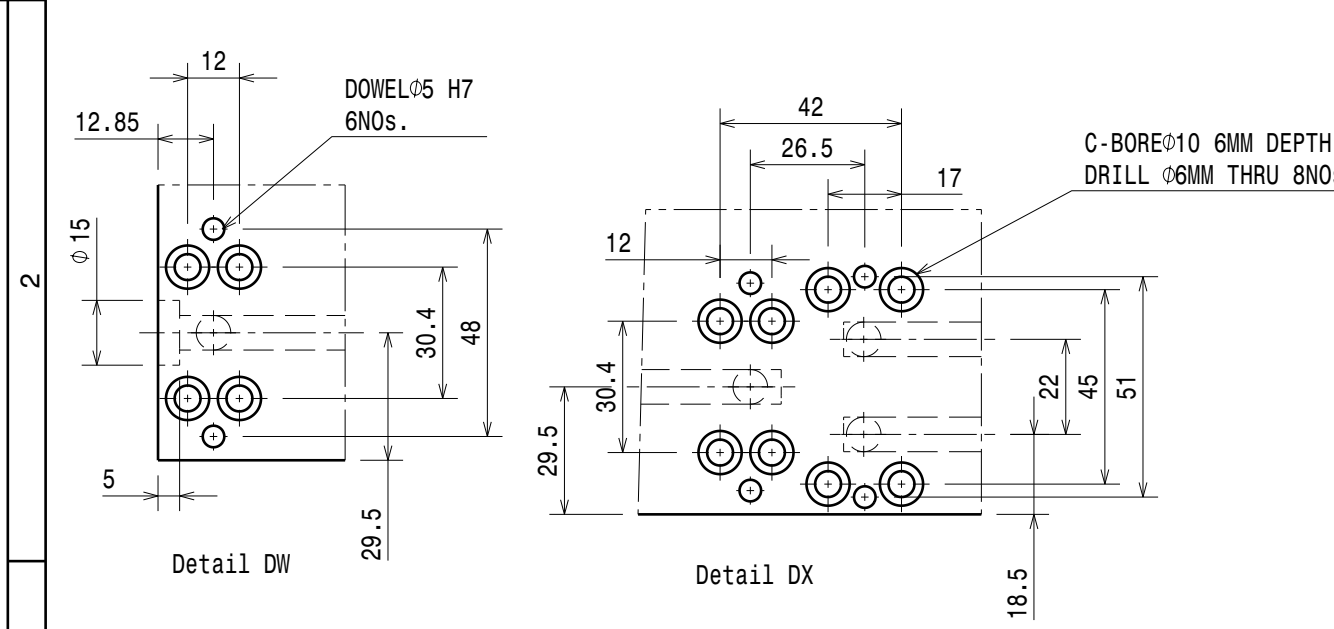
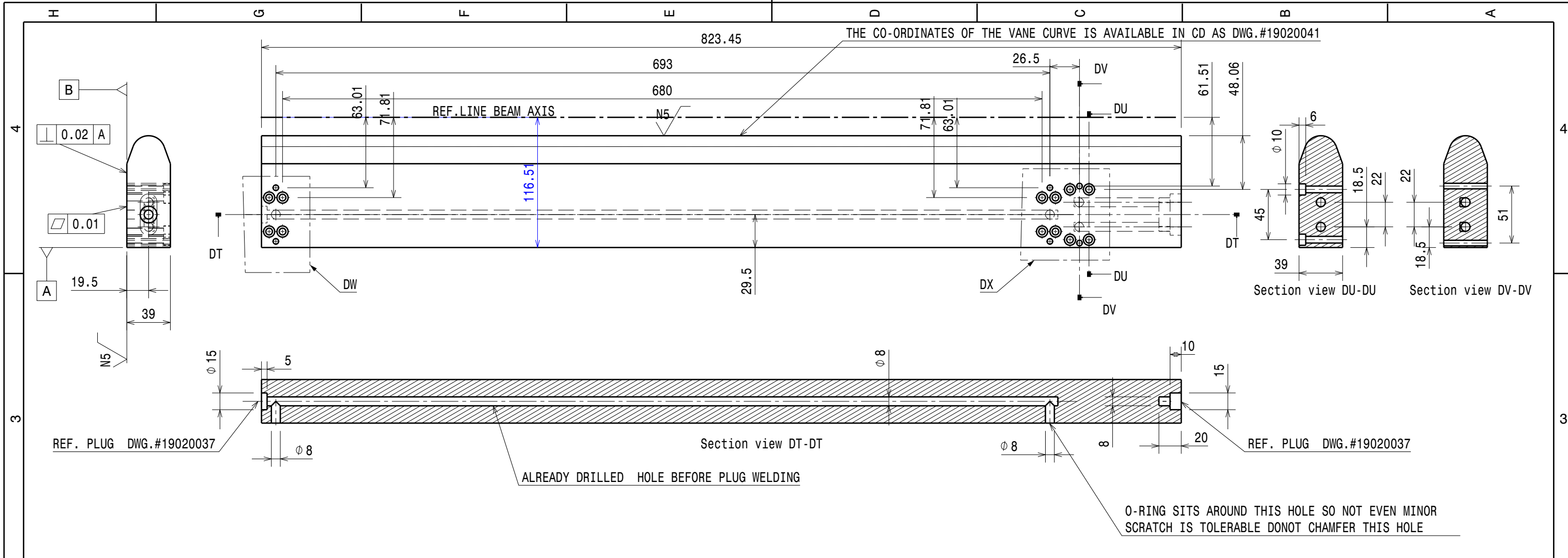



This file has been cleaned of potential threats.

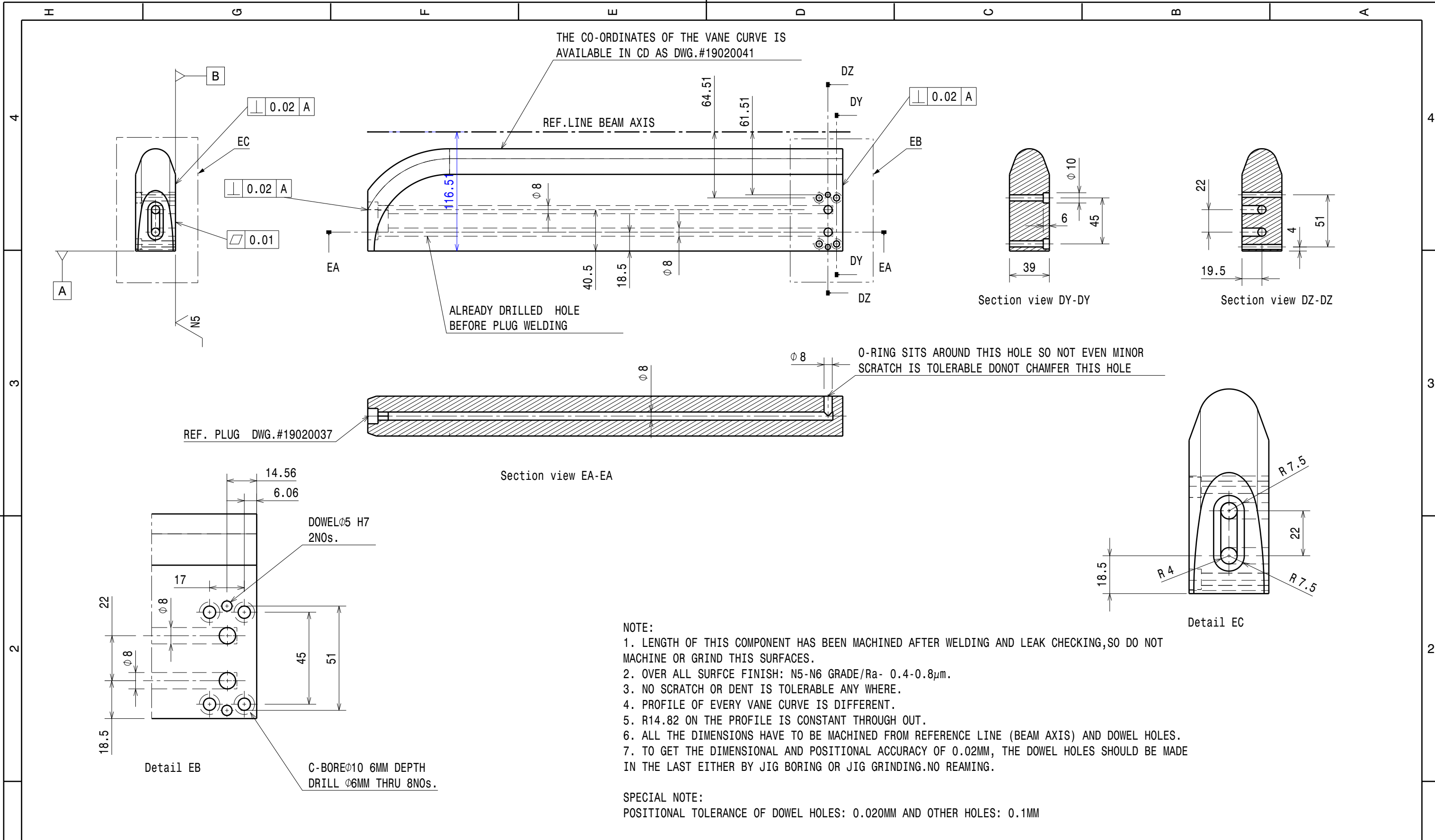
To view the reconstructed contents, please SCROLL DOWN to next page.




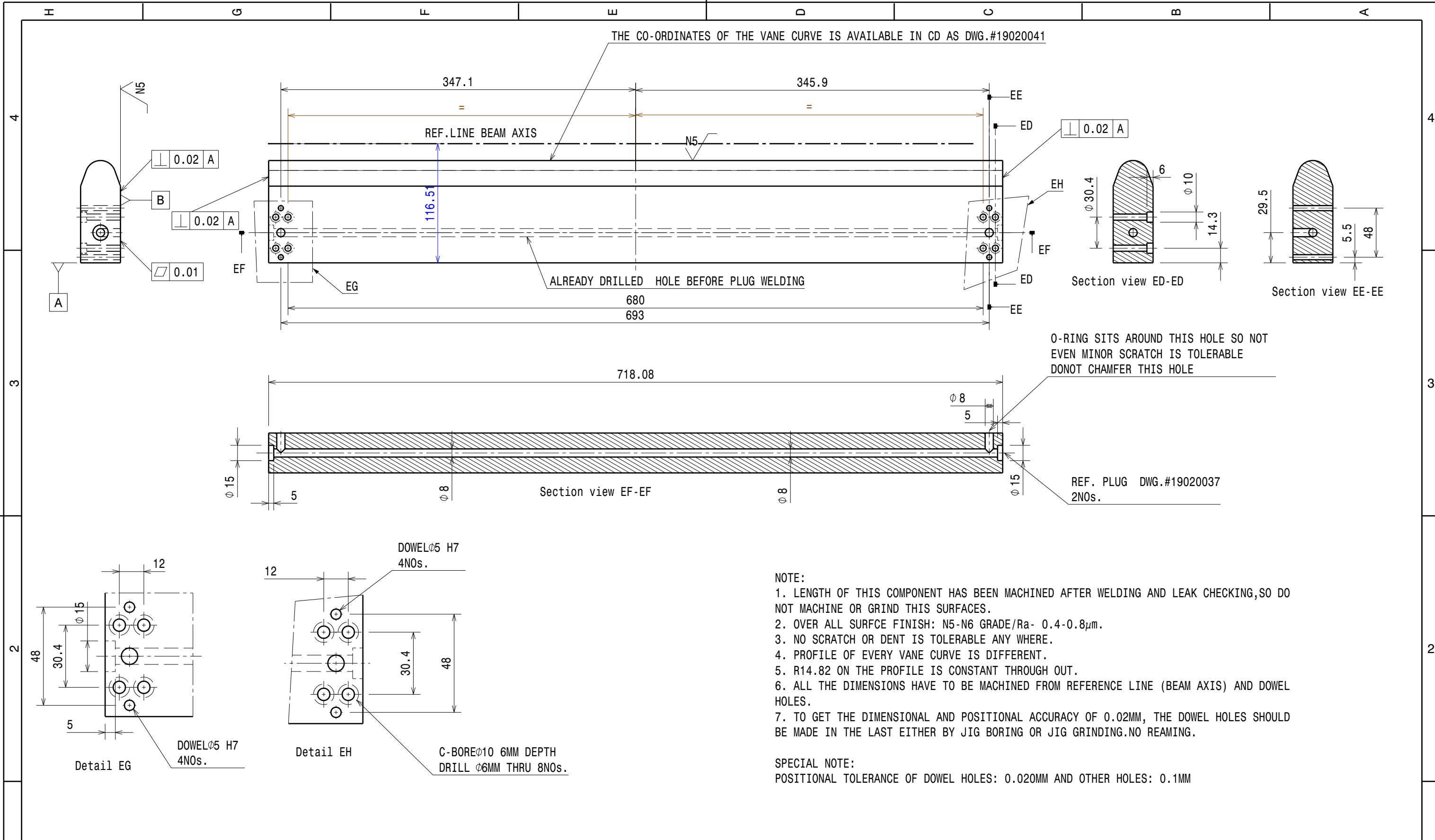
- NOTE:**
1. LENGTH OF THIS COMPONENT HAS BEEN MACHINED AFTER WELDING AND LEAK CHECKING, SO DO NOT MACHINE OR GRIND THIS SURFACES.
  2. OVER ALL SURFACE FINISH: N5-N6 GRADE/Ra- 0.4-0.8 $\mu$ m.
  3. NO SCRATCH OR DENT IS TOLERABLE ANY WHERE.
  4. PROFILE OF EVERY VANE CURVE IS DIFFERENT.
  5. R14.82 ON THE PROFILE IS CONSTANT THROUGH OUT.
  6. ALL THE DIMENSIONS HAVE TO BE MACHINED FROM REFERENCE LINE (BEAM AXIS) AND DOWEL HOLES.
  7. TO GET THE DIMENSIONAL AND POSITIONAL ACCURACY OF 0.02MM, THE DOWEL HOLES SHOULD BE MADE IN THE LAST EITHER BY JIG BORING OR JIG GRINDING. NO REAMING.

