



BIRATNAGAR METROPOLITAN CITY
OFFICE OF MUNICIPAL EXECUTIVE
MORANG, BIRATNAGAR



BILL OF QUANTITY

Project Name: Purchase of Sanitary ~~Ped~~ Electrical Items
Site: Biratnagar Metropolitan Office of Municipal Executive

S.N	Name Of Materials	Specification	Unit	Quantity	Rate per Unit in Nrs Figure	Rate per Unit in Words	Amount Nrs
1	15W Led Lamp	As per Specification provided	Pcs	1500			
2	20W Led Lamp	As per Specification provided	Pcs	500			
3	100W Led Street Lamp with Angle pipe, Nutbolts, connecting wires, Clamps all complete	As per Specification provided	Set	300			
4	50W Led Street Lamp with Angle pipe, Nutbolts, connecting wires, Clamps all complete	As per Specification provided	Set	400			
5	2 in 1 holder (B22 & E27) Paintdent Type	As per Specification provided	Pcs	1500			
6	Multistrain PVC Wire 1Sq.mm	As per Specification provided	Coil	40			
7	0.02 sq mm(O2) ACSR (NS)	As per Specification provided	Metre	10000			
8	PVC Tape 1"(NS/IS)	As per Specification provided	Pcs	100			



S.N	Name Of Materials	Specification	Unit	Quantity	Rate per Unit in Nrs Figure	Rate per Unit in Words	Amount Nrs
9	TPN Main Switch 440V/63A (Heavy) ISI	As per Specification provided	Pcs	30			
10	TPN Main Switch 440V/100A (Heavy) ISI	As per Specification provided	Pcs	15			
11	D-iron Complete Set with Nut bolt (8"-12")	As per Specification provided	Set	800			
12	6mm Concentric Cable(NS)	As per Specification provided	Metre	2500			
13	10mm Concentric Cable(NS)	As per Specification provided	Metre	5000			
Total Cost in Nrs							
Vat 13% of Vatable Cost							
Total Cost with Vat							



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1. GENERAL SPECIFICATION OF 15W &20W LED BULBS(ISO/ISI/NS/CE)certified.

sample of each led bulb must passed through lab test and lab test certificate
is compulsory for led lamps suppliers.

Technical Specifications



Sample of 18W/24W LED bulbs

Bulb characteristics

○ Shape	Bulb
○ Cap/fitting	B22
○ Dimmable	No
○ Lamp shape code	A67
○ Voltage	220 - 240 V

Durability

○ Lifetime of lamp	15000 hour(s)
○ Number of switch cycles	50000
○ Lumen maintenance factor	0.7
○ Average life	(at 2.7 hrs/day)

Bulb dimensions

○ Height	69 mm
○ Width	132 mm



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Advantages: high temperature ceramics

Applications: domestic / commercial / industrial use

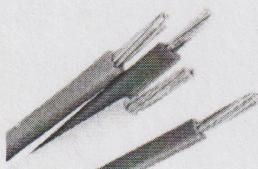
Housing material: ABS

Built Material: Ceramic

Maximum current 6A, the maximum voltage of 220V, maximum overload power 660W

High temperature 210 degrees

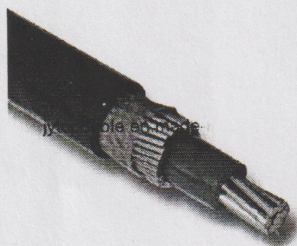
3. PVC WIRES and CABLES



- **PVC INSULATED COPPER WIRE**
- Single Core PVC Insulated Multistrand Copper Conductor (unsheathed) heavy duty cables for wiring voltage grade 650/1100 V (Conforming to NS:344/2052)650/1100 VOLT GRADE .
- 1 sq.mm (90m per coil)

size	Numbers and Diameters of Wires (mm)	Nominal Thickness of Insulation (mm)	Conductor Resistance at 20 C/km (max)	Current Rating (Amps)
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5.ALUMINUM CONCENTRIC CABLE 6mm²/10mm²



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- **Applications**



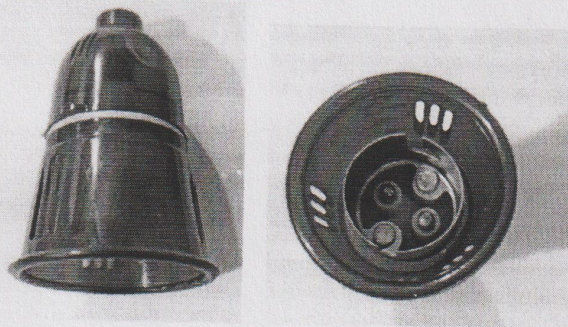
Rated values

- | | |
|-----------------------|---------------|
| ○ Rated power | 15/20 W |
| ○ Rated luminous flux | 2000 lumen |
| ○ Rated lifetime | 15000 hour(s) |
| ○ Rated beam angle | 130 degree |

