

**CORRIGENDUM NO. 3**

1. Organization Chain	Bharat Heavy Electricals Limited     EPD - Bangalore
2. Tender ID	2023_BHEL_22328_1
3. Tender Reference Number	12302693R1
4. Tender Title	SUPPLY OF LT SWITCHGEAR FOR TUTICORIN FGD PROJECT
5. Corrigendum Type	<p>Technical Corrigendum-1 &amp; Due date extension</p> <ol style="list-style-type: none"><li>1. There is some technical clarification with respect to technical specification (SBD-TS-CPBGFGD-TUT, REV-00). Hence Technical CORRIGENDUM-1 has been prepared to inform all the Bidders.</li></ol> <p>Enclosed:</p> <ol style="list-style-type: none"><li>1. Technical Corrigendum-1 for Tender Ref. No: 12302693R1</li><li>2. Board wise BOM Rev 01 (Annexure-B1 TO B7, Annexure-B9 TO B11)</li><li>3. Module wise BOM Rev 01 (Annexure-C)</li></ol> <p>Note:</p> <ol style="list-style-type: none"><li>1. BOQ (price/unpriced copy) released along with tender is to be considered final.</li><li>2. Technical specification part -2 (total 83 sheet), sheet (16-22 of 83) &amp; (24-26 of 83) &amp; (28-45 of 83) to be ignored.</li></ol>
6. Corrigendum Title	Corrigendum-3
7. Description	Tender Submission Due Date Extension from 07-03-2023 14:00 Hrs to 14-03-2023 14:00 Hrs and Bid Opening Date 14-03-2023 15:00 Hrs

**TECHNICAL CORRIGENDUM-1**

SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION SUBMITTED BY	BHEL-SBD REPLY DT
<b>As per Specification Doc No.SBD-TS-CPBG-FGD-TUT, REV-00,Part 1 Total 60 Pages</b>						
1		34 of 60	1.01.01	Scope	Our scope is restricted design, manufacturing and supply up to site only.However erection, testing & Commissioning are not in our scope of supply.	Along with Design , Manufacturing and suply of LT switchgear , Relay parameterisation support (Setting)at site is in Bidder's scope . Point Closed.
2		34 of 60	1.01.03 to 1.01.01.05	Spares & Tools	We have considered Spares & Tools as per your List available along with your enquiry.	Noted.
3		35 of 60	4.01.00	Drawout Module	Please note that we have considered Conventional Drawout like Test & Isolation in door open condition, however we have not considered closed door operation of drawout. <b><u>This is for your information.</u></b>	Noted.Tech spec Clause 4.01.10 is applicable for ACB cubicle..
4		36 of 60	4.01.03	Degree of Protection	Our panel shall conform to Degree of Protection as under 1. Upto 1600A IP-52 as per IS-13947 Part-1 2. above 1600A IP-42 as per IS-13947 PART-1 <b><u>This is for your information.</u></b>	Noted as per clause 5.36.00 .
5		36 of 60	4.01.03	Sheet Steel Thickness	We confirm having considered in our offer Panel sheet steel thickness as under:  The panel shall be fabricated as under a) Sheet section frame : 2.0 mm C.R.C.A b) Doors & Covers : 1.6 mm C.R.C.A c) Gland plate (multi core cable) :3.0 mm HR.	Please follow tech spec clause 4.01.03 .Min thickness of shet metal used shall be 2mm.In addition,The gland plate thickness shall be 3.0 mm for hot / cold-rolled sheet steel and 4.0 mm for non-magnetic material.
6		36 of 60	4.01.05	Operating Height	We have envisaged operating height of handle/ push shall be minimum 250m to a Maximum limited to 2000mm in line with your specification. <b><u>This is for your kind information.</u></b>	Please follow tech spec clause 4.01.05.The working height shall be limited within 450mm to 1800mm from floor level.
7		36 of 60	4.02.00	Bus bars	We have considered all Horizontal and Vertical busbars shall be aluminium only. However we have not considered any 20% of Margin of transformer ratings. <b><u>This is for your kind information.</u></b>	busbar rating has to be considered as per Boardwise BOM . Point Closed.

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8		37 of 60	4.03.00	ACB	We confirm having considered Incomer, Bus coupler and Outgoing feeder arrangement as under, I/C & B/C ACB's Shall be Single Tier Outgoing:- • ACB outgoing breaker feeders upto 1600A shall be Two Tier • SFU/MCCB/DOL/RDOL shall be Multi tier. <b><u>This is for your information.</u></b>	Noted
9		39 of 60	4.07.00	MCCB's	We have considered MCCB Thermal magnetic inbuilt adjustable release for Overload & Fixed Short Circuit for all MCCB Power outgoing / Incomer /Buscoupler Feeders.  Please note that we have not considered Motorized MCCB as per your Boradwise BOM only.  Further to the above we have considered S/C protection for DOL/RDOL Feeders.  We have considered separate E/F protection unit for above 50KW motor feeder. <b><u>Kindly check and confirm.</u></b>	Bidder to follow technical specification .NTPL requirement is clearly mentioned in tech spec part-A pg (52-57) of 60.
10		43 of 60	4.16.01	Cable Entry	We have considered bottom Cable entry for all boards inline with yor Annexure-B1 to B11. <b><u>This is for your information.</u></b>	Cable entry shall be bottom only. Point Closed.
11		43 of 60	4.17.00	Bus Duct	Bus Duct not in our scope of supply.	Noted.
12		46 of 60	4.23.00	Painting	We confirm to provide paint shall us under • Interior – Light Grey IS 631 • Exterior – Light Grey IS 631  Further, please note the Interior & Exterior Paint Shade shall be identical as per our standard manufacturing procedure. <b><u>This is for your kind information.</u></b>	Noted as per clause 4.23.03
13		47, 48 of 60	4.24.00 & 6.00.00	Accessories & Special Tools and Tackles	Please note that we have considered list & quantity of items inlione with your Annexure-F, under heading of List of Tools and Tackles. <b><u>This is for your kind information.</u></b>	Noted.
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SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION SUBMITTED BY	BHEL-SBD REPLY DT
<b>As per Specification Doc No.SBD-TS-CPBG-FGD-TUT, REV-00,Part 2 Total 83 Pages</b>						
15		7 of 83	5.36.01	Degree of Protection	Our panel shall conform to Degree of Protection as under 1. Upto 1600A IP-52 as per IS-13947 Part-1 2. above 1600A IP-42 as per IS-13947 PART-1 <b><i>This is for your information.</i></b>	Noted as per clause 5.36.00 .
16		8 of 83	12.01.00	Type test	Please note that Panels to be offered by us have already been type tested for short time current and degree of protection test at CPRI, Bhopal and for temperature rise test at our works for several times, therefore, it is not required to carryout these tests. However, we shall furnish type test certificate received from the testing laboratories for your reference.  In case you still desire to carry out these tests again, the same shall be conducted at extra cost. The unit prices are indicated in our enclosed Price Schedule.	In case the Bidder is not able to submit report of the type test(s) conducted not earlier than ten years prior to the date of bid opening, or in case the type test report(s) are not found to be meeting the specification requirements, the bidder shall conduct all such tests under this contract at no additional cost either at third party lab or in presence of client/Employer for approval.Point Closed.
17		9 of 83	17.00.00	Spares Philosophy	Please note that we have considered feeder quantity as per your Boradwise BOM  No Additional spare feeders are envisaged by us.  In view of the above any Additional Quantity increase or Decrease shall be paid extra based on Addition/Deletion Price. <b><i>This is for your information.</i></b>	Number, type and rating of the feeders to be considered as per feeder list only. In case of change same will be settled based on Addition deletion price during detailed engg . Point Closed
18						
<b>19 As per Specification Doc No.SBD-TS-CPBG-FGD-TUT, REV-00,Part 3 Total 49 Pages</b>						
20		7 of 49	17	Packing	We have considered our standard Plywood packing only as per Drg No.EP-3-PP-001-001 / Rev 01 and our earlier execution project, however we have not considered any GI Sheet.	Noted.

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<b>BOARD WISE BOM</b>						
21		3,5,6,7 of 11	415V EMERGENCY MCC # 0DG, 415V WWTP MCC # 0SA, 415V WS,HVAC,Compressed AIR MCC # 0SB, 415V COMMON MCC # 0SC	Motor Outging: 18KW	Please note that you have given 18KW DK21 type in Board wise BOM as against DK2. <b><u>Kindly check and confirm.</u></b>	Correct BOM attached as Annx B6 REV 01
<b>MODULE WISE BOM</b>						
22		8 & 9 of 18	EM3(I/C) & EM3(B/C)	above 100A MCCB	Please note that EM3 incomer, bus coupler MCCB above 100A ratings we have consider non motorized MCCB only. <b><u>Kindly check and confirm.</u></b>	EM3 incomer above 100A MCCB shall have non motorized MCCB.EM3 buscoupler upto 630A shall have non-motorized MCCB.Correct BOM attached as Annx-C REV 01
23		9 & 10 of 18	E1(O/G) & E3(O/G)	Outgoing Power Feeder	Please note that E1 & E3 outgoing Power MCCB shall be non motorized type only. <b><u>Kindly check and confirm.</u></b>	Noted
24		1,2,3,4 of 18	DAET(I/C),DAE(I/C),DAET/DAE(B/C) & DAE/DAE-TIE (O/G)	CT for Metering	Please note that you have not given Metering CT for <b>DAET(I/C),DAE(I/C),DAET/DAE(B/C)</b> feeder types. <b><u>Kindly check and confirm.</u></b>	Metering CT to be provided.NTPL requirement is clearly mentioned in tech spec part-A pg (52-57) of 60.Correct BOM attached as Annx-C REV 01
25		5 of 18	DM / PM	CT for Metering	Please note that you have given only one number of CT , however mentioned Energy Meter. <b><u>Kindly check and confirm.</u></b>	Correct BOM attached as Annx-C REV 01
26		8, 9 of 18	EM3(I/C) & EM3(B/C)	CT for Metering	Please note that you have given only one number of CT , however mentioned Energy Meter. <b><u>Kindly check and confirm.</u></b>	Correct BOM attached as Annx-C REV 01
27			J1 & J2	Test Supply & Essential Supply Trafo	Please note that J1 & J2 feeder missing in Module wise BOM list. We request you to kindly provide the details. <b><u>This is for your information.</u></b>	Following supply transformer required & incorporated in Board wise BOM & module wise BOM:1. 415/110V control supply transformer,2nos. 2.415/110V test supply transformer,2nos. 3. 415/240V space heater supply transformer,2nos. 4. 415/24V motor winding heating transformer 2nos
28			J2	Essential Supply Trafo	Please note that J2 Essential Supply Trafo feeder, we have consider 2KVA only as against called for your specification. <b><u>Kindly check and confirm.</u></b>	All supply transformer feeder shall be 2KVA.Corrected in Board wise BOM & module wise BOM.