**SPECIAL NOTE:**  
 POSITIONAL TOLERANCE OF DOWEL HOLES: 0.020MM AND OTHER HOLES: 0.1MM

|  |         |          |               |               |                 |      |             |         |            |          |  |   |        |              |                        |       |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|------------|----------|--|---|--------|--------------|------------------------|-------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         | RFQ GROUP: |          |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |   |        |              |                        |       |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS    | APPROVED |  | ALL DIMENSIONS ARE IN 'mm'<br>UNLESS OTHERWISE STATED |        |              |                        |       |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |            |          | SCALE  | 1:1   | DATE   | TITLE        |                        |       |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |            |          |  | DRAWN   | K.R.R. | 05.01.18     | V ROD LOWER SEGMENT -6 |       |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               |                 |      |             |         |            |          |  | CHECKED   | PKC    |              | REF DRG NO:            |       |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               | +0.1            | +0.2 | +0.3        | +0.5    |            |          | APPROVED   | JMK   |        | DRG.NO       | IPR/17/A3/RFQ/19020029 | REV 0 |
|  |         |          |               |               |                 |      |             |         |            |          |  |   |        | SHEET 1 OF 1 |                        |       |


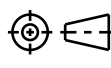


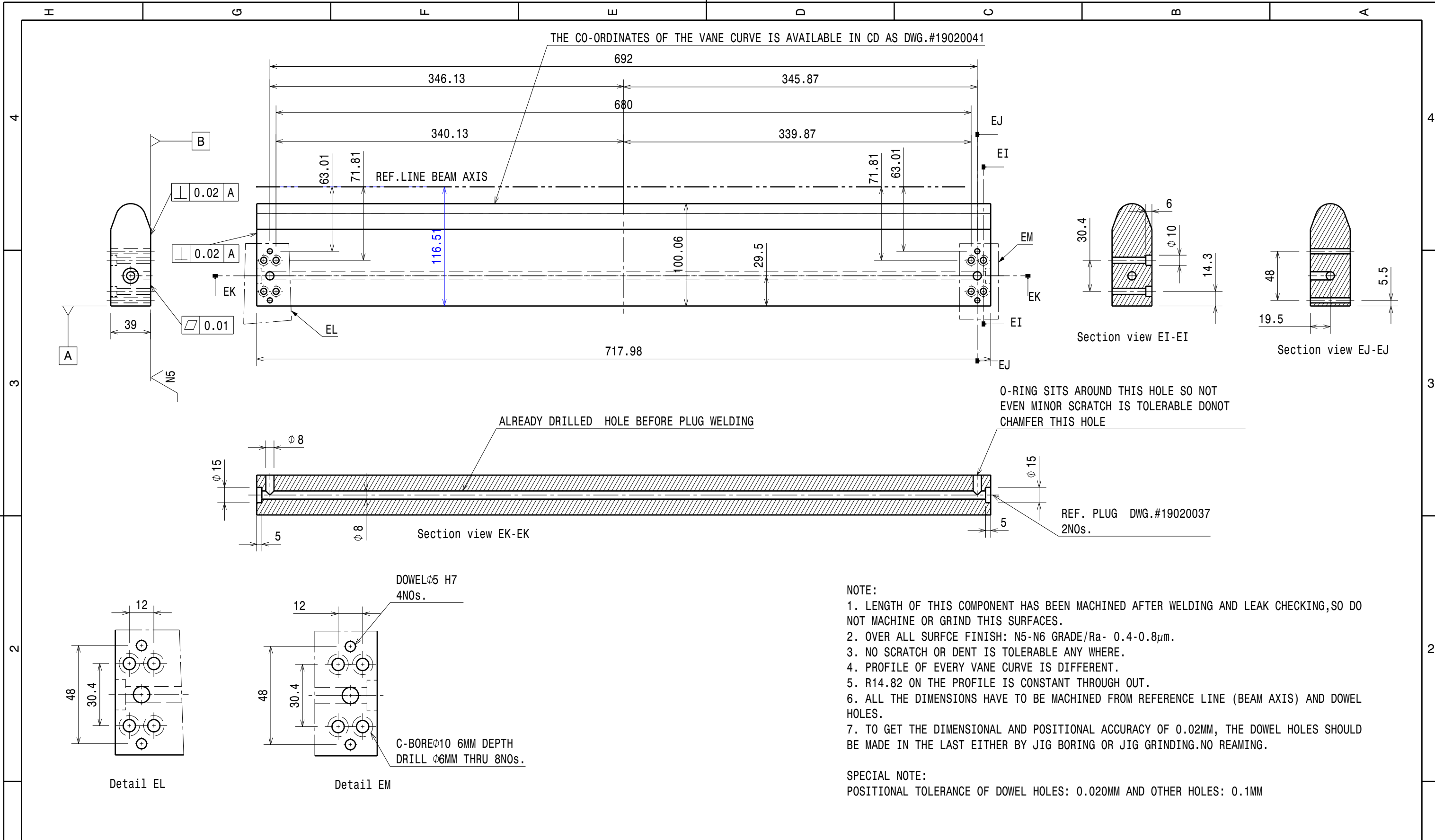
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| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |        |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |                         |                        |              |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |        |  |                         |                        |              |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1    | DATE   | TITLE                   |                        |              |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            | DRAWN  | K.R.R. | 05.01.18   | V ROD UPPER SEGMENT - 1 |                        |              |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               |                 |      |             |         |         |            | CHECKED  | PKC    |  | REF DRG NO:             | REV 0                  |              |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               | +0.1            | +0.2 | +0.3        | +0.5    |         |            | APPROVED   | JMK    |  | DRG.NO                  | IPR/17/A3/RFQ/19020030 | SHEET 1 OF 1 |




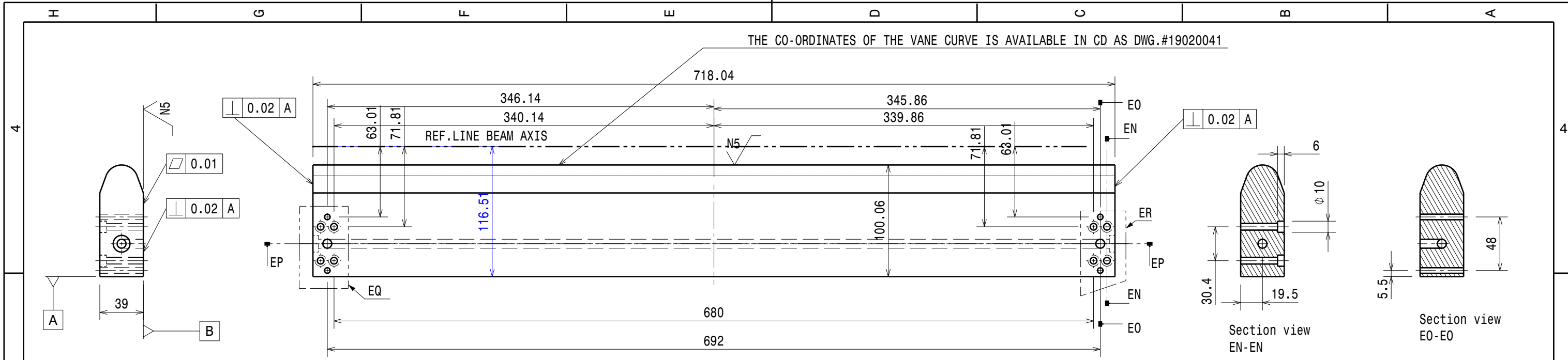
- NOTE:
1. LENGTH OF THIS COMPONENT HAS BEEN MACHINED AFTER WELDING AND LEAK CHECKING,SO DO NOT MACHINE OR GRIND THIS SURFACES.
  2. OVER ALL SURFCE FINISH: N5-N6 GRADE/Ra- 0.4-0.8 $\mu$ m.
  3. NO SCRATCH OR DENT IS TOLERABLE ANY WHERE.
  4. PROFILE OF EVERY VANE CURVE IS DIFFERENT.
  5. R14.82 ON THE PROFILE IS CONSTANT THROUGH OUT.
  6. ALL THE DIMENSIONS HAVE TO BE MACHINED FROM REFERENCE LINE (BEAM AXIS) AND DOWEL HOLES.
  7. TO GET THE DIMENSIONAL AND POSITIONAL ACCURACY OF 0.02MM, THE DOWEL HOLES SHOULD BE MADE IN THE LAST EITHER BY JIG BORING OR JIG GRINDING.NO REAMING.

