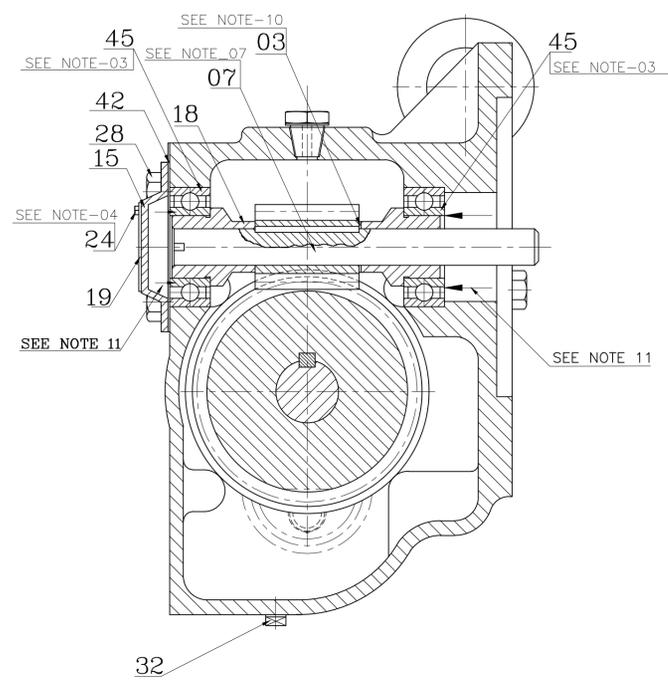


09100-102-20-1  
DRAWING NO. 1-20-201-00160

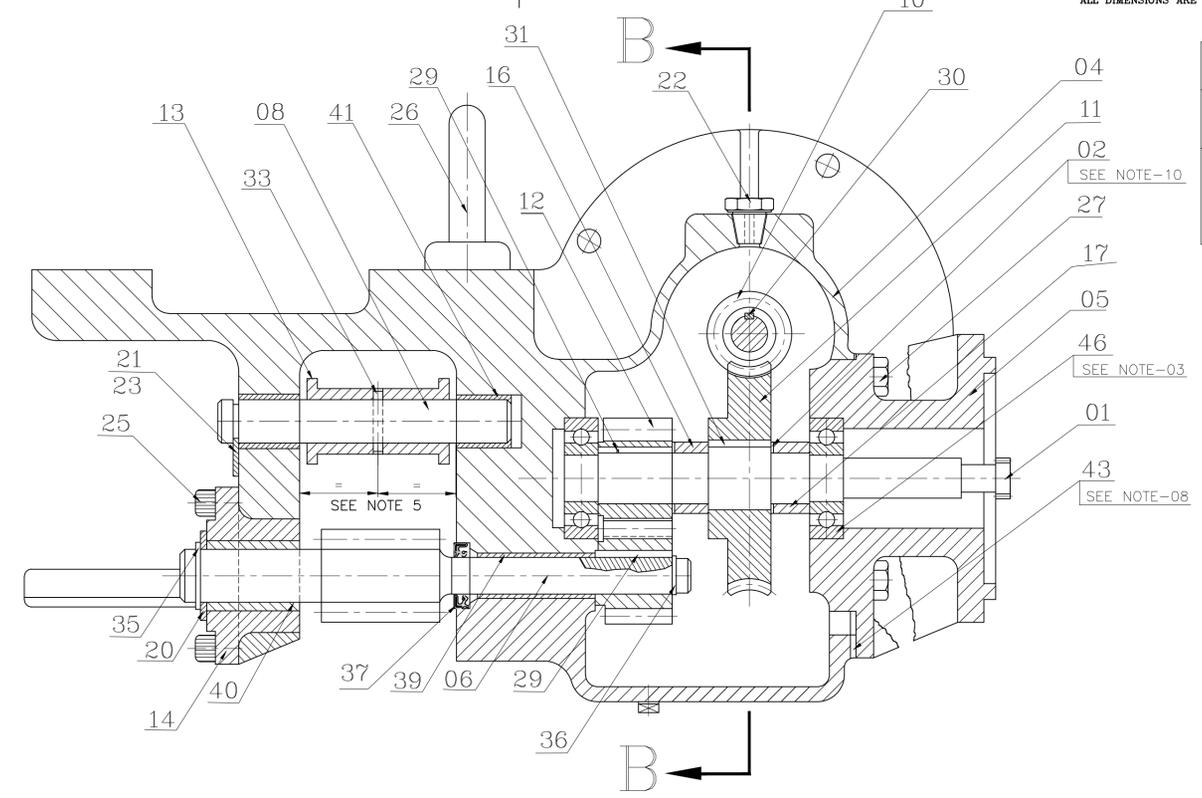
ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP/QP

PART No. DETAILS :  
842020124800 (EXCLUDING ITEM Nos. 47 TO 51)  
842020137200/963532010000 - FOR  
ALL ITEM Nos. FROM 1 TO 51.

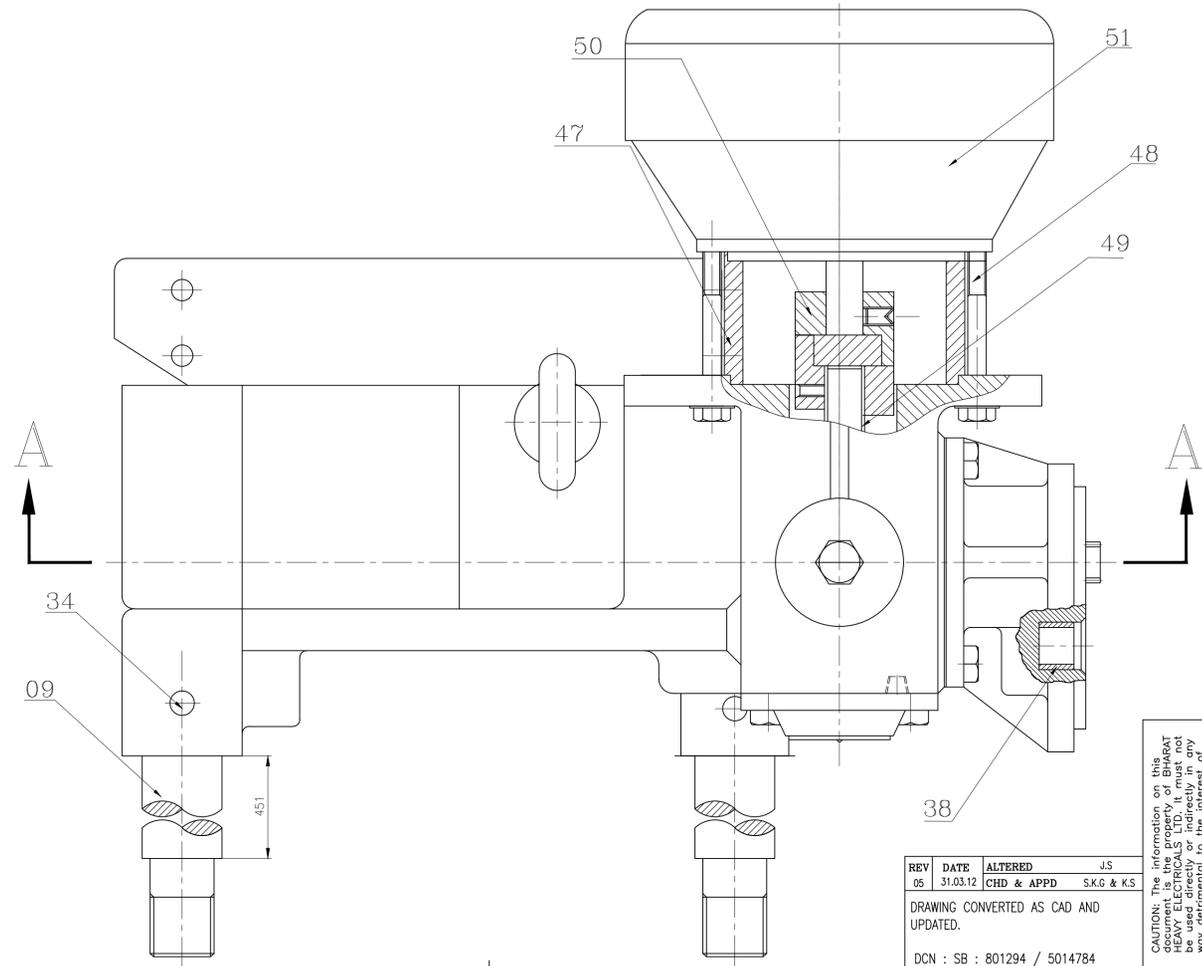
| DESCRIPTION                          | ITEM No. | DRAWING No.                      | VARIANT No. | MATERIAL SPECIFICATION | UNIT WEIGHT(kg) | QUANTITY (Nos) |
|--------------------------------------|----------|----------------------------------|-------------|------------------------|-----------------|----------------|
| Motor 0.056 KW                       | 51       | 4-20-201-00303                   | -           | TSB019                 | 17              | 1              |
| Love Joy Flexible Coupling           | 50       | 4-20-201-00727                   | -           | TSB011                 | 0.250           | 1              |
| Plain Key - 5X5X20                   | 49       | IS 2048 A (41501-04020)          | -           | IS 2048 - A            | 0.004           | 1              |
| Hexagonal Bolt Screw M8X75 - 8.8     | 48       | IS 1364 P-1 (41327-08075)        | -           | IS 1364 P-1            | 0.036           | 3              |
| Motor Spacer                         | 47       | 4-20-201-00181                   | -           | SA106 Gr. B            | 1.250           | 1              |
| Bearing 6204                         | 46       | SPEC: SB: 0002                   | -           | 551190620400           | 0.230           | 2              |
| Ball Bearing 6205-2RS                | 45       | SPEC: SB: 0002                   | -           | 551190620500           | 0.280           | 2              |
| Gasket - 0112                        | 43       | 4-20-201-00110                   | -           | NITRILE                | 0.022           | 1              |
| Cover Gasket - D80                   | 42       | 4-20-201-00111                   | -           | NITRILE                | 0.023           | 2              |
| Sintered Bronze bush                 | 41       | 3-20-001-01223                   | 6           | SINTERED BRONZE        | 0.020           | 2              |
| Sintered Bronze bush                 | 40       | 3-20-001-01223                   | 10          | SINTERED BRONZE        | 0.070           | 1              |
| Sintered Bronze bush                 | 39       | 3-20-001-01223                   | 8           | SINTERED BRONZE        | 0.045           | 1              |
| Sintered Bronze bush                 | 38       | 3-20-001-01223                   | 3           | SINTERED BRONZE        | 0.02            | 1              |
| Oil Seal - B 20X32X7                 | 37       | 963530820000(4175-06-2153)       | -           | NITRILE                | 0.04            | 2              |
| External Circlip A20                 | 36       | IS 3075 P1-N-422.2(419-02-02000) | -           | IS 3075                | 0.002           | 1              |
| External Circlip A24                 | 35       | IS 3075 P1-N-422.2(419-02-02400) | -           | IS 3075                | 0.002           | 1              |
| Spring Dwell Sleeve - 6X32           | 34       | IS 5988(417-11-06032)            | -           | IS 5988                | 0.02            | 2              |
| Drive Pin - 3 X 24 - 40C8 - FLGRV    | 33       | IS 7368 (417-09-03025)           | 1           | IS 7368                | 0.001           | 2              |
| Plain Plug 1/2" - T8                 | 32       | BPS 718514 (718514-4401)         | -           | BPS 718514             | 0.12            | 2              |
| Plain Key - 6X7X25                   | 31       | IS 2048 A (415-07-07025)         | -           | IS 2048 - A            | 0.010           | 1              |
| Plain Key - 5X5X32                   | 30       | IS 2048 A (415-07-04032)         | -           | IS 2048 - A            | 0.004           | 1              |
| Plain Key - 5X5X25                   | 29       | IS 2048 A (415-01-04025)         | -           | IS 2048 - A            | 0.005           | 2              |
| Hexagonal Head Screw M8X12 - 8.8     | 28       | IS 1364 P-2 (412-38-08012)       | -           | IS 1364 P-2            | 0.007           | 4              |
| Hexagonal Head Screw M8X20 - 8.8     | 27       | IS 1364 P-2 (412-38-08020)       | -           | IS 1364 P-2            | 0.013           | 4              |
| Lift Eye Bolt M12 CL. 3              | 26       | IS 4190 A (412-29-12000)         | -           | IS 4190 - A            | 0.200           | 1              |
| Socket Head Screw M6X20 - 8.8        | 25       | IS 2269 CAD(412-42-06020)        | -           | IS 2269                | 0.007           | 3              |
| Counter Shank Head Screw M3X10 - 4.8 | 24       | IS 1366 CAD(412-41-03010)        | -           | IS 1366                | 0.001           | 1              |
| Counter Shank Head Screw M6X12 - 4.8 | 23       | IS 1366 CAD(412-41-06012)        | -           | IS 1366                | 0.004           | 2              |
| Air Vent R 1/2"                      | 22       | 4-20-001-01540                   | -           | IS 1875 CL4            | 0.04            | 2              |
| Shaft Collar                         | 21       | 4-20-201-00261                   | -           | IS5130                 | 0.045           | 1              |
| Thrust Washer                        | 20       | 4-20-201-00250                   | -           | IS5130                 | 0.02            | 4              |
| Cover Plate                          | 19       | 4-20-201-00124                   | -           | IS5130                 | 0.031           | 2              |
| Worm Spacer                          | 18       | 4-20-201-00255                   | -           | SA479Y304              | 0.09            | 2              |
| Spacer                               | 17       | 4-20-201-00254                   | 4           | SA213T22               | 0.05            | 1              |
| Spacer                               | 16       | 4-20-201-00254                   | 3           | SA213T22               | 0.04            | 1              |
| Cover                                | 15       | 4-20-201-00125                   | -           | IS2062E250A(F410W)     | 0.240           | 1              |
| Bearing Cap                          | 14       | 4-20-201-00200                   | -           | LM 9 WP                | 0.20            | 1              |
| Upper Roller                         | 13       | 4-20-201-00256                   | -           | SA105                  | 0.180           | 1              |
| Spur Gear 12T                        | 12       | 3-20-201-00740                   | -           | SA193B7                | 0.170           | 2              |
| Worm Gear 30T                        | 11       | 4-20-201-00183                   | -           | IS 305 GR AB1          | 0.63            | 1              |
| Worm-1 Start                         | 10       | 3-20-201-00119                   | -           | IS15701.3N3CR80        | 0.150           | 1              |
| Guide Rod                            | 9        | 4-20-201-00195                   | -           | SA105                  | 1.50            | 2              |
| Roller Shaft                         | 8        | 4-20-201-00257                   | -           | SA105                  | 0.190           | 1              |
| Worm Shaft                           | 7        | 3-20-201-00151                   | -           | SA 105                 | 0.200           | 1              |
| Rack Pinion                          | 6        | 3-20-201-00156                   | -           | SA 193B7               | 0.70            | 1              |
| Switch Mount Connector               | 5        | 2-20-201-00061                   | -           | LM 9 WP                | 1.250           | 1              |
| Rack Gear Housing                    | 4        | 0-20-201-00004                   | -           | LM 9 WP                | 7.0             | 1              |
| Shim Assembly                        | 3        | 4-20-201-01119                   | -           | BRASS SHEET            | 0.05            | 1              |
| Shim Assembly                        | 2        | 4-20-201-00343                   | -           | BRASS SHEET            | 0.10            | 2              |
| Worm Gear Shaft Assembly             | 1        | 3-20-201-00658                   | -           | SA 193B7               | 0.370           | 1              |



SECTION-BB



SECTION-AA



- NOTES:-
- GEAR RATIO 30:1
  - APPLY A THIN COATING OF MULTIPURPOSE GREASE ON ALL THE MOVING PARTS DURING ASSEMBLY.
  - FOLLOW THE STANDARD PROCEDURE FOR MOUNTING BALL BEARINGS.
  - DO NOT TIGHTEN THE SCREW (ITEM No. 24) FULLY.
  - A THROUGH HOLE DIA 3mm TO BE DRILLED IN UPPER ROLLER AND ROLLER SHAFT (ITEM Nos. 08 & 13) DURING ASSEMBLY IN ORDER TO GUIDE THE RACK.
  - APPLY GREASE ON SPUR GEAR (ITEM No. 12) BEFORE ASSEMBLING GEARS ON THE SURFACES.
  - AFTER THE FULL ASSEMBLY IS OVER, WORM SHAFT (ITEM 07) HAS TO BE HAND CRANKED IN ORDER TO CHECK FOR THE FREE ROTATION OF ALL GEARS WITHOUT NOISE, OBSTRUCTION AND JERKS.
  - APPLY A COATING OF ANY ADHESIVE TO BOTH SIDES OF GASKET (ITEM No. 43) PRIOR TO ASSEMBLY.
  - SPUR GEARS (ITEM No. 12) SHALL BE CHECKED, SO THAT THE TEETH MESH WITHOUT INTERFERENCE AND WIRED TOGETHER IN PAIRS FOR EACH ASSEMBLY.
  - SHIMS ARE TO BE SUITABLY ADJUSTED TO TAKE UP THE BACKLASH BETWEEN WORM, WORM GEAR AND SPACERS. ENSURE THAT THERE IS ZERO CLEARANCE AT THE MOTOR END BETWEEN WORM AND WORM SPACERS AFTER ASSEMBLY AND CHECK FOR THE FREE ROTATION OF WORM SHAFT AFTER ASSEMBLY.
  - ASSEMBLE BEARING WITH METAL SHIELD FACING THE ARROW SIDE.
  - FOR QUALITY REQUIREMENTS REFER LATEST APPLICABLE QUALITY PROCEDURE.

| REV | DATE     | ALTERED    | J.S.        |
|-----|----------|------------|-------------|
| 05  | 31.03.12 | CHD & APPD | S.K.G & K.S |

DRAWING CONVERTED AS CAD AND UPDATED.  
DCN : SB : 801294 / 5014784

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| No   | OFF                        | DESCRIPTION | MATL CODE   | MATL SPECN             | HEAT TREATMENT   | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--|----------------------------|-------------|-------------|------------------------|------------------|------------|-------------|---------------|------------|---------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  |                            |             |             |                        |                  |            |             |               |            |         |
| BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT, TRUCHIRAPALLI-620014. |                            |             |             |                        |                  |            |             |               |            |         |
| DRN  | J.SANKAR                   | SIGN        | J.S         | DATE                   | 31.03.12         |            |             |               |            |         |
| CHD  | S.K.GUPTA                  | S.K.G       | K.S         | DATE                   | 31.03.12         |            |             |               |            |         |
| APPD   | K.SRIDHARAN                | K.S         |             | DATE                   | 31.03.12         |            |             |               |            |         |
| DEPT   | SB                         | SCALE       | WEIGHT (KG) | REFERENCE INFORMATIONS |                  |            |             |               |            |         |
| CODE   | 330                        | N/Ts        | ~39.465     | DRAWING NO.            | 1-20-201-0016005 |            |             |               |            |         |
| TITLE  | RACK GEAR HOUSING ASSEMBLY |             | CARD CODE   | REV                    | U 01             |            |             |               |            |         |

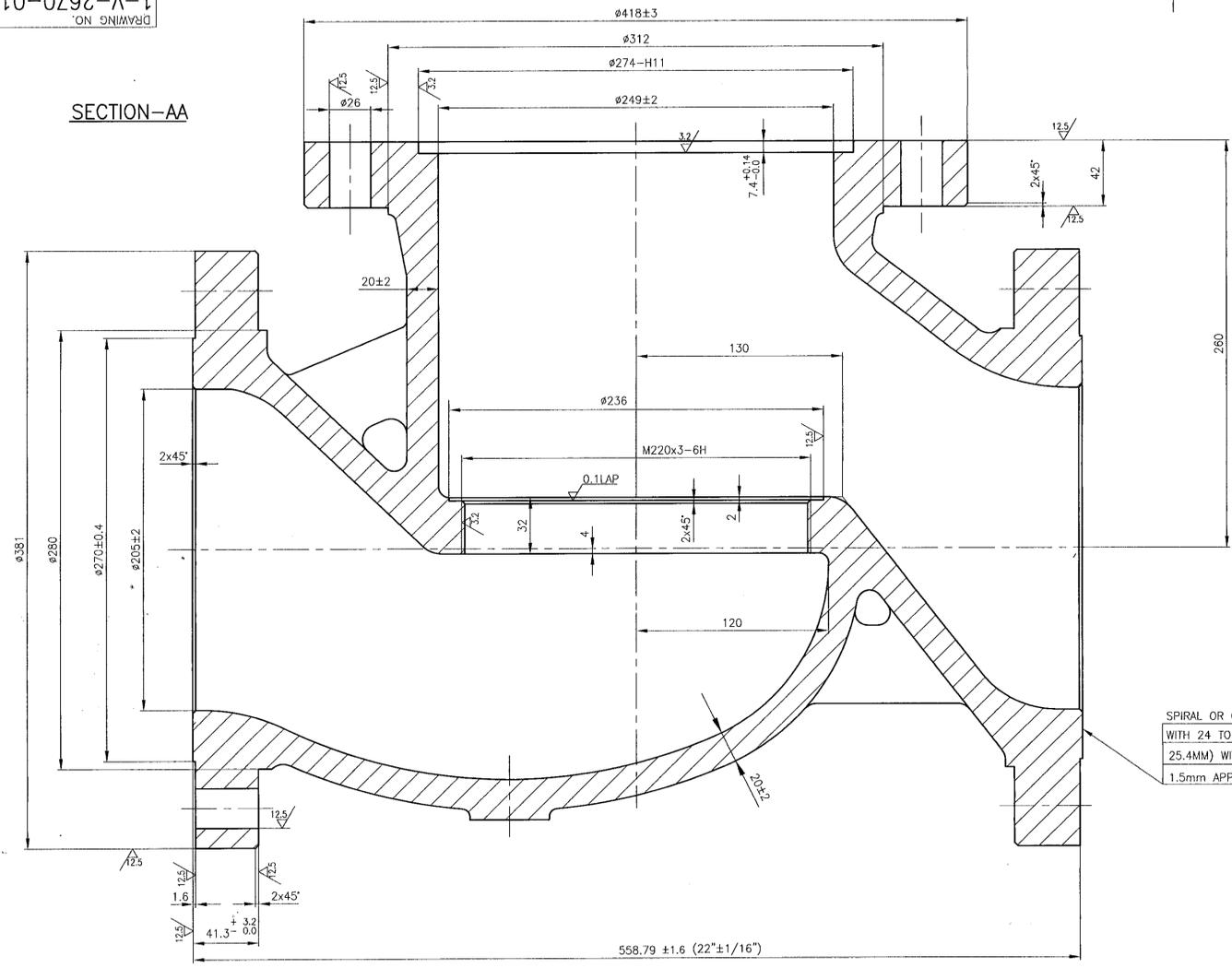
1-V-2670-01801/01  
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP/QP

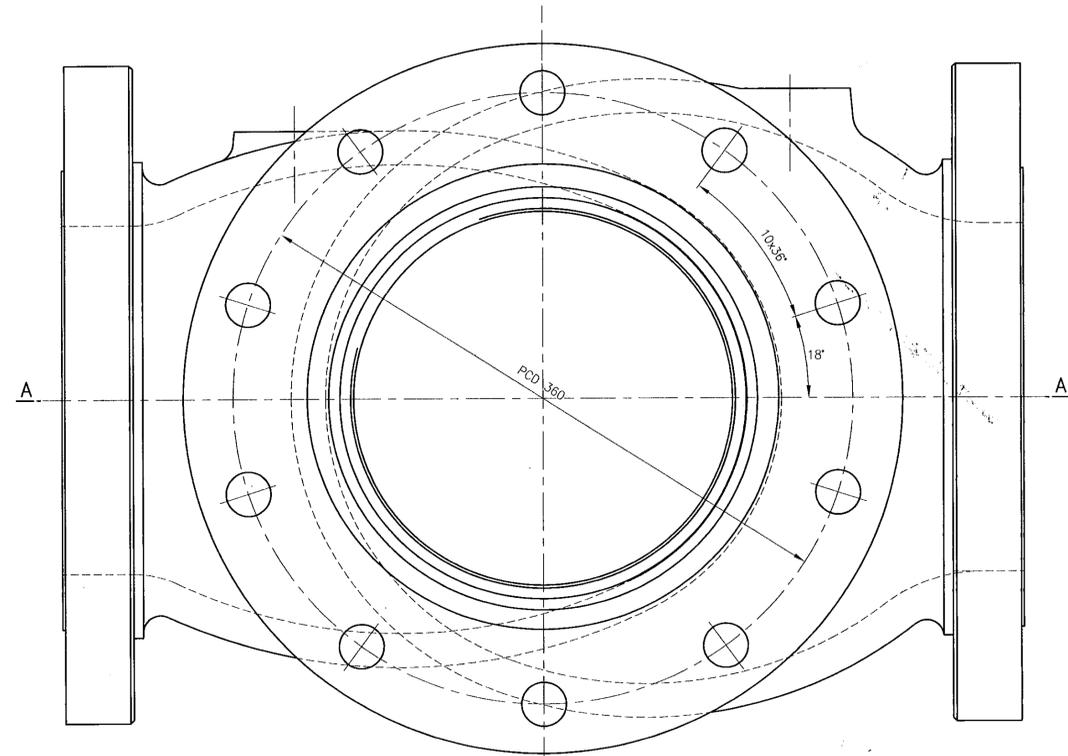
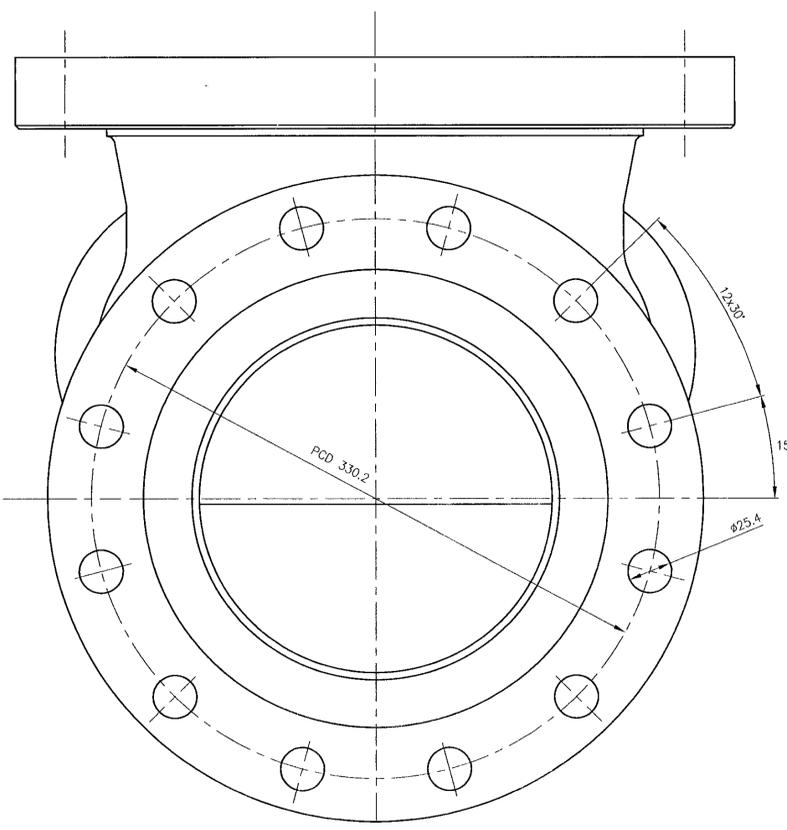
✓ 12.5 / 6.3 / 3.2 / 0.1

Ø274-H11 +0.320 / 0.000

SECTION-AA



SPIRAL OR CONCENTRIC SERRATIONS  
WITH 24 TO 40 GROOVES PER INCH  
25.4MM) WITH A TOOL RADIUS OF  
1.5mm APPROX.



| REV | DATE     | ALTERED    | BY                 |
|-----|----------|------------|--------------------|
| 01  | 17.12.98 | CHD & APPD | <i>[Signature]</i> |

SIDE FLANGE SERRATION  
NOTE CHANGED  
REFER DCN No. GV 0012

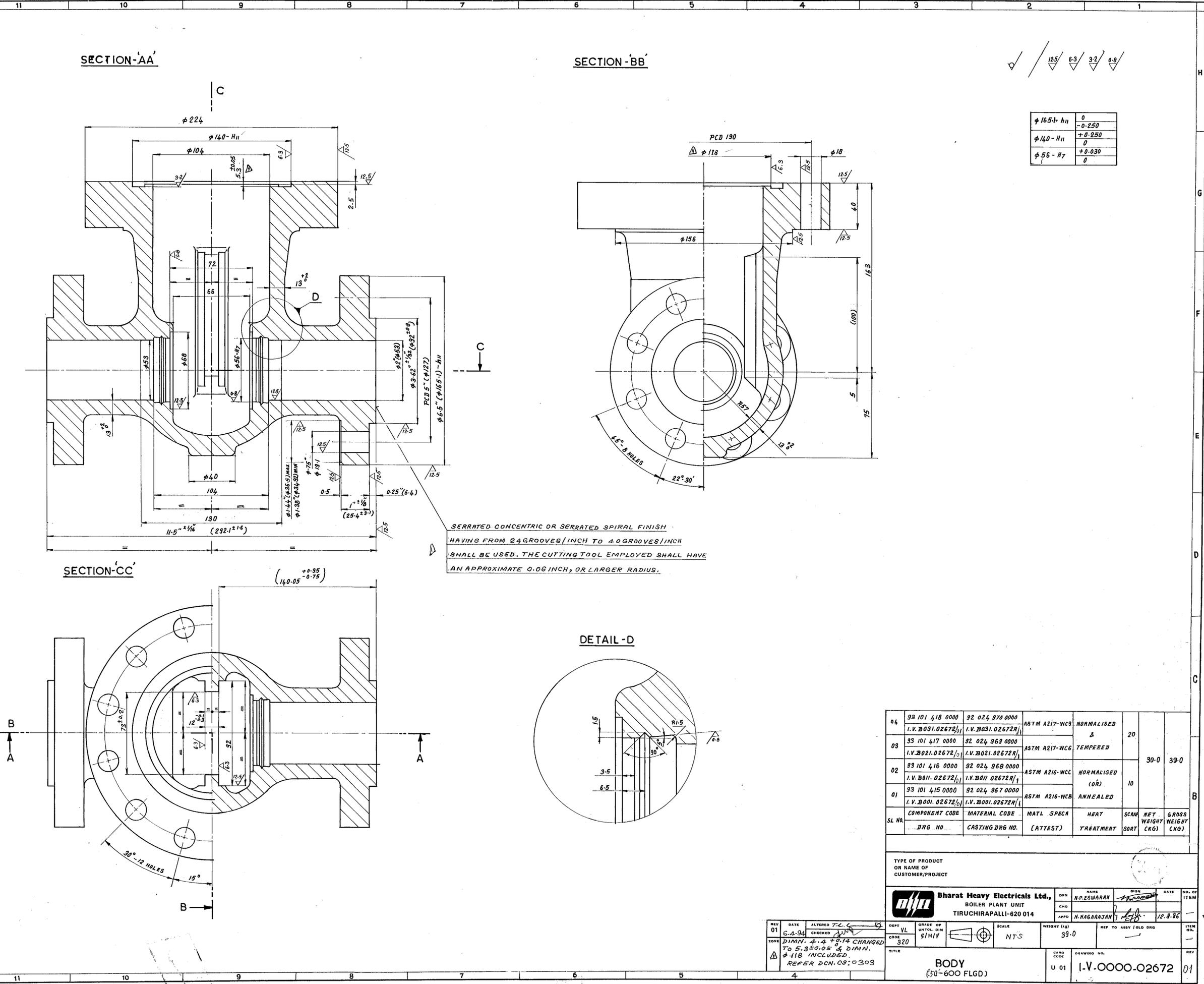
CAUTION: The information on this drawing is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way without the prior written permission of the company.

|  |                   |                    |                       |   |                |                    |               |            |
|--|-------------------|--------------------|-----------------------|---|----------------|--------------------|---------------|------------|
| CASTING DRG. NO.<br>1.V.2481.01385R/2  | 92 024 332        | A216-WCB<br>ATTEST | NORMALISED            | 10  | 170.8          | 208.0              | ---           | ---        |
| NO OFF   | DESCRIPTION       | MATL CODE          | MATL SPECN            | HEAT TREATMENT                              | SCRAP SORT     | NET WT (KG)        | GROSS WT (KG) | DRAWING No |
| TYPE OF PRODUCT<br>OR NAME OF CUSTOMER/PROJECT   |                   |                    |                       | CS DRAWING RETRACED WITH REV.01 ON 18.12.98 |                |                    |               |            |
| BHARAT HEAVY ELECTRICALS LTD.<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |                   |                    |                       | DRN   | NAME           | SIGN               | DATE          |            |
| 365-119  |                   |                    |                       | CHD   | T.R.RAMAMURTHY | <i>[Signature]</i> | 18.12.98      |            |
| DEPT   |                   |                    |                       | APPD  | K.S.RAMAN      | <i>[Signature]</i> | 18.12.98      |            |
| CODE 320   | SCALE             | WEIGHT (KG)        | REFERENCE INFORMATION |   |                |                    |               |            |
| VL   | 1 : 2             | 170.8              | CAD:G101801           |   |                |                    |               |            |
| TITLE  | BODY<br>(8"-300C) |                    | CARD CODE             | DRAWING NO.                                 |                |                    |               |            |
|  |                   |                    | U 01                  | 1-V-2670-01801                              |                |                    |               |            |

FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

06-237/C  
CAUTION THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

1.V.0000.02672/10  
DRAWING NO.



12.5 / 6.3 / 3.2 / 0.8

|                       |   |
|-----------------------|---|
| $\phi 165 \pm h_{11}$ | 0 |
| $-0.250$              |   |
| $+0.250$              |   |
| $\phi 140 - H_{11}$   | 0 |
| $+0.030$              |   |
| $\phi 56 - H_7$       | 0 |

SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH HAVING FROM 24 GROOVES/INCH TO 40 GROOVES/INCH SHALL BE USED. THE CUTTING TOOL EMPLOYED SHALL HAVE AN APPROXIMATE 0.06 INCH, OR LARGER RADIUS.

| SL NO. | COMPONENT CODE  | MATERIAL CODE   | MATL SPECN    | HEAT TREATMENT        | SCRM SORT | NET WEIGHT (KG) | GROSS WEIGHT (KG) |
|--------|-----------------|-----------------|---------------|-----------------------|-----------|-----------------|-------------------|
| 04     | 93 101 418 0000 | 92 024 970 0000 | ASTM A217-WC3 | NORMALISED & TEMPERED |           | 20              |                   |
| 03     | 93 101 417 0000 | 92 024 969 0000 | ASTM A217-WC6 | TEMPERED              |           | 30.0            | 39.0              |
| 02     | 93 101 416 0000 | 92 024 968 0000 | ASTM A216-WCC | NORMALISED (OR)       |           | 10              |                   |
| 01     | 93 101 415 0000 | 92 024 967 0000 | ASTM A216-WCB | ANNEALED              |           |                 |                   |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**Bharat Heavy Electricals Ltd.**  
BOILER PLANT UNIT  
TIRUCHIRAPALLI-620 014

REV 01 DATE 6.2.94 ALTERED T.C. CHECKED BY [Signature] DEPT VL GRADE OF UNTOCD DIM 320 R/M/V SCALE NTS WEIGHT (KG) 39.0 REF TO ASSY FOLD DRG ITEM NO. 01

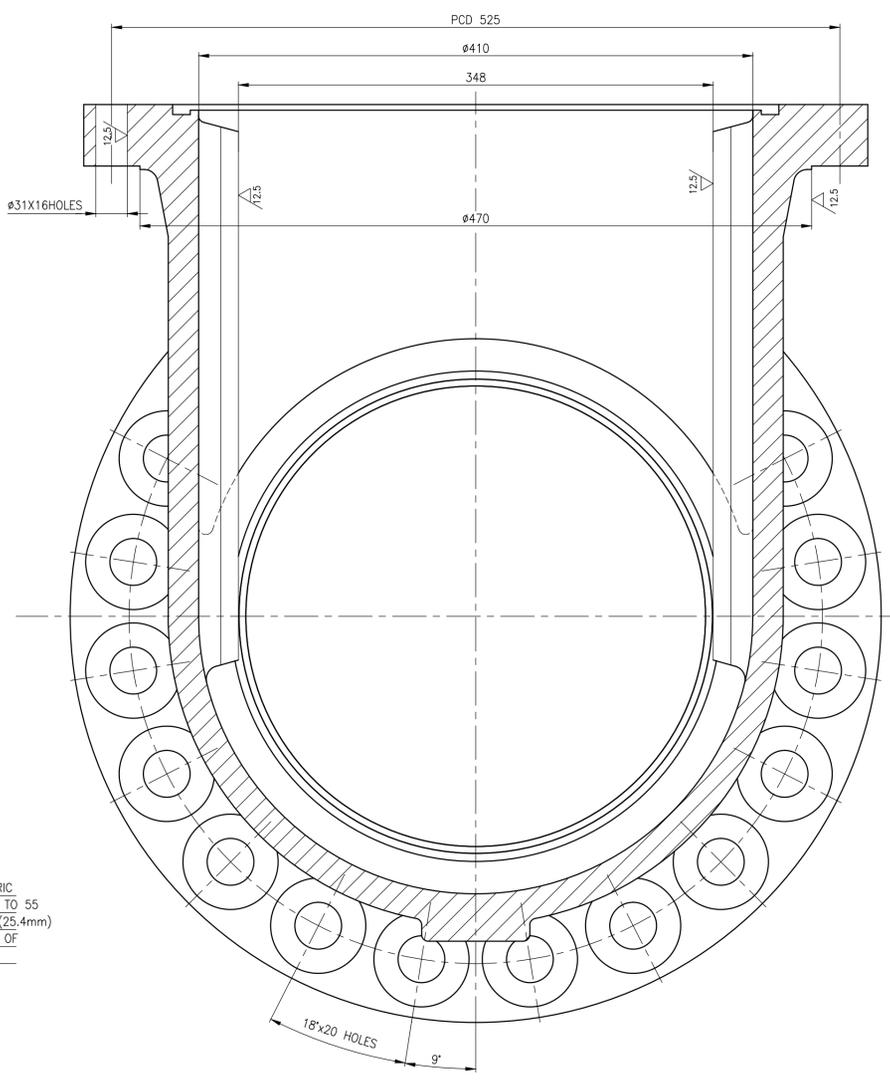
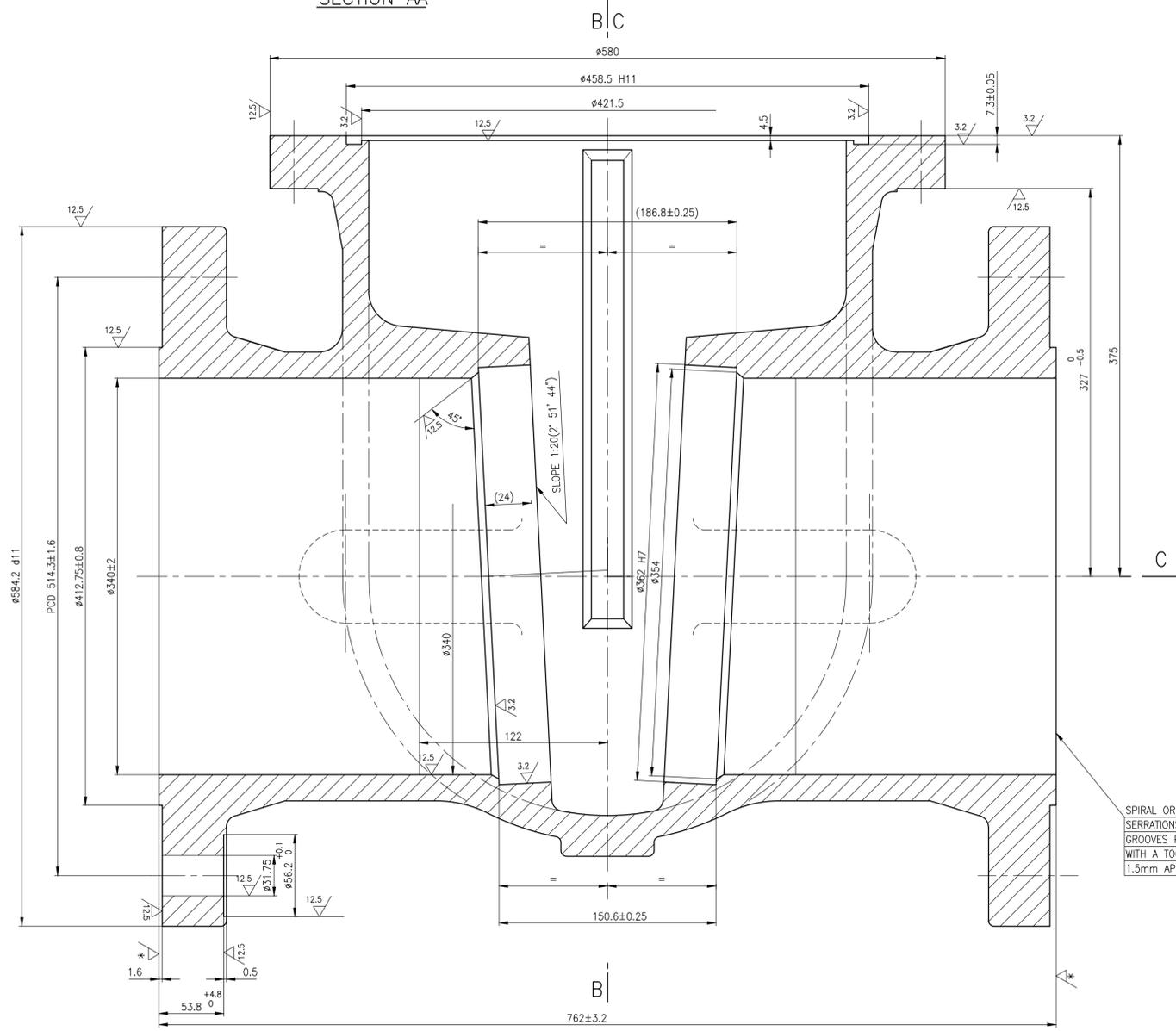
TITLE BODY (50-600 FLGD) CARD CODE U 01 DRAWING NO. 1.V.0000-02672 REV 01

DRAWING NO. 1-V-0000-05134

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP/QP

SECTION AA

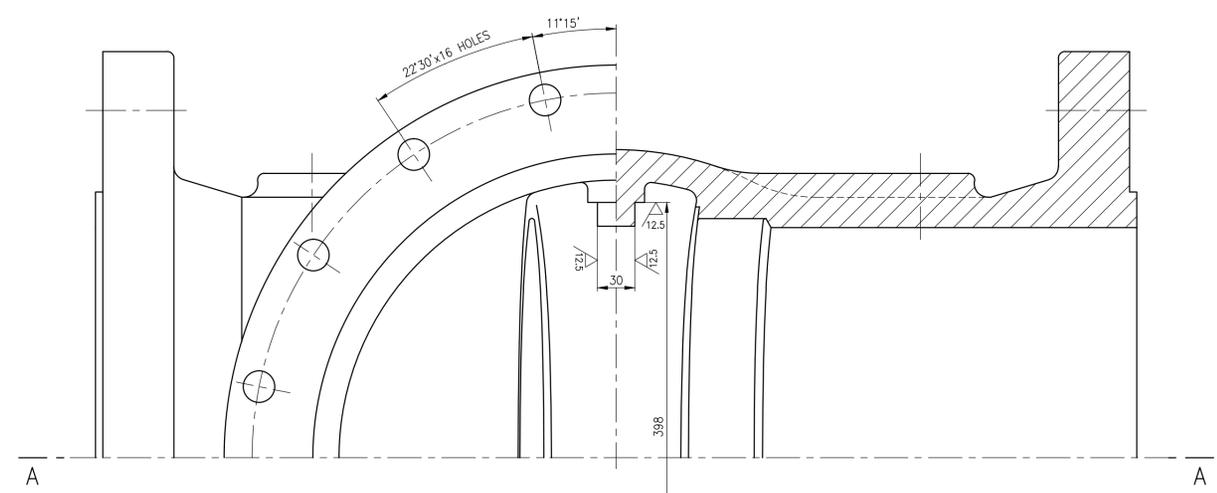
SECTION BB



|            |        |
|------------|--------|
| ø362 H7    | +0.057 |
|            | 0      |
| ø458.5 H11 | +0.400 |
|            | 0      |
| ø584.2 d11 | -0.260 |
|            | -0.700 |

SPIRAL OR CONCENTRIC SERRATIONS WITH 45 TO 55 GROOVES PER INCH (25.4mm) WITH A TOOL RADIUS OF 1.5mm APPROX.

SECTION CC



REDRAWN WITH REV.08 ON 27.01.2014

| SL. No. | DRAWING NO.       | MATL. CODE   | MATL. SPECN.         | COMP. CODE   | SURFACE FINISH | SCRAP SORT | NET WT. (Kg) | GROSS WT. (Kg) |
|---------|-------------------|--------------|----------------------|--------------|----------------|------------|--------------|----------------|
| 04      | 1-V-NH66-05134    | 922031360000 | SA 217 WCB ATTEST,NT | 932030070000 | 3.2            | 20         | 385.5        | 464            |
| 03      | 1-V-NA58-05134    | 922014950000 | SA 351 CF8 ATTEST,SH | 931301450000 | 3.2            | 40         | 385.5        | 464            |
| 02      | 1-V-N843-05134/03 | 922005140000 | SA 216 WCB ATTEST,NR | 931097780000 | 1.6            | 10         | 385.5        | 464            |
| 01      | 1-V-N435-05134/03 | 922005140000 | SA 216 WCB ATTEST,NR | 931097770000 | 3.2            | 10         | 385.5        | 464            |

| No | OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|----|-----|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|----|-----|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

|      |               |      |          |
|------|---------------|------|----------|
| DRN  | V.BAIRAVAN    | DATE | 20.02.04 |
| CHD  | R.L.NARAYANAN | DATE | 20.02.04 |
| APPD | M.RAJAKUMAR   | DATE | 20.02.04 |

DEPT VL CODE 320 SCALE N T S WEIGHT (KG) REFERENCE INFORMATION CAD REF. NO:C105134

TITLE BODY CARD CODE U 01 DRAWING NO. 1-V-0000-05134 REV 08

| REV | DATE     | ALTERED             | S.SARANYA |
|-----|----------|---------------------|-----------|
| 08  | 18.11.13 | CHD & APPD MS & SSK |           |

DRG. CONVERTED INTO AUTOCAD

| REV | DATE     | ALTERED                  | S.SARANYA |
|-----|----------|--------------------------|-----------|
| 07  | 18.11.13 | CHD & APPD S.S.K & K.R.S |           |

| REV | DATE    | ALTERED        | S.SARANYA |
|-----|---------|----------------|-----------|
| 06  | 20.2.04 | CHD & APPD MRK |           |

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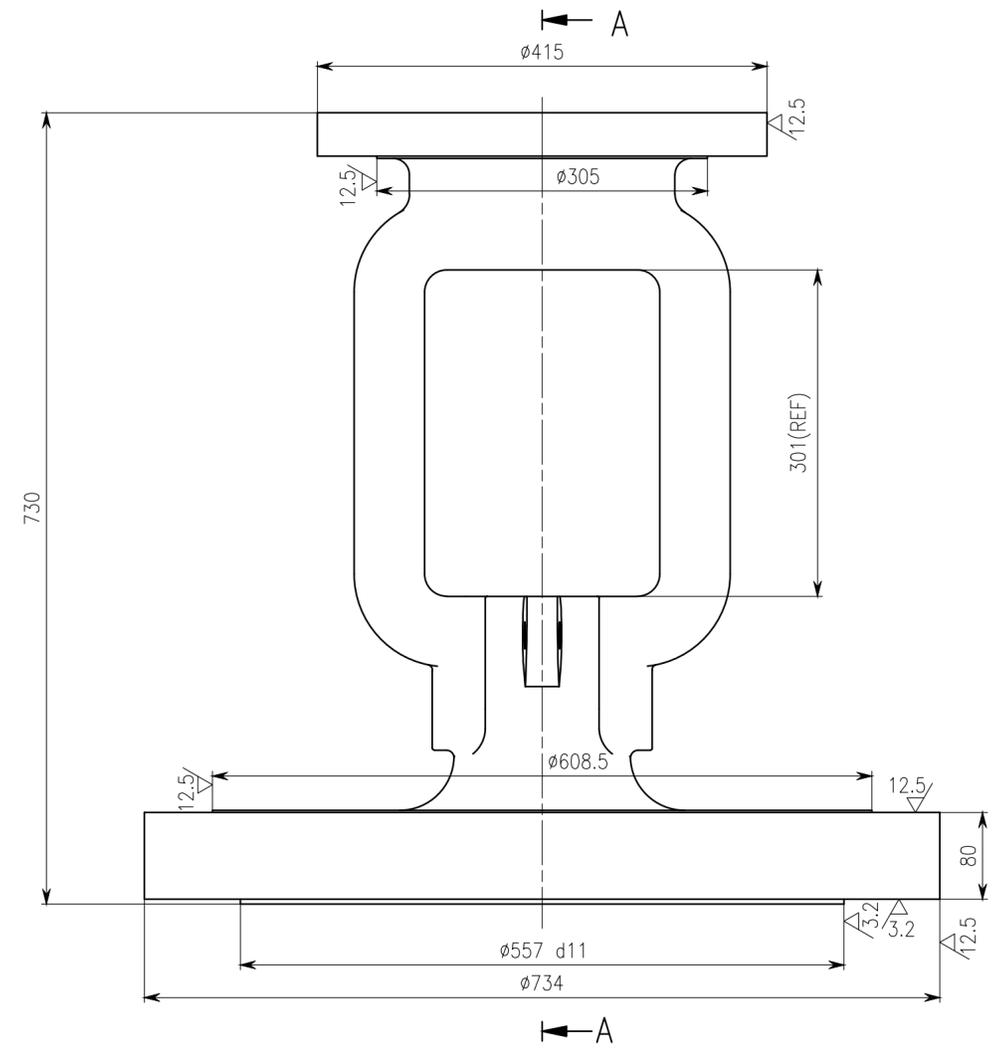
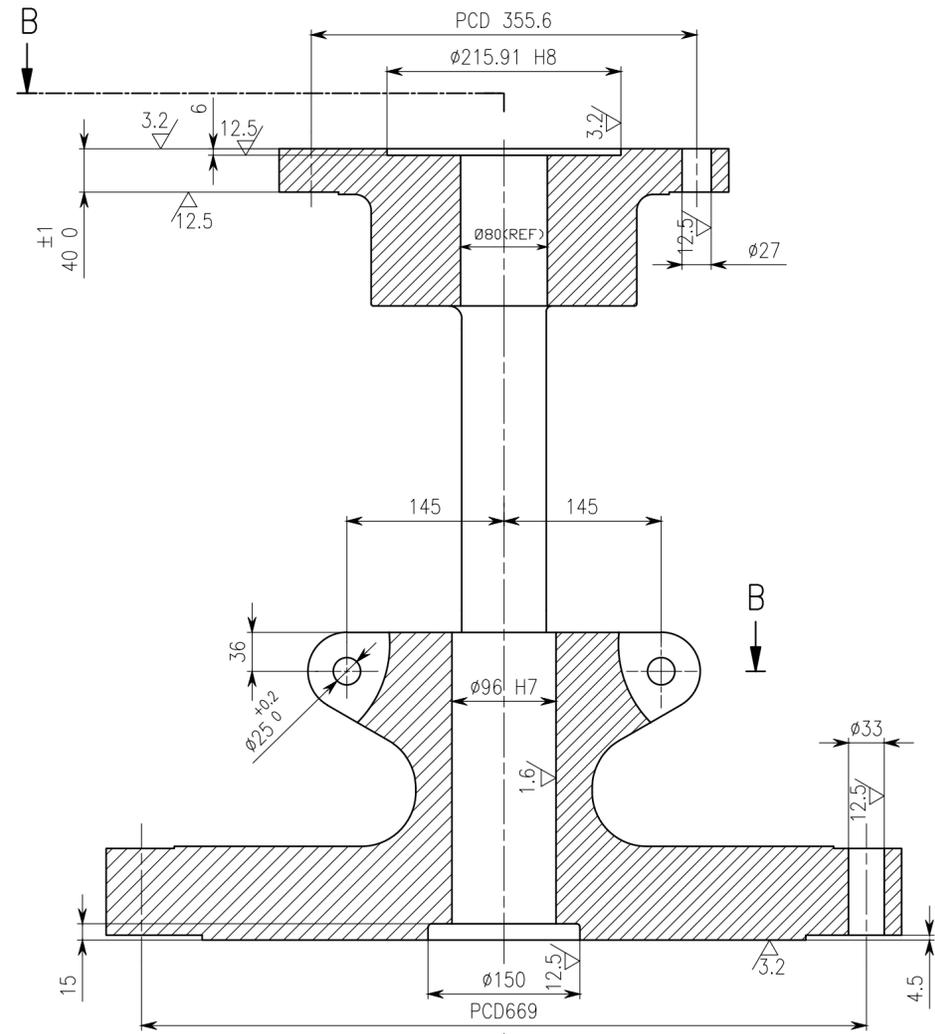
14"/300 CL

Size A1

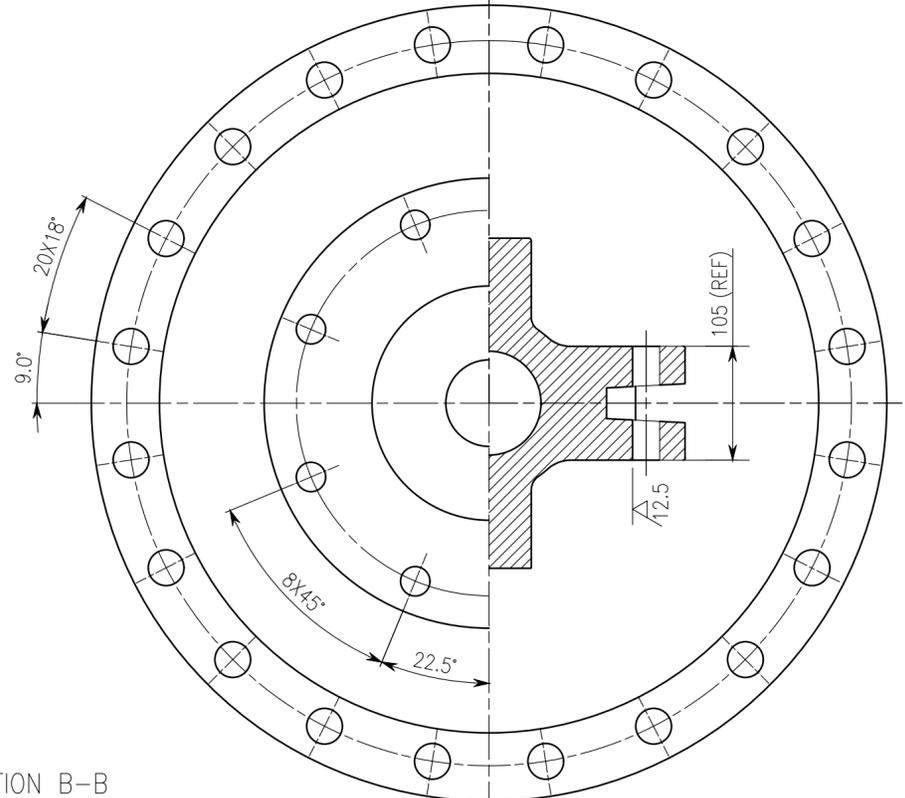
DRAWING NO. 2-V-0000-14827

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

√/1.6/3.2/12.5/



|            |                  |
|------------|------------------|
| Ø96 H7     | +0.035<br>0      |
| Ø557 d11   | -0.260<br>-0.700 |
| Ø215.91 H8 | +0.072<br>0      |



|   |               |                         |                      |
|---|---------------|-------------------------|----------------------|
| REV 05                                  | DATE 08.01.16 | ALTERED CHD & APPD      | A.VSMANIAN MS & SSK  |
| DIMENSION Ø150 WAS Ø140.                |               |                         |                      |
| DCP: 802066                             |               |                         |                      |
| REV 04                                  | DATE 21.05.15 | ALTERED CHD & APPD      | M.S.SELVAM MS & SSK  |
| REV 03                                  | DATE 20.11.14 | ALTERED CHD & APPD      | A.MARIMUTHU MS & SSK |
| DRAWING CONVERTED INTO AUTOCAD          |               | SL.No. 04 INCLUDED      |                      |
| REV 02                                  | DATE 29.05.14 | ALTERED CHD & APPD      | DEEPAKRAJ & KRS      |
| REV 01                                  | DATE 22.10.13 | ALTERED CHD & APPD      | DEEPAKRAJ & KRS      |
| DIM 215.9 WAS 251.9 IN TOLERANCES TABLE |               | SL.No. 02 & 03 INCLUDED |                      |
| DCP NO. : 801750                        |               |                         |                      |

|        |             |              |                        |                |            |             |               |                                   |         |
|--------|-------------|--------------|------------------------|----------------|------------|-------------|---------------|-----------------------------------|---------|
| 04     | CASTING     | 922033510000 | ASTM A217 C12A CERTIFY | NT             | 20         | 406         | 493           | 2.V.NJ35.14827/01<br>932036390000 | 007     |
| 03     | CASTING     | 922031790000 | ASTM A217 WC9, CERTIFY | NT             | 20         | 406         | 493           | 2.V.NH63.14827/02<br>932031450000 | 007     |
| 02     | CASTING     | 922031850000 | ASTM A216 WCC, CERTIFY | NR             | 10         | 406         | 493           | 2.V.NH62.14827/02<br>932031670000 | 007     |
| 01     | CASTING     | 922030880000 | ASTM A216 WCB, CERTIFY | NR             | 10         | 406         | 493           | 2.V.NH55.14827/02<br>932028820000 | 007     |
| SL No. | DESCRIPTION | MATL CODE    | MATL SPECN             | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No COMPONENT CODE         | ITEM No |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**BHARAT HEAVY ELECTRICALS LTD.**  
UNIT: HIGH PRESSURE BOILER PLANT.  
TIRUCHIRAPALLI - 620014.

|                  |      |               |            |
|------------------|------|---------------|------------|
| DRN DEEPAKRAJ    | SIGN | DATE 12.02.13 | NO.OF VAR. |
| CHD M.RAJAKUMAR  |      | 12.02.13      |            |
| APPD M.RAJAKUMAR |      | 12.02.13      |            |

DEPT VL 3320

SCALE NTS

WEIGHT (KG). REF. TABLE

REFERENCE INFORMATION: CASTING DRAWING 2V000014826R

TITLE: **YOKE COVER**  
(16"-C300-RV)

CARD CODE: U 01

DRAWING NO. **2-V-0000-14827**

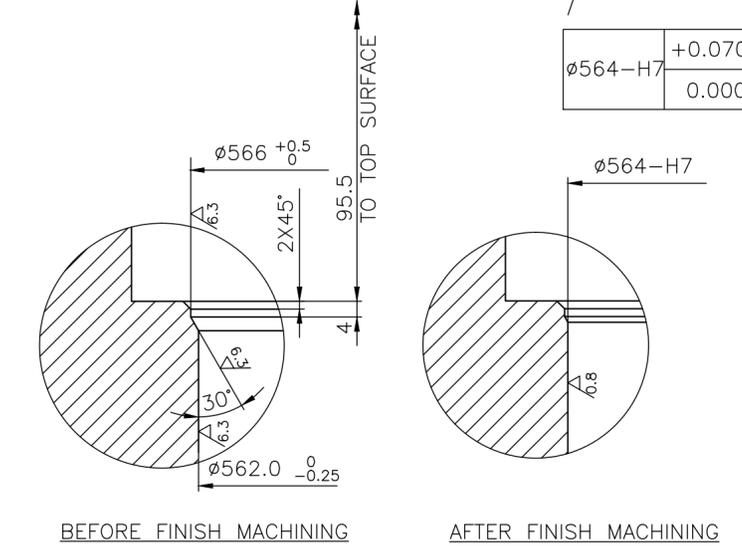
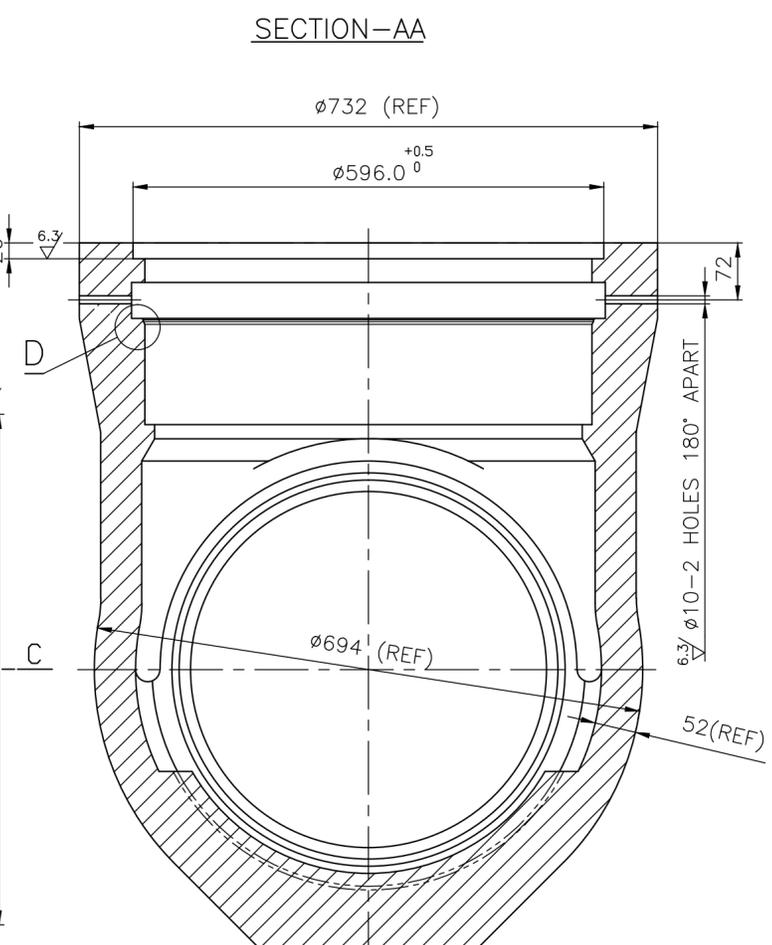
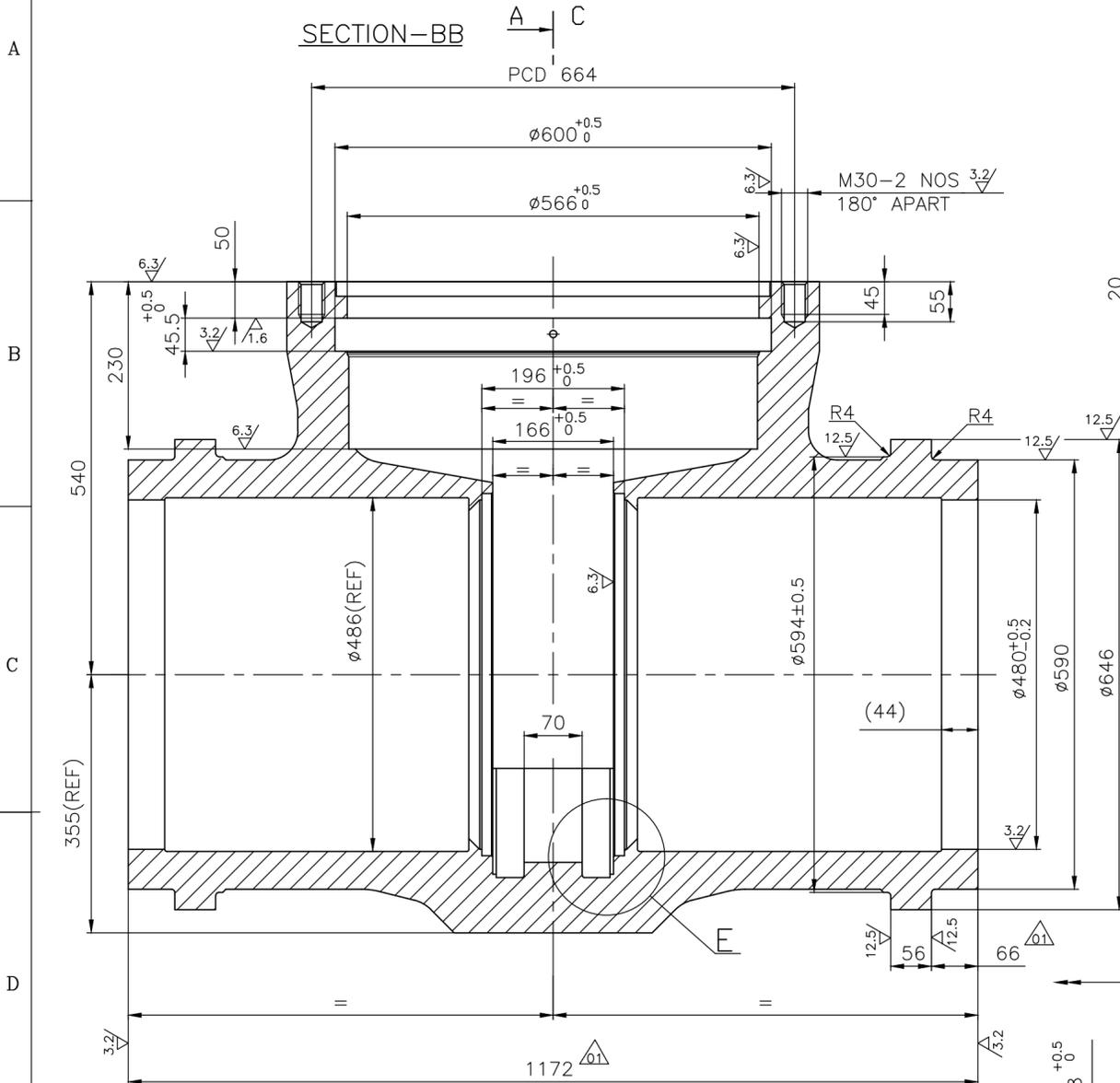
REV **05**

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SECTION B-B

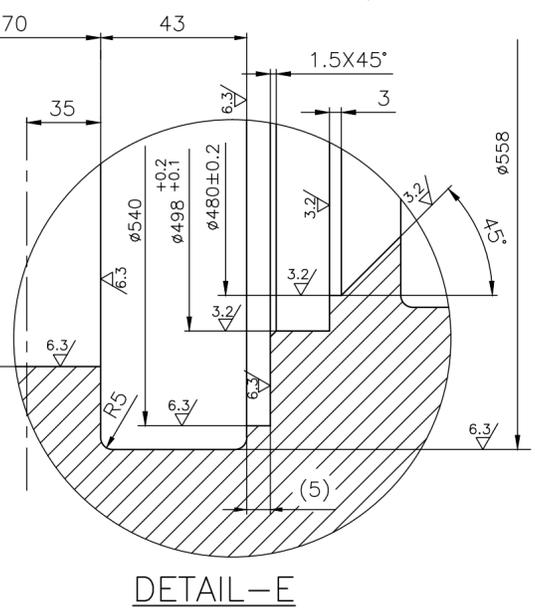
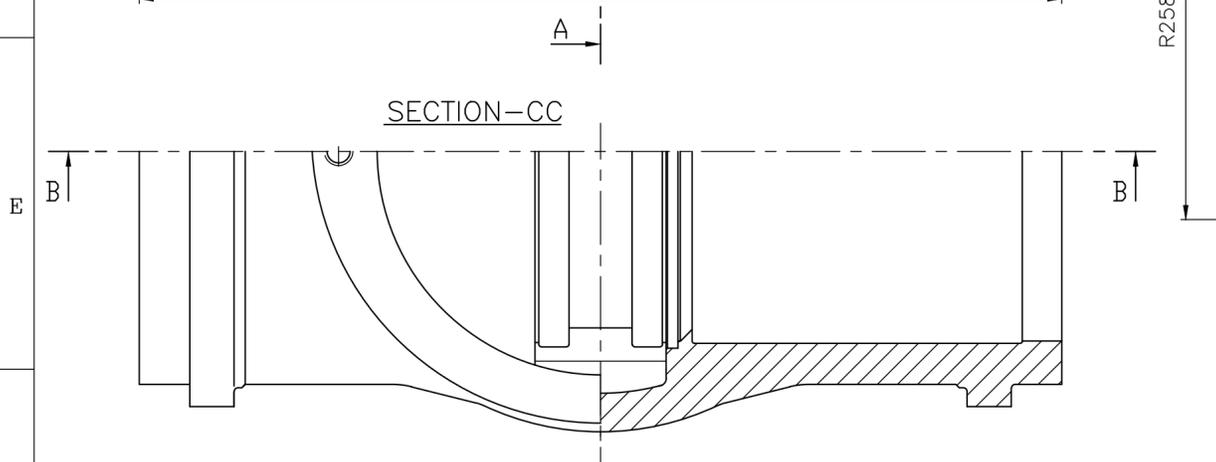
√/6.3/3.2/1.6/0.8/

|         |        |
|---------|--------|
| ∅564-H7 | +0.070 |
|         | 0.000  |



**NOTE:-**

- UNSPECIFIED SHARP CORNERS TO BE CHAMFERED TO 1X45°.
- ALLOWABLE DEVIATIONS FOR DIMENSION WITHOUT SPECIFIED TOLERANCE REFER: APPLICABLE QUALITY PROCEDURE.



|        |             |           |                      |                |            |             |               |            |         |
|--------|-------------|-----------|----------------------|----------------|------------|-------------|---------------|------------|---------|
| 01     | CASTING     | 92202094  | ASTM A216 WCC-ATTEST | NORMALISED     | 10         | 1270        | 1440          | -          | 001     |
| No OFF | DESCRIPTION | MATL CODE | MATL SPECN           | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