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29		11 & 12 of 18	DK2, DK21, DN1 & DN21	HRC Fuse (Power)	Please note that HRC Fuse (Power) is not required, since SFU is not there for DK2 & DK21 type feeder. <b><u>Kindly check and confirm.</u></b>	Noted.
30		11 & 12 of 18	DK2, DK21, DN1 & DN21	Control Supply Transformer ratings	Please noe that you have specified 2KVA rating of individual motor Modules, but as per prvious practice one number of 2KVA is sufficient for one Boards.  Further to the above we have considered 50VA for upto 30KW above 100VA. <b><u>Kindly check and confirm.</u></b>	Correct BOM attached as Annx-C REV 01
31		5,8,9,12 of 18	EM3(I/C) & EM3(B/C),DM(O/G),DK 21(O/G)	KWH Meter	Please note that we have consider fixed type KWH meter only. <b><u>This is for your information.</u></b>	Noted
32		1,2,3,4 of 18	DAET(I/C),DAE(I/C),DAET/DAE(B/C),DAE(O/G)	Ammeter	Please note that we have consider 1no of Ammeter only as against 3 Nos called for. <b><u>This is for your information.</u></b>	Correct BOM attached as Annx-C REV 01
33		17 of 18	DN1 & DN21		We request you to kindly check and confirm components quantity of each item of DN1 & DN21 for examble 60 Nos of Auxiliary Contactor specified. <b><u>Kindly check and confirm.</u></b>	Correct BOM attached as Annx-C REV 01
<b>MANDATORY SPARES FOR LT SWITCHGEAR</b>						
34		31 - 33 of 73	PCC Panel Mandatory spares		Please provide the consolidated mantatory Spares as against mention PCC, PMCC, MCC, DB's	Bidder to quote spare separately for 4000A PMCC, 2500A PMCC, 2000A MCC, 800A MCC, 630A MCC, 400A MCC, 250A MLDB,400A DCDB.
35		34 of 73	Check synchronizing relay		Please note that Check synchronizing relay features shall be part of Numerical Relay, hence we have not quoted seperately.	Noted.
36		34 of 73	Timers		Please note that as per main board that Timer is not applicable.hence not quoted <b><u>Kindly check and confirm.</u></b>	Noted.
37		33 of 73	Tripping Coil		We have offered Common for all ratings of Breaker.	1) Common for all ratings upto 1600A 2) Common for all ratings above 1600A-4000A
38		33 of 73	Spring Charge Motors		We have offered two type of Sparing charge Motor as listed below 1) Common for all ratings upto 1600A 2) Common for all ratings above 1600A-4000A	Noted . Point Closed.
39		33 of 73	Closing Coil		We have offered Common for all ratings of Breaker.	1) Common for all ratings upto 1600A 2) Common for all ratings above 1600A-4000A

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SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION SUBMITTED BY	BHEL-SBD REPLY DT
40		34 of 73	Power Fuses		Please note that as per main board that Power Fuses are not applicable.hence not quoted <b><i>Kindly check and confirm.</i></b>	Noted . Point Closed.
<b>COMMISSIONING SPARES FOR LT SWITCHGEAR</b>						
41		1 of 2	Tripping Coil		We have offered Common for all ratings of Breaker.	1) Common for all ratings upto 1600A 2) Common for all ratings above 1600A-4000A
42		1 of 2	Spring Charge Motors		We have offered two type of Sparing charge Motor as listed below 1) Common for all ratings upto 1600A 2) Common for all ratings above 1600A-4000A	Noted . Point Closed.
43		1 of 2	Closing Coil		We have offered Common for all ratings of Breaker.	1) Common for all ratings upto 1600A 2) Common for all ratings above 1600A-4000A
44		1 of 2	Power Fuses		Please note that as per main board that Power Fuses are not applicable.hence not quoted <b><i>Kindly check and confirm.</i></b>	Noted . Point Closed.
<b>Tools &amp; Tackles</b>						
45			Fuse Puller		Please note that as per main board that Power Fuses are not applicable.hence Fuse Puller not quoted <b><i>Kindly check and confirm.</i></b>	Fuse puller required for Control fuses.
<b>GENERAL</b>						
46				Make Of Components	Components and their makes to be provided by us shall be as per our own make (i.e.C&S Electric Ltd). In case of any non-approval, we (C&S & BHEL) will work out jointly to get our components approved in order to avoid delay in delivery.	Make of Component shall be as per NTPL approved.
47				Limitation of Scope	We have not considered the following items in our scope of supply: 1. Data concentrator / HMI / MMI/ Laptop / PLC. 2. Cable Glands & lugs 3. DC Battery & Charger 4. UL224 type of Sleeves 5. Unpacking & Un loading & Handling at site. 6. Form-4B 7.Closed Door Operation of MCC	Noted for 1,3,4,5,6,7. Power and Control cable glands & cable lugs are in Bidder's scope. Point Closed.

**ANNEXURE-B1 REV 01**

**Name of the Board: 415V FGD SERVICE PMCC UNIT-1 # 1DF, 4000A**

**TYPE OF CONNECTION: TOP/SIDE BUSDUCT ENTRY**

**DOUBLE FRONT D/O TYPE**

**FLOOR MOUNTED**

Feeder type	Rating	Total feeders	Unit Price	Total price
DAE OG	2000A	2		
DAE OG	630A	2		
DAE OG	800A	3		
DK2	11.2KW	6		
DK21	22.5KW	4		
DK2	3.7KW	4		
DK21	30KW	8		
DK21	37KW	4		
DK21	55KW	4		
DM	110KW	3		
E1	16 A	11		
E1	30 A	3		
E1	32A	3		
E3	100A	9		
E3	160A	3		
E3	16A	47		
E3	32A	5		
E3	63A	6		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAET IC	4000A	2		
DAET BC	4000A	1		
ACB I/C PANELS	4000A	2		
ACB B/C PANEL	4000A	1		
ACB O/G PANELS	4000/2000A	2		
ACB O/G PANELS	4000/630A	1		
ACB O/G PANELS	4000/800A	2		
MCC (DFDO)	4000A	AS REQ		
DUMMY PANELS	4000A	1		
ETHERNET SWITCH		1		

**ANNEXURE-B2,REV 01**

**Name of the Board: 415V FGD SERVICE PMCC UNIT-2 # 2D, 4000A**

TYPE OF CONNECTION: TOP/SIDE BUSDUCT ENTRY

DOUBLE FRONT D/O TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
DAE OG	2000A	2		
DAE OG	630A	2		
DAE OG	800A	3		
DK2	11.2KW	6		
DK21	22.5KW	4		
DK2	3.7KW	4		
DK21	30KW	8		
DK21	37KW	4		
DK21	55KW	4		
DM	110KW	3		
E1	16A	12		
E1	32A	3		
E3	100A	9		
E3	160A	3		
E3	16A	47		
E3	32A	5		
E3	63A	6		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAET IC	4000A	2		
DAET BC	4000A	1		
ACB I/C PANELS	4000A	2		
ACB B/C PANEL	4000A	1		
ACB O/G PANELS	4000/2000A	2		
ACB O/G PANELS	4000/630A	1		
ACB O/G PANELS	4000/800A	2		
MCC (DFDO)	4000A	AS REQ		
DUMMY PANELS	4000A	1		
ETHERNET SWITCH		1		

**ANNEXURE-B3,REV 01**

**Name of the Board: 415V EMERGENCY MCC # ODG, 800A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

DOUBLE FRONT D/O TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
DK2	11KW	4		
DK21	18.5KW	4		
DK21	22KW	4		
DK2	3KW	10		
DK2	5.5KW	22		
DK21	45KW	9		
DK21	55KW	6		
E3	100A	3		
E3	150A	3		
E3	16A	6		
E3	30A	4		
E3	63A	8		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAE IC	800A	2		
DAE BC	800A	1		
ACB I/C PANELS	800A	2		
ACB B/C PANEL	800A	1		
MCC (DFDO)	800A	AS REQ		
DUMMY PANELS	800A	1		
ETHERNET SWITCH		1		

