

Power Xpert® GSN2-24L
Gas-insulated medium voltage switchgear

This small footprint makes a BIG impact

Saving space is just one benefit
of our gas-insulated switchgear.



EATON

Powering Business Worldwide



Electrical



Automobile



Aerospace



Truck



Hydraulic

Powering Business Worldwide

Eaton delivers the power inside hundreds of products that are answering the demands of today's fast changing world.

We help our customers worldwide manage the power they need for buildings, aircraft, trucks, cars, machinery and entire businesses. And we do it in a way that consumes fewer resources.

Next generation transportation

Eaton is driving the development of new technologies-from hybrid drivetrains and emission control systems to advanced engine components- that reduce fuel consumption and emissions in trucks and cars.

Higher expectations

We continue to expand our aerospace solutions and services to meet the needs of new aviation platforms, including the high-flying light jet and light jet markets.

Building on our strengths

Our hydraulics business combines localised service and support with an innovative portfolio of fluid power solutions to answer the needs of global infrastructure projects, including locks, canals and dams.

Powering Greener Buildings and Businesses

Eaton's Electrical Group is a leading provider of power quality, distribution and control solutions that increase energy efficiency and improve power quality, safety and reliability. Our solutions offer a growing portfolio of "green" products and services, such as energy audits and real-time energy consumption monitoring. Eaton's Uninterruptible Power Supplies (UPS), variable-speed drives and lighting controls help conserve energy and increase efficiency.



MV switchgear technology is in our DNA

Eaton Corporation is a worldwide leader in the design, manufacture, and sale of safety, reliable and high-performance medium voltage power distribution equipment in accordance with IEC, ANSI and GB/DL standards

Complete Global Medium Voltage Switchgear Solutions

Eaton, a premier leader in designing and manufacturing power distribution and protection equipment in the electrical industry, offers a comprehensive range of medium voltage (MV) solutions to meet the needs of virtually every application. From products that feature cutting-edge design that allow for easy access, maintenance and space savings, to arc-resistant products that enhance safety, Eaton's medium voltage solutions provide a variety of products for every need. Additionally, Eaton's global service network provides maximum customer support in all regions of the world.

As one of the few completely vertically integrated and diversified industrial manufacturers in the world, Eaton designs not only MV assemblies, but also the key components that comprise the MV solutions - from steel housing and circuit breaker compartments to vacuum interrupters, circuit breakers, bus systems and fuses.

Eaton's MV heritage, strengthened by acquisitions such as Westinghouse DCBU, Cutler Hammer, MEM and Holec, has resulted in breakthrough MV technologies and numerous international patents over the years.

Part of Eaton's complete electrical Power Chain Solutions - which help businesses minimize risks while realizing greater reliability, cost efficiencies, capital utilization and safety - Eaton's medium voltage equipment meets all applicable standards and certifications such as IEC, NEMA / ANSI, GB/DL, UL, IEEE, KEMA and CSA.

When it comes to medium voltage solutions, you can trust the one name with a long history of proven performance: Eaton.





Explore today's Eaton

Provide power for the
world with ever-increasing
demands

We provide the following solutions:

- Electrical solutions that reduce energy consumption, improve power reliability, and enhance safety and comfort in life and work
- Hydraulic and electrical solutions that increase machine productivity and save energy
- Aviation solutions that help achieve lighter and safer aircraft, lower operating costs, and efficient operation of airport
- Vehicle power-transmission and powertrain solutions that provide long-lasting and strong power for automobile, trucks and buses while reducing fuel consumption and emissions

Big where it matters, small where it counts.

Critical power applications don't leave any room for error. Mistakes or substandard functioning can be costly and dangerous. That's why you need switchgear that is built to perform-and to last. Eaton switchgear products are a compelling, long-term value, backed by over a century of industry experience.

We have expanded our market leading medium voltage switchgear portfolio to give you more options than ever before. Our GSN2 gas-insulated switchgear is one that is small in size and big in value, benefits that any business can appreciate.

GSN2 could be your best choice in meeting the precise demands of your application. From its compact design to enhanced personnel safety and low maintenance requirements, you owe it to yourself to see what GSN2 can do for you.

- Compact design enables use in small spaces
- Reliable it's virtually maintenance-free
- Excellent arc protection improves personnel safety
- Reduces installation and operating costs
- Provides a low total cost of ownership

See if Eaton's GSN2 is the right fit for your company.

Data centers

It's a long term investment with GSN2 - low total cost of ownership improves returns on your data center investment, and the small footprint means you're not wasting revenue-generating space. Designed for greater safety, GSN2 lowers risk for your operation.

Utilities

The high reliability and limited maintenance of the GSN2 reduces costly downtime. The compact design allows installation in congested areas and saves one-house costs. The switchgear's gas insulating technology and smart design decreases risk for your operation.

Infrastructure

Designed with a focus on safety, the GSN2 reduces risk for your operation. The equipment's high reliability and limited maintenance reduces costly downtime, and the small footprint allows installation in tight spaces.

