IMPORTANT NOTE

BID DOCUMENT HAS BEEN DISPLAYED BELOW TO UNDERSTAND THE REQUIRMENT ONLY. PARTIES INTERESTED TO PARTICIPATE AGAINST THIS TENDER SHALL HAVETO PURCHASE THE TENDER DOCUMENT FROM ANY OF OIL'S DESIGNATED OFFICES MENTIONED IN THE TENDER NOTIFICATION GIVEN BELOW. PROOF OF PURCHASE OF TENDER DOCUMENT MUST BE SUBMITTED ALONGWITH THE OFFER FAILING WHICH OFFERS WILL BE TREATED AS UNSOLICITED.

OIL INDIA LIMITED
(A Govt. Of India Enterprise) Tel :033 2230 1657, 1658
4, India Exchange Place, Fax :91 33 2230 2596
Kolkata-700001 E-mail :oilcalmn@cal2.vsnl.net.in

Tender No. & Date : KID7441P08/02 05.12.2007

Tender Fee : INR 1,000.00
Bid Security Amount : INR 0.00

Bidding Type : Single Bid (Composite Bid)

Bid Closing On : 29.01.2008 at 13:00 hrs. (IST)
Bid Opening On : 29.01.2008 at 13:00 hrs. (IST)

Performance Guarantee : Not Applicable

OIL INDIA LIMITED invites Press tenders for items detailed below:

Item No./ Mat. Code	Material Description	Quantity	UOM
10 99057583	MASS FLOWMETERS FOR LPG PLANT ---------- Mass Flowmeter: Condensate Measurement Preamble: The Mass Flow meter will be used for measuring the Condensate oil flow from LPG recovery plant. It will be mounted at Condensate oil dispatch outlet in the LPG recovery plant. It will consist of a sensor which will be mounted directly on the Condensate oil dispatch line and a Transmitter which will be installed in the field near the sensor with an interactive display unit along with the transmitter. The readings are to be locally displayed as well as transmitted to the control room for display at the DCS in control room. Specifications for SENSOR 1.00 Measuring principle: Coriolis(Should be able to measure Mass, Density and Temperature Directly) 1.01 Tube geometry: Curved, Twin 'U' tube. 1.02 Type of tube: Seam less (from end to end) 1.03 Maximum tube pressure: Should be as per flow tube rating but should not be less than 100kg/cm2. 1.04 Mounting: Directly on pipe. 1.05 Tube material: SS 316L 1.06 Process fluid: Natural gas condensate liquid Process fluid characteristics: 2.01 Water content: Nil 2.02 Wax content: Nil 2.03 Asphaltene content:Nil 2.04 Specific Gravity: 0.6770 at 60DEGREE F 2.05 Pour point:-33 DEGREE C 2.05 Viscosity: Not available 2.06 Operating pressure: 9.5 - 10 Kg/cm2	1	PC

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	2.07 Operating temperature: 30-50 DEGREE 2.08 Density: 0.67 to 0.68 at 15 DEGREE C 2.10 Maximum pressure: 11 Kg/cm2 2.11 Maximum Flow rate: 100 TPD (Tonnes per day) 2.12 Nominal Flow rate: 60 to 70 TPD (Tonnes per day) 2.14 Minimum Flow rate: 0 TPD (Tonnes per day) Process pipe line characteristics: 3.00 Size: 2 inch MOC: CS (Carbon steel 3.01 Vibration: Minimum 3.02 Mass Flow accuracy: better than ± 0.2% of rate 3.03 Mass flow repeatability: ± 0.05% of rate 3.04 Density accuracy: ± 0.0005 gm/cc or better 3.05 Density repeatability: ± 0.0002 gm/cc 3.06 Temperature accuracy: ± 10 DEGREE C 3.07 Temperature repeatability: ± 0.20 DEGREE C 3.08 Pressure drop at maximum flow rate: not more than 0.5 Kg per cm. sq. 3.09 Flow tube rating:100 Kg per sq.cm (minimum) 3.10 Housing rating: To be designed to suit process fluid characteristics. 3.11 Material of construction: SS 316 3.12 MOC of Housing: SS 304 3.13 Sensor size: 2 inch 3.14 Hazardous Area classification: Suitable to Zone 1, Group IIA and IIB 3.15 Approval:Should be approved by DGMS For operating in Zone 1,Group IIA/ IIB area. 3.16 Electrical jacketing (if required):To be provided to Maintain the sensor at room temperature 3.17 Lightning & surge protection: To be suitably provided 3.18 Process End connection: Flanged (2 Inch ANSI 300 3.19 Class RF Flanged with 1Pair metal Gasket, (size-50mm) 3.20 Flange to Flange distance: Bidder to specify. 3.21 Height of housing from centre of the sensor tube:Bidder to specify. Specifications for Transmitter 4.00 Technology: Integral type, Electronic,Remote type microprocessor based/Coriolis based system. 4.01 Outputs: a) 2 Nos of 4-20 mA(Independent)should be user configurable For either mass flow rate,totalized mass flow or density. b) 1 No RS485 Modbus signal c) Nos Discrete Outputs configurable for HI/LOW alarm, error diagnostics, flow direction etc. 4.02 Two nos. discrete digital inputs configurable for transmitter zeroing, totaliser reset etc. 4.03 1 frequency or pulse output, 0-10000 HZ, configurable for mass, totalized mass, volume or totalized volume outputs for integration purpose. 4.04 1 No RS 232 (For Local Printer) 4.05 Digital Protocol : HART 4.06 Output parameters : Volumetric flow rate 4.07 Mass Flow rate 4.08 Density		