SPECIAL NOTE:  
POSITIONAL TOLERANCE OF DOWEL HOLES: 0.020MM AND OTHER HOLES: 0.1MM

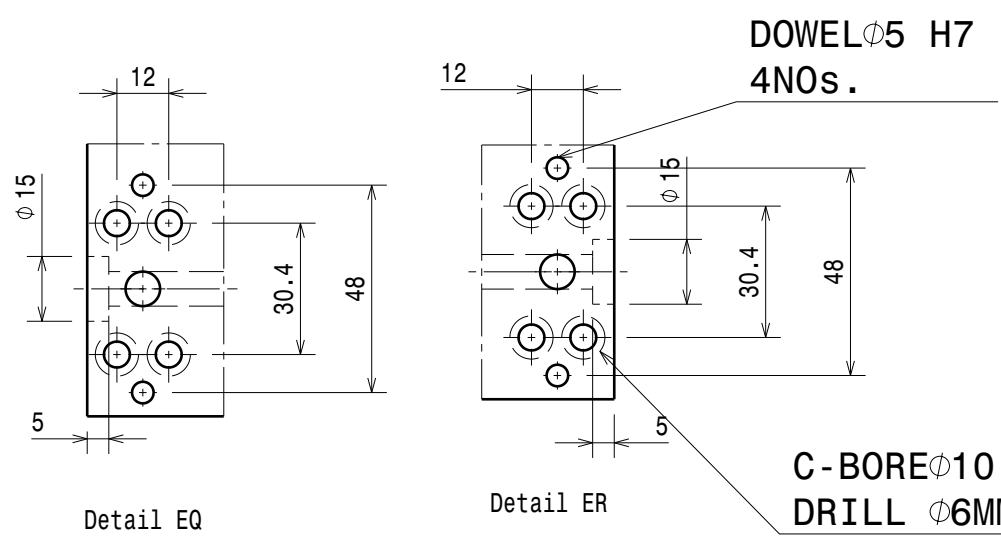
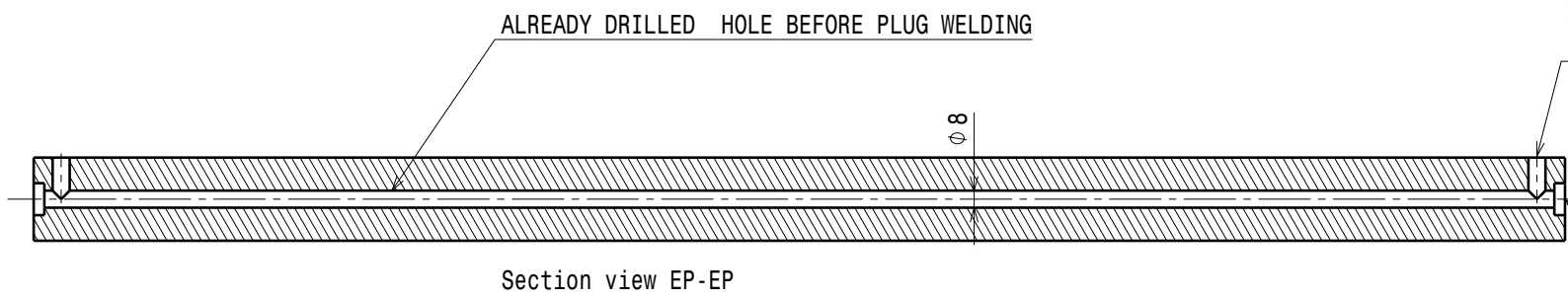
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|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|------------|----------|--|--|--------------|---|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         | RFQ GROUP: |          |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |  |              |   |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS    | APPROVED |  | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |              |   |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |            |          | SCALE  | 1:1  | DATE         | TITLE   |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |            |          | DRAWN  | K.R.R.   | 05.01.18     |  <b>V ROD UPPER SEGMENT -2</b> |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               |                 |      |             |         |            |          | CHECKED  | PKC  |              |   |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               | +0.1            | +0.2 | +0.3        | +0.5    |            |          | APPROVED   | JMK  |              | REV 0   |
|  |         |          |               |               |                 |      |             |         |            | DRG.NO   | IPR/17/A3/RFQ/19020031   |  | SHEET 1 OF 1 |   |



|  |         |          |               |               |                 |      |             |         |         |            |  |  |                        |              |                        |       |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|------------|--|--|------------------------|--------------|------------------------|-------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |                        |              |                        |       |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |  |                        |              |                        |       |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1  | DATE                   | TITLE        |                        |       |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            |  | DRAWN  | K.R.R.                 | 05.01.18     | V ROD UPPER SEGMENT-3  |       |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               |                 |      |             |         |         |            |  | CHECKED  | PKC                    |              | REF DRG NO:            |       |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               | +0.1            | +0.2 | +0.3        | +0.5    |         |            | APPROVED   | JMK  |                        | DRG.NO       | IPR/17/A3/RFQ/19020032 | REV 0 |
|  |         |          |               |               |                 |      |             |         |         |            |  | DRG.NO   | IPR/17/A3/RFQ/19020032 | SHEET 1 OF 1 |                        |       |




THE CO-ORDINATES OF THE VANE CURVE IS AVAILABLE IN CD AS DWG.#19020041



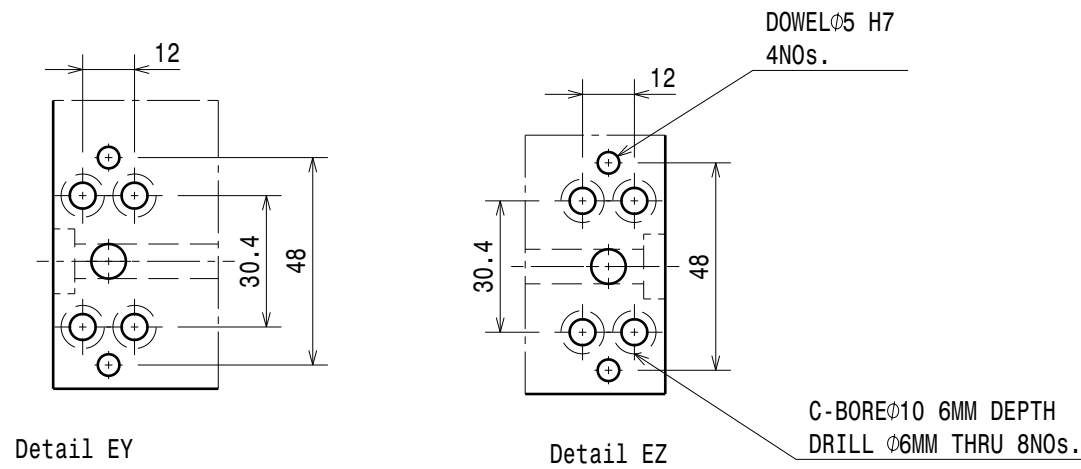
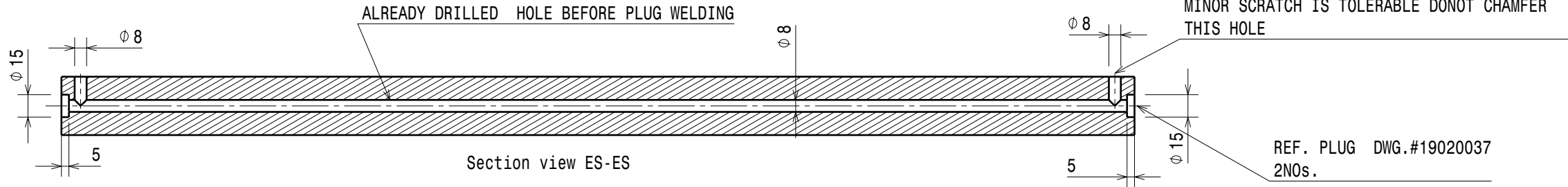
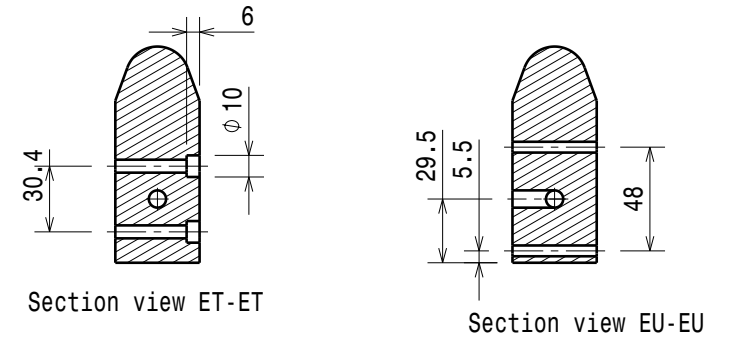
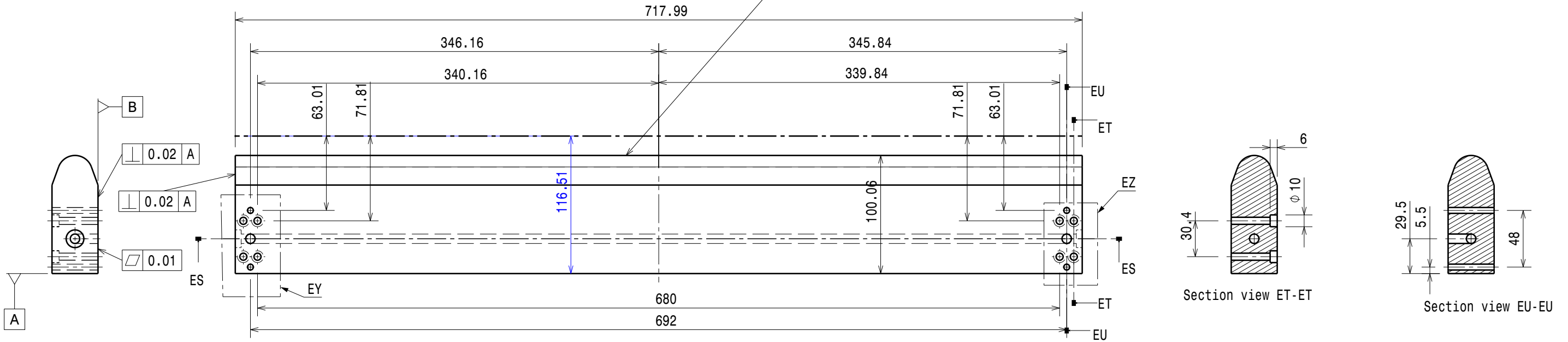
- NOTE:
1. LENGTH OF THIS COMPONENT HAS BEEN MACHINED AFTER WELDING AND LEAK CHECKING, SO DO NOT MACHINE OR GRIND THIS SURFACES.
  2. OVER ALL SURFACE FINISH: N5-N6 GRADE/Ra- 0.4-0.8μm.
  3. NO SCRATCH OR DENT IS TOLERABLE ANY WHERE.
  4. PROFILE OF EVERY VANE CURVE IS DIFFERENT.
  5. R14.82 ON THE PROFILE IS CONSTANT THROUGH OUT.
  6. ALL THE DIMENSIONS HAVE TO BE MACHINED FROM REFERENCE LINE (BEAM AXIS) AND DOWEL HOLES.
  7. TO GET THE DIMENSIONAL AND POSITIONAL ACCURACY OF 0.02MM, THE DOWEL HOLES SHOULD BE MADE IN THE LAST EITHER BY JIG BORING OR JIG GRINDING.NO REAMING.

SPECIAL NOTE:  
POSITIONAL TOLERANCE OF DOWEL HOLES: 0.020MM AND OTHER HOLES: 0.1MM

|  |         |          |               |               |                 |      |             |         |         |            |  |  |          |                         |                        |              |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|------------|--|--|----------|-------------------------|------------------------|--------------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |          |                         |                        |              |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |  |          |                         |                        |              |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1  | DATE     | TITLE                   |                        |              |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            | DRAWN  | K.R.R.   | 05.01.18 | V ROD UPPER SEGMENT - 4 |                        |              |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            | CHECKED  | PKC  |          | REF DRG NO:             | REV 0                  |              |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               | +0.1            | +0.2 | +0.3        | +0.5    |         |            | APPROVED   | JMK  |          | DRG.NO                  | IPR/17/A3/RFQ/19020033 | SHEET 1 OF 1 |




