

EN TECHNOLOGIES



PRODUCT LIST

Executive Summary

EN Technologies (“EN”) is leading supplier of medium voltage circuit switchgear in the electricity industry ,

Korea and operates two factories and one R&D center in Korea.

EN has been official supplier for KEPCO(Korea Electric Power corporation . www.kepcoco.kr) EN was awarded in 2007 by “KEPCO” as most innovative electricity venture and EN was selected as Technical Innovation Company

from Small and Medium Business Administration in Korea. The Company has achieved ISO 9001 and CE-mark certification.

EN has product line of medium voltage (10~38 KV) power switchgear, gas insulated multiple circuit breaker and load breaker which are used to ensure safety in the power distribution line. The Company has developed 25.8kV GIS(“Gas Insulated Switchgear”) and 72.5kV, and 170kV classes are under development.

EN has been qualified for rigorous product certification test by international standard (IEC)

at Korea Electric Research Institute(www.keri.re.kr) and China Electric Power Research Institute (www.epri.ac.cn).

EN Technologies Inc. is concentrating our best and sincere energies on electricity industry in order to make our customer happy.

We always believe in “ Customer first”.

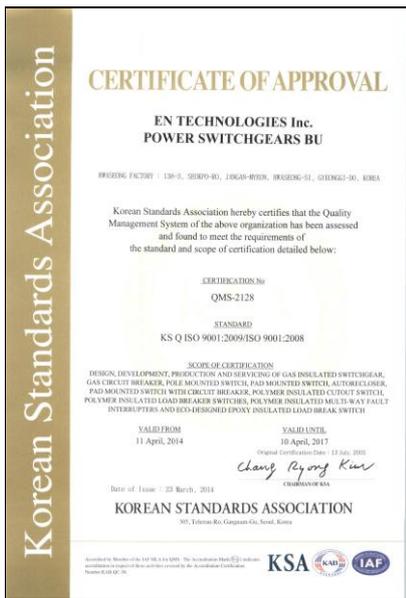
History

- 2018** – Developed 25.8kV Dry Air Insulated Switchgear and ordered the substations in KEPCO.
- 2017** – Obtaining certification of Environmental Protection Technology (use VI, 29KV/2000A Gas Insulation Switch gear technology) (Issuing unit : Ministry of science and Technology Information Communications).
 - Burns&McDonnell, KEPCO & EN MOU for Global Market Expansion
- 2016** – Developed 29kV Gas Insulated Switchgear and qualified tender in Korea Rail Network Authority.
 - Developed 11kV RMU in CESI and exported to Kuwait
- 2014** – Venture business achievement(Venture Capital Association)
 - Registered Smart Grid Business(Ministry of Trade, Industry & Energy)
- 2013** – Selected as a Good Design Selection (Korean Institute of Design Promotion)
- 2011** – Successful Business achievement from Korea Technology Finance Corp
- 2010** – CEO received Presidential Award at 2010 Entrepreneur Festival
 - Achieved Green Technology Certification from [Ministry of Land, Transport and Maritime Affairs]
 - Nominated as Global Leading Product from [Ministry of Knowledge Economic]
 - Nominated as World Class Company[Small and Medium Business Corporation]
 - Expanded factory of Power Distribution BU to \$40M capacity
- 2009** – E P R Test performed and qualified by EPRI(Energy Power Research Institute)
 - Nominated as Great Performed Vendor from KEPCO
 - Single PPM Certificate Achievement (Small and Medium Business Administration. 1-07-2-1658)
 - Achieve 72.5kV Gas Insulated Switchgear order from Korea Rail Network Authority (ebid.krnetwork.or.kr)
- 2008** – Developed 72.5kV Gas Insulated Switchgear and qualified qualified tender in Korea Rail Network Authority
- 2007** – Selected as an Export Promising Small and Medium Business (Gyeonggi Small and Medium Business Administration Export Support)
 - Selected as a Innovative Electric Power Venture Company (Korea Electric Power Corporation No.2007-32)
 - Selected as a Inno-Biz (Small and Medium Business Administration No.7061-988)
- 2006** – CEPRI Certificate for RMU(Ring Main Unit) by China Electronic Science Researches
 - KRS(load switchgear for underground) certified and registered as authorized product at Korea Electric Power Corporation
 - KRC(multi-circuit breaker) certified and registered as authorized product at Korea Electric Power Corporation
 - KPS(pole-top load switchgear) certified and registered as authorized product at Korea Electric Power Corporation
 - CEPRI Certificate for EPS(Pole-top load switchgear) by China Electronic Science Researches
- 2005** – CEPRI Certificate for RMF(Ring Main Unit with fuse) by China Electronic Science Researches
 - Achieved the ISO 9001 Certificate (QMS-2128) Established the Beijing branch office
- 2004** – Certified as Venture Company (new technology company) by Small & Medium Business Administration, Reg. no. 41625231-1-00656.
 - Certified as Superior Technology Company by the Kibo Technology Fund(www.kibo.co.kr)
 - Established R&D center certified by Korea Industrial Technology Association(www.koita.or.kr), certification no. 20041678
- 2003** – EN Technologies Inc. was established (www.entech.biz)



EN Creative Energy to the World
TECHNOLOGIES

Certifications



ISO 9001 Certified



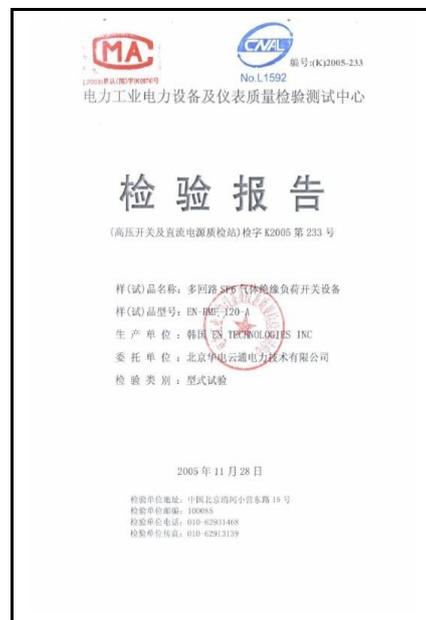
ISO 14001 Certified



One-KEPCO Exporting Business Group



TEST REPORTS [KERI] ACHIEVEMENTS



TEST REPORTS [CEPRI] ACHIEVEMENTS

EN RM series(Ring Main module)

Simple indoor substation, customer transfer substations and distribution substations
Industrial plants and underground stations

Highly Reliability

- Maintenance-free concept
- Pure puffer techniques, no leakage current path between open contacts.
- Switchgear vessel made of stainless steel
- SF6 gas insulation and interruption.
- At atmospheric gas pressure, it ensures the rated insulation and interruption capabilities.
- Sealed pressure system

Extensible Design

- Individual CB and LBS modules can be any combination
- All modules are same size except user's requirement and under request
- Gas work not require to extend
- 2 types of extension, top side and side extension

Safety

- Safe-to-touch and hermetically sealed enclosure
- Overpressure relief device
- Pad lock
- Easy installation and operation

Controller

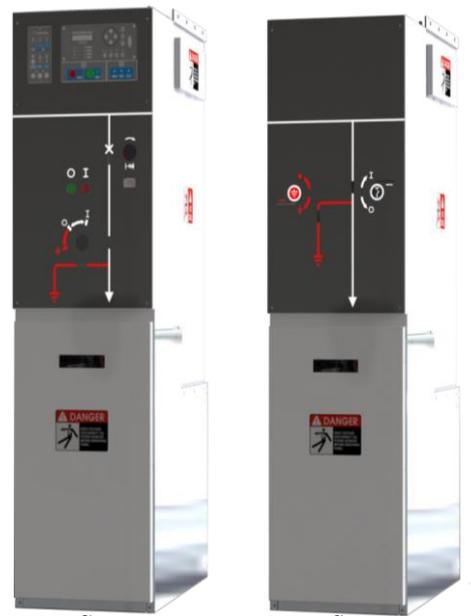
- Close/open
- Local/Remote
- Voltage/Current measuring and signals for FRTU
- Rechargeable battery with the charger

