



ISO 9001 - 2008



NATIONAL SWITCHGEARS

HT SWITCH DISCONNECTOR

Indoor / Outdoor Applications

12 / 24 / 36 KV | 400 / 630 / 800 / 1250 / 2500 / 4000 A



WORLD CLASS SWITCH DISCONNECTORS

National switchgears manufacture wide range of "On Load Switches" (Switch Disconnectors) in accordance with IEC publication No.:62271. These switches are substitutes for more expensive Air Circuit breakers and they provide switching facilities not possible with "Disconnectors". Specially designed Arc chambers quench the arc effectively in a compact space. Single pole switches can be offered for exclusive use in Neutral Grounding Circuits.

(A) RANGE

Basic Types 3 pole / 1 pole	
Rated Voltage (KV)	Rated Current (A)
12	400/630/800/1250
24	
36	

(B) OPERATION

Either Manual or Motorized Versions (110 or 230 V AC/DC)

(C) AUXILIARY SWITCHES

2 NO + 2 NC / 6A rating (Any additional Contacts on request)

(D) EARTH SWITCHES

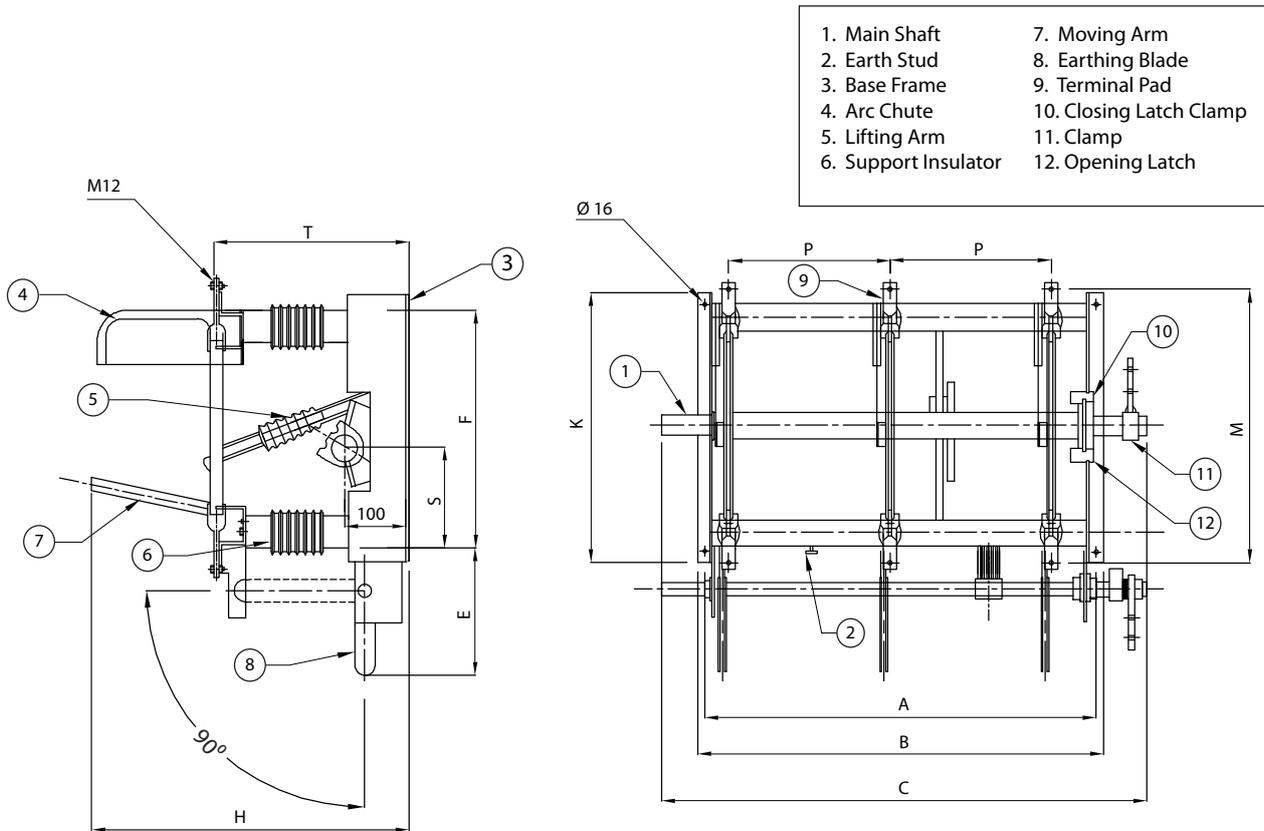
The Earth Switches can be connected either on

1. Incoming side
2. Outgoing side

The Earth Switch is interlocked with main switch.