Electrical data (maximum values) and dimensions

Rated voltage	kV	17.5	24
Rated frequency	Hz	50/60	50/60
Rated short-duration power-frequency with stand voltage	kV	38	50
Rated lightning impulse voltage	kV	95	125
Rated peak with stand current	kA	82	82
Rated short-time with stand current 3s	kA	31.5	31.5
Rated short-circuit breaking current	kA	31.5	31.5
Rated continuous current of the busbar	A	1250	1250
Rated continuous current of the feeders	A	1250	1250
Width	mm	600	600
Depth	A	1200	1200
Height	mm	2240	2240

Gas-insulated switchgear features & benefits



Safer is smarter for your operation



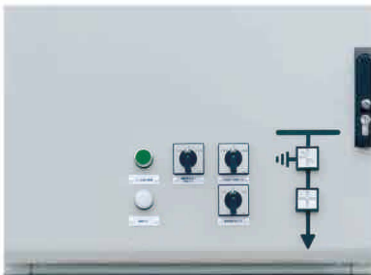
Virtually maintenance-free for maximum reliability



Small footprint and compact design

Design overview

The GSN2 provides a winning combination of customers' most-wanted features that give extraordinary value in safety, reliability and space savings - with no sacrifice of functionality.



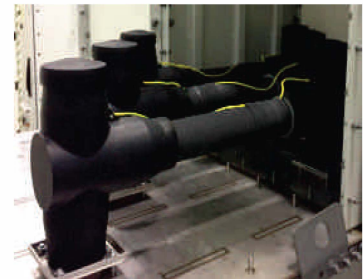
Front-accessible

IP4X rated enclosure includes space for mounting low voltage protection and metering devices and allows safe access for breaker and switch isolation operations to be performed from the front of the gear.



Arc rated

In the event of an arc flash incident, arc-gases do not need to discharge into the cable vault reducing the risk of propagating damages, and increasing safety.



Main bus

Shielded and grounded solid insulation main bus system eliminates the need for a second gas tank to house the bus, improving reliability.



Single sealed tank

The breaker, isolating switch and optional ports to connect VTs, are all contained within a single, SF6-filled, laser welded tank for a high-quality seal with no on-site filling required.



Safer is smarter for your operation

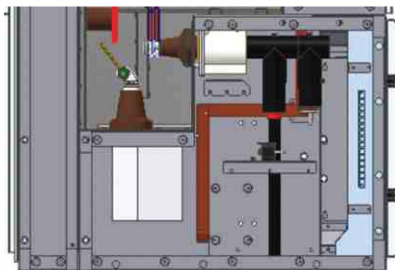
Workforce safety is the number one concern for business. By design, construction and operation, the GSN2 reduces risk for your operation.

- Robust construction and decreased potential for arc faults provides enhanced safety.
- Completed internal arc testing in all medium voltage areas including cable, breaker, switch and main bus compartments.
- Certified as arc classification AFLR(31. SkA for 1 sec) to increase safety.
- Shielded and grounded, solid-insulated busbars provide phase-to-phase isolation, minimizing the risk of phase-to-phase faults.



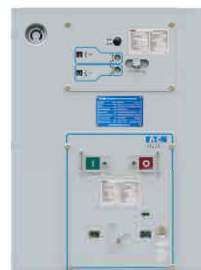
Safe handling

Modular bus bars are solid-shielded to facilitate connection and removal reducing risk for accidental contact.



Safe isolating

Isolated fused With Isolate switch VTs available for both main bus and cable applications.



Safe controlling

Interlocked three positions disconnect switch for isolating and earthing with electric operation GSN2.



Virtually maintenance-free for maximum reliability

Downtime is costly especially when unforeseen. Gas-insulating technology dramatically reduces maintenance requirements.

- Virtually maintenance-free solution is an impressive long-term value with a low total cost of ownership
- Designed and tested in third-party labs to IEC6 2271
- Expected lifespan is up to 40 years
- Medium voltage parts are enclosed within a sealed gas-insulated tank or encased in grounded solid insulation, protecting them from accidental contact and the environment



Straightforward installation

The laser welded gas tank is factory-filled with no on-site handling of SF6 gas required, making installation quick and less costly.