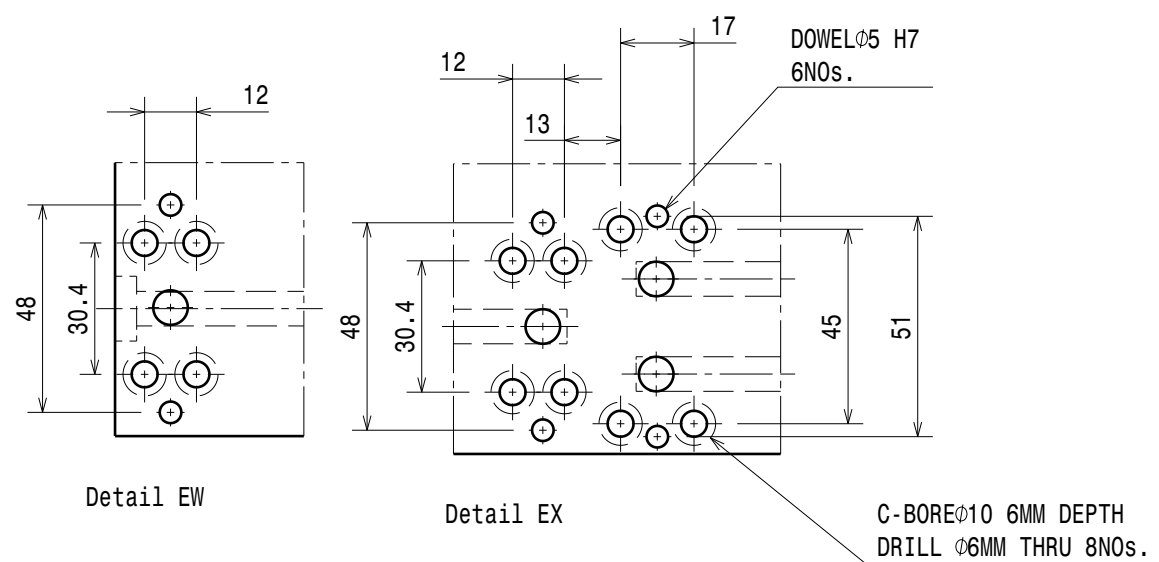
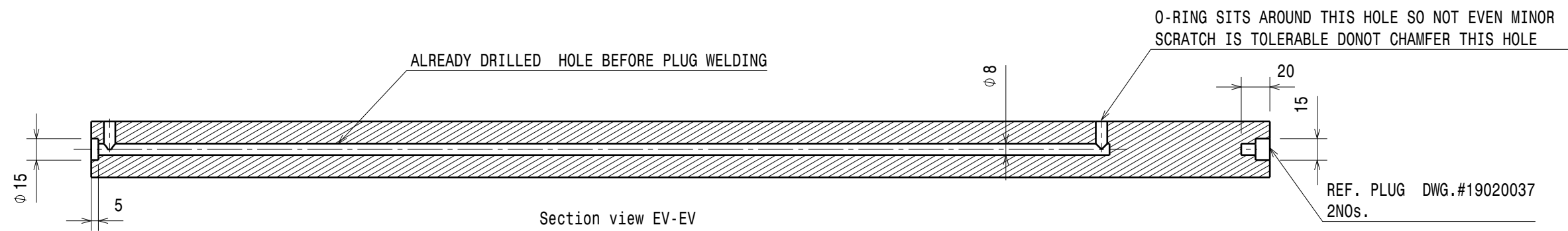
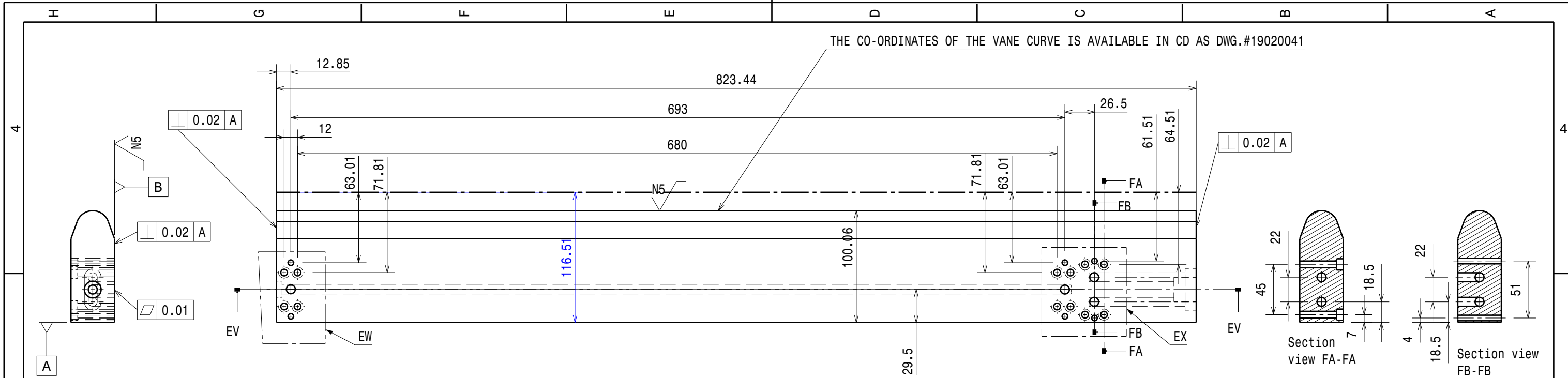
THE CO-ORDINATES OF THE VANE CURVE IS AVAILABLE IN CD AS DWG.#19020041



- NOTE:
1. LENGTH OF THIS COMPONENT HAS BEEN MACHINED AFTER WELDING AND LEAK CHECKING, SO DO NOT MACHINE OR GRIND THIS SURFACES.
  2. OVER ALL SURFACE FINISH: N5-N6 GRADE/Ra- 0.4-0.8 $\mu$ m.
  3. NO SCRATCH OR DENT IS TOLERABLE ANY WHERE.
  4. PROFILE OF EVERY VANE CURVE IS DIFFERENT.
  5. R14.82 ON THE PROFILE IS CONSTANT THROUGH OUT.
  6. ALL THE DIMENSIONS HAVE TO BE MACHINED FROM REFERENCE LINE (BEAM AXIS) AND DOWEL HOLES.
  7. TO GET THE DIMENSIONAL AND POSITIONAL ACCURACY OF 0.02MM, THE DOWEL HOLES SHOULD BE MADE IN THE LAST EITHER BY JIG BORING OR JIG GRINDING.NO REAMING.


SPECIAL NOTE:  
POSITIONAL TOLERANCE OF DOWEL HOLES: 0.020MM AND OTHER HOLES: 0.1MM

|  |         |          |               |               |                 |      |             |         |         |            |  |  |        |          |                        |       |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|------------|--|--|--------|----------|------------------------|-------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |        |          |                        |       |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |  |        |          |                        |       |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1  | DATE   | TITLE    |                        |       |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            |  | DRAWN  | K.R.R. | 05.01.18 | V ROD UPPER SEGMENT -5 |       |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            |  | CHECKED  | PKC    |          | REF DRG NO:            |       |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               | +0.1            | +0.2 | +0.3        | +0.5    |         |            | APPROVED   | JMK  |        | DRG.NO   | IPR/17/A3/RFQ/19020034 | REV 0 |
|  |         |          |               |               |                 |      |             |         |         |            |  | SHEET  | 1 OF 1 |          |                        |       |



- NOTE:
1. LENGTH OF THIS COMPONENT HAS BEEN MACHINED AFTER WELDING AND LEAK CHECKING,SO DO NOT MACHINE OR GRIND THIS SURFACES.
  2. OVER ALL SURFCE FINISH: N5-N6 GRADE/Ra- 0.4-0.8 $\mu$ m.
  3. NO SCRATCH OR DENT IS TOLERABLE ANY WHERE.
  4. PROFILE OF EVERY VANE CURVE IS DIFFERENT.
  5. R14.82 ON THE PROFILE IS CONSTANT THROUGH OUT.
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SPECIAL NOTE:  
POSITIONAL TOLERANCE OF DOWEL HOLES: 0.020MM AND OTHER HOLES: 0.1MM

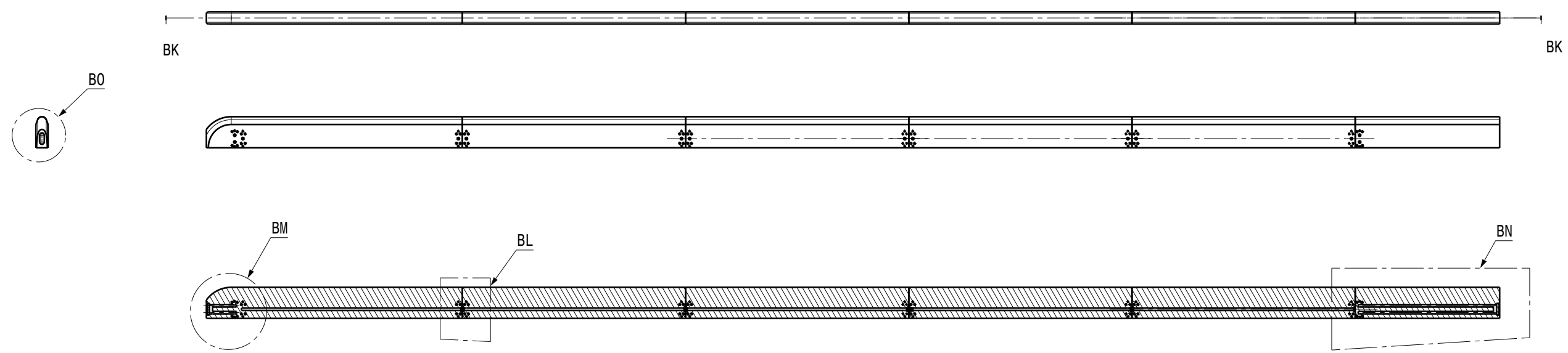
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| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         | RFQ GROUP: |          |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |  |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS    | APPROVED |  | ALL DIMENSIONS ARE IN 'mm'<br>UNLESS OTHERWISE STATED<br>SCALE 1:1<br>DATE 05.01.18<br>DRAWN K.R.R.<br>CHECKED PKC<br>APPROVED JMK |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |            |          | REF DRG NO:  | REV 0  |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |            |          | DRG.NO   | SHEET 1 OF 1   |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | +0.1            | +0.2 | +0.3        | +0.5    |            |          | IPR/17/A3/RFQ/19020036   |  |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               |                 |      |             |         |            |          |  |  |



H G F E D C B A

4

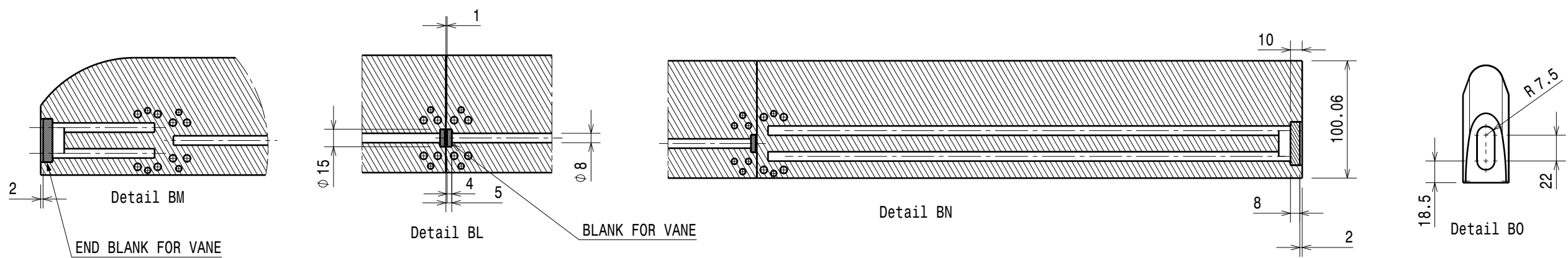
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Section view BK-BK

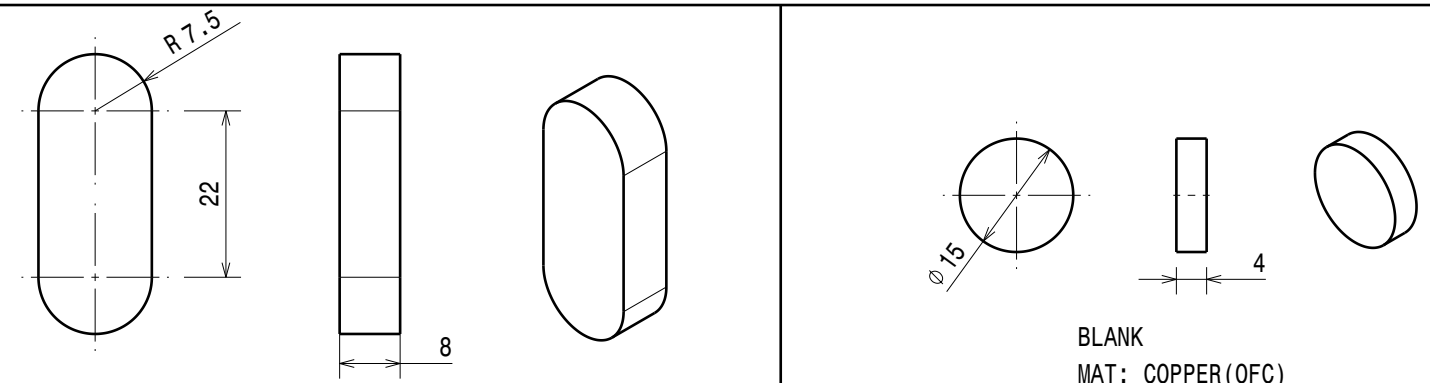
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3




