



»» MGX-40.5 Series Cubicle type Gas Insulated **Switchgear**

Cubicle Type Gas Insulated Switchgear

Product Overview

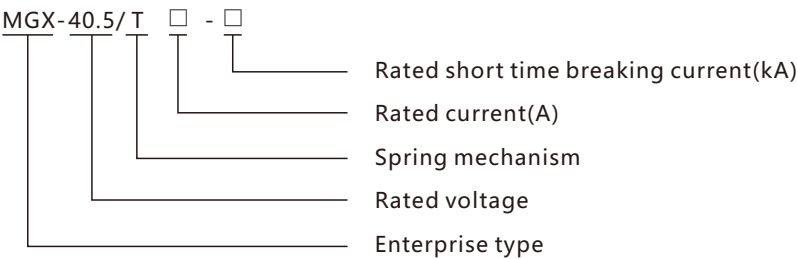
MGX Series are a new type of SF6 gas-insulated compact switchgear, in-house developed by Murge. Circuit breakers, disconnectors, and other parts are enclosed in 3mm thick metal containers filled with a low-pressure SF6 gas. Thus, the equipment is compact, reliable, and safe; free of environmental impacts, free maintenance and long service life, etc.

MGX Series switchgears are suitable for control, protection and monitoring of 40.5 kV, three-phase, single busbar electrical system, widely used in generating companies, mining, etc.

Applicable Standards

- IEC 62271-1: High-voltage switchgear and controlgear-Part 1: Common specifications
- IEC 62271-100 :High-voltage switchgear and controlgear-Part 100: Alternating-current circuit-breakers
- IEC 62271-102 High-voltage switchgear and controlgear-Part 102: Alternating current disconnectors and earthing switches
- IEC 62271-103 High-voltage switchgear and controlgear-Part 103: Switches for rated voltages above 1 kV and up to and including 52 kV
- IEC 62271-105 High-voltage switchgear and controlgear-Part 105: Alternating current switch-fuse combinations
- IEC 62271-200: High-voltage switchgear and controlgear-Part 200: AC metal-enclosed switchgear and controlgear for rated voltage above 1 kV and up to and including 52 kV
- IEC 60044-2:Instrument transformers-Part 2: Inductive voltage transformers
- IEC 60044-1:Instrument transformers-Part 1:Current transformers

Product Description



Service Condition

Altitude: $\leq 4000\text{m}^{\star}$

Ambient temperature:

Maximum temperature $+40^{\circ}\text{C}$

Minimum temperature -25°C

Average air temperature within 24h $\leq 35^{\circ}\text{C}$

Ambient humidity:

Maximum average humidity

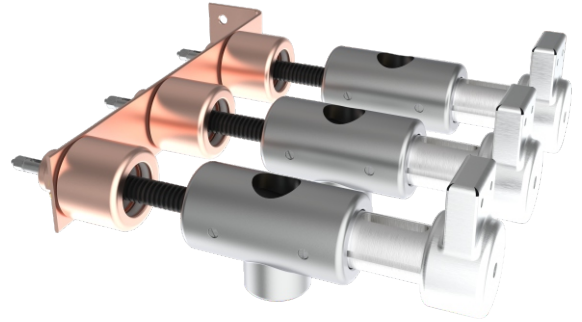
24 hours $\leq 95\%$

1 month $\leq 90\%$

Seismic fortification intensity VIII degree

Site environment is free of explosive or corrosive gas, violent shock and impact; pollution level is no more than Class III as specified in IEC60815.

