

LS ELECTRIC Modular Type Air Insulated Switchgear C-AIS

LSIS showing the new, innovative products every customer desires to present standards for the future electric power solution as leading industrial electrical / electronic sectors with developing high-tech.

◆ Reliability

- Type testing is complete for all models according to latest standard, IEC62271-200
- Internal arc proofed 16 kA – 1 Sec
- Earthing of both the whole switchboard structure and the metal division between the compartments
- Mechanical interlocks which assure the exact operation sequence
- Protection Classes: PI (insulating partition)
- Loss of service continuity classes: LSC2A (LSC1 for metering functions)
- IP3X protection degree on the external housing
- High voltage indication system in each cubicle

◆ Optimize

- Reduced dimensions and weights
- Less space requirement for switchboard installation
- Easy integration in factory-built outdoor substations
- A solution adapted to cable connection
- Modular units containing fixed and withdrawable metal-enclosed switchgear, using vacuum

◆ Simplicity

- Simplified switchboard busbar design
- Mimic diagram front of the switchboard by means of simple and functional devices

◆ Applications

- Secondary electricity distribution networks
- MV/LV Distribution Transformer Substations
- Manufacturing industry
- Shopping malls
- Airports, hospitals, holiday village
- Small size power plants
- Wind Power plants

◆ Conception

LS C-AIS is an air insulated switchgear for applications in medium voltage distribution networks. LS C-AIS can be supplied as various configurations with additional equipment according to customer specification. The transformer is protected either by a switch fuse combination or a vacuum circuit-breaker.

◆ Type

- LU (Load break switch)
- Switch unit
- FU (Fuse-switch load break switch)
- Fuse-switch combination unit
- PU (Voltage transformer)
- Voltage transformers for measuring with earthed neutral system
- GAU (Riser)
- Incoming cable-connection unit with earthing
- CU-A (Fixed vacuum circuit breaker)
- Single-isolation, disconnectable circuit breaker unit
- CU-W (Withdrawable vacuum circuit breaker)
- Withdrawable single-isolation circuit breaker unit
- SU (Section)
- Double-isolation, disconnectable circuit breaker unit right or left outgoing line

◆ Characteristics

- C-AIS can be operated into three position (Close Open Earth) and has the interlock function between close and earth.
- C-AIS can be operated by manual or motor and can be controlled from remote with optional items.
- C-AIS protects transformer from the fault at load side when accidents happen.
- It is possible to protect transformer safely and operate power system efficiently.
- The Fuse combination switch will be mechanically tripped by operating of fuse striker pin, and then the fault area can be isolated.



Modular Type Air Insulated Switchgear C-AIS

Electrical characteristics

Rated voltage	Ur	12	17.5	24
Rated frequency	fr Hz	50/60		
Insulation level				
Insulation	Ud 1 min (kV r ms)	28	38	50
Isolation	Ud 1 min (kV r ms)	32	45	60
Insulation	Ud 1.2/50 μ s (kV peak)	75	95	125
Isolation	Ud 1.2/50 μ s (kV peak)	85	110	145
Breaking capacity				
Transformer off load	A	16		
Cables off load	A	31.5		
Rated current	Ir A	630		
Short-time withstand current	Ik/tk 25kA/1 s	630		
	21kA/3 s	630		
	16kA/3 s	630		
Making capacity (50 Hz)	Ima 54.6 kA	630	N/A	
	50 kA	630		
	40 kA	630		
Internal arc classification	IAC kA/1 s	16 (AFL)		

IEC standards

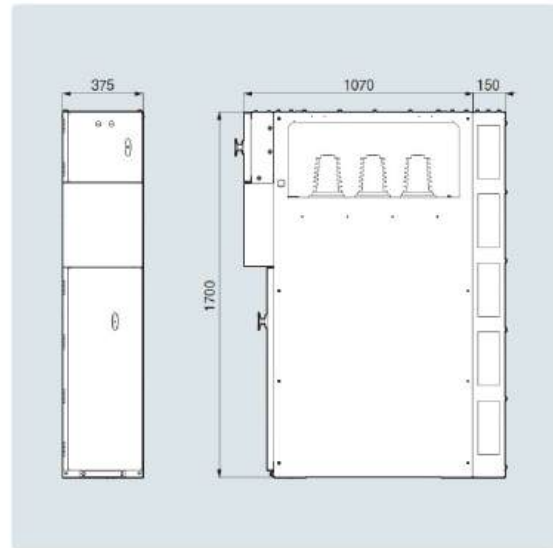
IEC 62271-1	High-voltage switchgear and controlgear Part 1: Common specifications
IEC 62271-100	High-voltage switchgear and controlgear Part 100: Alternating-current circuit-breakers
IEC 62271-102	High-voltage switchgear and controlgear Part 102: Alternating current disconnectors and earthing switches
IEC 62271-103	High-voltage switchgear and controlgear Part 103: Switches for rated voltages above 1 kV up to and including 52 kV
IEC 62271-105	High-voltage switchgear and controlgear Part 105: Alternating current switch-fuse combinations
IEC 62271-200	High-voltage switchgear and controlgear Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

