

12kV Metal-enclosed Switchgear

MEIDEN

HICLAD-10ZA



12kV

Empower for new days

Design Concept

The HICLAD-10ZA is factory-assembled and type-tested indoor type air insulated metal-enclosed under rigorous quality control and passed the careful verification tests. It is designed to accommodate high-performance vacuum circuit breaker which has been designed and manufactured in accordance with IEC 62271, and all components used therein are in accordance with the relevant IEC Standards.

Features

Safety Complete interlocking system against erroneous operation
Internal Arc Classification IAC AFLR

Adaptability Compact and Light weight.
33% less footprint than our previous type AIS on typical layout.
Easy maintenance.

Reliability MEIDEN Vacuum technology adopted.
Vacuum Interrupter is made in Japan, MEIDEN Numazu factory.

Accordance with IEC62271

- IEC62271-1 common
- IEC62271-200 switchgear
- IEC62271-100 circuit breaker
- IEC62271-102 earthing switch

Type tested at KERI

- Dielectric test
- Temperature test
- Short-time and peak withstand current test
- Short-circuit current making and breaking tests
- Capacitive current switching test
- Internal arcing test



Type Test Certificate

Technical Data

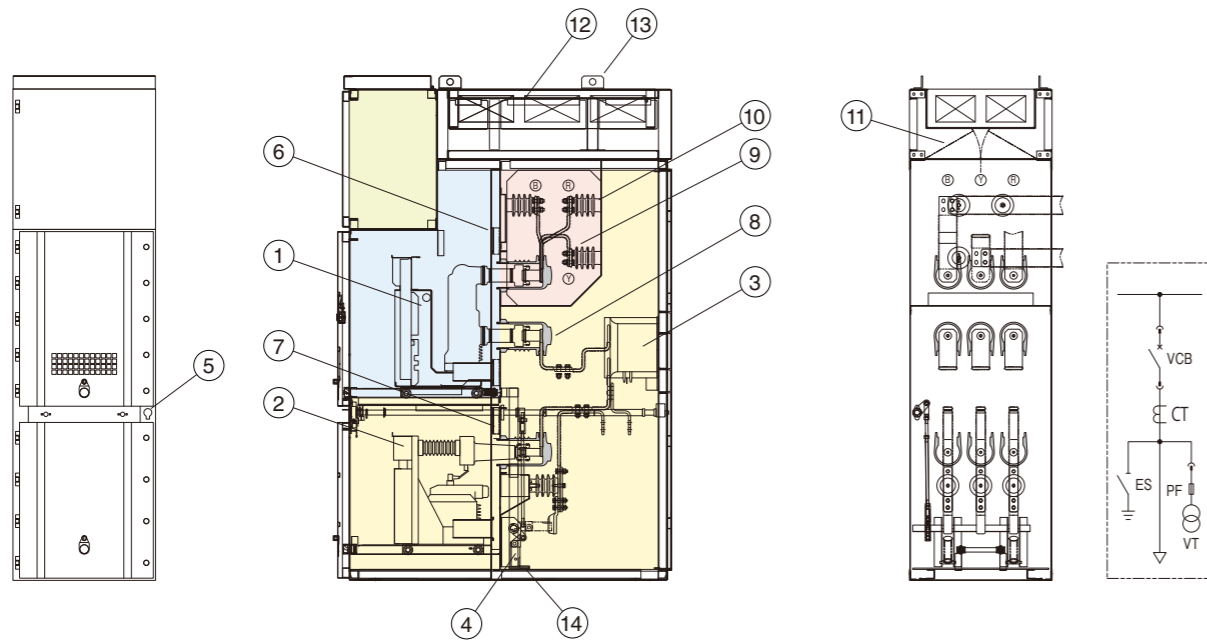
Switchgear

Model	HICLAD-10ZA	
Type	BZ-C-12-25	
Applicable Standard	IEC62271-200	
Rated Voltage	12kV	
Rated Current	Main Busbar	630A, 1250A
	Branch Circuit	630A, 1250A
Rated Frequency	50Hz/60Hz	
Short-Time Current	25kA-3s	
Withstand Voltage	28kV	
Impulse Withstand Voltage	75kV	
Bus Configuration	Single Bus	
Service Condition	Attitude	< 1000m
	Ambient Temperature	-5 ~ 40°C (24h average < 35°C)
	Humidity	24h average < 95% (1 month average <90%)
Degree of Protection	Enclosure	IP4X
	Partition	IP2X
Partition Class	PM	
Loss of Service Continuity Category	LSC2B (Figure 106, IEC62270-200)	
Control Source	110Vdc (30Vdc, 125Vdc option)	
Motor Charging Source	110Vdc (220/230/240Vac, 125Vdc option)	
Earthing Switch	Applicable Standard	IEC62271-102
	Short-Time Current	25kA-3s
	Making Current	62.5kA@50Hz/65kA@60Hz
	Electrical Endurance	E1
	Mechanical Endurance	M0

