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REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED	
		CHECKED				CHECKED				CHECKED	
		APPROVED				APPROVED				APPROVED	

IMPELLER DIMENSION MEASUREMENT PROCEDURE (AFTER FINAL MACHINING)

REF. DRG.NO.

TYPE OF PRODUCT

CV-CW PUMP

SIGN. &



**BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD**

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	SUDHEER	SD/-	01.03.2020	
CHD.	SATISH	SD/-	01.03.2020	
APPD.	K.H.R.K	SD/-	01.03.2020	NA

INVENTORY NO.

DEPARTMENT	PUMPS ENGG.	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE	410	NA	NA	NA	NA	NA
TITLE IMPELLER DIMENSION MEASUREMENT PROCEDURE (AFTER FINAL MACHINING)			DRAWING NO.		REV.	
			FP13625		00	
			SHEET NO.	01	NO. OF SHEETS	05

 BHEL HYDERABAD		PRODUCT STANDARD PUMPS HYDERABAD		FP13625	
				Rev	00
				Page	2 of 5
1.0INTRODUCTION: The document shows the dimensional inspection procedure of CW Pump Impeller after final machining. 2.0REFERENCE DRAWINGS: a) Impeller : 11823617131 b) Impeller vane profile : 11823617135 3.0SCOPE: All finish machined impellers shall be measured based on this document. 4.0GENERAL: a) Dimensional check shall be carried out on each impeller. b) Vendor shall mandatorily submit the impeller wise dimensional report along with the dispatch of impeller. c) BHEL / BHEL nominated inspection agency shall ensure the same before clearing the material for dispatch from vendor works.					