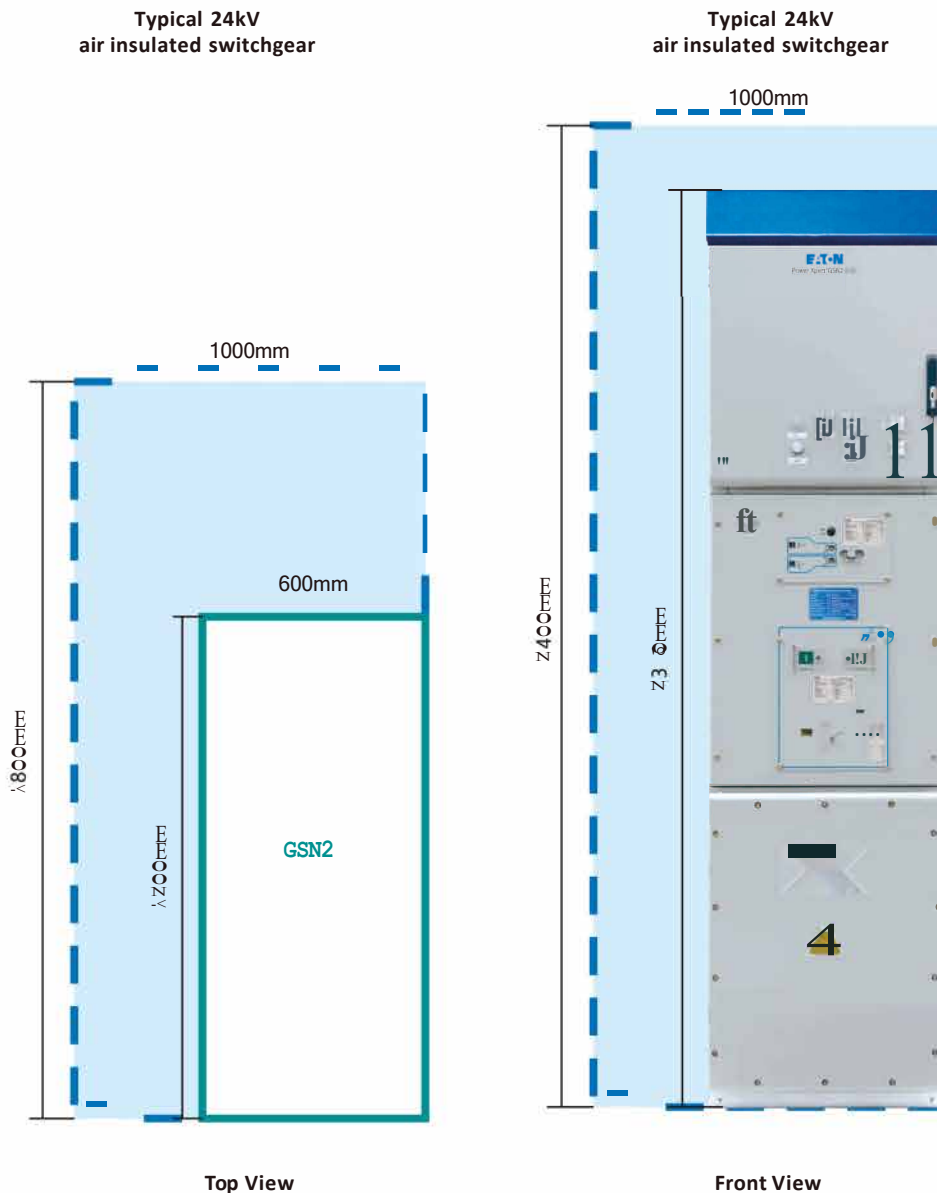
Single sealed tank

Circuit breaker and three position disconnect switch are housed in a sealed tank design of IP6 7 rating to ensure highest protection against contamination.

Small footprint

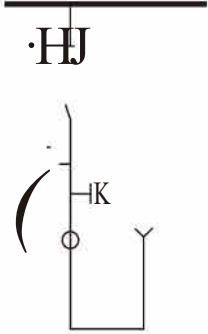
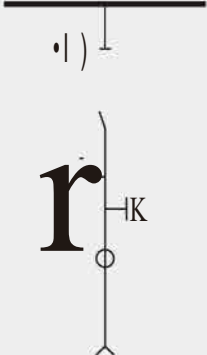
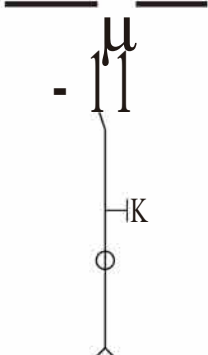
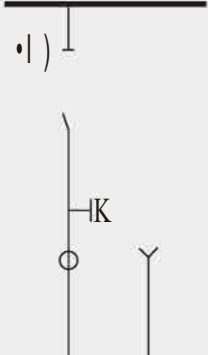
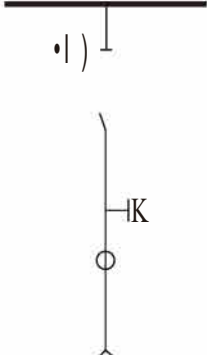
Many applications have limited space to work. The GSN2 fits the often tighter spaces of urban and existing buildings.

- System's compact design allows installation in areas with minimal floor space
- Small footprint means you don't waste revenue-generating space



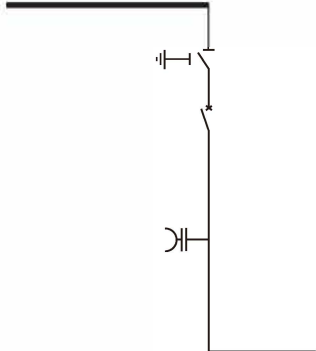
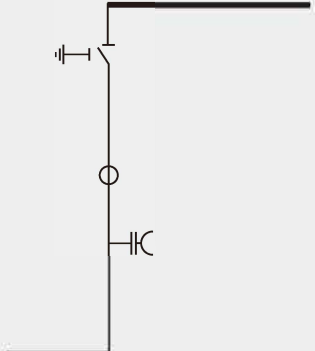
1. Width for 12 50A is 600 mm, consult factory for higher ratings
2. Includes provision for venting potential arc gases to the plenum

Configurations and Electrical data

Incoming			Outgoing	
Top Entry*	Bottom Entry*	Bottom Entry*	Top Entry	Bottom Entry
				
Width mm	600	600	600	600
Depth mm	1500	1200	1500	1200
Height mm	2240	2240	2240	2240