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	4.09 Temperature 4.10 Totalized flow with reset option 4.11 Display unit: Back lit LCD with Keypad membrane switch, Of pushbuttons with tactile, Feedback. Display should have minimum 4 lines to display instateneous flow rate,density, temperature,totalized flow((mass flow rate,density(or temperature) with selectable engineering units & totalized flow simultaneously). 4.12 Type of display: Interactive 4.13 Display features: View all process variables 4.14 View and acknowledge alarms 4.15 Self diagnostic features: empty pipe detection, slug flow detection, temperature limit detection, auto zero event history. 4.16 Enclosure : NEMA 4 (As the Transmitter is required to be installed in the field near the sensor, it should be approved by DGMS for operating in Zone 1, Group IIA/IIB area) 4.17 Material of construction: Cast Aluminium Housing 4.18 Power supply: 24V DC 4.19 Electrical connection: ½#NPT Male for both power & Signal cables. 4.20 Cable: Interconnecting cable between transmitter & sensor to be provided. length should be 200metres. 4.21 Ambient temperature limits: 0 - 50 Degree C 4.22 Lightning & Surge protection: To be suitably provided 4.23 Additional feature : To remediate gas bubbles (if any) as they pass through the sensor 5.00 Enclosure Mounting: The enclosure which contains theTransmitter/Display unit will have to be mounted in the field. Necessary arrangements along with mounting brackets have to be supplied. Preferably the enclosure should come with arrangements for 2 inch pipe mounting. 6.0 Wet calibration: Wet calibration will have to be demonstrated to OIL engineers at NABL approved flow calibration laboratory preferably, FLUID CONTROL RESEARCH INSTITUTE, PALAKKAD & necessary certificates will have to be provided along with the materials. 7.00 Hydro testing: Hydro testing of the offered sensor to be carried out at flow tube rating pressure & necessary certificates will have to be provided along with the materials.		
20 99057584	Mass Flowmeter for LPG Measurement of Carousel Filing Line Preamble: The Mass Flow meter is intended to be used for measuring the LPG flow from LPG bullets to LPG filling plant. It will be mounted at the 4 inch LPG dispatch outlet (carousel filling line). The meters will consist of a sensor which will be mounted directly on the respective pipe lines and a Transmitter which will be installed in the field near the sensor with an interactive display unit along with the transmitter. The readings are to be locally displayed as well as at the DCS located at the Control Room at a distance of 350 meters away.	1	PC