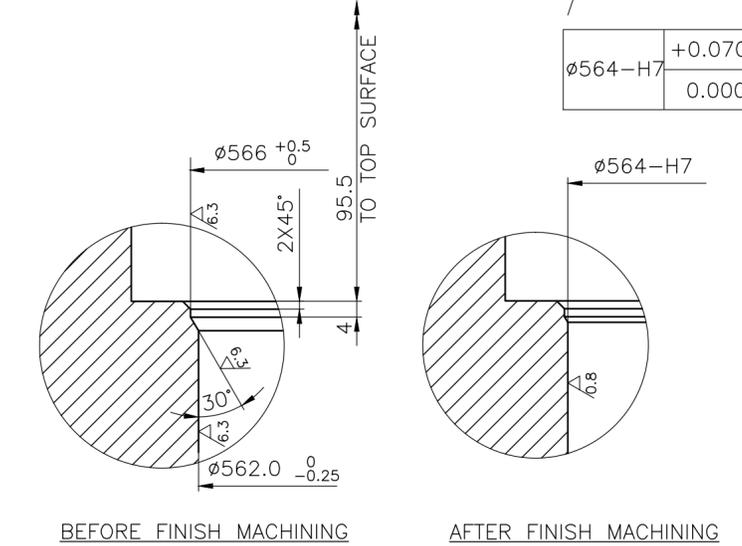
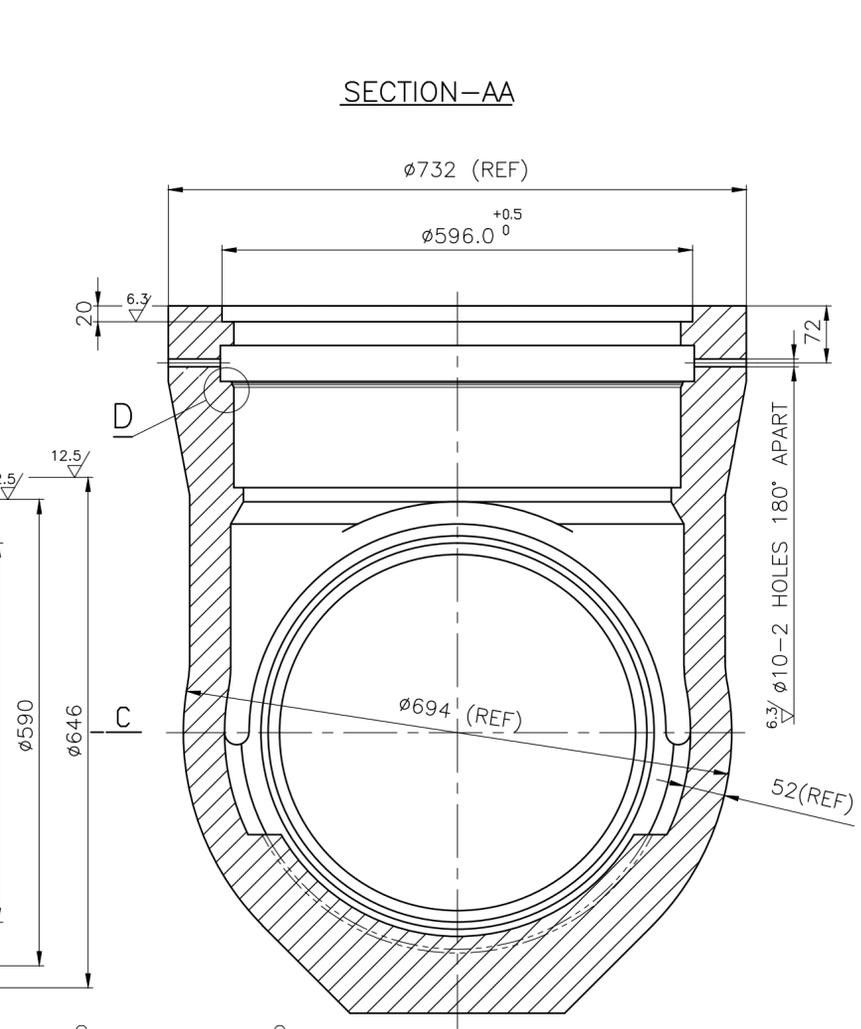
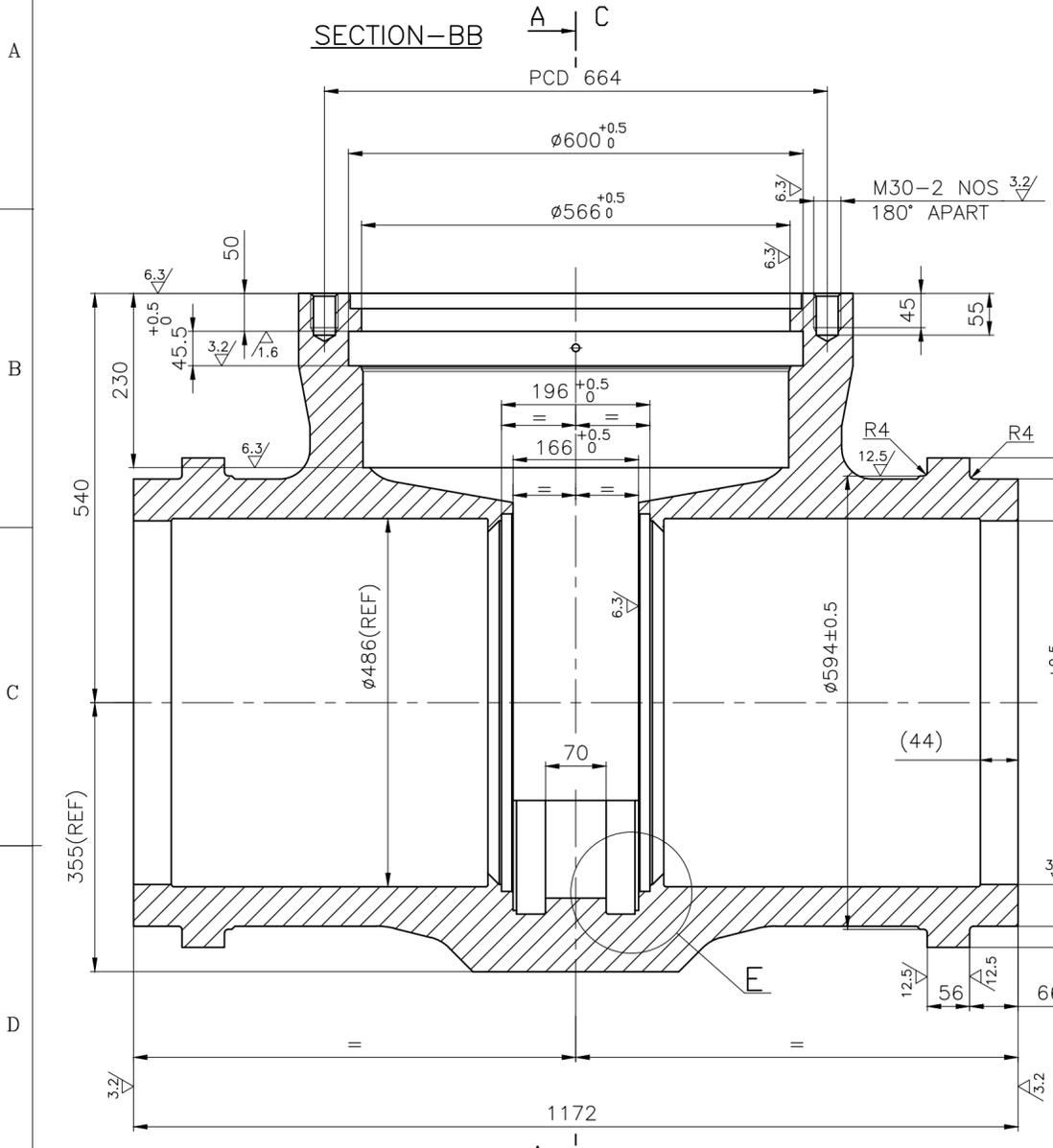
|  |   |              |     |         |      |          |            |
|--|---|--------------|-----|---------|------|----------|------------|
|  | <b>BHARAT HEAVY ELECTRICALS LTD.</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |              | DRN | R.GANGA | SIGN | DATE     | NO.OF VAR. |
|  | CHD   | M.SRINIVASAN |     |         |      | 15.10.11 |            |
|  | APPD  | M.RAJAKUMAR  |     |         |      | 15.10.11 |            |

|       |                   |       |              |                                |              |
|-------|-------------------|-------|--------------|--------------------------------|--------------|
| DEPT  | V L               | SCALE | WEIGHT (KG). | REFERENCE INFORMATION          | NO. OF ITEMS |
| CODE  | 320               | N.T.S | 1270         | COMPONENT CODE:93 202 462 0000 |              |
| TITLE | BODY (550mm-C500) |       | CARD CODE    | DRAWING NO.                    | REV          |
|       |                   |       | U 01         | 2-V-3355-14710                 | 01           |

|      |  |              |
|------|--|--------------|
| REV  | DATE                                   | ALTERED      |
| 01   | 21.12.13                               | M.SRINIVASAN |
| ZONE | DIMENSION 1172 & 66 WERE 1168±3.2 & 64 |              |
|      | DCP: 801664                            |              |

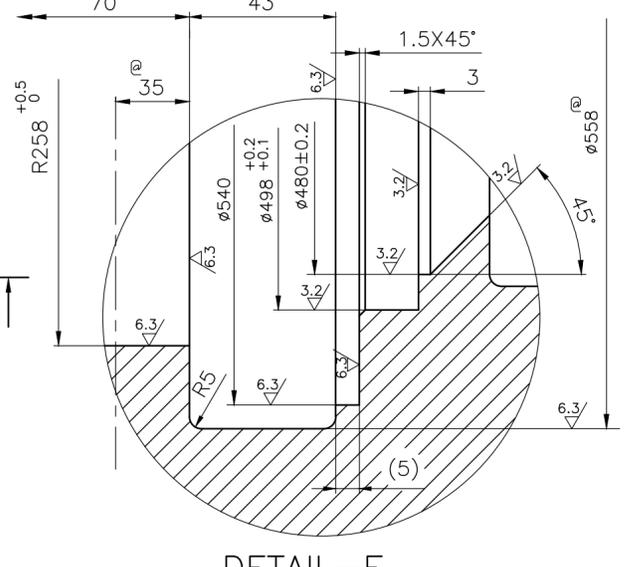
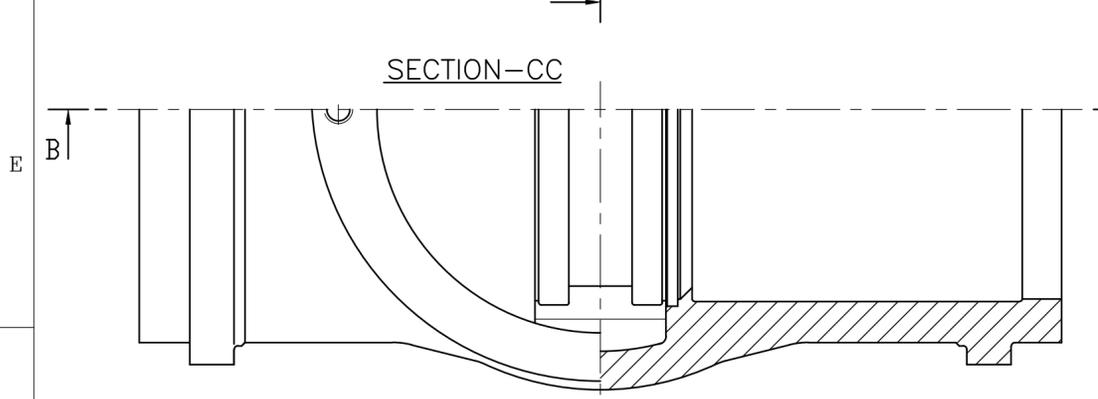
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|         |                  |
|---------|------------------|
| ✓       | 6.3/3.2/1.6/0.8/ |
| ∅564-H7 | +0.070<br>0.000  |



**NOTE:-**

- UNSPECIFIED SHARP CORNERS TO BE CHAMFERED TO 1X45°.
- ALLOWABLE DEVIATIONS FOR DIMENSION WITHOUT SPECIFIED TOLERANCE REFER: APPLICABLE QUALITY PROCEDURE.



| SL No. | DESCRIPTION | MATL CODE | MATL SPECN        | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                        | ITEM No |
|--------|-------------|-----------|-------------------|-----------------------|------------|-------------|---------------|-----------------------------------|---------|
| 02     | CASTING     | 92203133  | SA217 C12A ATTEST | NORMALISED & TEMPERED | 20         | 1270        | 1440          | 2-V-3390-05612<br>932030420000    | 001     |
| 01     | CASTING     | 92033824  | SA217 WC9 ATTEST  | NORMALISED & TEMPERED | 20         | 1270        | 1440          | 2-V-3208-05612/06<br>931653650000 | 001     |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

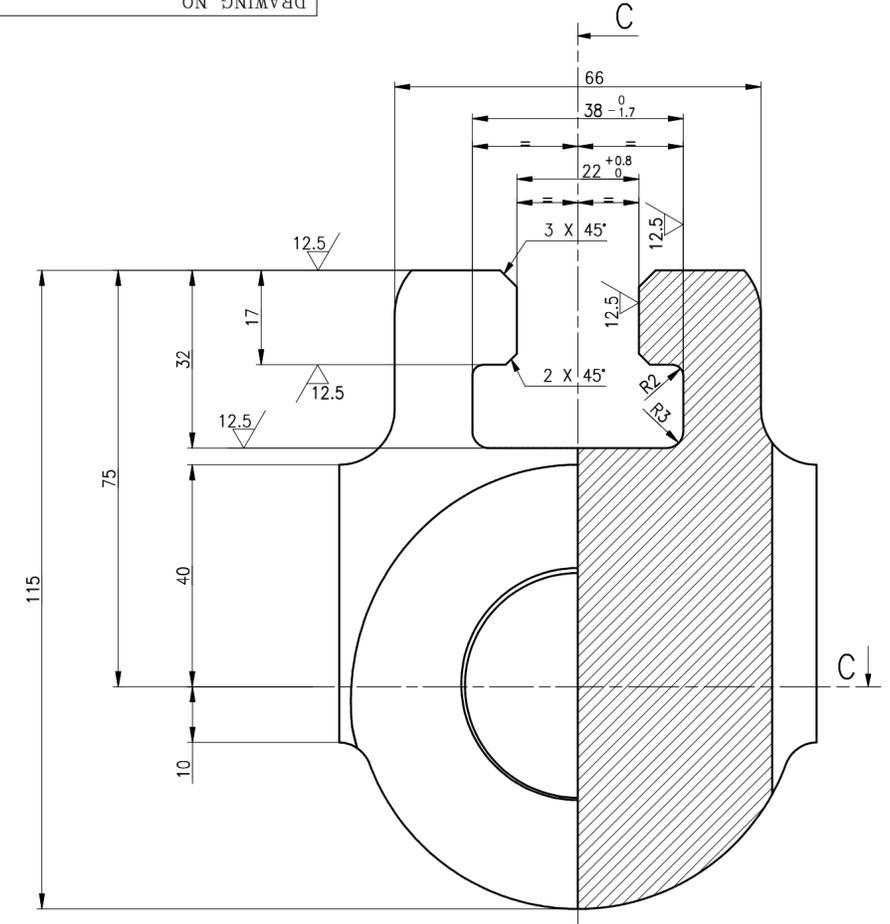
|      |              |      |          |            |
|------|--------------|------|----------|------------|
| DRN  | M.SRINIVASAN | SIGN | DATE     | NO.OF VAR. |
| CHD  | N.P.ESWARAN  |      | 22.05.93 |            |
| APPD | N.NAGARAJAN  |      | 22.05.93 |            |

|       |                   |       |             |                                 |               |
|-------|-------------------|-------|-------------|---------------------------------|---------------|
| DEPT  | V L               | SCALE | WEIGHT (KG) | REFERENCE INFORMATION           | NO. OF TITERS |
| CODE  | 320               | N.T.S | 1270        | COMPONENT CODE: 93 165 365 0000 |               |
| TITLE | BODY (550mm-C900) |       | CARD CODE   | DRAWING NO.                     | REV           |
|       |                   |       | U 01        | 2-V-0000-05612                  | 08            |

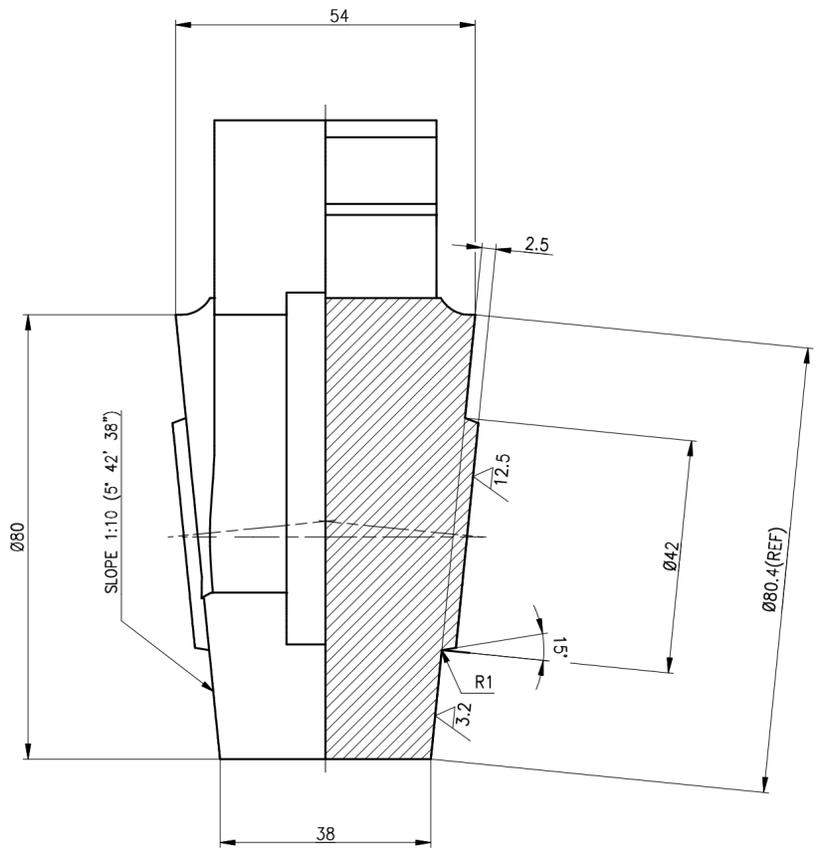
| REV                                     | DATE     | ALTERED    | M.SRINIVASAN | REV                | DATE     | ALTERED    | M.SRINIVASAN | REV                     | DATE     | ALTERED    | M.SRINIVASAN | REV                                    | DATE     | ALTERED    | M.SRINIVASAN | REV | DATE     | ALTERED    | M.SRINIVASAN |
|---|----------|------------|--------------|--------------------|----------|------------|--------------|-------------------------|----------|------------|--------------|--|----------|------------|--------------|-----|----------|------------|--------------|
| 08                                      | 21.12.13 | CHD & APPD | SSK & KRS    | 07                 | 08.06.13 | CHD & APPD | SSK & KRS    | 06                      | 08.07.11 | CHD & APPD | M.RAJAKUMAR  | 05                                     | 18.08.09 | CHD & APPD | M.RAJAKUMAR  | 04  | 20.03.09 | CHD & APPD | P.Boomnathan |
| DIMENSION 66 & 1172 WERE 64 & 1168 ±3.2 |          |            |              | SL.No. 02 INCLUDED |          |            |              | DIMENSION (44) INCLUDED |          |            |              | DIMENSION 70, 43, ∅558 & (5) INCLUDED. |          |            |              |     |          |            |              |
| DCP : 801664                            |          |            |              |                    |          |            |              | DCP:801194              |          |            |              | DCP:800976                             |          |            |              |     |          |            |              |

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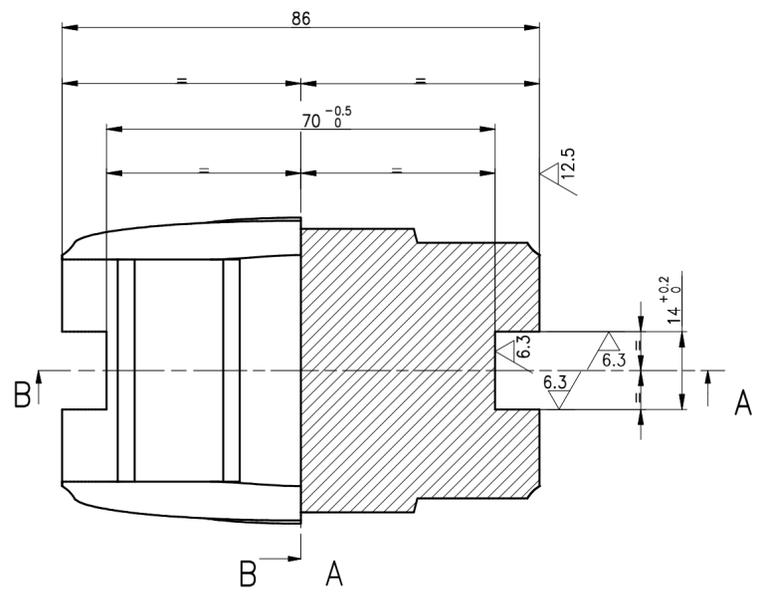
12.5 / 6.3



SECTION A-A



SECTION B-B



SECTION C-C

NOTES:  
1. # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

| TOLERANCE FOR UNTOLERANCED DIMENSIONS |        |
|---------------------------------------|--------|
| UPTO 6MM                              | ±0.1MM |
| >6 UPTO 120MM                         | ±0.2MM |
| MORE THAN 120MM                       | ±0.5MM |
| ANGULAR TOLERANCE                     | ±0.5°  |
| CHAMFER                               | ±5°    |

| SL NO | DESCRIPTION | MATL CODE  | MATL SPECN          | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                           | ITEM No |
|-------|-------------|------------|---------------------|----------------|------------|-------------|---------------|--------------------------------------|---------|
| #07   | -           | 92 206 099 | SA351 CF8, CERTIFY  | SH             | 46         | 2.54        | 3.2           | 2.V.UA90.05685/01<br>93 205 997 3000 | -       |
| 06    | -           | 92 206 098 | SA351 CF8, CERTIFY  | SH             | 46         | 2.54        | 3.2           | 2.V.F956.05685/01<br>93 205 996 3000 | -       |
| 05    | -           | 92 201 561 | SA351 CF8M, CERTIFY | SH             | 46         | 2.54        | 3.2           | 2.V.F520.05685/01<br>93 130 531 3000 | -       |
| 04    | -           | 92 034 270 | SA217 WC9, CERTIFY  | NT             | 20         | 2.54        | 3.2           | 2.V.B031.05685/01<br>93 101 424 3000 | -       |
| 03    | -           | 92 034 269 | SA217 WC6, CERTIFY  | NT             | 20         | 2.54        | 3.2           | 2.V.B021.05685/01<br>93 101 423 3000 | -       |
| 02    | -           | 92 034 268 | SA216 WCC, CERTIFY  | NR             | 20         | 2.54        | 3.2           | 2.V.B011.05685/01<br>93 101 422 3000 | -       |
| 01    | -           | 92 034 267 | SA216 WCB, CERTIFY  | NR             | 10         | 2.54        | 3.2           | 2.V.B001.05685/01<br>93 101 421 3000 | -       |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: DRAWING REDRAWN WITH REV. 01 ON 01.09.2021

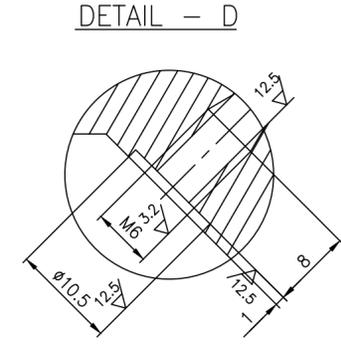
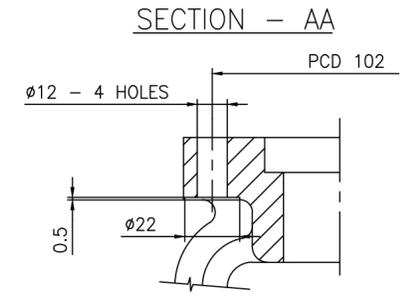
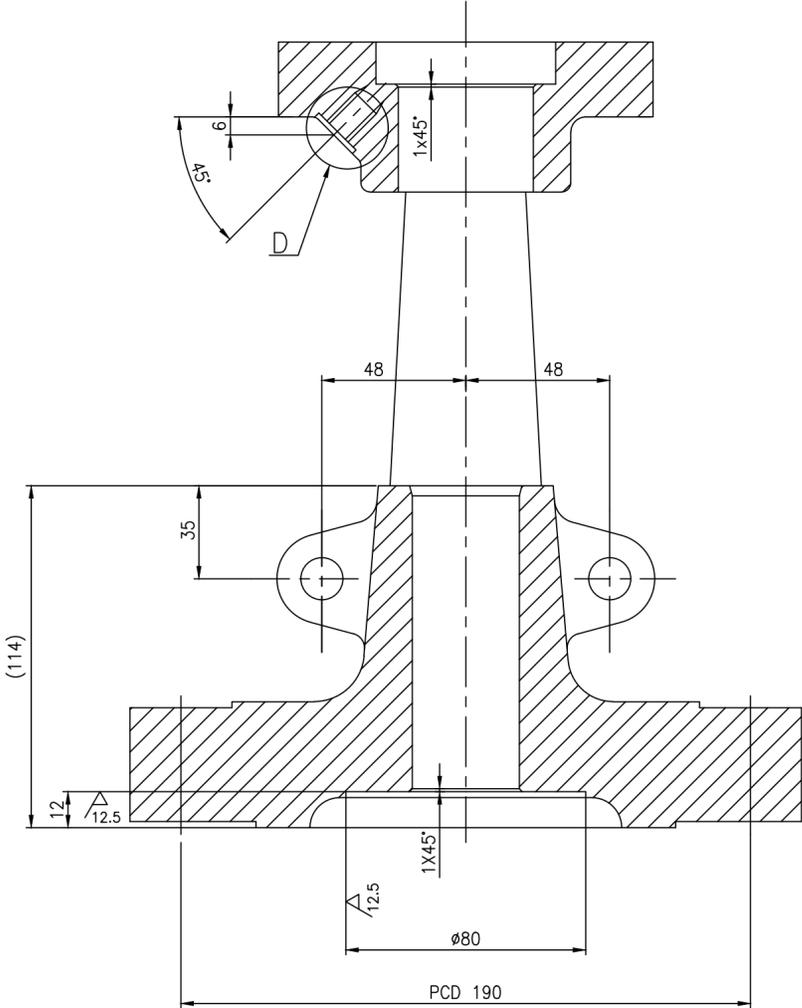
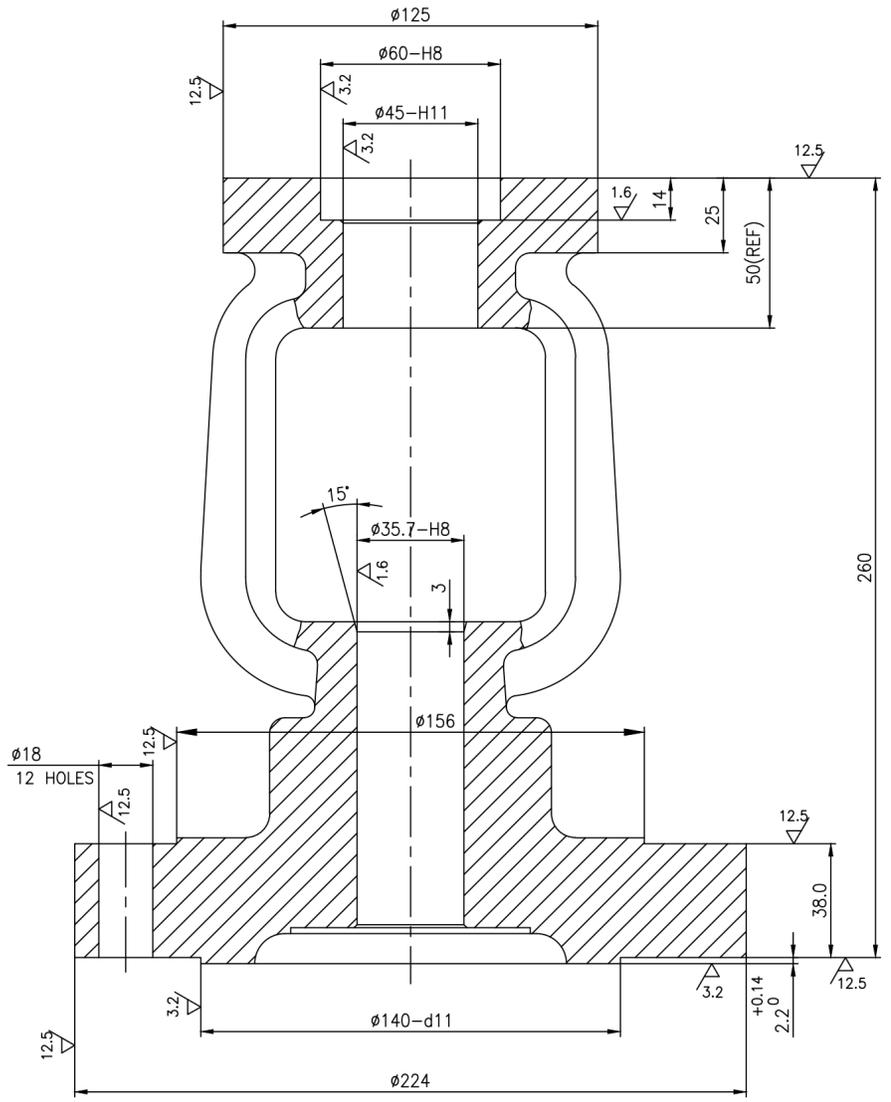
|      |             |      |  |      |          |             |  |
|------|-------------|------|--|------|----------|-------------|--|
| DRN  | R.P.SINGH   | SIGN |  | DATE | 01.09.21 | NO. OF VAR. |  |
| CHD  | SAMEER BHAT |      |  |      | 01.09.21 |             |  |
| APPD | S.SATHEES   |      |  |      | 01.09.21 |             |  |

DEPT: VL  
CODE: 320  
TITLE: WEDGE ROUGH (2-C600-GV)

SCALE: NTS  
WEIGHT (KG):  
REFERENCE INFORMATION: DRAWING NO. 2-V-0000-05685  
CARD CODE: U 01  
REV: 02

| DCP No. | ALTD: R.P.S  | APPD: SSK    | DCP No. | ALTD: R.P.S            | APPD: SSK    |
|---------|--|--------------|---------|------------------------|--------------|
|         | CHD: MK  | DT: 20.07.23 | -       | CHD: SAB               | DT: 01.09.21 |
| REV 02  | OUTER COLLAR OF HARDFACING DEPOSITION GROOVE REMOVED. DIMENSIONS 54 AND 38 WERE 59 AND 43. |              | REV 01  | S.No 5, 6 & 7 INCLUDED |              |
| ZONE -  |  |              | ZONE -  |                        |              |

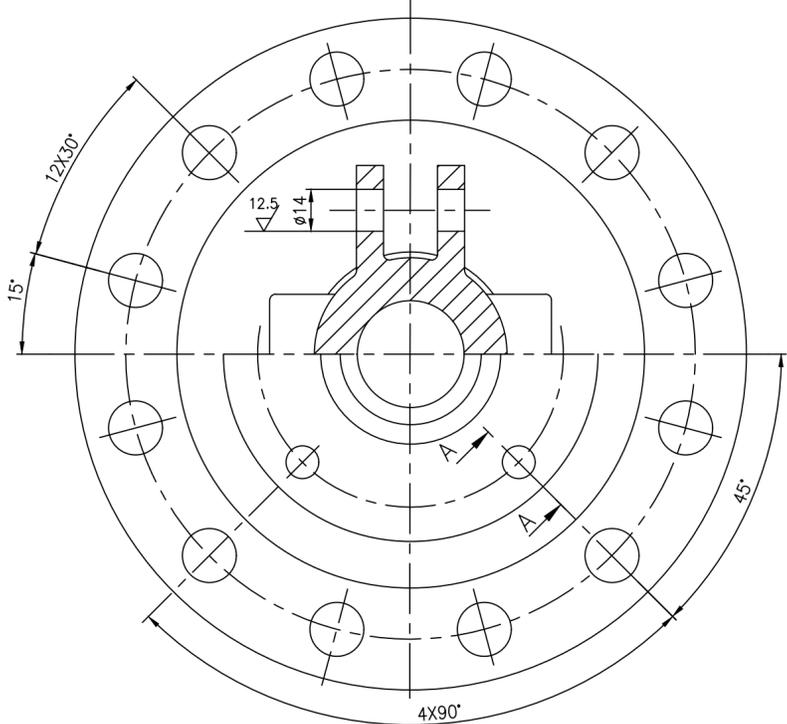
12.5 3.2 1.6



|              |        |
|--------------|--------|
| Ø35.7 - H8   | +0.039 |
|              | 0      |
| Ø45 - H11    | +0.160 |
|              | 0      |
| Ø60 - H8     | +0.046 |
|              | 0      |
| Ø140.0 - d11 | -0.145 |
|              | -0.395 |

NOTES:

1. # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.



| #   | DESCRIPTION | MATL CODE  | MATL SPECN             | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE            | ITEM No |
|-----|-------------|------------|------------------------|-----------------------|------------|-------------|---------------|-----------------------------------|---------|
| #07 | CASTING     | 92 206 101 | ASTM A351 CF8 CERTIFY  | SOLUTION ANNEALED     | 46         | 15.0        | 20.0          | 2.V.UA90.08383<br>93 205 998 0000 | 007     |
| 06  | CASTING     | 92 206 100 | ASTM A351 CF8 CERTIFY  | SOLUTION ANNEALED     | 46         | 15.0        | 20.0          | 2.V.F956.08383<br>93 206 000 0000 | 007     |
| 05  | CASTING     | 92 201 560 | ASTM A351 CF8M CERTIFY | SOLUTION ANNEALED     | 46         | 15.0        | 20.0          | 2.V.F520.08383<br>93 130 530 0000 | 007     |
| 04  | CASTING     | 92 008 475 | ASTM A217 WC9 CERTIFY  | NORMALISED & TEMPERED | 20         | 15.0        | 20.0          | 2.V.F531.08383<br>93 110 773 0000 | 007     |
| 03  | CASTING     | 92 008 474 | ASTM A217 WC6 CERTIFY  | NORMALISED & TEMPERED | 20         | 15.0        | 20.0          | 2.V.F521.08383<br>93 110 772 0000 | 007     |
| 02  | CASTING     | 92 008 473 | ASTM A216 WCC CERTIFY  | NORMALISED            | 10         | 15.0        | 20.0          | 2.V.F511.08383<br>93 110 771 0000 | 007     |
| 01  | CASTING     | 92 008 472 | ASTM A216 WCB CERTIFY  | NORMALISED            | 10         | 15.0        | 20.0          | 2.V.F501.08383<br>93 110 770 0000 | 007     |

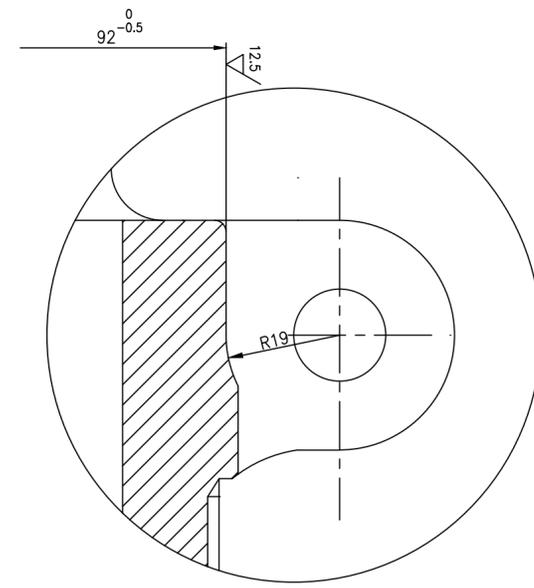
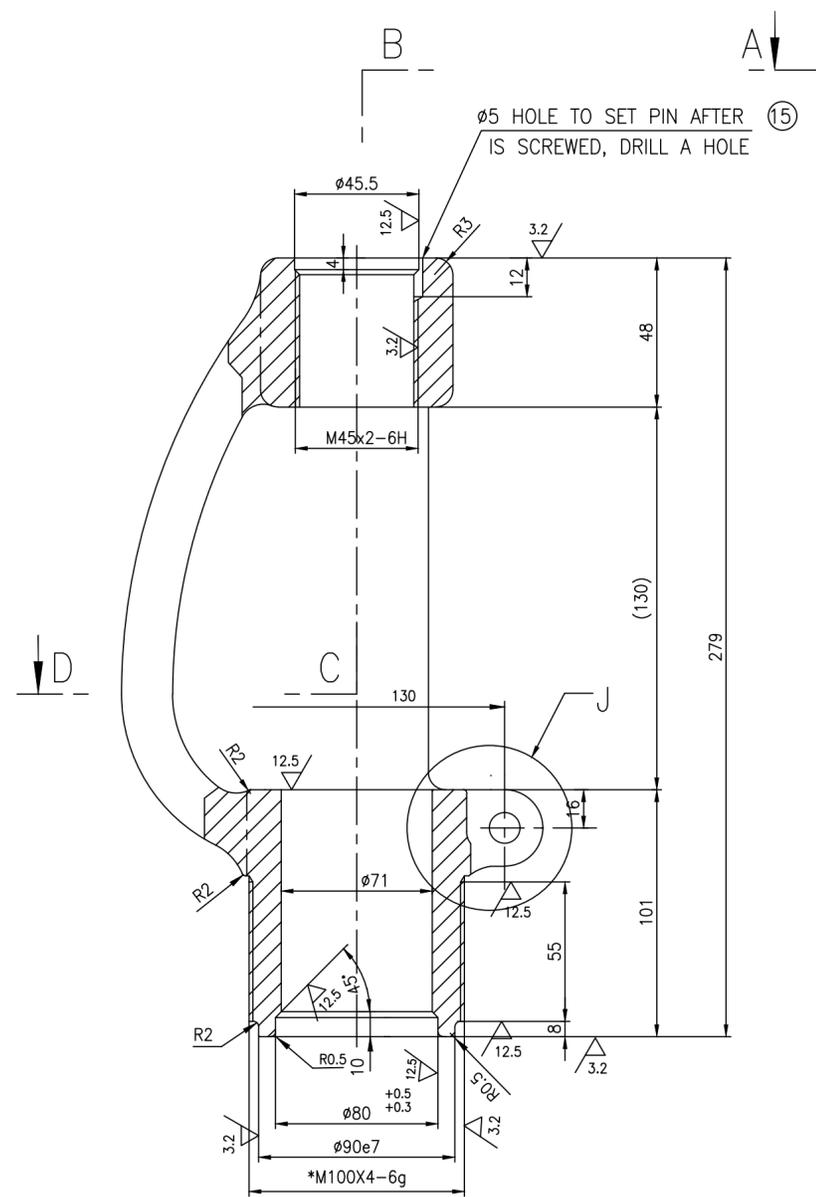
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| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |           | DRN                   | NAME          | SIGN                  | DATE     | NO. OF VAR.  |
|---|-----------|-----------------------|---------------|-----------------------|----------|--------------|
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |           | 365-190<br>02.03.2021 | M.SRINIVASAN  |                       | 13.03.03 |              |
|   |           |                       | P.BOOMINATHAN |                       | 13.03.03 | -            |
|   |           |                       | K.S.RAMAN     |                       | 13.03.03 |              |
| DEPT  | VL        | SCALE                 | WEIGHT (KG)   | REFERENCE INFORMATION |          | NO. OF ITEMS |
| 320   |           | NTS                   | 15.0          | CAD :C208383          |          | -            |
| TITLE   | CARD CODE | DRAWING NO.           |               | REV                   |          |              |
| YOKE CUM BONNET<br>2" - C600 - NSG  | U 01      | 2-V-0000-08383        |               | 02                    |          |              |

| DCP No. | ALTD:RPS                  | APPD:SSK     | DCP No. | ALTD:SARANYA        | APPD:SSK     |
|---------|---------------------------|--------------|---------|---------------------|--------------|
| -       | CHD:SAB                   | DT: 25.06.21 | -       | CHD:MS              | DT: 13.02.14 |
| REV     | SL. No. 06 & 07 INCLUDED. |              | REV     | SL. No. 05 INCLUDED |              |
| 02      |                           |              | 01      |                     |              |
| ZONE    |                           |              | ZONE    |                     |              |
| -       |                           |              | -       |                     |              |

80191-0000-2-V-0000-15108  
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP



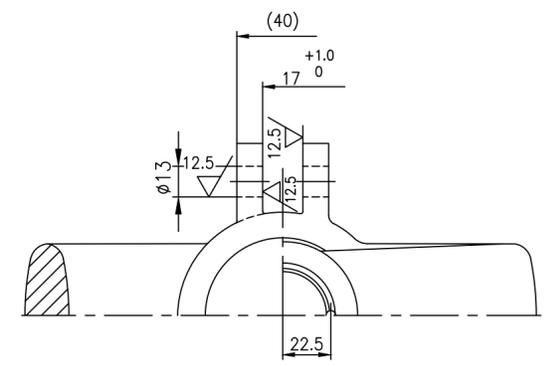
DETAIL-J

NOTES:

\* 1. Ni PLATING TO A THICKNESS OF 25 TO 35 MICRONS.

12

|        |        |
|--------|--------|
| Ø90-e7 | -0.072 |
|        | -0.107 |



SECTION ABCD

|         |                  |                                |              |                |            |             |               |            |         |
|---------|------------------|--------------------------------|--------------|----------------|------------|-------------|---------------|------------|---------|
| 02      | 2-V-G043-15108/2 | A217 WC6, NT<br>PRODUCT ATTEST | 931119520000 | 20             |            |             |               |            |         |
| 01      | 2-V-G041-15108/2 | A216 WCB, AN<br>PRODUCT ATTEST | 931119530000 | 10             |            |             |               |            |         |
| SL. NO. | DRAWING NO.      | MATL. SPECN.                   | COMP. CODE   | SCRAP SORT     |            |             |               |            |         |
| No OFF  | DESCRIPTION      | MATL CODE                      | MATL SPECN   | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |

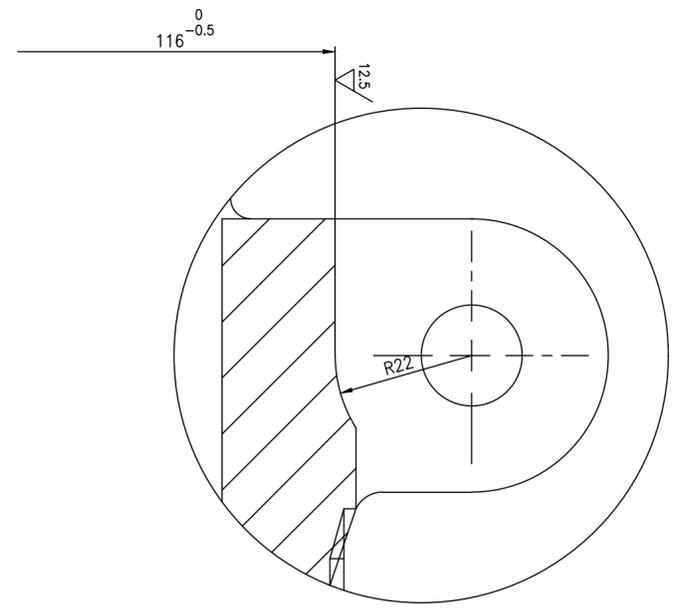
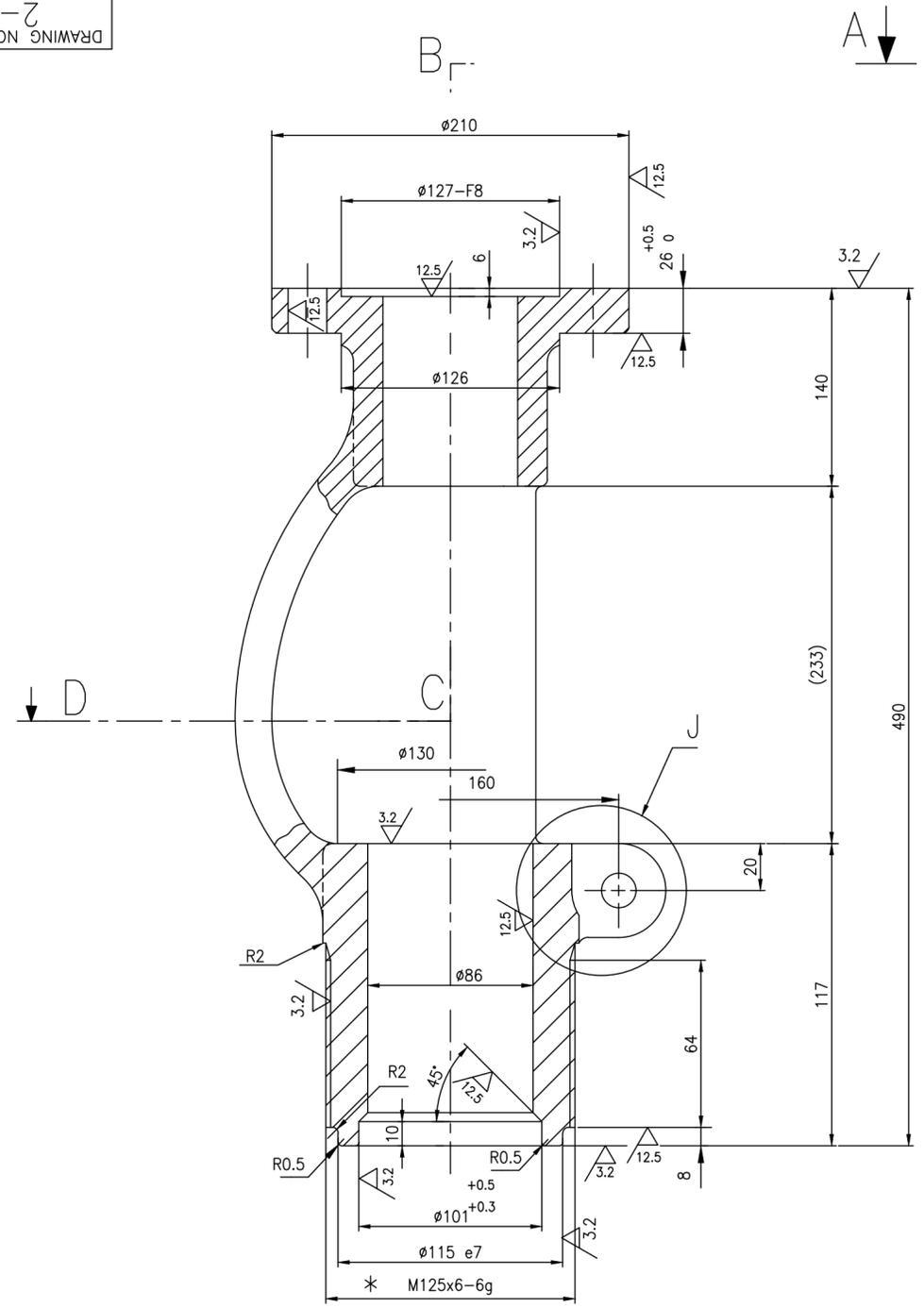
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|   |     |                                       |                |             |          |                       |
|---|-----|---------------------------------------|----------------|-------------|----------|-----------------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |     | DWG. REDRAWN WITH REV. 02 ON 28.12.18 |                |             |          |                       |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI - 620014. |     | DRN                                   | NAME           | SIGN        | DATE     | NO.OF VAR.            |
| 365-120   |     | CHD                                   | S.SATHEES      |             | 11.08.12 |                       |
| DEPT VL   |     | APPD                                  | K.RAJASEKARAN  |             | 11.08.12 |                       |
| CODE  | 320 | SCALE                                 | N T S          | WEIGHT (KG) | 8.11     | REFERENCE INFORMATION |
| TITLE   |     | CARD CODE                             | DRAWING NO.    |             | REV      |                       |
| YOKE  |     | U 01                                  | 2-V-0000-15108 |             | 02       |                       |
| 65/1500CLASS  |     |                                       |                |             |          |                       |

|                |          |                   |           |
|----------------|----------|-------------------|-----------|
| REV            | DATE     | ALTERED           | R.P.SINGH |
| 02             | 28.12.18 | CHD & APPD        | SSK & KRS |
| ZONE           |          | DETAIL-J INCLUDED |           |
| DCP No. 802441 |          |                   |           |

DRAWING NO. 2-V-0000-15118

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

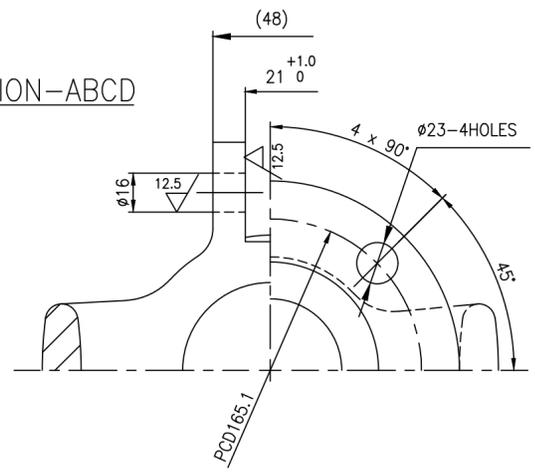


|         |        |        |
|---------|--------|--------|
| 12      | 12.5   | 3.2    |
|         | 12.5   | 3.2    |
| ∅127-F8 | +0.106 | +0.043 |
| ∅115-e7 | -0.072 | -0.107 |

**NOTES:-**

1.\*NICKEL PLATING TO A THICKNESS OF 25 TO 35 MICRONS.

**SECTION-ABCD**



|        |                  |                               |                |            |  |  |
|--------|------------------|-------------------------------|----------------|------------|--|--|
| 02     | 2-V-G075-15118/5 | A217-WC6,NT<br>PRODUCT ATTEST | 931119040000   | 20         |  |  |
| 01     | 2-V-G073-15118/5 | A216-WCB,AN<br>PRODUCT ATTEST | 931119030000   | 10         |  |  |
| SL.NO. | DRAWING No.      | MATERIAL SPECN.               | COMPONENT CODE | SCRAP SORT |  |  |

| No OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: DWG. REDRAWN WITH REV. 05 ON 14.01.19

|  |  |               |     |            |      |          |          |            |
|--|--|---------------|-----|------------|------|----------|----------|------------|
|  | <b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI - 620014. |               | DRN | V.BAIRAVAN | SIGN | DATE     | 11.08.12 | NO.OF VAR. |
|  | CHD  | K.RAJASEKARAN |     |            |      | 11.08.12 |          |            |
|  | APPD   | M.RAJAKUMAR   |     |            |      | 11.08.12 |          |            |

|                |                   |            |           |
|----------------|-------------------|------------|-----------|
| REV            | DATE              | ALTERED    | R.P.SINGH |
| 05             | 14.01.19          | CHD & APPD | SSK & KRS |
| ZONE           | DETAIL-J INCLUDED |            |           |
| DCP No. 802441 |                   |            |           |

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|              |     |       |       |                       |      |                       |              |
|--------------|-----|-------|-------|-----------------------|------|-----------------------|--------------|
| DEPT         | VL  | SCALE | N T S | WEIGHT (KG)           | 29.6 | REFERENCE INFORMATION | NO. OF ITEMS |
| CODE         | 320 | TITLE |       | CARD CODE             | U 01 | DRAWING NO.           | REV          |
| YOKE [SMB-0] |     |       |       | A 3126-10 (4"/1500CL) |      | 2-V-0000-15118        | 05           |

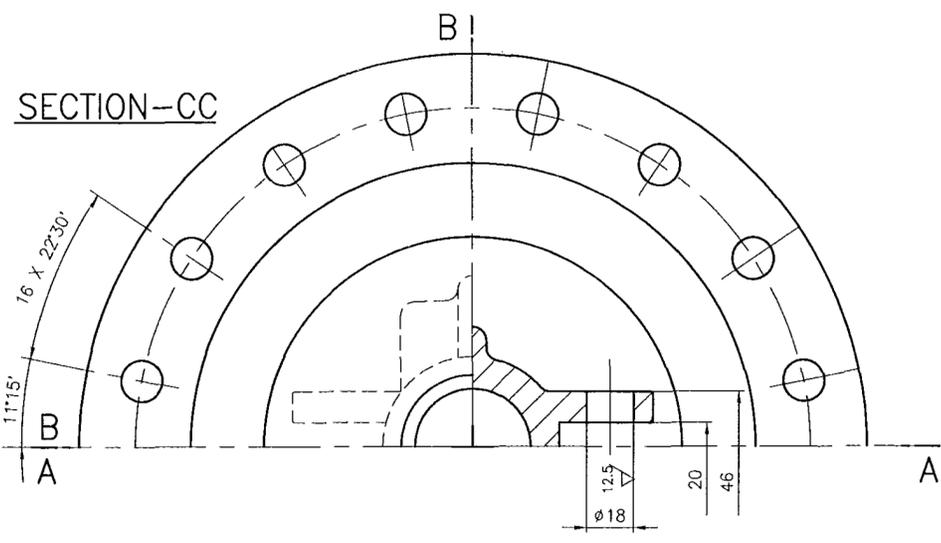
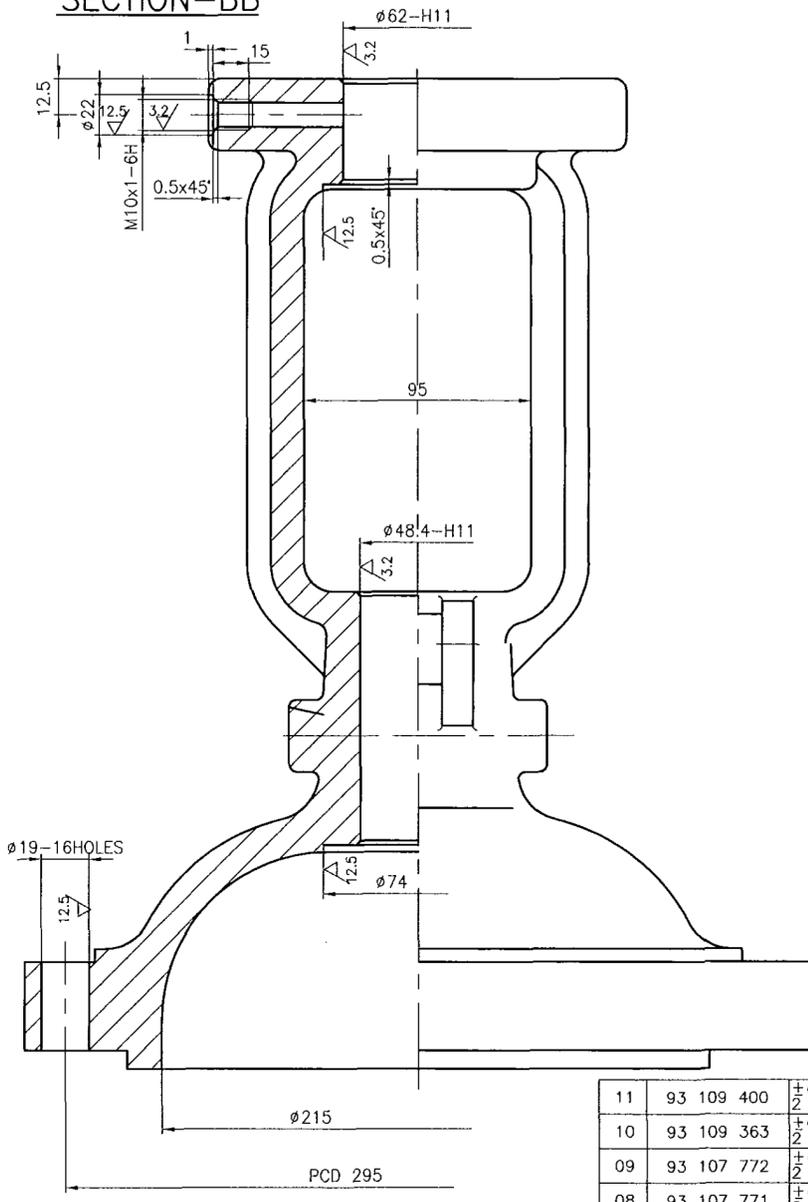
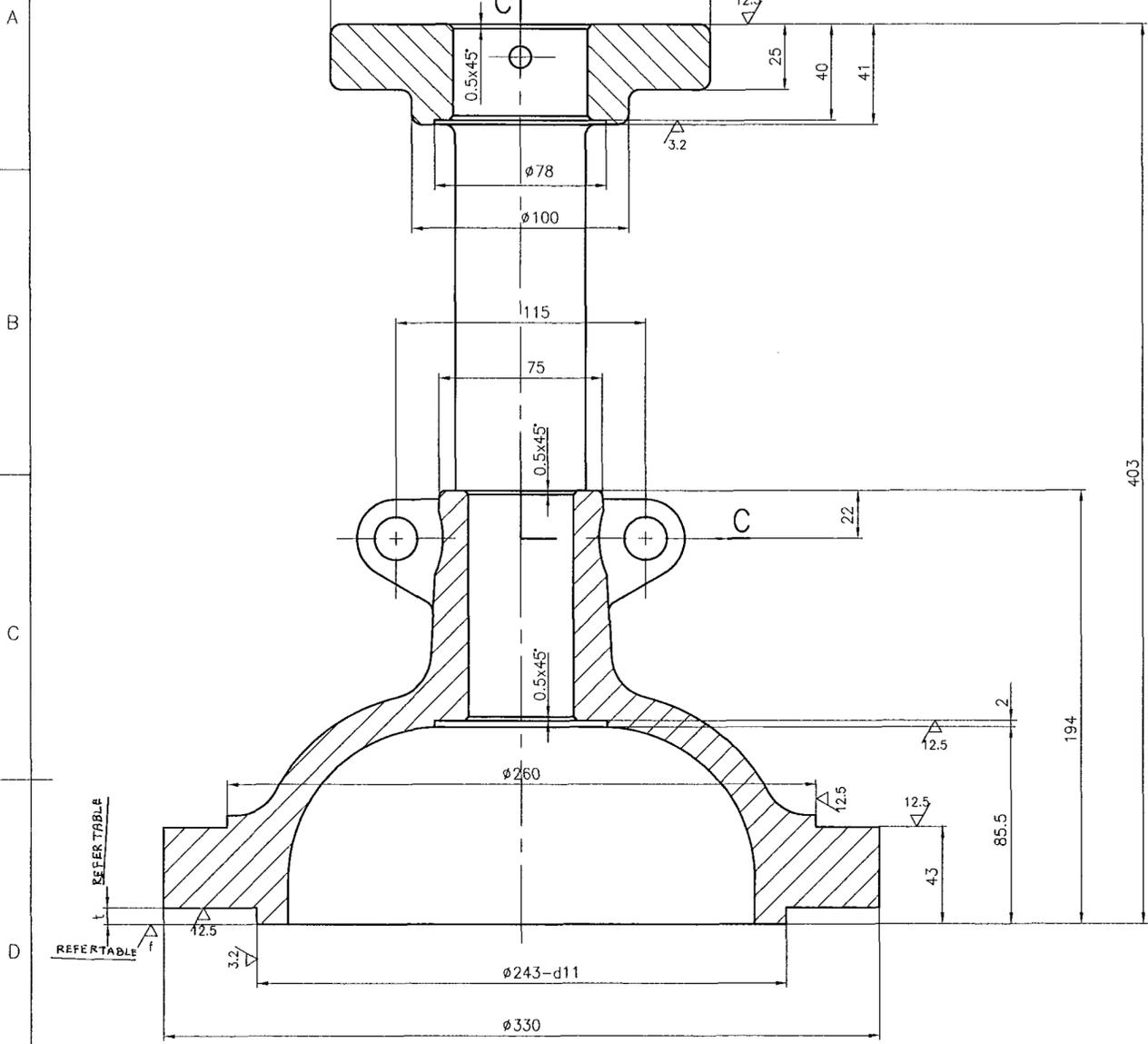
2-V-0000-07524/03  
DRAWING NO.

SECTION-AA

SECTION-BB

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

|           |        |
|-----------|--------|
| ∅62-H11   | +0.190 |
|           | 0      |
| ∅48.4-H11 | +0.160 |
|           | 0      |
| ∅243-d11  | -0.170 |
|           | -0.460 |



| SL No. | COMP CODE  | t     | f    | DIMENSIONS | MATL SPECH        | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | CROSS WT (kg) | DRAWING No     | ITEM No |
|--------|------------|-------|------|------------|-------------------|----------------|------------|-------------|---------------|----------------|---------|
| 11     | 93 109 400 | ±0.05 | 1.6  | 2          | A216 WCB CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VK98907524/00 | 06      |
| 10     | 93 109 363 | ±0.05 | 1.6  | 2          | A216 WCC CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VN80007524/00 | 06      |
| 09     | 93 107 772 | ±0.05 | 3.2  | 2          | A351 CF8M CERTIFY | SH             | 46         | 33.5        | 40.5          | 2VN33607524/01 | 06      |
| 08     | 93 107 771 | ±0.05 | 3.2  | 2          | A351 CF8 CERTIFY  | SH             | 46         | 33.5        | 40.5          | 2VN33707524/01 | 06      |
| 07     | 93 107 770 | ±0.05 | 3.2  | 2          | A352 LCB CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VM35807524/01 | 06      |
| 06     | 93 107 769 | ±0.05 | 3.2  | 2          | A217 WC9 CERTIFY  | NT             | 20         | 33.5        | 40.5          | 2VN25007524/01 | 06      |
| 05     | 93 107 768 | ±0.05 | 3.2  | 2          | A217 WC6 CERTIFY  | NT             | 20         | 33.5        | 40.5          | 2VN23307524/01 | 06      |
| 04     | 93 107 767 | ±0.05 | 3.2  | 2          | A216 WCC CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VK77607524/01 | 06      |
| 03     | 93 107 766 | 5     | 12.5 |            | A216 WCC CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VN24907524/01 | 06      |
| 02     | 93 107 765 | ±0.05 | 3.2  | 2          | A216 WCB CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VK77507524/01 | 06      |
| 01     | 93 107 764 | 5     | 12.5 |            | A216 WCB CERTIFY  | NR             | 10         | 33.5        | 40.5          | 2VN24807524/01 | 06      |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **CS**  
 DRG. RETRACED WITH REV.03 ON 10.06.99 (REF.DCN:CS:0739)

|          |       |             |                       |              |
|----------|-------|-------------|-----------------------|--------------|
| DEPT VL  | SCALE | WEIGHT (KG) | REFERENCE INFORMATION | NO. OF ITEMS |
| CODE 320 | 1:2   | -           | CAD REF: C207524      |              |

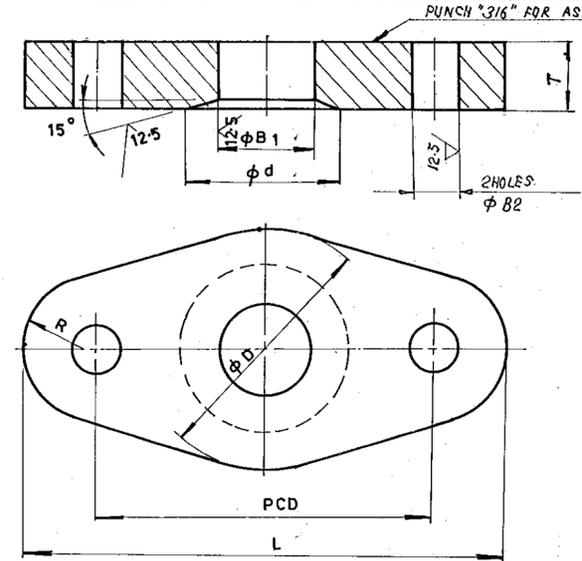
|      |            |                    |          |             |
|------|------------|--------------------|----------|-------------|
| DRN  | NAME       | SIGN               | DATE     | NO. OF VAR. |
| CHD  | N.DHANAPAL | <i>[Signature]</i> | 10.06.99 |             |
| APPD | R.VASANTH  | <i>[Signature]</i> | 10.06.99 |             |

TITLE: **YOKE CUM BONNET (6"-300C NSG HW)**  
 CARD CODE: U 01  
 DRAWING NO.: 2-V-0000-07524  
 REV: 03

| REV                    | DATE     | ALTERED    |
|------------------------|----------|------------|
| 03                     | 10.06.99 | CHD & APPD |
| SL. NUMBER 11 INCLUDED |          |            |

| SLNO | DRG. NO.       | COMP. CODE   | RAW MATERIAL DETAILS  |                          |                          | RAW<br>MATL.<br>WT.(kg) | φD       | φd   | PCD | φB1 | φB2  | L   | T    | R           | NOMINAL<br>STEM<br>DIA        | FINISHED<br>WT.<br>(kg)                                | APPLICABLE TYPE NOS.   | SL.<br>NO. |
|------|----------------|--------------|-----------------------|--------------------------|--------------------------|-------------------------|----------|------|-----|-----|------|-----|------|-------------|-------------------------------|--|--|------------|
|      |                |              | SPECN                 | PRODUCT                  | CODE                     |                         |          |      |     |     |      |     |      |             |                               |  |  |            |
| 1    | 2-V-2670-01847 | 930614120000 | IS 2062-<br>FE 410WB  | PL. 205X110-40           | 15-011-184               | 7.05                    | 100      | 70   | 140 | 46  | 18   | 200 | 40   | 25          | 44                            | 2.3  | 2670   | 1          |
| 2    | 2-V-1757-01847 | 930609780000 |                       | PL. 255X160-40           | 15-011-184               | 12.8                    | 150      | 100  | 210 | 67  | 22   | 250 | 40   | 25          | 65                            | 11.2   | 1757   | 2          |
| 3    | 2-V-2301-01847 | 931016730000 |                       | 4-V-1400-3329B           | 15-011-132               | 0.165                   | 32       | 21.5 | 56  | 14  | 10   | 78  | 12   | 12          | 12                            | 0.135  | 2301,271,272,2235,2236,2241,2297,2302,2306,2307,2309,2319,2320,2334,2340,2359,2360,2372,2427,2448                  | 3          |
| 4    | 2-V-2599-01847 | -            |                       | 4-V-1401-03330B          | 15-011-132               | 0.36                    | 40       | 29   | 56  | 18  | 10   | 95  | 12   | 15          | 16                            | 0.185  | 2599   | 4          |
| 5    | 2-V-1520-01847 | 930581380000 |                       | PL.165X95-32             | 15-011-130               | 3.94                    | 85<br>80 | 54   | 120 | 34  | 22   | 160 | 32   | 20          | 32                            | 2.19   | 1514,1515,1516,1517,1518,1519,1520,1521,2267,2277,2311,2314,2315,2338,2500,2501,2502,2503,2504,2506,2507,2516,2517 | 5          |
| 6    | 2-V-1524-01847 | 930518990000 |                       | PL.205X115-40            | 15-011-184               | 7.4                     | 110      | 66   | 148 | 42  | 26   | 198 | 40   | 25          | 40                            | 4.2  | 1522,1523,1524,1525,1534,1535,2508,2509,2510,2511,2512,2513,2514,2515  | 6          |
| 7    | 2-V-1538-01847 | 930583360000 |                       | PL.205X125-40            |                          | 8.05                    | 120      | 70   |     | 46  | 30   |     | 44   | 4.32        | 1526,1527,1528,1529,1537,1538 | 7  |  |            |
| 8    | 2-V-1217-01847 | 930576340000 |                       | PL.205X110-25            | 15-011-081               | 4.40                    | 100      | 70   | 150 | 50  | 18   | 200 | 25   | 40          | 48                            | 2.40   | 1217,1383  | 8          |
| 9    | 2-V-1218-01847 | 930575320000 |                       |                          |                          | 4.40                    | 100      | 72   | 160 |     |      | 48  | 2.29 | 1218,1579   | 9                             |  |  |            |
| 10   | 2-V-1531-01847 | 930581460000 |                       | PL.135X205-40            | 15-011-184               | 8.69                    | 130      | 72   | 148 | 30  | 198  | 40  | 25   | 48          | 4.54                          | 1530,1531,1532,1533                                    | 10   |            |
| 11   | 2-V-1384-01847 | 931002070000 |                       | PL. 205X110-40           | 15-011-184<br>15-011-081 | 4.40                    | 100      | 72   | 150 | 50  | 18   | 200 | 40   | 25          | 48                            | 2.29   | 1384   | 11         |
| 12   | 2-V-1209-01847 | 930582630000 |                       | PL. 215X110-32           | 15-011-030               | 5.94                    | 80       | 105  | 160 | 54  | 22   | 210 | 32   | 30          | 52                            | 3.58   | 1209,1214  | 12         |
| 13   | 2-V-0112-01847 | -            |                       | PL. 225X110-32           | 15-011-130               | 6.22                    | 90       | 62   |     | 220 | 5.25 | 112 |      | 13          |                               |  |  |            |
| 14   | 2-V-1286-01847 | 930576350000 |                       | PL.255X150-56            | 15-011-216               | 17.47<br>5.5            | 145      | 200  | 26  | 260 | 56   | 30  | 60   | 9.12<br>4.8 | 1286,1292                     | 14   |  |            |
| 15   | 2-V-1388-01847 | 930597640000 |                       | PL. 255X120-36           | 15-011-124               | 4.82                    | 115      | 90   | 180 | 62  | 18   | 220 | 36   | 20          | 60                            | 3.82   | 1388   | 15         |
| 16   | 2-V-2467-01847 | -            | ASTM A 240<br>Gr. 316 | 4-V-2467-3330B           | 15-011-594               |                         | 29       | 18   | 16  |     |      |     |      | 16          |                               | 2466,2467  | 16   |            |
| 17   | 2-V-2455-01847 | -            | IS 2062-<br>FE 410WB  | 4-V-1401-3330B           | 15-011-132               | 0.23                    | 40       | 62   | 11  | 95  | 12   | 15  | 16   | 0.118       | 2454,2455,1542,1543,1430,1431 | 17   |  |            |
| 18   | 2-V-2456-01847 | -            |                       |                          |                          |                         | 33       | 22   | 20  |     |      |     |      | 20          |                               | 2456   | 18   |            |
| 19   | 2-V-1512-01847 | 930599480000 | PL.215X120-32         | 15-011-030<br>15-011-130 | 4.09                     | 115                     | 80       | 170  | 54  | 18  | 210  | 32  | 20   | 52          | 3.39                          | 1513   |  |            |
| 20   | 2-V-2252-01847 | 930574750000 | 4-V-1401-3330B        | 15-011-132               | 0.36                     | 40                      | 29       | 70   | 18  | 11  | 95   | 12  | 15   | 16          | 0.18                          | 2205,2216,2252,2261,2278,2308,2337,2347,2383,2435,2443 |  |            |
| 21   | 2-V-1105-01847 | 931039910000 | PL.25X100X160         | 15 011 081               | 3.14                     | 90                      | 70       | 118  | 44  | 18  | 154  | 25  | 40   | 15/8        | 2.17                          | N105   |  |            |

REV. DATE ALTD. I.R. SAMYAL  
8 26.9.92 CHD: S.R. SR  
REV. DATE ALTD. I.R. SAMYAL  
7 21.4.83 CHD: S. KUMAR K  
REV. DATE ALTD. I.R. SAMYAL  
6 15.7.78 CHD: Babu B  
REV. DATE ALTD. I.R. SAMYAL  
5 7.7.78 CHD: Babu B  
REV. DATE ALTD. I.R. SAMYAL  
4 20.12.75 CHD: B. JAGA  
REV. DATE ALTD. I.R. SAMYAL  
3 16.7.75 CHD: B. J. J  
REV. DATE ALTD. I.R. SAMYAL  
3 27.6.75 CHD: R. KRISHNAMOORTHY  
REV. DATE ALTD. I.R. SAMYAL  
2 15.5.75 CHD: B. JAGADESAN  
REV. DATE ALTD. I.R. SAMYAL  
1 17.4.75 CHD: B. JAGADESAN



|                       |                          |    |         |
|-----------------------|--------------------------|----|---------|
| ASTM A 240<br>Gr. 316 | SOLUTION HEAT<br>TREATED | 46 |         |
| BM-C16                | NORMALISED               | 10 | CERTIFY |
| BM-C20                |                          |    |         |

| ITEM NO. | MATL. SPECN | HEAT TREATMENT | SCRAD SORT | TYPE CERTIFICATION |
|----------|-------------|----------------|------------|--------------------|
|          |             |                |            |                    |

**NOTE:-**  
 1. UNDERLINED DIMENSION DOES NOT AFFECT INTERCHANGEABILITY.  
 2. FOR GLAND FLANGES MADE OUT OF FORGING REFER DRG.NO. 2-V-0000-01812/A  
 2-V-0000-01896.

