

# 25.8kV SF<sub>6</sub> gas insulated switchgear

This product satisfies the standards of IEC 62271-100, IEC 60517 and ES 150-576.

In particular, it passed the test of E<sub>2</sub>, M<sub>2</sub> and C<sub>2</sub> for the first time in Korea as the recognition of its outstanding electric and mechanic durability.

All main circuit charged part are in metal enclosure which is filled by SF<sub>6</sub> GAS and the GIS is consisted of two bus-bar tank (double bus-bar system), one VCB tank and operating control box.

2-position (ON-OFF) and 3-position (ON-OFF-earth) disconnecting switches are mounted inside of the bus-bar tank.



## RATING

Voltage: 25.8kV  
Frequency: 50/60Hz  
Current: 2000A/600A  
Short Time Withstand Current (1sec): 25kA  
Impulse Voltage: 150kV  
Breaking Capacity: 25kA

## SPECIFICATION

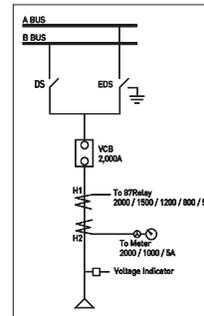
Guaranteed ON-OFF times on no-load  
• VCB: 10,000 times  
• D. S: 1,000 times  
Performed test: "Class 2 (E<sub>2</sub>, M<sub>2</sub>, C<sub>2</sub>)"

## FEATURE

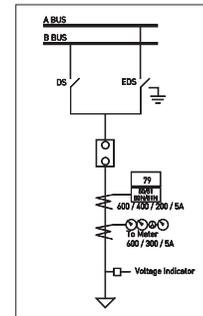
- » VT Panel is separately installed for voltage monitoring of double bus-bar.
- » 3 compartment (2 bus-bar compartment and 1 VCB compartment) are completely separated for easy maintenance.
- » 3 rupture disk (pressure release device) are installed at each compartment.
- » When the gas is leaked to become 0 air pressure (atmospheric pressure) it would endure to the highest voltage of operation



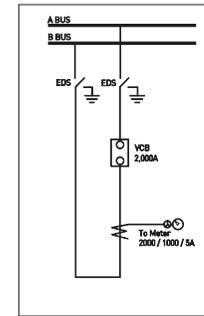
Bellows for panel connecting and absorbing of impact.  
It is made be stainless steel.



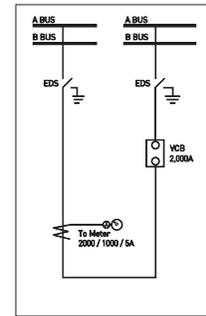
Main



Feeder



Bus Tie



Bus Section

# Power Transmission & Distribution

## Cubicle type Gas Insulated Switchgear (CGIS)



### Characteristics

- Permanent magnetic actuator mechanism
- Maintenance free (10,000 times operation)
- Cubicle type GIS
- Gas pressure monitoring device and over voltage release device application

### Ratings

Classification		Rating
Rated voltage		25.8 kV, 3 Phase
AC Power frequency withstand voltage	Phase-Ground	70 kV / 1 min
	DS Phase-Phase	77 kV / 1 min
Impulse withstand voltage	Phase-Ground	150 kV / 1.2 x50 $\mu$ sec
	DS Phase-Phase	165 kV / 1.2 x50 $\mu$ sec
Control and operation circuit withstand voltage		2 kV / 1 min
Rated short-time current	Effective value(r.m.s)	25kA / 1 sec
	Max. Peak value	65 kA, Peak
Rated current	Main busbar and 2000A circuit	2000 A
	Distribution line and 600A circuit	600 A
Rated gas pressure / Alarm pressure		0.03 / 0.015 MPa.G at 20°C

## 145kV Hybrid Switchgear



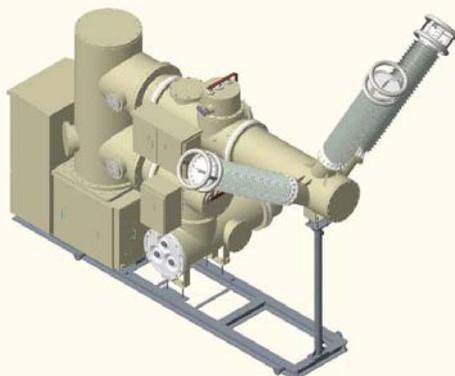
### Characteristics

- External current transformers
- Composite bushing
- Combined disconnecter
- SF<sub>6</sub> Gas Insulation

### Ratings

Rated insulation level		
Rated voltage		145kV
Rated frequency		60Hz
Rated power frequency withstand voltage (1min)		
Common value		275kV
Across the isolating distance		315kV
Rated lightning impulse withstand voltage		
Common value kV		650kV
Across the isolating distance		750kV
Current ratings		
Rated direct current		3,150A
Rated short-time withstand current		40kA
Rated short-circuit duration		3s
Rated peak withstand current		104kA

## 170kV Gas Insulated Switchgear



### Characteristics

- Well proven and reliable technology
- High performance ratings
- Long service life
- High availability
- Economic efficiency and low maintenance costs
- Safe encapsulation

### Ratings

Rated insulation level		
Rated voltage		170kV
Rated frequency		60Hz
Rated power frequency withstand voltage (1min)		
Common value		325kV
Across the isolating distance		325kV
Rated lightning impulse withstand voltage		
Common value kV		750kV
Across the isolating distance		860kV
Current ratings		
Rated direct current		Up to 4,000A
Rated short-time withstand current		50kA
Rated short-circuit duration		1s
Rated peak withstand current		130kA

## SWITCHGEAR

### | SF6 Gas Insulated Switchgear - Cubicle Type



#### APPLICATION

- The C-GIS is designed for economical and reliable power distribution in substation. With its cubicle structure and highly reliable control system, the compact system is the best solution for service in private utility network and substation in industry and public buildings.
- All switching devices with interrupting, disconnecting and earthing functions are encapsulated in stainless steel enclosure with SF6 gas insulation.

#### CHARACTERISTIC

- Free of maintenance and reliable operation
- Digital controlled and protected
- Safety to operating personal
- Factory-assembled sections are delivered to the site C24
- Minimum installation space
- Capable of extension with existing systems
- Three-phase enclosure of the functional compartments

#### RATING

Rated voltage	kV	25.8
Rated short time withstand current	(kA/1sec, RMS)	25
Rated current	A	Busbar 2,000
		Feeder 630
Power frequency withstand voltage	kV	70
Impulse withstand voltage	kV	150
Rated interrupting current	kA	25
Standard operation obligation		0-0.3sec-CO-15sec-CO
Protection degree		IP65 / IP4X
Mechanical endurance	times	10,000
Applied Standard		IEC 62271-100, KEPCO std.

### | SF6 Gas Insulated Pad mounted Load Break Switch



#### APPLICATION

- The SF6 gas insulated pad mounted load break switch is designed to achieve optimum performance and reliability, making use of the latest technology in SF6 arc interruption with puffer principle.
- The switch is designed to meet the increasing requirements of the electric utility industry, providing a safe, low maintenance, long life, economical alternative device to perform load switching and data gathering on underground distribution lines.
- The switch is designed to be mounted on the concrete pad.

#### CHARACTERISTIC

- Maintenancefree
- Light weight and easy installation
- Measuring, status monitoring and control
- Safety devices (low pressure interlocking, pressure relief, locking)

#### RATING

Rated voltage	kV	15 / 24(25.8) / 35(40.5)
Rated current	A	600
Rated short time withstand current	kA	12.5
Rated short circuit making current	kA, peak	32.5
Cy withstand voltage power frequency	kV	50/60/95
Impulse withstand voltage	kV	125/125/195
Rated load switching performance	times	200
Mechanical endurance	times	5,000
Weight (Automatic / Manual)	kg	450/320
Applied Standard		IEC 62271-103, KEPCO std.

# Gas Insulated Switchgear

HD Hyundai Electric entered the GIS market in 1984, and has maintained its position as a domestic leader in the field for the past 40 years, supplying its products to 40 countries worldwide. Using the latest facilities and production systems in line with the latest international standards, we have the capacity to produce Gas Insulated Switchgear up to 800 kV, the maximum rated voltage in Korea.

## Production Range

### SF<sub>6</sub> Gas Insulated Switchgear (GIS)

- Rated voltage : 72.5 kV, 126 kV, 145 kV, 170 kV, 245 kV, 362 kV, 420 kV, 550 kV, 800 kV
- Rated short - circuit breaking current : 20-63 kA

### Eco-friendly Gas Insulated Switchgear (GIS)

- Rated voltage : 72.5 kV, 145 kV, 170 kV
- Rated short - circuit breaking current : 31.5-50 kA



A



B



C



D

- A / 800 kV Gas Insulated Switchgear
- B / 420 kV Gas Insulated Switchgear
- C / 245 kV Gas Insulated Switchgear
- D / 170 kV Gas Insulated Switchgear



### Optimized GIS

SF<sub>6</sub> gas with excellent insulation and arc extinguishing properties allows installation in confined spaces



### High degree of reliability

Closed structure of GIS not affected by climate effects, anti-pollution, low electromagnetic wave



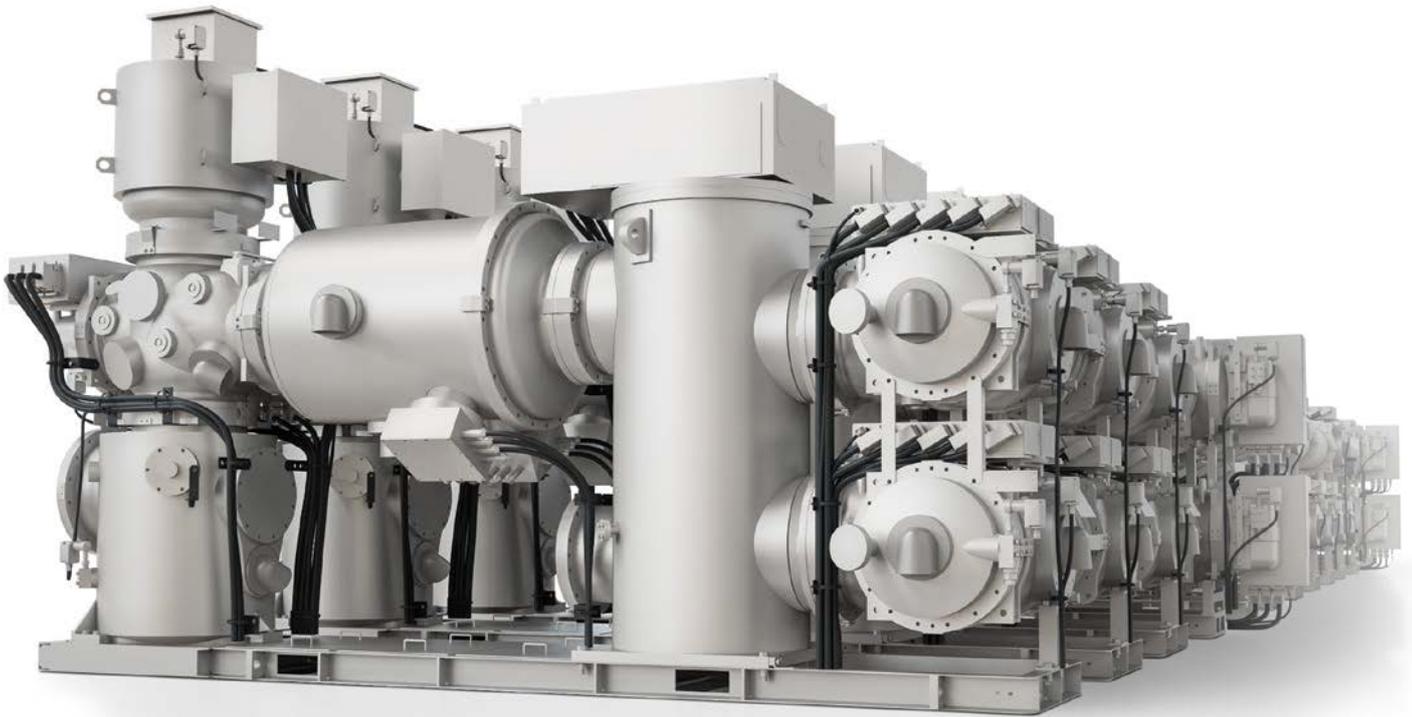
### User friendly Design

Compact design, easy installation, easy operation and monitoring, simple and systematic maintenance, long service life



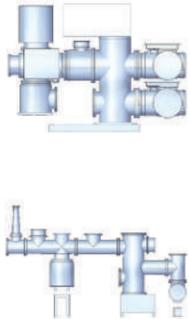
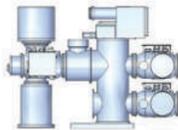
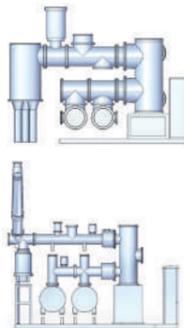
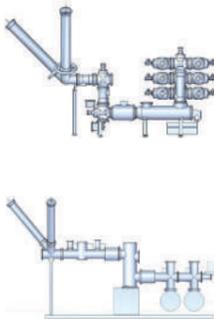
### Eco-friendly Product Design

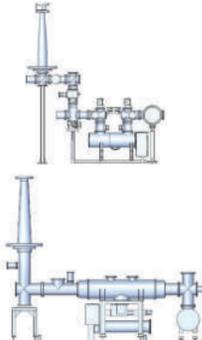
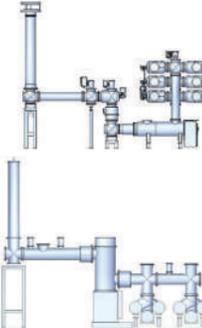
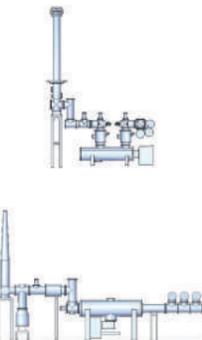
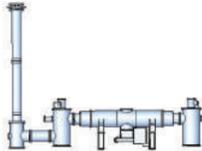
Development of eco-friendly GIS using Novec mixture gas and VI-DRY Air GIS applicable to existing substation sizes



# Products & Details



<b>Rated voltage (kV)</b>	72.5	145	170	245/300
<b>Category</b>	HSG 074	HSG 144	HSG 175	HSG 305
<b>Model No.</b>	HSG-074A	HSG-144A HSG-144D	HSG-144C	HSG-305A HSG-305B HSG-305C
<b>Phase per enclosure</b>	3	3	1 / 3	1
<b>Frequency (Hz)</b>	50 / 60	50 / 60	50 / 60	50 / 60
<b>Breaking current (kA)</b>	Up to 40	Up to 40	Up to 50	Up to 50
<b>Rated current (A)</b>	Up to 2500	Up to 3150	Up to 4000	Up to 4000
<b>Lighting impulse withstand voltage (kVp)</b>	325	650	750	1050
<b>Power frequency withstand voltage (kV)</b>	140	275	325	460
<b>CB Operation type</b>	Three Phase Common Operation	Three Phase Common / Isolated Operation	Three Phase Common / Isolated Operation	Three Phase Isolated Operation
<b>CB Mechanism</b>	Spring	Spring	Hydraulic / Spring	Hydraulic / Spring
<b>Arrangement (Layout)</b>				

<b>Rated voltage (kV)</b>	362	420	420/550	800/1100
<b>Category</b>	HSG 362	HSG 426	HSG 556	HSG 805
<b>Model No.</b>	362H1PGS50 362HGS5 362H1PGS50	HSG-426C	550HSG	800HG550
<b>Phase per enclosure</b>	1	1	1	1
<b>Frequency (Hz)</b>	60	50 / 60	50 / 60	800kV - 50 / 60 1100kV - 50
<b>Breaking current (kA)</b>	Up to 63	Up to 50	Up to 63	50
<b>Rated current (A)</b>	Up to 8000	4000	4000	8000
<b>Lighting impulse withstand voltage (kVp)</b>	1175	1425	1425/1550	2100/2400
<b>Power frequency withstand voltage (kV)</b>	520	650	650/710	960
<b>CB Operation type</b>	Three Phase Isolated Operation			
<b>CB Mechanism</b>	Hydraulic	Hydraulic / Spring	Hydraulic / Spring	Hydraulic
<b>Arrangement (Layout)</b>				

## TECHNICAL DATA

# Technical Data

ILJIN Gas Insulated Switchgear is available with high voltage ratings from 25.8kV to 420kV.

The newest GIS systems are used throughout the world wherever superior quality and features are required.

Type of GIS		Unit	25.8kV	29kV	36kV	72.5kV
Rated voltage		kV rms	25.8	29	36	72.5
Arrangement of phase		-	3	2	3	2
Rated power frequency withstand voltage		kV rms	60	95/110	70	140
Rated lightning impulse withstand voltage		kV peak	150	200/220	170	325
Rated frequency		Hz	60	60	50	60
Rated normal current		A rms	630 / 2000	630 / 2000	1250 / 2000 / 2500	1250 / 2000
Rated short-circuit breaking current			25	20	31.5	20
Rated making current	Circuit breaker	kA peak	65	52	80	52
	Line earthing switch	kA peak	-	-	-	-
Rated short-time current(1 sec/3 sec)		kA rms	25 (1sec)	20 (1sec)	31.5 (3sec)	20 (1sec)
Operating method	Circuit breaker	-	PMA	PMA	Motor spring	Motor spring
	Disconnecting switch	-	Motor / Manual	Motor / Manual	Motor / Manual	Motor / Manual
	Earthing switch	-	Motor / Manual	Motor / Manual	Motor / Manual	Manual
Gas Type		-	DRY AIR	DRY AIR	SF <sub>6</sub> GAS	SF <sub>6</sub> GAS
Number of breakers		-	1	1	1	1
Phase per enclosure	Circuit breaker	-	3 phase common	2 phase common	3 phase common	2 phase common
	Disconnecting switch, earthing switch	-	3 phase common	2 phase common	3 phase common	2 phase common
	Feeder bus	-	3 phase common	2 phase common	3 phase common	2 phase common
	Main bus	-	3 phase common	2 phase common	3 phase common	2 phase common
Installation		-	-	-	Indoor	Indoor, Outdoor



25.8/36kV GIS indoor Substation



25.8kV E-GIS indoor substation



72.5kV GIS Outdoor substation



170kV GIS Outdoor substation

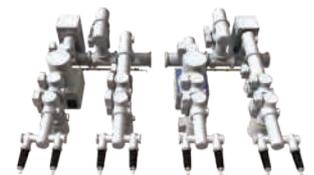


362kV GIS Outdoor substation

145kV	170kV	245kV	362kV	420kV
145	170	245	362	420
3	3	3	3	3
275	325	460	520	650
650	750	1050	1175	1425
50 / 60	60	50	60	50
1250 / 2000 / 3150	1250 / 2000 / 3150 / 4000	2000 / 3150	6300	4000
40	50	40 / 50	63	63
100	130	100 / 125	163.8	157.5
100	130	100 / 125	163.8	157.5
40 (3sec)	50 (1sec)	40 / 50 (3sec)	63 (1sec)	63 (3sec)
Motor spring	Hydraulic(SF <sub>6</sub> ) Motor Spring (DRY AIR)	Motor spring	Hydraulic	Motor spring
Motor / Manual	Motor / Manual	Motor / Manual	Motor / Manual	Motor / Manual
Motor / Manual	Motor / Manual	Motor / Manual	Motor / Manual	Motor / Manual
SF <sub>6</sub> GAS	SF <sub>6</sub> GAS, DRY AIR	SF <sub>6</sub> GAS	SF <sub>6</sub> GAS	SF <sub>6</sub> GAS
1	1	1	1	1
3 phase common	3 phase common	Single phase	Single phase	Single phase
3 phase common	3 phase common	Single phase	Single phase	Single phase
3 phase common	3 phase common	Single phase	Single phase	Single phase
3 phase common	3 phase common	Single phase	3 phase common	Single phase
Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor



29kV GIS



72.5kV GIS



145kV GIS



170kV GIS



245kV GIS

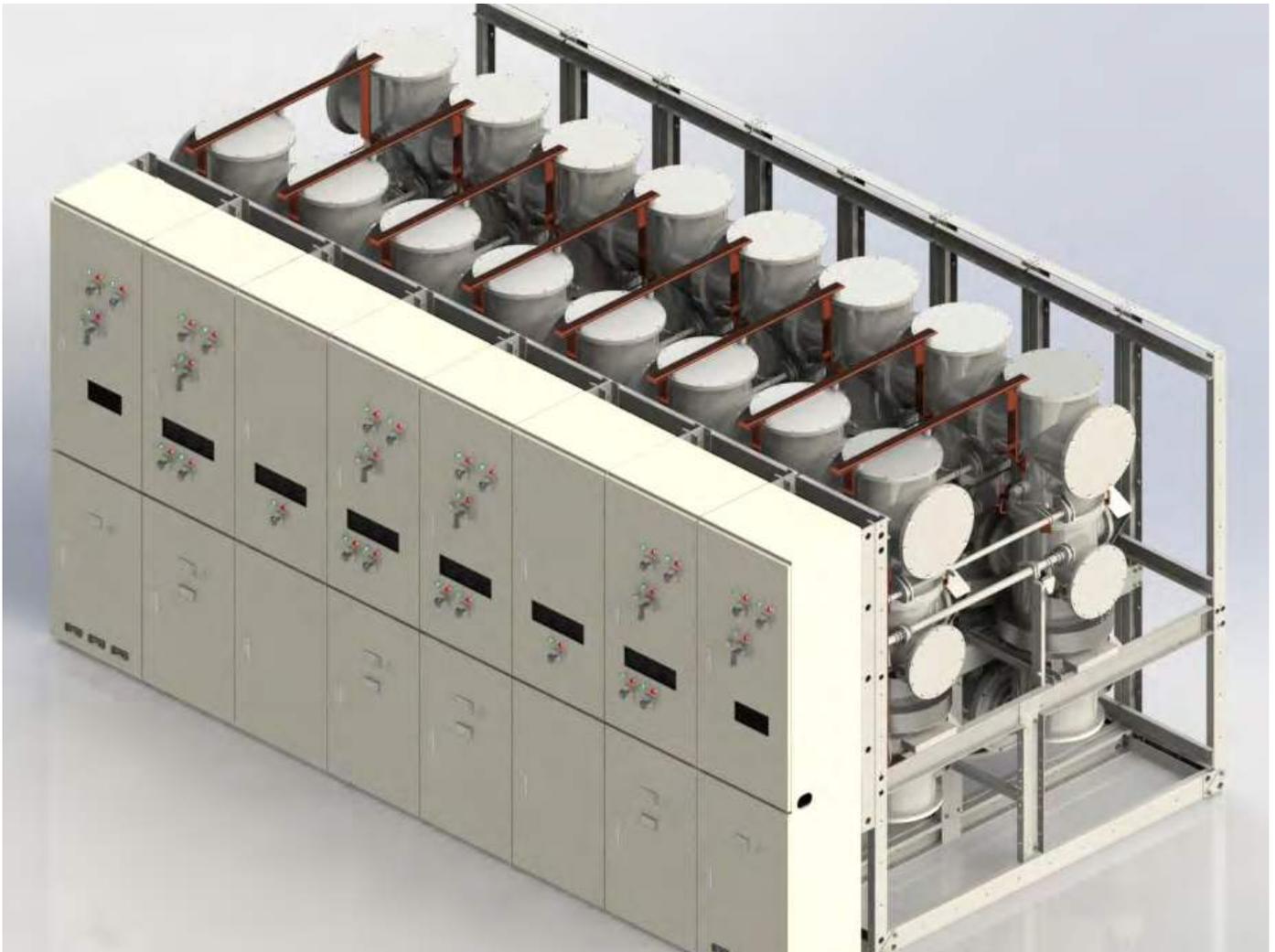


362kV GIS

## Product Range

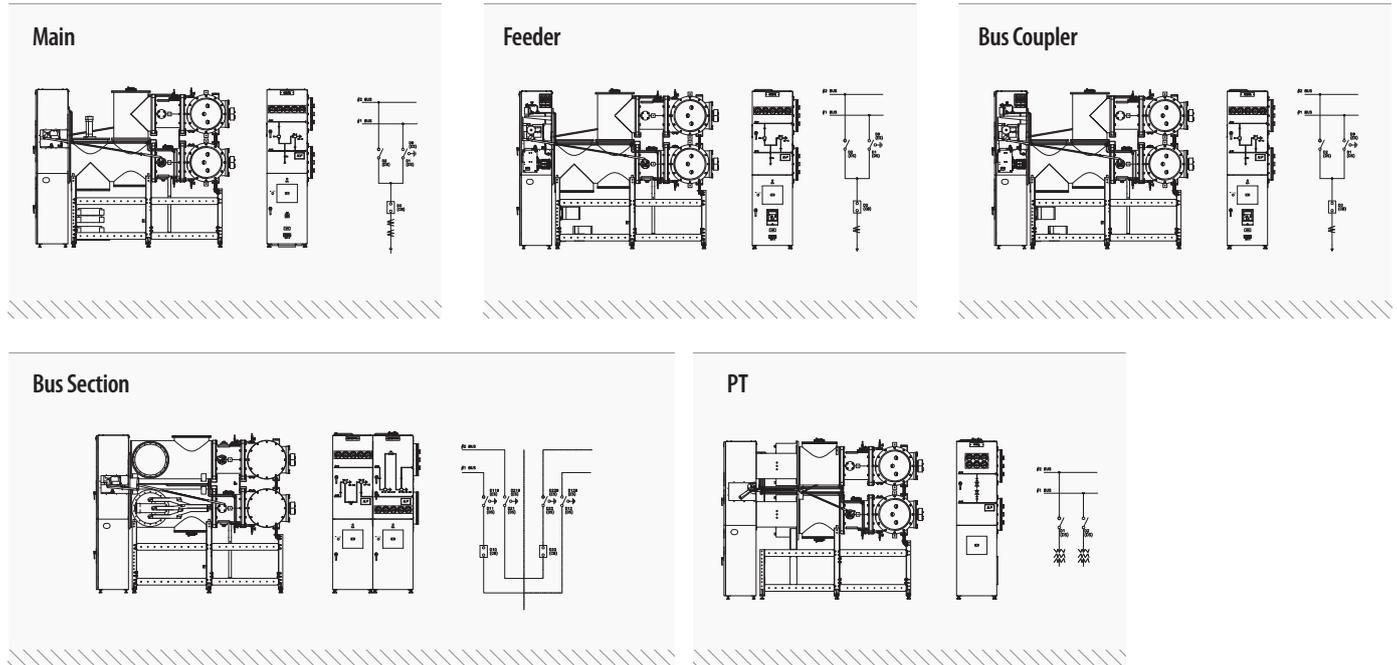
### 25.8/29/36KV GAS INSULATED SWITCHGEAR FOR 25KA / 20KA / 31.5KA EQUIPMENT

The ILJIN 25.8/29/36kV GIS features high availability and integrated technology in compact design.

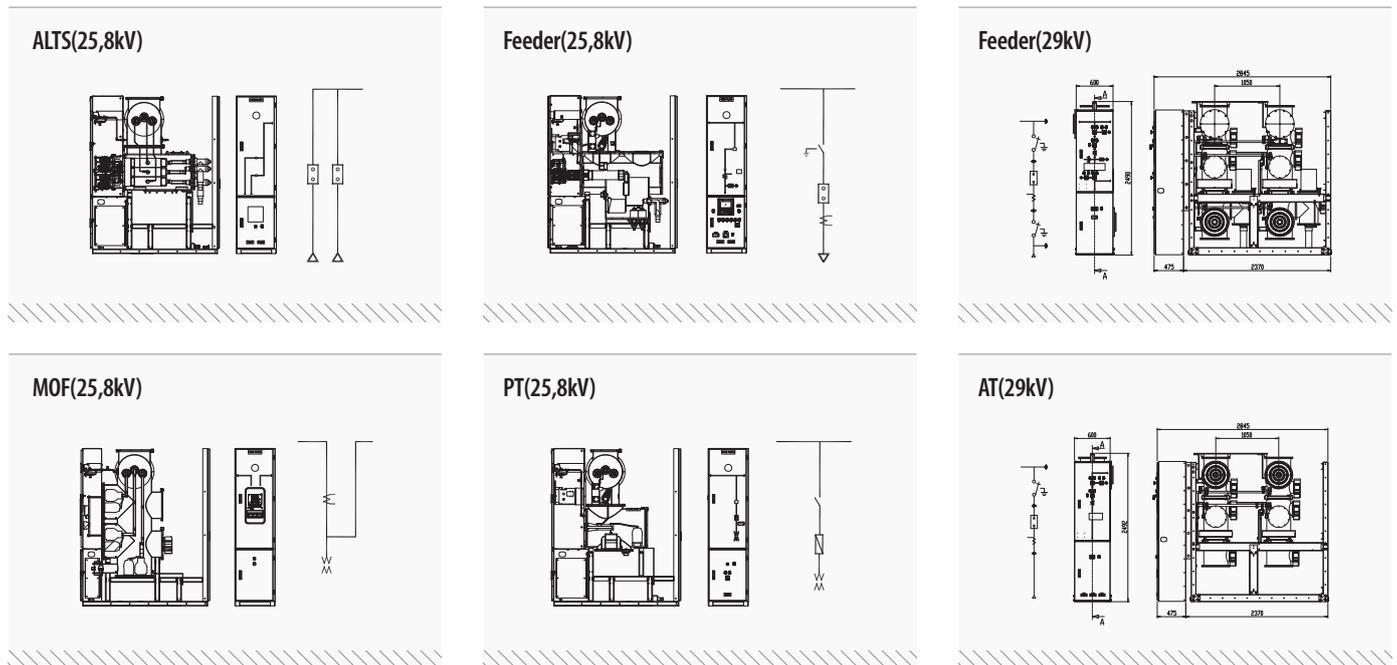


# Typical Arrangements

## Double Bus Type for KEPCO



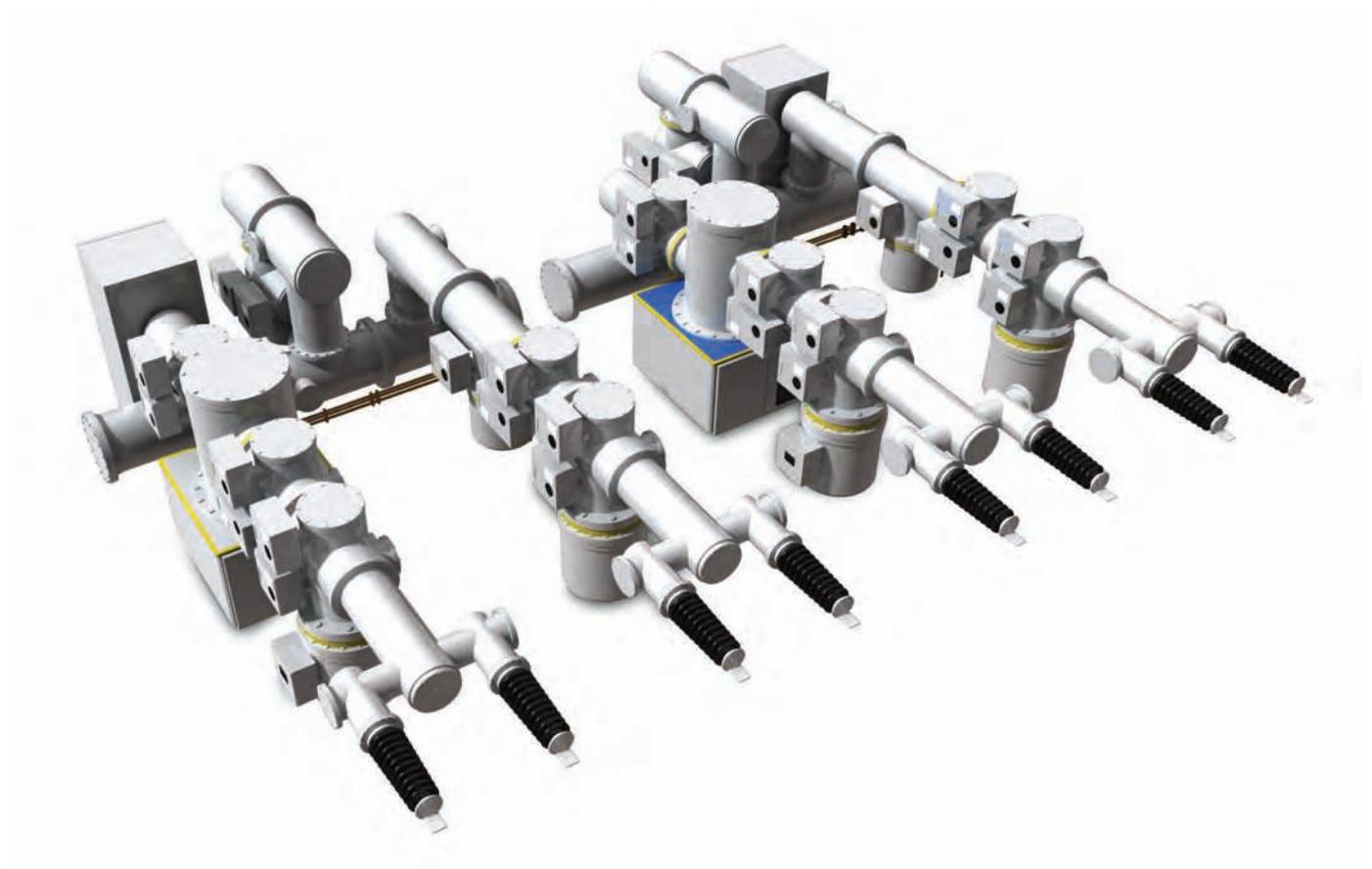
## Single Bus Type for KORAIL



## Product Range

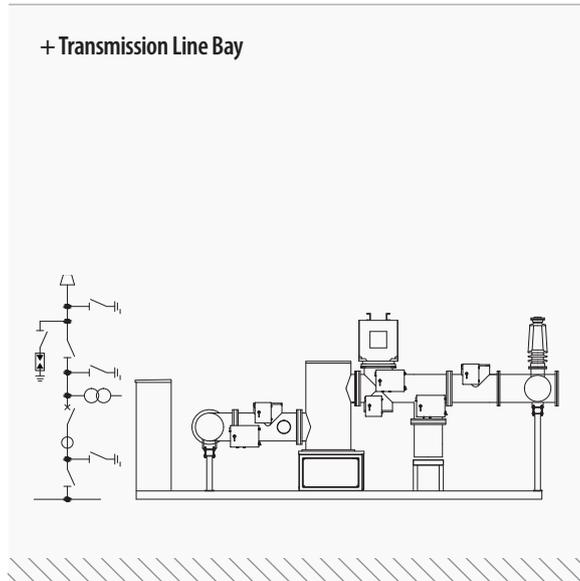
### 72.5kV GAS INSULATED SWITCHGEAR FOR 20kA EQUIPMENT

The ILJIN 72.5kV GIS features high availability and integrated technology in compact design.

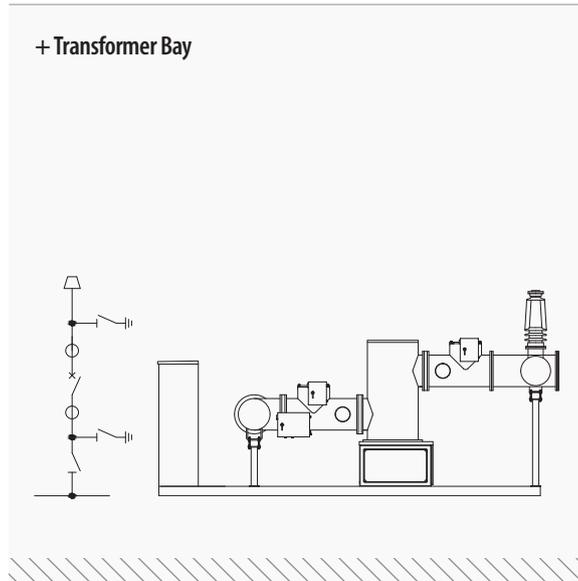


## Typical Arrangements

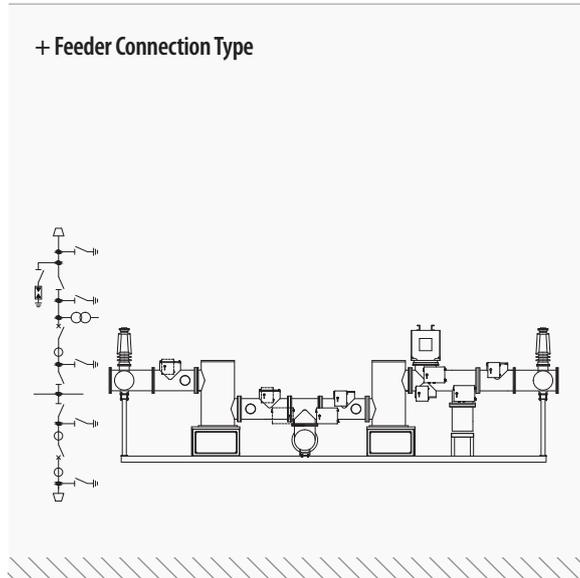
+ Transmission Line Bay



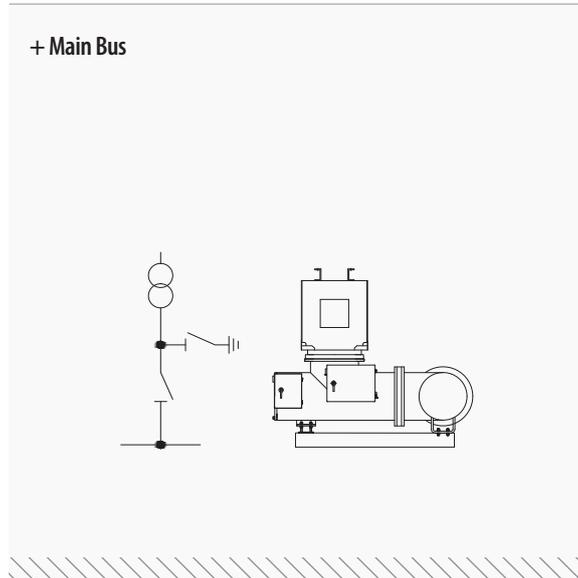
+ Transformer Bay



+ Feeder Connection Type



+ Main Bus



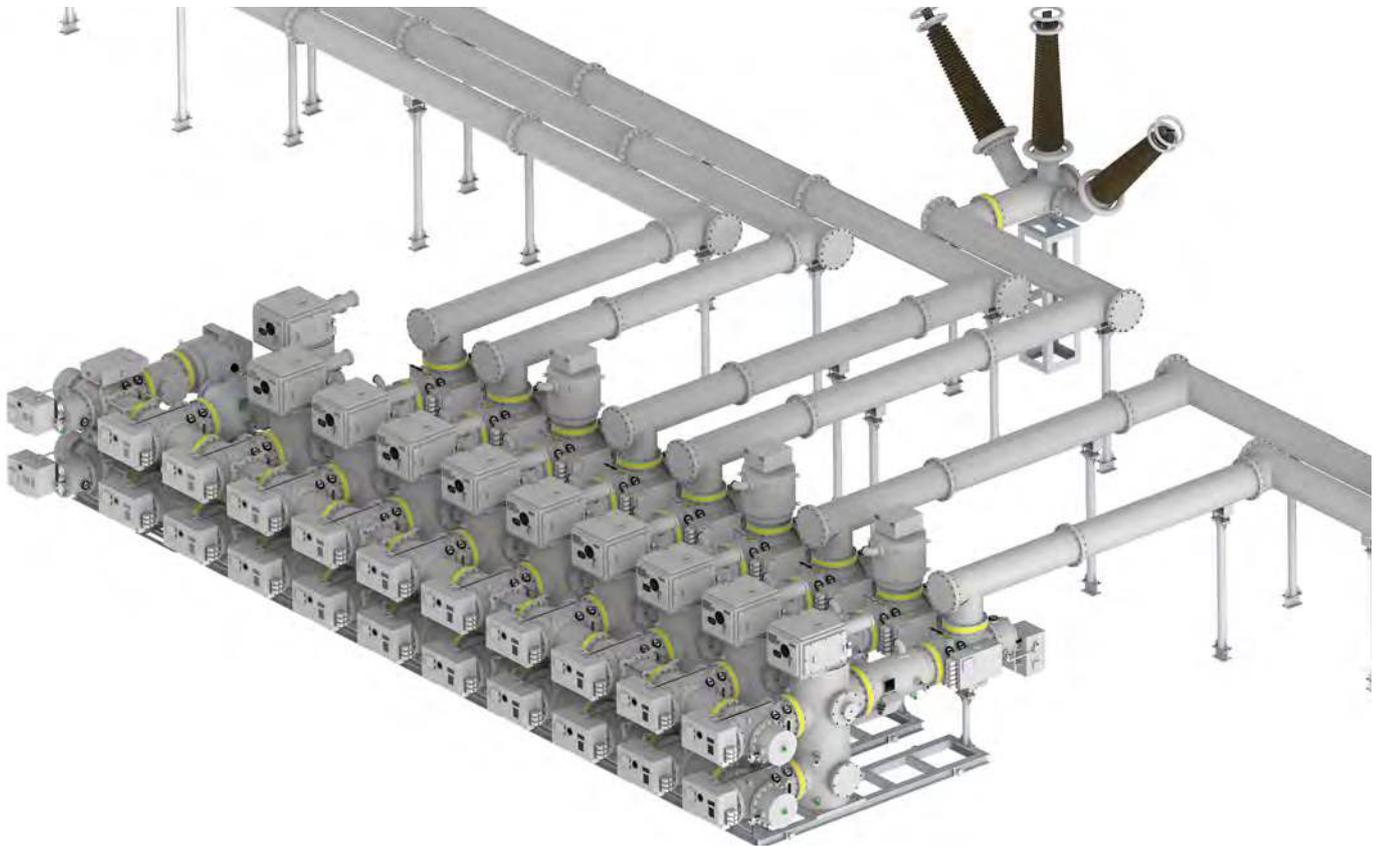
## 72.5kV GIS

- > GIS for railway substations
- > Reliable motor spring mechanism for CB
- > Ingenious modular system

## Product Range

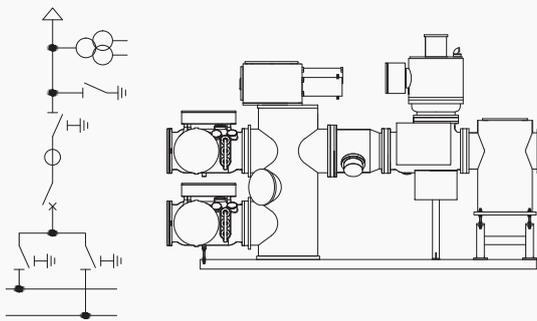
# 145kV GAS INSULATED SWITCHGEAR FOR 40kA EQUIPMENT

The ILJIN 145kV GIS features high availability and integrated technology in a compact design.

