
Horizontal center break disconnecter type GW55, up to 300 kV

Maximum reliability and minimal maintenance



ABB is a leader in power and automation technologies that enables utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in approximately 100 countries and employs around 145,000 people.

Disconnectors from ABB

ABB disconnectors have been in service across the world for over decades providing maintenance-free service with the highest records of operation reliability. The worldwide experience, often under severe climatic conditions, is applied for continual product improvement.

Applications

A mechanical device for providing isolation of power equipment from the network, a disconnector is suitable for switching small currents or where no significant change in voltage occurs across the terminals. The option of earthing sections of power systems can be made available by providing each disconnector pole with one or two earthing switches.

The horizontal center break disconnectors type GW55 are available for rated voltages up to 300 kV.

Standards

The GW55 disconnectors are designed as per IEC 62271-102 and IEC 62271-1 standards. Other international regulations can be met on request.

Type tests on the disconnectors are carried out by accredited testing laboratories in accordance with the latest regulations. Comprehensive electrical and mechanical routine tests are carried out on the poles and operating mechanism of each disconnector ensuring world class quality.

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Maximum reliability and minimal maintenance

Designed based on cutting-edge technology and experience

The center break disconnecter consists of three poles. Each pole consists of a main blade that moves in a horizontal plane, two rotating support insulators, and a frame. The modular design of center break disconnecter offers various possibilities to adapt the switchgear to changed requirements in substations.

The main blade consists of an U-shaped aluminium tube, in which the male and female silver-plated copper fingers are installed.

The frame is made of an square tube in which the bearing housings and the turntables are installed. The turntable is supported by two roller bearings. The bearing housing is sealed and filled up with grease, to ensure a long lifetime. All steel parts of the disconnecter are hot-dip galvanized. The disconnecters can be equipped with insulators in accordance with IEC, ANSI or DIN specification and with one or two earthing switches.

Minimized contact resistance

All contacts are made of electrolytic copper plated surface with silver, which provides high conductivity and prevent oxidation, and have a large contact area by surface contact. The contacts have stainless springs to ensure the contact pressure, providing no overheating and constant contact resistance in life time.

Reliable and smooth operation

The contacts have self-cleansing capability and the contact pressure is kept unchanged by stainless springs in long service lifetime.



Main blade

Most of the linkage of rods and cranks was self-lubricating which makes the disconnectors close and open smoothly

Easy Installation

All modules are designed, pre-assembled and adjusted in factory as complete as possible for easy alignment and adjustment.

Minimal maintenance

Superior materials and rotating contacts for all joints used for components make disconnectors virtually maintenance free.

Interlocking for reliability under extreme conditions

In both end positions of the disconnecter, the rotary arm is switched beyond the dead center point. The switch position cannot be changed by external forces even under extreme condition such as storms, earthquake, etc.

Superior design of mechanical interlock

The superior design of mechanical interlock between the earth switch and main blade is designed such that there is no scope for malfunction.

Ice breaking capacity

The disconnectors are capable of operating under severe ice conditions.

Suitable for wide range of environmental conditions

The disconnectors can operate in a wide range of temperatures as well as under polluted environmental condition..