**ANNEXURE-B4,REV 01**

**Name of the Board: 415V FGD HVAC MCC # 0TA, 630A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

DOUBLE FRONT D/O TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
DK2	2.2KW	3		
DK2	7.5KW	5		
E1	16A	15		
E3	16A	143		
E3	200A	5		
E3	32A	64		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAE IC	630A	2		
DAE BC	630A	1		
ACB I/C PANELS	630A	2		
ACB B/C PANEL	630A	1		
MCC (DFDO)	630A	AS REQ		
DUMMY PANELS	630A	1		
ETHERNET SWITCH		1		

**ANNEXURE-B5,REV 01**

**Name of the Board:415V WWTP MCC # 05A , 400A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

DOUBLE FRONT D/O TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
DK2	1.1KW	4		
DK2	15KW	4		
DK2	2.2KW	14		
DK2	3.7KW	14		
DK2	5.5KW	7		
DK2	7.5KW	6		
DK21	37KW	4		
E3	16A	6		
E3	32A	3		
BUS PT - VM		2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
EM3 IC	400A	2		
EM3 BC	400A	1		
MCC (DFD0)	400A	AS REQ		

**ANNEXURE-B6,REV 01**

**Name of the Board:415V WS,HVAC,Compressed AIR MCC # 05B, 800A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

DOUBLE FRONT D/O TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
DK2	0.75KW	4		
DK2	1.1KW	3		
DK2	11KW	6		
DK2	18KW	5		
DK21	37KW	4		
DM	110KW	4		
E1	16A	5		
E3	16A	45		
E3	200A	4		
E3	63A	3		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAE IC	800A	2		
DAE BC	800A	1		
ACB I/C PANELS	800A	2		
ACB B/C PANEL	800A	1		
ACB O/G PANELS	800/630A	2		
MCC (DFDO)	800A	AS REQ		
DUMMY PANELS	800A	1		
ETHERNET SWITCH		1		

**ANNEXURE-B7,REV 01**

**Name of the Board:415V COMMON MCC # 05C, 2000A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

DOUBLE FRONT D/O TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
DK2	0.5KW	4		
DK2	0.75KW	4		
DK2	1.1KW	6		
DK2	11KW	4		
DK2	15KW	17		
DK21	18.5KW	14		
DK2	2KW	6		
DK2	2.2KW	4		
DK2	3KW	6		
DK2	3.7KW	4		
DK21	30KW	4		
DK2	4KW	6		
DK2	5.5KW	16		
DK2	7.5KW	4		
DK2	9KW	3		
DK21	37KW	12		
DK21	45KW	6		
DK21	55KW	4		
E3	16A	76		
E3	32A	5		
E3	63A	9		
E3	100A	4		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAE IC	2000A	2		
DAE BC	2000A	1		
ACB I/C PANELS	2000A	2		
ACB B/C PANEL	2000A	1		
MCC (DFDO)	2000A	AS REQ		
DUMMY PANELS	2000A	1		
ETHERNET SWITCH		1		

**Name of the Board: 415V FGD LHP/GHP PMCC #0DE, 2500A**

**TYPE OF CONNECTION: TOP/SIDE BUSDUCT ENTRY**

**DOUBLE FRONT D/O TYPE**

**FLOOR MOUNTED**

<b>Feeder type</b>	<b>Rating</b>	<b>Total feeders</b>	<b>Unit Price</b>	<b>Total price</b>
DK2	0.55KW	5		
DK2	2.2KW	3		
DK21	22KW	3		
DK2	3.7KW	5		
DK21	30KW	3		
DK2	5.5KW	3		
DK2	9.3KW	5		
DK21	37KW	3		
DN1	15KW	3		
DN1	3.7KW	3		
DN21	75KW	3		
E3	100A	8		
E3	125A	3		
E3	160A	2		
E3	16A	14		
E3	200A	3		
E3	32A	24		
E3	400A	3		
E3	63A	21		
BUS PT - G1	50VA	2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
MOTOR WINDING HEATING TRANSFORMER	2KVA	2		
DAET IC	2500A	2		
DAET BC	2500A	1		
ACB I/C PANELS	2500A	2		
ACB B/C PANEL	2500A	1		
MCC (DFDO)	2500A	AS REQ		
DUMMY PANELS	2500A	1		
ETHERNET SWITCH		1		

**ANNEXURE-B10,REV 01**

**Name of the Board:415V MLDB FOR LHP &GHP WITH 2X100KVA DRY TYPE TRANSFORMER , 250A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

SINGLE FRONT FIXED TYPE

FLOOR MOUNTED

Feeder type	Rating	Total feeders	Unit Price	Total price
E3	63A	6		
E3	100A	2		
E3	32A	5		
DRY TYPE TRANSFORMER	100KVA	2		
BUS PT - VM		2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
EM3 IC	250A	2		
EM3 BC	250A	1		
MCC (SFFT)	250A	AS REQ		

**ANNEXURE-B11,REV 01**

**Name of the Board:415V WDB FOR LHP &GHP WITH 2X100KVA DRY TYPE TRANSFORMER , 250A**

TYPE OF CONNECTION: CABLE ENTRY BOTTOM

SINGLE FRONT FIXED TYPE

FLOOR MOUNTED

<b>Feeder type</b>	<b>Rating</b>	<b>Total feeders</b>	<b>Unit Price</b>	<b>Total price</b>
E3	63A	12		
DRY TYPE TRANSFORMER	100KVA	2		
BUS PT - VM		2		
TEST SUPPLY - J2	2KVA	2		
CONTROL SUPPLY(CS)	2KVA	2		
SPACE HEATER SUPPLY TRANSFORMER	2KVA	2		
EM3 IC	250A	2		
EM3 BC	250A	1		
MCC (SFFT)	250A	AS REQ		

SL NO	MODULE TYPE	ITEM DESCRIPTION	QTY.
1	DAET (I/C)	PMCC INCOMER OF 1600A, 2500A, 3000A, 3200A, 4000A SHALL COMPRISE OF:	
		ACB TP, ELECTRICALLY OPERATED D/O TYPE, WITHOUT RELEASES, CONTROL SUPPLY VOLTAGE 220V DC,4NO + 4NC CONTACTS OF POSITION/ CELL SWITCH. SPRING CHARGE LIMIT SWITCH WITH minimum 2NO + 2NC contacts.	1
		CONTROL FUSE 6A	15
		CONTROL FUSE 16A	4
		FUSE BASE 32A	19
		Indicating Lamp	5
		CURRENT TRANSFORMER (PROTECTION) 10VA,CL-5P20	3
		CURRENT TRANSFORMER (PROTECTION) with VDR 10VA,CL-PS	3
		METERING CT 10VA,CLASS 1 ACCURACY	3
		POTENTIAL TRANSFORMER -CAST RESIN, OVER VOLTAGE FACTOR 1.2 CONT./1.5 FOR 30 SEC. . 415/110,50 VA CL-1 INSL CL-E	1
		CURRENT TRANSDUCER (DC),4-20mA, DUAL O/P,AUX.-220V DC	3
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	3
		KW TRANSDUCER	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		VOLTMETER (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		LOCKOUT RELAY HAND RESET TYPE	1
		FUSE FAILURE REALY	1
		NEUTRAL LINK 32A	1
		CONTROL TERMINALS(FIXED)	As required
		CT SHORTING TERMINAL-STUD TYPE	As required
		POWER TERMINAL	As required
		DOUBLE POLE ON/OFF SWITCH-16 A,220 V DC	2
		2POLE 2POS1 SELECTOR SWITCH KEY LOCKABLE-10A, 220VDC	1
		NUMERICAL RELAY WITH COMMUNICATION FACILITY AS PER IEC-61850 FOR FOLLOWING FUNCTIONS: <ul style="list-style-type: none"> <li>• SHORT CIRCUIT PROTECTION (51)</li> <li>• EARTH FAULT PROTECTION (51N)</li> <li>• OVER LOAD PROTERCTION</li> <li>• RESTRICTED EARTRH FAULT PROTECTION(64R)</li> <li>• RESIDUAL EARTH FAULT PROTECTION</li> <li>• TRIP CIRCUIT SUPERVISION (95)</li> <li>• CIRCUIT BREAKER MONITORING</li> <li>• PT FUSE FAILURE</li> <li>• ENERGY METERING</li> <li>• CURRENT, VOLTAGE &amp; FREQUENCY MEASUREMENT</li> <li>• SYNCHRONIZING FEATURE</li> <li>• No of DI/DO SHALL BE AS PER SCHEME REQUIREMNET</li> <li>• ALL THE BINARY INPUTS SHALL BE CAPABLE OF TAKING THE 220V DC ,HOWEVER THE THERSHOLD VALUE FOR BINARY INPUT SHALL BE 18V DC (+/- 5%)</li> </ul>	1
		<ul style="list-style-type: none"> <li>•INSTANTANEOUS OVER CURRENT PROTECTION (50)</li> <li>•IDMT OVER CURRENT PROTECTION (51)</li> <li>• INSTANTANEOUS EARTH PROTECTION (50N)</li> <li>• IDMT EARTH FAULT PROTECTION (51N)</li> <li>• CIRCUIT BREAKER FAILURE PROTECTION (50BF)</li> <li>•UNDER VOLTAGE PROTECTION(27)</li> <li>•BACKUP (STANDBY ) EARTH FAULT PROTECTION (64S)</li> <li>•ANTI PUMPING (94)</li> <li>•CHECK SYNCHRONIZING 25 THROUGH RELAY MOUNTED IN BUS COUPLER</li> </ul>	
		INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		SPARE FOR INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	

