



SWITCHGEAR and POWER PRODUCTS

Indoor Circuit Breaker



Characteristics	Units	12kV Indoor Vacuum Circuit Breaker					
		VCB					
Rated Voltage	kV	Upto 12 (Calix)*					
Rated Current	Amp	Upto 800	Upto 1250	Upto 2000	Upto 2500	Upto 3150	Upto 4000
No. of Poles	nos	3					
Frequency	Hz	50/60					
Symmetrical Breaking Capacity	kA rms for 3sec	13.1	20	26.3	31.5	40	50
Making Capacity	kApk	32.75	50	65.75	78.75	100	125
Power Frequency Withstand Voltage	kV rms	28 (std) / 35 (optional)					
Impulse Withstand	kVpk	75 (std) / 95 (optional)					
Operating Duty	cycles	O-0.3sec-CO-3min-CO (Rapid Autoreclosing Duty)					
Total Break Time	cycles	3			3.5		
Make Time	cycles	3					
DC Component	%	<50%					
Degree of Protection		IP 4X (std) / IP 5X (optional)					
Applicable Standard		IS 13118, IEC 62271 - 100/200					
Variants Available		Integral Earth Switch, Portable earthing truck					
*Rated Voltage: 15 / 17.5kV Available for Export Market							



Indoor Circuit Breaker



Characteristics	Units	36kV Indoor Vacuum Circuit Breaker		Vertical Isolation VCB
		VCB	GCB	VCB
Rated Voltage	kV	Upto 36 (Felix)	Upto 36	3.6 to 12
Rated Current	Amp	630 to 2000		400 to 1250
No. of Poles	nos	3		3
Frequency	Hz	50/60		50
Symmetrical Breaking Capacity	kA rms for 3sec	23.3 / 31.5 / 40		13.1 20
Making Capacity	kApk	65.75 / 78.75 / 100		32.75 50
Power Frequency Withstand Voltage	kV rms	70		28
Impulse Withstand	kVpk	170 / 195 optional		75
Operating Duty	cycles	O-0.3sec-CO-3min-CO	O-3min-CO-3min-CO	O-0.3sec-CO-3min-CO
Total Break Time	cycles	4		3
Make Time	cycles	4		3
DC Component	%	<50%		<50%
Degree of Protection		IP 4X (std) / IP 5X (optional)		IP 4X
Applicable Standard		IS 13118, IEC 62271 - 100/200		IS 13118, IEC 62271 - 100/200
Variants Available		Fixed type PT	Integral Earth Switch, Portable Earthing Switch	
*Rated Voltage: 15 / 17.5kV Available for Export Market				



Outdoor Vacuum Circuit Breakers



Characteristics	Units	Porcelain Clad Vacuum Circuit Breaker				
		PVCB				
Rated Voltage	kV	Upto 12*			36	
Rated Current	Amp	Upto 800	Upto 1250	Upto 1600	Upto 2000	
No. of Poles	Nos	3				
Frequency	Hz	50/60				
Symmetrical Breaking Capacity	kA rms for 3sec	13.1	20	26.3	26.3	40
Making Capacity	kA _{pk}	32.75	50	65.75	65.75	100
Power Frequency Withstand Voltage	kV rms	28 (std) / 35 (optional)			70 (std) / 95 (optional)	
Impulse Withstand	kV _{pk}	75 (std) / 95 (optional)			170 (std) / 210 (optional)	
Operating Duty	cycles	O-0.3sec-CO-3min-CO (Rapid Autoreclosing Duty)				
Total Break Time	cycles	3			4	
Make Time	cycles	3			4	
DC Component	%	<50%				
Degree of Protection		IP 55				
Applicable Standard		IS 13118, IEC 62271 - 100				



Outdoor Vacuum Circuit Breakers



Characteristics	Units	Metal Clad Vacuum Circuit Breaker-KIOSK				
		Roof Bushing	Line Up			Roof Bushing
Rated Voltage	kV	12				36
Rated Current	Amp	Upto 1250	Upto 1250	Upto 1600	Upto 3150	Upto 2000
No. of Poles	Nos	3				
Frequency	Hz	50				
Symmetrical Breaking Capacity	kA rms for 3sec	Upto 26.3	20	26.3	40	26.3
Making Capacity	kApk	32.75	50	65.75	100	65.75
Power Frequency Withstand Voltage	kV rms	28				70
Impulse Withstand	kVpk	70				170
Operating Duty	cycles	O-0.3sec-CO-3min-CO				
Total Break Time	cycles	3				3.5
Make Time	cycles	3				3
DC Component	%	<50%				
Degree of Protection		IP 54				
Applicable Standard		IS 13118, IEC 62271 - 100/200				

