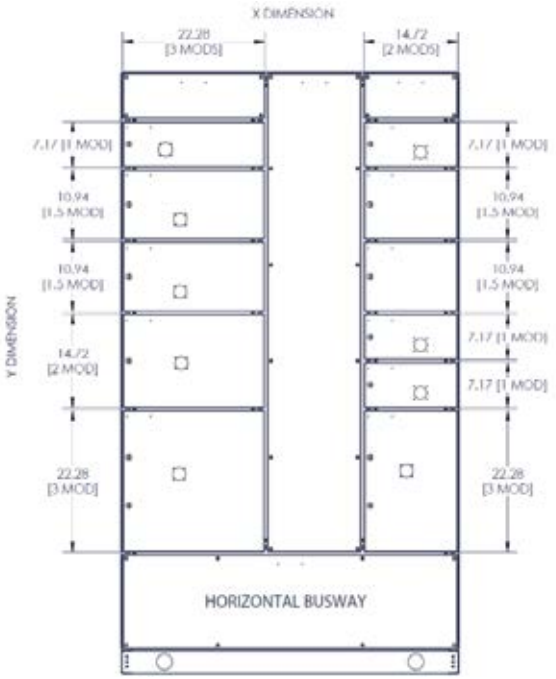
Amperage (A)	Poles	ACB's	Switchboard dimensions		
			width (")	depth (")	height (")
800 - 2000	3,4	E2.2, NW/MTZ2, NRX	22.68	60.47	90.83
2500 - 3200	3,4	E4.2, NW/MTZ2, NRX	30.24	60.47	90.83
4000	3,4	NW/MTZ2	30.24	60.47	90.83
4000- 5000	3	E6.2, NW/MTZ3, Magnum	37.8	60.47	90.83
4000- 5000	4	E6.2, NW/MTZ3, Magnum	45.35	60.47	90.83

Rear Access Double stack

Amperage (A)	Poles	ACB's	Switchboard dimensions		
			width (")	depth (")	height (")
800 - 2000	3,4	E2.2, NW/MTZ2, NRX	22.68	60.47	90.83
2500 - 3200	3,4	E4.2, NW/MTZ2, NRX	30.24	60.47	90.83

MCCB Specification - UL489 fixed-mount circuit breaker

** Group mounted MCCB section is also available.*



MCCB Dimensions (X,Y)	Brand	Breaker	Rating
2 MOD X 1 MOD 2 MOD X 1.5 MOD (with integral meter)	ABB	XT2	125A
		XT3	225A
	SCHNEIDER	H-FRAME	150A
		J-FRAME	250A
2 MOD X 3 MOD	ABB	XT7	1200A
	SCHNEIDER	M-FRAME	800A
		P-FRAME	1200A
3 MOD X 1 MOD	ABB	XT2	125A
		XT3	225A
		XT4	250A
		XT5 (3P ONLY)	400A
	SCHNEIDER	H-FRAME	150A
		L-FRAME (3P ONLY)	400A
3 MOD X 1.5 MOD	ABB	XT4	250A
		XT5	400A
	SCHNEIDER	L-FRAME	600A
		M-FREAME	800A
3 MOD X 2 MOD	ABB	XT6	800A
	SCHNEIDER	M-FRAME	800A
3 MOD X 3 MOD	ABB	XT7	1200A
	SCHNEIDER	M-FRAME	800A
		P-FRAME	1200A

Switchboard Segregation

Vertiv's innovative switchboard design is constructed from our IEC 61439 product that has been tested and approved to meet UL891 and CSA standards. The flexible and modular system provides the highest level of operator safety as well as equipment protection and customization in the North American market.

Forms of separation

The high level of protection and safety is achieved by separation of the components into clear modular compartments within the switchboard.

There are four key objectives of separation within the switchboard:

1. To protect persons against direct contact with live parts
2. To facilitate access to one part of the assembly whilst other parts remain energized, therefore facilitating maintenance work and upgrades
3. To protect the switchboards against the penetration of solid foreign bodies
4. To limit the risk of arc flash inside the switchboard by separating the busbars, connections, and equipment

The level of internal separation is agreed upon by the manufacturer and the user. It is dictated by a number of factors including rating of the panel, access required and function of the panel.