2	DAE (I/C)	<b>MCC INCOMER OF 630A, 800A, 1000A, 1250A, 1600A, 2000A SHALL COMPRISE OF:</b>	
		ACB TP, ELECTRICALLY OPERATED D/O TYPE, WITHOUT RELEASES, CONTROL SUPPLY VOLTAGE 220V DC,4NO + 4NC CONTACTS OF POSITION/ CELL SWITCH. SPRING CHARGE LIMIT SWITCH WITH minimum 2NO + 2NC contacts.	1
		CONTROL FUSE 6A	15
		CONTROL FUSE 16A	4
		FUSE BASE 32A	19
		Indicating Lamp	5
		CURRENT TRANSFORMER (PROTECTION) 10VA,CL-5P20	3
		<b>METERING CT 10VA,CLASS 1 ACCURACY</b>	<b>3</b>
		POTENTIAL TRANSFORMER -CAST RESIN, OVER VOLTAGE FACTOR 1.2 CONT./1.5 FOR 30 SEC . 415/110,50 VA CL-1 INSL CL-E	1
		CURRENT TRANSDUCER (DC),4-20mA, DUAL O/P,AUX.-220V DC	3
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	3
		KW TRANUDCER	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		VOLTMETER (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		LOCKOUT RELAY HAND RESET TYPE	1
		FUSE FAILURE REALY	1
		NEUTRAL LINK 32A	1
		CONTROL TERMINALS(FIXED)	As required
		CT SHORTING TERMINAL-STUD TYPE	As required
		POWER TERMINAL	As required
		DOUBLE POLE ON/OFF SWITCH-16 A,220 V DC	2
		2POLE 2POSI SELECTOR SWITCH KEY LOCKABLE-10A, 220VDC	1
		NUMERICAL RELAY WITH COMMUNICATION FACILITY AS PER IEC-61850 FOR FOLLOWING FUNCTIONS: <ul style="list-style-type: none"> <li>• SHORT CIRCUIT PROTECTION (51)</li> <li>• EARTH FAULT PROTECTION (51N)</li> <li>• OVER LOAD PROTERCTION</li> <li>• RESIDUAL EARTH FAULT PROTECTION</li> <li>• TRIP CIRCUIT SUPERVISION (95)</li> <li>• CIRCUIT BREAKER MONITORING</li> <li>• PT FUSE FAILURE</li> <li>• ENERGY METERING</li> <li>• CURRENT, VOLTAGE &amp; FREQUENCY MEASUREMENT</li> <li>• SYNCHRONIZING FEATURE</li> <li>• No of DI/DO SHALL BE AS PER SCHEME REQUIREMNET</li> <li>• ALL THE BINARY INPUTS SHALL BE CAPABLE OF TAKING THE 220V DC ,HOWEVER THE THERSHOLD VALUE FOR BINARY INPUT SHALL BE 18V DC (+/- 5%)</li> </ul>	1
		<ul style="list-style-type: none"> <li>•INSTANTANEOUS OVER CURRENT PROTECTION (50)</li> <li>•IDMT OVER CURRENT PROTECTION (51)</li> <li>• INSTANTANEOUS EARTH PROTECTION (50N)</li> <li>• IDMT EARTH FAULT PROTECTION (51N)</li> <li>• CIRCUIT BREAKER FAILURE PROTECTION (50BF)</li> <li>•UNDER VOLTAGE PROTECTION(27)</li> <li>•RESTRICTED EARTRH FAULT PROTECTION(64R)</li> <li>•BACKUP (STANDBY ) EARTH FAULT PROTECTION (64S)</li> <li>•ANTI PUMPING (94)</li> <li>•CHECK SYNCHRONIZING 25 THROUGH RELAY MOUNTED IN BUS COUPLER</li> </ul>	
		INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		SPARE FOR INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	

3	DAET/DAE (B/C)	<b>PMCC/MCC BUSCOUPLER OF 630A, 800A, 1000A, 1250A, 1600A,2000A, 2500A, 3000A, 3200A,4000A SHALL COMPRISE OF:</b>	
		ACB TP, ELECTRICALLY OPERATED D/O TYPE, WITHOUT RELEASES, CONTROL SUPPLY VOLTAGE 220V DC	1
		CONTROL FUSE 6A	9
		CONTROL FUSE 16A	6
		FUSE BASE 32A	15
		AUXILIARY CONTACTOR 2NO+2NC 220VDC	1
		BREAKER CONTACT MULTIPLICATION RELAY TYPE VAJC 11 OR EQVT	1
		Indicating Lamp	2
		CURRENT TRANSFORMER (PROTECTION) 10VA,CL-5P20	3
		<b>METERING CT 10VA,CLASS 1 ACCURACY</b>	<b>3</b>
		POTENTIAL TRANSFORMER -CAST RESIN, OVER VOLTAGE FACTOR 1.2 CONT./1.5 FOR 30 SEC . 415/110,50 VA CL-1 INSL CL-E	1
		CURRENT TRANSDUCER (DC),4-20mA, DUAL O/P,AUX.-220V DC	3
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	3
		KW TRANSDUCER	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		VOLTMETER (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		LOCKOUT RELAY HAND RESET TYPE	1
		FUSE FAILURE RELAY	1
		NEUTRAL LINK 32A	1
		CONTROL TERMINALS(FIXED)	As required
		CT SHORTING TERMINAL-STUD TYPE	As required
		POWER TERMINAL	As required
		DOUBLE POLE ON/OFF SWITCH-16 A,220 V DC	5
		2POLE 2POSI SELECTOR SWITCH KEY LOCKABLE-10A, 220VDC	1
		NUMERICAL RELAY WITH COMMUNICATION FACILITY AS PER IEC-61850 FOR FOLLOWING FUNCTIONS: <ul style="list-style-type: none"> <li>• SHORT CIRCUIT PROTECTION (S1)</li> <li>• EARTH FAULT PROTECTION (S1N)</li> <li>• OVER LOAD PROTERCTION</li> <li>• RESTRICTED EARTRH FAULT PROTECTION(64R)</li> <li>• RESIDUAL EARTH FAULT PROTECTION</li> <li>• TRIP CIRCUIT SUPERVISION (95)</li> <li>• CIRCUIT BREAKER MONITORING</li> <li>• PT FUSE FAILURE</li> <li>• ENERGY METERING</li> <li>• CURRENT, VOLTAGE &amp; FREQUENCY MEASUREMENT</li> <li>• SYNCHRONIZING FEATURE</li> <li>• No of DI/DO SHALL BE AS PER SCHEME REQUIREMNET</li> <li>• ALL THE BINARY INPUTS SHALL BE CAPABLE OF TAKING THE 220V DC ,HOWEVER THE THERSHOLD VALUE FOR BINARY INPUT SHALL BE 18V DC (+/- 5%)</li> </ul> <ul style="list-style-type: none"> <li>•INSTANTANEOUS OVER CURRENT PROTECTION (50)</li> <li>•IDMT OVER CURRENT PROTECTION (51)</li> <li>•INSTANTANEOUS EARTH PROTECTION (50N)</li> <li>• IDMT EARTH FAULT PROTECTION (S1N)</li> <li>• CIRCUIT BREAKER FAILURE PROTECTION (50BF)</li> <li>•UNDER VOLTAGE PROTECTION(27)</li> <li>•BACKUP (STANDBY ) EARTH FAULT PROTECTION (64S)</li> <li>•ANTI PUMPING (94)</li> <li>•CHECK SYNCHRONIZING 25 THROUGH RELAY MOUNTED IN BUS COUPLER</li> </ul>	1
		INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		SPARE FOR INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		DC SOURCE SLECTION SWITCH	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
4	DAEG(-I/C)	<b>EMERGENCY MCC INCOMER OF 800A, 1000A, 1250A, 1600A, 2000A, 2500A SHALL COMPRISE OF:</b>	
		ACB TP, ELECTRICALLY OPERATED D/O TYPE, WITHOUT RELEASES, CONTROL SUPPLY VOLTAGE 220V DC,4NO + 4NC CONTACTS OF POSITION/ CELL SWITCH. SPRING CHARGE LIMIT SWITCH WITH minimum 2NO + 2NC contacts.	1
		CONTROL FUSE 6A	15
		CONTROL FUSE 16A	4

