

Eco-Friendly Gas Insulated Ring Main Unit

MGA-12 Series Ring Main Unit (N2)



Product

Overview

MGA series eco-friendly gas insulated AC metal-enclosed switchgear and control equipment (here in after referred to as MGA series switchgear) is an environment-friendly gas-insulated medium-voltage switchgear developed independently by Murge. It features green and environmentally friendly, reliable performance, guaranteed safety, compact design, small footprint, maintenance-free operation, long lifespan, and strong adaptability to various environmental conditions.

The MGA series switchgear is a fully sealed system, with all primary components and switches enclosed within a stainless steel shell, which is not affected by the environment. The product adopts a modular design, allowing for flexible arrangement according to different design schemes, enabling combinations of compact and expandable units to meet the requirements of various secondary distribution substations for compact switchgear.

The MGA series switchgear has passed the type tests conducted by the national-level high-voltage electrical apparatus testing center, making it.

Applicable Standards

IEC 62271-100 :2012 High-voltage switchgear and controlgear-Part 100:

Alternating-current circuit-breakers

IEC 62271-105 High-voltage switchgear and controlgear-Part 105:

Alternating current switch-fuse combinations

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 62271-200: 2011 High-voltage switchgear and controlgear-Part 200:

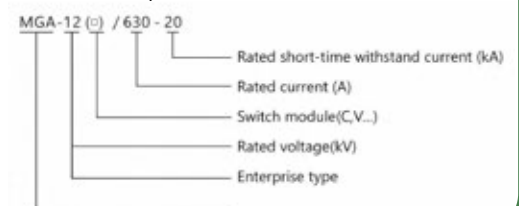
AC metal-enclosed switchgear and controlgear for rated voltage above 1 kV and up to and including 52 kV

IEC 62271-1: 2007 High-voltage switchgear and controlgear-Part 1:

Common specifications



Model Description



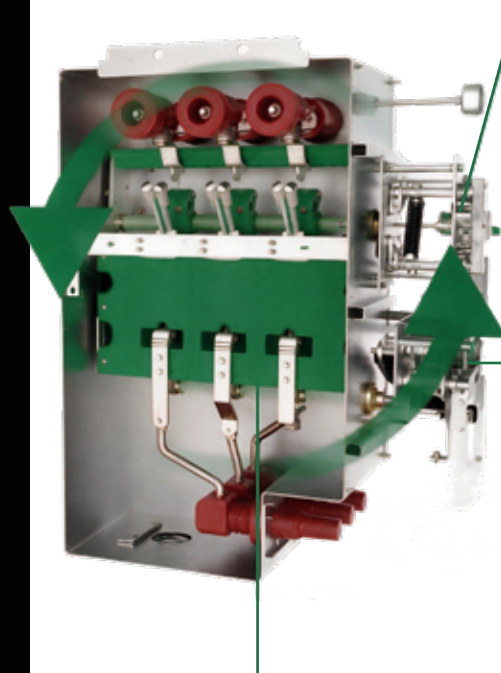
Product Details

Main components

- ① Main switch mechanism
- ② Operation panel
- ③ Isolator mechanism
- ④ Cable compartment
- ⑤ LV compartment
- ⑥ Bus connection bushing
- ⑦ Isolator
- ⑧ Arc extinguishing device
- ⑨ Gas tank
- ⑩ Pressure relief device
- ⑪ Protection relay



Diagram of the core components of the VCB unit (upper isolation switch)



Isolation switch mechanism

The isolation switch mechanism is with single spring and double operation hole structure. On the basis of the load switch mechanism, an interlock module with the circuit breaker mechanism is added, rigid interlocking method is adopted, ensuring safety and reliability, and minimizing the risk of misoperation.



The operation control unit is integrated and modularized and placed in front for easy maintenance.

Vacuum circuit breaker mechanism

The vacuum circuit breaker mechanism is with fast reducing function.



