



**GOVERNMENT COLLEGE OF ENGINEERING, KARAD**

(An autonomous Institute of Govt. of Maharashtra)

VIDYANAGAR, KARAD, DIST. – SATARA. PINCODE – 415 124.

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No. GCEK / EED / 2019-20/ 3894.

Date:

18 NOV 2019

To,

P.T.O.

**Sub: - Quotation Invitation for supply of Rectifier Unit for Department of Electrical Engineering.**

With Reference to the subject maintained above, you are requested to quote your rates for the Department of Electrical Engineering, the details are as per list attached. Your quotation should reach this office on or before 03/12/2019.

Prices should be quoted F.O.R. Institute (Karad). Rate should be quoted with all taxes stated separately. Your Quotation will be valid up to 60 days from the date of opening.

The quotation should be sent in seal envelop. On the top of envelop should write

**"QUOTATION FOR ELECTRICAL ENGG.DEPARTMENT DUE ON 03/12/2019"**

The quotation will be opened on 04/12/2019 at 11:00 AM or next working day.

Yours faithfully,

Principal,

Govt. College of Engineering, Karad.

o/c

18/11/19  
11/19

## Terms and Conditions:

1. The goods should be supplied within 30 days from the date of the receipt of this order.
2. The goods should be supplied F.O.R. Institute
3. The stores shall be securely packed, suitably marked and dispatched by Goods/Passenger train/ Motor/ Truck/ Local/ Conveyance or by Registered post Parcel whichever is economical & convenient freight paid and at carriers risk.
4. The goods should be insured with the Insurance Officer, Govt. Insurance Fund, Finance Deptt. Sachivalaya, Bombay-32 under intimation to this office, failing which the loss or damage shall have to be made good by you.
5. Railway receipt or Motor transport receipt and the Insurance certificate should be sent by Registered A/d and not through Bankers or by V.P.P.
6. Please note that if materials are not found as per our specifications the same will be returned to you at your own cost.
7. The relevant Sales Tax Registration Nos. and the Certificate in the form given on the bill in support of your claim for Sales Tax if any: -
8. "Certified that the goods, on which Sales Tax has been charged, have not been exempted under the Inter State and/ or the State Sales Tax Act. or the rules made there under and the charges on account of Sales Tax on these goods are correct and that in case of supplies against regular contracts, the relevant contract includes a specific provision that the Sales Tax is payable by Government."
9. The Central Sales Tax shall be charged at the appropriate confessional rates. The necessary Certificate in 'AF' form/ 'D' form in duplicate is enclosing herewith.
10. **Penalty:** To recover from you as liquidated damages a sum equivalent to 0.5 percent of the price of the undelivered sores at the stipulated rate of each week or part thereof during which the delivery of such stores may be delayed to a maximum limit in the case of an order not exceeding rupees one lakh in value of 10 percent and in the case of an order exceeding Rs. 1 lakh in value 5 percent of the stipulated price of the stores so undelivered. Such penalty is to deduce always by the consignee from the bill of the firm.

The receipt of this order and acceptance of the terms and conditions mentioned therein may please be intimated to this office immediately.

  
PRINCIPAL  
Govt. College of Engineering, Karad



## Detailed Specifications

### Specifications of Rectifier Unit

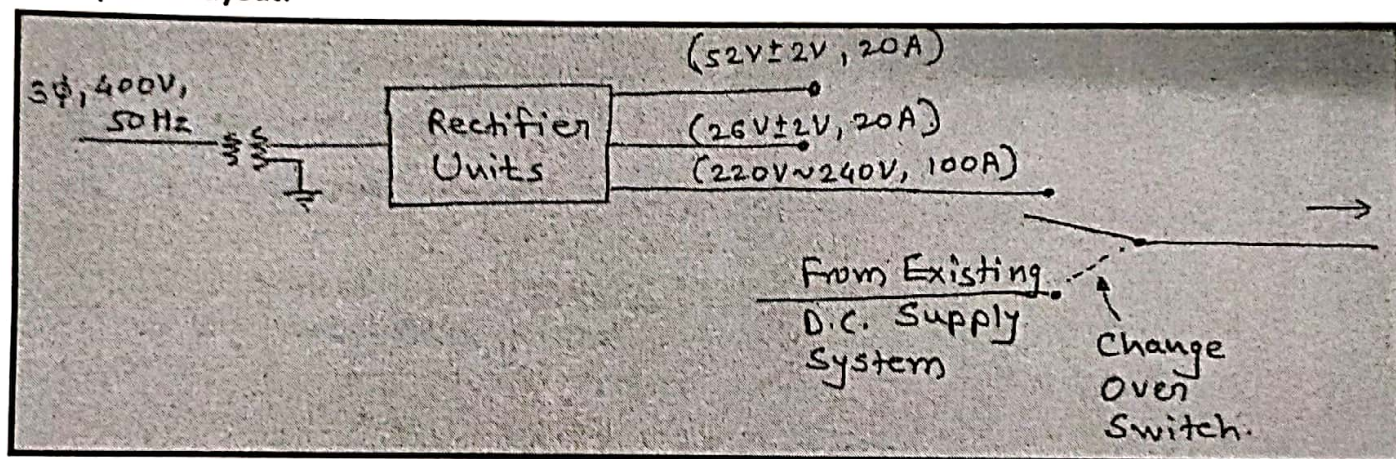
#### Scope of Work:

A turnkey based project of electrical installation and commissioning of a rectifier/rectifiers with output

1. 220V~240 V, 0-100A    2. 52V (+/-) 2V, 20A    3. 26V (+/-) 2V, 20A

unit with isolation transformer (with tap changing facility to vary the DC output voltage (220V~240 V) at Government college of Engineering, Karad. The power supply unit shall be as per the relevant Indian Standards (I.S.) and of proven design by way of actual field operation without any defficiencies and the problems whatsoever. The said project's proposed layout is as shown in the below fig (1).

