

24kV Metal-Enclosed  
SF<sub>6</sub> Gas Insulated Switchgear

**MEIDEN**

# HICLAD 20GC



24kV

*Empower for new days*

# Compact, reliable, and economic for medium-voltage applications

## Design Concept

This switchgear conforms to IEC62271-200, and all primary components employed therein are in accordance with the relevant IEC standards.

It is designed to accommodate high-performance vacuum circuit-breaker (VCB), which has been designed and tested in accordance with IEC62271-100.

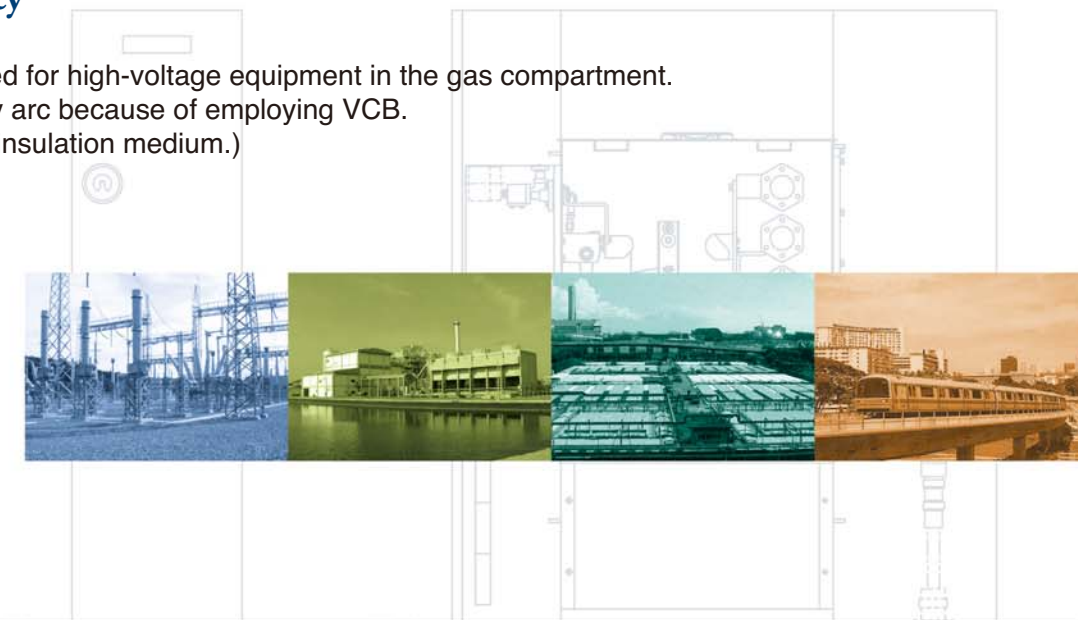
SF<sub>6</sub> gas insulation used in conjunction with VCB has resulted in switchgear setting new standards with respect to;



- Operation reliability
- Reduced maintenance work
- Safety for persons
- Free from environmental pollution
- Reduced dimensions and less space requirements
- Current interruption by VCB with zero SF<sub>6</sub> gas pressure (equal to atmospheric pressure)

## Features

- **Safety**
  - No exposure of high-voltage live part to the air.
  - Complete interlocking system against erroneous operation.
  - Equipment of manual operation mechanism in an emergency.
- **User-friendly**
  - Visualized operation mechanisms equipped with mimic bus and symbols.
  - VCB can be operated from remote.
  - Compact size achieved by optimal arrangement of devices.
- **Imperious to environment**
  - High-voltage live part is completely protected against moisture and dust.
- **Reliability**
  - Reliable plug-in busbar system.
  - Keeping the ability of breaking circuit, even if the insulating gas pressure becomes zero.
  - Enhancement of reliability by reduction in number of parts achieved by simple structure.
- **Adaptability**
  - No gas handling work is required during site installation.
  - Adaptable for various requirements of network by employing plug-in type voltage transformer and lightning arrester.
  - Insulating performance is imperious to the installation altitude.
  - Test of high-voltage part can be fully performed without any gas handling.
- **Economical Efficiency**
  - Easy maintenance.
  - No maintenance is needed for high-voltage equipment in the gas compartment.
  - SF<sub>6</sub> gas is not polluted by arc because of employing VCB.
  - (SF<sub>6</sub> gas is used only as insulation medium.)