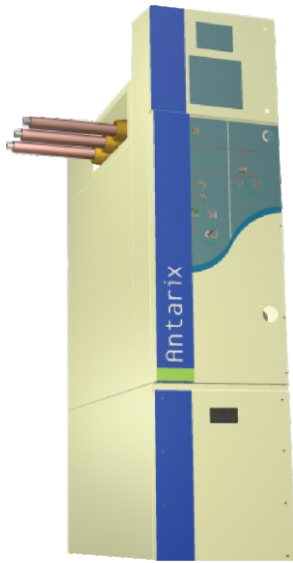


Ring Main Unit

- Stainless steel enclosure fabricated by automatic robotic welding
- Isolation in clean SF₆ gas for ring switch & in vacuum for CB
- Common switching chamber with Vacuum Tee off circuit breaker
- Internal arc protection including cable boxes
- Fully SCADA compatible unit with remote switching
- Highly compact and well protected with pad-lock, interlock & earthing facilities



Characteristics	RMU			Multi Circuit SF 6 Gas Insulated Vacuum RMU	TRIDENT Range Oil RMU	
	SABRE - VRE	VRE - 6A	SABRE	MCR	FRMU / NEFS / EFS / EOS / DEOS	
					Ring Switch	Fuse Switch
Rated Voltage kV	12 / 15.5		24	12	12 / 15.5	
Rated Current A	630	630 for Ring Switch & 400 for CB		630	630	400
Symmetrical Breaking Capacity kA/sec	21/3		16/3	21/3		
Making Current kAp	52.5		40	52.5	55 / 55	50 / 7.8
Impulse withstand kVp	75/110 (optional)		125	75 / 95 (optional)	110	110
Min Gas Pressure Bar	0			0		
Filling Pressure Bar	0.4	0.5		0.4		
Index of Protection	IP 54			IP 54	IP 54	



Gas Insulated Switchgear (GIS)

Antarix

- Compact design & reduced space requirement
- Easy future extensibility of the network through flexible plug-in connectors
- Ring type Current transformers

Characteristics - GIS	Value
Rated Voltage	36 kV
Rated Current	
General Busbars	1600 A
Outgoing Lines	1250 A
Rated Short Circuit Current	
Breaking Capacity	26.3 kA
Making Capacity	66 kAp
Short time current withstand	26.3 kA - 3 sec
Lightening Impulse	
Between phase & phase to earth	170 kVp
Isolating distance	195 kVp



On-Load Tap Changer

F – Series

- A high speed resistor type, for use with 3-ph distribution substation transformer
- Housed in a single tank of current diversion & tap selection
- Suitable for limited power flow in reverse direction
- Designed for long service with an absolute minimum maintenance

Characteristics - On-Load Tap Changer	F33	F66
System Voltage	36 kV	72 kV
Maximum No. of Positions	17	17
Maximum Step Voltage		
At rated current of 100A	1250 V	1250 V
At rated current of 200A	1250 V	1250 V
At rated current of 300 A	625 V	625 V
Rated Current	300 A	300 A



Unitized Sub Station

RADIX Series

- It comprises of:
 - HV compartment consisting of a Vacuum Circuit Breaker (VCB) or a Ring Main Unit (RMU)
 - A Step down Transformer (X'MER)
 - Low Voltage (LV) compartment consisting of LV distribution panel
- Protection from unauthorized access and environmental hazards
- Ease of operation & maintenance

ENCLOSURE

All equipments mounted on a common galvanized steel GI base with fabricated enclosure
 Completely detachable side wall, ensuring ease of access to all equipments
 Louvers are provided for cross ventilation

HV COMPARTMENT

SF6 Gas filled Vacuum RMU
 Choice of Oil cooled or Dry type transformer
 Rating: Up to 1600kVA with Voltage: 12kV

LV COMPARTMENT

Rating up to 2000 A, 440 V
 LV Switchgear: ACB / MCCB feeder board up to 12 feeders



Characteristics - Unitized Sub Station	RADIX
Degree of Protection	IP 23D*
Duty	Outdoor
Type of Ventilation	Natural
Standard Color #	CG Blue
Rated Voltage	12 kV
Rated Power Frequency withstand Voltage	28 kV
Rated lightning Impulse withstand Voltage	75 kV
*Higher degree of protection shall be provided on request # Any other color shades shall be provided on request	



Authorized Distributor:



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