#### 1. Proposed Layout:



#### 2. Standards:

**2.1** The D.C. regulated power supply system shall confirm to the currently applicable standards and codes of practice and reports, regulations and safety codes in the locality where the said equipment will be installed.[ or equivalent IEC, British, USA standards]

IS:10028(Part I),1981	Transformer Installation
IS 3895/1966	Specifications of rectifier unit
IS 9224	Specifications of HRC fuses
IS 1248	Indicating Instruments
IS 375/1963	Specifications for wiring
IS 2026	Transformers
IS 13947/1993	Air break switch/contactors
IS 6619	Safety code for semiconductor devices
IS 3043	Rectifier equipment earthing practices

**2.2 Supply:** AC input 3 phase, 400V, 50Hz with input power factor to be maintained as per I.S.

**2.3 At D.C. load terminals:** The D.C. regulated voltage of

1. 220 Volts ~ 240 Volts for D.C. load current in between 0A to 100A.

2. 50V (+ / - ) 2V, 20A

3. 25 (+/-) 2V, 20A

**2.4 Ripple content:** The ripple content in D.C. rectified output should be limited as per I.S.

## **2.5 Metering Equipments:**

2.5.1 Digital A.C. voltmeter, ammeter on input side of three phase to measure the input voltage, current respectively to the said unit with 0.5% full scale accuracy.

2.5.2 Digital D.C. voltmeter and ammeter to measure the D.C. output voltage and current respectively supplied by the said unit with accuracy of 0.5% (full scale).

## **2.5.3 Indicators:**

The rectifier unit should be provided with the following LED indicators of reputed make for both input and output side indications.

### **For A.C. input side**

Red Phase	Red colour
Yellow Phase	Yellow Colour
Blue Phase	Blue Colour

### **For D.C. side (output)**

Positive polarity	Red colour
Negative polarity	Blue colour

### **For Failure**

For A.C. input failure	Red colour
For D.C. overload condition	Blue colour

## **3. Panels / Cubicles**

All the panels/cubicles shall be of flush front metal enclosed sheet (CRCA) cubicle, indoor floor mounting, free standing type and made up of minimum 3 mm thick CRCA sheets. The cubicle shall be provided with ventilation louvers on the doors rendered dust proof using fine brass/stainless steel wire mesh at suitable locations. All the doors, removable covers and plates shall be provided with neoprene gaskets all around. All the components inside the cubicle shall be located in such a manner that maintenance of any component does not interfere with other components. All power cubicles/control panels shall be provided with 25mm x 6 mm copper strips throughout the length of the panel with two terminals at the ends for grounding purposes. All the metallic, non-current carrying components shall be grounded by suitable size of copper strips. All structural steel/iron materials like plates, sections, strips, flats etc. Which is used for fabrication of panels/cubicles should confirm IS2062.

All steel work to be sprayed with high corrosion resistant primer baked in oven. Powder coating process to obtain the final finish in accordance with IS:1477. All panels should have PVC rubber mat laid on ground.

## **4. Isolation Transformer :**

A suitable dry (self air natural cooled), indoor type, F class insulation, 3 phase **Dy11** with separate suitable earthing. The size of the transformer should be such that it can deliver continuously D.C. load of 0A to 100A at (220V to 240V) with taps for 50V & 25 V DC changing facility keeping the temperature rise within permissible limits as per I.S.

## **5. Rectifier Unit / Units :**

It should be indoor type unit with self air cooled with appropriate heat sinks provided. It should be able to separately supply **regulated DC**



1. 220V~240 V, 0-100A 2. 50V (+ / - ) 2V , 20A 3. 25V (+ / - ) 2V , 20A continuously with temperature rise in permissible limits as per IS.

**6.Change over switch :**

As shown in single line diagram [fig(1)], a change over switch is to be provided to select the D.C. supply from existing D.C. system and newly installed said unit confirming to IS.

**7.Performance warranty :**

All the parts, functioning of entire unit should be guaranteed for the period of 3 years from the date of successful installation of the said unit with replacement and on site maintenance.

**8.Make :**

If the following parts are to be used

Switches	Kayee/Recon/Equivalent
Meters	AEL/IMP/USHA/Equivalent
Contactors/Relays	LnT/Siemens/ABB/CNS/Equivalent
MCB	MOS/LnT/Siemens/Equivalent
HRC fuses	LnT/Siemens/Bushman/S&S/Equivalent
Semiconductor devices	Semicron/IR/HIRECT/Equivalent
Lamps/LEDs	EMCO/LnT/Essen
Filter condenser	Elcon/Resco/Kendil/Equivalent

**8.Earthing and Protection :**

Earthing is to be provided on A.C. side as per I.S. practises. The entire unit is to be protected against short circuit and overload condition.

- No tripping should be observed during switching ON the unit due to surge current or any transient situations.
- As this is turnkey project, all the foundation / civil work or any other work related to this unit's installation is on supplier side.
- Supplier has to verify and confirm the specifications in the presence of college representatives after it's completion.
- As this is turnkey based project , supplier may visit the site location before quoting for the same at their own cost.

**Note: All the material should be of good quality. Quantities may increase or decrease**

  
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