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COPY RIGHT AND CONFIDENTIAL THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.		PURCHASE SPECIFICATION FOR GUIDED WAVE RADAR TYPE LEVEL TRANSMITTERS								
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SECTION- A

GENERAL INSTRUCTIONS TO BIDDERS

- 3.1 Considering possibilities of change in requirement, i.e. addition & deletion of quantities for individual project BOM at a later date after system design finalisation, the vendor must clearly quote unit price as well as lot price for all items for indisputable calculations of lot prices in case of revised quantities later.
- 3.2 In case of quantity change, unit rates shall be applicable. However in case of item change for a project, if the required model is not available in the original offer, the unit price of another model, for the same range but with features having the closest similarity to the required one, quoted elsewhere in another variant or another group, shall be applicable.
- 3.3 Although transmitter are allowed to be indigenously assembled, calibrated & certified, but considering the fact that not yet any indigenous sensors & electronics are offered, site-proven and acceptable to most customers, the sensors and electronics should preferably be procured from vendors' own principals abroad..
- 3.4 Model selection is sole responsibility of vendor with clear understanding of specification requirement. Any change in basic model & accessories during technical evaluation shall not be allowed. In case of any doubt regarding the intent of specification technically, vendor shall interact with the purchaser & get the doubts clarified well before the due date of technical bid submission to minimize the deviation from spec. & the chances of rejection. Also any doubt is there in spec. for the parameters to be offered or not then same may be offered as alternate without any ambiguity.

SECTION- B

SCOPE OF SUPPLY:

B1 Following items are required to be supplied as per Specifications enclosed Section-D.

- Guided Wave Radar type level Transmitters (Apprx. Qty : 100Nos) with threaded process connection with 3" 300# SS welded flange / SS screw on flange are acceptable.
- Chamber (2" at sides for process connection & 3" at top for instrument connection)
- Suitable CS counter flange along with nuts, bolts & gaskets etc for each transmitter.
- Plug and socket – 01No for each transmitter.
- 3-Point calibration for Transmitters.

B2 OTHER REQUIREMENTS:

1. Documents to be furnished in the event of order, before manufacturing clearance/ dispatch clearance from BHEL of items:-
 - (i) Detailed BOM including all items. Data sheets / GA drawings and erection drawings / wiring diagram. These documents shall be submitted for approval, from end-user.
 - (ii) Test certificates / reports and calibration reports, for approval.
 - (iii) O & M manuals – 4 sets hardcopies (2 sets to BHEL-EDN & 2 sets with consignment to site). Also, a soft copy of O & M manual to be provided.

SECTION-C

A. TECHNICAL REQUIREMENT FOR GUIDED WAVE RADAR TYPE LEVEL TRANSMITTERS:

- 1.1 Type : Guided wave Radar (Microprocessor based)-coaxial type.
- 1.2 Wave guide : SS Rod – probe shall be suitable for over fill prevention.
- 1.3 Principle of operation : TDR (Time Domain Reflectometry)

These instruments will be used for level measurement of level, having medium as oil at not very high pressure conditions. The temperature requirements as listed in BOM are to be met taking care of safety factors with contingency.

- a) Guided wave radar transmitter shall be used for LPH and Hot well level measurements as per BOM attached.
- b) The Radar type level instrument shall be microprocessor based and shall use digital signal processing techniques for conditioning.
- c) Level instruments mounted in fixed roof type and floating roof shall be considered by supplier.
- d) Wetted part materials of the sensor shall be chemically compatible with the process media to avoid corrosion.
- e) Since medium is pure water /steam in hot well, hence wetted parts shall be of stainless steel.

- 1.4 Power supply : 24V DC
- 1.5 Output Signal : 4-20 mA DC (linear) along with superimposed digital signal on HART protocol signal suitable for over fill prevention as a standard feature.
- 1.6 Accuracy (combined) : +/-0.5% of calibrated span or minimum 5mm
- 1.7 Enclosure class : Weather proof corrosion resistant coating. Protection Class shall be IP-65.
- 1.8 Local Indicator : LCD Local indication shall be provided
- 1.9 Name plate : Suitable tag no name plate shall be engraved.
- 1.10 Process connection : 3" ANSI companion flange or threaded with screw on flange with nuts, bolts and gaskets (suitable for top connections)
- 1.11 Electrical connection : Plug and socket type.

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- 1.12 Accessories : The transmitters are mounted on top of the chamber, same should be weld neck SS flanges taking care of complete mounting accessories like suitable CS counter flanges, gaskets, nuts, & bolts etc. for connection. Flange rating shall be 300#.
2. Design of Transmitters shall be in compliance with the Electromagnetic compatibility requirement as per EN 61326-1 (1997) and AmdtA1, class A equipment/EN50081-2 & EN 5008 1-2 & EN 50082-2 "Electromagnetic compatibility for industrial process measurement and control equipment".
3. The offered model DDL (Device Driver list) shall be registered in HART foundation, for device operable by universal HART communicator & HMS system. These HMS & HART communicator are being procured by BHEL separately. If this technicality is not met, the offer will be technically rejected.
- 4. Special Requirement:**
- 3-Point calibration for Transmitters.
- 5. Packing :**
- The materials shall be properly packed to ensure that it is capable of withstanding transit risks. Following details shall be marked on packing case
- Manufacturer's name
 - BHEL purchase order
- B.** Bidder shall furnish with the offer Clause-wise compliance / deviation list. This is must for evaluating the offer.