



GOVERNMENT OF INDIA
BHABHA ATOMIC RESEARCH CENTRE
ACCELATOR CONTROL DIVISION (ACnD)

Ref: BARC/ACnD/~~17-18~~/18-19/354

Date: 25/4/2018

Sub: Minor Fabrication - Invitation of Quotation

Fabrication of water cooled heat sinks and their RF shielded enclosures, customized RF circulator assemblies and their enclosures, connectorized test jigs for circulators, preparation of detailed AutoCAD drawing for the rack and mounting of above mentioned components in an RF shielded rack.

Dear Sir/Ma'am,

1. Quotations are invited for the minor fabrication job: "Fabrication of water cooled heat sinks and their RF shielded enclosures, customized RF circulator assemblies and their enclosures, connectorized test jigs for circulators, preparation of detailed AutoCAD drawing for the rack and mounting of above mentioned components in an RF shielded rack" at ACnD office, Mod -Lab-B block, Trombay reception as per specifications in Annexure - B.
2. Bidder shall quote for carrying out this job at BARC with suitable manpower of his own.
3. Taxes, other charges, if any, shall be quoted separately.
4. The quotation must reach Head, ACnD, MRG, BARC by 20/05/2018 (before 11.00 a.m) and must be sent in a sealed envelope (via speed post) super scribed with the reference number & the due date given above.
5. The address on the envelope should read:

Gopal Joshi,
Head, ACnD
BARC, Trombay, Mumbai - 400 085.
(Attn.: Snigdha Singh, RFSS , ACnD)
6. Head, ACnD, MRG, BARC reserves the right to accept / reject any or all quotations without assigning any reason.
7. Incomplete offer / offer received after the due date shall not be considered.
8. Quotations should be preferably neatly typed and corrections are not acceptable.
9. Quotation received in computer-generated form shall not be acceptable.
10. Quotation must be submitted in printed letterhead, mentioning clearly GST registration no., PAN No. & Service Tax Registration No. Submission of challan and Invoice shall also comply the same, in case, work order is placed.
11. Important Note : The minor fabrication job must be strictly completed by the vendor before 90 days from the date of issue of work order.
12. For any technical queries/clarifications contact: email: snigdha@barc.gov.in

Encl.: Annexure – B

Gopal Joshi
17-4-18

Dr Gopal Joshi,
Head ACnD.MRG
BARC

डॉ. गोपाल जोशी/Dr. Gopal Joshi
अध्यक्ष, त्वरक नियंत्रण प्रभाग/Head, Accelerator Control Division
भारत सरकार/Government of India
भाभा परमाणु अनुसंधान केंद्र/Bhabha Atomic Research Centre

Annexure-B

1. Technical specifications:

A) Copper heat sink: (as per Fig. 1)

B) Specifications:

Configuration	Dual plate water cooled heat sink with silver plating	Qty
Material of heat sink	copper	2 nos.
Heat sink size	17.2*9.2*22 cm	
PCB mounting screws	30 nos of screws for PCB mounting	

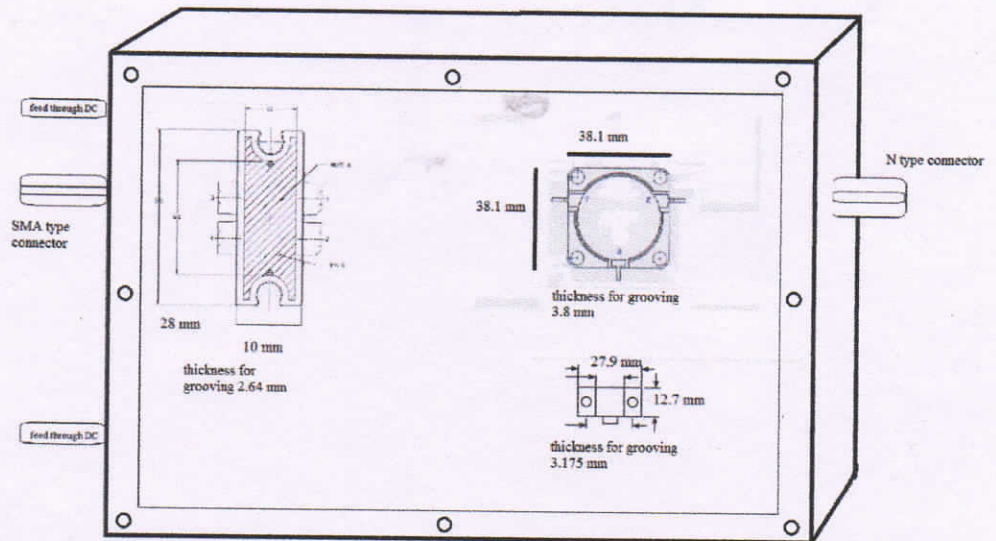


Figure 1: Copper heat sink and its enclosure

C) RF shielded Enclosures with EMI gaskets for Heat Sink (as per Fig. 1)