Relay

- DSP, micro-processor based relay
- Fault indicator



Multy-Way type



Modular type

EN 155S



Self powered relay

PAC-E102



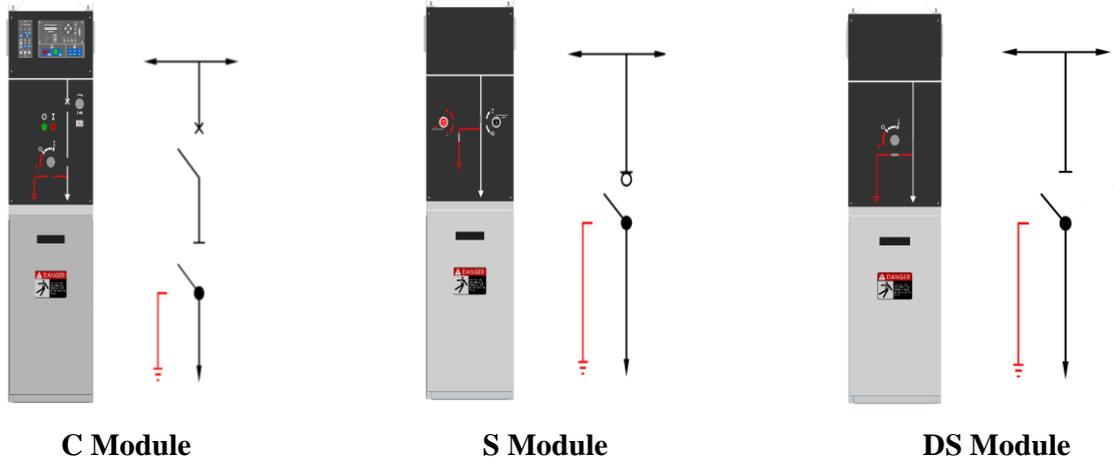
Overcurrent relay

EN 255R



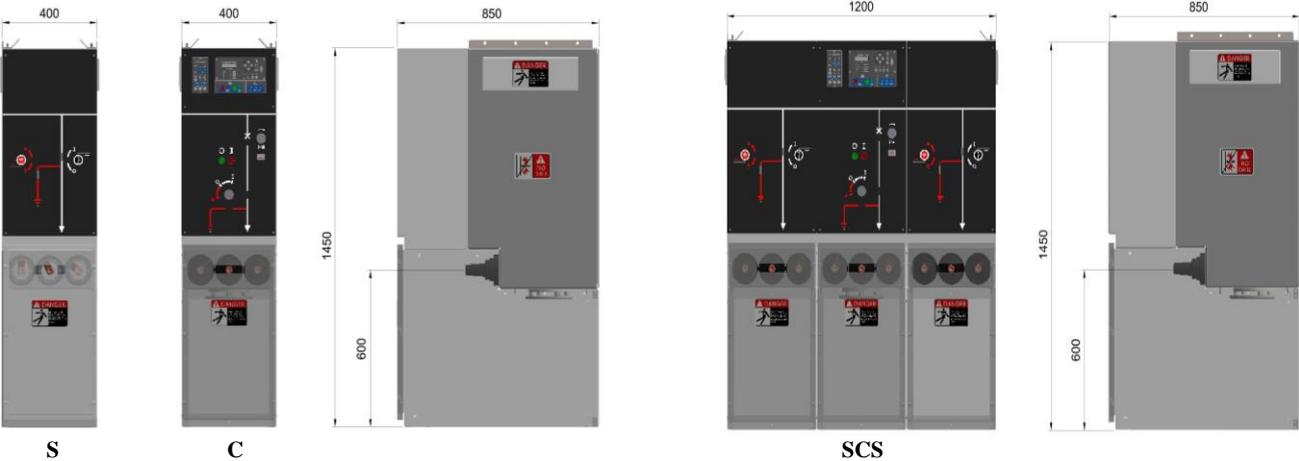
Dual overcurrent relay

Circuit-breaker feeder - Type C



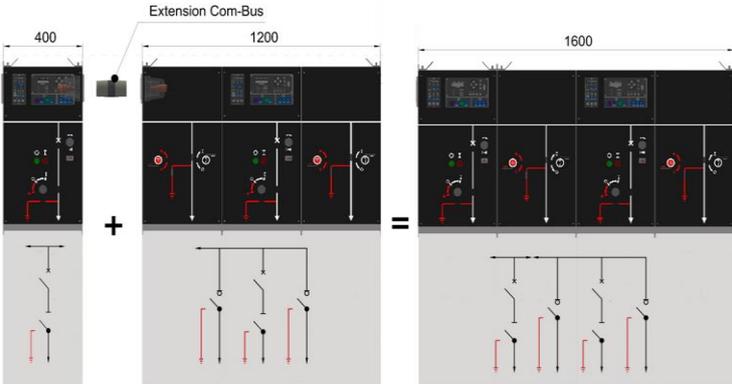
Specification						
Item	CB		LBS		DS	
Ambient temperature	-25 ~ 70 °C					
Relative humidity	0 ~ 95%					
Maximum altitude	2000m					
Rated voltage	15kV	27kV	15kV	27kV	15kV	27kV
Rated current (Main/T-100)	630, 1250A / 200, 630, 1250A		630, 1250A / 200, 630A		630, 1250A / 630, 1250A	
Rated frequency	50/60Hz					
Dielectric tests						
Lighting impulse	85/95kV	125kV	85/95kV	125kV	85/95kV	125kV
Power frequency 1min	42/49kV	60kV	42/49kV	60kV	42/49kV	60kV
Mechanical endurance						
Circuit Breaker	10,000CO	10,000CO	5,000CO	5,000CO	1,000CO	1,000CO
Disconnect Switch	1,000CO	1,000CO	1,000CO	1,000CO	1,000CO	1,000CO
Short-circuit tests						
Short-circuit tests	20kA 1sec		16kA 3sec		16kA 3sec	
T10	O-0.3s CO-180s-CO					
T30	O-0.3s CO-180s-CO					
T60	O-0.3s CO-180s-CO					
T100s	O-0.3s CO-180s-CO					
T100a	O, O, O					
Double Earthing fault	O					
Temperature rise test	630A, 1250A				630A, 1250A	
Gas						
Leak rate	Less than 0.1% per year					
Rated filling pressure	0.05 Mpa					

Dimension



Dimension Extension

Extension



Dimension of Each Module		
Height	mm	1450
Depth	mm	850
Width	mm	400
Weight	kg	200



EN RMC series(Compact Type Ring Main Unit)

Self stand type outdoor substation, customer transfer substations and distribution substations
Industrial plants and underground stations

Highly Reliability

- Maintenance-free concept
- Pure puffer techniques, no leakage current path between open contacts.
- Switchgear vessel made of stainless steel
- SF6 gas insulation and vacuum interruption.
- Assurance of insulation and interruption at atmospheric gas pressure.
- Sealed pressure system
- Self Stand and Outdoor Usage

Safety

- Safe-to-touch and hermetically sealed enclosure
- Overpressure relief device
- Pad lock
- Easy installation and operation

Controller

- Close/open
- Lock/Unlock
- Local/Remote
- Voltage/Current measuring and signals for FRTU
- Rechargeable battery with the charger

Relay

- DSP, μ -processor based relay
- Fault indicator

EN 155S Relay



Self powered relay

PAC-E100



Overcurrent relay

EN 255R Relay



Dual overcurrent relay

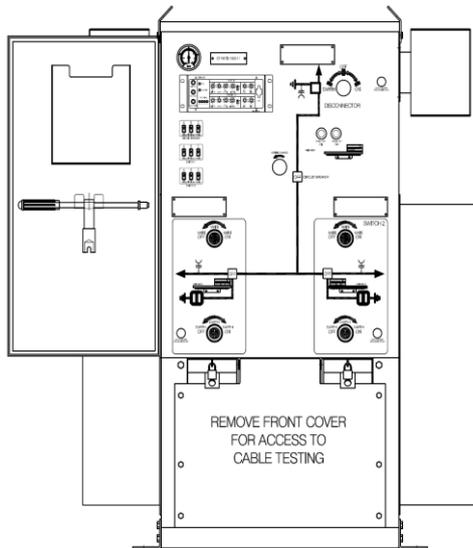


+SVS+

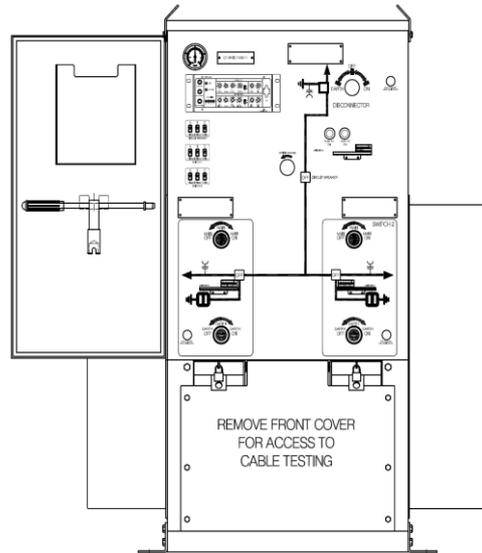
SPECIFICATIONS

Ambient temperature	-25 ~ 70 °C
Relative humidity	0 ~ 95%
Maximum altitude	2000m
Rated voltage	17.5kV
Rated frequency	50/60Hz
Mechanical endurance	
Circuit Breaker	M1 (1000 CO)
Switch	M1 (1000 CO)
Earthing Switch	M1 (1000 CO)
Dielectric tests	
Lighting impulse	95kV/110kV
Power frequency 1min	38kV
Short-circuit tests	
Main circuit switch	21kA/3sec
Circuit Breaker	21kA/3sec
Internal Arc Rating	
Freestanding	21kA/1 sec
IP Class	IP54
Temperature rise test	
Main circuit switch	630A
Gas leak test	
Leak rate	Less than 0.1% per year
Rated filling pressure	0.04 Mpa

