

NATIONAL ALUMINIUM COMPANY LIMITED
3x 200 TPH NALCO DAMANJODI- R & M (ESP)

VOLUME – II

TECHNICAL SPECIFICATION FOR
DISTRIBUTION BOARDS

SPECIFICATION NO: PE-TS-447-558-E005, REV-0



BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UTTAR PRADESH, INDIA – 201301



TECHNICAL SPECIFICATION FOR
DISTRIBUTION BOARDS

SPECIFICATION NO. PE-TS-447-510-E005

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SECTION – I

SPECIFIC TECHNICAL REQUIREMENTS



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COMPLIANCE CERTIFICATE

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same.
2. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations'.
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in BOQ-Cum-Price schedule of the specification shall not be considered (i.e. technical description & quantities as per specification shall prevail).



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1.0 SCOPE OF SUPPLY

- 1.1 Design, manufacture, assembly, inspection & testing at vendor's/ sub-vendor's works, proper packing and delivery to site of LIGHTING DB/ WELDING DB & LIGHTING PANELS as mentioned in different sections of this specification, complete with all accessories for efficient and trouble-free operation.
- 1.2 Standard technical requirements of LIGHTING DBs/ WELDING DBs & LIGHTING PANELS are indicated in Section-II. Project specific requirements/changes are listed in Section-I.
- 1.3 The stipulations of Section-I, followed by those of Data Sheet-A shall prevail and govern in case of conflict between the corresponding requirements of Section-I and Section-II.
- 1.4 Review of sub-vendor's documents by the vendor shall not relieve the vendor from the responsibility of design & supply.
- 1.5 The documents shall be in English language and MKS system of units.

2.0 BILL OF QUANTITIES:

- 2.1 Quantity requirements shall be as per BOQ-cum-price schedule as part of NIT.
- 2.2 Clause 10.2 of Section II to be read as below:-

Erection & commissioning spares are included in the bidder's scope of supply. Bidder to furnish list of E&C spares in the relevant schedules of the Bid Form and Price Schedules. (if applicable).

3.0 DOCUMENTATION

- 3.1 Documents required after award of contract shall be as per Attachment-I (to be submitted by successful bidder).



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ATTACHMENT – I

DOCUMENTS REQUIRED AFTER AWARD OF LOI

SL. No.	DOCUMENT TITLE	DOCUMENT NO.	CATEGORY
1	TECHNICAL DATA SHEET FOR LDB/ LP/ TRANSFORMER	PE-V0-447-558-E405	APPROVAL
2	SUB-VENDOR LIST FOR LDB /LP /TRANSFORMER	PE-V0-447-558-E088	APPROVAL
3	GA DRAWING & SLD OF LDB-F(8)	PE-V0-447-558-E003	APPROVAL
4	GA DRAWING OF 50 KVA TRANSFORMER	PE-V0-447-558-E004	APPROVAL
5	GA DRAWING & SLD OF LP-A(12) - INDOOR	PE-V0-447-558-E011	APPROVAL
6	GA DRAWING & SLD OF LP-A(12) - DECORATIVE	PE-V0-447-558-E013	APPROVAL
7	GA DRAWING & SLD OF LP-A(18) - OUTDOOR	PE-V0-447-558-E015	APPROVAL
8	MANUFACTURING QUALITY PLAN FOR LDBs & LPs	PE-V0-447-558-E902	APPROVAL
9	MANUFACTURING QUALITY PLAN FOR LIGHTING TRANSFORMERS	PE-V0-447-558-E910	APPROVAL
10	TYPE TEST REPORT OF LDBs & LP	PE-V0-447-558-E409	INFORMATION
11	TYPE TEST REPORT OF TRANSFORMERS	PE-V0-447-558-E410	INFORMATION

Note:

1. The above list of drawings and documents is indicative.



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DATA SHEET -A

S. No.	Description	Unit	Value
1.0	SYSTEM DESIGN DATA		
1.1	Design ambient	⁰ C	50
1.2	AC Supply		
a)	Rated voltage	V	415
b)	Rated frequency	Hz	50
c)	Voltage variation (permissible)	%	+10% to -10%
d)	Frequency variation (permissible)	%	+5% to -5%
e)	Combined voltage & frequency variation (sum of absolutes permissible)	%	10%
f)	System fault level & duration	kA, sec.	50kA for 1 sec.
2.0	APPLICABLE STANDARDS		
	IS 60947 Low voltage switchgear and controlgear		
	IS 11171 Dry type transformers		
	IS 13703 Low voltage fuses for voltages not exceeding 1000V AC or 1500 V		
	IS 10118 Code of practice for selection, installation and maintenance of switchgear and controlgear		
	IS 60898 Electrical Accessories - circuit breakers for over protection for household and similar installations		
	IS 1901 Visual indicator lamps		
	IS 60079 Explosive atmospheres		
	IS 5572 Classification of hazardous areas (other than mines) having flammable gases and vapours for electrical installation		
	IS:2551 Danger notice plates		
3.0	LIGHTING/ WELDING DISTRIBUTION BOARDS		
3.1	Operational Front		Single Front
3.2	Type of execution of modules (functional unit)		[√] Fixed [] Draw out
3.3	Type of sheet steel		CRCA
3.4	Sheet metal thickness (minimum)		



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a)	Non-load bearing covers	mm	2.0 mm
b)	Non-load bearing partitions	mm	2.0 mm
c)	Load bearing members	mm	2.0 mm
d)	Frames	mm	2.0 mm
e)	Door	mm	2.0 mm
f)	Withdrawable unit (if applicable)	mm	2.0 mm
3.5	Cable alley width (minimum)	mm	250
3.6	Bus bar material		☒ Aluminium grade E 91E
3.7	Earth bus bar material		☒ GI Strip ☐ Aluminium ☐ Copper
3.8	Degree of Protection		
a)	Main Panel		IP-55
b)	Transformer cubicle		IP-42
3.9	Gland plate thickness	mm	3.0
3.10	AC LDB/ WDB		
a)	No. of Incomers		☐ One ☒ Two
b)	Bus coupler required		☒ Yes ☐ No
c)	Incomer and Bus coupler rating	A	As per transformer rating
d)	Type of Incomer and Bus coupler		☐ SFU ☒ MCCB
e)	Type of Outgoing Feeders		☒ SFU ☐ MCCB
f)	Outgoing feeders rating	A	63
g)	Cable entry		☒ Bottom ☐ Top
3.11	Lighting Transformer		
a)	Rating	kVA	50
b)	Type of cooling		Air natural
c)	Voltage ratio	V	415/433
d)	Rated frequency	Hz	50



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e)	No. of phases		3
f)	Vector group		Dyn11
g)	Off circuit taps		
	Tap range, steps	%	+5% to -5% in steps of 2.5%
	Voltage of each tap	V	As per manufacturer's data
h)	Impedance at rated current, frequency at 75 °C	%	50kVA – 4.5%
i)	Rated current		
	Primary	A	As per manufacturer's data
	Secondary	A	As per manufacturer's data
j)	Transformer type		☒ Cast resin ☐ Encapsulated ☒ Non-Encapsulated
k)	Transformer winding insulation		Class-F or better
l)	Transformer winding insulation temperature rise limit		90 degree C above 50 degree C. ambient
n)	Type of ventilation arrangement provided for transformer enclosure		As per manufacturer's data
o)	Winding conductor material		Copper
p)	Iron loss at 50 Hz and 100% rated voltage	kW	As per manufacturer's data
q)	Copper loss at rated load at 75 °C	kW	As per manufacturer's data
r)	Regulation at full load at 75 °C and 0.8 p.f. lagging		As per manufacturer's data
s)	Weight	kg	As per manufacturer's data
4.0	LIGHTING PANELS		
4.1	Application		☐ Indoor ☐ Outdoor ☒ Both
4.2	Type of sheet steel		CRCA
4.3	Sheet metal thickness (minimum)		2.0
3.4	Degree of Protection		



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a)	Indoor panel		IP-55
b)	Outdoor panel		IP-55, Weatherproof
c)	Canopy in outdoor panel		☒ Yes ☐ No
4.5	Bus bar material		☒ Aluminium ☐ Copper
4.6	Earth bus bar required		☐ Yes ☒ No
4.7	Earth bus bar material (if applicable)		
4.8	Gland Plate	mm	3.0
4.9	Earthing studs required		☒ Yes ☐ No
4.10	Hinged door with locking facility		☒ Yes ☐ No
4.11	AC Lighting Panel		
a)	Incomer rating	A	63A for LP,
b)	Type of Incomer		☒ SFU ☐ MCCB
c)	Earth Leakage Circuit Breaker (ELCB) in incomer required		☒ Yes ☐ No
d)	Type of Outgoing Feeders (non-flameproof panel)		☒ SPN MCB ☐ TPN MCB
e)	Timer required for indoor panel		☒ Yes ☐ No
f)	Timer required for outdoor panel		☒ Yes ☐ No
g)	Timer required Street Light panel/ High mast feeder pillar		☒ Yes ☐ No
h)	Photocell required for Street Light panel/ High mast feeder pillar		☒ Yes ☐ No
i)	Outgoing feeders rating	A	20
5.0	COMPONENTS OF LIGHTING SYSTEM EQUIPMENT		
5.1	Moulded Case Circuit Breaker (MCCB)		
a)	Rated voltage	V	415
b)	Number of poles		TPN
c)	Rated short circuit duty	kA	50
d)	Rated breaking capacity (rms)	kA	50



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e)	Rated making current (peak)	kA	105
f)	Release with short circuit		☒ Yes [] No
g)	Release with overload		☒ Yes [] No
h)	Release with under voltage		[] Yes ☒ No
i)	Auxiliary contacts		
	Numbers	NO+NC	2NO + 2NC
	Rating	A	As per manufacturer data
5.2	Switch-Fuse Unit		
a)	Utilisation category for main contacts		AC23
b)	Number of poles		TPN
5.3	Miniature Circuit Breaker		
a)	SPN MCB rating (min)	A	20
b)	DP MCB rating (min)	A	20
c)	TPN MCB rating (min)	A	63
d)	Short time rating	kA	10
e)	Magnetic short circuit protection required		☒ Yes [] No
f)	Thermal overload protection required		☒ Yes [] No
5.4	Current Transformer		
a)	Type		Cast resin
b)	Secondary current rating	A	☒ 1 [] 5
c)	Burden	VA	10
d)	Accuracy class		1.0
e)	Instrument Safety Factor		<5
5.5	Voltage Transformer		
a)	Type		Cast resin
b)	Secondary terminal voltage (phase-phase)	V	110 V
c)	Burden	VA	10



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d)	Accuracy class		1.0
e)	Winding configuration		Star/ Star
f)	System grounding		☒ Effective ☐ Non-effective
5.6	Indicating Meters		
5.6.1	Ammeter		
a)	Type		Analog
b)	Shape		Square
c)	Size		96mm x 96mm
d)	Accuracy		1.0
e)	Current coil rating	A	1
f)	Angle of deflection	deg	90
5.6.2	Voltmeter		
a)	Type		Analog
b)	Shape		Square
c)	Size		96mm x 96mm
d)	Accuracy		1.0
e)	AC voltage coil rating	V	0-500
f)	DC voltage coil rating	V	0-250
g)	Angle of deflection	deg	90
5.6.3	Energy meter (if applicable)		
a)	Type		☒ Analog ☐ Digital
b)	Accuracy		1.0
c)	Current coil rating	A	1
d)	Voltage coil rating	V	0-500
5.7	Power Contactors		
a)	Coil voltage (nominal)		
	AC contactors	V	240
	DC contactors	V	220



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b)	Current rating of contacts		
	Power	A	As per manufacturer data
	Control	A	As per manufacturer data
5.8	Under voltage relay		
a)	Type		☒ Electromagnetic ☐ Static
b)	Coil voltage rating	V	110
c)	Means for in-built testing provided		As per manufacturer data
5.9	Timer		
5.9.1	Time switch		
a)	Type		Digital synchronous
b)	Range	hr	0-24
c)	Coil voltage rating	V	240
5.10	Selector switch		
a)	Type of selector switch		☒ Stay put ☐ Wing knob
b)	Lockable		☐ Yes ☒ No
5.11	Push Button		
a)	Voltage grade	V	500
b)	Potential free contacts		2NO+2NC
5.12	Indicating Lamps		
a)	Lens Colour		
	ON condition		Red
	OFF condition		Green
b)	Circuit voltage	V	240V
5.13	Cable Glands		By vendor for all incoming and outgoing cables [Cable sizes shall be informed during detail engineering]
a)	Type		☒ Double compression ☐ Single compression



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b)	Material		Brass
c)	Nickel Plating provided		☒ Yes [] No
d)	Flameproof glands with flameproof equipment		☒ Yes [] No
5.14	Cable Lugs		By vendor for all incoming and outgoing cables [Cable sizes shall be informed during detail engineering]
a)	Type		Crimping type/ ring type
b)	Material		Tinned copper
6.0	PAINTING		
6.1	Paint shade		
a)	LDBs		Two coats of Red oxide primer followed by two coats of battleship Siemen's Grey RAL 7032.
b)	LPs		Two coats of Red oxide primer followed by two coats of battleship Siemen's Grey RAL 7032.
6.2	Paint Finish		
a)	Interior		[] Matt ☒ Semi-glossy
b)	Exterior		☒ Semi-glossy [] Full-glossy
6.3	Paint Thickness	Microns	50



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ANNEXURE-1
SUB-VENDOR LIST
(TENTATIVE)

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES1	AC CONTACTORS	1	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	AC CONTACTORS	2	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	AC CONTACTORS	3	E1144	TELEMECHANIQUE/ SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	TAKEN OVER BY SCHNEIDER
	AC CONTACTORS	4	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	AC CONTACTORS	5	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006	0129-4293000	
ES2	AC LOAD BREAK SWITCH	1	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	AC LOAD BREAK SWITCH	2	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	AC LOAD BREAK SWITCH	3	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	AC LOAD BREAK SWITCH	4	E1076	KAYCEE	KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014	Rajiv Sharma-9312004687	
	AC LOAD BREAK SWITCH	5	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
ES3	AC MCCB	1	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	AC MCCB	2	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	AC MCCB	3	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	AC MCCB	4	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	AC MCCB	5	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	AC MCCB	6	C02	CROMPTON GREAVES	RAIL TRANSPORTATION SYSTEMS,VANDANA BUILDING, 11, TOLSTOY MARG, TOLSTOY MARG, NEW DELHI, DL 110001	011 3041 6300	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES4	ACDB/ DCDB DRAWOUT TYPE	1	EC05	ELECTRO CONTROLS & DEVICES	M/S ELECTRO CONTROLS & DEVICES, F-41, SITE-C, SURAJPUR INDUSTRIAL AREA GREATER NOIDA UTTAR PRADESH :201308	Mr. Sanjay Sharma (Chief Promoter) 0120-2569487, 2560100,2560300	
	ACDB/ DCDB DRAWOUT TYPE	2	KM1	KMG ATOZ SYSTEMS	C-49, SECTOR-81-NOIDA-201305	120-4207920, 08527897328	
	ACDB/ DCDB DRAWOUT TYPE	3	E1019	ASIATIC	A-58 NARAINA IND. AREA, PHASE-I , NEW DELHI 110028	011 - 25796330, 25796617	
	ACDB/ DCDB DRAWOUT TYPE	4	E05	UNILEC ENGINEERS PVT. LTD.	BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001	0124-4030247,248, 4559700, 9911087173	
	ACDB/ DCDB DRAWOUT TYPE	5	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	ACDB/ DCDB DRAWOUT TYPE	6	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	ACDB/ DCDB DRAWOUT TYPE	7	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	ACDB/ DCDB DRAWOUT TYPE	8	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
ES5	ACDB/ DCDB FIXED TYPE	1	EC05	ELECTRO CONTROLS & DEVICES	M/S ELECTRO CONTROLS & DEVICES, F-41, SITE-C, SURAJPUR INDUSTRIAL AREA GREATER NOIDA UTTAR PRADESH :201309	Mr. Sanjay Sharma (Chief Promoter) 0120-2569487, 2560100,2560300	
	ACDB/ DCDB FIXED TYPE	2	J01	JASPER ENGINEERS PVT. LTD.	A-23, SECTOR - 8, NOIDA-201301	0120-4033520/533	
	ACDB/ DCDB FIXED TYPE	3	JC01	JACKSON ENGINEERS	A-43, HOSEIRY COMPLEX, OPPOSITE NSEZ, NOIDA-201305	0120-4302600, 2568923,27	
	ACDB/ DCDB FIXED TYPE	4	S02	SPACEAGE SWITCHGEARS LTD.	68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001	0124-2302711, 4085091	
	ACDB/ DCDB FIXED TYPE	5	KM1	KMG ATOZ SYSTEMS	C-49, SECTOR-81-NOIDA-201305	120-4207920, 08527897328	
	ACDB/ DCDB FIXED TYPE	6	E1019	ASIATIC	A-58 NARAINA IND. AREA, PHASE-I , NEW DELHI 110028	011 - 25796330, 25796617	
	ACDB/ DCDB FIXED TYPE	7	E05	UNILEC ENGINEERS PVT. LTD.	BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001	0124-4030247,248, 4559700, 9911087173	
	ACDB/ DCDB FIXED TYPE	8	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	ACDB/ DCDB FIXED TYPE	9	E1210	ENPRO ENGG.	NO.995P, DIAMOND PLAZA, 2ND FLOOR, 12TH MAIN ROAD, ANNA NAGAR, CHENNAI-40	044 – 42611526 / 42170338 / 26262716	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	ACDB/ DCDB FIXED TYPE	10	A01	ASSOCIATED SWGR & PROJ. LTD.	C-10, UPSIDC, INDUSTRIAL AREA, SITE-IV, KASNA ROAD, GREATER NOIDA-201306	0120-4294618,19,20 Asplho@gmail.com	
	ACDB/ DCDB FIXED TYPE	11	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006	0129-4293000	
	ACDB/ DCDB FIXED TYPE	12	E1043	ECS PRIVATE LTD	7/47, Site 2, Upsidc Ind Area, Loni Road, MOHAN Nagar, Ghaziabad, Uttar Pradesh 201007	098 10 217990	
	ACDB/ DCDB FIXED TYPE	13	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	ACDB/ DCDB FIXED TYPE	14	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	ACDB/ DCDB FIXED TYPE	15	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	ACDB/ DCDB FIXED TYPE	16	E1080	KHOKHAR ELECT. PVT LTD.	C-44, SEC-63, NOIDA-201307	120- 654 5452	
	ACDB/ DCDB FIXED TYPE	17	VC01	VIDHYUT CONTROLS (INDIA) PVT. LTD.	M/S VIDHYUT CONTROL (I) PVT.LTD. D-12 & 13, SECTOR-17,KAVI NAGAR INDL.AREA,GHAZIABAD – 201002 (DELHI NCR) U.P. INDIA	0120-4186400, 0120-4186423, 8527005590(DK GUPTA)	
ES6	AIR CIRCUIT BREAKER	1	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	AIR CIRCUIT BREAKER	2	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015,	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	AIR CIRCUIT BREAKER	3	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	AIR CIRCUIT BREAKER	4	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	AIR CIRCUIT BREAKER	5	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
ES7	AUXILIARY RELAYS	1	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	AUXILIARY RELAYS	2	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	
	AUXILIARY RELAYS	3	E1075	JYOTI LTD.	JYOTI LIMITED, E&CS DIVISION,3/15, BIDC, GORWA,VADODARA - 390 016, E-MAIL ID: ECS@JYOTI.COM	Ph. No.:+91-265-2281214 , Fax No.:+91-265-2281214	
	AUXILIARY RELAYS	4	E1099	OEN INDIA LTD	29/1479, VYTILLA, COCHIN - 682 019 KERALA, INDIA	Phone : +91 484 2301132, 2303709 Fax : +91 484 2302287, 2302221 sales@oenindia.com	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	AUXILIARY RELAYS	5	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
ES8	BIMETAL RELAYS	1	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	BIMETAL RELAYS	2	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	BIMETAL RELAYS	3	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	BIMETAL RELAYS	4	E1144	TELEMECHANIQUE/ SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	TAKEN OVER BY SCHNEIDER
ES9	BUCHHOLZ RELAY	1	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	
	BUCHHOLZ RELAY	2	E1020	ATVUS INDUSTRIES	689, BLOCK 'O', NEW ALIPORE, CALCUTTA-700053	(91)-(33)-24001101 / 9885 sales@atvus.in	
	BUCHHOLZ RELAY	3	E1070	INSTRUMENTS & CONTROLS	146,GIDC IND.ESTATE,MAKARPURA, VADODRA-390010	0265-2642729	
ES10	CABLE CLAMPS & CABLE TIES	1	E1045	ELECTROMAC IND.CORPN.	27/28 AF,NEW EMPIRE IND.ESTT., R.KRISHNA MANDIR RD JB NGR ,ANDHERI(E), MUMBAI-400059	91-22-28324829 / 66919034/ Mr. Devang Patel/ 91-9867074600 devang@electromacglands.com	
	CABLE CLAMPS & CABLE TIES	2	I01	INCAB	HARE STREET,KOLKATA,WEST BENGAL-700001	91-33-2480161/62/63/64 Fax : 91-33-2485766	
	CABLE CLAMPS & CABLE TIES	3	N05	NOVOFLEX MARKETING PVT. LTD.	RAIKVA' - 5TH FLOOR, UNIT-6 3A, RAM MOHAN MULLICK GARDEN LANE KOLKATA - 700 010	Phone: +91 33 2372 0088 Email: sales@novoflex.co.in, novoflexcal@vsnl.net	
ES11	CABLE GLANDS	1	E1201	ALLIED TRADERS & EXPORTERS	C-124 A, SECTOR-2, NOIDA -201 301, UTTAR PRADESH, INDIA	Mr. Vijay Mohan Sood +(91)-(120)-2525694 +(91)-(120)-3052594 +(91)-(11)-23287156 vijay_mohansood@yahoo.com	
	CABLE GLANDS	2	E1017	ARUP ENGG & FOUNDRY WORKS	391/119,PRINCE ANWAR SHAH ROAD, CALCUTTA-700068	033 2473 0850	
	CABLE GLANDS	3	E1206	BALIGA LIGHTING EQPT.PVT.LTD.	63A,CP RAMASWAMY ROAD, ALWARPET,P.B.No 6910, CHENNAI-600018	44-24995505,22680990-4	
	CABLE GLANDS	4	E1036	COMMET BRASS PRODUCTS	NUTAN CHEMICAL COMPOUND, WALBHAT ROAD, GOREGAON, MUMBAI-400063	91-022-26852961/62/63 comet@vsnl.net	
	CABLE GLANDS	5	DW08	DOWELLS	M/S. DOWELLS ELECTRICALS 47/47A, SATGURU INDUSTRIAL ESTATE. OFF AAREY ROAD, GOREGOAN (EAST). MUMBAI 400 063.	CEO : Mr. Jayantibhai S. Patel TEL: 022-32504770./022- 29270876/ 022-29270878.	