Vacuum Circuit Breaker (VCB)

Type	VZA-12
Applicable Standard	IEC62271-100
Class	S1/E2/C2/M2
Rated Voltage	12kV
Rated Current	630A, 1250A
Rated Frequency	50Hz/60Hz
Short Time Current	25kA-3s
Rated Breaking Current	25kA
Rated Making Current	62.5kA@50Hz/65kA@60Hz
Operating Duty	0-0.3s-CO-3min-CO CO-15s-CO
Operation Mechanism	Motor Charged Spring
Closing Aux. Current	3.7A@110Vdc
Tripping Aux. Current	3.2A@110Vdc
Motor Charging Aux. Current	0.8A@110Vdc-8s

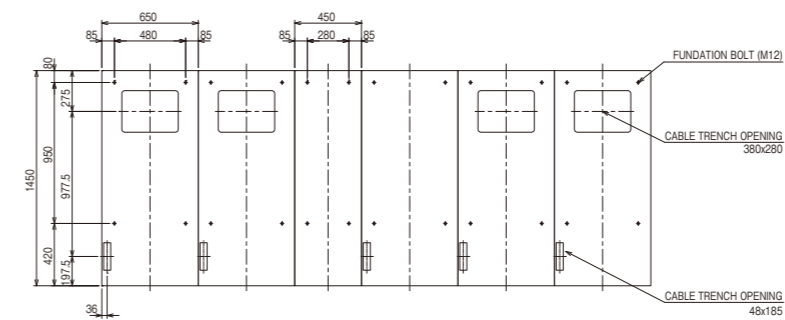
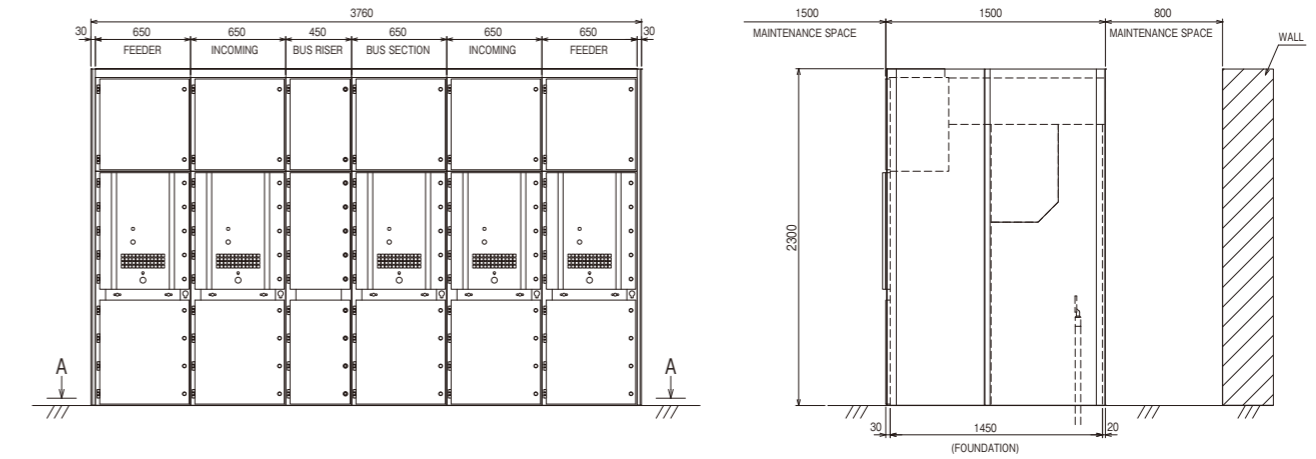
Construction / Typical Arrangement



No.	DESCRIPTION	No.	DESCRIPTION
1	VACUUM CIRCUIT BREAKER (VCB)	8	BUSHING COVER
2	VT TRUCK WITH PF	9	MAIN BUSBAR
3	CURRENT TRANSFORMER (CT)	10	INSULATOR
4	EARTHING SWITCH (ES)	11	PRESSURE RELEASE DEVICE
5	ES OPERATION MECHANISM	12	ARC BUMPER
6	SHUTTER FOR VCB	13	LIFTING LUG
7	SHUTTER FOR VT TRUCK	14	EARTH BUSBAR

