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NEXT USED ASSEMBLY  
0000077017

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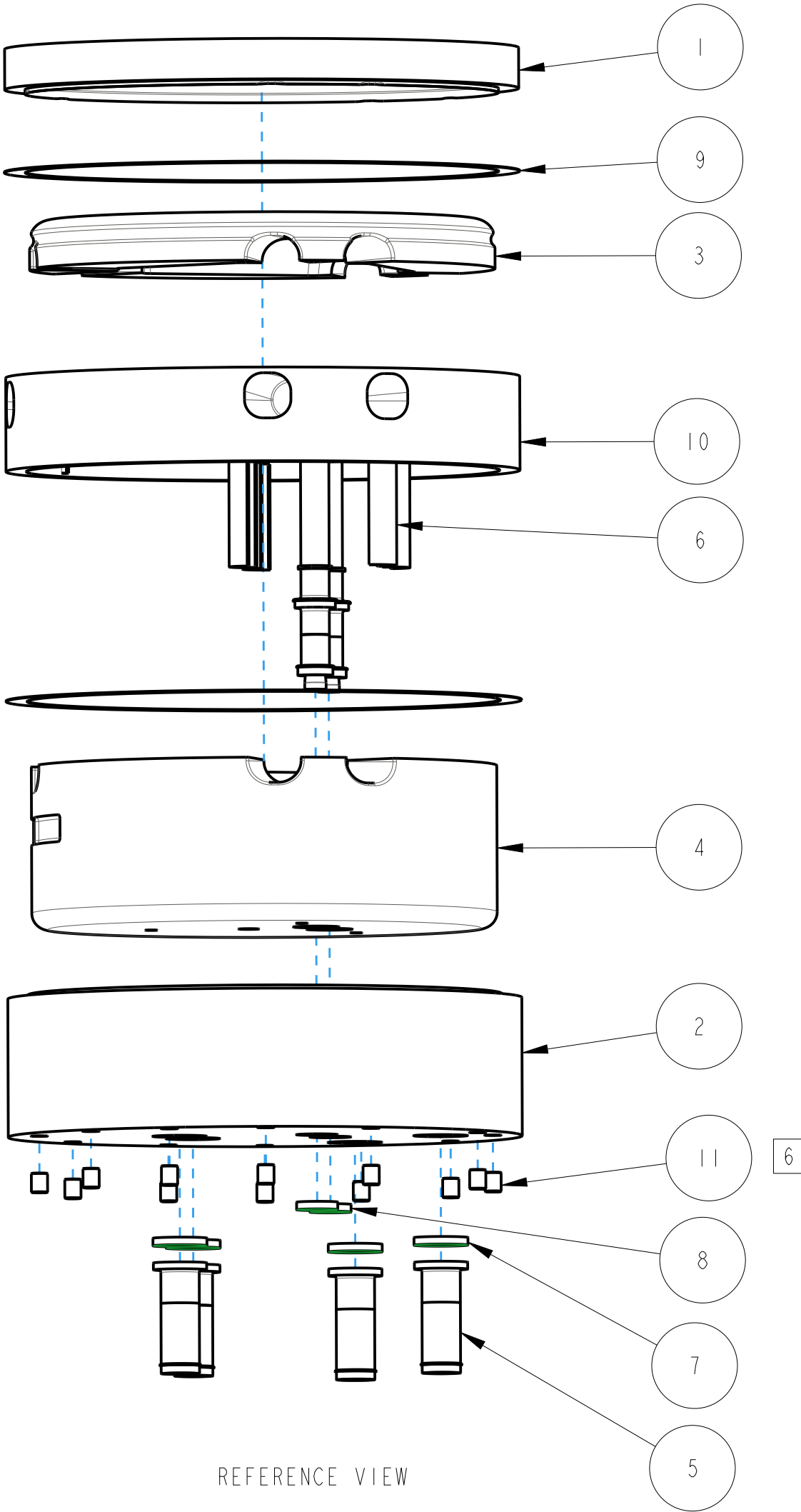
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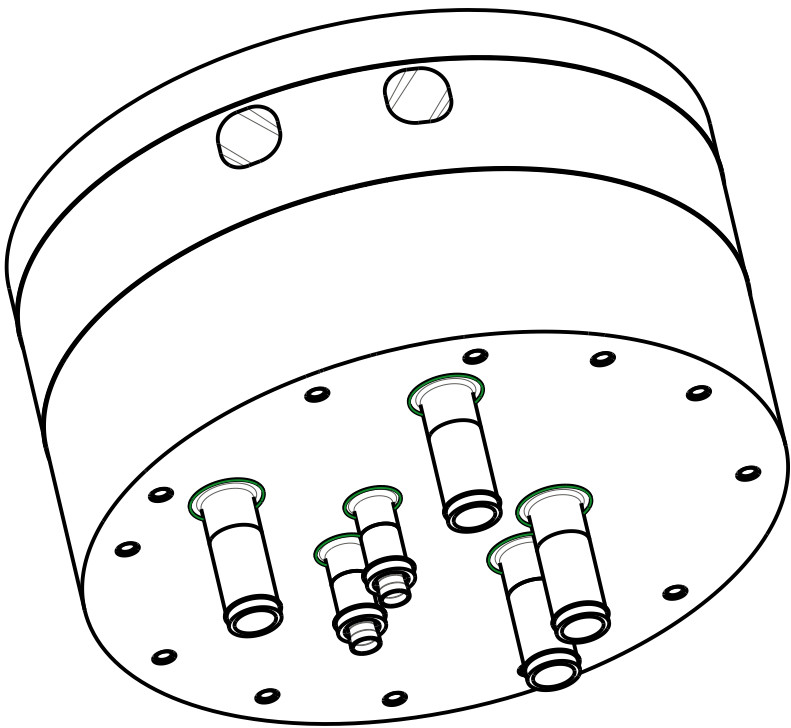
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| REV            | DESCRIPTION OF CHANGE | DATE     |
| 0              | ORIGINAL ISSUE        | 04/16/26 |
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NOTES:

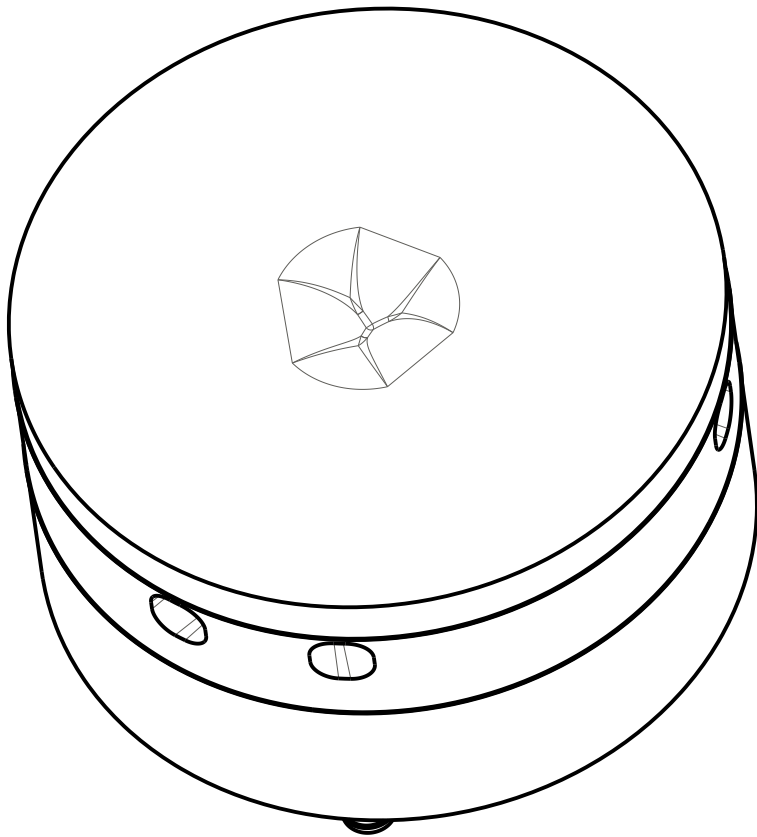
- 1
- VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL.
2.
- WELD AND INSPECT PER S03040000-EQS10000.
3.
- PICKLE AND BAG COMPONENTS TO BE WELDED PER S03040000-EQS10000. DO NOT OPEN BAGS UNTIL IMMEDIATELY BEFORE WELDING.
4.
- PNEUMATIC TEST REFLECTOR VESSEL WITH DRY NITROGEN AT 72.5 PSIG.
5.
- HE LEAK CHECK TO SHOW NO DETECTABLE LEAK WITH A BACKGROUND OF  $1 \times 10^{-6}$  MBAR L/S OR LESS PER S03040000-EQS10000.
- 6
- INSTALL HELICOIL INSERTS PER MANUFACTURER'S SPECIFICATIONS AFTER COMPLETION OF WELDING.