Please note the footnote number 1 with item number 2

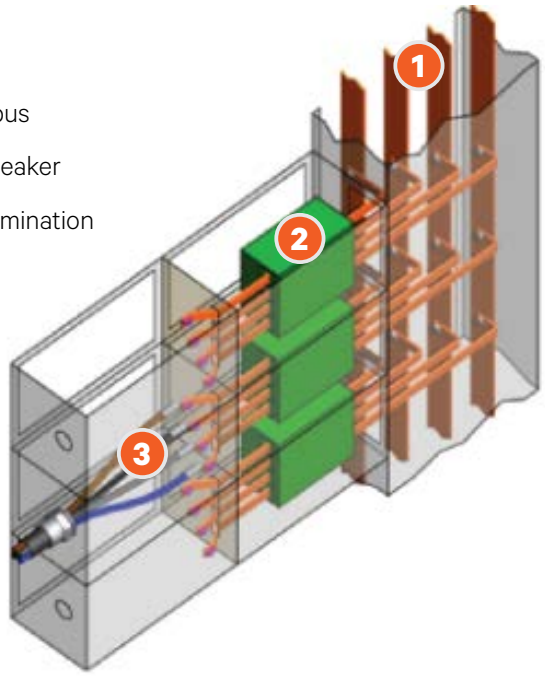
Vertiv highly recommend not to perform any duty while the switchboard or part of the switchboard is energized.

Form	Main Criteria	Sub-Criteria	Type of Construction
4a	Separation of busbars from the functional units and separation of all functional units from one another, including the terminal for external conductors which are an integral part of the functional unit	Terminals for external conductors in the same compartment as the circuit breaker	Type 1 – Busbar separation is by an insulated covering. Cables may be connected elsewhere.
			Type 2 – Busbar separation is by metallic or non-metallic rigid barriers or partitions. Cables may be glanded elsewhere.
			Type 3 - Busbar separation is by metallic or non-metallic rigid barriers or partitions. The termination for each functional unit has its own integral glanding facility.
4b		Terminals for external conductors not in the same compartment as the circuit breaker, but in individual, separate, enclosed protected spaces or compartments	Type 4 - Busbar separation is by an insulated covering. Cables may be glanded elsewhere. Type 5 – Busbar separation is by metallic or non-metallic rigid barriers or partitions. Terminals may be separated by insulated coverings and glanded in common cabling chambers. Type 6 – All separation requirements are by metallic or nonmetallic rigid barriers or partitions. Cables are glanded in common cabling chamber(s). Type 7 - All separation requirements are by metallic or non-metallic rigid barriers or partitions. The termination for each functional unit has its own integral glanding facility.

Form 4 type 7 – maximum internal separation

All separation requirements are by metallic or non-metallic rigid barriers or partitions. The termination for each functional unit has its own integral glanding facility.

1. Vertical bus
2. Circuit breaker
3. Cable termination



Vertiv™ PowerBoard Flex Switchboard Services

The Vertiv's Powerboard Flex Switchboard service options provide options to meet the system's commissioning plan and warranty and maintenance program goals. All services are performed by **Vertiv factory trained technicians,** to make sure service excellence, backed by factory support for a seamless program from issue of the purchase order through end of life. As a result, critical power distribution system is maintained in optimum performance throughout its lifecycle.

Prior to installation, a Site Arrival Inspection is completed to ensure that the system can be installed without delays and confirms the product alignment with the project's objectives. This allows for a smooth transition to the installation phase and avoids unnecessary cost or schedule interruptions during the installation.

Vertiv's Startup Services includes complete, pre-energized visual and mechanical inspection in accordance with the Vertiv Powerboard Flex Switchboard's specification. A **System Acceptance Test (SAT)** is performed, while the system is energized, to validate the system controls perform as designed. **Standby Services** ensures system commissioning and integration testing are successful.

To make sure the continued, optimum operation for the switchboard, **Vertiv™ Services** offers flexible **Preventive Maintenance (PM)** programs to support, with or without equipment shutdown, service maintenance. **Warranty programs** and **Renewable Service** Contracts combine with continuous, proactive maintenance, to increase uptime confidence, minimize total cost of ownership, while increasing reliability.

Vertiv Service Powerboard Switchboard Startup and Support Services

Level	Service	Description
L1	Site Arrival Inspection	Equipment inspection and configuration verification
L2	Visual and Mechanical Inspection	Mechanical and electrical checks, pre-energized tests
L3	System Acceptance Test and Startup	System controls, voltage verifications and communications, post-energized tests
L4	Standby Commissioning Support	Commissioning service support availability
L5	Standby Integrated System Test	Integrated System Test service support availability

Vertiv™ service' optional supplement and extend the factory warranties provide complete coverage of the Vertiv Powerboard Flex Switchboard system. After the warranty period, renewable contracts are available to increase the uptime of the Switchboard. Contact a Vertiv Service Sales representative for more information.

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SL-70901 Rev.2-07/25