

111578/2020/PE&SD-001-C-

PY 56437

REV 00

Page 1 of 6

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PRODUCT STANDARD
PROJECT ENGINEERING & SYSTEMS DIVISION
HYDERABAD

Specification for Level Switch

1. SCOPE

This technical specification covers the Design, Engineering, Manufacturing, Assembly, testing at vendor works, inspection by purchaser, packing and transportation to site with necessary documentation like data sheets, statutory approvals, O&M manuals etc., as required for Magnetic type level gauges.

2. SCOPE of SUPPLY – As per enquiry and variant table of this specification

3. Proven Track Record

The items being offered as per specification should be operating satisfactorily in captive power plant applications / hydrocarbon industries like Refinery, Petrochemical and gas processing plants under similar process conditions for at least 4000 Hours. The above criteria shall be applicable to main equipment, sub- components as well as bought out items if any.

Vendor shall submit necessary supporting documents / past users confirmation supporting to above PTR requirements .

If offered instruments / equipments are supplied to BHEL PE&SD within last 5 years, above PTR clause is not applicable.

4. INSTRUCTIONS TO BIDDERS

- 4.1 Bidders are advised to contact BHEL for essential technical queries in writing within one week of issue of Enquiry. Offers with incomplete information will not be considered for evaluation, and are likely to be rejected outright without any further interaction with the Bidder.
- 4.2 Unsolicited requests from bidders for alterations to their already submitted offer will not be entertained. These would not be taken cognizance, and offers will be evaluated without taking into account such requests/correspondence.
- 4.3 Any technical features [over & above BHEL enquiry specification requirements] proposed by Bidder will not be given preference for the purpose of evaluation.
- 4.4 In the event of any conflict between these specifications, data sheets, related standards, codes etc. the vendor shall refer the matter to the purchaser for clarifications and only after obtaining the same shall proceed with the manufacture of the items in question.
- 4.5 Bidders are advised to comply to specifications in total, unless the requirement is not feasible. In case feasible deviations are proposed by the bidder and subsequently withdrawn, no commercial implications can be claimed by the bidder.
- 4.6 In case of any queries on the Technical matters, Bidder shall contact BHEL, within 3 days of receipt of Enquiry for seeking clarifications. This will not be used for extending bid submission due date. No queries will be entertained after Bid submission is completed.

Ref. Doc

Revision :00

Refer Record of Revisions

Prepared :

VINEET

Approved :

SUJATHA

Date :

28.07.18

111578/2020/P/EST/450

C-

PRODUCT STANDARD

PY 56437

Form No.



HYDERABAD

PROJECT ENGINEERING & SYSTEMS DIVISION

HYDERABAD

REV. 00

Page 2 of 6

5. CHECK LIST (To be filled by BIDDER and submitted along with Technical offer)

Vendor shall submit the following documents mandatorily as part of COMPLTE technical offer.

Enquiry No. / Date :

Name of the Bidder :

Project Name :

Item Description :

S. No	Document	Supplier confirmation (Yes/No)	Remarks
1	Technical offer complies with the specifications in Toto and there are no technical deviations		
2	In case of deviation, vendor to confirm that these are technically not feasible deviations and same are submitted in BHEL format . In case technically feasible deviations are proposed by the bidder and subsequently withdrawn, <u>no commercial implications can be claimed by the bidder</u>		
3	All items are manufactured confirming to latest version of material grade standard and manufacturing standard mentioned in this specifications		
4	Material packing is confirmed as per cl. 12 of this specification		
5	Inspection & testing requirements are complied as per individual data sheets of this specifications		
6	Unpriced Price schedule as per BHEL price format is submitted		
7	For addition/reduction of quantity, unit rate quoted in the present offer shall be considered during ordering and shall be valid up to execution of the contract to the extent of $\pm 10\%$ of order Value.		

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Ref. Doc

(Bidder's Signature and stamp with date)

111578/2020/P-450 C-

PRODUCT STANDARD

PY 56437

PROJECT ENGINEERING & SYSTEMS DIVISION

REV. 00

HYDERABAD

Page 3 of 6

Form No.



HYDERABAD

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6. TECHNICAL REQUIREMENT- Technical requirements shall be as per Annexure-1 of this specification.

7. DOCUMENTATION

7.1 Information to be included with offer

Vendor shall make the offer in detail, with respect to every item of the Purchaser's specifications. Any offer not conforming to this shall be summarily rejected.

- a) Bill of materials
- b) Signed and stamped copy of enquiry technical specification,
- c) Proven Track record and reference list (if applicable)
- d) Unpriced price schedule (To be submitted compulsorily without fail)
- e) Technical catalogues.(of selected models)
- f) Deviation list, if any (as per "No deviation format" given in this specification).