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	CABLE GLANDS	6	E1044	ELECTROMAC INDUSTRIES	27/28AF NEW EMPIRE IND.ESTT., R.KRISHNA MANDIR RD.JB NGR ,ANDHERI(E),MUMBAI-400059	91-22-28324829 / 66919034 devang@electromacglans.com	
	CABLE GLANDS	7	I01	INCAB	HARE STREET,KOLKATA,WEST BENGAL-700001	91-33-2480161/62/63/64 Fax : 91-33-2485766	
ES12	CABLE LUGS	1	E1040	DOWELLS	M/S. DOWELLS ELECTRICALS 47/47A, SATGURU INDUSTRIAL ESTATE. OFF AAREY ROAD, GOREGOAN (EAST).	CEO : Mr. Jayantibhai S. Patel TEL: 022-32504770./022-29270876/	
	CABLE LUGS	2	E1149	UNIVERSAL MACHINES LTD.	4,B.B.D.BAG (EAST) 90,STEPHEN HOUSE,5TH FLR CALCUTTA-700001	033 2282 2540	
ES13	D.C. MCCB	1	C02	CROMPTON GREAVES	RAIL TRANSPORTATION SYSTEMS,VANDANA BUILDING, 11, TOLSTOY MARG, TOLSTOY MARG, NEW DELHI, DL 110001	011 3041 6300	
	D.C. MCCB	2	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	D.C. MCCB	3	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL,	044-49681447	
	D.C. MCCB	4	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
ES14	EARTH LEAKAGE CB	1	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	EARTH LEAKAGE CB	2	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	EARTH LEAKAGE CB	3	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	EARTH LEAKAGE CB	4	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	EARTH LEAKAGE CB	5	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	EARTH LEAKAGE CB	6	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	EARTH LEAKAGE CB	7	E1068	INDO ASIAN	B-24, PHASE - II , NOIDA - 201305, U.P.	120-3042222	
	EARTH LEAKAGE CB	8	E1088	MDS SWITCHGEAR LTD	314-317SHAH NAHAR ESTATE	011 - 25793021	
	EARTH LEAKAGE CB	9	E1120	S&S POWER SWITCHGEAR LTD,	NEW NO. 67, OLD NO. 19, DR. RANGA ROAD, MYLAPORE, CHENNAI - 600004	044 - 24988056, 044 - 24988057, 044 - 24988058	
ES15	JELLY FILLED CABLES	1	D01	DELTON SALES LTD.	DELTON HOUSE 4801,BHARAT RAM ROAD,24DARYAGANJ N.DELHI-110002	3273905-8,3262517	
	JELLY FILLED CABLES	2	H01	HINDUSTAN CABLES	A-40 ASIAN GAMES VILLAGE RANJIT SINGH BLOCK NEW DELHI-110049	011-26493673	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	JELLY FILLED CABLES	3	E1096	TELELINK-NICCO	NICCO HOUSE 2,HARE STREET,CALCUTTA-700001	91-033-66285000	
	JELLY FILLED CABLES	4	E1151	USHA BELTRON LTD.	TATISILWAI , ranchi- 835105	91 651 415 897, 415 816	
ES16	GI CONDUITS	BIS APPROVED MAKE					
ES17	GI CONDUIT (EPOXY PAINTED)	BIS APPROVED MAKE					
ES18	FLEXIBLE CONDUITS (LEAD COATED)	1	P03	PLICA INDIA PVT. LTD.	V.P.AGARWAL MANAGING DIRECTOR, PLICA INDIA PVT. LTD. 149, MODEL TOWN EAST GHAZIABAD - 201009	M - 9810052131 / 0120-4563979 / 9810557567 Mail: agr@plicaindia.com	
ES19	FLEXIBLE CONDUIT (PVC COATED)	REPUTED MAKE					
ES20	DC CONTACTORS	1	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	DC CONTACTORS	2	E1030	BHEL (BHOPAL)	HEAVY ELECTRICAL PLANT		
	DC CONTACTORS	3	E1044	ELECTROMAC INDUSTRIES	27/28AF NEW EMPIRE IND.ESTT., R.KRISHNA MANDIR RD.JB NGR ,ANDHERI(E),MUMBAI-400059	91-22-28324829 / 66919034 devang@electromacglands.com	
	DC CONTACTORS	4	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	DC CONTACTORS	5	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	
	DC CONTACTORS	6	E1144	TELEMECHANIQUE/ SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	TAKEN OVER BY SCHNEIDER
	DC CONTACTORS	7	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
ES21	CONTROL SWITCHES/ SELECTOR SWITCH	1	E1076	KAYCEE	KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014	Rajiv Sharma-9312004687	
	CONTROL SWITCHES/ SELECTOR SWITCH	2	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	CONTROL SWITCHES/ SELECTOR SWITCH	3	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479000	
	CONTROL SWITCHES/ SELECTOR SWITCH	4	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	CONTROL SWITCHES/ SELECTOR SWITCH	5	SRC01	M/s Shrenik & Co.	39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR,		
	CONTROL SWITCHES/ SELECTOR SWITCH	6	RE05	RECOM PVT. LTD.	M/S RECOM PVT. LTD.,16A , 2ND FLOOR A, WING RAJ INDUSTRIAL COMPLEX, MILITARY	Mr. Chandrashekar Kamath (MD) : 09820249503	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES22	CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER	1	E1009	AUTOMATIC ELECTRIC LTD.	96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER	2	E1066	INDCOIL	PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070	Phone:022 2583 8305	
	CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER	3	K18	KAPPA ELECTRICALS	KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.	PHONE: +91 - 44 - 22454709, 22454516, 22450794, 22450795 FAX: +91 - 44 - 22351662, 22451693 E-MAIL: mira@kappaelectricals.com sales@kappaelectricals.com	
	CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER	4	E1082	LOGICSTAT	B-160, INDUSTRIAL AREA, C BLOCK RD, OKHLA I, OKHLA INDUSTRIAL AREA, NEW DELHI, DL 110020	011 2681 0032	
	CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER	5	E1106	PRECISE ELECTRICALS	47A-49A,CHAKALA ROAD ANDHERI(E),MUMBAI- 99 MUMBAI, MAHARASHTRA, INDIA PIN-400 099	022-8323402 / 022-8216433	
	CONTROL TRANSFORMER/ WINDING HEATING TRANSFORMER	6	E1128	UNILEC ENGINEERS PVT. LTD.	PLOT NO: R-247, T.T.C. INDUSTRIAL AREA, M.I.D.C , RABALE, NAVI MUMBAI- 400 701 INDIA	+91-22- 27607787 / 27607927 +91-22- 27607997	
ES23	LT- CURRENT TRANSFORMER	1	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	LT- CURRENT TRANSFORMER	2	E1009	AUTOMATIC ELECTRIC LTD.	96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	LT- CURRENT TRANSFORMER	3	E1066	INDCOIL	PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070	Phone:022 2583 8305	
	LT- CURRENT TRANSFORMER	4	K18	KAPPA ELECTRICALS	KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., SOUTHERN ELECTRIKS 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.	PHONE: +91 - 44 - 22454709, 22454516, 22450794, 22450795 FAX: +91 - 44 - 22351662, 22451693 E-MAIL: mira@kappaelectricals.com sales@kappaelectricals.com	
	LT- CURRENT TRANSFORMER	5	E1104	PRAGATI ELECTRICALS	280/3,II POKHRAN RD	5341779,5427041	

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	LT- CURRENT TRANSFORMER	6	E1106	PRECISE ELECTRICALS	47A-49A,CHAKALA ROAD ANDHERI(E),MUMBAI-99 MUMBAI, MAHARASHTRA, INDIA PIN-400 099	022-8323402 / 022-8216433	
	LT- CURRENT TRANSFORMER	7	E1128	SILKAANS ELECT.MFG.CO.PVT.LTD	PLOT NO: R-247, T.T.C. INDUSTRIAL AREA, M.I.D.C , RABALE, NAVI MUMBAI- 400 701 INDIA	+91-22- 27607787 / 27607927 +91-22- 27607997	
	LT- CURRENT TRANSFORMER	8	E1111	PRAYOG ELECTRICALS PVT. LTD.	GROUND FLOOR, THAKORE INDUSTRIAL COMPUND, STATION ROAD, VIDYA VIHAR (W), NATHANI ROAD , OPP. AMIBIKA TEMPLE,MUMBAI Mumbai - 400086, Maharashtra, India	91-22-25164288/25133146 Mr. P. U. PATWARDHAN (MANAGING DIRECTOR)	
	LT- CURRENT TRANSFORMER	9	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
ES24	LT- POTENTIAL TRANSFORMER	1	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	
	LT- POTENTIAL TRANSFORMER	2	E1009	AUTOMATIC ELECTRIC LTD.	96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	LT- POTENTIAL TRANSFORMER	3	E1066	INDCOIL	PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070	Phone:022 2583 8305	
	LT- POTENTIAL TRANSFORMER	4	K18	KAPPA ELECTRICALS	KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., SOUTHERN ELECTRIKS 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.	PHONE: +91 - 44 - 22454709, 22454516, 22450794, 22450795 FAX: +91 - 44 - 22351662, 22451693 E-MAIL: mira@kappaelectricals.com sales@kappaelectricals.com	
	LT- POTENTIAL TRANSFORMER	5	E1104	PRAGATI ELECTRICALS	280/3,II POKHRAN RD	5341779,5427041	
	LT- POTENTIAL TRANSFORMER	6	E1106	PRECISE ELECTRICALS	47A-49A,CHAKALA ROAD ANDHERI(E),MUMBAI-99 MUMBAI, MAHARASHTRA, INDIA PIN-400 099	022-8323402 / 022-8216433	
	LT- POTENTIAL TRANSFORMER	7	E1128	SILKAANS ELECT.MFG.CO.PVT.LTD	PLOT NO: R-247, T.T.C. INDUSTRIAL AREA, M.I.D.C , RABALE, NAVI MUMBAI- 400 701 INDIA	+91-22- 27607787 / 27607927 +91-22- 27607997	
	LT- POTENTIAL TRANSFORMER	8	E1111	PRAYOG ELECTRICALS PVT. LTD.	GROUND FLOOR, THAKORE INDUSTRIAL COMPUND, STATION ROAD, VIDYA VIHAR (W), NATHANI ROAD , OPP. AMIBIKA TEMPLE,MUMBAI Mumbai - 400086, Maharashtra, India	91-22-25164288/25133146 Mr. P. U. PATWARDHAN (MANAGING DIRECTOR)	
	DC SWITCH	1	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	

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ES25	DC SWITCH	2	E1076	KAYCEE	KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014	Rajiv Sharma-9312004687	
	DC SWITCH	3	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	
ES26	DISTRIBUTION BOX	1	SRC01	M/S SHRENIK & CO.	39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR, AHMEDABAD – 382 213		
ES27	EMER. PORTABLE LTG. SET	1	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	EMER. PORTABLE LTG. SET	2	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
ES28	FUSE BASE	1	E1068	INDO ASIAN	B-24, PHASE - II , NOIDA - 201305, U.P.	120-3042222	
	FUSE BASE	2	G01	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	FUSE BASE	3	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	FUSE BASE	4	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	FUSE BASE	5	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 ;amit.bhadauria@siemens.com	
	FUSE BASE	6	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	FUSE BASE	7	S02	SPACEAGE SWITCHGEARS LTD.	68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001	0124-2302711, 4085091	
	FUSE BASE	8	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	FUSE BASE	9	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	FUSE BASE	10	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	011-26217060	
ES29	HRC FUSES	1	E1068	INDO ASIAN	B-24, PHASE - II , NOIDA - 201305, U.P.	120-3042222	
	HRC FUSES	2	G01	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	HRC FUSES	3	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	HRC FUSES	4	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	HRC FUSES	5	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 ;amit.bhadoria@siemens.com	
	HRC FUSES	6	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	HRC FUSES	7	S02	SPACEAGE SWITCHGEARS LTD.	68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001	0124-2302711, 4085091	
	HRC FUSES	8	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	HRC FUSES	9	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	
	HRC FUSES	10	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	011-26217060	
	GALVANISING	1		Jenco Industrial Corporation	Chincholi Bunder Khkar Road Near Link Road Devruwadi Malad (W) Mumbai 400064		
	GALVANISING	2		National Galvanizing Company	66, Barrackpore Kamarhatt Trunck Road Calcutta-700058		
	GALVANISING	3		Sigma Galvanising Pvt. Ltd.	Plot No.C-169, TTC, MIDC Ind Area Navin Mumbai-400705	8725402,8725765	
	GALVANISING	4		B.P. Projects PVT LTD	167A, Vivekananda Road Kolkata-700006	033 2553 1254	
	GALVANISING	5		Standard Galvanisers	Makardah Road, Kabar Para, Bankra, Howarah -711403	28756318/28741986/28725402/28725765	
	GALVANISING	6		Steel Products	National Highway No. 6, Chamrail, Kona, Howrah-711114		
	GALVANISING	7		Unitech Fabricators & Engineers Pvt. Ltd.	Village- Ajab Nagar, P.O. -Molla Simlla, P.S. - Singur, Dist - Hoogly, Pin-712223	022 -27686606/ 1907	
	GALVANISING	8		Shivam Engineers & Fabricators	A0-282-284, Industrial Area, South Side of G.T. Road, Ghaziabad, U.P.		
	GALVANISING	9		B.G. Shirke Construction Technology Pvt. Ltd	72-76, Mundhawa, Pune - 401 036		