* VT solution consulting sales

BusSection

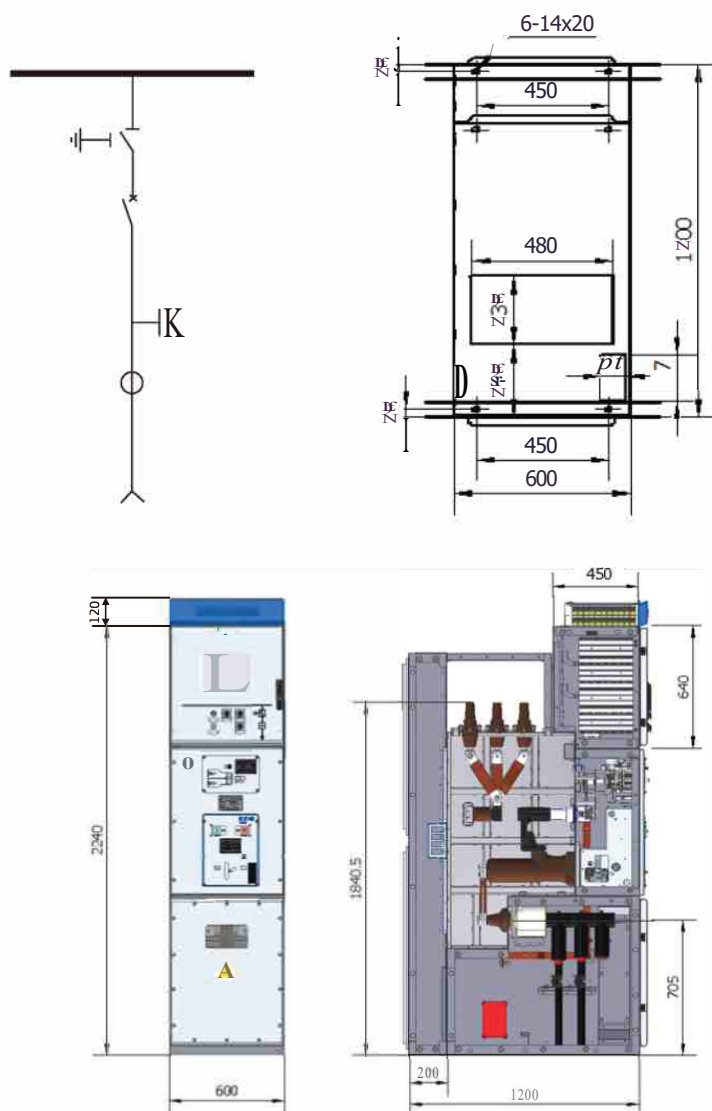
	
Width mm	600
Depth mm	1200
Height mm	2240

Configurations and Electrical data

Feeder with circuit-breaker(Bottom Entry)

Table I Specification

Circuit-breaker switchgear				
Rated voltage feeder		kV	17.5	24
Dimensions	Height	mm	2240	2240
	Width	mm	600	600
	Depth	mm	1200	1200
Weight*		kg	700	700
*Exclude solid-shielded busbar weight				

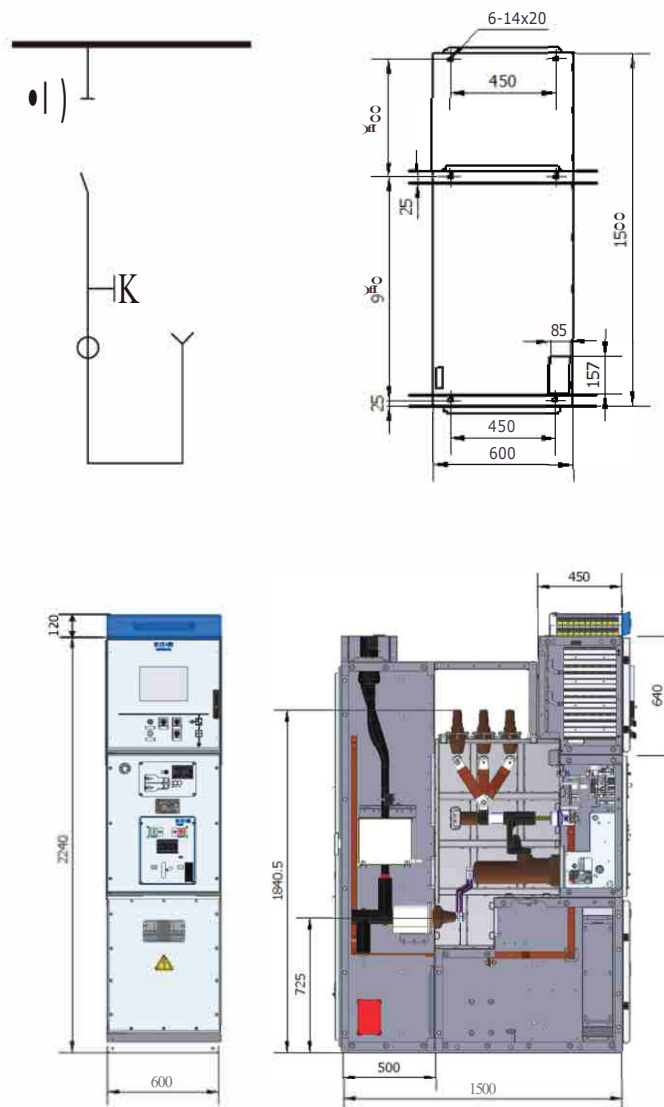


Configurations and Electrical data

Feeder with circuit-breaker(Top Entry)

Table 2 Specification

Circuit-breaker switchgear cubicle				
Rated voltage feeder		kV	17.5	24
Dimensions	Height	mm	2240	2240
	Width	mm	600	600
	Depth	mm	1500	1200
Weight		kg	800	700
*Exclude solid-shielded busbar weight				