**BHARAT HEAVY ELECTRICALS LTD.,**  
**BOILER PLANT UNIT, TIRUCHIRAPALLI-14**

|                               |       |          |                  |                    |
|-------------------------------|-------|----------|------------------|--------------------|
| FIRST ANGLE                   | SCALE | DRAWN    | T.R. RAMAMOORTHY | TOTAL NET WT.(KG)  |
|                               | NTS   | CHECKED  | K. BASHYAM       | TYPE               |
|                               |       | APPROVED | B. JAGADESAN     |                    |
| ALL DIMENSIONS IN MILLIMETRES |       | DATE     | 18-1-75          | NEW / OLD DRG. NO. |

**CAUTION**

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RETRACED ON 3-2-87

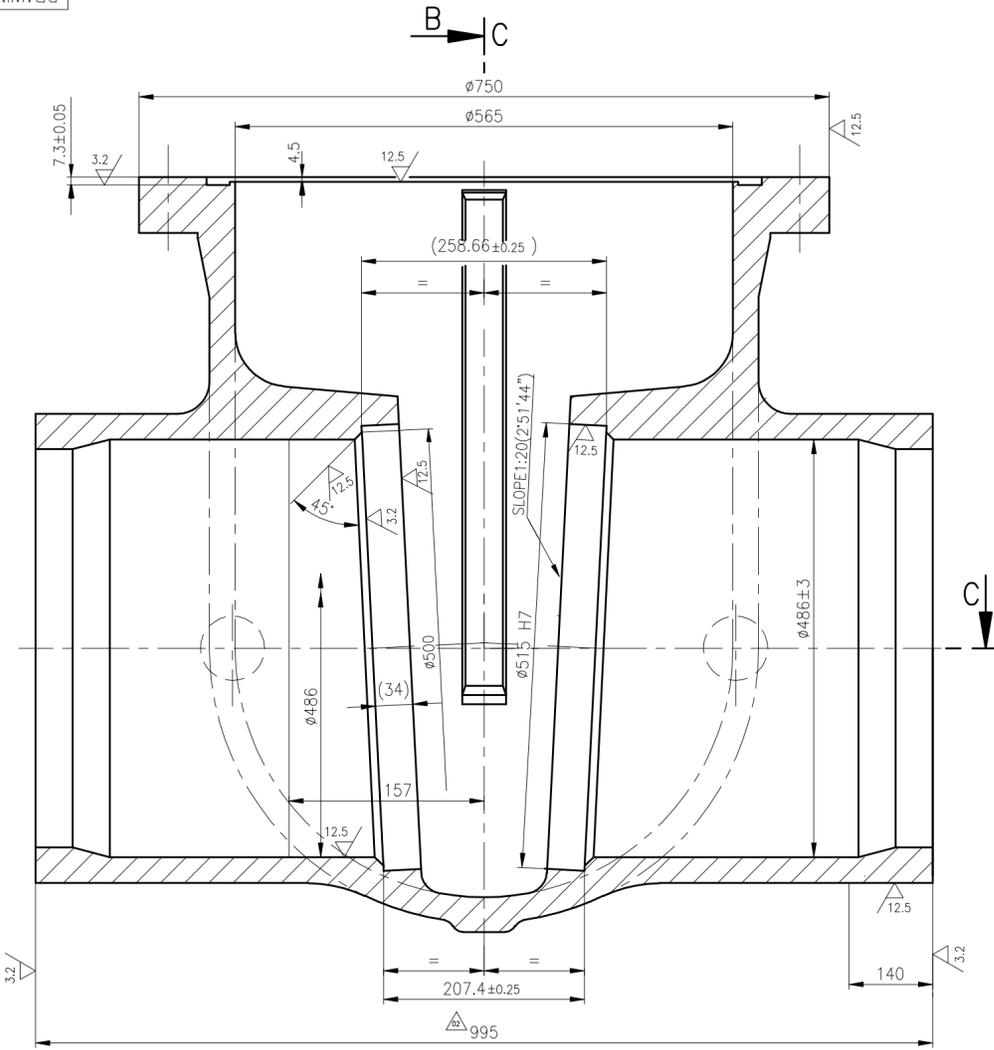
|                         |          |
|-------------------------|----------|
| <b>GLAND FLANGE (P)</b> |          |
| DRAWING NO.             | REVISION |
| 2-V-0000-01847          | 8        |

|  |               |                |        |  |                    |                   |              |   |        |                   |                |   |              |                |  |
|--|---------------|----------------|--------|--|--------------------|-------------------|--------------|---|--------|-------------------|----------------|---|--------------|----------------|--|
| REV. 4   | DATE 20.12.75 | ALTD: V.G.K. N | REV. 3 | DATE 16.7.75                                       | ALTD: T.R. MOORTHY | REV. 3            | DATE 27.6.75 | ALTD: K.B. J  | REV. 2 | DATE 15.5.75      | ALTD: V.G.K. N | REV. 1  | DATE 17.4.75 | ALTD: V.G.K. N |  |
| CHD: B. JAGA   |               | CHD: B. J. J   |        | CHD: R. KRISHNAMOORTHY                             |                    | CHD: B. JAGADESAN |              | CHD: B. JAGADESAN   |        | CHD: B. JAGADESAN |                | CHD: B. JAGADESAN   |              |                |  |
| THE DIMENSION φD FOR SLNO.5 REDUCED FROM 90 TO 85 TO MAKE IT SUITABLE FOR 50/250 STOP VALVE. STRENGTH CHECKED FOR REDUCED WIDTH. |               |                |        | AS CONFIRMED WITH PROD. CONTROL. SL. NO. 4 DELETED |                    |                   |              | SLNO 3 & 20 ADDED (PREVIOUSLY THIS VARIETY WAS OF SLOTTED TYPE AND NOW CHANGED TO HOLE AS PER WORK SIMPLIFICATION SUGGESTION) |        |                   |                | SLNO2 DELETED FRESH FORGING DRG. INSTEAD OF BLANKING RELEASED TO MAKE USE OF CARBON STEEL DIE |              |                |  |

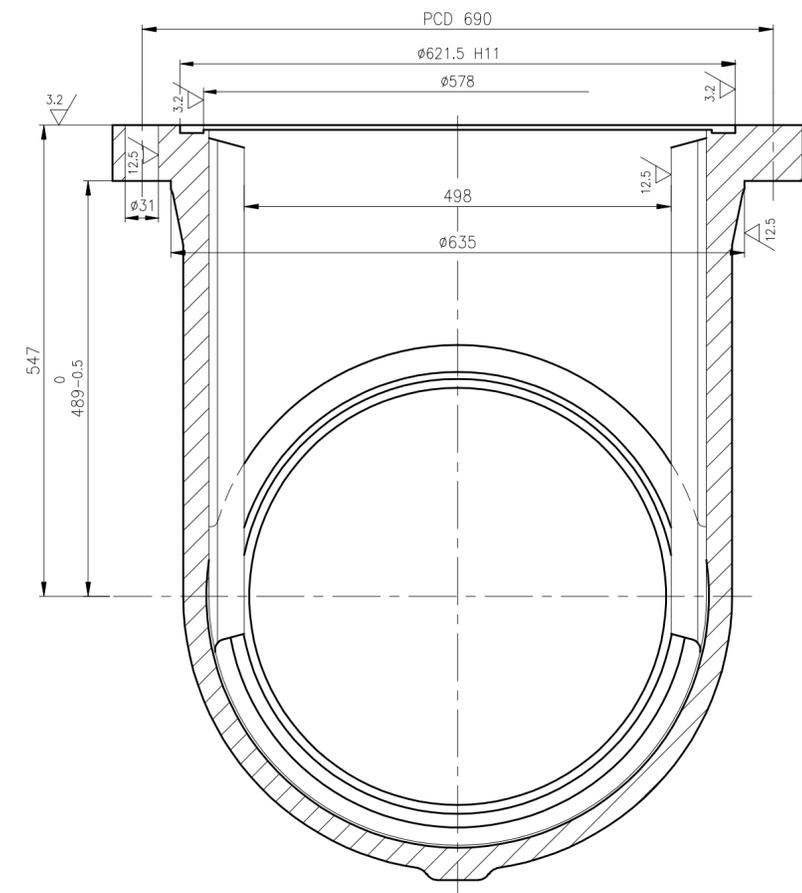
2-V-0000-06422  
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

12.5 / 3.2

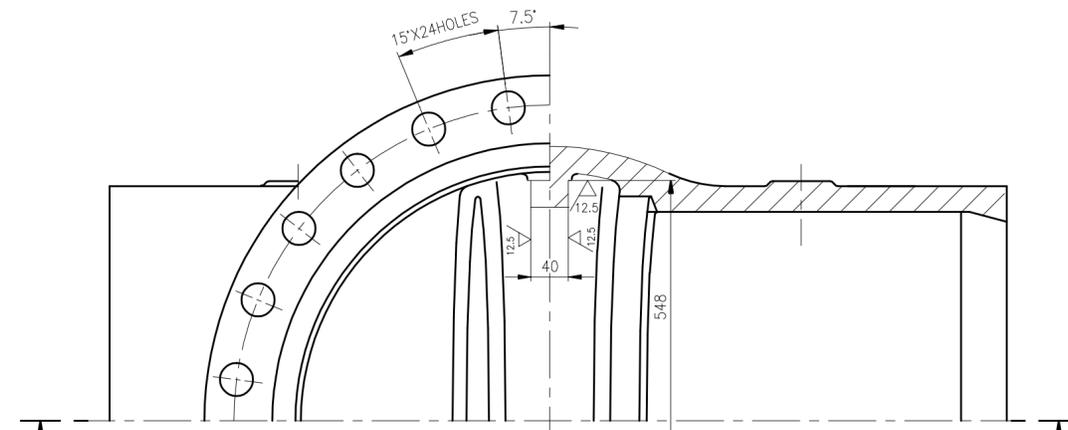


SECTION AA



SECTION BB

|            |        |
|------------|--------|
| Ø621.5 H11 | +0.440 |
|            | 0      |
| Ø515 H7    | +0.070 |
|            | 0      |



SECTION CC

| REV | DATE    | ALTERED      | M.SRINIVASAN               | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT        | NET WT (kg)     | GROSS WT (kg) | DRAWING No COMPONENT CODE | ITEM No |
|-----|---------|--------------|----------------------------|-------------|-----------|------------|----------------|-------------------|-----------------|---------------|---------------------------|---------|
| 03  | CASTING | 922020050000 | ASTM A217-WC9, ATTEST.     | NT          | 20        | 617        | 684            | 2.V.NG10.06422    | 93 201 979 0000 | -             | -                         | -       |
| 02  | CASTING | 922010250000 | ASTM A216-WCB SPL, ATTEST. | NR          | 10        | 617        | 684            | 2.V.N788.06422/02 | 93 109 790 0000 | -             | -                         | -       |
| 01  | CASTING | 922007930000 | ASTM A216-WCB, ATTEST.     | NR          | 10        | 617        | 684            | 2.V.N595.06422/04 | 93 109 789 0000 | -             | -                         | -       |

| REV | DATE     | ALTERED    | R.L.NARAYANAN | DESCRIPTION   |
|-----|----------|------------|---------------|---|
| 06  | 17.05.10 | CHD & APPD | M.RAJAKUMAR   | SL.No. 03 INCLUDED  |
| 05  | 19.11.99 | CHD & APPD | M.RAJAKUMAR   | COMP.CODS CHANGED. DCN No. HM 0418  |
| 04  | 18.05.99 | CHD & APPD | M.RAJAKUMAR   | DIMS.191.68, 136.2, R265 & 58 DELETED DIMS.34, Ø540±0.2, 140 & 45 WERE 37, Ø532±0.2, 125 & 60 RESP. DIMS.Ø486, 157 & 489-0.5 INCLUDED DCN NO. HM 0389 |
| 03  | 9.11.98  | CHD & APPD | M.RAJAKUMAR   | SL.No. 02 INCLUDED  |
| 02  | 9.03.98  | CHD & APPD | M.RAJAKUMAR   | DIM. 995 WAS 990.6±3.2 DCN No. HM 0313.   |
| 01  | 8.04.97  | CHD & APPD | M.RAJAKUMAR   | DIMS. Ø532±0.2, 125 & 45 INCLUDED. DCN No. HM 0248.   |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**BHARAT HEAVY ELECTRICALS LTD.,**  
UNIT: HIGH PRESSURE BOILER PLANT.  
TIRUCHIRAPALLI -620014.

|      |               |      |          |            |
|------|---------------|------|----------|------------|
| DRN  | V.BAIRAVAN    | SIGN | DATE     | NO.OF VAR. |
| CHD  | R.L.NARAYANAN |      | 17.02.97 |            |
| APPD | M.RAJAKUMAR   |      | 19.02.97 |            |

DEPT VL 320

SCALE N T S

WEIGHT (KG) 617

REFERENCE INFORMATIONS CAD REF NO.C206422

TITLE **BODY**  
20°/300 CL GV

CARD CODE U 01

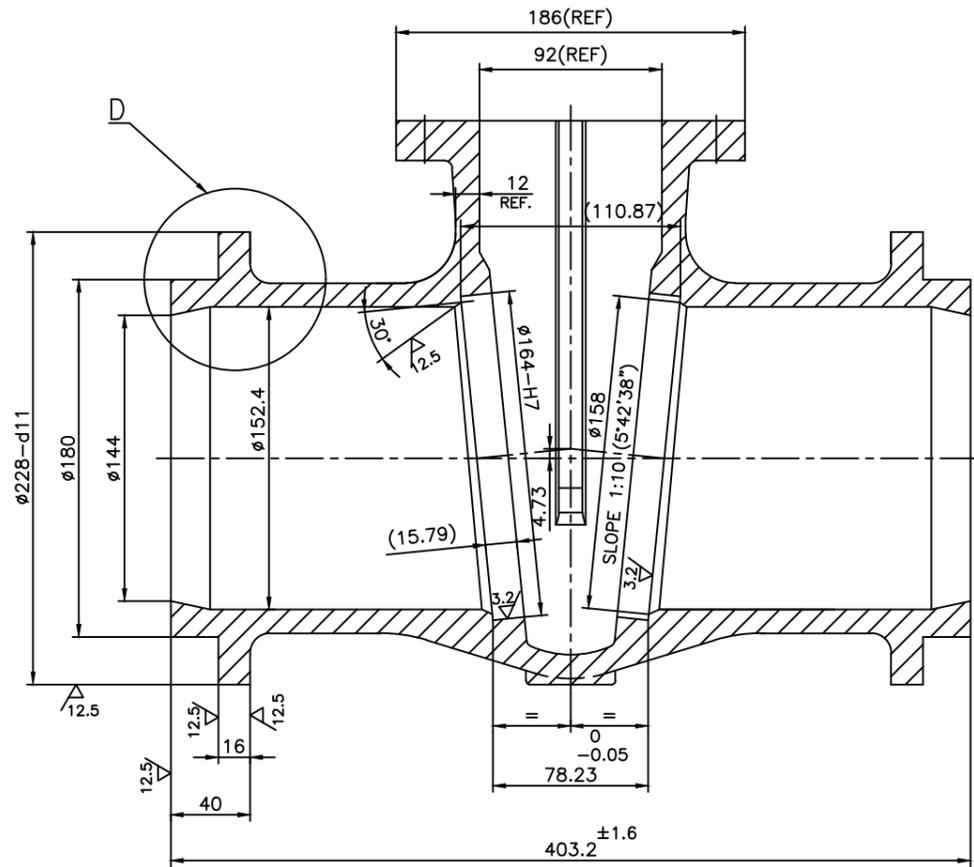
DRAWING NO. **2-V-0000-06422**

REV **06**

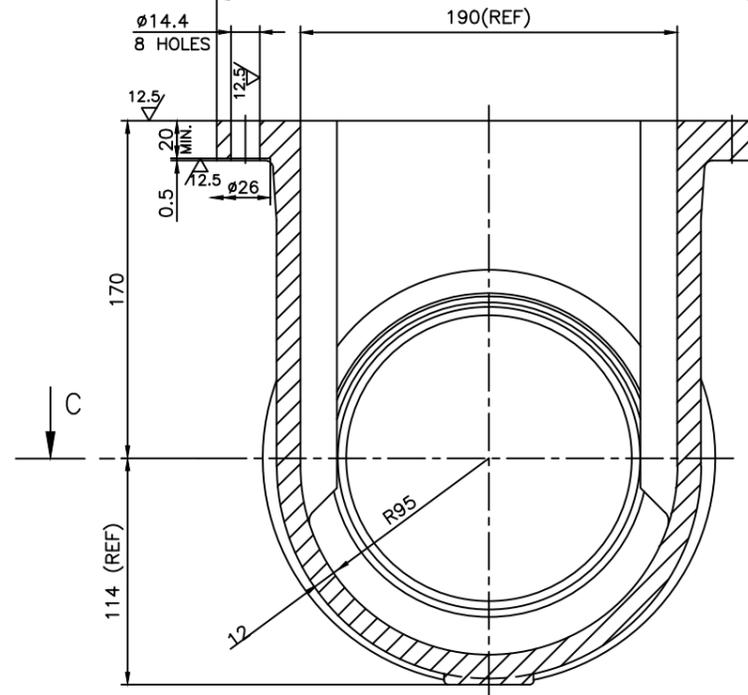
| REV | DATE     | ALTERED    | R.L.NARAYANAN | DESCRIPTION   |
|-----|----------|------------|---------------|---|
| 05  | 19.11.99 | CHD & APPD | M.RAJAKUMAR   | COMP.CODS CHANGED. DCN No. HM 0418  |
| 04  | 18.05.99 | CHD & APPD | M.RAJAKUMAR   | DIMS.191.68, 136.2, R265 & 58 DELETED DIMS.34, Ø540±0.2, 140 & 45 WERE 37, Ø532±0.2, 125 & 60 RESP. DIMS.Ø486, 157 & 489-0.5 INCLUDED DCN NO. HM 0389 |
| 03  | 9.11.98  | CHD & APPD | M.RAJAKUMAR   | SL.No. 02 INCLUDED  |
| 02  | 9.03.98  | CHD & APPD | M.RAJAKUMAR   | DIM. 995 WAS 990.6±3.2 DCN No. HM 0313.   |
| 01  | 8.04.97  | CHD & APPD | M.RAJAKUMAR   | DIMS. Ø532±0.2, 125 & 45 INCLUDED. DCN No. HM 0248.   |



SECTION - AA



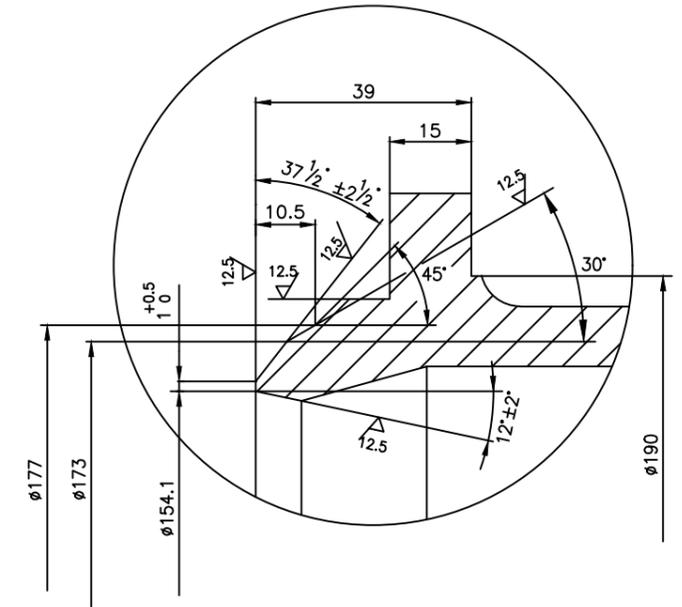
SECTION - BB



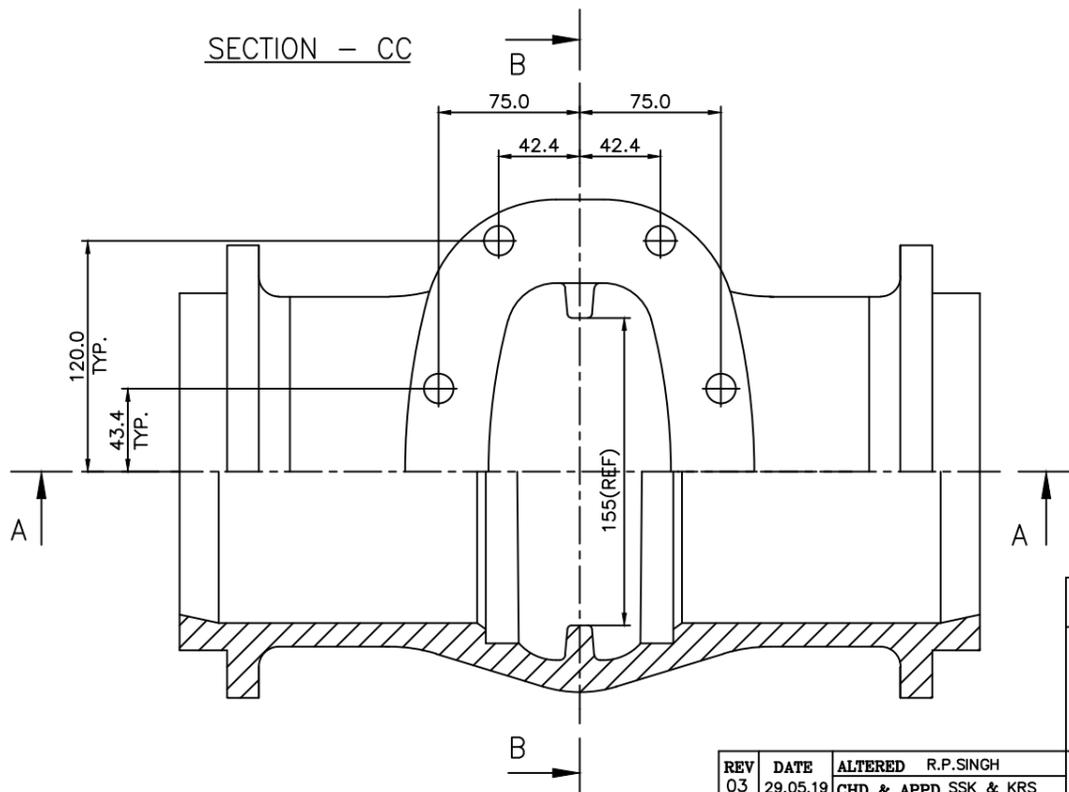
12.5 3.2

|             |        |
|-------------|--------|
| Ø228 - d11  | -0.170 |
|             | -0.460 |
| Ø164.0 - H7 | +0.040 |
|             | 0      |

DETAIL - D  
FOR STANDARD VALVE ONLY



SECTION - CC



NOTE:

01. CHAMFER ALL SHARP CORNERS TO 1x45°
02. HEAT TREATMENT FOR SA995 CD3MN AS PER ASME STANDARD SA-995 TABLE 1  
(HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)

| REV | DATE     | ALTERED    | S.MADHURAM | REV | DATE     | ALTERED    | R.P.SINGH    |
|-----|----------|------------|------------|-----|----------|------------|--------------|
| 06  | 23.10.20 | CHD & APPD | SSC & SSK  | 04  | 16.09.19 | CHD & APPD | SAMEER & SSK |
| 05  | 29.05.19 | CHD & APPD | SSK & KRS  | 03  | 27.12.14 | CHD & APPD | MS & SSK     |
| 04  |          |            |            | 02  |          |            |              |
| 03  |          |            |            | 01  |          |            |              |
| 02  |          |            |            |     |          |            |              |
| 01  |          |            |            |     |          |            |              |

| SL No. | DESCRIPTION | MATL CODE  | MATL SPECN           | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                        | ITEM No |
|--------|-------------|------------|----------------------|-----------------------|------------|-------------|---------------|-----------------------------------|---------|
| 06     | CASTING     | 92 206 022 | SA A217 WC9 ATTESTED | NORMALISED & TEMPERED | 20         | 33          | 38            | 2.V.NQ29.14257<br>93 205 848 0000 | 001     |
| 05     | CASTING     | 92 203 879 | SA 351 CF3M ATTESTED | SH                    | 46         | 33          | 38            | 2.V.NP81.14257<br>93 205 390 0000 | 001     |
| 04     | CASTING     | 92 203 583 | SA995 CD3MN ATTESTED | REFER NOTE            | 46         | 33          | 38            | 2.V.NP53.14257<br>93 204 746 0000 | 001     |
| 03     | CASTING     | 92 203 338 | SA 351 CF8 ATTESTED  | SOLUTION ANNEALED     | 46         | 33          | 38            | 2.V.ND72.14257<br>93 203 594 0000 | 001     |
| 02     | CASTING     | 92 203 160 | SA 351 CF8M ATTESTED | SOLUTION ANNEALED     | 46         | 33          | 38            | 2.V.ND10.14257<br>93 203 074 0000 | 001     |
| 01     | CASTING     | 92 201 695 | SA A216 WCB ATTESTED | NORMALISED            | 10         | 33          | 38            | 2.V.NC24.14257<br>93 201 217 0000 | 001     |

|   |  |           |  |                |  |                        |  |          |  |              |  |
|---|--|-----------|--|----------------|--|------------------------|--|----------|--|--------------|--|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |  | DRN       |  | NAME           |  | SIGN                   |  | DATE     |  | NO.OF VAR.   |  |
| BHARAT HEAVY ELECTRICALS LTD.               |  | CHD       |  | T.R.RAMAMURTHY |  |                        |  | 12.05.08 |  | 001          |  |
| UNIT: HIGH PRESSURE BOILER PLANT.           |  | APPD      |  | P.BOOMINATHAN  |  |                        |  | 12.05.08 |  | 001          |  |
| 365-120                                     |  |           |  |                |  |                        |  |          |  |              |  |
| DEPT VL                                     |  | SCALE     |  | WEIGHT (KG).   |  | REFERENCE INFORMATIONS |  |          |  | NO. OF ITEMS |  |
| CODE 320                                    |  | NTS       |  | REF.TABLE      |  | CAD :C214257           |  |          |  |              |  |
| TITLE                                       |  | CARD CODE |  | DRAWING NO.    |  | REV                    |  |          |  |              |  |
| BODY (6"-C150-BW-GV)                        |  | U 01      |  | 2-V-0000-14257 |  | 05                     |  |          |  |              |  |

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|  |               |                    |                      |                    |               |                    |                        |
|--|---------------|--------------------|----------------------|--------------------|---------------|--------------------|------------------------|
| REV 05                                 | DATE 23.10.20 | ALTERED CHD & APPD | S.MADHURAM SSC & SSK | REV 04             | DATE 16.09.19 | ALTERED CHD & APPD | R.P.SINGH SAMEER & SSK |
| SL.No. 06 INCLUDED                     |               |                    |                      | SL.No. 05 INCLUDED |               |                    |                        |
| REV 03                                 | DATE 29.05.19 | ALTERED CHD & APPD | R.P.SINGH SSK & KRS  | REV 02             | DATE 27.12.14 | ALTERED CHD & APPD | A.MARIMUTHU MS & SSK   |
| SL.No. 04 INCLUDED<br>NOTE 02 INCLUDED |               |                    |                      | SL.No. 03 INCLUDED |               |                    |                        |
| REV 01                                 | DATE 21.06.13 | ALTERED CHD & APPD | M.S SSK & KRS        | SL.No. 02 INCLUDED |               |                    |                        |

DRAWING NO: 2-V-0000-14258

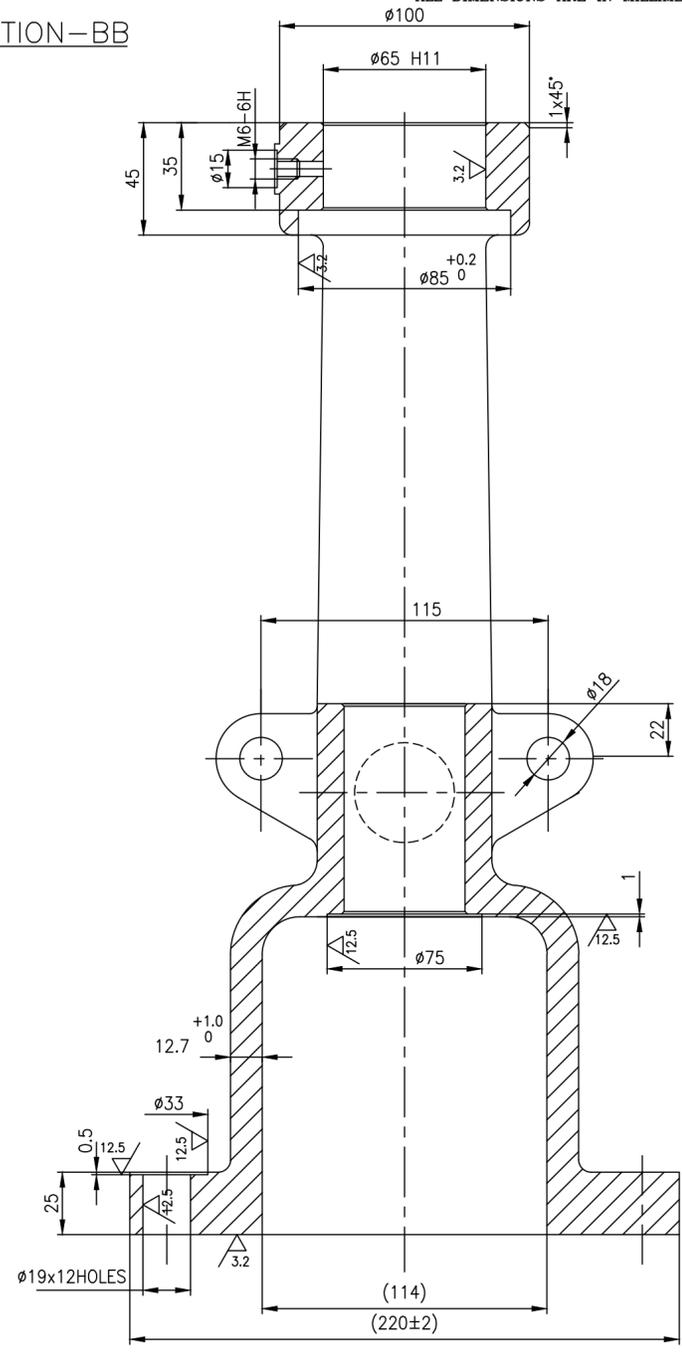
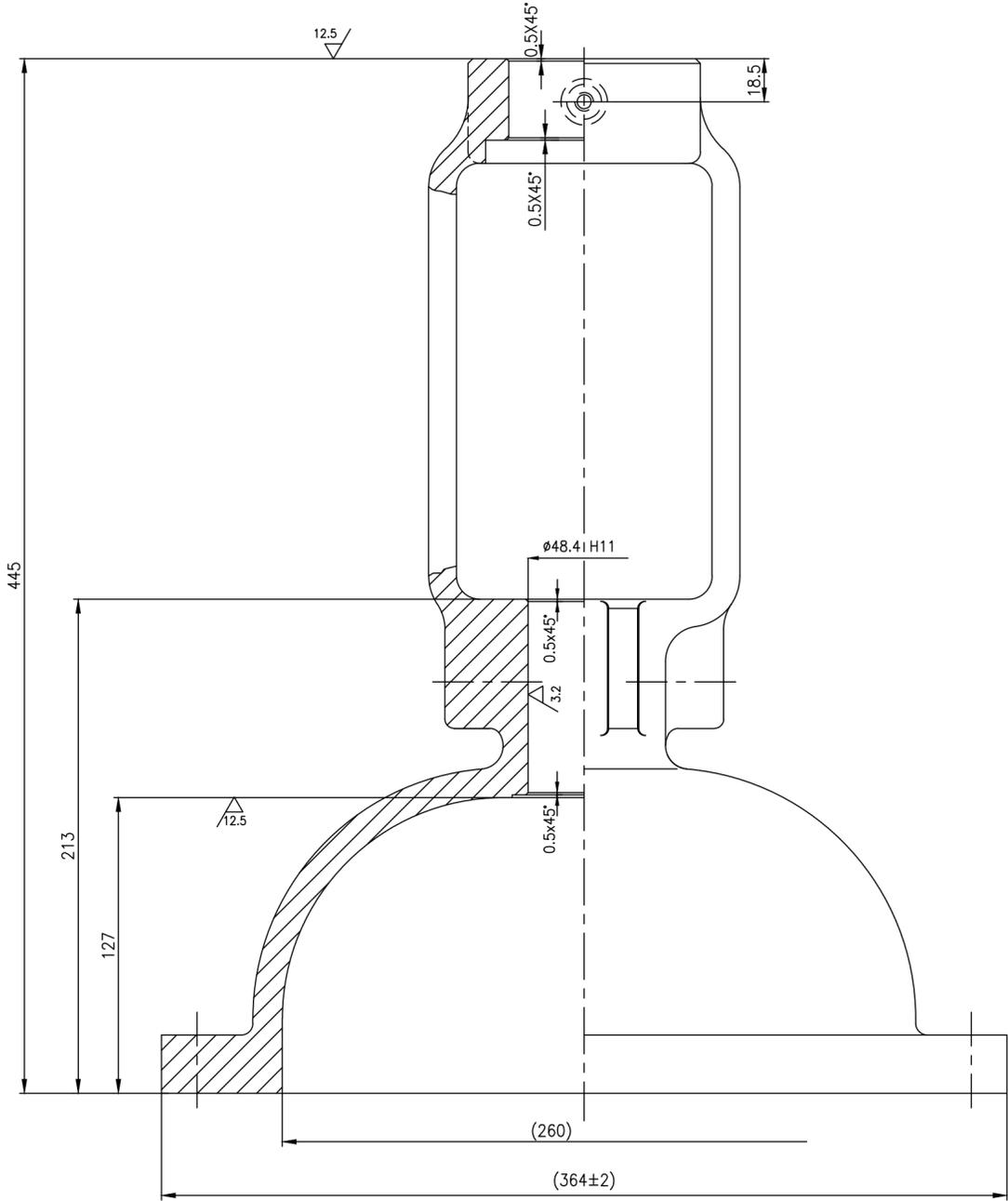
SECTION-AA

SECTION-BB

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

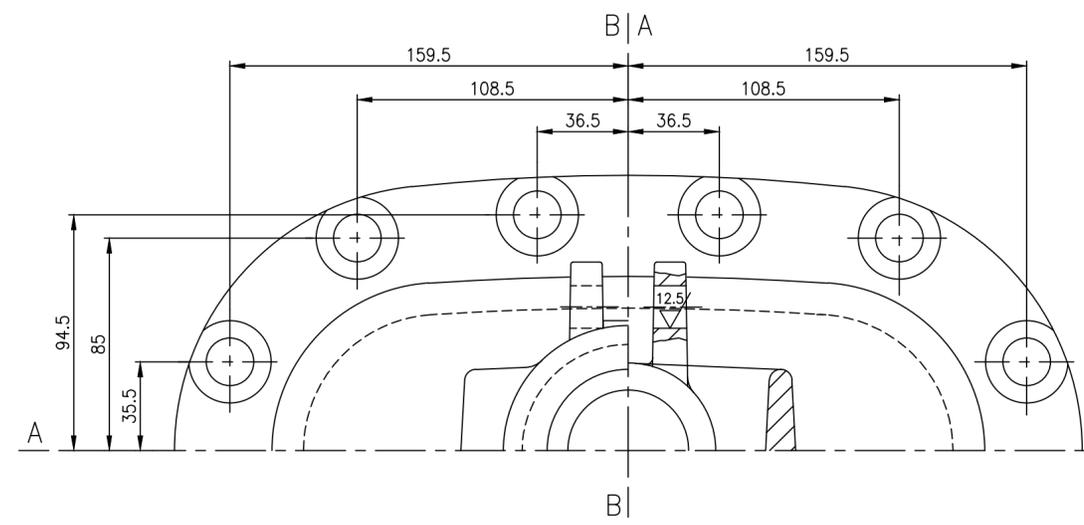


|           |        |
|-----------|--------|
| Ø48.4-H11 | +0.160 |
|           | 0      |
| Ø65-H11   | +0.190 |
|           | 0      |



NOTES:

- HEAT TREATMENT FOR SA995 CD3MN AS PER ASTM STANDARD SA-995 TABLE 1 (HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.



| #  | REV | DCP No.    | DESCRIPTION           | MATL CODE  | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg)      | GROSS WT (kg) | DRAWING No. COMP. CODE | ITEM No |
|----|-----|------------|-----------------------|------------|------------|----------------|------------|------------------|---------------|------------------------|---------|
| 08 | --  | 92 206 257 | A351 CF3M CERTIFY     | SH         | 46         | 19.5           | 23.5       | 2.V.UB26.14258   | 932063360000  | 006                    |         |
| 07 | --  | 92 203 886 | A351 CF3M CERTIFY     | SH         | 46         | 19.5           | 23.5       | 2.V.NP82.14258   | 932056000000  | 006                    |         |
| 06 | --  | 92 203 738 | A351 CF8 CERTIFY      | SH         | 46         | 19.5           | 23.5       | 2.V.U951.14258   | 932050020000  | 006                    |         |
| 05 | --  | 92 203 734 | A351 CF8 CERTIFY      | SH         | 46         | 19.5           | 23.5       | 2.V.NP58.14258   | 932049960000  | 006                    |         |
| 04 | --  | 92 203 504 | A995 Gr.CD3MN CERTIFY | REFER NOTE | 46         | 19.5           | 23.5       | 2.V.NP35.14258/1 | 932042370000  | 006                    |         |
| 03 | --  | 92 203 326 | A351 CF8 CERTIFY      | SH         | 46         | 19.5           | 23.5       | 2.V.NJ28.14258   | 932035750000  | 006                    |         |
| 02 | --  | 92 203 175 | A351 CF8M CERTIFY     | SH         | 46         | 19.5           | 23.5       | 2.V.ND15.14258   | 932031090000  | 006                    |         |
| 01 | --  | 92 201 691 | A216 WCB, CERTIFY     | NR         | 10         | 19.5           | 23.5       | 2.V.NC25.14258   | 932012180000  | 006                    |         |

|         |                      |              |
|---------|----------------------|--------------|
| DCP No. | ALTD: RPS            | APPD: SSK    |
| -       | CHD: MK              | DT: 18.10.22 |
| REV 07  | SL. No. 08 INCLUDED. |              |
| ZONE    | -                    |              |
| DCP No. | ALTD: RPS            | APPD: SSK    |
| -       | CHD: SAB             | DT: 09.11.19 |
| REV 06  | SL. No. 07 INCLUDED. |              |
| ZONE    | -                    |              |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: DRAWING REDRAWN WITH REV NO 03 ON 30.01.18

|      |                |      |  |      |          |            |   |
|------|----------------|------|--|------|----------|------------|---|
| DRN  | T.R.RAMAMURTHY | SIGN |  | DATE | 23.05.08 | NO.OF VAR. |   |
| CHD  | T.R.RAMAMURTHY |      |  |      | 23.05.08 |            | - |
| APPD | P. BOOMINATHAN |      |  |      | 23.05.08 |            |   |

|      |    |       |             |                       |              |
|------|----|-------|-------------|-----------------------|--------------|
| DEPT | VL | SCALE | WEIGHT (KG) | REFERENCE INFORMATION | NO. OF ITEMS |
| 320  |    | NTS   | 19.5        | CAD REF:C214258       |              |

TITLE: YOKE CUM BONNET (8"-C150-GV-HW-NSG)

CARD CODE: U 01

DRAWING NO.: 2-V-0000-14258

REV: 07

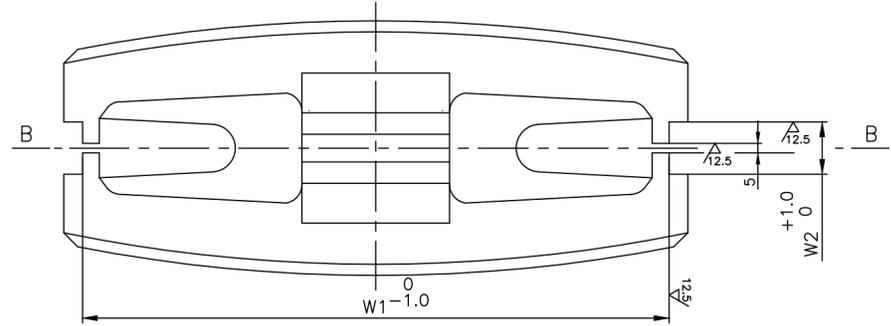
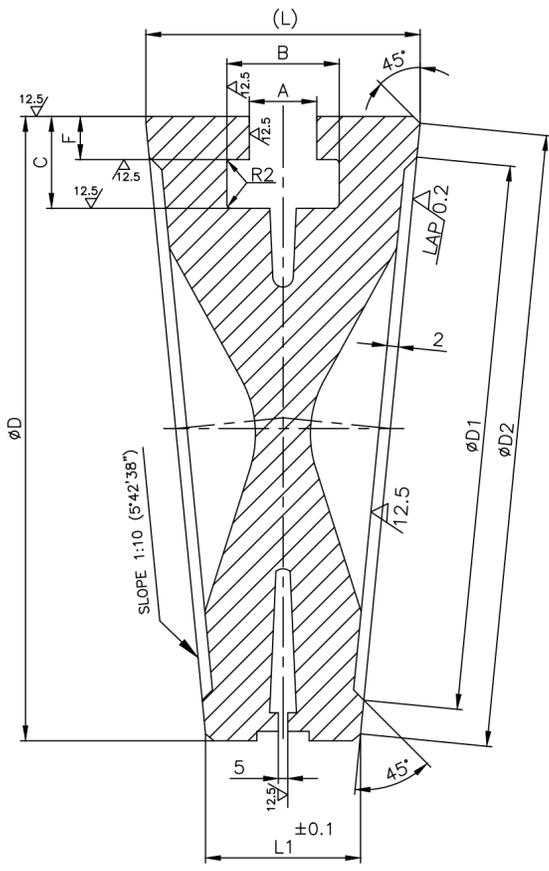
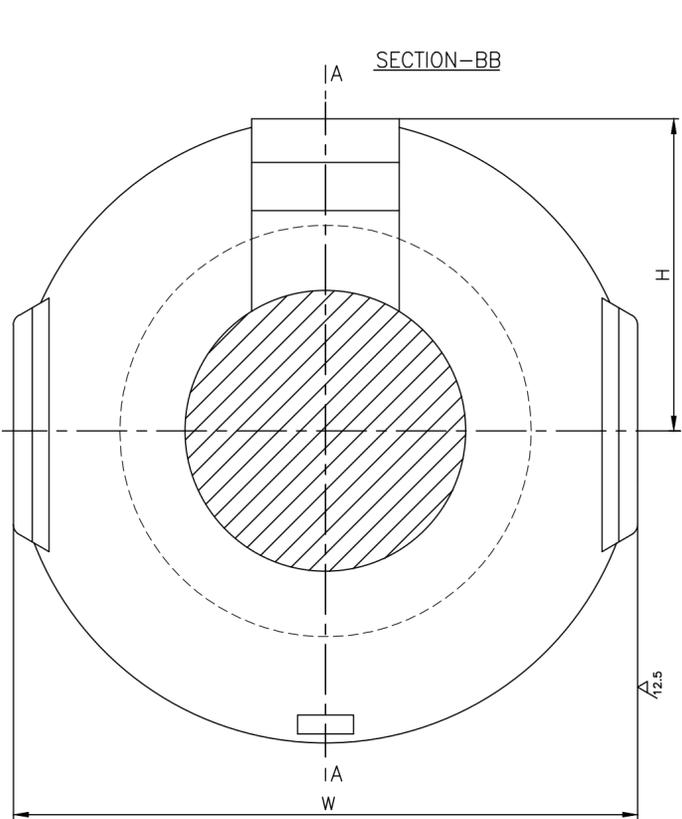
A B C D E F

DRAWING NO: 2-V-0000-14847

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

✓/12.5/ 0.2/

| SL NO. | DRAWING NUMBER   | COMP.CODE       | MATL. SPECN               | WEDGE CASTING MATL.CODE | DIMENSIONS |      |      |         |         |     |         |          |       |       |       |         |         | NET WT (kg) | VALVE TYPE         |
|--------|------------------|-----------------|---------------------------|-------------------------|------------|------|------|---------|---------|-----|---------|----------|-------|-------|-------|---------|---------|-------------|--------------------|
|        |                  |                 |                           |                         | A          | B    | C    | F       | W       | W1  | W2      | L        | L1    | ∅D    | ∅D1   | ∅D2     | H       |             |                    |
| 01     | 2-V-ND10-14847   | 93 203 049 0000 | ASTM A351-CF8M SH CERTIFY | 92 203 153 0000         | (22)       | 44   | 34   | 16      | (170)   | 151 | 16.4    | (72.06)  | 39.03 | 170   | 142   | 166     | (86)    | 5.0         | 6"-C150-CF8M       |
| 02     | 2-V-ND15-14847   | 93 203 050 0000 |                           | 92 203 154 0000         | 32         | (46) | 36.5 | 19      | 233     | 211 | 12      | (89.84)  | 46.66 | 223   | 198   | 217     | 111.5   | 10.9        | 8"-C150-CF8M       |
| 03     | 2-V-ND13-14847   | 93 203 051 0000 |                           | 92 203 131 0000         | 32         | (52) | 47   | 25      | 293     | 261 | 19      | (103.86) | 50.42 | 275   | 250   | 268     | 138     | 16.8        | 10"-C150-CF8M      |
| 04     | 2-V-ND23-14847   | 93 203 052 0000 |                           | 92 203 155 0000         | 32         | 54   | 45   | 21      | (327)   | 301 | 20      | (116.1)  | 52.02 | 327   | 292   | 322     | (162)   | 35.0        | 12"-C150-CF8M      |
| 05     | 2-V-ND14-14847   | 93 203 053 0000 |                           | 92 203 156 0000         | 22         | 43   | 34   | 16      | (172)   | 151 | 16.4    | (77.77)  | 44.62 | 172   | 148.6 | 166.6   | (86)    | 6.0         | 6"-C300-CF8M       |
| 06     | 2-V-ND17-14847   | 93 203 054 0000 |                           | 92 203 157 0000         | 32         | 50   | 38   | 17      | (223.5) | 200 | 18      | (91.18)  | 47.2  | 224.6 | 198   | 221     | (111.8) | 11.5        | 8"-C300-CF8M       |
| 07     | 2-V-ND21-14847   | 93 203 055 0000 |                           | 92 203 158 0000         | 32         | 54   | 44   | 23      | (280)   | 255 | 21      | (116.59) | 61.27 | 280   | 248   | 278     | (140)   | 28.70       | 10"-C300-CF8M      |
| 08     | 2-V-ND22-14847   | 93 203 056 0000 |                           | 92 203 159 0000         | 36         | 60   | 49   | 23      | (330)   | 304 | 28      | (138.31) | 73.44 | 330   | 297   | 326     | (165)   | 48.70       | 12"-C300-CF8M      |
| 09     | 2-V-ND59-14847   | 93 203 469 0000 | ASTM A351-CF8 SH CERTIFY  | 92 203 300 0000         | 32         | 54   | 44   | 23      | (280)   | 255 | 21      | (116.59) | 61.27 | 280   | 248   | 278     | (140)   | 28.70       | 10"-C300-CF8       |
| 10     | 2-V-NJ28-14847   | 93 203 577 0000 |                           | 92 203 325 0000         | 32         | (46) | 36.5 | 19      | 233     | 211 | 12      | (89.84)  | 46.66 | 223   | 198   | 217     | 111.5   | 10.9        | 8"-C150-CF8        |
| 11     | 2-V-NJ29-14847   | 93 203 578 0000 |                           | 92 203 328 0000         | 32         | (52) | 47   | 25      | 293     | 261 | 19      | (103.86) | 50.42 | 275   | 250   | 268     | 138     | 16.8        | 10"-C150-CF8       |
| 12     | 2-V-ND72-14847   | 93 203 596 0000 |                           | 92 203 340 0000         | (22)       | 44   | 34   | 16      | (170)   | 151 | 16.4    | (72.06)  | 39.03 | 170   | 142   | 166     | (86)    | 5.0         | 6"-C150-CF8        |
| 13     | 2-V-ND92-14847   | 93 203 748 0000 |                           | 92 203 366 0000         | (22)       | 43   | 34   | 16      | (172)   | 151 | 16.4    | (77.77)  | 44.62 | 172   | 148.6 | 166.6   | (86)    | 6.0         | 6"-C300-CF8        |
| 14     | 2-V-U559-14847   | 93 203 867 0000 | 92 203 401 0000           | 32                      | 50         | 38   | 17   | (223.5) | 200     | 18  | (91.18) | 47.2     | 224.6 | 198   | 221   | (111.8) | 11.5    | 8"-C300-CF8 |                    |
| 15     | 2-V-NP33-14847/1 | 93 204 208 0000 | A995 Gr.CD3MN CERTIFY     | 92 203 495 0000         | (22)       | 44   | 34   | 16      | (170)   | 151 | 16.4    | (72.06)  | 39.03 | 170   | 142   | 166     | (86)    | 5.0         | 6"-C150-A995 CD3MN |
| 16     | 2-V-NP35-14847/1 | 93 204 232 0000 |                           | 92 203 505 0000         | 32         | (46) | 36.5 | 19      | 233     | 211 | 12      | (89.84)  | 46.66 | 223   | 198   | 217     | 111.5   | 10.9        | 8"-C150-A995 CD3MN |
| #17    | 2-V-UC06-14847   | 93 206 847 0000 | A351 CF8M SH, CERTIFY     | 92 206 446 0000         | 32         | (52) | 47   | 25      | 293     | 261 | 19      | (103.86) | 50.42 | 275   | 250   | 268     | 138     | 16.8        | 10"-C150-CF8M      |



NOTE:

- SHARP CORNERS TO BE REMOVED.
- HEAT TREATMENT FOR ASTM 995 CD3MN AS PER ASTM STANDARD ASTM-995 TABLE 1 (HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

| No OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------------------|---------|
| -      | -           | -         | -          | -              | -          | -           | -             | -                      | -       |

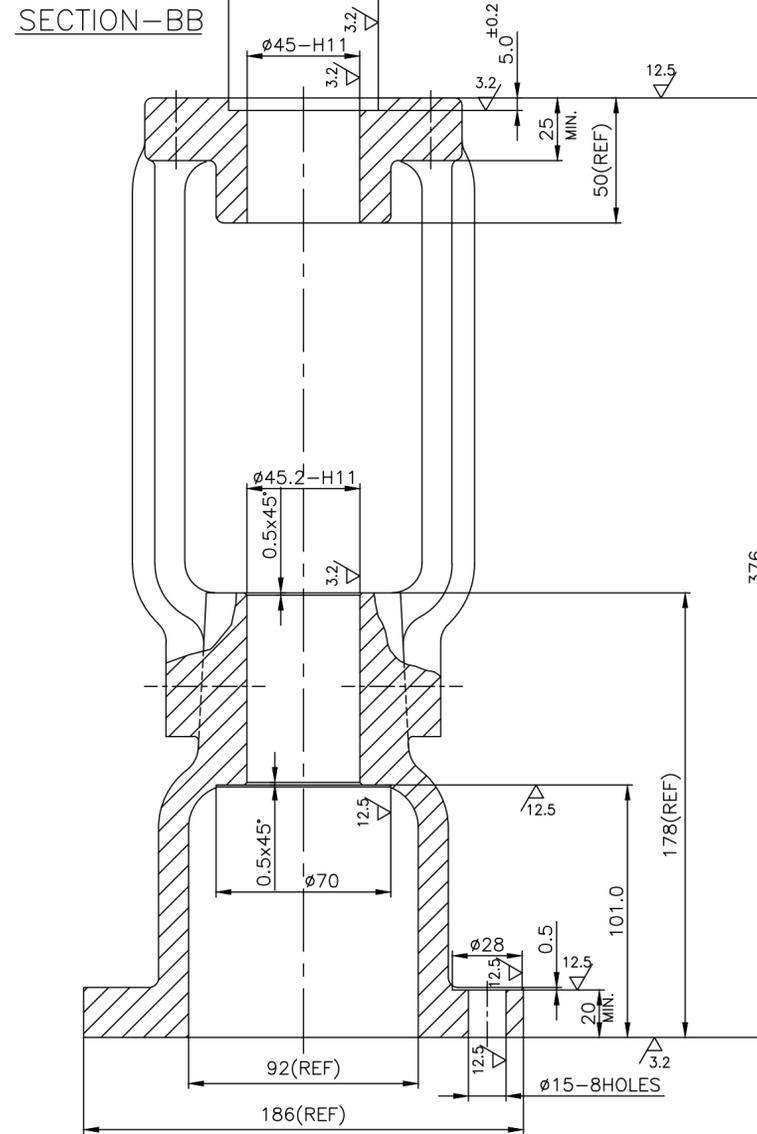
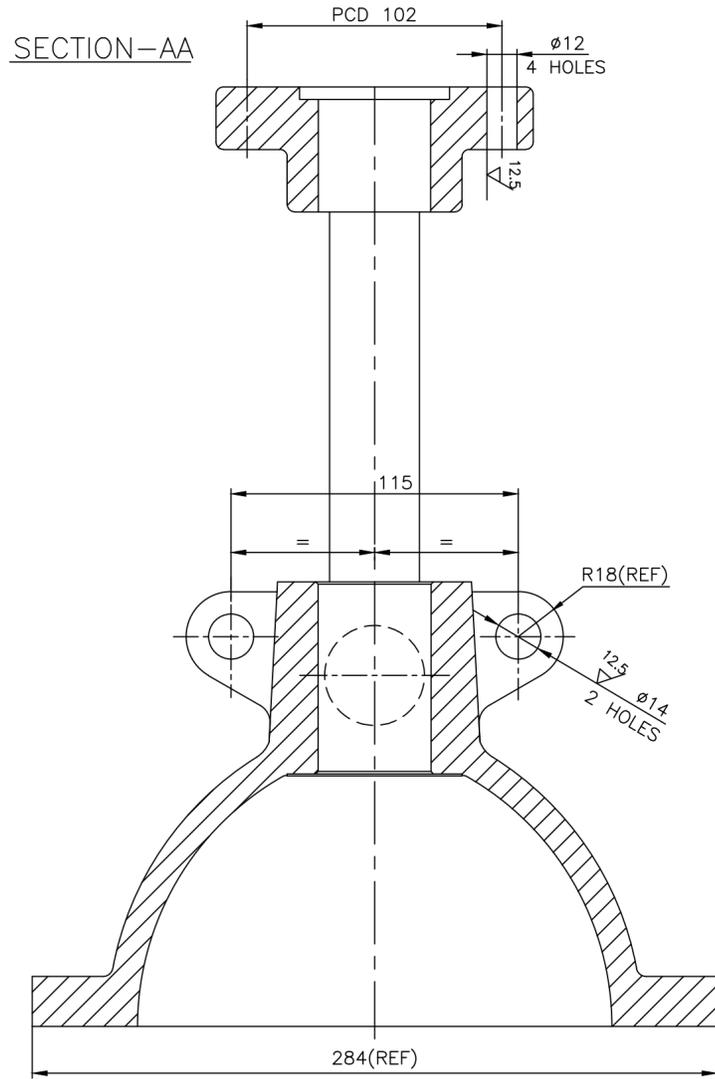
|   |     |       |              |                       |                |      |              |                |     |  |
|---|-----|-------|--------------|-----------------------|----------------|------|--------------|----------------|-----|--|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |     |       |              |                       |                |      |              |                |     |  |
| <b>BHARAT HEAVY ELECTRICALS LTD.</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |     |       |              | DRN                   | M.SRINIVASAN   | SIGN | DATE         | NO.OF VAR.     |     |  |
|   |     |       |              | CHD                   | S.SATHEESKUMAR |      | 11.06.13     | -              |     |  |
|   |     |       |              | APPD                  | K.RAJASEKARAN  |      | 11.06.13     | -              |     |  |
| DEPT  | VL  | SCALE | WEIGHT (KG). | REFERENCE INFORMATION |                |      | NO. OF ITEMS |                |     |  |
| CODE  | 320 | NTS   | REF. TABLE   |                       |                |      | -            |                |     |  |
| TITLE   |     |       |              |                       |                |      | CARD CODE    | DRAWING NO.    | REV |  |
| WEDGE   |     |       |              |                       |                |      | U 01         | 2-V-0000-14847 | 08  |  |

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|         |                         |              |
|---------|-------------------------|--------------|
| DCP No. | ALTD: TS                | APPD: MK     |
| -       | CHD: RPS                | DT: 06.08.25 |
| REV     | SL. No. 17 INCLUDED     |              |
| 08      | NOTES SL. No. 03 ADDED. |              |
| ZONE    | -                       |              |

2-V-0000-14264  
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

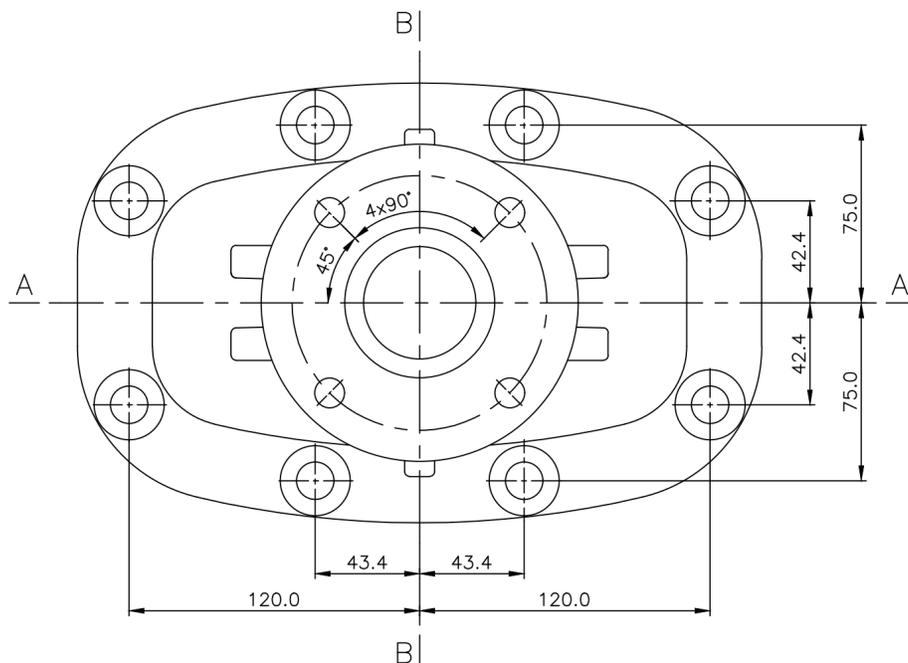


12.5  
3.2

|                    |        |
|--------------------|--------|
| $\phi 30-50 - H11$ | +0.160 |
|                    | 0      |
| $\phi 50-80 - H8$  | +0.190 |
|                    | 0      |

**NOTE**

- BREAK ALL SHARP CORNERS.
- HEAT TREATMENT FOR ASTM 995 CD3MN AS PER ASTM STANDARD ASTM-995 TABLE 1  
  
(HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.



| QD | No OFF | DESCRIPTION | MATL CODE  | MATL SPECN            | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE              | ITEM No |
|----|--------|-------------|------------|-----------------------|-----------------------|------------|-------------|---------------|-------------------------------------|---------|
| 70 | 10     | CASTING     | 92 201 700 | A216 WCB CERTIFY      | NORMALISED            | 10         | 16          | 18            | 2.V.ND19.14264<br>93 206 837 0000   | 007     |
| 60 | 09     | CASTING     | 92 206 024 | ASTM A217 WC9 CERTIFY | NORMALISED & TEMPERED | 20         | 16          | 18            | 2.V.NQ29.14264<br>93 205 855 0000   | 007     |
| 60 | #08    | CASTING     | 92 206 254 | A351 CF3M CERTIFY     | SH                    | 46         | 16          | 18            | 2.V.UB25.14264<br>93 206 329 0000   | 007     |
| 60 | #07    | CASTING     | 92 206 138 | A351 CF8M CERTIFY     | SH                    | 46         | 16          | 18            | 2.V.UA99.14264<br>93 206 066 0000   | 007     |
| 60 | 06     | CASTING     | 92 203 850 | A351 CF3M CERTIFY     | SH                    | 46         | 16          | 18            | 2.V.NP76-14264<br>93 205 266 0000   | 007     |
| 60 | #05    | CASTING     | 92 203 750 | A351 CF8 CERTIFY      | SH                    | 46         | 16          | 18            | 2.V.U937.14264<br>93 205 019 0000   | 007     |
| 60 | 04     | CASTING     | 92 203 484 | A995 Gr.CD3MN CERTIFY | REFER NOTE            | 46         | 16          | 18            | 2.V.NP33.14264/1<br>93 204 187 0000 | 007     |
| 60 | 03     | CASTING     | 92 203 341 | A351 CF8 CERTIFY      | SH                    | 46         | 16          | 18            | 93 203 598 0000                     | 007     |
| 60 | 02     | CASTING     | 92 203 161 | A351 CF8M CERTIFY     | SH                    | 46         | 16          | 18            | 2.V.ND10.14264<br>93 203 115 0000   | 007     |
| 60 | 01     | CASTING     | 92 201 700 | A216 WCB CERTIFY      | NORMALISED            | 10         | 16          | 18            | 2.V.NC24.14264<br>93 201 226 0000   | 007     |

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**TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT**

**BHARAT HEAVY ELECTRICALS LTD.**  
UNIT: HIGH PRESSURE BOILER PLANT.  
TIRUCHIRAPALLI-620014.

|      |                |      |      |          |            |
|------|----------------|------|------|----------|------------|
| DRN  | M.SRINIVASAN   | SIGN | DATE | 15.05.08 | NO.OF VAR. |
| CHD  | T.R.RAMAMURTHY |      | DATE | 15.05.08 | -          |
| APPD | P.BOOMINATHAN  |      | DATE | 15.05.08 | -          |

DEPT: VL / CODE: 320 / TITLE: YOKE CUM BONNET (6"-C150-NSG)

SCALE: NTS / WEIGHT (KG): - / REFERENCE INFORMATION: -

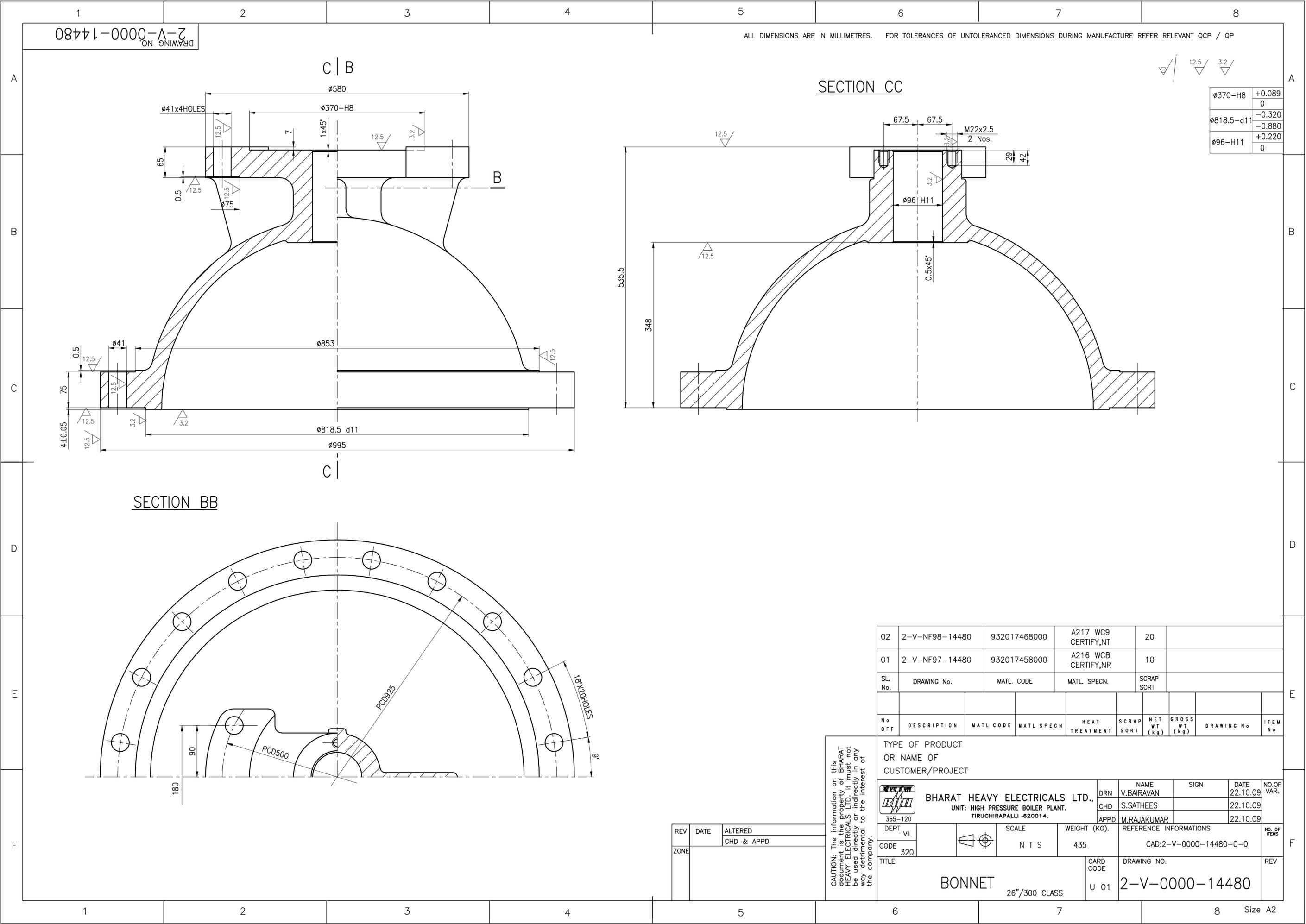
CARD CODE: U 01 / DRAWING NO.: 2-V-0000-14264 / REV: 10

|         |                      |              |         |           |                      |
|---------|----------------------|--------------|---------|-----------|----------------------|
| DCP No. | ALTD: TS             | APPD: MK     | DCP No. | ALTD: RPS | APPD: SSK            |
| -       | CHD: RPS             | DT: 01.09.25 | -       | CHD: MK   | DT: 08.04.23         |
| REV 10  | SL. No. 10 INCLUDED. |              |         | REV 09    | SL. No. 09 INCLUDED. |
| ZONE -  |                      |              |         | ZONE -    |                      |

DRAWING NO. 2-V-0000-14480

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

12.5 3.2



|            |        |
|------------|--------|
| Ø370-H8    | +0.089 |
|            | 0      |
| Ø818.5-d11 | -0.320 |
|            | -0.880 |
| Ø96-H11    | +0.220 |
|            | 0      |

SECTION BB

SECTION CC

|         |                |              |                     |            |
|---------|----------------|--------------|---------------------|------------|
| 02      | 2-V-NF98-14480 | 932017468000 | A217 WC9 CERTIFY,NT | 20         |
| 01      | 2-V-NF97-14480 | 932017458000 | A216 WCB CERTIFY,NR | 10         |
| SL. No. | DRAWING No.    | MATL. CODE   | MATL. SPECN.        | SCRAP SORT |

| No OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|

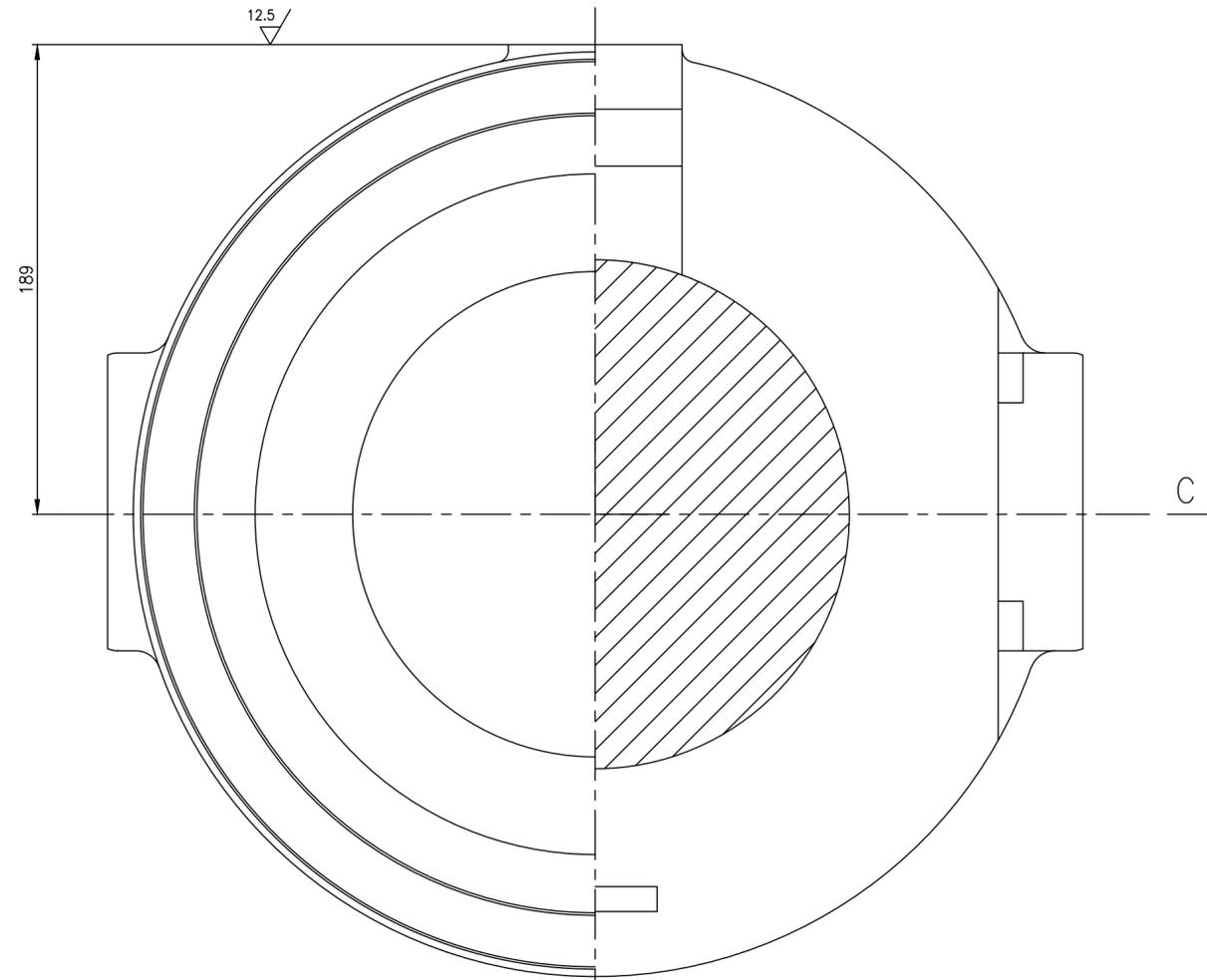
|  |     |       |             |                        |                |      |              |            |  |  |
|--|-----|-------|-------------|------------------------|----------------|------|--------------|------------|--|--|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  |     |       |             |                        |                |      |              |            |  |  |
| <b>BHARAT HEAVY ELECTRICALS LTD.</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI -620014. |     |       |             | DRN                    | V.BAIRAVAN     | SIGN | DATE         | NO.OF VAR. |  |  |
|  |     |       |             | CHD                    | S.SATHEES      |      | 22.10.09     |            |  |  |
|  |     |       |             | APPD                   | M.RAJAKUMAR    |      | 22.10.09     |            |  |  |
| DEPT   | VL  | SCALE | WEIGHT (KG) | REFERENCE INFORMATION  |                |      | NO. OF ITEMS |            |  |  |
| 365-120  |     | N T S | 435         | CAD:2-V-0000-14480-0-0 |                |      |              |            |  |  |
| CODE   | 320 | TITLE |             | CARD CODE              | DRAWING NO.    |      | REV          |            |  |  |
| BONNET   |     |       |             | U 01                   | 2-V-0000-14480 |      |              |            |  |  |
|  |     |       |             | 26"/300 CLASS          |                |      |              |            |  |  |

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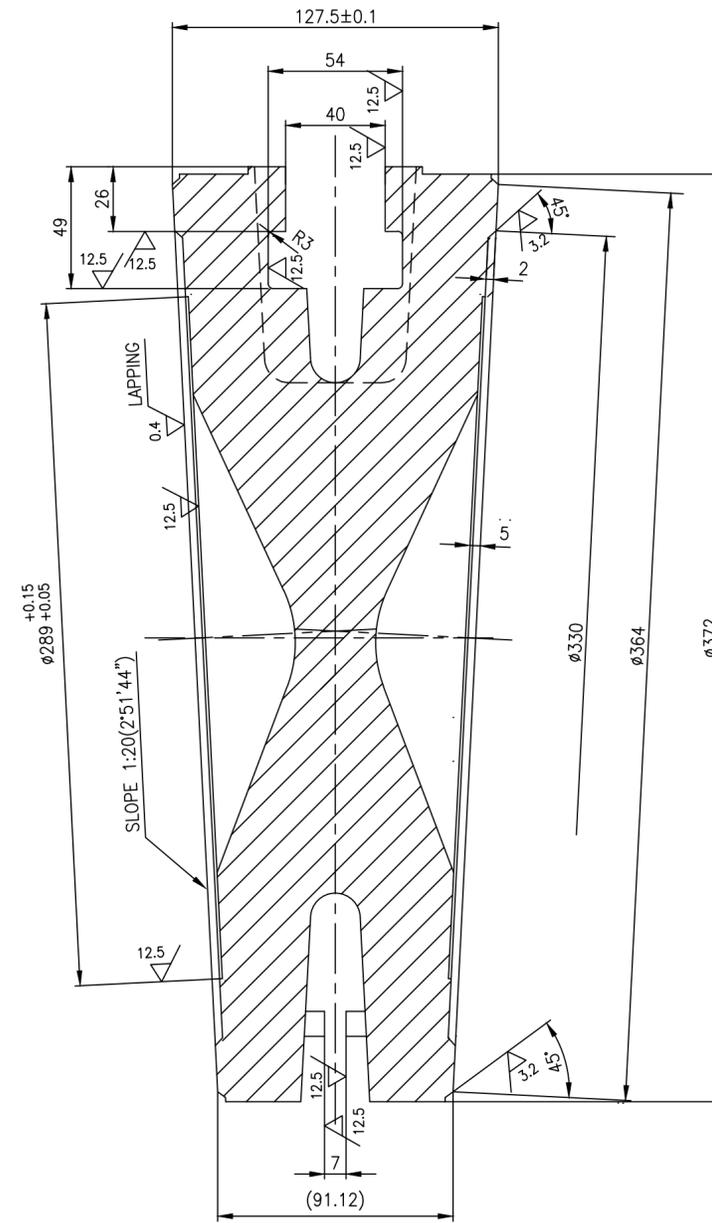
| REV  | DATE | ALTERED    |
|------|------|------------|
|      |      | CHD & APPD |
| ZONE |      |            |

12.5 / 3.2 / 0.4

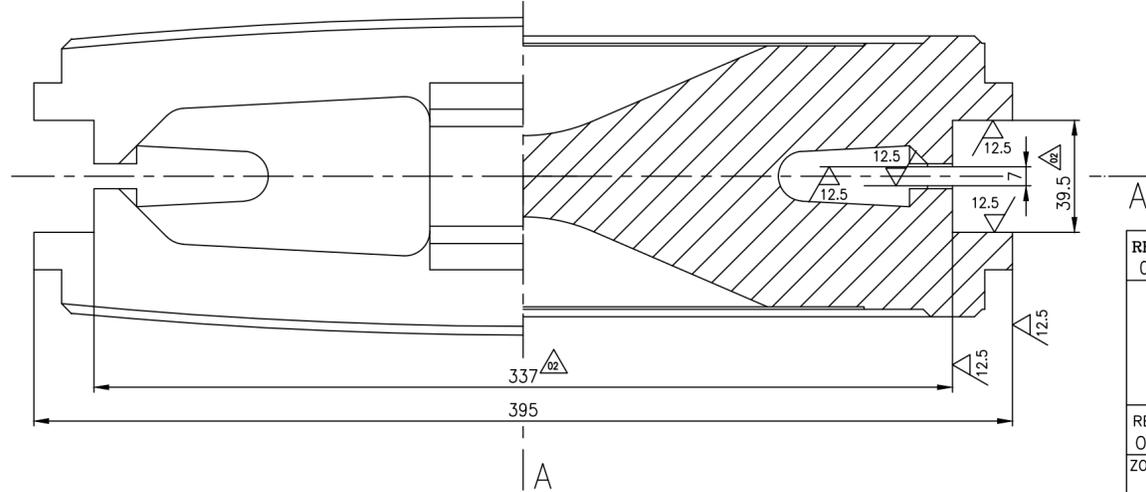
SECTION AA



SECTION BB



SECTION CC



|         |                  |                      |              |            |            |              |  |
|---------|------------------|----------------------|--------------|------------|------------|--------------|--|
| 02      | 2-V-NH86-13755/1 | A351 CF8M,SH CERTIFY | 932032880000 | 46         | 64.3       | 70           |  |
| 01      | 2-V-NA58-13755/1 | A351 CF8,SH CERTIFY  | 931301500000 | 40         | 64.3       | 70           |  |
| SL. No. | DRAWING No.      | MATL. SPECN.         | COMP. CODE   | SCRAP SORT | NET WT(Kg) | GROSS WT(Kg) |  |

| No OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|

|                                    |               |                   |                        |
|------------------------------------|---------------|-------------------|------------------------|
| REV 02                             | DATE 19.08.17 | ALTERED D.JEYASRI | CHD & APPD SSK & KRS   |
| DIMENSION 337 & 39.5 WERE 345 & 32 |               |                   |                        |
| REV 01                             | DATE 01.2.14  | ALTERED S.SARANYA | CHD & APPD S.S.K&K.R.S |
| SL.No. 02 INCLUDED.                |               |                   |                        |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**BHARAT HEAVY ELECTRICALS LTD.**  
UNIT: HIGH PRESSURE BOILER PLANT.  
TIRUCHIRAPALLI - 620014.