2

2




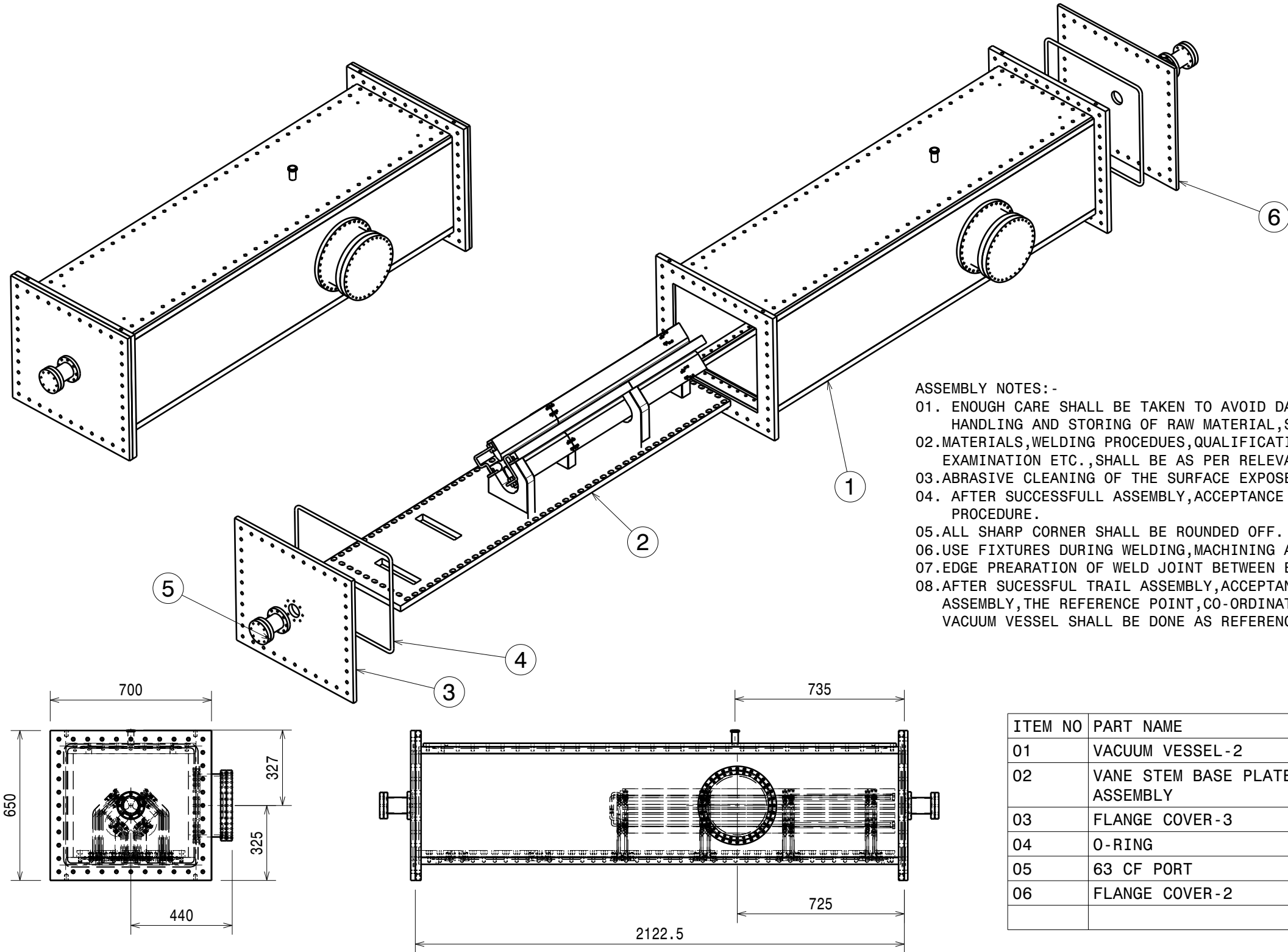
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MAT: COPPER(OFC)  
QTY: 36

|  |         |          |               |               |                 |      |             |         |            |          |  |  |        |              |                                    |       |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|------------|----------|--|--|--------|--------------|------------------------------------|-------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         | RFQ GROUP: |          |  |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |        |              |                                    |       |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS    | APPROVED | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |  |        |              |                                    |       |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |            |          | SCALE  | 1:1  | DATE   | TITLE        |                                    |       |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |            |          |  | DRAWN  | K.R.R. | 10.01.18     | DETAILS OF BLANK WELDING FOR VANES |       |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | +0.1            | +0.2 | +0.3        | +0.5    |            |          |  | CHECKED  | PKC    |              | REF DRG NO:                        |       |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               |                 |      |             |         |            |          | APPROVED   | JMK  |        | DRG.NO       | IPR/17/A3/RFQ/19020037             | REV 0 |
|  |         |          |               |               |                 |      |             |         |            |          |  |  |        | SHEET 1 OF 1 |                                    |       |

# CD


|  |         |          |               |               |                 |      |             |         |         |             |  |         |  |          |                        |              |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|-------------|--|---------|--|----------|------------------------|--------------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ. GROUP: |  |         |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |          |                        |              |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED    | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |         |  |          |                        |              |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |             | SCALE  | 1:1     | DATE   | TITLE    |                        |              |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |             |  | DRAWN   | K.R.R.   | 26.12.17 | CD FOR VANE PROFILE    |              |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | +0.1            | +0.2 | +0.3        | +0.5    |         |             |  | CHECKED | PKC  |          | REF DRG NO:            | REV 0        |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               |                 |      |             |         |         |             | APPROVED   | JMK     |  | DRG.NO   | IPR/17/A3/RFQ/19020041 | SHEET 1 OF 1 |

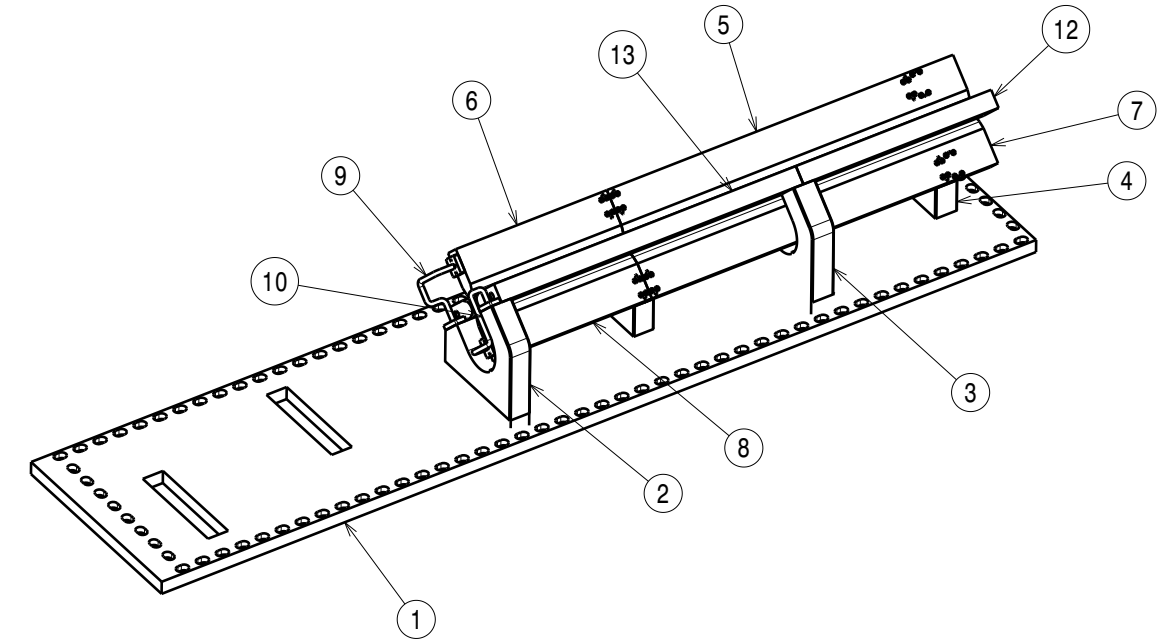
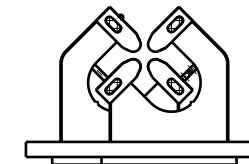
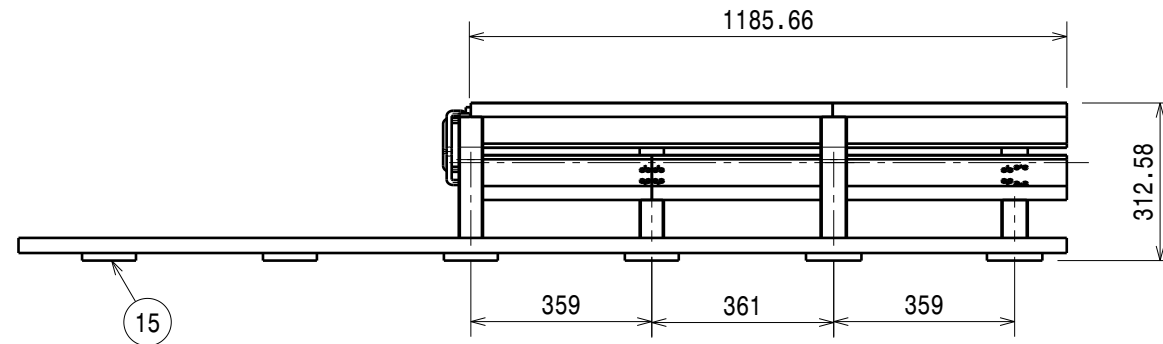
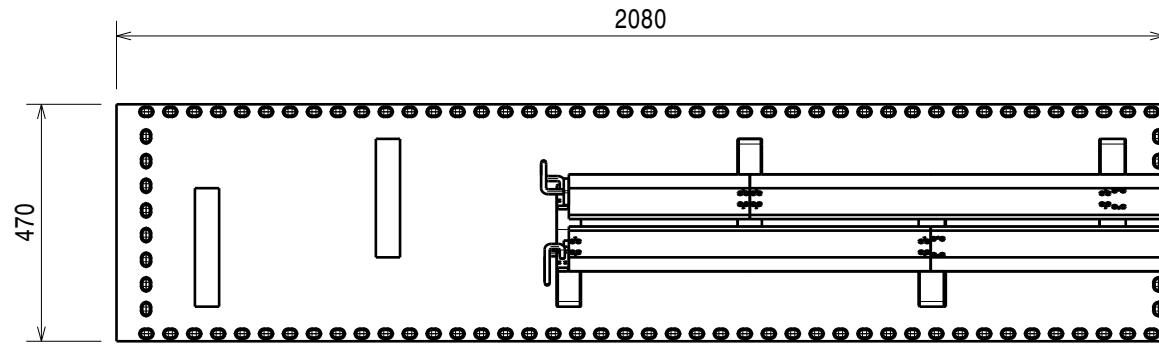


ASSEMBLY NOTES:-

01. ENOUGH CARE SHALL BE TAKEN TO AVOID DAMAGE (DENT AND SCRATCHES) DURING HANDLING AND STORING OF RAW MATERIAL, SEMI FINISHED PRODUCT AND FINISHED PRODUCTS.
02. MATERIALS, WELDING PROCEDURES, QUALIFICATION REQUIREMENTS, TESTING AND EXAMINATION ETC., SHALL BE AS PER RELEVANT APPROVED SPECIFICATIONS.
03. ABRASIVE CLEANING OF THE SURFACE EXPOSED TO VACUUM IS NOT ALLOWED.
04. AFTER SUCCESSFUL ASSEMBLY, ACCEPTANCE TESTS SHALL BE CARRIED AS PER APPROVED PROCEDURE.
05. ALL SHARP CORNER SHALL BE ROUNDED OFF.
06. USE FIXTURES DURING WELDING, MACHINING AND HEAT TREATMENT.
07. EDGE PREPARATION OF WELD JOINT BETWEEN END FLANGE AND SIDE PLATE, TOP PLATE, BOTTOM PLATE.
08. AFTER SUCCESSFUL TRAIL ASSEMBLY, ACCEPTANCE TEST AND BEFORE REMOVAL OF ASSEMBLY, THE REFERENCE POINT, CO-ORDINATES, MATCH MARKING BETWEEN VANE, STEM, BASE PLATE AND VACUUM VESSEL SHALL BE DONE AS REFERENCE FOR SITE ASSEMBLY.

