



NG7 Cubicle Gas Insulated Switchgear (C-GIS)

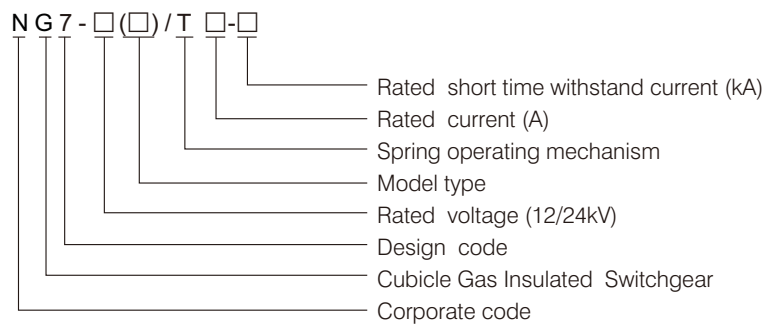
NG7 Cubicle Gas Insulated Switchgear(C-GIS)

1. General

- 1.1 Ratings: system voltage 24kV, the rated current up to 630A, AC50Hz.
- 1.2 Application: applicable for power receiving and distribution and for control, protection and measurement of circuit.
- 1.3 Standard:
 - IEC 62271-200: 2003
 - IEC 62271-100: 2001
 - IEC 62271-102: 2002
 - IEC 60694: 1996



2. Type Designation



CCF

3. Working Condition

- 3.1 Ambient temperature: -40°C ~ +45°C (average temperature ≤ 35°C)
 - 3.2 Altitude: ≤ 3000m
 - 3.3 Humidity: Daily average ≤ 95%, daily average water vapor pressure ≤ 2.2KPa
Monthly average ≤ 90%, monthly average water vapor pressure ≤ 1.8KPa
 - 3.4 The electromagnetic interference value in the second system will not exceed 1.6kV.
- ※ Note: Customized products are available.

4. Main Technical Parameter

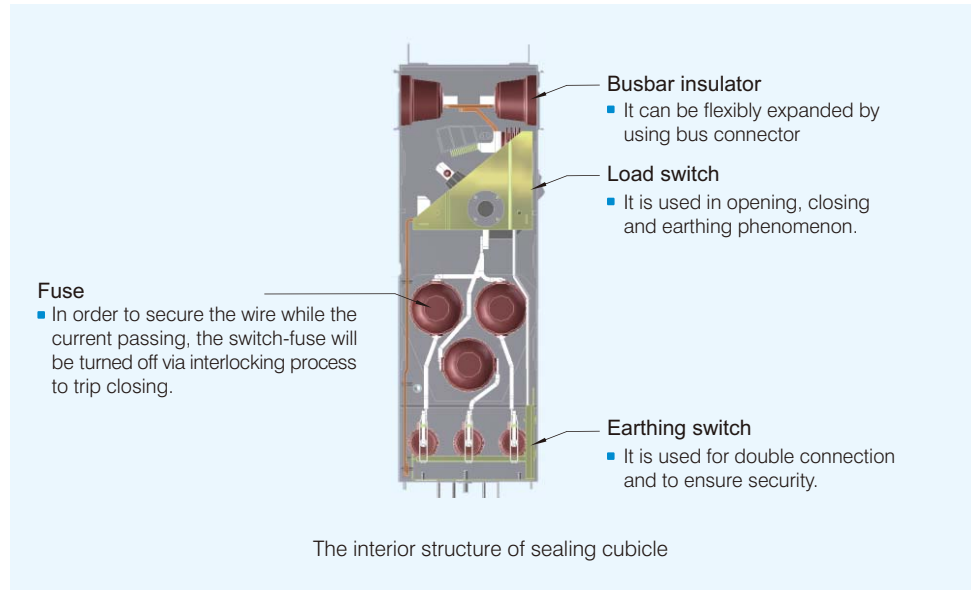
Item	Unit	LBS unit	FSC unit	VCB unit
Rated voltage	kV		12/24	
Rated frequency	Hz		50/60	
Rated current of main bus bar	A		630, 1250	
Rated current	A	630	125	630, 1250
Rated withstand voltage	kV		42/65	
1min power frequency Phase to earth, Between phases	kV		42/65	
Rated withstand voltage Between open contacts	kV		48/79	
insulation Lightning impulse Phase to earth, Between phases	kV		75/125	
level withstand voltage Between open contacts	kV		85/145	
1min Power frequency voltage of Secondary /control loop	kV		2	
Rated short circuit breaking current	kA/Times		31.5	20/30
Rated transfer current	A		1750/1400	
Rated short-time withstand current	kA	20		20/31.5
Main loop 3s	kA	20		20/25
Earthing switch 2s	kA	17.4		17.4/21.7
Earthing connecting loop 2s	kA			
Rated withstand current(peak)	kA	50		50/63
Main loop, load switch	kA	43.5		43.5/54.5
Earthing switch	kA	50	80	50/63
Rated short-circuit closing current(peak)	kA	50	80	50/63
Load switch rated active load breaking current	A	630		
Rated load switch loop breaking current	A	630		
5% rated active load switch load breaking current	A	31.5		
Load switch rated cable charging breaking current	A	10/25		
Load switch rated active load breaking frequency	Times	100/200		
Cable and circuit charging breaking frequency when earth fault	A/Times	20/10 (12kV),31.5/10(24kV)		
Earth fault current breaking	A/Times	5/10(12kV),10/10(24kV)		
Rated single back to back capacitor unit breaking current	A			400
Rated capacitor unit closing inrush current	kA			20(50Hz)
Rated SF6 gas pressure (20°C)	Mpa		0.04	
Design and rated charged level	Mpa		0.02	
Lowest function level	Mpa		0.14	
Release of pressure	Mpa			
Mechanical life	Times	5000/2000	5000/2000	
Load switch/ Earthing switch	Times			10000/20000
Circuit breaker/Disconnect	Times			
Protect degree			IP67	
Enclose case			IP4X	
Shell of switchgear				
SF6 gas leakage rate			≤1%	