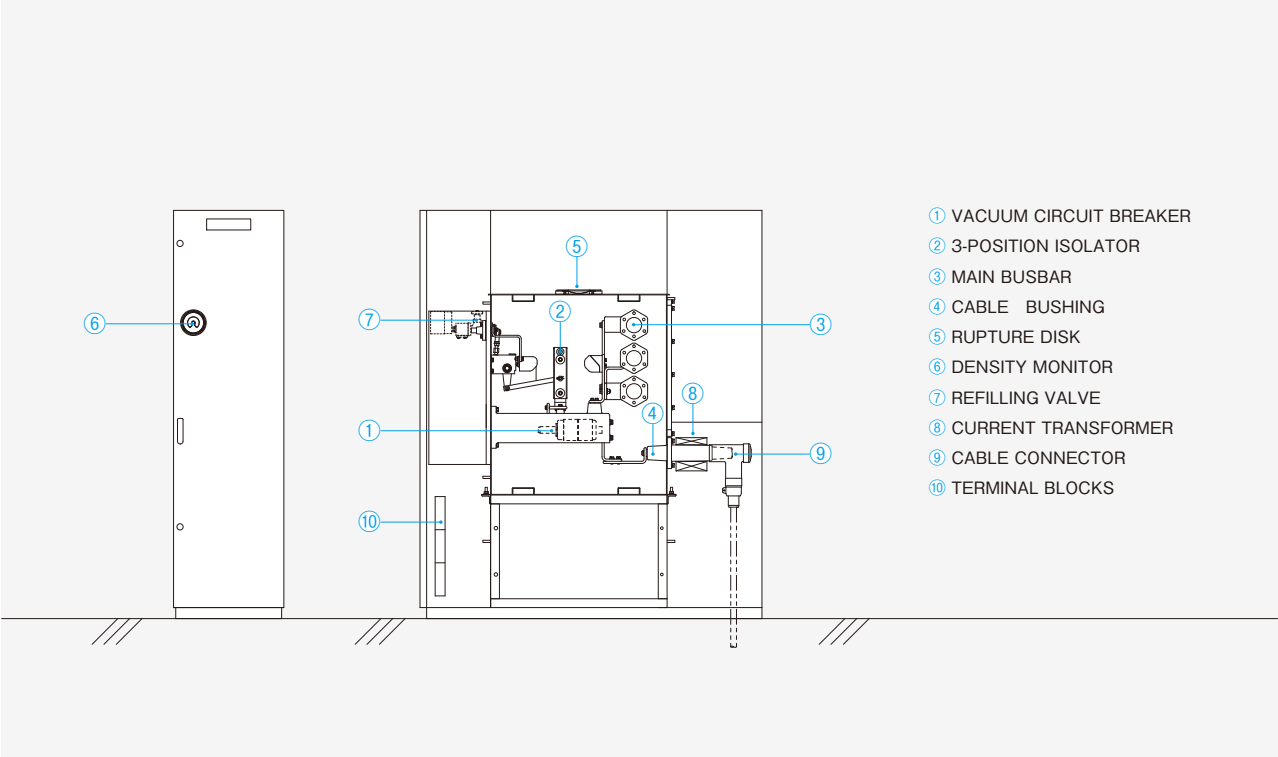
# 24kV

Technical Specification

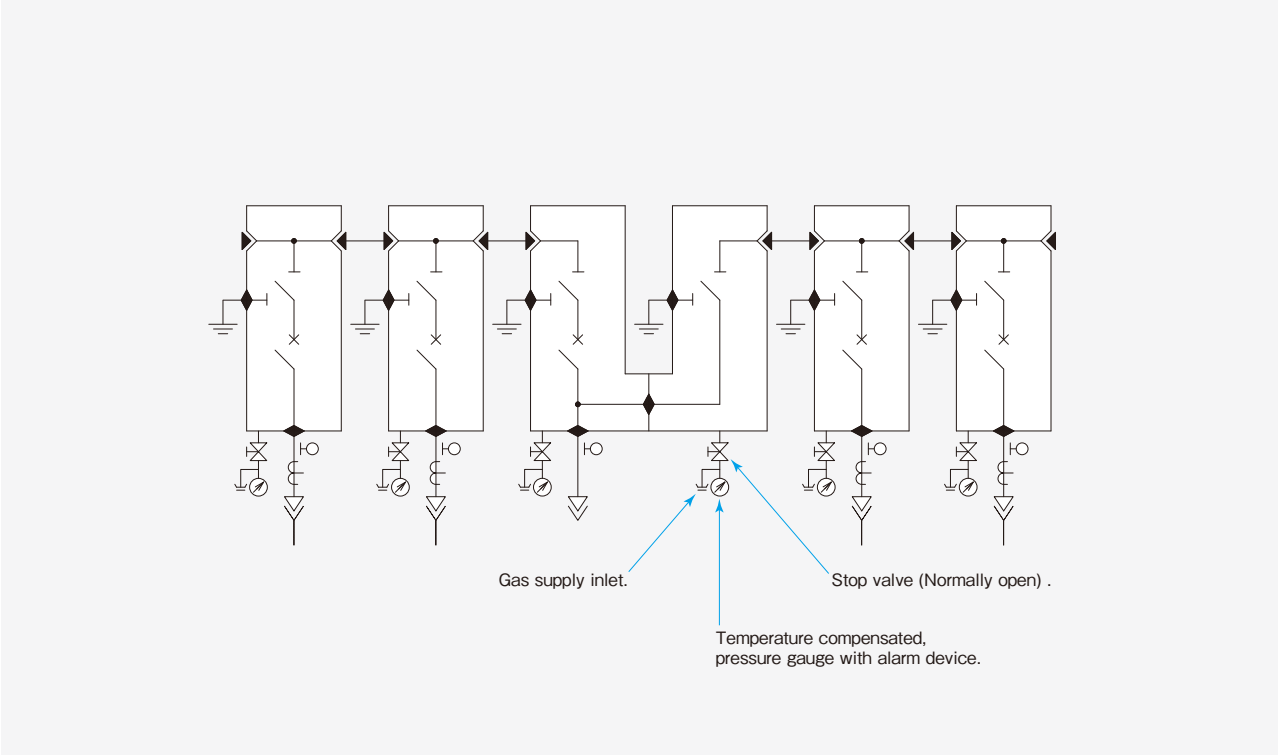
Technical data

Switchgear model		HICLAD 20GC	
Switchgear type		BGC-24	
Applicable standards		IEC62271-200	
Clasification of switchgear		SF6-insulated metal-enclosed	
Service condition		●Altitude < 1000m	●Ambient temperature Max. 40°C, Min. -5°C 24h. average < 35°C
		●Relative humidity 24h.average < 95% 1 month average < 90%	
Rated voltage (kV)		24	
Rated current (A)		1250	
Rated frequency (Hz)		50/60	
Insulation level	1 min power frequency (kV rms)	50	
	1.2 × 50 μs impulse (kV peak)	125	
Rated short-time withstand current (kA-s)		25-3	
Degree of protection	HV compartment	IP65	
	LV compartment	IP40	
Gas pressure	Rated pressure (MPa)	0.05	
	Alarm pressure (MPa)	0.02	
Operation of 3-position isolator		Manual	
Auxiliary voltage	Control circuit (V)	DC 30, 110, 125	
	Motor circuit (V)	AC 220, 230, 240 / DC 110, 125	

