

VR2D 72.5 – 550 kV 2-arm pantograph disconnector

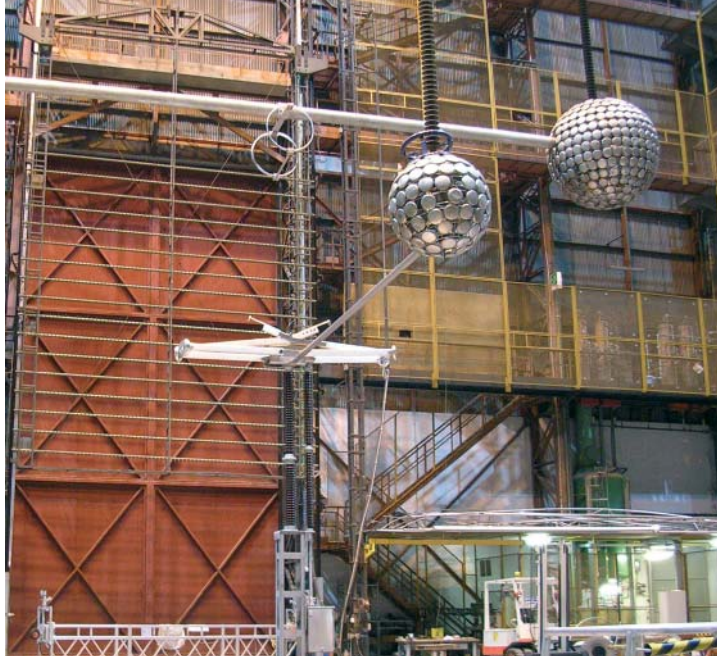


HV Switching

We know how

Our range of pantograph disconnectors is designed to ensure the highest performance, with reliability resulting from our 50-year experience.

Over 50,000 disconnecting switches installed in more than 100 countries worldwide give the guarantee of a best-buy.



The VR2D pantograph disconnecting switch

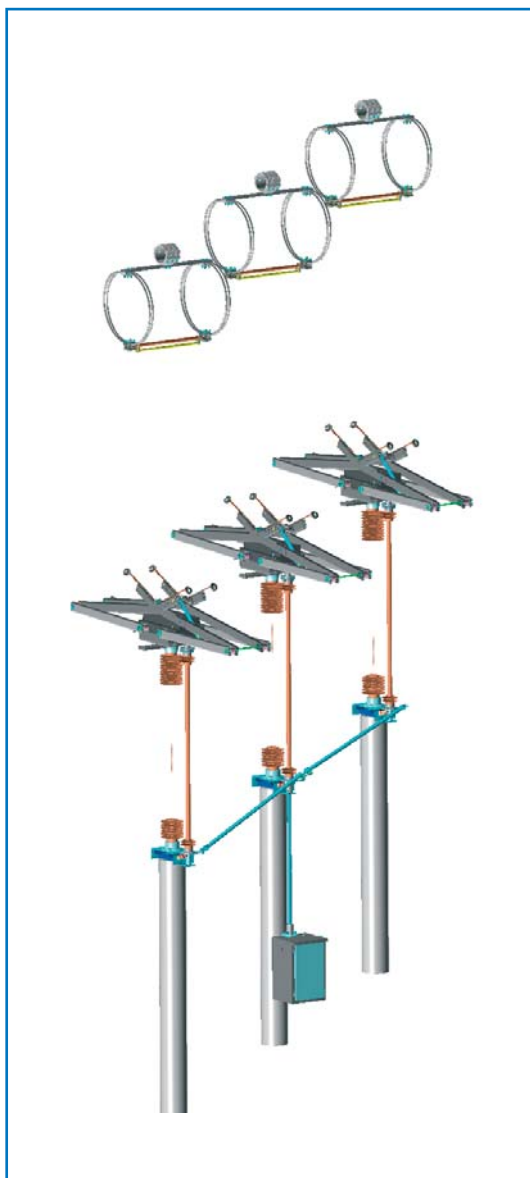
The VR2D pantograph disconnector is formed by three poles, operated simultaneously either by a single operating mechanism and mechanical linkages between the poles or by one mechanism for each pole.