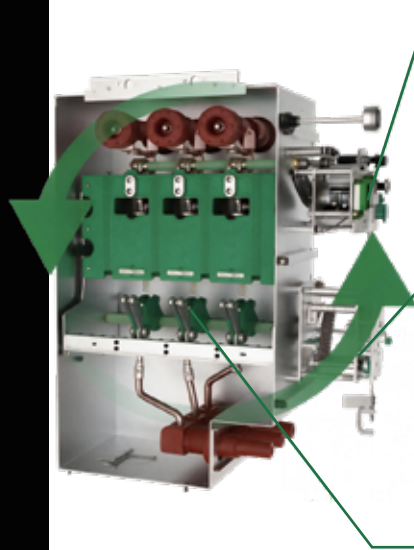
With comprehensive interlocking device and rigid interlocking method, ensuring safety and reliability, and minimizing the risk of misoperation.

Vacuum circuit breaker components

The vacuum circuit breaker adopts a cam-driven transmission model and the arc extinguishing chamber is fixed using end-face connections, ensuring stable overtravel and contact gaps. It employs an upper isolation structure, meeting the requirements of standardized customization for power grids. High quality insulation materials are used to ensure that the partial discharge quantity at 1.1 times the rated voltage is less than 20pC.

Voltage equalization measures are implemented to ensure electric field balance, no additional insulating partitions are required between phases.

Diagram of the core components of the VCB unit (upper isolation switch)



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Isolations with mechanism

The isolation switch mechanism is with single spring and double operation hole structure.

On the basis of the load switch mechanism, an interlock module with the circuit breaker mechanism is added.

Rigid interlocking method is adopted, ensuring safety and reliability and minimizing the risk of misoperation.

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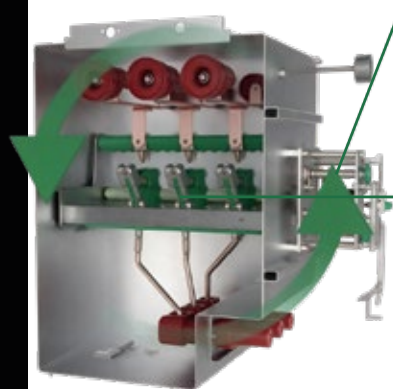
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Diagram of the core components of isolating switch



Isolation switch operating mechanism

The MJG series isolating switch, operating mechanism, designed specifically for MGA series switchgear is available as a compatible accessory. This mechanism is mainly designed for the VMA series isolating switch, enabling the opening, closing, and grounding functions of the three-position isolating switch.

Isolation switch operating components

The isolating switch adopts a three-position design of closing, opening and grounding, which is stable in operation, safe and reliable.

The optimized design of the conductor contact surface of the isolating switch improves the conductivity and operational stability.

High-quality insulation materials are used to ensure that the partial discharge quantity at 1.1 times the rated voltage is less than 20pC.

Voltage equalization measures are implemented to ensure electric field balance, no additional insulating partitions are required between phases.



Technical Parameters

MGA-12 Series Ring Main Unit (N2)

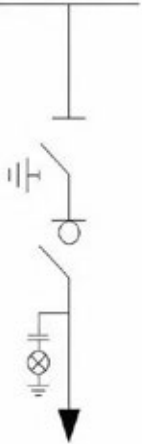
Sr.No.	Description		Unit	Load Breaker Switch (C-module)	Switch-Fuse Combinations (F-module)	Vacuum Circuit Breaker (V-module)
1	Rated voltage (Ur)		kV	12	12	12
2	Rated frequency (fr)		Hz	60	60	60
3	Rated current (Ir)		A	630	125 See ¹	630/1250
4	Rated insulation level (Ud, Up)	Power freq. withstand voltage 1 min(r.m.s.)	kV	42	42	42
		Between phase and phase to earth		48	48	48
		Across isolating distance		2	2	2
		Control/Auxiliary circuit		75	75	75
		Phase-to-phase, phase-to-earth		85	85	85
5	Rated short-time withstand current		kA/s	20/4	—	20, 31.5/4
6	Rated peak withstand current		kA	50	—	50, 80
7	Rated short-circuit breaking current		kA	—	see ²	20, 31.5
8	Rated Short-circuit making current		kA	50,63	see ²	50, 80
9	Rated On load breaking current		A	630	—	—
10	Rated Closed circuit breaking current		A	630	—	—
11	Rated Operating sequence		—	—	—	0–0.3s–CO–180s–CO
12	Mechanical endurance	LBS/ Circuit Breakers	Ops	10000	10000	10000
		Isolating/earthing Switch	Ops	3000	3000	3000
13	Circuit resistance		μΩ	≤150	≤400	≤150
14	Rated pressure of gas (relative pressure at 20°C)		MPa	0.02	0.02	0.02
15	Annual leakage rate		Year	≤0.01	≤0.01	≤0.01
16	Insulating gas / Protection		—	N ₂	N ₂	N ₂
17	Degree of protection	Compartment (IP code)	—	IP2XC	IP2XC	IP2XC
		Gas tank (IP code)	—	IP67	IP67	IP67
		Enclosure (IP code)	—	IP41	IP41	IP41
		Enclosure (IK code)	—	Ik10	Ik10	Ik10
18	IAC classification		—	AFLR 25 kA/1 s	AFLR 25 kA/1 s	AFLR 25 kA/1 s

