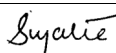
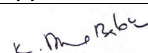


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<u>Specification for Flow Switch</u> 1. SCOPE This technical specification covers the Design, Engineering, Manufacturing, Assembly, testing at vendor works, inspection by purchaser, packing and transportation to site with necessary documentation like data sheets, statutory approvals, O&M manuals etc., as required for Flow switches. 2. INSTRUCTIONS TO BIDDERS 3.1 Bidders are advised to contact BHEL for essential technical queries in writing within one week of issue of Enquiry. 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 before bid submission and the decision of Purchaser shall be final & binding on Bidder, without any cost & delivery implications. In the event of conflict, most stringent requirements shall be followed in general. 3.2 Bidder shall mandatorily quote all the items as per enquiry. No deviation is acceptable. If any deviation taken on this aspect, then offer will be rejected without any intimation. Hence, bidder shall offer all the items considering the BHEL approved vendors. 3.3 Offers with incomplete information will not be considered for evaluation, and are likely to be rejected outright without any further interaction with the Bidder. 3.4 Any technical features [over & above BHEL enquiry specification requirements] proposed by Bidder will not be given preference for the purpose of evaluation. 3.5 Bidder shall submit the "Duly filled & Signed copy of Check list, specification, deviation format" compulsorily along with technical offer without which offer is liable for rejection without any further interaction with the Bidder 3. DESIGN VARIABLES to be provided after P.O. Placement / during drawing approval: Following variables to be finalized during drawing approval and vendor shall comply the same without any commercial implication: <table border="1"> <tr> <td>a) Tag No,Set point,,Calibration range</td> <td>:</td> <td>Shall be intimated after P.O. placement</td> </tr> </table>					a) Tag No,Set point,,Calibration range	:	Shall be intimated after P.O. placement
a) Tag No,Set point,,Calibration range	:	Shall be intimated after P.O. placement					
Revisions: Refer to record of revisions							
Prepared By:  Vineet Kumar		Checked By :  Sujatha S.		Approved :  Anand			
		Date : 21.08.2020					

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

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	Bidder confirmation (Yes/No)	Remarks
1	Technical offer complies with the specifications and its associated annexures, pre-bid clarifications in Toto and there are no technical deviations. Signed and stamped copy of this specification along with annexures enclosed along with technical offer.		
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 conforming to latest version of material grade standard and manufacturing standard mentioned in this specifications		
4	Bidder to quote as per BHEL price format only. No other format is acceptable. Bidder to attach un-priced price bid format by indicating "QUOTED" against each item and submit with technical offer duly signed & stamped.		
5	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 + 10% and -30% of order Value.		
6	Bidder to agree that Bill of materials / list of equipment furnished in the offer is only for information; Vendor shall supply all the material to meet the performance, sizing & technical requirement as per specification & its Annexures etc.		
7	All the equipments / items / etc., supplied by bidder are having valid statutory approval certificates and same will be produced at any stage of contract execution to BHEL. The same were eligible to take local statutory regulatory body approval during commissioning of the system		

(Bidder's Signature and stamp with date)

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DEVIATION FORMAT

Enquiry 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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COPYRIGHT 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.	5. TECHNICAL REQUIREMENTS: a) Technical requirements for various instruments are mentioned as “Annexure-[1] of this specification”. 6. 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) Duly filled & Signed copy of Check list b) Deviation list, if any (as per “No deviation format” given in this specification). If there are no deviations, bidders shall submit “Deviation format” by mentioning deviations “Nil”. c) Unpriced price schedule (To be submitted compulsorily without fail) d) Proven Track record and reference list (if applicable) e) Bill of materials (only for information) 7.2 Documentation submission within 2 weeks of placement of LOI (for approval by BHEL and / or BHEL’s customer in 4 sets) a) Consolidated BOM sheet along with accessories of instruments, finalized make /models of instruments, etc. for approval. b) Detail Datasheet & GA drawings c) Type tests, statutory certificates d) Comprehensive Quality Assurance plan (QAP). NOTES:: a) BHEL Shall provide the following inputs to vendor immediately (within 7 days) after placement P.O. / LOI: 1) <u>Instrument schedule</u> with tag no’s, ranges, site identification no’s, etc. 2) <u>Typical Cover page</u>: This is to be used for all instruments with necessary modification for each variety of instrument b) Following points to be noted while submitting drgs & data sheets for approval: 1) Each instrument data sheet to be submitted along with cover page & tag list. 2) All extra quantities to be marked as “E.spares”. 3) All data sheets & drgs to be submitted in soft copy first and once it is cleared for manufacturing, then same shall be submitted in spiral hard copies for formal approval. Do not submit drgs/data sheets in loose papers as well as in bits & pieces for approval. c) 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. d) 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. e) All the approvals required for manufacturing shall be completed within 2 months 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. f) Vendor shall obtain final approvals on all technical + quality aspect documents before inspection dates. g) 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) - all in 10 sets (2 sets to be included with item dispatch and balance to BHEL purchase department). a) Complete O& M manual. b) Approved Engg documents c) As-Shipped documents d) As-Built documents e) Guarantee and all test certificates for review and acceptance by BHEL and / or BHEL’s Customer		