		FUSE BASE 32A	19
		Indicating Lamp	5
		CURRENT TRANSFORMER (PROTECTION) 10VA,CL-5P20	3
		CURRENT TRANSFORMER (PROTECTION) with VDR 10VA,CL-PS	3
		METERING CT 10VA,CLASS 1 ACCURACY	3
		POTENTIAL TRANSFORMER -CAST RESIN, OVER VOLTAGE FACTOR 1.2 CONT./1.5 FOR 30 SEC . 415/110,50 VA CL-1 INSL CL-E	1
		CURRENT TRANSDUCER (DC),4-20mA, DUAL O/P,AUX.-220V DC	3
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	3
		KW TRANSDUCER	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		VOLTMETER (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		LOCKOUT RELAY HAND RESET TYPE	1
		FUSE FAILURE RELAY	1
		NEUTRAL LINK 32A	1
		CONTROL TERMINALS(FIXED)	As required
		CT SHORTING TERMINAL-STUD TYPE	As required
		POWER TERMINAL	As required
		DOUBLE POLE ON/OFF SWITCH-16 A,220 V DC	2
		2POLE 2POSI SELECTOR SWITCH KEY LOCKABLE-10A, 220VDC	1
		NUMERICAL RELAY WITH COMMUNICATION FACILITY AS PER IEC-61850 FOR FOLLOWING FUNCTIONS: <ul style="list-style-type: none"> <li>• SHORT CIRCUIT PROTECTION (51)</li> <li>• EARTH FAULT PROTECTION (51N)</li> <li>• OVER LOAD PROTECTION</li> <li>• RESTRICTED EARTH FAULT PROTECTION(64R)</li> <li>• RESIDUAL EARTH FAULT PROTECTION</li> <li>• TRIP CIRCUIT SUPERVISION (95)</li> <li>• CIRCUIT BREAKER MONITORING</li> <li>• PT FUSE FAILURE</li> <li>• ENERGY METERING</li> <li>• CURRENT, VOLTAGE &amp; FREQUENCY MEASUREMENT</li> <li>• SYNCHRONIZING FEATURE</li> <li>• No of DI/DO SHALL BE AS PER SCHEME REQUIREMENT</li> <li>• ALL THE BINARY INPUTS SHALL BE CAPABLE OF TAKING THE 220V DC ,HOWEVER THE THRESHOLD VALUE FOR BINARY INPUT SHALL BE 18V DC (+/- 5%)</li> <li>• DIFFERENTIAL PROTECTION (HIGH IMPEDANCE)</li> <li>• REVERSE POWER PROTECTION</li> <li>• DG NEUTRAL DISPLACEMENT</li> <li>• DG MONITORING</li> </ul> <ul style="list-style-type: none"> <li>•INSTANTANEOUS OVER CURRENT PROTECTION (50)</li> <li>•IDMT OVER CURRENT PROTECTION (51)</li> <li>•INSTANTANEOUS EARTH PROTECTION (50N)</li> <li>• IDMT EARTH FAULT PROTECTION (51N)</li> <li>• CIRCUIT BREAKER FAILURE PROTECTION (50BF)</li> <li>•UNDER VOLTAGE PROTECTION(27)</li> <li>•BACKUP (STANDBY ) EARTH FAULT PROTECTION (64S)</li> <li>•ANTI PUMPING (94)</li> <li>•CHECK SYNCHRONIZING 25 THROUGH RELAY MOUNTED IN BUS COUPLER</li> </ul>	1
		INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		SPARE FOR INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
5	DAE/DAE-TIE (O/G)	<b>OUTGOING BREAKER FEEDER OF 630A, 800A, 1000A, 1250A, 1600A, 2500A SHALL COMPRISE OF:</b>	
		ACB TP, ELECTRICALLY OPERATED D/O TYPE, WITHOUT RELEASES, CONTROL SUPPLY VOLTAGE 220V DC,4NO + 4NC CONTACTS OF POSITION/ CELL SWITCH. SPRING CHARGE LIMIT SWITCH WITH minimum 2NO + 2NC contacts.	1
		CONTROL FUSE 6A	8
		CONTROL FUSE 16A	2
		FUSE BASE 32A	10
		Indicating Lamp	2
		CURRENT TRANSFORMER (PROTECTION) 10VA,CL-5P20	3
		METERING CT 10VA,CLASS 1 ACCURACY	3
		POTENTIAL TRANSFORMER -CAST RESIN, OVER VOLTAGE FACTOR 1.2 CONT./1.5 FOR 30 SEC . 415/110,50 VA CL-1 INSL CL-E	1

		CURRENT TRANSDUCER (DC),4-20mA, DUAL O/P,AUX.-220V DC	3
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	3
		KW TRANSDUCER	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		LOCKOUT RELAY HAND RESET TYPE	1
		FUSE FAILURE RELAY	1
		NEUTRAL LINK 32A	1
		CONTROL TERMINALS(FIXED)	As required
		CT SHORTING TERMINAL-STUD TYPE	As required
		POWER TERMINAL	As required
		DOUBLE POLE ON/OFF SWITCH-16 A,220 V DC	1
		2POLE 2POS1 SELECTOR SWITCH KEY LOCKABLE-10A, 220VDC	1
		NUMERICAL RELAY WITH COMMUNICATION FACILITY AS PER IEC-61850 FOR FOLLOWING FUNCTIONS: <ul style="list-style-type: none"> <li>• SHORT CIRCUIT PROTECTION (51)</li> <li>• EARTH FAULT PROTECTION (51N)</li> <li>• OVER LOAD PROTECTION</li> <li>• RESIDUAL EARTH FAULT PROTECTION</li> <li>• TRIP CIRCUIT SUPERVISION (95)</li> <li>• CIRCUIT BREAKER MONITORING</li> <li>• PT FUSE FAILURE</li> <li>• ENERGY METERING</li> <li>• CURRENT, VOLTAGE &amp; FREQUENCY MEASUREMENT</li> <li>• SYNCHRONIZING FEATURE</li> <li>• No of DI/DO SHALL BE AS PER SCHEME REQUIREMENT</li> <li>• ALL THE BINARY INPUTS SHALL BE CAPABLE OF TAKING THE 220V DC ,HOWEVER THE THRESHOLD VALUE FOR BINARY INPUT SHALL BE 18V DC (+/- 5%)</li> </ul>	1
		<ul style="list-style-type: none"> <li>•INSTANTANEOUS OVER CURRENT PROTECTION (50)</li> <li>•IDMT OVER CURRENT PROTECTION (51)</li> <li>INSTANTANEOUS EARTH PROTECTION (50N)</li> <li>• IDMT EARTH FAULT PROTECTION (51N)</li> <li>• CIRCUIT BREAKER FAILURE PROTECTION (50BF)</li> <li>•ANTI PUMPING (94)</li> </ul>	
		INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		SPARE FOR INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>6</b>	<b>DM / PM</b>	<b>BREAKER CONTROLLED MOTOR ABOVE 90KW SHALL COMPRISE OF:</b>	
		ACB TP, ELECTRICALLY OPERATED D/O TYPE, WITHOUT RELEASES, CONTROL SUPPLY VOLTAGE 220V DC,4NO + 4NC CONTACTS OF POSITION/ CELL SWITCH. SPRING CHARGE LIMIT SWITCH WITH minimum 2NO + 2NC contacts.	1
		CONTROL FUSE 6A	9
		CONTROL FUSE 16A	2
		FUSE BASE 32A	11
		Indicating Lamp	2
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	3
		CURRENT TRANSFORMER (PROTECTION) 10VA,CL-5P20	3
		CURRENT TRANSDUCER (DC),4-20mA, DUAL O/P,AUX.-220V DC	1
		KW TRANSDUCER	1
		ENERGY METER	1
		NEUTRAL LINK 32A	1
		CONTROL TERMINALS(FIXED)	As required
		CT SHORTING TERMINAL-STUD TYPE	As required
		POWER TERMINAL	As required
		SP ON/OFF SWITCH FOR MOTOR SPACE HTR. OF BREAKER MOTOR FDR-12A, 240VAC	1
		DOUBLE POLE ON/OFF SWITCH-16 A,220 V DC	1
		LOCKOUT RELAY HAND RESET TYPE	1
		2POLE 2POS1 SELECTOR SWITCH KEY LOCKABLE-10A, 220VDC	1

		<p>NUMERICAL RELAY WITH COMMUNICATION FACILITY AS PER IEC-61850 FOR FOLLOWING FUNCTIONS:</p> <ul style="list-style-type: none"> <li>• SHORT CIRCUIT PROTECTION (51)</li> <li>• EARTH FAULT PROTECTION (51N)</li> <li>• OVER LOAD PROTECTION UNDER VOLTAGE</li> <li>• EARTH FAULT PROTECTION</li> <li>• TRIP CIRCUIT SUPERVISION (95)</li> <li>• CIRCUIT BREAKER MONITORING</li> <li>• PT FUSE FAILURE</li> <li>• ENERGY METERING</li> <li>• CURRENT, VOLTAGE &amp; FREQUENCY MEASUREMENT</li> <li>• LOCKED ROTOR PROTECTION</li> <li>CURRENT UNBALANCE PROTECTION</li> <li>• No of DI/DO SHALL BE AS PER SCHEME REQUIREMNET</li> <li>• ALL THE BINARY INPUTS SHALL BE CAPABLE OF TAKING THE 220V DC ,HOWEVER THE THERSHOLD VALUE FOR BINARY INPUT SHALL BE 18V DC (+/- 5%)</li> <li>•NEGATIVE SEQUENCE PROTECTION</li> <li>•RESTART INHIBIT PROTECTION</li> </ul>	1
		<ul style="list-style-type: none"> <li>• ANTI PUMPING</li> <li>• TRIP CIRCUIT SUPERVISION</li> <li>NEGATIVE PHASE CURRENT(46)</li> <li>• THERMAL OVERLOAD (49)</li> <li>PHASE OVER CURRENT (50/51)</li> <li>EARTH FAULT (50N/51N)</li> <li>LOCKED ROTOR (51LR)</li> <li>NO OF STARTS PER HOUR (66)</li> <li>•BREAKER FAILURE (50BF)</li> <li>•UNDER VOLTAGE (27 FROM PT)</li> </ul>	
		INTERPOSING RELAY REM302/EQVT. WITH BUILT IN LED, TEST KNOB & FREEWHEELING DIODE	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>7</b>	<b>G1</b>	<b>BUS PT MODULE FOR PCC / PMCC SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	7
		FUSE BASE-32A	7
		POTENTIAL TRANSFORMER -415/ROOT3 /110/ROOT3, 50 VA CL-1 INSL CL-E	3
		UNDER VOLTAGE PROTECTION (27)	1
		FUSE FAILURE PROTECTION	1
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		NEUTRAL LINK-32A	1
		CONTROL TERMINALS(FIXED)	As required
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>8</b>	<b>G2</b>	<b>BUS PT MODULE FOR DG PCC SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	7
		FUSE BASE-32A	7
		POTENTIAL TRANSFORMER -415/ROOT3 /110/ROOT3, 50 VA CL-1 INSL CL-E	3
		UNDER VOLTAGE PROTECTION (27)	1
		FUSE FAILURE PROTECTION	1
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		NEUTRAL LINK-32A	1
		CONTROL TERMINALS(FIXED)	As required
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>9</b>	<b>VM</b>	<b>BUS PT MODULE FOR MCC/ACDB SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	3
		FUSE BASE-32A	3
		AUX. CONTACTOR 2NO+2NC CV. 415 V AC	1
		VOLTMETER (AC),96 X 96 mm2,SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		RECTIFIER (AC TO DC),I/P-240V AC, O/P-220VDC	1
		UNDER VOLTAGE PROTECTION (27)	1
		FUSE FAILURE PROTECTION	1

