

XGN43-12/17.5/24/36KV

Series SF6 Gas Insulated Ring Main Unit



Overview

XGN Series are a new type of SF6 gas-insulated compact switchgear, in house developed by Chuanli, suitable for most switching applications in medium voltage distribution networks. This adopts modular design and allows random combinations of 2-6 modules to satisfy the demands for flexible applications at secondary substations.

XGN Series switchgears offer a completely sealed system with a stainless steel tank, containing all parts and switching functions. The whole switchgear is free from external environmental impact, which ensures safe and reliable operation of equipment and free maintenance. They are widely applied in small secondary distribution substations, industrial, mine enterprises etc.

XGN43-12/17.5/24/36KV

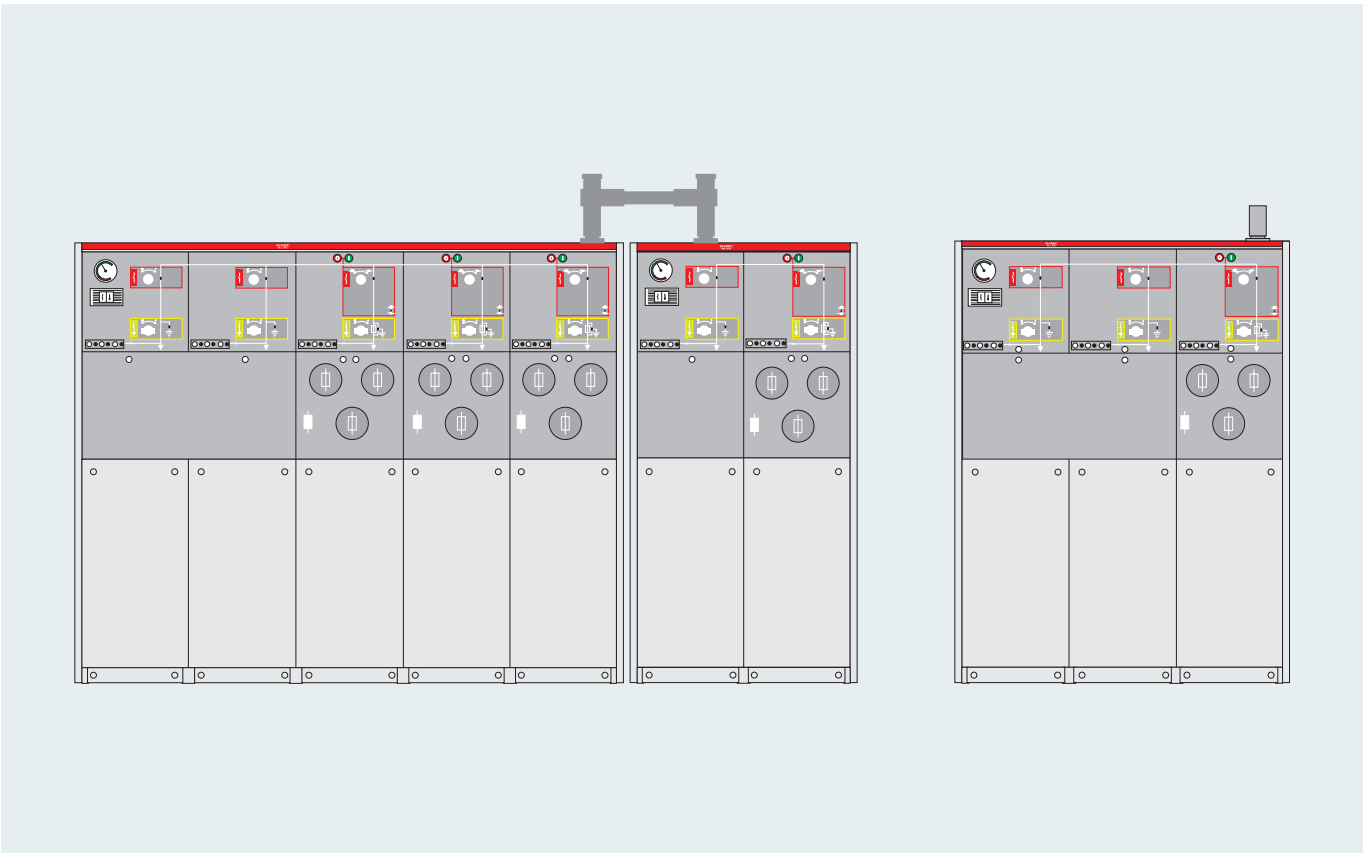
Series SF6 Gas Insulated Ring Main Unit

Model meaning

XGN43	-	12	-	630
↓		↓		↓
Inflatable switchgear		Rated voltage (KV)		Rated current (KA)