| ITEM NO | PART NAME                     | MATERIAL       | DESCRIPTION   | QTY |
|---------|-------------------------------|----------------|---------------|-----|
| 01      | VACUUM VESSEL -2              | AS PER DRAWING | DWG.#19030003 | 01  |
| 02      | VANE STEM BASE PLATE ASSEMBLY | AS PER DRAWING | DWG.#19020002 | 01  |
| 03      | FLANGE COVER-3                | AL6061-T6      | DWG.#19030014 | 01  |
| 04      | O-RING                        | AS PER DRAWING | DWG.#19030009 | 01  |
| 05      | 63 CF PORT                    | AS PER DRAWING | DWG.#19030030 | 02  |
| 06      | FLANGE COVER-2                | AL6061-T6      | DWG.#19030008 | 01  |


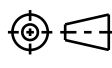
|  |         |          |               |               |                 |      |             |         |         |            |  |        |  |                        |              |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|------------|--|--------|--|------------------------|--------------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |        |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |                        |              |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |        |  |                        |              |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1    | DATE   | TITLE                  |              |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            | DRAWN  | K.R.R. | 19.01.18   | RFQ ASSEMBLY PROTOTYPE |              |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | +0.1            | +0.2 | +0.3        | +0.5    |         |            | CHECKED  | PKC    |  |                        | REF DRG NO:  |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               |                 |      |             |         |         | APPROVED   | JMK  |        | DRG.NO   | IPR/17/A3/RFQ/19010002 | REV 0        |
|  |         |          |               |               |                 |      |             |         |         |            |  |        | DRG.NO   | IPR/17/A3/RFQ/19010002 | SHEET 1 OF 1 |



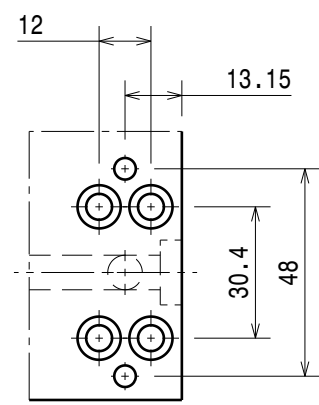
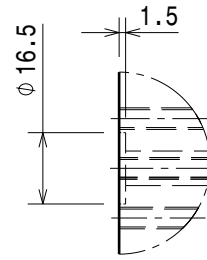
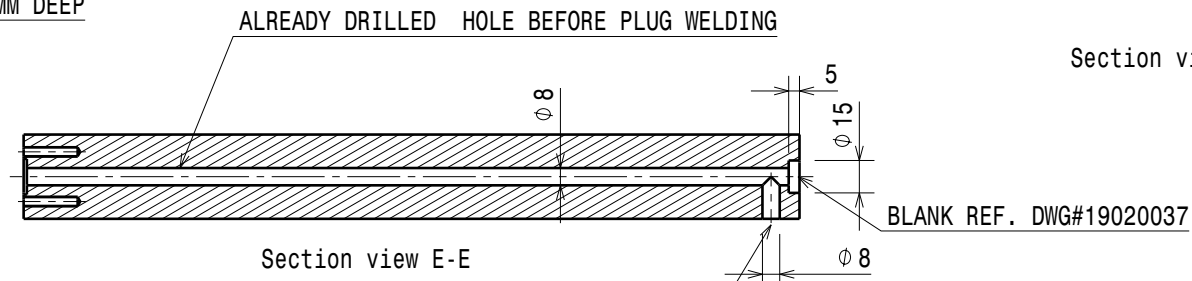
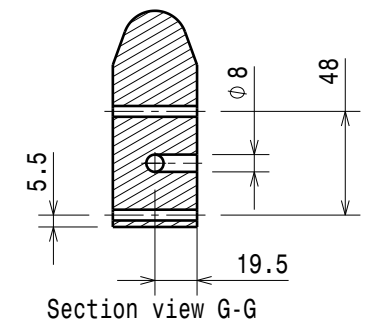
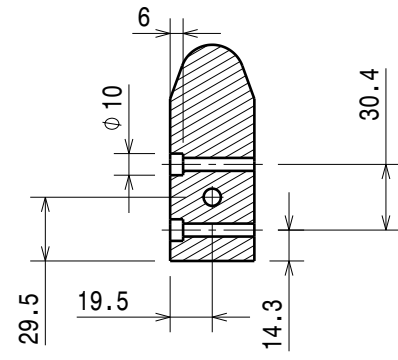
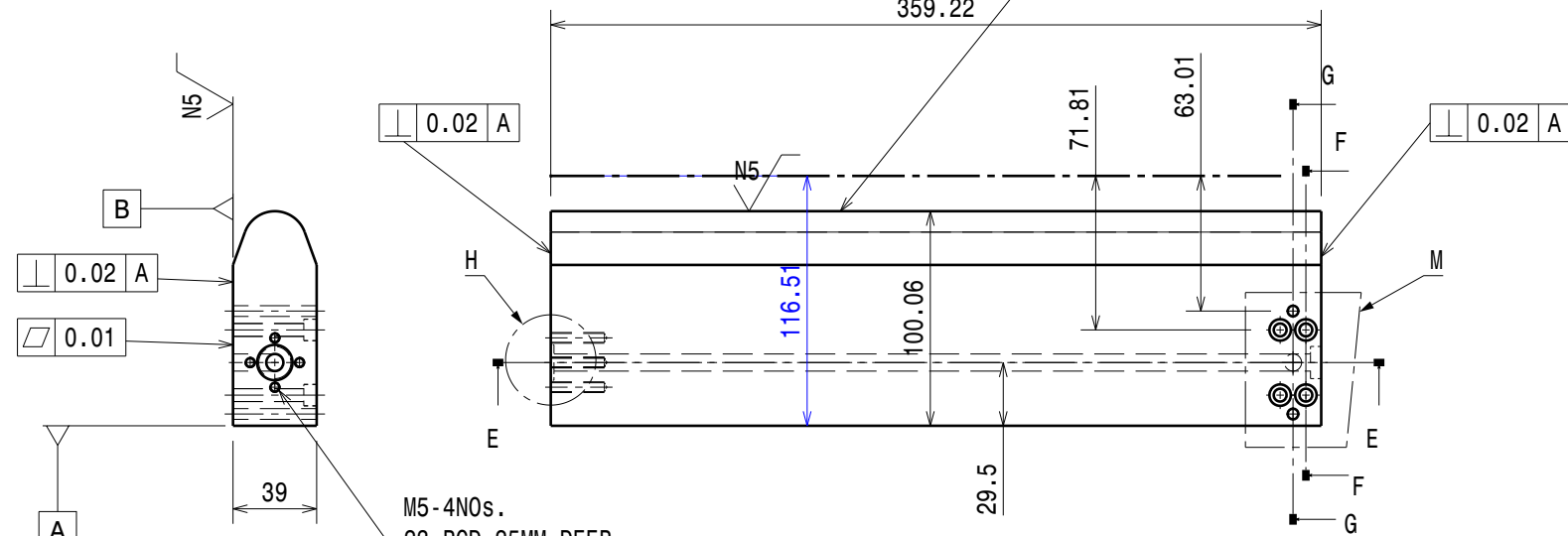
**ASSEMBLY NOTES:-**

01. ENOUGH CARE SHALL BE TAKEN TO AVOID DAMAGE (DENT AND SCRATCHES) DURING HANDLING AND STORING OF RAW MATERIAL, SEMI FINISHED PRODUCT AND FINISHED PRODUCTS.
02. MATERIALS, WELDING PROCEDURES, QUALIFICATION REQUIREMENTS, TESTING AND EXAMINATION ETC., SHALL BE AS PER RELEVANT APPROVED SPECIFICATIONS.
03. ABRASIVE SUCCESSFUL ASSEMBLY, ACCEPTANCE TESTS SHALL BE CARRIED AS PER APPROVED.
04. AFTER SUCCESSFUL ASSEMBLY, ACCEPTANCE TESTS SHALL BE CARRIED AS PER APPROVED PROCEDURE. BE CARRIED AS PER APPROVED PROCEDURE.
05. ALL SHARP CORNER SHALL BE ROUNDED OFF.
06. USE FIXTURES DURING WELDING, MACHINING AND HEAT TREATMENT.
07. EDGE PREPARATION OF WELD JOINT BETWEEN END FLANGE AND SIDE PLATE, TOP PLATE, BOTTOM PLATE.
08. AFTER SUCCESSFUL TRAIL ASSEMBLY, ACCEPTANCE TEST AND BEFORE REMOVAL OF ASSEMBLY, THE REFERENCE POINT, CO-ORDINATES, MATCH MARKING BETWEEN ROD, STEM, BASE PLATE AND VACUUM VESSEL SHALL BE DONE AS REFERENCE FOR SITE ASSEMBLY.

| ITEM NO. | PART NAME                 | MATERIAL    | DESCRIPTION   | QTY |
|----------|---------------------------|-------------|---------------|-----|
| 1        | BASE PLATE-1              | AS PER DWG. | DWG.#19020003 | 01  |
| 2        | STEM-1                    | AS PER DWG. | DWG.#19020007 | 02  |
| 3        | STEM-3                    | AS PER DWG. | DWG.#19020009 | 01  |
| 4        | STEM-2                    | AS PER DWG. | DWG.#19020008 | 01  |
| 5        | VANE VERTICAL UPPER -5    | AS PER DWG. | DWG.#19020036 | 01  |
| 6        | VANE VERTICAL UPPER-5     | AS PER DWG. | DWG.#19020035 | 01  |
| 7        | VANE VERTICAL LOWER-6     | AS PER DWG. | DWG.#19020029 | 01  |
| 8        | VANE VERTICAL LOWER-5     | AS PER DWG. | DWG.#19020028 | 01  |
| 9        | VANE COLING ARRANGEMENT-1 | ETP COPPER  | DWG.#19020039 | 01  |
| 10       | VANE COOLING ARRANMENT-2  | ETP COPPER  | DWG.#19020038 | 01  |
| 11       | VANE HORIZONTAL RIGHT-6   | AS PER DWG. | DWG.#19020022 | 01  |
| 12       | VANE HORIZONTAL RIGHT-5   | AS PER DWG. | DWG.#19020021 | 01  |
| 13       | VANE HORIZONTAL LEFT-6    | AS PER DWG. | DWG.#19020016 | 01  |
| 14       | VANE HORIZONTAL LEFT-5    | AS PER DWG. | DWG.#19020015 | 01  |
| 15       | STEM SLOT COVER           | AL6061-T6   | DWG.#19020040 | 02  |

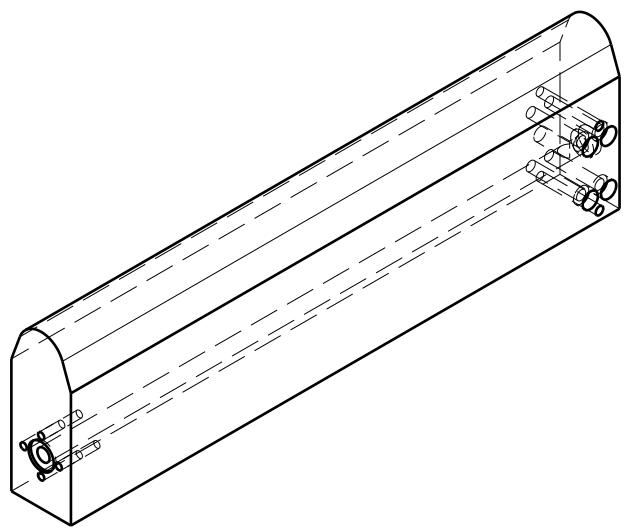
| DRG.NO   |         |         |              | REVISION COLUMN |        |             |        | RFQ GROUP: |          |   |  |             |   |                        |
|--|---------|---------|--------------|-----------------|--------|-------------|--------|------------|----------|---|--|-------------|---|------------------------|
| ∇ 8-25    ∇∇ 1.6-8    ∇∇∇ 0.025-1.6    ∇∇∇∇ < 0.025<br>CO-ORDINATED BY |         |         |              | REV             | ZONE   | DESCRIPTION | DATE   | REMARKS    | APPROVED | ALL DIMENSIONS ARE IN 'mm'<br>UNLESS OTHERWISE STATED |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |             |   |                        |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS                     |         |         |              |                 |        |             |        |            |          | SCALE   | 1:1  | DATE        | TITLE   |                        |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES                                 |         |         |              | LENGTH          | UPTO 6 | 6-30        | 30-120 | 120-315    |          | DRAWN   | K.R.R.   | 15.01.18    |  <b>VANE STEM BASE PLATE ASSEMBLY<br/>           PROTOTYPE</b> |                        |
| UPTO 10  | 10-50   | 50-120  | OVER 120-400 | OR DIA          | +0.1   | +0.2        | +0.3   | +0.5       | CHECKED  | PKC   |  | REF DRG NO: |   | REV 0                  |
| +1°  | +0°-30' | +0°-20' | +0°-10'      |                 |        |             |        |            | APPROVED | JMK   |  | DRG.NO      |   | IPR/17/A3/RFQ/19020002 |