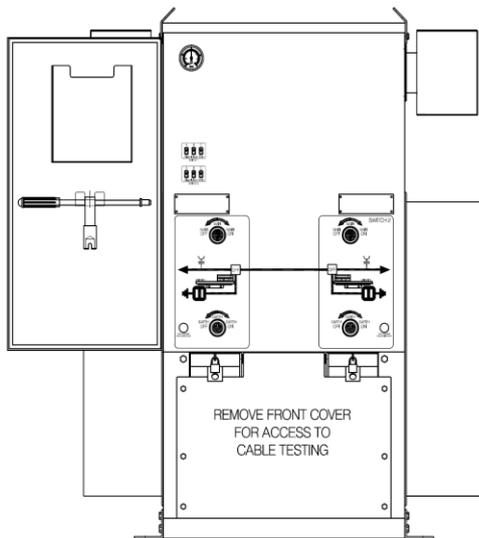
Configuration



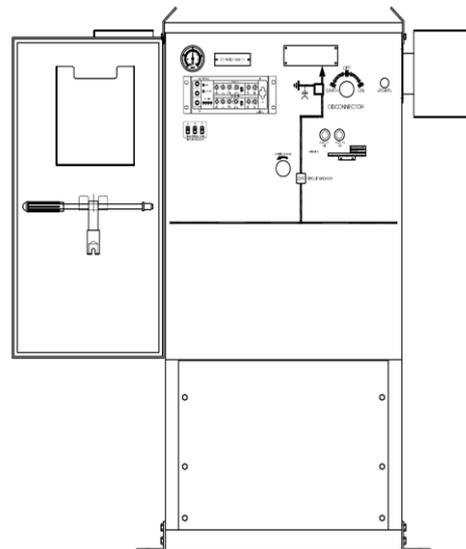
'+SVS+ both side extensible



SVS non extensible



'+SS+ both side extensible



'+V+ both side extensible

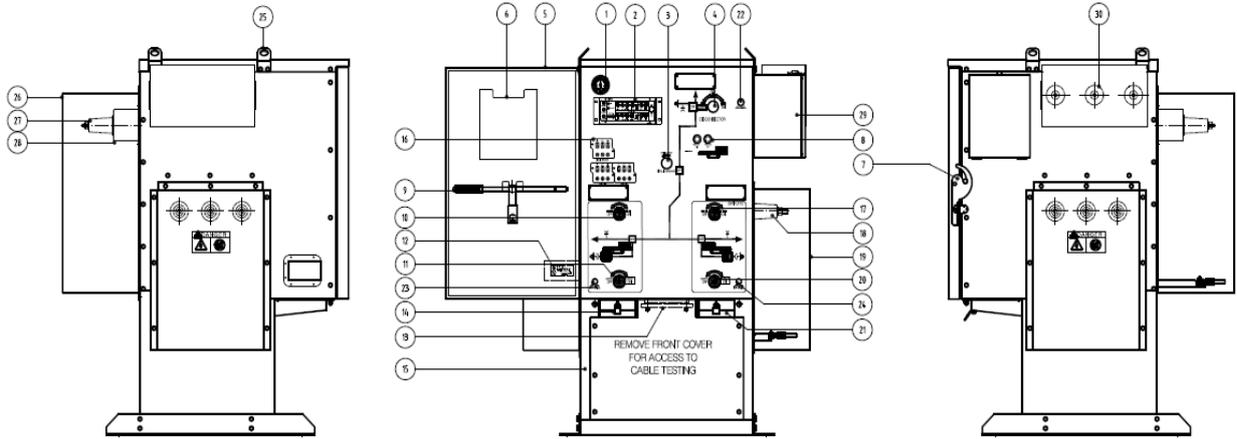
'SVS', '+SVS+', '+V+', '+SS+' modules be provided where,
S - Ring Switch(Load Breaker Switch)

V - Vacuum Circuit Breaker (with Disconnecter on the bushing side)

'+' symbol represents extensibility option.

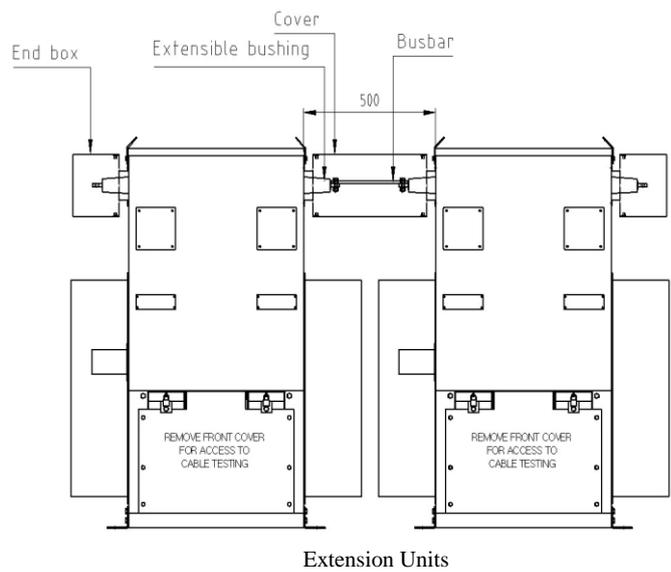
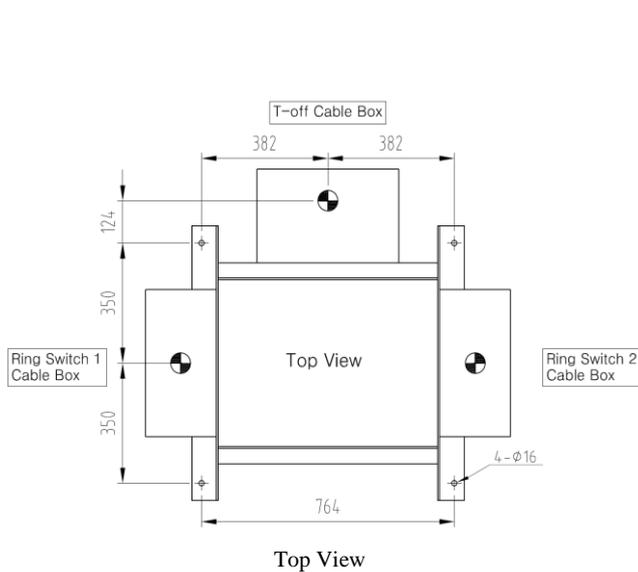


Structure



Configuration(Extensible)

- | | | |
|--|---|---|
| ① Pressure gauge | ⑪ Ring switch-1 earthing | ⑳ Test point box for ring switch-2 |
| ② Relay | ⑫ Earth fault indicator for ring switch-1 | ㉑ T-off cable box release |
| ③ Vacuum circuit breaker spring charge | ⑬ Internal arc vent | ㉒ Ring switch-1 test access cover release |
| ④ VCB disconnecter | ⑭ Test point box for ring switch-1 | ㉓ Ring switch-2 test access cover release |
| ⑤ Switchgear front door | ⑮ Switchgear stand | ㉔ Lifting lugs |
| ⑥ Operating manual | ⑯ Voltage indicator device | ㉕ T-off cable box(for VCB) |
| ⑦ Padlocking for switchgear front door | ⑰ Ring main switch-2 | ㉖ T-off cable bushing(for VCB) M12 |
| ⑧ VCB ON/OFF push button | ⑱ Bushing for ring switch-2(M16) | ㉗ Protection CT,s |
| ⑨ Operating handle | ㉀ Cable box for ring switch-2 | ㉘ Terminal Box & Control Box |
| ⑩ Ring main switch-1 | ㉁ Ring switch-2 earthing | ㉙ Bushing for Extensible |



EN RMC series(Ring Main Circuit breaker)

Simple outdoor substation, customer transfer substations and distribution substations
Industrial plants and underground stations

Highly Reliability

- Maintenance-free concept
- Pure puffer techniques, no leakage current path between open contacts.
- Switchgear vessel made of stainless steel
- SF6 gas insulation and interruption.
- At atmospheric gas pressure, it ensures the rated insulation and interruption capabilities.
- Sealed pressure system