(E) ACCESSORIES

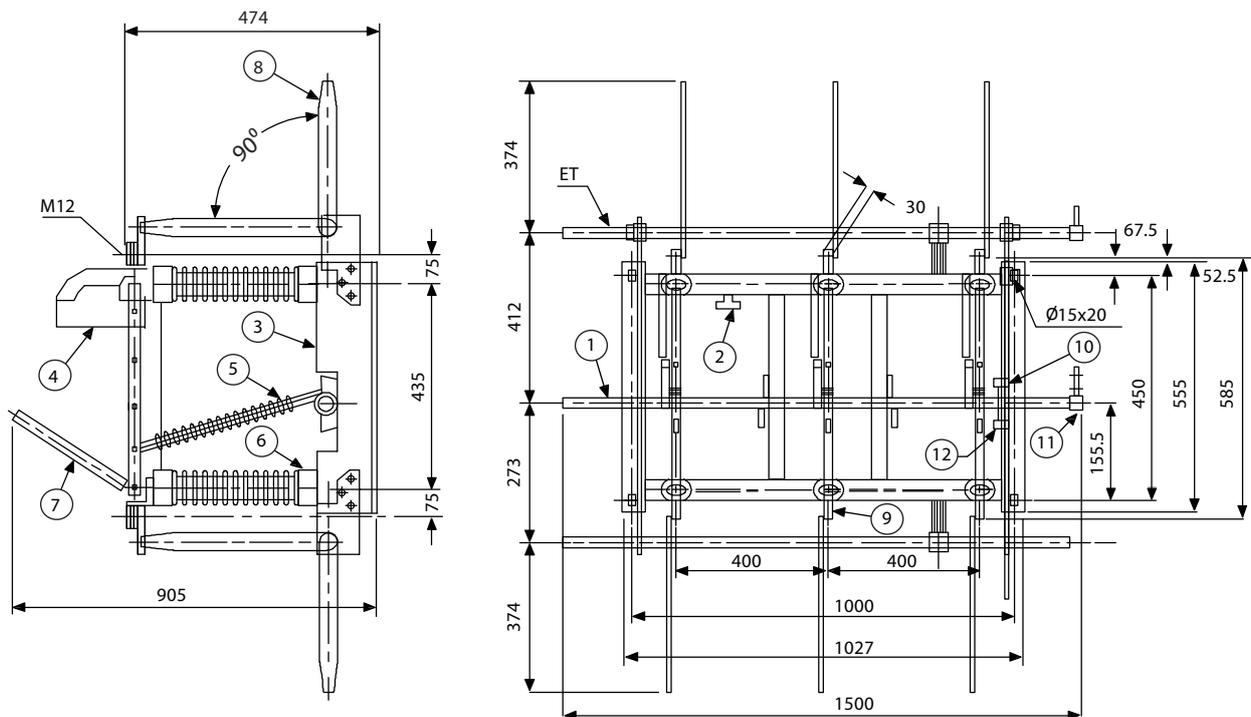
1. HT Fuse with Integral Fixing Base
2. Door Interlocking Arrangement
3. Castell Interlocks
4. Shunt trip: 110/220 V-AC (or) DC



	P	H	T	F	A	B	C	M	K	E	S
12 KV	165	470	261	280	460	485	588	342	330	266	114
24 KV	275	672	356	350	750	775	1100	442	420	362	115

TECHNICAL SPECIFICATIONS				
Voltage	(KV)	12	24	36
Frequency	(Hz)	50/60	50/60	50/60
Lightning Impluse Voltage 1.2/50	(KV)			
(A) Poles to Earth		75	125	170
(B) Across Isolating Poles		85	145	195
Power Frequency Withstand Voltage for 1 Min	(KV-RMS)			
(A) Poles to Earth		28	50	70
(B) Across Isolating Poles		32	60	80
Current	(A)	400/630	400/630	630/1000
Short Time Withstand Current 1/3 seconds*	(KA)	25/18	25/18	20/14
Peak Withstand Current	(KA)	63	63	50
Short Circuit Making Current*	(KA)	63	50	25
Rated Breaking Current				
(i) 20 Operations Cos < 0.15 Inductive	(A)	10	10	6.3
(ii) 20 Operations Cos < 0.10 Capacitive	(A)	50	50	25
Earthing Switch (If required)				
(i) Short time Withstand Current 1/3 seconds	(KA)	25/14	25/14	20/14
(ii) Peak Withstand Current	(KA)	63	63	50
(iii) Short Circuit Making Current	(KA)	63	63	50
Weight (Approx)	(Kg.)	38	55	68

* Higher Short Circuit Current on Request



36 KV

National Switchgears manufacture MV switches of 12/24/36 KV ratings for outdoor application.

