Series SF6 Gas Insulated Ring Main Unit



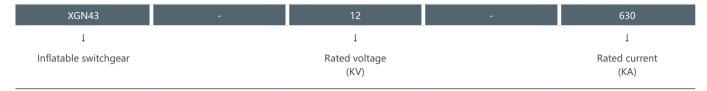
Overview

XGN Series are a new type of SF6 gas-insulated compact switchgear,in housedeveloped 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.

Series SF6 Gas Insulated Ring Main Unit

Model meaning

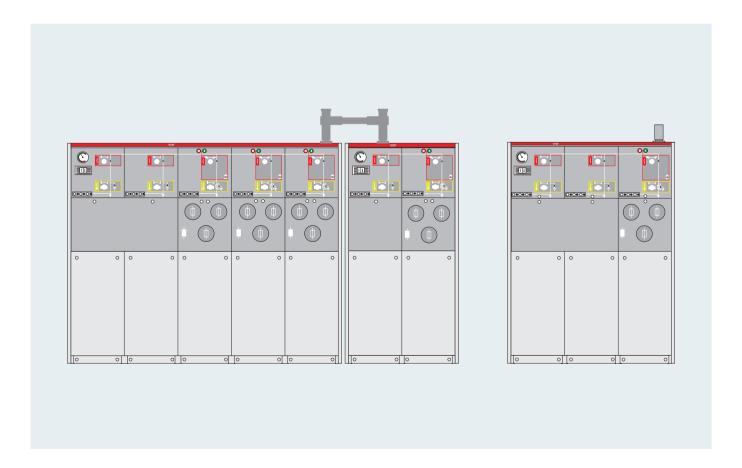


Structural characteristics

- 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.







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 IEC60298 IEC60694 IEC60420

IEC60256

XGN43-12kV/630A Technical Parameters

Sr.No.	Description				Load BreakeSwitch (C-module)	Switch- Fuse Combinations (F-module)	Vacuum Circuit Breaker(V/- module)
1	Rated volta	ige (Ur)		kV	12	12	12
2	Rated frequ	uency(fr)		Hz	50	50	50
3	Rated curre	ent (Ir)		Α	630	see (1)	630
		Power-	Between phase and phase to earth		42	42	42
		frequency withstand	Across the isolating distance		48	48	48
4	Rated insulation level	voltage (Ud (1 min)) auxiliary and control circuits (Ua)	kV	2	2	2
	(Ud, Up,)	Lightning	Between phase and phase to earth		75	75	75
		impulse withstand voltage(Up)	Across the isolating distance		85	85	85
5	Rated shor	t-time withsta	nd current(lk/tk)	kA/s	20/4 \ 25/4		20/4 、 25/4
6	Rated peak	withstand cu	urrent (Ip)	kA	50 、63		50 、63
7	Rated short-circuit making current				50 、63	see (2)	50 、63
8	Rated short-circuit breaking current(lsc)					see (2)	20 、25
9	Rated transfer current					1700	
10	Rated active load breaking current				630		
11	Rated close	ed-loop break	ing current	Α	630		
12	Rated operating sequence.			/			O-0.3 s- CO -180 s-CO
13	Mechanical	I	LBS/circuit breaker		10000	10000	20000
	endurance		Disc on nectar s Earthing s witc hes	Ops	3000	3000	3000
14	Circuit resistance				≤ 150		≤ 150
15	Rated pres	sure of SF6 g	gas(relative pressure at 20° ()	Мра	≤ 0.04		
16	Annual leakage rate (relati ve pressure)			/	5 0 .01%		
17	Insulating gas			/	SF6		
			Compartment	/	IP2XC		
18	Degree of p		Gas tank	/	IP67		
			Enc losure	/	IP4X/IK10		
19	IAC c lassif	ic ati on		/	A FLR 20kA/1 s, 2	25 kA/0.5 s	

Series SF6 Gas Insulated Ring Main Unit

XGN43-17.5kV/630A Technical Parameters

Sr.No.	Description				Unit	Load BreakeSwitch (C-module)	Vacuum Circuit Breaker(V/-module)
1	Rated voltage	(Ur)			kV	17.5	17.5
2	Rated frequenc	cy(fr)			Hz	50/60	50/60
3	Rated current ((Ir)			А	630	630
		Power-		Common value		38	38
	5	frequency withstand voltage		Across the isolating distance		45	45
4	Rated insulation level	(1min)		Control and auxiliary circuit	kV	2	2
	level	Lightning impulse		Common value		95	95
		withstand voltage		Across the isolating distance		110	110
5	Rated short-tin	ne withstand	current(lk/t	k)	kA/s	21/1	21/1
6	Rated peak wit	thstand curre	ent (Ip)		kA	62.5/65	62.5/65
7	Rated short-c i	rcuit making	current		kA		
8	Rated short-c i	rcuit breakin	g current(Is	c)	kA	52.5/54.6	52.5/54.6
9	Rated transfer	current			А		
10	Rated active lo	ad breaking	current		А	630	
11	Rated closed-le	oop breaking	g current		А	630	630
12	Rated operatin	g sequence.			/		O-0 3 s- CO -180 s-CO
			LBS/circu	it breaker	Ops	10000	10000
13	Mec hanical er	ndurance	Disc onne	ectors Earthing switc hes	Ops	3000	3000
14	Circuit res ista	nce			μQ	≤ 150	≤ 150
1 5	Rated pressure	e of SF6 gas	(relative pre	essure at 20° ()	Мра	0.04	
16	Annual leakage	e rate			/	≤ 0.01%	
17	Insulating gas				/	SF6	
			Compar t	ment	/	IP2XC	
18	Degree of prote	ection	Gas tank		/	IP67	
			Enc losur	e	/	IP41	