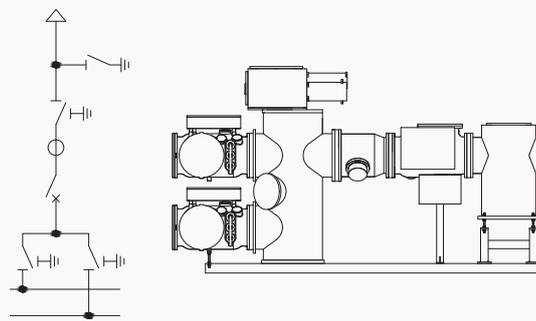


## Typical Arrangements

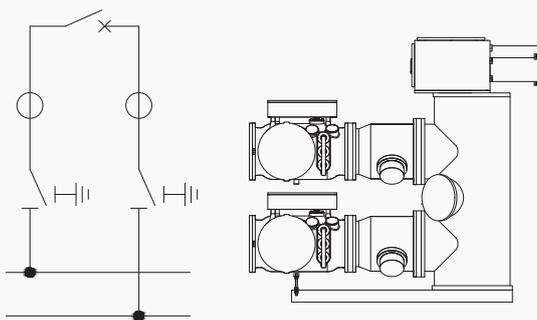
+ Transmission Line Bay



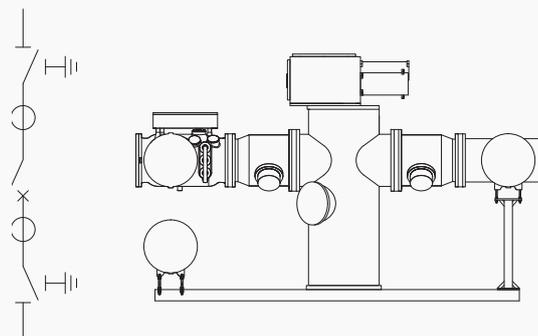
+ Transformer Bay



+ Bus Coupler



+ Bus Section



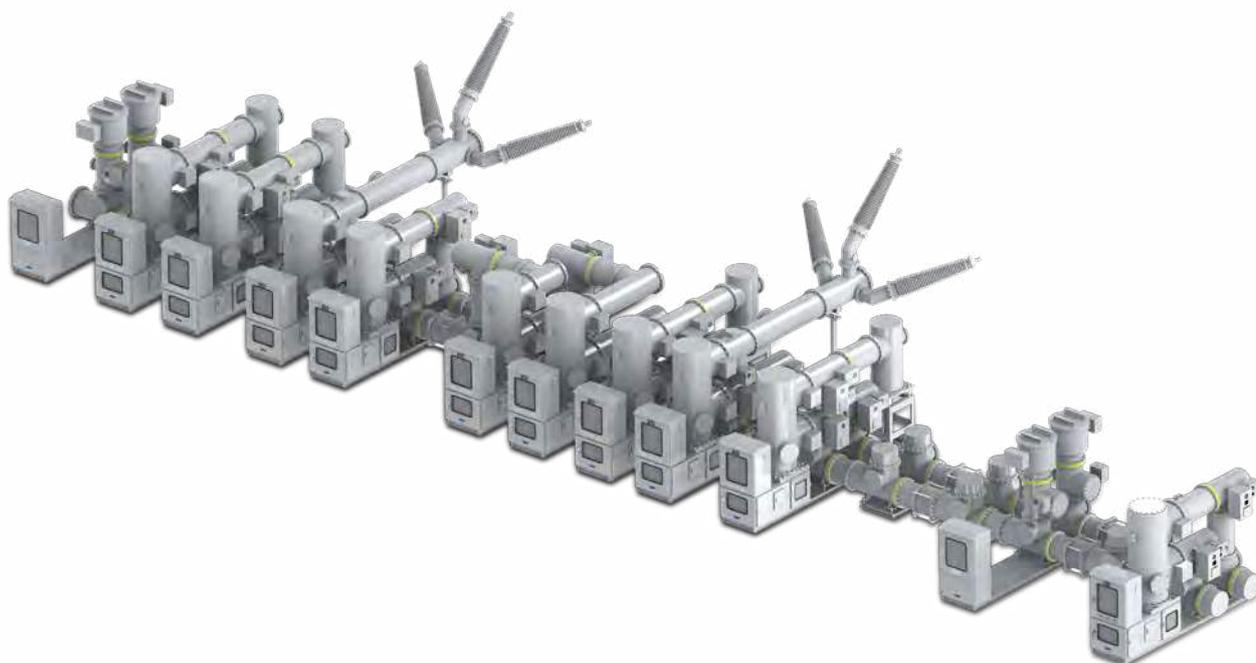
### 145kV GIS

- > GIS for indoor/outdoor substations
- > Reliable motor spring mechanism for CB
- > Combined disconnecter and earthing switch
- > Ingenious modular system

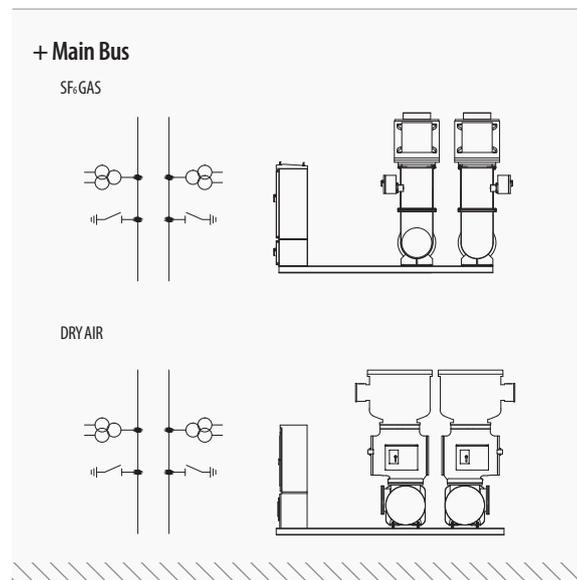
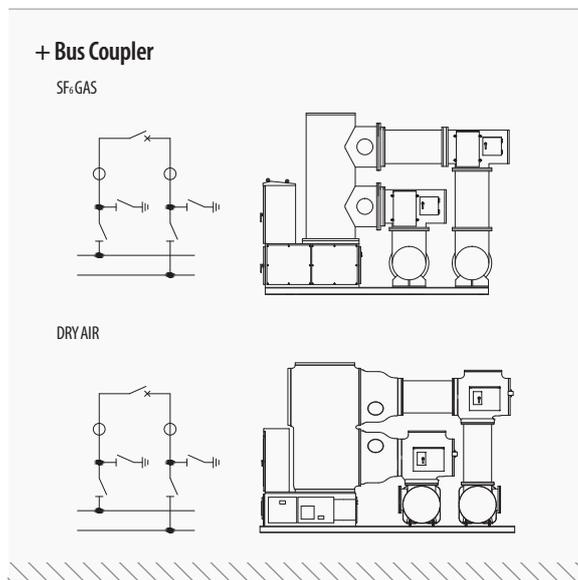
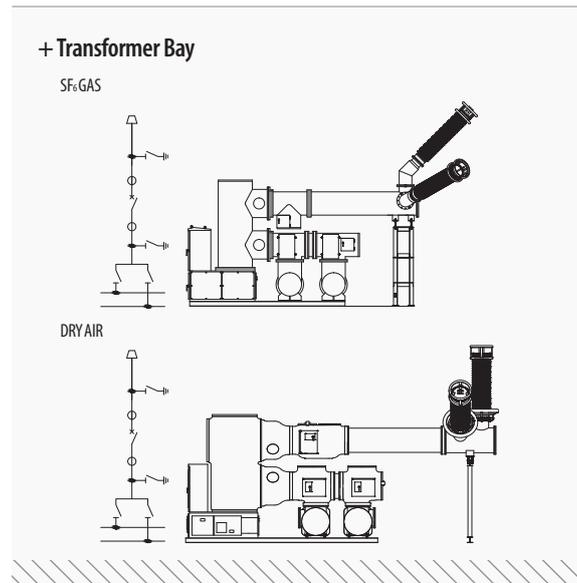
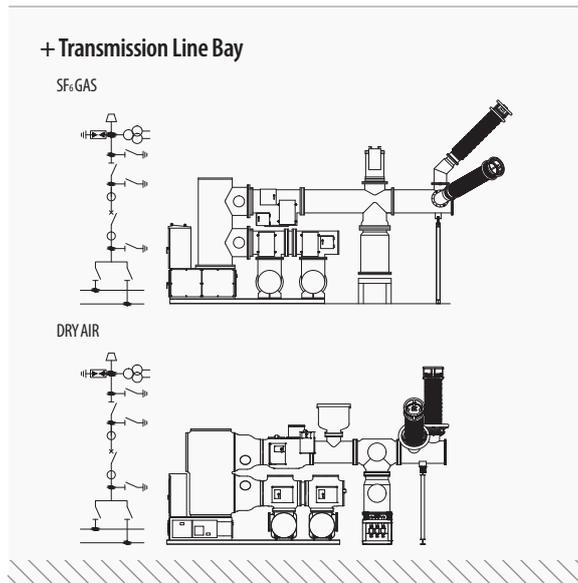
## Product Range

### 170kV GAS INSULATED SWITCHGEAR FOR 50kA EQUIPMENT

The ILJIN 170kV GIS features high availability and integrated technology in a compact design.



## Typical Arrangements



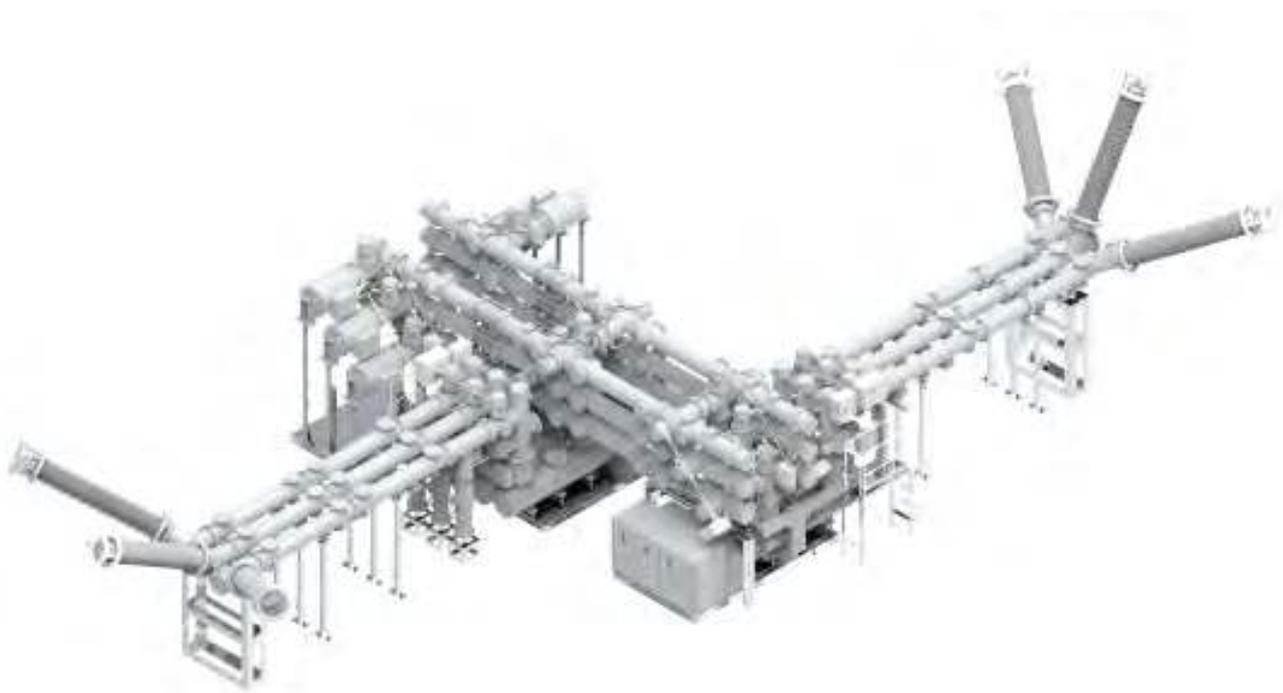
## 170kV GIS

- > GIS for indoor/outdoor substations
- > Reliable hydraulic(SF<sub>6</sub> Gas) & Motor Spring(Dry Air) mechanism for CB
- > Ingenious modular system

## Product Range

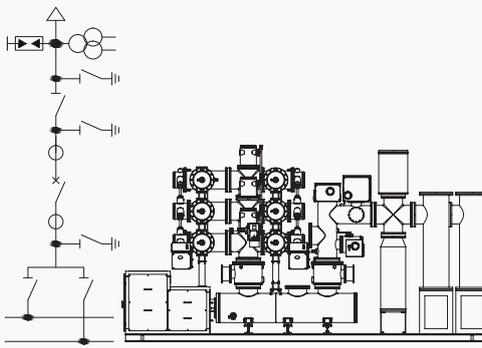
### 245kV GAS INSULATED SWITCHGEAR FOR 40kA / 50kA EQUIPMENT

The ILJIN 245kV GIS features high availability and integrated technology in a compact design.

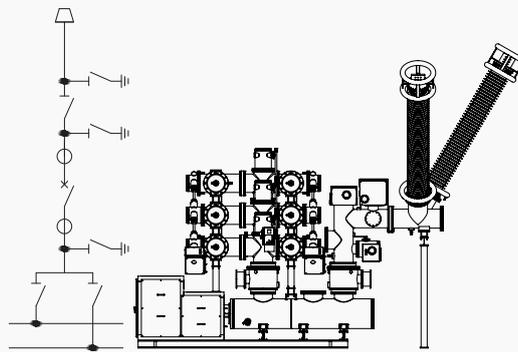


## Typical Arrangements

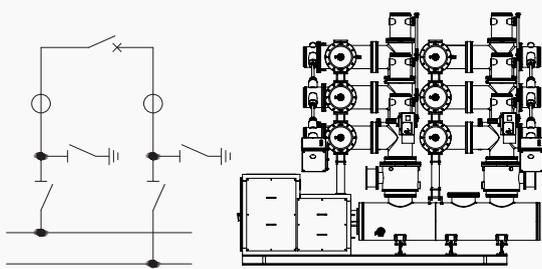
+ Transmission Line Bay



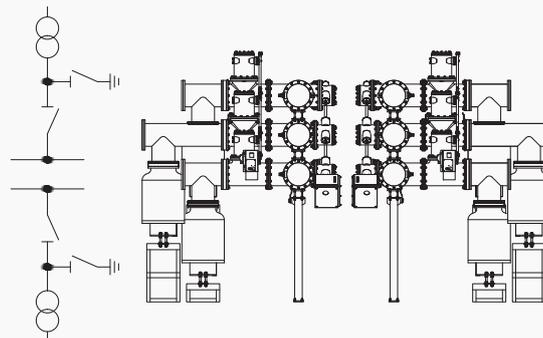
+ Transformer Bay



+ Bus Coupler



+ Main Bus



## 245kV GIS

- > GIS for indoor/outdoor substations
- > Reliable Motor Spring mechanism for CB
- > Ingenious modular system

## Product Range

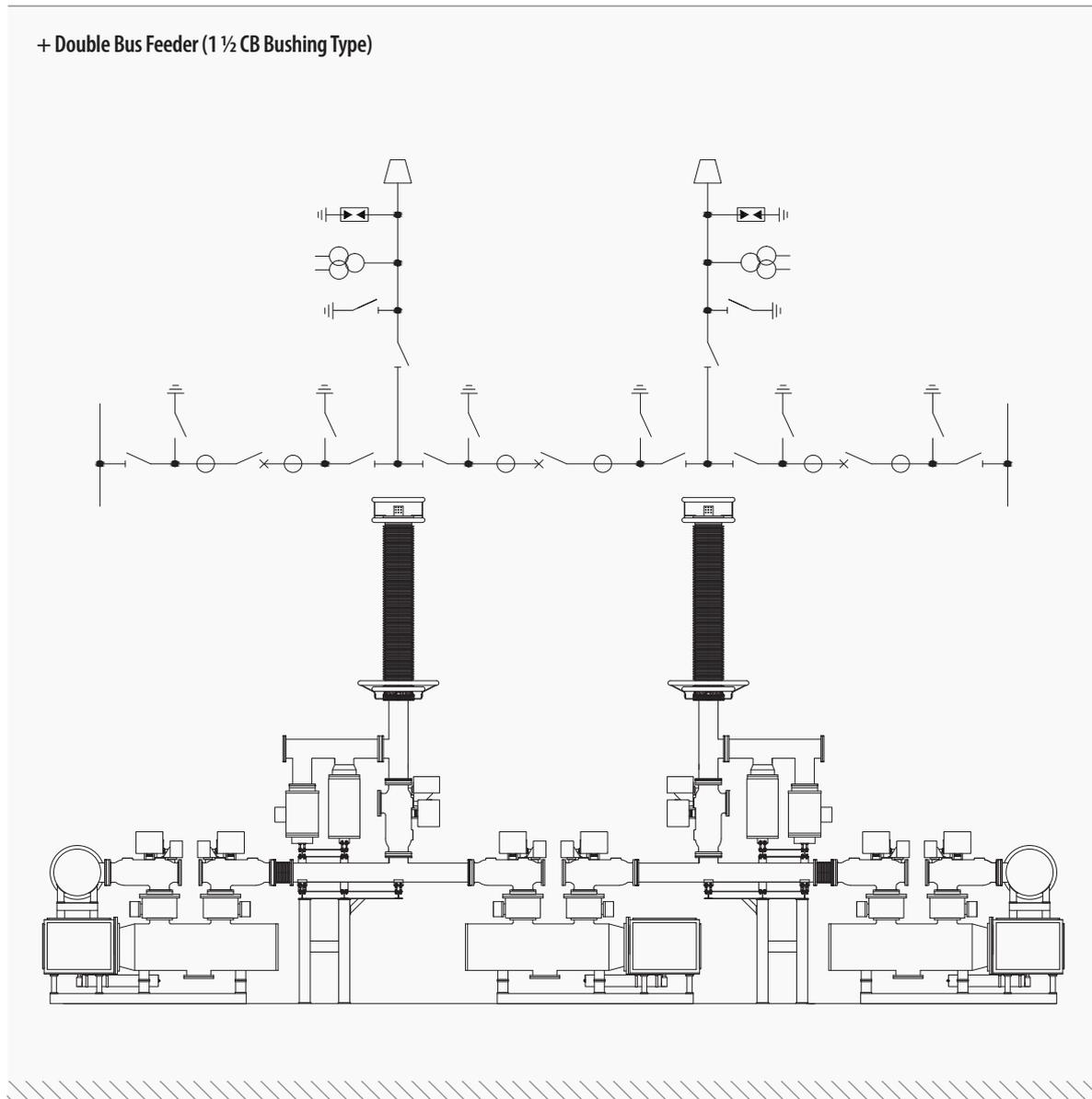
### 362kV GAS INSULATED SWITCHGEAR FOR 63kA EQUIPMENT

The ILJIN 362kV GIS features high availability and integrated technology in a compact design.



## Typical Arrangements

### + Double Bus Feeder (1 ½ CB Bushing Type)



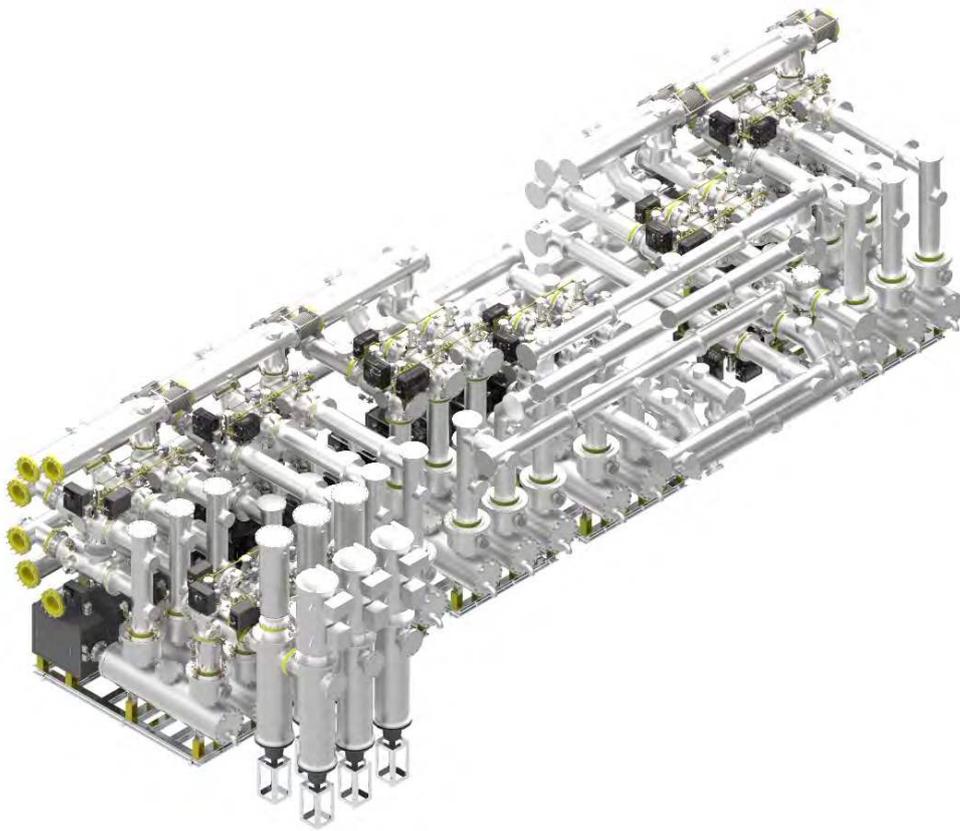
### 362kV GIS

- > GIS for indoor/outdoor substations
- > Reliable hydraulic mechanism for CB
- > Ingenious modular system

## Product Range

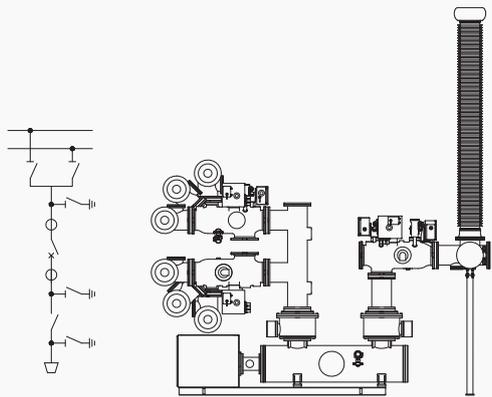
### 420kV GAS INSULATED SWITCHGEAR FOR 63kA EQUIPMENT

The ILJIN 420kV GIS features high availability and integrated technology in a compact design.