Sample test Parameters

- | | |
|-------------------------------|--------------------|
| ○ Wattage | 15/20 W |
| ○ power Factor | 0.8 |
| ○ Light output | 2000 lumen |
| ○ Beam angle | 130 degree |
| ○ Color temperature | 6500 K |
| ○ Light effect/finish | Cool Daylight |
| ○ Color rendering index (CRI) | 80 |
| ○ Starting time | <0.5 s |
| ○ Warm-up time to 60% light | Instant full light |
| ○ Color | Cool Daylight |
| ○ | |

2. Painted holder B22



- **Feature:**
B22 ceramic lamp holder
Ceramic thick suspension fitted cap
Universal screw



The concentric cable is used as electric service entrance from the power distribution network until the meter panel (especially where it is required to prevent "black" losses or electric power robbery), and as feeder cable from the meters panel until the panel or general distribution panel, just as it is specified in the National Electrical Code. This type of conductor can be used in dry and wet places, directly buried or outdoors; its maximum temperature of operation is 90 °C and its voltage of service for all the applications is 600 V.

Standards

ASTM IEC BS and so on

Cable characteristic:

Temperature Range: -15°C to 50°C

Nominal Voltage: U0/U 0.6/1kV

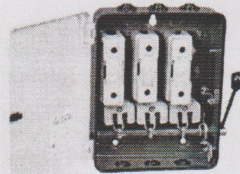
Test Voltage: 3.5kV/5min

Permit long-term operating temperature: 90°C or 75°C

Minimum Bending Radius: 15x cable Ø

4. Side Handle Main Switch 3 Pole (TPN) 415Volt 63 /100Amp.

MAIN SWITCHES TPN



features

Type :

Main Switch

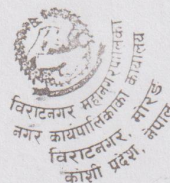
Pole Type :

3 Pole

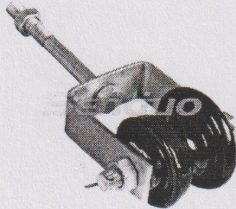
Current Rating

63 Amp.

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5-Iron complete set



Material: Mild Steel

Shape: D Shaped Bracket

Insulator: shackle insulator

Shape: D Shaped

Fixing Nutbolts 8"to10"

6) 50W and 100W LED Street Lamp with Angle Pipe

A. Technical Specification

A) Technical Specification of 50W AC LED Street Light System

1. GENERAL REQUIREMENTS

1.1 Rated Voltages

The Luminaire shall operate within a voltage range of (90-230) V + 10% - 6%. (single phase).

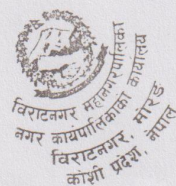
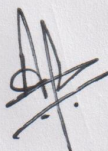
1.2 Nominal System Frequency

The Luminaire shall operate within a frequency band of 50 ± 5 Hz.

1.3 Luminaire Assembly

Each Luminaire shall consist of an assembly that utilizes LED lamps as the light source. In addition, a complete Luminaire shall consist of a housing, LED lamps and electronic driver (power supply).

1.4 Luminaire Life



Each Luminaire shall be rated for a minimum operational life of 50,000 hours, assuming each Luminaire will operate for 11 hours per night everyday of the year for 20 years, assuming an average night time temperature of 35°C. Each Luminaire shall meet all the requirements of this specification throughout the minimum operational life when operating under the service conditions. If any, during the operational life of the Luminaire shall be clearly stated, including maintenance frequency and man hours, and spares required for maintenance.

1.5 Power Factor

The Luminaire shall have a power factor between 0.8 and 1.0. Power factor correction capacitors .

1.7 Luminaire Internal Wiring

Wiring and insulation shall comply with Wiring colour codes shall be:

- 1) Active - red
- 2) Load - white
- 3) Neutral – black

Wiring connections to the LED Driver shall be:

- 1) Load - brown
- 2) Neutral – blue

1.8 LED Driver

The LED Driver shall:

- 1) Be contained inside the Luminaire, rated for outdoor operation and have a minimum IP 66 rating
- 2) Be double insulated with plastic housing without any earth connection/grounding.
- 3) be rated for a minimum life expectancy equal to or greater than the minimum operation life of the Luminaire not have its case temperature rise by more than 10 °C in free air with no additional heat sinks

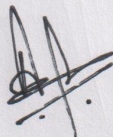
B. Physical Characteristics

2.1 General

The Luminaire shall be a single, self-contained device, not requiring on-site assembly for installation. The power supply (driver) shall be a modular unit to facilitate replacement if required. All internal components shall be adequately supported to withstand mechanical shock and vibration from high winds and other sources.

2.2 Housing

The Luminaire body shall be made of aluminium alloy. The housing shall contain an integrated heat sink. The housing (including visor) shall be designed to prevent the build-up of water and dust on top of the housing. Exposed heat sink fins, if available, shall be oriented so that water can freely run off the Luminaire and carry dust and other accumulated debris away from the



unit. The housing shall be easily opened and closed without the use of a tool. There shall be additional room available in the wiring compartment for placing adaptive controls in the future.

2.3 Colour

Two exterior colour options are permissible:

- 1) Raw unpainted aluminium or
- 2) Light grey or silver colour.

