



OUTDOOR OFF LOAD DISCONNECTORS

HCB/HDB Range



EVERYDAY SOLUTIONS

SWITCHGEAR COMPLEX



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Crompton Greaves Ltd. the name to reckon in Electrical Industry, brings a product with its leading edge technology to supplement its existing

range of switchgear products to complete the scope of substation equipment - OUTDOOR OFF LOAD DISCONNECTORS.



SPECIAL FEATURES



Both Main and Earth Switch Open



Earth Closed Main Open

- Proven design - Well accepted worldwide.
- Aluminium - Bearing Housings & Current carrying parts.
- Silver plated copper contacts for main contacts and H.V terminals.
- Double Tandem for Double Break Disconnecter.
- Optimized contact pressure to limit contact resistance.
- A spring for each contact finger for a permanent point contact.
- Heavy duty life time lubricated sealed bearing.
- Factory preset sub-assemblies for ease of erection and commissioning.
- Reliable turn and twist mechanism.
- Despatched in assembled 'ready-to-erect' assemblies.
- Adjustable shackles for self alignment of contact.
- Aluminium, MS Powder coated operating cabinets.
- Custom HV Terminals.
- Adjustable earthswitch base frame for perfect movement and alignment.
- Hot dip galvanised base frame and support structure assembly for corrosion protection.
- Double Disconnectors on request.
- HDG / stainless steel hardware.
- Mechanically inter-locked main and earth switch for enhanced safety.
- One or two integral earth switches.

Service Ambient Conditions

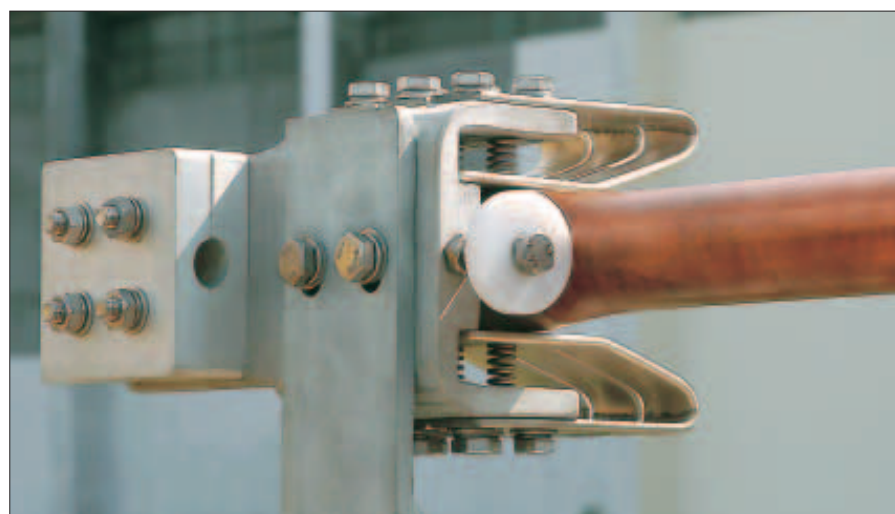
Item	Unit	Value
Ambient air temperature	°C	-25 to +50
Ice coating	mm	1, 10
Wind pressure	kg / m ²	150 / 195
Altitude	M or above as required	1000 or as required *
Earthquake	g	0.3
Creepage	mm / kV	25 / 31* / 40*

* Optional.