DRN V.BAIRAVAN SIGN DATE 20.2.04 NO.OF VAR.  
CHD R.L.NARAYANAN 20.2.04  
APPD M.RAJAKUMAR 20.2.04

DEPT VL SCALE WEIGHT (KG) REFERENCE INFORMATIONS NO.OF ITEMS  
CODE 320 N T S

TITLE WEDGE 14"/300C GV CARD CODE U 01 DRAWING NO. 2-V-0000-13755 REV 02

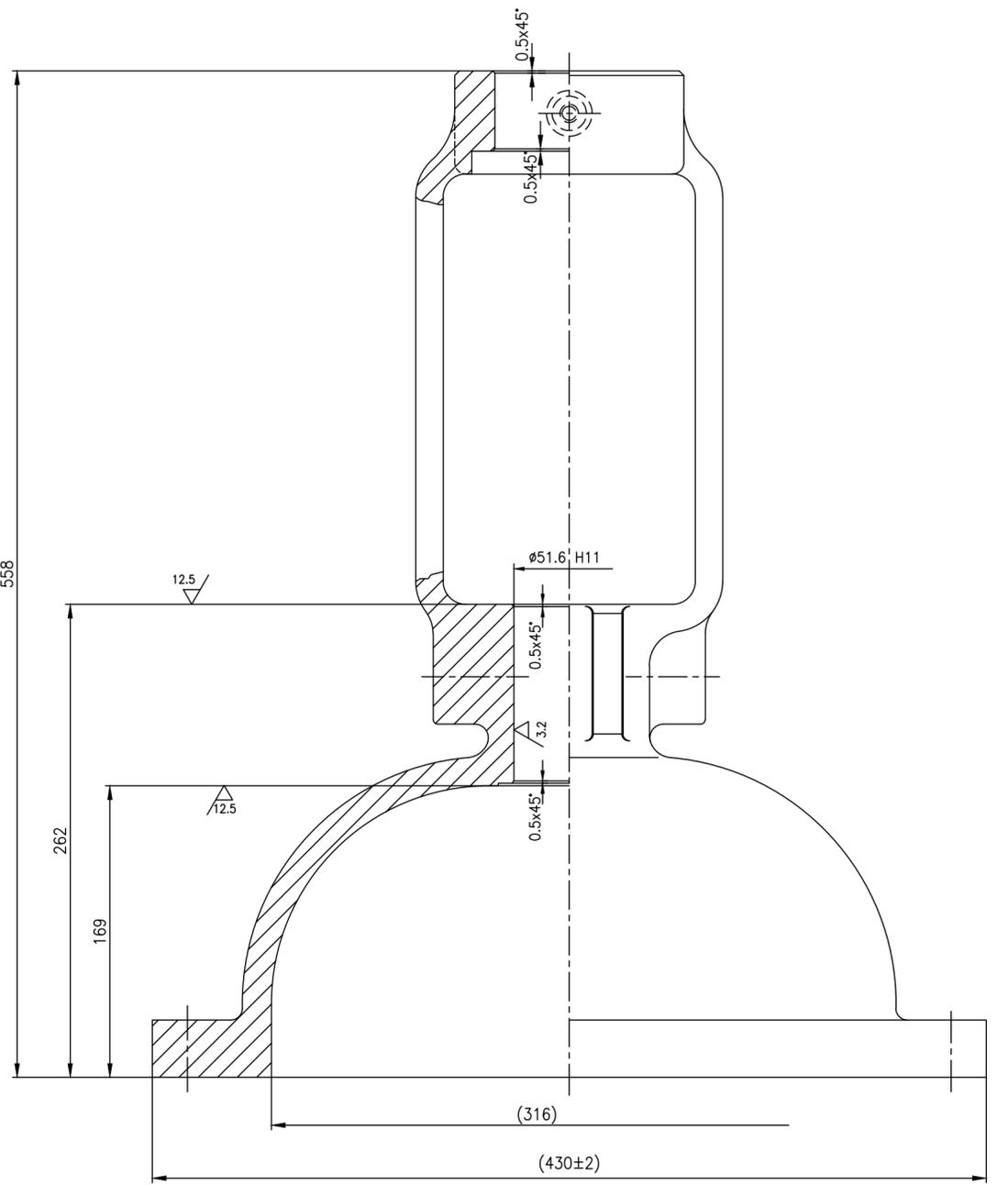
DRAWING NO. 2-V-0000-14260

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP

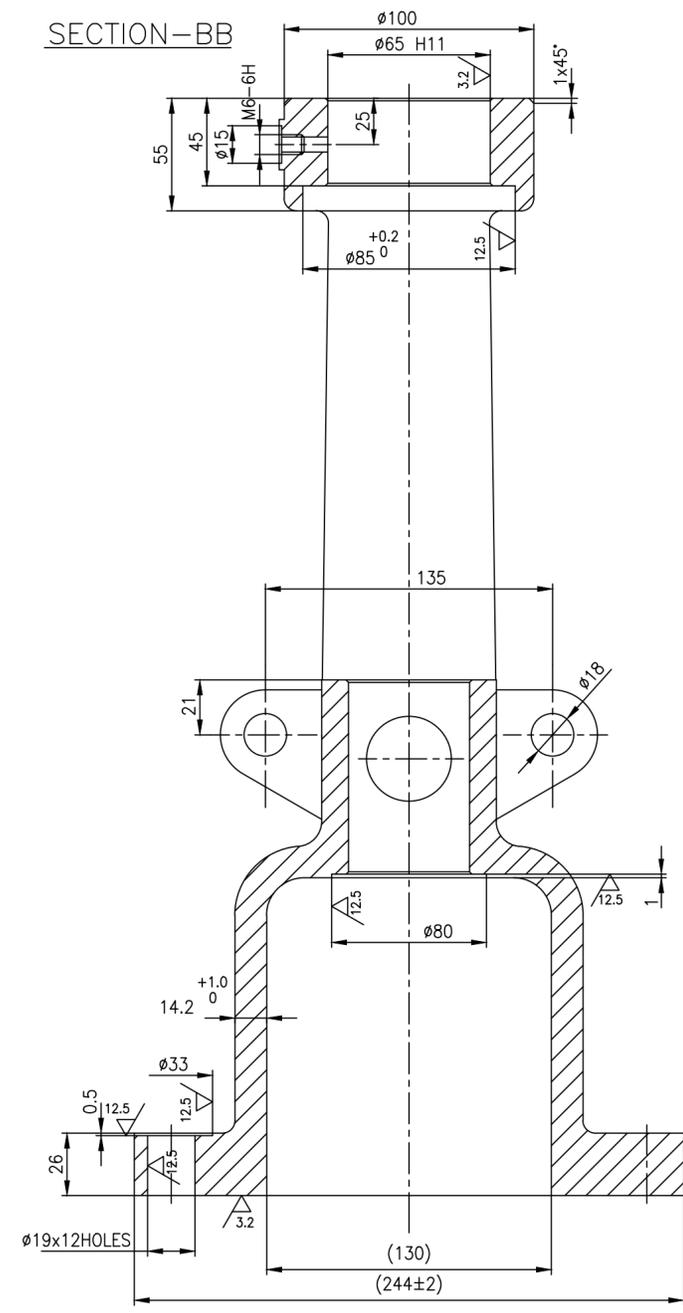
12.5 / 3.2

|               |             |
|---------------|-------------|
| Ø50-65<br>H11 | +0.190<br>0 |
|---------------|-------------|

SECTION-AA



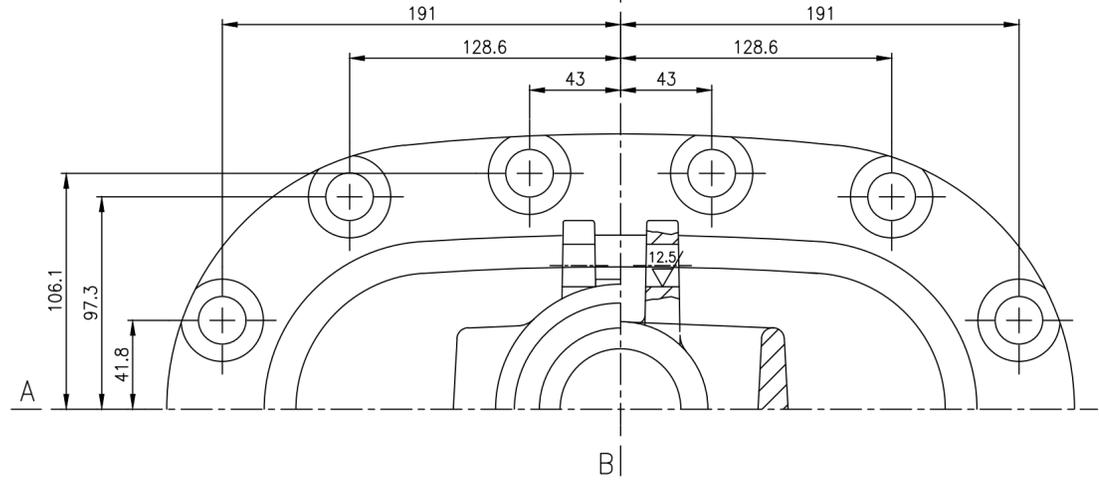
SECTION-BB



NOTES:

- HEAT TREATMENT FOR SA995 CD3MN AS PER ASME STANDARD SA-995 TABLE 1  
(HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

B | A



B |

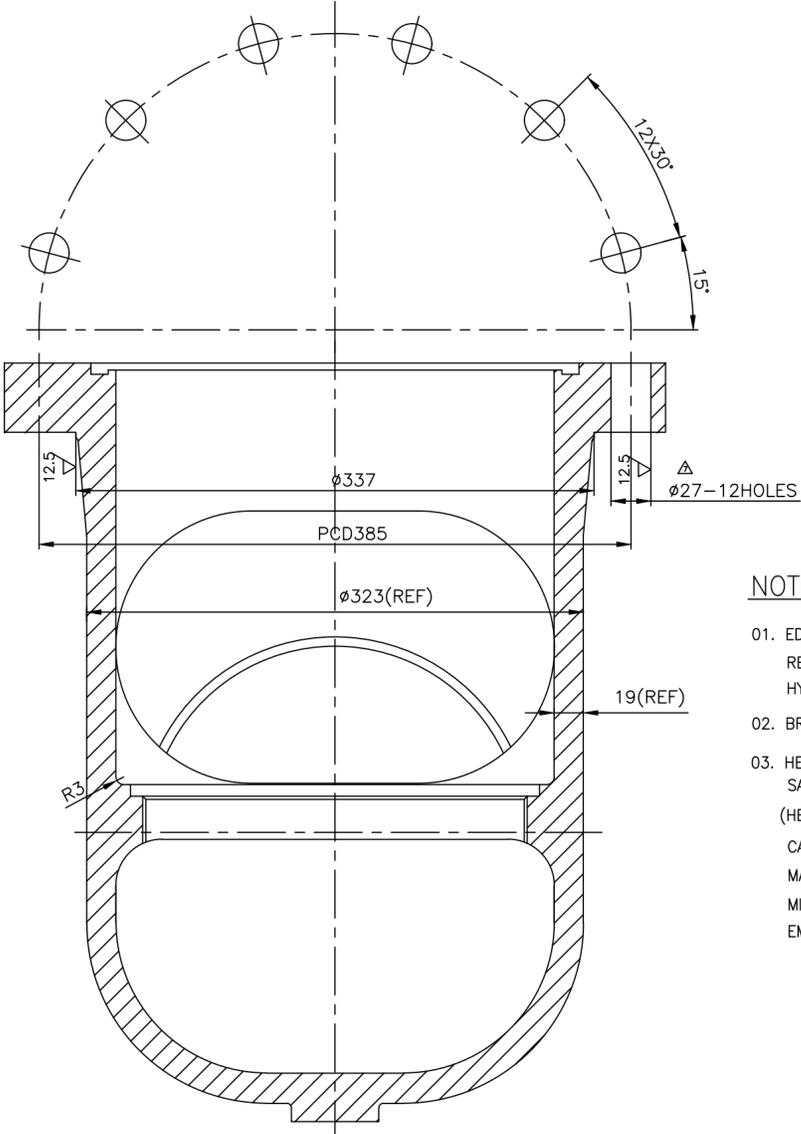
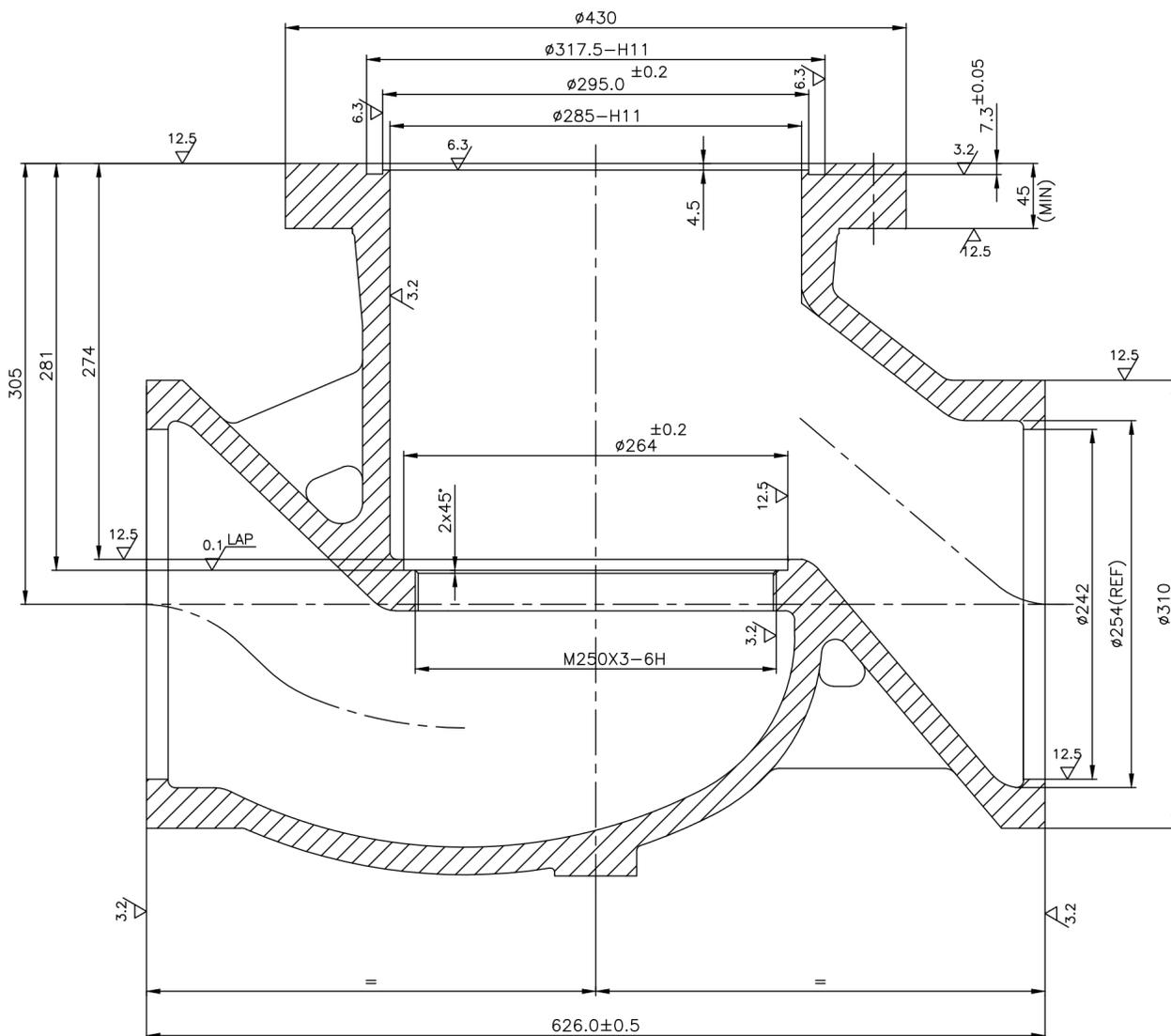
| #  | DESCRIPTION | MATL CODE  | MATL SPECN         | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE            | ITEM No |
|----|-------------|------------|--------------------|----------------|------------|-------------|---------------|-----------------------------------|---------|
| 06 | CASTING     | 92 206 447 | A351 CF8M CERTIFY  | SH             | 46         | 38          | 42            | 2.V.UC06.14260<br>93 206 848 0000 | 006     |
| 05 | CASTING     | 92 203 950 | A351 CF3M CERTIFY  | SH             | 46         | 38          | 42            | 2.V.NP83.14260<br>93 205 597 0000 | 006     |
| 04 | CASTING     | 92 203 635 | A995 CD3MN CERTIFY | REFER NOTE     | 46         | 38          | 42            | 2.V.NP55.14260<br>93 204 845 0000 | 006     |
| 03 | CASTING     | 92 203 329 | A351 CF8 CERTIFY   | SH             | 46         | 38          | 42            | 2.V.NJ29.14260<br>93 203 576 0000 | 006     |
| 02 | CASTING     | 92 203 130 | A351 CF8M CERTIFY  | SH             | 46         | 38          | 42            | 2.V.ND12.14260<br>93 202 985 0000 | 006     |
| 01 | CASTING     | 92 201 687 | A216 WCB, CERTIFY  | NR             | 10         | 38          | 42            | 2.V.NC26.14260<br>93 201 220 0000 | 006     |

|   |     |   |              |                        |                |      |              |      |          |            |  |
|---|-----|---|--------------|------------------------|----------------|------|--------------|------|----------|------------|--|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |     | Bharat Heavy Electricals Ltd.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |              | DRN                    | T.R.RAMAMURTHY | SIGN |              | DATE | 23.05.08 | NO.OF VAR. |  |
| DEPT  |     | 365-190<br>02.03.2021   |              | CHD                    | T.R.RAMAMURTHY |      |              | DATE | 23.05.08 |            |  |
| APPD  |     | P. BOOMINATHAN  |              | DATE                   | 23.05.08       |      |              |      |          |            |  |
| DEPT  | VL  | SCALE   | WEIGHT (KG). | REFERENCE INFORMATIONS |                |      | NO. OF ITEMS |      |          |            |  |
| CODE  | 320 | NTS   | 38           |                        |                |      |              |      |          |            |  |
| TITLE                                       |     | YOKE CUM BONNET<br>(10"-C150-GV-HW-NSG)   |              | CARD CODE              | DRAWING NO.    |      | REV          |      |          |            |  |
|   |     |   |              | U 01                   | 2-V-0000-14260 |      | 04           |      |          |            |  |

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|         |                         |              |
|---------|-------------------------|--------------|
| DCP No. | ALTD: TS                | APPD: MK     |
| -       | CHD: RPS                | DT: 06.08.25 |
| REV     | SL. No. 06 INCLUDED     |              |
| 04      | NOTES SL. No. 02 ADDED. |              |
| ZONE    | -                       |              |

12.5 6.3 3.2 0.1



|            |        |
|------------|--------|
| Ø317.5-H11 | +0.350 |
|            | 0      |
| Ø285-H11   | +0.320 |
|            | 0      |

**NOTE**

- EDGE PREPARATION SHALL BE MADE TO SUIT PURCHASER'S REQUIREMENT. EDGE PREPARATION SHALL BE DONE AFTER HYDROSTATIC TESTING.
- BREAK ALL SHARP CORNERS.
- HEAT TREATMENT FOR SA995 CD3MN AS PER ASME STANDARD SA-995 TABLE 1 (HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)

| SL No. | DESCRIPTION | MATL CODE    | MATL SPECN            | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No COMPONENT CODE            | ITEM No |
|--------|-------------|--------------|-----------------------|----------------|------------|-------------|---------------|--------------------------------------|---------|
| 04     | CASTING     | 922035930000 | SA995 CD3MN ATTEST    | REFER NOTE     | 46         | 96.0        | 112.0         | 2.V.P728.08124/00<br>93 204 696 0000 | -       |
| 03     | CASTING     | 922030000000 | ASTM A217 WC9 ATTEST  | N & T          | 20         | 96.0        | 112.0         | 2.V.P566.08124/01<br>93 202 473 0000 | -       |
| 02     | CASTING     | 922018900000 | ASTM A351 CF8M ATTEST | SH             | 46         | 96.0        | 112.0         | 2.V.P545.08124/02<br>93 201 784 0000 | -       |
| 01     | CASTING     | 922015770000 | ASTM A216 WCB ATTEST  | NORMALISED     | 10         | 96.0        | 112.0         | 2.V.P366.08124/05<br>93 109 693 0000 | -       |

| REV | DATE     | ALTERED | BY                                 | REV | DATE     | ALTERED | BY                                   |
|-----|----------|---------|------------------------------------|-----|----------|---------|--------------------------------------|
| 07  | 05.07.18 | ALTERED | R.P.SINGH<br>CHD & APPD SSK & KRS  | 06  | 10.08.11 | ALTERED | T.R.R.MURTHY<br>CHD & APPD SSK & MRK |
|     |          |         | SL.No. 04 INCLUDED.<br>Ø27 WAS Ø26 |     |          |         | SL.No. 03 INCLUDED.                  |

| REV | DATE     | ALTERED | BY  | REV | DATE     | ALTERED | BY                                     | REV | DATE     | ALTERED | BY                                       | REV | DATE     | ALTERED | BY                                     | ZONE | DESCRIPTION   |         |  |
|-----|----------|---------|---|-----|----------|---------|--|-----|----------|---------|--|-----|----------|---------|--|------|---|---------|--|
| 05  | 24.05.11 | ALTERED | T.R.R.MURTHY<br>CHD & APPD SSK & MRK                            | 04  | 27.11.09 | ALTERED | T.R.R.MURTHY<br>CHD & APPD M.RAJAKUMAR | 03  | 19.09.07 | ALTERED | M.SRINIVASAN<br>CHD & APPD P.BOOMINATHAN | 02  | 30.10.06 | ALTERED | M.SRINIVASAN<br>CHD & APPD M.RAJAKUMAR | 01   | 25.09.06  | ALTERED | M.SRINIVASAN<br>CHD & APPD M.RAJAKUMAR |
|     |          |         | DIM.Ø285-H11 & 12.5 WERE Ø283 & 12.5 WERE Ø283 REFER DCP.801177 |     |          |         | SL.No. 02 INCLUDED.                    |     |          |         | DCP:800738                               |     |          |         |  |      | TOLERANCE ON OVERALL LENGTH & DIMENSION 274 INCLUDED.   |         |  |
|     |          |         |   |     |          |         |  |     |          |         | DCP:800637                               |     |          |         |  |      | DIMENSION Ø283 WAS Ø285-H11   |         |  |
|     |          |         |   |     |          |         |  |     |          |         |  |     |          |         |  |      | DIMENSION Ø285-H11 WAS Ø285(REF) SEAT ZONE MODIFIED INTO SEATRING DESIGN. THIRD FLANGE MODIFIED TEST COLLAR REMOVED |         |  |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**BHARAT HEAVY ELECTRICALS LTD.,**  
UNIT: HIGH PRESSURE BOILER PLANT.  
TIRUCHIRAPALLI -620014.

DRN M.SRINIVASAN  
CHD K.S.RAMAN  
APPD K.S.RAMAN

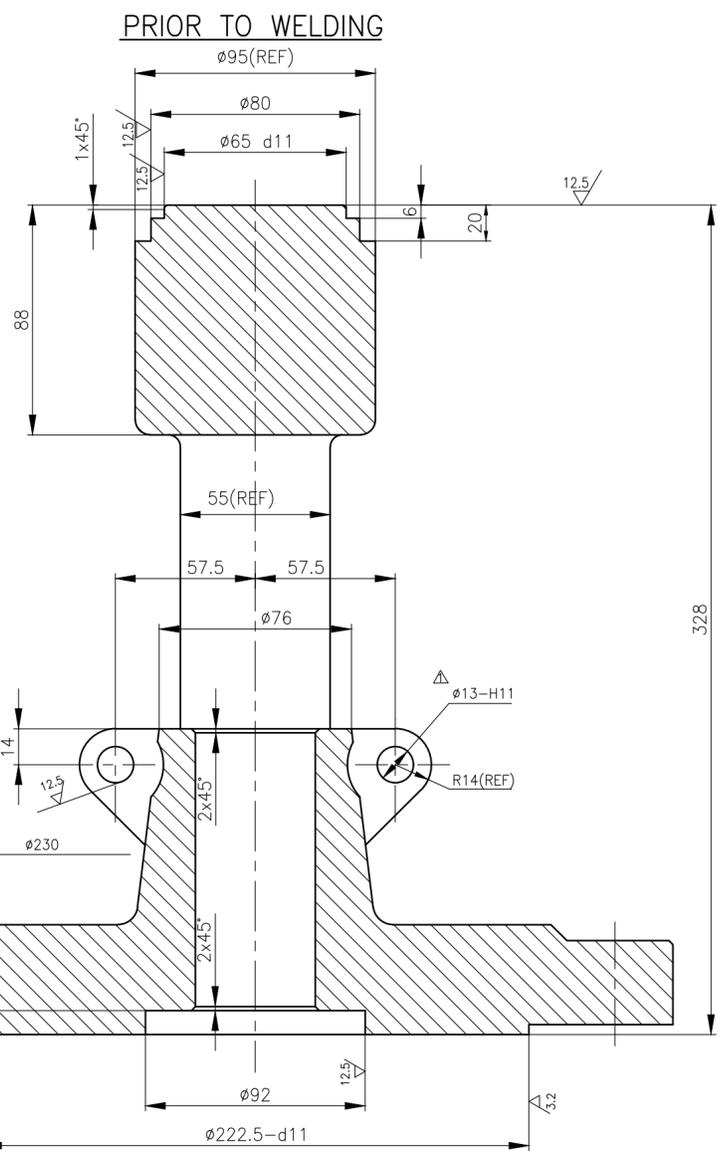
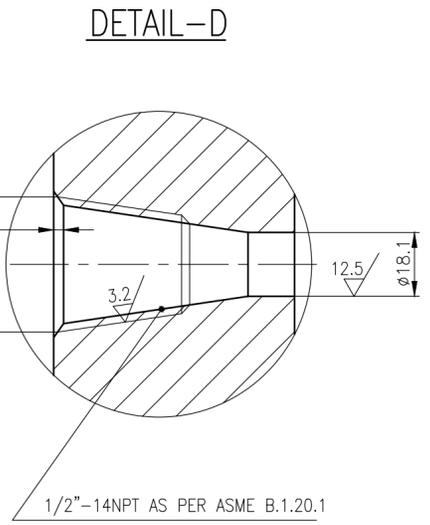
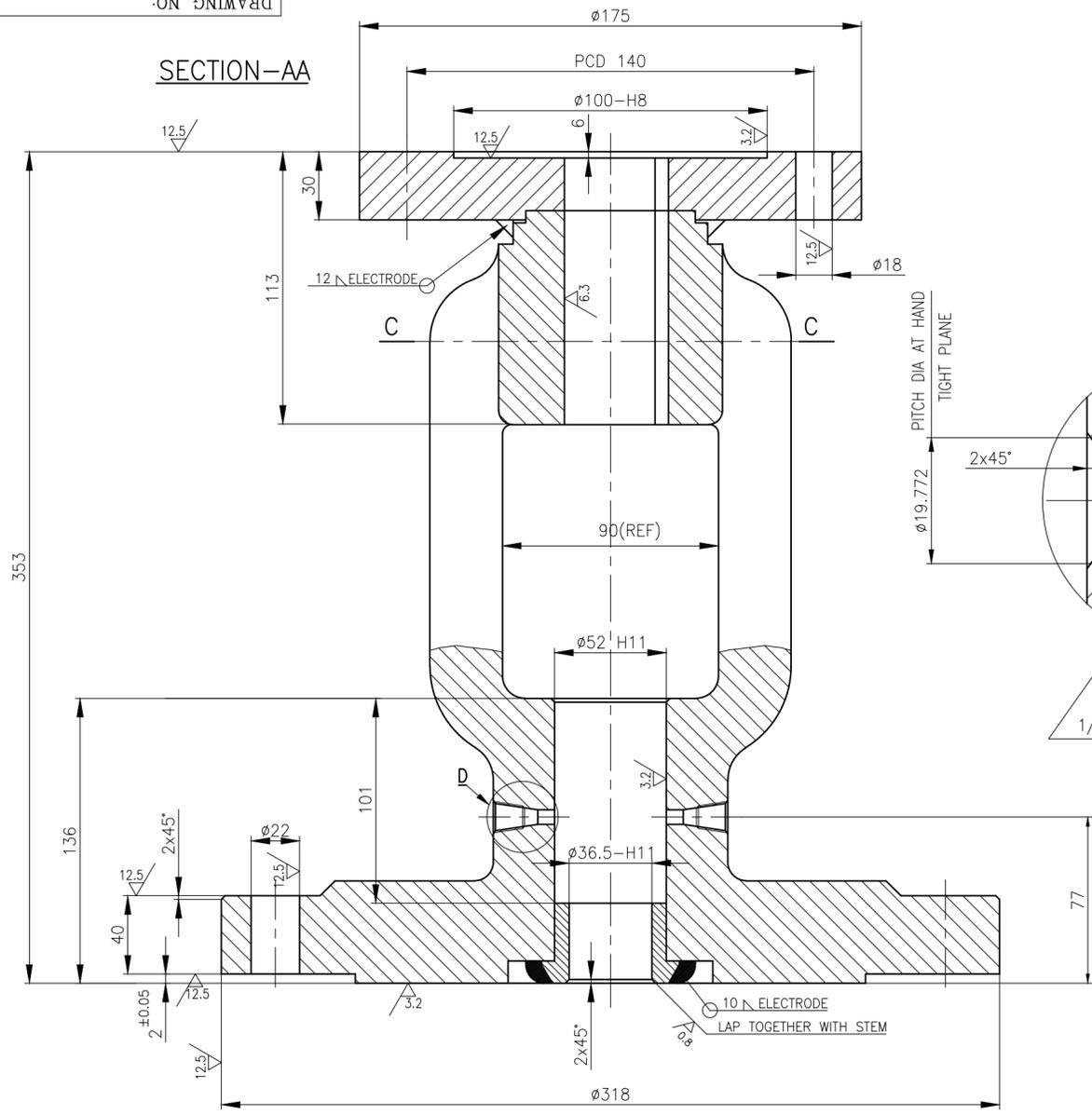
SCALE: NTS  
WEIGHT (KG): 96.0

REFERENCE INFORMATION: CAD :C208124

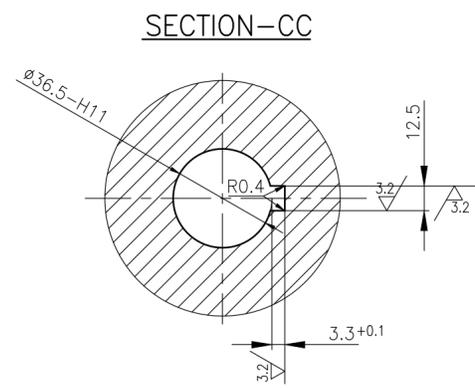
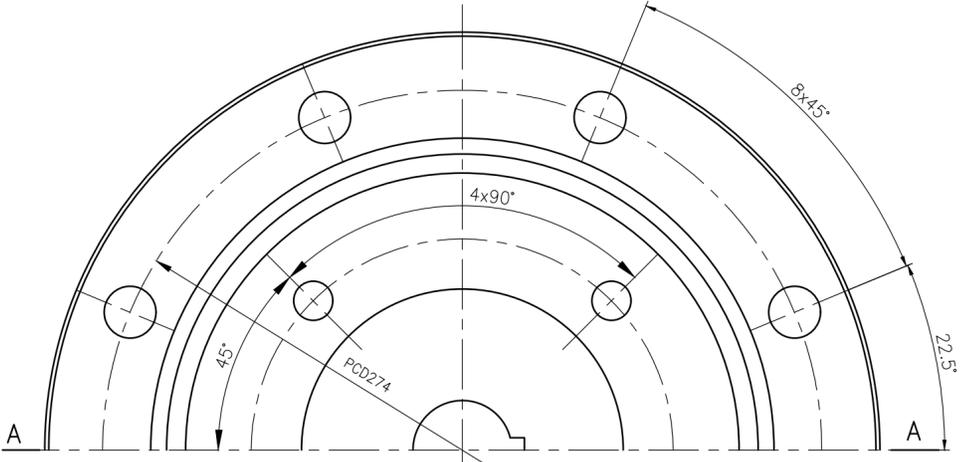
TITLE: **BODY**  
( 10" - C300 )

CARD CODE: U 01  
DRAWING NO.: 2-V-0000-08124  
REV: 07





|            |        |
|------------|--------|
| Ø36.5-H11  | +0.160 |
|            | 0      |
| Ø52-H11    | +0.190 |
|            | 0      |
| Ø13-H11    | +0.110 |
|            | 0      |
| Ø222.5-d11 | -0.170 |
|            | -0.460 |
| Ø65-d11    | -0.100 |
|            | -0.290 |
| Ø100-H8    | +0.054 |
|            | 0      |



| REV   | NO | DESCRIPTION | MATL CODE  | MATL SPECN             | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE | ITEM No |
|-------|----|-------------|------------|------------------------|----------------|------------|-------------|---------------|------------------------|---------|
| E7018 | 04 | CASTING     | 92 008 249 | A216 WCB CERTIFY       | NR             | 10         | 36.5        | --            | 2-V-UB51-12193         | 008     |
| E309  | 03 | CASTING     | 92 201 057 | ASTM A351 CF8M CERTIFY | SH             | 46         | 36.5        | --            | 93 206 510 0000        | 008     |
| E309  | 02 | CASTING     | 92 200 977 | A351 CF8 CERTIFY       | SH             | 46         | 36.5        | --            | 93 204 258 0000        | 008     |
| E7018 | 01 | CASTING     | 92 008 249 | A216 WCB CERTIFY       | NR             | 10         | 36.5        | --            | 2-V-P701-12193/01      | 008     |
|       |    |             |            |                        |                |            |             |               | 93 204 301 0000        | 008     |
|       |    |             |            |                        |                |            |             |               | 2-V-P688-12193/01      | 008     |
|       |    |             |            |                        |                |            |             |               | 93 204 260 0000        | 008     |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: CS

BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI-620014.

|      |               |      |  |      |          |             |  |
|------|---------------|------|--|------|----------|-------------|--|
| DRN  | R.P.SINGH     | SIGN |  | DATE | 31.01.18 | NO. OF VAR. |  |
| CHD  | S.SATHEESH    |      |  |      | 31.01.18 |             |  |
| APPD | K.RAJASEKARAN |      |  |      | 31.01.18 |             |  |

DEPT: VL / CODE: 320 / TITLE: YOKE COVER ASSY (6"-300C-RV-SG)

SCALE: NTS / WEIGHT (KG): - / REFERENCE INFORMATION: -

CARD CODE: U 01 / DRAWING NO.: 2-V-0000-12193 / REV: 02

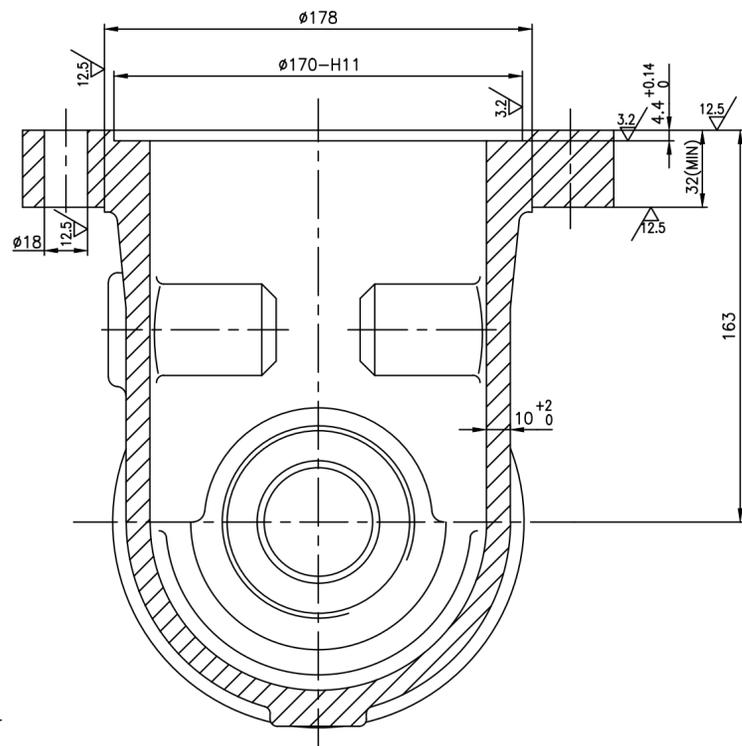
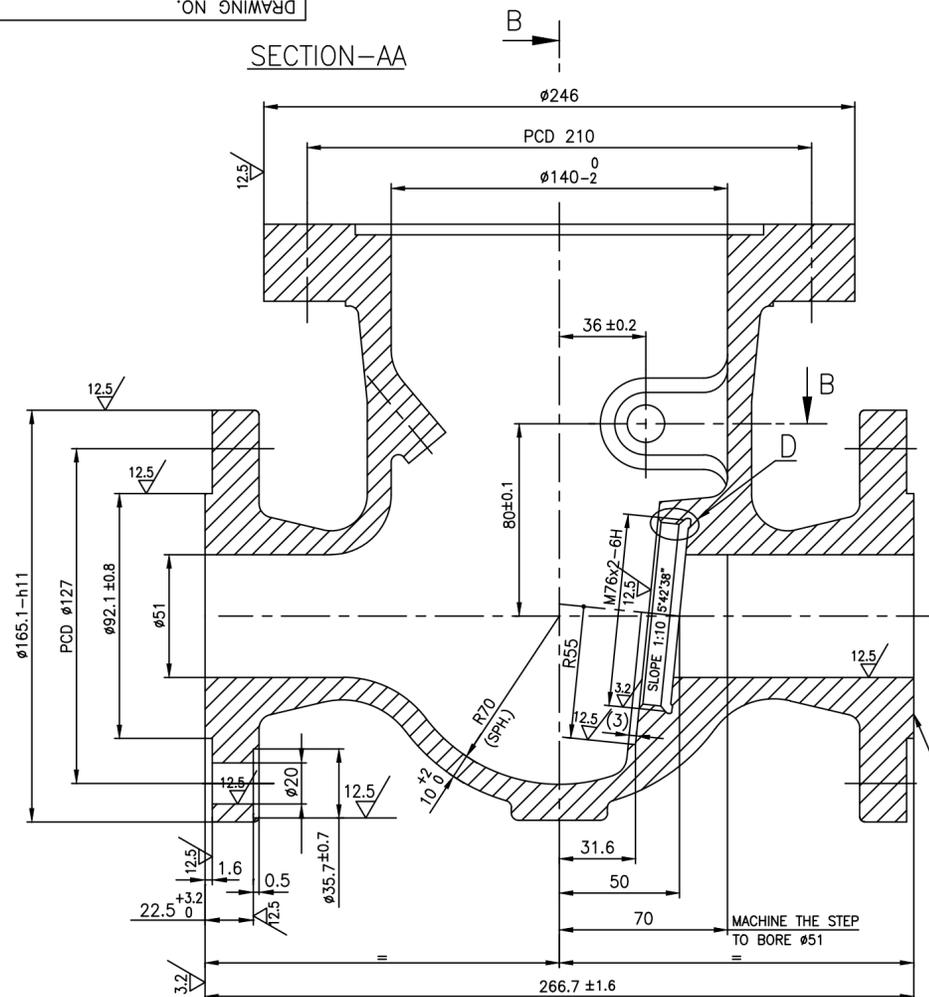
|         |                      |              |         |           |                     |
|---------|----------------------|--------------|---------|-----------|---------------------|
| DCP No. | ALTD: RPS            | APPD: SSK    | DCP No. | ALTD: RPS | APPD: KRS           |
| -       | CHD: MK              | DT: 01.12.23 | -       | CHD: SSK  | DT: 25.10.18        |
| REV 02  | SL. No. 04 INCLUDED. |              |         | REV 01    | Ø13-H11 WAS Ø12-H11 |
| ZONE -  |                      |              |         | ZONE -    |                     |

✓ / 12.5 / 3.2 / 0.8 /

|            |        |
|------------|--------|
| Ø170-H11   | +0.250 |
|            | 0      |
| Ø165.1-h11 | 0      |
|            | -0.250 |

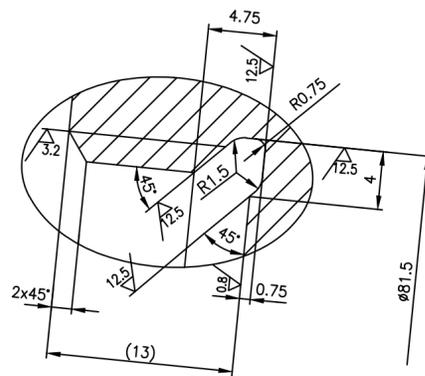
SECTION-AA

SECTION-CC



SPIRAL OR CONCENTRIC SERRATIONS WITH 45 TO 55 GROOVES PER INCH (25.4MM) WITH A TOOL RADIUS OF 1.5mm APPROX.

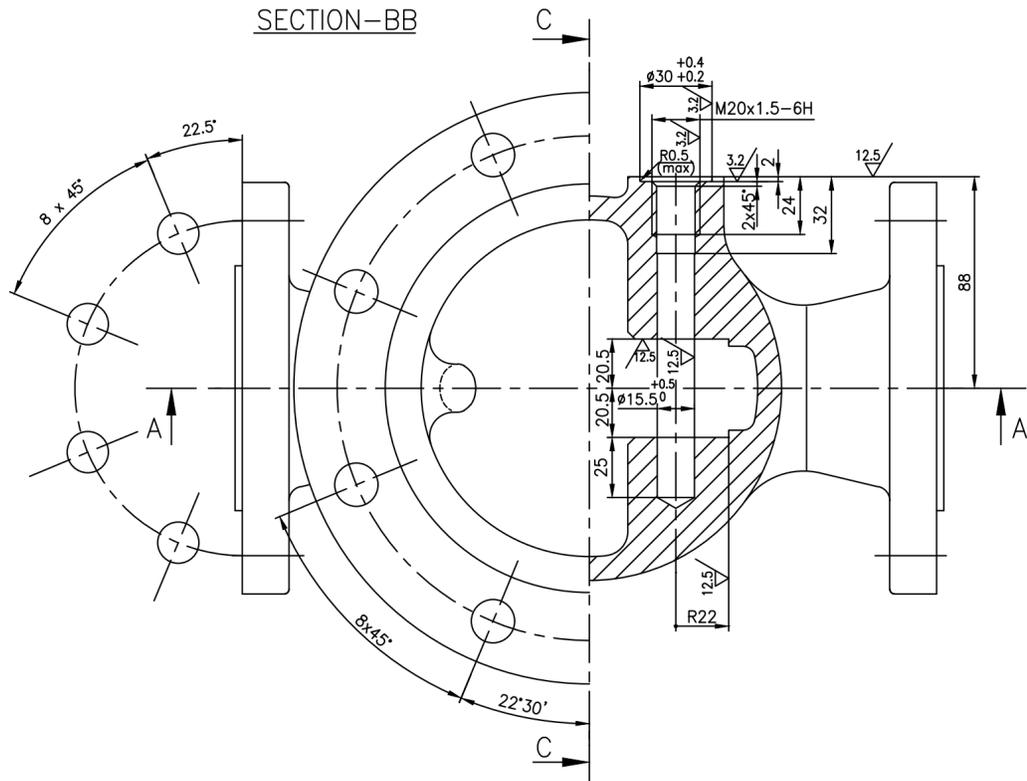
DETAIL-D



NOTES:-

01. # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

SECTION-BB



| #  | OFF | DESCRIPTION                     | MATL CODE  | MATL SPECN        | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                   | ITEM No |
|----|-----|---------------------------------|------------|-------------------|-----------------------|------------|-------------|---------------|------------------------------|---------|
| 02 |     | CASTING DWG No. 2-V-U639-08266R | 92 203 538 | A351 CF8 (ATTEST) | SOLUTION HEAT TREATED | 46         | 21.5        | 28.5          | 2V.U639.08266R/932045970000  | 01      |
| 01 |     | CASTING DWG No. 2-V-Z032-08266R | 92 201 218 | A351 CF8 (ATTEST) | SOLUTION HEAT TREATED | 46         | 21.5        | 28.5          | 2V.Z032.08266R/1931100540000 | 01      |

|   |             |                       |                |                                       |               |
|---|-------------|-----------------------|----------------|---------------------------------------|---------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |             | CS                    |                | DRG. REDRAWN WITH REV. 02 ON 07.05.18 |               |
| BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI - 620014. |             | DRN                   | R.P.SINGH      | SIGN                                  | DATE 07.05.18 |
| 365-120   |             | CHD                   | S.SATHEESKUMAR |                                       | 07.05.18      |
| DEPT VL   |             | APPD                  | K.RAJASEKARAN  |                                       | 07.05.18      |
| SCALE   | WEIGHT (KG) | REFERENCE INFORMATION |                | NO. OF VAR.                           |               |
| NTS   | 21.5        |                       |                | -                                     |               |
| TITLE   |             | CARD CODE             | DRAWING NO.    |                                       | REV           |
| BODY (2"-C300-FV-FL-CF8)  |             | U 01                  | 2-V-0000-08266 |                                       | 02            |

|      |                   |            |           |
|------|-------------------|------------|-----------|
| REV  | DATE              | ALTERED    | R.P.SINGH |
| 02   | 07.05.18          | CHD & APPD | SSK & KRS |
| ZONE | SL.No.02 INCLUDED |            |           |

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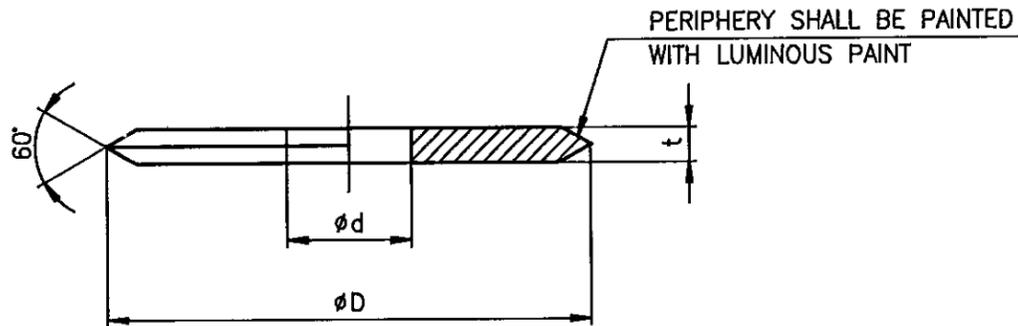


16196-0000-A-3  
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETRES

12.5 /

| SL NO. | DRG.NO.        | COMP.CODE    | MATL SPECN         | SUGG. SIZE | GROSS WT(kg) | SCRAP SORT | DIMENSIONS |    |   |  | NET WT (kg) |
|--------|----------------|--------------|--------------------|------------|--------------|------------|------------|----|---|--|-------------|
|        |                |              |                    |            |              |            | ∅D         | ∅d | t |  |             |
| 01     | 3-V-1149-95191 | 931052960000 | SA105<br>(CERTIFY) | ∅50 X 15   | 0.23         |            | 45         | 13 | 5 |  | 0.06        |
| 02     | 3-V-2935-95191 | 931052970000 |                    | ∅70 X 15   | 0.45         |            | 65         | 13 | 5 |  | 0.02        |
| 03     | 3-V-1084-95191 | 931052980000 |                    | ∅70 X 15   | 0.45         |            | 65         | 18 | 5 |  | 0.12        |
| 03     | 3-V-1376-95191 | 931052990000 |                    | ∅75 X 15   | 0.52         |            | 70         | 18 | 5 |  | 0.14        |
| 04     | 3-V-C172-95191 | 931053470000 |                    | ∅50 X 15   | 0.23         |            | 45         | 18 | 5 |  | 0.04        |



| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|        |             |           |            |                |            |             |               |            |         |

| TOLERANCE FOR UNTOLERANCED DIMENSIONS |              |
|---------------------------------------|--------------|
| UPTO 6 MM                             | = ± 0.1 MM   |
| > 6 UPTO 120 MM                       | = ± 0.2 MM   |
| MORE THAN 120 MM                      | = ± 0.5 MM   |
| ANGULAR TOLERANCE                     | = ± 0.5 Deg. |
| CHAMFER                               | = ± 5 Deg.   |

| REV | DATE | ALTERED | CHECKED |
|-----|------|---------|---------|
|     |      |         |         |

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|  |                    |       |              |                       |      |               |                       |              |             |
|--|--------------------|-------|--------------|-----------------------|------|---------------|-----------------------|--------------|-------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  |                    |       |              |                       |      |               |                       |              |             |
| <b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |                    |       |              |                       | DRN  | NAME          | SIGN                  | DATE         | NO. OF VAR. |
|  |                    |       |              |                       | CHD  | N.DHANAPAL    | <i>M. Dhanapal</i>    | 7-11-94      |             |
|  |                    |       |              |                       | APPD | A.VISWANATHAN | <i>A. Viswanathan</i> | 15/10/94     |             |
| DEPT VL  | GRADE OF UNTOL DIM | SCALE | WEIGHT (KG). | REFERENCE INFORMATION |      |               |                       | NO. OF ITEMS |             |
| CODE 320   | <i>E/M/F</i>       | NTS   |              | CAD:C395191           |      |               |                       |              |             |
| TITLE  |                    |       |              |                       |      | CARD CODE     | DRAWING NO.           | REV          |             |
| INDICATOR DISC   |                    |       |              |                       |      | U 01          | 3-V-0000-95191        | 00           |             |

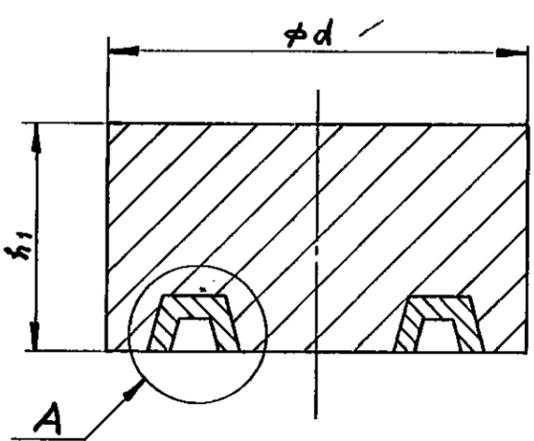
| SL.No | DRAWING No.                          |                        | RAW MATL. DETAILS |                     |                |          | DIMENSIONS |            |            |            |       |       |          |                   |                   |    |    | NET Wt. (kg) |
|-------|--------------------------------------|------------------------|-------------------|---------------------|----------------|----------|------------|------------|------------|------------|-------|-------|----------|-------------------|-------------------|----|----|--------------|
|       | COMP. CODE                           | MATL. SPECN.           | MATL. CODE        | SUG. SIZE           | GROSS WT. (kg) | $\phi d$ | $\phi d_1$ | $\phi d_2$ | $\phi d_3$ | $\phi d_4$ | $h_1$ | $h_2$ | $\phi D$ | $\phi D_1 H_{11}$ | $\phi D_2 H_{11}$ | A  | B  |              |
| 01    | 3-V-0205-06603/01<br>93 102 706 0000 | SA 105, NR,<br>CERTIFY | 15339142          | $\phi 50 \times 28$ | 0.43           | 46       | 35.6       | 11         | 31.3       | 15.3       | 24    | 23    | 44       | 34                | 22.3              | 19 | 8  | 0.10         |
| 02    | 3-V-0206-06603/01<br>93 102 707 0000 |                        | -                 | $\phi 56 \times 28$ | 0.54           | 52       | 37.6       | 13         | 33.3       | 17.3       | 24    | 23    | 50       | 40                | 24.3              | 19 | 8  | 0.15         |
| 03    | 3-V-0207-06603/01<br>93 102 708 0000 |                        | -                 | $\phi 58 \times 28$ | 0.58           | 54       | 39.6       | 15         | 35.3       | 19.3       | 24    | 23    | 52       | 42                | 26.3              | 19 | 8  | 0.21         |
| 04    | 3-V-2410-06603/01<br>93 102 709 0000 |                        | -                 | $\phi 60 \times 35$ | 0.78           | 56       | 41.8       | 17.2       | 37.5       | 21.5       | 30    | 29    | 54       | 44                | 28.5              | 25 | 8  | 0.21         |
| 05    | 3-V-2412-06603/01<br>93 102 710 0000 |                        | 15339143          | $\phi 63 \times 38$ | 0.93           | 60       | 45.8       | 21.2       | 41.5       | 25.5       | 33    | 32    | 58       | 48                | 32.5              | 28 | 10 | 0.25         |
| 06    | 3-V-2480-06603/01<br>93 103 285 0000 |                        | -                 | $\phi 70 \times 45$ | 1.35           | 64       | 49.8       | 25.2       | 45.5       | 29.5       | 40    | 39    | 62       | 52                | 36.5              | 35 | 10 | 0.32         |
| 07    | 3-V-2670-06603/01<br>93 103 254 0000 |                        | 15339144          | $\phi 80 \times 53$ | 2.10           | 76       | 57.8       | 33.2       | 53.5       | 37.5       | 48    | 47    | 74       | 64                | 44.5              | 43 | 12 | 0.58         |

**NOTES:-**  
 1. DOTTED LINE INDICATES FINISHED COMPONENT'S PROFILE.  
 2. HARDNESS OF WELD DEPOSIT - 250 BHN (MIN.)

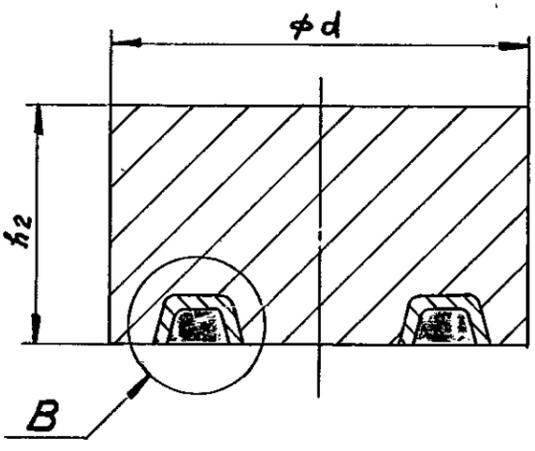
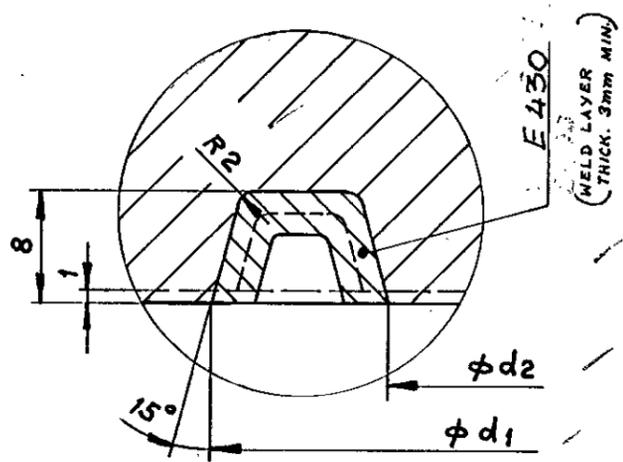
| $\phi D_1$ UPTO ABOVE & INCL | $h_{11}$    | $\phi D_2$ UPTO ABOVE & INCL | $H_{11}$    |
|------------------------------|-------------|------------------------------|-------------|
| 30-50                        | 0<br>-0.160 | 18-30                        | +0.130<br>0 |
| 50-80                        | 0<br>-0.190 | 30-50                        | +0.160<br>0 |

12.5/ 6.3/ 3.2/ 0.8/

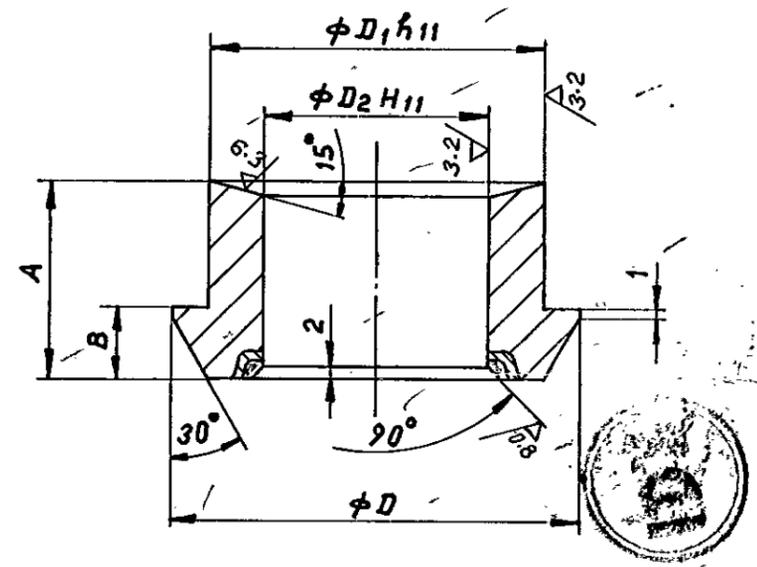
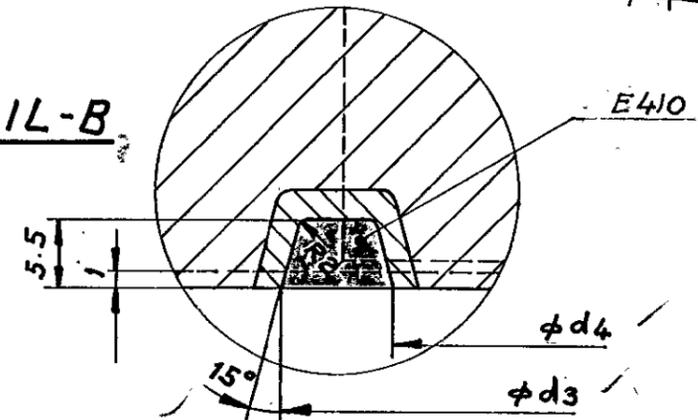
**FOR BUFFER LAYER**



**DETAIL-A**



**DETAIL-B**



| REV | DATE    | ALTD.                         |
|-----|---------|-------------------------------|
| 02  | 9.12.96 | R. Thirumala S<br>CHKD: SAPPD |

NOTES UPDATED  
 REFER DCN. CS 0640

| REV.                         | DATE     | ALTERED        |
|------------------------------|----------|----------------|
| 01                           | 20.11.90 | R. Thirumala S |
| ZONE SL.NoS. 6 & 7 INCLUDED. |          |                |

**BHARAT HEAVY ELECTRICALS LTD.,  
 BOILER PLANT UNIT, TIRUCHIRAPALLI-14**

|                               |       |                  |                                  |
|-------------------------------|-------|------------------|----------------------------------|
| FIRST ANGLE                   | SCALE | DRAWN            | TOTAL NET Wt. (kg)               |
|                               | NTS   | R.L. [Signature] |                                  |
| ALL DIMENSIONS IN MILLIMETRES |       | CHECKED          | TYPE                             |
|                               |       | S.K. [Signature] |                                  |
|                               |       | APPROVED         |                                  |
|                               |       | [Signature]      |                                  |
|                               |       | DATE             | OLD DRG. NO.                     |
|                               |       | 10.3.90          | 3-V-0000-03207<br>4-V-0000-04317 |

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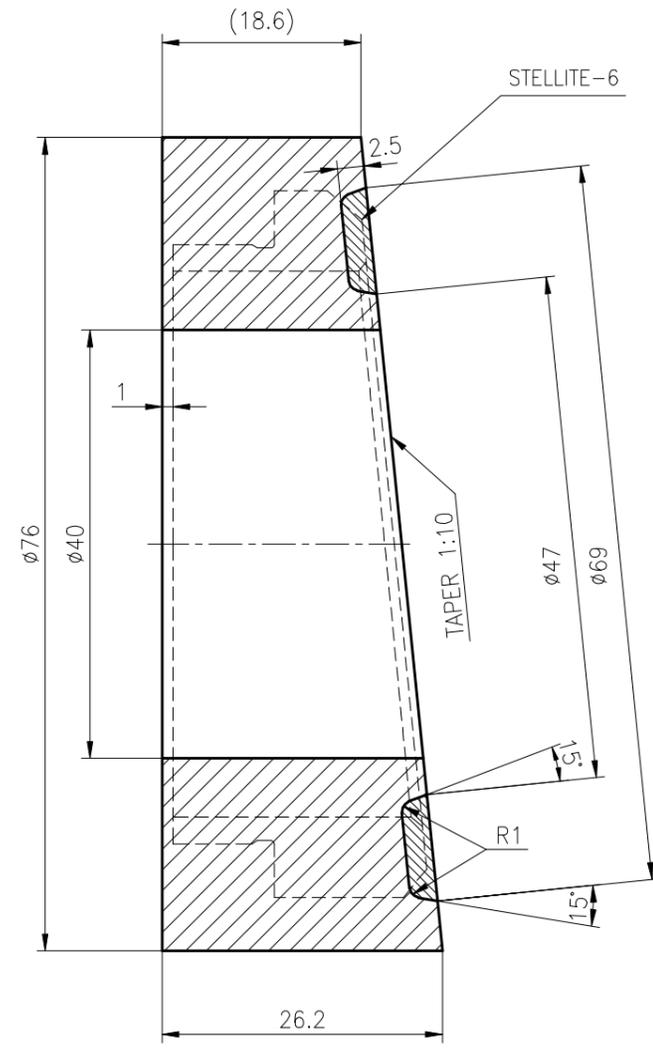
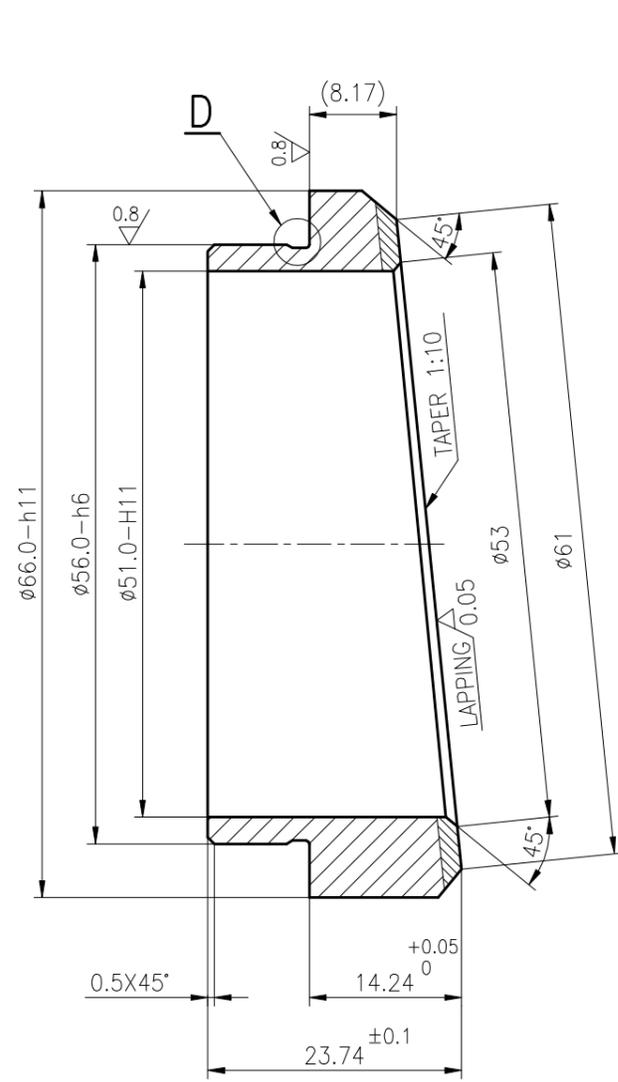
33-115

|                       |                |  |          |
|-----------------------|----------------|--|----------|
| <b>BACKSEAT ASSY.</b> |                |  |          |
| DRAWING NO.           | 3.V.0000.06603 |  | REVISION |
|                       |                |  | 02       |