The typical use of the pantograph disconnector is as a busbar disconnector, since it allows very reduced phase to phase clearance for the feeder/transformer bay, and stands just beneath the main busbar. No other AIS solution is more compact and cost efficient.

The short time current withstand reaches exceptional values, due to the geometry of the switch : in case of short-circuit, the electrodynamic forces act on the parallel profiles to increase the contact pressure.

The insulating columns used for the VR2D can comply with either IEC or ANSI standard. Special heights and creepage distances are also available on request.

Like all our models, the VR2D meets the latest international standards (IEC, ANSI) but can also be customised according to particular specification.



Earthing switch

An integrated earthing switch can be mounted on 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 arms are made of drawn aluminium tubes, with the silver-plated jaws bolted at their ends. The current path at hinged points is ensured by self-aligned and maintenance free rotary contacts, with silver-plated slides, individually loaded by stainless steel springs.

The mobile contact is ideally balanced to ensure a smooth, low energy demanding motion. All the hardware of the live part is made of stainless steel.

The fixed contact is also silver plated and hung to the busbar through flexible loops, to ensure the best alignment, even in case of unexpected motion of the upper busbar. This allows also to adjust easily the position of the fixed contact, whatever the height of the upper busbar is.

The HV terminals are made of solid aluminium plates. Their location allows an easy bypass of the DS, if needed. The connector to the upper busbar can be supplied upon request.

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

The base plate is made of hot-dip galvanised steel. All the bearings are self-lubricated 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.

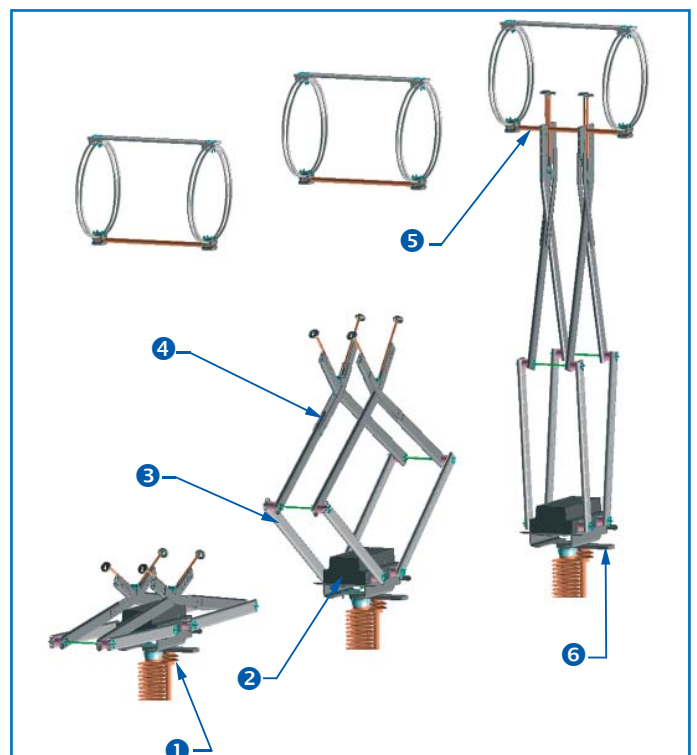


Operating principle

The base plate supports the insulator on which the upper frame is bolted. The rotating insulating rod (driving insulator), which operates the moving contact is directly connected to the operating mechanism.

From the open position, the insulating rod ① rotates to move the arms through the geared system inside the upper frame ②. The lower arms ③ raise together and close the jaws of the upper arms ④ on the fixed contact bar ⑤. After having reached the final closed position, the moving part is locked by a dead-point passing, preventing any accidental opening.

The flat HV terminals ⑥ 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.