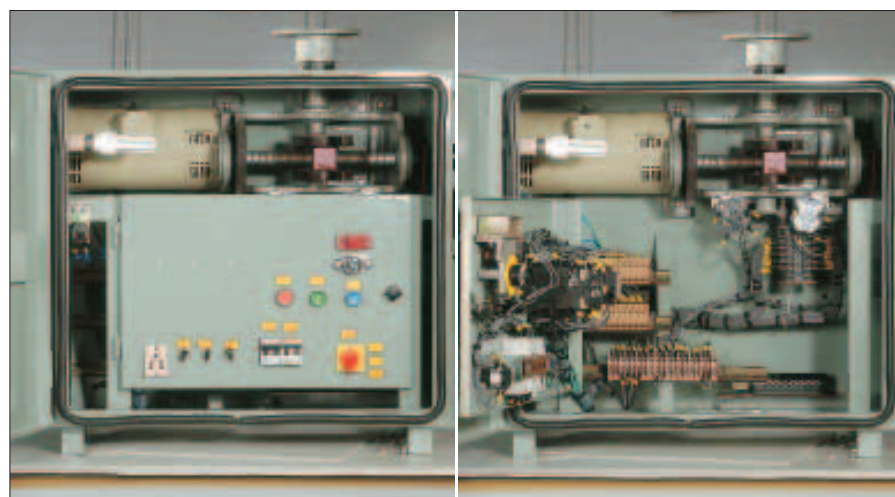


DISCONNECTOR CONFIGURATION

- The main current carrying parts - consisting of moving and fixed contact assemblies.
- Support insulators mounted between the current carrying parts and the base assemblies.
- Base frame with bearing assembly.
- The operating mechanism box. (AC/DC Motors / Manual Gear / Manual).
- Down operating pipes and inter-phase piping.
- Earthing switch (optional)
- Supporting structure mounted between base frame and ground (optional).



Design and Analysis



View of DC Motor Operating Box

DISCONNECTOR RANGE

CGL manufactures,

- Horizontal centre break type HCB and Horizontal double break type HDB, 24 kV to 420 kV class disconnectors as per 'Technical Parameters' refer table 1 to 4.
- Fully type tested at Government approved laboratories like Centre Power Research Institute (CPRI) - Bhopal/Bangalore/Hyderabad and ERDA - Baroda as per IEC 60129 and IEC 62271-102.
- The Disconnectors incorporates
 - Motorized disconnectors type CGM for main and earth disconnectors.
 - Manual gear operated disconnector CMG.
 - Manual Operated disconnector CMO as per customer requirement.
- Simultaneous operation of 3 poles by single operating mechanism upto 420 kV (optional).
- Individual pole operation for 420 kV.
- Insulators are fully type tested as per IEC 273 / IS 2544 / IEC 168 / IEC 60507.
- Torsion / bending moment special requirement (optional).

HORIZONTAL CENTRE BREAK DISCONNECTORS

TYPE - HCB

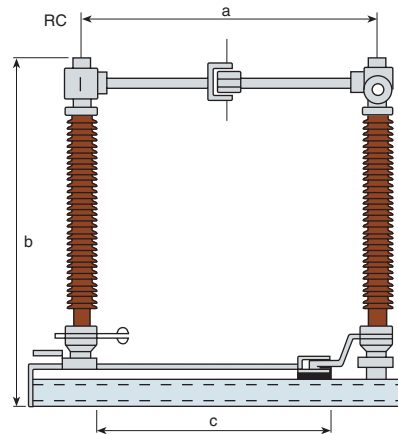


FIG. 1

Table - I

Overall Dimensions**			
kV	a	b	c
36	800	1000	650
72	1100	1400	1000
145	1700	2125	1450
170	2200	2350	1600
245	2600	2861	2100
420	4100	4837	3100

HORIZONTAL DOUBLE BREAK DISCONNECTORS

TYPE - HDB

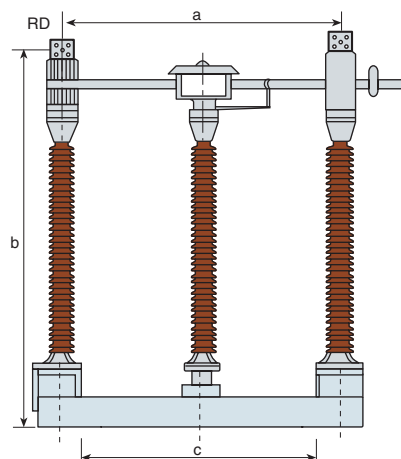


FIG. 2

Table - II

Overall Dimensions**			
kV	a	b	c
36	800	865	650
72.5	1100	1326	1000
123	1600	1744	1450
145	1600	2112	1450
170	2200	2350	1600
245	2600	2848	2100
420	4800	4420	4000