Safety

- Safe-to-touch and hermetically sealed enclosure
- Overpressure relief device
- Pad lock
- Easy installation and operation

Controller

- Close/open
- Lock/Unlock
- Local/Remote
- Voltage/Current measuring and signals for FRTU
- Rechargeable battery with the charger

Relay

- DSP, μ -processor based relay
- Fault indicator

EN 155S Relay



Self powered relay

PAC-E100



Overcurrent relay

EN 255R Relay



Dual overcurrent relay



With DS type



Without DS type

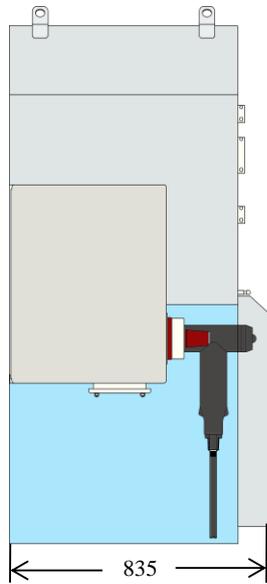
SPECIFICATIONS

Ambient temperature	-25 ~ 70 °C	
Relative humidity	0 ~ 95%	
Maximum altitude	2000m	
Rated voltage	12kV	27kV
Rated frequency	50/60Hz	
Mechanical endurance		
Circuit Breaker	10,000CO	2000CO
Switch	5,000CO	1,000CO
Earthing Switch	1,000CO	1,000CO
Dielectric tests		
Lighting impulse	85/95kV	125kV
Power frequency 1min	42/49kV	60kV
Short-circuit tests		
Main circuit switch	25kA 2sec	25kA 1sec
Circuit Breaker	20kA 4sec	20kA 1sec
T10	O-0.3s CO-180s-CO / 1time	
T30	O-0.3s CO-180s-CO / 1time	
T60	O-0.3s CO-180s-CO / 1time	
T100s	O-0.3s CO-180s-CO / 2times	
	O/10times, CO/11times	
T100a	O/3times	
Earthing fault	O-0.3s CO-180s-CO / 1time	
Temperature rise test		
Main circuit switch	630A	
Gas leak test		
Leak rate	Less than 0.1% per year	
Rated filling pressure	0.04 Mpa	

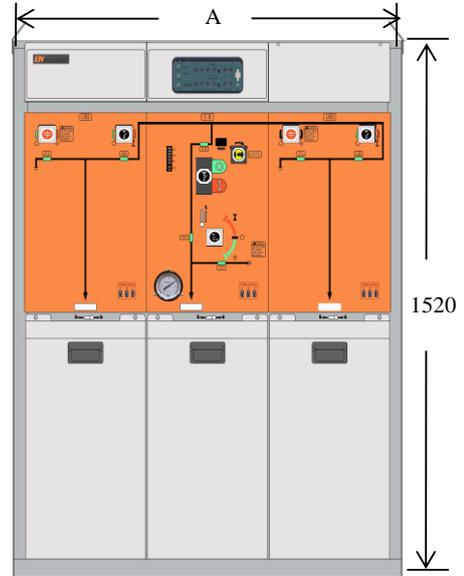
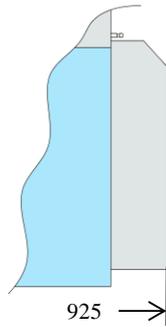


Dimension

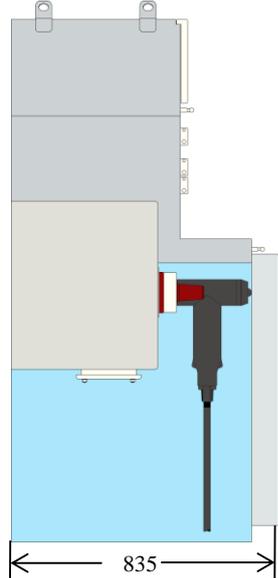
RMC (with DS)



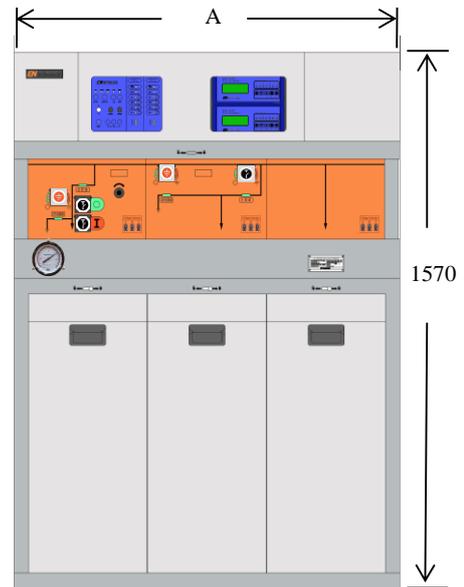
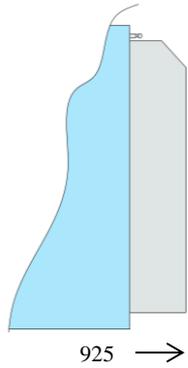
Double cable compartment cover



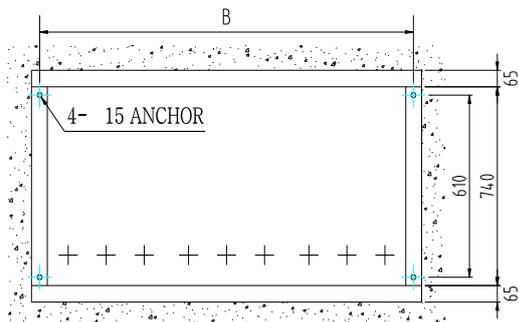
RMC (without DS)



Double cable compartment cover



BASE



unit: mm

RMC	A	B
2-way	830	787
3-way	1210	1167
4-way	1590	1547
5-way	1970	1927
6-way	2350	2307

EN RMF series(Ring Main Fuse-switch combination)

Simple outdoor substation, customer transfer substations and distribution substations
Industrial plants and underground stations

Highly Reliability

- Pure puffer techniques, no leakage current path between open contacts.
- At atmospheric gas pressure, it ensures the rated insulation and interruption capabilities.
- Switchgear vessel made of stainless steel
- Maintenance-free concept
- SF6 gas insulation and interruption.
- Sealed pressure system(above 30 years)
- Climate-independent

Safety

- Operation interlock with manual shutter
- Safe-to-touch and hermetically sealed enclosure
- HV parts are only accessible when outgoing feeders are earthed
- Overpressure relief device
- The speed of close/open is independent of the speed of lever movement.
- Pad lock
- Easy installation and operation



RMF control(auto type only)



Type: RMF 040M



Type: RMF 230M

(2 Fused switches and 3 Ring switches)



Type: RMF 201M

(2 Fused switches and 1 dummy)

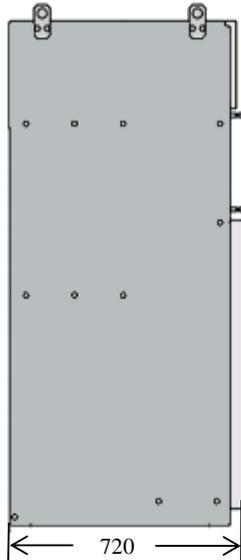
SPECIFICATIONS

Ambient temperature	-25 ~ 70 °C	
Relative humidity	0 ~ 95%	
Maximum altitude	2000m	
Rated voltage	15kV	27kV
Rated frequency	50/60Hz	
Mechanical endurance		
Switch	5000CO	
Earthing Switch	1000CO	
Dielectric tests		
Lighting impulse	85/95kV	125/145kV
Power frequency 1min	42/49kV	50/60kV
Short-circuit tests		
Main circuit switch	25kA 2sec	25kA 1sec
Earthing Switch	25kA 1sec	25kA 1sec
Make-break tests		
Active load	630A/100CO	
Closed loop	630A	
Cable charging	25A	
Line charging	2.5A	
Earthing fault	30A	
Transfer current	1550A	1250A
Making tests		
Switch	63kA peak, 5C	
Fuse-switch combination	31.5kA	
Temperature rise test		
Main circuit switch	630A	
Fuse-switch combination	125A	
Gas leak test		
Leak rate	Less than 0.1% per year	
Rated filling pressure	0.04 Mpa	
Protection class		
Tank	IP67	
Fuse Door, Cable box	IP3X	