Construction

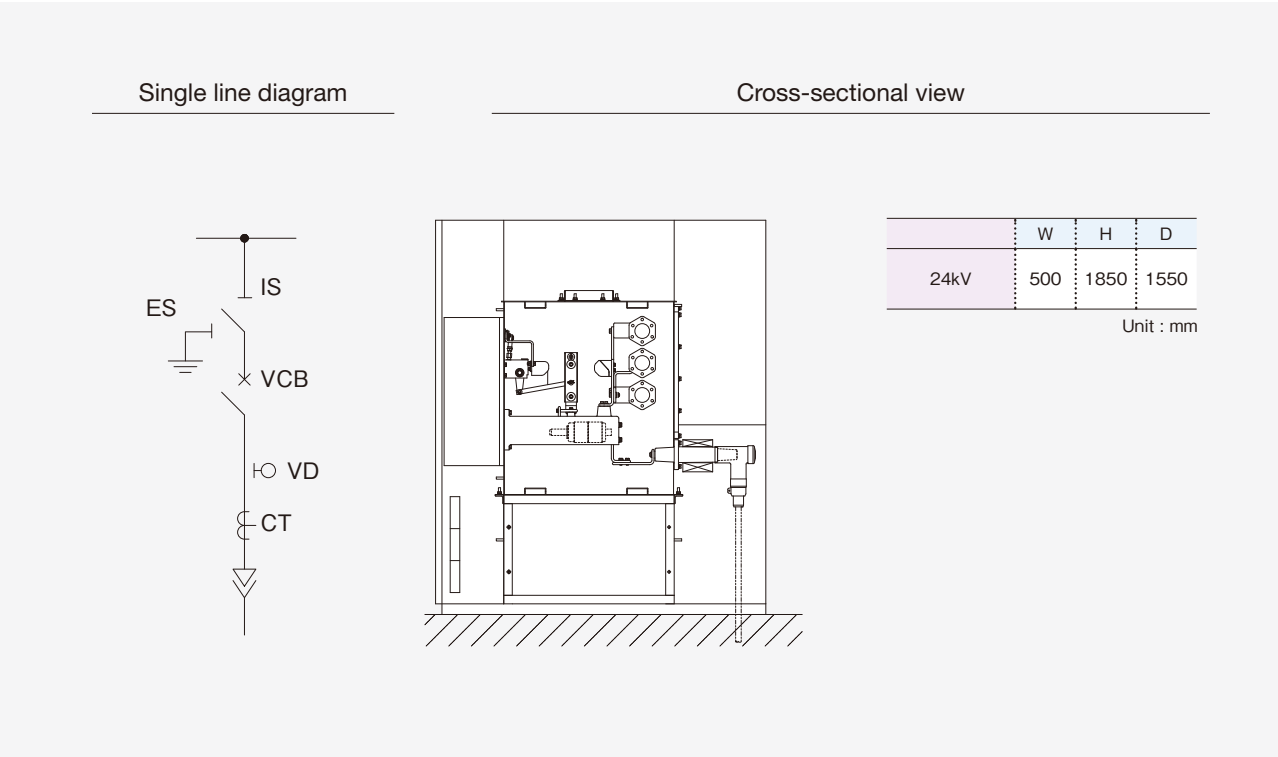


Gas monitoring system

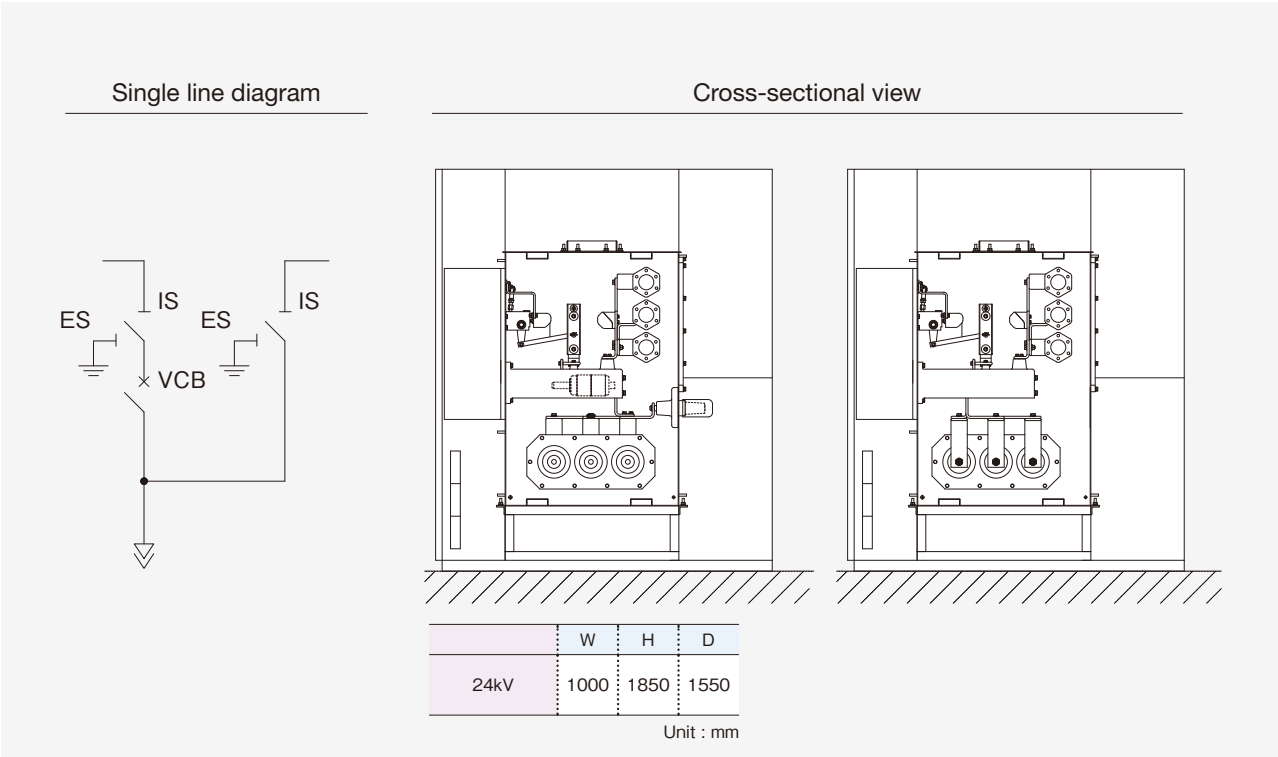


Basic Pattern