XGN43-24kV/630A Technical Parameters

Rated voltage (Ur)	Sr.No.	Description			Unit	Load BreakeSwitch (C-module)	Switch- Fuse Combinations (F-module)	Vacuum Circuit Breaker(V/-module)
Rated Rated Power- Frequency withstand voltage (Ud) Across the isolating distance or involved (Ud) (Ud) Dispute Frequency withstand voltage (Ud) (1 min) (1 min) (2 mi	1	Rated volta	ige (Ur)		kV	24	24	24
Power frequency withstand vibrating (Ud., Up.) Across the isolating distance voltage (Ud., Up.) Lightning impulse withstand voltage (Up.) Across the isolating distance voltage (Ud., Up.) Lightning impulse impulse withstand voltage (Up.) Across the isolating distance voltage (Ud.) Lightning impulse impulse withstand voltage (Up.) Between phase and phase to earth voltage (Up.) Lightning distance voltage (Up.) Lightning impulse impulse impulse impulse voltage (Up.) Lightning distance voltage (Up.) Lightning impulse voltage (Up.) Lightning distance voltage (Up.) Lightning voltage (Up.) Lightning distance voltage (Up.) Lightning distance voltage (Up.) Lightning voltage (Up.) Lightning voltage (Up.) Lightning voltage (Up.) Lightning voltage (2	Rated frequ	uency(fr)		Hz	50	50	50
Rated Rated Rated Part Part	3	Rated curre	ent (Ir)		А	630	see (1)	630
Rated Patient Variable (Ud, Up.) Lightning Impulse withstand (Ud) Lightning Impulse withstand voltage (Ud) Lightning Impulse withstand voltage (UD) Lightning Impulse withstand voltage (UD) Across the isolating distance voltage(UD) Across the isolating Idsiance voltage(UD) Across the isolating Idsiance voltage(UD) Idsiance voltage(UD) Across the isolating Idsiance voltage(UD) Idsiance voltage(U				Between phase and phase to earth	kV	65	65	65
Insulation Clark		Rated	withstand			79	79	79
Estimate Part Estimate Es	4			auxiliary and control		2	2	2
voltage(Up) distance 145 145 145 5 Rated short-time withstand current (Ik/Ik) 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 (Ik/Ik) kA see ⁽²⁾ 20, 25 9 Rated short-circuit breaking current A 1700 10 Rated active load breaking current A 630 11 Rated closed-loop breaking current A 630 12 Rated operating sequence. / 12 Rated operating sequence. / 13 Mechanical endurance Disc on nectar s Earthing s witc hes Ops 5000 5000 10000 15 Rated pressure of SF6 gas(relative pressure at 20° ()		(Ud, Up,)		Between phase and phase to earth		125	125	125
6 Rated peak withstand current (lp)						145	145	145
7 Rated short-circuit making current kA 50, 63 see (²) 50, 63 8 Rated short-circuit breaking current(l(sc)) kA see (²) 20, 25 9 Rated transfer current A 1700 10 Rated active load breaking current A 630 11 Rated operating sequence. / 12 Rated operating sequence. / O-0.3 s- CO -180 s-CO 12 Rated operating sequence. / O-0.3 s- CO -180 s-CO 13 Mechanical endurance Disc on nectar's Earthing's witches Ops 5000 5000 10000 14 Circuit resistance µQ ≤ 150 ≤ 150 15 Rated pressure of SF6 gas(relative pressure) / ≤ 0.01% 16 Annual leakage rate (relati ve pressure) / ≤ 0.01% 17 Insulating gas / SF6 Compartment / IP92XC	5					20/4、25/4		20/4 、25/4
8 Rated short-circuit breaking current(lsc) kA see ^(a) 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. / 0-0.3 s- CO -180 s-CO 13 Mechanical endurance Disc on nectar s Earthing s witc hes 5000 5000 10000 14 Circuit resistance μQ ≤ 150 ≤ 150 15 Rated pressure of SF6 gas(relative pressure at 20° () Mpa ≤ 0.04 16 Annual leakage rate (relative pressure) / ≤ 0.01% 17 Insulating gas / SF6 18 Degree of protection Gas tank / IP67	6	Rated peak	withstand c	urrent (Ip)	kA	50、63		50 、63
9 Rated transfer current A	7	Rated shor	t-circuit maki	ng current	kA	50、63	see (2)	50 、63
10 Rated active load breaking current A 630	8	Rated shor	t-circuit brea	king current(lsc)	kA		see (2)	20 、25
11 Rated closed-loop breaking current A 630	9	Rated trans	sfer current		Α		1700	
12 Rated operating sequence.	10	Rated activ	e load break	ing current	А	630		
Mechanical endurance LBS/circuit breaker Disc on nectar s Earthing s witc hes 5000 5000 10000	11	Rated close	ed-loop breal	king current	Α	630		
Mechanical endurance Disc on nectar s Earthing s witc hes 3000 3000 3000 3000	12	Rated operating sequence.						O-0.3 s- CO -180 s-CO
Disc on nectar s Earthing s witc hes 3000 3000 3000 3000	40	Mechanical		LBS/circuit breaker		5000	5000	10000
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 Compartment / IP2XC 18 Degree of protection Gas tank / IP67	13	endurance	_	Disc on nectar s Earthing s witc hes	Ops	3000	3000	3000
16 Annual leakage rate (relati ve pressure) / ≤ 0.01% 17 Insulating gas / SF6 Compartment / IP2XC 18 Degree of protection Gas tank / IP67	14	Circuit resistance				≤ 150		≤ 150
17 Insulating gas / SF6 18 Compartment / IP2XC 18 Degree of protection Gas tank / IP67	15	Rated pres	sure of SF6	gas(relative pressure at 20° ()	Мра	≤ 0 .04		
Compartment / IP2XC 18 Degree of protection Gas tank / IP67	16	Annual leal	kage rate (re	lati ve pressure)	/	≤ 0.01%		
18 Degree of protection Gas tank / IP67	17	Insulating g	jas		/	SF6		
				Compartment	/	IP2XC		
Enc losure / IP4X/IK10	18	Degree of p		Gas tank	/	IP67		
			_	Enc losure		IP4X/IK10		