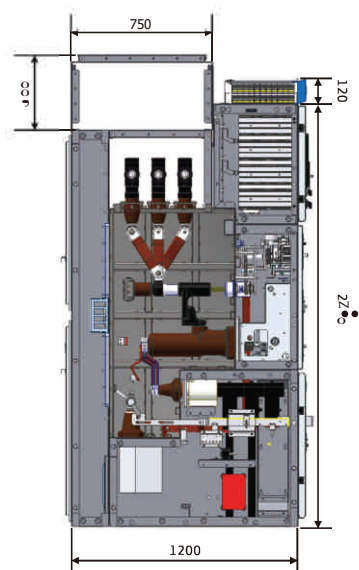


Configurations and Electrical data

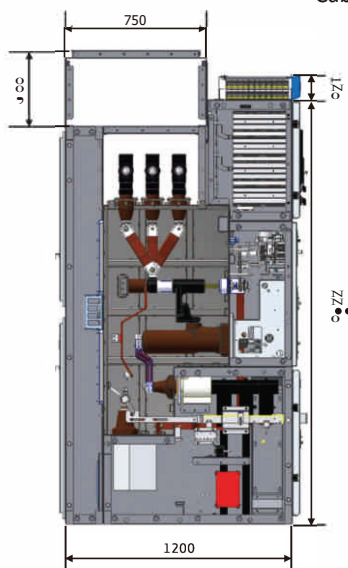
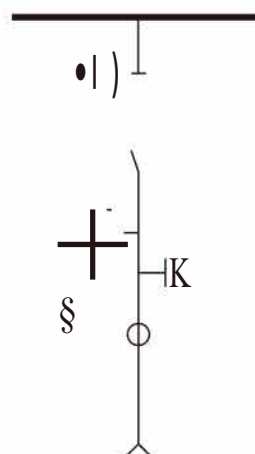
Incoming & outgoing with PT (Bottom Entry)

Table 3 Specification

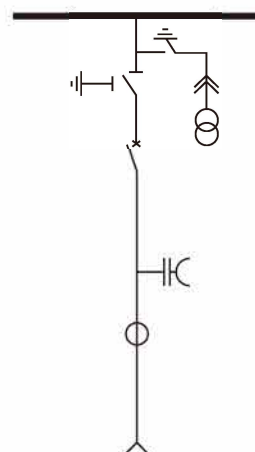
Circuit-breaker switchgear cubicle				
Rated voltage feeder		kV	17.5	24
Dimensions	Height	mm	2240	2240
	Width	mm	600	600
	Depth	mm	1200	1200
Weight		kg	810	810
*Exclude solid-shielded busbar weight				



Cable side PT Solution



Top busbar side PT Solution

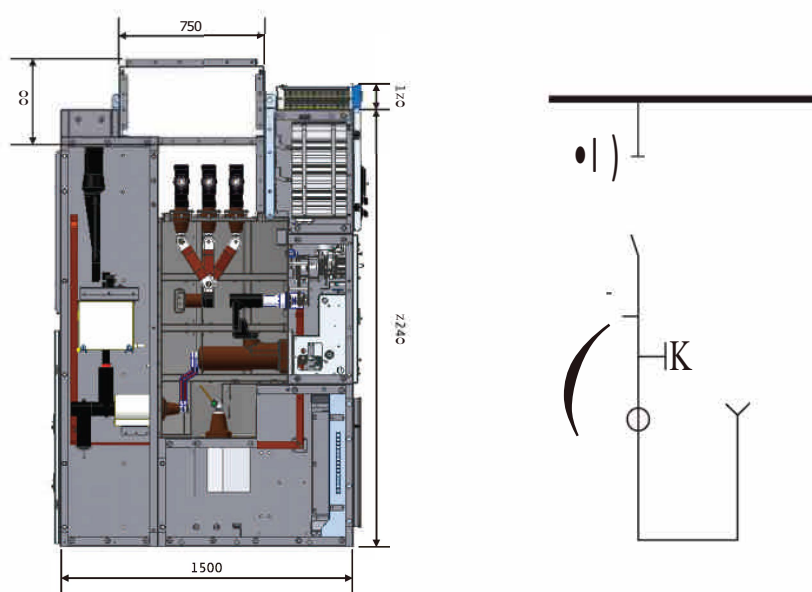


Configurations and Electrical data

Incoming & outgoing with PT (Top Entry)

Table 4 Specification

Circuit-breaker switchgear cubicle				
Rated voltage feeder		kV	17.5	24
Dimensions	Height	mm	2240	2240
	Width	mm	600	600
	Depth	mm	1500	1500
Weight		kg	910	910
*Exclude solid-shielded busbar weight				