The robust mechanical construction and liberal electrical ratings ensure reliability under all weather conditions of heavy loading or fault conditions. All the ferrous parts and Hardwares which are exposed to Atmosphere are hot dip galvanized .The design of the switch conforms to international standards. The switches are supplied in Double Break Centre Post Rotating Type and Single Break versions .

The switches withstand adverse atmospheric condition like UV radiation, rain, storm polluted atmosphere etc. The switch will open or close at the will of the operator regardless of weather conditions. Insulators can be either polymeric or porcelain having normal creepage distance of 31mm/KV. Higher creepage can be offered on request. The switch is manufactured as per IEC std: IEC 62271. All the ferrous parts are hot dip galvanized. Both Motorized and manual switches are available. The Switch is supplied with or without earth switch.

The Load Breaking switches are provided with Arc chutes which are UV proof and can operate at extreme weather conditions without any deterioration or deformation. The electric arc produced while breaking the load or circuit is effectively quenched by the gas generated by the heat of the arc inside chamber. The design is compact and proven.

FEATURES

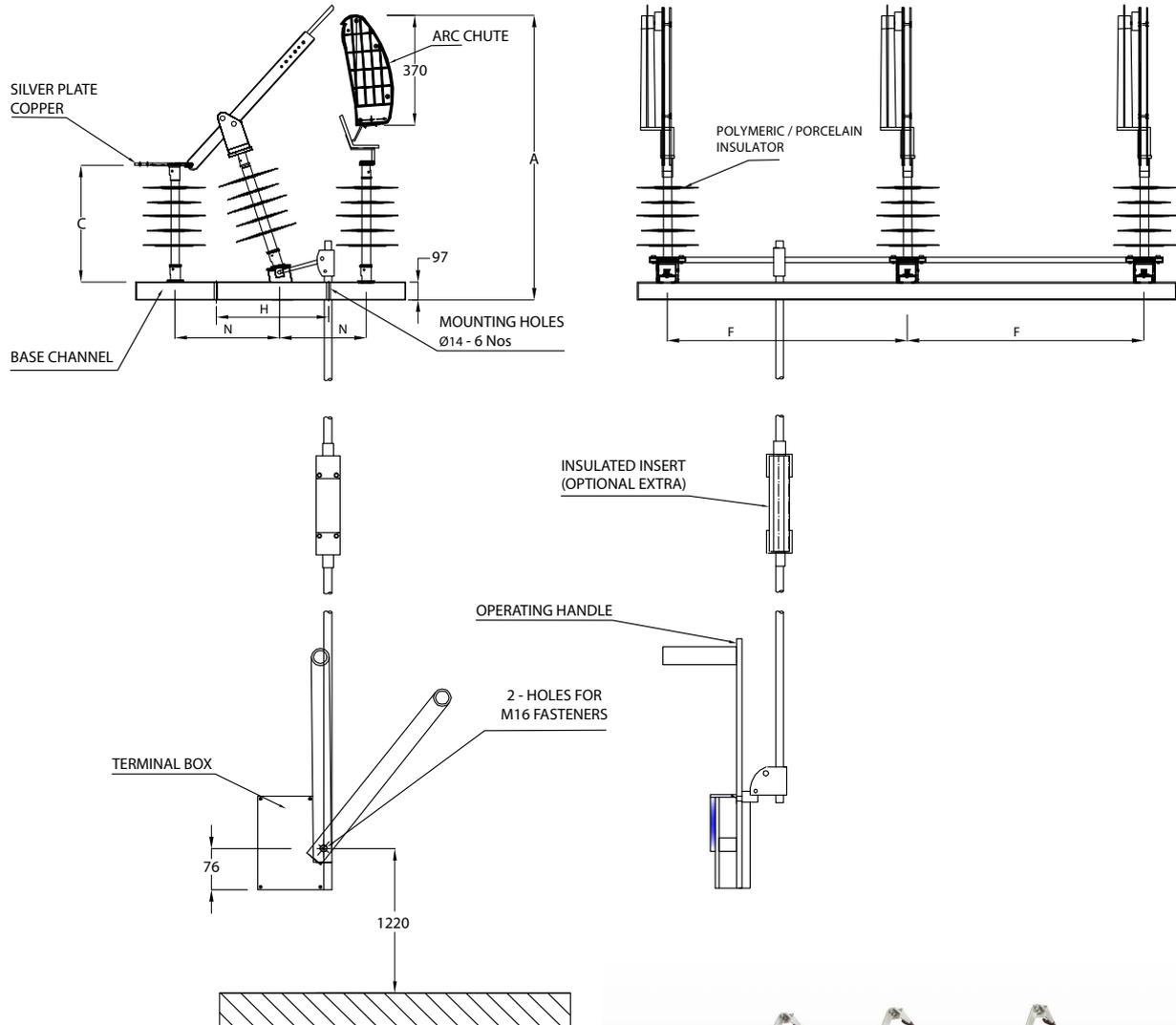
- Current paths are formed by double isolating knives.
- Conforms to IEC 62271-102 and 103
- All current carrying parts are silver plated .
- Auxiliary control contacts : 3NO +3NC
- Single pole or three pole versions
- Pad locking facility both in "ON" and "OFF" position
- Switches will be supplied without supporting structure.
- The mounting mechanism is suitable for Horizontal or vertical mounting.
- Porcelain insulators are glazed solid core type. (Polymeric Insulators are supplied on request)