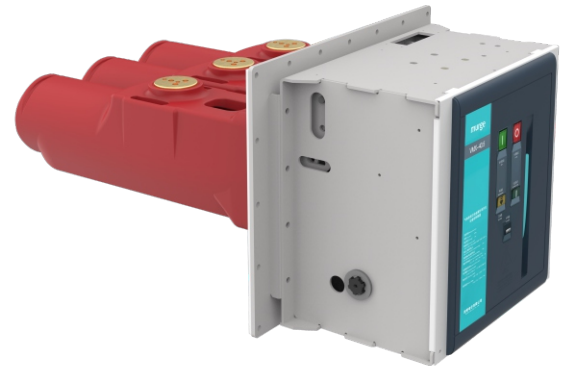
Note \star : The manufacturer must be consulted in advance if site altitude is over 1000 m so as to adjust the inflation pressure.



Product Features

1. Fully insulated and enclosed design

The live parts of high voltage circuit are enclosed in the the SF6 gas-filled compartment, free from external climate changes. The circuit breaker compartment and the busbar compartment are segregated from each other within the same switchgear. The gas-filled compartment between different switchgears are also independent of each other. The busbar is connected by busbar connector, and is connected to primary cable by bushing. The degree of protection of the gas tank is up to IP67, the interior of gas tank, free of external impact, could resist short-time flood and condensation.



2. Independently developed new mechanism and linear drive three-position switch

The circuit breaker mechanism is independently developed and designed by Murge. The main shaft or trigger shaft are all interchangeable with each other due to the modular design. The mechanism features simplified transmission system, small footprint, easy installation and maintenance, high transmission efficiency and reliability; optimum design of interlock to prevent misoperation and ensure the personnel safety.

The direct drive switch, equipped with three work positions, closed, open and earth, has superior mechanical and electrical interlock to prevent misoperation, perfect manual operation function with double-operation hole design, and reliable mechanical position indication function.



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3. High Safety and Reliability

All main circuit components (vacuum circuit breaker, three-position switch) as well as main bus and branch bus are installed in the gas-filled compartment. The gas-filled compartment and cable compartment are equipped with pressure relief device to maximize personal safety and equipment operation.

The products can only be earthed by the interaction between the circuit breaker and the three-position switch, as the three-position switch can only be earthed without load and the circuit breaker has better breaking ability than earthing switch. The circuit breaker and the three-position switch are sealed in the common gas tank. Environmental influences are therefore prevented, providing maintenance-free.

4. Advanced welding and sealing technology

The components involved in the elastic sealing have been strictly tested to ensure the sealing performance.

☐ High precision production equipment

Mitsubishi laser cutting machineABB welding robot

☐ High precision detection equipment Helium leak detected equipment X-ray detector

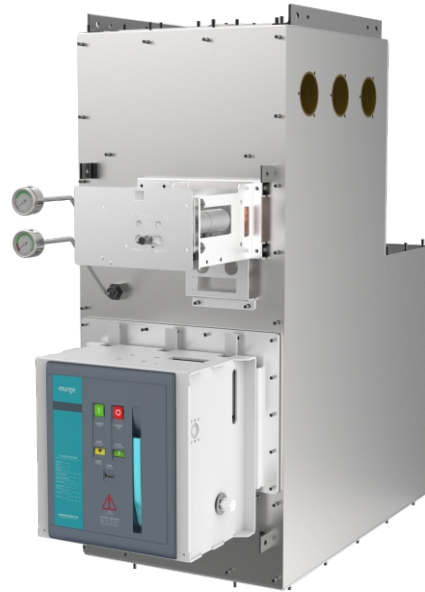
☐ High standards Annual relative gas leakage rate < 0.01%

5. Automatic assembly line

Advanced automated assembly lines and complete industrial processes ensure production efficiency and assembly accuracy.

