

TCB 72.5-300 kV Double-break disconnecter

HV Switching



We know how

Our range of double-break disconnectors is designed to ensure the best performances and reliability, which are the result of our 60-year old experience.

Over 100,000 disconnectors installed in more than 100 countries worldwide are the guarantee of best-buys.



The TCB double-break disconnecter

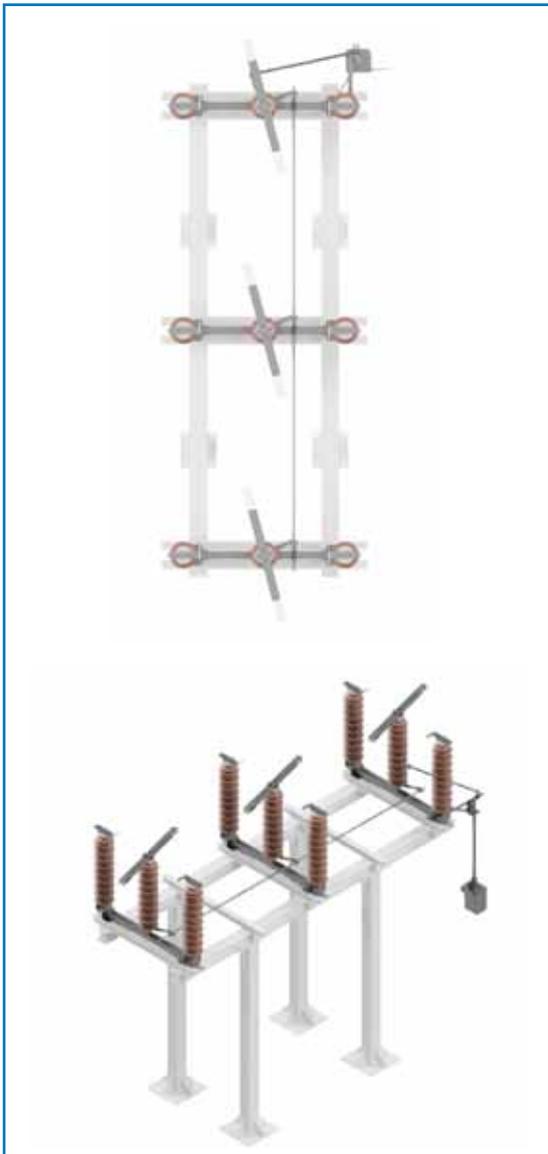
The TCB double-break disconnecter is formed by three poles, operated simultaneously either by a single operating mechanism and mechanical linkages between the poles or by one mechanism for each pole.

The main characteristics of the TCB disconnecter are a reduced phase to phase distance, and a very high capability to withstand terminal loads. At the design stage of the bay, the first feature allows space to be saved and the second one, due to insulators directly bolted on the base frame helps to avoid additional post insulators. The insulating columns used for the TCB can comply with either IEC or ANSI standard. Special heights and creepage distances are also available on request.

The electrodynamic behaviour is also improved by the symmetrical design of the motion: during a short-circuit, the efforts on both sides of the pivot point tend to be balanced, preventing any tendency for the main contacts to open.

To adapt to various layouts of substations, the poles can be erected traditionally (horizontal) or wall-mounted, and even upside down.

Like all our models, the TCB meets the latest international standards (IEC, ANSI) and it can also be customised according to clients' particular specifications.



Earthing switch

Integrated earthing blades are available for mounting on each pole, with the same short-time current withstand capability as the main blades.

The earthing switch is actuated by the same types of operating mechanisms as the disconnecter, either manually or electrically, either single- or 3-pole. It can be electrically and/or mechanically interlocked with the main switch.

Construction features

The arm is made of rectangular drawn aluminium tubes, with silver plated copper fingers (thickness accorded to rated current). The contact pressure is ensured by stainless steel springs. All the hardware of the live part is made of stainless steel.

The male (fixed) contacts are also silver plated and protected from corona effects by suitable corona shields, according to rated voltage. They are bolted directly on the top of the insulator.

The base frame and the rotary support are made of hot-dip galvanised steel profiles. The bearings are sealed and greased for a lifetime of maintenance free operation.

The whole design and manufacturing process is ruled by ISO 9001 certified procedures, to guarantee perfect performance reproducibility from type-testing to series production.