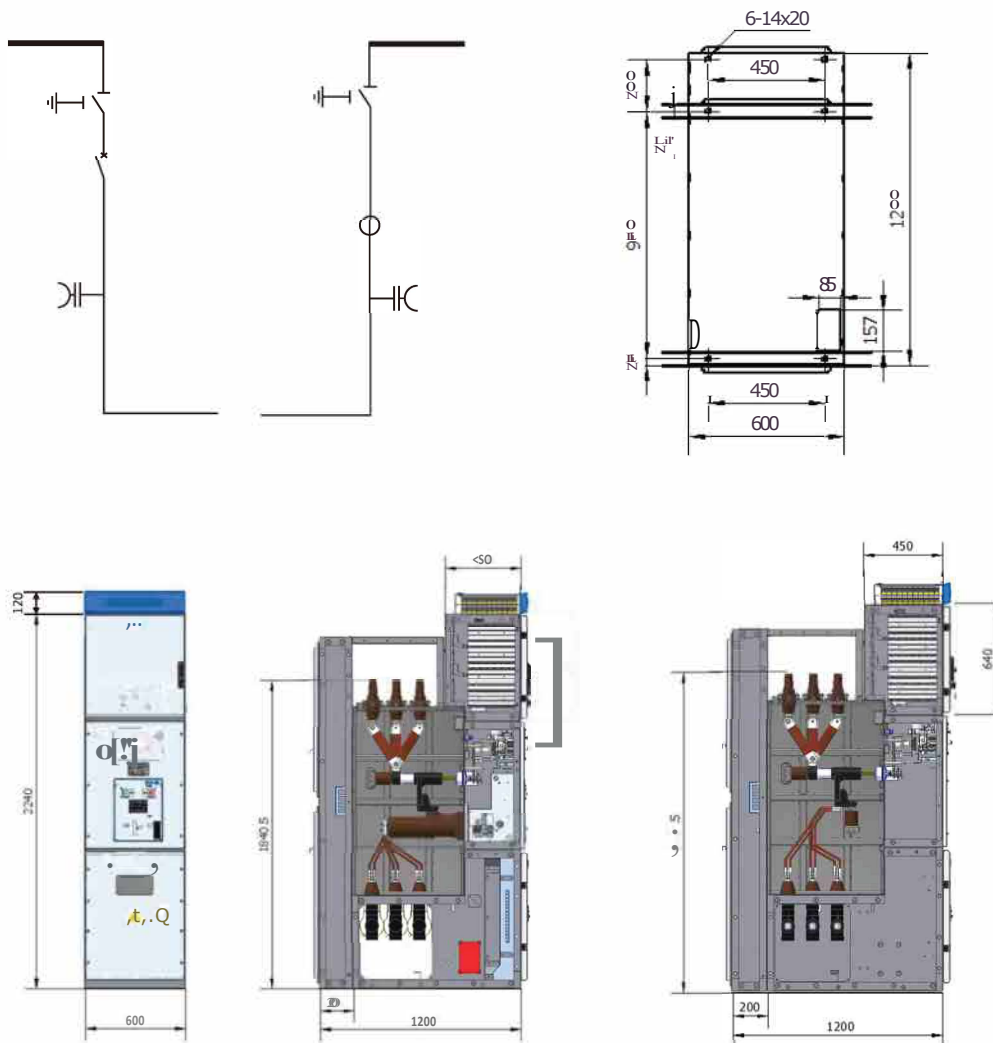
Cable side PT Solution

Configurations and Electrical data

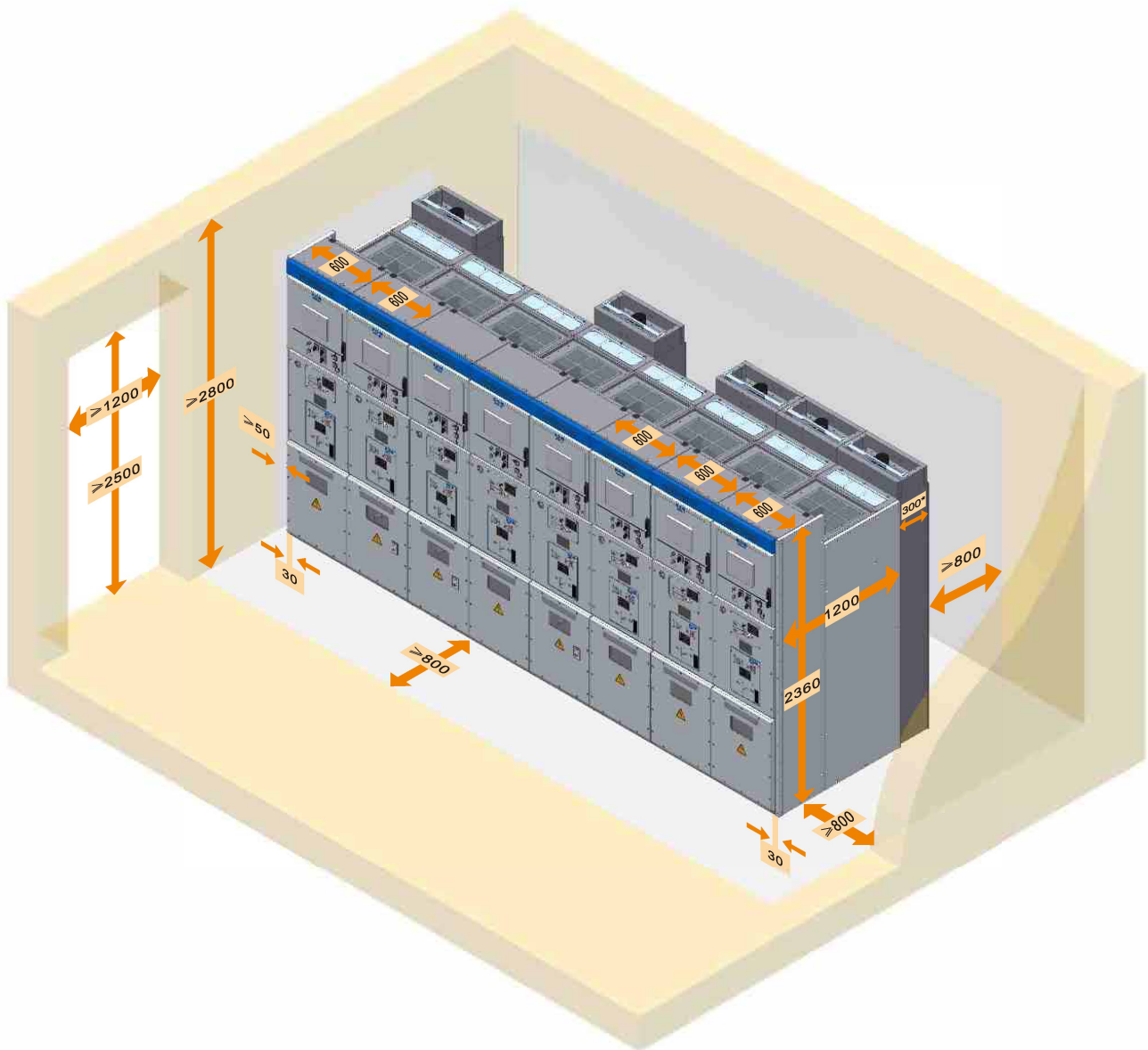
Busbar sectionalizer

Table 5 Specification

Circuit-breaker switchgear cubicle				
Rated voltage feeder		kV	17.5	24
Dimensions	Height	mm	2240	2240
	Width	mm	600	600
	Depth	mm	1200	1200
Weight		kg	700	700
*Exclude solid-shielded busbar weight				