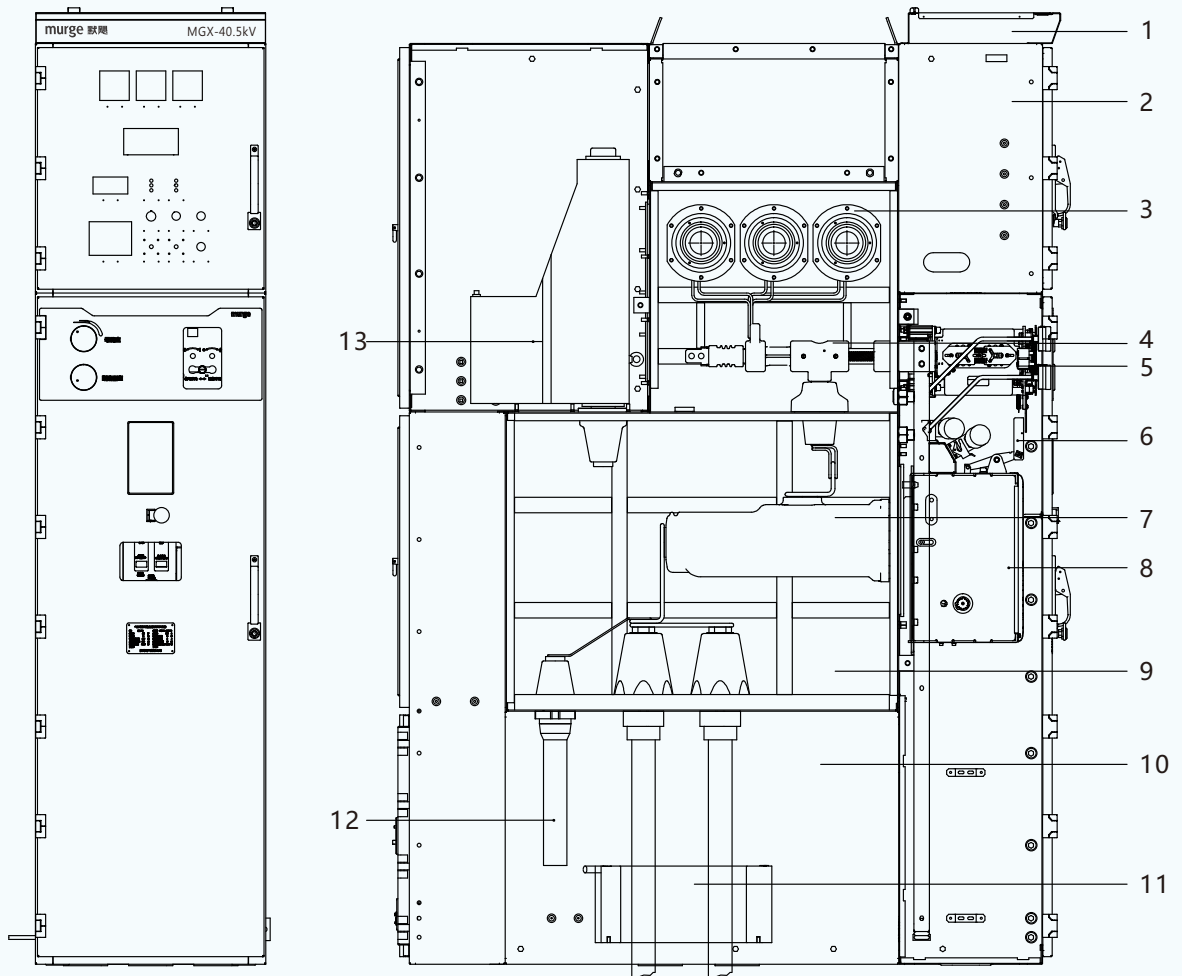
6. Routine tests:

- ☐ Assembly inspection
- ☐ Leak detection
- ☐ Insulation and partial discharge test
- ☐ Mechanical test
- ☐ Main circuit resistance test
- ☐ Moisture content determination
- ☐ Visual inspection



