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प्लाज्मा अनुसंधान संस्थान
INSTITUTE FOR PLASMA RESEARCH
परमाणु ऊर्जा विभाग, भारत सरकार का एक सहायता प्राप्त
संस्थान
An Aided Institute of Department of Atomic Energy,
Government of India



इन्दिरा पुल के पास, भाट, गांधीनगर - 382 428 भारत
दूरभाष: (079) 2396 2020/2021/2028
फैक्स: 91-079-23962277
वेब: www.ipr.res.in

NEAR INDIRA BRIDGE, BHAT
DIST. GANDHINAGAR - 382 428 (INDIA)
Phone: (079) 2396 2020/2021/2028
Fax : 91-079-23962277
Web : www.ipr.res.in

ENQUIRY

ENQUIRY NO : IPR/EQL/18-19/145
Date : 01-08-2018

Due on : 30-08-2018 by 1:00 PM IST

Please send your offer in sealed envelope specifying Enquiry No, Date & Due Date, ALONG WITH your credentials for the following items:

Important Note:

Please note that e-mail quotations are not acceptable however you may send your queries (if any) to localpurchase@ipr.res.in

Please ensure your sealed quotation reaches this office not later than above mentioned due date and time.

Kindly go through the following documents properly before quoting which are available on the IPR web portal i.e., http://www.ipr.res.in/documents/tender_terms.html / attached herewith.

- 1) Instructions to the bidders & Terms and conditions (refer Form No: **IPR-LP-01.V4**)
- 2) Bidding format

GST for Goods and Services (IGST/CGST/SGST TAX BENEFITS): Please refer **clause no: 8** of Form No: **IPR-LP-01.V4**

QUOTATION SHOULD BE ADDRESSED TO PURCHASE OFFICER ONLY

Sr No	Description	Quantity
1	High-Temperature compatible Vortex Flowmeter (Oil application)	1.0 Nos.

Note: Please quote with complete technical details (Technical compliance sheet and product data sheet).

Encl: As per attachment.

Sd/-

Mr. D. Ramesh
Purchase Officer-II

Information to Vendors: We are working towards a single platform for our future requirement. Hence, please refer IPR website i.e., <http://www.ipr.res.in/documents/tenderseng.html> for our future requirement.

Technical specifications for **High-Temperature compatible Vortex Flowmeter (Oil application)**

Process Details for flowmeter sizing:

1. Fluid/Phase:	Therminol-55 (Oil)/Liquid
2. Fluid density:	672 kg/m ³ at 300°C
3. Fluid viscosity:	0.334 cP at 300°C
4. Line Size & Schedule:	25 NB, 40S
5. Design Pressure:	7 bar (g)
6. Oil flow-rate:	20 – 100 lpm
7. Operating Pressure:	5 bar (g)
8. Operating Temperature:	Upto 300°C
9. Ambient Conditions:	10°C - 50°C and upto 95% RH

Meter body/Sensor:

10. Measuring principle:	Vortex shedding based flow-rate measurement
11. Process Connection/Rating:	1-inch, Class 150 Flange (ASME B16.5)
12. Over-pressure Limit:	Atleast 1.5 times the Design pressure

Flow Transmitter:

13. Transmitter type:	2-wire, Smart electronics type
14. Measured Parameter:	Volumetric flow-rate
15. Transmitter Mounting:	Integral or Remote

Material of Construction:

16. Process Connection:	SS-316/316L
17. Shedder bar/Bluff Body:	SS-316/316L
18. Flow meter line:	SS-316/316L
19. Meter Housing/Body:	Stainless Steel
20. Meter Enclosure Rating:	IP-65 or better
21. Transmitter Enclosure:	Die-cast Aluminium
22. Transmitter Enclosure Rating:	IP-65 or better

Performance Requirements:

23. Transmitter Calibrated Span:	20 – 100 lpm related to 4-20 mA
24. Measurement Accuracy:	Within ±1% of actual flowrate (including hysteresis, linearity and repeatability)
25. Display:	Digital Indication
26. Display Parameters:	Flow-rate Value and Engineering Units (English language)
27. Output Signal:	4-20 mA DC over calibrated span
28. Current Limit:	30 mA Max. (Over-range condition)
29. Span adjustments:	Required
30. Power Supply:	24±10% VDC

Note: Vendor shall provide following documents for offered flowmeter at the time of bidding:

- a) Model Number.
- b) Ordering information chart.
- c) Dimensional schematic.
- d) Detailed sizing-sheet mentioning measurement accuracy and pressure drop over the calibrated span.