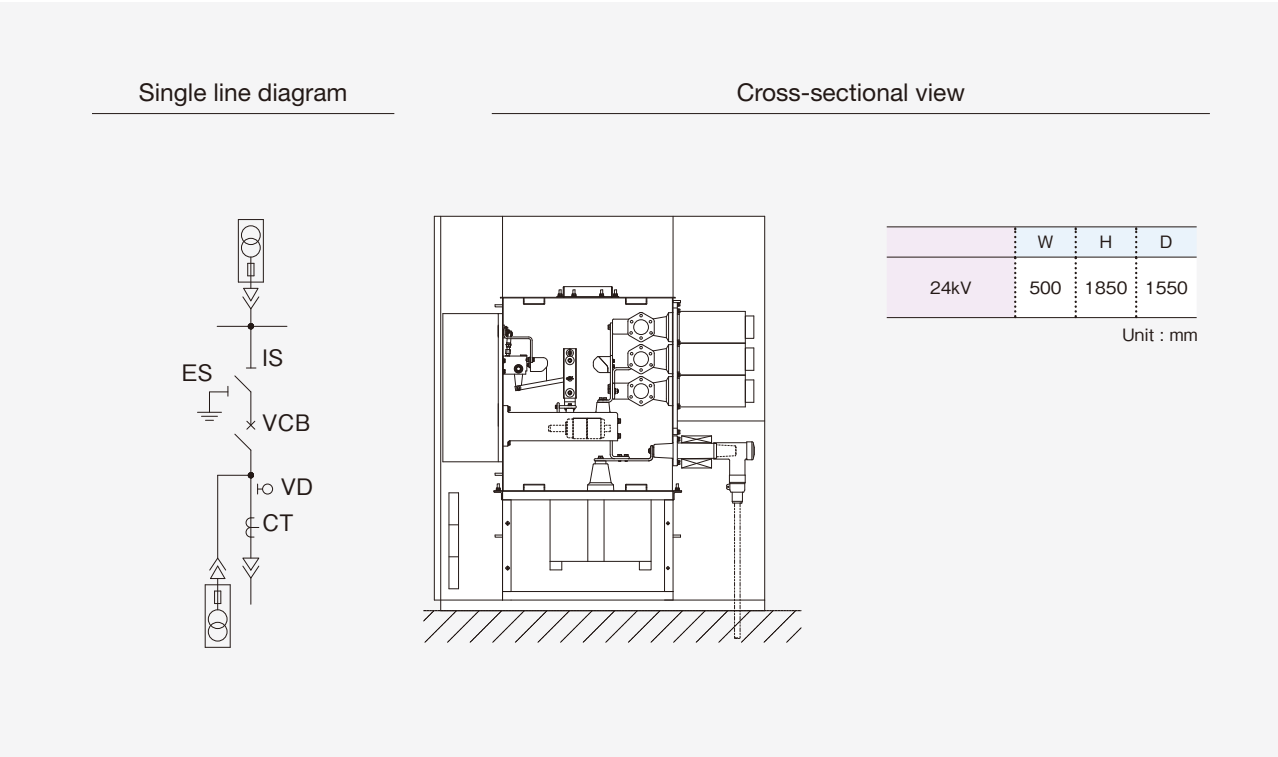
Feeder panel



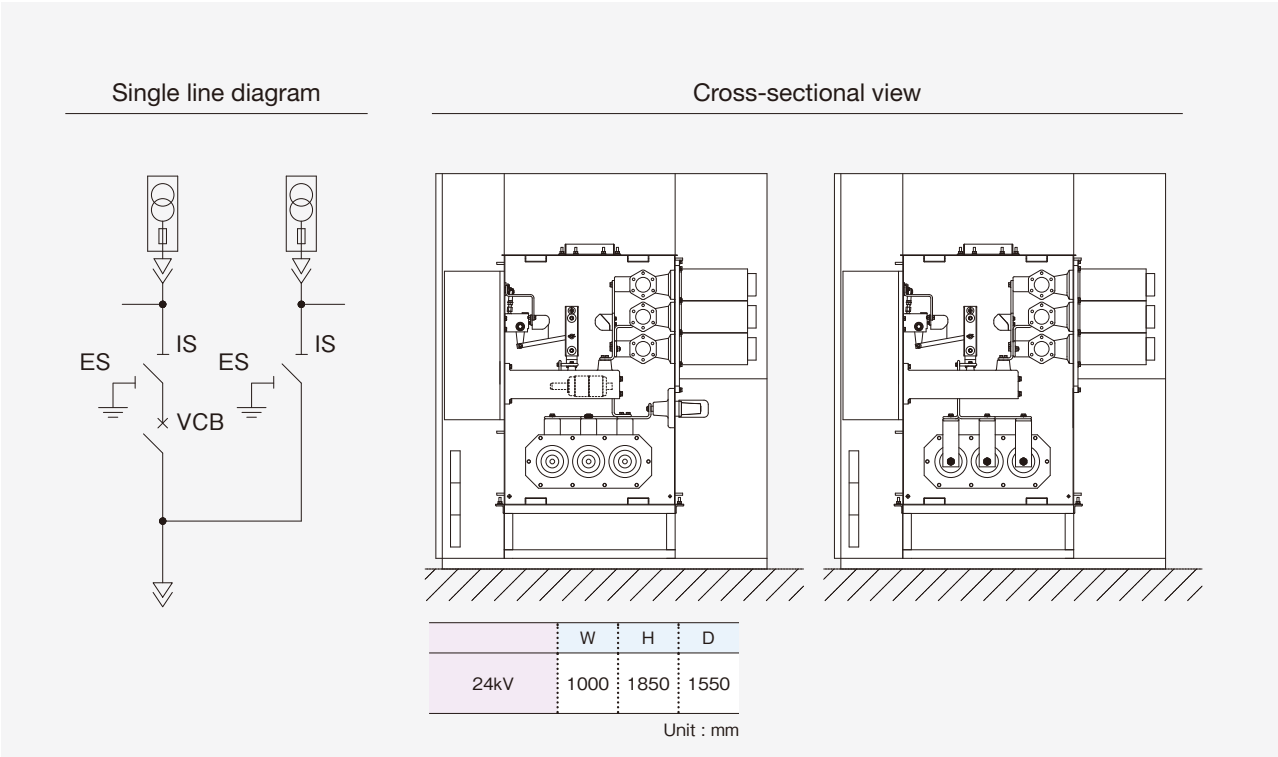
Bus section panel



Feeder panel with VT



Bus section panel with CT & Bus VT



Note: Dimensions and components may be changed according to the specifications.

