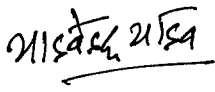
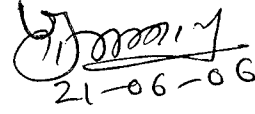
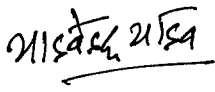
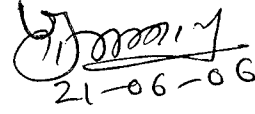
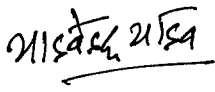
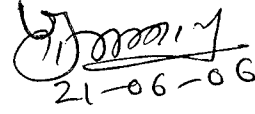
	<p align="center"><b>PRODUCT STANDARD HYDROGENERATOR ITEM : VISUAL FLOW INDICATOR (FLOATING BALL TYPE)</b></p>	<p align="center"><b>HG 10 073 Rev.00 PAGE 1 OF 4</b></p>																					
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">गोपनीय एवं अधिकार सुरक्षित इस प्रपत्र पर दी गई जानकारी भारत हेवी इलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है इसे प्रत्यक्ष या अप्रत्यक्ष रूप से कम्पनी के हितों को नुकसान पहुँचाने के लिए कदापि उपयोग नहीं किया जावे</p>	<p><b>INTRODUCTION :</b></p> <p>This product standard is prepared in two parts.</p> <p>Part –1 Contains the technical specification of visual flow indicators for cooling water piping for hydrogenerator air coolers and technical documentation requirements of the quotation.</p> <p>Part –2 Contains project details and project specific technical requirements for visual flow indicators.</p> <p align="center"><b><u>PART –1</u></b></p> <p align="center"><b>SPECIFICATION FOR VISUAL FLOW INDICATORS.</b></p> <p>(1) Application. The equipment is intended to be used for visual flow indication for cooling water piping of hydrogenerator air coolers for indication of water flow In air coolers.</p> <p>(2) Ambient Conditions. The indicators shall be suitable for operation at max ambient temperature of 50°C and max relative humidity of 100%. The indicator shall be suitable for indoor application.</p> <p>(3) <b>Technical specification details :-</b></p> <p>3.1 Floating Balls type of visual flow indicators as per the following specifications:</p> <table border="0"> <tr> <td>i. Main pipe size</td> <td align="right">:-</td> <td>as per part-2</td> </tr> <tr> <td>ii. Quantity, Nos.</td> <td align="right">:-</td> <td>as per part-2</td> </tr> <tr> <td>iii. Flow medium</td> <td align="right">:-</td> <td>Water with fine silt.</td> </tr> <tr> <td>iv. Direction of flow</td> <td align="right">:-</td> <td>Universal</td> </tr> <tr> <td>v. Rate of normal flow, LPM</td> <td align="right">:-</td> <td>as per part-2</td> </tr> <tr> <td>vi. Mounting/Orientation</td> <td align="right">:-</td> <td>Universal</td> </tr> <tr> <td>vii. Material</td> <td align="right">:-</td> <td>Cast iron body with double toughened Glass windows</td> </tr> </table>			i. Main pipe size	:-	as per part-2	ii. Quantity, Nos.	:-	as per part-2	iii. Flow medium	:-	Water with fine silt.	iv. Direction of flow	:-	Universal	v. Rate of normal flow, LPM	:-	as per part-2	vi. Mounting/Orientation	:-	Universal	vii. Material	:-	Cast iron body with double toughened Glass windows
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**PRODUCT STANDARD**  
**HYDROGENERATOR**  
**ITEM : VISUAL FLOW INDICATOR**

**HG 10 073**  
**Rev.00**  
**PAGE 2 OF 4**

गोपनीय एवं अधिकार सुरक्षित  
इस प्रपत्र पर दी गई जानकारी भारत हेवी इलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है इसे प्रत्यक्ष या अप्रत्यक्ष रूप से कम्पनी के हितों को नुकसान पहुँचाने के लिए कदापि उपयोग नहीं किया जावे