TD-106-2 Rev.5 Form No.		PRODUCT STANDARD PUMPS HYDERABAD				FP13625																																																																																																							
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<table border="1"> <thead> <tr> <th rowspan="2">SNO.</th> <th rowspan="2">MEASURING POINTS</th> <th rowspan="2">MARK</th> <th rowspan="2">DESIGN</th> <th>CRITERIA</th> <th rowspan="2">REMARKS</th> </tr> <tr> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>INLET OD</td> <td>D1</td> <td>1602</td> <td>-0.032 MM -0.124 MM</td> <td></td> </tr> <tr> <td>2</td> <td>INLET ID</td> <td>D1'</td> <td>1518</td> <td>±0.5MM</td> <td></td> </tr> <tr> <td>3</td> <td>STEP OD</td> <td>D1''</td> <td>1643</td> <td>±0.5MM</td> <td></td> </tr> <tr> <td>4</td> <td>OUTLET DIAMETER</td> <td>D2</td> <td>2070</td> <td>±2.2MM</td> <td>2067.8MM ~ 2072.2MM</td> </tr> <tr> <td>5</td> <td>OUTLET DIAMETER AT HUB</td> <td>D3</td> <td>1656</td> <td>±1.8MM</td> <td rowspan="8"> MEASURE ON ALL VANES RECORD FORMAT NO.1 </td> </tr> <tr> <td>6</td> <td>OUTLET WIDTH</td> <td>B2</td> <td>411.3</td> <td>±2MM</td> </tr> <tr> <td>7</td> <td>VANE HEIGHT</td> <td>H</td> <td>573.4</td> <td>±2MM</td> </tr> <tr> <td>8</td> <td>VANE TIP</td> <td>T</td> <td>392.3</td> <td>±0.3%</td> </tr> <tr> <td>9</td> <td>BACK SIDE VANE LENGTH (HUB)</td> <td>VLH</td> <td>1334.3</td> <td>+2.0MM 0</td> </tr> <tr> <td>10</td> <td>FRONT SIDE VANE LENGTH (OUTER)</td> <td>VLO</td> <td>1553</td> <td>+2.0MM 0</td> </tr> <tr> <td>11</td> <td>FRONT SIDE TRAILING EDGE VANE HEIGHT</td> <td>VTL</td> <td>520.8</td> <td>±0.3%</td> </tr> <tr> <td>12</td> <td>BACK SIDE LEADING EDGE VANE HEIGHT</td> <td>VLL</td> <td>582.3</td> <td>±0.3%</td> </tr> <tr> <td>13</td> <td>LEADING EDGE VANE BACK SIDE LENGTH III TO V</td> <td>XL1</td> <td>217.5</td> <td>±0.3%</td> <td rowspan="6"> MEASURE ALL PITCHES OF INLET AND OUTLET RECORD FORMAT NO.2 </td> </tr> <tr> <td>14</td> <td>TRAILING EDGE VANE FRONT SIDE LENGTH III TO V</td> <td>XT1</td> <td>255.4</td> <td>±0.3%</td> </tr> <tr> <td>15</td> <td>BACK SIDE PITCH AT LEADING EDGE I</td> <td>PL1</td> <td>348.1</td> <td>±1.5%</td> </tr> <tr> <td>16</td> <td>BACK SIDE PITCH AT LEADING EDGE III</td> <td>PL2</td> <td>717.6</td> <td>±1.5%</td> </tr> <tr> <td>17</td> <td>FRONT SIDE PITCH AT TRAILING EDGE V</td> <td>PT1</td> <td>1216.7</td> <td>±1.5%</td> </tr> <tr> <td>18</td> <td>FRONT SIDE PITCH AT TRAILING EDGE III</td> <td>PT2</td> <td>1089.3</td> <td>±1.5%</td> </tr> </tbody> </table>							SNO.	MEASURING POINTS	MARK	DESIGN	CRITERIA	REMARKS		1	INLET OD	D1	1602	-0.032 MM -0.124 MM		2	INLET ID	D1'	1518	±0.5MM		3	STEP OD	D1''	1643	±0.5MM		4	OUTLET DIAMETER	D2	2070	±2.2MM	2067.8MM ~ 2072.2MM	5	OUTLET DIAMETER AT HUB	D3	1656	±1.8MM	MEASURE ON ALL VANES RECORD FORMAT NO.1	6	OUTLET WIDTH	B2	411.3	±2MM	7	VANE HEIGHT	H	573.4	±2MM	8	VANE TIP	T	392.3	±0.3%	9	BACK SIDE VANE LENGTH (HUB)	VLH	1334.3	+2.0MM 0	10	FRONT SIDE VANE LENGTH (OUTER)	VLO	1553	+2.0MM 0	11	FRONT SIDE TRAILING EDGE VANE HEIGHT	VTL	520.8	±0.3%	12	BACK SIDE LEADING EDGE VANE HEIGHT	VLL	582.3	±0.3%	13	LEADING EDGE VANE BACK SIDE LENGTH III TO V	XL1	217.5	±0.3%	MEASURE ALL PITCHES OF INLET AND OUTLET RECORD FORMAT NO.2	14	TRAILING EDGE VANE FRONT SIDE LENGTH III TO V	XT1	255.4	±0.3%	15	BACK SIDE PITCH AT LEADING EDGE I	PL1	348.1	±1.5%	16	BACK SIDE PITCH AT LEADING EDGE III	PL2	717.6	±1.5%	17	FRONT SIDE PITCH AT TRAILING EDGE V	PT1	1216.7	±1.5%	18	FRONT SIDE PITCH AT TRAILING EDGE III	PT2	1089.3	±1.5%
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PRODUCT STANDARD