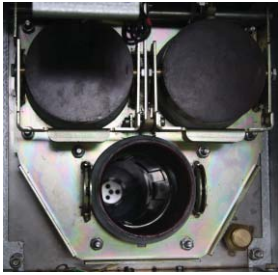
5. Technical Specification



6. Structure

6.1 The Interior Structure of Sealing Cubicle

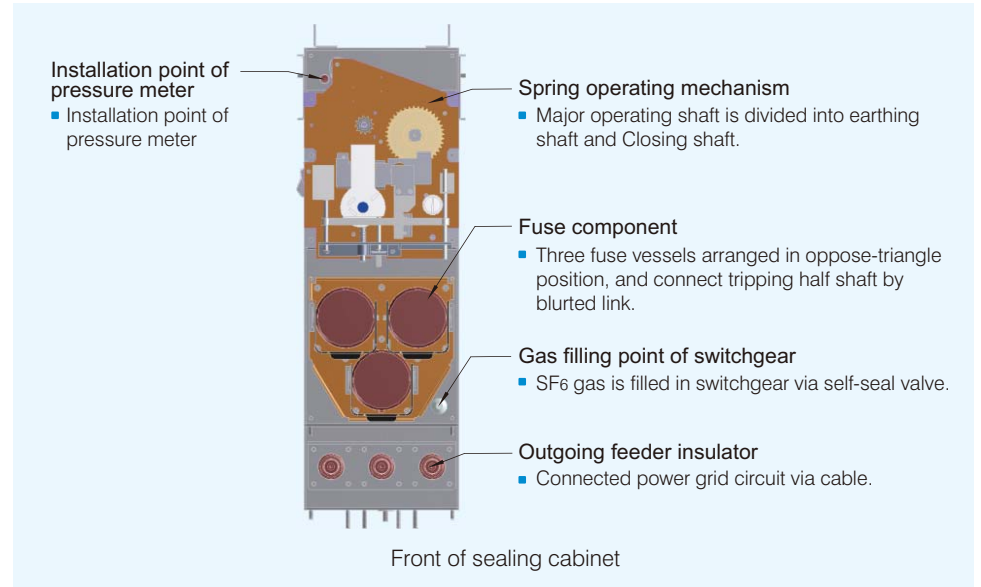




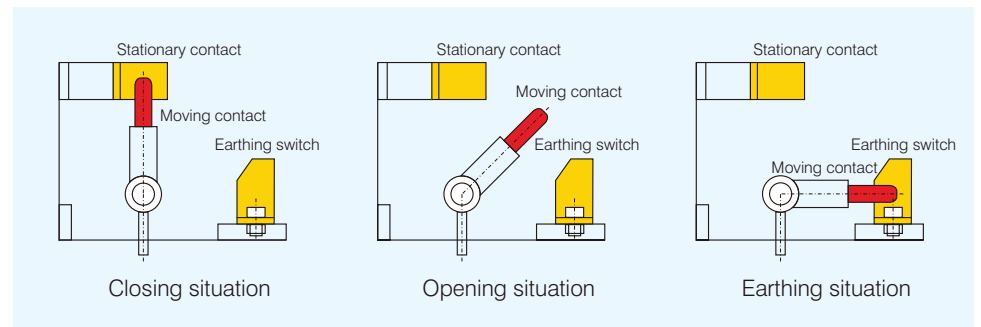
Fuse component



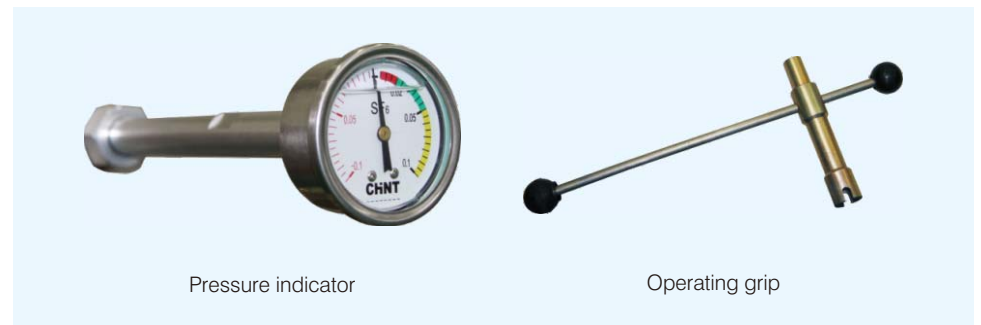
6.2 Front of Sealing Cabinet



6.3 Load switch/Earthing switch



6.4 Spare Parts



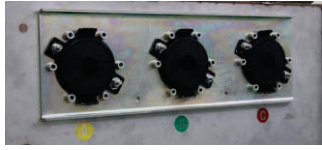
7. Connection Mode

7.1 Between switchgears

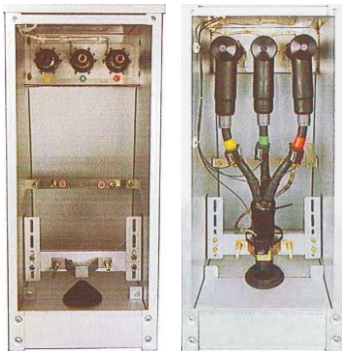
There are some connection modes to enhance the sensitivity of design schemes as below:

- Extensible mode
- Inextensible mode
- Standard bushing mode

7.2 With the cables

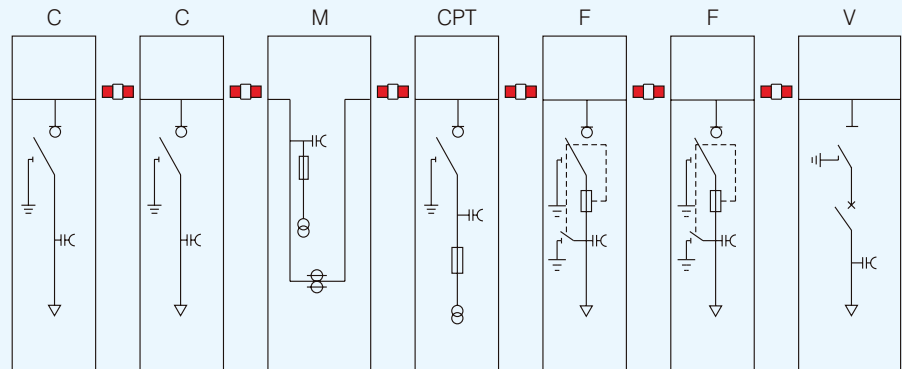


Busbar connector Cable connection



With the cables

Connection example



8. Protection Function

Transformer protection

Fuse protection in F units:

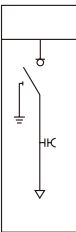
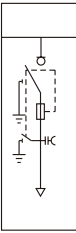
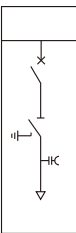
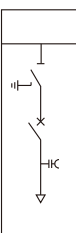

In the Load switch-fuse combination units, if the fuse blow out, the load switch will trip-free and cut off the connection to transformer.

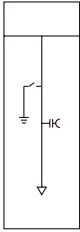
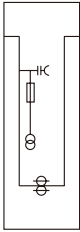

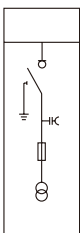
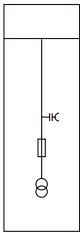
In the form below, it shows the choice of the over current to the corresponding capability of the transformer in F unit.

Relay protection devices can be used in over current and earthing fault.

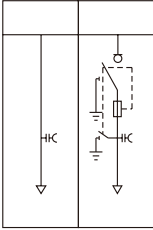
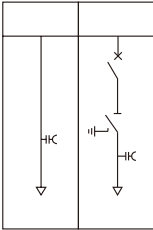
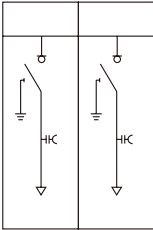
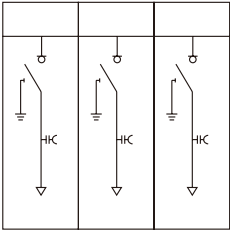
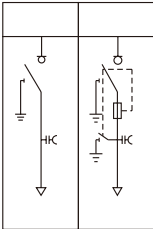
Transformer Capacity (kVA)	Fuse Rated current A (10kV)	Fuse Rated current A (24kV)	Transformer Capacity (kVA)	Fuse Rated current A (10kV)	Fuse Rated current A (24kV)
50	10	6.3	315	31.5	16
75	10	6.3	400	40	20
100	16	10	500	50	25
128	16	10	630	63	31.5
160	16	10	800	80	40
200	20	10	1000	100	50
250	25	16	1250	125	63

9. Single Functional Unit Schemes

Scheme	Type	Function	Standard Configuration	Choice
	C unit	Using three point load switch , connect and break the connection of lay in and lay out cables and the bus bar, can make 3 phases of the cable earthing at the same time, and have the ability to control the lay in and lay out.	<input type="checkbox"/> Three position load switch	<input type="checkbox"/> Load switch electrical mechanism <input type="checkbox"/> Key lock
			<input type="checkbox"/> Electrical indicator	<input type="checkbox"/> Open and close button(electrical) <input type="checkbox"/> Load switch auxiliary contacts
	LBS		<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Short current and earthing fault indicator <input type="checkbox"/> Earthing switch auxiliary contacts
			<input type="checkbox"/> Load switch spring operating mechanism	<input type="checkbox"/> Surge Arrester or double cables
			<input type="checkbox"/> Interlock	<input type="checkbox"/> Secondary cabinet
			<input type="checkbox"/> 630A busbar, earthing busbar	<input type="checkbox"/> Lengthen or having bussing is non-must
			<input type="checkbox"/> Operating handle	<input type="checkbox"/> Terminal enclose terminal(for the terminal box)
				<input type="checkbox"/> CT or VT
W×D×H/h (Cables installation height)			350×840×1450(1800)/500(850)	
	F unit	Having a same load switch with the lay in and lay out panel , and combine with the fuse breaker to a unit, can be installed with over current protect device. Applying for the control and protection of the transformer.	<input type="checkbox"/> Three position load switch	<input type="checkbox"/> Load switch electrical machanism <input type="checkbox"/> Load switch auxiliary contacts
			<input type="checkbox"/> Electrical indicator	<input type="checkbox"/> Open and close button(electrical) <input type="checkbox"/> Earthing switch auxiliary contacts
	FSC		<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Short curient and earthing failure indicator <input type="checkbox"/> Fall off windings
			<input type="checkbox"/> Load switch spring actuating mechanism	<input type="checkbox"/> Surge Arrester or two way cables <input type="checkbox"/> Relays Protection
			<input type="checkbox"/> Fail safe interlock	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> 630Abusbar,earthing busbar	<input type="checkbox"/> Lengthen or having bussing is non-must
			<input type="checkbox"/> Operating handle	<input type="checkbox"/> Terminal enclose terminal(for the terminal box)
			<input type="checkbox"/> Cut out indicate of fuse breaker	<input type="checkbox"/> CT or PT
			<input type="checkbox"/> Fuse breaker connected with earthing switch	<input type="checkbox"/> Key lock
W×D×H/h (Cables installation height)			350×840×1450(1800)/500(850)	
	V1 unit	Having a VCB which installed in series with a 3 point disconnector , the circuit breaker is beside the busbar while the disconnector is beside the lay in and lay out cables, and can install relay protection device.	<input type="checkbox"/> VCB	<input type="checkbox"/> Circuit breaker button <input type="checkbox"/> Disconnecter on-off & Earthing switch auxiliary contacts
			<input type="checkbox"/> Triple position disconnector, earthing switch	<input type="checkbox"/> Short curient and earthing failure indicator
	VCB		<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Surge Arrester or two way cables <input type="checkbox"/> Relays Protection
			<input type="checkbox"/> Circuit breaker, disconnector, mechanical interlock and location indicator	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> Electrify indicator	<input type="checkbox"/> Lengthen or having bussing is non-must
			<input type="checkbox"/> 630A bus bar, Earthing bus.	<input type="checkbox"/> Terminal enclose (for the terminal box)
			<input type="checkbox"/> Disconnecter operating handle	<input type="checkbox"/> Current transformer
			<input type="checkbox"/> VCB charging handle	<input type="checkbox"/> Key lock
				<input type="checkbox"/> Circuit condition contactor
W×D×H/h (Cables installation height)			420×840×1450(1800)/500(850)	
	V2 unit	Having a VCB in-line with a triple way disconnector, VCB is beside the in & out cables, the disconnector is beside the bus where the relay protection can be installed.	<input type="checkbox"/> VCB	<input type="checkbox"/> Circuit breaker breaking button <input type="checkbox"/> Disconnecter on-off & Earthing switch auxiliary contacts
			<input type="checkbox"/> Triple position disconnector, earthing switch	<input type="checkbox"/> Short circuit & earthing fault indicator
	VCB		<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Surge Arrester or two way cables <input type="checkbox"/> Relay protection
			<input type="checkbox"/> Circuit breaker, disconnector, mechanical interlock and location indicator	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> Electrify indicator	<input type="checkbox"/> Lengthen or having bussing is non-must
			<input type="checkbox"/> 630A bus bar, Earthing bus	<input type="checkbox"/> Terminal enclose
			<input type="checkbox"/> Disconnecter handle	<input type="checkbox"/> Current transformer
			<input type="checkbox"/> VCB charging handle	<input type="checkbox"/> Key lock
				<input type="checkbox"/> Circuit breaker condition contant
W×D×H/h (Cables installation height)			420×840×1450(1800)/500(850)	
	D unit	Inlet cables connected directly to the bus, with Cable non-corrosive steel incoming protect shell. Applied in connection of lay in and out cables.	<input type="checkbox"/> 630A bus	<input type="checkbox"/> Surge Arrester or two way cables
			<input type="checkbox"/> Electrify indicator	<input type="checkbox"/> Secondary chamber
				<input type="checkbox"/> Lengthen or having bussing is non-must
				<input type="checkbox"/> Terminal enclose
W×D×H/h (Cables installation height)			350×840×1450(1800)/500(850)	