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	Specifications for SENSOR 1.00 Measuring principle: Coriolis (Should be able to measure Mass, Density and Temperature Directly) 1.01 Tube geometry: Curved, Twin 'U' tube 1.02 Type of tube: Seam less (from end to end) 1.03 Maximum tube pressure: Should be as per flow tube rating but should not be less than 100 kg per sq.cm. 1.04Mounting: Directly on pipe. 1.05 Tube material: SS 316L 1.06 Process fluid: LPG Process fluid characteristics: 2.00 Water content: Nil 2.01 Wax content : Nil 2.02 Asphaltene content: Nil 2.03 Specific Gravity: 0.538 t0 0.6 2.04 Pour point : Not available 2.05 Viscosity: 0.9cps 2.06 Operating pressure: 12 - 20 Kg/cm2 2.07 Operating temperature : 30-50 DEGREE C 2.08 Density: 0.538 t0 0.6 2.09 Maximum pressure: 25 Kg per sq. cm.2.10 Maximum Flow rate: 30 TPH (Tonnes per hour) 2.11 Nominal Flow rate: 20 TPH (Tonnes per hour) 2.12 Minimum Flow rate: 0 TPH (Tonnes per hour) Process pipe line characteristics: 3.00 Size: 4 inch for first meter (carousel filling line) 3.01 MOC: CS (Carbon steel) 3.02 Vibration: Minimum 3.03 Mass Flow accuracy: better than ± 0.2% of rate 3.04 Mass flow repeatability: ± 0.05% of rate 3.05 Density accuracy : ± 0.0005 gm/cc or better 3.06 Density repeatability: ± 0.0002 gm/cc 3.07 Temperature accuracy: ± 10 DEGREE C 3.08 Temperature repeatability: ± 0.20 DEGREE C 3.09 Pressure drop at maximum flow rate: not more than 0.5 Kg/cm2 3.10 Flow tube rating: 100 Kg/Cm2 (minimum) 3.11 Housing rating: To be designed to suit process fluid characteristics. 3.12 Material of construction: SS 316 3.13 MOC of Housing: SS 304 3.14 Sensor size: 4 inch for first meter (carousel filling line) 3.15 Hazardous Area classification: Suitable to Zone 1, Group IIA/ IIB 3.16 Approval: Should be approved by DGMS For operating in Zone 1, Group IIA/ IIB area. 3.17 Electrical jacketing (if required):To be provided to maintain the sensor at room temperature. 3.18 Lightning & surge protection: To be suitably provided 3.19 Process End connection: Flanged (2 Inch ANSI 300 Class RF Flanged		

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	with 1Pair metal Gasket, size-50mm) 3.20 Flange to Flange distance: Bidder to specify. 3.21 Height of housing from the: Bidder to specify. Specifications for Transmitter 4.00 Technology : Integral type, Electronic, (Remote type) microprocessor based/Coriolis based system. 4.01 Outputs: A) 2 Nos of 4-20 mA(Independent) and user configurable for either mass flow rate, totalized mass flow or density. B) 1 No RS485 Modbus signal C) 3 Nos Discrete Outputs configurable for HI/LOW alarm, error diagnostics, flow direction etc. 4.02 2 nos. discrete digital inputs configurable for transmitter zeroing, totaliser reset etc. 4.03 1 frequency or pulse output, 0-10000HZ, configurable for mass, totalized mass, volume or totalized volume outputs for integration purpose. 1 No RS232 (For Printer) 4.04 Digital Protocol: HART 4.05 Output parameters: Volumetric flow rate, Mass Flow rate, Density Temperature, Totalized flow with reset Option 4.06 Display unit: Back lit LCD with Keypad membrane switch Of pushbuttons with tactile Feedback. Display should have minimum 4 lines to display instateneous flow rate,density,temperature,totalized flow((mass flow rate,density(or temperature) with selectable engineering units & totalized flow simultaneously). 4.07 Type of display: Interactive 4.08 Display features: View all process variables, View and acknowledge alarms 4.09 Self diagnostic features: Empty pipe detection, slug flow detection, temperature limit detection, auto zero event history. 4.10 Enclosure: NEMA 4 4.11 Approval: DGMS for operating in Zone 1, Group IIA/IIB area 4.12 Material of construction: Cast Aluminium Housing 4.13 Power supply: 24V DC 4.14 Electrical connection : half inch Male for both power Output Signal cables. 4.15 Cable: Interconnecting cable between transmitter & sensor to be provided. length should be 200metres. 4.16 Ambient temperature limits : 0 - 50 Degree C 4.17 Lightning & Surge protection : To be suitably provided 4.18 Additional feature: To remediate gas bubbles (if any) as they pass through the sensor. 5.00 Enclosure Mounting: The enclosure which contains the Transmitter/Display unit will have to be mounted in the field. Necessary arrangements along with mounting brackets have to be supplied. Preferably the enclosure should come with arrangements for 2 inch pipe mounting. 6.00 Wet calibration:Wet calibration will have to be demonstrated to OIL engineers at NABL approved flow calibration laboratory, preferably FLUID CONTROL RESEARCH INSTITUTE, PALAKKAD & necessary certificates		