Structural characteristics

- 1. SF6 gas of XGN43-12 series inflatable cabinet is used as arc extinguishing and insulating medium.
- 2 Switch cabinet is fully sealed, fully insulated structure; Bus bars, switches and live parts are completely enclosed in stainless steel housing.
- The 3 cavities are filled with 1.4bar SF6 gas, and the protection level is IP67: The whole switch device is completely unaffected by external environmental conditions, and can ensure the normal operation of the switch even in extreme cases such as brief flooding, and the product is maintenance free for life.
- 4 The switchgear has a perfect "five prevention" interlock device to completely eliminate personnel and equipment operation failures that may be caused by human error.
- 5 All switchgear has a reliable safe pressure relief channel, which can ensure the personal safety of the operator even in extreme circumstances.
- 6 The switchgear is divided into two categories: fixed unit combination and expandable unit combination.
- 7 The switch cabinet usually enters and exits from the front, and can also realize side exit or side expansion according to different installation positions.
- 8 cabinet size easy to install, and can be suitable for small space and poor environmental conditions.
- 9 The switch cabinet can be configured with electric, remote control and overflow detection according to different needs of users.



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Performance index

SF6 gas pressure: The absolute pressure at 20 ports is 1.4bar

Annual gas leakage rate: 0.2‰ /1 year

Protection level: IP67

Air chamber stainless steel thickness: 3.0mm

Bus bar

Bus in the switch cabinet: 400mm²Cu

Switchgear ground bus: 150mm²Cu

colour

Switchgear front panel: RAL 7012

Side panel and cable room front cover plate: RAL 7035

Normal operating environment conditions

Maximum temperature: 40°C

Minimum temperature: -40°C

Maximum average relative humidity: ≤ 95%

Altitude: ≤ 2000 m

Meet the criteria

GB/T11022 GB3906 GB1985

GB16926 GB38041 GB1984

GB3309

IEC60056 IEC60129 IEC60256

IEC60298 IEC60420 IEC60694

XGN43-12kV/630A Technical Parameters

Sr.No.	Description	Unit	Load Breaker (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	50	50	50
3	Rated current (Ir)	A	630	see ⁽¹⁾	630
4	Rated insulation level (Ud, Up,)	kV	Power- frequency withstand voltage (Ud) (1 min)	Between phase and phase to earth	42
				Across the isolating distance	48
			Lightning impulse withstand voltage(Up)	auxiliary and control circuits (Ua)	2
				Between phase and phase to earth	75
				Across the isolating distance	85
5	Rated short-time withstand current(Ik/tk)	kA/s	20/4 、 25/4	--	20/4 、 25/4
6	Rated peak withstand current (Ip)	kA	50 、 63	--	50 、 63
7	Rated short-circuit making current	kA	50 、 63	see ⁽²⁾	50 、 63
8	Rated short-circuit breaking current(Isc)	kA	--	see ⁽²⁾	20 、 25
9	Rated transfer current	A	--	1700	--
10	Rated active load breaking current	A	630	--	--
11	Rated closed-loop breaking current	A	630	--	--
12	Rated operating sequence.	/	--	--	O-0.3 s- CO -180 s-CO
13	Mechanical endurance	Ops	LBS/circuit breaker	10000	10000
			Disc on nectar s Earthing s witc hes	3000	3000
14	Circuit resistance	μQ	≤ 150	--	≤ 150
15	Rated pressure of SF6 gas(relative pressure at 20° ()	Mpa	≤ 0 .04		
16	Annual leakage rate (relati ve pressure)	/	5 0 .01%		
17	Insulating gas	/	SF6		
18	Degree of protection	Compartment	/	IP2XC	
		Gas tank	/	IP67	
		Enc losure	/	IP4X/IK10	
19	IAC c lassific ati on	/	A FLR 20kA/1 s, 25 kA/0.5 s		