Normal operating conditions

Ambient air pollution	no significant pollution by dust, smoke, corrosive and/or flammable gases, vapours or salt.
Ambient air temperature	less than or equal to 40°C less than or equal to 35°C on average over 24 hours greater or equal to -5°C
Altitude	less than or equal to 1000 m
Humidity	average relative humidity over a 24 hour period, less than or equal to 95% (average relative humidity over a 1 month period, less than or equal to 90%)

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LU – Load Break Switch



- W×H×D(mm) : 375×1700×1070
- Load Break Switch

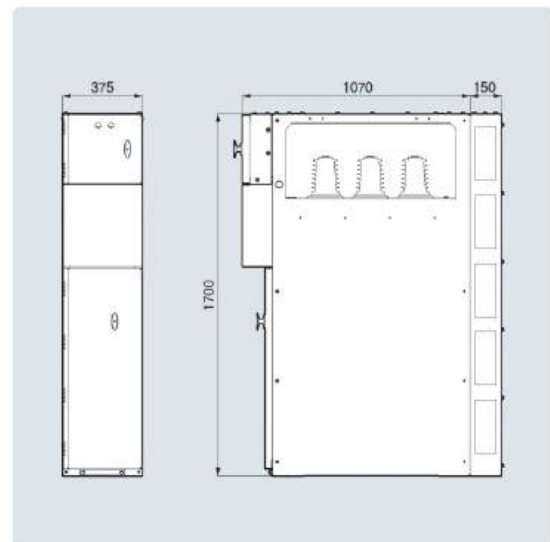
BASE UNIT

- 3-position Load Break Switch rated 630A and less for load breaking and earthing
- Key Interlock

OPTIONAL COMPONENTS

- Motor operation for load break switch
- Voltage Detector
- Gas gauge

FU – Switch fuse combination



- W×H×D(mm) : 375×1700×1070
- Switch Fuse Combination
- Power Fuse
- External E/S

BASE UNIT

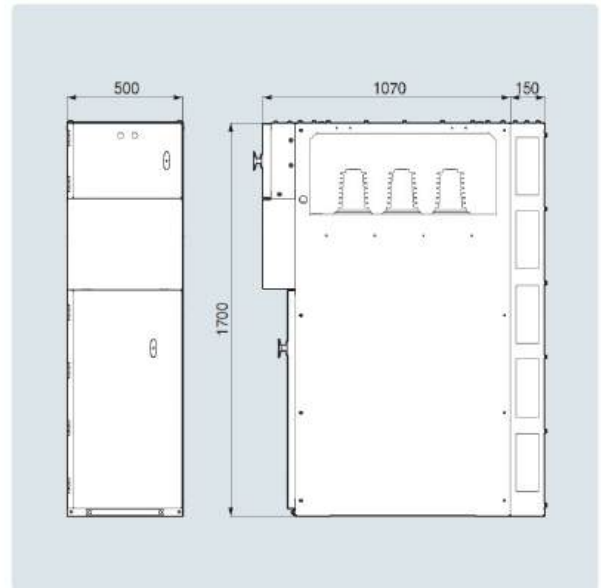
- 3-position switch-fuse combination with earthing switch
- Key Interlock key lock
- Key Interlock key lock
- Power Fuse : 63A (SIBA)

OPTIONAL COMPONENTS

- Motor operation for switch-fuse combination
- Voltage Detector
- Gas gauge

Modular Type Air Insulated Switchgear C-AIS

PU - Power Transformer



- WxHxD(mm)
500x1700x1070
- Switch Fuse Combination
- Power Fuse
- Power Transformer