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Item No./ Mat. Code	Material Description	Quantity	UOM
	will have to be provided along with the materials. 7.00 Hydro testing: Hydro testing of the offered sensor to be carried out at flow tube rating pressure & necessary certificates will have to be provided along with the materials.		
30 99057585	Mass Flowmeter for LPG Measurement at Carousel Return Line Preamble: The Mass Flow meter is intended to be used for measuring the LPG flow from the carousel to the LPG bullets. It will be mounted at the 2 inch carousel return line. The meters will consist of a sensor which will be mounted directly on the respective pipe lines and a Transmitter which will be installed in the field near the sensor with an interactive display unit along with the transmitter. The readings are to be locally displayed as well as transmitted to the DCS at the control room located at a distance of 350 meters from place of installation. Specifications for SENSOR 1.00 Measuring principle: Coriolis (Should be able to measure Mass, Density and Temperature Directly) 1.01 Tube geometry: Curved, Twin 'U' tube 1.02 Type of tube: Seam less (from end to end) 1.03 Maximum tube pressure: Should be as per flow tube rating but should not be less than 100 kg per sq.cm. 1.04Mounting: Directly on pipe. 1.05 Tube material: SS 316L 1.06 Process fluid: LPG Process fluid characteristics: 2.00 Water content: Nil 2.01 Wax content : Nil 2.02 Asphaltene content: Nil 2.03 Specific Gravity: 0.538 to 0.6 2.04 Pour point : Not available 2.05 Viscosity: 0.9 cps 2.06 Operating pressure: 12 - 20 Kg/cm2 2.07 Operating temperature : 30-50 DEGREE C 2.08 Density: 0.538 to 0 0.6 2.09 Maximum pressure: 25 Kg/cm2 2.10 Maximum Flow rate: 30 TPH (Tonnes per hour) 2.11 Nominal Flow rate: 20 TPH (Tonnes per hour) 2.12 Minimum Flow rate: 0 TPH (Tonnes per hour) Process pipe line characteristics: 3.00 Size: Two inch. 3.01 MOC: CS (Carbon steel) 3.02 Vibration: Minimum 3.03 Mass Flow accuracy: better than ± 0.2% of rate	1	PC

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Item No./ Mat. Code	Material Description	Quantity	UOM
	3.04 Mass flow repeatability: ± 0.05% of rate 3.05 Density accuracy : ± 0.0005 gm/cc or better 3.06 Density repeatability: ± 0.0002 gm/cc 3.07 Temperature accuracy: ± 10 DEGREE C 3.08 Temperature repeatability: ± 0.20 DEGREE C 3.09 Pressure drop at maximum flow rate: not more than 0.5 Kg/cm2 3.10 Flow tube rating: 100 Kg/Cm2 (minimum) 3.11 Housing rating: To be designed to suit process fluid characteristics. 3.12 Material of construction: SS 316 3.13 MOC of Housing: SS 304 3.14 Sensor size: Two inch 3.15 Hazardous Area classification: Suitable to Zone 1, Group IIA/ IIB 3.16 Approval: Should be approved by DGMS For operating in Zone 1, Group IIA/ IIB area. 3.17 Electrical jacketing (if required):To be provided to maintain the sensor at room temperature. 3.18 Lightning & surge protection: To be suitably provided 3.19 Process End connection: Flanged (2 Inch ANSI 300 Class RF Flanged with 1Pair metal Gasket, size-50mm) 3.20 Flange to Flange distance: Bidder to specify. 3.21 Height of housing from the centre of the sensor tube: Bidder to specify. Specifications for Transmitter 4.00 Technology : Integral type, Electronic, (Remote type) microprocessor based/Coriolis based system. 4.01 Outputs: A) 2 Nos of 4-20 mA(Independent) and user configurable for either mass flow rate, totalized mass flow or density. B) 1 No RS485 Modbus signal C) 3 Nos Discrete Outputs configurable for HI/LOW alarm, error diagnostics, flow direction etc. 4.02 2 nos. discrete digital inputs configurable for transmitter zeroing, totaliser reset etc. 4.03 1 frequency or pulse output, 0-10000HZ, configurable for mass, totalized mass, volume or totalized volume outputs for integration purpose. 1 No RS232 (For Printer) 4.04 Digital Protocol: HART 4.05 Output parameters: Volumetric flow rate, Mass Flow rate, Density Temperature, Totalized flow with reset Option 4.06 Display unit: Back lit LCD with Keypad membrane switch Of pushbuttons with tactile Feedback. Display should have minimum 4 lines to display instateneous flow rate,density,temperature,totalized flow((mass flow rate,density(or temperature) with selectable engineering units & totalized flow simultaneously). 4.07 Type of display: Interactive 4.08 Display features: View all process variables, View and acknowledge alarms 4.09 Self diagnostic features: Empty pipe detection, slug flow detection, temperature limit detection, auto zero event history. 4.10 Enclosure: NEMA 4 4.11 Approval: DGMS for operating in Zone 1, Group IIA/IIB area 4.12 Material of construction: Cast Aluminium Housing		