Rated voltage		Ur (kV)	72.5	123	145	170	245	300	362	420	550	
Rated power frequency withstand voltage	TE	Ud (kV)	140	230	275	325	395	460	380	450	520	620
	AID	Ud (kV)	160	265	315	375	460	530	435	520	610	800
Rated lightning impulse withstand voltage	TE	Up (kV)	325 (IEC) 350 (ANSI)	550	650	750	950 (IEC) 900 (ANSI)	1050	1050	1175	1425	1550
	AID	Up (kV)	375	630	750	860	1050	1200	1050 (+170)	1175 (+205)	1425 (+240)	1550 (+315)
Rated switching impulse withstand voltage	TE	Us (kV)	-	-	-	-	-	-	850	950	1050	1175
	AID	Us (kV)	-	-	-	-	-	-	700 (+245)	800 (+295)	900 (+345)	900 (+450)

TE : To Earth

AID : Across the Isolating Distance

Rated permanent current	Ir (A)	Up to 4000 A IEC / ANSI
Rated short-time withstand current	Ik (kA)	Up to 63 kA / 3s
Rated peak withstand current	Ip (kA)	Up to 160 kA

DIMENSIONS (mm)		A	+15/-10	1126	2008+T	2238+T	2638+T	3378+T	3378+T	3378+T	3661+T	4555	5135
	B			1090	1220+T	1500+T	1700+T	2100+T	2300+T	2300+T	2900+T	3400	3700
	C		+/- 200	300	800								
	D			770	1220	1500	1700	2100	2300	2300	2900	3350	3650
	E			425	940	1045	1250	1600	1600	1600	1825	1900	2200
	F			640	800								
	G		≤ 2500 A	0	204						0	0	
			> 2500 A	-	0						0	0	
	H			502	628						760	760	
	J			4(20x38)	4(18x40)						8 Ø18	8 Ø18	
	K			-	-						Ø 300	Ø 300	
	L			275	137.5						-	-	
	M			90	85						-	-	
	T		≤ 2500 A	16									
			> 2500 A	30									

Reliability and maintenance

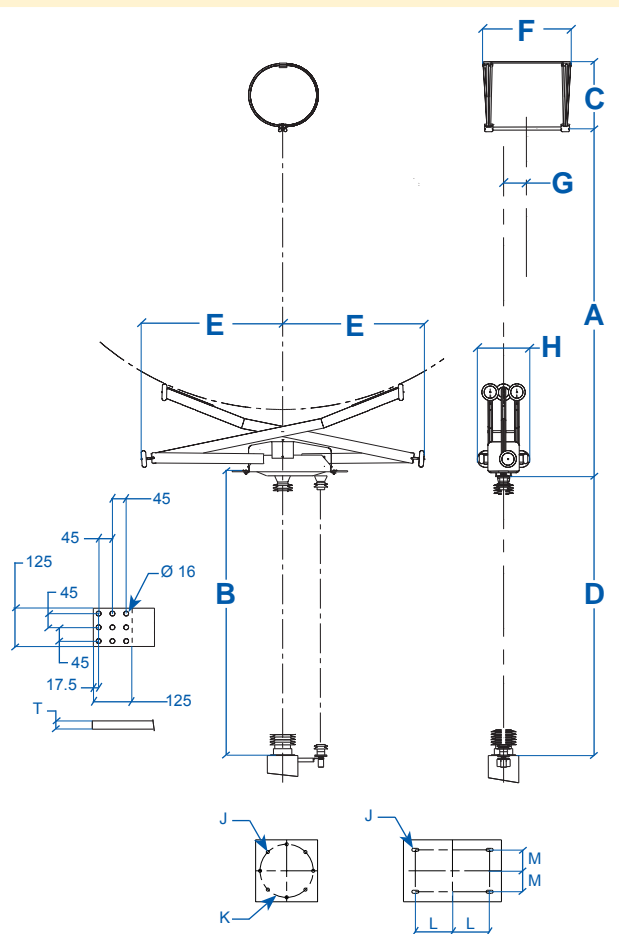
Due to lifetime greased or self-lubricated hinges, and self-wiping contact, the maintenance of the VR2D metallic parts is ensured by its own motion. The use of corrosion-free or protected materials for all the components induces an exceptional reliability over many years of service. The mechanical endurance performance exceeds the IEC standard.

Optional devices

Upon request, the disconnector 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.



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