REFERENCE VIEW

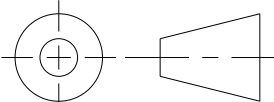


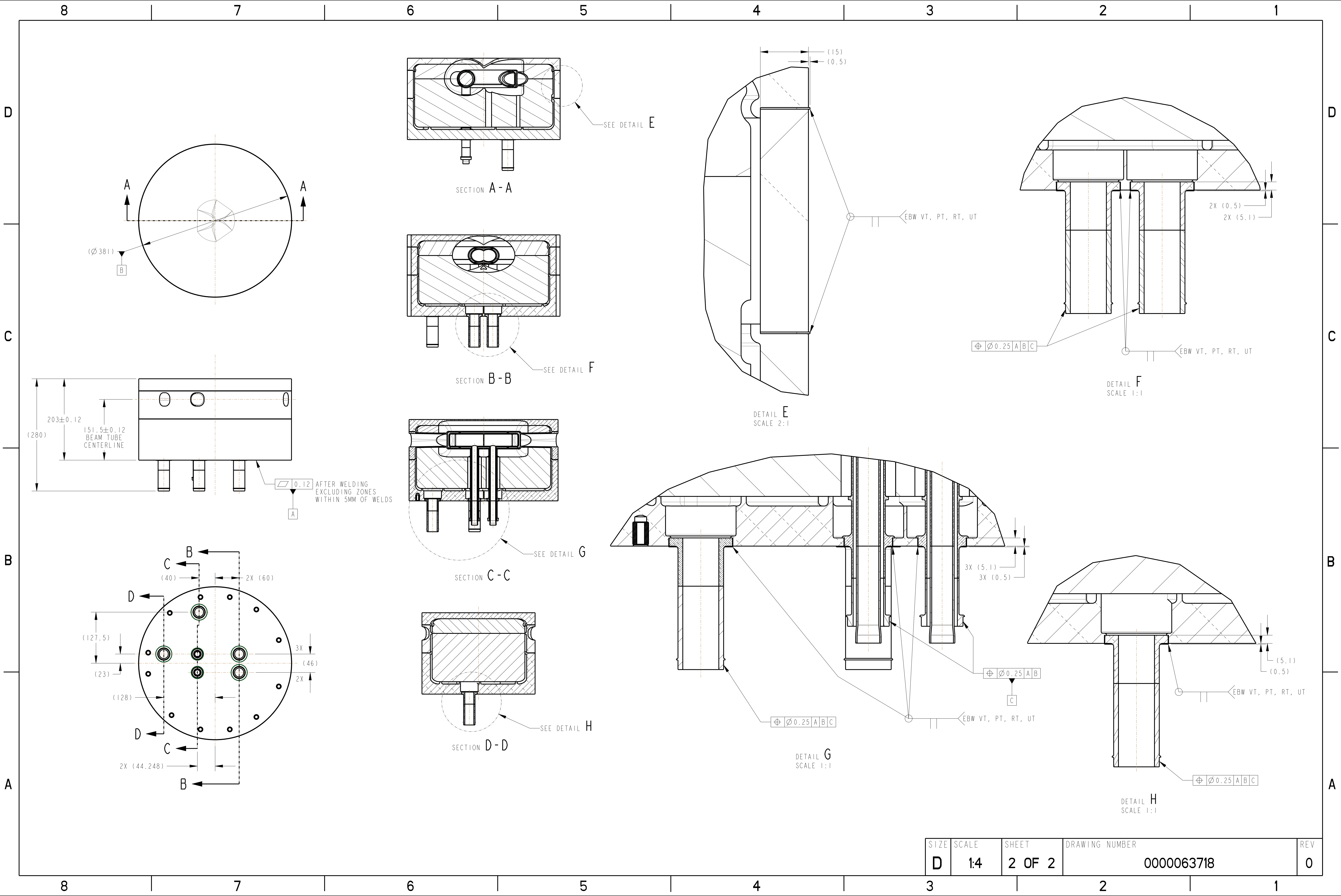
REFERENCE VIEW

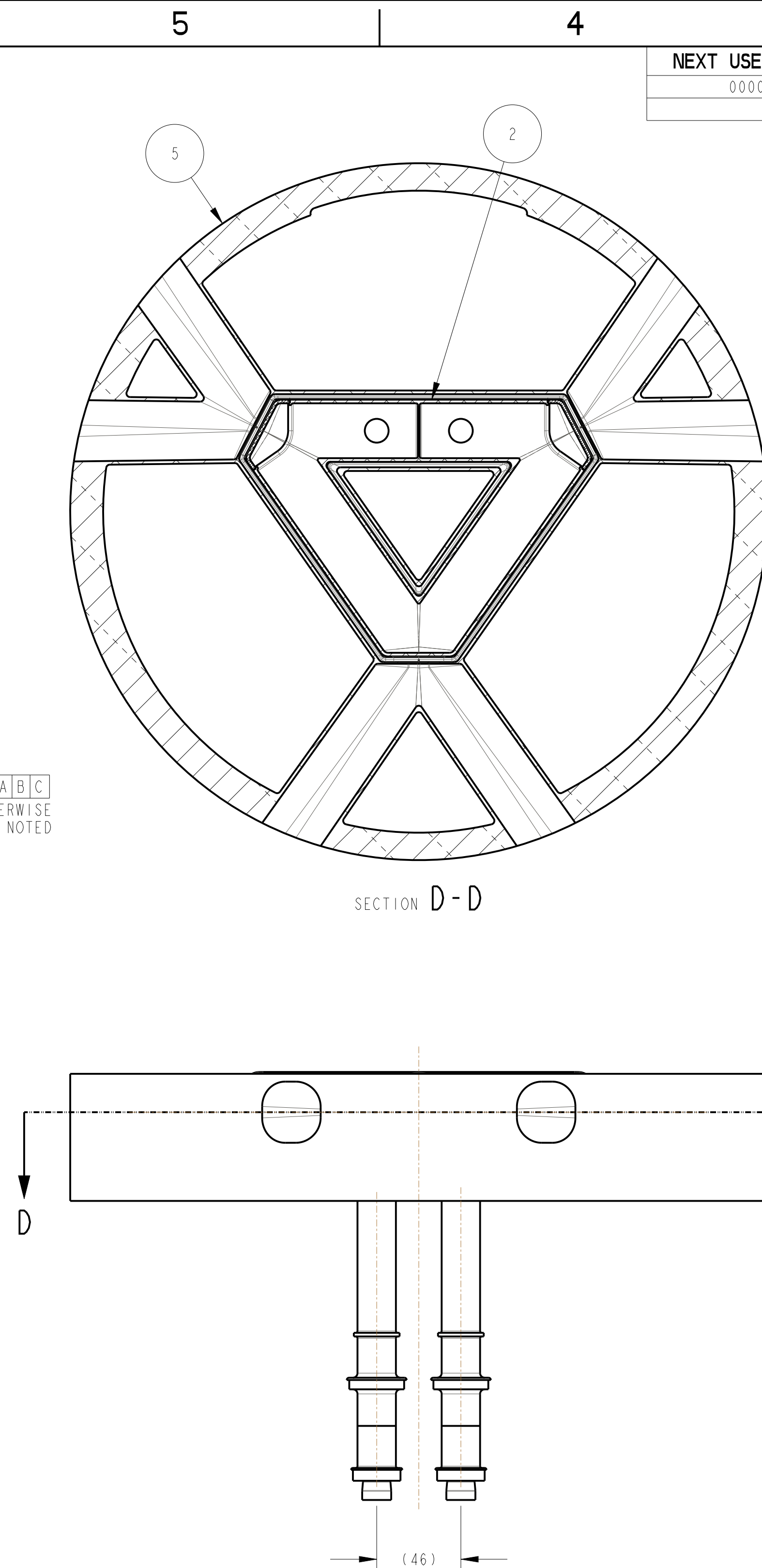
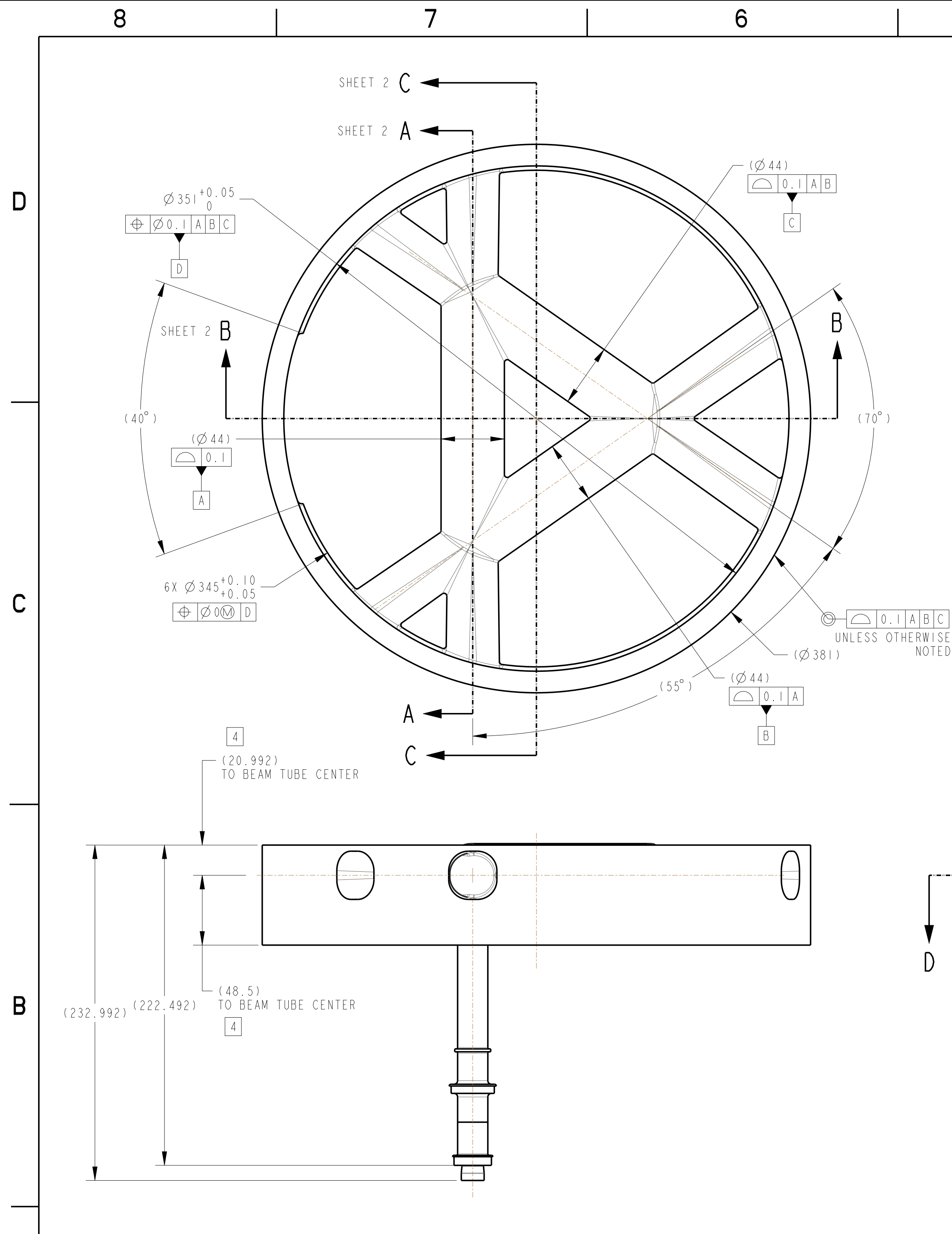


REFERENCE VIEW

|                              |                                           |                                                  |             |     |             |
|------------------------------|-------------------------------------------|--------------------------------------------------|-------------|-----|-------------|
| MCMASTER<br>WWW.MCMASTER.COM | 18-8 STAINLESS STL<br>MIL MS-122          | STANDARD HELICAL THREAD INSERT, 3/8-16 X .563 LG | 91732A214   | 12  | 11          |
| ---                          | ---                                       | LWR REFL VESL MID WELDMNT FINL MACH              | 0000070004  | 1   | 10          |
| ---                          | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-REFLECTOR VESSEL CLOSURE             | 0000067840  | 2   | 9           |
| ---                          | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-38MM FITTING                         | 0000067743  | 2   | 8           |
| ---                          | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-40MM FITTING                         | 0000067742  | 4   | 7           |
| ---                          | BERYLLIUM<br>S03040000-TSP10000           | LOWER BERYLLIUM SPLIT SEGMENT                    | 0000067696  | 4   | 6           |
| ---                          | ---                                       | MRA BI-METAL FITTING                             | 0000065940  | 4   | 5           |
| ---                          | BERYLLIUM<br>S03040000-TSP10000           | LOWER BERYLLIUM-LARGE                            | 0000063562  | 1   | 4           |
| ---                          | BERYLLIUM<br>S03040000-TSP10000           | LOWER BERYLLIUM-SMALL                            | 0000063561  | 1   | 3           |
| ---                          | AL 6061-T6 (A96061)<br>ASTM B247M         | LOWER REFLECTOR VESSEL CAP-LARGE                 | 0000063560  | 1   | 2           |
| ---                          | AL 6061-T6 (A96061)<br>ASTM B247M         | LOWER REFLECTOR VESSEL CAP-SMALL                 | 0000062686  | 1   | 1           |
| VENDOR 1                     | MATERIAL<br>SPECIFICATION                 | DESCRIPTION                                      | PART NUMBER | QTY | FIND<br>NO. |

|                             |                                                   |                                                                                                              |  |                                                                                                                                                                                                             |              |
|-----------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|                             |                                                   | WIP-NOT APPROVED FOR CONSTRUCTION                                                                            |  |                                                                                                                                                                                                             |              |
| GRADE                       | 1-SERIOUS                                         | UNITS: MILLIMETERS<br>DEFAULT TOLERANCES                                                                     |  | <div>OAK RIDGE<br/>National Laboratory</div> <div>HIGH FLUX ISOTOPE REACTOR</div> <div>SPALLATION NEUTRON SOURCE</div> |              |
| FACILITY                    |                                                   | 0-6 ±0.1<br>×6-120 ±0.2<br>×120 ±0.5<br>ANGULAR ±0.5°                                                        |  |                                                                                                                                                                                                             |              |
| STS                         |                                                   |                                                                                                              |  | SECOND TARGET STATION<br>TARGET SYSTEMS<br>LOWER REFLECTOR VESSEL                                                                                                                                           |              |
| BUILDING                    |                                                   |                                                                                                              |  |                                                                                                                                                                                                             |              |
| 8800-STG TARGET BUILDING II | BREAK ALL SHARP EDGES<br>EXCEPT AS NOTED: 0.5 MAX |                                                                                                              |  |                                                                                                                                                                                                             |              |
| MAJOR SYSTEM                |                                                   |                                                                                                              |  |                                                                                                                                                                                                             |              |
| TARGET SYSTEMS              |                                                   | SURFACE<br>ROUGHNESS: 16 Ra U.N.O.                                                                           |  | DRAWING NUMBER<br><br>0000063718                                                                                                                                                                            |              |
| SYSTEM                      |                                                   | DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4                                      |  |                                                                                                                                                                                                             |              |
| MRA                         |                                                   |                                                                                                              |  | REV<br>0                                                                                                                                                                                                    |              |
| SUBSYSTEM                   | XXX                                               |                                                                                                              |  |                                                                                                                                                                                                             |              |
| SUB-SUBSYSTEM               | XXX                                               | THIRD ANGLE PROJECTION  |  | SIZE<br>D                                                                                                                                                                                                   | SCALE<br>1:4 |
|                             |                                                   |                                                                                                              |  | WEIGHT<br>41 KG                                                                                                                                                                                             |              |
|                             |                                                   |                                                                                                              |  | SHEET<br>1 of 2                                                                                                                                                                                             |              |





|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000063718         |
|                    |

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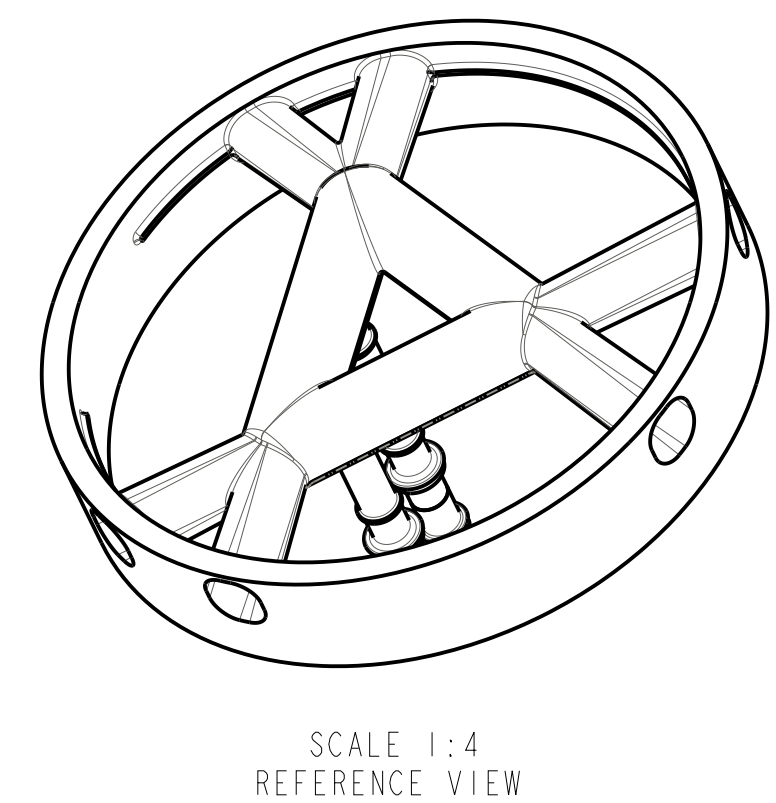
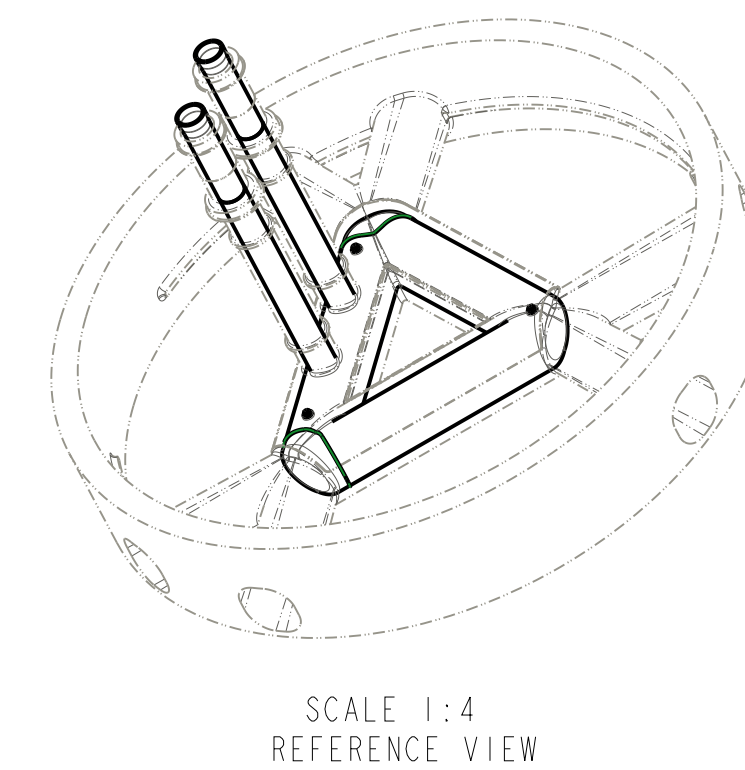
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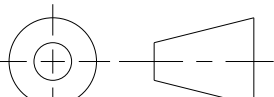
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| REV            | DESCRIPTION OF CHANGE | DATE    |
| 0              | ORIGINAL ISSUE        | 4/27/26 |
|                |                       |         |