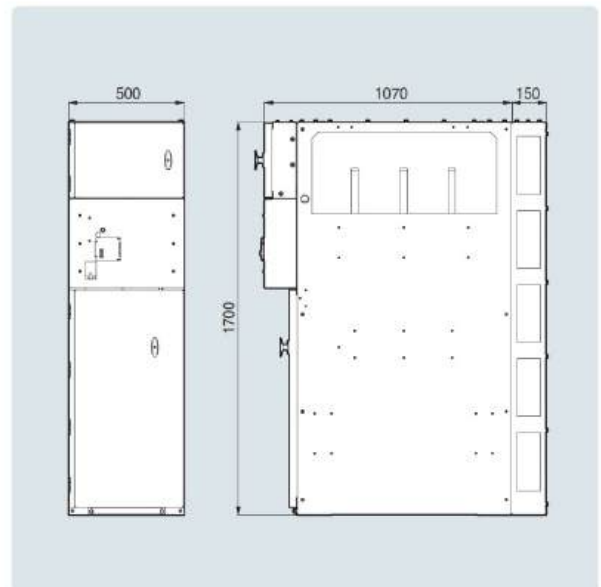
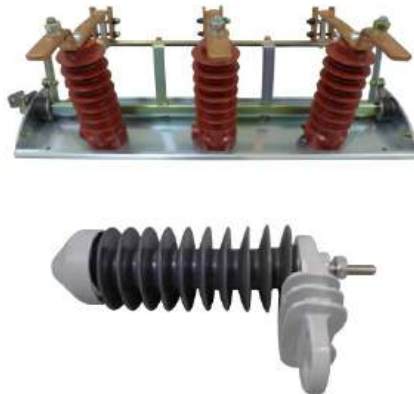
BASE UNIT

- 3-Position Load Break Switch rated 630A and less for load breaking and earthing
- Key Interlock
- Power Fuse : 1A (SIBA)

OPTIONAL COMPONENTS

- Motor operation for load break switch
- Voltage Detector
- Gas gauge
- Power Transformer

GAU—Riser



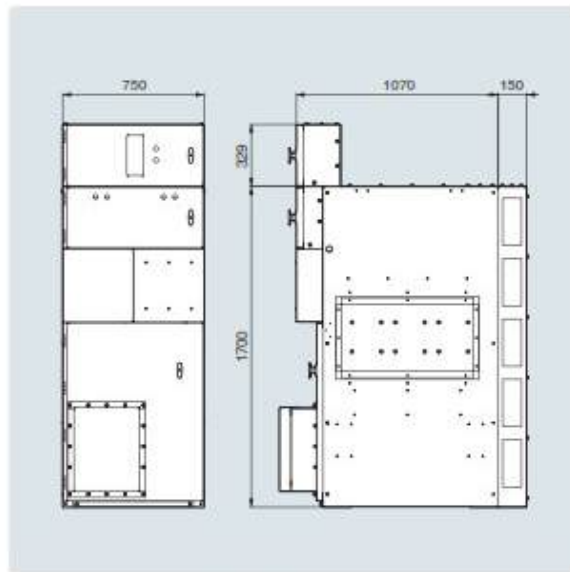
- WxHxD(mm)
500x1700x1070
- External E/S
- Lightning Arrester

OPTIONAL COMPONENTS

- Voltage Detector

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CU-A/CU-W – Vacuum Circuit Breaker



- W×H×D(mm) : 750×1700×1070
- Load Break Switch
- Vacuum Circuit Breaker
- Current Transformer
- External E/S

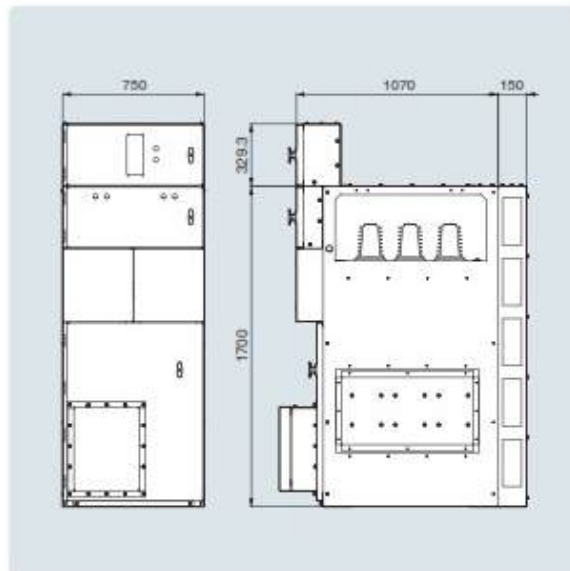
BASE UNIT

- 3cycle Circuit Breaker
- SM-VCB Auxiliary contacts : 4a4b
- 3-position Load Break Switch rated 630A and less for load breaking and earthing
- Key Interlock