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES30	GALVANISING	10		Galbro Ispat Galvanizers Pvt. Ltd.	GUT 11 AND 12, OPP. Kudus Steel,Rolling Mill, Wada, Thane , Mumbai		
	GALVANISING	11		Eros Metals	G-97, MIDC, Bhutibori , Nagpur		
	GALVANISING	12		Industrial Perforation (India) Pvt. Ltd.	Ganganagr, Katakhal, Kolkata-700132		
	GALVANISING	13		Indmark Formtech Pvt. Ltd.	Phase - 3, E - 11 / 1, M. I. D. C., Chakan, Pune - 410 501, Maharashtra, India.		
	GALVANISING	14		Namdhari Industrial Traders Pvt. Ltd.	Village Latton Dana, Chandigarh Road, Ludhiana		
	GALVANISING	15		Neha Galvaniser	Jalan Industrial Estate, Gate No-1, 1st Right Choise Lane, Near N.G-6, Jangalpur, PO Domjur Howrah - 700071, West Bengal, India		
	GALVANISING	16		Patny Systems (P) Ltd.	Unit-IV, Sy No. -228/9, Plot No. 6, IP Kuchavaram, Toopran(M) Dist.- Medak, Telegana - 502336		
	GALVANISING	17		Parmar Metal Company	Survey No.207,Veraval (Shapar) Dist. Rajkot, India.		
	GALVANISING	18		Rukmani Electrical & Fabricators Pvt, Ltd.	Urla Industrial Area, Urla Sarora Road, Raipur- 493 221 (Chhattisgarh)		
	GALVANISING				Shankharidaha Baniyarah, Jalan Industrial Complex, Gate no.3, Lane no. 4, Domjur, Howrah , W.B. - 71141		
	GALVANISING	19		DMP Projects Pvt.Ltd.	Dulagarh Industrial Park , PS-Sankrail , Howrah -711302		
	GALVANISING	20		Vinfab Engineers India Private Limited	Gut no. 224/1 &2 Bhiwandi Wada State Highway, Village khupri, Dist. Thane, Maharashtra -421303		
	GALVANISING	21		Saral Projects & Processors	B-1, Industrial Area, Site-II, Amawan Road Rae Bareli		
	GALVANISING	22		Brahampuri Steels Limited	172 (F) Industrial Area, Jhotwara, Jaipur-302013		
	GALVANISING	23		Indiana Gratings PVT. LTD	F-5, MIDC Jejuri, Pune-412 303		
	GALVANISING	24	AT08	M/S AVAIDS TECHNOVATORS PVT. LTD	131, MATSYA INDUSTRIAL AREA, ALWAR RAJASTHAN		
	GI WIRE & FLAT	1	I039	INDUSTRIAL PERFORATION (I) PVT.LTD.	MR. A. K. SAHA 327, R.N.GUHA ROAD, DUM DUM KOLKATA-West Bengal-India Phone- 9830241788 Pincode : 700028 Email : ipipl@cal2.vsnl.net.in	011 2737 3579	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES31	GI WIRE & FLAT	2	I070	INDIA ELECTRICALS SYNDICATE	Mr. Suresh Kumar Agarwal 55, Ezra Street, Kolkata-West Bengal-India Phone- 033-22354047 Pincode : 700001 Email : cabletray@vsnl.com	022-28511704	
	GI WIRE & FLAT	3	I072	INDMARK FORMTECH PVT. LTD.	Mr. Narendra R. Meher J Block, Plot No.-375, MIDC BHOSARI PUNE-MAHARASHTRA-INDIA Phone- 020-27130546 Pincode : 411026 Email : indmarkformtech@vsnl.net		
	GI WIRE & FLAT	4	P039	PREMIER POWER PRODUCTS (CAL) PVT. LTD.	Chatterjee International Centre, 33A, Jawaharlal Nehru Road, 6th Floor, Suit No. - 11A, Kolkata,- West Bengal-India Phone- 9331008739 Pincode : 700071 Email : hemantdaga@dagaventures.com		
	GI WIRE & FLAT	5	P050	PATNY SYSTEMS (P) LTD	PATNY PLAZA 160 , SARDAR PATEL ROAD SEUNDRABAD SECUNDRABAD-TELANGANA-INDIA Phone- 040-27902451 Pincode : 500003 Email : mr.mkt@patnysystems.com		
	GI WIRE & FLAT	6	P079	PASSIVE INFRA PROJECTS PVT. LTD.	MR. VARUN AGRAWAL 182, VAISHALI, PITAMPURA Delhi-DELHI-INDIA Phone- 9871183059 Pincode : 110088 Email : ATANU.SAHA@PASSIVEINFRA.COM		
	GI WIRE & FLAT	7	R036	RUKMANI ELECTRICAL & COMPONENTS PVT LTD	11A , MAHARISHI DEBENDRA ROAD 1ST FL , ROOM NO.4 KOLKATA-WEST BENGAL-INDIA Phone- Pincode : 700007 Email : maruthikabra@gmail.com		
	GI WIRE & FLAT	8	R037	RATAN PROJECTS & ENGINEERING CO. PVT.LTD.	MR. G.D. SINGHEE/MR. MAHESH SINGHEE 26, P.K. TAGORE STREET, MAIN BUILDING KOLKATA-WEST BENGAL-INDIA Phone- 9830177331 Pincode : 700006 Email : mahesh@ratans.com		
	GI WIRE & FLAT	9	R041	RABI ENGINEERING WORKS PVT. LTD.	MR. TAPAN KUMAR SEN/MR. SIDDHARTHA 327, R.N. GUHA ROAD, DUM DUM, KOLKATA-WEST BENGAL-INDIA Phone- 9748753002 Pincode : 700028 Email : rabiengineering@gmail.com		
	GI WIRE & FLAT	10	R200	RAJASTHAN METAL SMELTING CO.	Mr. R. K. Tibrewala D-80, Road No. 7, V.K.I.A., Jaipur-Rajasthan-India Phone- 0141-2332269 Pincode : 302013 Email : info@rmscoindia.com		
	GI WIRE & FLAT	11	S210	SARAL INDUSTRIES	Mr. Y.K. Gupta L-1, L-2, Industrial Area-1 Sultanpur Road Rae Bareli-Uttar Pradesh-India Phone- 0535-2702474 Pincode : 229010 Email : saralindustries@gmail.com		

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	GI WIRE & FLAT	12		PARCO Engineers Pvt. Ltd.	401, skyline Epitom Building ,Near to Jolly Gym Khana, Kirol Road , Vidhyavihar, MH 400086 India		
	GI WIRE & FLAT	13	U019	UNITECH FABRICATORS and ENGINEERS PVT LTD	INDRAPRASHTHA APARTMENT 24 , M.B.RAOD , BIRATI KALABAGAN KOLKATA KOLKATA-WEST BENGAL-INDIA Phone- Pincode : 700051 Email : ufepl@vsnl.net; ufepl@rediffmail.com	022 - 26230814	
ES32	HIGH MAST	1	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID :rabans@bajajelectricals.com;	
	HIGH MAST	2	TL01	M/S TRANSRAIL LIGHTING LIMITED (TLL)	M/S TRANSRAIL LIGHTING LIMITED (TLL), GAMMON INDIA LIMITED 2ND FLOOR , CENTRIC PLAZA, PLOT NO.8 POCKET-4, SECTOR-11 DWARKA , NEW DELHI -110075	hemant.jain@transrailtld.com'	
ES33	IND.POWER & WLDG SOCKETS	1	C02	CROMPTON GREAVES	3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA	91 11 23460700 - 999 'Sunil.Das@cgglobal.com	
	IND.POWER & WLDG SOCKETS	2	E1207	CYCLO ELECTRIC DEVICE & SERV.CO.	: A-3, NEAR ANTHEM BIOSCIENCE, KSSIDC INDUSTRIAL AREA, BOMMASANDRA, BOMMASANDRA INDUSTRIAL AREA, BANGALORE, KARNATAKA 560099	Mr. H.Jaishanker +919845039081, 080 - 27833102 , 080 - 27833103 : +91 80 41460985 'cycloelectric@gmail.com	
	IND.POWER & WLDG SOCKETS	3	B04	BCH	20/4, MATHURA ROAD, FARIDABAD - 121006, HARYANA, INDIA	0(129)-4063000, 9015800189(Ramesh Giri) 'ramesh.giri@bchindia.com	
	IND.POWER & WLDG SOCKETS	4	B02	BEST & CROMPTON	Best & Crompton Engineering Ltd	Ph : +91 44 4551 4724 , MRKT	BEST &
	IND.POWER & WLDG SOCKETS	5	A03	AJMERA INDUSTRIES & ENGG. WORKS	AJMERA INDL. AND ENGG. WORKS. AJMERA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL. AREA, NAVI MUMBAI – 400705.	Tel : 022 27620299 / 97 / 96 'mail@ajmera.net	
ES34	INTERPOSING RELAY	1	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	INTERPOSING RELAY	2	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	
	INTERPOSING RELAY	3	E1075	JYOTI LTD.	JYOTI LIMITED, E&CS DIVISION,3/15, BIDC, GORWA,VADODARA - 390 016, E-MAIL ID: ECS@JYOTI.COM	Ph. No.:+91-265-2281214 , Fax No.:+91-265-2281214	
	INTERPOSING RELAY	4	E1099	OEN INDIA LTD	29/1479, VYTILLA, COCHIN - 682 019 KERALA, INDIA	Phone : +91 484 2301132, 2303709 Fax : +91 484 2302287, 2302221 sales@oenindia.com	
	INTERPOSING RELAY	5	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES35	INDICATING LAMPS	1	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006	0129-4293000	
	INDICATING LAMPS	2	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	6832259,6918834-37	
	INDICATING LAMPS	3	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	011-26217060	
	INDICATING LAMPS	4	E1153	VAISHNO(HOTLINE SWGR.& CONTROL)	G-19, SECTOR - 11, NOIDA - 201301, UTTAR PRADESH, INDIA	8377805157 9818338922	
	INDICATING LAMPS	5	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	9818338922	
	INDICATING LAMPS	6	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	INDICATING LAMPS	7	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	JUNCTION BOXES (NON FLAME PROOF)	1	J01	JASPER ENGINEERS PVT. LTD.	A-23, SECTOR - 8, NOIDA-201301	0120-4033520/533	
	JUNCTION BOXES (NON FLAME PROOF)	2	EC05	Electro Controls & Devices	M/S ELECTRO CONTROLS & DEVICES, F-41, SITE-C, SURAJPUR INDUSTRIAL AREA GREATER NOIDA, UTTAR PRADESH :201308	Mr. Sanjay Sharma (Chief Promoter) 0120-2569487, 2560100,2560300	
	JUNCTION BOXES (NON FLAME PROOF)	3	SRC01	M/s Shrenik & Co.	39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR, AHMEDABAD – 382 213	020-026708100	
	JUNCTION BOXES (NON FLAME PROOF)	4	PME-01	M/s PHOENIX MECANO LTD.,	388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115	Awasthi(09971119006) Tel: ++91 20 6674 5103, Mobile: +91 90499 95985, Fax: ++91 20 6674 5126	
	JUNCTION BOXES (NON FLAME PROOF)	5	ACE01	Adroit Control Engineers Pvt.Ltd.	M/S ADROIT CONTROL ENGINEERS PVT.LTD. PLOT-3, KRISHNA INDL. AREA, SECTOR-25 FARIDABAD – 121004	011-47600700, 0129-4251400	
	JUNCTION BOXES (NON FLAME PROOF)	6	PME-01	M/s PHOENIX MECANO LTD.,	388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115	Awasthi(09971119006) Tel: ++91 20 6674 5103, Mobile: +91 90499 95985, Fax: ++91 20 6674 5126 contact person : Vishwa bandhu E-mail:d.gupta@pmipl-online.com ;admin@pmipl-online.com	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES36	JUNCTION BOXES (NON FLAME PROOF)	7	MK01	MIKA ENGINEERS	BRANCH OFFICE : 'D'-101, DHEERAJ HERITAGE RESIDENCY II, SHASTRI NAGAR, SANTACRUZ (W), MUMBAI 400 054.	Director : Mr. Asgar Karimi Email: asgar@mikaengineers.com E-mail : mika@mtnl.net.inTelfax : 022-26610081/82/83/84Tel : 02527-249066/70 Cell : 099230 74373	TYPE-S ONLY
	JUNCTION BOXES (NON FLAME PROOF)	8	PME-01	M/s PHOENIX MECANO LTD.,	388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115	TEL- +912066745000 Awasthi(09971119006) Tel: ++91 20 6674 5103, Mobile: +91 90499 95985, Fax: ++91 20 6674 5126 contact person : Vishwa bandhu E-mail:d.gupta@pmipl-online.com ;admin@pmipl-online.com	
	JUNCTION BOXES (NON FLAME PROOF)	9	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	JUNCTION BOXES (NON FLAME PROOF)	10	A03	AJMERIA INDUSTRIES & ENGG. WORKS	AJMERIA INDL. AND ENGG. WORKS. AJMERIA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL. AREA, NAVI MUMBAI – 400705.	Tel : 022 27620299 / 97 / 96 'mail@ajmera.net	
	JUNCTION BOXES (NON FLAME PROOF)	11	SB02	S.B. ELECTRICAL ENGINEERING CORPORATION	03, SARDAR GRIHA BUILDING, LOHAR CHAWAL, MUMBAI-400002	022- 22069831; 022-66637259	
	JUNCTION BOXES (NON FLAME PROOF)	12	RT13	RITTAL INDIA PVT. LTD.	Espire Building ,Level -1 A-41, Mohan Co- Operative Industrial Estate ,Mathura Road, New Delhi - 110044	Amit Bansal Phone: 011-42004000, D: 011-42004033 · Mobile: +91 9717772245 · mailto:amit.b@rittal- india.com www.rittal-india.com	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES37	JUNCTION BOXES (FLAME PROOF)	1	SS01	SUDHIR SWITCHGEAR	305/6, APEEJAY HOUSE, 130, BOMBAY SAMACHAR MARG, MUMBAI - 400 023. INDIA	Telephone Nos. : 40460000 (100 lines) Fax Nos. : ++91-22-22049381 Email : md@sudhirswitchgears.com ; works@sudhirswitchgears.com ;scud@vsnl.com	
	LIGHTING DISTRIBUTION BOARDS	1	E1007	ADVANCE ENGG. COMPANY	38,SETHI IND. ESTATE 10/E,SUREN RD,ANDHERI MUMBAI-400097	91 - 22 - 24360086	
	LIGHTING DISTRIBUTION BOARDS	2	STRG01	Sterling Generators Pvt. Ltd.	C-56/38, INSTITUTIONAL AREA, SECTOR-62, NOIDA -201307, U.P.	Nityanand Engineer-Sales & Marketing (Panel Division) Noida, UP 201307, India Mobile-+91-8510022170	
	LIGHTING DISTRIBUTION BOARDS	3	E1091	MIKA ENGINEERS	BRANCH OFFICE : 'D'-101, DHEERAJ HERITAGE RESIDENCY II, SHASTRI NAGAR, SANTACRUZ (W), MUMBAI 400 054.	Director : Mr. Asgar Karimi E-mail : mika@mtnl.net.inTelfax : 022-26610081/82/83/84Tel : 02527-249066/70 Cell : 099230 74373 ; Email: asgar@mikaengineers.com	
	LIGHTING DISTRIBUTION BOARDS	4	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	LIGHTING DISTRIBUTION BOARDS	5	KM1	KMG ATOZ SYSTEMS	"ATOZ HOUSE" C-49, SECTOR-81, GAUTAM BUDDH NAGAR, NOIDA – 201 305 U. P. (INDIA)	Tel : +91-120-4207920 Fax : +91-120-4207921, 4327958 Phone:098 10 802710	
	LIGHTING DISTRIBUTION BOARDS	6	E05	UNILEC ENGINEERS PVT. LTD.	BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001	0124-4030247,248, 4559700, 9911087173	
	LIGHTING DISTRIBUTION BOARDS	7	AVA01	AVAIODS TECHNOVATORS LTD.	PLOT NO.25 ,SECTOR-3,IMT-MANESAR, GURGEON-122050 (HARYANA)	KRISHNA KALRA- 09958096168	
	LIGHTING DISTRIBUTION BOARDS	8	ACE01	Adroit Control Engineers Pvt.Ltd.	M/S ADROIT CONTROL ENGINEERS PVT.LTD. PLOT-3, KRISHNA INDL. AREA, SECTOR-25 FARIDABAD – 121004	011-47600700, 0129-4251400	
	LIGHTING DISTRIBUTION BOARDS	9	JC01	JACKSON ENGINEERS	A-43, HOSEIRY COMPLEX, OPPOSITE NSEZ, NOIDA-201305	0120-4302600, 2568923,27	
	LIGHTING DISTRIBUTION BOARDS	10	ADL01	Adlec Systems Private Limited	PLOT NO-277, SWARN PARK, UDYOG NAGAR, MUNDKA, MAIN ROHTAK ROAD, UDYOG NAGAR, NEW DELHI, DELHI 110041	011 2834 5061	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES38	LIGHTING DISTRIBUTION BOARDS	11	POP01	Popular Switchgears Pvt Ltd	712, ARUN CHAMBERS, TARDEO MAIN ROAD, TARDEO, NEAR TARDEO AIRCONDITIONER MARKET, MUMBAI - 400034	-9362634406	
	LIGHTING DISTRIBUTION BOARDS	12	CS01	CANDS	J/202, ANSA INDUSTRIAL ESTATE, SAKI VIHAR ROAD, SAKINAKA, ANDHERI (EAST), MUMBAI-72	022-28570858	
	LIGHTING DISTRIBUTION BOARDS	13	PYRE01	Pyrotech Electronics Pvt. Ltd.	M/s Pyrotech Electronics Pvt. Ltd(Unit -1) Led Light, Sensor Division F-16A, Road No.3 Mewar Industrial Area, Madri Udaipur -313003, Rajasthan,	Concern Person – Mr. Praveen sisodiya (psisodia@pyrotechlighting.com) Ankit Kumar Sr. Engineer(North Region -Sales & Marketing) # +91- 7340061769, 8287897309	
	LIGHTING DISTRIBUTION BOARDS	14	PCS01	Positronics Pvt. Ltd.	POSITRONICS HOUSE ,882/ 2, G.I.D.C. MAKARPURA,VADODARA 390010 GUJARAT	+91 265 2642496 Fax: +91 265 264 7033 / 234 0944 E- mail : info@positronicsindia.com Website:www.positronicsindia.com	
	LIGHTING DISTRIBUTION BOARDS	15	ISC01	Industrial Switchgears & Control Pvt Ltd	S-02 AMARDEEP MAHAL, NANDA PATKAR RD, VILE PARLE EAST, MUMBAI - 400057	(91)-22-26182011	
	LIGHTING DISTRIBUTION BOARDS	16	VC01	M/s Vidhyut Control (I) Pvt.Ltd.	D-12 & 13, SECTOR-17, KAVI NAGAR INDL.AREA, GHAZIABAD – 201002 (DELHI NCR) U.P. INDIA		
	LIGHTING DISTRIBUTION BOARDS	17	MIL01	MILESTONE SWITCHGEARS PVT. LTD.	MILESTONE SWITCHGEARS PVT. LTD. 97, UDYOG VIHAR, PHASE-1, GURGEON HARYANA - 122016	Phone Nos.: 0124-4994900 (30 Lines) Fax: 0124-4002973 Email: jaideep.ahuja@milestonesindia.com URL: www.milestonesindia.com	
	LIGHTING FIXTURES (NON LED)	2	E1206	BALIGA LIGHTING EQPT PVT LTD	63A,CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018	44-24995505,22680990-4	
	LIGHTING FIXTURES (NON LED)	3	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES39	LIGHTING FIXTURES (NON LED)	4	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	LIGHTING FIXTURES (NON LED)	5	C02	CROMPTON GREAVES	3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA	91 11 23460700 - 999 Sunil.Das@cgglobal.com, Mr. Prashant Wewhare 9930095703	
	LIGHTING FIXTURES (NON LED)	6	E1051	EVERGREEN ENGG. CO.	EVERGREEN ENGG COMPANY WORKS-5, PLOT NO. 9,10,11,12, SURVEY NO. 242, CHINCH PADA, VASAI EAST-401208	(0250) 6458250	
	LIGHTING FIXTURES (NON LED)	7	P01	PHILIPS	9TH FLOOR,DLF 9B, DLF CYBER CITY, DLF PHASE- III,GURGAON-122002	01244606001, Sharad (+919871150447)	
	LIGHTING FIXTURES (NON LED)	8	WP01	WIPRO LTD.	WIPRO CONSUMER CARE AND LIGHTING, 5TH FLOOR, GODREJ ETERNIA -C, OLD PUNE- MUMBAI ROAD, SHIVAJINAGAR, PUNE -411005	020-66098700	
	LIGHTING FIXTURES (NON LED)	9	HP01	M/S HPL ELECTRIC & POWER PVT. LTD	M/S HPL ELECTRIC & POWER PVT. LTD. PLOT NO. 76-B,PHASE-IV, SEC-57, HSIIDC, INDL. AREA , KUNDLI, DIST.- SONEPAT (HARYANA) - 131028	mohitsharma@hplindia.com'	
	LIGHTING FIXTURES (NON LED)	10	SR01	SURYA ROSHNI LIMITED	PADMA TOWER, RAJENDRA PLACE, RAJENDRA PLACE NEW DELHI	011-25810093 ; 9810071832 (Akhilesh Agrawal) aagrawal@sroshni.com	
	LIGHTING FIXTURES (NON LED)	11	HI02	HAVELLS INDIA LIMITED	QRG TOWERS , 2D SECTOR-126, NOIDA- 201301	GIRISH KUMAR SHRIVASTAVA +91-9810528922	
	LIGHTING FIXTURES (NON LED)	12	HN13	M/s Halonix Technologies Limited	M/s Halonix Technologies Limited B-31 , Phase –II, Noida Distt. Gautam Budh Nagar (U.P.) Pin- 201305	Mr. Mohit Gautam 'Tel: +919568152111 'mohit.gautam@halonix.co.in'; 'rahul.singh@halonix.co.in'	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES40	LIGHTING FIXTURES (LED)	1	NE01	Neev Luminaries	D-115 , OKHLA INDUSTRIAL AREA, PHASE-1 NEW DELHI – 110020	Phone: +91 11 4060 4830 Fax: +91 11 4060 4831 info@neevenergy.in	
	LIGHTING FIXTURES (LED)	2	HI01	HAVELLS INDIA LIMITED	QRG TOWERS , 2D SECTOR-126, NOIDA- 201301	GIRISH KUMAR SHRIVASTAVA +91-9810528922, girish.srivastava@havells.com\	
	LIGHTING FIXTURES (LED)	3	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	LIGHTING FIXTURES (LED)	4	SR01	SURYA ROSHNI LIMITED		011-25810093 ; 9810071832 (Akhilesh Agrawal) aagrawal@sroshni.com	
	LIGHTING FIXTURES (LED)	5	P01	PHILIPS	9TH FLOOR,DLF 9B, DLF CYBER CITY, DLF PHASE-III, GURGAON-122002	01244606001, Sharad (+919871150447), Mr. Guruseelan M 8939693949, Mr Ashish Sethi 9007077089	
	LIGHTING FIXTURES (LED)	6	HP01	M/S HPL ELECTRIC & POWER PVT. LTD	M/S HPL ELECTRIC & POWER PVT. LTD. PLOT NO. 76-B,PHASE-IV, SEC-57, HSIIDC, INDL. AREA , KUNDLI, DIST.- SONEPAT (HARYANA) - 131028	mohitsharma@hplindia.com, Mr. Nitesh Verma 8851036938, Mr Ajay lakra 9560045423	
	LIGHTING FIXTURES (LED)	7	INS1	INSTA POWER	PLOT NO. - 457 PHASE - V, UDYOG VIHAR, GURGAON - 122016	124-4124000, Mr amit Bhardwar: 8800508090	
	LIGHTING FIXTURES (LED)	8	PT13	Pyrotech Electronics Pvt. Ltd.	M/s Pyrotech Electronics Pvt. Ltd(Unit -1) Led Light, Sensor Division F-16A, Road No.3 Mewar Industrial Area, Madri Udaipur -313003, Rajasthan,	Concern Person – Mr. Praveen sisodiya : 9314310042(psisodia@pyrotechlig hting.com) Ms Ritika 9509245814	
	LIGHTING FIXTURES (LED)	9	HN13	M/s Halonix Technologies Limited	M/s Halonix Technologies Limited B-31 , Phase –II, Noida Distt. Gautam Budh Nagar (U.P.) Pin- 201305	Mr. Mohit Gautam 'Tel: +919568152111 'mohit.gautam@halonix.co.in'; M: 9891868793'rahul.singh@halonix. co.in'	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	LIGHTING FIXTURES (LED)	10	JA13	M/s JAQUAR & COMPANY PVT. LTD.	M/s JAQUAR & COMPANY PVT. LTD. Plot No.3 , Sector M-11, IMT Manesar. Gurgaon- 122050 Haryana	Mr. Dhruv Kumar ' 'Tel: +919350043727 dhruv.kumar@jaquar.com ; gaurav.bhalla@jaquar.com : 9582950282	
	LIGHTING FIXTURES (LED)	11	CR13	M/s CROMPTON GREAVES CONSUMER ELECTRICALS LTD.	M/s CROMPTON GREAVES CONSUMER ELECTRICALS LTD.Tower-3, 1st Floor, East Wing Equinox Business Park LBS Marg, Kurla (West), Mumbai-400070	Mr S L Sivakumar 'Sivakumar L' <sivakumar.sl@crompton.co.in> M: 9176609363	
	LIGHTING FIXTURES (LED)	12	WI13	M/s WIPRO ENTERPRISES PRIVATE LTD.	M/s WIPRO ENTERPRISES PRIVATE LTD. L-8, MIDC Waluj, Aurangabad-431136, Maharashtra, India	Ms Dhanya K K 'dhanya.kk8@wipro.com' M 9891815476, Mr Puneet kalia 'puneet.kalia@wipro.com'	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES41	LIGHTING FIXTURES (FLAME PROOF)	1	HI01	HAVELLS INDIA LIMITED	QRG TOWERS , 2D SECTOR-126, NOIDA- 201301	GIRISH KUMAR SHRIVASTAVA +91-9810528922	
	LIGHTING FIXTURES (FLAME PROOF)	2	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	LIGHTING FIXTURES (FLAME PROOF)	3	E1206	BALIGA ELECTRICALS	63A,CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018	44-24995505,22680990-4	
ES42	LIGHTING LAMP (NON LED)	1	WP01	WIPRO LTD.	WIPRO CONSUMER CARE AND LIGHTING, 5TH FLOOR, GODREJ ETERNIA -C, OLD PUNE-	020-66098700	
	LIGHTING LAMP (NON LED)	2	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	9818338922	
	LIGHTING LAMP (NON LED)	3	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	LIGHTING LAMP (NON LED)	4	INS1	INSTA POWER	PLOT NO. - 457 PHASE - V, UDYOG VIHAR, GURGAON - 122016	124-4124000	
	LIGHTING LAMP (NON LED)	5	P01	PHILIPS	9TH FLOOR,DLF 9B, DLF CYBER CITY, DLF PHASE- III, GURGAON-122002	01244606001, Sharad (+919871150447)	
	LIGHTING LAMP (NON LED)	6	HI01	HAVELLS INDIA LIMITED	QRG TOWERS , 2D SECTOR-126, NOIDA- 201301	GIRISH KUMAR SHRIVASTAVA +91-9810528922	
	LIGHTING LAMP (NON LED)	7	HP01	HPL	M/S HPL ELECTRIC & POWER PVT. LTD. PLOT NO. 76-B,PHASE-IV, SEC-57, HSIIDC, INDL. AREA , KUNDLI, DIST.- SONEPAT (HARYANA) - 131028	mohitsharma@hplindia.com'	
	LIGHTING LAMP (NON LED)	8	SR01	SURYA ROSHNI LIMITED	PADMA TOWER, RAJENDRA PLACE, RAJENDRA PLACE NEW DELHI	011-25810093 ; 9810071832 (Akhilesh Agrawal) aagrawal@sroshni.com	
	LIGHTING LAMP (NON LED)	9	HN13	M/s Halonix Technologies Limited	M/s Halonix Technologies Limited B-31 , Phase –II, Noida Distt. Gautam Budh Nagar (U.P.) Pin- 201305	Mr. Mohit Gautam ' 'Tel: +919568152111 'mohit.gautam@halonix.co.in'; 'rahul.singh@halonix.co.in'	
	LIGHTING LAMP (LED)	1	NE01	Neev Luminaries	D-115 , OKHLA INDUSTRIAL AREA, PHASE-1 NEW DELHI – 110020	Phone: +91 11 4060 4830 Fax: +91 11 4060 4831 info@neevenenergy.in	
	LIGHTING LAMP (LED)	2	HI01	HAVELLS INDIA LIMITED	QRG TOWERS , 2D SECTOR-126, NOIDA- 201301	GIRISH KUMAR SHRIVASTAVA +91-9810528922	