NOTES:

1. FINAL MACHINE AFTER COMPLETING ALL WELDING AND INSPECTION SHOWN ON 0000070004.PM
2. FINAL MACHINE AND INSPECT PER S03040000-EQS10000. DO NOT MACHINE WELD JOINTS. REMOVE MATERIAL BETWEEN AND INSIDE BEAMTUBES OF 0000070002.PM. REMOVE MATERIAL FROM OUTSIDE OF 0000070003.PM.
3. UNLESS OTHERWISE SPECIFIED, NOMINAL PART GEOMETRY IS DEFINED BY THE ATTACHED MODEL.
4. ADD STOCK TO WELD SURFACES FOR WELD SHRINKAGE PER S03040000-EQS10000.
5. 3X COLD SHOCK WITH LIQUID NITROGEN PER S03040000-EQS10000.
6. PNEUMATIC TEST VACUUM VESSEL WITH DRY NITROGEN AT 34 PSIG PER S03040000-EQS10000.
7. HE LEAK CHECK TO SHOW NO DETECTABLE LEAK WITH A BACKGROUND OF  $1 \times 10^{-9}$  TORR L/S OR LESS PER S03040000-EQS10000.
8. HYDROGEN VESSEL SHOWN AT 20K OPERATING TEMPERATURE. REFER TO 0000077220 FOR ROOM TEMPERATURE MODEL.



|   |        |                                           |                                    |             |     |          |
|---|--------|-------------------------------------------|------------------------------------|-------------|-----|----------|
| A | ---    | ---                                       | LOWER VACUUM VESSEL CAP ASSEMBLY   | 0000070005  | 1   | 6        |
|   | ---    | AL 6061-T6 (A96061)<br>ASTM B247M         | LOWER REFLECTOR VESSEL-MID         | 0000070002  | 1   | 5        |
|   | ---    | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-LOWER VAC VESSEL OUTER | 0000068099  | 1   | 4        |
|   | ---    | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-LOWER VAC VESSEL INNER | 0000067839  | 1   | 3        |
|   | ---    | ---                                       | LOWER HYDROGEN VESSEL              | 0000062635  | 1   | 2        |
|   | ---    | TI 15-3-3-3 (R58153)<br>AMS 4914          | MODERATOR TITANIUM SPACER          | 0000062487  | 6   | 1        |
|   | ---    |                                           |                                    |             |     |          |
|   |        |                                           |                                    |             |     |          |
|   | VENDOR | MATERIAL SPECIFICATION                    | DESCRIPTION                        | PART NUMBER | QTY | FIND NO. |

|                             |           |                                                                                       |       |                                                                                                                                                       |        |
|-----------------------------|-----------|---------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                             |           | WIP-NOT APPROVED FOR CONSTRUCTION                                                     |       |                                                                                                                                                       |        |
| GRADE                       | 1-SERIOUS | UNITS: MILLIMETERS                                                                    |       | <div>HIGH FLUX ISOTOPE REACTOR   SPALLATION NEUTRON SOURCE</div> |        |
|                             |           | DEFAULT TOLERANCES                                                                    |       |                                                                                                                                                       |        |
| FACILITY                    |           | 0-6 ±0.1                                                                              |       |                                                                                                                                                       |        |
|                             |           | >6-120 ±0.2                                                                           |       |                                                                                                                                                       |        |
|                             | STS       | >120 ±0.5                                                                             |       |                                                                                                                                                       |        |
| BUILDING                    |           | ANGULAR ±0.5°                                                                         |       |                                                                                                                                                       |        |
| 8800-STS TARGET BUILDING II |           | BREAK ALL SHARP EDGES EXCEPT AS NOTED: 0.5 MAX                                        |       | SECOND TARGET STATION<br>TARGET SYSTEMS<br>LWR REFL VESL MID WELDMNT FINL MACH                                                                        |        |
| MAJOR SYSTEM                |           |                                                                                       |       |                                                                                                                                                       |        |
| TARGET SYSTEMS              |           | SURFACE ROUGHNESS: 16 Ra UNO.                                                         |       |                                                                                                                                                       |        |
| SYSTEM                      |           | DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4               |       |                                                                                                                                                       |        |
| MRA                         |           | THIRD ANGLE PROJECTION                                                                |       | DRAWING NUMBER                                                                                                                                        |        |
| SUBSYSTEM                   | XXX       |  |       | 0000070004                                                                                                                                            |        |
| SUB-SUBSYSTEM               | XXX       |                                                                                       |       | 0                                                                                                                                                     |        |
|                             |           | SIZE                                                                                  | SCALE | WEIGHT                                                                                                                                                | SHEET  |
|                             |           | D                                                                                     | 1:2   | 4.02 KG                                                                                                                                               | 1 of 2 |



|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000070004         |

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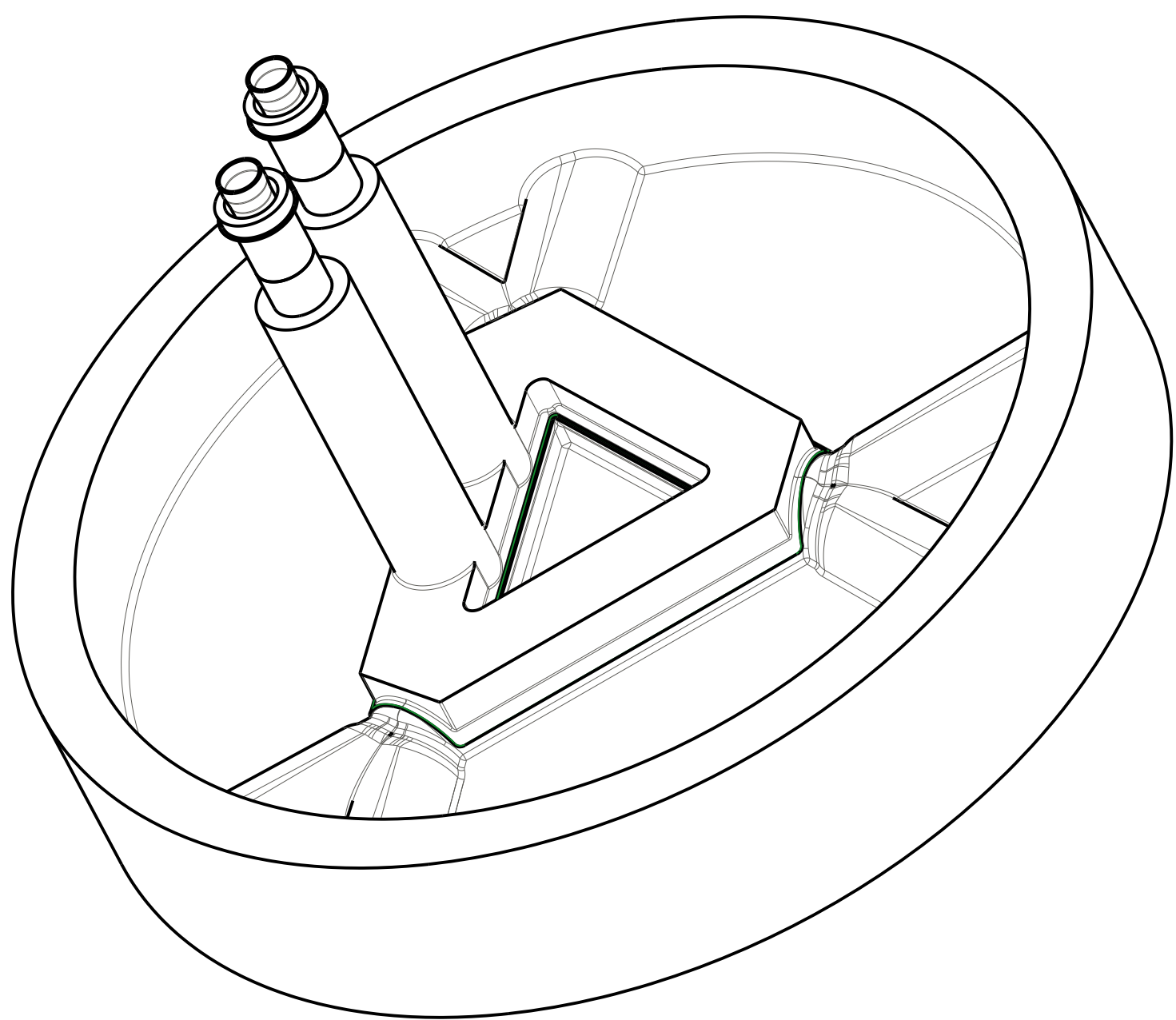
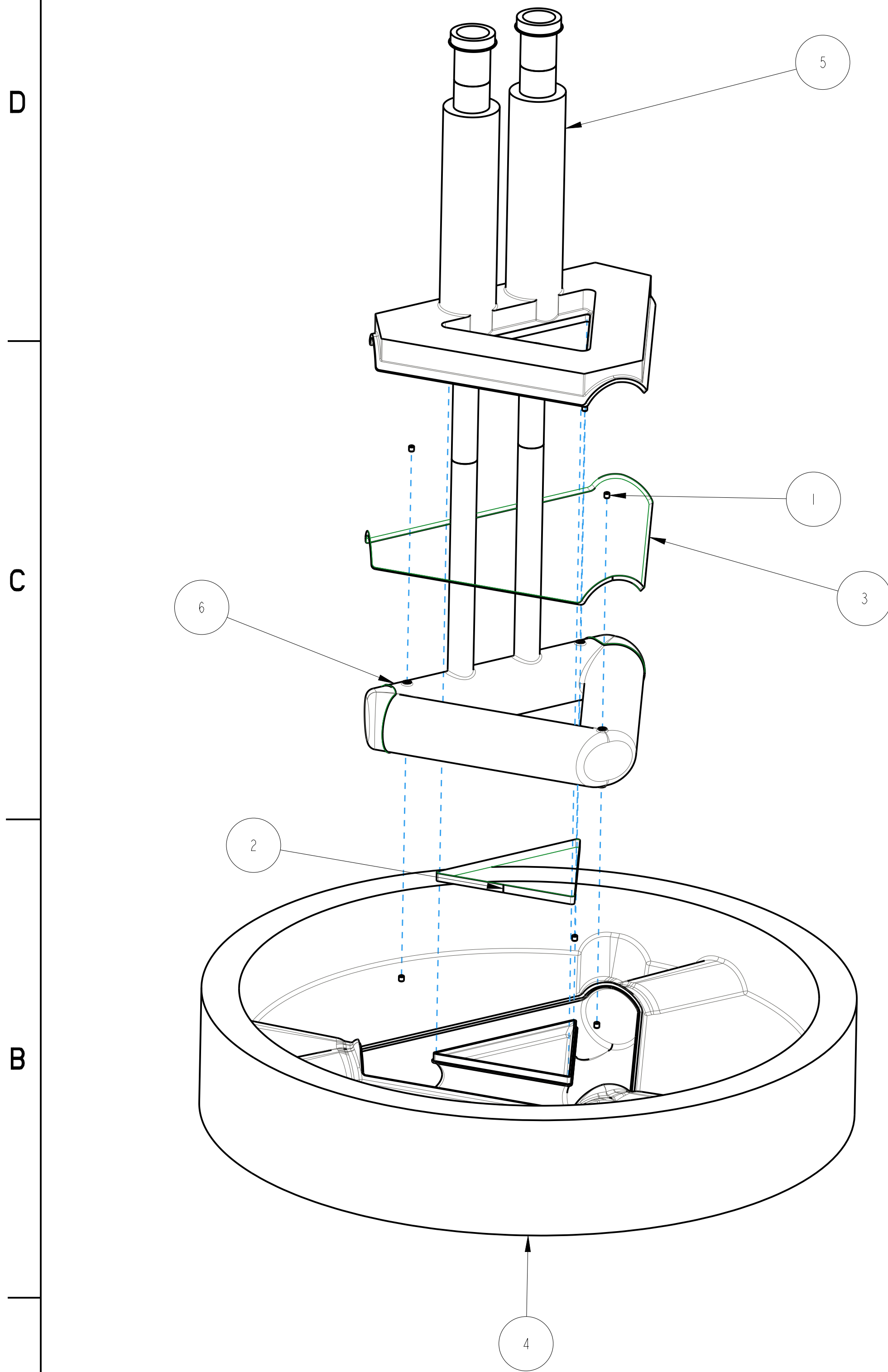
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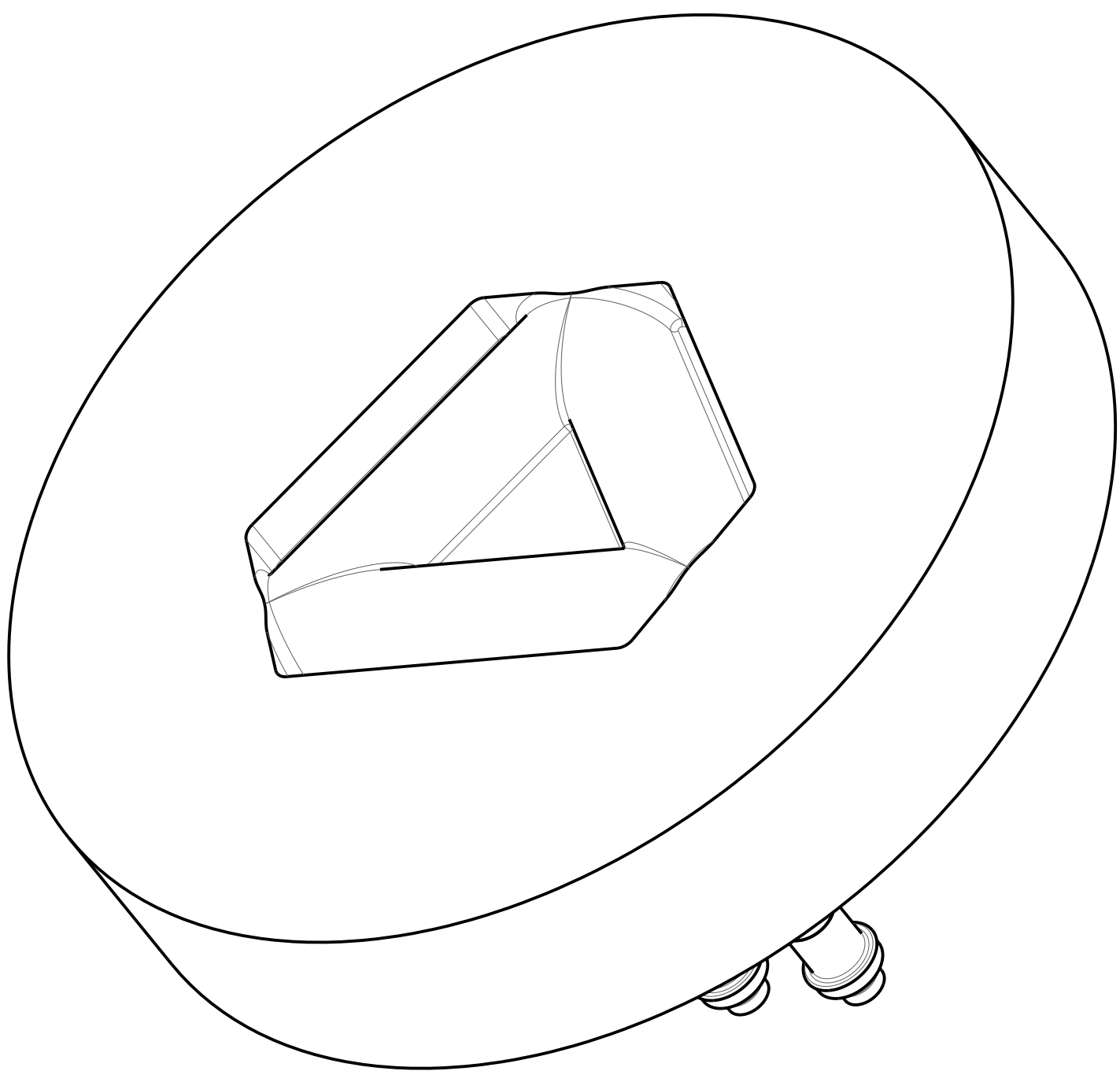
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| REV            | DESCRIPTION OF CHANGE | DATE     |
| 0              | ORIGINAL ISSUE        | 04/08/26 |
|                |                       |          |