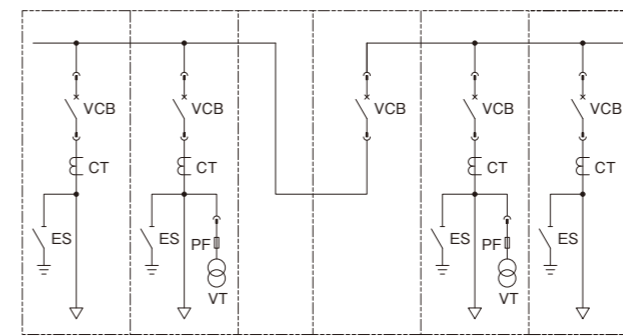
Incoming Panel (W: 650mm)

Installation

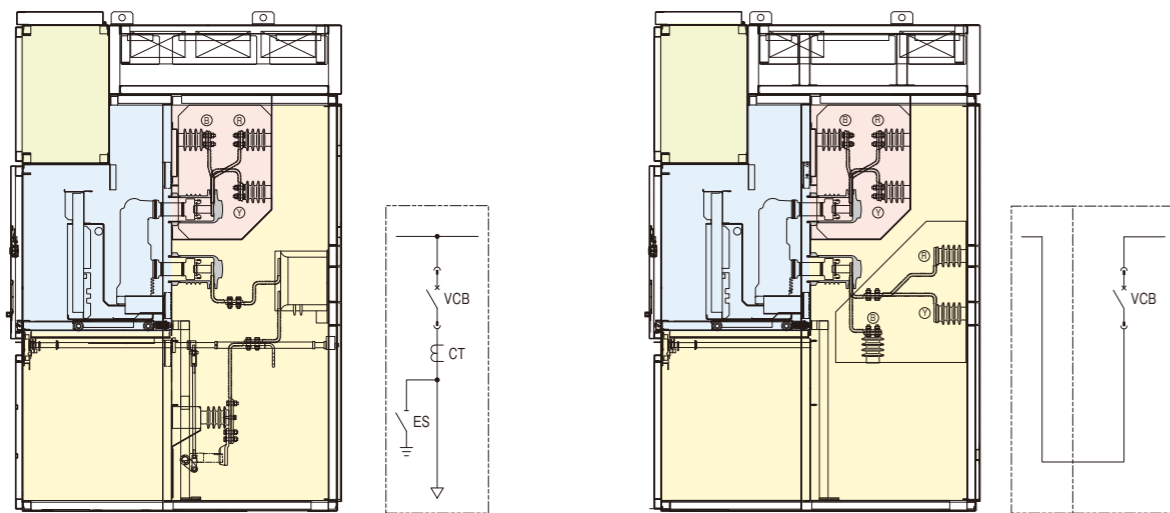


FOUNDATION DRAWING
 A-A VIEW

Single Line



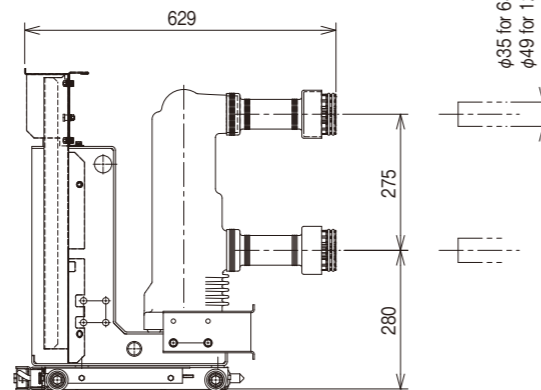
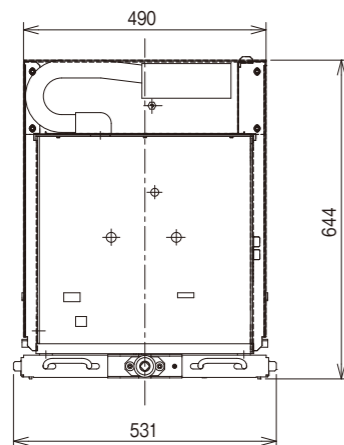
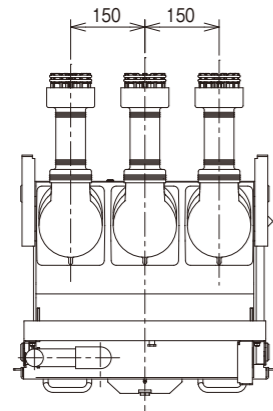
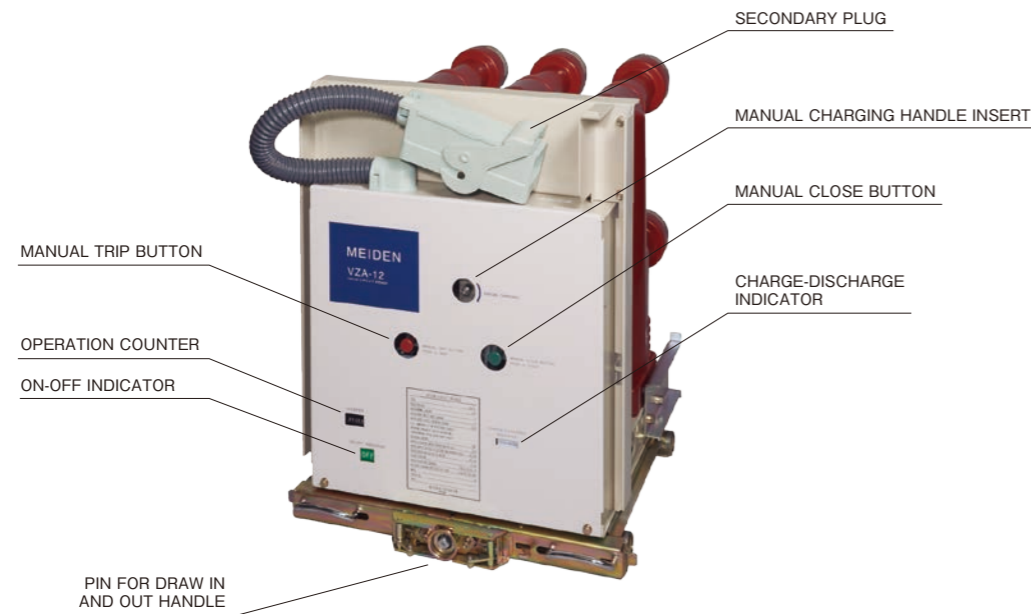
SINGLE LINE DIAGRAM