7.2 Documentation submission within 2 weeks of placement of LOI (for approval by BHEL and / or BHEL's customer in 4 sets)

- a) Bill of materials with accessories
- b) Data sheets.
- c) Detail GA drawings
- d) Type tests, statutory certificates
- e) Comprehensive Quality Assurance plan (QAP).
- f) *All vendor documents and its sub-items shall be submitted to Customer / Consultant for approval during order execution (if applicable). Any comment furnished by Customer / Consultant / BHEL shall be taken care by vendor during ordering execution.*
- g) Further BHEL will provide comments on vendor submitted document within 07 working days for revision & resubmission. Vendor shall follow up with BHEL for non-receipt of comments/approvals.
- h) Revised drawings / Documents shall be submitted by Bidder in 07 days of receipt of comments / observations from BHEL. BHEL shall revert within 7 days on receipt of these revised documents / drawings from vendor for approvals.
- i) All the approvals required for manufacturing shall be completed within 1 month from P.O to meet the P.O delivery schedule. Accordingly vendor shall ensure the submission of approval category documents (which are required for manufacturing) and obtain their approvals.
- j) Vendor shall obtain final approvals on all technical + quality aspect documents before inspection dates.
- k) It is vendor's responsibility to obtain approvals from BHEL as earliest as possible to meet PO delivery schedules. Accordingly vendor to plan and execute the supplies in time.

7.3 Documents to be submitted during final shop testing and before equipment dispatch. **(Note: submission of these documents are commercially linked)**

- a) Complete O & M manual – all in 16 sets (2 sets to be included with item dispatch and balance to BHEL purchase department).
- b) Approved Engg documents
- c) Guarantee and all test certificates for review and acceptance by BHEL and / or BHEL's Customer
2 sets of CD-ROM – containing **O&M manual and Engineering documents** (1 set to be included with item dispatch and balance to BHEL purchase department).

8. NAME PLATE

Each equipment shall have a 316 SS nameplate attached firmly to it at a visible place furnishing the following information:

- a) Instrument range & Tag number.
- b) Manufacturer's name and emblem.
- c) Manufacturer's model number.

9. SHIPPING

9.1 The equipment shall be transported to site by the vendor in fully assembled condition.

9.2 However, in case some of the components are likely to be damaged during transportation, the same shall be dismantled after inspection and supplied separately duly packed, same to be reassembled at site by the vendor without any commercial implications.

9.3 Each item shall be suitably wrapped in polythene sheets, packed in wooden crates, etc properly tagged and secured before dispatch.

9.4 The vendor shall send each consignment to site with a detailed packing list.

9.5 In case of imported/exported items, seaworthy packing shall be done as per specification no: AA00490004 (latest revision). This specification shall be obtained by vendor on request from BHEL.

9.6 *If mandatory spare items are ordered, same shall be sent in pre-decided lots in containers /secure boxes distinctly marked in Red color with boldly written "S" mark on each face of the containers /secure boxes.*

Ref. Doc

111578/2020/PE/STD-450

C-

PRODUCT STANDARD

PROJECT ENGINEERING & SYSTEMS DIVISION

HYDERABAD

PY 56437

REV. 00

Page 4 of 6

Form No.



HYDERABAD

Variant Table

Variant	Material Code	Description
00	PY9756437006	LEVEL SWITCH-MULTI LEVEL
01	PY9756437022	LEVEL SWITCH-SINGLE LEVEL

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Ref. Doc

111578/2020/PE/ST/450 C-

PRODUCT STANDARD

PROJECT ENGINEERING & SYSTEMS DIVISION

HYDERABAD

PY 56437

REV. 00

Page 5 of 6

Form No.

DEVIATION FORMATEnquiry No.:Item:Name of Bidder:Offer Ref. No.:

Sl. No.	Clause no. & Spec. no.	Description as per Specification	Deviation taken	Nature of Deviation	Remarks

NOTES:

1. Technical offer of the bidder will be evaluated only on the basis of Deviation Schedule. Deviation Schedule constitutes this sheet (with these Notes) duly signed and stamped.
2. Deviations, if any, shall be clearly brought out only in this format. Deviations mentioned / taken elsewhere or in any other format will be ignored.
3. Additional sheets in the same format can be attached by the vendor, if necessary.
4. Nature of Deviations shall only be of Design / Manufacturing constraints and non-availability of items / components / makes in market.
5. No price implications shall be entertained for deviations withdrawn during the technical scrutiny. If any deviations are accepted by BHEL during technical scrutiny then also there will be no price implication. Hence, in no case there will be consideration of Price implications.
6. Reasons for the deviations shall be specified in the Remarks column.
7. If there are no deviations from the specifications, bidder still has to submit the signed copy of this format by writing "NO Deviations" on this format.
8. If the "Deviation Schedule" is not submitted along with the offer, the bidder's offer is likely to be rejected without any further interaction with the bidder. Only the accepted deviations in conjunction with the original tender shall constitute the contract document for the award of job to the bidder