NOTES:

1. WELD AND INSPECT PER S03040000-EQSI0000.
2. PICKLE AND BAG PARTS TO BE WELDED PER S03040000-EQSI0000. DO NOT OPEN BAGS UNTIL IMMEDIATELY BEFORE WELDING.
3. HE LEAK CHECK TO SHOW NO DETECTABLE LEAK WITH A BACKGROUND OF  $1 \times 10^{-9}$  TORR L/S OR LESS PER S03040000-EQSI0000.
4. DIMENSIONAL INSPECTION PER S03040000-EQSI0000 AFTER WELDING.
5. MACHINE PER 0000070004 AFTER WELDING, INSPECTION, AND LEAK CHECKING.

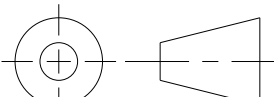


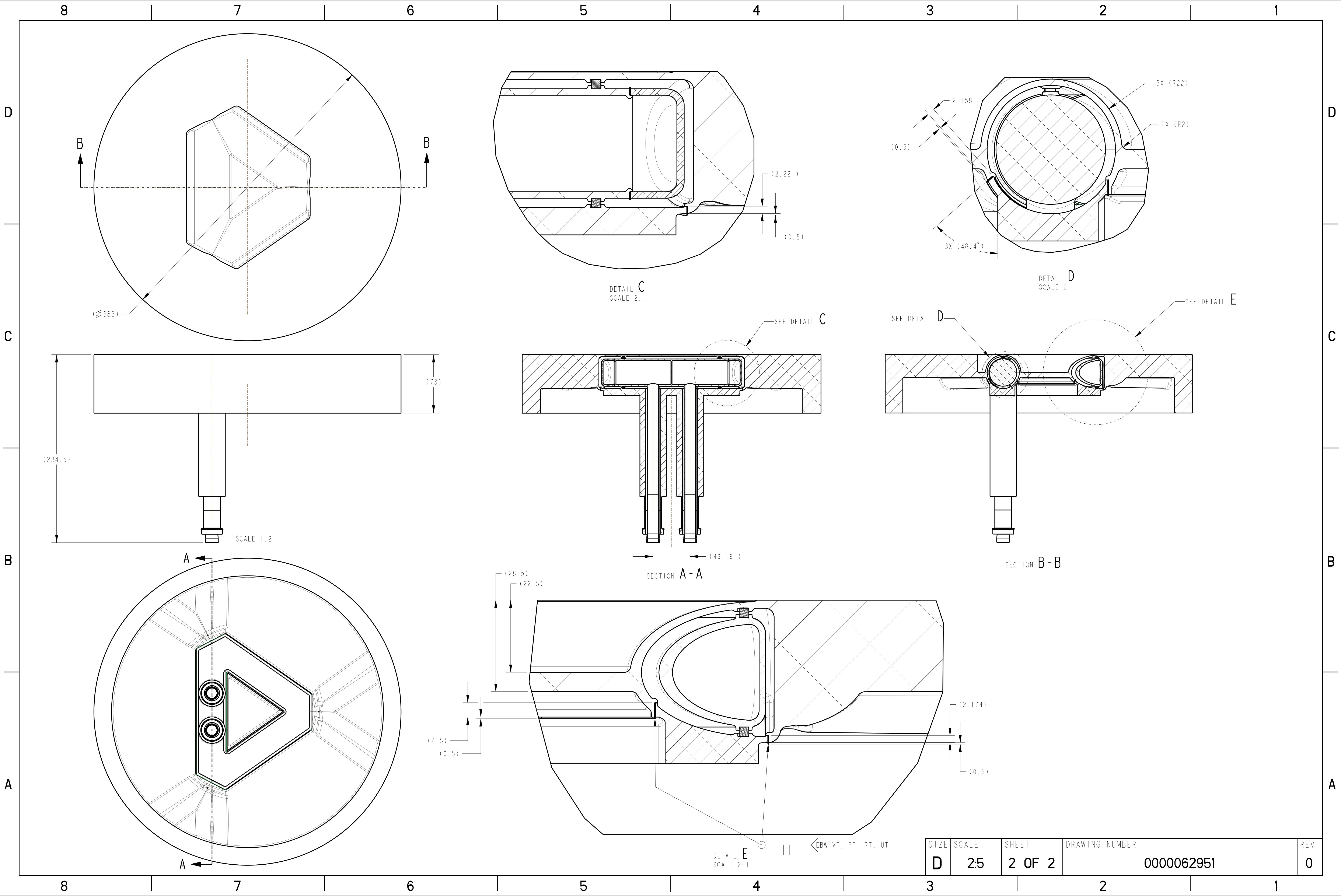
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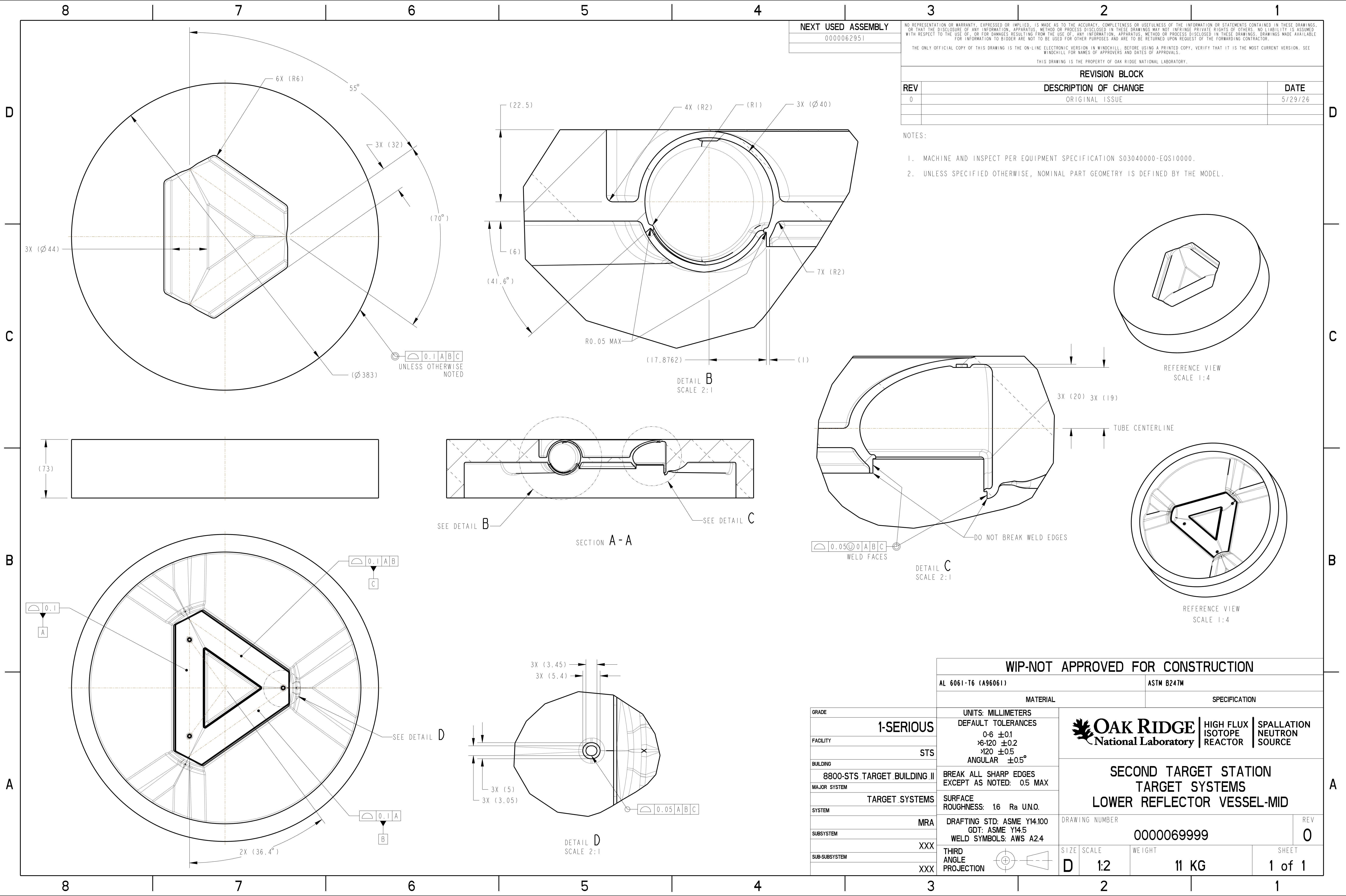


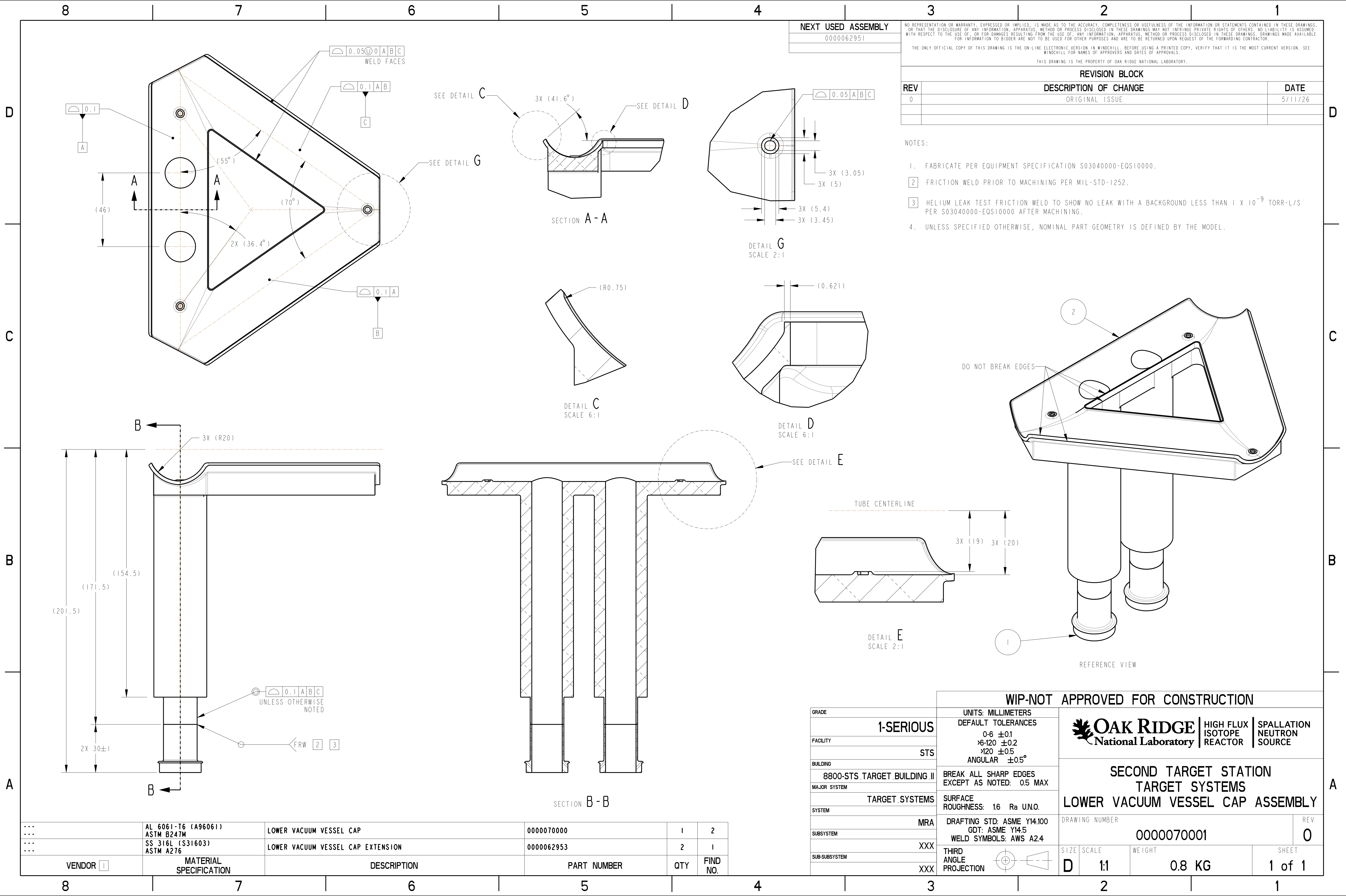
REFERENCE VIEW

|   |                                 |                                           |                                    |             |     |             |
|---|---------------------------------|-------------------------------------------|------------------------------------|-------------|-----|-------------|
| A | ---                             | ---                                       | LOWER HYDROGEN VESSEL-WARM         | 0000077220  | I   | 6           |
|   | ---                             | ---                                       | LOWER VACUUM VESSEL CAP ASSEMBLY   | 0000070001  | I   | 5           |
|   | ---                             | AL 6061-T6 (A96061)<br>ASTM B247M         | LOWER REFLECTOR VESSEL-MID         | 0000069999  | I   | 4           |
|   | ---                             | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-LOWER VAC VESSEL OUTER | 0000068099  | I   | 3           |
|   | ---                             | AL 4047 (A94047)<br>AMS 4185E, ANSI H35.2 | WELD FILLER-LOWER VAC VESSEL INNER | 0000067839  | I   | 2           |
|   | ---                             | TI 15-3-3-3 (R58153)<br>AMS 4914          | MODERATOR TITANIUM SPACER          | 0000062487  | 6   | I           |
|   | VENDOR <input type="checkbox"/> | MATERIAL<br>SPECIFICATION                 | DESCRIPTION                        | PART NUMBER | QTY | FIND<br>NO. |