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ES43	LIGHTING LAMP (LED)	3	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	LIGHTING LAMP (LED)	4	SR01	SURYA ROSHNI LIMITED	PADMA TOWER, RAJENDRA PLACE, RAJENDRA PLACE NEW DELHI	011-25810093 ; 9810071832 (Akhilesh Agrawal) aagrawal@sroshni.com	
	LIGHTING LAMP (LED)	5	P01	PHILIPS	9TH FLOOR,DLF 9B, DLF CYBER CITY, DLF PHASE- III,GURGAON-122002	01244606001, Sharad (+919871150447)	
	LIGHTING LAMP (LED)	6	HP01	M/S HPL ELECTRIC & POWER PVT. LTD	M/S HPL ELECTRIC & POWER PVT. LTD. PLOT NO. 76-B,PHASE-IV, SEC-57, HSIIDC, INDL. AREA , KUNDLI, DIST.- SONEPAT (HARYANA) - 131028	mohitsharma@hplindia.com	
	LIGHTING LAMP (LED)	7	INS1	INSTA POWER	PLOT NO. - 457 PHASE - V, UDYOG VIHAR, GURGAON - 122016	124-4124000	
	LIGHTING LAMP (LED)	8	PT13	Pyrotech Electronics Pvt. Ltd.	M/s Pyrotech Electronics Pvt. Ltd(Unit -1) Led Light, Sensor Division F-16A, Road No.3 Mewar Industrial Area, Madri Udaipur -313003, Rajasthan,	Concern Person – Mr. Praveen sisodiya (psisodia@pyrotechlighting.com) Ankit Kumar Sr. Engineer(North Region -Sales & Marketing) # +91- 7340061769, 8287897309	
	LIGHTING LAMP (LED)	9	HN13	M/s Halonix Technologies Limited	M/s Halonix Technologies Limited B-31 , Phase –II, Noida Distt. Gautam Budh Nagar (U.P.) Pin- 201305	Mr. Mohit Gautam 'Tel: +919568152111 'mohit.gautam@halonix.co.in'; 'rahul.singh@halonix.co.in'	
	LIGHTING POLES	1	E1033	BOMBAY TUBE & POLES CO.	BOMBAY TUBES & POLES CO. 2ND LANE, DARUKHANA, PLOT NO. 100, MAZGAON, MUMBAI - 10	Tel. : +91 22 23729802, email ID: btpc1954@hotmail.com	
	LIGHTING POLES	2	E1118	RIDHDHI POLES	4/5 INDUSTRIAL ESTATE, GORWA, VADODRA- 390016	0265 - 2283768	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES44	LIGHTING POLES	3	MK01	MIKA ENGINEERS	BRANCH OFFICE : 'D'-101, DHEERAJ HERITAGE RESIDENCY II, SHASTRI NAGAR, SANTACRUZ (W), MUMBAI 400 054. WORKS : AT POST AGHAI, SHED NO. 2, VILLAGE AGHAI JILLA, SHAHPUR, DIST. THANE 421 601 TEL : 02527-249066/70 CELL : 099230 74373	Director : Mr. Asgar Karimi Email: asgar@mikaengineers.com;mika@ mtnl.net.in Telfax : 022-26610081/82/83/84 Tel : 02527-249066/70 Cell : 099230 74373	
	LIGHTING POLES	4	K02	KL INDUSTRIES	B1 1001 LOK GAURAV, LBS MARG, VIKHROLI WEST, MUMBAI - 400083	(91)-9821013736 (91)-22-25774272	
	LIGHTING POLES	5	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	LIGHTING POLES	6	TL01	TLL	M/S TRANSRAIL LIGHTING LIMITED (TLL), GAMMON INDIA LIMITED 2ND FLOOR , CENTRIC PLAZA, PLOT NO.8 POCKET-4, SECTOR-11 DWARKA , NEW DELHI -110075	hemant.jain@transrailttd.com'	
ES45	LIGHTING SWITCH , SOCKET & S/F UNIT	1	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	LIGHTING SWITCH , SOCKET & S/F UNIT	2	E1012	ANCHOR	STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA.- 400093	022-30418888.	
	LIGHTING SWITCH , SOCKET & S/F UNIT	3	E1076	KAYCEE	KAYCEE INDUSTRIES LTD., C/O-CMS COMPUTERS LTD., 35A, REAR BLDG., KILOKARI, NEW DELHI-110014	Rajiv Sharma-9312004687	
	LIGHTING SWITCH , SOCKET & S/F UNIT	4	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI- 110015	011-41419554/59	
	LIGHTING SWITCH , SOCKET & S/F UNIT	5	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	LIGHTING SWITCH , SOCKET & S/F UNIT	6	E1068	INDO ASIAN	B-24, PHASE - II , NOIDA - 201305, U.P.	120-3042222	
	LIGHTING TRANSFORMER	1	E1021	AUTOMATIC ELECTRIC LTD.	ADDRESS : 96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	LIGHTING TRANSFORMER	2	E1066	INDCOIL	PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070	Phone:022 2583 8305	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES46	LIGHTING TRANSFORMER	3	E1103	POWER PACK ENTERPRISES	POWER PACK ENTERPRISES MR. NEHAL SHAH / MR. SHARAD SHAH (PARTNER) NO. 3, JAYSHREE SADAN, 1ST FLOOR, OLD NAGARDAS ROAD, ANDHERI EAST MUMBAI - 400069, MAHARASHTRA, INDIA	Call Us:08447573761 Mobile: +(91)-9821787821 +(91)-9821035604	
	LIGHTING TRANSFORMER	4	E1155	VIJAY ELECTRICALS LTD.	6-3-648/1&2, OFF RAJ BHAVAN ROAD, SOMAJIGUDA, HYDERABAD - 500 082. ANDHRA PRADESH, INDIA.	Vijay Electricals Mr. Bharat Giri / Ajay Giri (CEO) B 79, Gali No. 60, Sanjay Colony, Sector- 23 Faridabad - 121005, Haryana, India Call Us: 09953353612 websales@vijaelectricals.com	
	LIGHTING TRANSFORMER	5	E1057	GILBERT & MAXWELL	WORKS PLOT G-28 , M.I.D.C., AMBAD NASHIK - 422010, MAHARASHTRA, INDIA	Mr. Sanjeev Kulkarni, (Marketing Manager) Cell: 9822586724 sanjeevkulkarni@gilbert- maxwell.in Phone : + 91 - 253 - 238 25 51 Fax : + 91 - 253 - 238 25 52	
	LIGHTING TRANSFORMER	6	K18	KAPPA ELECTRICALS	KAPPA ELECTRICALS, KAPPA CONSOLIDATED PVT. LTD., SOUTHERN ELECTRIKS 14, CART TRACK ROAD, MADUVANKARAI, CHENNAI - 600 042, INDIA.	PHONE: +91 - 44 - 22454709, 22454516, 22450794, 22450795 FAX: +91 - 44 - 22351662, 22451693 E-MAIL: mira@kappaelectricals.com sales@kappaelectricals.com	
	LIGHTING TRANSFORMER	7	AIE01	Ames Impex Electricals Pvt. Ltd	C-1B/1207, PHASE IV, GIDC NARODA, AHMEDABAD, GUJARAT 382330	Phone:079 2282 1648	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	8	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	9	E1019	ASIATIC	A-58 NARAINA IND. AREA, PHASE-I , NEW DELHI 110028	011 - 25796330, 25796617	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	10	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI- 110020	011 - 25793021	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	11	E1051	EVERGREEN ENGG. CO.	EVERGREEN ENGG COMPANY WORKS-5, PLOT NO. 9,10,11,12, SURVEY NO. 242, CHINCH PADA, VASAI EAST-401208	(0250) 6458250	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES47	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	12	E1143	TECKNIC CONTROLS	703, MADHAVA, BANDRA, KURLA COMPLEX, BANDRA EAST, MUMBAI, MAHARASHTRA 400051	022-42532507/00 022-24451648	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	13	E1053	EX-PROTECTA LIGHTING EQUIPMENT	305-306, GIDC ESTATE, VITHAL UDYOGNAGAR - 388121 DIST. ANAND, GUJARAT 388121 INDIA	02692-237823	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	14	E1206	BALIGA ELECTRICALS	63A,CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018	44-24995505,22680990-4	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	15	E1210	ENPRO ENGG.	NO.995P, DIAMOND PLAZA, 2ND FLOOR, 12TH MAIN ROAD, ANNA NAGAR, CHENNAI-40	044 – 42611526 / 42170338 / 26262716 enproengg@enproengineering.co m	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	16	E1132	STERLING SWGR CONTROL PVT.LTD.	P.O. BOX NO. 17023, SORAB HOUSE, 2ND FLOOR, 555, S.B. MARG, DADAR, MUMBAI - 400028, MAHARASHTRA, INDIA	91-22- 24222297/24222298/24224236	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	17	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	18	E1153	VAISHNO(HOTLINE SWGR & CONTROL)	G-19, SECTOR - 11, NOIDA - 201301, UTTAR PRADESH, INDIA	8377805157 9818338922	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	19	J01	JASPER ENGNIREES PVT. LTD.	A-23, SECTOR - 8, NOIDA-201301	0120-4033520/533	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	20	KM1	KMG ATOZ SYSTEMS	C-49, SECTOR-81-NOIDA-201305	120-4207920, 08527897328	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	21	E05	UNILEC ENGINEERS PVT. LTD.	BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001	0124-4030247,248, 4559700, 9911087173	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	22	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA- 121006	0129-4293000	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	23	E1035	CANDS	J/202, ANSA INDUSTRIAL ESTATE, SAKI VIHAR ROAD, SAKINAKA, ANDHERI (EAST), MUMBAI-72	022-28570858	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	24	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	25	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	26	E1143	TECKNIC CONTROLS	703, MADHAVA, BANDRA, KURLA COMPLEX, BANDRA EAST, MUMBAI, MAHARASHTRA 400051	022-42532507/00 022-24451648	
	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	27	E1148	UNITED ELECTRIC	97 UDYOG VIHAR PHASE-I, GURGAON 122015, HARYANA	124 4002970 72	