** R&D being continuous process, dimensions may change as per final design.

TECHNICAL PARAMETERS



Table - III **Horizontal Centre Break Disconnectors Type - HCB**

Rated Voltage	Rated Current	Rated short Time current	Rated peak Short Circuit current	Power Frequency Withstand Voltage r.m.s 1min.		Lighting impulse Withstand Voltage 1.2/50μs		Switching impulse Withstand Voltage 250/2500μs	
kV	A	kA	kAp	To earth	across isolating distance	To earth	across isolating distance	To earth	across isolating distance
				kV	kV	kVp	kVp	kVp	kVp
24	1250	25	62.5	50	80	125	195		
36/38.5	1600	25	62.5	70	80	170	195		
72.5	1600	40	100	140	160	325	375		
123	1600	40	100	230	265	550	630		
145	1600	40	100	275	315	650	750		
170	2000	40	100	325	375	750	860		
245	2000	40	100	460	530	1050	1200		
300	4000	50	125	380	435	1050	1050(+170)	850	700(+245)
420	3150	50	125	520	610	1425	1425(+240)	1050	900(+345)



Table - IV **Horizontal Double Break Disconnectors Type - HDB**

Rated Voltage	Rated Current	Rated short Time current	Rated peak Short Circuit current	Power Frequency Withstand Voltage r.m.s 1min.		Lighting impulse Withstand Voltage 1.2/50μs		Switching impulse Withstand Voltage 250/2500μs	
kV	A	kA	kAp	To earth	across isolating distance	To earth	across isolating distance	To earth	across isolating distance
				kV	kV	kVp	kVp	kVp	kVp
36/38.5	1600	25	62.5	70	80	170	195		
72.5	1600	40	100	140	160	325	375		
123	1600	40	100	230	265	550	630		
145	1600	40	100	275	315	650	750		
170	2000	40	100	325	375	750	860		
245	2000	40	100	460	530	1050	1200		
300	4000	50	125	380	435	1050	1050(+170)	850	700(+245)
420	2000	50	125	520	610	1425	1425(+240)	1050	900(+345)

ROUTINE TESTS

Disconnectors are routine tested as per IEC 62271-102 / IEC 60129.

INSTALLATION

- Our field engineers offer supervision services for erection, test and commissioning of disconnectors upon request.
- Existing disconnectors can be upgraded.
- Refurbishment of existing disconnectors is undertaken on request.
- Replacement of insulators for pollution level improvement.