OPTIONAL EXTRAS

- Pole mounting steel structure.
- Insulated operating Rod.
- Earthing switches
- Manual or Motorised versions (110 or 230V AC/DC)
- Operating Rod cut to length size, as required at site.
- Castell interlocks
- Additional Auxiliary control contacts.
- Higher creepage distance for insulators.
- Fuse Links
- Remote control facility.

Rated Voltage KV	Type	Rated Current Amp	Rated Lightning Impulse withstand voltage KV Pole to Earth / Bet Poles	Rated Peak Current KA	Rated Short ckt Current 1/3 sec KA	Creepage distance of Insulator mm
12	S-SB-12	400 630	75/85	50 50	20/16	380
24	S-SB-24	400 630 1250	125/145	50 50 100	20/16 20/16 50/40	560
36	S-SB-36	800 1250	175/195	50 100	20/16 50/40	900

TYPICAL OUTLINE AND MOUNTING ARRANGEMENT FOR OUTDOOR SWITCH DISCONNECTOR (SINGLE BREAK)



KV	DIMENSIONS IN MILLIMETRES				
	F	N	C	A	H
11 KV	765	338	279	754	500
24 KV	765	338	300	765	500
33 KV	1200	540	432	897	850

GENERAL

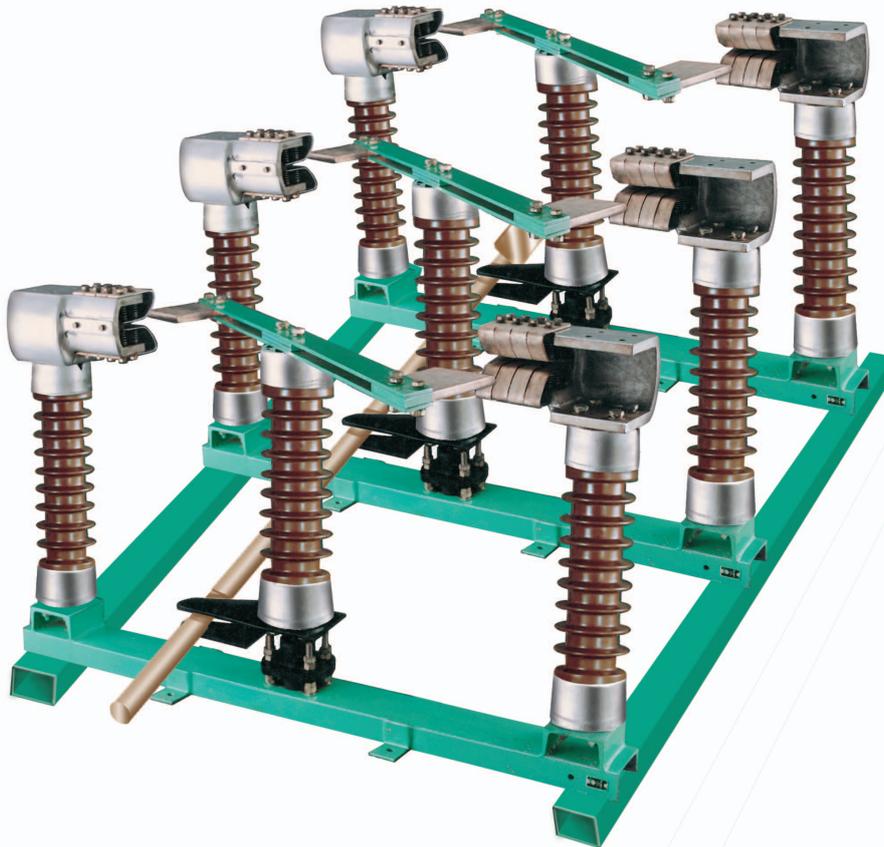
Two breaks per phase is achieved by double break disconnectors which are far superior to Single Break Disconnectors.