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	LOCAL PUSH BUTTON STATION (NON FLAME PROOF)	28	SRC01	M/s Shrenik & Co.	39A/3, PANCHRATNA INDUSTRIAL ESTATE, SARKHEJ-BAVLA ROAD, CHANGODAR, AHMEDABAD – 382 213		
ES48	LOCAL PUSH BUTTON STATION (FLAME PROOF)						
ES49	LIGHTING PANEL (FLAME PROOF)	1	E1206	BALIGA ELECTRICALS	63A,CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018	44-24995505,22680990-4	
	LIGHTING PANEL (FLAME PROOF)	2	SS01	SUDHIR SWITCHGEAR	305/6, APEEJAY HOUSE, 130, BOMBAY SAMACHAR MARG, MUMBAI - 400 023. INDIA	Telephone Nos. : 40460000 (100 lines) Fax Nos. : ++-91-22-22049381 Email : md@sudhirswitchgears.com ; works@sudhirswitchgears.com ; scud@vsnl.com	
ES50	LIGHTING PANEL (NON FLAME PROOF)	1	E1091	MIKA ENGINEERS	D'-101, DHEERAJ HERITAGE RESIDENCY II, SHASTRI NAGAR, SANTACRUZ (W), MUMBAI 400 054.	Director : Mr. Asgar Karimi E-mail : mika@mtnl.net.inTelfax : 022-26610081/82/83/84Tel : 02527-249066/70 Cell : 099230	
	LIGHTING PANEL (NON FLAME PROOF)	2	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	LIGHTING PANEL (NON FLAME PROOF)	3	VC01	Vidhyut Controls (India) Pvt. Ltd.	M/S VIDHYUT CONTROL (I) PVT.LTD. D-12 & 13, SECTOR-17,KAVI NAGAR INDL.AREA,GHAZIABAD – 201002 (DELHI NCR) U.P. INDIA	0120-4186400, 0120-4186423, 8527005590(DK GUPTA)	
	LIGHTING PANEL (NON FLAME PROOF)	4	KM1	KMG ATOZ SYSTEMS	"ATOZ HOUSE" C-49, SECTOR-81, GAUTAM BUDDH NAGAR, NOIDA – 201 305 U. P. (INDIA)	Tel : +91-120-4207920 Fax : +91-120-4207921, 4327958 Phone:098 10 802710	
	LIGHTING PANEL (NON FLAME PROOF)	5	E05	UNILEC ENGINEERS PVT. LTD.	BEHRAMPUR INDUSTRIAL AREA, BEGAMPUR KHATOLA ROAD, GURGAON-122001	0124-4030247,248, 4559700, 9911087173	
	LIGHTING PANEL (NON FLAME PROOF)	6	AVA01	AVAIODS TECHNOVATORS LTD.	PLOT NO.25 ,SECTOR-3,IMT-MANESAR, GURGEON-122050 (HARYANA)	KRISHNA KALRA- 09958096168	
	LIGHTING PANEL (NON FLAME PROOF)	7	ACE01	Adroit Control Engineers Pvt.Ltd.	M/S ADROIT CONTROL ENGINEERS PVT.LTD. PLOT-3, KRISHNA INDL. AREA, SECTOR-25 FARIDABAD – 121004	011-47600700, 0129-4251400	
	LIGHTING PANEL (NON FLAME PROOF)	8	JC01	JACKSON ENGINEERS	A-43, HOSEIRY COMPLEX, OPPOSITE NSEZ, NOIDA-201305	0120-4302600, 2568923,27	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
	LIGHTING PANEL (NON FLAME PROOF)	9	MIL01	MILESTONE SWITCHGEARS PVT. LTD.	MILESTONE SWITCHGEARS PVT. LTD. 97, UDYOG VIHAR, PHASE-1, GURGEON HARYANA - 122016	Phone Nos.: 0124-4994900 (30 Lines) Fax: 0124-4002973 Email: jaideep.ahuja@milestonesindia.com URL: www.milestonesindia.com	
	LIGHTING PANEL (NON FLAME PROOF)	10	PCS01	Positronics Pvt. Ltd.	POSITRONICS HOUSE ,882/ 2, G.I.D.C. MAKARPURA,VADODARA 390010 GUJARAT	+91 265 2642496 Fax: +91 265 264 7033 / 234 0944 E- mail : info@positronicsindia.com Website:www.positronicsindia.com	
	LIGHTING PANEL (NON FLAME PROOF)	11	PYRE01	Pyrotech Electronics Pvt. Ltd.	M/s Pyrotech Electronics Pvt. Ltd(Unit -1) Led Light, Sensor Division F-16A, Road No.3 Mewar Industrial Area, Madri Udaipur -313003, Rajasthan,	Concern Person – Mr. Praveen sisodiya (psisodia@pyrotechlighting.com) Ankit Kumar Sr. Engineer(North Region -Sales & Marketing) # +91- 7340061769, 8287897309	
ES51	MCB	1	E1088	MDS SWITCHGEAR LTD	314-317SHAH NAHAR ESTATE	011 - 25793021	
	MCB	2	E1068	INDO ASIAN	B-24, PHASE - II , NOIDA - 201305, U.P.	120-3042222	
	MCB	3	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	MCB	4	E1120	S&S POWER SWITCHGEAR LTD,	NEW NO. 67, OLD NO. 19, DR. RANGA ROAD, MYLAPORE, CHENNAI - 600004	044 - 24988056, 044 - 24988057, 044 - 24988058	
ES52	MCC (FIXED TYPE)	1	S02	SPACEAGE SWITCHGEARS LTD.	68 & 13-A INDUSTRIAL DEVELOPMENT COLONY, MEHRAULI ROAD GURGAON, HARYANA-122001	0124-2302711, 4085091	
	MCC (FIXED TYPE)	2	A01	ASSOCIATED SWGR & PROJ.LTD.	C-10, UPSIDC, INDUSTRIAL AREA, SITE-IV, KASNA ROAD, GREATER NOIDA-201306	0120-4294618,19,20 Asplho@gmail.com	
	MCC (FIXED TYPE)	3	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006	0129-4293000	
	LV MOTORS (NON FLAME PROOF)	1	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	LV MOTORS (NON FLAME PROOF)	2	E1027	BHARAT BIJLEE LTD.	BHARAT BIJLEE LIMITED, 1ST FLOOR, 7-B, RAJINDRA PARK, PUSA ROAD, NEW DELHI - 110 060.	Tel.: + 91 (11) 25816931-33, 35 & 36 DT: +91 25724318 Fax: + 91 (11) 25819640 M:+ 91	
	LV MOTORS (NON FLAME PROOF)	3	C02	CROMPTON GREAVES	3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA	91 11 23460700 - 999 Sunil.Das@cgglobal.com	

ITEM CODE	ITEM/SERVICE DESCRIPTION	SL NO.	VENDOR CODE	VENDOR NAME	ADDRESS	PHONE	REMARKS
ES53	LV MOTORS (NON FLAME PROOF)	4	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	LV MOTORS (NON FLAME PROOF)	5	K01	KIRLOSKAR ELECTRIC CO LTD.	P.O. BOX 5555 , MALLESWARAM WEST ,BANGALORE 560055	Tel: +91-80-23374865 Fax: +91-80-23377706	
	LV MOTORS (NON FLAME PROOF)	6	L04	LAXMI HYDRAULICS PVT. LTD	129/130, INDUSTRIAL ESTATE PATIL NAGAR, HOTGI ROAD SOLAPUR-413003, MAHARASHTRA	0217- 2357001-005	APPROVED UPTO 200KW
	LV MOTORS (NON FLAME PROOF)	7	M01	MARATHON	MARATHON ELECTRIC INDIA PRIVATE LTD.SECTOR - 11, MODEL TOWN, FARIDABAD - 121006	Ph: +91-129-2286421, 2265340, 4006601 to 4006610	
	LV MOTORS (NON FLAME PROOF)	8	A35	NGEF	POCKET NO.10, FLAT NO. 37 & 38, EXPANDABLE DDA FLATS, NASIRPUR DWARKA, PHASE-I NEW	Ph: (011) 2539 7763	
	LV MOTORS (NON FLAME PROOF)	9	E1115	RAJINDRA ELECT INDUSTRIES	14 SHAH IND.ESTATE VEERA DESAI RD,ANDHERI(W) MUMBAI-400053	91-22-26730823, 26730789; 91)-(22)-26730154	
	LV MOTORS (NON FLAME PROOF)	10	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
ES54	LV MOTORS (FLAME PROOF)	1	E1115	RAJINDRA ELECT INDUSTRIES	14 SHAH IND.ESTATE VEERA DESAI RD,ANDHERI(W) MUMBAI-400053	91-22-26730823, 26730789; 91)-(22)-26730154	
ES55	MODULAR SWITCH BOARD	1	E1012	ANCHOR	STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA.- 400093	022-30418888.	
	MODULAR SWITCH BOARD	2	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	MODULAR SWITCH BOARD	3	HI01	HAVELLS INDIA LIMITED	QRG TOWERS , 2D SECTOR-126, NOIDA- 201301	GIRISH KUMAR SHRIVASTAVA +91-9810528922	
ES56	OIL TEMP INDICATOR	1	E1101	PERFECT CONTROLS	BLOCK NO. 7, NORTH ROAD, WEST C.I.T. NAGAR, CHENNAI - 600035, INDIA.	Phone: (91-44) 24341043, 24330387, 42867651 Fax: (91-44) 24345075	
	OIL TEMP INDICATOR	2	E1105	PRECIMEASURE	M/S. PRECIMEASURE CONTROLS PVT. LTD. 168/C, INDUSTRIAL SUBURB, PEENYA 3RD PHASE, BANGALORE - 560058. KARNATAKA, INDIA	Phone EPABX: +91-80-42602702. Fax: +91-80-41552205 E-mail: info@precimeasure.com	
ES57	PROTECTION - RELAYS (PNUEMATIC)	1	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	PROTECTION - RELAYS (PNUEMATIC)	2	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	PROTECTION - RELAYS (PNUEMATIC)	3	A35	GE-MULTILINE, GE INDIA INDUSTRIAL PVT. LTD.	NO. 90- B, ELECTRONICS CITY, HOSUR ROAD, BENGALURU - 560016, KARNATAKA	(080) 41314617, 9945478935	
	PROTECTION - RELAYS (PNUEMATIC)	4	SC01	SCHWEITZER ENGG. LAB (SEL)	406, BHIKAJI CAMA BHAVAN, BHIKAJI CAMA PLACE, BHIKAJI CAMA PLACE, MOHAMMADPUR, RK PURAM, NEW DELHI, DL 110066	011 4152 7899	

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	PROTECTION - RELAYS (PNUEMATIC)	5	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	PROTECTION - RELAYS (PNUEMATIC)	6	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	
	PROTECTION - RELAYS (PNUEMATIC)	7	A24	ABB	14, MATHURA ROAD, FARIDABAD, HARYANA-121003	0129-2567580, 09871799449	
	PROTECTION - RELAYS (PNUEMATIC)	8	C01	AVK-SEG & CONTROLS(I) LTD	C-60,NOIDA PHASE-II	6918834-37	
ES58	PROTECTION - RELAYS (NUMERICAL)	1	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadoria@siemens.com	
	PROTECTION - RELAYS (NUMERICAL)	2	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	PROTECTION - RELAYS (NUMERICAL)	3	A35	GE-MULTILINE, GE INDIA INDUSTRIAL PVT. LTD.	NO. 90- B, ELECTRONICS CITY, HOSUR ROAD, BENGALURU - 560016, KARNATAKA	(080) 41314617, 9945478935	
	PROTECTION - RELAYS (NUMERICAL)	4	SC01	SCHWEITZER ENGG. LAB (SEL)	406, BHIKAJI CAMA BHAVAN, BHIKAJI CAMA PLACE, BHIKAJI CAMA PLACE, MOHAMMADPUR, RK PURAM, NEW DELHI, DL 110066	011 4152 7899	
ES59	RECEPTACLES - DECORATIVE	1	E1012	ANCHOR	STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA.- 400093	022-30418888.	
	RECEPTACLES - DECORATIVE	2	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	RECEPTACLES - DECORATIVE	3	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	RECEPTACLES - DECORATIVE	4	A03	AJMERIA INDUSTRIES & ENGG. WORKS	AJMERIA INDL. AND ENGG. WORKS. AJMERIA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL. AREA, NAVI MUMBAI – 400705.	Tel : 022 27620299 / 97 / 96 'mail@ajmera.net	
ES60	RESISTOR FOR DC STARTERS	1	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006	0129-4293000	
	RESISTOR FOR DC STARTERS	2	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	RESISTOR FOR DC STARTERS	3	E1119	RSI	60,IND.DEV.COLONY, MEHRAULI ROAD, GURGAON-122001	91 - 124 - 2333442	

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ES60	RESISTOR FOR DC STARTERS	4	S04	SPEED-O-CONTROL	C-16, NAND JYOT INDUSTRIAL ESTATE, SAFED POOL, ANDHERI-KURLA ROAD, SAFED POOL, MAGAN NATHURAM RD, SHIVAJI NAGAR, SAKINAKA, MUMBAI, MAHARASHTRA 400072	022 2851 8514	
	RESISTOR FOR DC STARTERS	5	E1137	SUSHIL ENGG CORP.	D-7, GHATKOPAR INDUSTRIAL ESTATE, OFF LBS MARG, GHATKOPAR (WEST), AMRUT NAGAR RD, AMRUT NAGAR, GHATKOPAR WEST, MUMBAI, MAHARASHTRA 400086	022 2500 7976	
ES61	SWITCH BOX	1	E1012	ANCHOR	STEEL HOUSE, B WING, PLOT NO. 24, MAHAL INDUSTRIAL ESTATE, MAHAKALI CAVES ROAD, NEAR PAPER BOX, ANDHERI (E), MUMBAI, MAHARASHTRA.- 400093	022-30418888.	
	SWITCH BOX	2	F04	ELEXPRO ELECTRICALS PVT/ LTD.	C 1/27 & 37 GIDC KABILPORE NAVSARI-396424	02637-265140, Mr. Jssk kumar	
	SWITCH BOX	3	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com;	
	SWITCH BOX	4	A03	AJMERIA INDUSTRIES & ENGG. WORKS	AJMERIA INDL. AND ENGG. WORKS. AJMERIA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL. AREA, NAVI MUMBAI – 400705.	Tel : 022 27620299 / 97 / 96 'mail@ajmera.net	
	SWITCH BOX	5	SB02	S.B. ELECTRICAL ENGINEERING CORPORATION	03, SARDAR GRIHA BUILDING, LOHAR CHAWAL, MUMBAI-400002	022- 22069831; 022-66637259	
ES62	TERMINAL BLOCKS	1	C01	WAGO-CONTROLS	C 27, GREATER NOIDA, SECTOR 58, C BLOCK, SECTOR 58, NOIDA, UTTAR PRADESH 201307	0120-2580409/10	
	TERMINAL BLOCKS	2	E1038	CONNECT WELL	309A/4, 3RD FLOOR, KALKAJI, OKHLA IND AREA PH-2, GOVINDPURI, NEW DELHI, DL 110019	9811881085 09871419996 011-65908877	
	TERMINAL BLOCKS	3	E1047	ELMEX CONTROLS PVT. LTD.	12,G.I.D.C.ESTATE,MUKARPURA ROAD,VADODARA-390010	9374631074	
	TERMINAL BLOCKS	4	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	011-26217060	
	TERMINAL BLOCKS	5	E1142	TECHNOPLAST	OPP.I.M.INTER COLLEGE, BEGUM SARAI KHURD ROAD, AMROHA - 244221, U.P.	PH:- 05922 264006 CELL NO:- 9012676000, 9319520799, 9319582467	

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	TERMINAL BLOCKS	6	PME-01	M/s PHOENIX MECANO LTD.,	388 BHARE, TALUKA MULSHI, POST GHOTAWADE, PIRANGOOT, INDUSTRIAL AREA, PUNE-412115	TEL.- +912066745000 Awasthi(09971119006) Tel: ++91 20 6674 5103, Mobile: +91 90499 95985, Fax: ++91 20 6674 5126 contact person : Vishwa bandhu E-mail:d.gupta@pmipl-online.com ;admin@pmipl-online.com	
	TERMINAL BLOCKS	7	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	011-26217060	
ES63	TIMERS - PNEUMATIC	1	B04	BCH	20/4, MATHURA ROAD, FARIDABAD, HARYANA-121006	0129-4293000	
	TIMERS - PNEUMATIC	2	G01	ALSTOM LTD	A-7, SEC-65, NOIDA	0120-479 0000	
	TIMERS - PNEUMATIC	3	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	TIMERS - PNEUMATIC	4	E1144	TELEMECHANIQUE/ SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	TAKEN OVER BY SCHNEIDER
	TIMERS - PNEUMATIC	5	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	TIMERS - PNEUMATIC	6	E01	ELECTRONIC AUTOMATION PVT. LTD.	20, KHB INDUSTRIAL AREA YELAHANKA BANGLORE-560064	080 -28567561 / 080 -28567562 / 080 -42802345	
ES64	TIMERS - ELECTRONIC	1	E1050	ESSEN DEINKI	FLAT NO. 502, SKYLINE HOUSE 85, NEHRU PLACE NEW DELHI	011-26217060	
ES65	TRANSDUCERS	1	E1021	AUTOMATIC ELECTRIC LTD.	ADDRESS : 96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	TRANSDUCERS	2	E1202	SOUTHERN TRANSDUCERS	INTERTECH B-83, FLATTED FACTORY COMPLEX, NEAR MODI MILLS, OKHLA, NEW DELHI-110020	Mr. Gurmohit Singh 011-41020365 / 9891402128	
ES66	WINDING TEMP INDICATOR	1	E1101	PERFECT CONTROLS	OFFICE ADDRESS: 7, NORTH ROAD, WEST C.I.T. NAGAR, CHENNAI - 600035, INDIA.	Phone: (91-44) 24341043, 24330387, 42867651; Fax: (91-44) 24345075	
	WINDING TEMP INDICATOR	2	E1105	PRECIMEASURE	M/S. PRECIMEASURE CONTROLS PVT. LTD. 168/C, INDUSTRIAL SUBURB, PEENYA 3RD PHASE, BANGALORE - 560058. KARNATAKA, INDIA	Phone EPABX: +91-80-42602702. Fax: +91-80-41552205 E-mail: info@precimeasure.com	
ES67	RECEPTACLE (FLAME PROOF)	1	E1206	BALIGA ELECTRICALS	63A, CP RAMASWAMY ROAD, PB NO 6910, CHENNAI-600018	44-24995505, 22680990-4	
	RECEPTACLE (FLAME PROOF)	2	SS01	SUDHIR SWITCHGEAR	305/6, APEEJAY HOUSE, 130, BOMBAY SAMACHAR MARG, MUMBAI - 400 023. INDIA	Telephone Nos. : 40460000 (100 lines) Fax Nos. : ++91-22-22049381 Email : md@sudhirswitchgears.com ; works@sudhirswitchgears.com ; scud@vsnl.com	