PUMPS

HYDERABAD

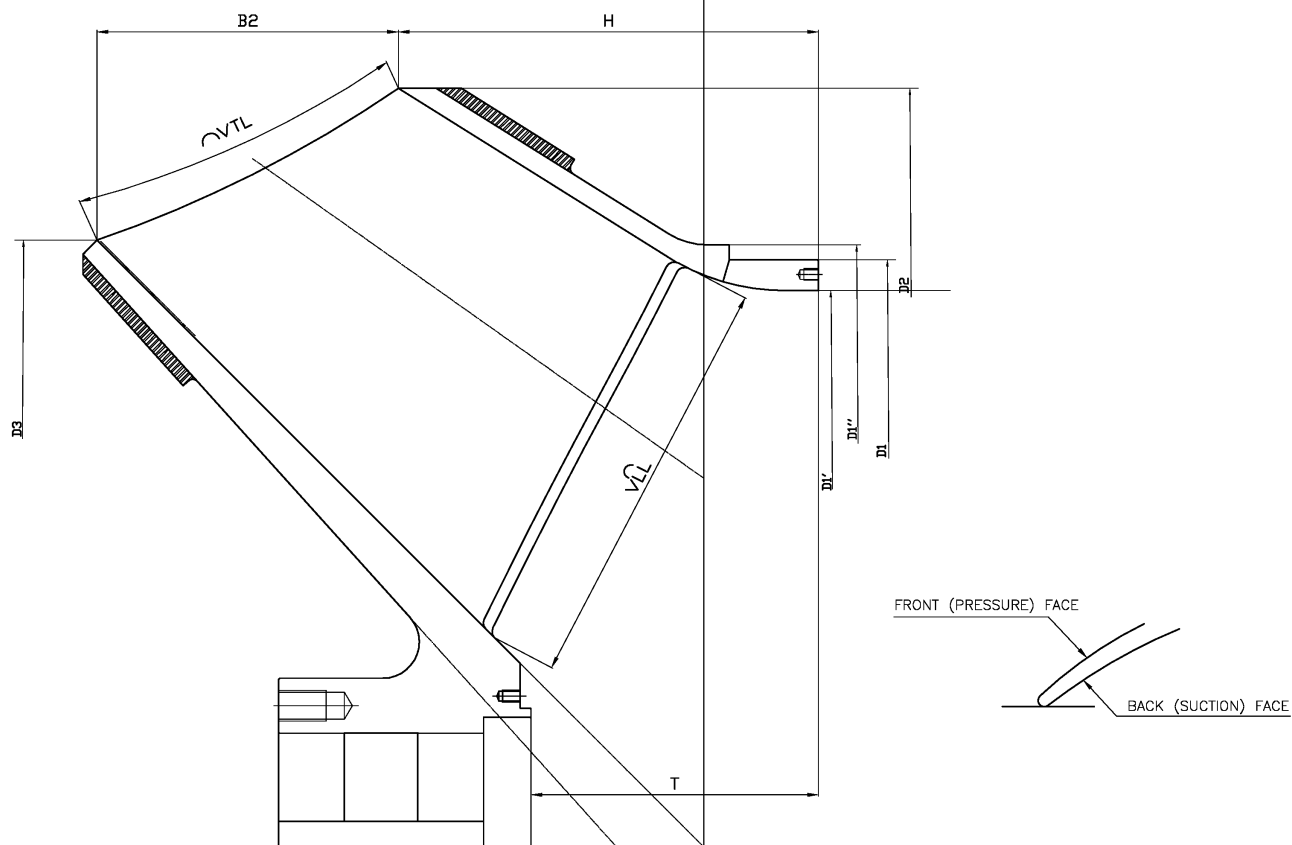
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RECORD FORMAT NO.1

DIAMETER, HEIGHT, VANE TIP AND OUTLET WIDTH:



MEASURED DIMENSIONS

SNO.	PARAMETER	MARK	DESIGN (MM)	VANE-1	VANE-2	VANE-3	VANE-4	AVERAGE	CRITERIA	REMARKS
1	INLET OD	D1							-0.032 MM -0.124 MM	
2	OUTLET OD	D1'							±0.5MM	
3	STEP OD	D1''							±0.5MM	
4	OUTLET DIAMETER	D2							±2.2MM	
5	OUTLET DIAMETER AT HUB	D3							±1.8MM	
6	OUTLET WIDTH	B2							±2MM	
7	VANE HEIGHT	H							±2MM	
8	VANE TIP	T							±0.3%	
9	BACK SIDE VANE LENGTH (HUB)	VLH							+2.0MM 0	
10	FRONT SIDE VANE LENGTH (OUTER)	VLO							+2.0MM 0	
11	FRONT SIDE TRAILING EDGE VANE HEIGHT	VTL							±0.3%	
12	BACK SIDE LEADING EDGE VANE HEIGHT	VLL							±0.3%	

NOTES:

AVERAGE RESULTS SHALL BE COMPARED WITH DESIGN VALUE

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PRODUCT STANDARD

PUMPS

HYDERABAD

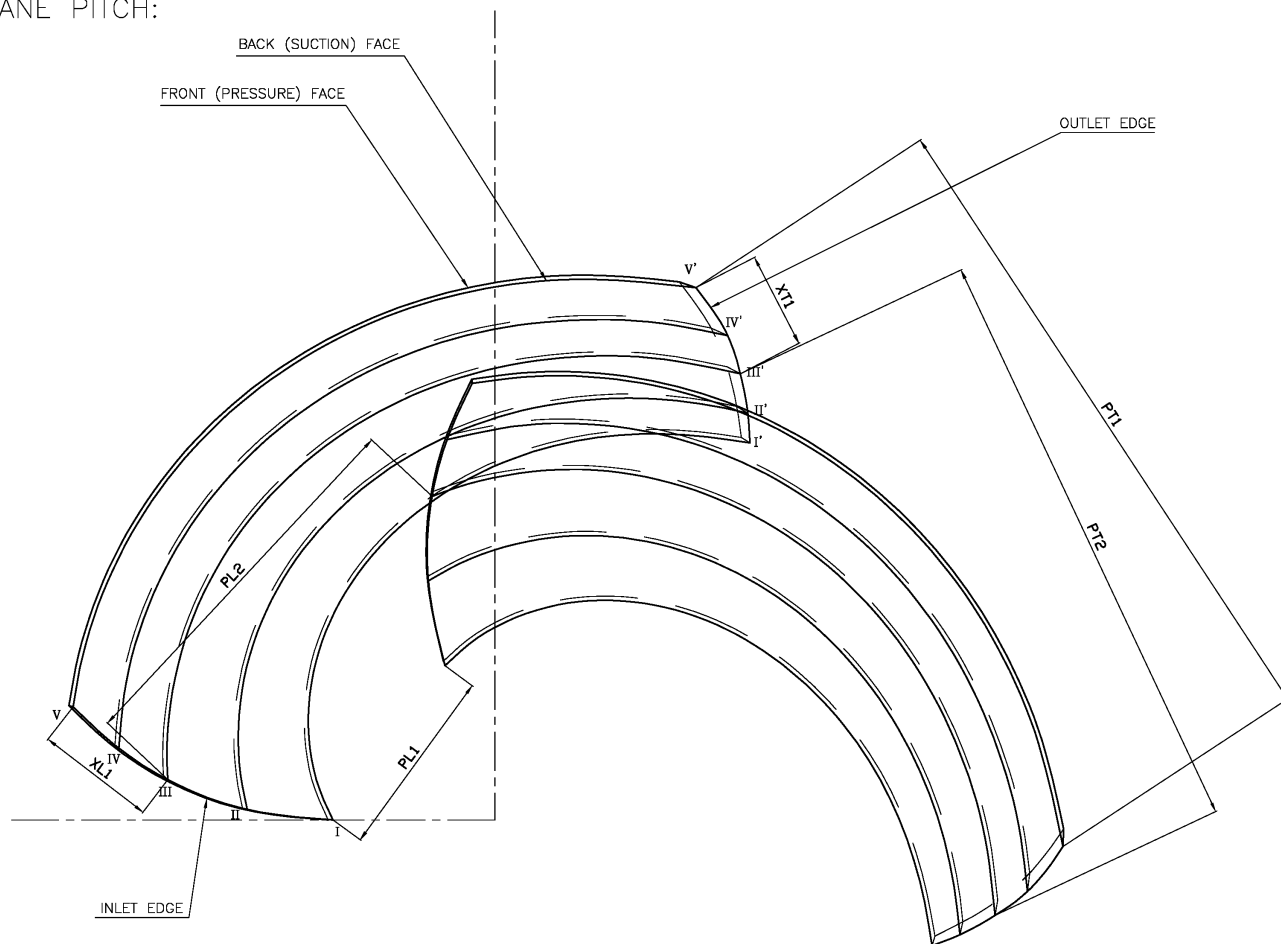
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RECORD FORMAT NO.2

VANE PITCH:



MEASURED DIMENSIONS

SNO.	PARAMETER	MARK	DESIGN (MM)	VANE PITCH				AVERAGE	CRITERIA (%)	REMARKS
				1-2	2-3	3-4	4-1			
1	INLET PITCH	PL1							±1.5	
		PL2							±1.5	
2	OUTLET PITCH	PT1							±1.5	
		PT2							±1.5	

NOTES:

- 1) FOR MEASURING INLET PORT AREA MENTIONED AT SECTION F-F IN THE DRG. 11823617131, TEMPLATE SHALL BE PREPARED. THIS AREA WILL BE INSPECTED FOR EACH VANE PASSAGE.
- 2) NUMBER OF VANES = 5 (EQUALLY SPACED)
- 3) AVERAGE RESULTS SHALL BE COMPARED WITH DESIGN VALUE

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