CONSTRUCTION

The chassis of the Disconnector will be constructed out of standard angles and channels and the joints will be rigidly welded. Main and Earthing Shafts are made of circular or hexagonal cross section steel. The shafts are supported by special bushings to reduce friction and blocking. Centre post rotating limb will be supported by sealed double ball bearings.

CONTACTS

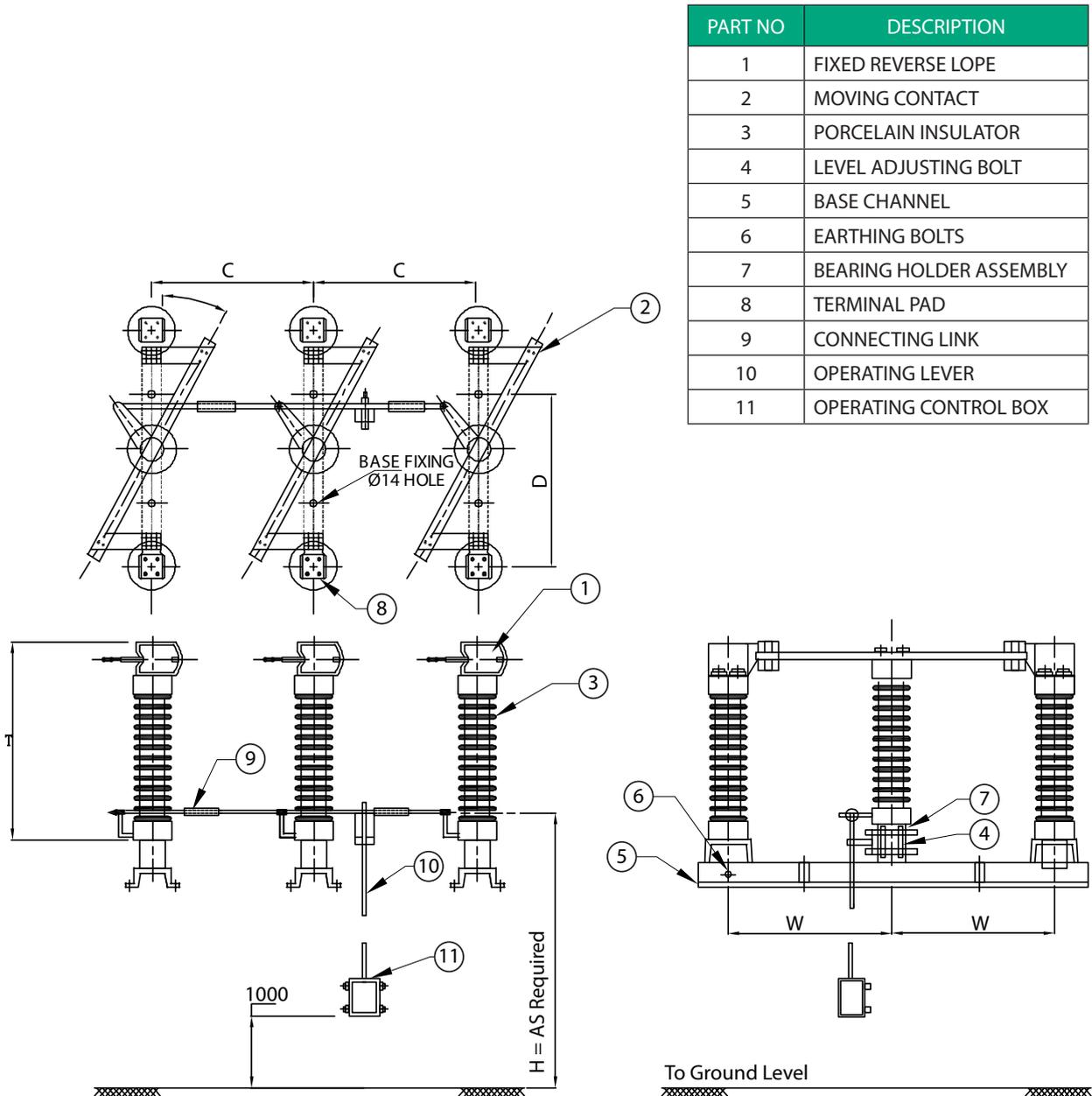
The contacts have adequate surface area with feature of self cleaning during opening and closing. The breaking and making of the contact takes place inside an aluminium hood. The Disconnector may have either vertical or horizontal break. The moving contacts are designed on the well known reverse loop principle. The contacts cannot be opened due to force of current under short circuit conditions. The fixed contacts have self cleaning multifinger pattern arrangement with stainless steel springs to provide adequate pressure. The centre post Rotating type Disconnector will have parallel bars made of copper. When using Disconnector with horizontal break, the blade rotates in the same plane as the centre post insulator. Provision has been made to adjust the level of the contacts at site. The top portion of the Aluminium hood is used as Terminal pad with four fixing holes.