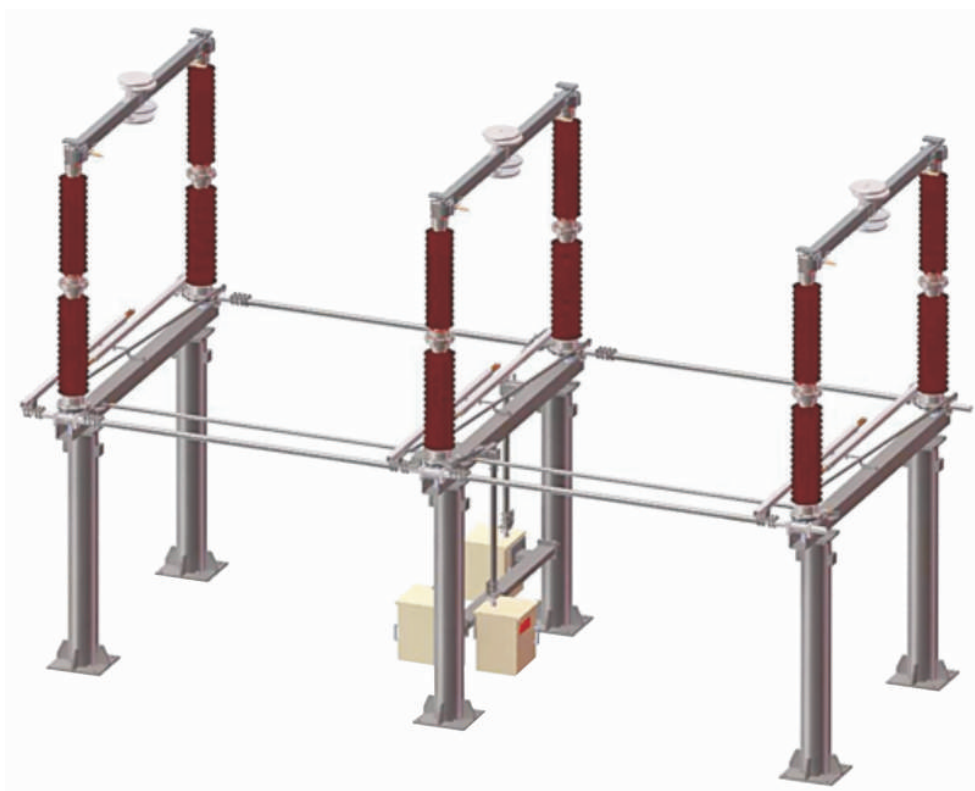


Frame

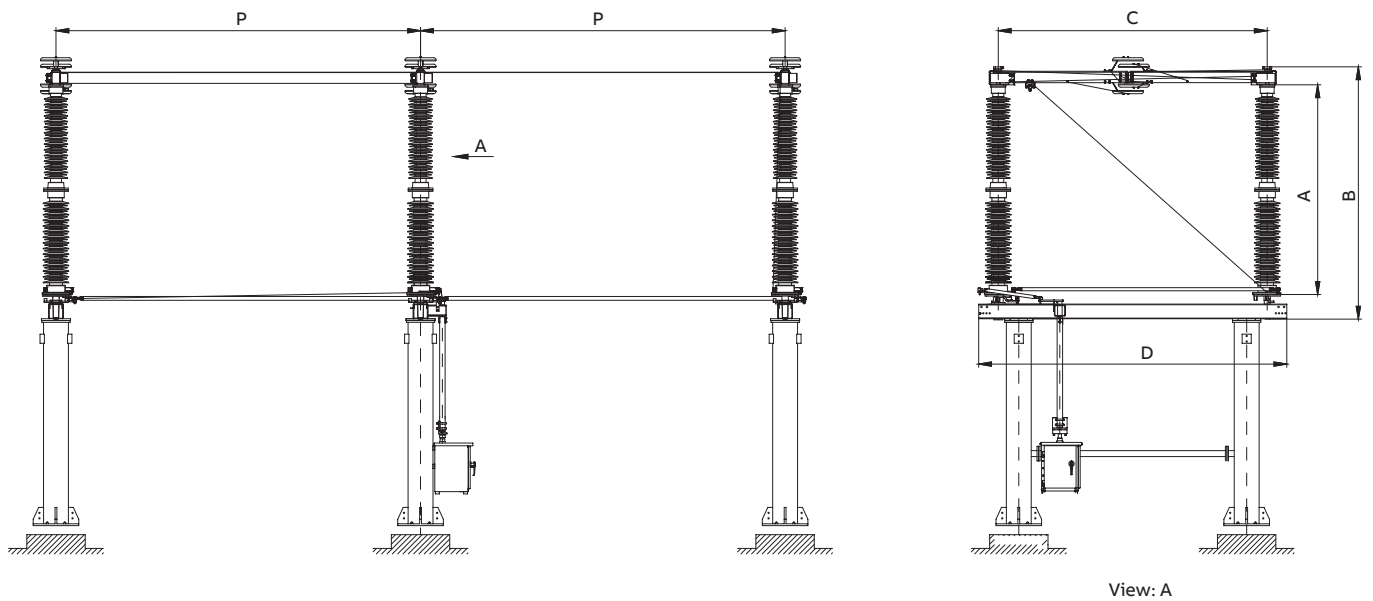
Technical data

Technical data - GW55

Rated voltage (Ur)	kV	72.5	123	145	170	245	300
Rated frequency (fr)	Hz	50/60	50/60	50/60	50/60	50/60	50/60
Rated normal current (Ir)	A	≤ 3150	≤ 3150	≤ 3150	≤ 3150	≤ 3150	≤ 4000
Rated short-withstand current, rated duration of short circuit (Ik, tk)	kA/s	40/4	40/4	40/4	40/3	50/3	50/3
Rated peak withstand current (Ip)	kAp	100	100	100	104	125	125
Rated power frequency withstand voltage for 1 minute							
To earth and between poles	kV	140	230	275	325	460	460
Across the isolating distance	kV	160	265	315	375	530	606
Rated lightning impulse withstand voltage (1.2/50 μs)							
To earth and between poles	kVp	325	550	650	750	1050	1050
Across the isolating distance	kVp	375	630	750	860	1200	1250
Rated switching impulse withstand voltage							
To earth and between poles	kV	—	—	—	—	—	850
Across the isolating distance	kV	—	—	—	—	—	700+245



Main dimensions



Center Break Disconnecter – GW55

Rated voltage (kV)	Outline dimensions (mm)				
	A	B	C	D	P
72.5	770	1215	700	1060	Depend on the substation layout
123	1220	1635	1650	2100	
145	1500	1915	1650	2100	
170	1700	2115	1650	2100	
245	2300	2785	2950	3380	
300	2900	3385	2950	3380	

Mode of operation

The disconnectors and earthing switches are operated via independent operating mechanisms. The three phases of the disconnector are connected by the coupling rods.

ABB disconnectors and earthing switches are designed and tested in accordance with the latest IEC specifications. All modules are pre-assembled and adjusted in factory as complete as possible, so it can be installed and adjusted at site easily. ABB provide a clear installation instructions and assembly drawings.

