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## Form for Inviting Quotations

Reference No. MEE/11-12/281/CSIR/KSRS /XV

Date: 22-08-2014

Subject: Supply of Low-Torque Ball Joints for Solar Parabolic Trough Collector ( Project No: MEE/11-12/281/CSIR/KSRS)

**Due Date: 10-09-2014**

Dear Sir,

1. Quotations are invited in **duplicate** for the supply of **Low-Torque Ball Joints** and Specification of which are shown in overleaf.
2. The Quotations **duly sealed and super scribed on the envelope** with the reference No. and due date, should be addressed to the undersigned to reach him on or before the due date stipulated above.
3. The Quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate Contract, Rate Contract Number and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate Contract price. If so, please send copy of the R. C. (Please note that we are not Direct Demanding Officers).
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for should be submitted free of charges, and collected back at the supplier's expenses.
6. **Local Firms:** Quotations should be free delivery to this Institute, if Quotations are for Ex-Godown delivery charges should be indicated separately.
7. **Firms outside Madras:** Quotations should be F.O.B. Madras. If F.O.B. consignor station, freight charges by passenger train / lorry transport must be indicated.. If Ex-Godown, packing, forwarding and freight charges must be indicated. The following set of documents is required in all cases: a. complete set of Clean Bill of Lading / Airway Bill / Air or surface Parcel Receipt, showing that the goods have been shipped and freight prepaid. b. Insurance Policies / Certificates in duplicate covering Marine Insurance as per Institute Cargo Clauses (All risks) and perils as per Institute Strikes, Riots and Civil Commotion Clauses, War risks as per Institute, Clauses. Cover for CIF value plus 10 percent.
8. The rate of Sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. **The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to non-Government Educational Institutions run with no profit motive for which a concessional. Sales Tax Certificate will be issued at the time of final settlement of the bill.**
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. **Payment:** Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.

Quotation can be sent addressing:

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# 204, Heat Transfer and Thermal Power Laboratory  
Department of Mechanical Engineering  
Indian Institute of Technology Madras, Chennai- 600 036”  
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# Specification Sheet

## Low-Torque Ball Joints for Solar Parabolic Trough Collector Systems

### Ball Joint Specifications

Rotational movement	: 0-360°
Flex Angle	: 10-30°
Torque	: Low torque
Material	: Stainless Steel, Carbon Steel

Ball joints are required for two configurations of solar receiver pipes.

### Configuration-I

Pressure range	: 0-40 bar
Temperature range	: 50-400 °C
Outer diameter	: $73 \pm 0.5$ mm
Inner diameter	: $67 \pm 0.5$ mm
Length	: 4660 mm
Receiver material	: SS304L/SS316L
Working fluid	: Thermic fluid

### Configuration-II

Pressure range	: 0-40 bar
Temperature range	: 50-400 °C
Outer diameter	: $60 \pm 0.5$ mm
Inner diameter	: $54 \pm 0.5$ mm
Length	: 13500 mm
Receiver material	: SS304L/SS316L
Working fluid	: Water-Steam

### Quantity Required

Minimum: 2 (for each configuration)

Maximum: 10 (for each configuration)