Scheme	Type	Function	Standard Configuration	Choice
	De unit Cables earthing	Earthing lay in and out cables connected to bus directly.	<input type="checkbox"/> Double positions earthing switch	<input type="checkbox"/> Electric mechanism of earthing switch
			<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Breaking and closing button
			<input type="checkbox"/> Spring operation machaim of earthing switch	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> 630A bus	<input type="checkbox"/> Key lock
			<input type="checkbox"/> Operate handle	<input type="checkbox"/> Earthing switch auxiliary contacts
W×D×H			350×840×1450(1800)	
	M unit Measuring	Current transformer and voltage transformer are installed to make it easy for the electrical department to examine. Can be combined with any other panel for measuring. (Gas insulation)	<input type="checkbox"/> Current transformer	<input type="checkbox"/> Voltage meter, current meter
			<input type="checkbox"/> Voltage transformer	<input type="checkbox"/> Active energy meter, reactive energy meter
			<input type="checkbox"/> PT fuse box	<input type="checkbox"/> Surge arrestor
W×D×H			480×890×1450(1800) (12kV)	700×1100×1800 (24kV)
	I unit Bus section	With a double position loading switch it can connect or break main bus on-load. Normally using in contact with bus.	<input type="checkbox"/> Double position load switch	<input type="checkbox"/> Load switch electrical mechanism
			<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Break and open button
			<input type="checkbox"/> Load switch with spring mechanism	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> 630A bus	<input type="checkbox"/> Key lock
			<input type="checkbox"/> Operation handle	<input type="checkbox"/> Load switch auxiliary contants
W×D×H			420×840×1450(1800)	
	CPT unit with switch and transformer	Having a triple position load switch to close or open the voltage transformer and earthing. Apply for detection of the system voltage and transformer provide the control voltage.	<input type="checkbox"/> 630A bus	<input type="checkbox"/> Load switch electrical mechanism
			<input type="checkbox"/> Load switch	<input type="checkbox"/> Breaking and closing button
			<input type="checkbox"/> Load switch with spring mechanism	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> Manometer of SF6	<input type="checkbox"/> Lengthen or having bussing is non-must
			<input type="checkbox"/> Voltage transformer	<input type="checkbox"/> Terminal enclose
			<input type="checkbox"/> Exposure cables	<input type="checkbox"/> Load switch auxiliary contants
			<input type="checkbox"/> Operation handle	<input type="checkbox"/> Key lock
				<input type="checkbox"/> Surge Arrestor
W×D×H			500×890×1450(1800) (12kV)	700×1100×1800 (24kV)
	APT unit without switch transformer	With a voltage transformer and connected directly to bus. Apply for monitor system voltage and provide operate power. (gas insulation)	<input type="checkbox"/> 630A bus	<input type="checkbox"/> Secondary chamber
			<input type="checkbox"/> Voltage transformer	<input type="checkbox"/> Lengthen or having bussing is non-must
			<input type="checkbox"/> Expose cables	<input type="checkbox"/> Terminal enclose
				<input type="checkbox"/> Surge arrestor
W×D×H			500×890×1450(1800) (12kV)	700×1100×1800 (24kV)

10. Multi-Functional Unit Schemes

Scheme	Type	Function, Standard configuration, Optional configuration, Accessories
	DF	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
<hr/> $W \times D \times H/h$ (the installation height of cable)		700×840×1450(1800)/500(850)
	DV	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
<hr/> $W \times D \times H/h$ (the installation height of cable)		770×840×1450(1800)/500(850)
	CC	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
<hr/> $W \times D \times H/h$ (the installation height of cable)		700×840×1450(1800)/500(850)
	CCC	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
<hr/> $W \times D \times H/h$ (the installation height of cable)		1050×840×1450(1800)/500(850)
	CF	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
<hr/> $W \times D \times H/h$ (the installation height of cable)		700×840×1450(1800)/500(850)