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Item No./ Mat. Code	Material Description	Quantity	UOM
	4.13 Power supply: 24V DC 4.14 Electrical connection : half inch Male for both power Output Signal cables. 4.15 Cable: Interconnecting cable between transmitter & sensor to be provided. length should be 200metres. 4.16 Ambient temperature limits : 0 - 50 Degree C 4.17 Lightning & Surge protection : To be suitably provided 4.18 Additional feature: To remediate gas bubbles (if any) as they pass through the sensor. 5.00 Enclosure Mounting: The enclosure which contains the Transmitter/Display unit will have to be mounted in the field. Necessary arrangements along with mounting brackets have to be supplied. Preferably the enclosure should come with arrangements for 2 inch pipe mounting. 6.00 Wet calibration:Wet calibration will have to be demonstrated to OIL engineers at NABL approved flow calibration laboratory, preferably FLUID CONTROL RESEARCH INSTITUTE, PALAKKAD & necessary certificates will have to be provided along with the materials. 7.00 Hydro testing: Hydro testing of the offered sensor to be carried out at flow tube rating pressure & necessary certificates will have to be provided along with the materials.		

Special Notes : BID REJECTION CRITERIA

THE BIDS MUST CONFORM TO THE SPECIFICATIONS AND TERMS & CONDITIONS GIVEN IN THE ENQUIRY. IN ADDITION, THE FOLLOWING REQUIREMENTS SHALL HAVE TO BE MET BY THE BIDDERS WITHOUT WHICH THE OFFER WILL BE CONSIDERED AS NON-RESPONSIVE AND THUS SUMMARILY REJECTED.

1. THE BIDDER SHALL BE THE ORIGINAL EQUIPMENT MANUFACTURER (OEM) OF THE MASS FLOW METER OR THE OEM'S AUTHORIZED AGENT.
(AUTHORIZATION LETTER FROM THE OEM HAS TO BE ENCLOSED WITH THE OFFER).

2. THE BIDDER SHOULD HAVE BEEN IN THE BUSINESS OF SUPPLY OF MASS FLOW METERS FOR A PERIOD OF AT LEAST 5 (FIVE) YEARS PRECEDING FROM THE BID CLOSING DATE. BIDDERS ARE REQUIRED TO PRODUCE THE DOCUMENTARY EVIDENCE FOR THE SAME.

3. THE BIDDER SHALL FURNISH ALONG WITH THE BID, THE INFORMATION CALLED FOR UNDER SPECIAL TERMS AND CONDITIONS.

BID EVALUATION CRITERIA

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1. THE BIDS CONFORMING TO THE SPECIFICATIONS, TERMS AND CONDITIONS STIPULATED IN THE ENQUIRY AND CONSIDERED TO BE
RESPONSIVE AFTER SUBJECTING TO THE BID REJECTION CRITERIA WILL BE CONSIDERED FOR FURTHER EVALUATION.

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2. ALL MATERIALS AS INDICATED IN THE ITEM DESCRIPTION OF THE ENQUIRY SHOULD BE OFFERED. IF ANY OF THE ITEMS ARE NOT OFFERED BY THE BIDDERS, THE OFFER WILL NOT BE CONSIDERED FOR EVALUATION AND SHALL BE SUMMARILY REJECTED.

GENERAL CONDITIONS:
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1. The Bid must be submitted in a tabular form point-wise stating the NIT vs offered specification. The offered specifications must be substantiated by printed catalog and/or website.

2. The equipment has to be guaranteed against manufacturing defects for a minimum period of 12 months from the date of Commissioning.

3.Relevant technical literature has to be provided along with the quotation without which the offer shall be rejected.

4. The supplier has to provide Flow meter sizing table, meter mounting drawing with exact dimensions to carry out necessary piping modifications along with the offer.

5. The supplier has to confirm the performance of the Flow meter for minimum vibration levels mentioned in the specifications.

6. The Flow meters shall be inspected at supplier works by OIL engineers. The supplier has to arrange for hydraulic test of the Flow meter in presence of OIL engineers.

7. Instrument Engineers of OIL will have to be trained at the supplier works on the operation and maintenance aspects of the system during inspection of material.

8. The calibration of the Flow meter has to be verified including the vibration test at Fluid Control Research Institute, Palakkad in the presence of OIL engineers.

9. The mass flow meters will have to be installed & commissioned and performance observed and certified by OIL Engineers. The
commissioning charges, if any, has to be quoted separately
for the same.

10. The supplier has to provide 2 (TWO) sets of operation and maintenance manuals and Test certificates for each mass Flow meter along with the supply of material.