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	RECEPTACLE (FLAME PROOF)	3	FFP01	FCG FLAME PROOF CONTROL GEAR	A1/53, SHAH & NAHAR INDUSTRIAL ESTATE, SITARAM JADHAV ROAD, LOWER PAREL (W), MUMBAI-400 013	Mr. N. G. Patel CMD Office No: +91-22-43443200 Fax No: +91-22-24960313	
ES68	RECEPTACLE (NON FLAME PROOF)	1	A03	AJMERIA INDUSTRIES & ENGG. WORKS	AJMERIA INDL. AND ENGG. WORKS. AJMERIA HOUSE, A-61 / KHAIRANE MIDC. , TTC INDL. AREA, NAVI MUMBAI – 400705.	Tel : 022 27620299 / 97 / 96 'mail@ajmera.net	
	RECEPTACLE (NON FLAME PROOF)	2	C02	CROMPTON GREAVES	3RD FLOOR, EXPRESS BUILDING,9-10, BAHADUR SHAH ZAFAR MARG, NEAR ITO CROSSING,NEW DELHI-110002, INDIA	91 11 23460700 - 999 'Sunil.Das@cgglobal.com	
	RECEPTACLE (NON FLAME PROOF)	3	E1207	CYCLO ELECTRIC DEVICE & SERV.CO.	: A-3, NEAR ANTHEM BIOSCIENCE, KSSIDC INDUSTRIAL AREA, BOMMASANDRA, BOMMASANDRA INDUSTRIAL AREA, BANGALORE, KARNATAKA 560099	Mr. H.Jaishanker +919845039081, 080 - 27833102 , 080 - 27833103 : +91 80 41460985 'cycloelectric@gmail.com	
	RECEPTACLE (NON FLAME PROOF)	4	B04	BCH	20/4, MATHURA ROAD, FARIDABAD - 121006, HARYANA, INDIA	0(129)-4063000, 9015800189(Ramesh Giri) 'ramesh.giri@bchindia.com	
	RECEPTACLE (NON FLAME PROOF)	5	B02	BEST & CROMPTON	BEST & CROMPTON ENGINEERING LTD 28C, AMBATTUR INDUSTRIAL ESTATE (NORTH) AMBATTUR, CHENNAI - 600 098	Ph : +91 44 4551 4724 , MRKT DGM Mr. VI Raj:- 9840593411 'bestcromptonviraj@gmail.com	
ES69	EMERGENCY LIGHTING UNIT (FIXED & PORTABLE TYPE)- NON FLAME PROOF	1	B05	BAJAJ ELECTRICALS	BAJAJ ELECTRICALS LTD. ENGINEERING & PROJECTS BU (NORTH) 3rd FLOOR, GULMOHARHOUSE, COMMUNITY CENTRE 161/B-4, GAUTAM NAGAR, YUSUF SARAI NEW DELHI – 110049	CONTACT PERSON : Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. MAIL ID : srabans@bajajelectricals.com	
	EMERGENCY LIGHTING UNIT (FIXED & PORTABLE TYPE)- NON FLAME PROOF	2	PEP05	PROLITE AUTOGLO LIMITED,	PROLITE AUTOGLO LTD 25 SINGH INDUSTRIAL ESTATE NO. 3, RAM MANDIR ROAD., GOREGAON (W), MUMBAI, MAHARASHTRA 400104, INDIA	022-67868100 sales@prolite.com	
ES70	EMERGENCY LIGHTING UNIT (FIXED & PORTABLE TYPE)- FLAME PROOF	1					
ES71	24V SUPPLY MODULE WITH COMPLETE ACCESSORIES	1	E1103	POWER PACK ENTERPRISES	POWER PACK ENTERPRISES MR. NEHAL SHAH / MR. SHARAD SHAH (PARTNER) NO. 3, JAYSHREE SADAN, 1ST FLOOR, OLD NAGARDAS ROAD, ANDHERI EAST MUMBAI - 400069, MAHARASHTRA, INDIA	Call Us:08447573761 Mobile: +(91)-9821787821 +(91)-9821035604	
	24V SUPPLY MODULE WITH COMPLETE ACCESSORIES	2	E1066	INDCOIL	ADDRESS: PLOT NO. A- 150/ 151, 23RD U ROAD, WAGLE ESTATE, THANE WEST, CST RD, FRIENDS COLONY, HALLOW PUL, KURLA WEST, MUMBAI, MAHARASHTRA 400070	Phone:022 2583 8305	

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	24V SUPPLY MODULE WITH COMPLETE ACCESSORIES	3	AIE01	Ames Impex Electricals Pvt. Ltd	C-1B/1207, PHASE IV, GIDC NARODA, AHMEDABAD, GUJARAT 382330	Phone:079 2282 1648	
ES72	ENERGY METER (ANALOG)	1	B07	BHEL (EDN)	MYSORE ROAD,BANGALORE-560026	080-26998500	
	ENERGY METER (ANALOG)	2	E1129	SIMCO ENGG. LTD	NO. 126, K ROAD, TIRUCHIRAPPALLI -620001, TAMIL NADU	Mr. Madaswamy Muthu +(91)-(431)-4046223 +(91)-(431)-4046210 +(91)-9786600915	
	ENERGY METER (ANALOG)	3	R01	RISHABH INST.PVT LTD	RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR NASHIK - 422007 MAHARASHTRA INDIA	marketing@rishabh.co.in 91-253 2202202/203 Fax: 91 253 2351064	
	ENERGY METER (ANALOG)	4	E1009	AUTOMATIC ELECTRIC LTD.	96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	ENERGY METER (ANALOG)	5	CON1	CONZERVE SYSTEMS PVT. LTD.(SCHNEIDER)	87, 1ST FLOOR INDUSTRIAL DEVELOPMENT COLONY (IDC) MEHRAULI ROAD, UGURGAON 122001 HARYANA, INDIA.	4268899, 9910695701	
ES73	ENERGY METER (DIGITAL)	1	CON1	CONZERVE SYSTEMS PVT. LTD.(SCHNEIDER)	87, 1ST FLOOR INDUSTRIAL DEVELOPMENT COLONY (IDC) MEHRAULI ROAD, UGURGAON 122001 HARYANA, INDIA.	4268899, 9910695701	
ES74	AMMETER	1	E1009	AUTOMATIC ELECTRIC LTD.	96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	AMMETER	2	R01	RISHABH INST.PVT LTD	RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR NASHIK - 422007 MAHARASHTRA INDIA	marketing@rishabh.co.in 91-253 2202202/203 Fax: 91 253 2351064	
ES75	VOLTMETER	1	E1009	AUTOMATIC ELECTRIC LTD.	96 AB LONAVLA INDUSTRIAL ESTATE NANGARGAON, LONAVLA-410401	Phone : +91 2114323665 Fax : +91 2114273482	
	VOLTMETER	2	R01	RISHABH INST.PVT LTD	RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR NASHIK - 422007 MAHARASHTRA INDIA	marketing@rishabh.co.in 91-253 2202202/203 Fax: 91 253 2351064	
ES76	MPCB	1	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	MPCB	2	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	MPCB	3	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	
	MPCB	4	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	MPCB	5	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	

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	MPCB	6	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
ES77	MAGNETIC OIL GAUGE	1	E1134	SUKRUT UDYOG	9/1/A, ERANDAWANE, OPPOSITE MEHENDALE GARAGE, ERANDAWANE, GULAWANI MAHARAJ RD, SWAROOP SOCIETY, VAKIL NAGAR, ERANDWANE, PUNE, MAHARASHTRA 411004	020 2544 1726	
ES78	MULTIFUNCTION METER	1	CON1	CONZERVE SYSTEMS PVT. LTD./ SCHNEIDER ELECTRIC INDIA PVT. LTD.	87, 1ST FLOOR INDUSTRIAL DEVELOPMENT COLONY (IDC) MEHRAULI ROAD, GURGAON 122001 HARYANA, INDIA.	4268899, 9910695701	TAKEN OVER BY SCHNEIDER
ES79	RCCB	1	C01	C&S ELECTRIC LTD.	222, OKHLA IND. ESTATE, PH-III, NEW DELHI-110020	011-3088 7520-29	
	RCCB	2	S03	SCHNEIDER ELECTRIC INDIA PVT. LTD.	9TH FLOOR, BLDG. NO. 10, TOWER-C, DLF CYBER CITY, PH-II, GURGAON-122002	0124-3940400	
	RCCB	3	S01	SIEMENS	RC-IN I S NR DEL AREA, JIL BUILDING, TOWER-B, PLOT NO. 78, SECTOR 18, GURGAON-122015, INDIA	0124-2842000, 9873424331 amit.bhadauria@siemens.com	
	RCCB	4	A35	GE-POWER	KAMAK TOWER, 3RD FLOOR, PLOT NO. 12-A, TVK INDUSTRIAL ESTATE, EKKADUTHANGAL, GUINDY, CHENNAI-600032	044-49681447	
	RCCB	5	L01	L&T	32, SHIVAJI MARG, P.O. BOX- 6223, NEW DELHI-110015	011-41419554/59	
	RCCB	6	C02	CROMPTON GREAVES	RAIL TRANSPORTATION SYSTEMS,VANDANA BUILDING, 11, TOLSTOY MARG, TOLSTOY MARG, NEW DELHI, DL 110001	011 3041 6300	
ES80	PVC WIRES	BIS APPROVED MAKE					
ES81	PEDESTAL FAN & CEILING FAN	REPUTED MAKE					
ES82	EXIT SIGN (FLAME PROOF)	REPUTED MAKE					
ES83	EXIT SIGN (NON FLAME PROOF)	REPUTED MAKE					
ES84	LADDER	REPUTED MAKE					
ES85	HUME PIPE	REPUTED MAKE					
ES86	PHOTOELECTRIC SWITCH	REPUTED MAKE					
ES87	DICHORIC SPOT LIGHTING FIXTURE	REPUTED MAKE					
ES88	HAND LAMP UNIT	REPUTED MAKE					
	LIGHTING DESIGNER	1	AT13	AVAIDS TECHNOVATORS PVT. LTD.	4A/58, SHANKAR ROAD, NEW DELHI-110060	Mr. Rajendra Panda M: 9910481854 (email: rajendra@avaids.com)	
	LIGHTING DESIGNER	2	BE13	BAJAJ ELECTRICALS LTD.	801 (8th floor), Rustomjee Aspire, Bhanu Shankar Yagnik Marg, Off Eastern Express Highway Sion (E), Mumbai 400022	Mr. S. SREEMANY. SR. MANAGER (PROJECTS) CONTACT DETAILS : (+91) 9871025705. (email: srabans@bajajelectricals.com)	

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ES89	LIGHTING DESIGNER	3	KS13	KELSATEK SOLUTIONS PVT. LTD.	50/1 4TH FLOOR, CHURCH STREET, BANGALORE-560001	Mr. S S Mudaliar Sr. VP M: 6380471362 (email: mudaliar@kelsatek.com)	
	LIGHTING DESIGNER	4	SE13	M/s SUMANAM ENGINEERING SERVICES CONSULTANT	1, ADITHYA, KOWDIAR, TRIVANDRUM 695003	Mr. Anshad S Phone: 471-2437588, (email: shaw@sumanam.org)	
	LIGHTING DESIGNER	5	SM13	SPAN MANUFACTURING COMPANY LTD	27 First Floor, Bhiku Building, Murari Ghag Marg, Prabhadevi, Mumbai-400025	Ms Surbhi Jindal M: 9811026321 (email: spanmanufacturing@gmail.com, info@dalighthub.com)	Lighting System designer only for FGD, R&M and Hydro projects
	LIGHTING DESIGNER	6	CL13	CITELUM INDIA PVT. LTD	Y-14A, GREEN PARK MAIN, NEW DELHI-110016	Mr. Satyabrata Meher M: 8155001095, (email: smeher@citelum.in)	Lighting System designer only for FGD, R&M and Hydro projects



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(ESP)

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DATA SHEET -C

S. No.	Description	Unit	Value
1.0	SYSTEM DESIGN DATA		
1.1	Design ambient	°C	
1.2	AC Supply		
a)	Rated voltage	V	
b)	Rated frequency	Hz	
c)	Voltage variation (permissible)	%	
d)	Frequency variation (permissible)	%	
e)	Combined voltage & frequency variation (sum of absolutes permissible)	%	
f)	System fault level & duration	kA, sec.	
2.0	APPLICABLE STANDARDS		
	IS 60947	Low voltage switchgear and controlgear	
	IS 11171	Dry type transformers	
	IS 13703	Low voltage fuses for voltages not exceeding 1000V AC or 1500 V	
	IS 10118	Code of practice for selection, installation and maintenance of switchgear and controlgear	
	IS 60898	Electrical Accessories - circuit breakers for over protection for household and similar installations	
	IS 1901	Visual indicator lamps	
	IS 60079	Explosive atmospheres	
	IS 5572	Classification of hazardous areas (other than mines) having flammable gases and vapours for electrical installation	
	IS:2551	Danger notice plates	
3.0	LIGHTING/ WELDING DISTRIBUTION BOARDS		
3.1	Operational Front		
3.2	Type of execution of modules (functional unit)		
3.3	Type of sheet steel		
3.4	Sheet metal thickness (minimum)		
a)	Non-load bearing covers	mm	



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b)	Non-load bearing partitions	mm	
c)	Load bearing members	mm	
d)	Frames	mm	
e)	Door	mm	
f)	Withdrawable unit (if applicable)	mm	
3.5	Cable alley width (minimum)	mm	
3.6	Bus bar material		
3.7	Earth bus bar material		
3.8	Degree of Protection		
a)	Main Panel		
b)	Transformer cubicle		
3.9	Gland plate thickness	mm	
3.10	AC LDB/ WDB		
a)	No. of Incomers		
b)	Bus coupler required		
c)	Incomer and Bus coupler rating	A	
d)	Type of Incomer and Bus coupler		
e)	Type of Outgoing Feeders		
f)	Outgoing feeders rating	A	
g)	Cable entry		
3.11	Lighting Transformer		
a)	Rating	kVA	
b)	Type of cooling		
c)	Voltage ratio	V	
d)	Rated frequency	Hz	
e)	No. of phases		
f)	Vector group		



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g)	Off circuit taps		
	Tap range, steps	%	
	Voltage of each tap	V	
h)	Impedance at rated current, frequency at 75 °C	%	
i)	Rated current		
	Primary	A	
	Secondary	A	
j)	Transformer type		
k)	Transformer winding insulation		
l)	Transformer winding insulation temperature rise limit		
n)	Type of ventilation arrangement provided for transformer enclosure		
o)	Winding conductor material		
p)	Iron loss at 50 Hz and 100% rated voltage	kW	
q)	Copper loss at rated load at 75 °C	kW	
r)	Regulation at full load at 75 °C and 0.8 p.f. lagging		
s)	Weight	kg	
4.0	LIGHTING PANELS		
4.1	Application		
4.2	Type of sheet steel		
4.3	Sheet metal thickness (minimum)		
3.4	Degree of Protection		
a)	Indoor panel		
b)	Outdoor panel		



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c)	Canopy in outdoor panel		
4.5	Bus bar material		
4.6	Earth bus bar required		
4.7	Earth bus bar material (if applicable)		
4.8	Gland Plate	mm	
4.9	Earthing studs required		
4.10	Hinged door with locking facility		
4.11	AC Lighting Panel		
a)	Incomer rating	A	
b)	Type of Incomer		
c)	Earth Leakage Circuit Breaker (ELCB) in incomer required		
d)	Type of Outgoing Feeders (non-flameproof panel)		
e)	Timer required for indoor panel		
f)	Timer required for outdoor panel		
g)	Timer required Street Light panel/ High mast feeder pillar		
h)	Photocell required for Street Light panel/ High mast feeder pillar		
i)	Outgoing feeders rating	A	
5.0	COMPONENTS OF LIGHTING SYSTEM EQUIPMENT		
5.1	Moulded Case Circuit Breaker (MCCB)		
a)	Rated voltage	V	
b)	Number of poles		
c)	Rated short circuit duty	kA	
d)	Rated breaking capacity (rms)	kA	
e)	Rated making current (peak)	kA	
f)	Release with short circuit		



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g)	Release with overload		
h)	Release with under voltage		
i)	Auxiliary contacts		
	Numbers	NO+NC	
	Rating	A	
5.2	Switch-Fuse Unit		
a)	Utilisation category for main contacts		
b)	Number of poles		
5.3	Miniature Circuit Breaker		
a)	SPN MCB rating (min)	A	
b)	DP MCB rating (min)	A	
c)	TPN MCB rating (min)	A	
d)	Short time rating	kA	
e)	Magnetic short circuit protection required		
f)	Thermal overload protection required		
5.4	Current Transformer		
a)	Type		
b)	Secondary current rating	A	
c)	Burden	VA	
d)	Accuracy class		
e)	Instrument Safety Factor		
5.5	Voltage Transformer		
a)	Type		
b)	Secondary terminal voltage (phase-phase)	V	
c)	Burden	VA	
d)	Accuracy class		
e)	Winding configuration		



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f)	System grounding		
5.6	Indicating Meters		
5.6.1	Ammeter		
a)	Type		
b)	Shape		
c)	Size		
d)	Accuracy		
e)	Current coil rating	A	
f)	Angle of deflection	deg	
5.6.2	Voltmeter		
a)	Type		
b)	Shape		
c)	Size		
d)	Accuracy		
e)	AC voltage coil rating	V	
f)	DC voltage coil rating	V	
g)	Angle of deflection	deg	
5.6.3	Energy meter (if applicable)		
a)	Type		
b)	Accuracy		
c)	Current coil rating	A	
d)	Voltage coil rating	V	
5.7	Power Contactors		
a)	Coil voltage (nominal)		
	AC contactors	V	
	DC contactors	V	
b)	Current rating of contacts		
	Power	A	



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	Control	A	
5.8	Under voltage relay		
a)	Type		
b)	Coil voltage rating	V	
c)	Means for in-built testing provided		
5.9	Timer		
5.9.1	Time switch		
a)	Type		
b)	Range	hr	
c)	Coil voltage rating	V	
5.10	Selector switch		
a)	Type of selector switch		
b)	Lockable		
5.11	Push Button		
a)	Voltage grade	V	
b)	Potential free contacts		
5.12	Indicating Lamps		
a)	Lens Colour		
	ON condition		
	OFF condition		
b)	Circuit voltage	V	
5.13	Cable Glands		
a)	Type		
b)	Material		
c)	Nickel Plating provided		
d)	Flameproof glands with flameproof equipment		



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5.14	Cable Lugs		
a)	Type		
b)	Material		
6.0	PAINTING		
6.1	Paint shade		
a)	LDBs		
b)	LPs		
6.2	Paint Finish		
a)	Interior		
b)	Exterior		
6.3	Paint Thickness	Microns	

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SECTION – II

STANDARD TECHNICAL REQUIREMENTS

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1.0 INTENT OF SPECIFICATION

- 1.1 The requirements given in specification shall be fully complied with.
- 1.2 The “design” shall broadly cover the selection of components, materials, sizes etc. for the equipment of supply in vendor’s scope. Complete responsibility of establishing the correctness of equipment design rests with the vendor.
- 1.3 It is not the intent to specify herein all the details of design and manufacture. However, the equipment shall conform in all respects to high standards of design, engineering and workmanship, and shall be capable of performing required function in a manner acceptable to Purchaser, who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his judgement is not in full accordance herewith.
- 1.4 Make of all equipment and components shall be to the approval of Purchaser.

2.0 CODES & STANDARDS

- 2.1 The material shall comply with all currently applicable safety codes and statutory regulations of India as well as of the locality where the material is to be installed.
- 2.2 The material, construction, manufacture, inspection and testing shall conform to the latest revisions of standards as specified in Data Sheet A.
- 2.3 In case of conflict between the applicable reference standard and this specification, stringent requirement shall govern.

3.0 DESIGN REQUIREMENTS

3.1 LIGHTING DISTRIBUTION BOARD (LDB) / WELDING DISTRIBUTION BOARD (WDB)

3.1.1 General Requirements of LDBs/ WDBs

- a) LDB/WDB shall be totally enclosed, modular in construction, indoor type and suitable for electrical system data as specified in Data Sheet-A. The LDB/ WDB shall be free standing type suitable for installation on cable trenches / floor.
- b) LDB/ WDB shall consist of dust and vermin proof cubicles without the use of louvers (except the transformer compartment, where applicable).
- c) Good quality synthetic rubber / neoprene gaskets shall be put around the door, cover edges and cut-out edges for push button, lamps etc. for protection against dust. The door when closed, shall compress the gasket uniformly.
- d) Cut-out edges for instruments, relays etc. shall have sufficient overlap surface to minimize the dust entry. The arrangement for the front mounting of switch

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handles shall render the LDB/ WDB reasonably dust free such that the normal operations are not affected.