Material of enclosure	Chromotized aluminum	2 nos.
Enclosure size	21.2*13.2*26 cm	
Enclosure screw spacing	7 cm	
RF shielding effectiveness	>30 dB	

D) Circulator assembly and its RF shielded enclosure with EMI gaskets

Material of enclosure	aluminum	2 nos.
Enclosure size	90*91*20 mm	
RF shielding effectiveness	>30dB	

Circulator specifications:

Parameter	Value	Qty
Frequency	320 ... 330 MHz	02 Nos.
Isolation (min)	23 dB (@ centre frequency)	
Insertion loss (max)	0.2 dB (@ centre frequency)	
VSWR (max)	1.15 (@ centre Frequency)	
Temperature range (operation)	+5°C to +50 °C (@ case)	
Power (Fwd/Ref)	1kW/1kW	
Solderable Connectors type/Tab width	Solder tab (3x)/ 5 mm±0.5 mm	
Dimensions	<= 64x71x21 mm ³	

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RF load specifications:

50 ohm surface mount resistor having the following specifications:

Parameter	Value	Qty
Resistance	50 ohm±5 percent	2 Nos.
Power rating (CW)	1 kW	
Size	<=25.4mm*24.4mm*2.3 mm	

E) RF shielded rack assembly with EMI gaskets: -Qty:1 no.

- i) An RFI shielded 2U rack, depth 400mm, having the following provisions:
- RF Finger contacts arrangement at the front and back panel and filters at all openings.
 - Mounting of water cooled driver heat sinks and associated water fitting arrangements- 2 nos.
 - Mounting of circulators and RF load assembly along with its associated fitting arrangements-2 nos.
 - Air cooling cutouts should have honey comb filters.
 - Rack should be chromotized from inside and powder coated from outside
 - Cutouts for connectors and terminal strips as mentioned below:

SMA connectors	6 nos.
N type connector	1 no.
Phoenix contact- 5 pin #	1 no.
Phoenix contact- 2 pin ##	1 no.
230 V socket with fuse	1 no.
Water connections####	2 no.

25 mm(length)*7.5mm(width)

10 mm (length)* 10 mm (width)

###25 mm(diameter)

Detailed Auto CAD drawing for the rack assembly must be prepared by the supplier and send to indenting officer for approval.

F) Layout of connectorized test jig for 100 W circulators- qty 2 nos.

Fabrication of test jig as per figure 2 and its mounting inside the rack.

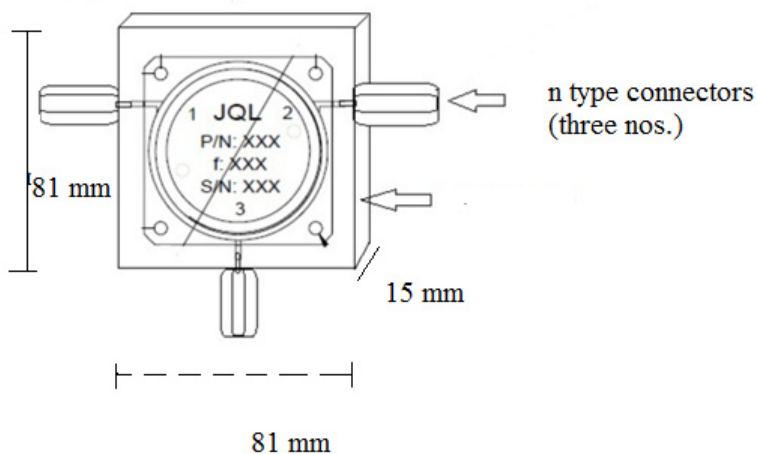


Figure 2: Connectorised test jig for circulator

Note:

- 1) The vendors must offer their quotation for all the items as part offers will not be accepted. Fitting and mounting arrangements of the rack have to be made in accordance with all the other components and so must be compatible with them. In view of the above, it is clarified in advance that consolidated offers alone will be accepted.
- 2) Prior technical expertise in fabricating similar types of components and rack assemblies is prerequisite for our application. Thus suppliers are requested to send their client list with quotation.

Snigdha Singh

Snigdha Singh.

Snigdha Singh, SO-C,

RFSS, ACnD