THE CO-ORDINATES OF THE VANE CURVE IS AVAILABLE IN CD AS DWG.#19020041

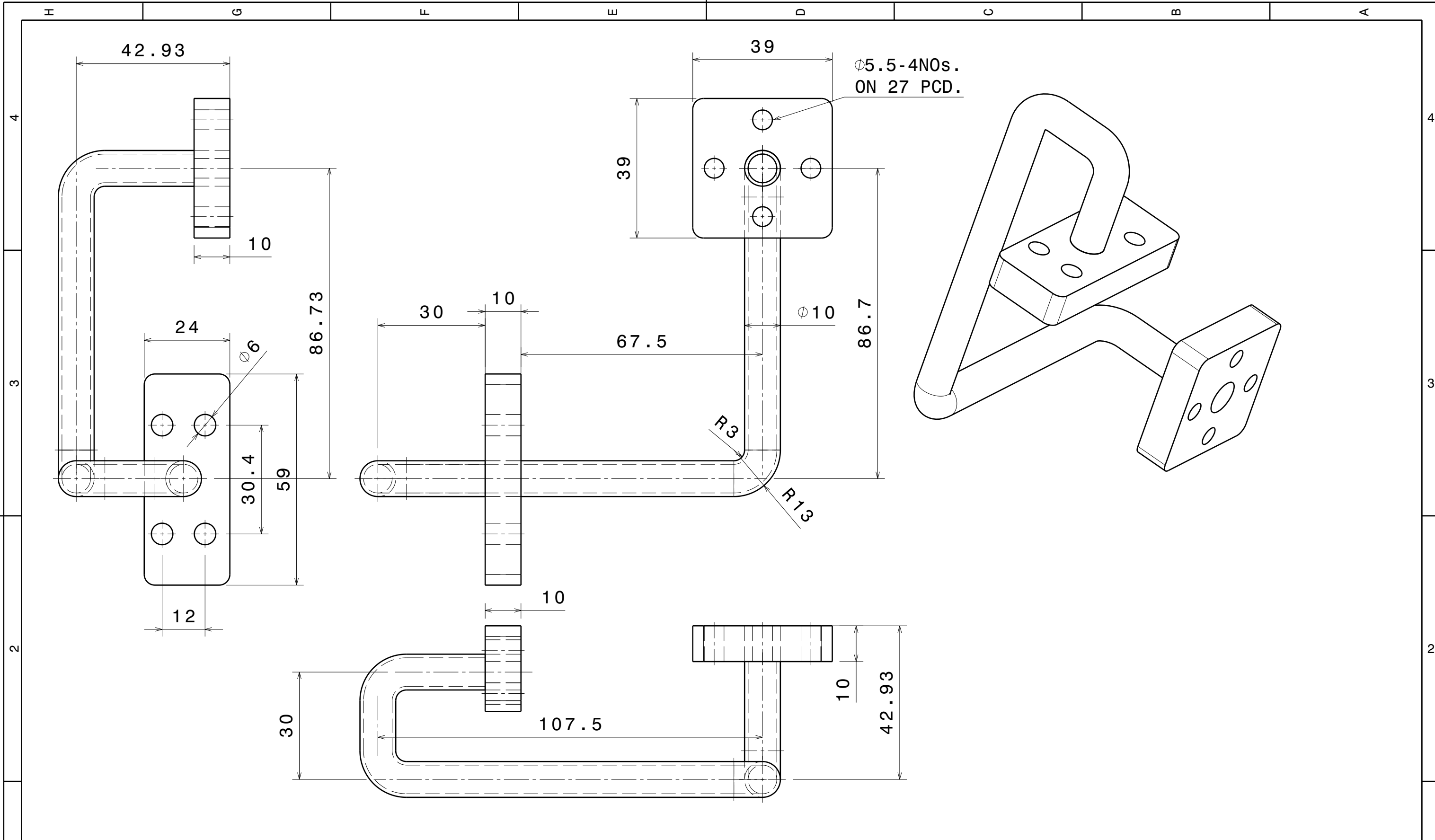


- NOTE:
1. LENGTH OF THIS COMPONENT HAS BEEN MACHINED AFTER WELDING AND LEAK CHECKING,SO DO NOT MACHINE OR GRIND THIS SURFACES.
  2. OVER ALL SURFCE FINISH: N5-N6 GRADE/Ra- 0.4-0.8 $\mu$ m.
  3. NO SCRATCH OR DENT IS TOLERABLE ANY WHERE.
  4. PROFILE OF EVERY VANE CURVE IS DIFFERENT.
  5. R14.82 ON THE PROFILE IS CONSTANT THROUGH OUT.
  6. ALL THE DIMENSIONS HAVE TO BE MACHINED FROM REFERENCE LINE (BEAM AXIS) AND DOWEL HOLES.
  7. TO GET THE DIMENSIONAL AND POSITIONAL ACCURACY OF 0.02MM, THE DOWEL HOLES SHOULD BE MADE IN THE LAST EITHER BY JIG BORING OR JIG GRINDING.NO REAMING.

SPECIAL NOTE:  
POSITIONAL TOLERANCE OF DOWEL HOLES: 0.020MM AND OTHER HOLES: 0.1MM

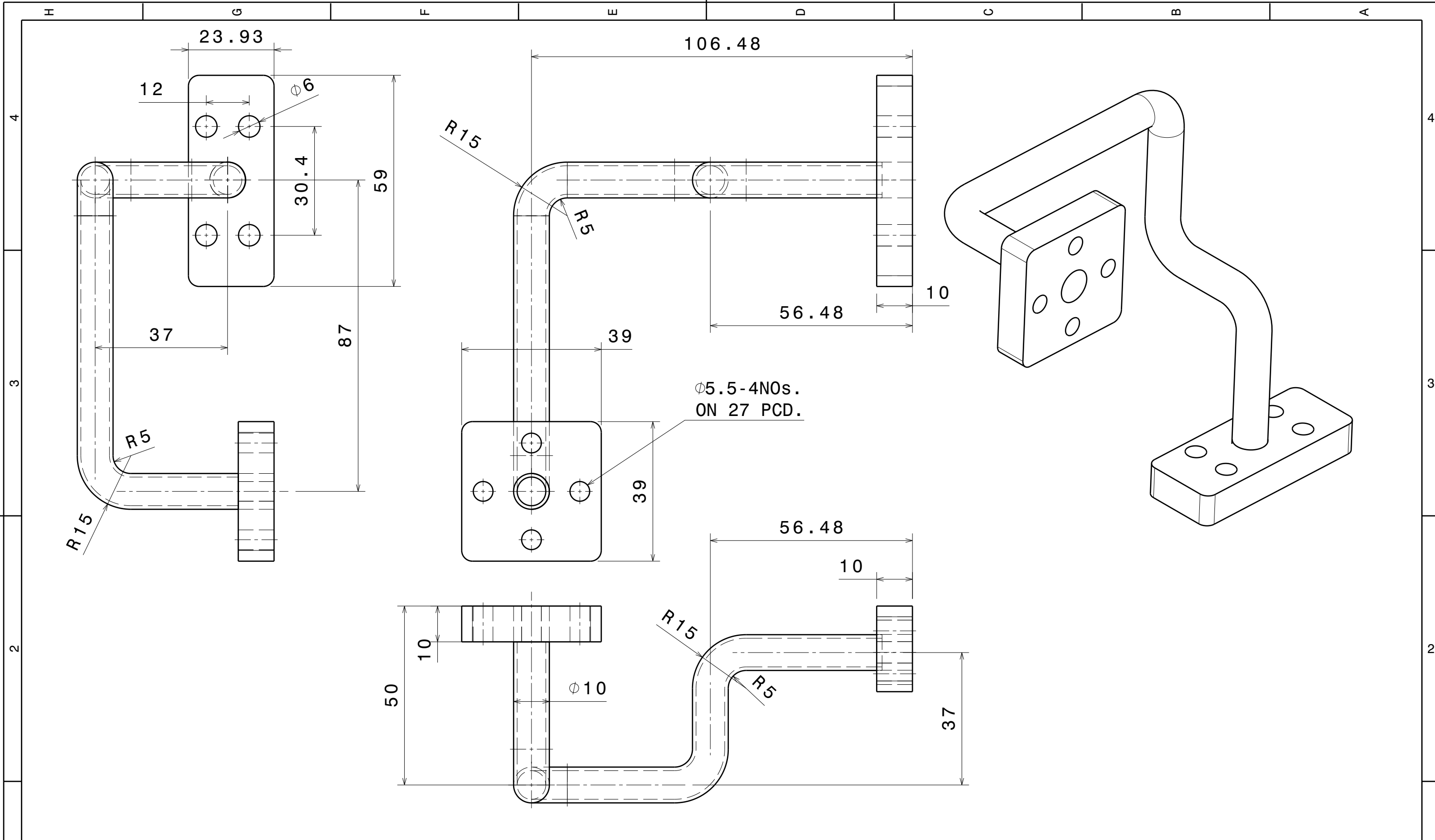




|  |         |          |               |               |                 |      |             |         |         |            |  |        |                               |   |              |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|------------|--|--------|-------------------------------|---|--------------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |        | Institute for Plasma Research |   |              |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |        |                               | प्लाज्मा अनुसंधान संस्थान                                     |              |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1    | DATE                          | Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |              |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            | DRAWN  | K.R.R. | 01/08/17                      | TITLE   |              |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | +0.1            | +0.2 | +0.3        | +0.5    |         |            | CHECKED  | PKC    |                               | VER. ROD LOWER SEGMENT 5-PROTOTYPE                            |              |
| +1°  | +0°-30' | +0°-20'  | +0°-10'       |               |                 |      |             |         |         | APPROVED   | JMK  |        | REF DRG NO:                   | REV 0   |              |
|  |         |          |               |               |                 |      |             |         |         |            |  |        | DRG.NO                        | IPR/17/A3/RFQ/19020028  | SHEET 1 OF 1 |