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

⁽²⁾ Limited by high voltage fuse-links

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	r)		kV	12	
2	Rated frequency(fr)		Hz	50	
3	Rated current (Ir)			А	1250	
		Power- frequency withstand		Common value		42
				Across the isolating distance		48
4	Rated insulation level	voltage (1min)		Control and auxiliary circuit	kV	2
	levei	Lightning impulse		Common value		75
		withstand voltage		Across the isolating distance		85
5	Rated short-time	withstand curr	ent		kA/s	25、31.5/4
6	Rated peak withs	tand current		kA	63 、80	
7	Rated short-circui	it breaking cur	rent	kA	25、31.5	
8	Rated short-circui	it making curre	ent	kA	63 、80	
9	Rated operation s	sequence		А	0.3s-C0-180s-CO	
10	Mec hanical endurance		LBS/circuit breaker		Ops	10000
10			Disc onnec	ctors Earthing switc hes	Ops	3000
11	Circuit res istance	9			μQ	≤ 150
12	Rated pressure o	f SF6 gas(rela	tive pressure	at 20° ()	Мра	0.04
13	Annual leakage ra	ate		/	≤ 0.01%	
14	Insulating gas				/	SF6
			compar tment(IP code)		/	IP2XC
15		ion -	Tank(IP code)		/	IP67
15	Degree of protect		Switchgear(IP code)		/	IP41
			Switchgear	r(IK code)	1	lk10
16	IAC classification	IAC classification				A FLR 31.SkA/0.5s

Series SF6 Gas Insulated Ring Main Unit



XGN43-36kV Technical Parameters

Sr.No.	Description				C-module	F-module	V-module
1	Rated volta	ge (Ur)		kV	36	36	36
2	Rated frequ	iency(fr)		Hz	50	50	50
3	Rated curre	ent (Ir)		А	630	see 1)	630
		Power-	Common value	kV	95	95	95
		frequency withstand voltage	Across the isolatingd istance	kV	118	118	118
4	Rated insulation level	(1 min)	Control and auxiliary circuit	kV	2	2	2
	10001 -	Lightning impulse	Common value	kV	185	185	185
		withstand voltage	Across the isolating distance	kV	215	215	215
5	Rated short	t-time withst	tand current	kA/ s	25/4		25/4
6	Rated peak	withstand o	current	kA	63		63
7	Rated short	t-circuit brea	aking current	kA		see	25
8	Rated short	t-circuit mak	king current	kA	63	see	63
9	Rated trans fer current					840	
10	Rated on load breaking current				630		
11	Rated c losed circuit breaking current				630		630
12	Rated oper	ation seque	nce	/			0-0.3s-C0-180s-CO
13	Mechanical		LBS/circuit breaker	- Ops	5000	5000	10000
13	endurance		Disc on nectar s Earthing s witc hes	Ops	3000	5000	3000
14	Circuit resistance				≤ 150		≤ 150
15	Rated pres	sure of SF6	gas(relative pressure at 20° ()	Мра	0.04		
16	Annual leakage rate (relati ve pressure)				≤ 0. 01%		
17	Insulating gas				SF6		
			compartment(IP code)	/	IP2XC		
18	Degree of p	protection	Tank(IP code)	/	IP67		
10	pegree or pr		Switchgear(IP code)	/	IP41		
			Switchgear(IK code)	/	IK10		

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

Series SF6 Gas Insulated Ring Main Unit



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