The disconnectors and earthing switches supplied by ABB are designed so as to ensure that they are virtually maintenance free. However, to warrant a long and trouble-free service period, we advise that a visual inspection of the contacts and bearing points can be carried out at regular intervals. If the equipment cannot be inspected periodically, it is recommended to open and close the switches whenever it is possible to do so, in order to clean the contacts and free the moving parts.

Operating mechanism

- The disconnectors and/or earthing switches can be single- pole or three-pole operated by means of a motor-operated mechanism or a manual-operated mechanism. Customers can choose motor drive or manual drive according to the actual working situation of disconnector.
- Operating mechanisms contain auxiliary switches for control and signalling as well as provisions for electrical interlocks.
- ABB disconnector operating mechanism has excellent water proof, sand prevention and rust protection performance.
- The output shaft of the operating mechanism has good sealing ability with the house of operating mechanism.

Interlocks

The disconnectors and earthing switches (when supplied) are mechanically interlocked. In operating mechanisms a blocking magnet can be installed as an additional interlocking facility, which in disconnected condition makes operation of the operating mechanism impossible.



Motor mechanism

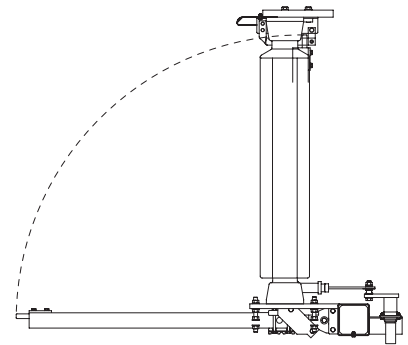


Manual mechanism

Earthing switches

The earthing switch unit, an optional assembly, can be mounted on the base as required.