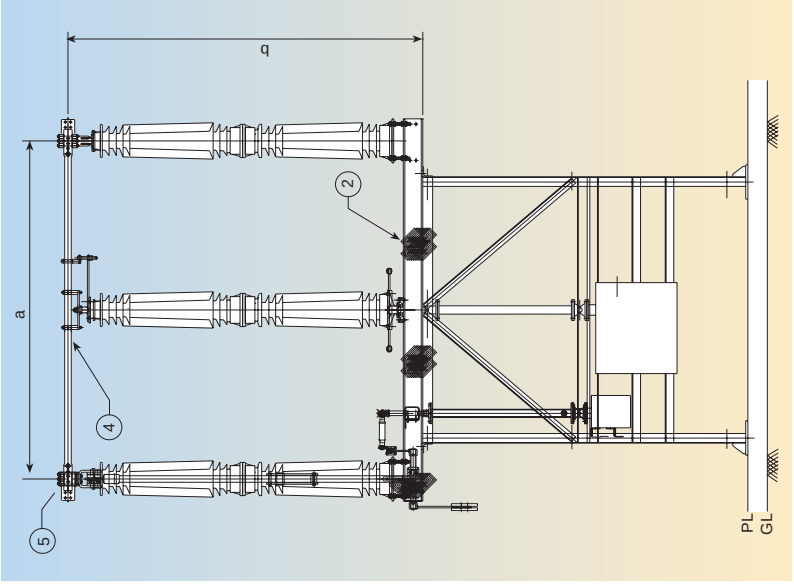
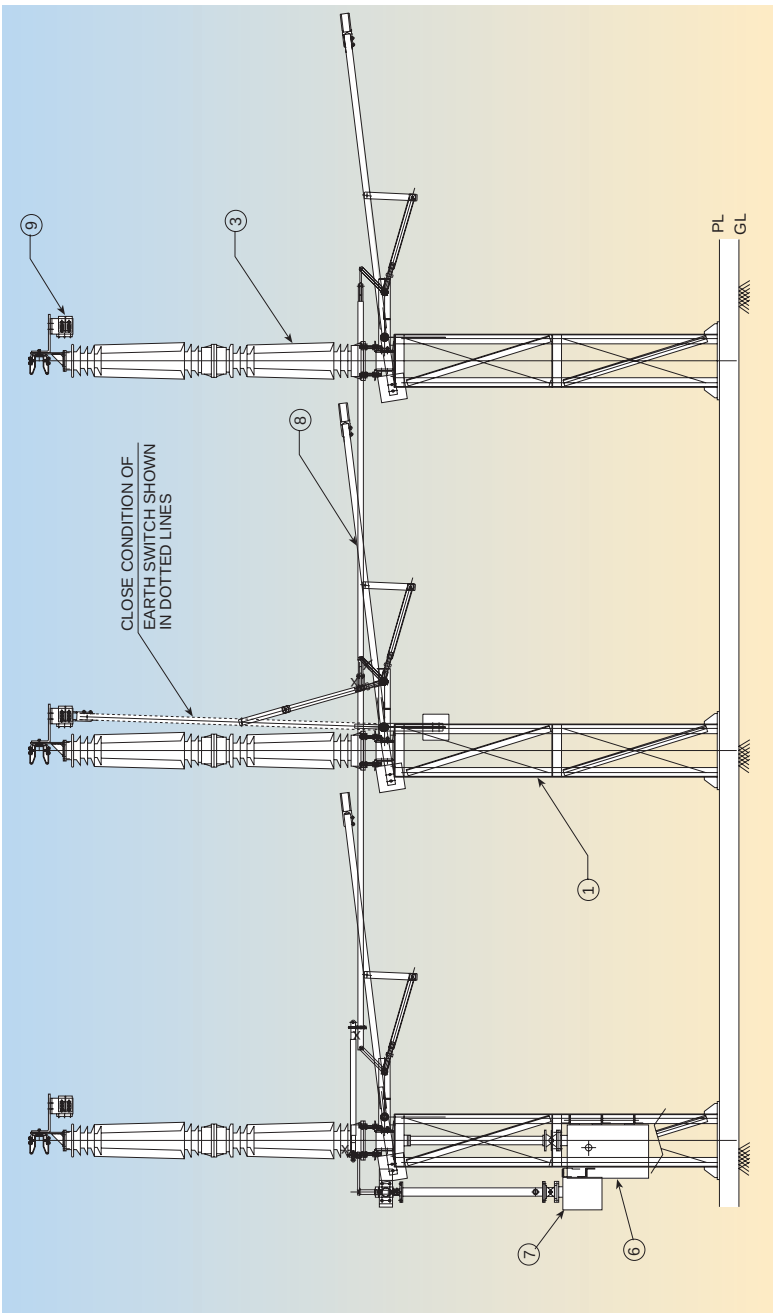
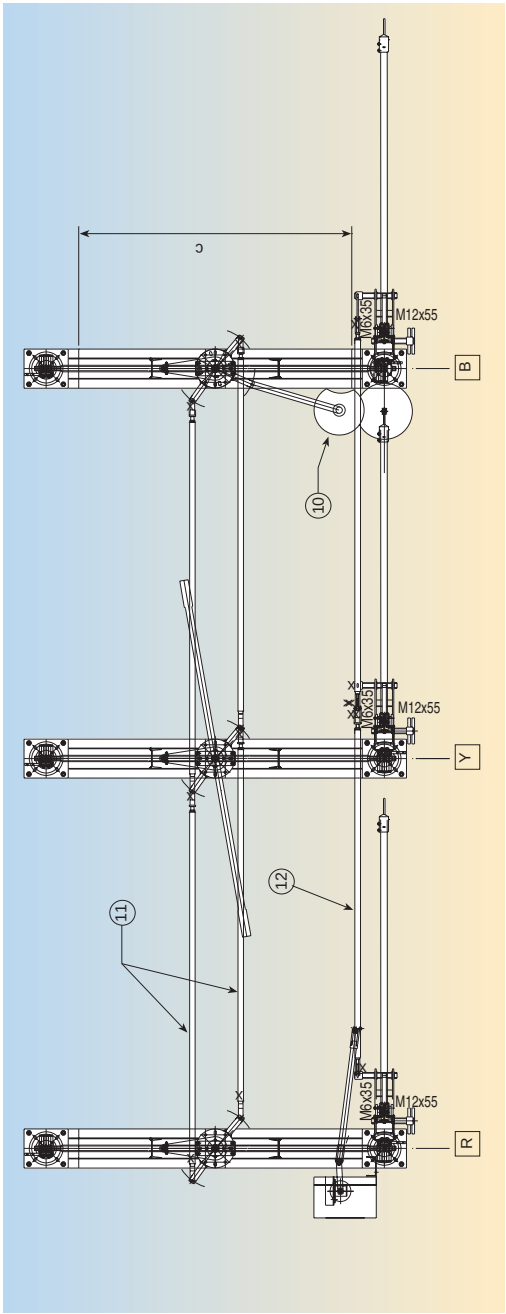