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COPYRIGHT 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.	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).			
	7. 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.			
	8. MARKING, PACKING AND DESPATCH			
	8.1 All items shall be marked (stamped/etched) in accordance with the applicable code/standard/specification. In addition, the item code, if available, shall also be marked.			
	8.2 For ease of identification, the color of painted strip (wherever required) shall be as per the applicable standard.			
	8.3 Part number/Dispatch link-up of all the equipment’s/items supplied and also their co-relation with system/drawing/approved BOQ.			
8.4 Paint or ink for marking shall not contain any harmful metal or metal salts which can cause corrosive attack either ordinarily or in service. Special items/smaller items shall have attached corrosion resistant tag providing salient features.				
8.5 The equipment shall be transported to site by the vendor in fully assembled condition. However, in case some components are liable to be damaged during transit, the same shall be dismantled and supplied separately, to be reassembled at site the vendor. Assembly of the item supplied loose at site and repairing of any item damaged during transport shall be in the vendor’s scope. The vendor shall send each consignment to site with a detailed packing list.				
8.6 All the equipment shall be divided into several sections for protection and ease of handling during transportation. The equipment shall be properly packed for transportation by ship/rail or trailer. The equipment shall be wrapped in polythene sheets before being placed in crates/cases to prevent damage to the finish. Crates/cases shall have skid bottom for handling.				
8.7 Special notations such as 'Fragile', 'This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'PO Nos.' etc. shall be clearly marked on the package together with other details as per purchaser order.				
8.8 The equipment/items may be stored outdoors for long periods before installation. The packing shall be completely suitable for outdoor storage in areas with heavy rains/high ambient temperature, unless otherwise agreed.				
8.9 The following minimum packing procedures shall be followed:-				
d) All items shall be dry, clean and free from moisture, dirt and loose foreign material of all kinds.				
e) All items shall be protected from rust, corrosion, and mechanical damage during transportation and handling.				
f) Each variety and size of item shall be supplied in separate packaging marked with the purchase order no., item code (if available), and the salient specifications.				
g) All electrical, instrumentation etc., shall be properly packed to prevent damage during transport, storage, handling at site.				
h) All the items which the Bidders considered liable to be damaged during shipment or storage, shall be packaged for separate shipment. If instruments are removed from the panel, they and their connection shall be suitably tagged to ensure simple re installation at the job site. Each instrument shall be sealed in plastic bags containing moisture absorbing desiccants.				
i) It shall be bidder’s sole responsibility to protect all the material during period of dispatch, storage and erection against corrosion, incidental damage due to vermin, sunlight, rain, high temperature, humid atmosphere, rough handling in transit and including delays in transit.				
j) Commissioning spares, Tools & tackles to be packed separately & suitably tagged.				
8.10 Loose vendor items sent by vendor to sites shall be quantified/numbered/tagged and not merely mentioned as ONE lot of loose items.				

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COPYRIGHT 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.	8.11 A packing list covering items having shelf life are to be intimated to site. Also, shelf life items (if applicable) shall be packed separately in black color painted box for easy identification at site.												
	9. VARIANT TABLE												
	<table><tr><th>V. No.</th><th>Description</th><th>Material code</th><th>Pipe size</th><th>Flow</th></tr><tr><td>00</td><td>Flow Switch</td><td>PY9756429003</td><td>200</td><td>0-4500LPM</td></tr></table>				V. No.	Description	Material code	Pipe size	Flow	00	Flow Switch	PY9756429003	200
V. No.	Description	Material code	Pipe size	Flow									
00	Flow Switch	PY9756429003	200	0-4500LPM									

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Rev. No.	Date	Revision Details	Revised By	Approved By
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00	21.08.2020	Original issue	-----	K. Anand
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 HYDERABAD		PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD		Spec No.- PY56429 REV. 00 ANNEXURE-1			
FLOW SWITCH - Technical Data Sheet							
GENERAL	1	Range & Qty.	As per Enquiry	ACCESSORIES	19	Erection/Mounting Hardware	As Required, to be provided by vendor
	2	Type	Paddle type/vane type/flapper, Magnetic operated in a hermetically sealed enclosure.		20	Cable Glands	½" NPT(F) with SS MOC, WP to IP65 or better, Flameproof to Ex-d IIC/T6, Double compression cable gland.
	3	Function	Flow detection		21	Cable entry Plugs	Reqd. As per manufacturer's standard
	4	Mounting	On Pipe		22	Tag Plate	Reqd. SS
	5	Max. line Press / Temp.	16 Kg/cm ² / 60 °C		23	Bolts + Nuts	Reqd. A193GrB7 + A194Gr2H
	6	Withstand pressure	24 kg.cm ²		24	Gasket	Neoprene
	7	Electrical cable entry	1/2" NPT		25	BLANK	BLANK
	8	Adjustability	Set point throughout the range				
	9	Wetted Part	AISI 316 SS				
	10	Switch Housing/cover	Epoxy coated Die cast Al Alloy				
	11	Erection/mounting material	SS304				
SWITCH SPECIFICATION	12	Switch type	Micro switch (SPDT)	TEST REPORT/CERTIFICATE	26	Material compliance	100% Review
	13	No. of contact	2 nos. SPDT		27	Functional Test	100% Review
	14	Contact rating	230 V AC/5A, 220V DC/0.5A.		28	Ingress Prot. Test	100% Review
	15	Specific Gravity of fluid	1.0 (Water)		29	Visual & Dimension Check	100% Witness
	16	Protection	IP 65				
	17	On-Off Differential	Variable				
	18	Accuracy	+/-2% of FSR				
		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.						