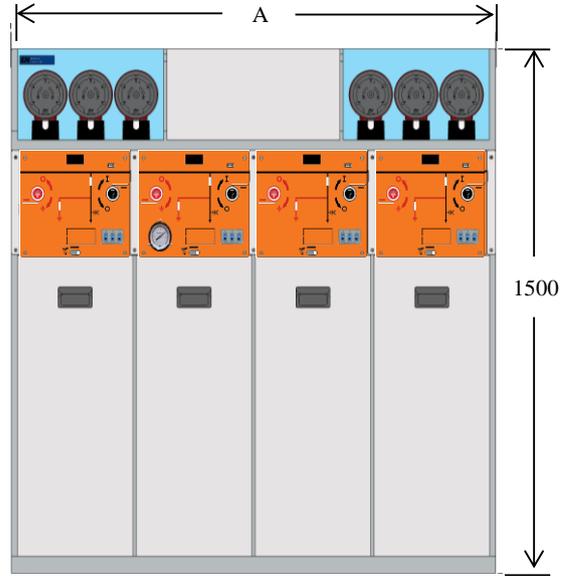
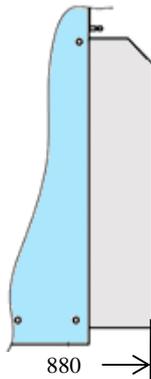
Dimension

Fuse-switch combination

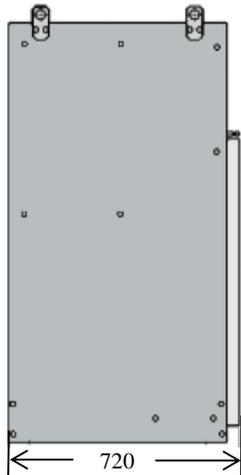


Single cable compartment cover

Double cover

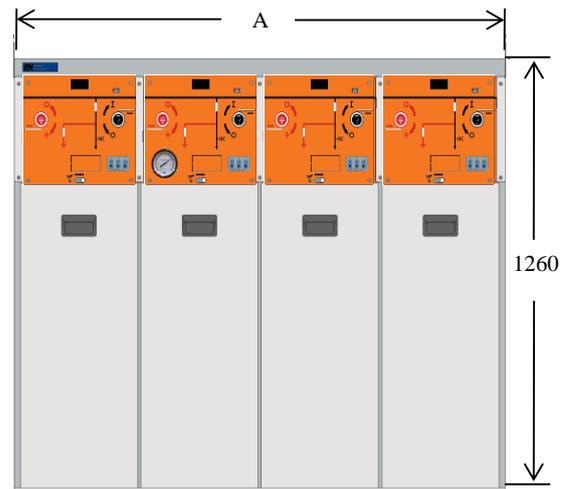
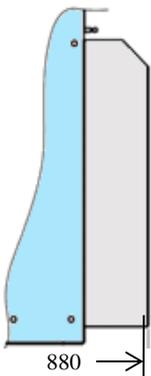


Switch only (manual type)

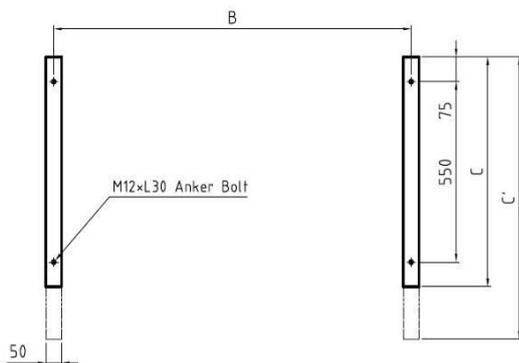


Single cable compartment cover

Double cover



BASE



unit: mm

RMF	A	B	C	C'
2-way	788	748	700	860
3-way	1168	1128		
4-way	1548	1508		
5-way	1928	1888		
6-way	2308	2268		

C: single cable compartment cover

C': double cable compartment cover

EN MPS series(Eco-Friendly Solid Pole mounted switch)

This Switchgear is ecofriendly product used for 24kV aerial line and compound distribution line purpose.
Improve reliability of barrier properties as using of polymer, solid insulation type , and Vacuum interrupter for blocking part.

Feature

Ecofriendly product applied solid insulation and Vacuum Interrupter without use of SF6 Gas
As use of Polymer insulation type,
There are no need of detect or suppliment for gas leakage all the time.
Continous maintenance for insulating material is not necessary.

Safety

Improve insulation function by applying compound insulation technical skill using of eco friendly insulation vehicle
Avoid danger of tank explosion stemmed from inner arc
Avoid danger of fire and explosion stemmed from gas leakage

Highly Reliability and Trouble Free

Switchgear vessel made of stainless steel
Maintenance-free concept
Without gas leakage mornitoring device and gas release device.
Climate-independent
Simple operating mechanism



SPECIFICATIONS

Ambient temperature	-30~50℃
Insulation Vehicle	Epoxy
Maximum altitude	1000m
Rated voltage	24kV
Rated frequency	50/60Hz
Mechanical endurance	
No-load voltage	5000 CO
Dielectric tests	
Lighting impulse	150kV
Power frequency	60kV
Short-circuit tests	
Main circuit	12.5kA/1sec
Make-break tests	
Active load	630A
Closed loop	630A
Cable charging	25A
Line charging	1.5A
Rated Making Current	32.5kA(peak,5times)
Rated Control Voltage	DC 24V, AC 220V
Applied standard	IEC 62271-103 KEPCO std. GS-5925-0139(2011.10.02)

EN KPS series(Pole mounted switch)

Overhead distribution line

Feature

- Counter of operation times
- Front and bottom On/OFF indicator
- Pressure gauge

Safety

- Hermetically sealed enclosure
- Overpressure relief device
- Manual locking device
- Low gas pressure interlock device
- Easy installation and operation

Highly Reliability

- Switchgear vessel made of stainless steel
- Double sealing techniques with EPDM rubber
- Maintenance-free concept
- SF6 gas insulation and interruption.
- Climate-independent
- Simple operating mechanism
- At atmospheric gas pressure, it ensure the rated insulation and interruption capabilities.
- Pure puffer techniques, no leakage current path between open contacts.



SPECIFICATIONS

Name of Moel	KPS-120-A	KPS-260-A	KPS-380-A
Ambient temperature	-25 ~ 70 °C		
Maximum altitude	2000m		
Rated voltage	12kV	25.8kV	38kV
Relative humidity	0 ~ 100%		
Rated frequency	50/60Hz		
Mechanical endurance	5000CO		
Dielectric tests			
Lighting impulse	85/95kV	150kV	170/195kV
Power frequency	42/49kV	60kV	70/80kV
Short-circuit tests			
Main circuit	25kA/2sec	16kA/3sec	16kA/3sec
Make-break tests			
Active load	630A		
Closed loop	630A		
Cable charging	16A	20A	
Line charging	1.5A	20A	
Making tests			
Switch	63kA peak, 3C	41.6kA peak, 5C	41.6kA peak, 5C
Temperature rise test			
Main circuit	630A		
Gas leak test			
Gas leak test	Less than 0.1% per year		
Rated filling pressure	0.1 Mpa		
Protection class			
Tank	IP67		

* Total weight of Main Unit only : Less than 130 kg

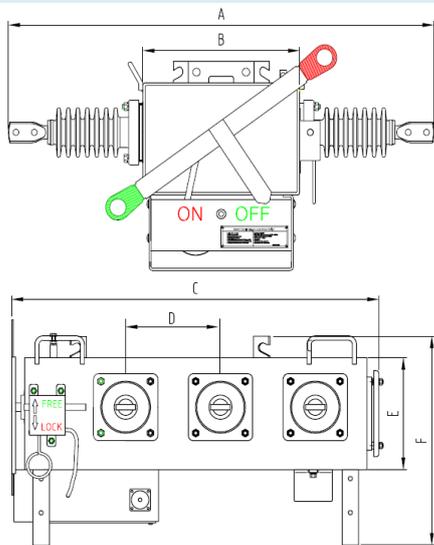
Bushing & Terminal

Porcelain bushing + Moldcone lead	
Porcelain bushing + NEMA terminal	
Epoxy bushing + NEMA terminal	