OPTIONAL COMPONENTS

- Motor operation for load break switch
- Voltage Detector
- Gas gauge
- Current Transformer

SU—Section



- W×H×D(mm) : 750×1700×1070
- Load Break Switch
- Vacuum Circuit Breaker
- Current Transformer
- External E/S

BASE UNIT

- 3cycle Circuit Breaker
- SM-VCB Auxiliary contacts : 4a4b
- 3-position Load Break Switch rated 630A
- Key Interlock

OPTIONAL COMPONENTS

- Motor operation for load break switch
- Voltage Detector
- Gas gauge
- Relay

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SM VCB



Insulation level		SVL-06□20,25□06,13	SVL-12□16,20,25□06,13	SVL-17□16,20,25□06,13	SVL-20□16,20,25□06,13	SVL-25□16,20,25□06,13						
Rated voltage	Ur (kV)	7.2		12		17.5		24		25.8		
Rated normal current	Ir (A)	630	1250	630	1250	630	1250	630	1250	630	1250	
Phase distance	(mm)	210(Fixed Type Only), 230										
Weight (Fixed type)	(kg)	80										
Weight (Withdrawable type)	(kg)	85										
Rated frequency	fr (Hz)	50/60										
Rated short-circuit current	Isc (kA)	20, 25		16, 20, 25								
Rated short-circuit breaking capacity	(MVA)	249, 312		333, 415, 520		485, 606, 758		665, 831, 1039		715, 894, 1117		
Rated short-time withstand current	Ik/tk(kA)	16/3(4*), 20/3(4*), 25/3(4*)										
Rated short-circuit making current	Ip (kA)	2.5 Isc(50Hz)/2.6 Isc(60Hz)										
Rated breaking time	(cycle)	3										
Rated withstand voltage	Power frequency	Ud (kV)	20		28		38		50		60	
	Impulse	-	60		75		95		125		125	
Rated operating sequence		O-0.3s-CO-15s-CO										
Control voltage	Closing coil	(V)	DC 24~30V, DC 48~60V, DC110V, DC125V, DC220V,				AC 48V, AC100~130V, AC220~250V					
	Trip coil	(V)	DC 24~30V, DC 48~60V, DC110V, DC125V, DC220V,				AC 48V, AC100~130V, AC220~250V					
Auxiliary contacts		4a4b										
Rated opening time	(s)	≤ 0.04										
No-load closing time	(s)	≤ 0.07										
Type test class	Mechanical	M2										
	Electrical	E2 (List3)										
	Capacitive current switching	C2										
Type	Fixed type	R/L type										
	Withdrawable type	S/T type										
Standards		IEC 62271-100										

Note) * Please contact us

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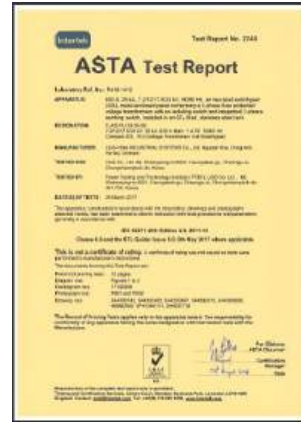
Certificate



Type Test Certificate - CU-A by ASTA



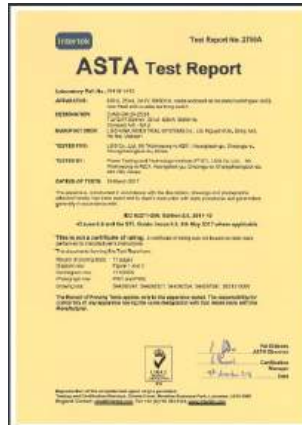
Type Test Certificate - CU-W by ASTA



Type Test Certificate - PU by ASTA



Type Test Certificate - SU by ASTA



Type Test Certificate - GAU by ASTA



Type Test Certificate - LU by ASTA

Success Story

NO	Project Name	Customer	Market Application
1	MALL TAMAN ANGGREK PROJECT	PT. MULIA INTI PELANGI	High risk building
2	PLTD SEKUPANG 25 MW	PT. PLN BATAM	POWER PLANT