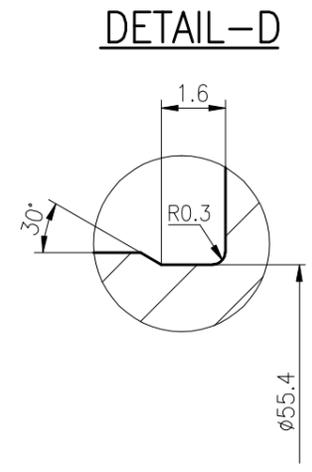
DRAWING NO. 3-V-0000-24341

12.5 / 0.8 / 0.05

**GROOVE PREPARATION FOR HARDFACING**



DOTTED LINE INDICATES FINISH MACHINED PROFILE.



|         |        |
|---------|--------|
| ø66-h11 | 0      |
|         | -0.190 |
| ø56-h6  | 0      |
|         | -0.019 |
| ø51-H11 | +0.190 |
|         | 0      |

| 01       | HARD FACING                 | -         | RCoCrA                 | -                 | -          | 0.02        | 0.03          | 3.V.F520.24341        | 480     |
|----------|-----------------------------|-----------|------------------------|-------------------|------------|-------------|---------------|-----------------------|---------|
|          | SUGG. MIN.SIZE BAR ø76 X 36 | -         | ASTM A182 F316-CERTIFY | SOLUTION ANNEALED | 46         | 0.13        | 1.28          | 931305320000          | 004     |
| S.L. No. | DESCRIPTION                 | MATL CODE | MATL SPECN             | HEAT TREATMENT    | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No COMP. CODE | ITEM No |

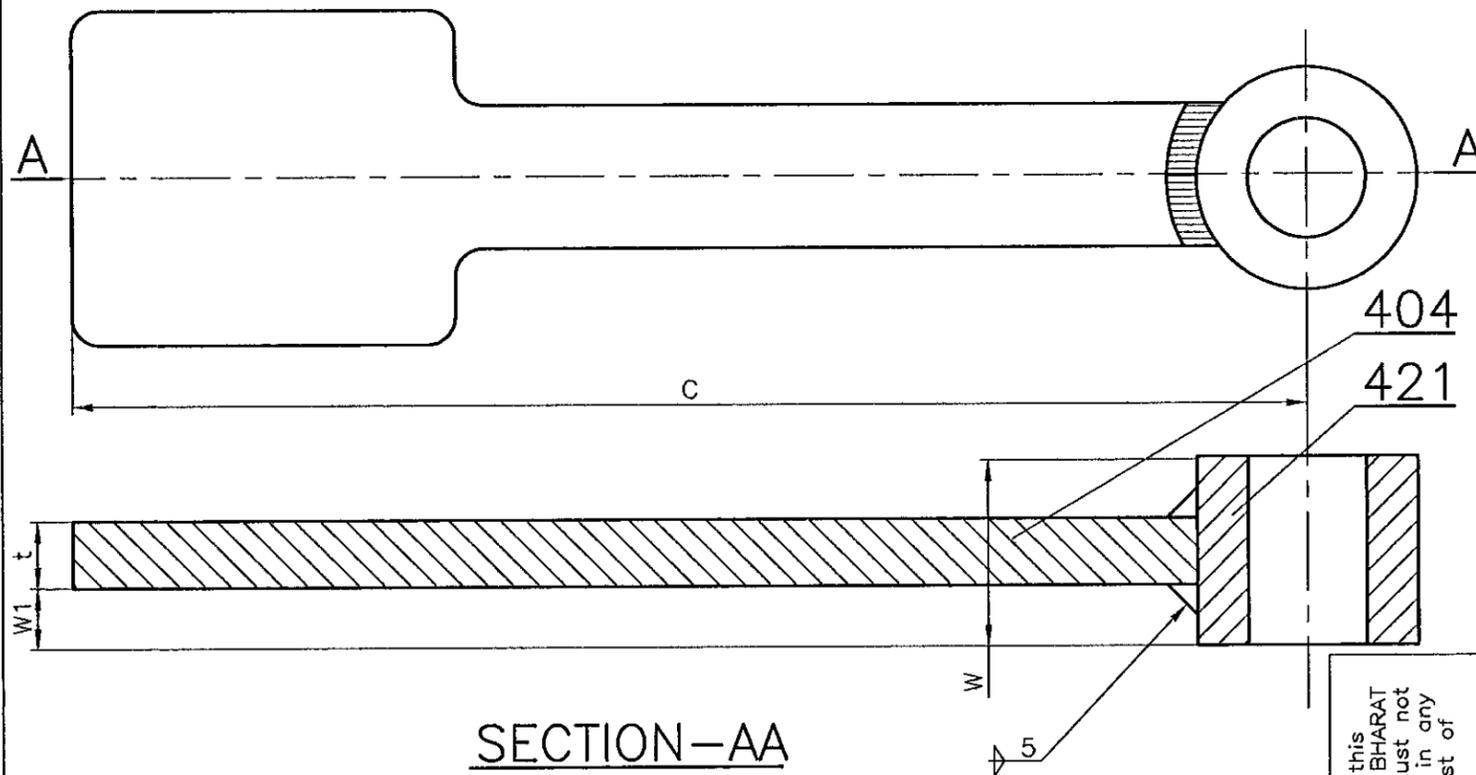
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|   |     |       |  |              |      |                       |                |          |              |
|---|-----|-------|--|--------------|------|-----------------------|----------------|----------|--------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |     |       |  |              |      |                       |                |          |              |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |     |       |  |              | DRN  | R.GANGA               | SIGN           | DATE     | NO.OF VAR.   |
|   |     |       |  |              | CHD  | M.SRINIVASAN          |                | 25.11.11 |              |
|   |     |       |  |              | APPD | M.RAJAKUMAR           |                | 25.11.11 |              |
| DEPT  | VL  | SCALE |  | WEIGHT (KG). |      | REFERENCE INFORMATION |                |          | NO. OF ITEMS |
| CODE  | 320 | NTS   |  | 0.15         |      |                       |                |          |              |
| TITLE   |     |       |  |              |      | CARD CODE             | DRAWING NO.    |          | REV          |
| SEATRING ASSY.  |     |       |  |              |      | U 01                  | 3-V-0000-24341 |          | 00           |

| REV | DATE | ALTERED    |
|-----|------|------------|
|     |      | CHD & APPD |

01/29860-0000-A-3  
DRAWING NO

| SL.NO. | DRG.NO.           | COMP.CODE    | ELECTRODE SPECN. | DIMENSIONS |    |    |    |  | NET WT (kg) | VALVE TYPE       |
|--------|-------------------|--------------|------------------|------------|----|----|----|--|-------------|------------------|
|        |                   |              |                  | C          | W  | W1 | t  |  |             |                  |
| 01     | 3-V-K011-09862/01 | 931018140000 | E 6013           | 306        | 25 | 7  | 10 |  | 0.82        | 10"-C150,8"-C300 |
| 02     | 3-V-K020-09862/01 | 931018840000 | E 6013           | 360        | 25 | 7  | 10 |  | 0.87        | 14"-C150         |
| 03     | 3-V-K164-09862/01 | 931025520000 | E 6013           | 360        | 25 | 7  | 10 |  | 0.92        | 10"-C300         |
| 04     | 3-V-K268-09862/01 | 931029830000 | E 6013           | 200        | 25 | 7  | 10 |  | 0.66        | 65/40 GV         |
| 05     | 3-V-K324-09862/01 | 931034600000 | E 6013           | 125        | 25 | 7  | 10 |  | 0.60        | 2"-C800 GV       |
| 06     | 3-V-K357-09862/00 | 931038400000 | E 6013           | 125        | 25 | 7  | 10 |  | 0.60        | 1"-C800 GV       |
| 07     | 3-V-G041-09862/00 | 931183980000 | E 6013           | 250        | 25 | 7  | 10 |  | 0.81        | 65/1500 GLV      |
| 08     | 3-V-K923-09862/00 | 931089310000 | E 6013           | 200        | 25 | 7  | 10 |  | 0.65        | 4"-300C GV       |
| 09     | 3-V-J006-09862/00 | 931095730000 | E 6013           | 306        | 25 | 7  | 10 |  | 0.82        | 6"-C150 GV       |
| 10     | 3-V-J012-09862/00 | 931096990000 | E 6013           | 200        | 25 | 7  | 10 |  | 0.60        | 2"-C150 GV       |
| 11     | 3-V-N209-09862/00 | 931101780000 | E 6013           | 186        | 25 | 7  | 10 |  | 0.55        | 3"-C300 GV       |



SECTION-AA

|  |             |              |                       |                |            |              |                |              |            |
|--|-------------|--------------|-----------------------|----------------|------------|--------------|----------------|--------------|------------|
| NO OFF   | DESCRIPTION | MATL CODE    | MATL SPECN            | HEAT TREATMENT | SCRAP SORT | NET WT (kg)  | GROSS WT (kg)  | DRAWING No   | ITEM No    |
|  |             |              |                       |                | 10         |              |                |              | 420        |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  |             |              |                       |                |            |              |                |              |            |
| CS DRG. RETRACED WITH REV.10 ON 14.06.2001   |             |              |                       |                |            |              |                |              |            |
| BHARAT HEAVY ELECTRICALS LTD.<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |             |              |                       |                | DRN        | NAME         | SIGN           | DATE         | NO.OF VAR. |
|  |             |              |                       |                | CHD        | P.Boomnathan |                | 14.06.01     |            |
|  |             |              |                       |                | APPD       | K.S.RAMAN    |                | 14.06.01     |            |
| DEPT VL  | SCALE       | WEIGHT (KG). | REFERENCE INFORMATION |                |            |              |                | NO. OF ITEMS |            |
| CODE   | NTS         | REFER TABLE  | CAD:C309862           |                |            |              |                |              |            |
| TITLE  |             |              |                       |                |            | CARD CODE    | DRAWING NO.    |              | REV        |
| STRIKER PLATE ASSY.  |             |              |                       |                |            | U 01         | 3-V-0000-09862 |              | 10         |

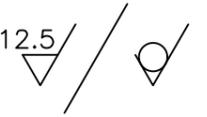


|     |          |            |          |  |
|-----|----------|------------|----------|--|
| REV | DATE     | ALTERED    | K.P.Leon |  |
| 10  | 14.06.01 | CHD & APPD |          |  |

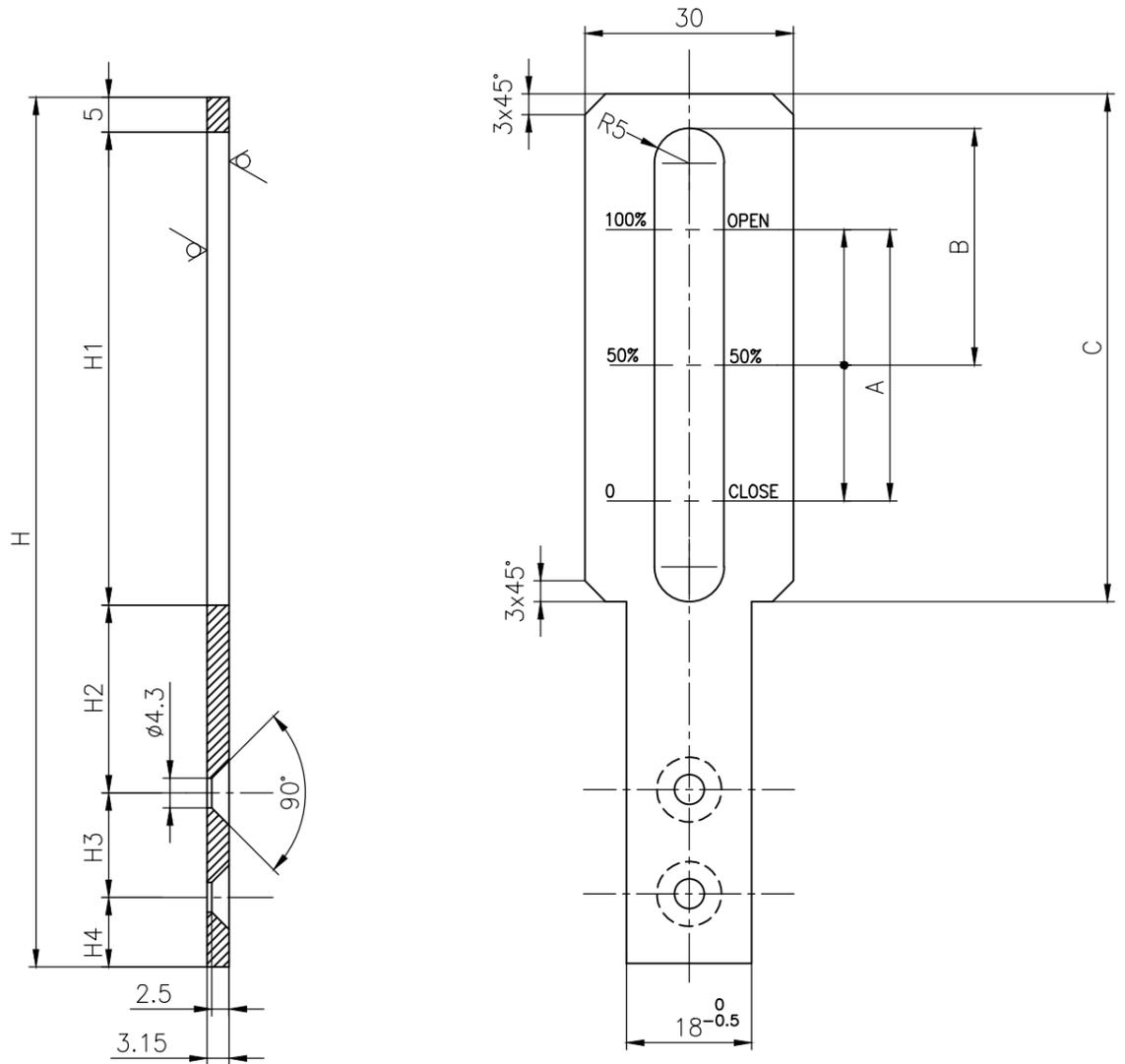
SL .NUMBER 11 INCLUDED.

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78960-0000-Λ-ζ  
DRAWING NO.



| S.No. | Drg. No.          | RAW MATERIAL              |                |            |         | DIMENSIONS |    |    |    |    |    |      |     | COMP. CODE      | FINISHED Wt.(Kg) | APPLICABLE TYPE No. |
|-------|-------------------|---------------------------|----------------|------------|---------|------------|----|----|----|----|----|------|-----|-----------------|------------------|---------------------|
|       |                   | SPECN.                    | SIZE           | MATL. CODE | Wt.(Kg) | H          | H1 | H2 | H3 | H4 | A  | B    | C   |                 |                  |                     |
| 1     | 3-V-K333-09682/03 | IS1079 Gr.HR2 NR, CERTIFY | PL.100x40-3.15 | 15 011 182 | 0.10    | 90         | 33 | 27 | 15 | 10 | 27 | 16.5 | 38  | 93 103 520 0000 | 0.045            | 2"-C300-GLV         |
| 2     | 3-V-K334-09682/03 | IS1079 Gr.HR2 NR, CERTIFY | PL.110x40-3.15 | 15 011 182 | 0.11    | 100        | 43 | 27 | 15 | 10 | 31 | 21.5 | 48  | 93 103 521 0000 | 0.053            | 3"-C300-GLV         |
| 3     | 3-V-K335-09682/03 | IS1079 Gr.HR2 NR, CERTIFY | PL.135x40-3.15 | 15 011 182 | 0.13    | 125        | 68 | 27 | 15 | 10 | 39 | 34   | 73  | 93 103 522 0000 | 0.065            | 6"-C300-GLV         |
| 4     | 3-V-K353-09682/04 | IS1079 Gr.HR2 NR, CERTIFY | PL.120x40-3.15 | 15 011 182 | 0.12    | 106        | 45 | 31 | 15 | 10 | 35 | 22.5 | 60  | 93 103 750 0000 | 0.06             | 3"-C300-RGLV        |
| 5     | 3-V-K354-09682/04 | IS1079 Gr.HR2 NR, CERTIFY | PL.160x40-3.15 | 15 011 182 | 0.16    | 147        | 90 | 27 | 15 | 10 | 63 | 45   | 100 | 93 103 751 0000 | 0.073            | 6"-C300-RGLV        |



**NOTE**

01. CHROME PLATE TO A DEPTH OF 0.05mm, BRIGHTLY AND FILL THE SCALE LINES WITH LUMINOUS RED PAINT.

| NO OFF | DESCRIPTION  | MATL CODE                              | MATL SPECN      | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No.  | ITEM No |
|--------|--|--|-----------------|-----------------------|------------|-------------|---------------|--------------|---------|
|        | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  | DRG. REDRAWN WITH REV.08 ON 20.06.2023 |                 |                       |            |             |               |              |         |
|        | <b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. | DRN                                    | R.P.SINGH       | SIGN                  |            | DATE        | 20.06.23      | NO.OF VAR.   | —       |
|        |  | CHD                                    | MUKESH KUMAR    |                       |            | DATE        | 20.06.23      |              |         |
|        |  | APPD                                   | S.SATHEES KUMAR |                       |            | DATE        | 20.06.23      |              |         |
| DEPT   | VL   | SCALE                                  | WEIGHT (KG).    | REFERENCE INFORMATION |            |             |               | NO. OF ITEMS |         |
| CODE   | 320  | NTS                                    | —               |                       |            |             |               | —            |         |
| TITLE  | SCALE OF INDEX   |  |                 |                       | CARD CODE  | DRAWING NO. |               |              | REV     |
|        |  |  | U 01            | 3-V-0000-09682        |            |             | 08            |              |         |

|         |   |              |
|---------|---|--------------|
| DCP No. | ALTD: RPS   | APPD: SSK    |
| -       | CHD: MK   | DT: 20.06.23 |
| REV 08  | RAW MATERIAL SPECIFICATION IS1079 Gr.HR2 WAS IS2062 |              |
| ZONE    | Fe 410 WB.  |              |

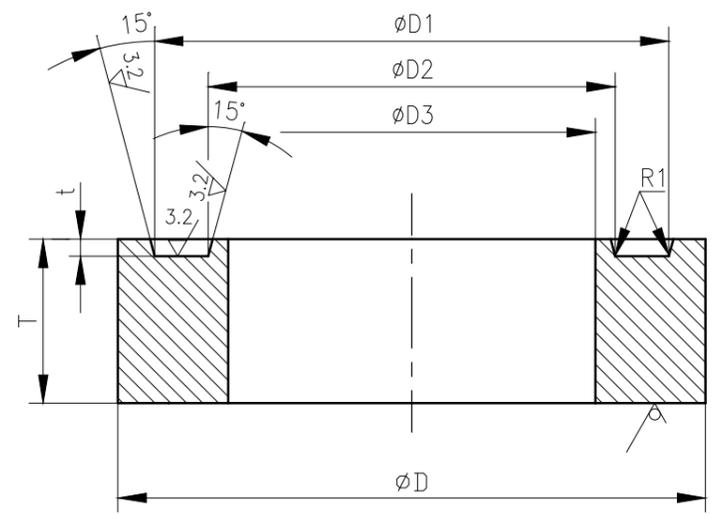
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98896-0000-A-2

DRAWING NO.

12.5 / 3.2 ✓

| SL. NO. | DRAWING NO.       | COMP. CODE   | RAW MATERIAL              |                |        | SCRAP SORT | DIMENSIONS |     |     |     |    |     | NET WT(KG)  | APPLICABLE VALVE |
|---------|-------------------|--------------|---------------------------|----------------|--------|------------|------------|-----|-----|-----|----|-----|-------------|------------------|
|         |                   |              | MATL. SPECN.              | SUGGESTED SIZE | WT(KG) |            | ØD         | ØD1 | ØD2 | ØD3 | T  | t   |             |                  |
| 01      | 3-V-K375-95886    | 931039753000 | SA515 Gr.70<br>NR CERTIFY | Ø116 x Ø53-23  | 1.5    | 10         | 106        | 91  | 77  | 63  | 21 | 3.0 | 0.80        | 3"/C150, 3"/C300 |
| 02      | 3-V-K379-95886    | 931039763000 |                           | Ø145 x Ø78-20  | 1.8    |            | 135        | 117 | 103 | 88  | 18 |     | 1.10        | 4"/C150          |
| 03      | 3-V-K390-95886    | 931040883000 |                           | Ø148 x Ø78-22  | 2.14   |            | 138        | 119 | 106 | 88  | 20 |     | 1.33        | 4"/C300          |
| 04      | 3-V-K380-95886    | 931039773000 |                           | Ø193 x Ø127-30 | 3.90   |            | 183        | 167 | 153 | 137 | 28 |     | 2.40        | 6"/C150          |
| 05      | 3-V-K391-95886    | 931040823000 |                           | Ø203 x Ø127-30 | 4.63   |            | 193        | 174 | 157 | 137 | 28 |     | 3.06        | 6"/C300          |
| 06      | 3-V-K382-95886    | 931039893000 |                           | Ø248 x Ø177-29 | 5.30   |            | 238        | 220 | 206 | 187 | 27 |     | 3.40        | 8"/C150          |
| 07      | 3-V-K392-95886    | 931040873000 |                           | Ø258 x Ø213-29 | 3.90   |            | 248        | 229 | 209 | 187 | 27 |     | 2.30        | 8"/C300          |
| 08      | 3-V-K389-95886    | 931040863000 |                           | Ø290 x Ø236-29 | 5.1    |            | 284        | 271 | 258 | 248 | 27 |     | 3.15        | 10"/C150         |
| 09      | 3-V-K395-95886    | 931040833000 |                           | Ø320 x Ø228-29 | 9.01   |            | 310        | 283 | 259 | 238 | 27 |     | 6.30        | 10"/C300         |
| 10      | 3-V-K396-95886    | 931040843000 |                           | Ø356 x Ø279-29 | 8.74   |            | 346        | 325 | 309 | 289 | 27 |     | 5.84        | 12"/C150         |
| 11      | 3-V-K397-95886    | 931040853000 |                           | Ø366 x Ø279-29 | 10.03  |            | 356        | 335 | 308 | 289 | 27 |     | 6.80        | 12"/C300         |
| 12      | 3-V-K941-95886/01 | 931090703000 | A351 CF8M<br>SH CERTIFY   | 92200518       | 1.80   | 46         | 128        | 117 | 103 | 96  | 20 | 3.0 | 1.23        | 4"/C150-CF8M     |
| 13      | 3-V-K945-95886/01 | 931091143000 |                           | 92200518       | 1.80   |            | 128        | 119 | 106 | 96  | 20 |     | 1.33        | 4"/C300-CF8M     |
| 14      | 3-V-U023-95886    | 931098893000 |                           | 92201029       | 7.20   |            | 284        | 271 | 258 | 248 | 27 |     | 4.75        | 10"/150C-CF8M    |
| 15      | 3-V-U079-95886    | 931100893000 | A351 CF8<br>SH CERTIFY    | 92200308       | 1.80   | 46         | 128        | 117 | 103 | 96  | 18 | 3.0 | 1.23        | 4"/C150C-CF8     |
| 16      | 3-V-U080-95886    | 931100903000 |                           | 92200307       | 3.90   |            | 176        | 167 | 153 | 146 | 28 |     | 2.40        | 6"/C150C-CF8     |
| 17      | 3-V-U081-95886    | 931100913000 |                           | 92200540       | 5.30   |            | 235        | 220 | 206 | 190 | 27 |     | 3.40        | 8"/C150C-CF8     |
| 18      | 3-V-U082-95886    | 931100923000 |                           | 92200775       | 7.20   |            | 284        | 271 | 258 | 248 | 27 |     | 4.75        | 10"/150C-CF8     |
| 19      | 3-V-U083-95886    | 931100933000 |                           | 92200776       | 8.74   |            | 336        | 325 | 309 | 299 | 27 |     | 5.84        | 12"/C150C-CF8    |
| 20      | 3-V-U254-95886    | 931302793000 |                           | 92200401       | 3.90   |            | 176        | 167 | 153 | 146 | 28 |     | 2.40        | 6"/C150C-CF8M    |
| 21      | 3-V-U310-95886    | 931305853000 | A351 CF8M<br>SH CERTIFY   | 92200998       | 5.30   | 46         | 235        | 220 | 206 | 190 | 27 | 3.0 | 3.40        | 8"/C150C-CF8M    |
| 22      | 3-V-U311-95886    | 931305863000 |                           | 92201030       | 8.74   |            | 336        | 325 | 309 | 299 | 27 |     | 5.84        | 12"/C150C-CF8M   |
| 23      | 3-V-U317-95886    | 931306873000 |                           | 92200391       | 4.63   |            | 185        | 174 | 157 | 145 | 28 |     | 3.06        | 6"/C300          |
| 24      | 3-V-U380-95886    | 932013373000 |                           | 92201156       | 3.26   |            | 240        | 229 | 209 | 187 | 27 |     | 2.30        | 8"/C300          |
| 25      | 3-V-N172-95886    | 932017933000 |                           | 92201033       | 18.40  |            | 391        | 365 | 345 | 322 | 33 |     | 9.8         | 14"/150C-CF8M    |
| 26      | 3-V-ND53-95886    | 932033323000 | A217 WC9,NT-CERTIFY       | 92201329       | 2.7    | 20         | 232        | 216 | 203 | 195 | 28 | 2.6 | 8"/C300-WC9 |                  |
| 27      | 3-V-NP85-95886    | 932053303000 | A351 CF8,SH-CERTIFY       | 92203867       | 2.7    | 46         | 232        | 216 | 203 | 195 | 28 | 2.6 | 8"/C300-CF8 |                  |
| 28      | 3-V-NK76-95886    | 932055393000 | A351 CF3M<br>SH CERTIFY   | 92203932       | 1.80   | 46         | 128        | 117 | 103 | 96  | 20 | 3.0 | 1.23        | 4"/C150-CF3M     |
| 29      | 3-V-NK79-95886    | 932055413000 |                           | 92203932       | 1.80   |            | 128        | 119 | 106 | 96  | 20 |     | 1.33        | 4"/C300-CF3M     |



| -      | -           | -         | -          | -              | -          | -           | -             | -          | -       | - |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|---|
| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |   |

|                                    |               |                   |                         |
|------------------------------------|---------------|-------------------|-------------------------|
| REV 11                             | DATE 09.11.19 | ALTERED R.P.SINGH | CHD & APPD SAMEER & SSK |
| SL. No. 28 TO 29 INCLUDED          |               |                   |                         |
| REV 10                             | DATE 16.09.19 | ALTERED R.P.SINGH | CHD & APPD SAMEER & SSK |
| SL. No. 27 INCLUDED                |               |                   |                         |
| REV 09                             | DATE 30.11.15 | ALTERED M.SELVAM  | CHD & APPD MS & SSK     |
| FOR 10"-C150-GV DIMENSION MODIFIED |               |                   |                         |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: CS DRAWING REDRAWN WITH REVISION 09 ON 30.11.15

BHARAT HEAVY ELECTRICALS LTD. UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI\_620014.

|      |              |      |               |            |
|------|--------------|------|---------------|------------|
| DRN  | M.SELVAM     | SIGN | DATE 30.11.15 | NO.OF VAR. |
| CHD  | M.SRINIVASAN |      | 30.11.15      |            |
| APPD | S,SATHEESH   |      | 30.11.15      |            |

DEPT VL: 365-121

SCALE: N T S

WEIGHT (KG): --

TITLE: SEAT RING (ROUGH)

CARD CODE: U 01

REFERENCE INFORMATION: CAD NO:C395886

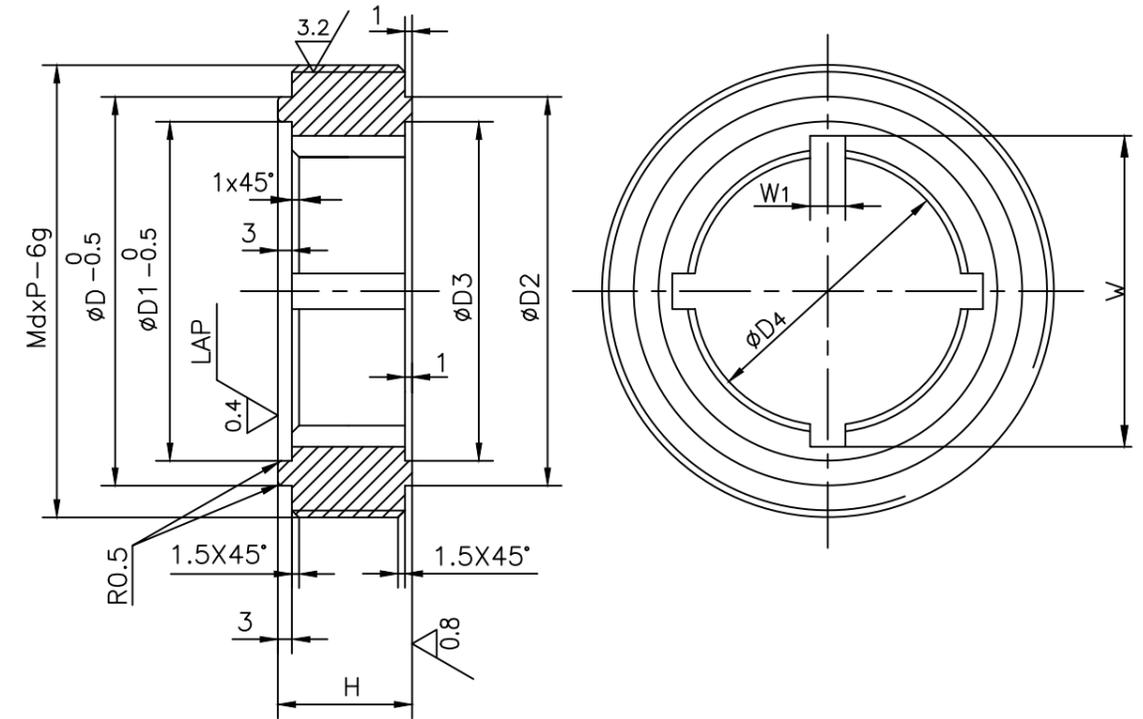
DRAWING NO.: 3-V-0000-95886

REV: 11

DRAWING NO: 3-V-0000-17787

12.5 / 3.2 / 0.8 / 0.4

| SL. No. | DRAWING No.       | COMP. CODE   | MATL. SPECN.                         | SUGGESTED SIZE OF RAW MATL. | SCRAP SORT | Wt.in Kg |      | DIMENSIONS |        |     |     |     |     |     |     | REMARKS |                          |
|---------|-------------------|--------------|--------------------------------------|-----------------------------|------------|----------|------|------------|--------|-----|-----|-----|-----|-----|-----|---------|--------------------------|
|         |                   |              |                                      |                             |            | GROSS    | NET  | MdxP-6g    | ØD     | ØD1 | ØD2 | ØD3 | ØD4 | H   | W   |         | W1                       |
| 01      | 3-V-K707-17787    | 931073660000 | SA 182 F316<br>CERTIFY<br>S H        | Ø135x27                     | 46         | 3.03     | 0.70 | M130x2     | 122    | 114 | 122 | 114 | 102 | 22  | 112 | 8       | 4"-C300 FV               |
| 02      | 3-V-K708-17787    | 931073670000 |                                      | Ø105x24                     |            | 1.63     | 0.38 | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8       | 3"-C300 FV<br>3"-C150 FV |
| 03      | 3-V-K709-17787    | 931073680000 |                                      | Ø85x24                      |            | 1.07     | 0.24 | M80x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8       | 2"-C300 FV               |
| 04      | 3-V-K710-17787/01 | 931073690000 | A351-CF8<br>SH, CERTIFY              | 92 200 902                  |            | 2.1      | 1.20 | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13      | 6"-C150 FV               |
| 05      | 3-V-K711-17787    | 931073700000 | SA 182 F316<br>CERTIFY<br>S H        | Ø135x27                     |            | 3.03     | 0.72 | M130x2     | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8       | 4"-C150 FV               |
| 06      | 3-V-K712-17787    | 931073710000 |                                      | Ø81x24                      |            | 0.97     | 0.20 | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8       | 2"-C150 FV               |
| 07      | 3-V-N338-17787    | 931075790000 |                                      | Ø95x23                      |            | 1.27     | 0.27 | M92x2      | 87     | 77  | 87  | 77  | 66  | 18  | 75  | 8       | 3"-C150 GV               |
| 08      | 3-V-N339-17787    | 931075800000 |                                      | Ø175x30                     |            | 5.67     | 0.83 | M170x2     | 163    | 153 | 163 | 153 | 141 | 25  | 151 | 8       | 6"-C150 GV               |
| 09      | 3-V-N357-17787    | 931075810000 |                                      | Ø130x20                     |            | 2.10     | 0.55 | M125x2     | 116    | 104 | 116 | 104 | 92  | 15  | 102 | 8       | 4"-C300 GV               |
| 10      | 3-V-K967-17787    | 931092060000 |                                      | Ø240x40                     |            | 16.17    | 1.78 | M230x2     | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13      | 8"-C150 FV               |
| 11      | 3-V-Z030-17787/01 | 931099520000 |                                      | A351-CF8<br>SH, CERTIFY     | 92 201 515 |          | 3.5  | 1.68       | M185x2 | 175 | 164 | 175 | 164 | 152 | 26  | 162     | 13                       |
| 12      | 3-V-Z045-17787    | 931106140000 | A351-CF8M<br>SH, CERTIFY             | 92 201 386                  |            | 5.1      | 1.78 | M230x2     | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13      | 8"-C150 FV               |
| 13      | 3-V-Z048-17787/01 | 931105760000 | A351-CF8M<br>SH, CERTIFY             | 92 201 405                  |            | 5.3      | 2.19 | M235x2     | 227    | 215 | 227 | 215 | 203 | 31  | 213 | 13      | 8"-C300 FV               |
| 14      | 3-V-Z042-17787    | 931304320000 | A351-CF8M<br>SH, CERTIFY             | 92 201 516                  |            | 3.5      | 1.68 | M185x2     | 175    | 164 | 175 | 164 | 152 | 26  | 162 | 13      | 6"-C300 FV               |
| 15      | 3-V-Z013-17787    | 931304330000 | A351-CF8M<br>SH, CERTIFY             | 92 200 391                  |            | 2.1      | 1.20 | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13      | 6"-C150 FV               |
| 16      | 3-V-Z113-17787    | 932047610000 | SA995 CD3MN<br>REF. NOTE,<br>CERTIFY | 92 203 628                  |            | 3.03     | 0.72 | M130x2     | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8       | 4"-C150 FV               |
| #17     | 3-V-U934-17787    | 932049310000 | A351-CF8<br>SH, CERTIFY              | 92 203 695                  |            | 2.1      | 1.20 | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13      | 6"-C150 FV               |
| 18      | 3-V-Z121-17787    | 932056340000 | A351-CF8<br>SH, CERTIFY              | 92 203 908                  |            | 1.6      | 1.20 | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13      | 6"-C150 FV               |
| 19      | 3-V-Z120-17787    | 932056190000 | A351-CF3M<br>SH, CERTIFY             | 92 203 962                  |            | 1.6      | 0.38 | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8       | 3"-C150 FV               |
| #20     | 3-V-UB30-17787    | 932063630000 | A351-CF3M<br>SH, CERTIFY             | 92 206 223                  |            | 1.6      | 0.38 | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8       | 3"-C150 FV               |
| 21      | 3-V-Z141-17787    | 932063970000 | A351-CF8M<br>SH, CERTIFY             | 92 206 292                  |            | 2.5      | 1.0  | M155x2     | 146    | 139 | 146 | 139 | 127 | 24  | 137 | 8       | 5"-C150 FV               |
| #22     | 3-V-UB38-17787    | 932064410000 | A351-CF3M<br>SH, CERTIFY             | 92 206 222                  |            | 0.9      | 0.20 | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8       | 2"-C150 FV               |
| #23     | 3-V-UB65-17787    | 932066140000 | A351-CF8M<br>SH, CERTIFY             | 92 206 368                  |            | 2.1      | 1.20 | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13      | 6"-C150 FV               |



NOTES:

- UNSPECIFIED SHARP CORNERS TO BE CHMFERED TO 0.5x45°
- HEAT TREATMENT FOR SA995 CD3MN AS PER ASME STANDARD SA-995 TABLE 1  
(HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.)
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

|         |                      |              |         |                      |              |
|---------|----------------------|--------------|---------|----------------------|--------------|
| DCP No. | ALTD: RPS            | APPD: SSK    | DCP No. | ALTD: RPS            | APPD: SSK    |
| -       | CHD: MK              | DT: 06.03.24 | -       | CHD: MK              | DT: 19.08.23 |
| REV     | SL. No. 23 INCLUDED. |              | REV     | SL. No. 22 INCLUDED. |              |
| 13      |                      |              | 12      |                      |              |
| ZONE    |                      |              | ZONE    |                      |              |
| -       |                      |              | -       |                      |              |

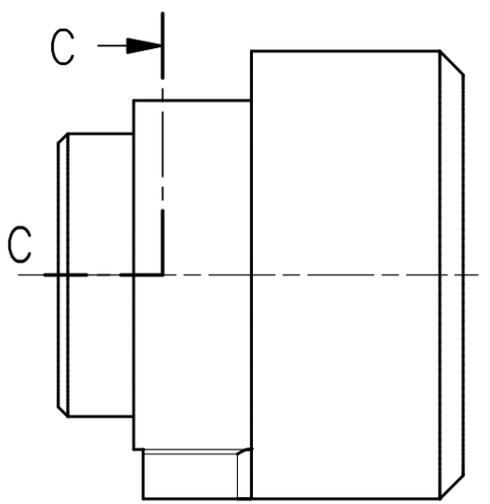
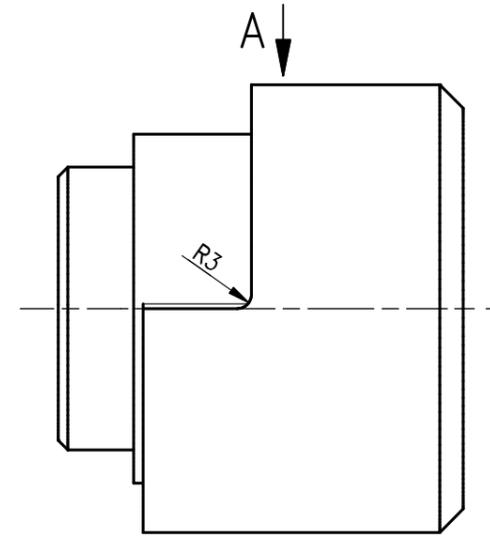
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| NO OFF  | DESCRIPTION | MATL CODE   | MATL SPECN   | HEAT TREATMENT         | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No.    | ITEM No |          |            |
|---|-------------|-------------|--------------|------------------------|------------|-------------|---------------|----------------|---------|----------|------------|
|   |             |             |              |                        |            |             |               |                |         |          |            |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |             |             |              |                        |            |             |               |                |         |          |            |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |             |             |              |                        |            |             | DRN           | NAME           | SIGN    | DATE     | NO.OF VAR. |
|   |             |             |              |                        |            |             | CHD           | T.R.RAMAMURTHY |         | 01.07.02 | —          |
|   |             |             |              |                        |            |             | APPD          | P.Boomnathan   |         | 01.07.02 | —          |
| DEPT  | VL          | SCALE       | WEIGHT (KG). | REFERENCE INFORMATIONS |            |             | NO. OF ITEMS  |                |         |          |            |
| 320   | NTS         | REFER TABLE |              |                        |            |             |               |                |         |          |            |
| TITLE   |             |             |              |                        |            |             | CARD CODE     | DRAWING NO.    | REV     |          |            |
| SEAT RING   |             |             |              |                        |            |             | U 01          | 3-V-0000-17787 | 13      |          |            |

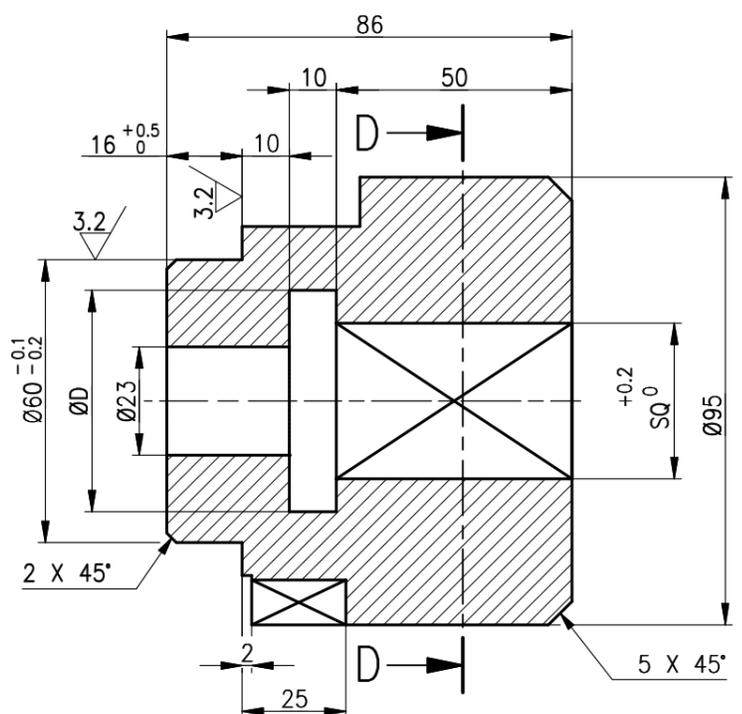
07740-0000-04720  
DRAWING NO. 3-V-0000-04720

12.5 / 3.2

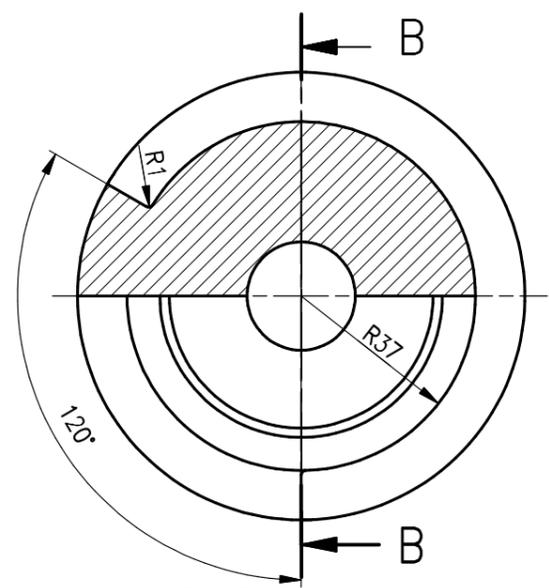
| SL No. | DRAWING No.      | COMP. CODE.     | MATL. SPECN             | SUGG. SIZE | SCRAP SORT | GROSS Wt. (kg) | NET Wt. (kg) | ØD | SQ.  | APPLICABLE VALVE |
|--------|------------------|-----------------|-------------------------|------------|------------|----------------|--------------|----|------|------------------|
| 1      | 3-V-2670-04720/1 | 93 100 257 0000 | SA105, NR, CERTIFY      | Ø100 X 94  | 10         | 5.65           | 3.2          | 47 | 33   | 8"-C300 SV/RV    |
| 2      | 3-V-M803-04720   | 93 108 551 0000 | SA105, NR, CERTIFY      | Ø100 X 94  | 10         | 5.65           | 3.3          | 39 | 26.8 | 6"-C300 SV/RV    |
| 3      | 3-V-P726-04720   | 93 205 708 0000 | SA182 F316, SH, CERTIFY | Ø100 X 94  | 46         | 5.65           | 3.3          | 39 | 26.8 | 6"-C300 SV/RV    |



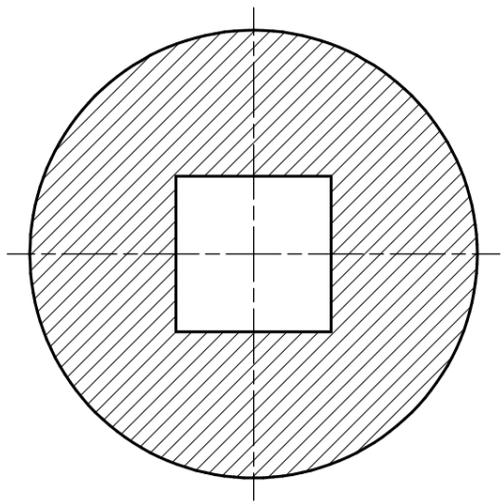
VIEW A



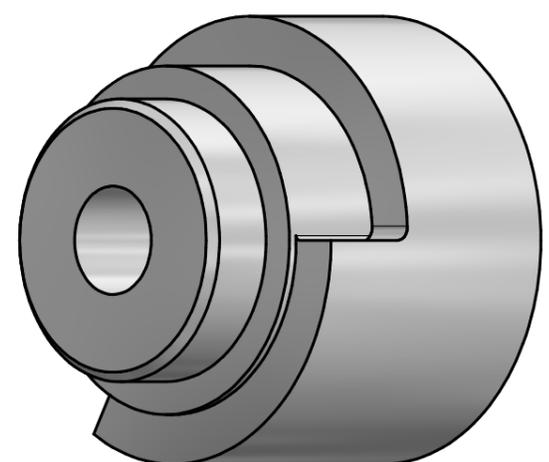
SECTION B-B



SECTION C-C



SECTION D-D



| REV                    | DATE     | ALTERED    | BY                        |
|------------------------|----------|------------|---------------------------|
| 03                     | 04.03.20 | CHD & APPD | R.P.SINGH<br>SAMEER & SSK |
| ZONE: S.No 03 INCLUDED |          |            |                           |

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| NO OFF   | DESCRIPTION | MATL CODE | MATL SPECN  | HEAT TREATMENT | SCRAP SORT | NET WT (kg)           | GROSS WT (kg)  | DRAWING No | ITEM No |
|--|-------------|-----------|-------------|----------------|------------|-----------------------|----------------|------------|---------|
|  |             |           |             |                |            |                       |                |            |         |
| <b>TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT</b><br>CS DRAWING REDRAWN WITH REV.03 ON 04.03.2020 |             |           |             |                |            |                       |                |            |         |
| BHARAT HEAVY ELECTRICALS LTD.<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014.       |             | DRN       | R.P.SINGH   | SIGN           |            | DATE                  | 04.03.20       | NO.OF VAR. |         |
|  |             | CHD       | SAMEER BHAT |                |            | DATE                  | 05.03.20       |            |         |
|  |             | APPD      | S.SATHEES   |                |            | DATE                  | 05.03.20       |            |         |
| DEPT   | VL          | SCALE     |             | WEIGHT (KG).   |            | REFERENCE INFORMATION |                |            |         |
| CODE   | 320         | NTS       |             | REF TABLE      |            |                       |                |            |         |
| TITLE  |             |           |             |                |            | CARD CODE             | DRAWING NO.    |            | REV     |
| ADAPTOR  |             |           |             |                |            | U 01                  | 3-V-0000-04720 |            | 03      |

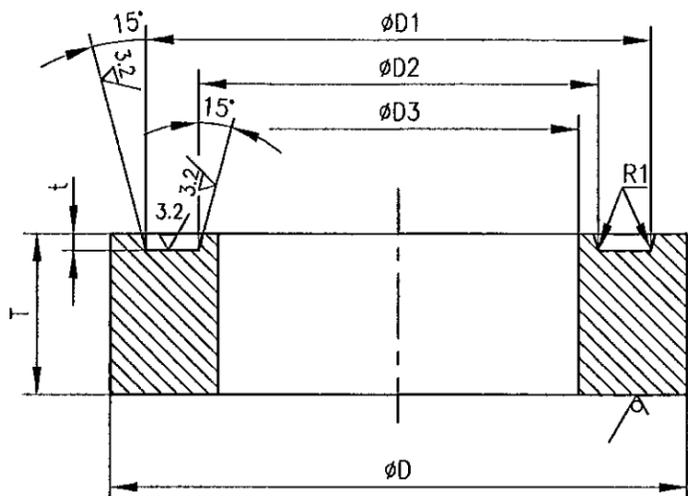
3-V-000-17272

ON DRAWING

12.5 / 3.2 / ✓

| SL. NO. | DRAWING NO.       | COMP. CODE   | RAW MATERIAL                  |                      |          | SCRAP SORT | DIMENSIONS |     |     |     |    |     | NET WT(KG) | APPLICABLE VALVE |
|---------|-------------------|--------------|-------------------------------|----------------------|----------|------------|------------|-----|-----|-----|----|-----|------------|------------------|
|         |                   |              | MATL. SPECN.                  | SUGGESTED SIZE       | WT(KG)   |            | ØD         | ØD1 | ØD2 | ØD3 | T  | t   |            |                  |
| 01      | 3-V-N025-17272/01 | 931026463000 | SA515 Gr.70<br>NR CERTIFY     | Ø104 x Ø61-23        | 1.0      | 10         | 98         | 90  | 78  | 71  | 21 | 4.0 | 0.60       | 3"/C150, 3"/C300 |
| 02      | 3-V-N033-17272/01 | 931026243000 |                               | Ø137 x Ø86-20        | 1.4      |            | 127        | 116 | 104 | 96  | 18 |     | 0.78       | 4"/C150          |
| 03      | 3-V-N097-17272/01 | 931032843000 |                               | Ø140 x Ø86-22        | 1.65     |            | 130        | 119 | 106 | 96  | 20 |     | 0.96       | 4"/C300          |
| 04      | 3-V-N001-17272/01 | 931021053000 |                               | Ø185 x Ø135-30       | 2.95     |            | 175        | 166 | 154 | 145 | 28 |     | 1.63       | 6"/C150          |
| 05      | 3-V-N017-17272/01 | 931025713000 |                               | Ø195 x Ø135-30       | 3.66     |            | 185        | 174 | 157 | 145 | 28 |     | 2.14       | 6"/C300          |
| 06      | 3-V-N009-17272/01 | 931025443000 |                               | Ø240 x Ø185-29       | 4.18     |            | 230        | 219 | 207 | 195 | 27 |     | 2.57       | 8"/C150          |
| 07      | 3-V-N089-17272/01 | 931031303000 |                               | Ø250 x Ø185-29       | 5.05     |            | 240        | 229 | 209 | 195 | 27 |     | 3.26       | 8"/C300          |
| 08      | 3-V-N057-17272/01 | 931027843000 |                               | Ø296 x Ø236-29       | 5.7      |            | 286        | 271 | 258 | 246 | 27 |     | 3.62       | 10"/C150         |
| 09      | 3-V-N065-17272/01 | 931027853000 |                               | Ø312 x Ø236-29       | 7.44     |            | 302        | 283 | 259 | 246 | 27 |     | 5.17       | 10"/C300         |
| 10      | 3-V-N041-17272/01 | 931026253000 |                               | Ø348 x Ø287-29       | 6.92     |            | 338        | 324 | 310 | 297 | 27 |     | 4.42       | 12"/C150         |
| 11      | 3-V-N105-17272/01 | 931039463000 |                               | Ø358 x Ø287-29       | 8.19     |            | 348        | 335 | 308 | 297 | 27 |     | 6.76       | 12"/C300         |
| 12      | 3-V-N305-17272/01 | 931060363000 | SA387 Gr.22<br>N&T CERTIFY    | Ø296 x Ø236-29       | 5.7      | 20         | 286        | 271 | 258 | 246 | 27 | 3.0 | 3.62       | 10"/C150-WC9     |
| 13      | 3-V-N306-17272/01 | 931060373000 |                               | Ø185 x Ø135-30       | 2.95     |            | 175        | 166 | 154 | 145 | 28 |     | 1.63       | 6"/C150-WC9      |
| 14      | 3-V-N258-17272/01 | 931070003000 |                               | Ø104 x Ø61-23        | 1.0      |            | 98         | 90  | 78  | 71  | 21 |     | 1.25       | 3"/C150&300      |
| 15      | 3-V-N297-17272/01 | 931070013000 |                               | Ø137 x Ø86-20        | 1.4      |            | 127        | 116 | 104 | 96  | 18 |     | 0.78       | 4"/C150          |
| 16      | 3-V-N274-17272/01 | 931070023000 |                               | Ø240 x Ø185-29       | 4.18     |            | 230        | 219 | 207 | 195 | 27 |     | 2.57       | 8"/C150          |
| 17      | 3-V-N266-17272/01 | 931070033000 |                               | Ø348 x Ø287-29       | 6.92     |            | 338        | 324 | 310 | 297 | 27 |     | 4.42       | 12"/C150         |
| 18      | 3-V-N228-17272    | 931055183000 |                               | Ø140 x Ø86-22        | 1.65     |            | 130        | 119 | 106 | 96  | 20 |     | 0.96       | 4"/C300          |
| 19      | 3-V-N229-17272    | 931055193000 |                               | Ø195 x Ø135-30       | 3.66     |            | 185        | 174 | 157 | 145 | 28 |     | 2.14       | 6"/C300          |
| 20      | 3-V-N230-17272    | 931055203000 |                               | Ø250 x Ø185-29       | 5.05     |            | 240        | 229 | 209 | 195 | 27 |     | 3.26       | 8"/C300          |
| 21      | 3-V-N304-17272    | 931059503000 |                               | Ø312 x Ø236-29       | 7.44     |            | 302        | 283 | 259 | 246 | 27 |     | 5.17       | 10"/C300         |
| 22      | 3-V-N309-17272    | 931059463000 |                               | Ø358 x Ø287-29       | 8.19     |            | 348        | 335 | 308 | 297 | 27 |     | 6.76       | 12"/C300         |
| 23      | 3-V-N209-17272    | 931055813000 | SA182 F6a CL.3<br>N&T CERTIFY | Ø104 x Ø61-23        | 1.0      | 40         | 98         | 90  | 78  | 71  | 21 | 3.0 | 0.60       | 3"/C150&300      |
| 24      | 3-V-N210-17272    | 931055823000 |                               | Ø140 x Ø86-22        | 1.65     |            | 130        | 119 | 106 | 96  | 20 |     | 0.96       | 4"/C300          |
| 25      | 3-V-K757-17272    | 931075843000 | A351 CF8<br>SH CERTIFY        | Ø104 x Ø61-23        | 1.0      | 46         | 98         | 90  | 78  | 71  | 21 | 3.0 | 0.60       | 3"/C150&300      |
| 26      | 3-V-N439-17272    | 931071973000 |                               | Ø140 x Ø86-22        | 1.65     |            | 130        | 119 | 106 | 96  | 20 |     | 0.96       | 4"/C300          |
| 27      | 3-V-K626-17272    | 931063143000 | A182-F22 N&T CERTIFY          | Ø358 x Ø287-29       | 8.19     | 20         | 348        | 335 | 308 | 297 | 27 | 3.0 | 6.76       | 12"/C300         |
| 28      | 3-V-K627-17272    | 931063153000 | SA 105<br>NR CERTIFY          | Ø358 x Ø287-29       | 8.19     | 10         | 348        | 335 | 308 | 297 | 27 | 3.0 | 6.76       | 12"/C300         |
| 29      | 3-V-K628-17272    | 931063163000 |                               | Ø312 x Ø236-29       | 7.44     |            | 302        | 283 | 259 | 246 | 27 |     | 5.17       | 10"/C300         |
| 30      | 3-V-U033-17272    | 931099423000 | A351-CF8 SH CERTIFY           | 922003080000         | 0.92     | 46         | 127        | 116 | 104 | 96  | 18 | 3.0 | 0.78       | 4"/C150          |
| 31      | 3-V-U034-17272    | 931099433000 |                               | 922003070000         | 1.91     |            | 175        | 166 | 154 | 145 | 28 |     | 1.63       | 6"/C150          |
| 32      | 3-V-U168-17272    | 931106543000 |                               | A351-CF8M SH CERTIFY | 92200400 |            | 1.0        | 98  | 90  | 78  | 71 |     | 21         | 1.25             |

IDX



| REV | DATE     | ALTERED                |
|-----|----------|------------------------|
| 07  | 01.07.02 | K.P.LEON<br>CHD & APPD |

SL.No.32 INCLUDED

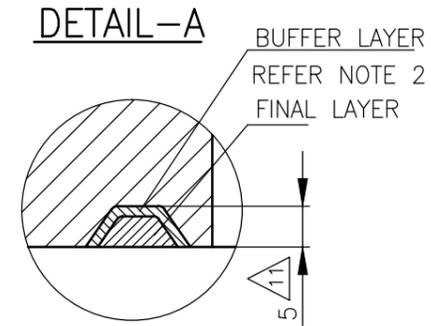
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| NO OFF | DESCRIPTION  | MATL CODE | MATL SPECN                                    | HEAT TREATMENT | SCRAP SORT            | NET WT (kg) | GROSS WT (kg) | DRAWING No    | ITEM No    |
|--------|--|-----------|---|----------------|-----------------------|-------------|---------------|---------------|------------|
|        | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT              | CS        | DRAWING RETRACED WITH REVISION 07 ON 01.07.02 |                |                       |             |               |               |            |
|        | BHARAT HEAVY ELECTRICALS LTD.                            |           | DRN   | NAME K.P.LEON  |                       | SIGN        |               | DATE 01.07.02 | NO.OF VAR. |
|        | UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014. |           | CHD   | P.Boomnathan   |                       | SIGN        |               | DATE 01.07.02 |            |
|        | 365-121  |           | APPD  | K.S.RAMAN      |                       | SIGN        |               | DATE 01.07.02 |            |
|        | DEPT VL  | SCALE     | WEIGHT (KG)                                   |                | REFERENCE INFORMATION |             |               |               |            |
|        | CODE 320   | N T S     | --  |                | CAD NO:C317272        |             |               |               |            |
|        | TITLE  |           | CARD CODE                                     |                | DRAWING NO.           |             | REV           |               |            |
|        | SEAT RING (ROUGH)  |           | U 01  |                | 3-V-0000-17272        |             | 07            |               |            |

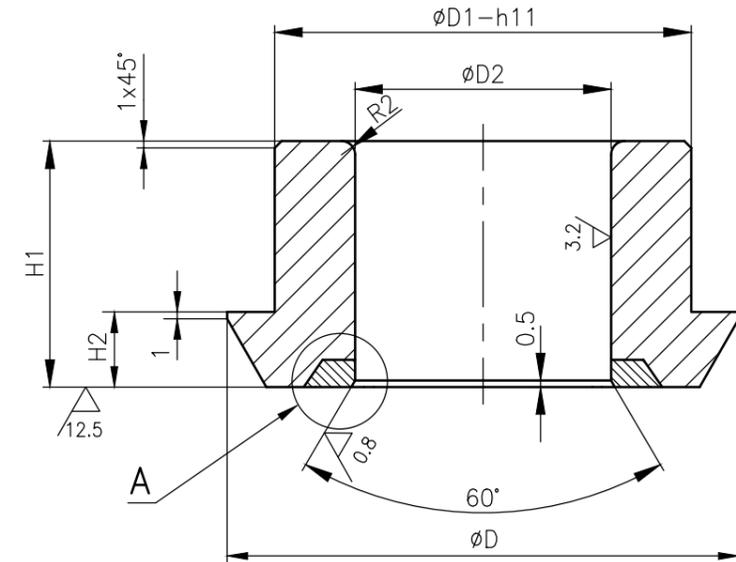
67890-0000-V-3  
DRAWING NO.