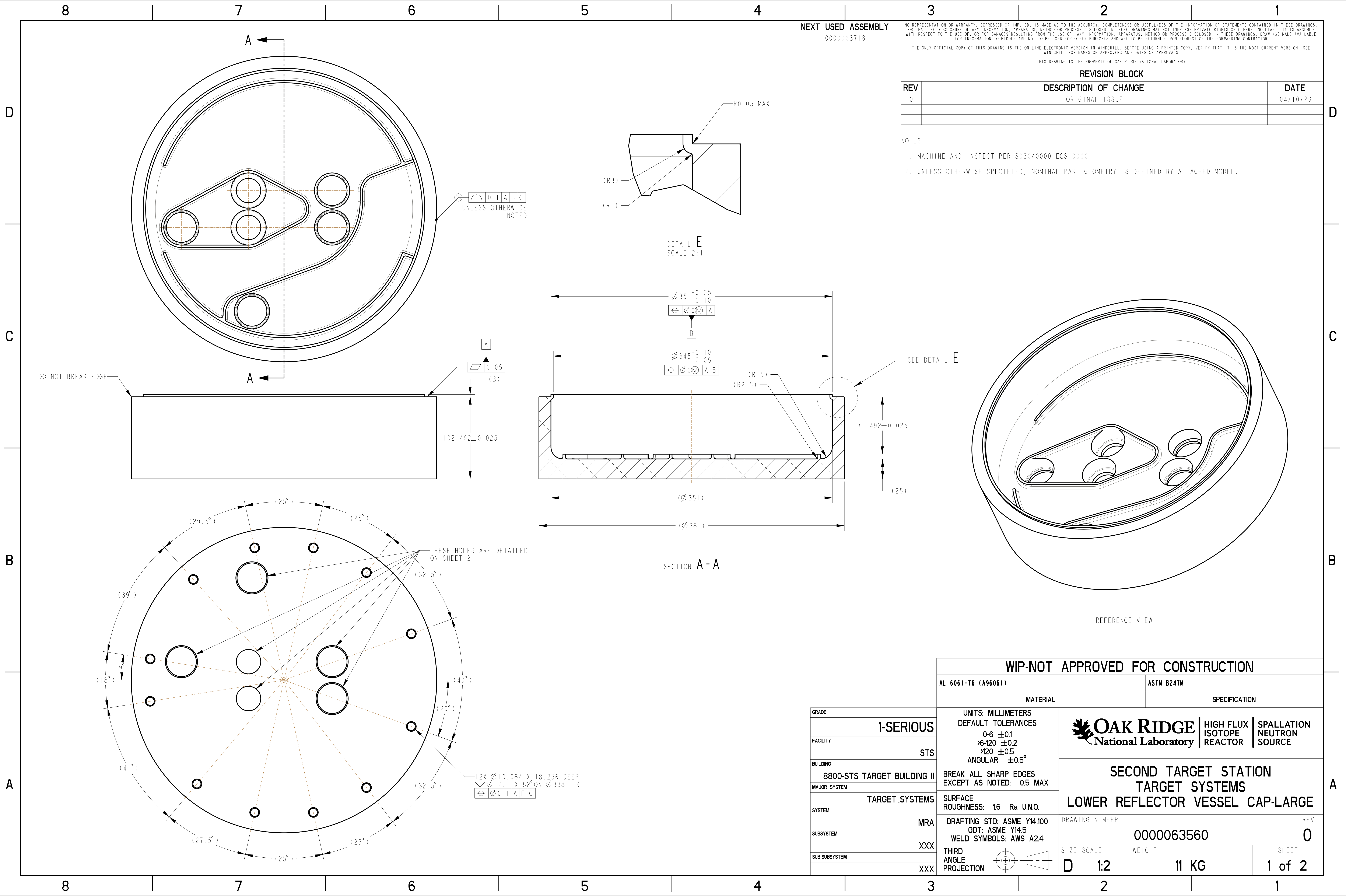
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|-----------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|--------|
| WIP-NOT APPROVED FOR CONSTRUCTION |                                                                                       |                                                                                                                                                       |       |        |        |
| GRADE                             | UNITS: MILLIMETERS                                                                    | <div>HIGH FLUX ISOTOPE REACTOR   SPALLATION NEUTRON SOURCE</div> |       |        |        |
| 1-SERIOUS                         | DEFAULT TOLERANCES                                                                    |                                                                                                                                                       |       |        |        |
| FACILITY                          | 0-6 ±0.1                                                                              |                                                                                                                                                       |       |        |        |
| STS                               | >6-120 ±0.2                                                                           |                                                                                                                                                       |       |        |        |
| BUILDING                          | >120 ±0.5                                                                             |                                                                                                                                                       |       |        |        |
| 8800-STG TARGET BUILDING II       | ANGULAR ±0.5°                                                                         | SECOND TARGET STATION<br>TARGET SYSTEMS<br>LOWER REFLECTOR VESSEL-MID WELDMENT                                                                        |       |        |        |
| MAJOR SYSTEM                      | BREAK ALL SHARP EDGES<br>EXCEPT AS NOTED: 0.5 MAX                                     |                                                                                                                                                       |       |        |        |
| TARGET SYSTEMS                    | SURFACE<br>ROUGHNESS: 1.6 Ra U.N.O.                                                   |                                                                                                                                                       |       |        |        |
| SYSTEM                            | DRAFTING STD: ASME Y14.100                                                            |                                                                                                                                                       |       |        |        |
| MRA                               | GDT: ASME Y14.5                                                                       |                                                                                                                                                       |       |        |        |
| SUBSYSTEM                         | WELD SYMBOLS: AWS A2.4                                                                | DRAWING NUMBER                                                                                                                                        |       | REV    |        |
| XXX                               |                                                                                       | 0000062951                                                                                                                                            |       | 0      |        |
| SUB-SUBSYSTEM                     | THIRD ANGLE PROJECTION                                                                | SIZE                                                                                                                                                  | SCALE | WEIGHT | SHEET  |
| XXX                               |  | D                                                                                                                                                     | 1:2   | 12 KG  | 1 of 2 |