C-GIS Technical Parameters

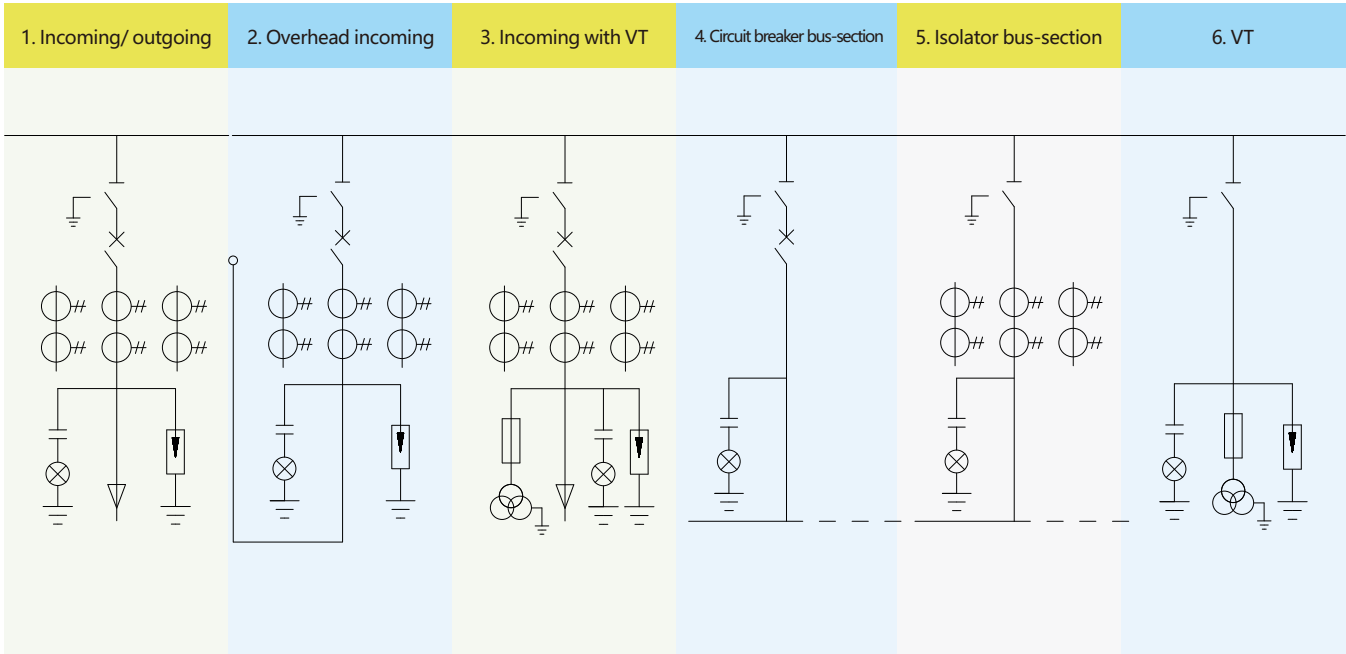
Sr. No.	Description			Unit	Parameters
1	Rated voltage (Ur)			kV	40.5
2	Rated frequency(fr)			Hz	50
3	Rated continuous current (I.)			A	1250/2500
4	Rated insulation level (Ud, Up,)	Power frequency withstand voltage(Ud) (1min)	Between phase and phase to earth	kV	95
			Across the isolating distance	kV	118
			auxiliary and control circuits (Ua)	kV	2
	Lightning impulse withstand voltage (Up)	Between phase and phase to earth	kV	185	
		Across the isolating distance	kV	215	
5	Rated short-time withstand current (Ik/tk)			kA/s	25/4 31.5/4
6	Rated peak withstand current (Ip)			kA	63、 80
7	Rated short-circuit breaking current (Isc)			kA	25、 31.5
8	Rated short-circuit making current			kA	63、 80
9	Circuit breaker electrical endurance			/	30 times
10	Rated operating sequence.			/	O-0.3s-CO-180s-CO
11	Mechanical endurance	Circuit breaker	Ops	20000	
		Disconnectors/Earthing switches	Ops	5000	
12	Resistance of the circuit	1250A	μΩ	≤120	
		2500A	μΩ	≤80	
13	Rated gas- filled pressure (the pressure at 20 °C)			MPa	0.02
14	Annual leakage rate (relative pressure)			/	≤0.01%
15	Isolation medium			/	SF6
16	Degree of protection (IP)	Compartment	/	IP2XC	
		Gas tank	/	IP67	
		Enclosure	/	IP41	
		Enclosure	/	IK10	
17	Classification IAC and Internal IAC			/	A-FLR, 31.5 kA 1s