- Viii. Normal working pressure (Max), kg/cm<sup>2</sup>:- 10.0 Kg/cm<sup>2</sup>  
ix. Test pressure, kg/cm<sup>2</sup> For 30 minutes :- 15.0 Kg/cm<sup>2</sup>
- 3.2 Indicators shall be supplied with integral flanges as per IS-6392, table-17.
- 3.3 Visual flow indicator should have water resistance proof floating balls as indicator and should not offer any pressure drop .
- 3.4 Floating Balls should be light in weight so that these freely starts floating with less than 50% of flow with minimum water pressure of 1.0 kg/cm<sup>2</sup>.
- 3.5 Floating Balls should be mixture of different colours like red ,blue green , yellow , white etc.The colour of balls should not erode with water or fade off/peel off with time.
- 3.6 Body of indicator shall be painted with water resistant paint, min. paint thickness 70 to 110 microns.
- 3.7 The indicators are to work with water at a temperature of 0-50<sup>0</sup> C. and water containing with fine silt and sand. The internal parts of the indicator are to be properly treated to have trouble free operation.
- 3.8 Indicators are to be tested for static pressure on test pressure specified for 30 minutes for leak proofness and certificates to be furnished to BHEL for approval.

**4. NOTES:**

- 4.1 The quotation must accompany the outline dimensional drawing mounting details technical literatures, etc. in 3 copies.
- 4.2 Any deviation from the specifications must be clearly brought out in the offer.
- 4.3 Outline & dimensional drawing with mounting details shall be approved by BHEL.
- 4.4 Supplier shall furnish QA/QS plan for approval by BHEL.
- 4.5 Supplier shall start manufacturing only after receiving approval of Outline and Dimensional drawing and QA/QS plan from BHEL.



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4.6 Suppliers to confirm meeting/compliance of clause-by-clause requirements of these specification in first instance itself. Deviations (if any) should be clearly brought out in the offer. Incomplete offer will be rejected.

### 5. PACKING INSTRUCTION

- a. Box wise packing list shall be prepared by the supplier.
- b. Each packing box shall contain the packing list pertaining to that box enclosed in a protected envelop.
- c. Each item in the box shall have suitable identification for correlation with the packing list.
- d. Four sets of complete packing list shall be sent to consignee under intimation to material management division of BHEL, Bhopal.
- e. Six set of complete packing list shall be furnished to BHEL MM before dispatch.

### 6. INSTRUCTION MANUAL

15(Fifteen) sets of original hard copies(photocopy not acceptable) and 4 copy in electronic form(CD) of instructions manual containing installation, operation and operation trouble shooting instructions shall be sent to hydro generator engineering division, through M M Division, BHEL, Bhopal in addition of two copies sent to consignee along with equipment.

### 7. DRAWINGS

15(Fifteen) sets of original hard copies(photocopy not acceptable) and 4 copy in electronic form(CD) of drawings shall be sent to hydro generator engineering division. Through MM division BHEL, Bhopal in addition of two sets to consignee along with equipment.



**PRODUCT STANDARD  
HYDROGENERATOR  
ITEM : VISUAL FLOW INDICATOR**

**HG 10 073  
Rev.00.  
PAGE 4 OF 4**

**PART - 2**

- (a) Project Name :  
(b) PI NO. :  
(c) Customer :  
(d) Site Address :

**Project specific technical requirements.**

Item No.	Size N/B ( mm)	Normal flow (LPM)	QUANTITY MAIN (NO.S)	QUANTITY SPARE (NO.S)	QUANTITY TOTAL
01	40				
02	50				
03	65				
04	80				
05	100				
06	125				
07	150				
08	200				
09	250				
10	300				

**(e) TEST AND GUARANTEE CERTIFICATE.**

Visual flow indicator shall be guaranteed for \_\_\_ months from successful commissioning or \_\_\_ months from dispatch, which ever is ..... and 10 (ten) sets of test and guarantee certificates shall be sent to HGE , BHEL, Bhopal for approval before dispatch of visual flow indicators.

**(f) PENALTY ON LATE DELIVERY:** As specified in the enquiry.

DATE	PREPARED BY	CHECKED BY	APPROVED BY
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