12.5 / 3.2 / 0.8

| SL. No. | DRAWING No.       | COMP.CODE       | MATL. SPECN.               | SCRAP SORT | DIMENSIONS |       |      |      |             | BUFFER LAYER | FINAL LAYER | STEM SIZE | NET Wt. (Kg) | APPLICABLE TYPE    |
|---------|-------------------|-----------------|----------------------------|------------|------------|-------|------|------|-------------|--------------|-------------|-----------|--------------|--------------------|
|         |                   |                 |                            |            | ØD         | ØD1   | ØD2  | H1   | H2          |              |             |           |              |                    |
| 01      | 3-V-N073-06879/5  | 93 104 019 0000 | SA105, NORMALISED, CERTIFY | 10         | 40         | 32.5  | 19.5 | 20   | 8           | E430         | E410        | 3/4"      | 0.10         | 2"-C150            |
| 02      | 3-V-N081-06879/5  | 93 104 020 0000 |                            |            | 40         | 32.5  | 19.5 | 14   | 8           | E430         | E410        | 3/4"      | 0.08         | 2"-C300            |
| 03      | 3-V-N025-06879/5  | 93 104 021 0000 |                            |            | 48         | 35.7  | 22.7 | 17   | 5           | E430         | E410        | 7/8"      | 0.15         | 3"-C150&300        |
| 04      | 3-V-N033-06879/5  | 93 104 022 0000 |                            |            | 50         | 38.9  | 25.9 | 17   | 5           | E430         | E410        | 1"        | 0.16         | 4"-C150&300        |
| 05      | 3-V-N001-06879/5  | 93 104 023 0000 |                            |            | 58         | 45.2  | 29.0 | 22   | 10          | E430         | E410        | 1 1/8"    | 0.25         | 6"-C150            |
| 06      | 3-V-N017-06879/5  | 93 104 024 0000 |                            |            | 58         | 48.4  | 32.2 | 22   | 10          | E430         | E410        | 1 1/4"    | 0.22         | 6"-C300            |
| 07      | 3-V-N009-06879/5  | 93 104 025 0000 |                            |            | 62         | 48.4  | 32.2 | 25   | 10          | E430         | E410        | 1 1/4"    | 0.32         | 8"-C150            |
| 08      | 3-V-N089-06879/5  | 93 104 026 0000 |                            |            | 62         | 51.6  | 35.4 | 25   | 10          | E430         | E410        | 1 3/8"    | 0.30         | 8"-C300            |
| 09      | 3-V-N057-06879/5  | 93 104 027 0000 |                            |            | 70         | 51.6  | 35.4 | 25   | 10          | E430         | E410        | 1 3/8"    | 0.38         | 10"-C150           |
| 10      | 3-V-N041-06879/6  | 93 104 028 0000 |                            |            | 70         | 57.9  | 38.6 | 25   | 10          | E430         | E410        | 1 1/2"    | 0.55         | 12"-C150           |
| 11      | 3-V-N065-06879/6  | 93 104 029 0000 |                            |            | 70         | 61.1  | 41.7 | 25   | 10          | E430         | E410        | 1 5/8"    | 0.50         | 10"-C300           |
| 12      | 3-V-N105-06879/6  | 93 104 030 0000 |                            |            | 75         | 61.1  | 41.7 | 35   | 10          | E430         | E410        | 1 5/8"    | 0.60         | 12"-C300 & 14"-150 |
| 13      | 3-V-N224-06879/3  | 93 105 025 0000 |                            |            | 85         | 73.8  | 51.3 | 37   | 12          | E430         | E410        | 2"        | 0.75         | 20"-C150           |
| 14      | 3-V-N350-06879/1  | 93 106 862 0000 |                            |            | 78         | 64.3  | 44.9 | 35   | 10          | E430         | E410        | 1 3/4"    | 0.58         | 16"-C150 & 14"-300 |
| 15      | 3-V-N361-06879/1  | 93 106 878 0000 |                            |            | 95         | 83.3  | 57.7 | 40   | 12          | E430         | E410        | 2 1/4"    | 1.1          | 24"-C150           |
| 16      | 3-V-N436-06879/1  | 93 107 145 0000 |                            |            | 82         | 67.5  | 48.1 | 37   | 12          | E430         | E410        | 1 7/8"    | 0.8          | 16"-C300           |
| 17      | 3-V-N437-06879/1  | 93 107 146 0000 |                            |            | 92         | 77    | 54.5 | 37   | 12          | E430         | E410        | 2 1/8"    | 0.9          | 20"-C300           |
| 18      | 3-V-K795-06879/1  | 93 107 984 0000 |                            |            | 75         | 61.1  | 41.7 | 33   | 10          | E430         | E410        | 1 5/8"    | 0.58         | 14"-C150           |
| 19      | 3-V-K796-06879/1  | 93 107 985 0000 |                            |            | 78         | 64.3  | 44.9 | 38   | 10          | E430         | E410        | 1 3/4"    | 0.62         | 16"-C150           |
| 20      | 3-V-K820-06879/1  | 93 107 986 0000 |                            |            | 85         | 73.8  | 51.3 | 30   | 12          | E430         | E410        | 2"        | 0.68         | 20"-C150           |
| 21      | 3-V-K821-06879/1  | 93 107 987 0000 |                            |            | 95         | 83.3  | 57.7 | 52   | 12          | E430         | E410        | 2 1/4"    | 1.4          | 24"-C150           |
| 22      | 3-V-N598-06879/1  | 93 107 988 0000 |                            |            | 78         | 64.3  | 44.9 | 27   | 10          | E430         | E410        | 1 3/4"    | 0.42         | 14"-C300           |
| 23      | 3-V-K797-06879/1  | 93 107 989 0000 |                            |            | 82         | 67.5  | 48.1 | 40   | 12          | E430         | E410        | 1 7/8"    | 1.0          | 16"-C300           |
| 24      | 3-V-K822-06879/1  | 93 107 990 0000 |                            |            | 92         | 77    | 54.5 | 51   | 12          | E430         | E410        | 2 1/8"    | 1.4          | 20"-C300           |
| 25      | 3-V-N834-06879/1  | 93 109 739 0000 |                            |            | 100        | 86.5  | 60.8 | 40   | 15          | E430         | E410        | 2 3/8"    | 1.3          | 26"-C150           |
| 26      | 3-V-N847-06879/1  | 93 109 740 0000 |                            |            | 105        | 89.7  | 64.0 | 40   | 15          | E430         | E410        | 2 1/2"    | 1.3          | 28"-C150           |
| 27      | 3-V-N848-06879/1  | 93 109 741 0000 |                            |            | 112        | 96.0  | 70.3 | 40   | 15          | E430         | E410        | 2 3/4"    | 1.5          | 30"-C150           |
| 28      | 3-V-N827-06879/1  | 93 109 742 0000 |                            |            | 122        | 105.6 | 76.7 | 40   | 15          | E430         | E410        | 3"        | 1.75         | 32"-C150           |
| 29      | 3-V-N846-06879/1  | 93 109 743 0000 |                            |            | 138        | 121.4 | 83.1 | 40   | 15          | E430         | E410        | 3 1/4"    | 2.25         | 36"-C150           |
| 30      | 3-V-NC06-06879/1  | 93 110 803 0000 |                            |            | 58         | 45.2  | 29   | 16   | 6           | E430         | E410        | 1 1/8"    | 0.14         | 6"-C150            |
| 31      | 3-V-NG86-06879/01 | 93 202 610 0000 | 78                         | 64.3       | 44.9       | 27    | 10   | E309 | STELLITE.21 | 1 3/4"       | 0.42        | 14"-C300  |              |                    |
| 32      | 3-V-NJ26-06879    | 93 203 553 0000 | 82                         | 67.5       | 48.1       | 37    | 12   | E309 | STELLITE.21 | 1 7/8"       | 0.8         | 16"-C300  |              |                    |



|           |        |
|-----------|--------|
| Ø30-Ø50   | 0      |
| h11       | -0.160 |
| Ø50-Ø80   | 0      |
| h11       | -0.190 |
| Ø80-Ø120  | 0      |
| h11       | -0.220 |
| Ø120-Ø180 | 0      |
| h11       | -0.250 |



NOTES

- HARDNESS OF WELD DEPOSIT 250BHN(MIN).
- INITIAL BUFFER LAYER IS 2mm (APPROX.)
- HARDNESS FOR STELLITE-21 = 20 HRC (MIN).

|                     |               |                     |                            |               |                      |
|---------------------|---------------|---------------------|----------------------------|---------------|----------------------|
| REV 14              | DATE 25.09.14 | ALTERED A.MARIMUTHU | REV 13                     | DATE 01.08.13 | ALTERED M.S          |
|                     |               | CHD & APPD MS & SSK |                            |               | CHD & APPD SSK & KRS |
| SL. No. 32 INCLUDED |               |                     | STELLITE-21 WAS STELLITE-6 |               |                      |
|                     |               |                     | NOTES UPDATED              |               |                      |
|                     |               |                     | DCP: 801568                |               |                      |

|                            |               |                     |
|----------------------------|---------------|---------------------|
| REV 15                     | DATE 16.07.15 | ALTERED M.S.SELVAM  |
|                            |               | CHD & APPD MS & SSK |
| DRAWING No. 3-V-N834-06879 |               |                     |
| DIMENSION 100 WAS 102      |               |                     |
| DCP : 801963               |               |                     |

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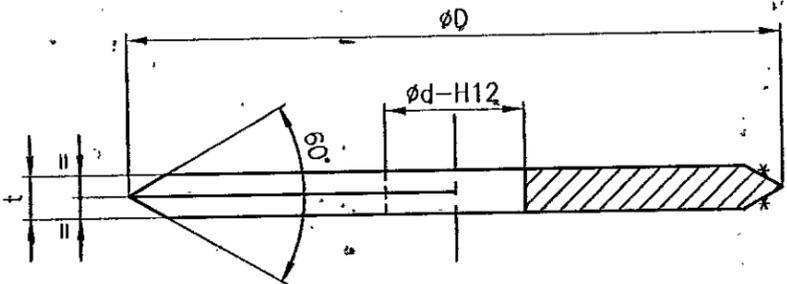
|   |             |            |            |                |            |                       |               |                  |         |
|---|-------------|------------|------------|----------------|------------|-----------------------|---------------|------------------|---------|
| NO OFF                                      | DESCRIPTION | MATL CODE  | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg)           | GROSS WT (kg) | DRAWING No       | ITEM No |
|   |             |            |            |                |            |                       |               |                  |         |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |             |            |            |                |            |                       |               |                  |         |
| DRG. REDRAWN WITH REV. 11 ON 07.04.05       |             |            |            |                |            |                       |               |                  |         |
| DEPT VL                                     |             | SCALE NTS. |            | WEIGHT (KG)    |            | REFERENCE INFORMATION |               | NO. OF ITEMS     |         |
| CODE 320                                    |             |            |            |                |            | CAD:C306879           |               |                  |         |
| TITLE                                       |             |            |            |                |            | CARD CODE             |               | REV              |         |
| BACK SEAT ASSEMBLY                          |             |            |            |                |            | U 01                  |               | 3-V-0000-0687915 |         |

12.5/

3-V-0000-09400/05  
DRAWING NO

| SL. No. | DRAWING NO.    | COMP.CODE       | RAW MATERIAL |        |         | DIMENSIONS |      |        | FINISHED Wt.(kg) |
|---------|----------------|-----------------|--------------|--------|---------|------------|------|--------|------------------|
|         |                |                 | MATL.SPECN.  | SIZE   | Wt.(kg) | ∅D         | t    | ∅d-H12 |                  |
| 01      | 3-V-S856-09400 | ---             | SA 105       | ∅36x5  | 0.03    | 32.5       | 3.15 | 8.4    | 0.02             |
| 02      | 3-V-S858-09400 | ---             | SA 105       | ∅40x5  | 0.04    | 39.0       | 3.15 | 8.4    | 0.02             |
| 03      | 3-V-S833-09400 | 930596850000    | SA 105       | ∅63x5  | 0.12    | 51.0       | 3.15 | 8.4    | 0.05             |
| 04      | 3-V-S847-09400 | 931036300000    | SA 105       | ∅80x5  | 0.19    | 63.0       | 3.15 | 8.4    | 0.07             |
| 05      | 3-V-S836-09400 | 931034790000    | SA 105       | ∅80x5  | 0.19    | 74.0       | 3.15 | 8.4    | 0.10             |
| 06      | 3-V-S837-09400 | 931034800000    | SA 105       | ∅100x5 | 0.30    | 97.0       | 3.15 | 8.4    | 0.18             |
| 07      | 3-V-S850-09400 | 931034810000    | SA 105       | ∅80x5  | 0.19    | 67.0       | 3.15 | 8.4    | 0.08             |
| 08      | 3-V-K318-09400 | 931034380000    | SA 105       | ∅63x5  | 0.12    | 51.0       | 3.15 | 6.4    | 0.05             |
| 09      | 3-V-N244-09400 | 931064690000    | SA 105       | ∅100x5 | 0.30    | 94.0       | 3.15 | 16.5   | 0.18             |
| 10      | 3-V-N248-09400 | 931064700000    | SA 105       | ∅80x5  | 0.19    | 74.0       | 3.15 | 16.5   | 0.10             |
| 11      | 3-V-N645-09400 | 931083020000    | SA 105       | ∅100x5 | 0.30    | 94.0       | 3.15 | 20.5   | 0.18             |
| 12      | 3-V-N628-09400 | 931085940000    | SA 105       | ∅63x5  | 0.12    | 52.0       | 3.15 | 20.5   | 0.05             |
| 13      | 3-V-N790-09400 | 931092230000    | SA 105       | ∅63x5  | 0.12    | 51.0       | 3.15 | 16.5   | 0.05             |
| 14      | 3-V-F503-09400 | 93 110 126.0000 | SA 105       | ∅80x5  | 0.20    | 74.0       | 3.15 | 12.5   | 0.11             |

|                |                  |
|----------------|------------------|
| ∅6 to ∅8-H12   | +0.150<br>-0.000 |
| ∅10 to ∅18-H12 | +0.180<br>-0.000 |
| ∅18 to ∅30-H12 | +0.210<br>-0.000 |



\* PERIPHERY OF THIS INDICATOR DISC SHALL BE COATED WITH LUMINOUS PAINT.

|                      |                       |                    |                        |
|----------------------|-----------------------|--------------------|------------------------|
| REV. DATE            | ALTERED               | REV. DATE          | ALTERED                |
| 06 28.10.20          | 14.4.20<br>GHD & APPD | 05 24.12.98        | K.P.LEON<br>CHD & APPD |
| SL. No. 14 INCLUDED. |                       | SL. No.13 INCLUDED |                        |

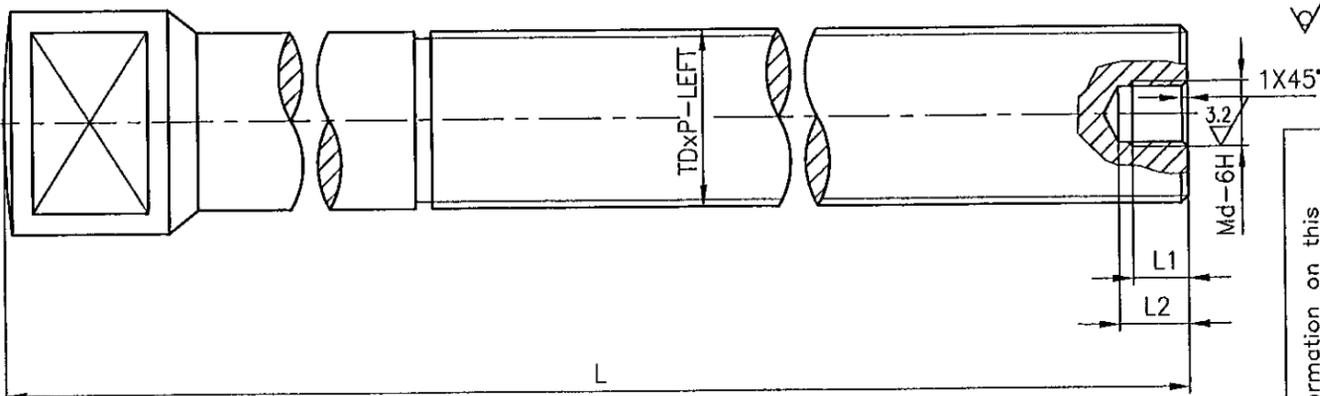
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|                |   |                |                       |                |            |             |               |   |         |
|----------------|---|----------------|-----------------------|----------------|------------|-------------|---------------|---|---------|
| NO OFF         | DESCRIPTION                                 | MATL CODE      | MATL SPECN            | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                                    | ITEM No |
|                | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |                |                       |                |            |             |               |   |         |
|                | CS  |                |                       |                |            |             |               | DRAWING RETRACED WITH REVISION 05 ON 24.12.98 |         |
|                | BHARAT HEAVY ELECTRICALS LTD.               |                |                       |                |            |             |               |   |         |
|                | UNIT: HIGH PRESSURE BOILER PLANT.           |                |                       |                |            |             |               |   |         |
|                | TIRUCHIRAPALLI 620014.                      |                |                       |                |            |             |               |   |         |
|                | 365-121                                     |                |                       |                |            |             |               |   |         |
| DEPT VL        | SCALE                                       | WEIGHT (KG)    | REFERENCE INFORMATION |                |            |             |               |   |         |
| CODE 320       | NTS.  | REF. TABLE     | CAD:C309400           |                |            |             |               |   |         |
| TITLE          | CARD CODE                                   | DRAWING NO.    | REV                   |                |            |             |               |   |         |
| INDICATOR DISC | U 01  | 3-V-0000-09400 | 06                    |                |            |             |               |   |         |



66296-0000-Λ-Σ  
ON ANIMVGD

| SL.No. | DRAWING NUMBER   | COMP. CODE   | DIMENSIONS |    |    |     |              | REMARKS         | SL.No. | DRAWING NUMBER    | COMP. CODE   | DIMENSIONS |    |    |     |              | REMARKS         |
|--------|------------------|--------------|------------|----|----|-----|--------------|-----------------|--------|-------------------|--------------|------------|----|----|-----|--------------|-----------------|
|        |                  |              | L          | L1 | L2 | Md  | TD x P-LEFT  |                 |        |                   |              | L          | L1 | L2 | Md  | TD x P-LEFT  |                 |
| 01     | 3-V-N251-95399/1 | 931059190000 | 492        | 12 | 17 | M8  | 1"-5ACME     | 4"-300C WCB     | 21     | 3-V-N243-95399    | 931067010000 | 725        | 16 | 22 | M16 | 1.25"-4ACME  | 8"-150C F316    |
| 02     | 3-V-N248-95399/1 | 931059200000 | 660        | 16 | 22 | M16 | 1.25"-4ACME  | 6"-300C WCB     | 22     | 3-V-N277-95399    | 931069080000 | 356        | 8  | 10 | M8  | 0.75"-6ACME  | 2"-150C F316    |
| 03     | 3-V-N244-95399/1 | 931059210000 | 800        | 16 | 22 | M16 | 1.375"-4ACME | 8"-300C WCB     | 23     | 3-V-N202-95399    | 931069090000 | 408        | 12 | 17 | M8  | 0.875"-5ACME | 3"-150C F316    |
| 04     | 3-V-N201-95399/1 | 931059890000 | 356        | 8  | 10 | M8  | 0.75"-6ACME  | 2"-150/300C WCB | 24     | 3-V-N203-95399    | 931069100000 | 492        | 12 | 17 | M8  | 1"-5ACME     | 4"-150C F316    |
| 05     | 3-V-N209-95399/1 | 931059900000 | 418        | 8  | 10 | M8  | 0.875"-5ACME | 3"-300C WCB     | 25     | 3-V-N219-95399    | 931069200000 | 625        | 16 | 22 | M16 | 1.125"-5ACME | 6"-150C SG      |
| 06     | 3-V-N213-95399/1 | 931059910000 | 860        | 16 | 22 | M16 | 1.625"-4ACME | 10"-300C WCB    | 26     | 3-V-N210-95399    | 931072160000 | 492        | 12 | 17 | M8  | 1"-5ACME     | 4"-300C F316    |
| 07     | 3-V-N207-95399/1 | 931059920000 | 960        | 16 | 22 | M16 | 1.5"-6ACME   | 12"-150C WCB    | 27     | 3-V-M661-95399    | 931075380000 | 961        | 34 | 38 | M20 | 1.625"-4ACME | 12"-300C C5     |
| 08     | 3-V-N205-95399/1 | 931059930000 | 694        | 16 | 22 | M16 | 1.25"-4ACME  | 8"-150C WCB     | 28     | 3-V-N285-95399    | 931078710000 | 492        | 12 | 17 | M8  | 1.0"-5ACME   | 4"-150C F316 SG |
| 09     | 3-V-N206-95399/1 | 931059940000 | 840        | 16 | 22 | M16 | 1.375"-4ACME | 10"-150C WCB    | 29     | 3-V-K801-95399    | 931078720000 | 492        | 12 | 17 | M12 | 1.0"-5ACME   | 4"-150C F6 SG   |
| 10     | 3-V-N230-95399/1 | 931060250000 | 800        | 16 | 22 | M16 | 1.375"-4ACME | 8"-300C WC9     | 30     | 3-V-N339-95399    | 931078890000 | 625        | 16 | 22 | M16 | 1.25"-5ACME  | 6"-150C F316    |
| 11     | 3-V-N318-95399   | 931062700000 | 492        | 12 | 17 | M8  | 1"-5ACME     | 4"-150C WCB SG  | 31     | 3-V-N204-95399    | 931078900000 | 625        | 8  | 10 | M8  | 1.25"-5ACME  | 6"-150C F6a     |
| 12     | 3-V-N324-95399   | 931062710000 | 492        | 12 | 17 | M8  | 1"-5ACME     | 4"-300C WCB SG  | 32     | 3-V-K399-95399    | 931078910000 | 625        | 16 | 22 | M16 | 1.25"-5ACME  | 6"-150C F6a     |
| 13     | 3-V-N326-95399   | 931062720000 | 418        | 12 | 17 | M8  | 0.875"-5ACME | 3"-300C WCB SG  | 33     | 3-V-N472-95399    | 931079610000 | 356        | 8  | 10 | M8  | 0.75"-6ACME  | 2"-150C F316    |
| 14     | 3-V-N329-95399   | 931062730000 | 800        | 16 | 22 | M16 | 1.375"-4ACME | 8"-300C WCB SG  | 34     | 3-V-M343-95399    | 931079700000 | 408        | 8  | 10 | M8  | 0.875"-5ACME | 3"-150C F6a     |
| 15     | 3-V-N357-95399   | 931064530000 | 408        | 12 | 17 | M8  | 0.875"-5ACME | 3"-150C WCB SG  | 35     | 3-V-N298-95399    | 931079830000 | 356        | 8  | 10 | M8  | 0.875"-5ACME | 2"-150C F6a     |
| 16     | 3-V-N325-95399   | 931064570000 | 732        | 16 | 22 | M16 | 1.25"-4ACME  | 8"-150C WCB SG  | 36     | 3-V-N340-95399    | 931080160000 | 660        | 16 | 22 | M16 | 1.25"-4ACME  | 6"-300C F6a     |
| 17     | 3-V-N362-95399   | 931064580000 | 877        | 16 | 22 | M16 | 1.375"-4ACME | 10"-150C WCB SG | 37     | 3-V-N631-95399/01 | 931080170000 | 1050       | 34 | 38 | M20 | 1.625"-4ACME | 12"-300C F6a    |
| 18     | 3-V-N392-95399   | 931064590000 | 984        | 16 | 22 | M16 | 1.5"-4ACME   | 12"-150C WCB SG | 38     | 3-V-N644-95399    | 931080590000 | 875        | 16 | 22 | M16 | 1.625"-4ACME | 10"-300C F6a    |
| 19     | 3-V-N105-95399   | 931066590000 | 961        | 34 | 38 | M20 | 1.625"-4ACME | 12"-300C WCB    | 39     | 3-V-N685-95399    | 931101210000 | 877        | 16 | 22 | M16 | 1.375"-4ACME | 10"-300C F316   |
| 20     | 3-V-N284-95399   | 931067000000 | 625        | 16 | 22 | M16 | 1.125"-5ACME | 6"-150C F316    | 40     | 3-V-N189-95399    | 931106350000 | 800        | 16 | 22 | M16 | 1.375"-4ACME | 8"-300C F316    |
|        |                  |              |            |    |    |     |              |                 | 41     | 3-V-N688-95399    | 931106290000 | 660        | 16 | 22 | M16 | 1.25"-4ACME  | 6"-300C F316    |



|     |          |            |                    |
|-----|----------|------------|--------------------|
| REV | DATE     | ALTERED    | K.P.Leon           |
| 14  | 01.07.02 | CHD & APPD | <i>[Signature]</i> |

SL. NUMBER 40 & 41 NCLUDED.

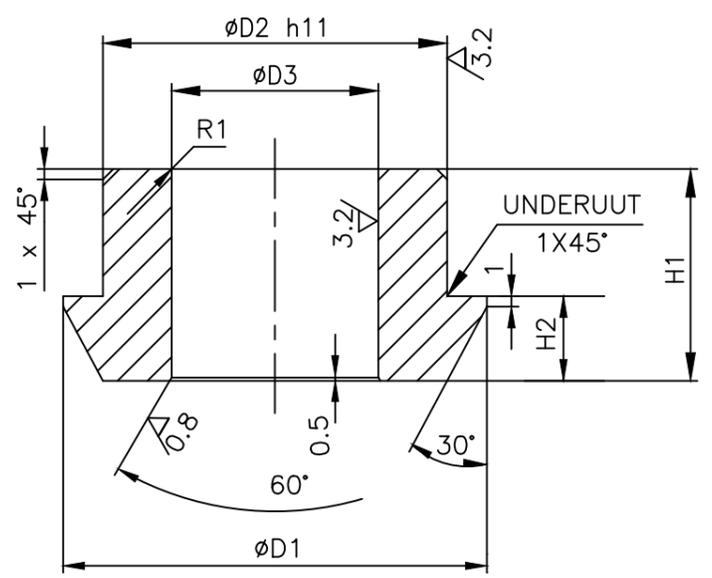
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|  |   |              |                |                       |                    |              |               |   |         |
|--|---|--------------|----------------|-----------------------|--------------------|--------------|---------------|---|---------|
| NO OFF   | DESCRIPTION                                 | MATL CODE    | MATL SPECN     | HEAT TREATMENT        | SCRAP SORT         | NET WT (kg)  | GROSS WT (kg) | DRAWING No                                  | ITEM No |
|  | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |              |                |                       |                    |              |               | CS DRAWING RETRACED WITH REV.14 ON 01.07.02 | 10X     |
| BHARAT HEAVY ELECTRICALS LTD.<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |   | DRN          | NAME           |                       | SIGN               | DATE         | NO.OF VAR.    |   |         |
|  |   | CHD          | T.R.RAMAMURTHY |                       | <i>[Signature]</i> | 01.07.02     | -             |   |         |
|  |   | APPD         | P. BOOMINATHAN |                       | <i>[Signature]</i> | 01.07.02     | -             |   |         |
|  |   |              | K.S.RAMAN      |                       | <i>[Signature]</i> | 01.07.02     | -             |   |         |
| DEPT VL  | SCALE                                       | WEIGHT (KG). |                | REFERENCE INFORMATION |                    | NO. OF ITEMS |               |   |         |
| 320  | NTS   | ---          |                | CAD:C395399           |                    | ---          |               |   |         |
| TITLE  |   |              | CARD CODE      | DRAWING NO.           |                    | REV          |               |   |         |
| STEM (MACH-INDI)   |   |              | U 01           | 3-V-0000-95399        |                    | 14           |               |   |         |

| SL. | STEM SIZE. | DRAWING No.      | COMP. CODE      | RAW MATERIAL. |                        |            | DIMENSIONS |     |      |      |                 | NET WT(KG)     | SIZE/RATING. |                      |
|-----|------------|------------------|-----------------|---------------|------------------------|------------|------------|-----|------|------|-----------------|----------------|--------------|----------------------|
|     |            |                  |                 | SUGG. SIZE    | SPECN.                 | SCRAP SORT | WT.        | ØD1 | ØD2  | ØD3  | H1              |                |              | H2                   |
| 01  | 3/4"       | 3-V-N277-17482   | 93 105 777 0000 | Ø45X30        | A182-F316 SH (CERTIFY) | 46         | 0.37       | 40  | 32.5 | 19.5 | 20              | 8              | 0.10         | 2"/150 CL            |
| 02  | 7/8"       | 3-V-N286-17482   | 93 105 778 0000 | Ø53X27        |                        |            | 0.47       | 48  | 35.7 | 22.7 | 17              | 5              | 0.15         | 3"/150&300 CL        |
| 03  | 1"         | 3-V-N285-17482   | 93 105 779 0000 | Ø55X27        |                        |            | 0.5        | 50  | 38.9 | 25.9 | 17              | 5              | 0.16         | 4"/150 CL, 4"/300 CL |
| 04  | 1 1/8"     | 3-V-N284-17482   | 93 105 780 0000 | Ø63X31        |                        |            | 0.76       | 58  | 45.2 | 29.0 | 22              | 10             | 0.25         | 6"/150 CL            |
| 05  | 1 1/4"     | 3-V-N336-17482   | 93 106 321 0000 | Ø63X31        |                        |            | 0.76       | 58  | 48.4 | 32.3 | 22              | 10             | 0.22         | 6"/300 CL            |
| 06  | 3/4"       | 3-V-N363-17482   | 93 106 919 0000 | Ø45X20        |                        |            | 0.25       | 40  | 32.5 | 19.5 | 14              | 8              | 0.08         | 2"/300 CL            |
| 07  | 1 3/8"     | 3-V-N206-17482   | 93 107 381 0000 | Ø75X30        |                        |            | 1.00       | 70  | 51.6 | 35.4 | 25              | 10             | 0.38         | 10"/150 CL           |
| 08  | 1 1/2"     | 3-V-N207-17482   | 93 107 382 0000 | Ø75X30        |                        |            | 1.00       | 70  | 57.9 | 38.6 | 25              | 10             | 0.55         | 12"/150 CL           |
| 09  | 1 5/8"     | 3-V-N723-17482   | 93 108 618 0000 | Ø80X45        |                        |            | 1.80       | 75  | 61.1 | 41.7 | 25              | 10             | 0.56         | 14"/150 CL           |
| 10  | 1 3/4"     | 3-V-N721-17482   | 93 108 616 0000 | Ø85X45        |                        |            | 2.00       | 78  | 64.3 | 44.9 | 35              | 10             | 0.58         | 16"/150 CL           |
| 11  | 1 7/8"     | 3-V-N722-17482   | 93 108 617 0000 | Ø90X50        |                        |            | 2.60       | 82  | 67.5 | 48.1 | 35              | 12             | 0.68         | 18"/150 CL           |
| 12  | 1 3/8"     | 3-V-N498-17482   | 93 109 583 0000 | Ø75X30        |                        |            | 1.00       | 62  | 51.6 | 35.4 | 25              | 10             | 0.30         | 8"/300 CL            |
| 13  | 2 1/8"     | 3-V-N945-17482   | 93 109 840 0000 | Ø100X45       | A276-410,HT CERTIFY    | 40         | 2.80       | 92  | 77   | 54.5 | 37              | 12             | 0.92         | 20"/300 CL           |
| 14  | 1 5/8"     | 3-V-NE67-17482   | 93 201 073 0000 | Ø75X30        | A182-F316 SH,CERTIFY   | 46         | 1.00       | 70  | 61.1 | 41.7 | 25              | 10             | 0.50         | 10"/300 CL           |
| 15  | Tr.62      | 3-V-P582-17482   | 93 203 352 0000 | Ø98X33        | A182-F316 SH,CERTIFY   | 46         | 1.95       | 96  | 87   | 62.5 | 26              | 12             | 0.64         | 12"/300 RV           |
| 16  | 1 1/8"     | 3-V-NP33-17482/1 | 93 204 238 0000 | Ø63X31        | A182-F60 SH,CERTIFY    | 46         | 0.61       | 58  | 45.2 | 29.0 | 16 <sup>△</sup> | 6 <sup>△</sup> | 0.14         | 6"/150 CL            |
| 17  | 1 5/8"     | 3-V-NJ95-17482   | 93 204 240 0000 | Ø80X45        |                        |            | 1.80       | 75  | 61.1 | 41.7 | 25              | 10             | 0.56         | 14"/150 CL           |

12.5/3.2 0.8

|              |             |
|--------------|-------------|
| 30-50<br>h11 | 0<br>-0.160 |
| 50-80<br>h11 | 0<br>-0.190 |



|   |               |                   |
|---|---------------|-------------------|
| REV 11  | DATE 11.11.19 | ALTERED R.P.SINGH |
| CHD & APPD SAMEER & SSK                         |               |                   |
| IN SL. No. 16 DIMENSIONS 16 & 6 WERE 22 AND 10. |               |                   |

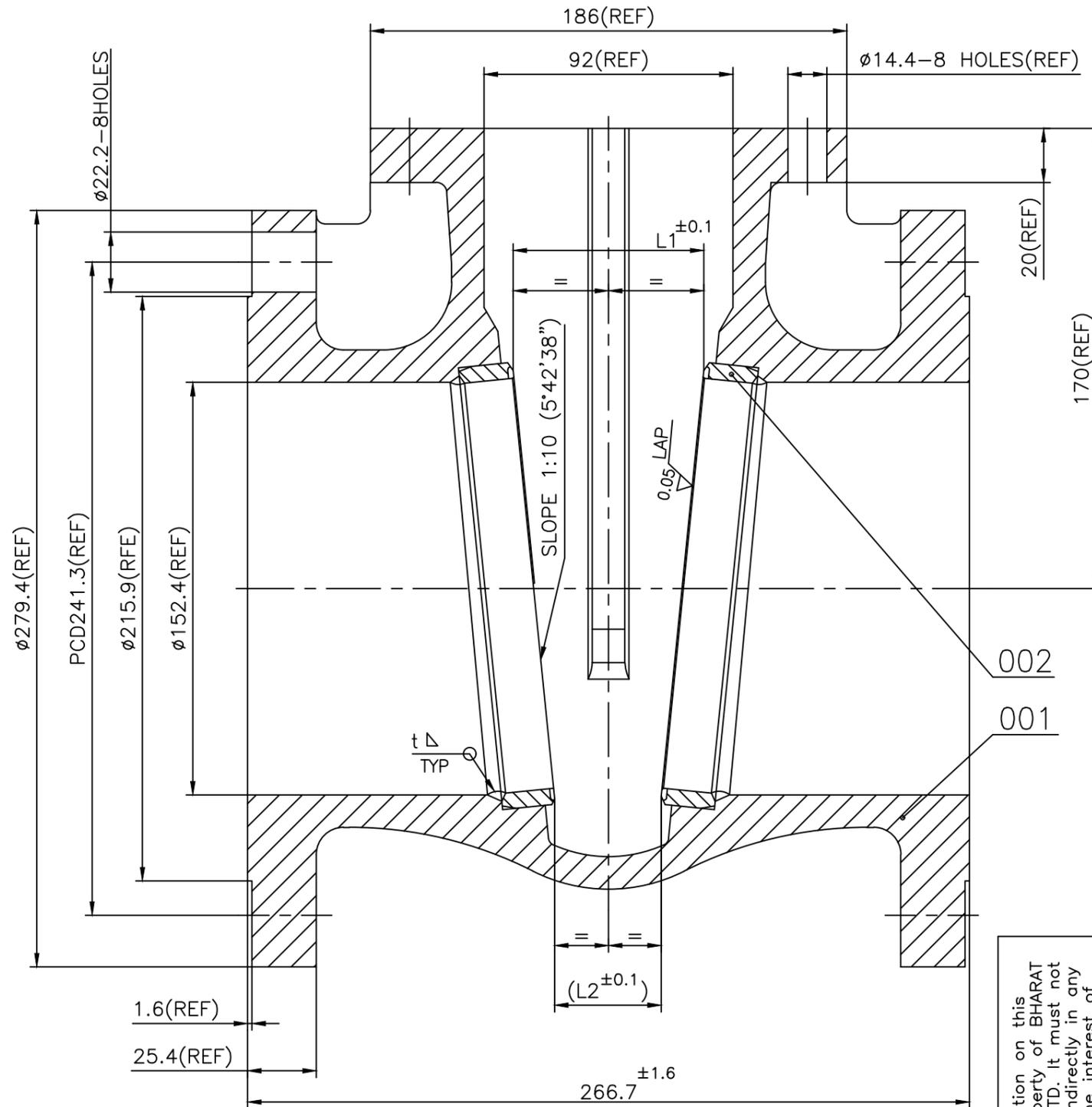
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| NO OFF  | DESCRIPTION | MATL CODE    | MATL SPECN            | HEAT TREATMENT | SCRAP SORT     | NET WT (kg)    | GROSS WT (kg)                     | DRAWING No    | ITEM No |
|---|-------------|--------------|-----------------------|----------------|----------------|----------------|-----------------------------------|---------------|---------|
| -   | -           | -            | -                     | -              | -              | -              | -                                 | -             | -       |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT <b>CS</b>   |             |              |                       |                |                |                |                                   |               |         |
| <b>BHARAT HEAVY ELECTRICALS LTD.</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI - 620014. |             |              |                       | DRN            | A.S.PANDY      | SIGN           | DATE 14.03.07                     | NO.OF VAR.    |         |
|   |             |              |                       | CHD            | T.R.RAMAMURTHY |                | 14.03.07                          |               |         |
|   |             |              |                       | APPD           | P.BOOMINATHAN  |                | 14.03.07                          |               |         |
| DEPT VL   | SCALE N.T.S | WEIGHT (KG). | REFERENCE INFORMATION | NO. OF ITEMS   |                |                |                                   |               |         |
| CODE 320  |             | REF. TABLE   | CAD:C317482           |                |                |                |                                   |               |         |
| TITLE <b>BACK SEAT BUSH</b>   |             |              |                       |                |                | CARD CODE U 01 | DRAWING NO. <b>3-V-0000-17482</b> | REV <b>11</b> |         |

68627-0000-A-3

DRAWING NO:

0.05



| SL. No. | DRAWING No.      | COMP. CODE   | L1    | L2    | t | Wt. (kg) | APPLICABLE VALVES      | ELECTRODE W     |
|---------|------------------|--------------|-------|-------|---|----------|------------------------|-----------------|
| 1       | 3-V-NC06-23989   | 931107780000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-WCB            | E7018 ATTEST    |
| 2       | 3-V-U552-23989   | 932038310000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8            | E309 ATTEST     |
| 3       | 3-V-NP27-23989   | 932041710000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8M           | E309 ATTEST     |
| 4       | 3-V-NP33-23989/1 | 932042090000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-SA995 Gr.CD3MN | E2209-16 ATTEST |
| 5       | 3-V-NP03-23989   | 932049800000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8            | E309 ATTEST     |
| #6      | 3-V-U937-23989   | 932050210000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8            | E309 ATTEST     |
| 7       | 3-V-U942-23989   | 932049430000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-WCB            | E309 ATTEST     |
| 8       | 3-V-UA05-23989   | 932052810000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8M           | E309 ATTEST     |
| 9       | 3-V-NP76-23989   | 932052650000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF3M           | E347 ATTEST     |
| #10     | 3-V-UA99-23989   | 932060380000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8M           | E347 ATTEST     |
| #11     | 3-V-UB25-23989   | 932063260000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF3M           | E347 ATTEST     |
| #12     | 3-V-UB37-23989   | 932064350000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-CF8M           | E347 ATTEST     |
| 13      | 3-V-UB86-23989   | 932066830000 | 70.47 | 39.03 | 3 | 39.66    | 6"-C150-WCB            | E309 ATTEST     |

NOTES:-

01. # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

|         |                      |              |         |           |                      |
|---------|----------------------|--------------|---------|-----------|----------------------|
| DCP No. | ALTD: TS             | APPD: MK     | DCP No. | ALTD: RPS | APPD: SSK            |
| -       | CHD: RPS             | DT: 06.08.24 | -       | CHD: MK   | DT: 06.10.23         |
| REV 10  | SL. NO. 13 INCLUDED. |              |         | REV 09    | SL. NO. 12 INCLUDED. |
| ZONE -  |                      |              |         | ZONE -    |                      |

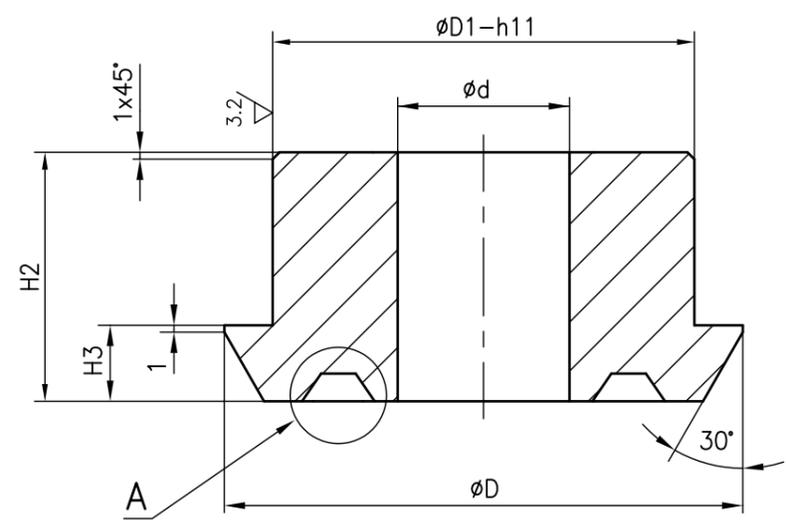
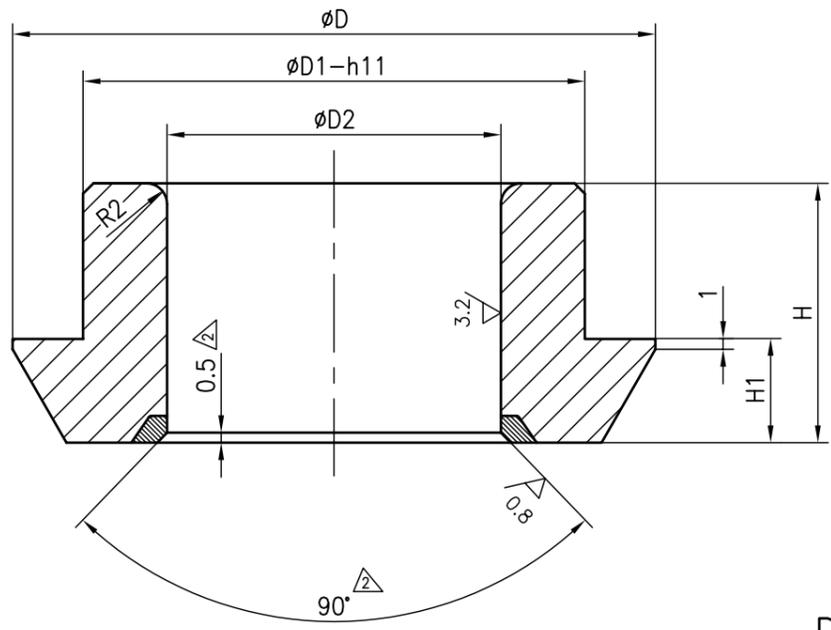
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| NO OFF                                      | DESCRIPTION | MATL CODE                         | MATL SPECN             | HEAT TREATMENT | SCRAP SORT            | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE | ITEM No      |
|---|-------------|-----------------------------------|------------------------|----------------|-----------------------|-------------|---------------|------------------------|--------------|
| -   | -           | -                                 | -                      | -              | -                     | -           | -             | -                      | -            |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |             |                                   |                        |                |                       |             |               |                        |              |
| DEPT VL                                     |             | Bharat Heavy Electricals Ltd.,    |                        | DRN            | M.SRINIVASAN          | SIGN        | DATE          | NO.OF VAR.             |              |
| CODE 320                                    |             | UNIT: HIGH PRESSURE BOILER PLANT. |                        | CHD            | P.BOOMINATHAN         |             | 07.04.03      | -                      |              |
|   |             | TIRUCHIRAPALLI-620014.            |                        | APPD           | K.S.RAMAN             |             | 07.04.03      | -                      |              |
| SCALE NTS                                   |             |                                   | WEIGHT (KG) REF. TABLE |                | REFERENCE INFORMATION |             |               |                        | NO. OF ITEMS |
| TITLE                                       |             |                                   | CARD CODE              |                | DRAWING NO.           |             |               |                        | REV          |
| BODY ASSY ( 6" - C150 - FLANGED )           |             |                                   | U 01                   |                | 3-V-0000-23989        |             |               |                        | 10           |

DRAWING NO. 3-V-0000-24012/2

12.5 / 3.2 / 0.8

| SL. No. | DRAWING No.      | COMP. CODE   | RAW MATERIAL   |            |             |          | DIMENSIONS |     |     |    |      |      |    |    |    |    |  |  |  | STEM DIA. | NET WT. (Kg.) | REMARKS     |
|---------|------------------|--------------|----------------|------------|-------------|----------|------------|-----|-----|----|------|------|----|----|----|----|--|--|--|-----------|---------------|-------------|
|         |                  |              | SUGGESTED SIZE | MATL. CODE | MATL. SPECN | WT.(Kg.) | ød         | ød1 | ød2 | øD | øD1  | øD2  | H  | H1 | H2 | H3 |  |  |  |           |               |             |
| 01      | 3-V-NC08-24012/1 | 931108200000 | ø63x40         | 15339143   | SA105,      | 0.97     | 14         | 28  | 38  | 62 | 48.4 | 32.2 | 25 | 10 | 26 | 11 |  |  |  | 31.75     | 0.3           | 8"/150 CL.  |
| 02      | 3-V-NC10-24012/1 | 931300480000 | ø75x40         | 15339381   | NR, CERTIFY | 1.4      | 15         | 30  | 40  | 68 | 51.6 | 35.4 | 25 | 10 | 26 | 11 |  |  |  | 34.9      | 0.4           | 10"/150 CL. |

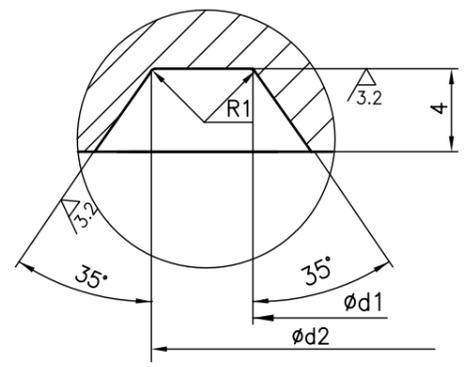
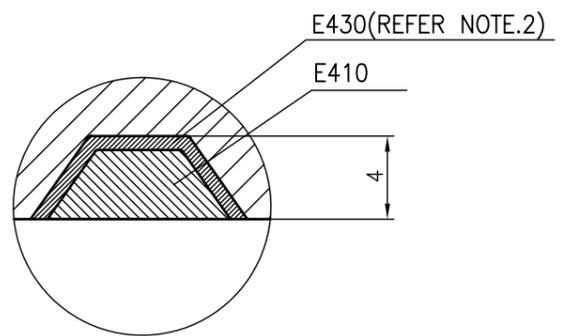


|        |        |
|--------|--------|
| ø30-50 | 0      |
| h11    | -0.160 |
| ø50-80 | 0      |
| h11    | -0.190 |

**NOTES:**

- HARDNESS OF WELD DEPOSIT 250BHN(MIN)
- INITIAL BUFFER LAYER (E430) IS 2mm APPROX.

**DETAIL-A**



REDRAWN WITH REV.1ON 27.10.03

| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

|   |      |              |      |          |            |
|---|------|--------------|------|----------|------------|
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. | DRN  | V.BAIRAVAN   | SIGN | DATE     | NO.OF VAR. |
|   | CHD  | P.Boomnathan |      | 27.10.03 |            |
|   | APPD | M.RAJAKUMAR  |      | 27.10.03 |            |

|          |             |             |                       |              |
|----------|-------------|-------------|-----------------------|--------------|
| DEPT VL  | SCALE N T S | WEIGHT (KG) | REFERENCE INFORMATION | NO. OF ITEMS |
| CODE 320 |             |             | CAD REF:C324012       |              |

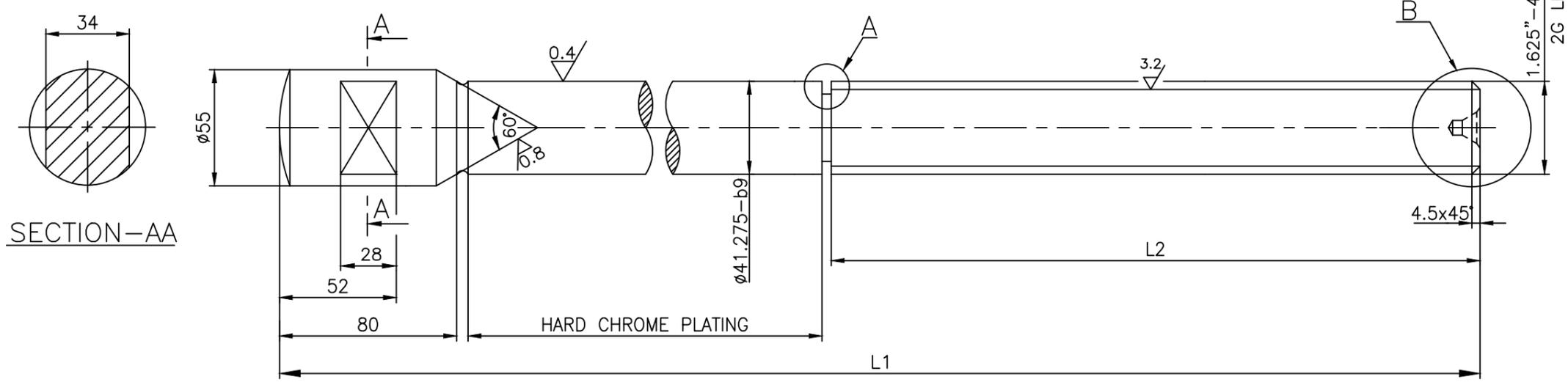
|                    |           |                |     |
|--------------------|-----------|----------------|-----|
| TITLE              | CARD CODE | DRAWING NO.    | REV |
| BACK SEAT ASSEMBLY | U 01      | 3-V-0000-24012 | 2   |

| REV                                    | DATE     | ALTERED VB     | REV                 | DATE     | ALTERED VB     |
|--|----------|----------------|---------------------|----------|----------------|
| 2                                      | 13.08.07 | CHD & APPD MRK | 1                   | 27.10.03 | CHD & APPD MRK |
| DIMENSION 0.5 WAS 2. ANGLE 90° WAS 88° |          |                | SL. No.02 INCLUDED. |          |                |

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DRAWING NO. 3-V-0000-24418

12.5 / 3.2 / 0.8 / 0.4

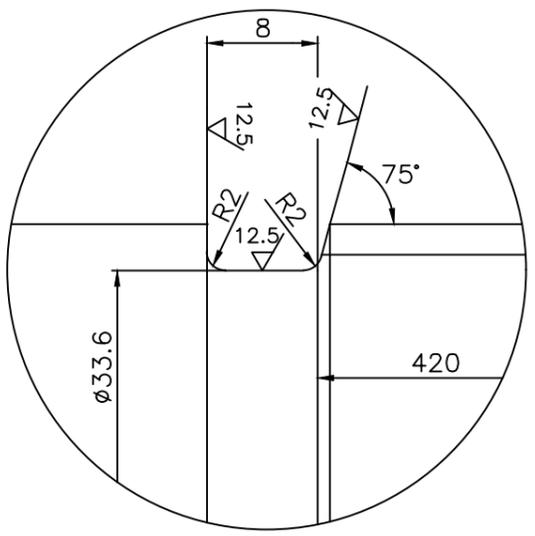


SECTION-AA

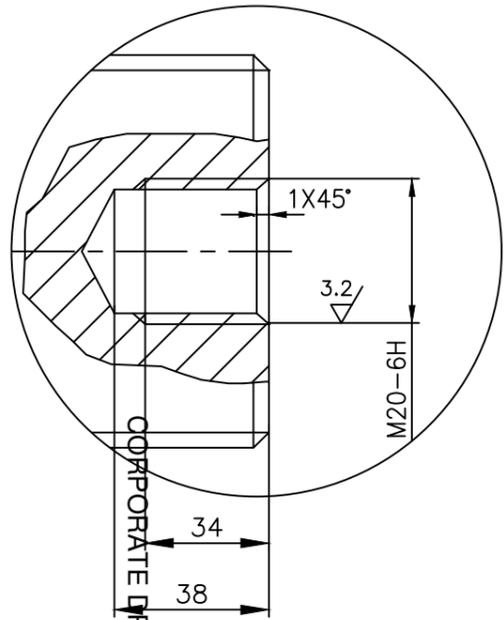
**NOTE**

- 01. HARDNESS FOR A182-F6a cl 3 MATERIAL : 250 TO 300 BHN.
  - 02. HARDNESS FOR F316 MATERIAL : 235 TO 250 BHN.
  - 03. HARDNESS FOR OHTARON MATERIAL : 241 TO 321 BHN.
  - 04. \* CHROME PLATING TO 0.03mm FOR OHTARON MATL. ONLY.
- |         |        |
|---------|--------|
| ø40-ø50 | -0.180 |
| -b9     | -0.242 |
- DIM. PRIOR TO PLATING ø41.275 - 0.210  
 - 0.272  
 DIM. AFTER PLATING ø41.275 - 0.180  
 - 0.242

DETAIL-A



DETAIL-B



| SL No. | DESCRIPTION | MATL CODE | MATL SPECN             | L1   | L2  | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                       | ITEM No |
|--------|-------------|-----------|------------------------|------|-----|----------------|------------|-------------|---------------|----------------------------------|---------|
| 04     | ---         | ---       | OHTARON CERTIFY        | 1050 | 505 | HT             | 40         | 10.5        | 10.7          | 3-V-ND74-24418<br>932049060000   | 011     |
| 03     | ---         | ---       | OHTARON CERTIFY        | 965  | 420 | HT             | 40         | 10.5        | 10.7          | 3-V-ND20-24418/1<br>932031590000 | 011     |
| 02     | ---         | ---       | ASTM A182 F316 CERTIFY | 965  | 420 | SH             | 46         | 10.5        | 10.7          | 3-V-ND22-24418<br>932030720000   | 011     |
| 01     | ---         | ---       | A182 F6a cl.3,CERTIFY  | 965  | 420 | HT             | 40         | 10.5        | 10.7          | 3-V-NC40-24418<br>931307930000   | 011     |

| REV | DATE     | ALTERED    | R.P.SINGH | REV | DATE     | ALTERED    | R.P.SINGH |
|-----|----------|------------|-----------|-----|----------|------------|-----------|
| 04  | 18.08.18 | CHD & APPD | SSK & KRS | 01  | 23.04.18 | CHD & APPD | SSK & KRS |

SL.No. 04 INCLUDED

HARD CHROME PLATING INCLUDED

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**TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT**  
 DRG.REDRAWN WITH REV.03 ON 23.04.2018

|             |                |             |  |             |          |                   |  |
|-------------|----------------|-------------|--|-------------|----------|-------------------|--|
| <b>DRN</b>  | K.P.LEON       | <b>SIGN</b> |  | <b>DATE</b> | 13.03.06 | <b>NO.OF VAR.</b> |  |
| <b>CHD</b>  | T.R.RAMAMURTHY |             |  |             | 13.03.06 |                   |  |
| <b>APPD</b> | P.BOOMINATHAN  |             |  |             | 13.03.06 |                   |  |

**BHARAT HEAVY ELECTRICALS LTD.,**  
 UNIT: HIGH PRESSURE BOILER PLANT.  
 TIRUCHIRAPALLI-620014.

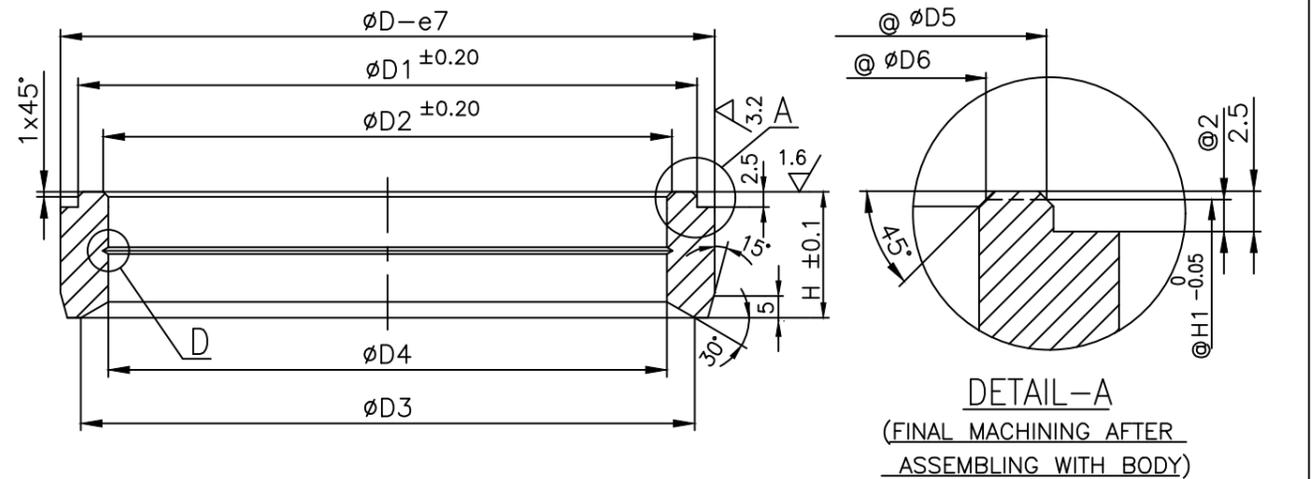
**DEPT** VL      **SCALE** NTS      **WEIGHT (KG).** --      **REFERENCE INFORMATION** CAD : C324418      **NO. OF ITEMS**

**CODE** 320      **TITLE** STEM (12"-C300)      **CARD CODE** U 01      **DRAWING NO.** 3-V-0000-24418      **REV** 04

DRAWING NO: 3-V-0000-25273

12.5 / 3.2 / 1.6

| SL. No. | DRAWING No.    | COMPONENT CODE  | RAW MATERIAL DETAILS |                       |            |              |             | DIMENSIONS |            |       |     |     |       |       |      |      |    | WT. IN Kgs. | REMARKS  |
|---------|----------------|-----------------|----------------------|-----------------------|------------|--------------|-------------|------------|------------|-------|-----|-----|-------|-------|------|------|----|-------------|----------|
|         |                |                 | PROOF                | MACHINED              | COMP. CODE | MATL. SPECN. | HEAT TREAT. | W.T. (Kgs) | SCRAP SORT | ØD    | ØD1 | ØD2 | ØD3   | ØD4   | ØD5  | ØD6  | H  |             |          |
| 01      | 3-V-ND10-25273 | 93 203 057 0000 | 92 203 145 0000      | A351 CF8M CERTIFY     | SH         | 1.1          | 46          | 164        | 158.3      | 154.2 | 158 | 152 | 157.3 | 153.2 | 20.5 | 20   | 8  | 0.88        | 6"-C150  |
| 02      | 3-V-ND15-25273 | 93 203 058 0000 | 92 203 146 0000      | A351 CF8M CERTIFY     | SH         | 1.8          | 46          | 218        | 212        | 205   | 210 | 203 | 211   | 204   | 22.5 | 22   | 10 | 0.8         | 8"-C150  |
| 03      | 3-V-ND13-25273 | 93 203 059 0000 | 92 203 129 0000      | A351 CF8M CERTIFY     | SH         | 2.5          | 46          | 272        | 264        | 256   | 260 | 254 | 263   | 255   | 22   | 21.5 | 10 | 1.1         | 10"-C150 |
| 04      | 3-V-ND23-25273 | 93 203 060 0000 | 92 203 148 0000      | A351 CF8M CERTIFY     | SH         | 6.8          | 46          | 330        | 317        | 305   | 319 | 303 | 316   | 304   | 25.0 | 24.5 | 10 | 2.63        | 12"-C150 |
| 05      | 3-V-ND14-25273 | 93 203 061 0000 | 92 203 149 0000      | A351 CF8M CERTIFY     | SH         | 1.3          | 46          | 169        | 163.6      | 153.6 | 160 | 151 | 162.6 | 152.6 | 17.5 | 17   | 8  | 0.7         | 6"-C300  |
| 06      | 3-V-ND17-25273 | 93 203 062 0000 | 92 203 150 0000      | A351 CF8M CERTIFY     | SH         | 2.1          | 46          | 223        | 215        | 206   | 212 | 203 | 214   | 205   | 20.5 | 20   | 10 | 1.0         | 8"-C300  |
| 07      | 3-V-ND21-25273 | 93 203 063 0000 | 92 203 151 0000      | A351 CF8M CERTIFY     | SH         | 3.5          | 46          | 280        | 269        | 259   | 269 | 255 | 268   | 258   | 25   | 24.5 | 10 | 2.5         | 10"-C300 |
| 08      | 3-V-ND22-25273 | 93 203 064 0000 | 92 203 148 0000      | A351 CF8M CERTIFY     | SH         | 6.8          | 46          | 330        | 318        | 307   | 319 | 305 | 317   | 306   | 25   | 24.5 | 10 | 2.4         | 12"-C300 |
| 09      | 3-V-ND59-25273 | 93 203 468 0000 | 92 203 298 0000      | A351 CF8M CERTIFY     | SH         | 3.5          | 46          | 280        | 269        | 259   | 269 | 255 | 268   | 258   | 25   | 24.5 | 10 | 2.5         | 10"-C300 |
| 10      | 3-V-NJ28-25273 | 93 203 580 0000 | 92 203 330 0000      | A351 CF8M CERTIFY     | SH         | 1.8          | 46          | 218        | 212        | 205   | 210 | 203 | 211   | 204   | 22.5 | 22   | 10 | 0.8         | 8"-C150  |
| 11      | 3-V-NJ29-25273 | 93 203 581 0000 | 92 203 331 0000      | A351 CF8M CERTIFY     | SH         | 2.5          | 46          | 272        | 264        | 256   | 260 | 254 | 263   | 255   | 22   | 21.5 | 10 | 1.1         | 10"-C150 |
| 12      | 3-V-ND72-25273 | 93 203 595 0000 | 92 203 145 0000      | A351 CF8M CERTIFY     | SH         | 1.1          | 46          | 164        | 158.3      | 154.2 | 158 | 152 | 157.3 | 153.2 | 20.5 | 20   | 8  | 0.88        | 6"-C150  |
| 13      | 3-V-ND92-25273 | 93 203 747 0000 | 92 203 365 0000      | A351 CF8M CERTIFY     | SH         | 1.3          | 46          | 169        | 163.6      | 153.6 | 160 | 151 | 162.6 | 152.6 | 17.5 | 17   | 8  | 0.7         | 6"-C300  |
| 14      | 3-V-NP33-25273 | 93 204 211 0000 | 92 203 496 0000      | A995 Gr.CD3MN CERTIFY | SH         | 1.1          | 46          | 164        | 158.3      | 154.2 | 158 | 152 | 157.3 | 153.2 | 20.5 | 20   | 8  | 0.88        | 6"-C150  |
| 15      | 3-V-NP35-25273 | 93 204 213 0000 | 92 203 497 0000      | A995 Gr.CD3MN CERTIFY | SH         | 1.8          | 46          | 218        | 212        | 205   | 210 | 203 | 211   | 204   | 22.5 | 22   | 10 | 0.8         | 8"-C150  |
| 16      | 3-V-NP55-25273 | 93 204 847 0000 | 92 203 636 0000      | SA995 CD3MN CERTIFY   | SH         | 3.6          | 46          | 272        | 264        | 256   | 260 | 254 | 263   | 255   | 22   | 21.5 | 10 | 1.1         | 10"-C150 |
| 17      | 3-V-NP56-25273 | 93 204 788 0000 | 92 203 588 0000      | SA995 CD3MN CERTIFY   | SH         | 4.4          | 46          | 330        | 317        | 305   | 319 | 303 | 316   | 304   | 25.0 | 24.5 | 10 | 2.4         | 12"-C150 |
| 18      | 3-V-NP58-25273 | 93 204 994 0000 | 92 203 736 0000      |                       |            |              |             |            |            |       |     |     |       |       |      |      |    |             |          |
| #19     | 3-V-U951-25273 | 93 205 000 0000 | 92 203 740 0000      |                       |            | 1.8          | 46          | 218        | 212        | 205   | 210 | 203 | 211   | 204   | 22.5 | 22   | 10 | 0.8         | 8"-C150  |
| 20      | 3-V-NP60-25273 | 93 205 006 0000 | 92 203 742 0000      |                       |            |              |             |            |            |       |     |     |       |       |      |      |    |             |          |
| #21     | 3-V-U940-25273 | 93 205 012 0000 | 92 203 746 0000      | SA351 CF8M CERTIFY    | SH         | 6.8          | 46          | 330        | 318        | 307   | 319 | 305 | 317   | 306   | 25   | 24.5 | 10 | 2.6         | 12"-C300 |
| #22     | 3-V-U937-25273 | 93 205 020 0000 | 92 203 751 0000      |                       |            | 1.1          | 46          | 164        | 158.3      | 154.2 | 158 | 152 | 157.3 | 153.2 | 20.5 | 20   | 8  | 0.88        | 6"-C150  |
| #23     | 3-V-U955-25273 | 93 205 047 0000 |                      |                       |            | 1.3          | 46          | 169        | 163.6      | 153.6 | 160 | 151 | 162.6 | 152.6 | 17.5 | 17   | 8  | 0.70        | 6"-C300  |
| 24      | 3-V-NP85-25273 | 93 205 330 0000 | 92 203 867 0000      | A351 CF8M CERTIFY     | SH         | 2.7          | 46          | 223        | 215        | 206   | 212 | 203 | 214   | 205   | 20.5 | 20   | 10 | 1.0         | 8"-C300  |
| #25     | 3-V-UB37-25273 | 93 206 436 0000 | 92 206 301 0000      | A351 CF8M CERTIFY     | SH         | 2.6          | 46          | 164        | 158.3      | 154.2 | 158 | 152 | 157.3 | 153.2 | 20.5 | 20   | 8  | 0.88        | 6"-C150  |
| #26     | 3-V-UC06-25273 | 93 206 846 0000 | 92 206 445 0000      | A351 CF8M CERTIFY     | SH         | 2.73         | 46          | 272        | 264        | 256   | 260 | 254 | 263   | 255   | 22   | 21.5 | 10 | 1.1         | 10"-C150 |



**NOTE:-**

1. SHARP CORNERS TO BE ROUNDED OFF.
2. @ 0.5mm EXTRA THICKNESS PROVIDED FOR FINE FACING AFTER SEATRING WELDED WITH THE BODY.
3. # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.

|         |                     |              |         |           |                          |
|---------|---------------------|--------------|---------|-----------|--------------------------|
| DCP No. | ALTD: TS            | APPD: MK     | DCP No. | ALTD: RPS | APPD: SSK                |
| -       | CHD: RPS            | DT: 06.08.25 | -       | CHD: MK   | DT: 09.10.23             |
| REV 08  | SL. No. 26 INCLUDED |              |         | REV 07    | SL. No. 24 & 25 INCLUDED |
| ZONE -  |                     |              |         | ZONE -    |                          |

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|   |             |           |              |                       |                |             |               |                |         |
|---|-------------|-----------|--------------|-----------------------|----------------|-------------|---------------|----------------|---------|
| -   | -           | -         | -            | -                     | -              | -           | -             | -              | -       |
| NO OFF  | DESCRIPTION | MATL CODE | MATL SPECN   | HEAT TREATMENT        | SCRAP SORT     | NET WT (kg) | GROSS WT (kg) | DRAWING No.    | ITEM No |
|   |             |           |              |                       |                |             |               | COMP. CODE     |         |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |             |           |              |                       |                |             |               |                |         |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |             |           |              | DRN                   | M.SRINIVASAN   | SIGN        | DATE          | NO.OF VAR.     |         |
|   |             |           |              | CHD                   | S.SATHEESKUMAR |             | 12.06.13      | -              |         |
|   |             |           |              | APPD                  | K.RAJASEKARAN  |             | 12.06.13      | -              |         |
| DEPT  | VL          | SCALE     | WEIGHT (KG). | REFERENCE INFORMATION |                |             |               | NO. OF ITEMS   |         |
| CODE  | 320         | NTS       | REF. TABLE   |                       |                |             |               |                |         |
| TITLE   |             |           |              |                       |                |             | CARD CODE     | DRAWING NO.    | REV     |
| SEAT RING   |             |           |              |                       |                |             | U 01          | 3-V-0000-25273 | 08      |

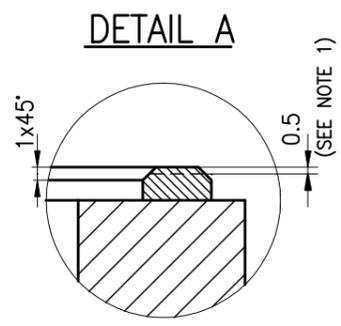
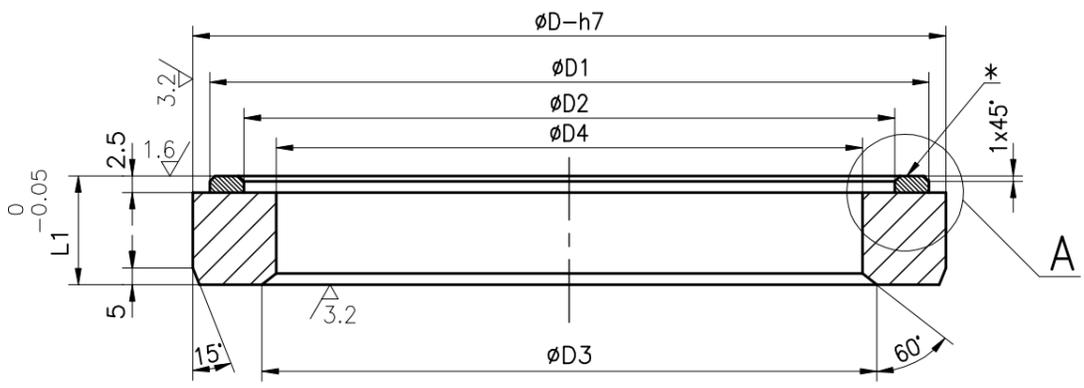
ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP.

DRAWING NO. 3-V-0000-24792/3

12.5 / 3.2 / 1.6

| SL. NO. | DRAWING NO.      | COMP. CODE   | MATL. SPECN.             | DIMENSIONS |     |     |     |     |    |  | SEAT RING WT.(KG) | SEAT WT.(KG) | SEAT RING ASSY. WT.(KG) | SEAT FINAL LAYER* | SEAT VOL. IN (C.C) | SIZE/RATING |              |
|---------|------------------|--------------|--------------------------|------------|-----|-----|-----|-----|----|--|-------------------|--------------|-------------------------|-------------------|--------------------|-------------|--------------|
|         |                  |              |                          | ØD         | ØD1 | ØD2 | ØD3 | ØD4 | L1 |  |                   |              |                         |                   |                    |             |              |
| 01      | 3-V-NF97-24792/3 | 932017480000 | SA515 Gr.70, CERTIFY, NR | 672        | 656 | 640 | 659 | 635 | 50 |  |                   | 14.5         | 0.40                    | 14.9              | STELLITE-6         | 69.0        | 26"/300CL GV |
| 02      | 3-V-NF98-24792/3 | 932017490000 | SA387 Gr.22, CERTIFY, NT | 672        | 656 | 640 | 659 | 635 | 50 |  |                   | 14.5         | 0.40                    | 14.9              | STELLITE-6         | 69.0        |              |
|         |                  |              |                          |            |     |     |     |     |    |  |                   |              |                         |                   |                    |             |              |
|         |                  |              |                          |            |     |     |     |     |    |  |                   |              |                         |                   |                    |             |              |
|         |                  |              |                          |            |     |     |     |     |    |  |                   |              |                         |                   |                    |             |              |
|         |                  |              |                          |            |     |     |     |     |    |  |                   |              |                         |                   |                    |             |              |
|         |                  |              |                          |            |     |     |     |     |    |  |                   |              |                         |                   |                    |             |              |

|               |             |
|---------------|-------------|
| 630 TO 800-h7 | 0<br>-0.080 |
|               |             |
|               |             |
|               |             |



**NOTES:-**

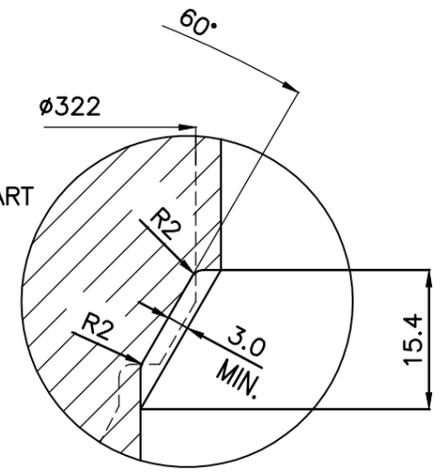
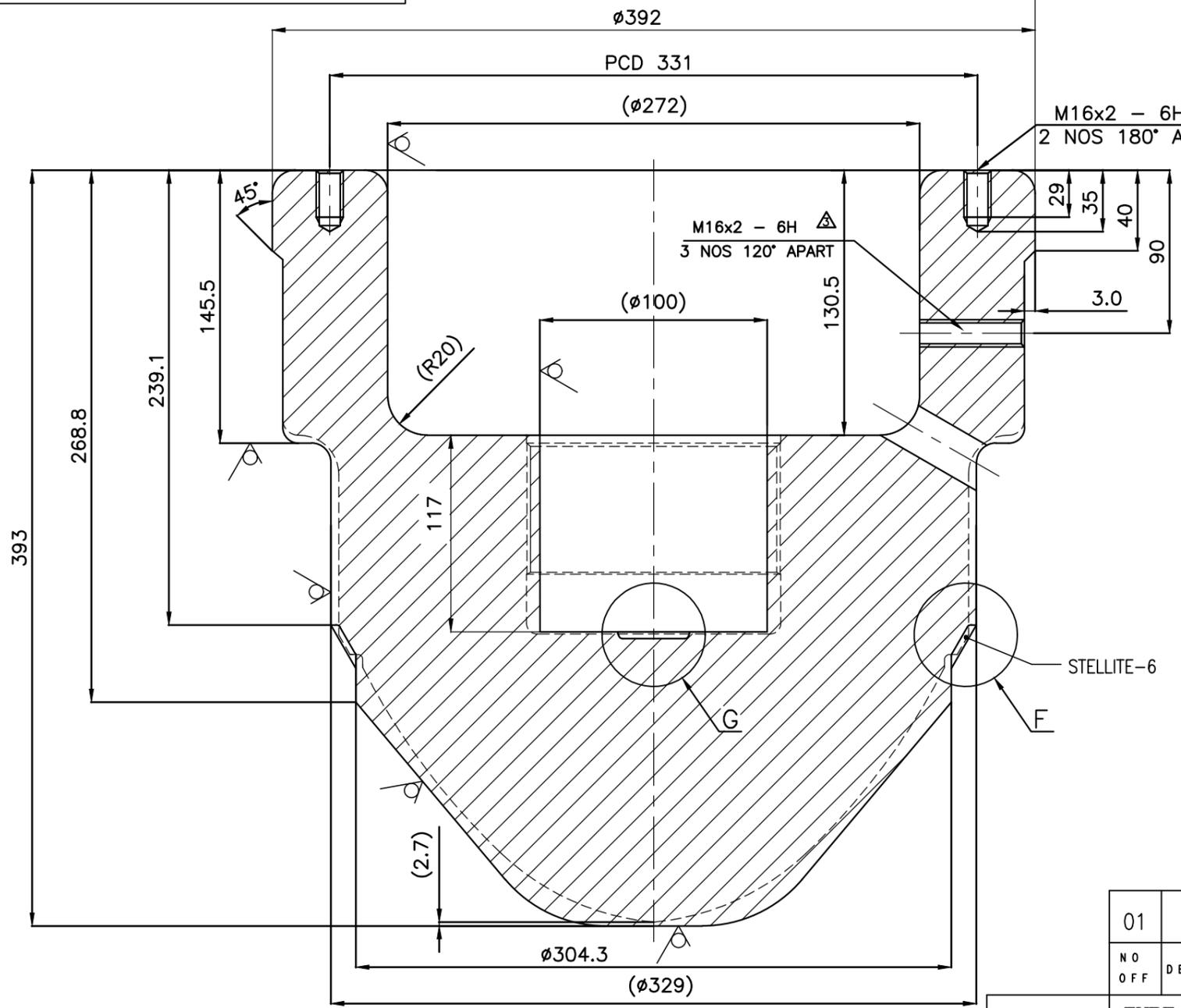
- 01. \*0.5mm EXTRA THICKNESS PROVIDED FOR FINE FACING AFTER SEAT RING WELDED WITH BODY.
- 02. SEAT HARDNESS FOR STELLITE-6: 35 TO 40 HRC

| NO OFF   | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT            | NET WT (kg) | GROSS WT (kg)  | DRAWING No | ITEM No  |              |
|--|-------------|-----------|------------|----------------|-----------------------|-------------|----------------|------------|----------|--------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  |             |           |            |                |                       |             |                |            |          |              |
| <b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |             |           |            |                |                       | DRN         | V.BAIRAVAN     | SIGN       | DATE     | NO.OF VAR.   |
|  |             |           |            |                |                       | CHD         | S.SATHEES      |            | 04.12.09 |              |
|  |             |           |            |                |                       | APPD        | M.RAJAKUMAR    |            | 04.12.09 |              |
| DEPT VL  |             |           | SCALE      | WEIGHT (KG).   | REFERENCE INFORMATION |             |                |            |          | NO. OF ITEMS |
| CODE 320   |             |           | N T S      |                |                       |             |                |            |          |              |
| TITLE  |             |           |            |                |                       | CARD CODE   | DRAWING NO.    |            |          | REV          |
| SEAT RING ASSEMBLY   |             |           |            |                |                       | U 01        | 3-V-0000-24792 |            |          | 3            |

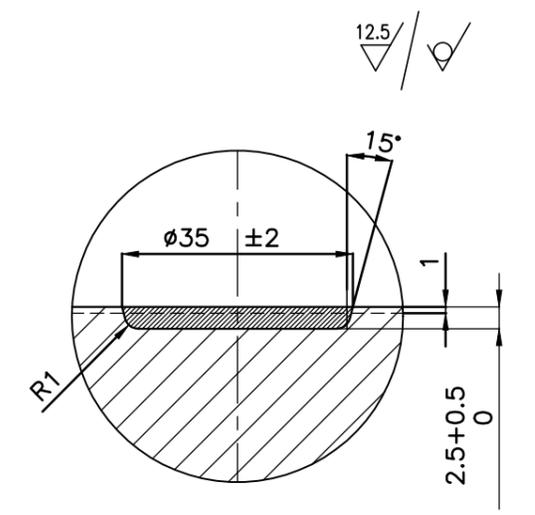
|   |               |                    |              |
|---|---------------|--------------------|--------------|
| REV 2   | DATE 10.11.11 | ALTERED CHD & APPD | VB SSK & KRS |
| NOTE.02 INCLUDED. STELLITE-6 INTRODUCED INSTEAD OF E410. MACHINING AFTER BUFFER LAYER DETAIL DELETED. DCP NO.801249 |               |                    |              |
| REV 3   | DATE 30.01.12 | ALTERED CHD & APPD | VB SSK & MRK |
| DIMENSION Ø656 WAS Ø660   |               |                    |              |
| DCP NO.801273   |               |                    |              |
| REV 1   | DATE 01.02.11 | ALTERED CHD & APPD | VB SSK & MRK |
| IN NOTES SEAT HARDNESS FOR STELLITE-6 WAS REMOVED.  |               |                    |              |
| DCP NO.801143   |               |                    |              |

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DRAWING NO. 3-V-0000-25205



DETAIL-F



DETAIL-G

NOTES:

01. BREAK ALL SHARP CORNERS.
02. ALL DIAMETERS CONCENTRIC TO 0.102mm T.I.R.
03. DOTTED LINE INDICATES THE FINISH MACHINED PROFILE.
04. 45° CHAMFER FIRST THREAD.

|        |             |            |                       |                |            |             |               |                  |         |
|--------|-------------|------------|-----------------------|----------------|------------|-------------|---------------|------------------|---------|
| 01     | -           | 92 203 095 | ASTM A216 WCB,CERTIFY | NR             | 10         | 181.9       | 194.4         | 3-V-NH50-25205/3 | -       |
| NO OFF | DESCRIPTION | MATL CODE  | MATL SPECN            | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No       | ITEM No |
|        |             |            |                       |                |            |             |               | 93 202 836 4000  |         |
|        |             |            |                       |                |            |             |               | COMP. CODE       |         |

|     |          |            |           |
|-----|----------|------------|-----------|
| REV | DATE     | ALTERED    | R.P.SINGH |
| 03  | 30.03.18 | CHD & APPD | SSK & KRS |

DRAWING UPDATED  
THREAD M16x2 -6H INCLUDED

|     |          |            |             |
|-----|----------|------------|-------------|
| REV | DATE     | ALTERED    | A.MARIMUTHU |
| 02  | 02.09.14 | CHD & APPD | MS & SSK    |

THREAD M16x2 -6H INCLUDED

DCP: 801804

|     |          |            |               |
|-----|----------|------------|---------------|
| REV | DATE     | ALTERED    | GANESH        |
| 01  | 12.07.13 | CHD & APPD | K.RAJASEKARAN |

DIMENSION  $\phi 392$  WAS  $\phi 389$

DCP: 801558

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|   |            |       |              |                       |              |           |            |      |          |             |
|---|------------|-------|--------------|-----------------------|--------------|-----------|------------|------|----------|-------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |            |       |              |                       |              |           |            |      |          |             |
|  BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |            |       |              |                       |              |           |            |      |          |             |
| DEPT  | VL         | SCALE | WEIGHT (KG). | REFERENCE INFORMATION | NO. OF ITEMS | DRN       | NAME       | SIGN | DATE     | NO. OF VAR. |
| CODE  | 320        | NTS   | REF.TABLE    | CAD:C325205           |              | CHD       | GANESH     |      | 08.12.12 |             |
| TITLE   | DISK ROUGH |       |              | DRAWING NO.           | REV          | APPD      | M.RAJKUMAR |      | 08.12.12 |             |
|   |            |       |              | 3-V-0000-25205        | 03           | CARD CODE | U 01       |      |          |             |

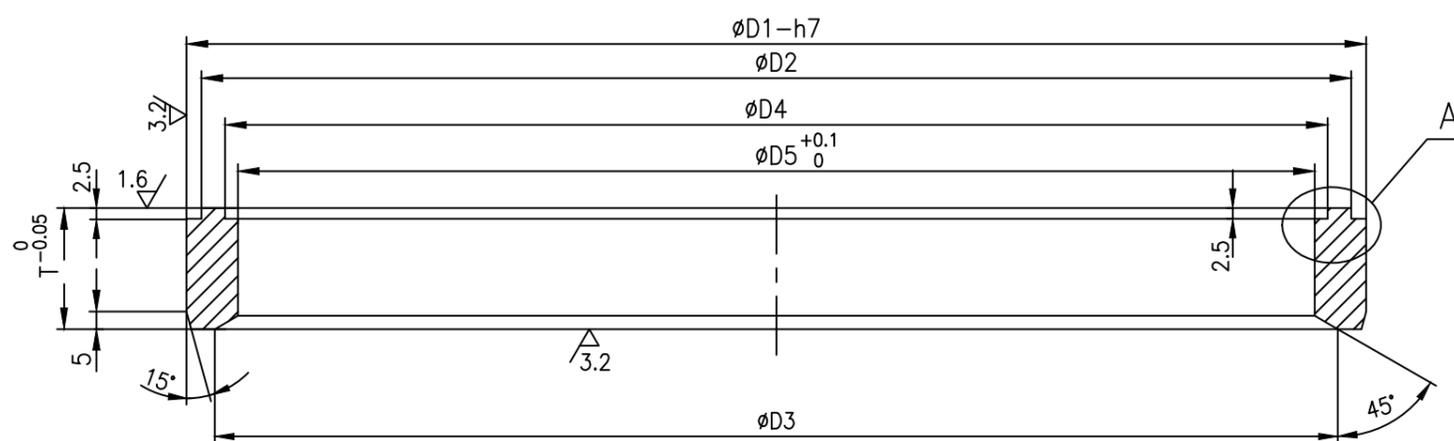
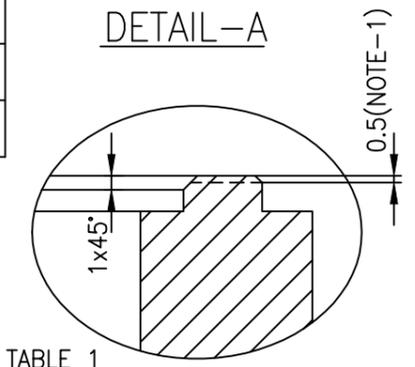
3-V-0000-17627  
DRAWING NO.

| SL. No. | DRAWING No.       | COMP. CODE   | MATL. CODE   | MATL. SPECN.       | HEAT TREATMENT    | SCRAP SORT | DIMENSIONS |       |     |     |     |      | NET WT.(Kg.) |            |            |            |
|---------|-------------------|--------------|--------------|--------------------|-------------------|------------|------------|-------|-----|-----|-----|------|--------------|------------|------------|------------|
|         |                   |              |              |                    |                   |            | ØD1        | ØD2   | ØD3 | ØD4 | ØD5 | T    |              |            |            |            |
| 01      | 3-V-N396-17627/03 | 931063330000 | 922000520000 | A351 CF8, CERTIFY  | SOLUTION ANNEALED | 40         | 525        | 517   | 507 | 501 | 493 | 36.5 | 7.06         | 20"/150CL. |            |            |
| 02      | 3-V-K756-17627/03 | 931075480000 | 922000510000 |                    |                   |            | 379.5      | 361   | 348 | 349 | 340 | 30.5 | 4.95         | 14"/150CL. |            |            |
| 03      | 3-V-N721-17627/02 | 931086010000 | 922009840000 |                    |                   |            | 421.5      | 414   | 400 | 400 | 391 | 30.5 | 4.40         | 16"/150CL. |            |            |
| 04      | 3-V-N722-17627/02 | 931086020000 | 922009850000 |                    |                   |            | 472        | 464   | 460 | 450 | 442 | 34.5 | 5.80         | 18"/150CL. |            |            |
| 05      | 3-V-K963-17627/01 | 931091900000 | 922010330000 | A351 CF8M, CERTIFY |                   | SH         | 46         | 379.5 | 361 | 348 | 349 | 340  | 30.5         | 4.95       | 14"/150CL. |            |
| 06      | 3-V-K964-17627/01 | 931091910000 | 922010340000 |                    |                   |            |            | 421.5 | 414 | 400 | 400 | 391  | 30.5         | 4.40       | 16"/150CL. |            |
| 07      | 3-V-K965-17627/01 | 931091920000 | 922010350000 |                    |                   |            |            | 525   | 517 | 507 | 501 | 493  | 36.5         | 7.06       | 20"/150CL. |            |
| 08      | 3-V-K966-17627/01 | 931091930000 | 922010360000 |                    |                   |            |            | 629   | 620 | 600 | 602 | 593  | 36.5         | 9.3        | 24"/150CL. |            |
| 09      | 3-V-NA58-17627    | 931301490000 | 922009830000 | A351 CF8, CERTIFY  | REFER NOTE        |            | 46         | 40    | 362 | 353 | 354 | 339  | 336          | 30.5       | 3.58       | 14"/300CL. |
| 10      | 3-V-U245-17627/1  | 931302510000 | 922015070000 | A182 F304, CERTIFY |                   |            |            | 40    | 525 | 517 | 507 | 501  | 493          | 36.5       | 7.06       | 20"/150CL. |
| 11      | 3-V-NH86-17627    | 932032820000 | 922032090000 | A351 CF8M, CERTIFY |                   |            |            | 46    | 362 | 353 | 354 | 339  | 336          | 30.5       | 3.58       | 14"/300CL. |
| 12      | 3-V-NJ95-17627/1  | 932042750000 | 922034980000 | A995 CD3MN CERTIFY | SH                |            | 40         | 421.5 | 410 | 400 | 394 | 391  | 30.5         | 4.40       | 16"/150CL. |            |

12.5 / 3.2 / 0.4

|        |        |
|--------|--------|
| 500 TO | 0      |
| 630-h7 | -0.070 |
| 315 TO | 0      |
| 400-h7 | -0.057 |
| 400 TO | 0      |
| 500-h7 | -0.063 |

DETAIL-A



NOTE:

- 0.5mm EXTRA THICKNESS PROVIDED FOR FINE FACING AFTER SEAT RING WELDED WITH BODY.
- HEAT TREATMENT FOR A995 CD3MN AS PER ASME STANDARD SA-995 TABLE 1 [HEAT TO 2050°F [1120°C] MINIMUM FOR SUFFICIENT TIME TO HEAT CASTING UNIFORMLY TO TEMPERATURE AND WATER QUENCH, OR THE CASTING MAY BE FURNACE COOLED TO 1850°F [1010°C] MINIMUM, HOLD FOR 15 MIN MINIMUM AND THEN WATER QUENCH. A RAPID COOL BY OTHER MEANS MAY BE EMPLOYED IN LIEU OF WATER QUENCH.]

| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------------------|---------|
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------------------|---------|

|         |   |              |         |           |              |
|---------|---|--------------|---------|-----------|--------------|
| DCP No. | ALTD:   | APPD:        | DCP No. | ALTD: TS  | APPD: SSK    |
|         | CHD:  | DT:          | -       | CHD: RPS  | DT: 03.12.21 |
| REV     | SL.No. 13 INCLUDED.   |              |         |           | REV 12       |
| ZONE    |   |              |         |           | ZONE -       |
| DCP No. | ALTD: RPS   | APPD: KRS    | DCP No. | ALTD: RPS | APPD: KRS    |
| -       | CHD: SSK  | DT: 08.02.18 | -       | CHD: SSK  | DT: 25.01.18 |
| REV 11  | FOR SL.NO.12 MATERIAL SPECIFICATION CHANGED TO CD3MN FROM 6A. |              |         |           | REV 10       |
| ZONE -  | NOTE SL.NO.02 HEAT TREATMENT PROCESS REVISED                  |              |         |           | ZONE -       |

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

**BHARAT HEAVY ELECTRICALS LTD.,**  
UNIT: HIGH PRESSURE BOILER PLANT.  
TIRUCHIRAPALLI-620014.

|      |               |      |          |            |
|------|---------------|------|----------|------------|
| DRN  | V.BAIRAVAN    | SIGN | DATE     | NO.OF VAR. |
| CHD  | R.L.NARAYANAN |      | 20.02.04 | -          |
| APPD | M.RAJAKUMAR   |      | 20.02.04 | -          |

DEPT VL  
CODE 320

SCALE NTS

WEIGHT (KG.)