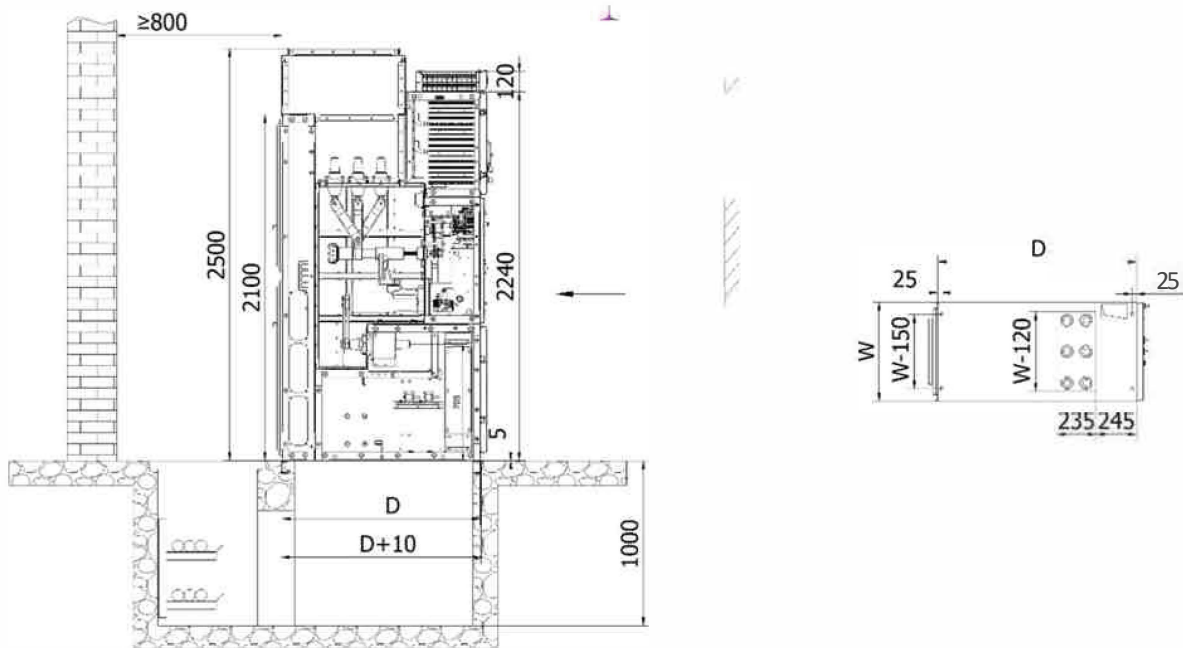


Free standing installation

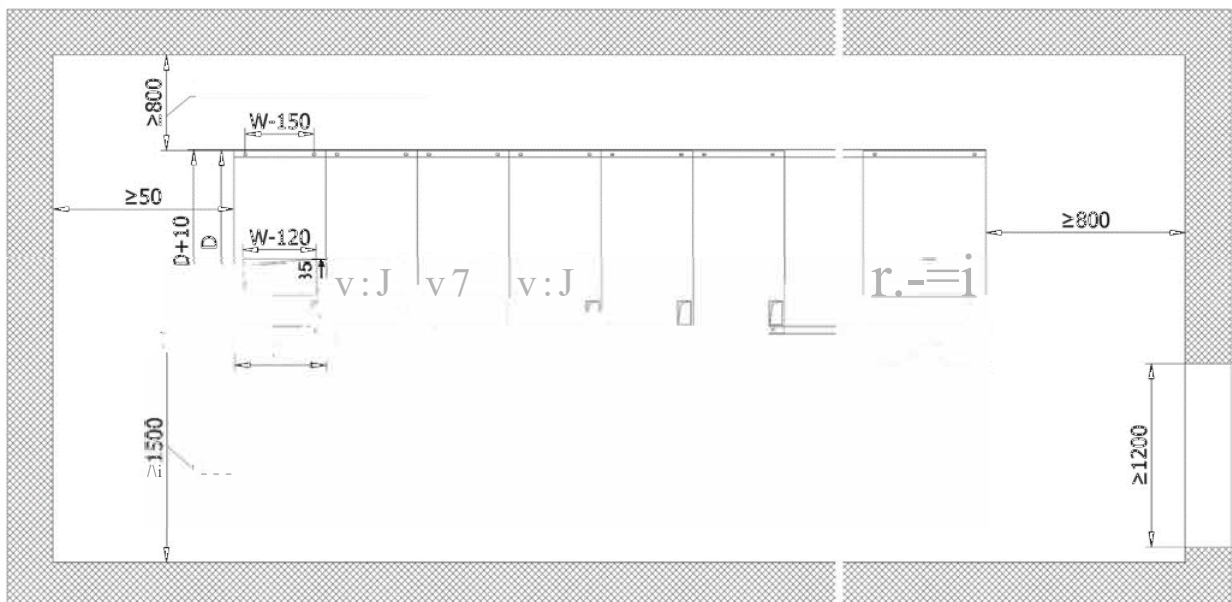


* 300mm is a part of top entry solution, the total depth is 1500mm

Installation base diagram



- Installation Four of GSN2-24L Switchgear



- GSN2-24L Layout of Switchgear

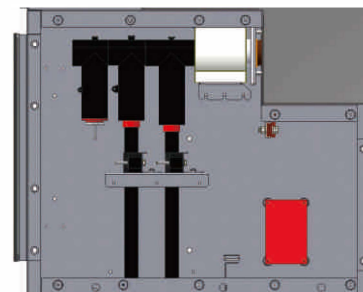
Cable Connection

All cable terminals on the circuit-breaker cubicles are equipped with outer cone-type bushings.

The geometric dimensions correspond to standard EN 50181:2010 for plug-in type bushings above 1 kV to 52 kV and from 250 to 2.50 kA for equipment other than liquid-filled transformers in the following configurations:

Outer cone-type bushing

Terminal type C



two Rated current $I_r = 1250$ A

Screw-type contact with M16 internal thread

Nominal diameter of conductor pin $d_5 = 25$ or 3

2 mm Contact material of conductor pin: Copper

(Cu) Contact surface to cable lug: copper, metallic

* As shown in the picture, there are usually standard cable solutions.

** 1) Option 1: 3 cables with 3 Surge Arrester.

2) Option 2: 6 cables with 3 Surge Arrester.

3) For more than 9 cable solutions, consult the manufacturer.

No.	Number of cables Per conductor	Rated voltage kV	Supplier	Conductor cross-section mm ²	Insulation	Short Tee (Front Connector)	Bushing Tee (Rear Connector)	Surge arresters (option)
1	1	24	Sheng Bang	35, 50	Silicone	SH-SCQ20	I	SH-SCH20