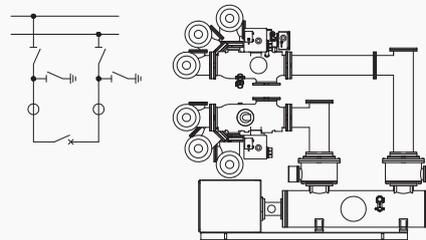


## Typical Arrangements

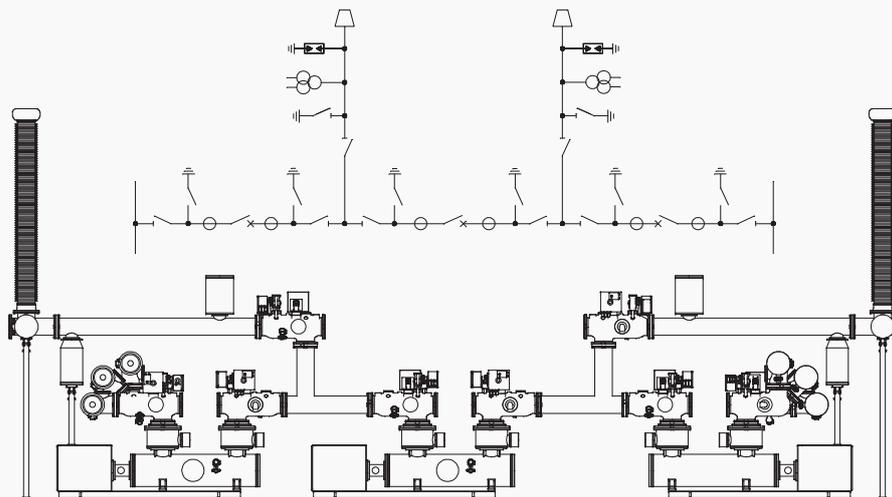
+ Transformer Bay (Double Bus Type)



+ Bus Coupler (Double Bus Type)



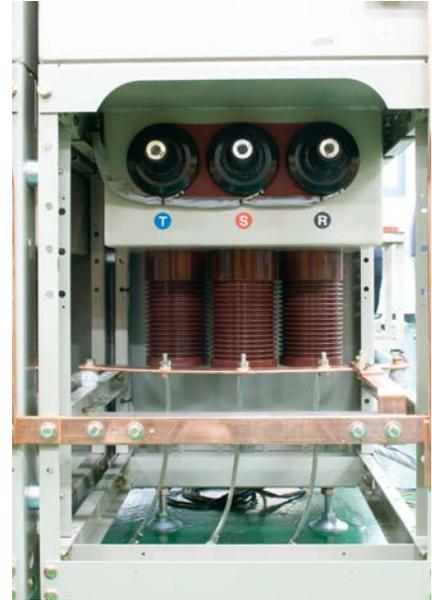
+ Double Bus Feeder (1 ½ CB Bushing Type)



## 420kV GIS

- > GIS for indoor/outdoor substations
- > Reliable Motor Spring mechanism for CB
- > Ingenious modular system

# EC-GIS/C-GIS



## 가스절연 Switchgear(GIS) About Gas Insulated Switchgear (GIS)

종래에 사용하던 공기절연 방식 (AIS) 폐쇄형 금속 배전반의 고압 전기기기들을 작은 부피의 밀폐된 Tank 내부에 배치하고 절연성능이 우수한 절연매질을 충전하여 Compact하게 제작한 개폐장치를 말한다.

고압충전부가 노출되지 않고 Compact하기 때문에 기존 배전반의 설치면적을 대폭 줄이고 경량화, 운반 및 설치가 용이한 경제적인 제품이다.

절연매질의 종류에 따라 압축건조공기를 사용한 EC-GIS와 SF<sub>6</sub> Gas를 사용한 C-GIS로 구분된다.

Gas insulated switchgear is a compact encapsulated switchgear that has high-voltage components inside a compact metal enclosure and is filled with insulating media.

As the high-voltage charger is not exposed and the size is compact, it helps significantly reduce the area for installation and provides convenient transport and cost-effective operation.

Based on the insulating media used in the system, GIS can be categorized into EC-GIS that uses compressed dry air, and C-GIS that uses SF<sub>6</sub> gas.

## Eco Cubicle Gas Type Insulated Switchgear 및 Cubicle Gas Type Insulated Switchgear 의 특징점

### Features of Eco Cubicle Gas Insulated Switchgear and Cubicle Gas Insulated Switchgear

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- 정지되어 있는 금속제 내압형 탱크에 기기들을 내장시키므로 고압충전 부분과의 인체 접촉을 차단하여 고압 전원에 의한 전기적인 사고로부터 안전을 확보할 수 있다.
- EC-GIS(C-GIS)가 가지고 있는 절연매질의 고유성질로 인하여 화재의 위험 및 내부기기의 부식이 없기 때문에 반 영구적으로 설치 사용할 수 있다.
- 설치면적이 일반 수배전반에 비해 획기적으로 축소되어 경제적인 측면에서의 장점을 가지고 있다.
- 축소형, 경량설계로 일반 수배전반에 비해 운반 및 설치, 장래 증설이 용이하다.
- 당사에서 진공 및 절연가스 주입 작업이 완료되어 성능에 대한 품질 시험 후에 출하 됨으로서 설치 현장에서 진공 및 가스 주입을 하던 종래의 C-GIS와는 비교할 수 없는 품질 성능을 보증 할 수 있다.
- Plug-in 열반 방식이므로 공사현장의 오염된 분위기에서도 열반이 손쉽다.
- As the components are encapsulated inside the metal pressure-proof tank to block direct contact with the human body, it is highly safe in terms of electrical accidents.
- The unique characteristics of the insulating media used in EC-GIS (C-GIS) make it safe from the risks of fire and corrosion of the components, allowing it to be semi-permanently installed.
- Its dramatically compact size contributes to a significantly higher cost-effectiveness.
- The compact, lightweight design provides convenient transport, installation and future scalability.
- As the product is shipped only after thorough quality check upon completion of vacuum and gas filling work, it delivers an incomparable performance in the installation site compared to C-GIS that requires on-site vacuum and gas filling work.
- Being a plug-in heating plate type, it can be reliably used is in harsh construction environments.

# EC-GIS/C-GIS

## 일반 공기절연 배전반과 EC-GIS / C-GIS 의 비교

### Comparison of Air Insulated Switchgear (AIS) and EC-GIS / C-GIS

분류 Description	일반배전반 AIS	EC-GIS	C-GIS
형식 Type	폐쇄 금속 배전반 Metal-Clad Switchgear	친환경 축소형 가스절연 배전반 Dry Air Gas Insulated Switchgear)	축소형 가스절연 배전반 SF6 Gas Insulated Switchgear)
접속 부 처리 Terminator	Bus-bar 열판 및 종단접속재 Bus-bar heating plate and terminator	PLUG-IN TYPE의 T-BODY 접속재 Plug-in type T-body terminator	
주요사용 장소 Installation	빌딩수전반, 공장 및 일반수용가 Buildings, factories and general use	상, 하수(폐수)처리장, 바닷가(염분이 많은) 지역, 주변환경이 위험가스 또는 분진등이 많은 지역고 신뢰성 인텔리전트 빌딩, 석유화학, 병원, 제철공장등 Water treatment plants, seaside (salty) areas, sites with dangerous gases and dust nearby, high-reliability intelligent buildings, petro-chemical plants, hospitals, steelworks	
신뢰성 안전성 우수성 경제성 외 Reliability, safety, performance, cost- effectiveness, etc.	<ol style="list-style-type: none"> <li>1. 공해 및 오염지역에서 습기 등의 침투로 내부 절연파괴에 의한 사고에 노출.</li> <li>2. 충전부의 노출에 의한 Corona 등의 발생으로 절연파괴의 원인이 된다.</li> <li>3. 주기적으로 내부 청소 및 안전도의 확인검사가 필요하다.</li> <li>4. 조작성 및 운전원의 안전성이 떨어진다.</li> <li>5. 현장조립 및 점검 시 배선 등의 문제가 많고 시간이 많이 걸린다.</li> </ol>	<ol style="list-style-type: none"> <li>1. 충전부 전체의 가스 절연으로 절연성이 확보 및 분진, 이상 Gas 등의 영향을 받지 않는다.</li> <li>2. 충전부 탱크는 금속 재질로 사용하므로 내구성이 뛰어나며 습기나 염분이 많은 지역에 우수하다.</li> <li>3. 완전조립/시험상태에서 공급되므로 안전도에서 우수하다.</li> <li>4. 일체형으로 경제적인 시스템 구성 및 유지, 보수가 유리하며 배선의 간소화로 조립시간이 단축되고 이에 따른 인건비도 절감된다.</li> <li>5. 기기의 경량화로 설치시간 단축 및 이동이 용이하며 사고 시 배열된 중간 Panel을 쉽게 교체할 수 있다.</li> <li>6. Data의 통신, 무인운전 및 중앙, 인터넷 제어가 가능하다.</li> <li>7. 디지털계전기 및 메타를 기본으로 사용하므로 정밀도가 우수하다.</li> <li>8. Panel 전면에 Mimic 표시를 하므로 쉽게 상태감사가 가능하다.</li> <li>9. CT, PT의 비를 변경하여도 시스템에 내장된 디지털 전기의 변경없이 신속대응이 가능하다.</li> <li>10. 보호기능의 향상 및 고장분석이 용이하다.</li> </ol>	
PNL SIZE	1,200~mm(W) x 2,500mm(H) x 2,500mm(D)	600mm (w) x 2,100mm(H) x 1,150mm(D)	
설치면적 Installation Area	1,200mm x 2,500mm(3m <sup>2</sup> )	600mm x 1,150mm(0.69m <sup>2</sup> ) 설치면적 및 체적이 기존의 1/4 ~ 1/7으로 줄어든다 Installation area & volume reduced to 1/4 - 1/7	
유지보수 Maintenance	주기적인 점검 및 보수 필요 Regular inspection & service required	고압 활선부 보수 불필요 No service of high-voltage live lines required	
사용년수 Lifetime	15~20년 15 - 20 years	30년 이상(반영구적) Over 30 years(semi-permanent)	
보호계전기 및 메타 Protective Relay & Meter	Digital Type	Digital Type(IEC 61850 기반)	
적용규격 및 표준 Applied Standards	IEC 298, JEM1425	IEC 62271-200	

## EC-GIS / C-GIS 의 내진 · 내아크 성능

### Earthquake-/Arc-Resistant Performance of EC-GIS/C-GIS

Applied Standard	내진 Earthquake resistance	1. 국립전파연구원 공고 제2015-14호 2. Telcordia GR-63 CORE - Zone4(5.4.1 Earthquake Test) 1. National Radio Research Agency's Notice #2015-14 2. Telcordia GR-63 CORE - Zone4 (5.4.1 Earthquake Test)
	내아크 Arc resistance	IEC 62271-200 (IAC = AFLR 15kA 1s)

# EC-GIS/C-GIS

## EC-GIS 주요 특성표

EC-GIS Panel 종류 EC-GIS Panel Type (Dry - Air Gas)		VCB+DES	VCB+DES+PT	LBS	ALTS	MOF	PT+DES
형식명 Type name		KMEC759(2)V	KMEC752V-P	KMEC759L	KMEC759A	KMEC759M	KMEC759P
정격전압 (kV) Rated voltage (kV)		25.8					
정격전류 (A) Rated current (A)		630 / 1250	1250	630			
정격주파수 (Hz) Rate frequency (Hz)		60					
정격 단시간전류 (kA) Rated short time withstand current (kA)		25					
상용주파 내전압 Shock resistant withstand voltage (kV)	상-대지 Phase-to-ground	60					
	3단 S/W 극간 3 phase S/W interpolar	66	-				
뇌충격 내전압 (kV)	상-대지 Phase-to-ground	150					
	3단 S/W 극간 3 phase S/W interpolar	165	-				
Dry-Air 압력 Dry-Air pressure (Bar.G)	최대 Max	2.8					
	정격 Rated	2.0					
	최소 Min	1.7					
보호등급 Protection degree		IP4X 제어부 / 고압충전부(IP66) IP4X controller / high-voltage charger (IP66)					
주위온도 Ambient temp (°C)	최고 Max	40					
	최저 Min	-25					
Dry Air 누설율 Dry air leakage rate		0.5% 이하 / 년 0.5% max/year					
적용규격 Applied Standards		IEC 62271-100, IEC 62271-103, IEC 62271-200					

※ EC-GIS / C-GIS 의 PNL Size 는 동일합니다.

※ DES : 3 position switch

※ Panel sizes of EC-GIS and C-GIS ate the same.

※ DES : 3 position switch

## C-GIS 주요 특성표

C-GIS Panel 종류 C-GIS Panel Type (SF6 Gas)		VCB+DES	ALTS	MOF	PT+DES
형식명 Type name		KMGC729V	KMGC729A	KMGC729M	KMGC729P
정격전압 Rated voltage (kV)		25.8			
정격전류 Rated current (A)		630			
정격주파수 Rate frequency (Hz)		60			
정격 단시간전류 Rated short time withstand current (kA)		12.5			
상용주파 내전압 Power frequency withstand voltage (kV)	상-대지 Phase-to-ground	60			
	3단 S/W 극간 3 phase S/W inter-polar	66	-		
뇌충격 내전압 Shock resistant withstand voltage (kV)	상-대지 Phase-to-ground	125			
	3단 S/W 극간 3 phase S/W inter-polar	145	-		
SF6 Gas 압력 SF6 gas pressure (Bar.G)	최대 Max	0.8			
	정격 Rated	0.5			
	최소 Min	0.3			
보호등급 Protection degree		IP4X 제어부 / 고압충전부(IP66) IP4X controller / high-voltage charger (IP66)			
주위온도 Ambient temp (°C)	최고 Max	40			
	최저 Min	-5(-25)			
SF6 Gas 누설율 SF6 gas leakage rate		0.5% 이하 / 년 0.5% max/year			
적용규격 Applied standards		IEC 62271-100, IEC 62271-103, IEC 62271-200			

※ EC-GIS / C-GIS 의 PNL Size 는 동일합니다.

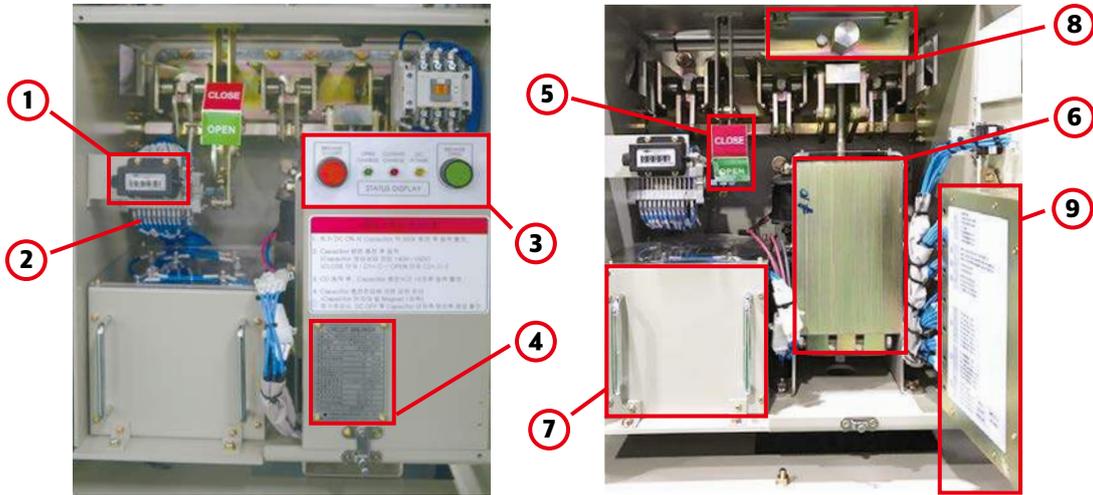
※ Panel sizes of EC-GIS and C-GIS are the same.

# EC-GIS/C-GIS

## 구획별 특징 Sectional Features

<p>차단기 Mechanism Breaker Mechanism</p>	<ul style="list-style-type: none"> <li>1. 영구자석 조작방식(PMA) 적용</li> <li>2. 기계적 결합부 유지보수 불필요</li> <li>3. 직선운동기구 이므로 간단하며 부품수가 적어 신뢰도 높음</li> <li>4. 높은 기대수명</li> </ul> <ul style="list-style-type: none"> <li>1. Permanent magnet applied (PMA)</li> <li>2. Mechanical connection parts require no maintenance</li> <li>3. Simple structure due to rectilinear motion and higher reliability due to lesser number of parts</li> <li>4. Longer lifetime</li> </ul>
<p>압력 Tank 및 열반구조 Pressure Tank and Heating Plate Structures</p>	<ul style="list-style-type: none"> <li>1. 충분한 내압력을 갖는 강도 설계</li> <li>2. Steel 재질의 사용에 의한 내구성 확보</li> <li>3. 열반시의 오차 범위 흡수가능</li> <li>4. 열팽창에 대한 흡수능력</li> <li>5. 가스구획의 구분에 의한 사고 파급의 방지</li> <li>6. Bursting Disk를 설치하여 내부 고장사고에 따른 압력을 안전하게 배출</li> </ul> <ul style="list-style-type: none"> <li>1. Sturdy design for sufficient pressure resistance</li> <li>2. Steel materials for higher durability</li> <li>3. Heating plate absorbing the scope of tolerance</li> <li>4. Absorption capacity based on thermal expansion</li> <li>5. Gas sections prevent accident from spreading</li> <li>6. Bursting disk installed to safely discharge pressure upon occurrence of accident</li> </ul>
<p>제어함 Control Box</p>	<ul style="list-style-type: none"> <li>1. Digital Relay의 사용에 의한 계통 보호 신뢰도 향상</li> <li>2. 기본 사용 Relay의 선택 범위 확대(고객 Option)</li> </ul> <ul style="list-style-type: none"> <li>1. Digital relay used for higher grid protective reliability</li> <li>2. Default relay selection scope can be extended (Optional)</li> </ul>

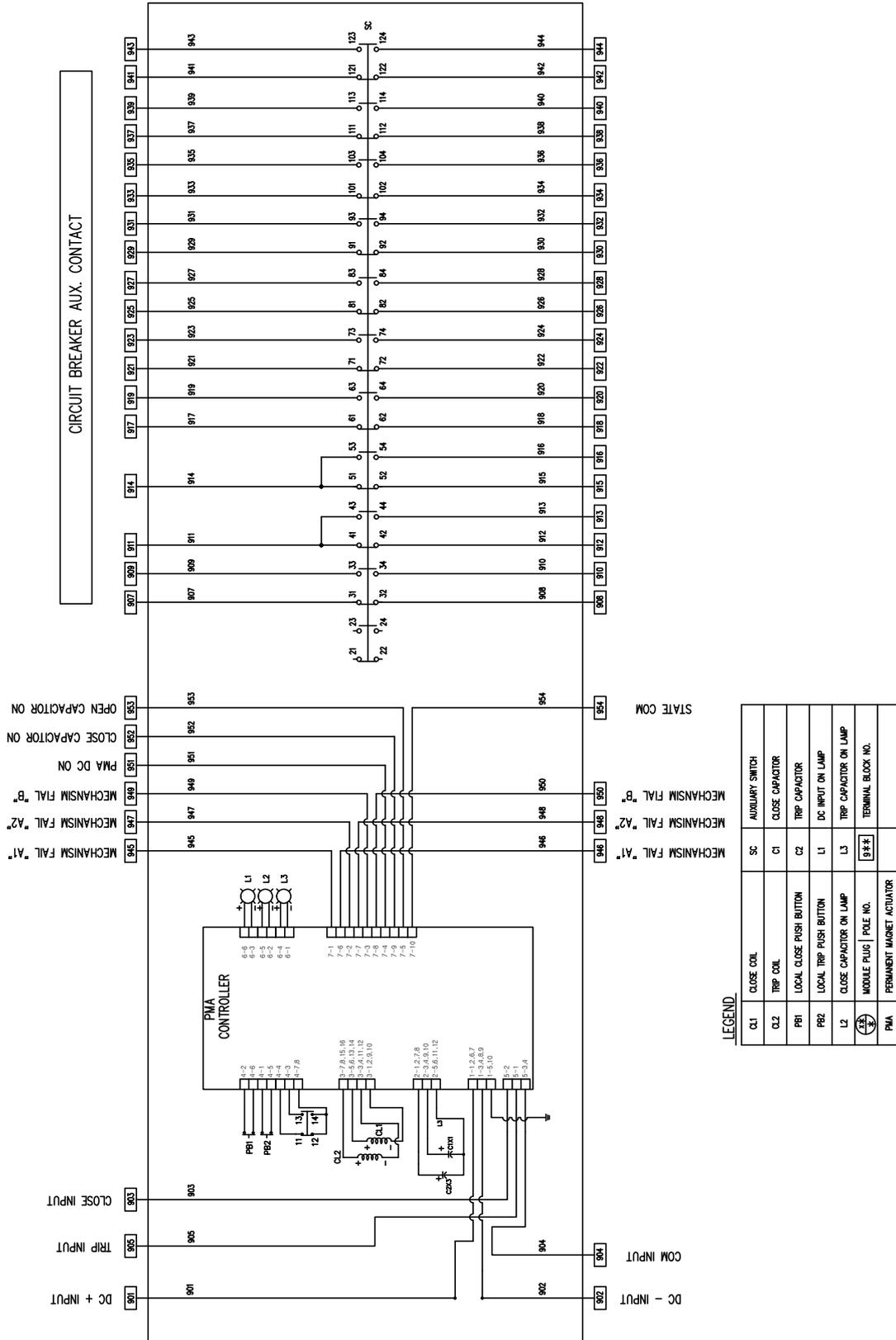
## Permanent Magnet Actuator(PMA)