		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Breaker Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>10 (A)</b>	<b>CONTROL SUPPLY (CS)</b>	<b>EACH CONTROL SUPPLY OUTGOING SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	4
		CONTROL FUSE-25A	4
		FUSE BASE-32A	8
		AUX. CONTACTOR , 2NO+2NC,CV. 110 V AC	4
		NEUTRAL LINK-32A	6
		CONTROL TERMINALS(FIXED)	As required
		POWER TERMINALS	As required
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 2KVA	2
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 110V AC	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Breaker Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>10(B)</b>	<b>TEST SUPPLY (J2)</b>	<b>EACH TEST SUPPLY OUTGOING SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	4
		CONTROL FUSE-25A	4
		FUSE BASE-32A	8
		AUX. CONTACTOR , 2NO+2NC,CV. 110 V AC	4
		NEUTRAL LINK-32A	6
		CONTROL TERMINALS(FIXED)	As required
		POWER TERMINALS	As required
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 2KVA	2
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 110V AC	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Breaker Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>10(C)</b>	<b>SPACE HEATER SUPPLY</b>	<b>EACH SPACE HEATER SUPPLY OUTGOING SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	4
		CONTROL FUSE-25A	4
		FUSE BASE-32A	8
		AUX. CONTACTOR , 2NO+2NC,CV. 240 V AC	4
		NEUTRAL LINK-32A	6
		CONTROL TERMINALS(FIXED)	As required
		POWER TERMINALS	As required
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/240 V, 2KVA	2
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 240V AC	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Breaker Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>10(D)</b>	<b>MOTOR WINDING HEATING TRANSFORMER SUPPLY</b>	<b>EACH MOTOR WINDING HEATING TRANSFORMER SUPPLY OUTGOING SHALL COMPRISE OF:</b>	
		CONTROL FUSE-6A	4
		CONTROL FUSE-25A	4
		FUSE BASE-32A	8
		AUX. CONTACTOR , 2NO+2NC,CV. 24 V AC	4
		NEUTRAL LINK-32A	6
		CONTROL TERMINALS(FIXED)	As required
		POWER TERMINALS	As required
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/24V, 2KVA	2
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 24V AC	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breaker Module Cost (Breaker Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>11</b>	<b>DB</b>	<b>220V DC INCOMER FROM BATTERY SHALL COMPRISE OF:</b>	
		DC AMMETER WITH SHUNT AND CENTER ZERO	1
		LOAD VOLTAGE INDICATION	1
		BUS VOLTAGE INDICATION	1
		OVERLOAD ALARM TO DDCMIS	1

12	DC	<b>220V DC BUS COUPLER SHALL COMPRISE OF:</b>	
		DOUBLE POLE 250V MCCB WITH 2NO+2NC AUXILIARY CONTACTS	1
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		LOAD VOLTAGE INDICATION	1
		BUS VOLTAGE INDICATION	1
		OVERLOAD ALARM TO DDCMIS	1
13	CH	<b>220V DC INCOMER OF DCDB FROM CHARGER SHALL COMPRISE OF:</b>	
		Double pole, 250 V MCCB	1
		INDICATING LAMP	2
		VOLTMETER	1
		DC AMMETER WITH SHUNT	1
		CURRENT TRANSDUCER	1
		BUS VOLTAGE INDICATION	1
		LOAD VOLTAGE INDICATION	1
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		OVERLOAD ALARM TO DDCMIS	1
14	HD	<b>220V DC ISOLATING SWITCH/CIRCUIT BREAK MODULE SHALL COMPRISE OF:</b>	
		DOUBLE POLE 250V MCCB WITH REQUIRED AUXILIARY CONTACTS	1
		BUS VOLTAGE INDICATION	1
		LOAD VOLTAGE INDICATION	1
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		DC AMMETER WITH SHUNT	1
		OVERLOAD ALARM TO DDCMIS	1
15	S	<b>220V DCDB BUS MODULE FOR METERING &amp; PROTECTION SHALL COMPRISE OF:</b>	
		UNDERVOLTAGE (INSTANTANEOUS WITH SETTING OF 95% OF 240VDC. THE RESETTING OF RELAY SHOULD NOT BE MORE THAN 1.05)	1
		OVERVOLTAGE(INSTANEOUS WHICH SHALL OPERATE AT 110% OF 240V DC. THE RESETTINGRATION SHOULD NOT BE LESS THAN .95)	1
		EARTHFAULT (CAEM21 OR EQV.)	1
		INDICATING LAMP	2
		CONTROL FUSE-6A	3
		FUSE BASE-32A	3
		NEUTRAL LINK	1
		DC VOLTAGE METER (0-300V)	1
		VOLTMETER SELECTOR SWITCH	1
		AUXILIARY CONTACTOR,2NO+2NC,CV 220AC	1
		PUSH BUTTON- SPRING RETURN WITH 1NO+1NC AUX. CONTACT	2
		FUSE FAILURE PROTECTION	
		VOLTAGE TRANSDUCER (AC),4-20 m A DUAL O/P AUX. 220 V DC,0-500/4-20mA, 415V DIRECT	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
16	X	<b>220V DC OUTGOING FEEDER SHALL COMPRISE OF:</b>	
		DOUBLE POLE 250V MCCB	1
		DC AMMETER WITH SHUNT	1
		OVERLOAD ALARM TO DDCMIS	1
		HRC FUSES	2
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
17	CC	<b>ISOLATOR INCOMER WITH CONTACTOR UPTO 630A SHALL COMPRISE OF</b>	
		TRI POLE LOAD BREAK ISOLATING SWITCH	2
		Power Fuse	3
		Auxiliary Switch	1
		INDICATING LAMP	2
		CONTROL FUSE-6A	5
		FUSE BASE-32A	5
		SERVICE POSITION LIMIT SWITCH	2
		TRIPLE POLE POWER CONTACTOR WITH COIL SUITABLE FOR 415V AC WITH 2NO+2NC AUX	2
		AUXILIARY CONTACTOR 2NO+2NC ,CV 415V AC	2
		TERMINAL BLOCKS	30
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	

18(A)	EM3 (I/C)	INCOMER MCCB (NON MOTORIZED) FOR ACDB/MLDB/PDB FOR RATING from 100A UPTO 630A	
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		MCCB TP	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1

		VOLTMETER (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		ELECTRONIC ENERGY METER SUITABLE FOR COMMUNICATION WITH MODBUS RS485	1
		<b>CURRENT TRANSFORMER (METERING) 10VA, CL-1</b>	<b>3</b>
		KW TRANSDUCER	1
		AUX. SWITCH FOR MCCB-2C/O	2
		ALARM SWITCH FOR MCCB-1C/O	1
		SHUNT TRIP COIL 220VAC	1
		EXTENDED ROTORY HANDLE	1
		INDICATION LAMP	3
		NEUTRAL LINK 32A	1
		NEUTRAL LINK AS PER MCCB RATING	1
		CONTROL TERMINALS	AS REQUIRED
		CT SHORTING TERMINAL-STUD TYPE	AS REQUIRED
		<b>TOTAL</b>	
<b>18(B)</b>	<b>EM3 (I/C)</b>	<b>INCOMER MCCB (NON MOTORIZED) FOR ACDB/MLDB/PDB FOR RATING FOR RATING below 100A</b>	
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		MCCB TP	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		VOLTMETER (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE,0-500V DIRECT	1
		VOLTMETER SELECTOR SWITCH-12 A,415 V AC	1
		ELECTRONIC ENERGY METER SUITABLE FOR COMMUNICATION WITH MODBUS RS485	1
		<b>CURRENT TRANSFORMER (METERING) 10VA, CL-1</b>	<b>3</b>
		KW TRANSDUCER	1
		AUX. SWITCH FOR MCCB-2C/O	2
		ALARM SWITCH FOR MCCB-1C/O	1
		SHUNT TRIP COIL 220VAC	1
		EXTENDED ROTORY HANDLE	1
		INDICATION LAMP	3
		NEUTRAL LINK 32A	1
		NEUTRAL LINK AS PER MCCB RATING	1
		CONTROL TERMINALS	AS REQUIRED
		CT SHORTING TERMINAL-STUD TYPE	AS REQUIRED
		<b>TOTAL</b>	
<b>19</b>	<b>EM3 (B/C)</b>	<b>BUSCOUPLER MCCB (NON-MOTORIZED ) FOR FOR ACDB/MLDB/PDB FOR RATING UPTO 630A</b>	
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		MCCB TP	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		<b>CURRENT TRANSFORMER (METERING) 10VA, CL-1</b>	<b>3</b>
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER DUAL OUTPUT	1
		AUX. SWITCH FOR MCCB-2C/O	2
		ALARM SWITCH FOR MCCB-1C/O	1
		SHUNT TRIP COIL 220VAC	1
		EXTENDED ROTORY HANDLE	1
		INDICATION LAMP	3
		NEUTRAL LINK 32A	1
		NEUTRAL LINK AS PER MCCB RATING	1
		CONTROL TERMINALS	AS REQUIRED
		CT SHORTING TERMINAL-STUD TYPE	AS REQUIRED
		<b>TOTAL</b>	
<b>20(A)</b>	<b>E/E3</b>	<b>TPN AC OUTGOING MCCB (NON MOTORIZED) OPERATED FEEDER FOR RATING 100A AND ABOVE</b>	
		TP MCCB	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		EXTENDED ROTORY HANDLE	1
		NETURAL LINK EQUIVALENT TO POWER FUSE RATING	1