LBS control cubicle

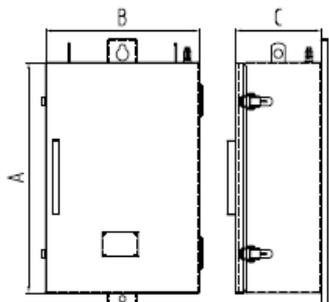


24kV Dimension



unit: mm

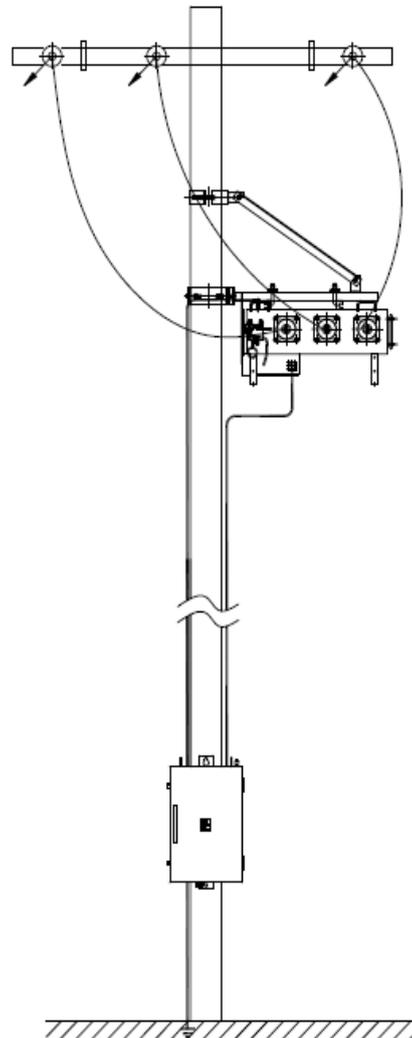
Measured points	A	B	C	D	E	F	G
Specified values	1012	2000	380	260	485	890	230



unit: mm

Measured points	A	B	C
Specified values	650	450	250

Mounting



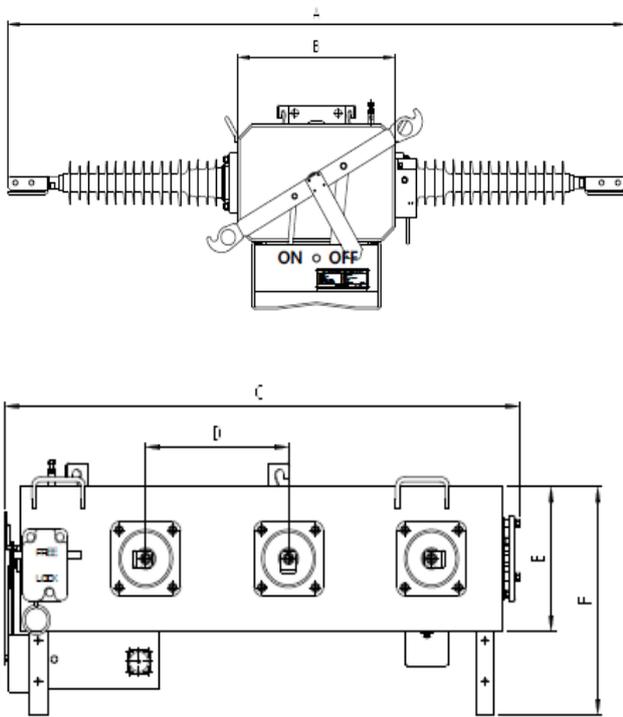
Bushing & Terminal

Porcelain bushing + Moldcone lead	
Porcelain bushing + NEMA terminal	
Epoxy bushing + NEMA terminal	

LBS control cubicle



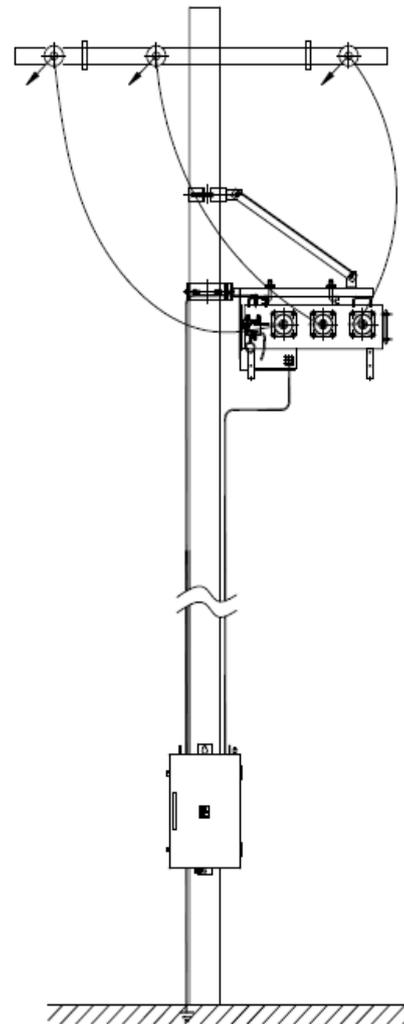
38kV Dimension



unit:mm

Measured points	A	B	C	D	E	F
Specified values	1690	430	1160	320	300	475

Mounting





EN ERC(Sf6)/ESR(Solid) Automatic Recloser

Reclosers are used on overhead distribution systems to detect and interrupt momentary faults within short period of time and re-close back to avoid black out and also to avoid major failure of power line to be spread.

Feature

- PMA
- Bottom On/OFF indicator
- Pressure gauge(Gas type only)

Safety

- Hermetically sealed enclosure
- Overpressure relief device(Gas type only)
- Manual tripping/locking device
- Low gas pressure interlock device(Gas Only)
- Easy installation and operation

Highly Reliability

- Switchgear vessel made of stainless steel
 - Maintenance-free concept
 - SF6 gas insulation and Solid Dielectric insulation
 - Climate-independent
 - Simple operating PMA
- At atmospheric gas pressure, it ensure the rated insulation and interruption capabilities.



SPECIFICATIONS

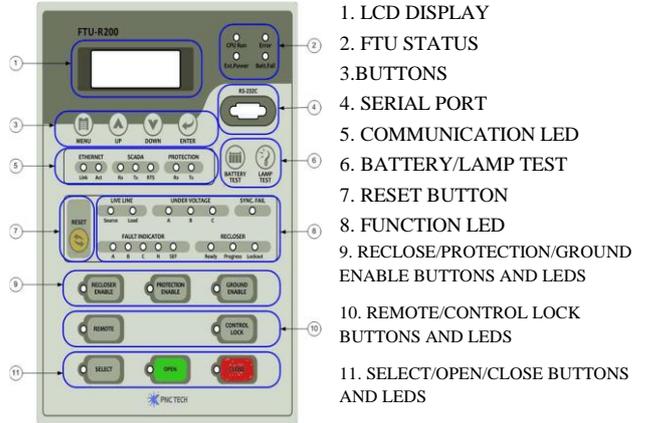
Maximum system Voltage	15kV	27kV	24kV(Soid)
Norminal frequency	50 / 60 Hz		
Rated continuous current	630 / 800A	630 / 800A	630A
Short time withstand current	12.5 / 16kA	12.5 / 16kA	16kA
Fault make capacity (RMS)	12.5 / 16kA	12.5 / 16kA	16kA
Fault make capacity (Peak)	32.5 / 41.6kA	32.5 / 41.6kA	41.6kA
Operating time (Close/Open)	0.1 / 0.05s		
Mechanical endurance	10000	10000	
Breaking capacity			
Load switching	630 / 800A	630 / 800A	630A
Line charging switching	2A	5A	5A
Cable charging switching	10A	25A	25A
Fault break capacity	12.5 / 16kA	12.5 / 16kA	16kA
Lightning impulse withstand level			
Phase to earth	110kV	150kV	125kV
Phase to Phase	110kV	150kV	125kV
Across interrupter	110kV	150kV	125kV
Power frequency withstand voltage			
Phase to earth	50kV	60kV	50kV
Phase to Phase	50kV	60kV	50kV
Across interrupter	50kV	60kV	50kV
Fault pick up			
Phase	10 ~ 900A (step:1)		
Earth	5 ~ 900A (step:1)		
Reclosing			
Reclose interval 1 st	0.3 ~ 180s (step:0.1)		
Reclose interval 2 nd	1 ~ 180s (step:1)		
Reclose interval 3 rd	1 ~ 180s (step:1)		
Reclose interval 4 th	1 ~ 180s (step:1)		
Reset time	3 ~ 180s (step:1)		

Protection

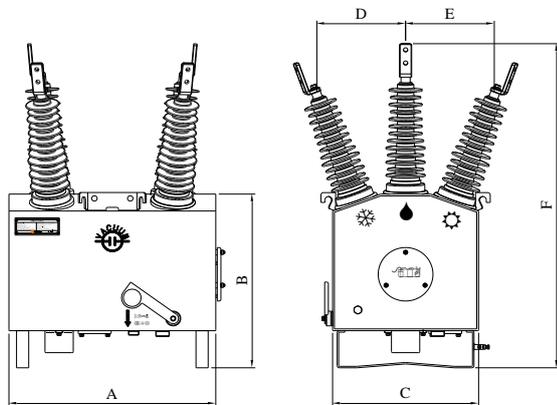
Fault passage indicator

- ▶ 3-stage over current protection (directional or non-directional)
 - Fast and delayed TC trip elements for phase and earth fault
 - Definite time over-current element
 - Definite time HCT (High current trip)
- ▶ SEF(Sensitive earth fault) detection
- ▶ Cold load protection(pickup adjustment)
- ▶ Magnetizing inrush restraints
- ▶ Sequence coordination
- ▶ Open line detection
- ▶ Phase sync. fail detection
- ▶ Over voltage, under voltage, under /over frequency
- ▶ Auto reclosing (up to 4 shots)