Single-Motion earthing switch

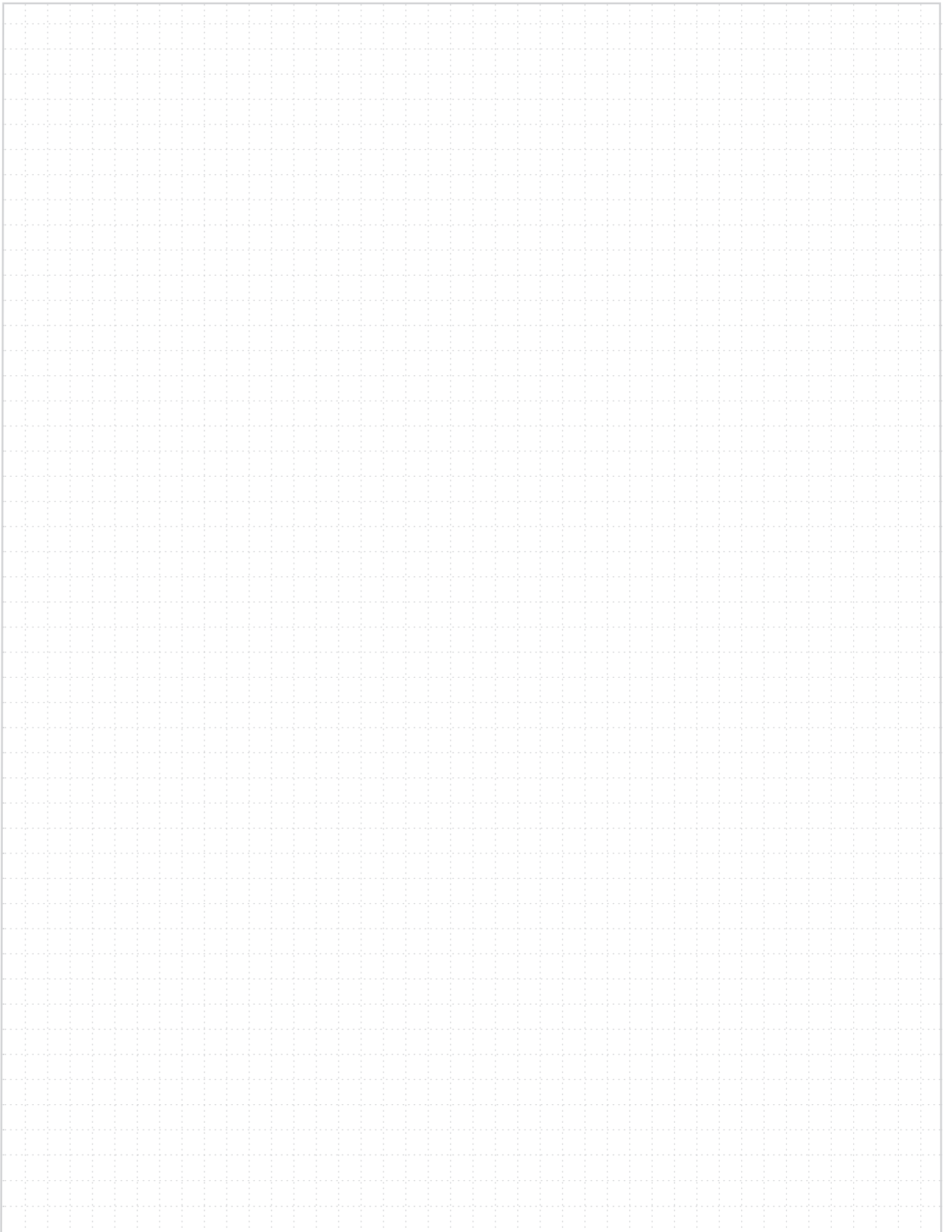


Rated voltage / kV	72.5~300
Rated current / A	630
Short circuit ratings	0~50 kA/3 s, 100~125 kA peak

The use of earthing switches ensure absolute safety by grounding and discharging all high-voltage components in a circuit or switchgear.

- ABB free-standing earthing switches are available for all voltage levels up to 550 kV.
- Suitable built-on earthing switches are available for all types of ABB disconnectors.

- According to the requirements, built-on earthing switches can be arranged laterally or in inboard arrangement with respect to the position of the main current path of the disconnector as needed.
- Optionally, all earthing switches can be designed for switching induced inductive and capacitive currents according to IEC 62271-102, Class A or Class B.





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