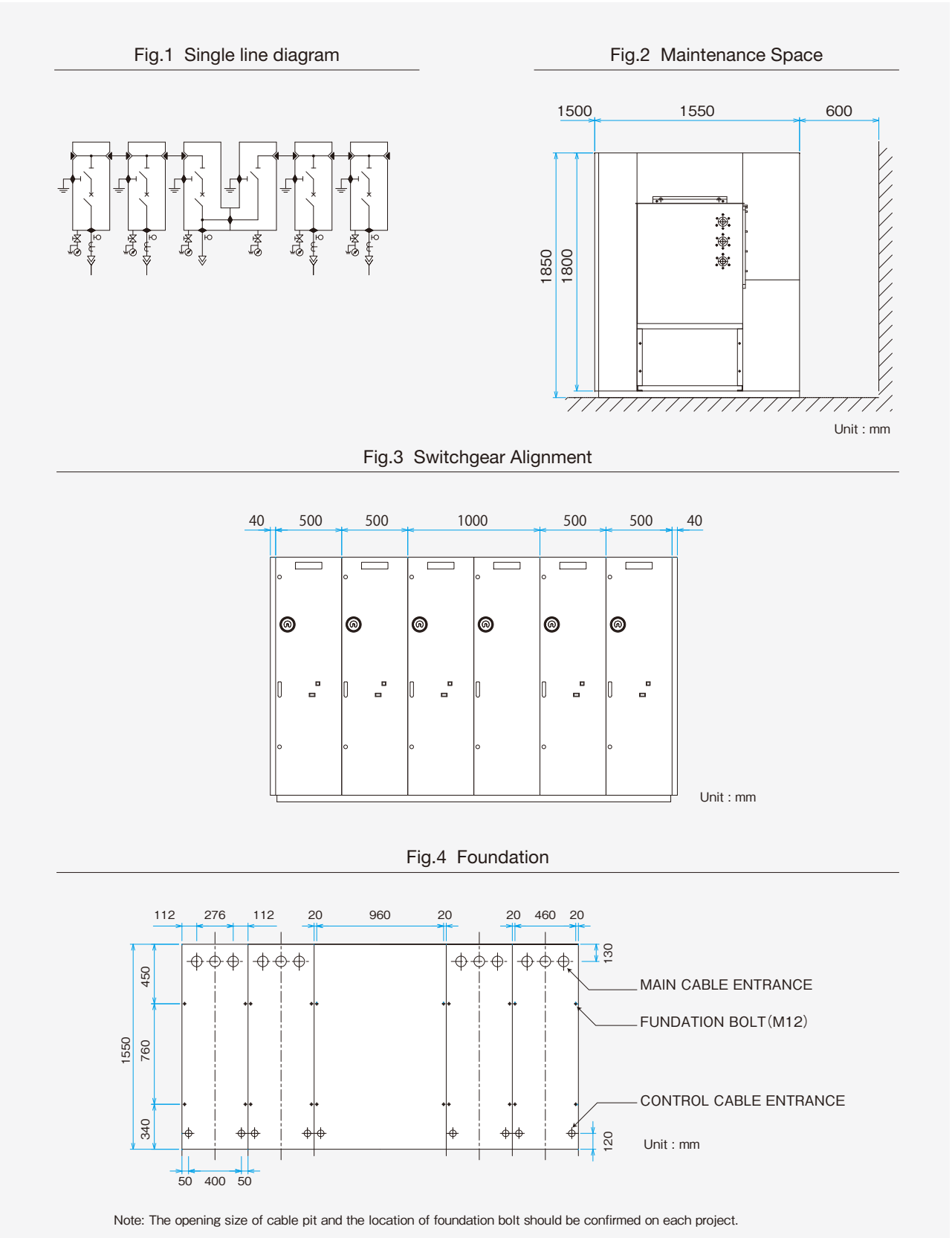
Note: Dimensions and components may be changed according to the specifications.



## Installation

The individual switchgear, which has been assembled, wired up and tested in factory are delivered to site. Site works for installation require only the setting of the switchgear in the position, connections of inter-panel joints of busbars and cablings of both power and control cables.

The typical maintenance space, dimensions of cable pit and foundation are shown in Fig.2 and Fig.4 respectively.