Recloser control

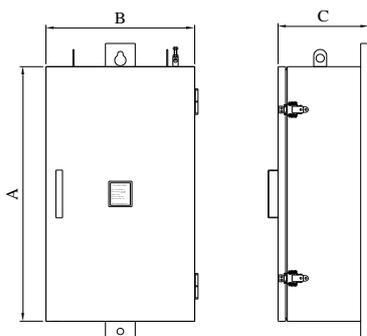


Dimension



unit: mm

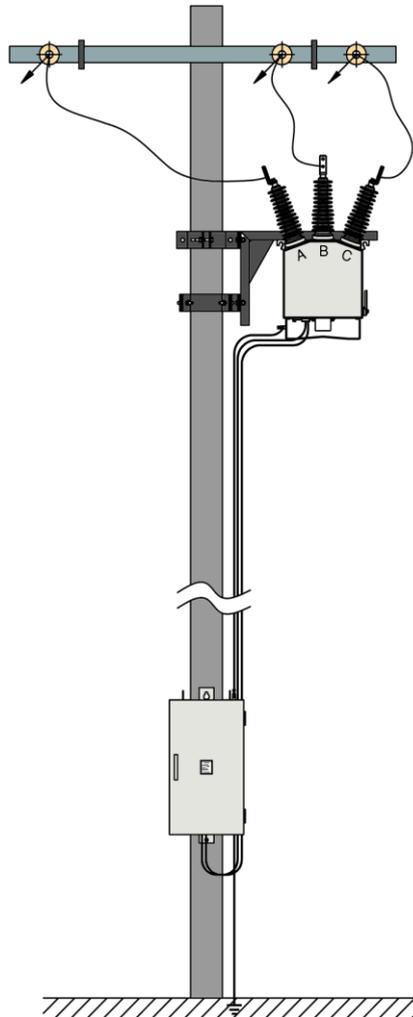
Rated voltage	A	B	C	D	E	F
15kV	680	585	480	270	270	990
27kV	680	585	480	270	270	1090



unit: mm

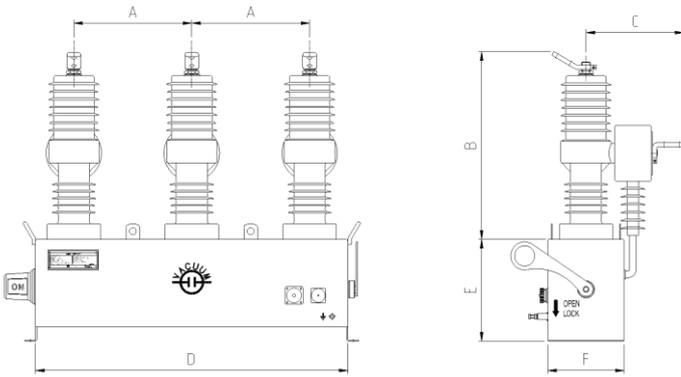
Rated voltage	A	B	C
15/27kV	800	450	275

Mounting



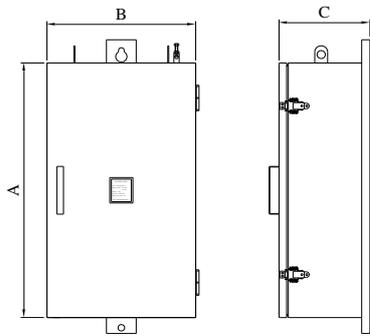


Dimension



unit: mm

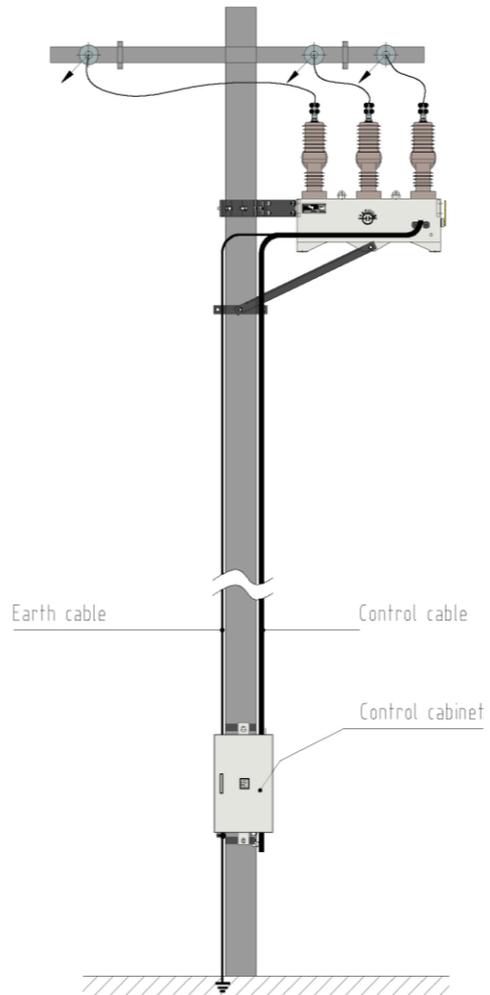
Rated voltage	A	B	C	D	E	F
15kV	340	535	280	900	290	220
24kV	340	535	280	900	290	220



unit: mm

Rated voltage	A	B	C
15/24kV	800	450	275

Mounting



EN GIS series(25.8kV Gas Insulated Switchgear)

All-in-one Compact Gas Insulated Switchgear combining Circuit Breaker, Disconnecting Switch, and Earthing Switch by using SF6 gas for unification of Metal Enclosed Distribution Panel and making higher

Features

- Achieve safety through hermetically sealed SF6 gas
- Prevention operator from mal-operation (mechanical, electrical interlock)
- Indicator for applying electric current, operation status (voltage detector)
- Equipped the pressure relief device for inner breakdown
- Prevention from trouble expansion into individual gas section
- Extend service life and safety applying patented circuit breaker

Highly Reliability

- Achieve equipment reliability using Vacuum interrupter
- Outstanding accuracy based on digital relay and meta
- Apply three dimensions structural analysis and electric field analysis technique

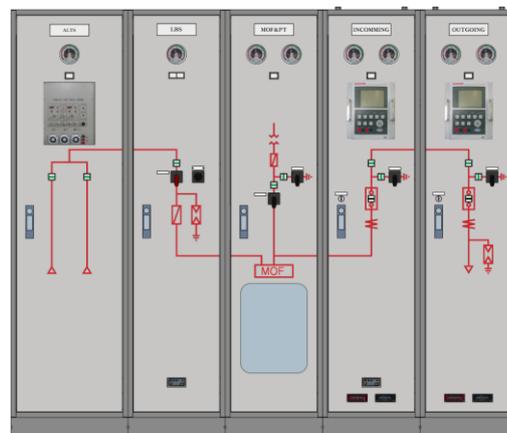
Safety

- Securement of stability for complete sealed type of live part
- Protection from operator mal-operation (technical, electrical interlock)
- Satisfy securing device against internal breakdown
- Protection from fault expansion by each gas division

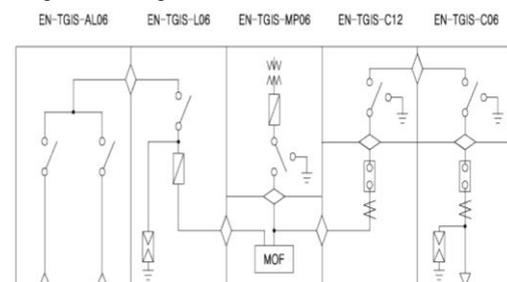
Economic&Practicality

- Minimization of installation area (lower30%)
- Convenience of Maintenance by modulation of individual Panel
- Easy transport and installation by laying out light weight and compact design

Standard Construction of EN-TGIS Series



Single Line Diagram



SPECIFICATIONS

PANEL	EN-TGIS-AL06	EN-TGIS-L06	EN-TGIS-MP06	EN-TGIS-C12	EN-TGIS-C06
Rated voltage (kV)	25.8	25.8	25.8	25.8	25.8
Rated current (A)	630(1250)	630(1250)	630(1250)	1250(2000)	630
Circuit configuration	3PH	3PH	3PH	3PH	3PH
Rated frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Rated power frequency withstand voltage (kV)	50	70	70(77)	70(77)	70(77)
Impulse withstand voltage (kV)	150	150	150(165)	150(165)	150(165)
Partial discharge extinction voltage					
Phase to ground (pC)	≤10	≤10	≤10	≤10	≤10
Rated short time withstand current					
RMS (kA/sec)	16/1	25/1	25/1	25/1	25/1
Peak (kAp)	41.6	65	65	65	65
Rated gas pressure -at 20°C (MPa·G)	0.05	0.05	0.05	0.05	0.05
Rated minimum gas pressure -at 20°C (MPa·G)	0.03	0.03	0.03	0.03	0.03
Operation voltage of control circuit (Vd.c.)	Note.1	110	110	110	110
International Protection	IP4X	IP4X	IP4X	IP4X	IP4X

Note.1 : EN-TGIS-AL06 power circuit supply voltage is AC220V, and operation circuit supply voltage is DC24V.