- e) The LDB/ WDB shall be designed to prevent contact with live parts both within the modules and in the cable alley.
- f) The bidder shall be responsible to check and coordinate the MCB characteristic with back up fuses etc. provided.
- g) All equipment shall be constructed of non-hygroscopic and non-inflammable materials.
- h) All components mounted in the LDB/ WDB shall be accessible and shall not impede access to wiring or terminals. All faults except busbar fault which may occur within any individual unit shall be confined within that unit only and shall not cause shutdown of any section of the board other than the affected unit itself. Maintenance and inspection shall be possible in any individual unit without affecting other units.
- i) Incoming unit shall comprise of either switch-fuse/ composite switch-fuse unit or MCCB as per Data Sheet A. Outgoing units shall be either switch-fuse/ composite switch-fuse unit or MCCB as per data Sheet A.
- j) Interlock between compartment door and modules shall be provided such that the door cannot be opened without switching off the power supply to the module.
- k) Defeat interlock shall be provided for the units comprising of switch or moulded case circuit breaker as a means of isolation device, such that it is possible to open the door with device ON. It shall not be possible to close the door till the interlock has been reinstated.
- l) Each LDB/ WDB shall be fitted with base frame made of angle or channel.
- m) All fixing nuts and bolts together with grounding bolts shall be provided.
- n) Lifting lugs shall be provided for each shipping section of LDB/ WDB. Removal of such lugs or hooks shall leave no opening in the LDB/ WDB.

3.1.2 LDB/ WDB with transformers (Additional Features)

- a) The LDB/ WDB shall be arranged in two adjacent but separate compartments, one compartment for the lighting transformer and the other for the incoming & outgoing feeders etc.
- b) The transformer shall be mounted on the base channel and it shall be possible to easily remove the transformer from the cubicle after opening the door. Necessary portable ramp made of mild steel shall be supplied along with each LDB/ WDB.

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- c) Independent gasket hinged door with operating handle shall be provided for access to transformer & its taps. Operating handle shall have built-in key locking arrangement.
- d) Suitable ventilation arrangement for the transformer compartment to dissipate the heat of the transformer shall be provided. The arrangement shall be in the form of louvers and the same shall be provided with galvanised wire mesh with dust catchers on the inside.
- e) Connections between transformer secondary terminals and the busbars shall be made by using PVC insulated flexible copper cables or busbars.
- f) Warning plate shall be provided on transformer enclosure. The inscription of warning plate shall be as given below:
 - DO NOT OPEN DOORS WHEN ENERGISED
 - KEEP TAPS AT SAME POSITION FOR ALL PHASES
- g) Transformer enclosure shall be provided with a danger plate.

3.1.3 Lighting Transformer/ Welding Transformer

- a) Transformer, where specified, shall form an integral part of LDB/ WDB.
- b) Lighting transformer shall be dry type, natural air cooled and suitable for mounting inside the lighting distribution board. Transformer particulars shall be as specified in Data Sheet A.
- c) Rating of transformer shall be as per BOQ.
- d) Winding shall be of copper material and maximum winding temperature at full load and under site conditions shall not exceed 120 °C.
- e) Transformer shall be suitable for cable connections on the primary side and flexible cable or busbar connection on the secondary side.
- f) The secondary neutral of the transformer shall be brought out for getting a grounded 4 wire supply system.
- g) The transformer neutral shall be brought outside the LDB/ WDB for earthing. The neutral bus bar shall be insulated from the LDB/ WDB enclosure.
- h) Transformers shall be provided with the rollers, pulling holes, lifting lugs, jacking positions etc.

3.1.4 Busbars, Connections and Joints

- a) Busbars shall be supported on non-hygrosopic and non-inflammable insulators of material such as glass reinforced moulded plastic material, epoxy cast resin

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etc. Separate supports shall be provided for each phase of the busbars. Insulation level of neutral busbar shall be same as that of phase busbars.

- b) Busbars shall be contained in a separate vermin-proof compartment within the LDB/ WDB and shall have bolted sheet steel covers for providing suitable access.
- c) Busbar clearances in the air shall be as per applicable standard for 415V, 3 phase system.
- d) Temperature for busbars, droppers and connections shall not exceed 90 deg.C for an ambient of 50 deg.C while carrying maximum continuous current.
- e) The busbar, busbar connections and supports shall have sufficient strength to withstand thermal and electromechanical stresses produced by the specified short circuit level of the system.
- f) Busbars (including neutral busbar) shall be capable of carrying the short-time current specified in Data Sheet A. The duration of short-time current shall be 1 sec unless mentioned otherwise in Data Sheet A. For the specified current and duration, there shall be no damage to the equipment.
- g) The neutral bus shall be rated same as phase bus.
- h) Main busbars and connections shall be prominently marked and displaced for standard sequence counting from rear to front, top to bottom, or left to right as viewed from the switching device operating mechanism side.
- i) Busbars and connections shall be provided with colour coded PVC sleeves. All live parts shall be properly shrouded with insulating material.
- j) Earth busbar shall be provided separately.
- k) Busbar Joints
 - Busbar and tap off joints shall be bolted type.
 - Busbars shall be thoroughly cleaned before jointing. Suitable contact grease shall be applied to remove oxide film just before jointing.
 - For copper busbars, the connecting portion shall be tinned or silver plated.

3.1.5 Wiring and Terminals

- a) All internal wiring for connections to remote equipment shall be brought to terminal boards. Spare contacts of devices shall also be wired upto terminal board as per schemes. Wires shall not be jointed or teed-off except at terminal points.
- b) Wiring shall be made by 1100 volt grade three / seven strand PVC insulated copper wire having a cross-sectional area of not less than 1.5 sq.mm. All

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connections from CT leads upto instruments, terminals shall be made by copper wires of minimum 2.5 sq.mm size.

c) All wiring shall be made with the Colour Codes specified below :

i) 3 phase AC Connections

Phase 1 (R)	Red
Phase 2 (Y)	Yellow
Phase 3 (B)	Blue
Neutral	Black

ii) 1 phase AC Connections

Phase	Red / Yellow / Blue (as per associated circuit)
Neutral	Black

iii) DC Connections

Positive	White
Negative	Grey

iv) Earth Connection Green

d) Where wiring passes from one compartment to another, the aperture shall be 'Bushed' to prevent damage to wires against sheet metal edges. Bushes may comprise of good quality rubber / PVC grommets.

e) Every wire end shall be fitted with numbered ferrules of white or yellow colour having glossy finish with identification number engraved in black. Ferrules shall be made of moisture and oil resisting insulating material. Ferrules shall be of interlocked type or tight fitting type. Ferrules shall be so fitted that they will not get detached, when the wire is removed from the terminal.

f) System of marking of wiring shall be as per applicable standard.

g) All wires used internally shall have crimped on tinned copper lugs for terminations.

h) Terminal boards shall be stud type with insulating barriers of adequate height.

i) Terminal boards shall have separate terminals for incoming and outgoing wires with not more than two wires connected to any one terminal.

j) Terminal boards shall be mounted vertically or in the horizontal rows and properly spaced to have clean wiring arrangement, adequate access for putting ferrules, making terminations etc. It shall be possible to read the ferrule numbers when the wiring is complete. Where terminals may be live when the equipment is isolated from the main supply, these shall be clearly marked near the terminal boards.

3.1.6 Cable Terminations

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- a) All cables, either incoming or outgoing to the LDB/ WDB, shall be terminated in a cable chamber. For each panel, there shall be a cable chamber on the side. The door of cable chamber should open or be locked with the help of a tool. Unless stated otherwise in Data Sheet A, all cables shall enter from the bottom.
- b) Removable undrilled gland plates of sheet steel shall be provided in the cable chamber for entry of cables. Minimum thickness of gland plate shall be as per Data Sheet-A. The gland plate shall be of adequate size for connecting requisite number of cable glands for power and control cables.
- c) Heavy duty bolt-on termination tinned copper lugs of compression type shall be used for power cable termination. The tinned copper cable lugs for all incoming and outgoing power cables shall be supplied by the vendor.
- d) For supporting and clamping of cable cores at regular interval in cable alleys, suitable slotted angle upto the respective terminal blocks shall be provided.

3.1.7 Earthing

- a) An earth busbar of adequate size of shall be provided at the bottom for the entire length of the LDB/ WDB. Material of earth busbar shall be GI unless mentioned otherwise in Data Sheet A.
- b) Every metal part other than those forming parts of an electrical circuit shall be connected to the earth bus by means of high conductivity copper wire of size not less than 2.5 sq. mm. cross-sectional area.
- c) Doors shall have a flexible copper wire for earth connection to fixed unit.
- d) Each LDB/ WDB shall be fitted with two earthing studs located in accessible position on sides for connection of internal earth busbar to the external earthing connection.
- e) Earth busbar shall be brought outside LDB/ WDB for making external connections.

3.1.8 Types of LDB/ WDB

- a) The LDB/ WDB shall be of following type:
 - LDB/ WDB-H (n) - AC LDB/ WDB with 100 kVA transformer
 - LDB/ WDB-F (n) - AC LDB/ WDB with 50 kVA transformer
 - LDB/ WDB-N (n) - AC LDB/ WDB with no transformer
 - LDB-D (n) - DC LDB

NOTE: (n) indicates number of outgoing feeders.

- b) AC LDB/ WDB (LDB/ WDB-H, LDB/ WDB-F, LDB/ WDB-N)

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Each LDB/ WDB shall comprise of the following and comply with Data Sheet A:

- i. One lighting/welding transformer (LDB/WDB-H & LDB/WDB-F).
- ii. Incomer(s) of TP / TPN switch-fuse unit or MCCB / MCCB with neutral link as per Data Sheet A. It shall be provided on the primary side of transformer for LDB/WDB type LDB/WDB-H & LDB/WDB-F.
- iii. Set of busbars with 3 phase and neutral.
- iv. TPN switchfuse units or MCBs for each outgoing circuit.
- v. Three indicating lamps with fuses for indicating bus supply ON.
- vi. CT operated ammeter with selector switch.
- vii. VT operated voltmeter with selector switch.
- viii. Power & control terminals, earth-stud, earth busbar, designation labels, internal wiring, power cable lugs, glands etc. shall be provided to complete the LDB/ WDB in all respects.

c) DC LDB (LDB-D)

Each LDB shall comprise of following and comply with enclosed Data Sheet A:

- i. Incomer & Outgoing feeders shall be as per Datasheet-A.
- ii. Two pole DC contactor on the incoming circuit for changeover to DC in case of AC normal supply failure.
- iii. One under voltage relay of suitable range, if required.
- iv. One ON delay timer.
- v. One test push button.
- vi. Set of bus bars for positive and negative.
- vii. Two indicating lamps with fuses for indicating bus supply ON.
- viii. Power & control terminals, earth-stud, earth busbar, designation labels, internal wiring, power cable lugs, glands etc. shall be provided to complete the LDB in all respects.

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3.2 LIGHTING PANELS (LPs)

3.2.1 General Requirements of Lighting Panels

- a) LPs shall be totally enclosed, suitable for electrical system data as specified in Data Sheet A. The LP shall be suitable for mounting on wall / column / structure.
- b) Panels shall be suitable for indoor / outdoor application as per Data Sheet A.
- c) All components of the LP shall be fully mounted inside the panel. LPs shall have only one operational front. Door shall be provided to give full access to all the components. Door shall have padlocking arrangement.
- d) LPs shall consist of dust and vermin proof cubicles without the use of louvers.
- e) Good quality synthetic rubber / neoprene gaskets shall be put around the door. The door when closed, shall compress the gasket uniformly.
- f) The LPs shall be designed to prevent contact with live parts when the front door is open.
- g) All busbars (phase, neutral, positive, negative as applicable) within a panel shall be of the same size.
- h) All control wiring inside the panels shall be carried out with 1100 V grade, PVC insulated flexible copper wire of 2.5 sq. mm size.
- i) The rated continuous current of the equipment and components shall be as given in Datasheet-A. These ratings shall be obtained with the components mounted in their housing as in service without exceeding the permissible temperature rise.
- j) Each LP shall be fitted with M.S. mounting brackets.
- k) Panel shall be suitable for top / bottom cable / conduit entries. However, outdoor LPs shall have bottom cable / conduit entry. Removable undrilled gland plate of sheet steel shall be provided for entry of cables. Minimum thickness of gland plate shall be as per Data Sheet-A. The gland plate shall be of adequate size having knock-outs for requisite number cable connections. Gland plate shall be provided with gasket.
- l) The lighting panel shall be complete with copper busbars, and shall incorporate incomer and outgoing circuits as per Data Sheet-A. Number of outgoing circuits shall be as per BOQ.
- m) Each lighting panel shall be fitted with two GI earth studs located in accessible position on the outside of the panel on opposite sides.
- n) All metal parts of the panel except current carrying parts shall be bonded together electrically to the earthing stud.

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- o) Each panel shall be fitted with phase barriers of fireproof insulating material in such a manner that it is not readily possible for personnel to touch the phase busbars. Insulating sheet shall be fitted around the MCBs such that only the surface and toggle of the MCBs are available on the front.
- p) The supply of cable lugs for power and control cable connections forms part of the supply of equipment.
- q) Each panel shall be provided with a circuit directory plate with inscriptions neatly typed and laminated, fitted on the inside of door.

3.2.2 Type of Lighting Panels

- a) LP-A (n) - AC Lighting Panel
- b) LP-D (n) - DC Lighting Panel
- c) LP-F (n) - Fancy Lighting Panel (Decorative)
- d) LP-S (n) - Street Lighting Panel

NOTE: (n) indicates number of outgoing circuits.

3.2.3 AC Lighting Panel (LP-A)

- a) LPs shall be provided with incomer and requisite number of outgoing circuits as per Data Sheet-A. Number of outgoing circuits shall be as per BOQ.
- b) Separate neutral shall be available at terminal block for each outgoing circuit.
- c) Construction of AC Normal and AC Emergency panels shall be same.

3.2.4 DC Lighting Panels (LP-D)

- a) LPs shall be provided with incomer and requisite number of outgoing circuits as per Data Sheet-A. Number of outgoing circuits shall be as per BOQ.

3.2.5 Decorative Type Lighting Panels (LP-A)

- a) Decorative lighting panels shall be designed for use in areas like administrative building, service building, canteen, residential premises etc.
- b) Thickness of sheet steel shall be as per manufacturer's practice.
- c) LPs shall be of tone colour with elegant finish.
- d) LPs shall be provided with incomer and requisite number of outgoing circuits as per Data Sheet-A. Number of outgoing circuits shall be as per BOQ.
- e) LPs shall be suitable for either surface or flush mounting. Flush mounted panels shall have the collared door suitable for matching with the wall.

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f) Lighting Panels may be provided with transparent acrylic cover for operation of MCBs.

g) LPs shall be provided with knockouts on the top, bottom and sides.

3.2.6 Street Lighting Panel (LP-S)

a) Street Lighting Panels shall be provided for feeding power supply to luminaires of street light poles, flood lighting poles, lighting masts, watch towers etc.

b) Each Street Lighting Panel shall comprise of the following :

i. One TPN door interlocked switch-fuse unit incomer. Interlock defeat feature shall also be provided.

ii. Three pole AC Contactor

iii. 0 - 24 hrs timer and/or photo-electric switch for automatic switching of contactor

iv. Three phase & neutral busbars

v. Single pole or three pole MCBs for each outgoing circuit as per Data Sheet A

vi. Two lamps for bus supply ON & OFF indications

vii. Complete wiring arrangement as per control scheme.

viii. Auto-Manual selector switch

ix. ON push button

x. OFF push button

c) Switching ON and switching OFF shall be through both 0 - 24 hrs timer and light sensor in automatic mode.

d) One number light sensor in weather proof enclosure having IP:55 degree of protection shall be supplied loose along with each SLP.

e) Internal power wiring shall be done with PVC insulated Cu wire of suitable size. All control wiring inside the panel shall be carried out with 1100 V grade, PVC insulated flexible copper wires.

f) Two nos. outgoing circuit in each panel shall be tapped before contactor for watch tower supply.

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4.0 COMPONENTS OF LDB/WDB AND LIGHTING PANEL

4.1 MOULDED CASE CIRCUIT BREAKERS

- a) Moulded case circuit breakers (MCCBs) shall be provided when called for in Data Sheet A for use in lieu of switch fuse. MCCB shall meet the requirements stipulated in Data Sheet A.
- b) MCCBs in AC circuits shall be of single throw, air break, heavy duty type triple pole construction arranged for simultaneous three pole manual closing and opening and for automatic tripping at short circuit and overload. Neutral link shall be provided for LDB/ WDB without transformers.
- c) Operating mechanism shall be quick make, quick break and trip free type.
- d) The ON, OFF & TRIP positions of the MCCB shall be clearly indicated so as to be visible to the operator when mounted as in service. Operating handle shall be provided on front of the LDB/ WDB.
- e) MCCBs shall be capable of withstanding the thermal stresses caused by overloads and short circuits. The maximum tripping time under short circuit shall not exceed 20 milli-seconds.
- f) MCCB terminals shall be shrouded and designed to receive cable lugs for cable sizes relevant to circuit ratings.
- g) Under voltage releases and other releases shall be provided as specified in data Sheet-A.

4.2 SWITCH-FUSE UNITS

- a) These units shall preferably comprise of switches having integral fuses, called composite units. Alternatively, combination units of separate switch and fuse may also be acceptable.
- b) These units shall be provided for general purpose i.e. incoming or outgoing units.
- c) The units shall be of the air break air insulated type and designed to ensure safety to operating personnel.
- d) Composite units shall have integral fuses i.e. fuse carrier with fuse link (fuse link forming the moving contact). The design shall ensure that the moving contact is not live when switch is open i.e. in OFF position, so as to facilitate removal of fuse.
- e) The switch shall be capable making and carrying the system prospective fault current, but limited in magnitude and duration by the cut off characteristics of the largest HRC fuse link that may be fitted to that unit.
- f) The fixed contact shall be so shrouded that maintenance of the unit can be carried out in safety with the busbars live.

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- g) Where one isolating switch is used as the incoming device, the incoming side fixed contacts shall be shrouded to ensure that maintenance can be carried out with the remote fuse and switch closed.
- h) Composite switch-fuse or the combination of switch and fuse shall meet the requirements of its components as follows:

Isolating Switch

- i. Switches shall be air-break, quick make, and quick break heavy duty type conforming to applicable standard.
- ii. All switches shall have visible ON / OFF position indication and shall be padlockable in any (ON / OFF) position.
- iii. Switches shall be door interlocked such that it shall not be possible to gain access to inside the unit unless the isolating switch is in OFF position.
- iv. The switches shall be suitable for independent manual operation.
- v. The switch contacts shall be of silver alloy or silver plated copper and springs of non-corrosive material.
- vi. Inter-phase barriers shall be provided to prevent possibilities of phase to phase fault in the switch. The switch shall also be shrouded from all sides to prevent access to live parts on the switch after opening the unit door. The barriers and shrouding shall extend upto the height of switch to fully enclose both side terminals of the device. The arrangement shall permit easy maintenance.

High Rupturing Capacity (HRC) Fuses

- i. The fuse serving as the short-circuit protective device in isolating fuse-switch units shall be of HRC cartridge, current limiting and plug-in non-deteriorating type.
- ii. The fuse carriers shall be easily withdrawable for replacement of fuse. Insulated fuse pullers shall be provided where fuses are not mounted in insulating carriers to remove and replace fuses in live conditions.
- iii. Fuses shall preferably be fitted with a device to indicate operation (i.e. when the fuse has blown).
- iv. Live terminals of fuse bases shall be shrouded to prevent contact with personnel where fuse links are not mounted in carriers and are directly plugged into the fuse base. Inter-phase barriers extending throughout the length of the fuse base shall be provided to prevent inter-phase short circuit. They shall be shrouded from all sides to prevent accidental contact.
- v. Fuse carriers and bases shall be of good quality moulded insulating material. Porcelain fuse bases and carriers will not be accepted.