TYPICAL GENERAL ARRANGEMENT OF HDB DISCONNECTORS

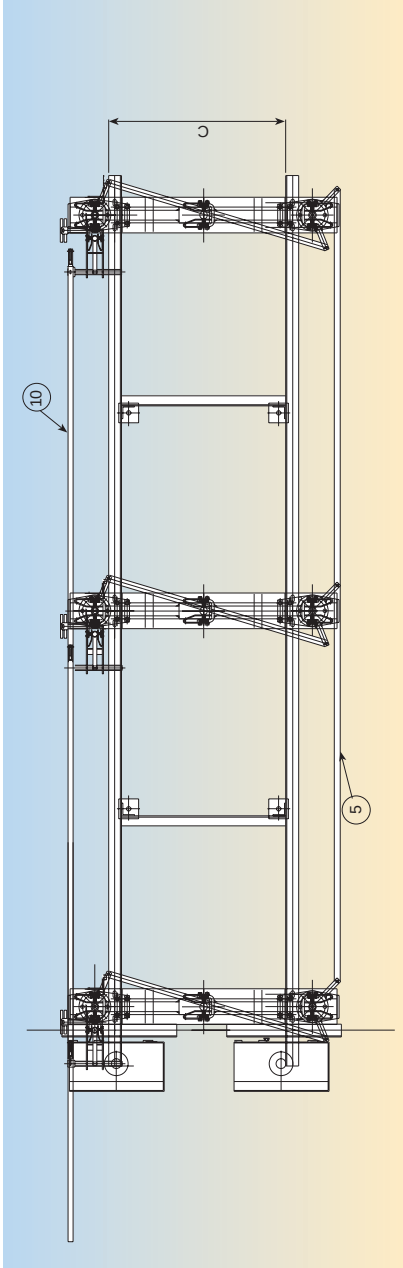


Sr. No.	Description	Qty.
1	Structure	6
2	Base Assembly	3
3	Insulator (Solid Core)	9
4	Moving Blade Assembly	3
5	Fixed Contact Assembly	6
6	Operating Box - Disconnecter	1
7	Operating Box - Earth Switch	1
8	Moving Blade Assembly for E.S.	3
9	Fixed Contact Assembly for E.S.	6
10	Mechanical Interlock	1
11	Gang Operating Pipe-Main	2 Set
12	Gang Operating Pipe-Earth	1 Set