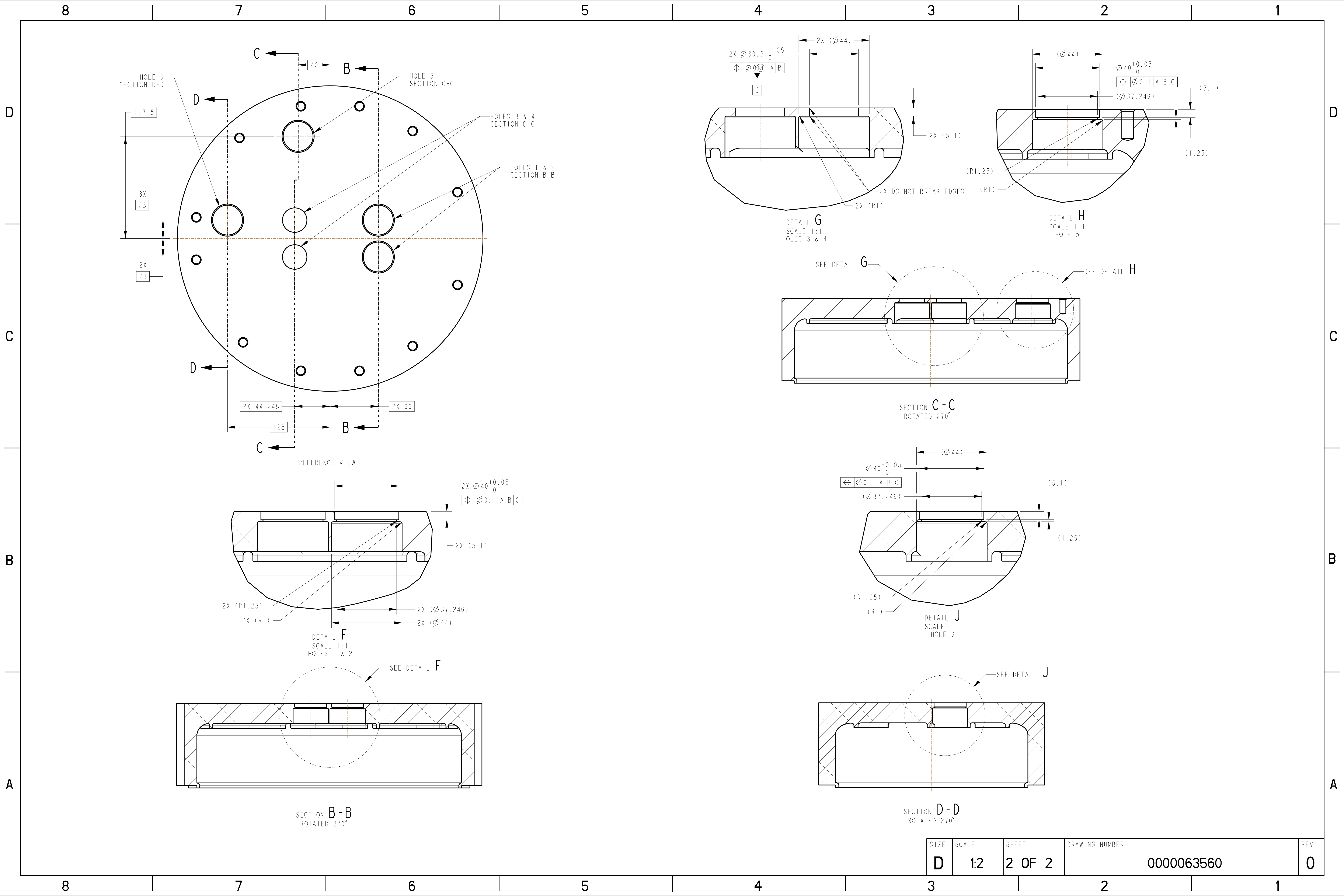




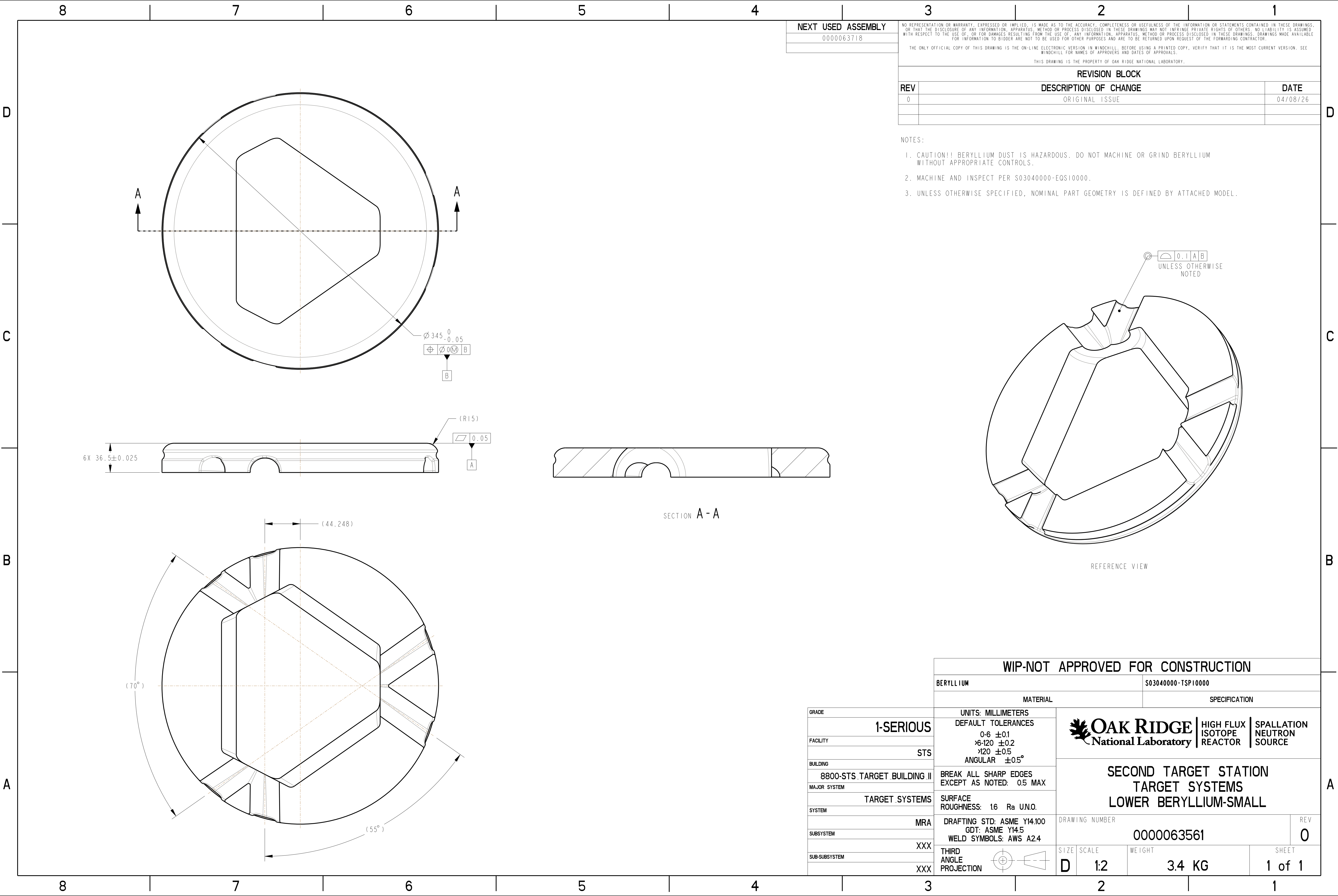




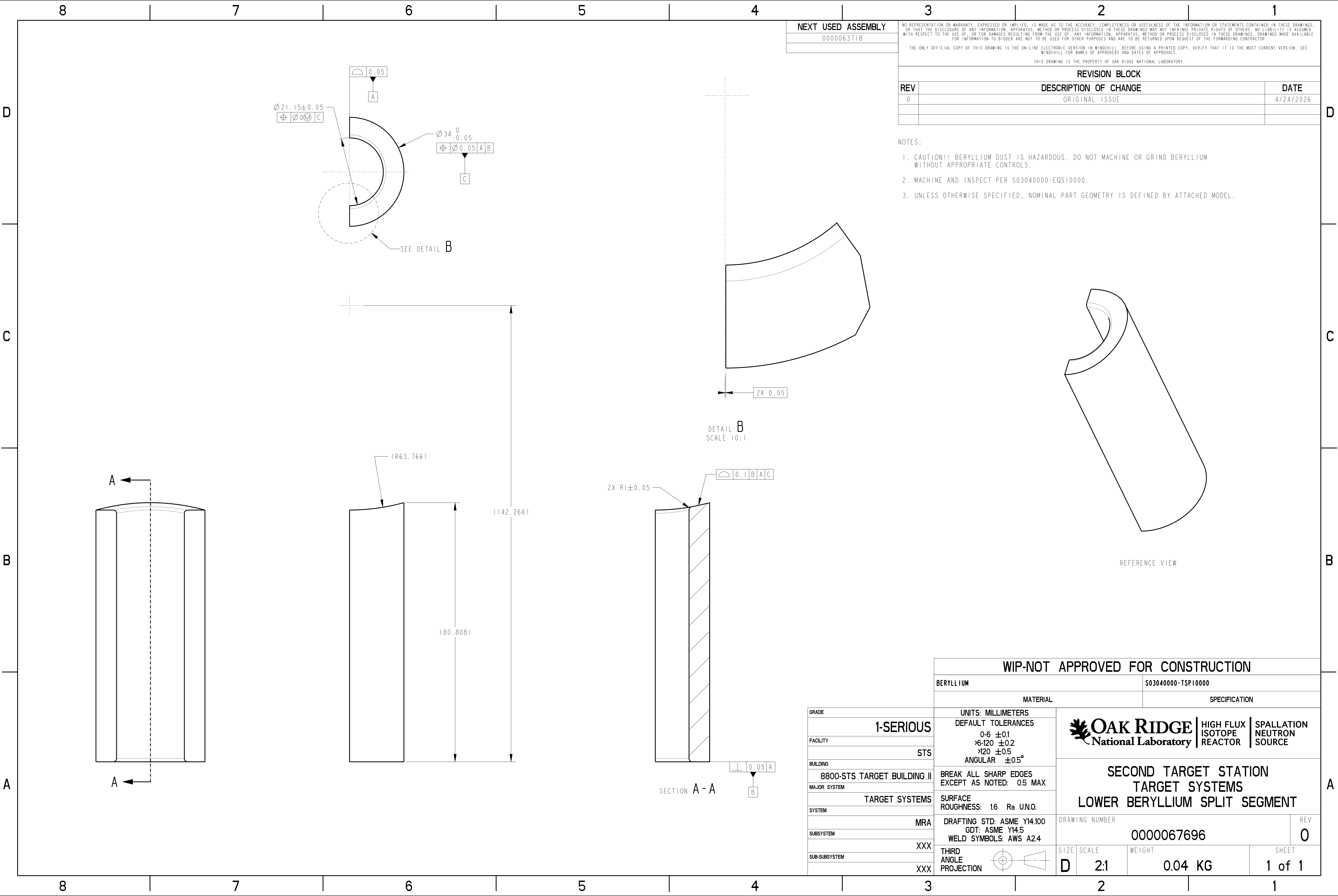




| SIZE | SCALE | SHEET  | DRAWING NUMBER | REV |
|------|-------|--------|----------------|-----|
| D    | 1:2   | 2 OF 2 | 0000063560     | 0   |







NEXT USED ASSEMBLY  
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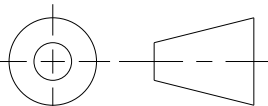
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| REV            | DESCRIPTION OF CHANGE | DATE      |
| 0              | ORIGINAL ISSUE        | 4/24/2026 |
|                |                       |           |
|                |                       |           |

- NOTES:
- CAUTION!! BERYLLIUM DUST IS HAZARDOUS. DO NOT MACHINE OR GRIND BERYLLIUM WITHOUT APPROPRIATE CONTROLS.
  - MACHINE AND INSPECT PER S03040000-EQS10000.
  - UNLESS OTHERWISE SPECIFIED, NOMINAL PART GEOMETRY IS DEFINED BY ATTACHED MODEL.

WIP-NOT APPROVED FOR CONSTRUCTION

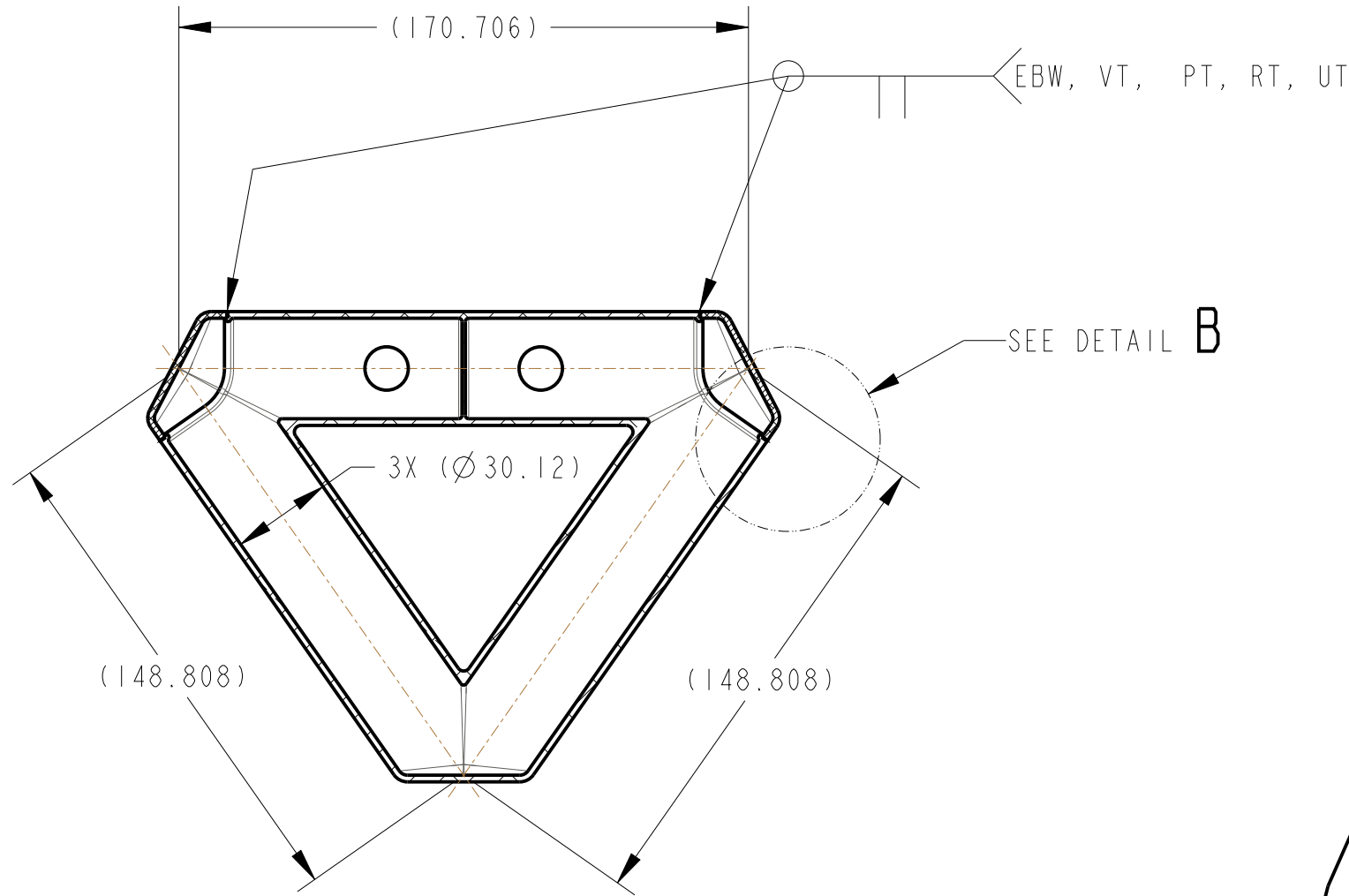
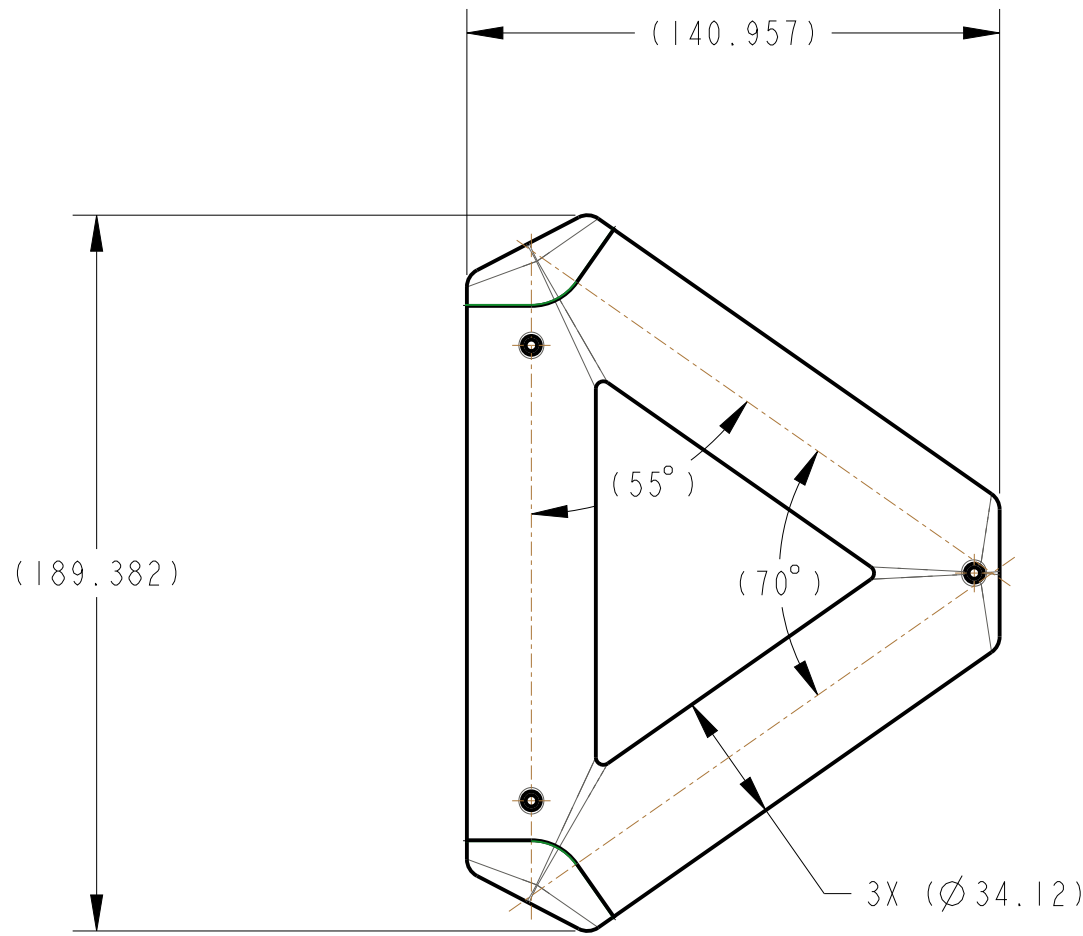
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|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|
| BERYLLIUM                                                                                                                                                  |  | S03040000-TSP10000                                                                                                                                                                                                                   |         |        |
| MATERIAL                                                                                                                                                   |  | SPECIFICATION                                                                                                                                                                                                                        |         |        |
| <div>UNITS: MILLIMETERS</div> <div>DEFAULT TOLERANCES</div> <div>0-6 ±0.1</div> <div>&gt;6-120 ±0.2</div> <div>&gt;120 ±0.5</div> <div>ANGULAR ±0.5°</div> |  | <div><div>OAK RIDGE<br/>National Laboratory</div><div>HIGH FLUX<br/>ISOTOPE<br/>REACTOR</div><div>SPALLATION<br/>NEUTRON<br/>SOURCE</div></div> |         |        |
| <div>BREAK ALL SHARP EDGES<br/>EXCEPT AS NOTED: 0.5 MAX</div>                                                                                              |  |                                                                                                                                                                                                                                      |         |        |
| <div>SURFACE<br/>ROUGHNESS: 16 Ra U.N.O.</div>                                                                                                             |  | <div>SECOND TARGET STATION</div> <div>TARGET SYSTEMS</div> <div>LOWER BERYLLIUM SPLIT SEGMENT</div>                                                                                                                                  |         |        |
| <div>DRAFTING STD: ASME Y14.100</div> <div>GDT: ASME Y14.5</div> <div>WELD SYMBOLS: AWS A2.4</div>                                                         |  |                                                                                                                                                                                                                                      |         |        |
| <div>THIRD<br/>ANGLE<br/>PROJECTION</div> <div></div>                 |  | DRAWING NUMBER                                                                                                                                                                                                                       |         | REV    |
|                                                                                                                                                            |  | 0000067696                                                                                                                                                                                                                           |         | 0      |
| SIZE                                                                                                                                                       |  | SCALE                                                                                                                                                                                                                                | WEIGHT  | SHEET  |
| D                                                                                                                                                          |  | 2:1                                                                                                                                                                                                                                  | 0.04 KG | 1 of 1 |