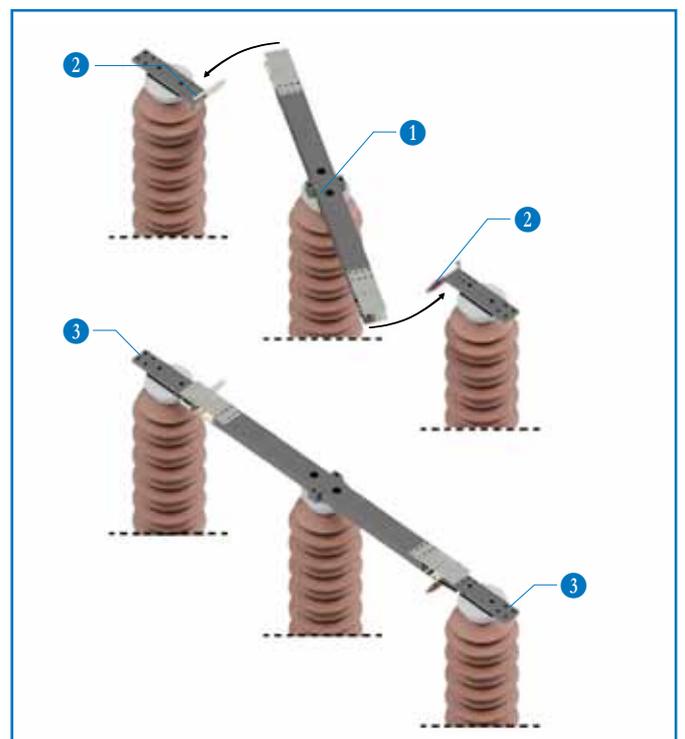


Operating principle

The base frame supports two insulators and a rotating insulating rod (drive insulator), which supports and operates the arm.

The live part is very simple in its design and motion. From the open position, the arm **1** rotates to enter directly the fixed contacts **2** at the ends of the disconnecter. There are a minimum of parts in motion, and no rotary contact is necessary.

The HV terminals **3** as shown in the next page figure; customised terminals are also available upon request.



Ratings and dimensions

The values in the table refer to IEC standards, unless explicit reference to ANSI is made; for missing ANSI ratings, refer to C37.32

Rated voltage	U_r (kV)	72.5	123	145	170	245	300	
Rated power-frequency withstand voltage	TE U_d (kV)	140	230	275	325	395	460	380
	AID U_d (kV)	160	265	315	375	460	530	435
Rated lightning impulse withstand voltage	TE U_p (kV _p)	325 (IEC) 350 (ANSI)	550	650	750	950 (IEC) 900 (ANSI)	1050	1050
	AID U_p (kV _p)	375	630	750	860	1050	1200	1050 (+170)
Rated switching impulse withstand voltage	TE U_s (kV _p)	-	-	-	-	-	-	850
	AID U_s (kV _p)	-	-	-	-	-	-	700 (+245)

TE: To Earth

AID: Across the Isolating Distance

Rated continuous current	I_r (A)	up to 4000 IEC / ANSI (depending on rated voltage)
Rated short-time withstand current	I_k (kA)	up to 75 / 3s (depending on rated current)
Rated peak withstand current	I_p (kA _p)	up to 190 (depending on rated current)

Dimensions (mm)	A		1280	1780	2200	2200	2880	3200	3200
B	IEC		770	1220	1500	1700	2100	2300	2300
	ANSI		762	1143	1372	1575	2032	2337	2337
C	IEC		970	1420	1720	1920	2370	2570	2570
	ANSI		962	1343	15912	1795	2302	2607	2607
D			900	1400	1800	1800	2300	2800	2800
E			170	170	270	270	270	270	270
F			-	-	-	-	-	270	270
G			4 ø18	8 ø18	8 ø18				

Reliability and maintenance

Due to lifetime greased (or self-lubricated) hinges and to self-wiping contacts, the maintenance of the TCB is ensured by its motion.

The use of corrosion-free (or coated) materials for all components ensures exceptional reliability for many years of service.

The mechanical endurance performance exceeds IEC standard requirements.

Optional devices

Upon request, the disconnector can be equipped with a bus-transfer current switching device, compliant with IEC 62271-102.

The integrated earthing switch can also be fitted with an optional induced current switching device, compliant with IEC 62271-102.

For operation under severe ice conditions (up to 20 mm), ice shields are available for protection of the equipment (where needed).