Feeder Panel (W: 650mm)

Bus Section Panel (W: 1100mm)

Vacuum Circuit Breaker (VCB)



Ancillary Equipment

Interlocking system

The switchgear is provided with a comprehensive system of mechanical and electrical interlocking to prevent any dangerous or undesirable operation. The interlocking system prevents mal-operation of VCB and earthing switch.

Basic functions of the interlocking system are as follows:

- The VCB can only be moved between service position and isolated position when the VCB and earthing switch are off.
- The VCB can only be switched on when the VCB is in the isolated, service or removed position. In intermediate position, the VCB cannot be switched on (electrical interlock).
- The earthing switch can only be switched on when the VCB is in the isolated position or outside of the panel.
- The door of VCB compartment (the middle door) can only be opened when the VCB is in the isolated position or outside of the panel.
- The earthing switch can only be switched off when
 - The rear cover is fixed properly.
 - The door of cable compartment (the bottom door) is closed.
- The door of cable compartment (the bottom door) and the rear cover can only be opened when the earthing switch is switched on.

Table 1 Interlocking system relevant to VCB position

Operability and switching state in the various circuit breaker positions		Outside of the panel (Removed position)	Isolated position (Test position)	Intermediate position	Service position (Connected position)
VCB	Operable	Yes *1	Yes	No	Yes
	Switching state	ON or OFF	ON or OFF	OFF	ON or OFF
Earthing switch	Operable	Yes	Yes	No	No
	Switching state	ON or OFF	ON or OFF	OFF	OFF
Access to the VCB compartment		Yes	Yes	No	No

Note : *1 Manual operation only .

Table 2 Interlocking system relevant to ES state

Operability and switching state in the door and cover condition		Bottom door and rear cover are closed	Bottom door is open	Rear cover is open
Earthing switch	Operable	Yes	No	No
	Switching state	ON or OFF	ON	ON

Padlocks

To prevent maloperation, some parts of switchgear can be padlocked.

- The shutters can be padlocked separately (the busbar-side contacts and the cable-side contacts) when the VCB has been removed. (Fig. 1)
- The ES operation can be restricted with a padlock.(Fig. 2)
- The moving operation of the VCB by using a handle can be restricted with a padlock. (Fig. 3)

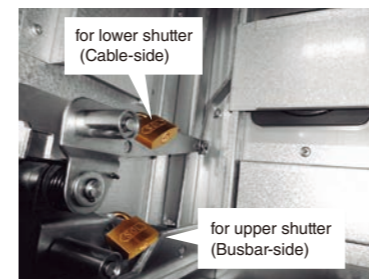


Fig. 1: Padlock for VCB shutter



Fig. 2: Padlock for ES operation



Fig. 3: Padlock for VCB operation



Truck-On VCB is also available.



MEIDENSHA CORPORATION

ThinkPark Tower, 2-1-1, Osaki, Shinagawa-ku, Tokyo, 141-6029 Japan

www.meidensha.com

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