DIMENSION DRAWING

FEATUERS

- Single pole /Three pole
- Voltage Rating : 12/24/36KV
- Castell interlock Mechanism
- Earthing switch combination
- Locking arrangement in "ON" and "OFF" Position.
- Operation Mechanism : Manual/Motorized
- Current Rating : 400/630/1250/2500/3150/4000 AMP
- Auxiliary switch 4NO + 4NC (other combination on request)



PART NO	DESCRIPTION
1	FIXED REVERSE LOPE
2	MOVING CONTACT
3	PORCELAIN INSULATOR
4	LEVEL ADJUSTING BOLT
5	BASE CHANNEL
6	EARTHING BOLTS
7	BEARING HOLDER ASSEMBLY
8	TERMINAL PAD
9	CONNECTING LINK
10	OPERATING LEVER
11	OPERATING CONTROL BOX

KV	C	D	W	CREE PAGE	BL KV	PF (WET) KV
12	700	486	260	330	75	38
24	1000	496	457	660	125	50
36	1200	762	457	902	170	70

Earth Switch

The earth switch is used to short circuit disconnected/de energized sections to Earth .They are normally for no load applications. They can be supplied for Indoor or Outdoor applications. The operation of the switch can be either Manual or Motorized . International standards IEC 62271-1021 and IEC60694 are followed. In most of the cases they are inter locked with main switch or breaker. They can be operated independently ,but the interlock should be ensured. The earth switch is fitted with spring operating device which makes the closing operation independent of the operating speed. The switch is provided with 3NO+3NC Auxiliary contacts

Rated Voltage KV	12	23	36	72
Power frequency withstand Voltage (KV)	28	50	70	140
BIL(kv)	75	125	170	325
Short time withstand Current(KA)	40	40	40	40
Peak withstand Current (KA)	100	100	100	100



HT SWITCH / DISCONNECTOR PANEL

HT Switch / Disconnecter panels are manufactured as per IEC 60298 specifications. The cubicles are made modular construction. According to requirement, the cubicles have the following equipments:- Disconnecter with operating levers. Cast resin current Transformers, HT fuse Links, Relay etc.

The indoor enclosures will invariably be powder painted. On request the outdoor sheet metal cubicle will be Hot dip Galvanised or of stainless steel. The ON –OFF position of Disconnecter can be monitored by the Dial Plate with the indication at the panel front. The Disconnecter/HT switch is provided with door interlocking mechanism (i.e) the Disconnecter/switch cannot be closed without the door in proper closed condition and neither the door be opened when the Disconnecter is in "ON" condition. The panel is of free standing, floor mounted and fabricated with 2mm CRCA sheet steels. The panel will be designed in such a way with free accessibility for maintenance, inspection and testing. The panel will be provided with the requisite number and size of Busbars for terminating the incoming and outgoing cables. Cable termination arrangements will be made within the cubicle for which adequate space clearance is maintained from the bottom level of the gland plate. The panel will be provided with removal type cable tray, lifting hook for shifting and earthing terminal.

The doors are connected to main earth by 16sq.mm bare copper flexible connections

WHILE ORDERING PLEASE SPECIFY

Rated Current (A) / Rated Voltage (KV) / No. of Poles / Operating Mechanism - Manual / Onload (Or) Off load. Motorized: 110V / 220V - AC/DC



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