Corrosion resistant surfaces are preferred.

2.4 Dimensions, Weight and Fixing

Luminaires shall be suitable for fixing into street lamp brackets/outreach arms currently installed on street lamp poles. and dimensions shall be such as to not exceed the maximum wind rating considering the effective projected area. Loading impact on fixing structures shall be specified.

2.5 Ingress Protection

Luminaires shall be rated minimum IP65 with fitted in terms of dust and moisture ingress, and the optical assembly of the Luminaire shall be protected against dust and moisture intrusion to a minimum IP 66 standard

2.6 Spigot

The vendor shall supply adjustable fixing spigot arrangement with a precoated Angle MS pipe support pipes for LED Streetlight

C. TESTS

3.1 Design Qualification Testing

3.1.1 Approved Testing Lab

Design Qualification Testing shall be performed in testing lab on results in a different circuit configuration for the LED driver or changes the layout of the individual LED lamps in the module. A formal report covering the outcome of the testing shall be made available to Biratnagar metropolitan city office.

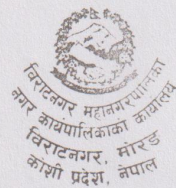
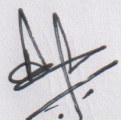
3.1.2 Number of Samples

Five units of each LED lights shall be submitted for Design Qualification Testing

3.1.4 Model Test

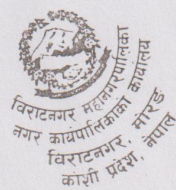
Product submittals shall be accompanied by compliant test reports approved testing lab, for the specific model being submitted.

D. Technical Data Sheet:-



D.1. 50W LED STREET LIGHT

SN	Description	Specification	Bidder Proposal (Document from manufacturer showing the proposed parameter is mandatory. Please highlight the parameter in the technical specification)	Bidder's Remarks*
1.1	Manufacturer Name	NA		
1.2	Brand/Model	NA		
1.3	Type	LED		
1.4	LED Light Source	50WLED Lamp		
1.5	Luminous Efficacy	At least 120 Lumen/Watt		
1.6	LED Illumination	Street lamp should have not less than 0.5 Lux /watt perpendiculars from the height of 9 m. The illumination should be uniform without dark rashes on the ground.		
1.7	View Angle	Equal or greater than 2* 65		
1.8	Color Rendering Index (CRI)	CRI of individual WLED must not be less and than 75 and the color temperature must be between 5000 to 6000 degree K		
1.9	Lamp Rated Total Power INPUT	(90-260)Volt,50Hz		
1.10	Lamp Rated Total Power OUTPUT	50 W LED Lamp		
1.11	Certification	Must Submit IP 65 compliance certificate		



1.12	Certification	NS/ISI/ISO		
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D.2. 100W LED STREET LIGHT

SN	Description	Specification	Bidder Proposal (Document from manufacturer showing the proposed parameter is mandatory. Please highlight the parameter in the technical specification)	Bidder's Remarks*
1.1	Manufacturer Name	NA		
1.2	Brand/Model	NA		
1.3	Type	LED		
1.4	LED Light Source	100WLED Lamp		
1.5	Luminous Efficacy	At least 150 Lumen/Watt		
1.6	LED Illumination	Street lamp should have not less than 0.5 Lux /watt perpendiculars from the height of 9 m. The illumination should be uniform without dark rashes on the ground.		
1.7	View Angle	Equal or greater than 2* 65		
1.8	Color Rendering Index (CRI)	CRI of individual WLED must not be less and than 75 and the color temperature must be between 5000 to 6000 degree K		
1.9	Lamp Rated Total Power INPUT	(90-260)Volt,50Hz		
1.10	Lamp Rated Total Power OUTPUT	100 W LED Lamp		




 विराटनगर महानगरपालिका
 नगर कार्यपालिका कार्यालय
 विराटनगर, मोरङ
 कोशी प्रदेश, नेपाल

1.11	Certification	Must Submit IP 65 compliance certificate		
1.12	Certification	NS/ISI/ISO		

The following minimum information must be included in the screen printed label of the WLED lamp

- Brand/Model/Serial Number
- Nominal Power in Watt
- Nominal Voltage

E. Operation and Maintenance Manual

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the LED Street Lighting System and detail of Wiring and Connection Diagrams will also be provided with the manual

F. Warrantee/ Guarantee

- The LED Street Lighting System must be warranted against any manufacturing/design/ installation defects for a minimum period of **2 years**.
- The Warrantee/Guarantee Card to be supplied with the LED System must contain the details of the system supplied. The manufacturers can provide additional information about the system.
 - During the Warrantee/Guarantee period, **Biratnagar Metropolitan City Office** will have all the rights to cross check the performance of LED System. Municipality may carry out the frequent inspections of the system supplied and randomly pick up its components to get them tested at any test center. If during such tests any part is not found as per the specified technical parameters, Municipality will take the necessary action. The decision of Municipality in this regard will be final and binding to the Bidder. The period for correction of defects in the warranty period is: 24 hours.