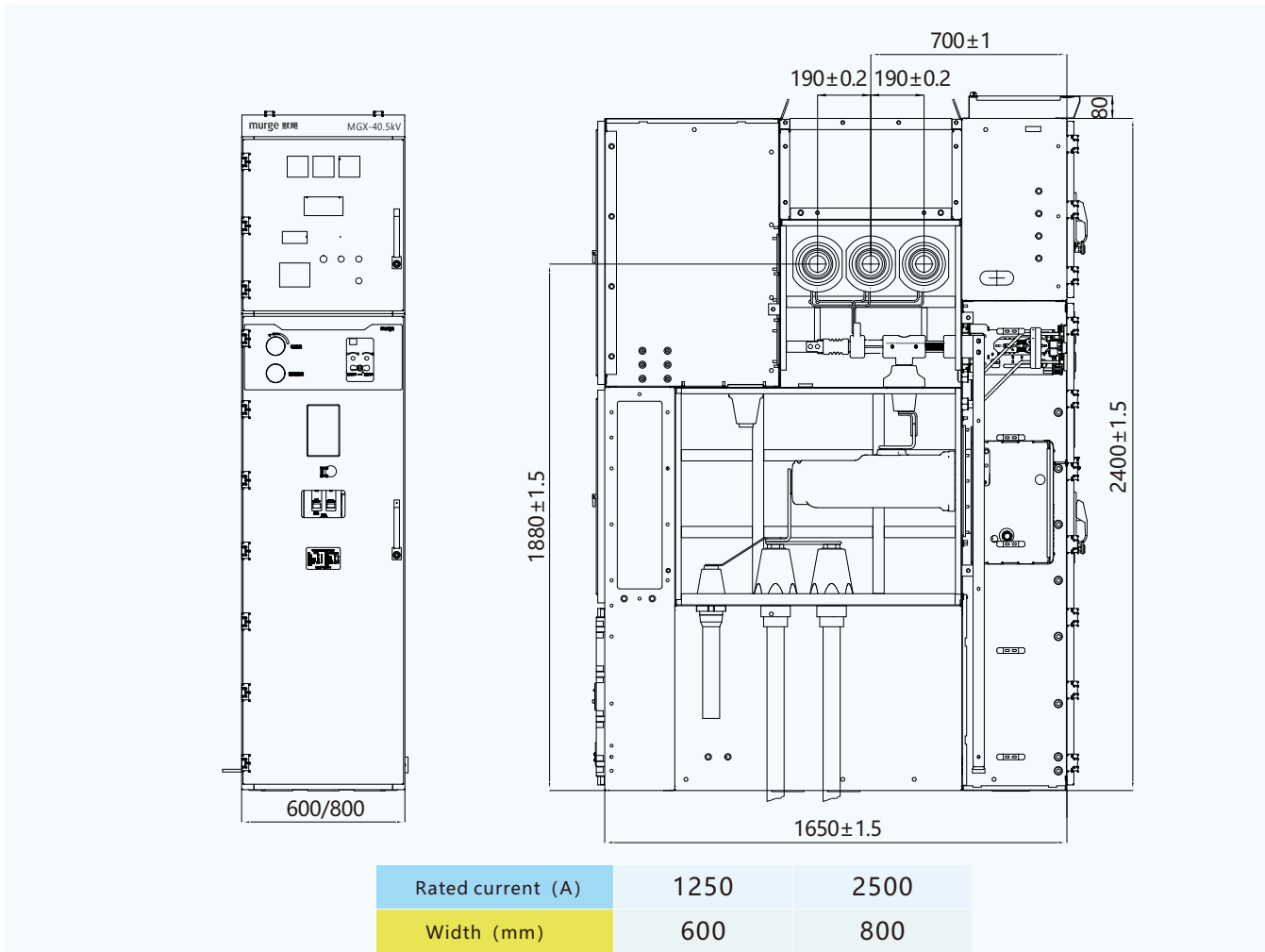
- 1 Auxiliary busbar compartment
- 2 LV compartment
- 3 Main busbar gas compartment
- 4 DS/ES for line
- 5 DS/ES operating mechanism
- 6 Interlocking device
- 7 Vacuum circuit breaker
- 8 VCB operating mechanism