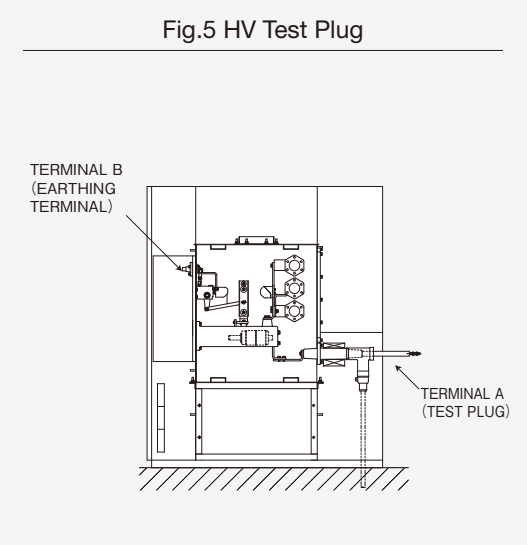
## Cable Termination and Testing

BGC-24 employs high reliable cable termination system, which is of pre-molded plug-in type for various types of 24kV power cables.

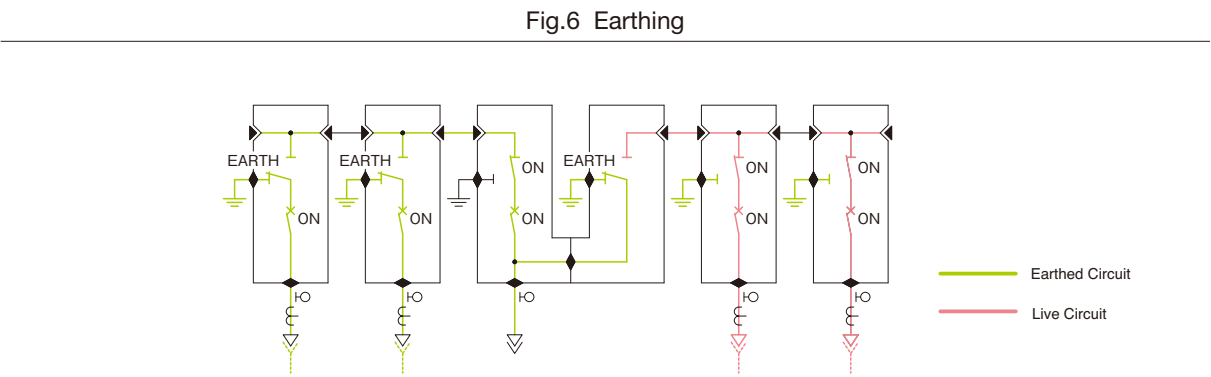
The cable plug can be equipped with capacitive voltage diverter to connect with the neon voltage indication lamps for continuous voltage monitoring of main circuit. And also it allows phase sequence check by portable phase comparator after connection of cables. In addition, high voltage test plug is available to perform both primary injection test for CTs and high voltage test for cables connected to switchgear.

Typical arrangement of cable termination system and high voltage test plug are shown in Fig.5. The following tools / accessories are optionally available to the cable termination system.

1. High voltage test plug  
for primary injection test and high voltage test
2. Protection cap  
for protecting withdrawn cable connectors against damage and dirt
3. Blind cap  
for protection against electric-shock hazard for live cable connector
4. Sealing end  
for sealing and voltage-proof closing of plug-in socket
5. Phase comparator  
for phase sequence check
6. Earthing adapter  
for earthing and short-circuit of cable circuit of switchgear



The earthing of main busbar and line side shall be performed as shown as in Fig.6.



## Ancillary Equipment

BGC-24 provides the following ancillary equipment.

### 1. Mechanical indicators

- a. Operating counter of circuit breaker
- b. Spring of CB "Charged-Discharged"
- c. Circuit breaker "ON"
- d. Circuit breaker "OFF"
- e. 3-position isolator "ON"
- f. 3-position isolator "OFF"
- g. 3-position isolator "Ready to Earth"

### 2. Padlocking facilities (Option)

- a. Front door of LV compartment
- b. Manual "ON" and "OFF" push button switches of circuit breaker
- c. Inlet for manual operating handle of 3-position isolator



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