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vi. The rating and characteristics of fuse links shall be chosen appropriately for short circuit protection of circuits downstream.

4.3 MINIATURE CIRCUIT BREAKERS

- a) The use of miniature circuit breakers (MCBs) combining thermal overload and magnetic short circuit protection shall be application for the outgoing circuits of Lighting Panels.
- b) MCBs shall have suitable rating as specified in Data Sheet A.
- c) MCBs shall be suitable for housing in the lighting panel and for connection of copper link bus bar at the incoming and copper lugs at the outgoing ends.
- d) The terminals of MCB and ON/OFF positions shall be clearly and indelibly marked.

4.4 CURRENT TRANSFORMERS

- a) CTs shall be air insulated having insulation class E or better, cast resin type and shall be capable to withstand the thermal and mechanical stresses resulting from maximum short circuit.
- b) The short time current duration for CTs shall be one second.
- c) CT primary current shall not be less than the full load thermal rating of the associated circuit. CT secondary current shall be as specified in Data Sheet A. Polarity shall be marked in a suitable manner. The ratings shall be adequate to cater for the burden of connected instruments.
- d) CTs shall be of bar primary / wound primary / ring type capable of carrying the rated primary current.

4.5 VOLTAGE TRANSFORMER

- a) Voltage transformers (VT) shall be dry, cast resin type comprising of single phase or three phase units. They shall have their primary windings protected by current limiting fuses with interrupting capacity corresponding to that of the lighting board / panel.
- b) VT secondary windings shall be earthed in LDB/ WDB / LP through link, which can be removed for insulation testing.
- c) Three phase voltage transformers shall be as per Data Sheet A.

Single phase VTs shall have voltage rating of (Nominal System Voltage / $\sqrt{3}$) V / (110 / $\sqrt{3}$) V so that secondary voltage shall be 110 volts phase to phase when the secondary winding is star connected.

- d) VTs shall have an output rating adequate to cater to the burden connected to them.

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4.6 INDICATING METERS

- a) Meters shall be panel mounted, flush type and suitable for rear terminal connection.
- b) Meters and instruments shall be enclosed in dust proof, moisture resistant black finished cases and shall be suitable for tropical use. Instruments shall be suitable for operation from the secondary windings of CTs and VTs.
- c) All instruments shall be calibrated to enable direct reading of primary quantities. Instruments shall be adjusted and calibrated at manufacturer's works and shall have means of calibration, checking and zero adjustment at site.
- d) All the divisions and the quantity to be measured shall be clearly marked. Instruments shall conform to applicable standard having black numerals and lettering on white anti-parallax dial with knife edge pointer. Indicating instruments shall be of moving iron type for AC and moving coil type for DC circuits.
- e) Instruments having metallic cases shall be fitted with earthing terminals.

4.7 CONTACTORS

- a) Contactors shall be of the air break type, electromagnetic type fitted with arc shields.
- b) The operating coil shall be suitable for satisfactory operation in the range of 85% - 110% of nominal voltage specified under the Data Sheet A. The coil shall be tropicalized having insulation not less than class 'E'.
- c) Electrically independent auxiliary contacts not less than 2NO + 2NC for interlocking and indication shall be fitted to individual power contactor.
- d) All springs shall be made out of a corrosion proof material.

4.8 RELAYS

- a) Relays shall be provided on the various circuits as per schemes. Relays shall be flush mounted on front of the board. Relay case shall be painted with dull black or egg shell black enamel and with back connected terminals. Metal cases and frames of relay shall be earthed.
- b) All relays shall be of withdrawable type with built-in testing facilities, with provision for inspection, maintenance and replacement. Where built-in test facility is not provided for a particular relay, separate suitable test block shall be provided on the board for this purpose.
- c) Relay performance shall not alter due to mechanical shock or vibration or external magnetic field which may be present at the place of mounting.
- d) Each relay shall not have less than two independent pairs of contacts.

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4.9 TIMERS

4.9.1 Time Switch

- Time switch shall be suitable for automatic switching ON and OFF of street lighting / flood lighting circuits.
- Time switch have 00 - 24 hrs clock base.
- Time switch shall indicate actual time and shall permit accurate time setting.
- Time switch shall be rugged, independent of normal fluctuations of voltage / frequency and free from maintenance.
- Contact rating, clock accuracy, rated voltage rating and frequency rating of timer shall be suitable to its application.
- Time switch shall be provided with Ni-Cd battery.
- Time switch shall be suitable for mounting inside the panel.

4.9.2 On/Off Delay Timer

- On delay timer shall be required for continuation of DC supply for a limited duration when the AC Emergency supply has been restored and DG set is under stabilisation.
- Timer shall be fully static and suitable for operation on normal frequency and system voltage.
- Timer shall have high setting accuracy, high repeat accuracy, low reset time and low power consumption.
- Timer shall have the time setting range as mentioned in Data Sheet A.
- Timer shall be suitable for mounting inside the panel.

4.10 SELECTOR SWITCHES

- The rating and other features of the switches shall be suitable for the application. The number of positions and the number of contacts required for each switch shall be as indicated in the schemes
- Selector switches shall be stay put type, provided with properly designated escutcheon plates clearly marked to show operating position.
- Terminals carrying potential above 120 Volts shall be shrouded to prevent accidental contact with personnel.
- Ammeter selector switches shall have make before break contacts.

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- e) The switches shall be suitable for semi-flush mounting with the front plate and operating handle projecting out. All connection to the switches shall be from the back.
- f) The arrangement for front mounting of these devices shall be such as to make them reasonably dust free so as not to interfere with normal operation.

4.11 PUSH BUTTONS

- a) Push button shall be heavy duty, flush mounted suitable for the application.
- b) Push button shall be provided with integral escutcheon plates marked with its function identified as per schemes.
- c) Colour shall be appropriate to the function.
- d) Minimum number of contacts shall be 2 NO + 2 NC or as per the requirements of control scheme.

4.12 INDICATION LAMPS

- a) Indication lamps shall be complete with lens covers and holders.
- b) Each lamp shall be fitted with a durable resistance integrally wired in series with the lamp. Alternatively, lamps with built in transformers are acceptable.
- c) The lamp cover (lens) shall be translucent of appropriate colour.
- d) Bulbs and covers shall be interchangeable, easily replaceable from the front without the need for any special means.
- e) Terminals having potential above 120V shall be shrouded to prevent contact with personnel.
- f) Terminals shall be suitable for ring type copper cable lugs of size depending upon the circuit rating.

4.13 CABLE GLANDS

- a) Whether specifically mentioned or not, cable glands of suitable sizes shall be supplied along with each equipment for power and control cables.
- b) Rubber components used in the gland shall be of neoprene.
- c) Name / trade name of manufacturer, type no. and applicable range of outer diameter of cable shall be engraved / indelibly printed on the cable gland.

4.14 CABLE LUGS

- a) All equipment shall be supplied with the power and control cable lugs of suitable size, whether specifically mentioned or not.

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- b) Name / trade name and size of lug shall be engraved/ indelibly printed on each cable lug.

4.15 TERMINALS

- a) Terminals shall be stud type of copper material.
- b) Terminals shall be provided with transparent cover(s).
- c) Separate terminals shall be available for each termination of loop-in and loop-out power connections.

5.0 LABELING

- 5.1 Labels to identify all the Main assemblies, Sub-assemblies and components of the LDB/ WDB and LPs shall be provided.
- 5.2 Name and rating plate / marking shall be provided as required by relevant standard applicable to each component / assembly to be identified.
- 5.3 Labels shall be of two colour, three layer plastic material with matt or semi matt finish or of the anodised aluminium sheet.
- 5.4 All labels other than "Danger" or "Warning" labels shall have black lettering on a white background. Danger labels shall be as per applicable standard and shall not be affixed on to removable parts.
- 5.5 All labels shall be securely fixed on to the equipment by means of self tapping screws or other approved means.
- 5.6 Stick-on type labels of good quality and permanent mounting shall be acceptable for internally mounted components only.
- 5.7 A list of all such items to be labeled and text and type of labels to be provided is given below:

a) BOARD DESIGNATION (MAIN EQUIPMENT LABEL)

- i. **Inscription :**
Designation & LDB/ WDB number for LDB/ WDB.
Designation and LP number for LPs.
- ii. **Location :**
Top centre in the front of the LDB/ WDB.
Top centre in the front of the LP.
- iii. **Material :**
3 Layer plastic material, fixation by self tapping, non-rusting screws, black inscription on white back ground.

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b) OUTGOING - FEEDER DESIGNATION

- i. **Inscription** : Module number, LP number / purpose.
- ii. **Material** :
Black engraving on white anodised aluminium plate of thickness 1.6 mm or more. Plate to be secured with screws.

c) COMPONENT DESIGNATION

- i. **Inscription** : Letter symbol / Legend as assigned in schemes.
- ii. **Location** : Near or on the component
- iii. **Material** : Stick-on type

5.8 CIRCUIT DIAGRAM / DIRECTORY PLATE

- a) A diagram is to be prepared for fixing to the inside cover of every lighting panel giving details of the points controlled by each circuit.
- b) The circuit list shall be typed or printed stating the location of the equipment served, rating of the protective unit and the circuit loadings.
- c) The list shall be mounted on the inside of the cover door and shall be protected by an acrylic sheet cover to be easily removable to permit circuit modifications.

6.0 SURFACE TREATMENT

- 6.1 All metal parts and the surfaces (exterior & interior) of equipment, unless stated otherwise in case of reflectors, shall be degreased by dipping in hot alkaline solution and rubbed with wire brush to remove oil & scale from them & then rinsed in water. Alternatively, they may be shot / sand blasted.
- 6.2 Parts shall be pickled by dipping in hydrochloric acid tank to remove the rust from the surfaces formed during storage of sheets & then rinsed to remove traces of the acid. The cleaning and pretreatment of all metal parts shall be as per applicable standard.
- 6.3 The surfaces to be painted shall then be prepared by phosphatizing to protect them from further rusting & to create a good bond with the paint. The pretreatment shall conform to the applicable standard.
- 6.4 All parts shall then be subjected to a coat of red oxide primer paint.
- 6.5 All inside and outside surfaces of panel shall be spray painted with synthetic enamel of the shade and minimum thickness as per Data Sheet A.
- 6.6 Electrostatic or powder painting shall be acceptable subject to purchaser's approval.

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- 6.7 Wherever possible, finished parts shall be coated with peelable compound by spraying method to protect the finished product from scratches, grease, dirty and oily spots during handling and transportation.

7.0 PACKING

- 7.1 Packing procedure shall conform to the following :

- a) The equipment shall be properly packed before dispatch. The packing shall prevent damage to the contents while handling and lengthy period of outdoor storage.
- b) The equipment shall be wrapped in weather proof packing using polythene sheets/ air bubble sheets/ thermocol sheets and then secured in wooden packing cases. Wood for wooden packing cases/ crates shall be chemically treated to prevent deterioration due to fungi and attack by termites, borers, and any other kind of infection.
- c) The equipment shall be secured by fixing base plate/ frame with the help of bolt and nuts etc. to bottom frame of the wooden packing cases/ crates. Suitable cushioning material like rubberised coir (min. 50 mm thick & 100 mm wide) shall be provided on the bottom support. Gap between the panel and casing shall be filled with rubberised coir with distance between consecutive supports less than 500mm.

- 7.2 Specification for the sea worthy packing, if enclosed, for the export jobs shall form part of the specification.

8.0 INSPECTION & TESTING

- 8.1 Bidder shall confirm compliance with the BHEL Standard Quality Plan (PE-QP-999-558-E005) without any deviations. At contract stage, the successful bidder shall submit the same QP for BHEL/ ultimate customer's approval. In case bidder has reference QP agreed with ultimate customer, same can be submitted for specific project after award of contract for BHEL/ ultimate customer's approval. There shall be no commercial implication to BHEL on account of any changes in QP during contract stage.
- 8.2 All the components and completely assembled equipment shall be tested as per the latest edition of standards. Charges for these tests shall be deemed to be included in equipment price.
- 8.3 All the specified type and routine tests shall be carried out to verify the rating and performance of the equipment. Where valid type test certificates in evidence of equipment performance claimed are available & approved by purchaser, the requirements for conducting type tests may be waived. The general arrangement of object under test shall be to purchaser's approval.

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8.4 Functional testing shall be carried out for Lighting/Welding Distribution Boards/ Lighting Panels.

8.5 All manufacturing processes viz. machining, sheet forming, electroplating, wire routing, cleating & crimping, assembly, surface preparation shall conform to good manufacturing practices.

8.6 Inspection for dimensional & visual checks especially of the following, with respect to contract drawings, documents & standards shall be conducted:

- a) General sturdiness & rigidity of equipment.
- b) Surface finishing.
- c) Gasketting.
- d) Inter-changeability.
- e) Constructional features viz. location, accessibility & marking of components, segregation, accessibility to live parts (shrouding) etc.
- f) Completeness of scope.

8.7 Safety interlocking verification shall be done.

8.8 Each lighting transformer shall be routine tested and one transformer of each rating shall be type tested in accordance with relevant standard in case type test certificates of similar transformers are not available / not acceptable to the purchaser.

8.9 Equipment shall be liable for rejection if tolerances on the values of dimensions, power consumption, impedances, temperature rise etc. exceed the specified values by purchaser and / or standards.

9.0 TOOLS AND TACKLE

9.1 Tools & tackle which are essential to facilitate assembly, adjustments, erection, maintenance & dismantling of equipment shall be provided as part of equipment supplied.

9.2 The above tools shall be supplied along with the initial consignment of equipment so as to be available prior to erection but may not be used for erection purposes.

9.3 Vendor shall also submit a list of recommended tools and tackle. Acceptance of these tools and tackle shall not be a binding on the purchaser.

9.4 Schedule of tools & tackle shall be filled up by bidder.

10.0 SPARES

10.1 Mandatory spares (if applicable) are indicated in BOQ-cum-price schedule.

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- 10.2 Erection & commissioning spares are included in the bidder's scope of supply. Bidder to furnish list of E&C spares in the relevant schedules of the Bid Form and Price Schedules.

		QUALITY PLAN		CUSTOMER : NALCO		PROJECT TITLE:-3x200 TPH NALCO DAMANJODI-R&M (ESP)			SPECIFICATION NO.: - PE-TS-447-510-E005			
				BIDDER/ VENDOR :		QUALITY PLAN NO.			TITLE:-TECHNICAL SPECIFICATION FOR DISTRIBUTION BOARDS			
		SHEET		SYSTEM		ITEM :ILLUMINATION				SECTION II		VOLUME II
SL. NO.	COMPONENT/OPERATION	CHARACTERISTIC CHECK	CAT.	TYPE/ METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	10	11	12	13
1.0	LIGHTING PANELS AND LIGHTING DISTRIBUTION BOARDS	1.DIMENSIONS 2.PAINT SHADE/ THICKNESS 3.VERIFICATION OF GA & BOM 4.FUNCTIONAL TESTS (INCLUDING WIRING CONTINUITY) 5.HV/IR/HV 6.DEGREE OF PROTECTION (INCLUDING EXPLOSION PROOF IF ANY) 7.TEMPERATURE RISE TEST (FOR COMPLETE ASSEMBLED LDB/LP)	MA	MEASUREMENT	SAMPLE	APPROVED DRG.	APPROVED DRG.	INSPT. REPORT	3/2	2,1	-	COMPONENTS TO BE OF APPROVED MAKE
			MA	VISUAL/ MEASUREMENT	SAMPLE	APPROVED DRG.	APPROVED DRG.	INSPT. REPORT	3/2	2,1	-	
			CR	VISUAL	100%	APPROVED DRG.	APPROVED DRG.	INSPT. REPORT	3/2	2,1	-	
			MA	ELECT.	100%	APPROVED DRG./ BHEL SPEC.	APPROVED DRG./ BHEL SPEC.	INSPT. REPORT	3/2	2,1	-	
			MA	ELECT	100%	HV -2.5KV AC FOR 1 MINUTE IR - >50 M OHM	HV -2.5KV AC FOR 1 MINUTE IR - >50 M OHM	INSPT. REPORT	3/2	2,1	-	
			MA	TESTS	1/SIZE & RATING	BHEL SPEC/ RELEVANT IS	BHEL SPEC/ RELEVANT IS	TEST REPORT	3/2	-	2,1	
			MA	ELECT	1/RATING	BHEL SPEC/ RELEVANT IS	BHEL SPEC/ RELEVANT IS	TEST REPORT	3/2	-	2,1	
LEGEND : 1- BHEL/ CUSTOMER 2-VENDOR 3- SUB- VENDOR P- PERFORM W - WITNESS V - VERIFICATION												
BHEL		PARTICULARS		BIDDER/VENDOR								
		NAME										
		SIGNATURE										
		DATE		BIDDER'S/VENDORS COMPANY SEAL								

		QUALITY PLAN		CUSTOMER : NALCO		PROJECT TITLE:-3x200 TPH NALCO DAMANJODI-R&M (ESP)			SPECIFICATION NO.: - PE-TS-447-510-E005			
				BIDDER/ VENDOR :		QUALITY PLAN NO.			DISTRIBUTION BOARDS			
				SHEET		SYSTEM		ITEM :ILLUMINATION			SECTION II	
SL. NO.	COMPONENT/OPERATION	CHARACTERISTIC CHECK	CAT.	TYPE/ METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS
									P	W	V	
1	2	3	4	5	6	7	8	9	10			11
2.0	LIGHTING TRANSFORMER	1. ROUTINE TEST a) TYPE / RATING b) WINDING RESISTANCE c) VOLTAGE RATIO /VECTOR d) Z VOLT/ Z SCKT e) LOAD LOSS/ CURRENT f) NO LOAD LOSS & NO LOAD CURRENT g) SOURCE WITHSTAND h) INDUCED O/V 2. TYPE TEST	CR CR CR CR CR CR CR CR MA	VISUAL TEST TEST TEST TEST TEST TEST TEST TEST	100% 100% 100% 100% 100% 100% 100% 100% 1/RATING	IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC IS 11171 / BHEL SPEC	IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC. IS 11171 / BHEL SPEC.	INSPT. REPORT INSPT. REPORT INSPT. REPORT INSPT. REPORT INSPT. REPORT INSPT. REPORT INSPT. REPORT INSPT. REPORT TEST CERTIFICATE	3 3 3 3 3 3 3 3 3	- - - - - - - -	2,1 2,1 2,1 2,1 2,1 2,1 2,1 2,1 2,1	TYPE TESTS CERTIFICATE CLEARANCE FROM BHEL/CUSTOMER
LEGEND : 1- BHEL/ CUSTOMER 2-VENDOR 3- SUB- VENDOR P- PERFORM W - WITNESS V - VERIFICATION												
BHEL			PARTICULARS		BIDDER/VENDOR							
			NAME									
			SIGNATURE									
			DATE									
								BIDDER'S/VENDORS COMPANY SEAL				