Note.2 : withstand voltage dimension in bracket is same with DS(Disconnecting Switch) figure between poles.

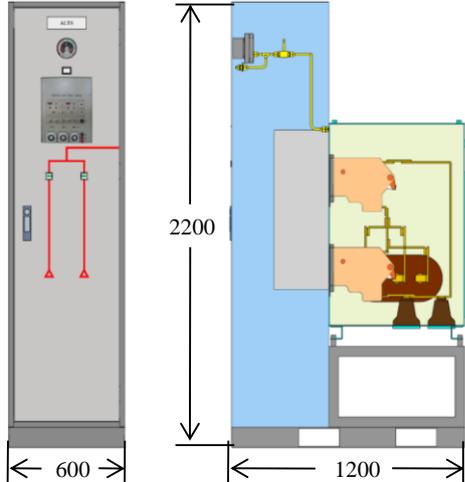
Note 3 : () is an optional under customers request and requirement



Structure and Feature of EN-TGIS Series

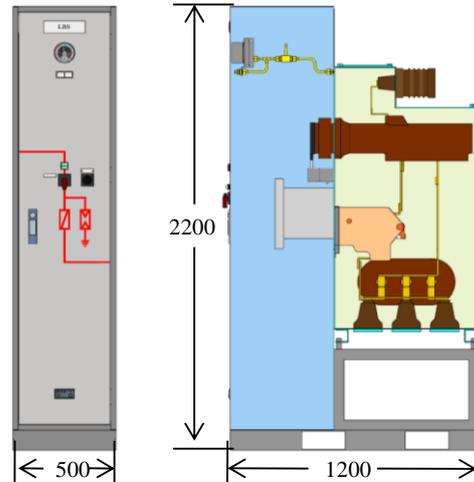
EN-TGIS-AL06

About ALTS (Automatic Load Transfer Switches)



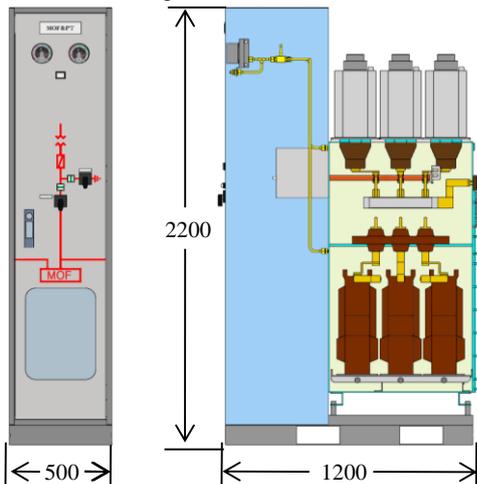
EN-TGIS-L06

About LBS (Load Break Switch)



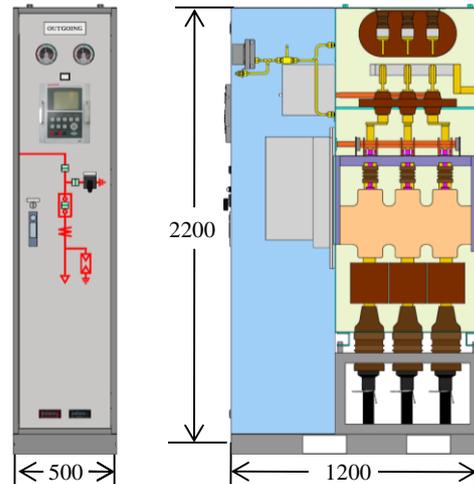
EN-TGIS-MP06

About MOF(Metering Out Feet)+PT(Potential Transformer)



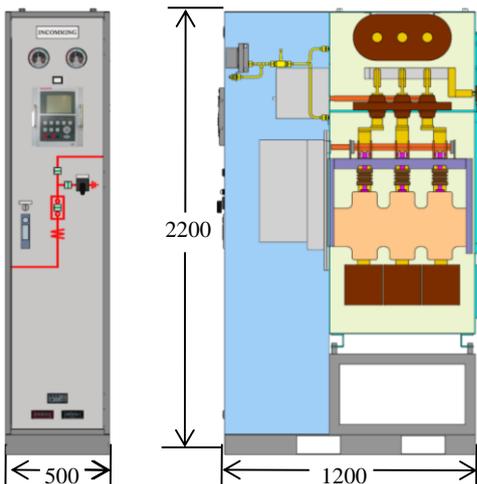
EN-TGIS-C06

About OUTGOING (Feeder VCB)



EN-TGIS-C12

About INCOMMING (Main VCB)



INCOMMING (Main VCB)



Option

1. Cable Connecting Method
T-Connector (630A)
Plug Termination (1250A/630A)
2. Docking type
Spacer (necessity of gas site operation)
Plug-in (needless of gas site operation)
3. Form of bus bar
is capable of change to user's request

EN GIS series(72.5kv Gas Insulated Switchgear)

Features

- Multi switching device using SF6 Gas filled sealed metalize enclosure which contain CB, DS and ES.
- Minimized installing area
- Main protection system for power line of Railroad application
- High reliability by using SF6 Gas completely sealed enclosure
- High safety with No Power Out or fault by contact
- Bus bar contained by metal seal
- Local Control Panel and Open/Close indicator provided



SPECIFICATIONS

Ambient temperature	-25 ~ 40℃	Operation system	Motorized Spring type
Relative humidity	0 ~ 95%		
Maximum altitude	2000m	Breaking type	SF6 gas
Rated voltage	72.5kV		
Rated frequency	50 / 60Hz	Short time current	
		R.M.S	20kA
Dielectric tests		Peak	52kAp
Lighting impulse	325 / 375 kV	Duration	1s
Power frequency 1min - Switch	140 / 160kV		
Power frequency 1min - Control	2kV / 1 min		
		Rated current	2000A
Partial Discharge		Breaking current	20 kA , rms
Earth	50.2kV, below 5pc	Making current	52 kA , Peak
Phase	87kV, below 5pc	Breaking time	3 Cycle



Summary of the EN technologies products
Underground Line RMU series



RMC Series
Up to 6 feeders with common tank
Sf6 Gas Insulation and VI interruption
Circuit Breaker and Switch combination
12 ~ 27kV 630A 20/25kA 125 BIL



RMF Series
Up to 6 feeders with common tank
Sf6 Gas Insulation and interruption
Fuse-switch and switch combination
12 ~ 27kV 630A 25kA 125 BIL



RM Series
Extensible Modular type
Sf6 Gas Insulation and VI interruption
Individual Circuit Breaker or Switch combination
12 ~ 27kV 630/1250A 20/25kA 125 BIL

Overhead Line Pole mounted series



KPS(EPS) series
SF₆ gas Load Break Switch
12kV~36kV 630A 25kA 70kV 170 BIL
DSP, μ-processor control FRTU function



MPS MPS Series
Solid Load Break Switch
12~25.8kV 630A 12.5kA 150 BIL
DSP, μ-processor control
FRTU function



ERC Series
SF₆ Gas Automatic Circuit Recloser
12~27kV 800A 16kA 60kV 150 BIL
DSP, μ-processor control
FRTU function



ESR Series
Solid Automatic Circuit Recloser
12~24kV 630A 16kA 50kV 125
DSP, μ-processor control
FRTU function

EN GIS series

25.8kV Gas Insulated Switchgear
All-in-one Compact Gas Insulated Switchgear
combining Circuit Breaker, Disconnecting Switch, and Earthing Switch
25.8kV 1250(2000)A 25kA 70kV 150 kV BIL



EN GIS series

72.5kV Gas Insulated Switchgear
Multi switching device using SF₆ Gas filled sealed metalize enclosure
which contain CB, DS and ES
72.5kV 2000A 20kA 140kV 325kV BIL



Global Leader in Switchgear & Power Distribution System