REFERENCE INFORMATION CAD:REF:3V017627

TITLE SEAT RING

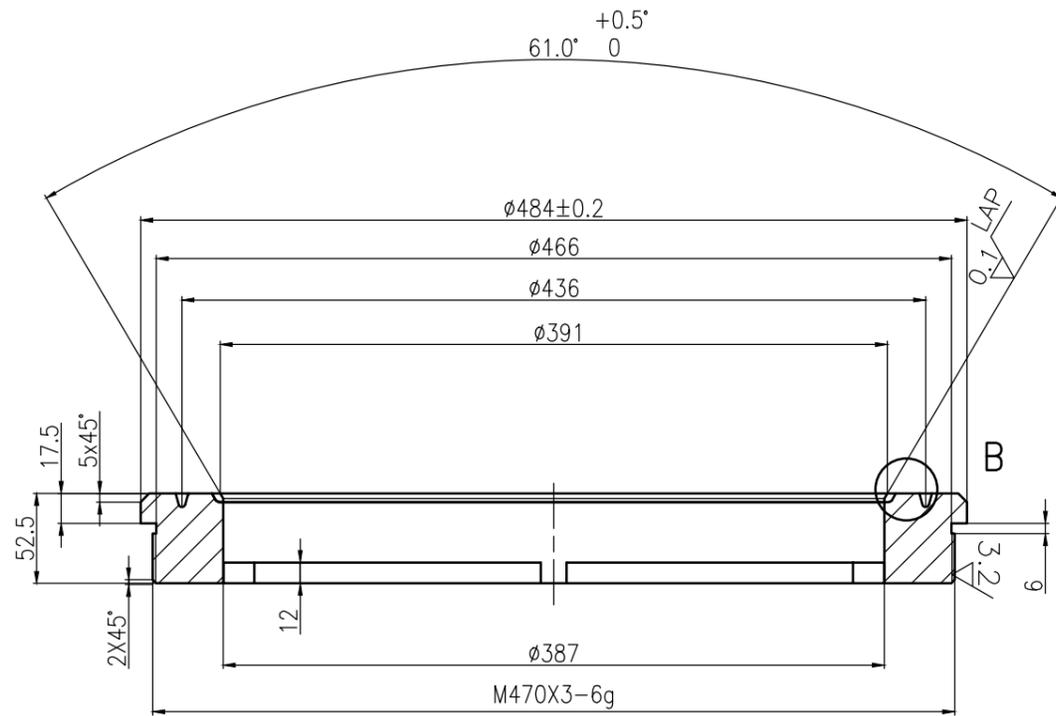
CARD CODE U 01

DRAWING NO. 3-V-0000-17627

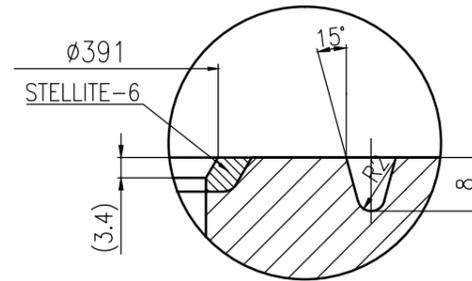
REV 12

3-V-0000-25240  
DRAWING NO.

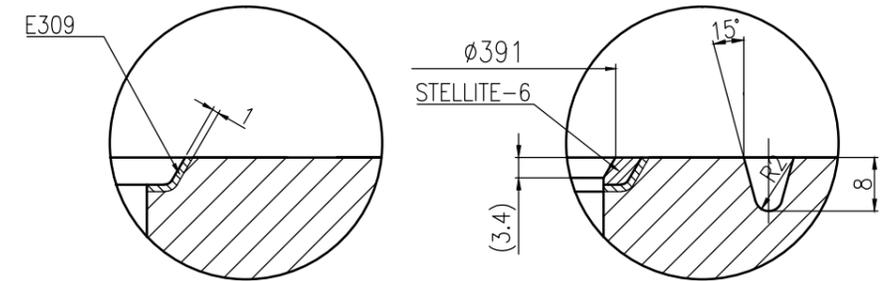
6.3/0.1/3.2



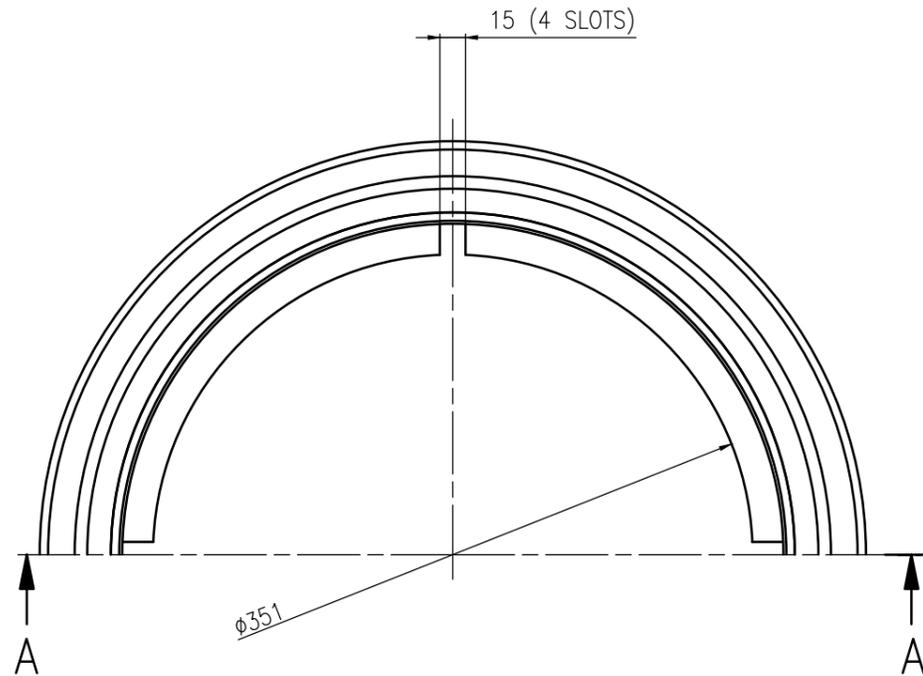
FOR SL.No. 01 & 02 ONLY



FOR SL. No.03 ONLY



DETAIL-B

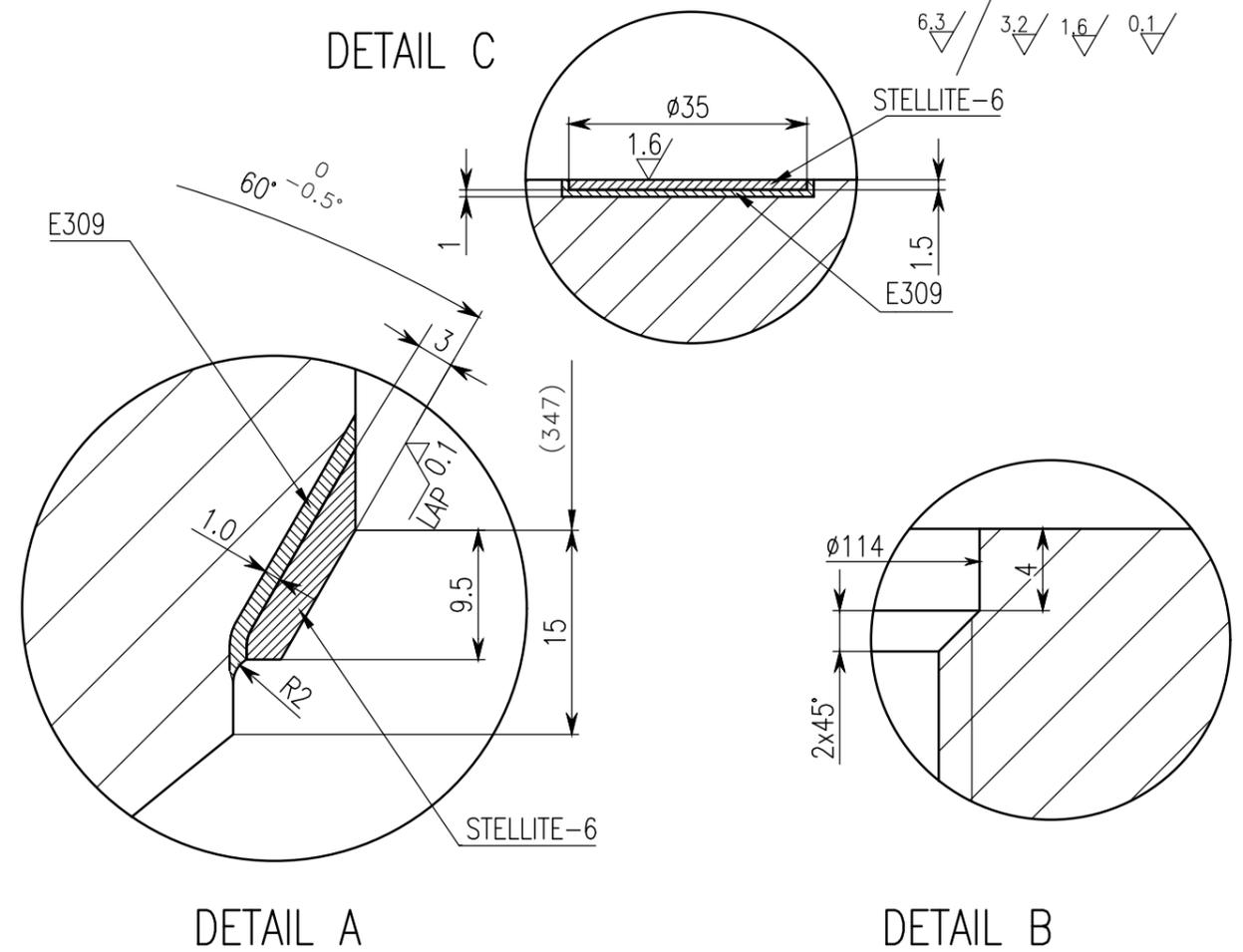
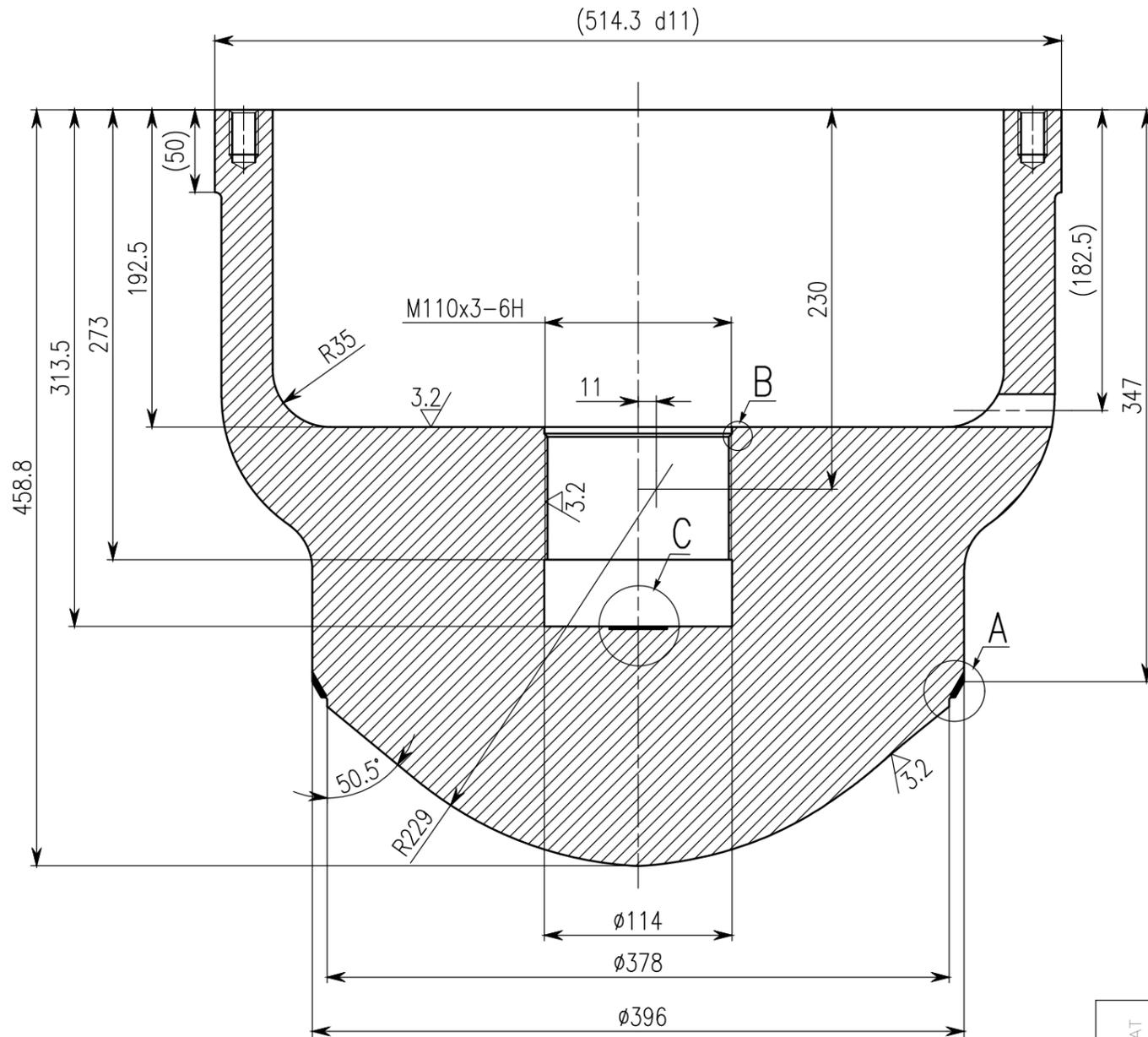


|                    |               |                    |                   |                    |               |  |
|--------------------|---------------|--------------------|-------------------|--------------------|---------------|--|
| REV 02             | DATE 07.10.15 | ALTERED CHD & APPD | M.SELVAM MS & SSK | REV 01             | DATE 03.08.13 | ALTERED DEEPAKRAJ CHD & APPD DEEPAKRAJ & KRS |
| SL.No. 03 INCLUDED |               |                    |                   | SL.No. 02 INCLUDED |               |  |

| 03      | -           | -         | SA 335 P91 CERTIFY  | NORMALISED & TEMPERING | 20         | 25.5        | -             | 3-V-NJ35-25240<br>932036370000 | 002     |
|---------|-------------|-----------|---------------------|------------------------|------------|-------------|---------------|--------------------------------|---------|
| 02      | -           | -         | SA 335 P22 CERTIFY  | NORMALISED & TEMPERING | 20         | 25.5        | -             | 3-V-NH63-25240<br>932031420000 | 002     |
| 01      | -           | -         | SA 515 GR70 CERTIFY | NORMALISED             | 10         | 25.5        | -             | 3-V-NH51-25240<br>932027710000 | 002     |
| SI. NO. | DESCRIPTION | MATL CODE | MATL SPECN          | H-41 TREATMENT         | SCRAPE SDR | NET WT (kg) | GROSS WT (kg) | DRAWING No COMF.CODL           | ITEM No |

|  |      |   |           |                       |          |                |      |            |  |
|--|------|---|-----------|-----------------------|----------|----------------|------|------------|--|
| CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company. |      | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |           |                       |          | CS             |      |            |  |
|  |      | BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT,<br>TIRUCHIRAPALLI-620014. |           | DRN                   | NAME     | SIGN           | DATE | NO.OF VAR. |  |
|  |      | 365-121   | DEEPAKRAJ |                       | 18.12.12 |                |      |            |  |
|  |      | DEPT VL   | CHD       | M.RAJAKUMAR           | 18.12.12 |                |      |            |  |
| CODE 320   | APPD | M.RAJAKUMAR   | 18.12.12  | REFERENCE INFORMATION |          | NO. OF ITEMS   |      |            |  |
| TITLE  |      | SCALE   |           | WEIGHT (KG)           |          | DRAWING NO.    |      | REV        |  |
| SEAT RING ASSY   |      | NTS   |           | -                     |          | 3-V-0000-25240 |      | 02         |  |
| 16"-C300-RV  |      |   |           |                       |          |                |      |            |  |

89957-0000-A-C  
DRAWING NO.



**NOTE:**

- BREAK ALL SHARP CORNERS.
- HEAT TREATMENT AS PER LATEST QUALITY PROCEDURE.
- ALL DIAMETERS CONCENTRIC TO 0.102mm T.I.R.
- HEAT TREAT AS PER APPLICABLE QUALITY PROCEDURE.

| REV | DATE | ALTERED    |
|-----|------|------------|
|     |      | CHD & APPD |

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| SL. NO. | DESCRIPTION | MATL. CODE | MATL. SPECN.           | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No.                    | ITEM No. |
|---------|-------------|------------|------------------------|-----------------------|------------|-------------|---------------|--------------------------------|----------|
| 01      | CASTING     | -          | ASTM A217 C12A CERTIFY | NORMALISED & TEMPERED | 20         | 296         | -             | 3-V-NJ35-25668<br>932036400000 | 004      |

|   |              |                   |                  |                               |      |  |                  |              |             |
|---|--------------|-------------------|------------------|-------------------------------|------|--|------------------|--------------|-------------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |              | CS                |                  |                               |      |  |                  |              |             |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT,<br>TIRUCHIRAPALLI-620014. |              | DRN               | NAME<br>K. NAVIN |                               | SIGN |  | DATE<br>21.07.16 |              | NO. OF VAR. |
| 365-121   |              | CHD               | M.SRINIVASAN     |                               |      |  | 21.07.16         |              |             |
|   |              | APPD              | S.SATHEESKUMAR   |                               |      |  | 21.07.16         |              |             |
| DEPT<br>VL  | SCALE<br>NTS | WEIGHT (KG).<br>- |                  | REFERENCE INFORMATION         |      |  |                  | NO. OF ITEMS |             |
| CODE<br>320   |              |                   |                  | DRAWING NO.<br>3-V-0000-25668 |      |  |                  | REV          |             |
| TITLE<br>DISC ASSEMBLY<br>16"-C300-RV   |              | CARD CODE<br>U 01 |                  |                               |      |  |                  |              |             |

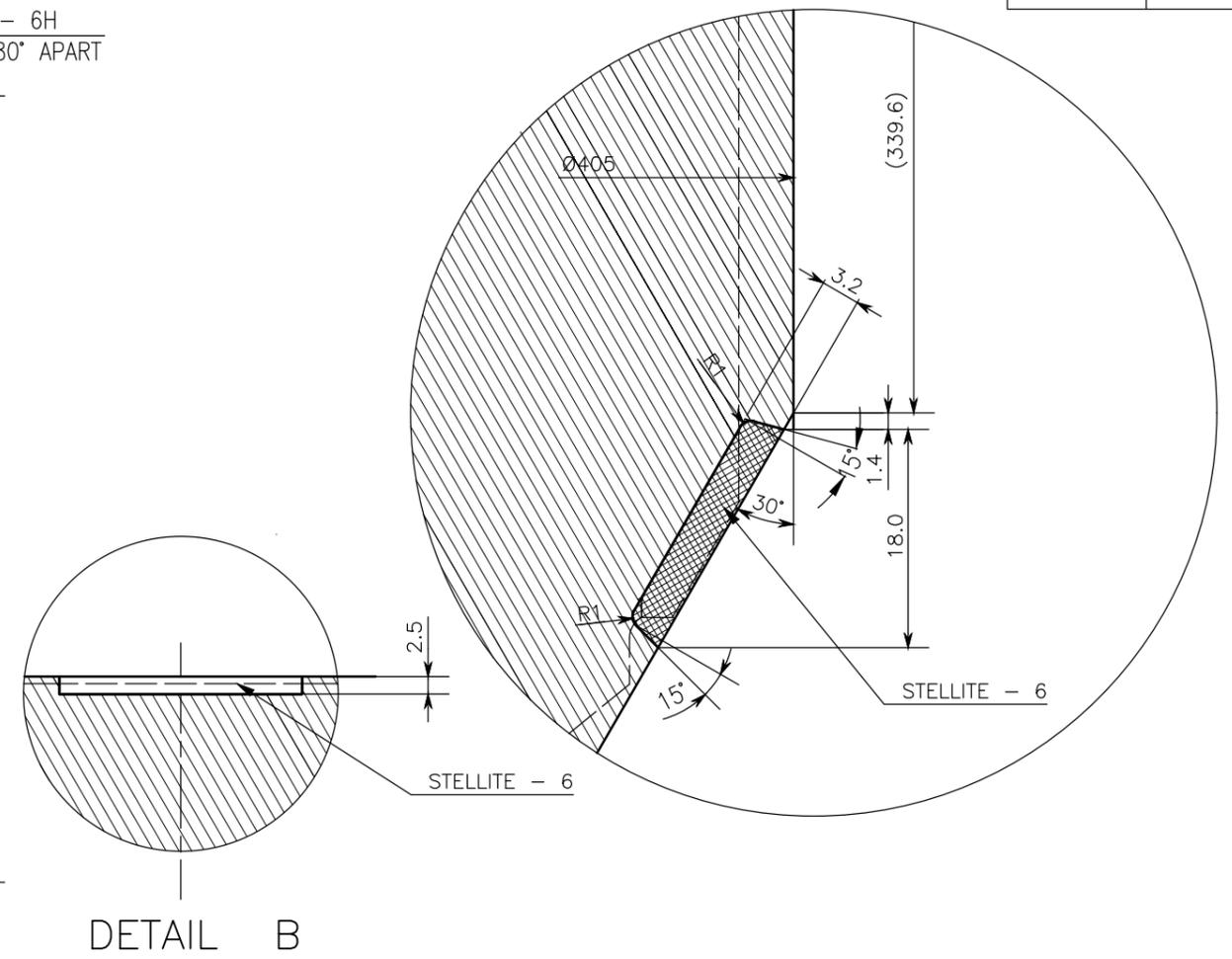
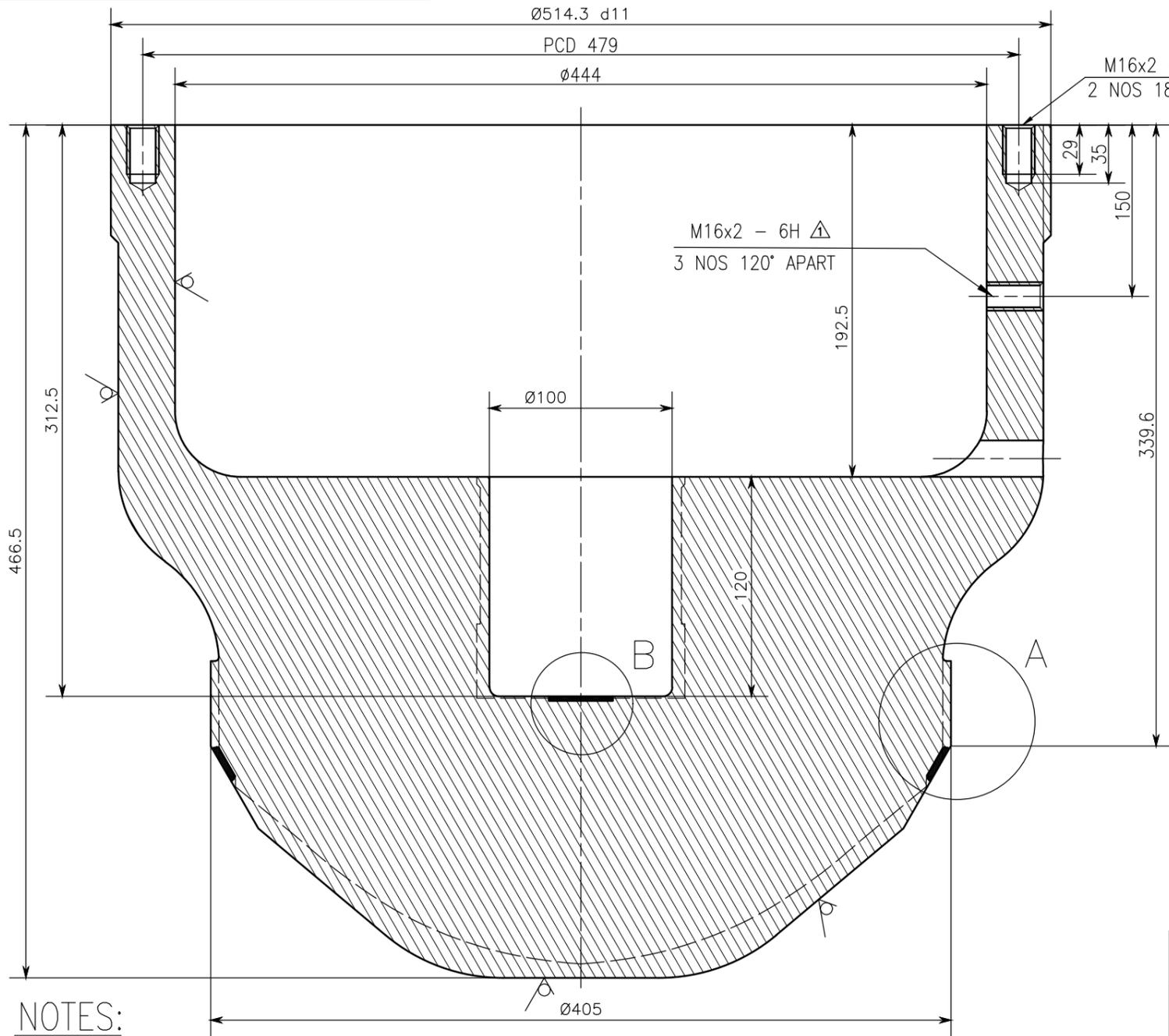
69957-0000-A-3

DRAWING NO

12.5 / 12.5

DETAIL A

|            |        |
|------------|--------|
| Ø514.3 d11 | -0.260 |
|            | -0.700 |



NOTES:

01. BREAK ALL SHARP CORNERS.
02. ALL DIAMETERS CONCENTRIC TO 0.102mm T.I.R.
03. DOTTED LINE INDICATES THE FINISH MACHINED PROFILE.
04. 45° CHAMFER FIRST THREAD.

| REV | DATE     | ALTERED    | R.P.SINGH |
|-----|----------|------------|-----------|
| 01  | 30.03.18 | CHD & APPD | SSK & KRS |

DRAWING UPDATED  
THREAD M16x2 INCLUDED

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| SL No. | DESCRIPTION | MATL CODE    | MATL SPECN             | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                           | ITEM No |
|--------|-------------|--------------|------------------------|-----------------------|------------|-------------|---------------|--------------------------------------|---------|
| 01     | CASTING     | 922033520000 | ASTM A217 C12A CERTIFY | NORMALISED & TEMPERED | 20         | 319         | 332           | 3-V-NJ35-25669/01<br>93 203 640 4000 | 004     |

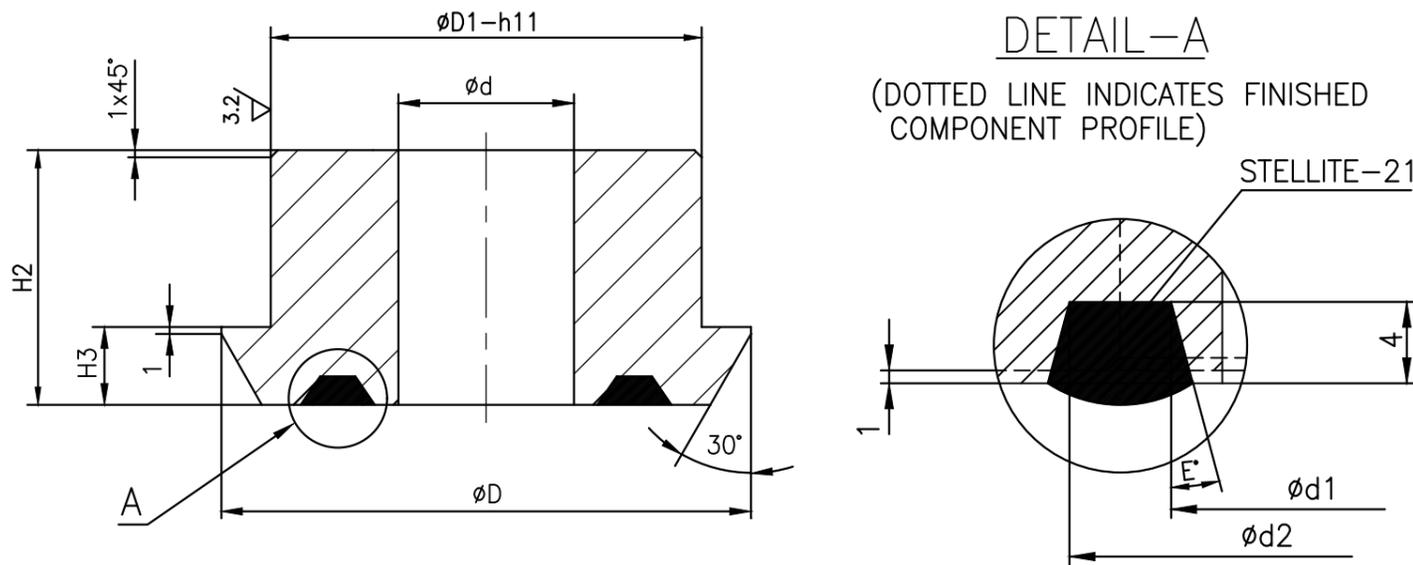
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |  |  |  |       | DRN         |              | SIGN      |                       | DATE     |     | NO. OF VAR. |
|---|--|--|--|-------|-------------|--------------|-----------|-----------------------|----------|-----|-------------|
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |  |  |  |       | DEEPAKRAJ   |              |           |                       | 27.02.13 |     |             |
|   |  |  |  |       | M.RAJAKUMAR |              |           |                       | 27.02.13 |     |             |
|   |  |  |  |       | M.RAJAKUMAR |              |           |                       | 27.02.13 |     |             |
| DEPT  |  |  |  | SCALE |             | WEIGHT (KG). |           | REFERENCE INFORMATION |          |     |             |
| VL  |  |  |  | NTS   |             | REF. TABLE   |           |                       |          |     |             |
| TITLE   |  |  |  |       |             |              | CARD CODE | DRAWING NO.           |          | REV |             |
| DISC S/F<br>16"-C300  |  |  |  |       |             |              | U 01      | 3-V-0000-25669        |          | 01  |             |

3-V-0000-35285  
DRAWING NO.

12.5 / 3.2

| SL NO | DRAWING No     | COMP.CODE    | SUGG.SIZE | MATL. CODE | MATL. SPECN.         | DIMENSIONS |      |      |     |      |    |    | WT. (Kg) | NET Wt (Kg) | APPLICABLE VALVES |             |
|-------|----------------|--------------|-----------|------------|----------------------|------------|------|------|-----|------|----|----|----------|-------------|-------------------|-------------|
|       |                |              |           |            |                      | ∅d         | ∅d1  | ∅d2  | ∅D  | ∅D1  | H2 | H3 |          |             |                   | E°          |
| 01    | 3-V-NC16-35285 | 932056644000 | ∅63x40    | 15339143   | SA105, NR, CERTIFY   | 14         | 28   | 38   | 62  | 48.4 | 26 | 11 | 15°      | 0.97        | 0.3               | 8"/150 CL.  |
| 02    | 3-V-NP09-35285 | 932056654000 | ∅75x40    | 15339381   |                      | 15         | 30   | 40   | 68  | 51.6 | 26 | 11 | 15°      | 1.4         | 0.4               | 10"/150 CL. |
| 03    | 3-V-UA53-35285 | 932056974000 | ∅80x32    | 15339114   |                      | 22         | 37.7 | 47.7 | 75  | 61.1 | 26 | 11 | 35°      | 1.26        | 0.6               | 12"/300 CL. |
| 04    | 3-V-UA66-35285 | 932057194000 | ∅63x35    | 15339143   |                      | 12         | 26   | 36   | 58  | 45.2 | 17 | 7  | 15°      | 0.86        | 0.15              | 6"/150 CL.  |
| 05    | 3-V-NL05-35285 | 932057214000 | ∅165x65   | 15339282   |                      | 50         | 66.5 | 76.5 | 136 | 96   | 56 | 16 | 35°      | 10.9        | 2.0               | 28"/300 CL. |
| 06    | 3-V-NQ29-35285 | 932058524000 | ∅63x35    | 15339379   | SA182 F22 NT,Certify | 12         | 26   | 36   | 58  | 45.2 | 17 | 7  | 15°      | 0.86        | 0.15              | 6"/150 CL.  |
| 07    | 3-V-NQ57-35285 | 932060214000 | ∅63x35    | 15339379   | SA182 F22 NT,Certify | 14         | 28   | 38   | 58  | 48.4 | 23 | 11 | 35°      | 0.76        | 0.26              | 6"/300 CL.  |

|                 |             |
|-----------------|-------------|
| ∅30-∅50<br>h11  | 0<br>-0.160 |
| ∅50-∅80<br>h11  | 0<br>-0.190 |
| ∅80-∅120<br>h11 | 0<br>-0.220 |



| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|-------------|---------|
| -      | -           | -         | -          | -              | -          | -           | -             | -           | -       |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

|                           |   |             |     |           |      |      |            |
|---------------------------|---|-------------|-----|-----------|------|------|------------|
| <br>365-191<br>02.03.2021 | BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |             | DRN | R.P.SINGH | SIGN | DATE | NO.OF VAR. |
|                           | CHD   | SAMEER BHAT |     | 06.03.20  |      |      |            |
|                           | APPD  | S.SATHEES   |     | 06.03.20  |      |      |            |

|         |                       |                          |         |                             |                           |
|---------|-----------------------|--------------------------|---------|-----------------------------|---------------------------|
| DCP No. | ALTD: RPS<br>CHD: SAB | APPD:SSK<br>DT: 20.07.21 | DCP No. | ALTD:S.MADHURAM<br>CHD: SSC | APPD: SSK<br>DT: 23.10.20 |
| REV 02  | SL. No. 07 INCLUDED   |                          | REV 01  | SL. No. 06 INCLUDED         |                           |
| ZONE    |                       |                          | ZONE    |                             |                           |

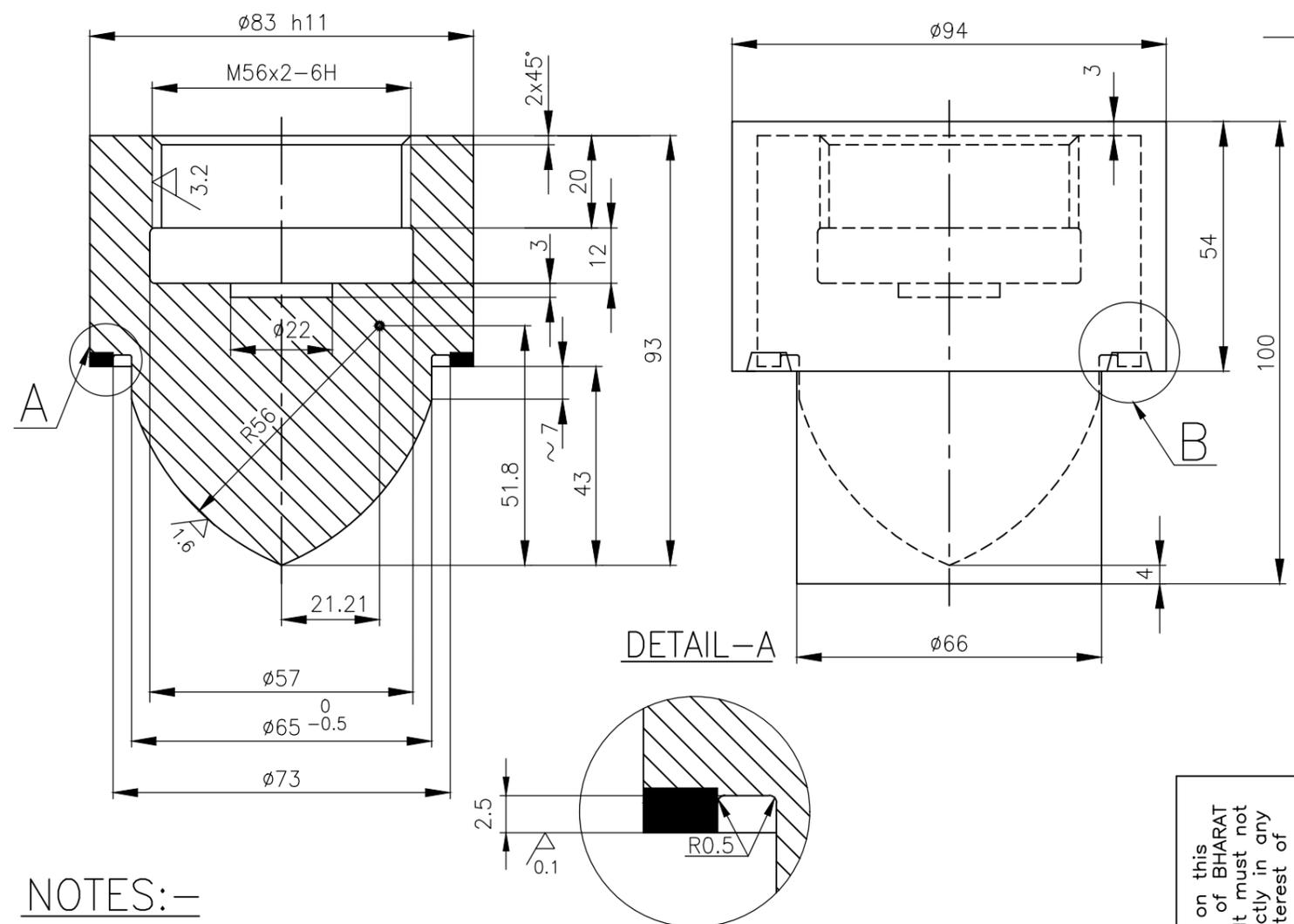
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|       |                 |       |              |                       |              |
|-------|-----------------|-------|--------------|-----------------------|--------------|
| DEPT  | VL              | SCALE | WEIGHT (KG). | REFERENCE INFORMATION | NO. OF ITEMS |
| CODE  | 320             | NTS   |              |                       |              |
| TITLE | BACK SEAT ROUGH |       | CARD CODE    | DRAWING NO.           | REV          |
|       |                 |       | U 01         | 3-V-0000-35285        | 02           |

48990-0000-3-V-0000-06684

DRAWING NO.

| SL. NO. | DRAWING NO.       | MATL. SPECN.               | COMP.CODE    | WELDSPECN    | SCRAP SORT | GROSS Wt.(Kg) | NET Wt.(Kg) |
|---------|-------------------|----------------------------|--------------|--------------|------------|---------------|-------------|
| 01      | 3-V-2897-06684/05 | SA105 NORMALISED CERTIFY   | 931035040000 | E410<br>E430 | 10         | 6.2           | 1.9         |
| 02      | 3-V-P295-06684/03 | SA182 GR.F22 N & T CERTIFY | 931061500000 | STELLITE-6   | 20         | 6.2           | 1.9         |
| 03      | 3-V-P323-06684/03 | SA105 NORMALISED CERTIFY   | 931067720000 | STELLITE-6   | 10         | 6.2           | 1.9         |
| 04      | 3-V-U303-06684/02 | SA182-F316 SH,CERTIFY      | 931305700000 | STELLITE-6   | 46         | 6.2           | 1.9         |
| 05      | 3-V-P789-06684    | A351CF3M SH,CERTIFY        | 932056250000 | STELLITE-6   | 46         | 6.2           | 1.9         |

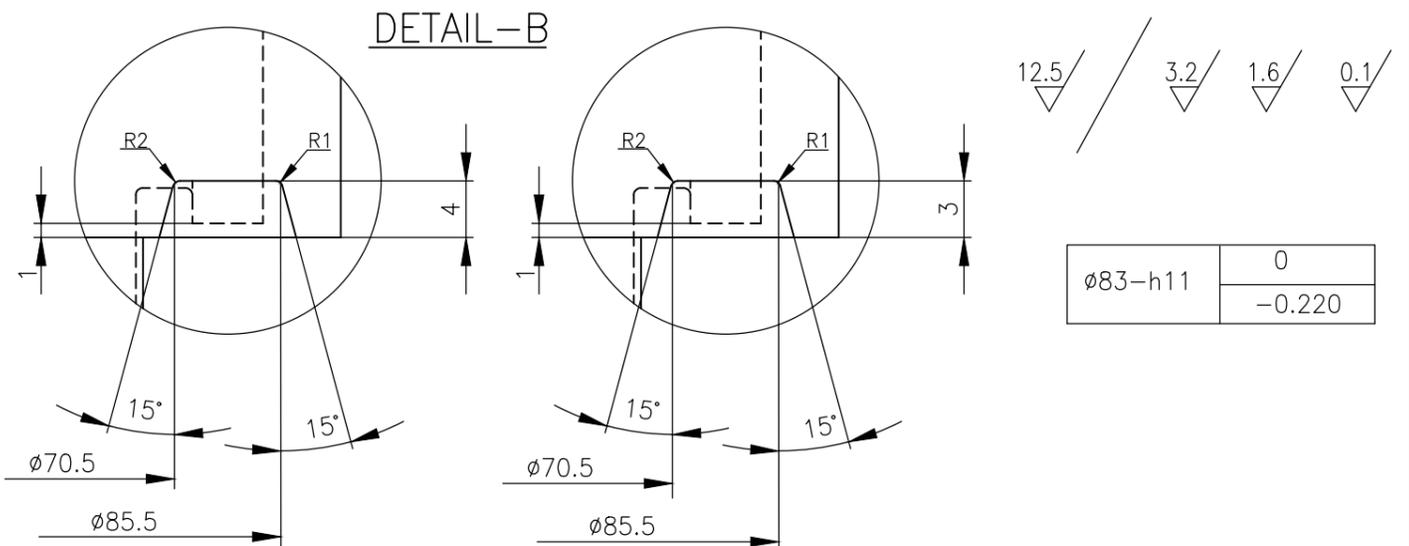


**NOTES:-**

- HARDNESS OF SEAT SHALL BE 350 TO 400 BHN FOR E410 AND 35HRC (MIN). FOR STELLITE.
- DOTTED LINES INDICATE FINAL MACHINING PROFILE.

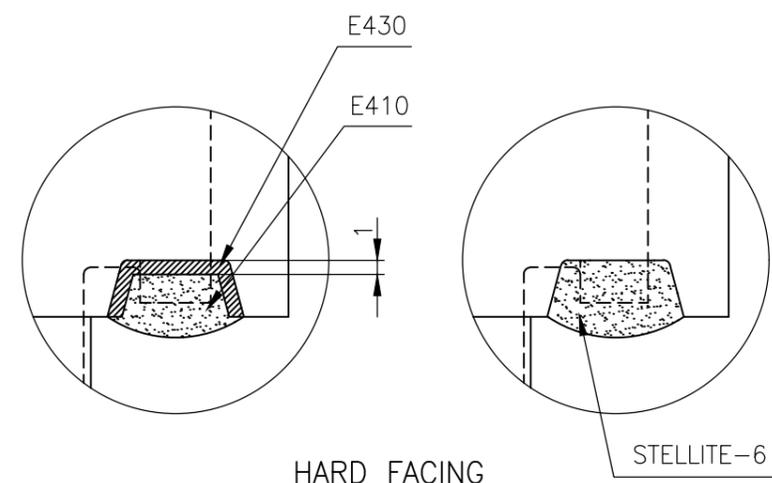
| REV | DATE     | ALTERED R.P.SINGH       |
|-----|----------|-------------------------|
| 09  | 12.11.19 | CHD & APPD SAMEER & SSK |

SL.NO. 05 INCLUDED



GROOVE PREPARATION FOR E410

GROOVE PREPARATION FOR STELLITE-6



HARD FACING

| NO OFF | DESCRIPTION                           | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|---------------------------------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
| ---    | SUGGESTED SIZE: $\phi 100 \times 100$ | ---       | ---        | ---            | ---        | ---         | ---           | ---        | ---     |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **CS**  
 DRAWING REDRAWN WITH REV. 08 ON. 16.10.2007 (REFER DCN.GV.0047,CS:0263 & CS:0640)

| DRN     | NAME           | SIGN | DATE     | NO.OF VAR. |
|---------|----------------|------|----------|------------|
| 365-121 | A.S.PANDY      |      | 16.10.07 |            |
| CHD     | T.R.RAMAMURTHY |      | 16.10.07 |            |
| APPD    | P.Boomnathan   |      | 16.10.07 |            |

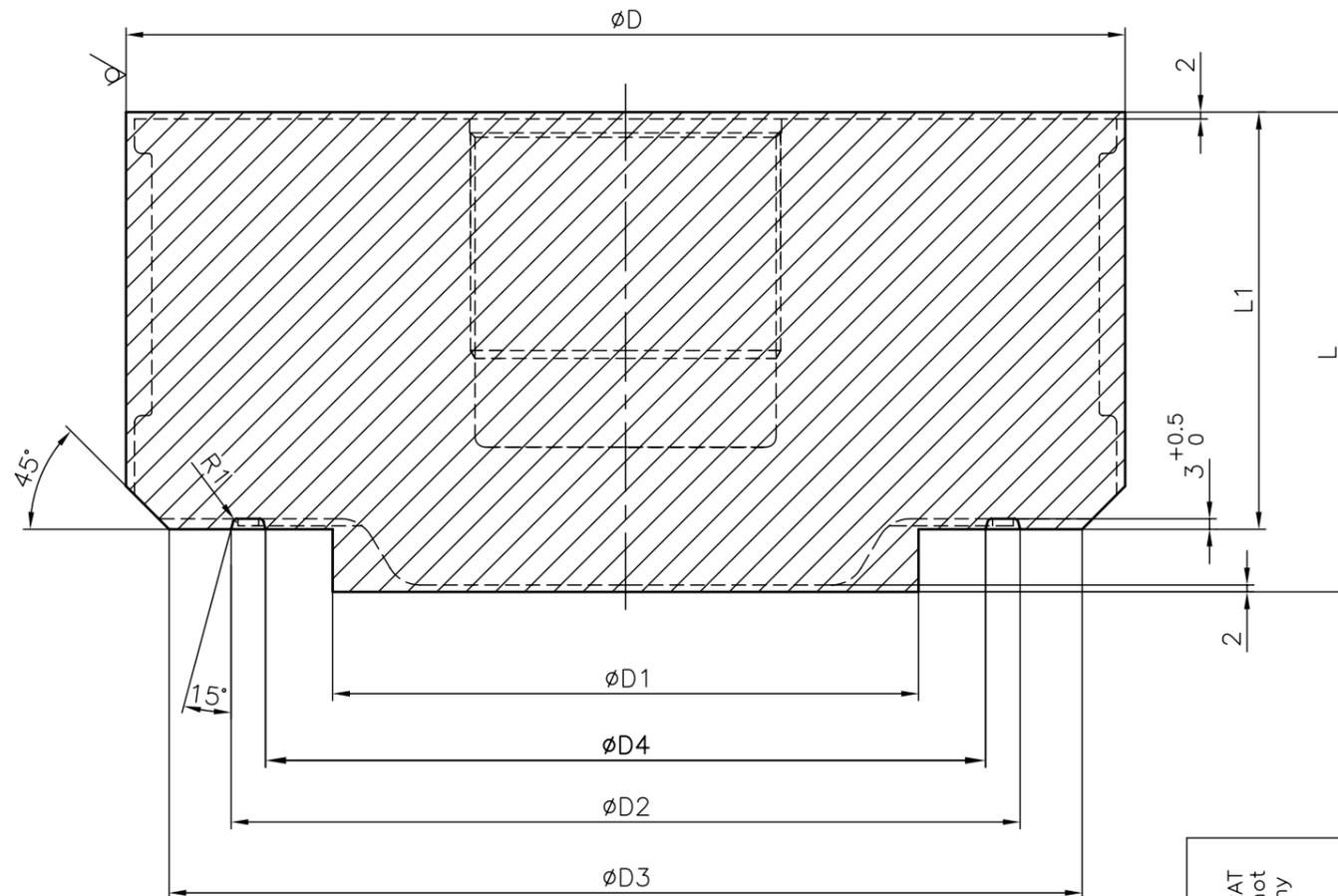
| DEPT VL                                      | SCALE | WEIGHT (KG). | REFERENCE INFORMATION             | NO. OF ITEMS  |
|--|-------|--------------|-----------------------------------|---------------|
| 320  | NTS   | 1.9          | CAD:C306684                       |               |
| TITLE: <b>REG. DISK ASSY.</b><br>(3-C300 RV) |       |              | DRAWING NO. <b>3-V-0000-06684</b> | REV <b>09</b> |

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DRAWING NO. 3-V-0000-24497

12.5 / ✓

| SL. No. | DRAWING NO.    | COMP.CODE       | MATL.SPECN.                        | SUGG.MIN.SIZE | RAW MATL. Wt.(kg) | SCRAP SORT | DIMENSIONS |     |     |     |     |     | NET Wt.(kg) |      |
|---------|----------------|-----------------|------------------------------------|---------------|-------------------|------------|------------|-----|-----|-----|-----|-----|-------------|------|
|         |                |                 |                                    |               |                   |            | ØD         | ØD1 | ØD2 | ØD3 | ØD4 | L   |             | L1   |
| 01      | 3.V.P478.24497 | 93 130 970 4000 | ASTM A105<br>CERTIFY<br>NORMALISED | Ø290X150      | 77.8              | 10         | 290        | 170 | 229 | 265 | 209 | 140 | 121         | 65.2 |



**NOTE:**

01. BREAK ALL SHARP CORNERS.
02. ALL DIAMETERS CONCENTRIC TO 0.102mm T.I.R.
03. DOTTED LINE INDICATES THE FINISH MACHINED PROFILE.

| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
| -      | -           | -         | -          | -              | -          | -           | -             | -          | -       |

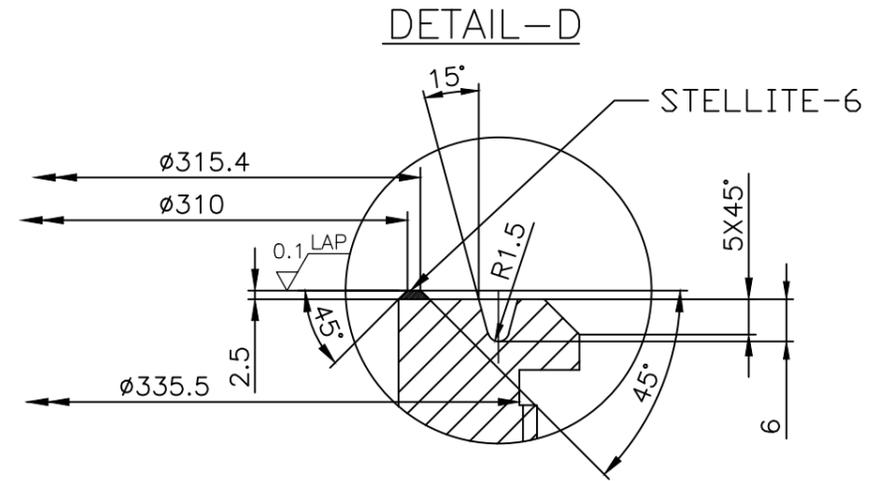
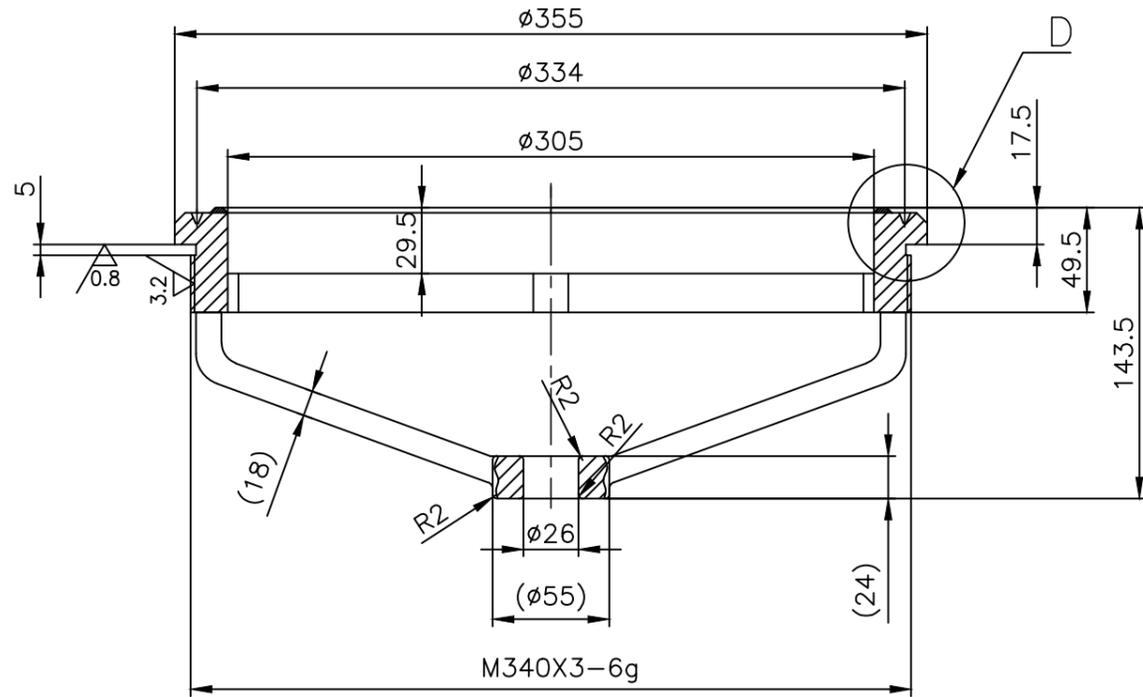
|  |     |       |  |              |  |                       |           |                |      |          |            |
|--|-----|-------|--|--------------|--|-----------------------|-----------|----------------|------|----------|------------|
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| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT  |     |       |  |              |  |                       |           |                |      |          |            |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014.  |     |       |  |              |  |                       | DRN       | NAME           | SIGN | DATE     | NO.OF VAR. |
|  |     |       |  |              |  |                       | CHD       | M.SRINIVASAN   |      | 16.11.06 |            |
|  |     |       |  |              |  |                       | APPD      | P.BOOMINATHAN  |      | 16.11.06 |            |
|  |     |       |  |              |  |                       | APPD      | M.RAJAKUMAR    |      | 16.11.06 |            |
| DEPT   | VL  | SCALE |  | WEIGHT (KG). |  | REFERENCE INFORMATION |           |                |      |          |            |
| CODE   | 320 | NTS   |  | REF.TABLE    |  | CAD :C324497          |           |                |      |          |            |
| TITLE  |     |       |  |              |  |                       | CARD CODE | DRAWING NO.    |      | REV      |            |
| DISK ROUGH   |     |       |  |              |  |                       | U 01      | 3-V-0000-24497 |      |          |            |

| REV | DATE | ALTERED    |
|-----|------|------------|
|     |      | CHD & APPD |



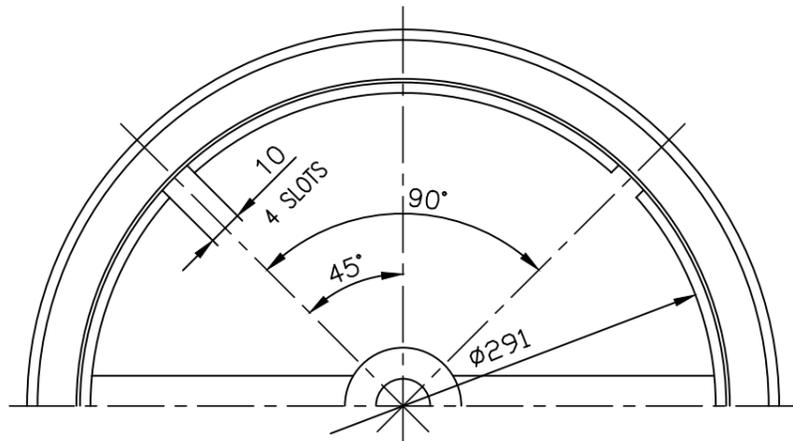
DRAWING NO. 3-V-0000-25255

6.3 / 3.2 0.8 0.1



**NOTE:**

1. BREAK ALL SHARP CORNERS.
2. HEAT TREAT AS PER LATEST QUALITY PROCEDURE.
3. ALL DIAMETERS CONCENTRIC TO 0.102mm T.I.R.
4. # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.



| #  | DESCRIPTION | MATL CODE  | MATL SPECN             | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No                          | ITEM No |
|----|-------------|------------|------------------------|----------------|------------|-------------|---------------|-------------------------------------|---------|
| 05 | CASTING     | 92 203 783 | A351 CF8 CERTIFY       | SH             | 46         | 9.4         | 20.2          | 3-V-U960-25348<br>93 205 081 0000   | 002     |
| 04 | CASTING     | 92 203 779 | A351 CF8 CERTIFY       | SH             | 46         | 9.4         | 20.2          | 3-V-P763-25348<br>93 205 075 0000   | 002     |
| 03 | CASTING     | 92 203 247 | A351 CF8M CERTIFY      | SH             | 46         | 9.4         | 20.2          | 3-V-P639-25348<br>93 204 167 0000   | 002     |
| 02 | CASTING     | 92 203 347 | ASTM A216 WCC, CERTIFY | NR             | 10         | 9.4         | 20.2          | 3-V-P593-25255<br>93 203 623 0000   | 002     |
| 01 | CASTING     | 92 203 112 | ASTM A216 WCB, CERTIFY | NR             | 10         | 9.4         | 20.2          | 3-V-P560-25255/2<br>93 202 928 0000 | 002     |

| REV | DATE     | ALTERED    | BY           |
|-----|----------|------------|--------------|
| 08  | 11.02.20 | CHD & APPD | SAMEER & SSK |

TYPE NO. P729 REMOVED  
NOTES UPDATED

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**TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT**  
REDRAWN WITH REV.05 ON 17.05.17

|  |      |             |      |          |             |
|--|------|-------------|------|----------|-------------|
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014.<br>365-121 | DRN  | GANESH      | SIGN | DATE     | NO. OF VAR. |
|  | CHD  | GANESH      |      | 27.03.13 |             |
|  | APPD | M.RAJAKUMAR |      | 27.03.13 |             |

|      |     |       |             |                        |              |
|------|-----|-------|-------------|------------------------|--------------|
| DEPT | VL  | SCALE | WEIGHT (KG) | REFERENCE INFORMATIONS | NO. OF ITEMS |
| CODE | 320 | NTS   | REF.TABLE   | CAD :C325255           |              |

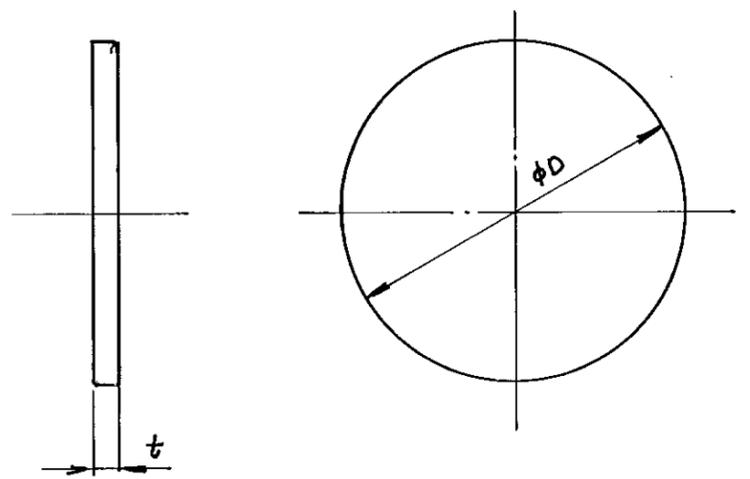
**TITLE**  
SEAT RING ASSY.  
(12"-C300)

**CARD CODE**  
U 01

**DRAWING NO.**  
3-V-0000-25255

**REV**  
08

| SL. NO. | DRG. NO.       | RAW MATERIAL  |              |            |         | DIMENSIONS |   |  |  | FINISH WT (kg) | APPLICABLE TYPE NO.  |
|---------|----------------|---------------|--------------|------------|---------|------------|---|--|--|----------------|--|
|         |                | SPECIFICATION | SIZE         | CODE NO.   | WT (kg) | φD         | t |  |  |                |  |
| 1       | 3-V-S855-09407 | SA 105        | DIA. 50 x 6  | 15-339-142 | 0.09    | 38.5       | 4 |  |  | 0.04           | S855, S856, S857   |
| 2       | 3-V-S858-09407 | SA 105        | DIA. 50 x 6  | 15-339-142 | 0.09    | 45         | 4 |  |  | 0.05           | S858, S859   |
| 3       | 3-V-S833-09407 | SA 105        | DIA. 63 x 6  | 15-339-143 | 0.14    | 57.5       | 4 |  |  | 0.08           | S833, S834, S835, S839, S840, S844, S845, S846, S848, S849, S852, S853, S854 |
| 4       | 3-V-S847-09407 | SA 105        | DIA. 80 x 6  | 15-339-144 | 0.23    | 70         | 4 |  |  | 0.12           | S847, S860, S861, S862, S867, S868, S869, S870, S882, S883                   |
| 5       | 3-V-S836-09407 | SA 105        | DIA. 100 x 6 | 15-339-134 | 0.36    | 82.9       | 4 |  |  | 0.16           | S836, S841, S863, S884, S885   |
| 6       | 3-V-S837-09407 | SA 105        | DIA. 125 x 6 | 15-339-281 | 0.57    | 102        | 4 |  |  | 0.26           | S837, S838, S842, S843, S851, S864, S865, S866                               |
| 7       | 3-V-S850-09407 | SA 105        | DIA 80 x 6   | 15-339-144 | 0.23    | 72         | 3 |  |  | 0.09           | S850   |



12.5

MICROFILMED ON 2/1/84  
ROLL 00533 FRAME 262

|  |                |                     |                       |
|--|----------------|---------------------|-----------------------|
| SA 105   | NR             | 10                  | CERTIFY.              |
| MATERIAL SPECIFICATION   | HEAT TREATMENT | SCARP SORT          | TYPE OF CERTIFICATION |
| <b>BHARAT HEAVY ELECTRICALS LTD.,<br/>BOILER PLANT UNIT, TIRUCHIRAPALLI-14</b>   |                |                     |                       |
| FIRST ANGLE  | SCALE          | DRAWN               | TOTAL wt. (kg)        |
|  |                | <i>M. J. K. ...</i> |                       |
|  |                | CHECKED             | TYPE                  |
|  |                | APPROVED            |                       |
| ALL DIMENSIONS IN MILLIMETRES  | DATE           | 17.9.77             | NEW/OLD DRG. No.      |
| <b>CAUTION</b>   |                | TITLE               |                       |
| THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED, BOILER PLANT UNIT, TIRUCHY-620014. AND SHALL NOT BE USED WITHOUT THEIR EXPRESS WRITTEN PERMISSION IN ANY FORM OR PART THEREOF FOR ANY OTHER PURPOSE THAN FOR WHICH IT IS SENT TO YOU. |                | END COVER           |                       |
|  |                | DRAWING No.         | REVISION              |
| 05-229   |                | 3-V-S000-09407      |                       |

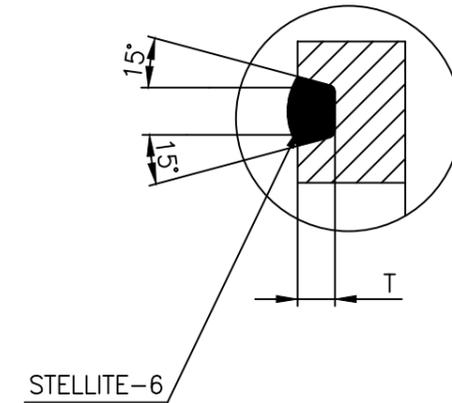
| ZONE | DATE | ALTERED |
|------|------|---------|
| 01   |      | CHECKED |

08296-0000-V-3  
DRAWING NO.