D

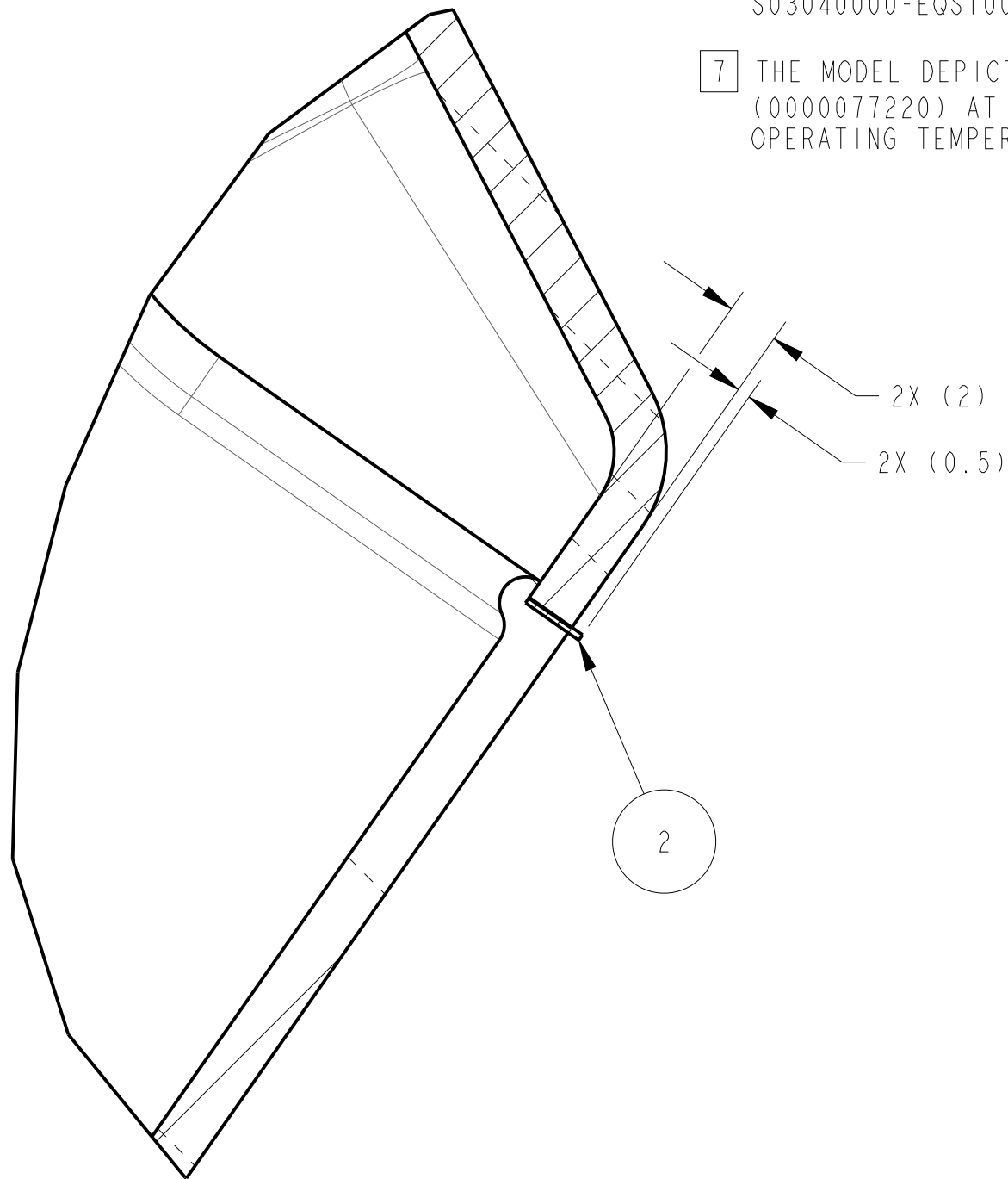
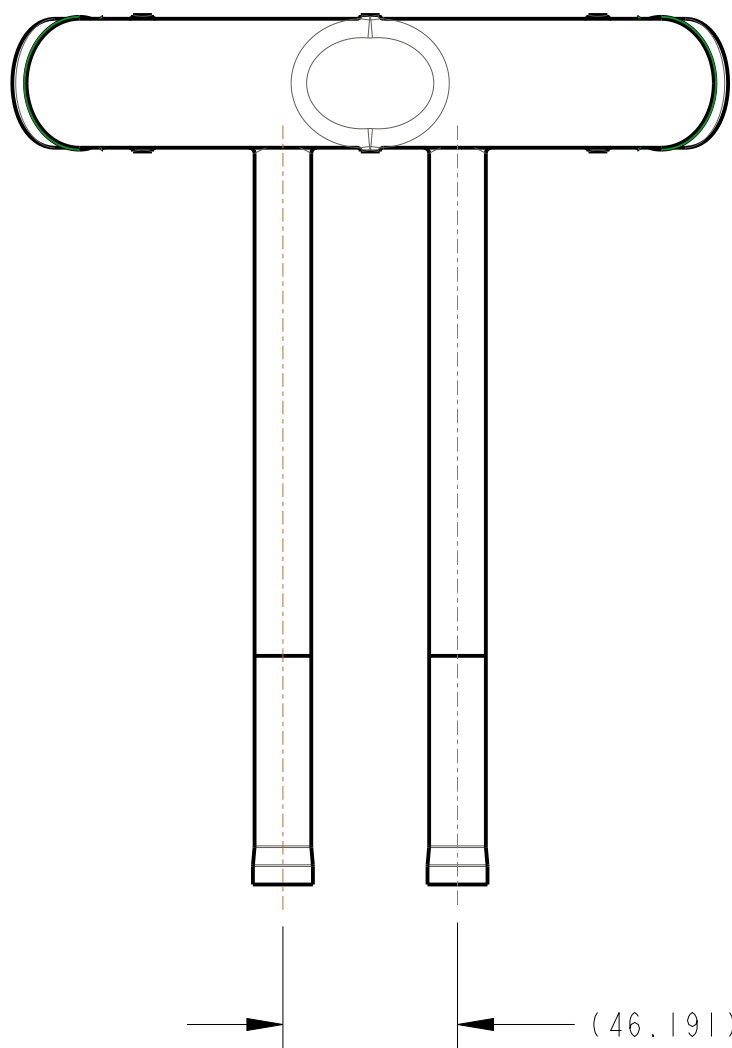
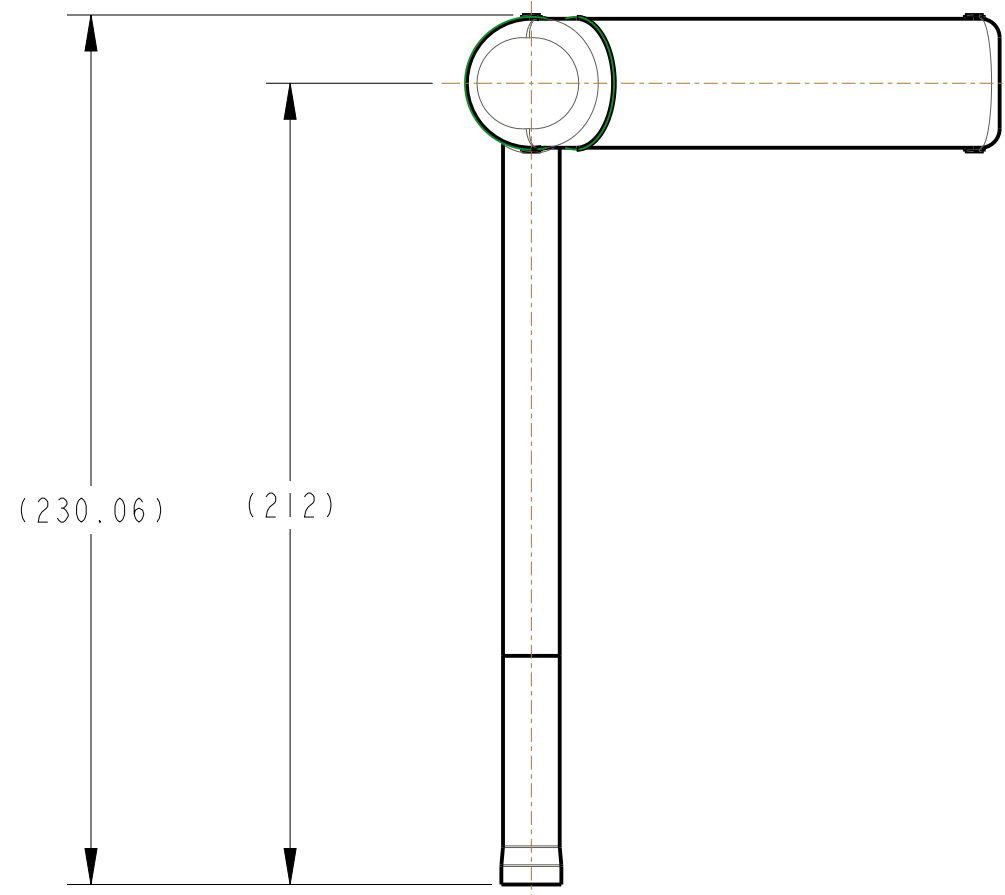
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B

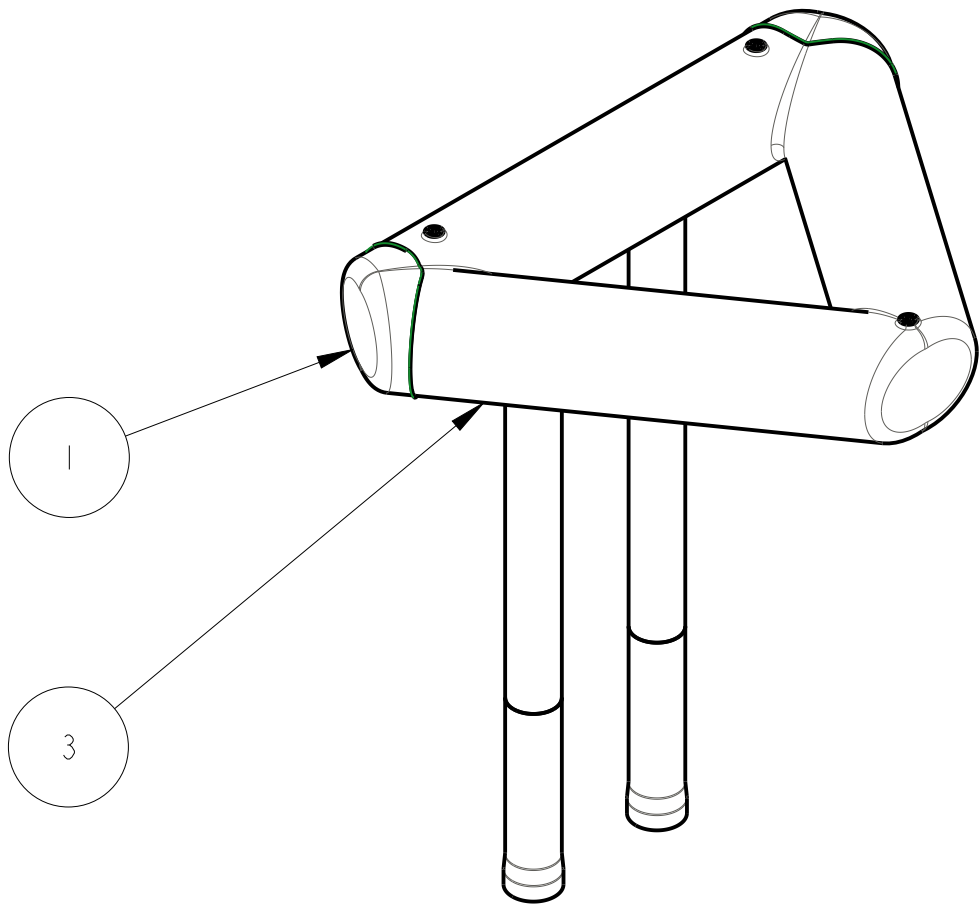
A



SECTION A - A



DETAIL B  
SCALE 4:1



REFERENCE VIEW

NOTES:

1. WELD AND INSPECT PER S03040000-EQS10000.
2. PICKLE AND BAG PARTS TO BE WELDED PER S03040000-EQS10000. DO NOT OPEN BAGS UNTIL IMMEDIATELY BEFORE WELDING.
3. DIMENSIONAL INSPECTION AFTER WELDING PER S03040000-EQS10000.
4. 3X COLD SHOCK WITH LIQUID NITROGEN PER S03040000-EQS10000.
5. PNEUMATIC TEST WITH DRY NITROGEN AT 317 PSIG PER S03040000-EQS10000.
6. HE LEAK CHECK TO SHOW NO DETECTABLE LEAK WITH A BACKGROUND OF  $1 \times 10^{-9}$  TORR L/S OR LESS PER S03040000-EQS10000.
- 7 THE MODEL DEPICTED ON SHEET 2 (0000062635) REPRESENTS THE MODEL ON THIS SHEET (0000077220) AT 20K OPERATING TEMPERATURE. NO TESTING OR INSPECTION IS REQUIRED AT OPERATING TEMPERATURE.