SIGNATURE OF THE BIDDER_____

NAME_____

DESIGNATION_____

DATE_____

COMPANY SEAL

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Ref. Doc

TD-106-3 Rev.No. 5 Form No.		PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD			PY 56435	
					Rev No. 00	
					Page 6 of 6	
RECORD OF REVISIONS						
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	00	28.07.2018	Original issue	-----	SUJATHA <i>Sujatha</i>	
	Ref. Doc.					

ANNEXURE-1

 HYDERABAD			PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD			Spec No.- PY56437 REV. 00 Sheet:1/2			
Technical Data Sheet for Level Switch-Multi level									
GENERAL	1	Qty.	As per enquiry			ACCESSORIES	18	Erection/Mounting Hardware	Required, to be provided by vendor
	2	Type	Float Type, Magnetic operated/Displacer type				19	Cable Glands	Double Compression SS304
	3	Function	Multilevel actuation(LL level=150mm, Low Level=300mm, High level=3300mm) from bottom of tank				20	Cable entry Plugs	Reqd, SS 304
	4	Mounting	Top Mounted				21	Tag Plate	Reqd, SS 304
	5	Service	On Hydropneumatic tank(water+ Air)				22	Bolts + Nuts	Reqd. A193GrB7 + A194Gr2H
	6	Max. Press / Temp	16Kg/cm ² / 60 °C				23		
	7	Tank height	5638mm				24		
SWITCH SPECIFICATION	8	Process Connection	4" 150#RF, MOC, Carbon steel			TEST REPORT/CERTIFICATE	25	Material compliance	100% Review
	9	Electrical Connection	1 Nos of 1/2" NPT (F)				26	Functional Test	100% Review
	10	Power Supply	24V DC				27	Ingress Prot. Test	100% Review
	11	Protection	IP 65				28	Visual & Dimension Check	100% Witness
	12	Float Material	SS316						
	13	Casing/Housing	Die cast Al						
	14	Switch type	Micro switch (DPDT)						
	15	No. of contact	3 nos. DPDT						
	16	Contact rating	5A, 240VAC						
	17								
NOTES:									
1	Vendor shall submit the consolidated BOM sheet along with accessories of instruments, finalised make /models of instruments, etc for approval.								
2	Tag list shall be furnished by BHEL after P.O. placement								
3	Vendor shall submit data sheet & GA dwg. Mounting arrangement for approval after P.O. placement.								

ANNEXURE-2

 HYDERABAD		PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD		Spec No.- PY56437 REV. 00 Sheet:2/2			
Technical Data Sheet for Level Switch-Single level							
GENERAL	1	Range & Qty.	As per enquiry	ACCESSORIES	18	Erection/Mounting Hardware	Required, to be provided by vendor
	2	Type	Float Type		19	Cable Glands	Double Compression SS304
	3	Function	Low level actuation only; 600mm from bottom of tank		20	Cable entry Plugs	Reqd, SS 304
	4	Mounting	Top Mounted		21	Tag Plate	Reqd, SS 304
	5	Service	On foam tank, Specific Gravity: 1-1.02		22	Bolts + Nuts	Reqd. A193GrB7 + A194Gr2H
	6	Max. Press / Temp	Atm. / 60 °C		23		
	7	Tank height	1800mm		24		
SWITCH SPECIFICATION	8	Process Connection	3" 150#RF, MOC: SS304	TEST REPORT/CERTIFICATE	25	Material compliance	100% Review
	9	Electrical Connection	1 Nos of 1/2" NPT (F)		26	Functional Test	100% Review
	10	Power Supply	24V DC		27	Ingress Prot. Test	100% Review
	11	Protection	IP 65		28	Visual & Dimension Check	100% Witness
	12	Float Material	SS316				
	13	Casing/Housing	Die cast Al				
	14	Switch type	Micro switch (DPDT)				
	15	No. of contact	1 nos. DPDT				
	16	Contact rating	5A, 240VAC				
	17						
NOTES:							
1	Vendor shall submit the consolidated BOM sheet along with accessories of instruments, finalised make /models of instruments, etc for approval.						
2	Tag list shall be furnished by BHEL after P.O. placement						
3	Vendor shall submit data sheet & GA dwg. Mounting arrangement for approval after P.O. placement.						