12.5 / 3.2 / 0.8 / 0.4 / ✓

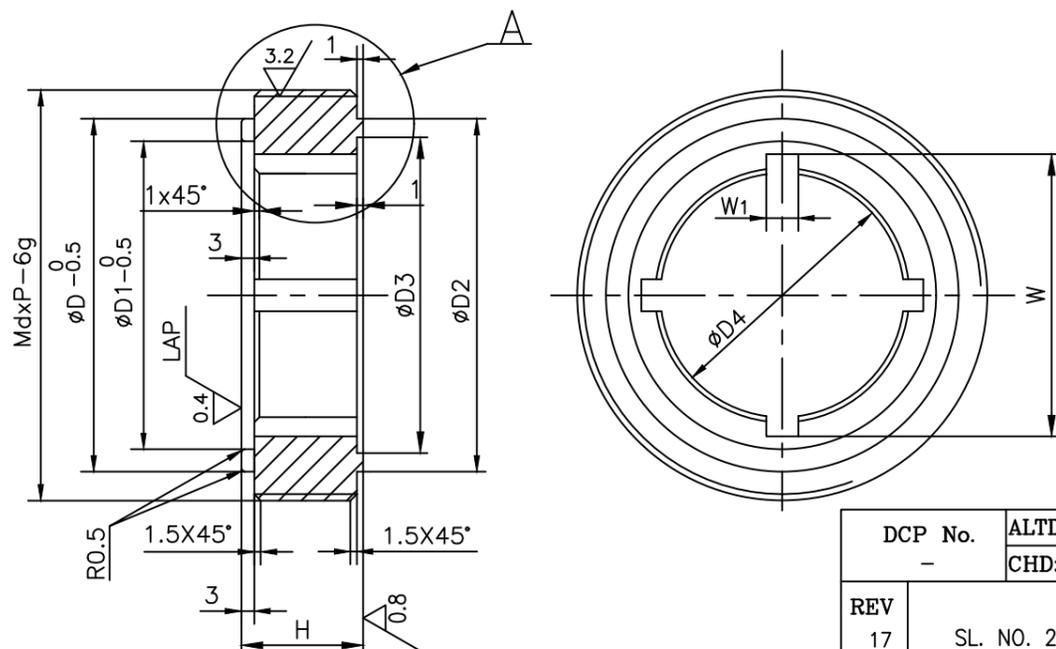
| SL. No. | DRAWING No.       | COMP. CODE   | MATL. SPECN.             | SCRAP SORT | DIMENSIONS |        |     |     |     |     |     |     |     |     | NET WT.(kg) | SIZE/RATING     |
|---------|-------------------|--------------|--------------------------|------------|------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-------------|-----------------|
|         |                   |              |                          |            | MdxP-6g    | ∅D     | ∅D1 | ∅D2 | ∅D3 | ∅D4 | H   | W   | W1  | T   |             |                 |
| 01      | 3-V-5154-95280    | 931055490000 | SA 515 Gr.70             | 10         | M230x2     | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13  | 2.5 | 1.78        | 8"-150 CL       |
| 02      | 3-V-5153-95280    | 931065750000 | NR, CERTIFY              |            | M80x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.24        | 2"-300 CL       |
| 03      | 3-V-5151-95280    | 931065760000 | SA 105 NR, CERTIFY       |            | M185x2     | 175    | 164 | 175 | 164 | 152 | 26  | 162 | 13  | 2.5 | 1.68        | 6"-300 CL       |
| 04      | 3-V-5152-95280    | 931067520000 | SA 515 Gr.70 NR, CERTIFY |            | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8   | 2.5 | 0.38        | 3"-300 CL       |
| 05      | 3-V-5144-95280    | 931068220000 |                          |            | M130x2     | 122    | 114 | 122 | 114 | 102 | 22  | 112 | 8   | 2.5 | 0.70        | 4"-300 CL       |
| 06      | 3-V-5179-95280    | 931069400000 |                          |            | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |
| 07      | 3-V-5176-95280    | 931069410000 |                          |            | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 2.5 | 1.20        | 6"-150 CL       |
| 08      | 3-V-5177-95280    | 931069420000 |                          |            | M130x2     | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8   | 2.5 | 0.72        | 4"-150 CL       |
| 09      | 3-V-5174-95280/01 | 931069430000 |                          |            | M235x2     | 227    | 215 | 227 | 215 | 203 | 31  | 213 | 13  | 2.5 | 2.19        | 8"-300 CL       |
| 10      | 3-V-Z024-95280    | 931095540000 | SA182 F316 SH, CERTIFY   |            | 46         | M100x2 | 94  | 88  | 94  | 88  | 76  | 19  | 86  | 8   | 2.5         | 0.38            |
| 11      | 3-V-U086-95280    | 931101090000 | A351 CF8 SH, CERTIFY     | M130x2     |            | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8   | 3   | 0.72        | 4"-150 CL FV    |
| 12      | 3-V-U087-95280    | 931101100000 |                          | M175x2     |            | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 3   | 1.20        | 6"-150 CL FV    |
| 13      | 3-V-U088-95280    | 931101110000 | A351 CF8M SH, CERTIFY    | M230x2     |            | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13  | 3   | 1.78        | 8"-150 CL FV    |
| 14      | 3-V-U250-95280    | 931302670000 |                          | M175x2     |            | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 3   | 1.20        | 6"-150 CL FV    |
| 15      | 3-V-U309-95280    | 931305810000 |                          | M130x2     |            | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8   | 3   | 0.72        | 4"-150 CL FV    |
| 16      | 3-V-U323-95280    | 931307410000 |                          | M185x2     |            | 175    | 164 | 175 | 164 | 152 | 26  | 162 | 13  | 2.5 | 1.68        | 6"-300 CL       |
| 17      | 3-V-U324-95280    | 931307430000 |                          | M130x2     |            | 122    | 114 | 122 | 114 | 102 | 22  | 112 | 8   | 2.5 | 0.70        | 4"-300 CL       |
| 18      | 3-V-U444-95280/01 | 932017470000 |                          | M235x2     |            | 227    | 215 | 227 | 215 | 203 | 31  | 213 | 13  | 2.5 | 2.19        | 8"-300 CL       |
| 19      | 3-V-Z078-95280    | 932029950000 | SA 387 Gr.22 NT, CERTIFY | 20         |            | M185x2 | 175 | 164 | 175 | 164 | 152 | 26  | 162 | 13  | 2.5         | 1.68            |
| 20      | 3-V-U385-95280    | 932015240000 | A351 CF8M SH, CERTIFY    | 46         | M230x2     | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13  | 3   | 1.78        | 8"-150 CL FV    |
| 21      | 3-V-Z099-95280    | 932039360000 | SA 387 Gr.22 NT, CERTIFY | 20         | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |
| #22     | 3-V-UA76-95280    | 932058460000 | A351 CF8 SH, CERTIFY     | 46         | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 3   | 1.20        | 6"-150 CL FV    |
| #23     | 3-V-UB16-95280    | 932062680000 | A351 CF3M SH, CERTIFY    | 46         | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |
| #24     | 3-V-UB17-95280    | 932062690000 | A351 CF3M SH, CERTIFY    | 46         | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8   | 2.5 | 0.38        | 3"-150 & 300 CL |
| 25      | 3-V-UB33-95280    | 932063910000 | A182 F316 SH, CERTIFY    | 46         | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |

DETAIL-A  
BEFORE MACHINING



NOTES:

- UNSPECIFIED SHARP CORNERS TO BE CHAMFERED TO 0.5X45°
- HARDNESS 35 HRC MINIMUM
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.



|         |                      |              |
|---------|----------------------|--------------|
| DCP No. | ALTD: RPS            | APPD: SSK    |
| -       | CHD: MK              | DT: 02.02.23 |
| REV 17  | SL. NO. 25 INCLUDED. |              |
| ZONE -  |                      |              |

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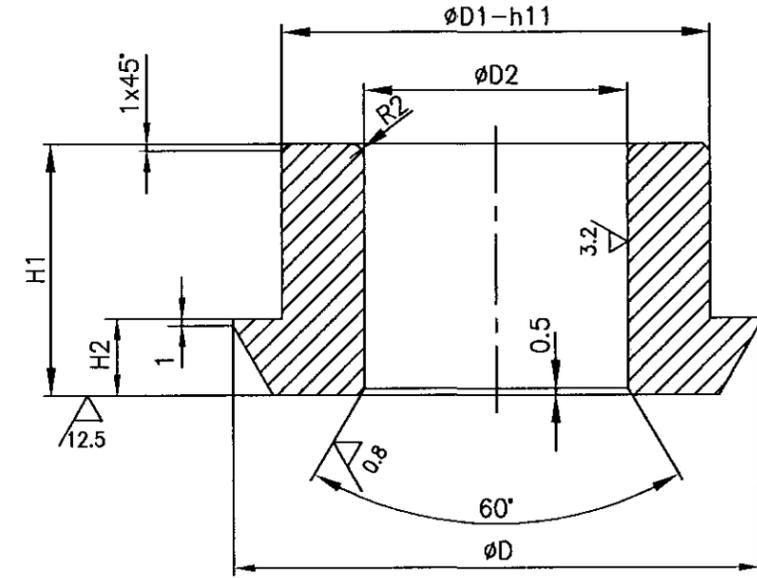
| NO OFF                | DESCRIPTION   | MATL CODE               | MATL SPECN             | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. COMP. CODE | ITEM No |               |            |
|-----------------------|---|-------------------------|------------------------|----------------|------------|-------------|---------------|------------------------|---------|---------------|------------|
|                       | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |                         |                        |                |            |             |               |                        |         |               |            |
|                       | BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |                         |                        |                |            |             | DRN           | NAME R.P.SINGH         | SIGN    | DATE 06.10.20 | NO.OF VAR. |
|                       |   |                         |                        |                |            |             | CHD           | SAMEER BHAT            |         | 06.10.20      | -          |
|                       |   |                         |                        |                |            |             | APPD          | SSK                    |         | 06.10.20      | -          |
| DEPT VL               | SCALE NTS   | WEIGHT (KG) REFER TABLE | REFERENCE INFORMATIONS |                |            |             | NO. OF ITEMS  |                        |         |               |            |
| CODE 320              |   |                         | DRAWING NO.            |                |            |             | REV           |                        |         |               |            |
| TITLE SEAT RING ASSY. | CARD CODE U 01  | 3-V-0000-95280          |                        |                |            | 17          |               |                        |         |               |            |

DRAWING NO. 3-V-0000-24072

12.5 / 3.2 / 0.8

| SL. No. | DRAWING No.    | COMP.CODE       | MATL. SPECN.               | SCRAP SORT | DIMENSIONS |      |      |    |    |  | STEM SIZE | NET Wt. (Kg) | APPLICABLE TYPE |         |             |
|---------|----------------|-----------------|----------------------------|------------|------------|------|------|----|----|--|-----------|--------------|-----------------|---------|-------------|
|         |                |                 |                            |            | ∅D         | ∅D1  | ∅D2  | H1 | H2 |  |           |              |                 |         |             |
| 01      | 3-V-U212-24072 | 93 110 936 0000 | A182-F6a c13<br>NT,CERTIFY | 40         | 40         | 32.5 | 19.5 | 14 | 8  |  |           | 3/4"         | 0.08            | 2"-C300 |             |
| 02      | 3-V-U199-24072 | 93 110 937 0000 |                            |            | 48         | 35.7 | 22.7 | 17 | 5  |  |           |              | 7/8"            | 0.15    | 3"-C150&300 |
| 03      | 3-V-U200-24072 | 93 110 938 0000 |                            |            | 50         | 38.9 | 25.9 | 17 | 5  |  |           |              | 1"              | 0.16    | 4"-C150&300 |
| 04      | 3-V-U201-24072 | 93 110 939 0000 |                            |            | 58         | 45.2 | 29.0 | 22 | 10 |  |           |              | 1 1/8"          | 0.25    | 6"-C150     |
| 05      | 3-V-U210-24072 | 93 110 940 0000 |                            |            | 58         | 48.4 | 32.2 | 22 | 10 |  |           |              | 1 1/4"          | 0.22    | 6"-C300     |
| 06      | 3-V-U202-24072 | 93 110 941 0000 |                            |            | 62         | 48.4 | 32.2 | 25 | 10 |  |           |              | 1 1/4"          | 0.32    | 8"-C150     |
| 07      | 3-V-U211-24072 | 93 110 942 0000 |                            |            | 62         | 51.6 | 35.4 | 25 | 10 |  |           |              | 1 3/8"          | 0.30    | 8"-C300     |
| 08      | 3-V-U203-24072 | 93 110 943 0000 |                            |            | 70         | 51.6 | 35.4 | 25 | 10 |  |           |              | 1 3/8"          | 0.38    | 10"-C150    |

|           |        |
|-----------|--------|
| ∅30-∅50   | 0      |
| h11       | -0.160 |
| ∅50-∅80   | 0      |
| h11       | -0.190 |
| ∅80-∅120  | 0      |
| h11       | -0.220 |
| ∅120-∅180 | 0      |
| h11       | -0.250 |



NOTE:-  
MINIMUM HARDNESS 250BHN

| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|------------|---------|

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **CS**

|   |      |              |      |          |            |
|---|------|--------------|------|----------|------------|
| BHARAT HEAVY ELECTRICALS LTD.<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014.<br>365-121 | DRN  | K.P.LEON     | SIGN | DATE     | NO.OF VAR. |
|   | CHD  | P.Boomnathan |      | 19.08.03 |            |
|   | APPD | K.S.RAMAN    |      | 19.08.03 |            |

| REV | DATE | ALTERED    |
|-----|------|------------|
|     |      | CHD & APPD |

|                |            |                |                       |              |
|----------------|------------|----------------|-----------------------|--------------|
| DEPT VL        | SCALE NTS. | WEIGHT (KG)    | REFERENCE INFORMATION | NO. OF ITEMS |
| CODE 320       |            |                | CAD:C324072           |              |
| TITLE          | CARD CODE  | DRAWING NO.    | REV                   |              |
| BACK SEAT BUSH | U 01       | 3-V-0000-24072 | 00                    |              |

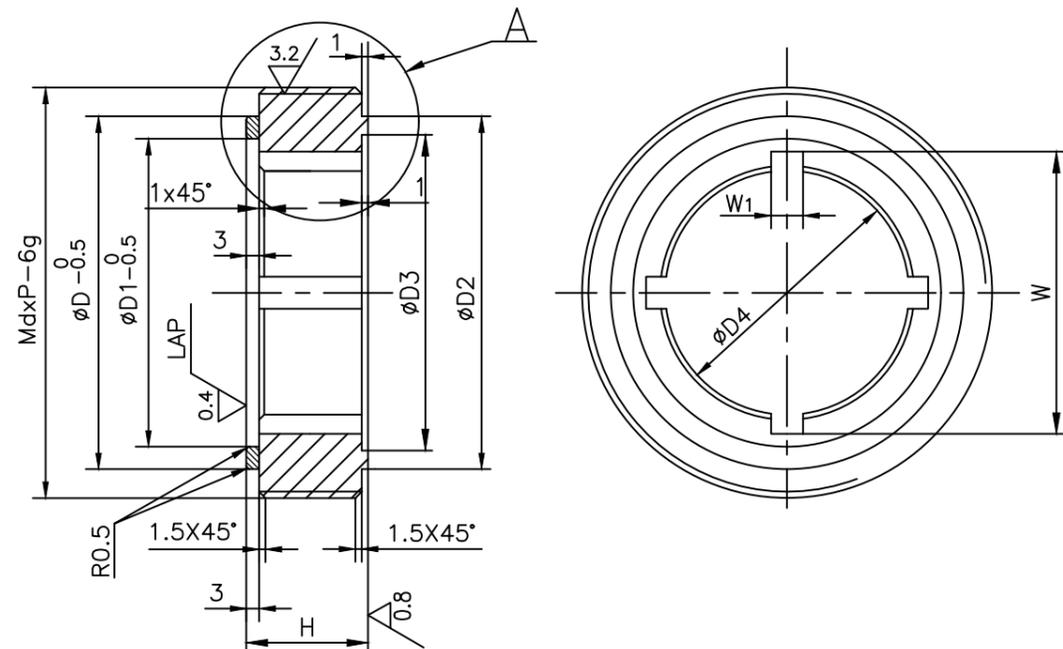
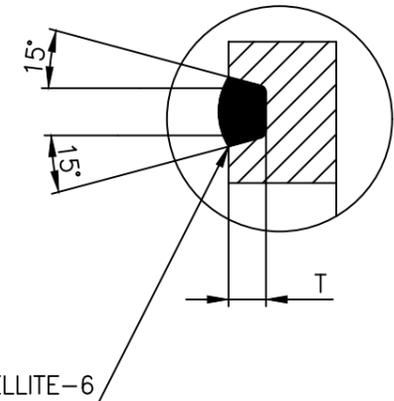
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DRAWING NO: 3-V-0000-35234

12.5 / 3.2 / 0.8 / 0.4 / ✓

| SL. No. | DRAWING No.    | COMP. CODE   | MATL. SPECN.             | SCRAP SORT | DIMENSIONS |     |     |     |     |     |    |     |    |     | NET WT.(kg) | SIZE/RATING |
|---------|----------------|--------------|--------------------------|------------|------------|-----|-----|-----|-----|-----|----|-----|----|-----|-------------|-------------|
|         |                |              |                          |            | MdxP-6g    | ∅D  | ∅D1 | ∅D2 | ∅D3 | ∅D4 | H  | W   | W1 | T   |             |             |
| 01      | 3-V-UA25-35234 | 932053970000 | A351 CF8                 | 46         | M185x2     | 175 | 164 | 175 | 164 | 152 | 26 | 162 | 13 | 2.5 | 1.68        | 6"-300 CL   |
| 02      | 3-V-UA26-35234 | 932054010000 | SH, CERTIFY              |            | M235x2     | 227 | 215 | 227 | 215 | 203 | 31 | 213 | 13 | 2.5 | 2.19        | 8"-300 CL   |
| 03      | 3-V-Z129-35234 | 932054260000 | A351 CF3M<br>SH, CERTIFY |            | M130x2     | 120 | 114 | 120 | 114 | 102 | 22 | 112 | 8  | 3   | 0.72        | 4"-150 CL   |
| 04      | 3-V-Z123-35234 | 932054300000 |                          |            | M175x2     | 171 | 164 | 171 | 164 | 152 | 26 | 162 | 13 | 3   | 1.20        | 6"-150 CL   |
| 05      | 3-V-Z124-35234 | 932054350000 |                          |            | M230x2     | 222 | 215 | 222 | 215 | 203 | 31 | 213 | 13 | 3   | 1.78        | 8"-150 CL   |
| 06      | 3-V-Z125-35234 | 932054410000 |                          |            | M130x2     | 122 | 114 | 122 | 114 | 102 | 22 | 112 | 8  | 2.5 | 0.70        | 4"-300 CL   |
| 07      | 3-V-Z126-35234 | 932054470000 |                          |            | M185x2     | 175 | 164 | 175 | 164 | 152 | 26 | 162 | 13 | 2.5 | 1.68        | 6"-300 CL   |
| 08      | 3-V-Z122-35234 | 932057530000 |                          |            | M100x2     | 94  | 88  | 94  | 88  | 76  | 19 | 86  | 8  | 2.5 | 0.50        | 3"-150 CL   |
| # 09    | 3-V-UB29-35234 | 932063560000 |                          |            | M130x2     | 120 | 114 | 120 | 114 | 102 | 22 | 112 | 8  | 3   | 0.72        | 4"-150 CL   |

DETAIL-A  
BEFORE MACHINING



NOTES:

- UNSPECIFIED SHARP CORNERS TO BE CHAMFERED TO 0.5X45°
- HARDNESS 35 HRC MINIMUM
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED

| NO OFF | DESCRIPTION | MATL CODE | MATL SPECN | HEAT TREATMENT | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No. | ITEM No |
|--------|-------------|-----------|------------|----------------|------------|-------------|---------------|-------------|---------|
|        |             |           |            |                |            |             |               | COMP. CODE  |         |

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

|  |      |                |      |          |            |
|--|------|----------------|------|----------|------------|
| <br>BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014.<br>365-191<br>02.03.2021 | DRN  | R.P.SINGH      | SIGN | DATE     | NO.OF VAR. |
|  | CHD  | SAMEER BHAT    |      | 23.09.19 | —          |
|  | APPD | S.SATHEESKUMAR |      | 23.09.19 |            |

|       |                 |       |              |                        |              |
|-------|-----------------|-------|--------------|------------------------|--------------|
| DEPT  | VL              | SCALE | WEIGHT (KG). | REFERENCE INFORMATIONS | NO. OF ITEMS |
| CODE  | 320             | NTS   | REFER TABLE  |                        | —            |
| TITLE | SEAT RING ASSY. |       | CARD CODE    | DRAWING NO.            | REV          |
|       |                 |       | U 01         | 3-V-0000-35234         | 02           |

|         |                       |              |         |                      |              |
|---------|-----------------------|--------------|---------|----------------------|--------------|
| DCP No. | ALTD: RPS             | APPD: SSK    | DCP No. | ALTD: RPS            | APPD: SSK    |
| -       | CHD: MK               | DT: 16.11.22 | -       | CHD: SAB             | DT: 15.05.20 |
| REV     | SL. NO. 09 INCLUDED.  |              | REV     | SL. NO. 08 INCLUDED. |              |
| 02      | NOTES No. 3 INCLUDED. |              | 01      |                      |              |
| ZONE    |                       |              | ZONE    |                      |              |
| -       |                       |              | -       |                      |              |

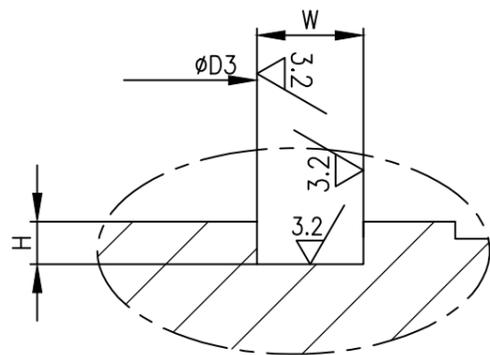
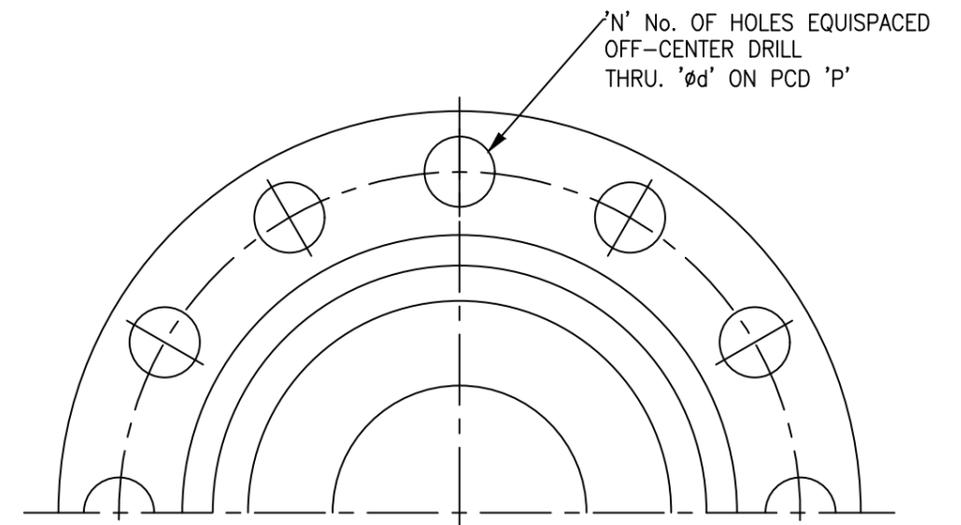
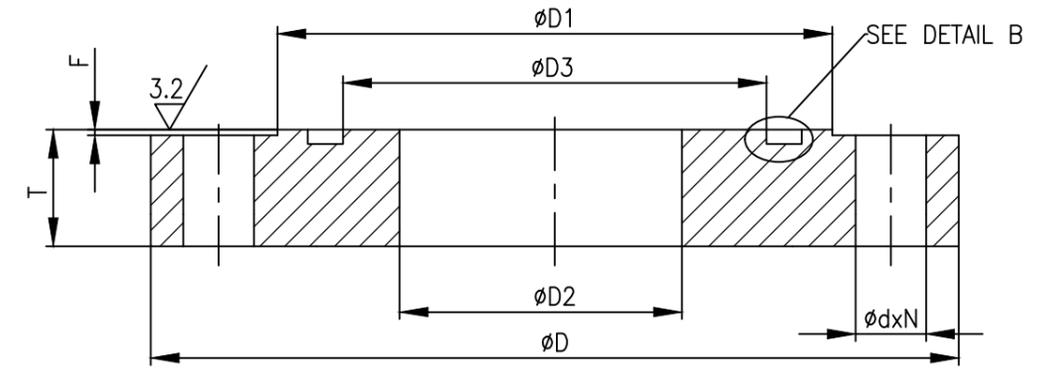
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19333-0000-A-3

DRAWING NO.

12.5 / 3.2

| SL.No. | DRAWING No.      | COMPONENT CODE | MATL SPEC                    | DIMENSIONS |     |       |     |     |      |        |    |                                   |                                   | WEIGHT in kg                      | *SIZE-RATING |           |
|--------|------------------|----------------|------------------------------|------------|-----|-------|-----|-----|------|--------|----|-----------------------------------|-----------------------------------|-----------------------------------|--------------|-----------|
|        |                  |                |                              | ØD         | ØD1 | ØD2   | ØD3 | F   | T    | P(PCD) | N  | Ød                                | W                                 |                                   |              | H         |
| 01     | 3-V-U957-35361/1 | 932059450000   | CARBON STEEL<br>NR, ATTEST   | 406        | 324 | 275   | 289 | 1.6 | 30   | 361.9  | 12 | 25.4 <sup>+0.3</sup> <sub>0</sub> | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 14.2         | 10"-C150  |
| 02     | 3-V-U958-35361/1 | 932059470000   |                              | 483        | 381 | 326   | 343 | 1.6 | 32   | 431.8  | 12 | 25.4 <sup>+0.3</sup> <sub>0</sub> | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 22.8         | 12"-C150  |
| 03     | 3-V-UA77-35361   | 932059440000   |                              | 381        | 270 | 222   | 234 | 1.5 | 42.5 | 330.0  | 12 | 28                                | 12.5 <sup>+0.3</sup> <sub>0</sub> | 7.5 <sup>+0.05</sup>              | 21.8         | 8"-C300   |
| 04     | 3-V-UA78-35361   | 932059460000   |                              | 445        | 324 | 275   | 285 | 1.5 | 48.0 | 387.0  | 16 | 28                                | 15.0 <sup>+0.3</sup> <sub>0</sub> | 8.9 <sup>+0.05</sup>              | 31.6         | 10"-C300  |
| 05     | 3-V-UA79-35361/1 | 932059370000   |                              | 152        | 92  | 62    | 70  | 1.5 | 17.5 | 121.0  | 4  | 19                                | 7.5 <sup>+0.1</sup> <sub>0</sub>  | 4.45 <sup>+0.1</sup> <sub>0</sub> | 1.8          | 2"-C150   |
| 06     | 3-V-UA80-35361   | 932059380000   |                              | 191        | 127 | 91    | 101 | 1.6 | 24   | 152.4  | 4  | 19                                | 7.5 <sup>+0.3</sup> <sub>0</sub>  | 4.5 <sup>+0.05</sup>              | 3.5          | 3"-C150   |
| 07     | 3-V-UA81-35361   | 932059430000   |                              | 343        | 270 | 221   | 235 | 1.6 | 29   | 298.4  | 8  | 24                                | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 10.8         | 8"-C150   |
| 08     | 3-V-UA82-35361   | 932059390000   |                              | 210        | 127 | 92    | 102 | 1.5 | 30.5 | 168.0  | 8  | 24                                | 7.5 <sup>+0.3</sup> <sub>0</sub>  | 4.5 <sup>+0.05</sup>              | 6.0          | 3"-C300   |
| 09     | 3-V-UA83-35361   | 932059420000   |                              | 279        | 186 | 142   | 152 | 1.5 | 36.5 | 235.0  | 8  | 24                                | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 12.5         | 5"-C300   |
| 10     | 3-V-F933-35361   | 932059480000   |                              | 508        | 324 | 275   | 285 | 1.5 | 70   | 432.0  | 16 | 35                                | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 68           | 10"-C600  |
| 11     | 3-V-UA87-35361   | 932059550000   |                              | 178        | 105 | 75    | 83  | 1.6 | 22   | 139.7  | 4  | 19                                | 7.5 <sup>+0.3</sup> <sub>0</sub>  | 4.5 <sup>+0.05</sup>              | 2.8          | 2.5"-C150 |
| 12     | 3-V-U959-35361   | 932059800000   |                              | 535        | 413 | 359   | 375 | 1.5 | 33.5 | 476.2  | 12 | 28                                | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 29.3         | 14"-C150  |
| 13     | 3-V-U969-35361   | 932060130000   |                              | 318        | 216 | 170   | 183 | 1.6 | 37   | 270.0  | 12 | 22                                | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 16.0         | 6"-C300   |
| 14     | 3-V-UB28-35361   | 932063500000   | SA351 CF8,<br>SH,ATTEST      | 406        | 324 | 275   | 289 | 1.6 | 30   | 361.9  | 12 | 25.4                              | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 14.2         | 10"-C150  |
| 15     | 3-V-UC05-35361   | 932068430000   | CARBON<br>STEEL<br>NR,ATTEST | 597        | 470 | 410.5 | 428 | 1.6 | 36.7 | 539.8  | 16 | 28.6                              | 10 <sup>+0.3</sup> <sub>0</sub>   | 6 <sup>+0.05</sup>                | 37.7         | 16"-C150  |



DETAIL-B

NOTES:

1. SHARP CORNERS TO BE ROUNDED OFF.

|         |                      |              |         |   |              |
|---------|----------------------|--------------|---------|---|--------------|
| DCP No. | ALTD: TS             | APPD: MK     | DCP No. | ALTD: RPS                                 | APPD: SSK    |
| -       | CHD: RPS             | DT: 02.08.25 | -       | CHD: MK                                   | DT: 21.10.22 |
| REV     | SL. No. 15 INCLUDED. |              | REV     | IN SL. No. 01 & 02 DIMENSION 25.4 WAS 28. |              |
| 04      |                      |              | 03      |   |              |
| ZONE    |                      |              | ZONE    | IN SL. No. 05 DIMENSION 7.5 WAS 7.0.      |              |
| -       |                      |              | -       | SL. No. 14 INCLUDED.                      |              |

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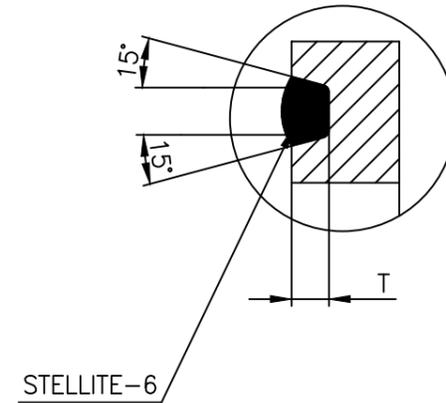
|   |             |           |              |                       |                |             |                |              |         |
|---|-------------|-----------|--------------|-----------------------|----------------|-------------|----------------|--------------|---------|
| -   | -           | -         | -            | -                     | -              | -           | -              | -            | -       |
| NO OFF  | DESCRIPTION | MATL CODE | MATL SPECN   | HEAT TREATMENT        | SCRAP SORT     | NET WT (kg) | GROSS WT (kg)  | DRAWING No.  | ITEM No |
|   |             |           |              |                       |                |             |                | COMP. CODE   |         |
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |             |           |              |                       |                |             |                |              |         |
| BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |             |           |              | DRN                   | R.P.SINGH      | SIGN        | DATE           | NO.OF VAR.   |         |
| 365-191<br>02.03.2021   |             |           |              | CHD                   | SAMEER BHAT    |             | 06.01.21       |              |         |
|   |             |           |              | APPD                  | S.SATHEESKUMAR |             | 06.01.21       |              |         |
| DEPT  | VL          | SCALE     | WEIGHT (KG). | REFERENCE INFORMATION |                |             |                | NO. OF ITEMS |         |
| CODE  | 320         | NTS       | -            |                       |                |             |                |              |         |
| TITLE   |             |           |              |                       |                | CARD CODE   | DRAWING NO.    | REV          |         |
| GROOVED COMPANION FLANGE (SLIP ON WELDING)  |             |           |              |                       |                | U 01        | 3-V-0000-35361 | 04           |         |

08296-0000-V-3  
DRAWING NO.

12.5 / 3.2 / 0.8 / 0.4 / ✓

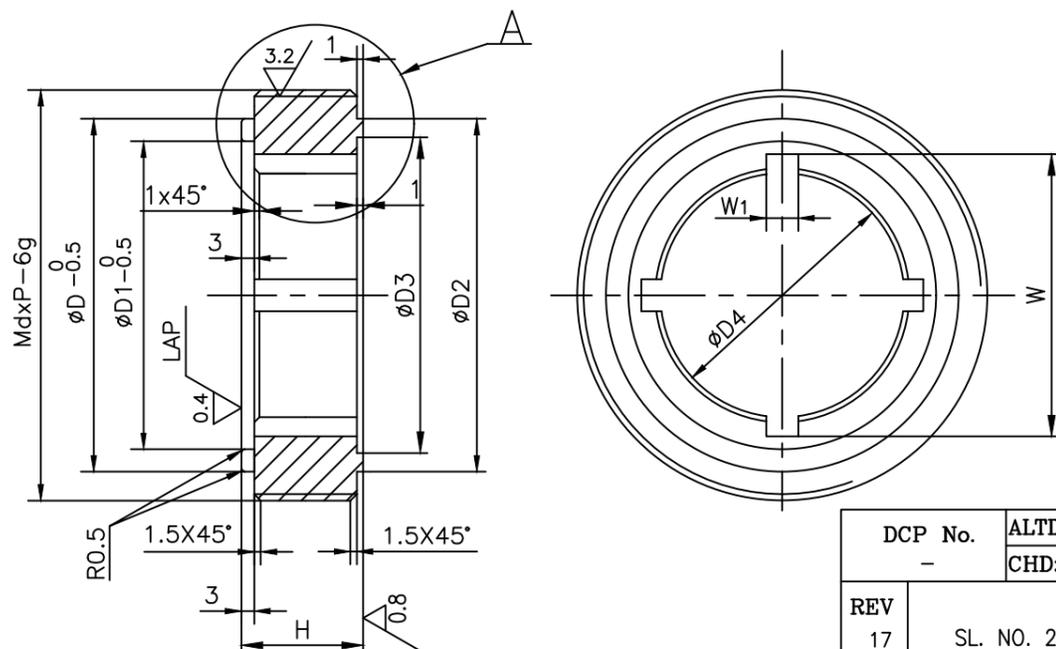
| SL. No. | DRAWING No.       | COMP. CODE   | MATL. SPECN.             | SCRAP SORT | DIMENSIONS |        |     |     |     |     |     |     |     |     | NET WT.(kg) | SIZE/RATING     |
|---------|-------------------|--------------|--------------------------|------------|------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-------------|-----------------|
|         |                   |              |                          |            | MdxP-6g    | ∅D     | ∅D1 | ∅D2 | ∅D3 | ∅D4 | H   | W   | W1  | T   |             |                 |
| 01      | 3-V-5154-95280    | 931055490000 | SA 515 Gr.70             | 10         | M230x2     | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13  | 2.5 | 1.78        | 8"-150 CL       |
| 02      | 3-V-5153-95280    | 931065750000 | NR, CERTIFY              |            | M80x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.24        | 2"-300 CL       |
| 03      | 3-V-5151-95280    | 931065760000 | SA 105 NR, CERTIFY       |            | M185x2     | 175    | 164 | 175 | 164 | 152 | 26  | 162 | 13  | 2.5 | 1.68        | 6"-300 CL       |
| 04      | 3-V-5152-95280    | 931067520000 | SA 515 Gr.70 NR, CERTIFY |            | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8   | 2.5 | 0.38        | 3"-300 CL       |
| 05      | 3-V-5144-95280    | 931068220000 |                          |            | M130x2     | 122    | 114 | 122 | 114 | 102 | 22  | 112 | 8   | 2.5 | 0.70        | 4"-300 CL       |
| 06      | 3-V-5179-95280    | 931069400000 |                          |            | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |
| 07      | 3-V-5176-95280    | 931069410000 |                          |            | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 2.5 | 1.20        | 6"-150 CL       |
| 08      | 3-V-5177-95280    | 931069420000 |                          |            | M130x2     | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8   | 2.5 | 0.72        | 4"-150 CL       |
| 09      | 3-V-5174-95280/01 | 931069430000 |                          |            | M235x2     | 227    | 215 | 227 | 215 | 203 | 31  | 213 | 13  | 2.5 | 2.19        | 8"-300 CL       |
| 10      | 3-V-Z024-95280    | 931095540000 | SA182 F316 SH, CERTIFY   |            | 46         | M100x2 | 94  | 88  | 94  | 88  | 76  | 19  | 86  | 8   | 2.5         | 0.38            |
| 11      | 3-V-U086-95280    | 931101090000 | A351 CF8 SH, CERTIFY     | M130x2     |            | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8   | 3   | 0.72        | 4"-150 CL FV    |
| 12      | 3-V-U087-95280    | 931101100000 |                          | M175x2     |            | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 3   | 1.20        | 6"-150 CL FV    |
| 13      | 3-V-U088-95280    | 931101110000 | A351 CF8M SH, CERTIFY    | M230x2     |            | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13  | 3   | 1.78        | 8"-150 CL FV    |
| 14      | 3-V-U250-95280    | 931302670000 |                          | M175x2     |            | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 3   | 1.20        | 6"-150 CL FV    |
| 15      | 3-V-U309-95280    | 931305810000 |                          | M130x2     |            | 120    | 114 | 120 | 114 | 102 | 22  | 112 | 8   | 3   | 0.72        | 4"-150 CL FV    |
| 16      | 3-V-U323-95280    | 931307410000 |                          | M185x2     |            | 175    | 164 | 175 | 164 | 152 | 26  | 162 | 13  | 2.5 | 1.68        | 6"-300 CL       |
| 17      | 3-V-U324-95280    | 931307430000 |                          | M130x2     |            | 122    | 114 | 122 | 114 | 102 | 22  | 112 | 8   | 2.5 | 0.70        | 4"-300 CL       |
| 18      | 3-V-U444-95280/01 | 932017470000 |                          | M235x2     |            | 227    | 215 | 227 | 215 | 203 | 31  | 213 | 13  | 2.5 | 2.19        | 8"-300 CL       |
| 19      | 3-V-Z078-95280    | 932029950000 | SA 387 Gr.22 NT, CERTIFY | 20         |            | M185x2 | 175 | 164 | 175 | 164 | 152 | 26  | 162 | 13  | 2.5         | 1.68            |
| 20      | 3-V-U385-95280    | 932015240000 | A351 CF8M SH, CERTIFY    | 46         | M230x2     | 222    | 215 | 222 | 215 | 203 | 31  | 213 | 13  | 3   | 1.78        | 8"-150 CL FV    |
| 21      | 3-V-Z099-95280    | 932039360000 | SA 387 Gr.22 NT, CERTIFY | 20         | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |
| #22     | 3-V-UA76-95280    | 932058460000 | A351 CF8 SH, CERTIFY     | 46         | M175x2     | 171    | 164 | 171 | 164 | 152 | 26  | 162 | 13  | 3   | 1.20        | 6"-150 CL FV    |
| #23     | 3-V-UB16-95280    | 932062680000 | A351 CF3M SH, CERTIFY    | 46         | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |
| #24     | 3-V-UB17-95280    | 932062690000 | A351 CF3M SH, CERTIFY    | 46         | M100x2     | 94     | 88  | 94  | 88  | 76  | 19  | 86  | 8   | 2.5 | 0.38        | 3"-150 & 300 CL |
| 25      | 3-V-UB33-95280    | 932063910000 | A182 F316 SH, CERTIFY    | 46         | M76x2      | 70     | 64  | 70  | 64  | 52  | 19  | 62  | 8   | 2.5 | 0.20        | 2"-150 CL       |

DETAIL-A  
BEFORE MACHINING



NOTES:

- UNSPECIFIED SHARP CORNERS TO BE CHAMFERED TO 0.5X45°
- HARDNESS 35 HRC MINIMUM
- # MARKED ITEMS IGC TEST SHALL BE CONDUCTED.



|         |                      |              |
|---------|----------------------|--------------|
| DCP No. | ALTD: RPS            | APPD: SSK    |
| -       | CHD: MK              | DT: 02.02.23 |
| REV 17  | SL. NO. 25 INCLUDED. |              |
| ZONE -  |                      |              |

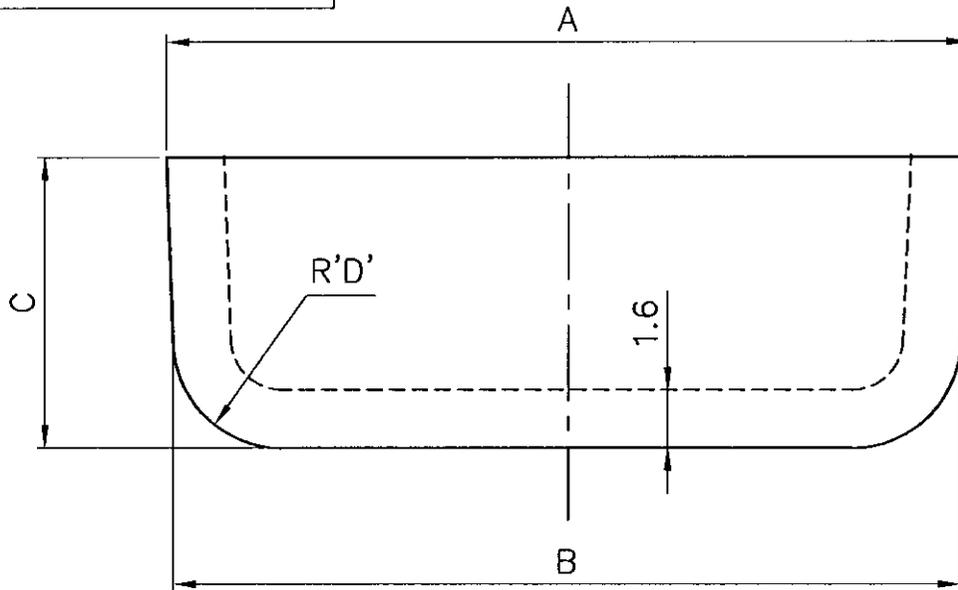
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| NO OFF | DESCRIPTION   | MATL CODE | MATL SPECN   | HEAT TREATMENT        | SCRAP SORT | NET WT (kg) | GROSS WT (kg) | DRAWING No.    | ITEM No     |      |          |            |
|--------|---|-----------|--------------|-----------------------|------------|-------------|---------------|----------------|-------------|------|----------|------------|
|        | TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT   |           |              |                       |            |             |               |                |             |      |          |            |
|        | BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI-620014. |           |              |                       |            |             |               | DRN            | R.P.SINGH   | SIGN | DATE     | NO.OF VAR. |
|        |   |           |              |                       |            |             |               | CHD            | SAMEER BHAT |      | 06.10.20 | —          |
|        |   |           |              |                       |            |             |               | APPD           | SSK         |      | 06.10.20 | —          |
| DEPT   | VL  | SCALE     | WEIGHT (KG). | REFERENCE INFORMATION |            |             |               | NO. OF ITEMS   |             |      |          |            |
| CODE   | 320   | NTS       | REFER TABLE  |                       |            |             |               | —              |             |      |          |            |
| TITLE  | SEAT RING ASSY.   |           |              |                       |            |             | CARD CODE     | DRAWING NO.    | REV         |      |          |            |
|        |   |           |              |                       |            |             | U 01          | 3-V-0000-95280 | 17          |      |          |            |

ALL DIMENSIONS ARE IN MILLIMETRES.

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP/QP

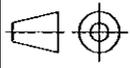
|                           |          |            |
|---------------------------|----------|------------|
| REV                       | DATE     | ALTERED    |
| 02                        | 11.06.01 | CHD & APPD |
| DRG.UPDATAED AND REDRAWN. |          |            |
| DCN:SB:1298               |          |            |



| WT   | PARTCODE     | STYLE | DIMENSION<br>ØA | DIMENSION<br>ØB | DIMENSION<br>C | DIMENSION<br>D |
|------|--------------|-------|-----------------|-----------------|----------------|----------------|
| 0.01 | 842020115100 | 01    | 22.2            | 21.5            | 8              | 6              |
| 0.01 | 842020115200 | 02    | 19.2            | 18.5            | 5              | 3              |

NOTES:-

1. FOR QUALITY REQUIREMENTS REFER APPLICABLE LATEST QUALITY PROCEDURE.

|   |                |  |              |                       |            |                       |               |            |              |           |
|---|----------------|--|--------------|-----------------------|------------|-----------------------|---------------|------------|--------------|-----------|
| 01  | SH. 1.6 X Ø 30 | 150110760000   | IS513GrD     |                       |            |                       |               |            | 01           |           |
| NO OFF  | DESCRIPTION    | MATL CODE  | MATL SPECN   | HEAT TREATMENT        | SCRAP SORT | NET WT (kg)           | GROSS WT (kg) | DRAWING No | ITEM No      |           |
|  <b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |                |  |              |                       | DRN        | NAME                  |               | SIGN       | DATE         | NO.OF VAR |
|   |                |  |              |                       | CHD        | V.ARUMUGAM            |               |            |              |           |
|   |                |  |              |                       | APPD       | K.SRIDHARAN           |               |            |              |           |
|   |                |  |              |                       |            | S.NATARAJAN           |               |            |              |           |
| DEPT SB   |                |  SCALE<br>NTS | WEIGHT (KG). | REFERENCE INFORMATION |            |                       |               |            | NO. OF ITEMS |           |
| CODE 330  |                |  |              |                       |            |                       |               |            |              |           |
| TITLE   |                |  |              |                       | CARD CODE  | DRAWING NO.           |               |            | REV          |           |
| <b>CUPPED PLUG</b>  |                |  |              |                       | U 01       | <b>4-20-201-00192</b> |               |            | <b>02</b>    |           |

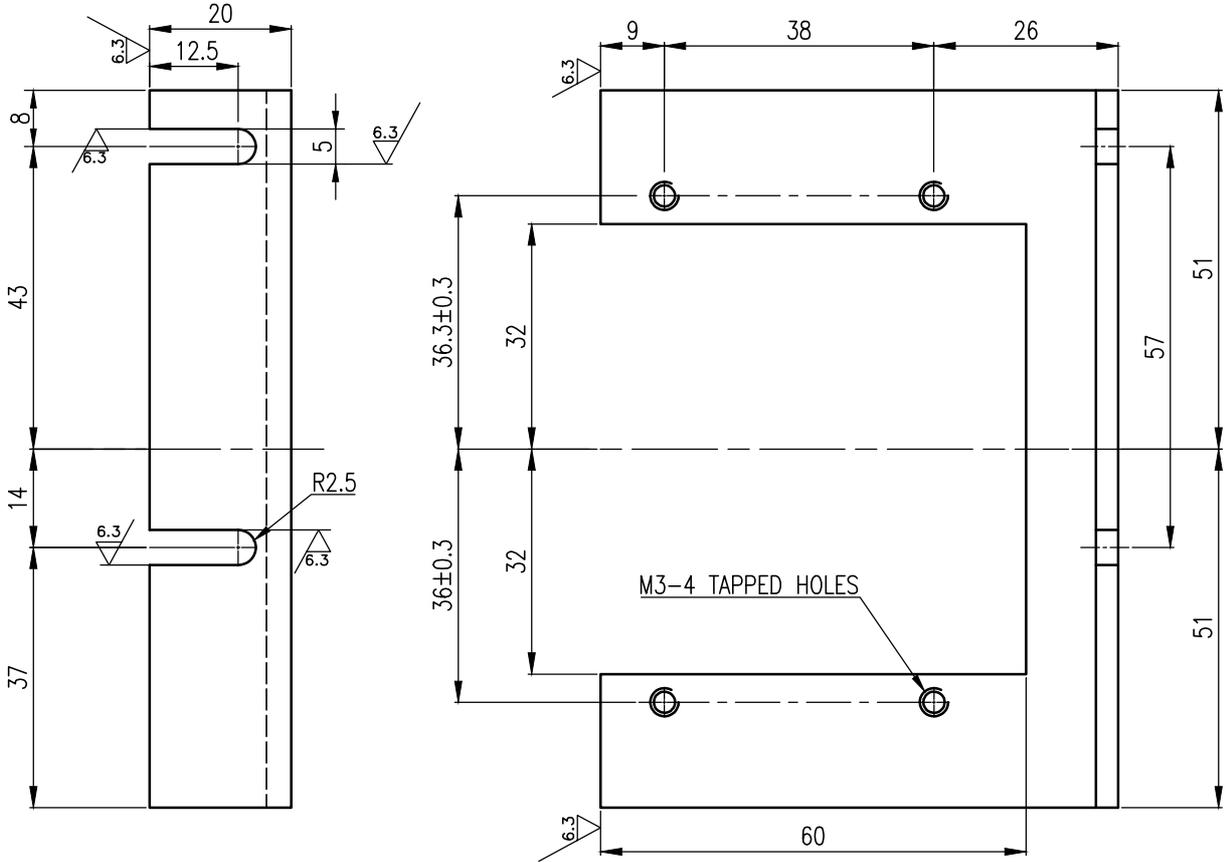
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FOR TOLERANCES OF UNTOLERANCED DIMENSIONS

ALL DIMENSIONS ARE IN MILLIMETRES.  
DURING MANUFACTURE REFER RELEVANT QCP/QP

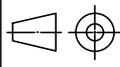
| REV | DATE | ALTERED    |
|-----|------|------------|
|     |      | CHD & APPD |

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- NOTE:-**
1. TO BE CADMIUM PLATED FROM 0.007-0.012MM
  2. ALL DIMNS. ARE FINAL DIMNS. AFTER PLATING
  3. SURFACES SHOULD BE PERFECTLY STRAIGHT WITH NEAT FINISH.
  4. FOR QUALITY REQUIREMENTS REFER APPLICABLE LATEST QUALITY PROCEDURE.

PART CODE : 842020118401

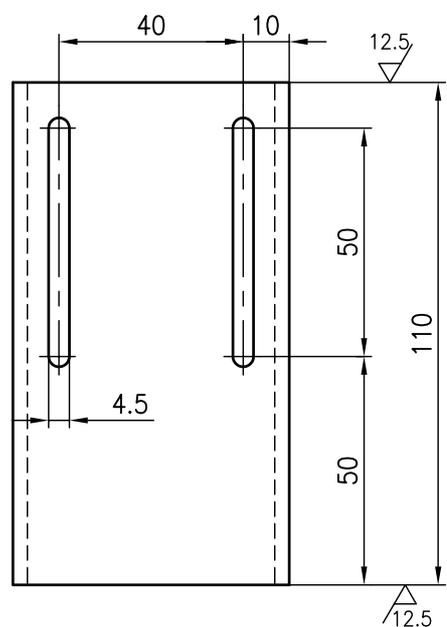
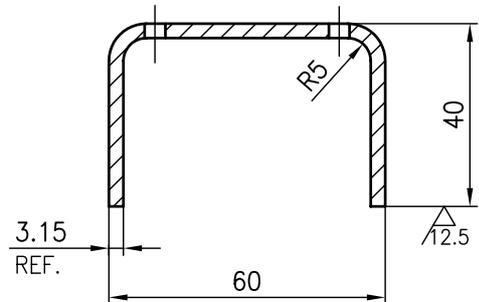
| 01                              | SHEET 3.15  | 150111820000  | IS1079D      |                |                       | 0.130          |               |            |              |  |
|---------------------------------|---|---|--------------|----------------|-----------------------|----------------|---------------|------------|--------------|--|
| NO OFF                          | DESCRIPTION   | MATL CODE   | MATL SPECN   | HEAT TREATMENT | SCRAP SORT            | NET WT (kg)    | GROSS WT (kg) | DRAWING No | ITEM No      |  |
|                                 | <br><b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |   |              |                |                       |                |               |            |              |  |
|                                 |   | DRN   | V.D.L.JOSEPH | SIGN           | V.D.L.J               | DATE           | 09.06.25      | NO.OF VAR  |              |  |
|                                 |   | CHD   | J.SANKAR     | SIGN           | J.S                   | DATE           | 09.06.25      |            |              |  |
|                                 |   | APPD  | R.RAKESH     | SIGN           | R.R                   | DATE           | 09.06.25      |            |              |  |
| DEPT                            | SB  |  | SCALE        | WEIGHT (KG).   | REFERENCE INFORMATION |                |               |            | NO. OF ITEMS |  |
| CODE                            | 330   |   | NTS          | 0.130          |                       |                |               |            |              |  |
| TITLE                           |   |   |              |                | CARD CODE             | DRAWING NO.    |               |            | REV          |  |
| SWITCH MOUNT BRACKET (MODIFIED) |   |   |              |                | U 01                  | 4-20-201-04041 |               |            | 00           |  |

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS

ALL DIMENSIONS ARE IN MILLIMETRES.  
DURING MANUFACTURE REFER RELEVANT QCP/QP

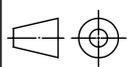
|            |                          |                           |
|------------|--------------------------|---------------------------|
| REV<br>01  | DATE<br>03.09.07         | ALTERED<br>M.SRINIVASAN   |
|            |                          | CHD & APPD P. BOOMINATHAN |
| DCP:800727 | SLOT DIMENSION 50 WAS 20 |                           |

✓ / ✓ 12.5



**NOTE**

01. BREAK ALL SHARP CORNERS.

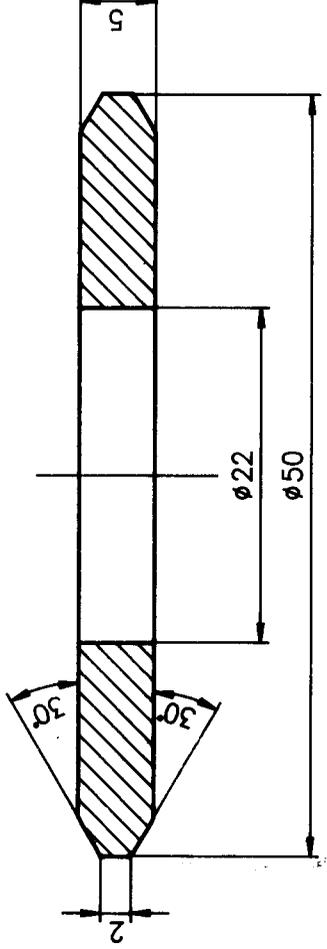
|   |                                   |   |                          |                      |  |                   |                     |            |                 |
|---|-----------------------------------|---|--------------------------|----------------------|--|-------------------|---------------------|------------|-----------------|
| 01  | SUGG. MIN.SIZE<br>PL 3.15-150X120 | -   | IS1079 FE<br>330 CERTIFY | NORMALISED           | 10   | 0.37              | 0.45                | -          | 413             |
| NO<br>OFF   | DESCRIPTION                       | MATL CODE   | MATL SPECN               | HEAT<br>TREATMENT    | SCRAP<br>SORT  | NET<br>WT<br>(kg) | GROSS<br>WT<br>(kg) | DRAWING No | ITEM<br>No      |
|  BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |                                   |   |                          | DRN                  | NAME   |                   | SIGN                | DATE       | NO.OF<br>VAR    |
|   |                                   |   |                          | CHD                  | A.S.PANDY  |                   |                     | 03.09.07   |                 |
|   |                                   |   |                          | APPD                 | M.SRINIVASAN   |                   |                     | 03.09.07   |                 |
|   |                                   |   |                          |                      | P. BOOMINATHAN   |                   |                     | 03.09.07   |                 |
| DEPT<br>VL  | -                                 |  | SCALE<br>NTS             | WEIGHT (KG).<br>0.37 | REFERENCE INFORMATIONS<br>COMP. CODE: 93 103 466 0000<br>CAD C490443 |                   |                     |            | NO. OF<br>ITEMS |
| CODE<br>320   |                                   |   |                          |                      |  |                   |                     |            |                 |
| TITLE<br>SWITCH BRACKET   |                                   |   |                          | CARD<br>CODE<br>U 01 | DRAWING NO.<br>4-V-K325-90443  |                   |                     |            | REV<br>01       |

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ALL DIMENSIONS ARE IN MILLIMETRES

|     |      |         |
|-----|------|---------|
| REV | DATE | ALTERED |
|     |      | CHECKED |

12.5 / 



**TOLERANCE FOR UNTOLERANCED DIMENSIONS**

UPTO 6 MM = ± 0.1 MM  
 > 6 UPTO 120 MM = ± 0.2 MM  
 MORE THAN 120 MM = ± 0.5 MM  
 ANGULAR TOLERANCE = ± 0.5 Deg.  
 CHAMFER = ± 5 Deg.



COMP. CODE: 931051020000

|  |                     |           |             |                       |            |                |   |            |            |
|--|---------------------|-----------|-------------|-----------------------|------------|----------------|---|------------|------------|
| 01   | ø60X8               | 15339380  | SA 105      | NR                    | 10         | 0.062          | 0.18  |            |            |
| NO OFF   | DESCRIPTION         | MATL CODE | MATL SPECN  | HEAT TREATMENT        | SCRAP SORT | NET WT (KG)    | GROSS WT (KG)   | DRAWING NO | ITEM NO    |
|  |                     |           |             |                       | DRN        | NAME           | SIGN  | DATE       | NO. OF VAR |
|  |                     |           |             |                       | CHD        | V. BAIRAVAN    |  | 20.7.94    |            |
|  |                     |           |             |                       | APPD       | R.L. NARAYANAN |  | 22/7/94    |            |
|  |                     |           |             |                       |            | M. RAJAKUMAR   |  | 26/9/04    |            |
| <b>BHARAT HEAVY ELECTRICALS LTD.,</b><br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014. |                     |           |             |                       |            |                |   |            |            |
| DEPT VL  | GRADE OF UNTOL. DIM | SCALE     | WEIGHT (KG) | REFERENCE INFORMATION |            |                |   |            |            |
| CODE 320   | ø / M / Y           | NTS       | 0.062       | CAD NO: C406801       |            |                |   |            |            |
| TITLE  |                     |           |             | DRAWING NO.           |            |                |   |            |            |
| INDICATOR RING   |                     |           |             | 4-V-N224-06801        |            |                |   |            |            |
| (20°/150CL)  |                     |           |             | REV 0                 |            |                |   |            |            |



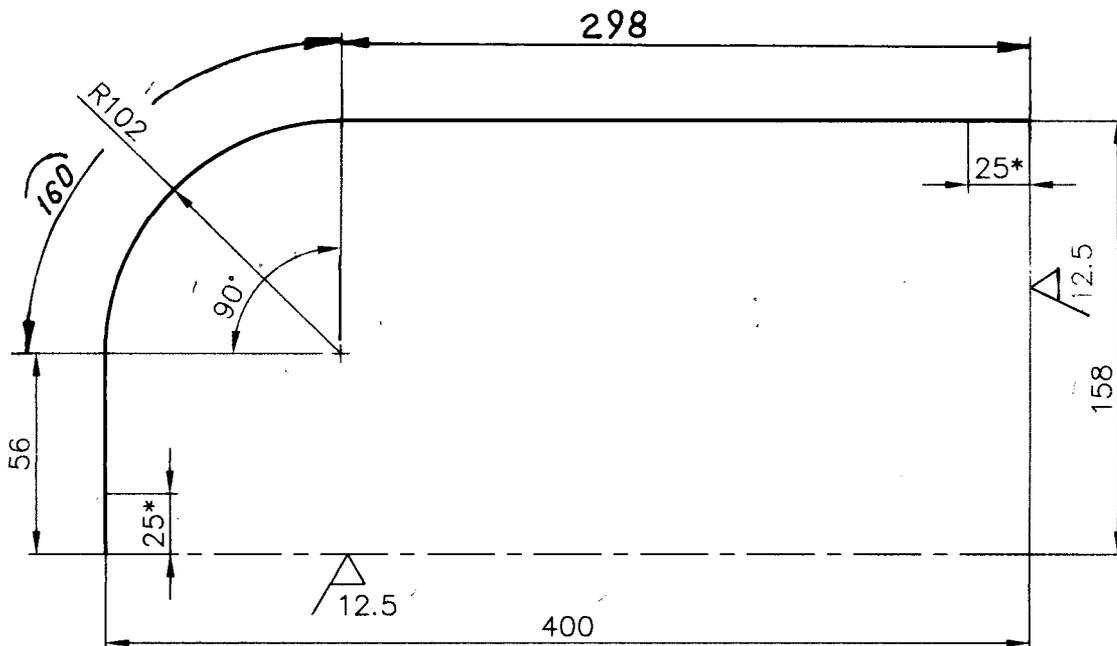
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CORPORATE DRG ID  
 TP-DG-4-V-N224-06801

Size A4

| REV | DATE | ALTERED    |
|-----|------|------------|
|     |      | CHD & APPD |

✓ 12.5



\*CLEAN THIS SURFACE UPTO THE LENGTH FOR WELDING.



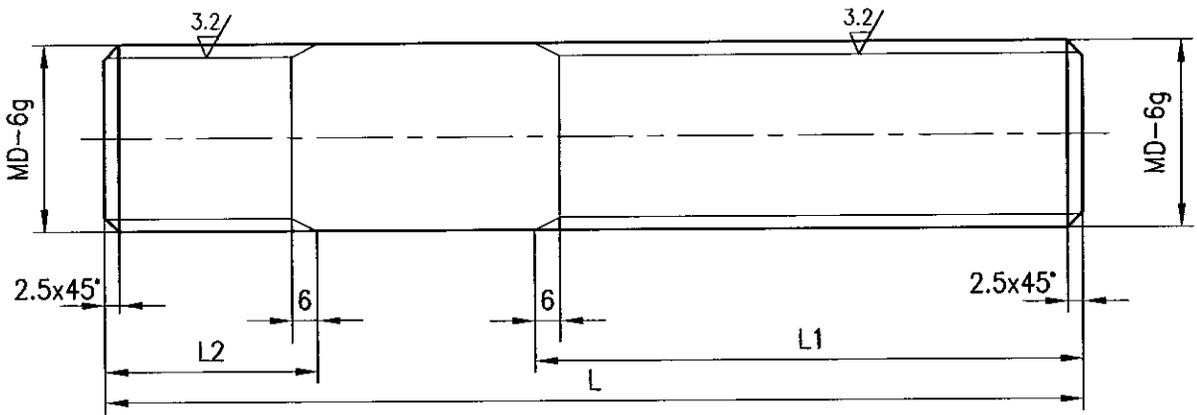
COMP. CODE: 93 108 564 0000

|             | PIPE-1" SCH 80,<br>ø33.4x4.55-530  | 15082011  | SA106 Gr.B,<br>ATTEST |                        | 10                | 1.66        | 1.7           |              |         |
|-------------|--|-----------|-----------------------|------------------------|-------------------|-------------|---------------|--------------|---------|
| NO OFF      | DESCRIPTION  | MATL CODE | MATL SPECN            | HEAT TREATMENT         | SCRAP SORT        | NET WT (kg) | GROSS WT (kg) | DRAWING No   | ITEM No |
|             | BHARAT HEAVY ELECTRICALS LTD.,<br>UNIT: HIGH PRESSURE BOILER PLANT.<br>TIRUCHIRAPALLI 620014.<br>365-122 |           |                       |                        |                   |             |               |              |         |
|             |  | DRN       | NAME                  | SIGN                   | DATE              | NO. OF VAR  |               |              |         |
|             |  | CHD       | R.L.NARAYANAN         | <i>[Signature]</i>     | 21.03.98          |             |               |              |         |
|             |  | APPD      | M.RAJKUMAR            | <i>[Signature]</i>     | 22/3/98           |             |               |              |         |
| DEPT VL     |  | SCALE     | WEIGHT (KG).          | REFERENCE INFORMATIONS |                   |             |               | NO. OF ITEMS |         |
| CODE 320    |  | N.T.S.    |                       |                        |                   |             |               |              |         |
| TITLE       |  |           |                       | CARD CODE              | DRAWING NO.       |             |               |              | REV     |
| BYPASS TUBE |  |           |                       | U 01                   | 4-V-N624-26111 00 |             |               |              |         |

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| REV                | DATE     | ALTERED V.B      |
|--------------------|----------|------------------|
| 4                  | 15.03.04 | CHD & APPD M.R.K |
| SL.No.08 INCLUDED. |          |                  |

12.5 / 3.2



REDRAWN WITH REV.4 ON 15.03.04

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|         |                |                |                   |            |            |              |            |     |    |       |  |  |
|---------|----------------|----------------|-------------------|------------|------------|--------------|------------|-----|----|-------|--|--|
| 08      | 931301830000   | 153391390000   | SA105, NR CERTIFY | 10         | 1.10       | 1.70         | 440        | 120 | 20 | M20   |  |  |
|         | 4-V-NA06-06800 | ø25x450        |                   |            | 0.80       | 1.20         | 300        | 120 | 20 | M20   |  |  |
| 07      | 931097630000   | 153391390000   |                   |            | 0.40       | 1.0          | 250        | 50  | 16 | M16   |  |  |
|         | 4-V-N846-06800 | ø25x310        |                   |            | 0.50       | 0.85         | 210        | 100 | 20 | M20   |  |  |
| 06      | 931191430000   | 153391390000   |                   |            | 0.35       | 0.60         | 140        | 80  | 20 | M20   |  |  |
|         | 4-V-W084-06800 | ø25x260        |                   |            | 0.70       | 1.10         | 270        | 120 | 20 | M20   |  |  |
| 05      | 931086530000   | 153391390000   |                   |            | 0.94       | 1.50         | 380        | 100 | 20 | M20   |  |  |
|         | 4-V-N722-06800 | ø25x220        |                   |            | 0.42       | 0.72         | 170        | 100 | 20 | M20   |  |  |
| 04      | 931055020000   | 153391390000   |                   |            |            |              |            |     |    |       |  |  |
|         | 4-V-K591-06800 | ø25x150        |                   |            |            |              |            |     |    |       |  |  |
| 03      | 931054810000   | 153391390000   |                   |            |            |              |            |     |    |       |  |  |
|         | 4-V-N231-06800 | ø25x280        |                   |            |            |              |            |     |    |       |  |  |
| 02      | 931054750000   | 153391390000   |                   |            |            |              |            |     |    |       |  |  |
|         | 4-V-C434-06800 | ø25x390        |                   |            |            |              |            |     |    |       |  |  |
| 01      | 931051010000   | 153391390000   |                   |            |            |              |            |     |    |       |  |  |
|         | 4-V-N224-06800 | ø25x180        |                   |            |            |              |            |     |    |       |  |  |
| SL. No. | COMP. CODE     | MATL. CODE     | MATL SPECN.       | SCRAP SORT | NET WT(Kg) | GROSS WT(Kg) | L          | L1  | L2 | MD-6g |  |  |
|         | DRAWING No.    | SUGGESTED SIZE |                   |            |            |              | DIMENSIONS |     |    |       |  |  |



**BHARAT HEAVY ELECTRICALS LTD.,**  
 UNIT: HIGH PRESSURE BOILER PLANT.  
 TIRUCHIRAPALLI 620014.

|      |               |      |          |            |
|------|---------------|------|----------|------------|
| DRN  | NAME          | SIGN | DATE     | NO. OF VAR |
| CHD  | V.BAIRAVAN    |      | 15.03.04 |            |
| APPD | R.L.NARAYANAN |      | 15.03.04 |            |
|      | M.RAJAKUMAR   |      | 15.03.04 |            |

|                |           |                |                       |              |
|----------------|-----------|----------------|-----------------------|--------------|
| DEPT VL        | SCALE     | WEIGHT (KG).   | REFERENCE INFORMATION | NO. OF ITEMS |
| CODE 320       | N T S     |                | CAD REF. C406800      |              |
| TITLE          | CARD CODE | DRAWING NO.    | REV                   |              |
| INDICATOR STUD | U 01      | 4-V-0000-06800 | 4                     |              |