XGN43-12/17.5/24/36KV

Series SF6 Gas Insulated Ring Main Unit

XGN43-17.5kV/630A Technical Parameters

Sr.No.	Description		Unit	Load Breaker Switch (C-module)	Vacuum Circuit Breaker(V/-module)
1	Rated voltage (Ur)		kV	17.5	17.5
2	Rated frequency(fr)		Hz	50/60	50/60
3	Rated current (Ir)		A	630	630
4	Rated insulation level	Power-frequency withstand voltage (1min)	kV	Common value	38
				Across the isolating distance	45
				Control and auxiliary circuit	2
		Lightning impulse withstand voltage		Common value	95
				Across the isolating distance	110
5	Rated short-time withstand current(Ik/tk)		kA/s	21/1	21/1
6	Rated peak withstand current (Ip)		kA	62.5/65	62.5/65
7	Rated short-circuit making current		kA	--	--
8	Rated short-circuit breaking current(Isc)		kA	52.5/54.6	52.5/54.6
9	Rated transfer current		A	--	--
10	Rated active load breaking current		A	630	--
11	Rated closed-loop breaking current		A	630	630
12	Rated operating sequence.		/	--	O-0.3 s- CO -180 s-CO
13	Mechanical endurance	LBS/circuit breaker	Ops	10000	10000
		Disc connectors Earthing switches	Ops	3000	3000
14	Circuit resistance		μQ	≤ 150	≤ 150
15	Rated pressure of SF6 gas(relative pressure at 20° ())		Mpa	0.04	
16	Annual leakage rate		/	≤ 0.01%	
17	Insulating gas		/	SF6	
18	Degree of protection	Compartment	/	IP2XC	
		Gas tank	/	IP67	
		Enclosure	/	IP41	

XGN43-12/17.5/24/36KV

Series SF6 Gas Insulated Ring Main Unit



XGN43-24kV/630A Technical Parameters

Sr.No.	Description			Unit	Load BreakerSwitch (C-module)	Switch- Fuse Combinations (F-module)	Vacuum Circuit Breaker(V/-module)
1	Rated voltage (Ur)			kV	24	24	24
2	Rated frequency(fr)			Hz	50	50	50
3	Rated current (Ir)			A	630	see ⁽¹⁾	630
4	Rated insulation level (Ud, Up,)	Power-frequency withstand voltage (Ud) (1 min)	Between phase and phase to earth	kV	65	65	65
			Across the isolating distance		79	79	79
			auxiliary and control circuits (Ua)		2	2	2
		Lightning impulse withstand voltage(Up)	Between phase and phase to earth		125	125	125
			Across the isolating distance		145	145	145
5	Rated short-time withstand current(Ik/tk)			kA/s	20/4、 25/4	--	20/4 、 25/4
6	Rated peak withstand current (Ip)			kA	50、 63	--	50 、 63
7	Rated short-circuit making current			kA	50、 63	see ⁽²⁾	50 、 63
8	Rated short-circuit breaking current(Isc)			kA	--	see ⁽²⁾	20 、 25
9	Rated transfer current			A	--	1700	--
10	Rated active load breaking current			A	630	--	--
11	Rated closed-loop breaking current			A	630	--	--
12	Rated operating sequence.			/	--	--	O-0.3 s- CO -180 s-CO
13	Mechanical endurance	LBS/circuit breaker		Ops	5000	5000	10000
		Disc on nectar s Earthing s witc hes			3000	3000	3000
14	Circuit resistance			μQ	≤ 150	--	≤ 150
15	Rated pressure of SF6 gas(relative pressure at 20° ()			Mpa	≤ 0 .04		
16	Annual leakage rate (relati ve pressure)			/	≤ 0.01%		
17	Insulating gas			/	SF6		
18	Degree of protection	Compartment		/	IP2XC		
		Gas tank		/	IP67		
		Enc losure		/	IP4X/IK10		

(1) Determined by the current rating of the fuse-link

(2) Limited by high voltage fuse-links

XGN43-12/17.5/24/36KV

Series SF6 Gas Insulated Ring Main Unit

XGN43-12kV /1250A Technical Parameters

Sr.No.	Description			Unit	Vacuum Circuit Breaker(V/-module)
1	Rated voltage (Ur)			kV	12
2	Rated frequency(fr)			Hz	50
3	Rated current (Ir)			A	1250
4	Rated insulation level	Power-frequency withstand voltage (1min)	Common value	kV	42
			Across the isolating distance		48
		Lightning impulse withstand voltage	Control and auxiliary circuit		2
			Common value		75
			Across the isolating distance		85
5	Rated short-time withstand current			kA/s	25、 31.5/4
6	Rated peak withstand current			kA	63 、 80
7	Rated short-circuit breaking current			kA	25、 31.5
8	Rated short-circuit making current			kA	63 、 80
9	Rated operation sequence			A	0.3s-C0-180s-CO
10	Mec hanical endurance	LBS/circuit breaker		Ops	10000
		Disc onnectors Earthing switc hes		Ops	3000
11	Circuit res istance			μQ	≤ 150
12	Rated pressure of SF6 gas(relative pressure at 20° ()			Mpa	0.04
13	Annual leakage rate			/	≤ 0.01%
14	Insulating gas			/	SF6
15	Degree of protection	compar tment(IP code)		/	IP2XC
		Tank(IP code)		/	IP67
		Switchgear(IP code)		/	IP41
		Switchgear(IK code)		/	Ik10
16	IAC classification			/	A FLR 31.SkA/0.5s