		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>20(B)</b>	<b>E/E3</b>	<b>TPN AC OUTGOING MCCB (NON MOTORIZED) OPERATED FEEDER FOR RATING below 100A</b>	
		TP MCCB	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		EXTENDED ROTORY HANDLE	1
		NETURAL LINK EQUIVALENT TO POWER FUSE RATING	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>21(A)</b>	<b>E2</b>	<b>DP AC OUTGOING MCCB (NON MOTORIZED) OPERATED FEEDER FOR RATING 100A AND ABOVE UPTO 630A</b>	
		DP MCCB	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		EXTENDED ROTORY HANDLE	1
		NETURAL LINK EQUIVALENT TO POWER FUSE RATING	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>21(B)</b>	<b>E2</b>	<b>DP AC OUTGOING MCCB (NON MOTORIZED) OPERATED FEEDER FOR RATING below 100A</b>	
		DP MCCB	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		EXTENDED ROTORY HANDLE	1
		NETURAL LINK EQUIVALENT TO POWER FUSE RATING	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>22(A)</b>	<b>E1</b>	<b>SP AC OUTGOING MCCB (NON MOTORIZED) OPERATED FEEDER FOR RATING 100A AND ABOVE UPTO 630A</b>	
		SP MCCB	1
		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2,SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		EXTENDED ROTORY HANDLE	1
		NETURAL LINK EQUIVALENT TO POWER FUSE RATING	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>22(B)</b>	<b>E1</b>	<b>SP AC OUTGOING MCCB (NON MOTORIZED) OPERATED FEEDER FOR RATING below 100A</b>	
		SP MCCB	1

		OVER CURRENT PROTECTION	1
		SHORT CIRCUIT PROTECTION	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		EXTENDED ROTORY HANDLE	1
		NETURAL LINK EQUIVALENT TO POWER FUSE RATING	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>23</b>	<b>DK2/PK2/ AK2</b>	<b>UNIDIRECTIONAL MOTOR FEEDER BELOW 18.5KW (AU/BU/CU CONTROLLED FROM ATRS/DDCMIS/PLC SHALL COMPRISE OF:</b>	
		MPCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR,2NO+2NC, CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		OVERLOAD RELAY,BUILT IN SPPR FEATURE 1NO+1NC AUX. & INDEPENDENT MOUNTING TYPE	1
		MOUNTING KIT FOR O/L RELAY	1
		RESET CORD ACTUATOR	1
		Indication lamp	3
		NEUTRAL LINK-32A	1
		CONTROL TERMINALS (DRAWOUT)	30
		COUPLING RELAY WITH BUILT IN DIODE	2
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN,415/110 V, 50VA	1
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
<b>24</b>	<b>EA1</b>	<b>1-PHASE MCCB (NON MOTORIZED) CONTACTOR CONTROLLED FEEDER SHALL COMPRISE OF:</b>	
		(TP) MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	2
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		2P POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR,2NO+2NC, CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		Indication lamp	3
		NEUTRAL LINK-32A	1
		CONTROL TERMINALS (DRAWOUT)	30
		COUPLING RELAY WITH BUILT IN DIODE	2
		OVER CURRENT PROTECTION	

		SHORT CIRCUIT PROTECTION	
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
25	EA3	<b>3-PHASE MCCB (NON MOTORIZED) CONTACTOR CONTROLLED FEEDER SHALL COMPRISE OF:</b>	
		(TP) MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		3P POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR,2NO+2NC, CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		Indication lamp	3
		NEUTRAL LINK-32A	1
		CONTROL TERMINALS (DRAWOUT)	As required
		COUPLING RELAY WITH BUILT IN DIODE	2
		OVER CURRENT PROTECTION	
		SHORT CIRCUIT PROTECTION	
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
26(A)	DK21/PK21/ AK21	<b>UNIDIRECTIONAL MOTOR FEEDER 18.5KW &amp; ABOVE UPTO 50KW CONTROLLED FROM DDCMIS/PLC/ATRS SHALL COMPRISE OF:</b>	
		MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	2
		FUSE BASE-32A	2
		POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR,2NO+2NC CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		OVERLOAD RELAY,BUILT IN SPPR FEATURE 1NO+1NC AUX. & INDEPENDENT MOUNTING TYPE	1
		RESET CORD ACTUATOR	1
		Indication lamp	3
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2,SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		NEUTRAL LINK	1
		CONTROL TERMINALS (DRAWOUT)	50
		CT SHORTING TERMINAL-STUD TYPE	18
		SP ON/OFF SWITCH FOR MOTOR SPACE HTR. OF MOTOR FDR.,10A, 240VAC	1
		COUPLING RELAY WITH BUILT IN DIODE,24V DC 2C/O	2
		One (1) Digital Energy Meter with Analog output of Current (4-20 mA)	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 50VA	1
		4POLE, 2POS, SELECTOR SWITCH FOR CONTROL TRF.-25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
26(B)	DK21/PK21/ AK21	<b>UNIDIRECTIONAL MOTOR FEEDER 50KW &amp; ABOVE UPTO 90KW CONTROLLED FROM DDCMIS/PLC/ATRS SHALL COMPRISE OF:</b>	
		MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	2
		FUSE BASE-32A	2
		POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1

		AUX. CONTACTOR,2NO+2NC CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		OVERLOAD RELAY,BUILT IN SPPR FEATURE 1NO+1NC AUX. & INDEPENDENT MOUNTING TYPE	1
		RESET CORD ACTUATOR	1
		Indication lamp	3
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2,SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.- 110V AC	1
		NEUTRAL LINK	1
		CONTROL TERMINALS (DRAWOUT)	50
		CT SHORTING TERMINAL-STUD TYPE	18
		SP ON/OFF SWITCH FOR MOTOR SPACE HTR. OF MOTOR FDR.,10A, 240VAC	1
		<b>COUPLING RELAY WITH BUILT IN DIODE,24V DC 2C/O</b>	2
		<b>One (1) Digital Energy Meter with Analog output of Current (4-20 mA)</b>	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 100VA	1
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		EARTH FAULT PROTECTION	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
27	<b>DKE2**</b>	<b>UNIDIRECTIONAL MOTOR FEEDER (ESSENTIAL) BELOW 18.5KW CONTROLLED FROM DDCMIS/PLC/ ATRS SHALL COMPRISE OF:</b>	
		MPCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		Mounting Kit	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	4
		Contorl Fuse base	4
		NEUTRAL LINK	2
		AUXILIARY CONTACTOR	2
		CT FOR METERING	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2,SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (DUAL OUTPUT)	1
		INTERPOSING RELAY RE302 OR EQVT	2
		TIMER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 2KVA	1
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
28(A)	<b>DKE21**</b>	<b>UNIDIRECTIONAL MOTOR FEEDER (ESSENTIAL) 18.5KW &amp; ABOVE UPTO 50KW CONTROLLED FROM ATRS/DDCMIS/PLC SHALL COMPRISE OF:</b>	
		3P MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	8
		Contorl Fuse base	8
		NEUTRAL LINK	2
		AUXILIARY CONTACTOR	2
		CT FOR METERING	1
		AMMETER SELECTOR SWITCH	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (DUAL OUTPUT)	1
		INTERPOSING RELAY RE302 OR EQVT	2

		TIMER	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
28(B)	<b>DKE21**</b>	<b>UNIDIRECTIONAL MOTOR FEEDER (ESSENTIAL) 50KW &amp; ABOVE UPTO 90KW CONTROLLED FROM ATRS/DDCMIS/PLC SHALL COMPRISE OF:</b>	
		3P MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	8
		Control Fuse base	8
		NEUTRAL LINK	2
		AUXILIARY CONTACTOR	2
		CT FOR METERING	1
		AMMETER SELECTOR SWITCH	1
		AMMETER CTSEC 1A (AC), 96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (DUAL OUTPUT)	1
		INTERPOSING RELAY RE302 OR EQVT	2
		TIMER	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		EARTH FAULT PROTECTION	1
		<b>One (1) Digital Energy Meter with Analog output of Current (4-20 mA)</b>	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
29	<b>K3</b>	<b>UNIDIRECTIONAL MOTOR FEEDER BELOW 18.5KW CONTROLLED FROM LPBS SHALL COMPRISE OF:</b>	
		3P MPCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		Mounting Kit	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		AUXILIARY CONTACTOR	1
		INTERPOSING RELAY RE302 OR EQVT	2
		CONTROL FUSE	1
		Control fuse base	1
		NEUTRAL LINK	1
		NO. OF TERMINALS	25
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	