- 9 Circuit breaker gas compartment
- 10 Cable compartment
- 11 Current transformer
- 12 Surge arrester
- 13 Voltage transformer

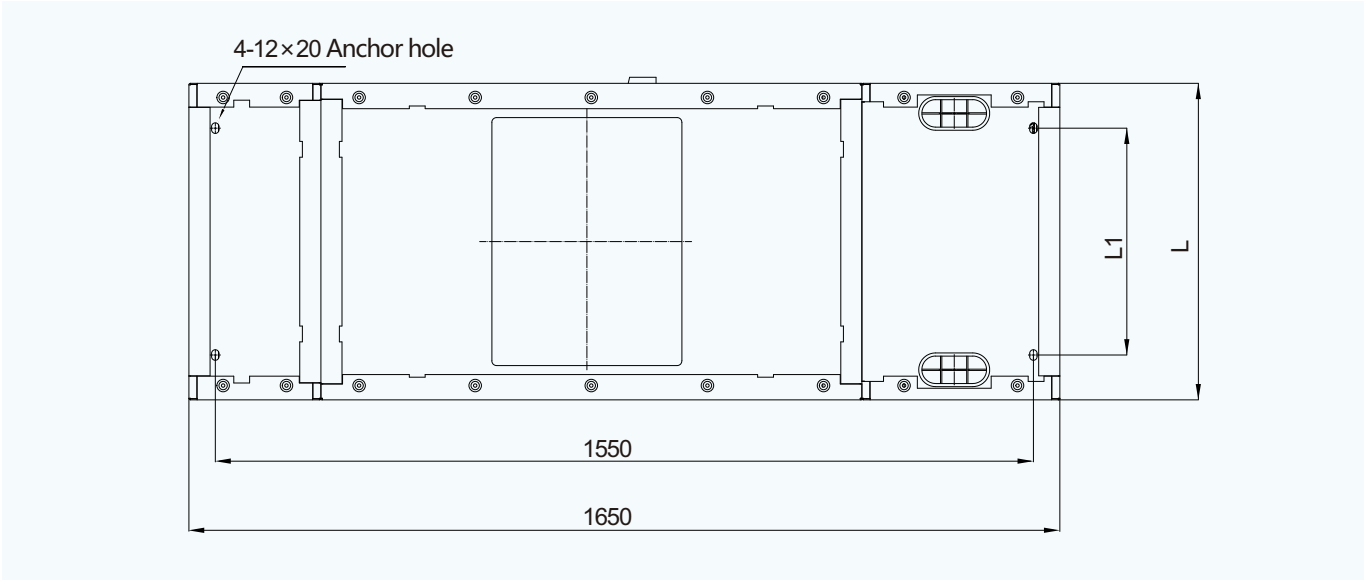
Basic Configuration



Dimension



Foundation



Technical requirements :

L switchgear width (mm)	600	800
L1 anchor hole (mm)	430	630

1. The switchgear can be bolted or welded to the foundation channel.
2. Ensure that the laying of foundation channel steel is smooth, and the irregularity shall not be greater than 1mm per meter.
3. The foundation shall be able to withstand the maximum static load of the switchgear of 2000kg and the maximum impact load of 3000kg;