XGN43-12/17.5/24/36KV

Series SF6 Gas Insulated Ring Main Unit



XGN43-36kV Technical Parameters

Sr.No.	Description			Unit	C-module	F-module	V-module
1	Rated voltage (Ur)			kV	36	36	36
2	Rated frequency(fr)			Hz	50	50	50
3	Rated current (Ir)			A	630	see ¹⁾	630
4	Rated insulation level	Power-frequency withstand voltage (1 min)	Common value	kV	95	95	95
			Across the isolating distance	kV	118	118	118
			Control and auxiliary circuit	kV	2	2	2
		Lightning impulse withstand voltage	Common value	kV	185	185	185
			Across the isolating distance	kV	215	215	215
5	Rated short-time withstand current			kA/ s	25/4	--	25/4
6	Rated peak withstand current			kA	63	--	63
7	Rated short-circuit breaking current			kA	--	see	25
8	Rated short-circuit making current			kA	63	see	63
9	Rated trans fer current			A	--	840	--
10	Rated on load breaking current			A	630	--	--
11	Rated c losed circuit breaking current			A	630	--	630
12	Rated operation sequence			/	--	--	0-0.3s-C0-180s-CO
13	Mechanical endurance	LBS/circuit breaker		Ops	5000	5000	10000
		Disc on nectar s Earthing s witc hes			3000	5000	3000
14	Circuit resistance			μQ	≤ 150	--	≤ 150
15	Rated pressure of SF6 gas(relative pressure at 20° ()			Mpa	0.04		
16	Annual leakage rate (relati ve pressure)			/	≤ 0. 01%		
17	Insulating gas			/	SF6		
18	Degree of protection	compartment(IP code)		/	IP2XC		
		Tank(IP code)		/	IP67		
		Switchgear(IP code)		/	IP41		
		Switchgear(IK code)		/	IK10		

(1) Determined by the current rating of the fuse-link

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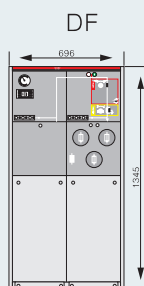
Non-extended standard module

Each module of the XGN43-12 switchgear has the following configurations

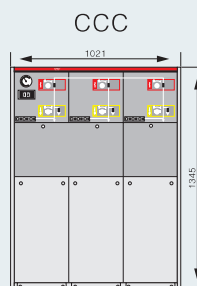
- 1 Capacitive voltage indicator for inlet bushing
- 2 Install a manometer for monitoring SF6 density in each chamber
- 3 Lifting lugs for lifting
- 4 Operation handle

Assorting

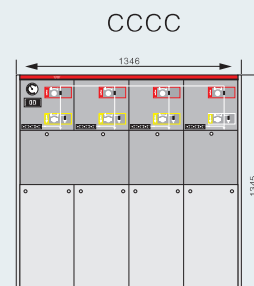
- 1 Electric operating mechanism
- 2 Cable short circuit and ground fault indicator
- 3 Cable transformer and meter
4. Remote monitoring and connection



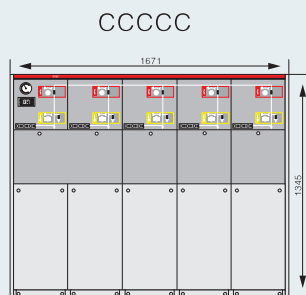
Standard 2-way DF(KG)



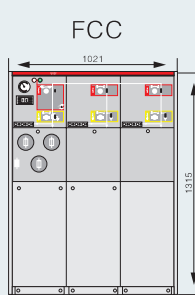
Standard 3-way CCC(KG)



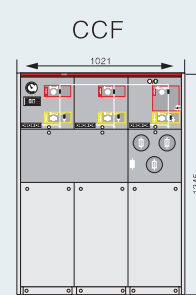
Standard 4-way CCCC(390KG)



Standard 5-way CCCCC(480KG)



Standard 3-way FCC(320KG)



Standard 3-way CCF(320KG)