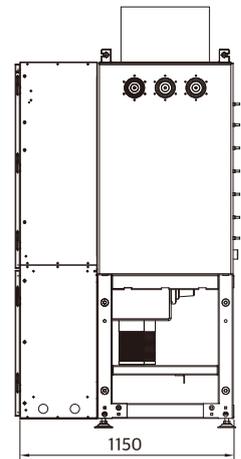
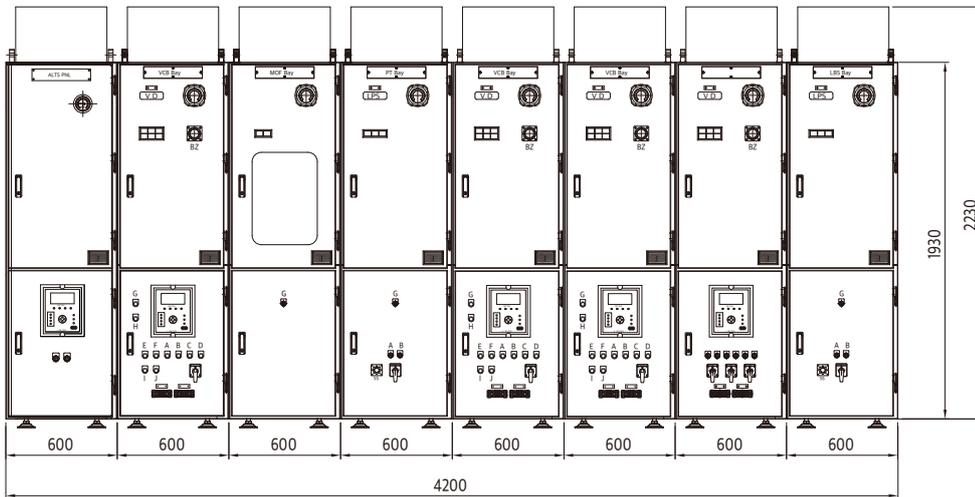
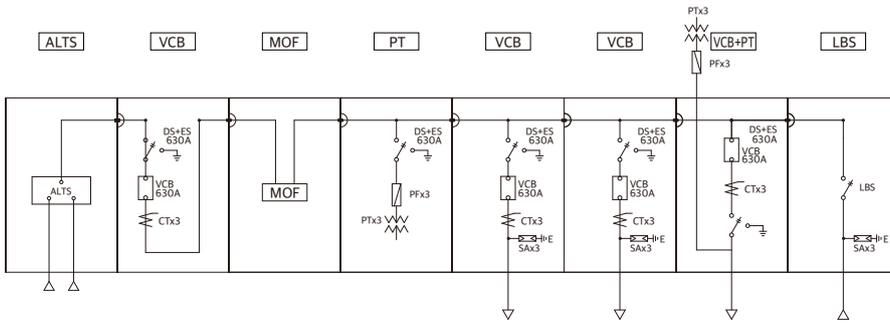
No.	명칭 Name	용어설명 Definitions
1	Counter	차단기 동작 횟수 지시기 Indicator showing number of breaker trips
2	Aux Switch	차단기용 보조스위치 Auxiliary switch for breaker
3	Push Button & Pilot Lamp	동작버튼 및 Charge lamp Push Button and Charge lamp Open Charge = Green Close Charge = Red DC Power = Yellow
4	명판 Nameplate	VCB 정격 표시 Shows VCB ratings
5	동작상태 표시기 Function indicator	Open-Close
6	Actuator	영구자석과 솔레노이드코일을 조합하여 VCB를 투입 및 차단하는 장치에 의해 자속밀도 변화에 따른 에너지를 만들어 제어 및 동작하는 장치 Component responsible for moving and controlling the system by creating energy based on the changes in magnetic flux density using a device closing and breaking VCB with a combination of permanent magnet and solenoid coils
7	Capacitor	동작시 필요한 전기적 에너지를 생성하는 장치 Component that creates electrical energy required for operation
8	수동 Open 장치 Manual opening device	정전시 수동 Open을 시키기 위한 Device Component used for manual opening during power outage
9	Control PCB	차단기의 개폐신호를 구현하는 전기배선을 담은 제어 회로 기판 Control circuit board containing the electrical wiring that delivers operating signals of the breaker

# EC-GIS/C-GIS

## Operation DIAGRAM



# EC-GIS SKELETON DIAGRAM



- 내아크 적용시 BOX추가 (높이 2230mm)  
 Boxed added when arc resistance is applied (Height 2230mm)

# GIS Line-Up

## GIS

25.8/36kV



72.5kV



145kV



Rated Voltage (kV)	25.8/36	72.5	145
Rated Current (A)	~3150	2000	~3150
Rated Breaking Current (kA)	~40	20/31.5	40
Power Frequency Withstand Voltage (kV)	70	140	275
Lightning Impulse Withstand Voltage (kV)	~170	325	650



Compact Design



High Reliability & Safety



Environmentally Friendly



Installation, Maintenance  
& Repair Convenience



170kV

**LS**

245kV

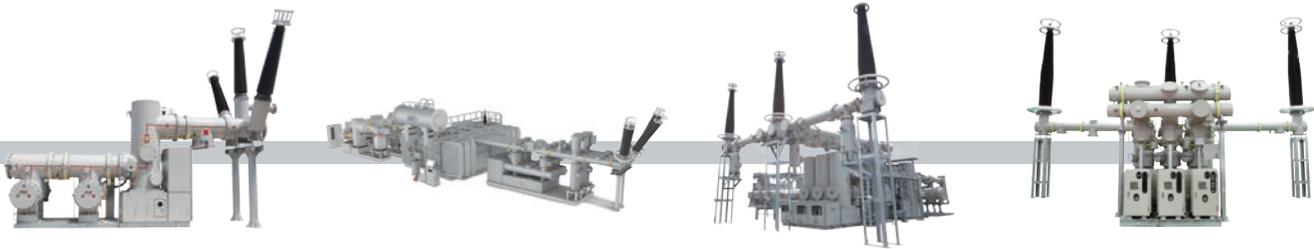
**LS**

362kV

**LS**

420kV

**LS**



170	245	362	420
1250~4000	~3150	4000~6300	4000
50	40/50	50/63	50
325	460	520	650
750	1050	1175	1425

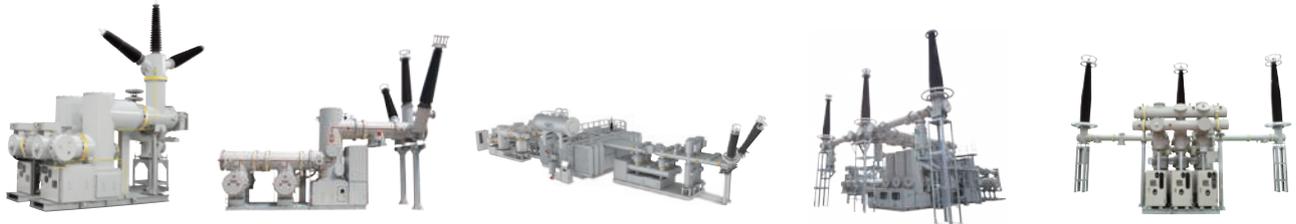


# Technical Data



Rated voltage		kV, rms
Rated short-time current		kA, rms
Rated short-time		sec
Rated breaking current		kA, rms
Rated current		A, rms
Rated frequency		Hz
Rated making current		kA, peak
Rated breaking time		cycle
Power Frequency Withstand Voltage	Common	kV, rms
	Across the isolating distance	kV, rms
Lightning Impulse Withstand Voltage	Common	kV, peak
	Across the isolating distance	kV, peak
Rated operating sequence		-
Phase arrangement	Busbar	-
	Feeder	-
Operating Mechanism	CB	-
	DS	-
	ES	-
Applicable Standard		-

		25.8	36	72.5	
		25/40	40	20	31.5
		3	3	1	3
		40	40	20	31.5
		~3150	1250/2500	2000	
		60	50	60	50/60
		104	100	50	79/82
		3			
		70	70	140	
		77	80	160	
		150	170	325	
		165	195	375	
		O - 0.3sec - CO - 3min - CO			
		3 Phases Encapsulate	3 Phases Encapsulate	2 Phases Encapsulate	3 Phases Encapsulate
		3 Phases Encapsulate	3 Phases Encapsulate	2 Phases Encapsulate	3 Phases Encapsulate
		Motor spring	Motor spring	Hydraulic	Motor spring
		Motor	Motor	Motor	
		Motor	Motor	Manual	Motor
		IEC 62271-100, 200	IEC 62271-200	IEC 62271-203 / IEC 62271-102	



145	170	245		362		420
40	50	40	50	50	63	50
3	1	3		1	1	3
40	50	40	50	50	63	50
~ 3150	1250, 2000, 3150, 4000	up to 3150		4000	~ 6300	4000
50/60	60	50/60	50	60		50
100/104	130	100/104	125	130	164	125
3		3		3		2
275	325	460		520		650
315	375	530		675		815
650	750	1050		1175		1425
750	860	1200		1175		1425(+240)

O - 0.3sec - CO - 3min - CO

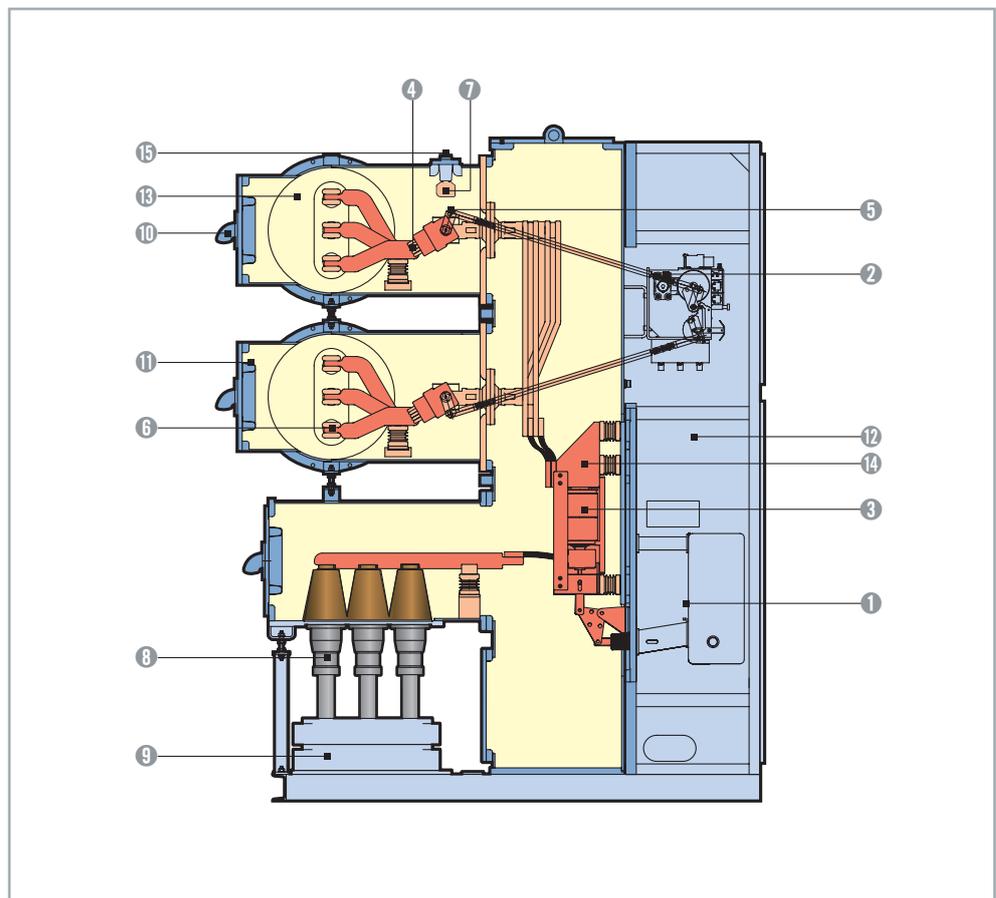
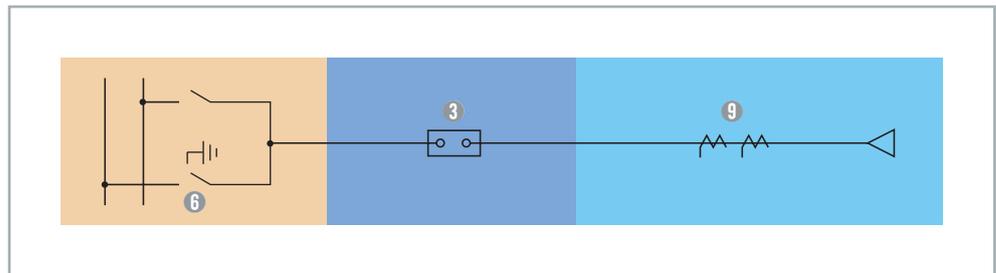
3 Phase Encapsulated	3 Phase Encapsulated	3 Phase Encapsulated	3 Phase Encapsulated	Single Phase Segregated
3 Phase Encapsulated	3 Phase Encapsulated	Single Phase Segregated	Single Phase Segregated	Single Phase Segregated
Motor Spring	Hydraulic	Motor Spring	Hydraulic	Hydraulic
Motor	Motor	Motor	Motor	Motor
Motor Spring	Manual, Motor Spring	Motor, Motor Spring	Manual, Motor Spring	Motor

# Gas Insulated Switchgear

# 25.8/36kV GIS

## Construction & Single Line Diagram

- 40kA 3150A high performance & designed Vacuum Interrupter.
- Analysis & design of temperature flow for large current.
- Compact Insulator.
- Simplified main circuit part.

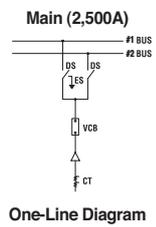
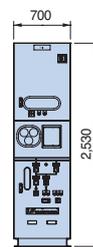
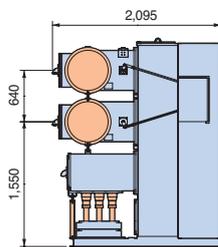


- 1 Operating mechanism for CB
- 2 Operating mechanism for 3 position switch
- 3 Vacuum interrupter
- 4 3 position switch
- 5 Insulating spacer
- 6 Main bus
- 7 Earth bushing
- 8 Cable
- 9 Current transformer
- 10 Rupture disk
- 11 Absorbent
- 12 Local control panel
- 13 DS/ES unit
- 14 Circuit breaker
- 15 Earth busbar

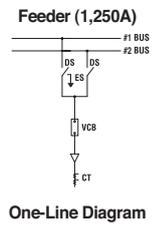
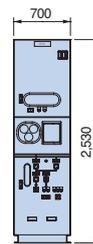
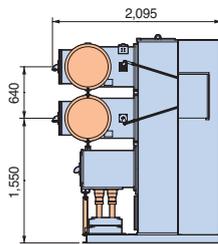


## Layout - Typical Bay Arrangement

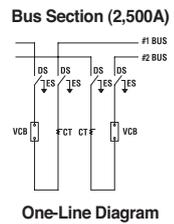
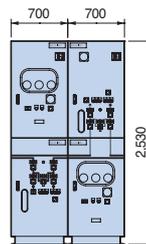
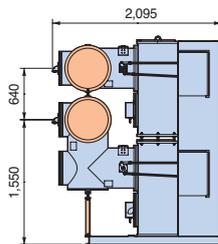
### Main



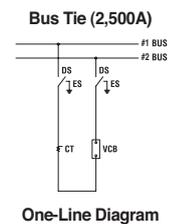
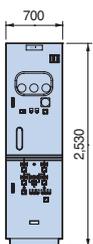
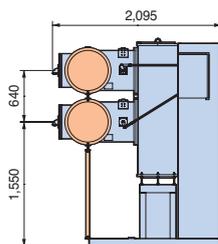
### Feeder



### Bus Section



### Bus Tie

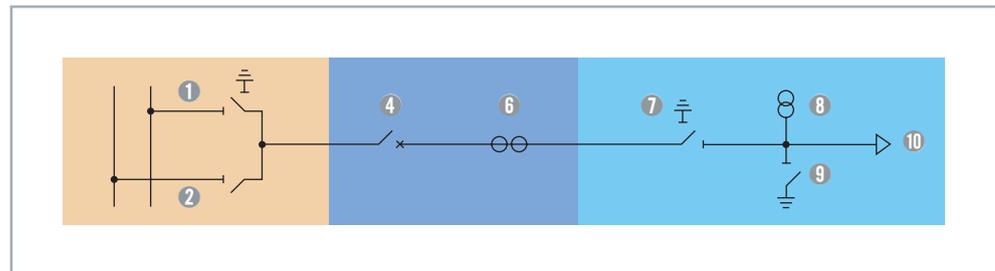


# Gas Insulated Switchgear

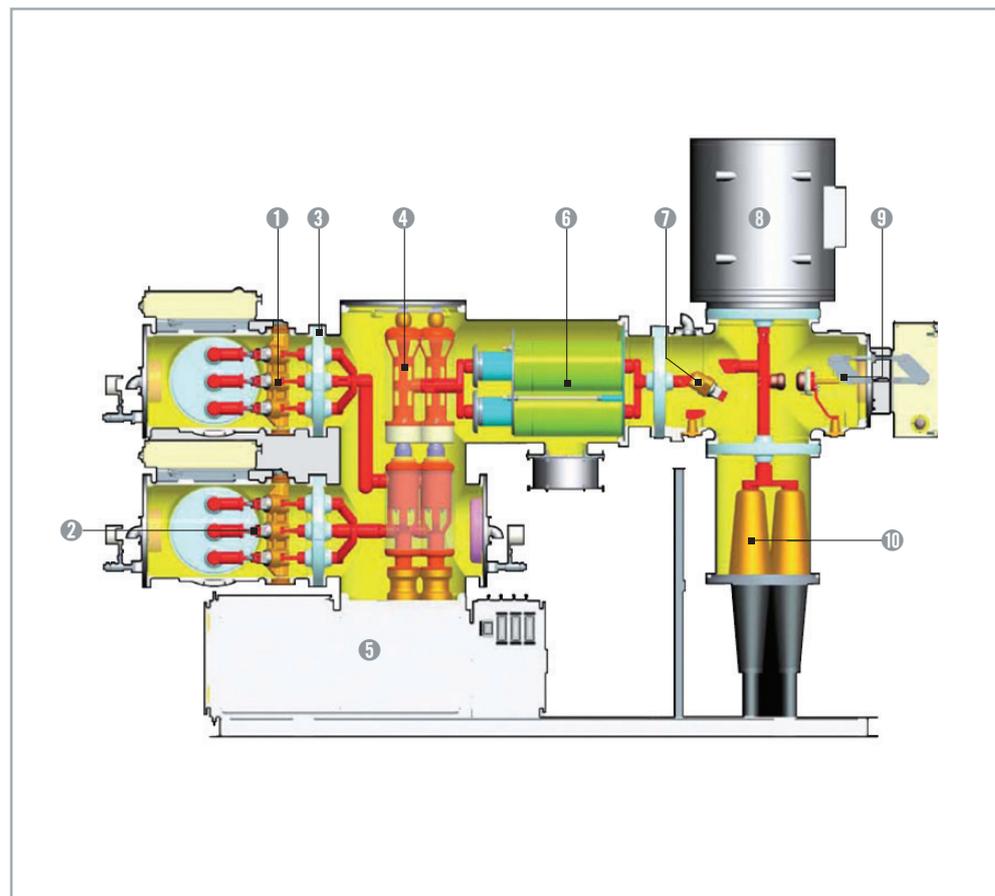
# 72.5kV GIS

## Construction & Single Line Diagram

- Compact design can reduce space requirement.
- Maximize system security with a minimum of maintenance.
- Modular system makes our GIS easier to operate.
- Environmentally friendly - Modules are designed optimally to fit in the installation space and the use of SF<sub>6</sub> gas is minimized.