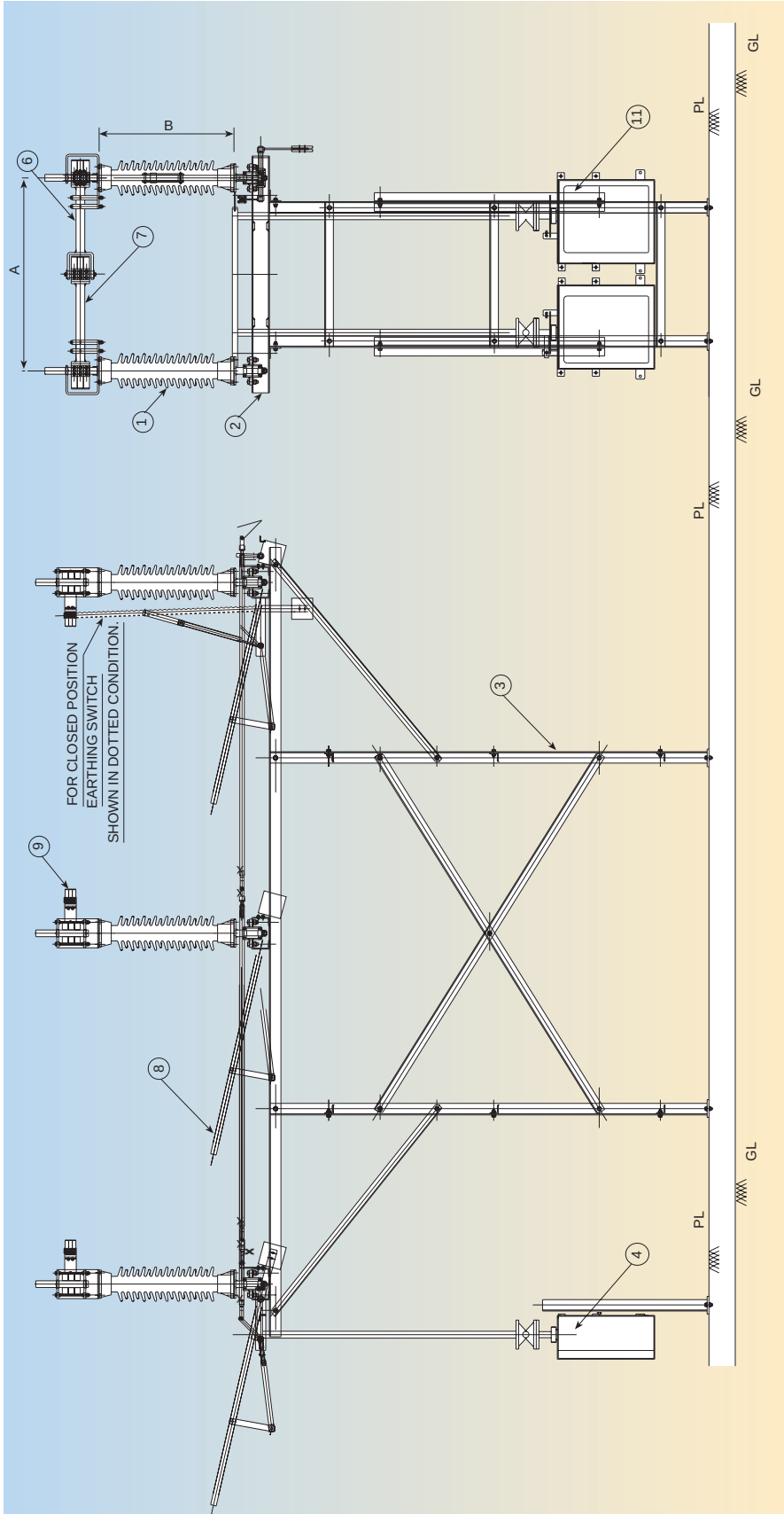
* As required by client



TYPICAL GENERAL ARRANGEMENT OF HCB DISCONNECTORS



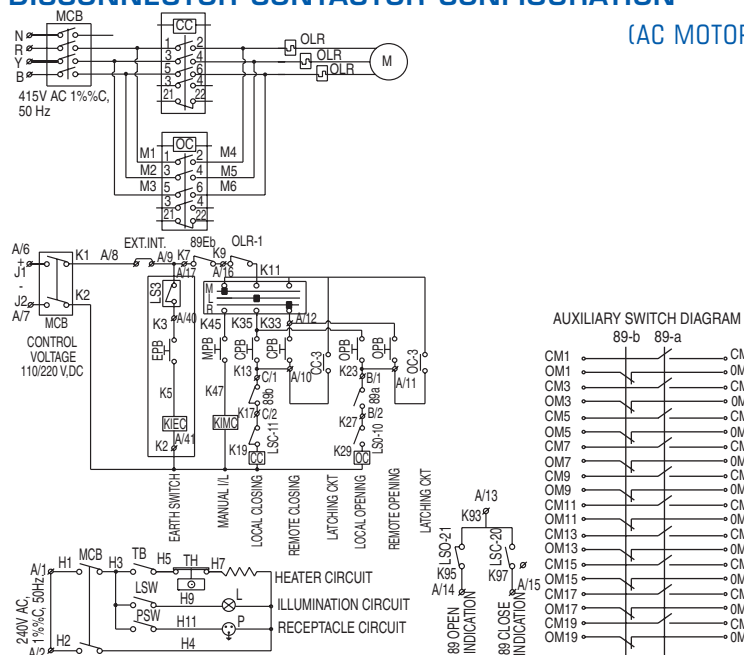
Sr. No.	Description	Qty.
1	Insulator	6
2	Base Assembly	3
3	Support Structure	1
4	Operating Mechanical - Main	1