Test Reports:

- a) **Calibration Report:** Instrument calibration is required at 3-points within the required Calibrated span (where the calibrated span is as mentioned at Sr. No. 23). Measurement accuracy at all three calibration points shall be verified to be within $\pm 1\%$ of actual flowrate (including hysteresis, linearity and repeatability). Calibration test report/certificate shall be submitted to IPR along with the instrument.
- b) **Hydrostatic/Pressure Test:** Hydrostatic/Pressure test shall be performed for the instrument with 1.5 times the design pressure (where the design pressure is as mentioned against Sr. No. 5). There shall be no visible leakage or permanent deformation of any part. On completion of the test, the liquid used for the test shall be completely removed from the flowmeter assembly. Hydrostatic test report/certificate shall be submitted to IPR along with the instrument.
- c) **Material Test Certificate:** Material test certificate for all wetted parts (Sr. No. 16, 17 and 18) shall be submitted to IPR along with the instrument.

Packaging and Shipping:

The vendor shall make adequate provision to protect the equipment, supplied to this specification, to ensure that on arrival at IPR premises, the equipment will not have suffered corrosion or damage of any sort. In particular, various ports of the fluids of measurement shall be plugged suitably prior to shipment.

Delivery:

Product shall be delivered within 20 weeks from the date of purchase order.

Warranty:

The vendor shall provide a guarantee/warranty of minimum 1 (one) year for the above equipment.

Operation and Maintenance Manual:

Printed copy of operation manual, installation guidelines, wiring diagrams and relevant information brochure must be supplied for the equipment along with the consignment.

Compliance Form			
S.No.	Particulars	IPR Requirements	Vendor's Specification
Process Details for flowmeter sizing			
1	Fluid/Phase	Therminol-55 (Oil)/Liquid	
2	Fluid density	672 kg/m3 at 300°C	
3	Fluid viscosity	0.334 cP at 300°C	
4	Line Size & Schedule	25 NB, 40S	
5	Design Pressure	7 bar (g)	
6	Oil flow-rate	20 – 100 lpm	
7	Operating Pressure	5 bar (g)	
8	Operating Temperature	Upto 300°C	
9	Ambient Conditions	10°C - 50°C and upto 95% RH	
Meter body/Sensor			
10	Measuring principle	Vortex shedding based flow-rate measurement	
11	Process Connection/Rating	1-inch, Class 150 Flange (ASME B16.5)	
12	Over-pressure Limit	Atleast 1.5 times the Design pressure	
Flow Transmitter			
13	Transmitter type	2-wire, Smart electronics type	
14	Measured Parameter	Volumetric flow-rate	
15	Transmitter Mounting	Integral or Remote	
Material of Construction			
16	Process Connection	SS-316/316L	
17	Shedder bar/Bluff Body	SS-316/316L	
18	Flow meter line	SS-316/316L	
19	Meter Housing/Body	Stainless Steel	
20	Meter Enclosure Rating	IP-65 or better	
21	Transmitter Enclosure	Die-cast Aluminium	
22	Transmitter Enclosure Rating	IP-65 or better	
Performance Requirements			
23	Transmitter Calibrated Span	20 – 100 lpm related to 4-20 mA	
24	Measurement Accuracy	Within $\pm 1\%$ of actual flowrate (including hysteresis, linearity and repeatability)	
25	Display	Digital Indication	
26	Display Parameters	Flow-rate Value and Engineering Units (English language)	
27	Output Signal	4-20 mA DC over calibrated span	
28	Current Limit	30 mA Max. (Over-range condition)	
29	Span adjustments	Required	
30	Power Supply	24 $\pm$ 10% VDC	
31	Documents to be submitted at the time of bidding	Vendor shall provide following documents for offered flowmeter at the time of bidding: a) Model Number. b) Ordering information chart. c) Dimensional schematic. d) Detailed sizing-sheet mentioning measurement accuracy and pressure drop over the calibrated span.	

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	a) Calibration Report	Instrument calibration is required at 3-points within the required Calibrated span (where the calibrated span is as mentioned at Sr. No. 23). Measurement accuracy at all three calibration points shall be verified to be within $\pm 1\%$ of actual flowrate (including hysteresis, linearity and repeatability). Calibration test report/certificate shall be submitted to IPR along with the instrument.	
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33	Packaging and Shipping	The vendor shall make adequate provision to protect the equipment, supplied to this specification, to ensure that on arrival at IPR premises, the equipment will not have suffered corrosion or damage of any sort. In particular, various ports of the fluids of measurement shall be plugged suitably prior to shipment.	
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Bidder's Sign with Official Stamp