

STC 72.5-550 kV Twist-motion 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 70-year old experience. Over 100,000 disconnectors installed in more than 100 countries worldwide are the guarantee of best-buys.



The STC double-break disconnector

The STC double-break disconnector 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 STC disconnector are a reduced phase to phase distance and a very high capability to withstand terminal loads. These qualities allow space to be saved, and help to avoid additional post insulators in the substation.

Furthermore, due to its twist motion, the STC operating torque is minimised and independent from the voltage.

The short-time current withstand reaches exceptional values, due to this type of motion and to the symmetrical design of the live part: during a short-circuit, the efforts on both sides of the pivot point tend to be balanced, and the fixed contacts, due to their reverse-loop type design increase automatically their pressure.

The insulating columns used for the STC can comply with either IEC or ANSI standard. Special heights and creepage distances are also available on request.

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 STC meets the latest international standards (IEC, ANSI) but can also be customised according to particular specification.

Earthing switch

Integrated earthing switches are available for mounting at each or both sides of the pole, with the same short-time current withstand capability.

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

Construction features

The arm is made of a round drawn aluminium tube, with copper contacts bolted at its ends.

The fixed contacts (female) are provided with copper fingers, whose number depends on the rated current. They are bolted directly on the top of the side post insulators. The contact pressure is ensured by stainless steel springs, and, in case of short-circuit, by the reverse-loop design of the fingers: the higher is the current, the higher the contact pressure is.

Copper contacts are silver plated (thickness depending on the rated current).

All the hardware of the live part is made of stainless steel.

The HV terminals are made of solid aluminium plates.

Where necessary, the live part is protected from corona effects by suitable corona shields, according to rated voltage.

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

All our design and manufacturing process is ruled by ISO 9001 certified procedures to guarantee a perfect repetitivity of the performances from the type-testing to the delivery of series.

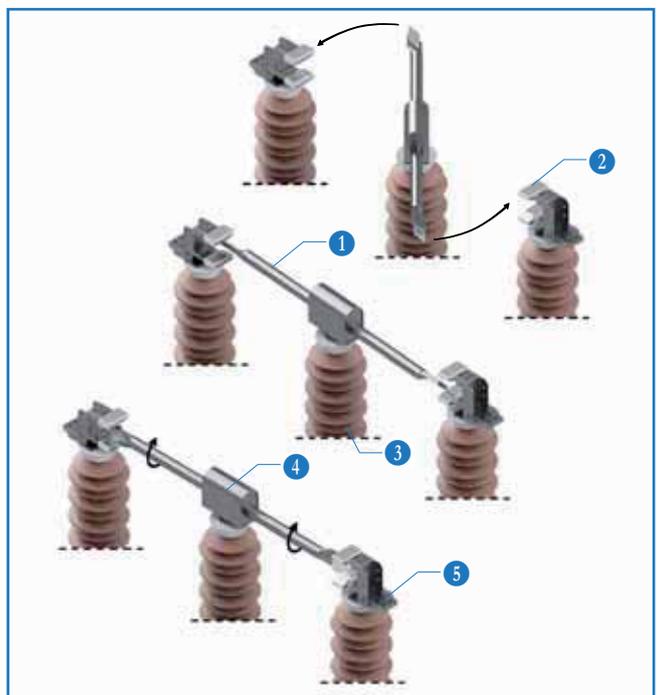


Operating principle

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

From the open position, the arm ① rotates to enter the fixed contacts ② at the ends of the disconnector. As the blade comes in touch with the fixed contacts, the insulating rod ③ keeps on turning, inducing a rotation of the arm around its longitudinal axis, by the mean of the central gearbox ④. In the final closed position, the blade is locked in the contact, thus preventing any accidental opening.

The flat HV terminals ⑤ are as per the next page figure. Custom 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	362	420	550	
Rated power-frequency withstand voltage	TE U_d (kV)	140	230	275	325	395	460	395	450	520	620
	AID U_d (kV)	160	265	315	375	460	530	435	520	610	800
Rated lightning impulse withstand voltage	TE U_p (kV _p)	325 (IEC) 350 (ANSI)	550 (IEC) 550 (ANSI)	650 (IEC) 650 (ANSI)	750 (IEC) 750 (ANSI)	950 (IEC) 900 (ANSI)	1050 (IEC) 1050 (ANSI)	1050 (IEC) -	1175 (IEC) -	1425 (IEC) 1300 (ANSI)	1550 (IEC) 1800 (ANSI)
	AID U_p (kV _p)	375	630	750	860	1050	1200	1050 (+170)	1175 (+205)	1425 (+240)	1550 (+315)
Rated switching impulse withstand voltage	TE U_s (kV _p)	-	-	-	-	-	-	850	950	1050	1175
	AID U_s (kV _p)	-	-	-	-	-	-	700 (+245)	800 (+295)	900 (+345)	900 (+450)

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	4200	4900	5500
B	IEC		770	1220	1500	1700	2100	2300	2300	2900	3350	3650
	ANSI		762	1143	1372	1575	2032	2337	-	-	3099	3861
C	IEC		970	1420	1720	1920	2370	2570	2570	3220	3670	3970
	ANSI		962	1343	1592	1795	2302	2607	-	-	3419	4181
D			900	1400	1800	1800	2300	2800	2800	3540	4240	4840
E			170	170	270	270	270	270	270	340	340	340
F			-	-	-	-	-	270	270	340	340	340
G			4 ø18	8 ø18	8 ø18	8 ø22	8 ø22	8 ø22				

Reliability and maintenance

Due to lifetime greased or self-lubricated hinges, and self-wiping contact, the maintenance of the STC metallic parts is ensured by its own motion. The use of corrosion-free or protected materials for all the components induces an exceptional reliability over many years of service. The mechanical endurance performance exceeds the IEC standard requirements.

Optional devices

Upon request, the disconnecter can be equipped with a bus-transfer current switching device, according to IEC 62271-102 (annex B).

The integrated earthing switch can also be fitted with an optional induced currents switching device, as per IEC 62271-102 (annex C).

For operation under severe ice conditions (up to 20 mm), ice shields are available to protect the parts, where needed.