Scheme	Type	Function, Standard configuration, Optional configuration, Accessories
	CCF	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1050×840×1450(1800)/500(850)
	CFF	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1050×840×1450(1800)/500(850)
	CCFF	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1400×840×1450(1800)/500(850)
	CCFF	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1750×840×1450(1800)/500(850)
	CCV	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1120×840×1450(1800)/500(850)

Scheme	Type	Function, Standard configuration, Optional configuration, Accessories
	CCWV	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1540×840×1450(1800)/500(850)
	CCVWV	Functional units, Standard configuration. Optional configuration and accessories are as same as relative single frame.
W×D×H/h (the installation height of cable)		1960×840×1450(1800)/500(850)

11. Single Line Diagram

	01	02	03	04	05	06	07
Single Line Diagram							
Type	C	C	C	C	C	D	De
Expansion mode	Left: Y Right: Y	Left: Y Right: Bushing	Left: Y Right: Bushing	Left: Y Right: Y	Same as 01~04	Same as 01~04	Same as 01~04
Dimension (W×H×D)	350×1450×840 350×1800×840	350×1450×840 350×1800×840	350×1450×840 350×1800×840	350×1450×840 350×1800×840	350×1450×840 350×1800×840	350×1450×840 350×1800×840	350×1450×840 350×1800×840
Load switch	1	1	1	1	1		
CT	Optional	Optional	Optional	Optional	Optional	Optional	
PT							
HV fuse cutout							
VPIS	Contains	Contains	Contains	Contains	Contains	Contains	Contains
Surge arrester					Contains	Optional	Contains
Remark							Air insulation

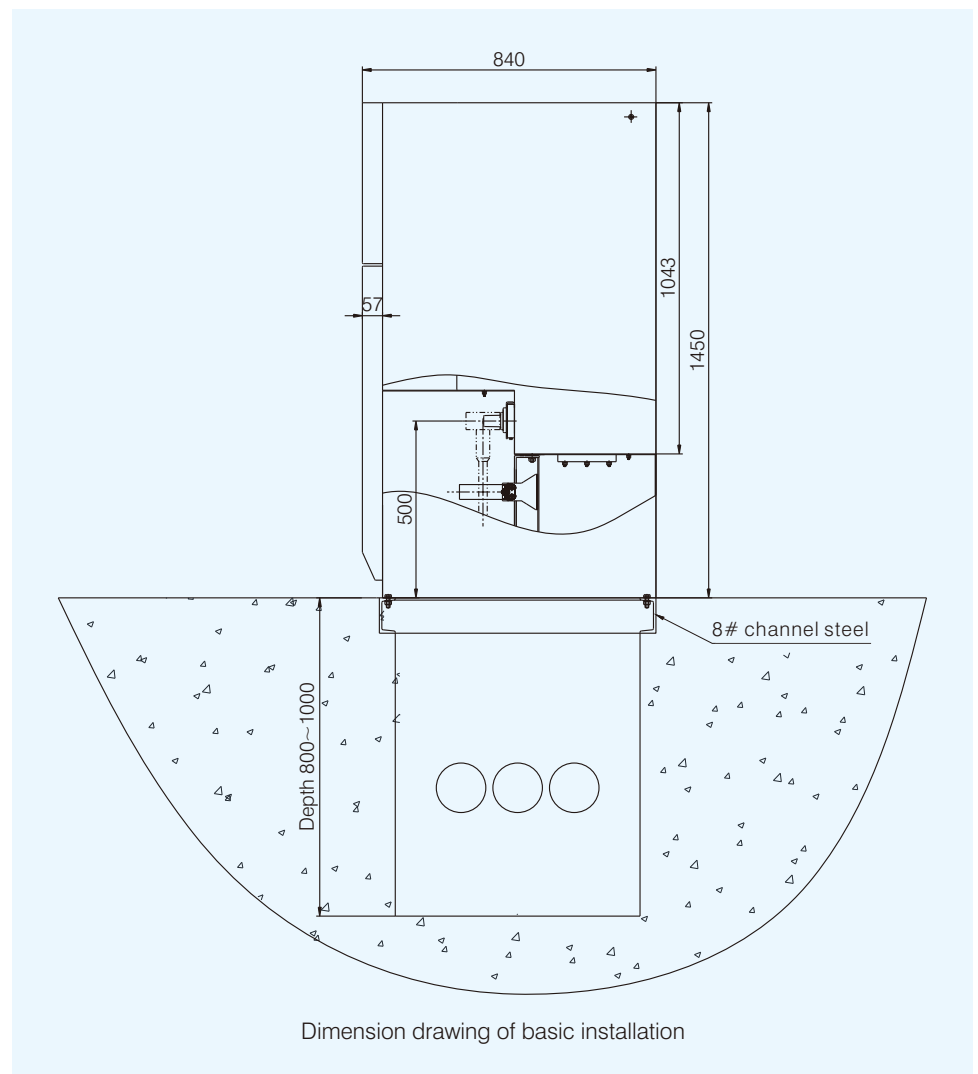
	08	09	10	11	12	13	14
Single Line Diagram							
Type	F	F	F	I	V1	V2	APT
Expansion mode	Same as 01~04	Same as 01~04	Same as 01~04	Left: Y Right: Y	Same as 01~04	Same as 01~04	Same as 01~04
Dimension (W×H×D)	350×1450×840 350×1800×840	350×1450×840 350×1800×840	350×1450×840 350×1800×840	420×1450×840 420×1750×840	420×1450×840 420×1800×840	420×1450×840 420×1800×840	500×1450×890(12kV) 700×1800×1100(24kV)
Load switch	1	1	1	2 nd station load switch 1	3 rd station load switch 1	3 rd station load switch 1	
CT		3	included in protection relay 3			included in protection relay 3	
PT							2
HV fuse cutout	3	3	3				XRNP1 3
VPIS	Contains	Contains	Contains		Contains	Contains	Contains
Surge arrester	Optional	Optional	Optional		Optional	Optional	Contains
Remark			Relay protection		Relay protection	Relay protection	Air insulation