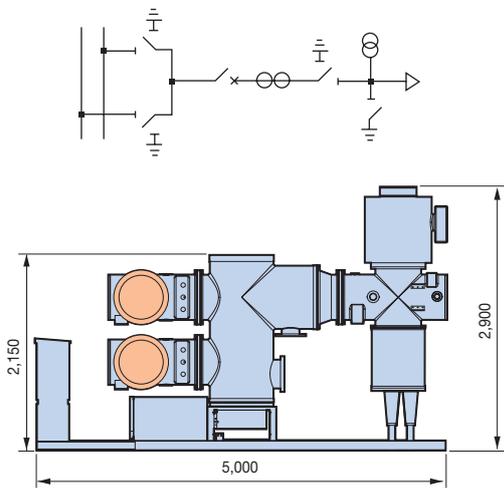
- 1 Bus disconnector with maintenance earthing switch
- 2 Bus disconnector
- 3 Gas barrier
- 4 Circuit breaker
- 5 Operating mechanism for CB
- 6 Current transformer
- 7 Line disconnector with maintenance earthing switch
- 8 Potential transformer
- 9 High speed earthing switch (HSES)
- 10 Cable head



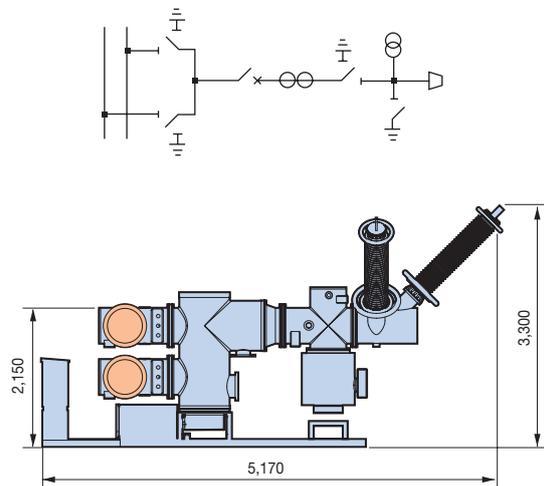


## Layout - Typical Bay Arrangement

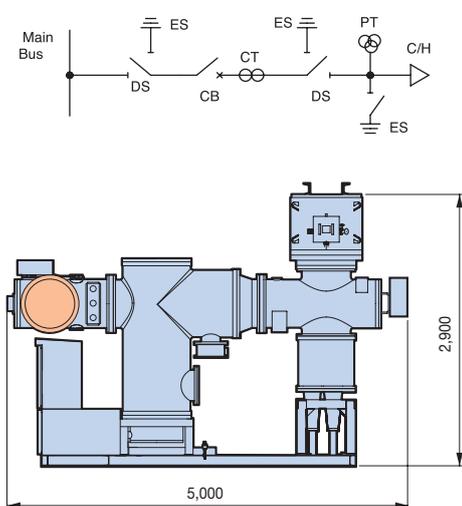
**Double Bus System  
(Cable Connection)**



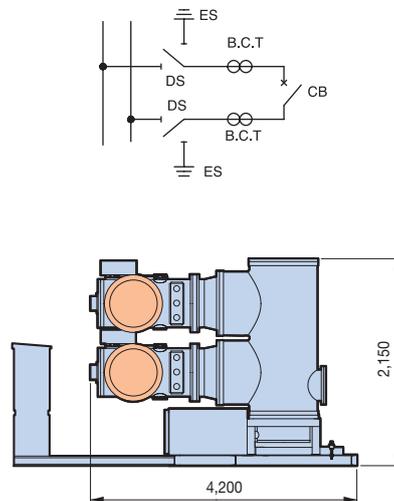
**Double Bus System  
(Gas to Air Bushing)**



**Single Bus System  
(Cable Connection)**



**Bus Coupler**

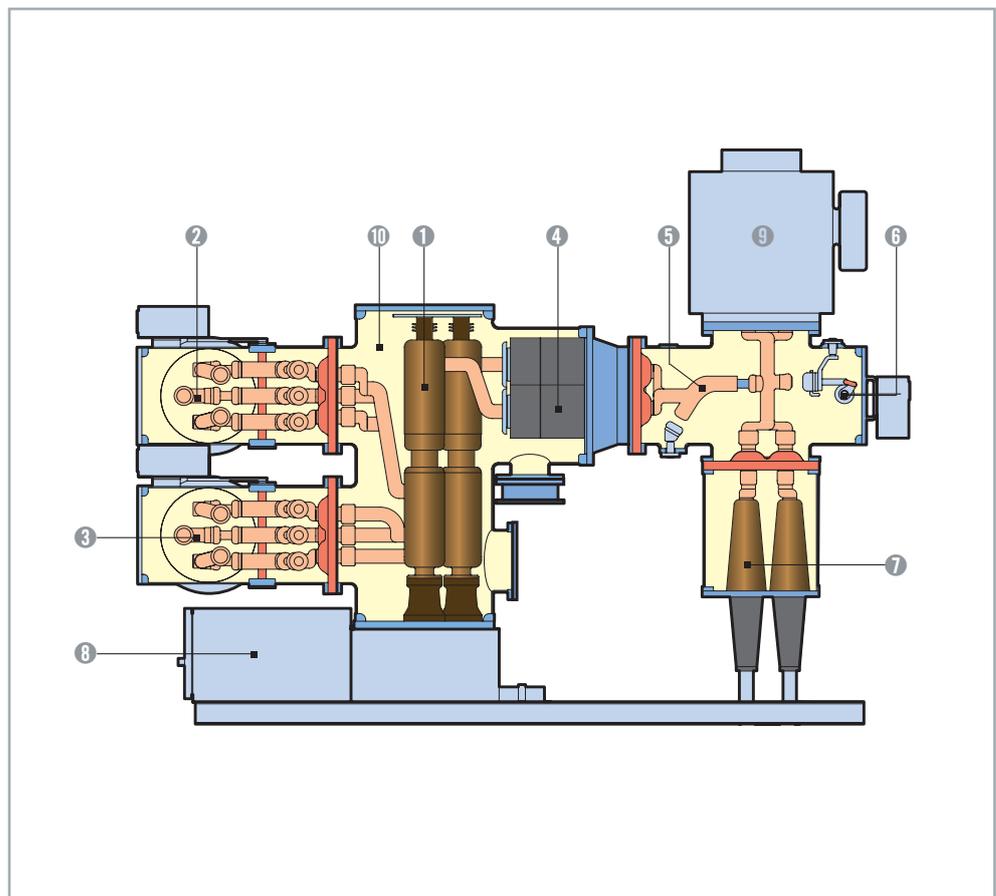
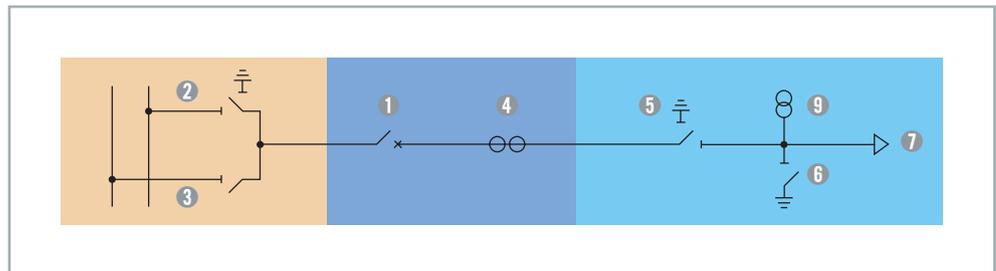


# Gas Insulated Switchgear

# 145kV GIS

## Construction & Single Line Diagram

- Maximize system security with a minimum of maintenance.
- Modular system makes our GIS easier to operate.
- Environmentally friendly - Modules are designed optimally to fit in the installation space and the use of SF<sub>6</sub> gas is minimized.

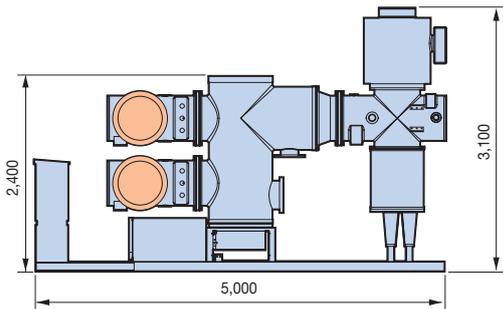
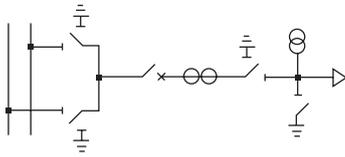


- 1 Circuit breaker
- 2 Bus disconnecter with maintenance earthing switch
- 3 Bus disconnecter
- 4 BCT
- 5 Line DS/ES
- 6 High speed ES (HSES)
- 7 Cable head
- 8 Operating mechanism for CB
- 9 Potential transformer
- 10 Gas area

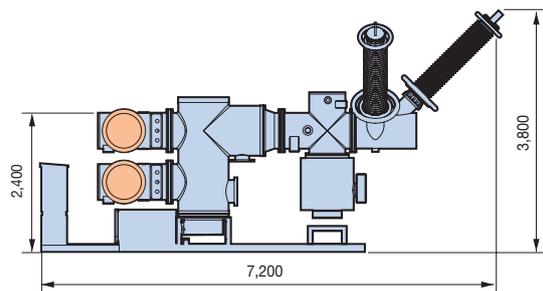
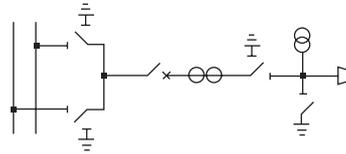


## Layout - Typical Bay Arrangement

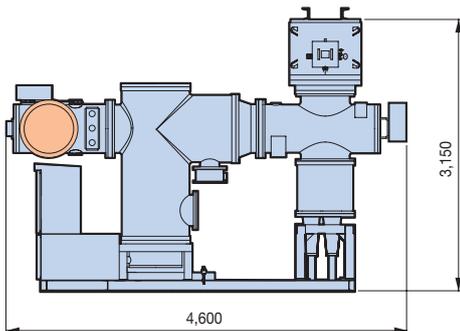
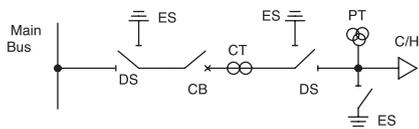
**Double Bus System  
(Cable Connection)**



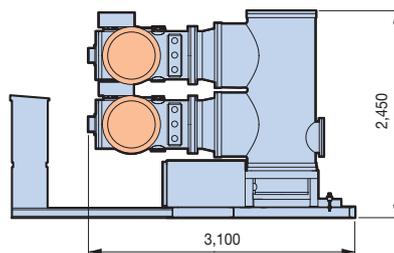
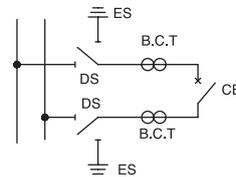
**Double Bus System  
(Gas to Air Bushing)**



**Single Bus System  
(Cable Connection)**



**Bus Coupler**

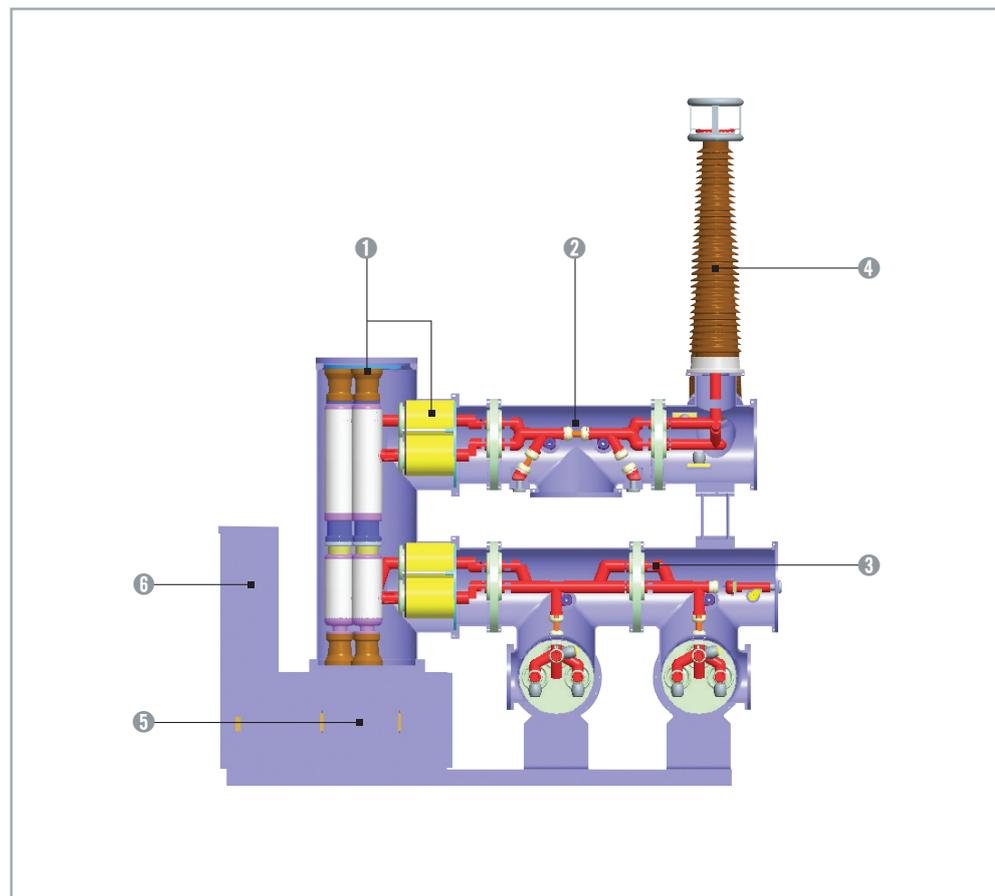
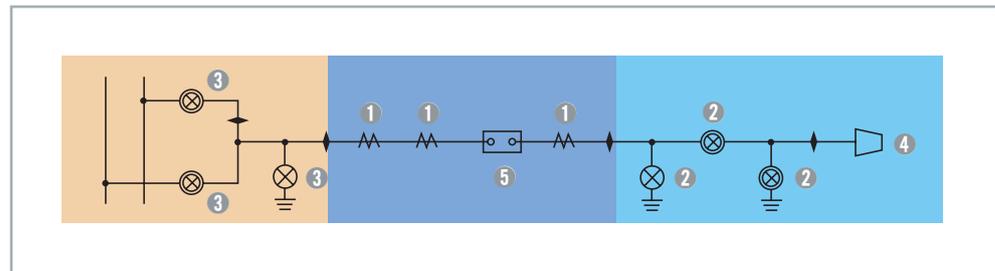


# Gas Insulated Switchgear

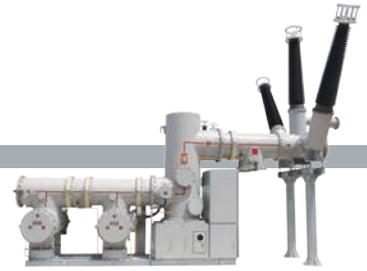
# 170kV GIS

## Construction & Single Line Diagram

- Space-saving design is ideal for use in compact places especially in urban or industrial zone.
- Our GIS is given early life test and full life test for customers to ensure safety and reliability.
- Environmentally friendly - Modules are designed optimally to fit in the installation space and the use of SF<sub>6</sub> gas is minimized.

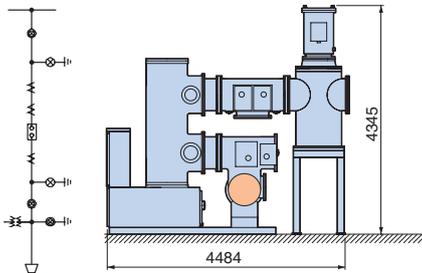


- 1 CB/CT Unit
- 2 Line DS/2ES Unit
- 3 Busbar DS/ES Unit
- 4 Bushing Unit
- 5 Operating Mechanism
- 6 Control panel

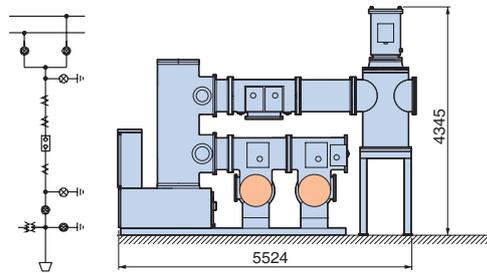


## Layout - Typical Bay Arrangement

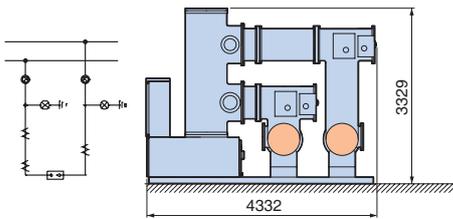
**Single bus/Transmission Line  
(Cable Head)**



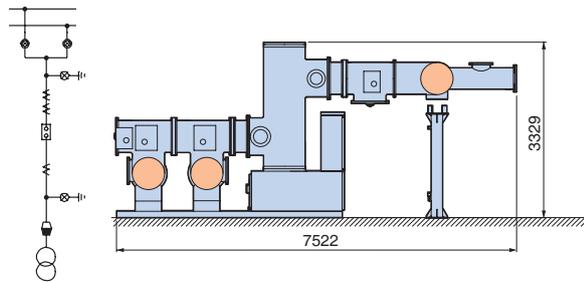
**Double Bus/Transmission Line  
(Cable Head)**



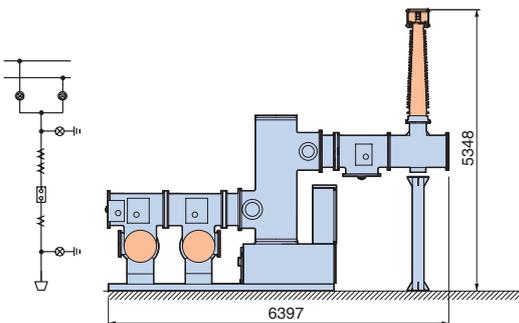
**Bus Tie**



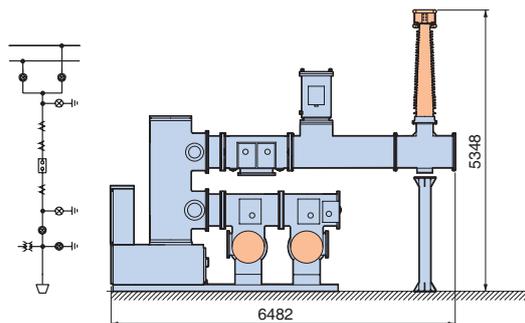
**Transformer Feeder  
(Gas to Oil Bushing)**



**Overhead Line TR Feeder  
(Gas to Air Bushing)**



**Overhead Line T/L Feeder  
(Gas to Air Bushing)**

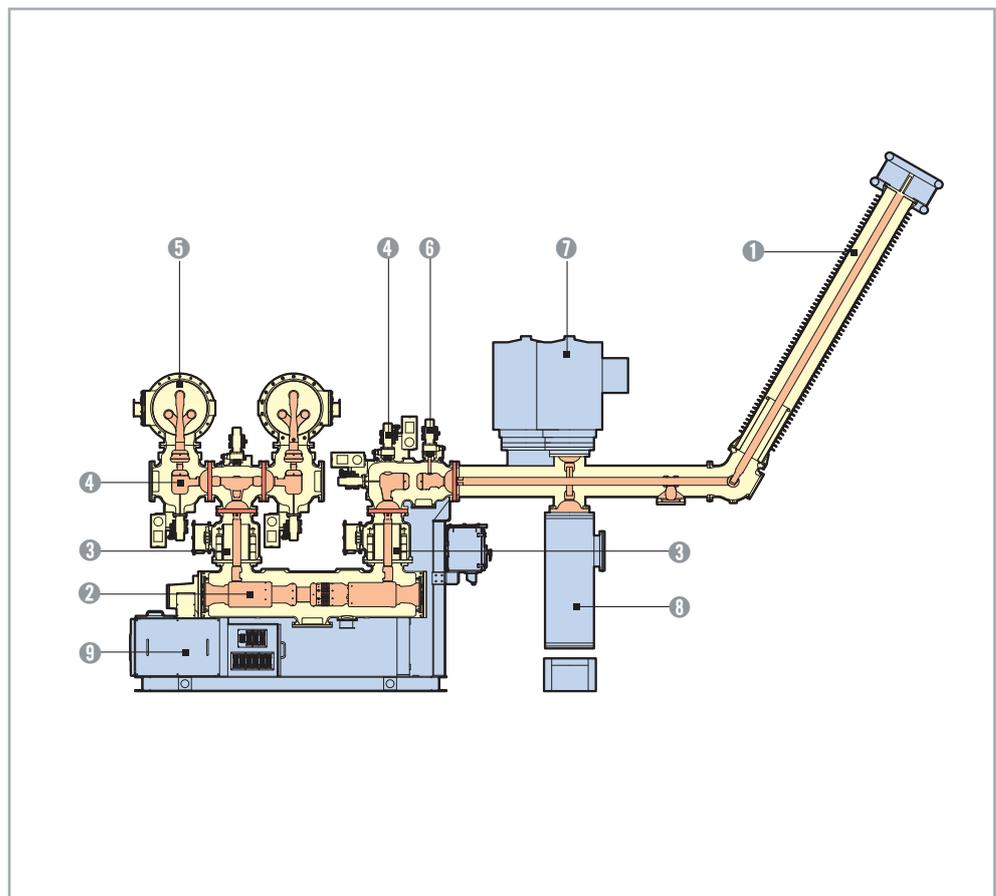
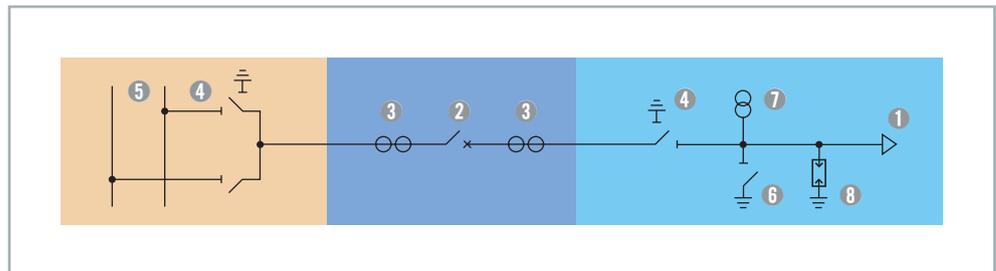


# Gas Insulated Switchgear

# 245kV 40kA GIS

## Construction & Single Line Diagram

- Spacing-saving design for using in compact place in urban & industrial zone
- Long life and minimal operation cost.