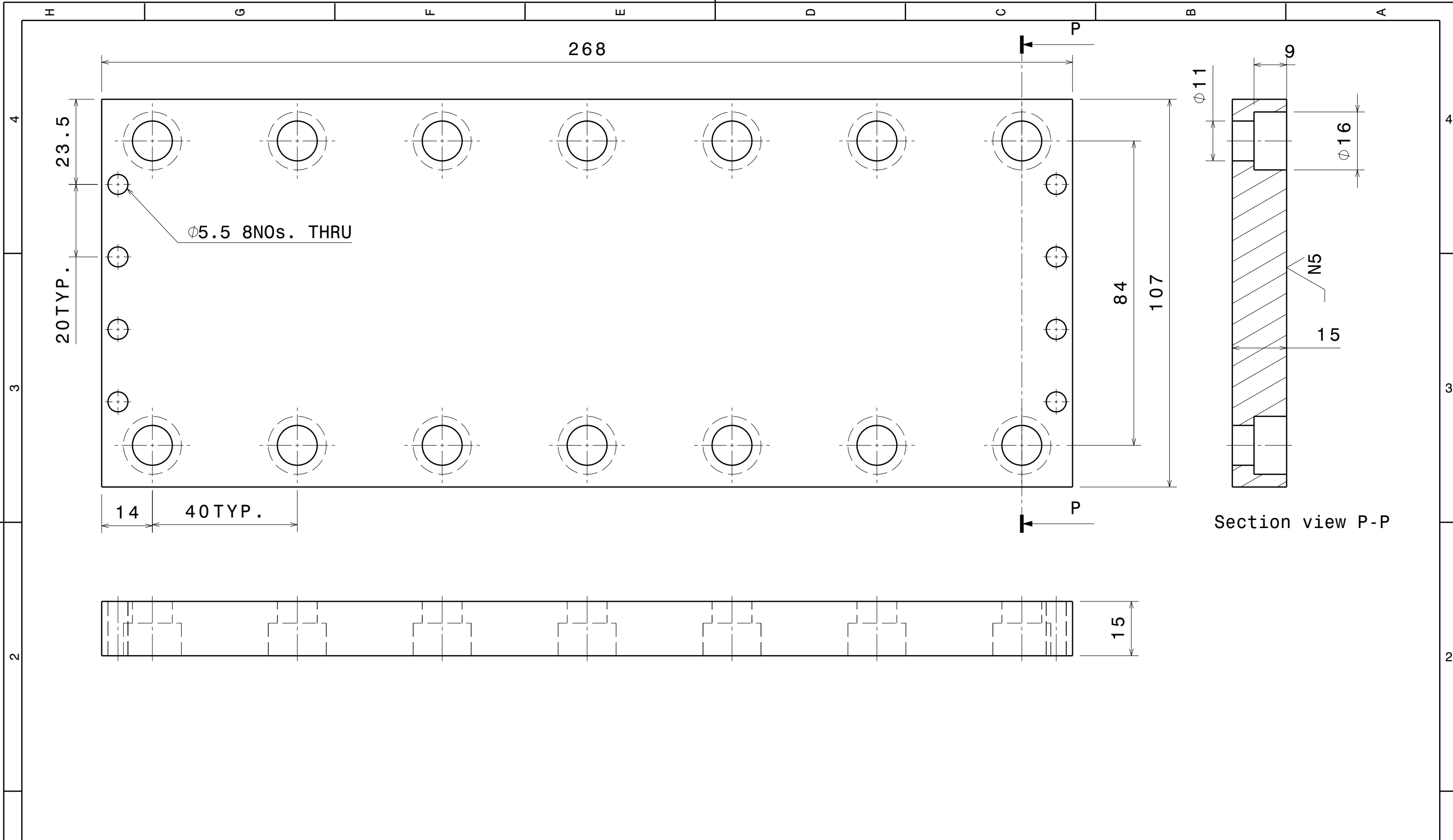


|  |         |         |              |               |          |               |              |                 |      |             |      |            |          |  |  |          |                                |             |
|--|---------|---------|--------------|---------------|----------|---------------|--------------|-----------------|------|-------------|------|------------|----------|--|--|----------|--------------------------------|-------------|
| DRG.NO   |         |         |              | ▽ 8-25        | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025 | REVISION COLUMN |      |             |      | RFQ GROUP: |          |  | <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |          |                                |             |
| CO-ORDINATED BY                                    |         |         |              |               |          |               |              | REV             | ZONE | DESCRIPTION | DATE | REMARKS    | APPROVED | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |  |          |                                |             |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |         |              |               |          |               |              |                 |      |             |      |            |          | SCALE  | 1:1  | DATE     | TITLE                          |             |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |         |              | LENGTH OR DIA | UPTO 6   | 6-30          | 30-120       | 120-315         |      |             |      |            |          | DRAWN  | K.R.R.   | 11.01.18 | <b>COOLING ARRANGEMENT - 1</b> |             |
| UPTO 10  | 10-50   | 50-120  | OVER 120-400 |               | +0.1     | +0.2          | +0.3         | +0.5            |      |             |      |            |          | CHECKED  | PKC  |          |                                | REF DRG NO: |
| +1°  | +0°-30' | +0°-20' | +0°-10'      |               |          |               |              |                 |      |             |      |            | APPROVED | JMC  |  | DRG.NO   | IPR/17/A3/RFQ/19020038         | REV 0       |
|  |         |         |              |               |          |               |              |                 |      |             |      |            |          |  |  |          | SHEET 1 OF 1                   |             |




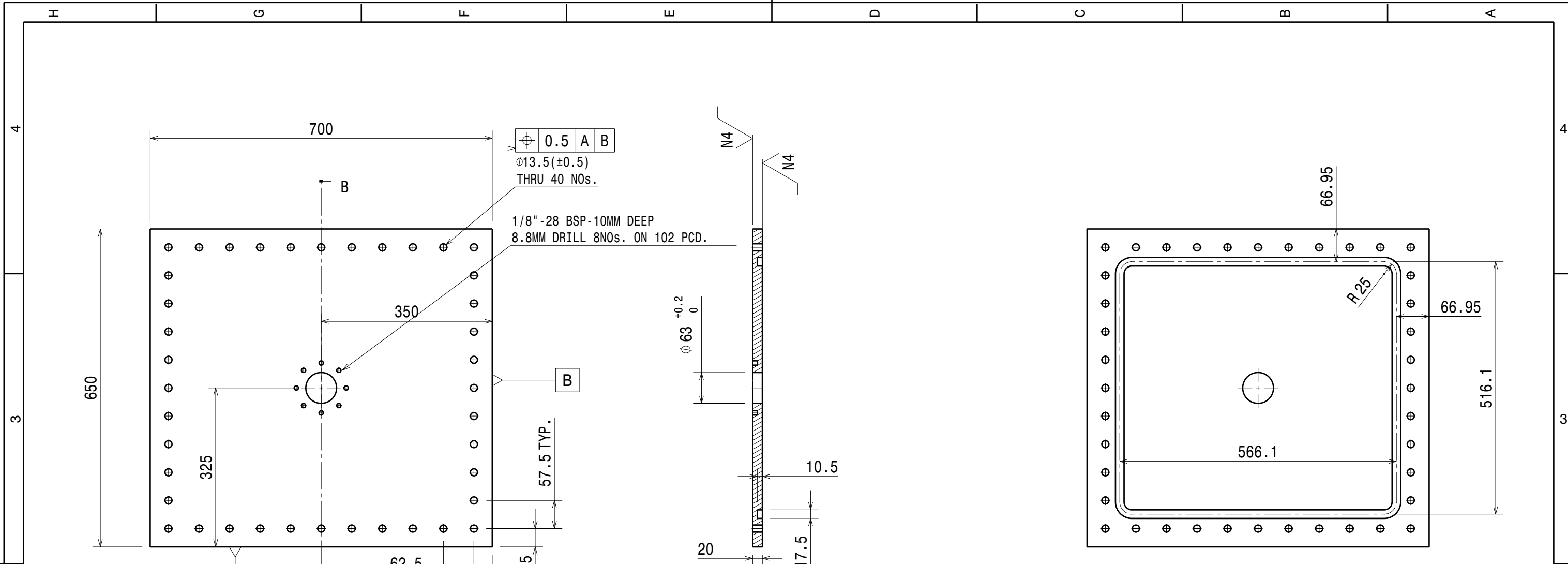


|  |         |                        |              |               |              |                 |        |             |      |         |            |  |  |          |  |
|--|---------|------------------------|--------------|---------------|--------------|-----------------|--------|-------------|------|---------|------------|--|--|----------|--|
| DRG.NO   |         | ▽ 8-25                 | ▽▽ 1.6-8     | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025 | REVISION COLUMN |        |             |      |         | RFQ GROUP: |  |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |          |  |
| CO-ORDINATED BY                                    |         |                        |              |               |              | REV             | ZONE   | DESCRIPTION | DATE | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |  |          |  |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |                        |              |               |              |                 |        |             |      |         |            | SCALE  | 1:1  | DATE     | TITLE  |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |                        |              | LENGTH OR DIA | UPTO 6       | 6-30            | 30-120 | 120-315     |      |         |            | DRAWN  | K.R.R.   | 11.01.18 |  <b>COOLING ARRANGEMENT - 2</b> |
| UPTO 10  | 10-50   | 50-120                 | OVER 120-400 |               |              |                 |        |             |      |         |            | CHECKED  | PKC  |          |  |
| +1°  | +0°-30' | +0°-20'                | +0°-10'      |               | +0.1         | +0.2            | +0.3   | +0.5        |      |         |            | APPROVED   | JMK  |          | REV 0  |
| DRG.NO   |         | IPR/17/A3/RFQ/19020039 |              |               |              | SHEET 1 OF 1    |        |             |      |         |            |  |  |          |  |




Section view P-P

|  |         |         |              |               |              |                 |        |             |      |            |   |  |  |
|--|---------|---------|--------------|---------------|--------------|-----------------|--------|-------------|------|------------|---|--|--|
| DRG.NO   |         | ▽ 8-25  | ▽▽ 1.6-8     | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025 | REVISION COLUMN |        |             |      | RFQ GROUP: |   |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |  |
| CO-ORDINATED BY                                    |         |         |              |               |              | REV             | ZONE   | DESCRIPTION | DATE | REMARKS    | APPROVED                                      | ALL DIMENSIONS ARE IN 'mm'<br>UNLESS OTHERWISE STATED  |  |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |         |              |               |              |                 |        |             |      |            |   | SCALE 1:1<br>DATE 11.01.18   |  |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |         |              | LENGTH OR DIA | UPTO 6       | 6-30            | 30-120 | 120-315     |      |            |   | DRAWN K.R.R.<br>CHECKED PKC<br>APPROVED JMK  |  |
| UPTO 10  | 10-50   | 50-120  | OVER 120-400 |               | +0.1         | +0.2            | +0.3   | +0.5        |      |            |   | REF DRG NO:<br>DRG.NO IPR/17/A3/RFQ/19020040   |  |
| +1°  | +0°-30' | +0°-20' | +0°-10'      |               |              |                 |        |             |      |            | TITLE<br><b>STEM SLOT COVER FOR PROTOTYPE</b> |  |  |
|  |         |         |              |               |              |                 |        |             |      |            | REV 0   | SHEET 1 OF 1   |  |



Section view B-B

- NOTE:-
01. ALL SHARP CORNERS SHALL BE ROUNDED OFF.
  02. THE FINISH MACHINED/GROUND SURFACES SHALL BE PRESERVED AND PROTECTED SUITABLY TO AVOID ANY DAMAGE DURING HANDLING TRANSIT AND ASEMBLY
  03. USE DRILL JIG FOR DRILLING OF HOLES.
  04. THREADING SHALL BE AS PER IS4218
  05. AFTER MACHINING THE COMPONENT SHALL BE SUBJECTED TO SOLUTION CLEANING OR ULTRASONIC CLEANING AS PER APPROVED PROCEDURE

|  |         |          |               |               |                 |      |             |         |         |            |  |        |  |                                |              |
|--|---------|----------|---------------|---------------|-----------------|------|-------------|---------|---------|------------|--|--------|--|--------------------------------|--------------|
| DRG.NO   | ▽ 8-25  | ▽▽ 1.6-8 | ▽▽▽ 0.025-1.6 | ▽▽▽▽ < 0.025  | REVISION COLUMN |      |             |         |         | RFQ GROUP: |  |        |  <b>Institute for Plasma Research</b><br>प्लाज्मा अनुसंधान संस्थान<br>Bhat, Near Indira Bridge, Gandhinagar 382428, Gujarat (India) |                                |              |
| CO-ORDINATED BY                                    |         |          |               |               | REV             | ZONE | DESCRIPTION | DATE    | REMARKS | APPROVED   | ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED |        |  | TITLE                          |              |
| MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS |         |          |               |               |                 |      |             |         |         |            | SCALE  | 1:1    | DATE   | END FLANGE COVER FOR PROTOTYPE |              |
| LENGTH IN mm OF SHORTER SIDE OF ANGLES             |         |          |               | LENGTH OR DIA | UPTO 6          | 6-30 | 30-120      | 120-315 |         |            | DRAWN  | K.R.R. | 10.01.18   | REF DRG NO:                    |              |
| UPTO 10  | 10-50   | 50-120   | OVER 120-400  |               | ±0.1            | ±0.2 | ±0.3        | ±0.5    |         |            | CHECKED  | PKC    |  | REV 0                          |              |
| ±1°  | ±0°-30' | ±0°-20'  | ±0°-10'       |               |                 |      |             |         |         | APPROVED   | JMK  |        | DRG.NO   | IPR/17/A3/RFQ/19030014         | SHEET 1 OF 1 |