	15	16	17	18
Single Line Diagram				
Type	CPT	CPT	M	CCF
Expansion mode	Same as 01~04	Same as 01~04	Left: Y Right: Y	Same as 01~04
Dimension (W×H×D)	500×1450×890 500×1800×890(12kV) 700×1800×1100(24kV)	500×1450×890 500×1800×890(12kV) 700×1800×1100(24kV)	500×1450×890 700×1800×1100	1050×1450×840 1050×1800×840
Load switch	1	1		3
CT			2	Optional
PT	2	2	2	
HV fuse cutout	XRNP1 3	XRNP1 3	XRNP1 3	3
VPIS	Contains	Contains	Contains	Contains
Surge arrester		Contains	Optional	Optional
Remark			Air insulation	

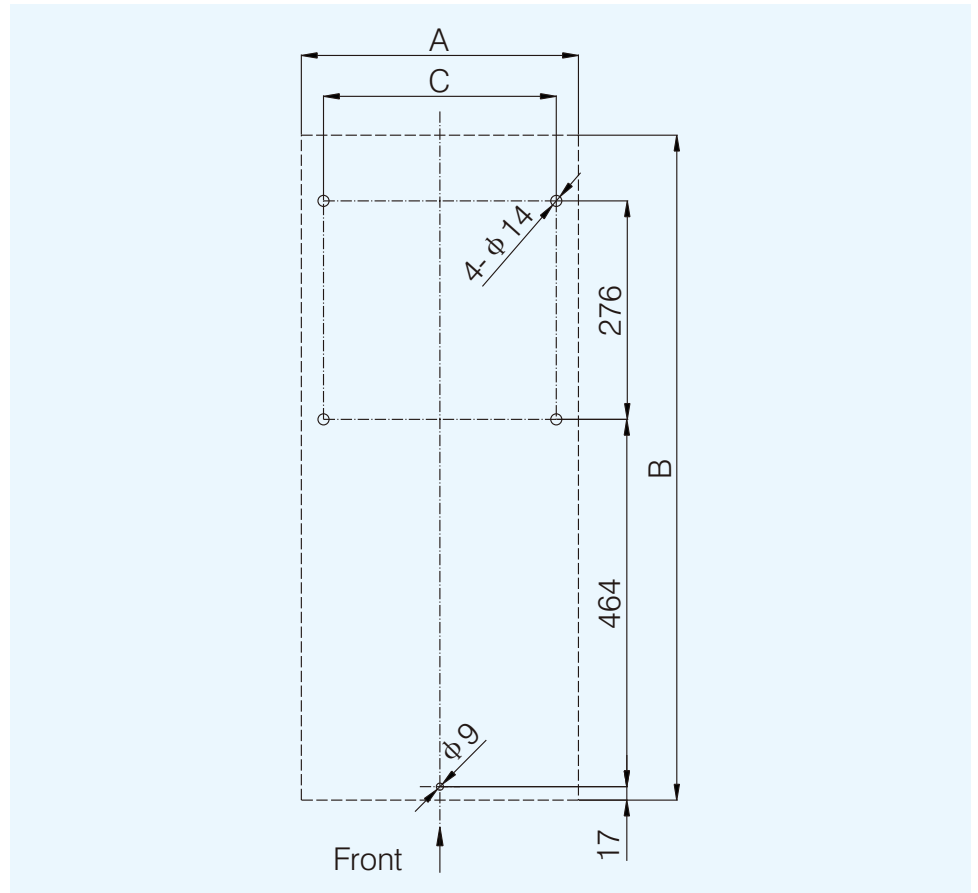
12. Foundation Drawing of Installation

12.1 The demission diagram of the basic installation is just like the following picture.

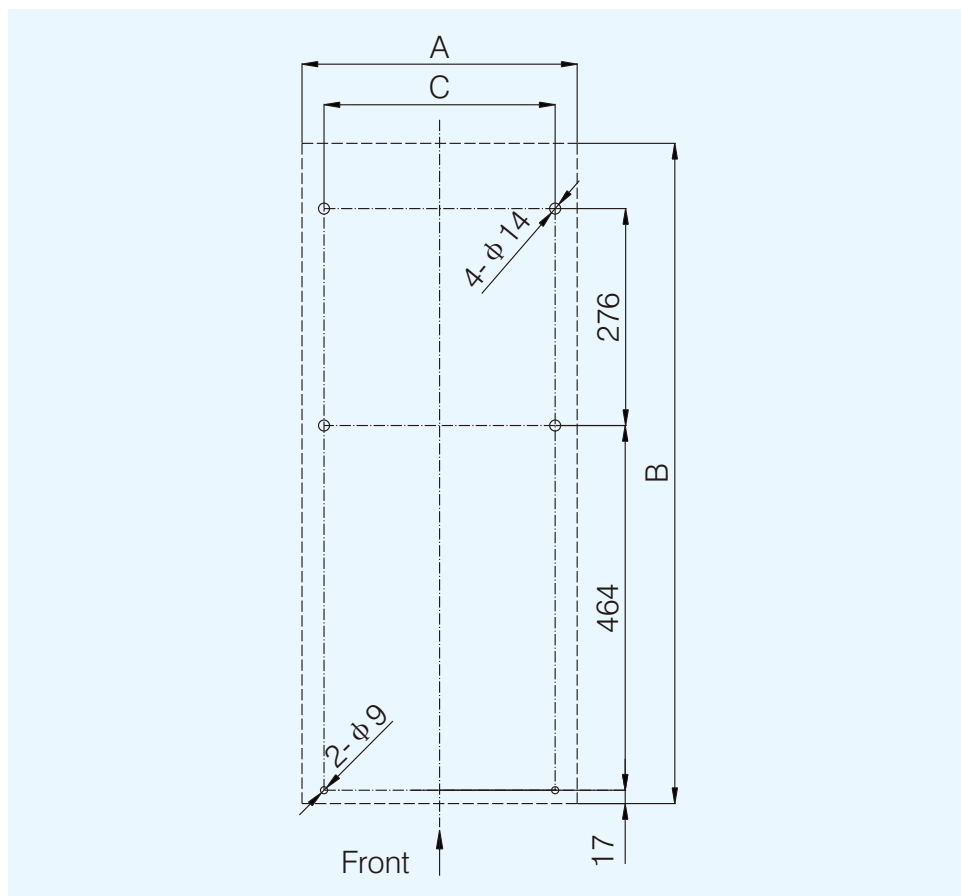
12.2 In order to guarantee the quality of the installation of basic components, the horizontal ratio of frame installation should meet the standard that the tolerance per meter square is less than 3mm.