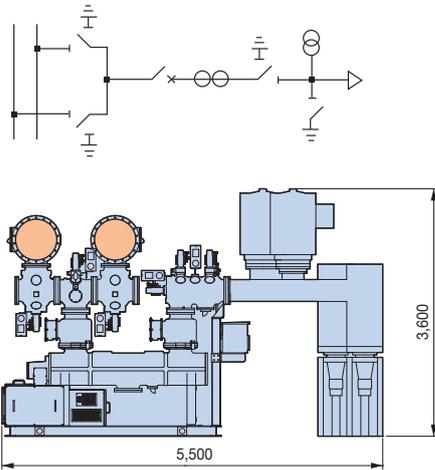


- 1 Gas to air bushing
- 2 Circuit Breaker
- 3 Current transformer
- 4 Disconnecter and earthing switch
- 5 Main bus
- 6 High speed earthing switch
- 7 Potential transformer
- 8 Lightning arrester
- 9 Operating mechanism and control panel

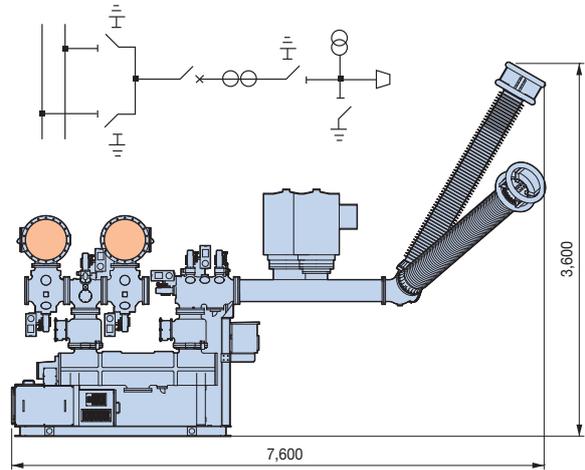


## Layout - Typical Bay Arrangement

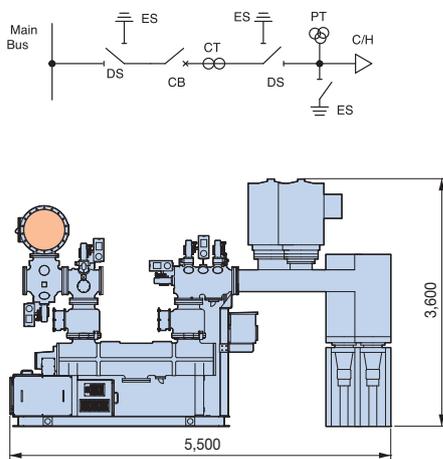
**Double Bus System  
(Cable Connection)**



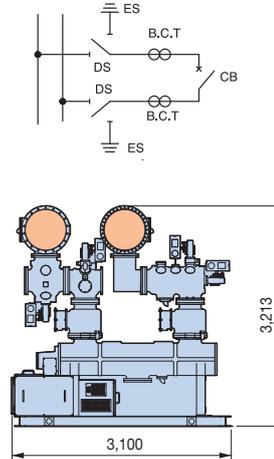
**Double Bus System  
(Gas to Air Bushing)**



**Single Bus System  
(Cable Connection)**



**Bus Coupler**

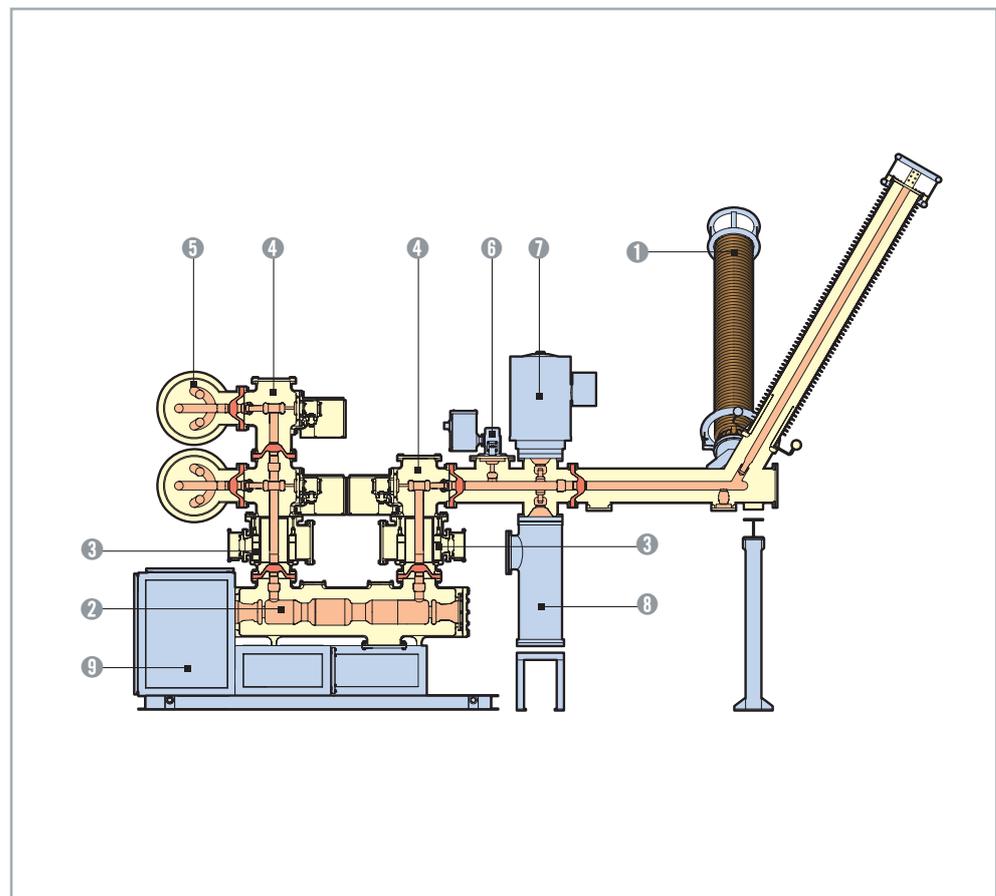
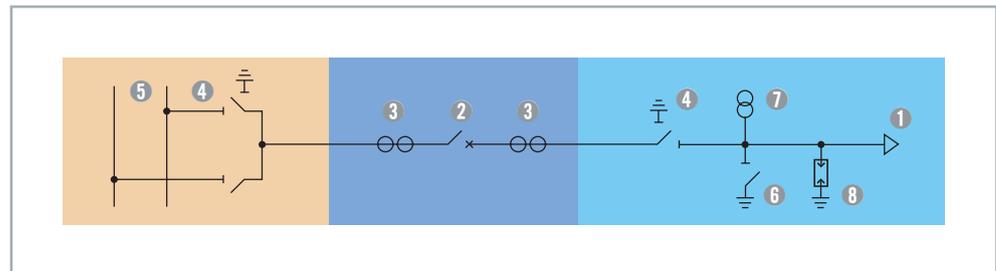


# Gas Insulated Switchgear

# 245kV 50kA GIS

## Construction & Single Line Diagram

- Maximum efficiency mechanically and electrically.
- Space-saving design for using in compact place especially in urban or industrial zone.
- Long life and minimal operation cost.
- Minimal use of SF<sub>6</sub> gas by compact design with our high technology.

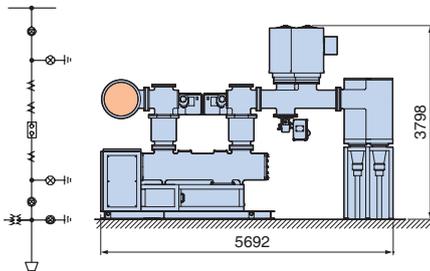


- 1 Gas to air bushing
- 2 Circuit Breaker
- 3 Current transformer
- 4 Disconnector and earthing switch
- 5 Main bus
- 6 High speed earthing switch
- 7 Potential transformer
- 8 Lightning arrester
- 9 Operating mechanism and control panel

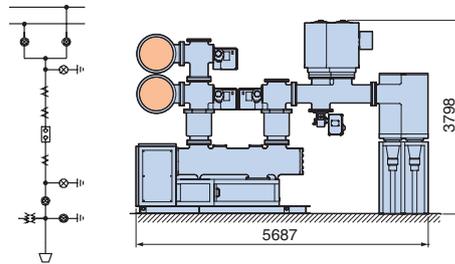


## Layout - Typical Bay Arrangement

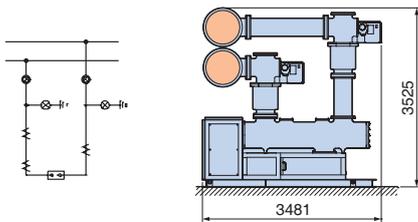
**Single bus/Transmission Line  
(Cable Head)**



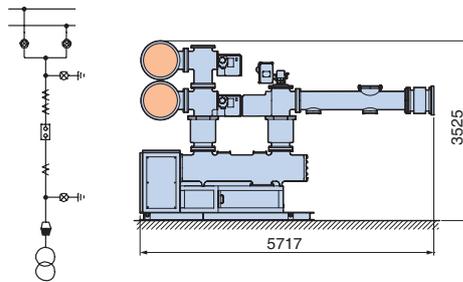
**Double Bus/Transmission Line  
(Cable Head)**



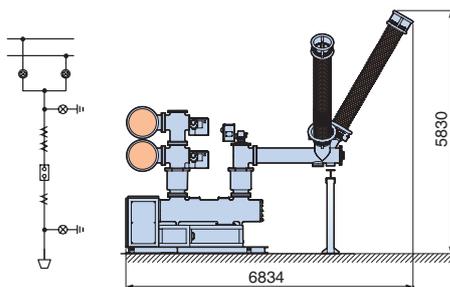
**Bus Tie**



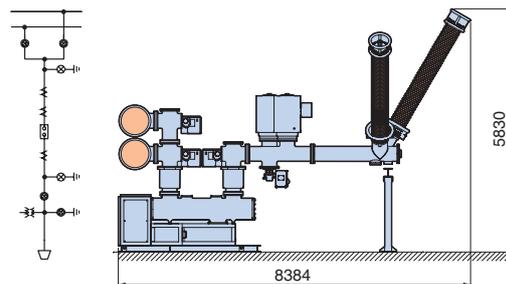
**Transformer Feeder  
(Gas to Oil Bushing)**



**Overhead Line TR Feeder  
(Gas to Air Bushing)**



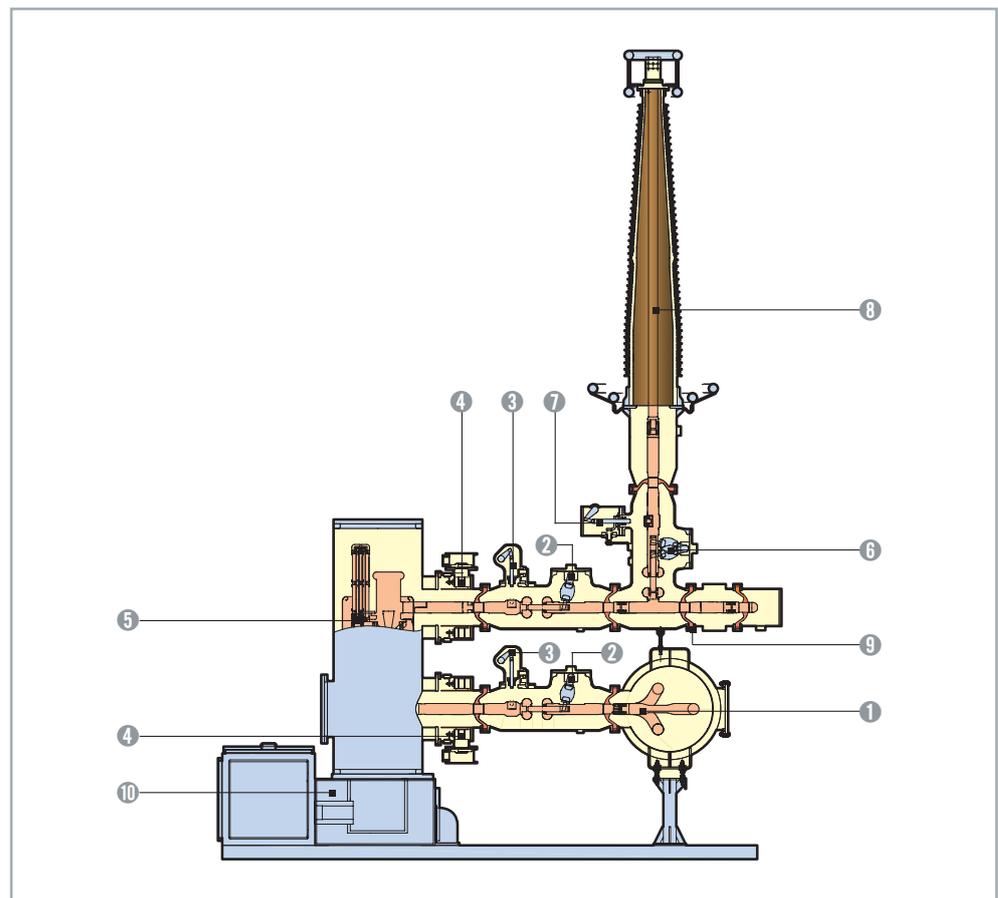
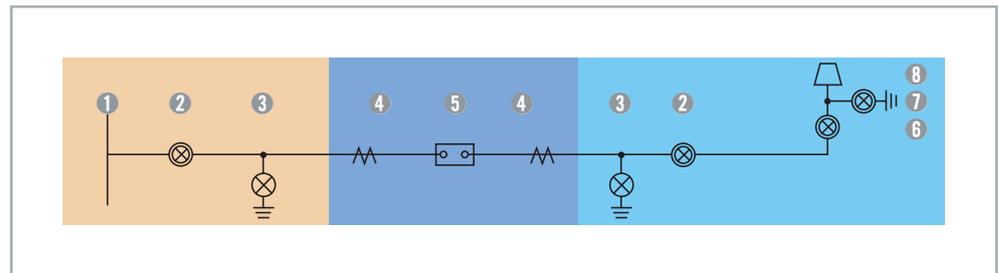
**Overhead Line T/L Feeder  
(Gas to Air Bushing)**



# Gas Insulated Switchgear 362kV 50kA GIS

## Construction & Single Line Diagram

- Condenserless type CB development by Breaking analysis tech up-grade.
- Input resistance optimization by Input thermal capacity analysis.
- DS/ES 3-phase Encapsulate control development by Phase distance downscale.
- It is based to parallel DS design for made Layout compact universal design (DS/ES control, CT & B.G)
- Quality upgrade by One-Bed delivery by Phase distance downscale.
- It is possible to add GIS to established substation.

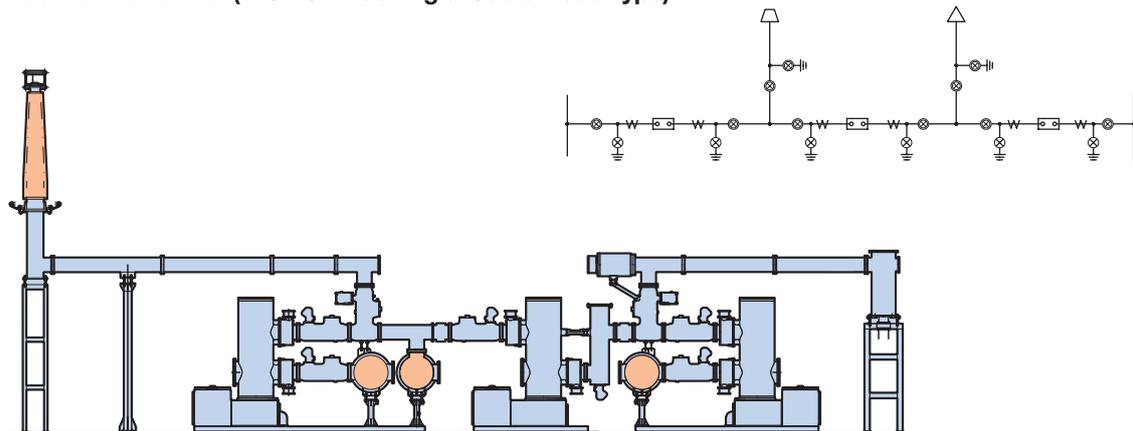


- 1 Main bus
- 2 Bus disconnector
- 3 Earthing switch for maintenance
- 4 Current transformer
- 5 Circuit breaker
- 6 Line disconnector
- 7 Earthing switch for making-proof
- 8 Bushing
- 9 Insulating spacer
- 10 Operating mechanism for CB

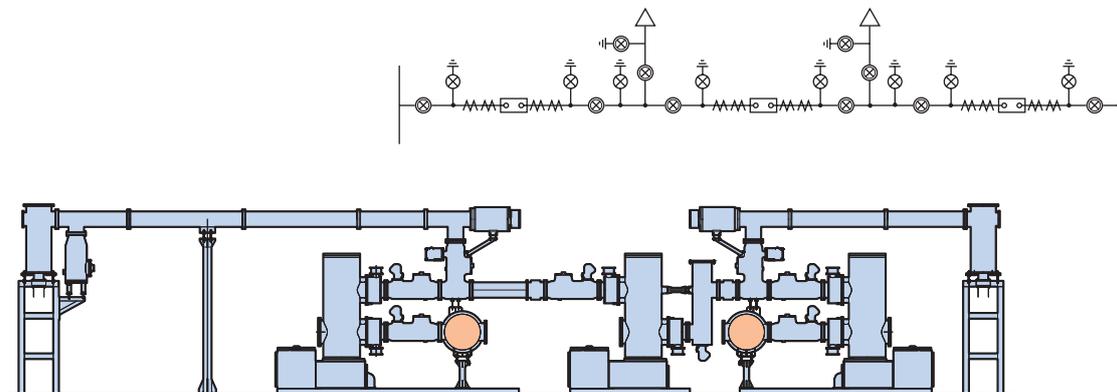


## Layout - Typical Bay Arrangement

**Double Bus Feeder (1 1/2 CB Bushing & Cable Head Type)**



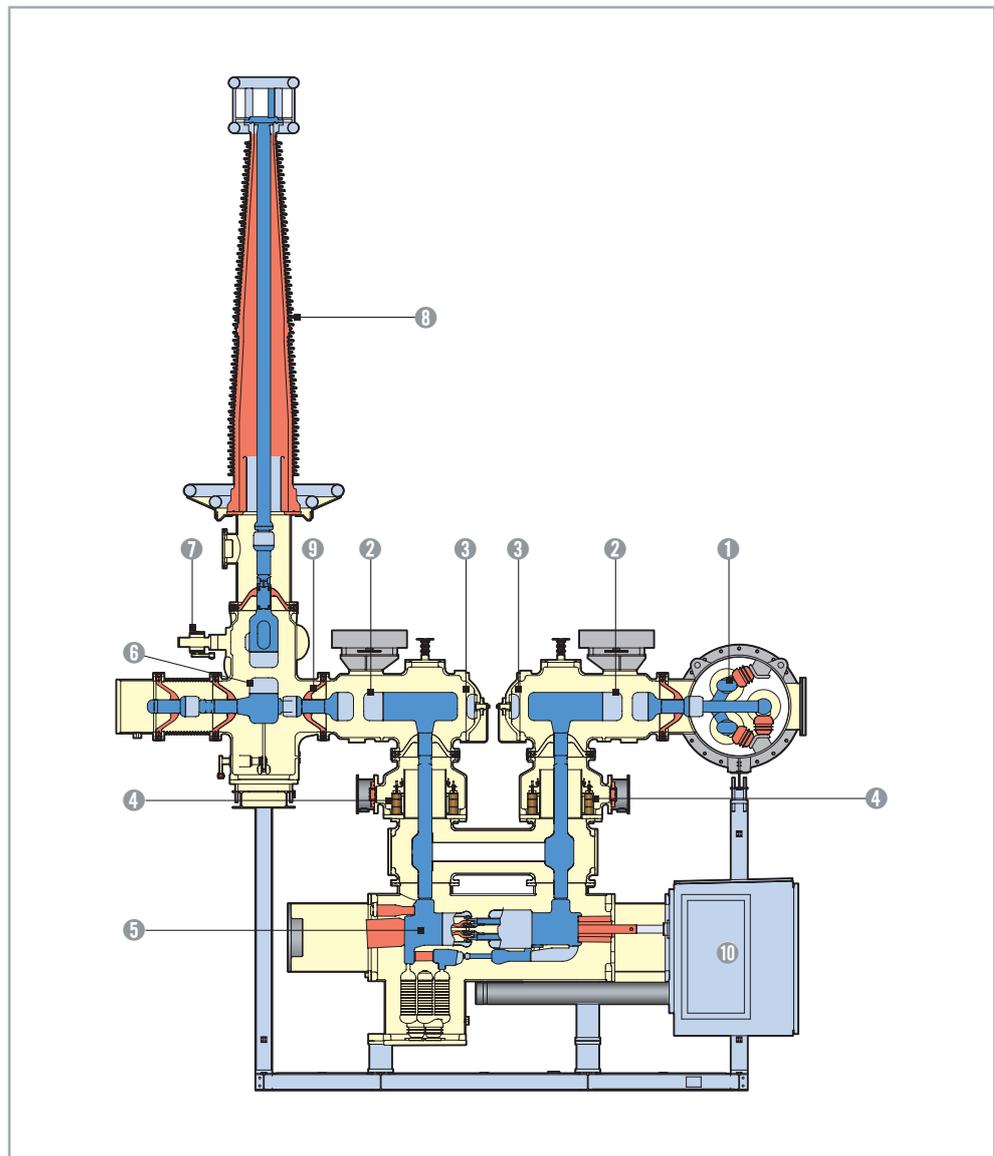
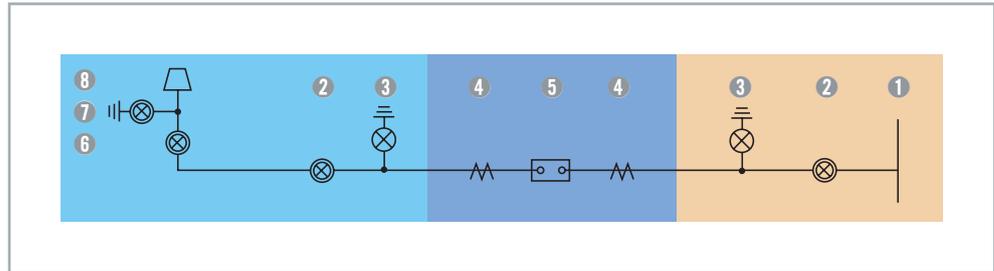
**Double Bus Feeder (1 1/2 CB Cable Head Type)**