¹Determined by the current rating of the fuse-link
²Limited by high voltage fuse-links

Basic Modular

Configuration

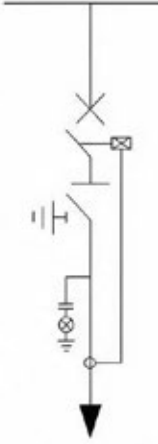
C- LBS unit



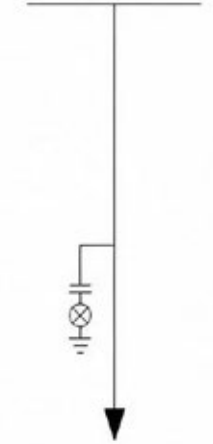
**V-VCB unit
(upper disconnecter)**



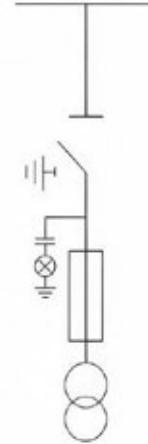
**V-VCB unit
(lower disconnecter)**



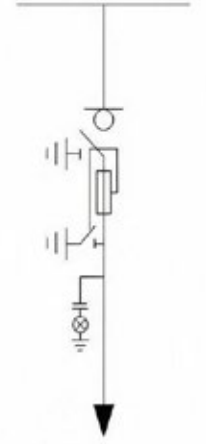
**D-bus
connection unit**



PT unit



**F-LBS-fuse
combinations**



Note: The basic units can be combined to form a shared enclosure scheme, allowing for a maximum of 4 units in one enclosure, meeting customers' personalized customization needs. For more detailed solutions, please inquire with our company's technical support.

Outline Dimension

	Type	Width (w)	Height (H)	Depth (D)
C	top extension	420 mm	1950 mm	850 mm
	side extension	420 mm	2000 mm	
V	top extension	420 mm	1950 mm	850 mm
	side extension	420 mm	2000 mm	
PT	top extension	600 mm	1950 mm	850 mm
	side extension	600 mm	2000 mm	
D	top extension	420 mm	1950 mm	850 mm
	side extension	420 mm	2000 mm	



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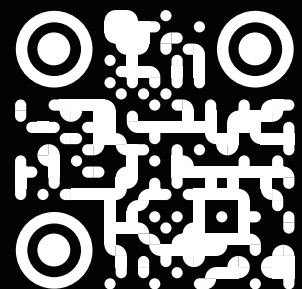
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info@nexgrid-power.com

Alemania 79100 Freiburg, Annapl. 1, im Breisgau-Süd, Germany
Tel: +49 1517 3029841

USA 1325 NW 143rd Ave Pembroke Pines FL 33028 Miami, Florida, EUA
Tel: +1 786 209 1722

México Km 54.5 Tollocan S/N. Local B Col. Buenavista, San Mateo Atenco, México. C.P. 5009
Tel: +52 55 9816 4771



nexgrid-power.com