Unit Module

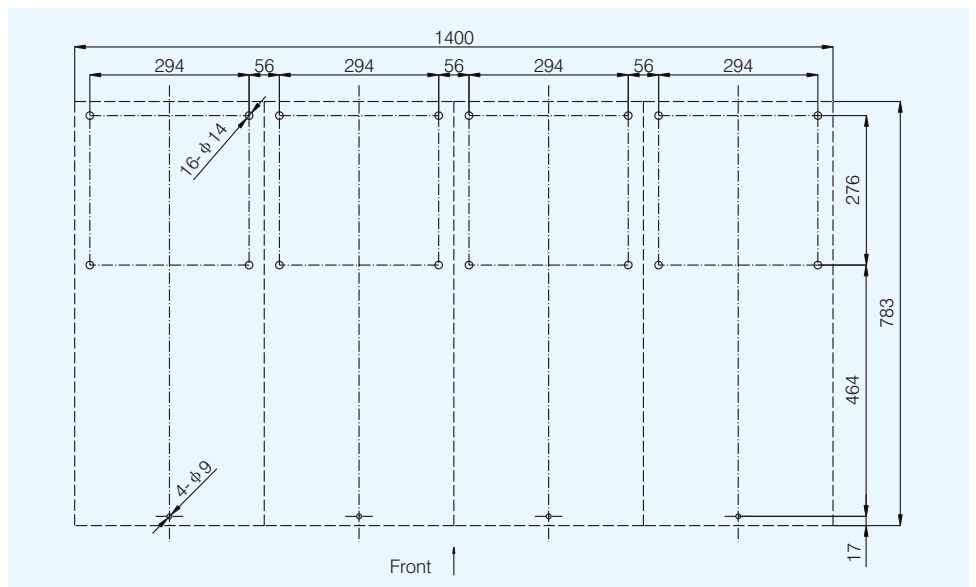
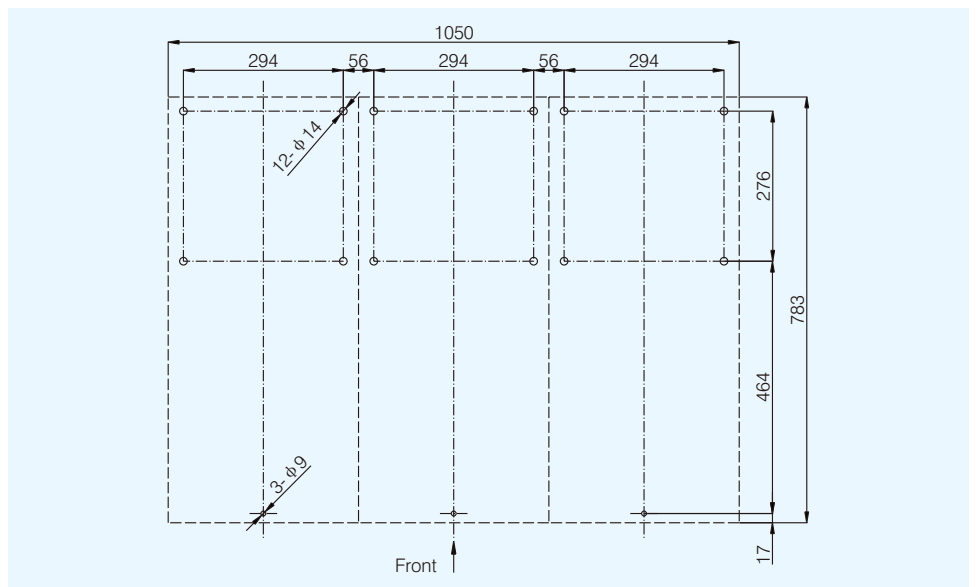
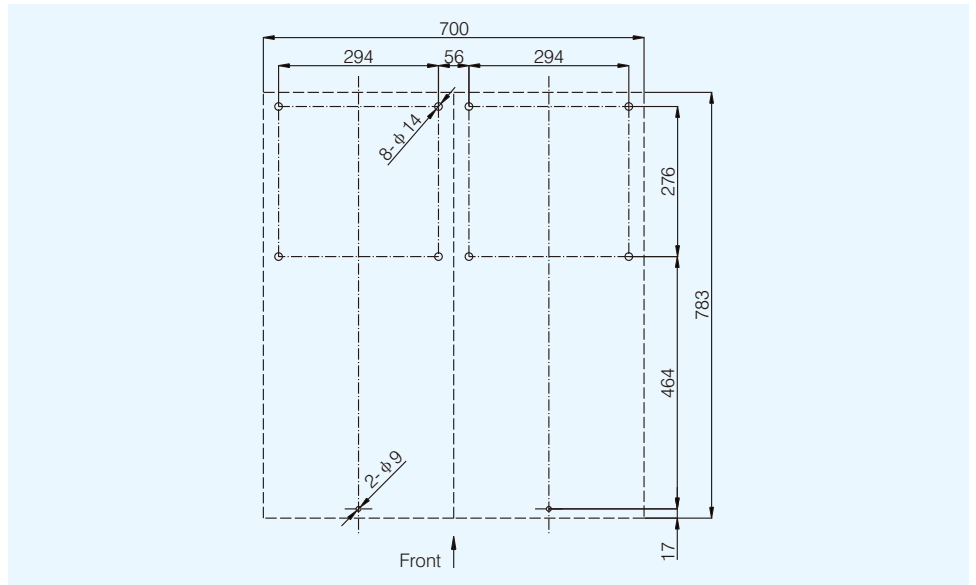