2	1	24	Sheng Bang	70, 95	Silicone	SH-SCQ20	I	SH-SCH20
3	1	24	Sheng Bang	120, 150	Silicone	SH-SCQ20	I	SH-SCH20
4	1	24	Sheng Bang	185, 240	Silicone	SH-SCQ20	I	SH-SCH20
5	1	24	Sheng Bang	300, 400	Silicone	SH-SCQ20	I	SH-SCH20
6	1	24	Sheng Bang	500, 630	Silicone	SH-SCQ20	I	SH-SCH20
7	2	24	Sheng Bang	35, 50	Silicone	SH-SCQ20	SH-SCH20	SH-SCH20
8	2	24	Sheng Bang	70, 95	Silicone	SH-SCQ20	SH-SCH20	SH-SCH20
9	2	24	Sheng Bang	120, 150	Silicone	SH-SCQ20	SH-SCH20	SH-SCH20
10	2	24	Sheng Bang	185, 240	Silicone	SH-SCQ20	SH-SCH20	SH-SCH20
11	2	24	Sheng Bang	300, 400	Silicone	SH-SCQ20	SH-SCH20	SH-SCH20
12	2	24	Sheng Bang	500, 630	Silicone	SH-SCQ20	SH-SCH20	SH-SCH20
13	1	24	Cooper	35, 50	EPDM	DTS624S	I	DAI630TB
14	1	24	Cooper	70, 95	EPDM	DTS624S	I	DAI630TB
15	1	24	Cooper	120	EPDM	DTS624S	I	DAI630TB
16	1	24	Cooper	150	EPDM	DTS624S	I	DAI630TB
17	1	24	Cooper	185, 240	EPDM	DTS624S	I	DAI630TB
18	1	24	Cooper	300	EPDM	DTS624S	I	DAI630TB
19	1	24	Cooper	400	EPDM	DTS624S	I	DAI630TB
20	2	24	Cooper	35, 50	EPDM	DTS624S	DTB624S	DAI630TB
21	2	24	Cooper	70, 95	EPDM	DTS624S	DTB624S	DAI630TB
22	2	24	Cooper	120	EPDM	DTS624S	DTB624S	DAI630TB
23	2	24	Cooper	150	EPDM	DTS624S	DTB624S	DAI630TB
24	2	24	Cooper	185, 240	EPDM	DTS624S	DTB624S	DAI630TB
25	2	24	Cooper	300	EPDM	DTS624S	DTB624S	DAI630TB
26	2	24	Cooper	400	EPDM	DTS624S	DTB624S	DAI630TB

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