5	Tandem Pipe	2
6	Male Blade Assembly	3
7	Female Blade Assembly	3
8	Earth Moving Blade	3
9	Earth Fixed Contact	3
10	Earth Tandem Pipe	2
11	Earth Operating Box	1





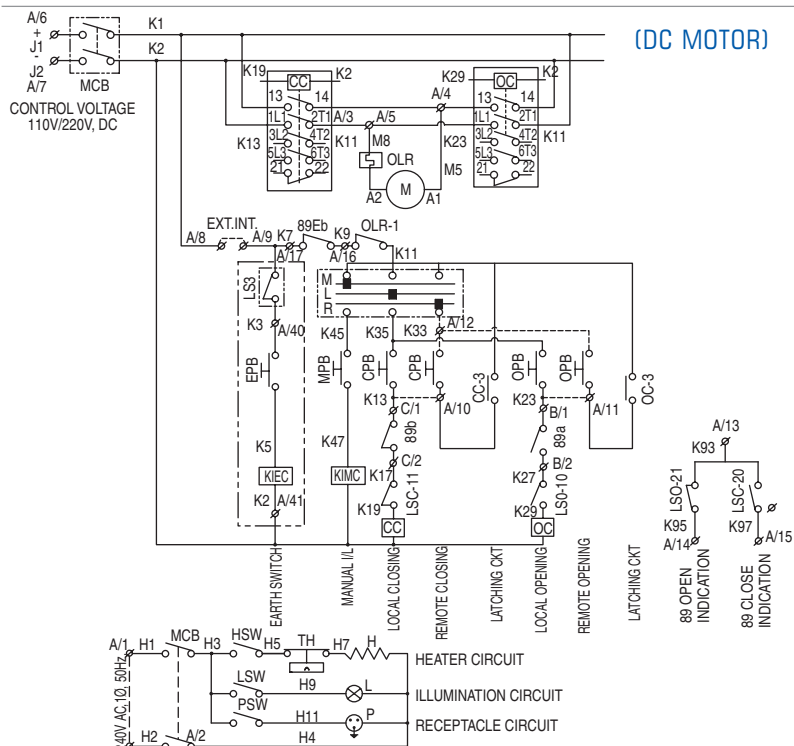
DISCONNECTOR CONTACTOR CONFIGURATION

(AC MOTOR)