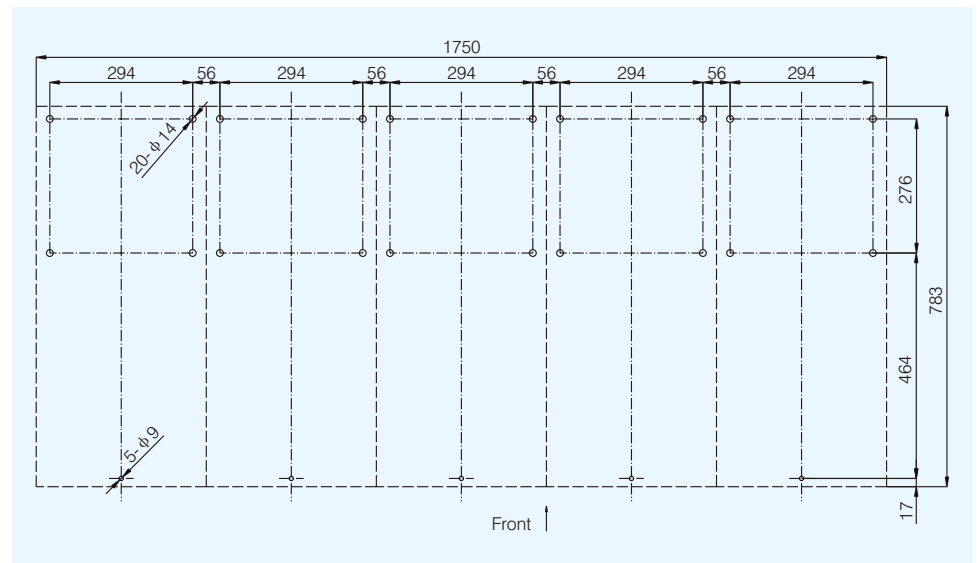
Voltage level (kV) Dimension		Type	C	F	V1	I	CPT	
		12/24	12/24	12/24	12/24	12	24	
A	350		●	●				
	420				●	●		
	500						●	
	700							●
B	840		●	●	●	●		
	890						●	
	1100							●
C	294		●	●				
	364				●	●		
	444						●	
	644							●



Voltage level (kV) Dimension		Type	M		De	APT	
		D	12	24	12/24	12	24
A	350	●					
	420				●		
	480		●				
	500					●	
	700			●			●
B	840	●					
	890		●		●	●	
	1100			●			●
C	294	●					
	364				●		
	424		●				
	444					●	
	644			●			●

Common Box Module





13. Ordering Information

- 13.1 The technical specification and scheme should be confirmed by two parties before the signature of contract.
- 13.2 The single line diagram, include the type、 specification and quantity of the components in switchgear; Appoint the relay protection mode.
- 13.3 The schematic diagram, include rated operating current, signal and protection circuit and the type of electrical components.
- 13.4 The arrangement drawing or layout of switchgear.
- 13.5 The list of spare parts.
- 13.6 The colour of the panel.
- 13.7 The characteristics of operation device, including operating voltage.
- 13.8 Foundation drawing supplied by manufacturer.
- 13.9 Common tools and materials for installation and examination and repair should be prepared by customers.
- 13.10 The specification and type of cable and cable terminal should be supplied and purchased by customers.
- 13.11 Any special requirements, please contact us.

International Business:

Attributed to our reliable quality and perfect after-sales service, CHINT T&D has been relied on and entrusted with by many of our clients around the world. We will continue to supply best products and try hard to win more compliments through our best service.

For inquiries, further interests for products cooperation, partnership, international alliance, investment discussion with us, please contact the following representatives.

Area	Representative	Tel	E-mail
Asia-pacific	Selina Peng	(+86) 21 6777 7777 ext. 80917	pengxuan@chint.com
	Lucy Zou	(+86) 21 6777 7777 ext. 80906	zouly@chint.com
	David Liu	(+86) 21 6777 7777 ext. 80963	david.liu@chint.com
Latin America	Bill Han	(+86) 21 6777 7777 ext. 80911	bill.han@chint.com
North America	Xufeng Jiang	(+86) 21 6777 7777 ext. 80990	jxfeng@chint.com
Middle East	Xing Peng	(+86) 21 6777 7777 ext. 80910	pengx@chint.com
	Carrie Yang	(+86) 21 6777 7777 ext. 80950	yangqs@chint.com
Europe	Jinhwa Yang	(+86) 21 6777 7777 ext. 80981	yangjh@chint.com
Russian-speaking Countries	Елена	(+86) 21 6777 7777 ext. 80930	hellenli@chint.com
	Олег Дун	Russia: 007-919-763 6527 China: (+86) 21 6777 7777 ext. 80903	oleg@chint.com
Africa	York Zhi	(+86) 21 6777 7777 ext. 80925	zhiy@chint.com
Industrial End User Division	Logan Liu	(+86) 21 6777 7777 ext. 80918	lwgen@chint.com
	Tina Wu	(+86) 21 6777 7777 ext. 80937	wuyun@chint.com
MV/HV Apparatus & Automation Division	Emma Zhang	(+86) 21 6777 7777 ext. 80926	zhangtt@chint.com
General Manager	Yin Zhang		zyin@chint.com

Address:

International Business Department
855 Wenhe Road, Songjiang District
Shanghai 201614, China
Tel: (+86) 21 6777 7777 ext. 80952
Fax: (+86) 21 6777 7999
Http://en.chintelectric.com

© CHINT. NO. 2011-014EN1011



The contents and data in this catalogue are for reference only. The real order requirements and technical agreements shall prevail. The catalogue is subject to change without further notice. The latest edition is recommended. CHINT reserves the right of interpretation.