30(A)	<b>K31</b>	<b>UNIDIRECTIONAL MOTOR FEEDER 18.5KW &amp; ABOVE UPTO 50KW CONTROLLED FROM LPBS SHALL COMPRISE OF:</b>	
		3P MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		AUXILIARY CONTACTOR	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		INTERPOSING RELAY RE302 OR EQVT	2
		CT FOR METERING	1
		CONTROL FUSE	1
		Control Fuse base	1
		NEUTRAL LINK	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		CURRENT TRANSDUCER (DUAL OUTPUT)	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
30(B)	<b>K31</b>	<b>UNIDIRECTIONAL MOTOR FEEDER 50KW &amp; ABOVE UPTO 90KW CONTROLLED FROM LPBS SHALL COMPRISE OF:</b>	
		3P MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		AUXILIARY CONTACTOR	1
		AMMETER	1
		INTERPOSING RELAY RE302 OR EQVT	2
		CT FOR METERING	1
		CONTROL FUSE	1
		Control Fuse base	1
		NEUTRAL LINK	1
		CURRENT TRANSDUCER (DUAL OUTPUT)	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		EARTH FAULT PROTECTION	1
		<b>One (1) Digital Energy Meter with Analog output of</b>	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint	
		<b>TOTAL</b>	
31	<b>DK2**</b>	<b>HEATER FEEDER BELOW 18.5KW (AU/BU/CU CONTROLLED FROM ATRS/DDCMIS/PLC SHALL COMPRISE OF:</b>	
		(TP) MPCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	1
		FUSE BASE-32A	1
		POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR, 2NO+2NC, CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		Indication lamp	3
		NEUTRAL LINK-32A	1
		CONTROL TERMINALS (DRAWOUT)	30
		COUPLING RELAY WITH BUILT IN DIODE	2
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	

32(A)	DK21**	<b>HEATER FEEDER 18.5KW &amp; ABOVE UPTO 50KW CONTROLLED FROM DDCMIS/PLC/ATRS SHALL COMPRISE OF:</b>	
		(TP) MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	2
		FUSE BASE-32A	2
		POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR,2NO+2NC CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		Indication lamp	3
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		NEUTRAL LINK	1
		CONTROL TERMINALS (DRAWOUT)	60
		CT SHORTING TERMINAL-STUD TYPE	60
		SP ON/OFF SWITCH FOR MOTOR SPACE HTR. OF MOTOR FDR.,10A, 240VAC	1
		<b>COUPLING RELAY WITH BUILT IN DIODE,24V DC 2C/O</b>	2
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 2KVA	1
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 110V AC	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
32(B)	DK21**	<b>HEATER FEEDER 50KW &amp; ABOVE UPTO 90KW</b>	
		(TP) MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		CONTROL FUSE-6A	2
		FUSE BASE-32A	2
		POWER CONTACTOR(AC) WITH 1NO AUX CONTACT COIL VOLTAGE 110V AC	1
		AUX. CONTACTOR,2NO+2NC CV. 110 V AC	2
		ADD ON AUX. CONTACTOR BLOCK 2NO+2NC	1
		Indication lamp	3
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC),96 X 96 mm2,SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC),4-20mA, DUAL O/P,AUX.-110V AC	1
		NEUTRAL LINK	1
		CONTROL TERMINALS (DRAWOUT)	60
		CT SHORTING TERMINAL-STUD TYPE	60
		SP ON/OFF SWITCH FOR MOTOR SPACE HTR. OF MOTOR FDR.,10A, 240VAC	1
		<b>COUPLING RELAY WITH BUILT IN DIODE,24V DC 2C/O</b>	2
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER,DRY TYPE, CAST RESIN,415/110 V, 2KVA	1
		4POLE,2POSI, SELECTOR SWITCH FOR CONTROL TRF.-25A, 110V AC	1
		EARTH FAULT PROTECTION	1
		<b>Materials Cost</b>	
		Integration Cost	
		Breakar Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
33	DW	<b>220V DC SOLENOID VALVE FEEDER SHALL COMPRISE OF:</b>	
		DOUBLE POLE 250V DC ISOLATING MCCB	1
		HRC FUSE	2
		220V DC POWER CONTACTOR	1
		AUXILIARY CONTACTOR	1
		NEUTRAL LINK	1
		DIODE WITH PEAK INVERSE VOLTAGE OF 440V	1
		COUPLING RELAY	1
		Control fuse	2
		Control fuse base	2
		INDICATING LAMP	2
		OVERLOAD ALARM TO DDCMIS	1
		SHUNT WITH AMMETER	1
		<b>Materials Cost</b>	
		Integration Cost	

		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
34(A)	DN1	<b>BIDIRECTIONAL MOTOR FEEDER BELOW 18.5KW</b>	
		(TP)MPCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	2
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		MOUNTING Kit	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	4
		Control fuse base	4
		NEUTRAL LINK	1
		AUXILIARY CONTACTOR	2
		NO. OF TERMINALS (240V AC/24V DC)	60
		INTREPOSING RELAY	3
		TEST PUSH BUTTON	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	1
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
34(B)	DN21	<b>BIDIRECTIONAL MOTOR FEEDER 18.5KW &amp; ABOVE UPTO 50KW</b>	
		(TP)MCCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	2
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		MOUNTING Kit	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	4
		Control fuse base	4
		NEUTRAL LINK	1
		AUXILIARY CONTACTOR	2
		NO. OF TERMINALS (240V AC/24V DC)	60
		INTREPOSING RELAY	3
		TEST PUSH BUTTON	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC), 96 X 96 mm <sup>2</sup> , SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC), 4-20mA, DUAL O/P, AUX.- 110V AC	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.-	1
		<b>Materials Cost</b>	1
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint	
		<b>TOTAL</b>	
34(C)	DN21	<b>BIDIRECTIONAL MOTOR FEEDER 50KW &amp; ABOVE UPTO 90KW</b>	
		(TP)MCCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	2
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		MOUNTING Kit	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	4
		Control fuse base	4
		NEUTRAL LINK	1
		AUXILIARY CONTACTOR	2
		NO. OF TERMINALS (240V AC/24V DC)	60
		INTREPOSING RELAY	3
		TEST PUSH BUTTON	1
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC), 96 X 96 mm <sup>2</sup> , SCALE-250, CL	1
		CURRENT TRANSDUCER (AC), 4-20mA, DUAL O/P, AUX.-	1
		SINGLE PHASE PREVENTER	1
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.-	1
		EARTH FAULT PROTECTION	1
		<b>Materials Cost</b>	1
		Integration Cost	

		Breaker Module Cost (Beakar Plat, Support, Paint	
		<b>TOTAL</b>	
35	K1	<b>UNIDIRECTIONAL MOTOR FEEDER BELOW 18.5KW CONTROLLED FROM MCC SHALL COMPRISE OF:</b>	
		(TP)MPCB	1
		AUX. CONTACT FOR MPCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		MOUNTING Kit	
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CONTROL FUSE	1
		CONTROL FUSE BASE	1
		NEUTRAL LINK	1
		NO. OF TERMINALS	30
		SHORT CIRCUIT PROTECTION	
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	1
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
36(A)	K11	<b>UNIDIRECTIONAL MOTOR FEEDER RATED FROM 18.5KW to 50KW CONTROLLED FROM MCC SHALL COMPRISE OF:</b>	
		(TP)MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC), 96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC), 4-20mA, DUAL O/P, AUX.- 110V AC	
		CONTROL FUSE	1
		CONTROL FUSE base	
		NEUTRAL LINK	1
		NO. OF TERMINALS	50
		Single Phase switch for motor Space Heater	1
		SINGLE PHASE PREVENTER	
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		<b>Materials Cost</b>	1
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	
36(B)	K11	<b>UNIDIRECTIONAL MOTOR FEEDER RATED FROM 50KW to 90KW CONTROLLED FROM MCC SHALL COMPRISE OF:</b>	
		(TP)MCCB	1
		AUX. CONTACT FOR MCCB (1NO+1NC)	1
		HRC FUSE (POWER)	3
		TRIPLE POLE POWER CONTACTOR	1
		THERMAL O/L RELAY OF SUITABLE RANGE	1
		THERMAL O/L RELAY RESET PUSH BUTTON	1
		INDICATING LAMP	3
		CURRENT TRANSFORMER (METERING) 10VA, CL-1	1
		AMMETER CTSEC 1A (AC), 96 X 96 mm2, SCALE-250, CL ±2% OF FULL SCALE	1
		CURRENT TRANSDUCER (AC), 4-20mA, DUAL O/P, AUX.- 110V AC	
		CONTROL FUSE	1
		CONTROL FUSE base	
		NEUTRAL LINK	1
		NO. OF TERMINALS	50
		Single Phase switch for motor Space Heater	1
		SINGLE PHASE PREVENTER	
		SHORT CIRCUIT PROTECTION	1
		CONTROL TRANSFORMER, DRY TYPE, CAST RESIN, 415/110 V, 2KVA	1
		4POLE, 2POSI, SELECTOR SWITCH FOR CONTROL TRF.- 25A, 110V AC	1
		EARTH FAULT PROTECTION	1
		<b>Materials Cost</b>	1
		Integration Cost	
		Breaker Module Cost (Beakar Plat, Support, Paint & Class-C items wire, lugs, Cable gland etc. )	
		<b>TOTAL</b>	