LEGEND	DESCRIPTION	MAKE
CC	Closing Contactor 415V AC.	Siemens/Telemecanique/ABB/Eq.
OC	Opening Contactor 415V AC.	Siemens/Telemecanique/ABB/Eq.
M	Motor 0.5 Hp.Ø, 415V AC 50Hz.	CG/Siemens/Remi/Polyphase/Eq.
OLR	Overload Relay With SPP (1.0 To 1.4A)	Telemecanique/Lakshmi/Siemens/ABB/Eq.
KIMC	Key Interlock Manual Contact	CG/PS/Eq.
LSC	Limit Switch Close 10A, 2NO + 2NC	Keycee/Jaibalaji/Concord/Eq.
LSO	Limit Switch Open 10A, 2NO + 2NC	Keycee/Jaybalaji/Concord/Eq.
LMR	Local/Manual/Remote Selector Switch	Keycee/Switrn/Teknic/Eq.
CPB	Close Push Button	L & T/Teknic/Concord/Eq.
OPB	Open Push Button	L & T/Teknic/Concord/Eq.
MPB	Manual Push Button	L & T/Teknic/Concord/Eq.
EPB	Earth Push Button	L & T/Teknic/Concord/Eq.
H	Heater (80W,250V)2 Nos.each Of 40W.	Velico/Eq.
HSW	Heater Switch 5A.	Anchor/Eq.
TH	Thermostat	Velico/Mavis/Eq.
LSW	Lamp Switch	Anchor/Eq.
MCB	Miniature Circuit Breaker 110V DC.	Schneider/Havels/Eq.
89a	Isolator Aux.contact-N/O	Mani/Imax/Eq.
89b	Isolator Aux.contact-N/C	Mani/Imax/Eq.
P	Switch Socket Unit 5/15 Amps	Anchor/Eq.
HSW	Terminal Block	Elmex/Connectwell/Eq.

(DC MOTOR)



LEGEND	DESCRIPTION	MAKE
CC	Closing Contactor 110/220V DC.	Siemens/Telemecanique/ABB/Eq.
OC	Opening Contactor 110/220V DC.	Siemens/Telemecanique/ABB/Eq.
M	Motor 0.5 Hp.110/220 V DC	CG/Siemens/Remi/Polyphase/Eq.
OLR	Overload Relay With SPP (1.0 To 1.4A)	Telemecanique/Lakshmi/Siemens/ABB/Eq.
KIMC	Key Interlock Manual Contact	CG/PS/Eq.
LSC	Limit Switch Close 10A, 2NO + 2NC	Keycee/Jaibalaji/Concord/Eq.
LSO	Limit Switch Open 10A, 2NO + 2NC	Keycee/Jaybalaji/Concord/Eq.
LMR	Local/Manual/Remote Selector Switch	Keycee/Switrn/Teknic/Eq.
CPB	Close Push Button	L & T/Teknic/Concord/Eq.
OPB	Open Push Button	L & T/Teknic/Concord/Eq.
MPB	Manual Push Button	L & T/Teknic/Concord/Eq.
EPB	Earth Push Button	L & T/Teknic/Concord/Eq.
H	Heater(80W, 250V)2 Nos.each Of 40W.	Velico/Eq.
HSW	Heater Switch 5A.	Anchor/Eq.
TH	Thermostat	Velico/Mavis/Eq.
LSW	Lamp Switch	Anchor/Eq.
MCB	Miniature Circuit Breaker 110V DC.	Schneider/Havels/Eq.
89a	Isolator Aux.contact-N/O	Mani/Imax/Eq.
89b	Isolator Aux.contact-N/C	Mani/Imax/Eq.
P	Switch Socket Unit 5/15 Amps	Anchor/Eq.
TB	Terminal Block	Winpar/Connectwell/Eq.

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