# Gas Insulated Switchgear 362kV 63kA GIS

## Construction & Single Line Diagram

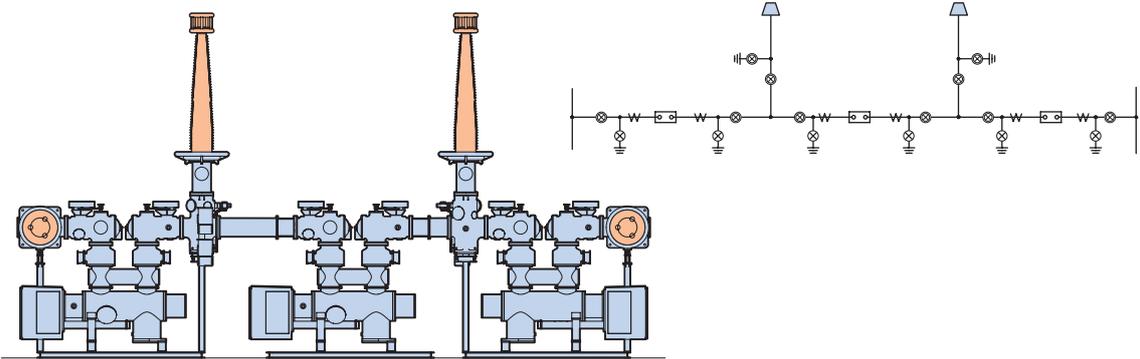
- Modules are designed to fit in optimal space for installation, while protecting the environment from minimal use of SF<sub>6</sub> gas
- Maximized system security with a minimum of maintenance



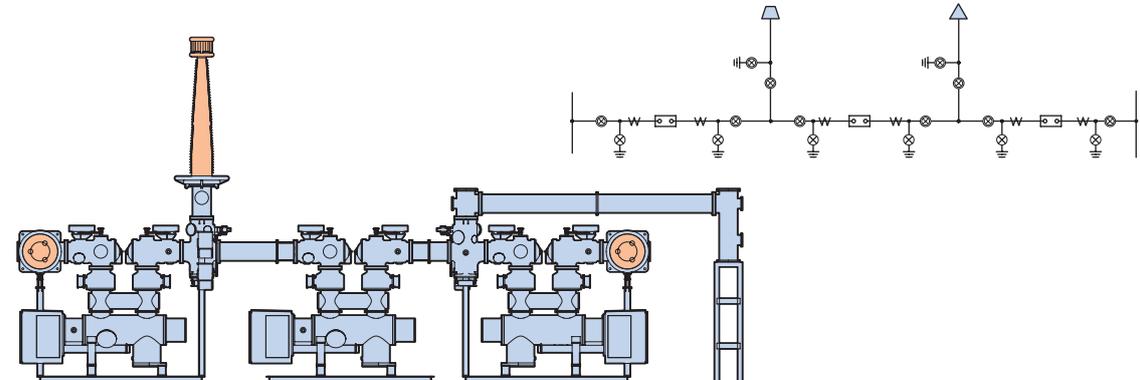


### Layout - Typical Bay Arrangement

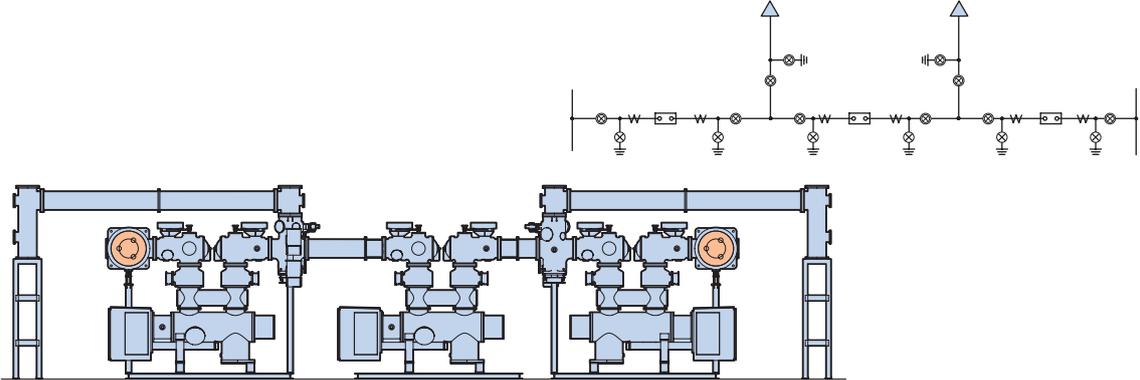
Double Bus Feeder (1 1/2 CB Bushing Type)



Double Bus Feeder (1 1/2 CB Bushing & Cable Head)



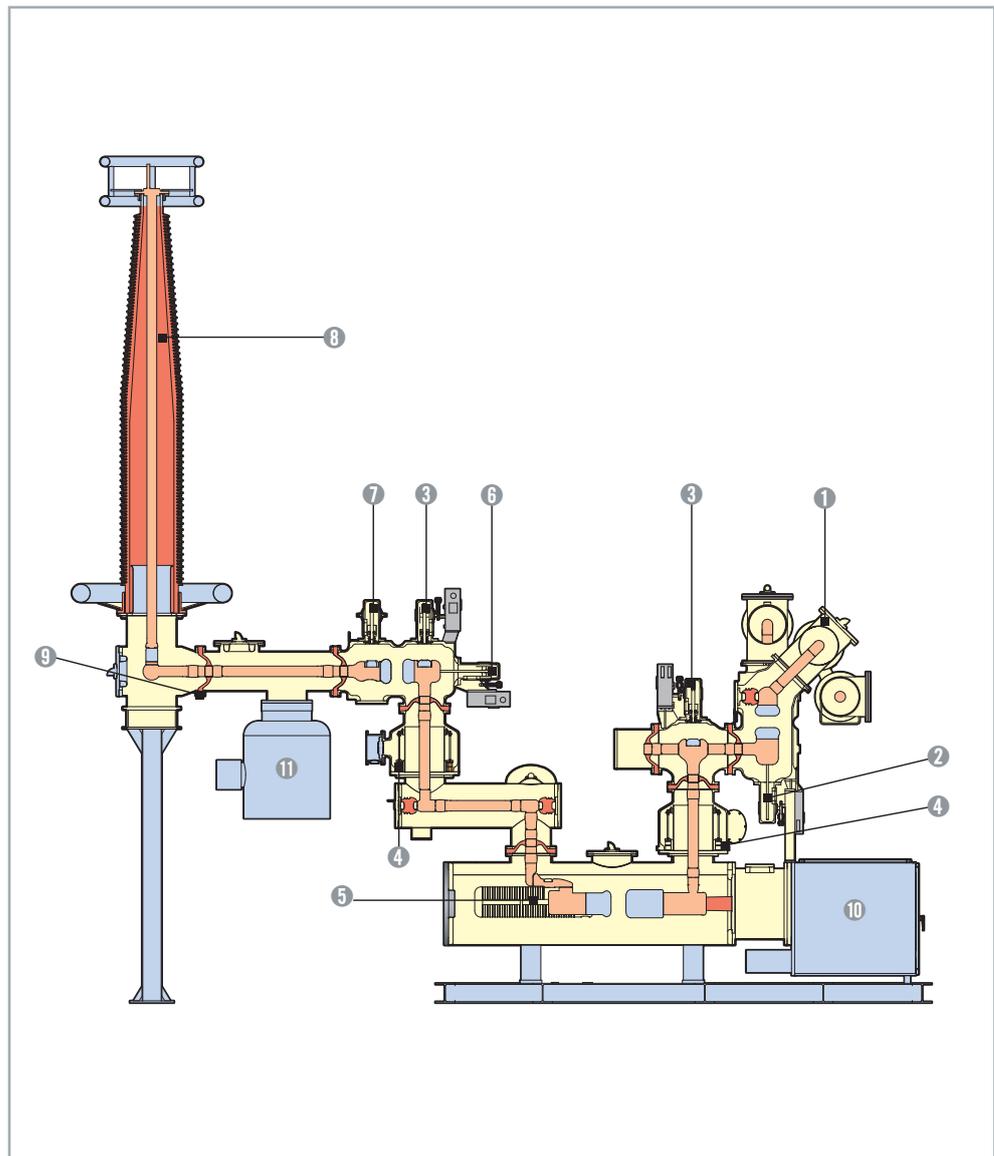
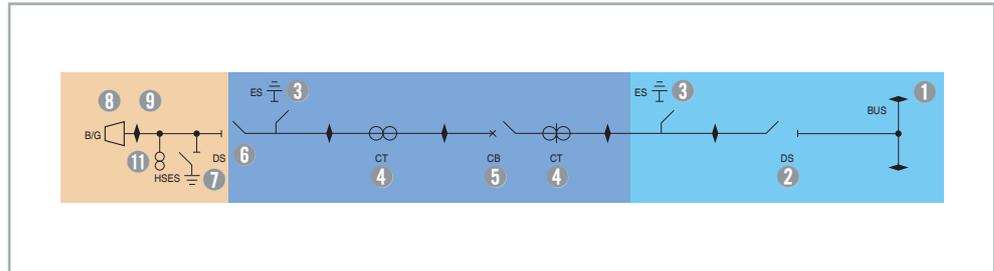
Double Bus Feeder (1 1/2 CB Cable Head Type)

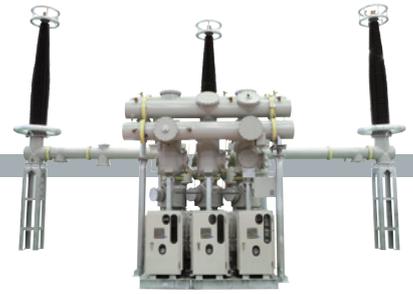


# Gas Insulated Switchgear 420kV 50kA GIS

## Construction & Single Line Diagram

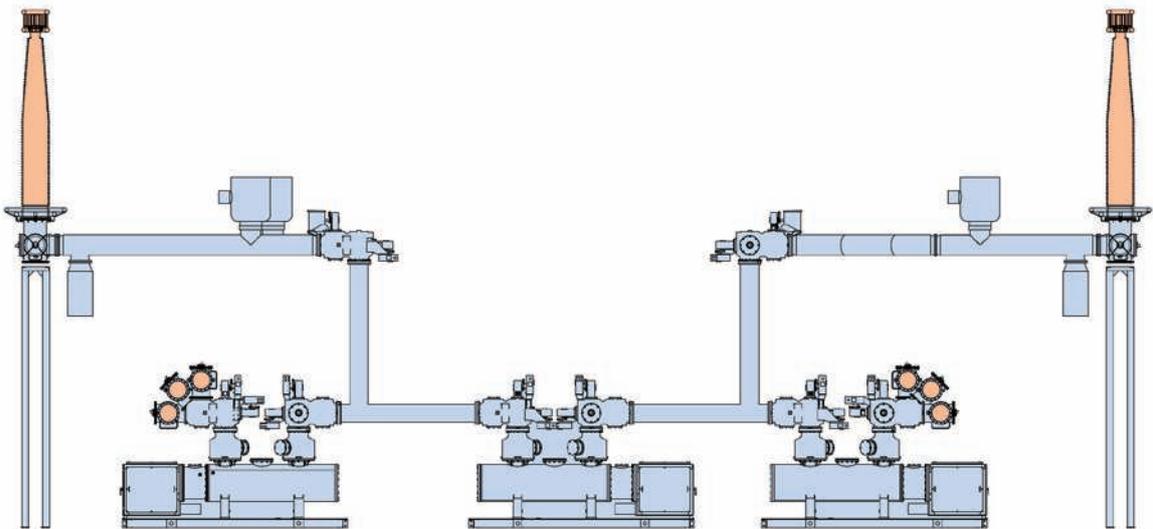
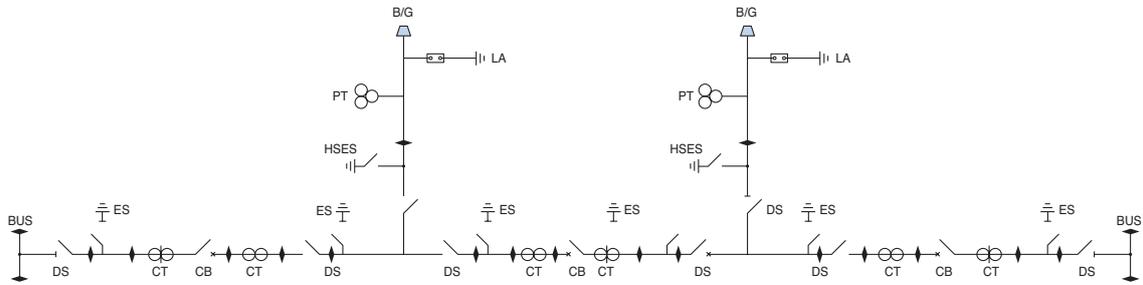
- Modules are designed to fit in optimal space for installation, while protecting the environment from minimal use of SF<sub>6</sub> gas
- Maximized system security with a minimum of maintenance

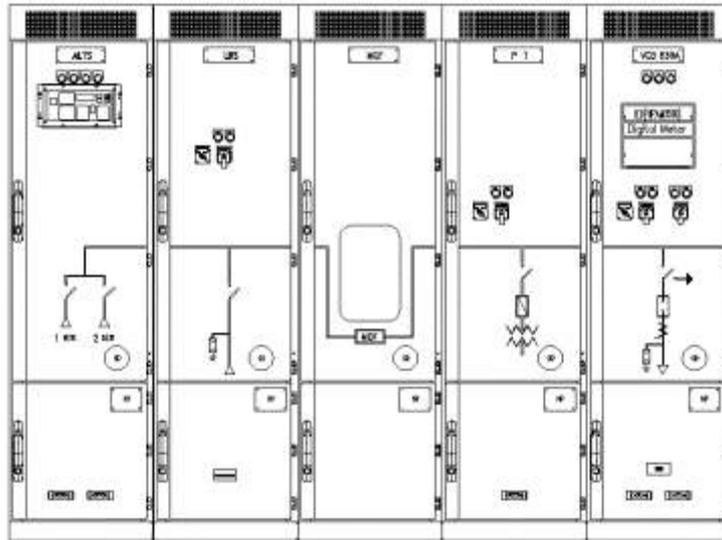




## Layout - Typical Bay Arrangement

### Double Bus Feeder (1 1/2 CB Bushing Type)





## SGSV-25-25/06/12

<b>Applicable Standards</b>	IEC 62271-200
<b>Rated Voltage</b>	25.8kV
<b>Rated Current</b>	630 / 1250A
<b>Rated Frequency</b>	60Hz
<b>Rated Power Frequency Withstand Voltage</b>	60 kV / 1min
<b>Rated Impulse Withstand Voltage</b>	150 kV
<b>Rated Short-Time Current</b>	25kA 1s
<b>Rated Making Current</b>	65kA
<b>Circuit Breaker Class</b>	E1 C2 M2 S1
<b>Standard Duty Cycle</b>	O - 0.3s - CO - 15s - CO



### SGEF-12-36/06/40

<b>Applicable Standards</b>	IEC 62271-200		
<b>Rated Voltage</b>	12kV	25.8kV	36kV
<b>Rated Current</b>	630 / 2500A		
<b>Rated Frequency</b>	50/60Hz		
<b>Rated Power Frequency Withstand Voltage</b>	28kV	60kV	70kV
<b>Rated Impulse Withstand Voltage</b>	75kV	150kV	170kV
<b>Rated Short-Time Current</b>	Up to 40kA		
<b>Rated Making Current</b>	Up to 104kA		
<b>Circuit Breaker Class</b>	E2 C2 M2		
<b>Standard Duty Cycle</b>	O - 0.3s - CO - 15s - CO		



## SJS E2920

<b>Applicable Standards</b>	KRSA 3007, IEC 62271-200
<b>Rated Voltage</b>	29 kV
<b>Rated Current</b>	630/2000 A
<b>Rated Breaking Current</b>	20 kA
<b>Rated Frequency</b>	60 Hz
<b>Lightning Impulse Withstand Voltage</b>	200 kV
<b>Power Frequency Withstand Voltage</b>	95 kV
<b>Mechanical Rating</b>	M2
<b>Electrical Rating</b>	E1
<b>Low-current Switching Rating</b>	C2



## SJS 1750

<b>Applicable Standards</b>	ES 6110-0002, IEC 62271-203
<b>Rated Voltage</b>	170 kV
<b>Rated Current</b>	2000 A
<b>Rated Breaking Current</b>	50 kA
<b>Rated Frequency</b>	60 Hz
<b>Lightning Impulse Withstand Voltage</b>	750 kV
<b>Power Frequency Withstand Voltage</b>	325 kV
<b>Mechanical Rating</b>	M2
<b>Electrical Rating</b>	E1
<b>Low-current Switching Rating</b>	C2

## SWITCHGEAR

### Cubicle Type Gas Insulated Switchgear

■ Feature

- Minimized installation space, reduced manufacturing period
- Easy maintenance, environmental friendly structure

■ Ratings



Panel		ALTS Panel	MOF Panel	PT Panel	VCB Panel	LBS Panel
Rated voltage [kV]		25.8	22.9 / $\sqrt{3}$	22.9 / $\sqrt{3}$	25.8	25.8
Short time withstand current [kA]		25	-	-	25	25
Rated current [A]		630	630 / 1250	630 / 1250	630 / 1250	630
Rated breaking current [kA]		25	-	-	25	25
Power frequency withstand voltage [kV/1 min]	between poles	70	70	70	70	70
	across isolating distance	70	-	77	77	70
Lightning impulse withstand voltage [BIL]	between poles	150	150	150	150	150
	across isolating distance	150	-	165	165	150

### Eco-GIS(Dry Air Insulated Switchgear)

■ Feature

- Minimized installation space(63% compared with MMSG)
- SF<sub>6</sub> gas free, environmental friendly GIS

■ Ratings



Panel		LBS Panel	MOF Panel	PT Panel	VCB Panel
Rated voltage [kV]		24	22.9 / $\sqrt{3}$	22.9 / $\sqrt{3}$	24
Short time withstand current [kA]		12.5	-	-	12.5
Rated current [A]		630	-	-	630
Rated breaking current [kA]		12.5	-	-	12.5
Insulation voltage	Power frequency withstand voltage [kV/1 min]	50	50	50	50
	Lightning impulse withstand voltage [BIL]	125	125	125	125

### Metal Clad Switchgear (LV/MV/MCC)

#### MV Switchgear

■ Feature

- Applied Standard IEC62271-200, IEC60529, ANSI C37.20, ES158-680, JEM1425
- Easy maintenance and extension with unit structure
- Short manufacturing period with one step EPC process
- Selectable items by customer

■ Ratings

Rated Voltage[kV]	3.6/7.2	12/15	24/25.8	36/38
Short time withstand current[kA]	12.5, 20, 25, 31.5, 40	25, 31.5, 40	12.5, 25, 31.5, 40	25, 31.5, 40
Rated current[A]	400, 630, 1250, 2000, 3150	630, 1250, 2000, 3000	630, 1250, 2000	1250, 2000, 3000



#### LV Switchgear

■ Feature

- Applied Standard IEC60949, IEC60439, IEC60529, ANSI C37.20, ES158, JEM1265
- Easy maintenance and extension with unit structure
- Short manufacturing period with one step EPC process
- 2, 3, 4stage installation according to circuit breaker type
- Selectable items by customer

■ Ratings

Rated Voltage [kV]	600VAC
Rated breaking current [kA]	Max 85kA
Rated current of main bus [A]	Max 4000A



#### MCC Motor Control Center

■ Feature

- Applied Standard IEC60439, NEMA ICS2.322, JEM11195
- Minimized installation space with drawer unit type
- User safety priority door lock system

■ Ratings

Rated Voltage [kV]	600VAC	
Rated operating voltage	380, 400, 460, 480VAC	
Short time withstand current [kA]	Max 65kA	
Rated current [A]	Horizontal buses	600~2000A
	Vertical buses	400~1000A