|                       |                        |                                          |             |     |          |
|-----------------------|------------------------|------------------------------------------|-------------|-----|----------|
| ...                   | ...                    | LOWER HYDROGEN VESSEL BODY ASSEMBLY-WARM | 0000077455  | 1   | 3        |
| ...                   | AL 4047 (A94047)       | LOWER HYDROGEN VESSEL WELD FILLER-WARM   | 0000077221  | 2   | 2        |
| ...                   | AMS 4185E, ANSI H35.2  |                                          |             |     |          |
| ...                   | AL 6061-T6 (A96061)    | LOWER HYDROGEN VESSEL WELD CAP-WARM      | 0000068859  | 2   | 1        |
| ...                   | ASTM B247M             |                                          |             |     |          |
| VENDOR <span>I</span> | MATERIAL SPECIFICATION | DESCRIPTION                              | PART NUMBER | QTY | FIND NO. |

|                                   |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |
|-----------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|-----------------|
| WIP-NOT APPROVED FOR CONSTRUCTION |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |
| GRADE                             | UNITS: MILLIMETERS                                                      | <div><div></div><div>OAK RIDGE<br/>National Laboratory</div></div> <div>HIGH FLUX ISOTOPE REACTOR</div> <div>SPALLATION NEUTRON SOURCE</div> |              |                   |                 |
| 1-SERIOUS                         | DEFAULT TOLERANCES                                                      |                                                                                                                                                                                                                                   |              |                   |                 |
| FACILITY                          | 0-6 ±0.1<br>×6-120 ±0.2<br>120 ±0.5<br>ANGULAR ±0.5°                    | SECOND TARGET STATION<br>TARGET SYSTEMS<br>LOWER HYDROGEN VESSEL-WARM                                                                                                                                                             |              |                   |                 |
| STS                               |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |
| BUILDING                          |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |
| 8800-STG TARGET BUILDING II       | BREAK ALL SHARP EDGES<br>EXCEPT AS NOTED: 0.5 MAX                       |                                                                                                                                                                                                                                   |              |                   |                 |
| MAJOR SYSTEM                      |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |
| TARGET SYSTEMS                    | SURFACE<br>ROUGHNESS: 16 Ra U.N.O.                                      | DRAWING NUMBER<br><br>0000077220                                                                                                                                                                                                  |              |                   |                 |
| SYSTEM                            |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |
| MRA                               | DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4 | REV<br><br>0                                                                                                                                                                                                                      |              |                   |                 |
| SUBSYSTEM                         | THIRD ANGLE PROJECTION                                                  | SIZE<br>D                                                                                                                                                                                                                         | SCALE<br>1:2 | WEIGHT<br>0.31 KG | SHEET<br>1 of 2 |
| SUB-SUBSYSTEM                     |                                                                         |                                                                                                                                                                                                                                   |              |                   |                 |

NEXT USED ASSEMBLY  
0000062951

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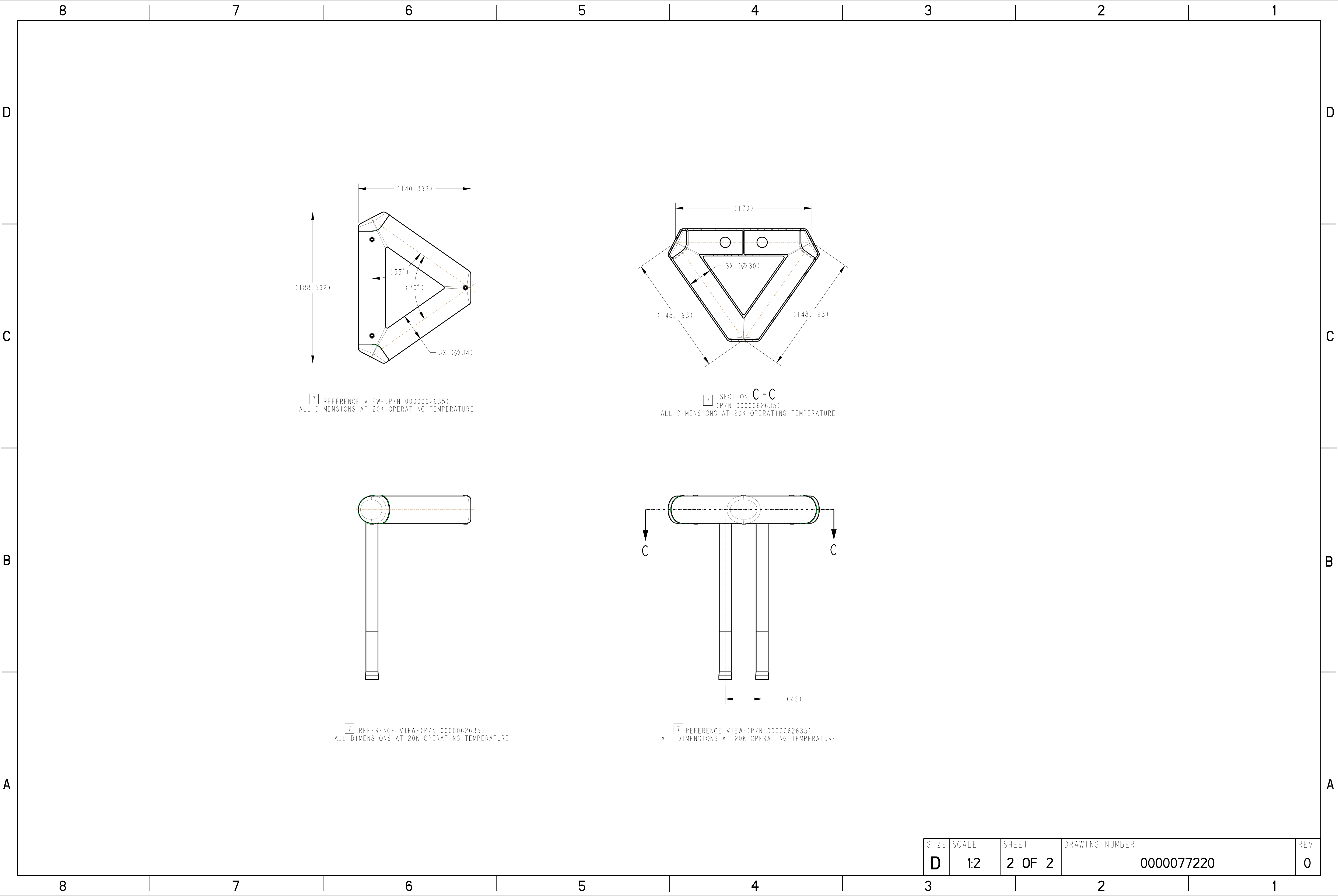
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| REV            | DESCRIPTION OF CHANGE | DATE    |
| 0              | ORIGINAL ISSUE        | 5/13/26 |
|                |                       |         |
|                |                       |         |

D

C

B

A



| SIZE | SCALE | SHEET  | DRAWING NUMBER | REV |
|------|-------|--------|----------------|-----|
| D    | 1:2   | 2 OF 2 | 0000077220     | 0   |



|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000077220         |
|                    |

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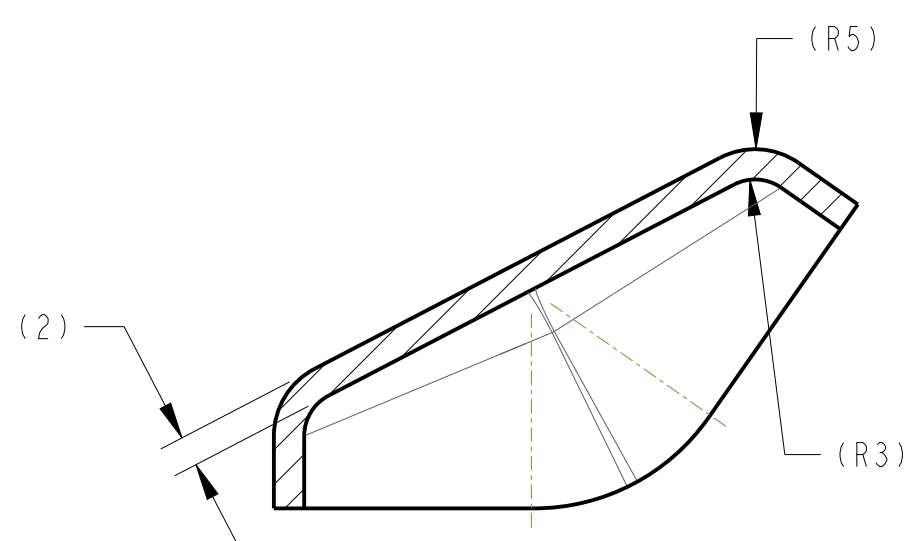
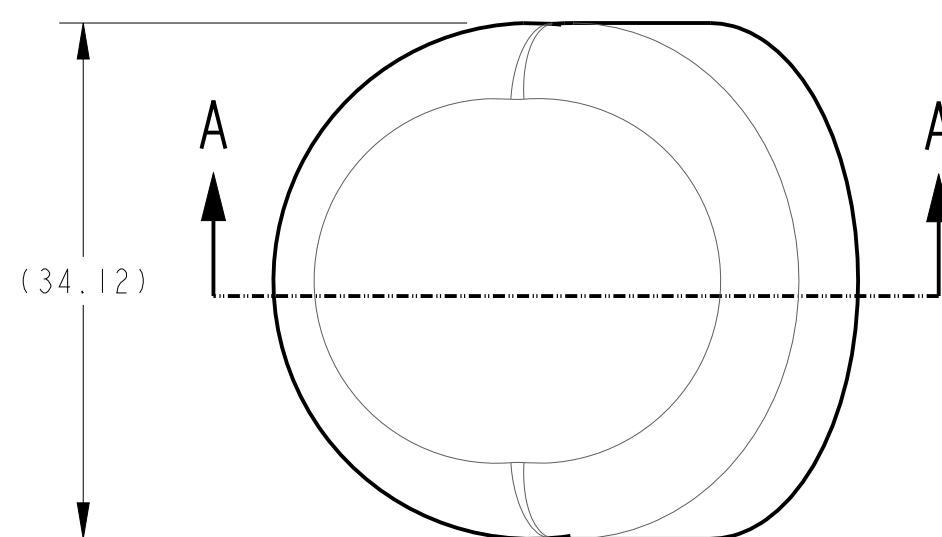
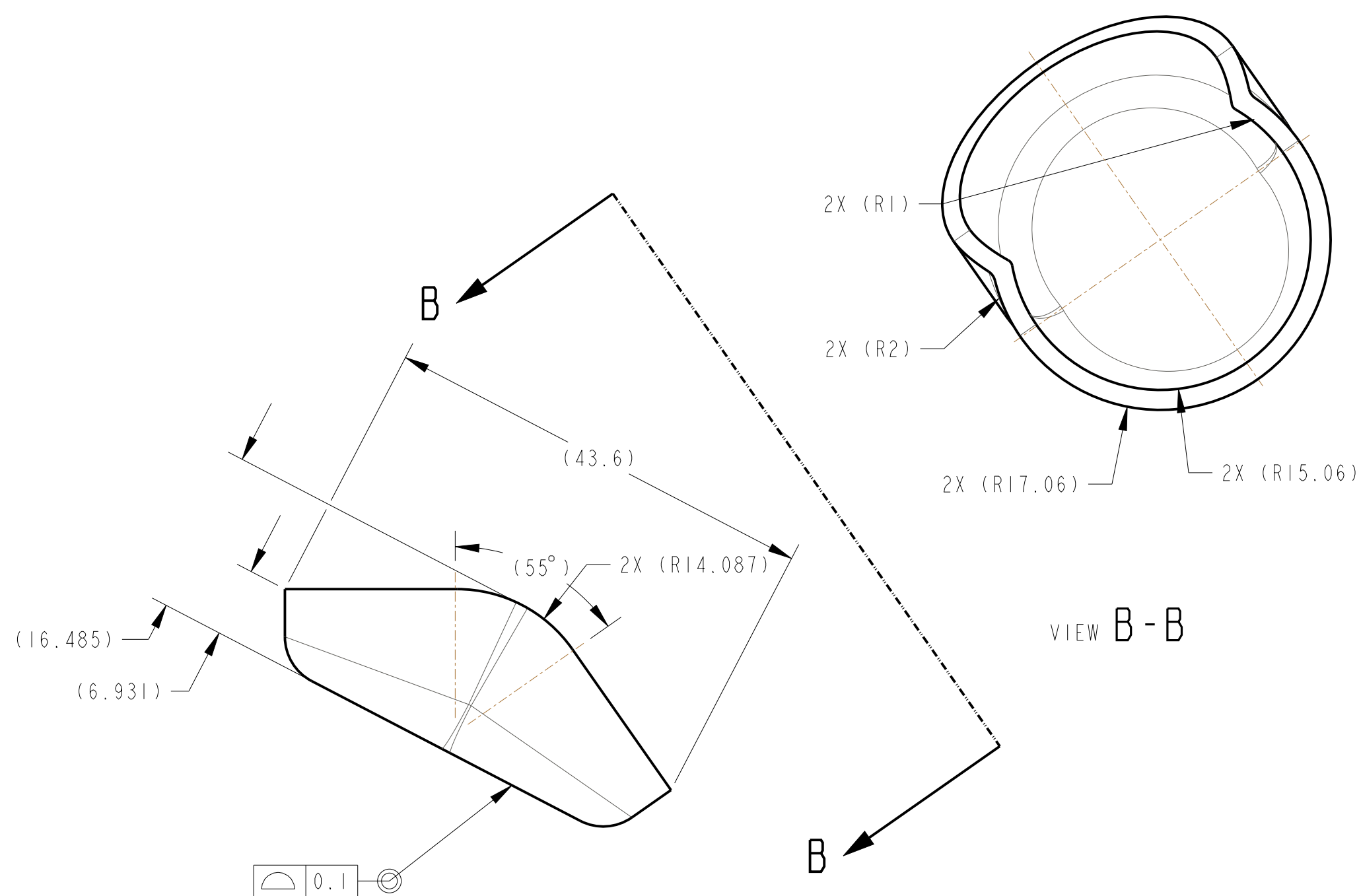
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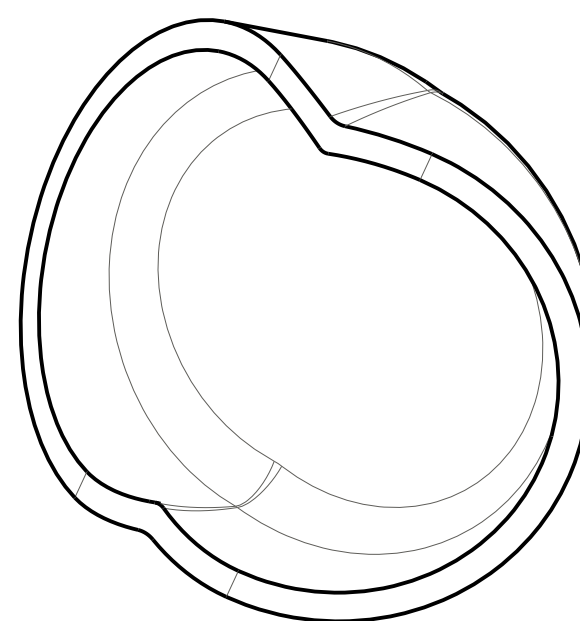
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NOTES:

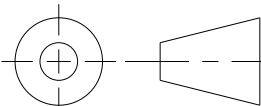
1. MACHINE AND INSPECT PER S03040000-EQS10000.
2. NOMINAL PART GEOMETRY IS DEFINED BY ATTACHED MODEL.



SECTION A - A



REFERENCE VIEW

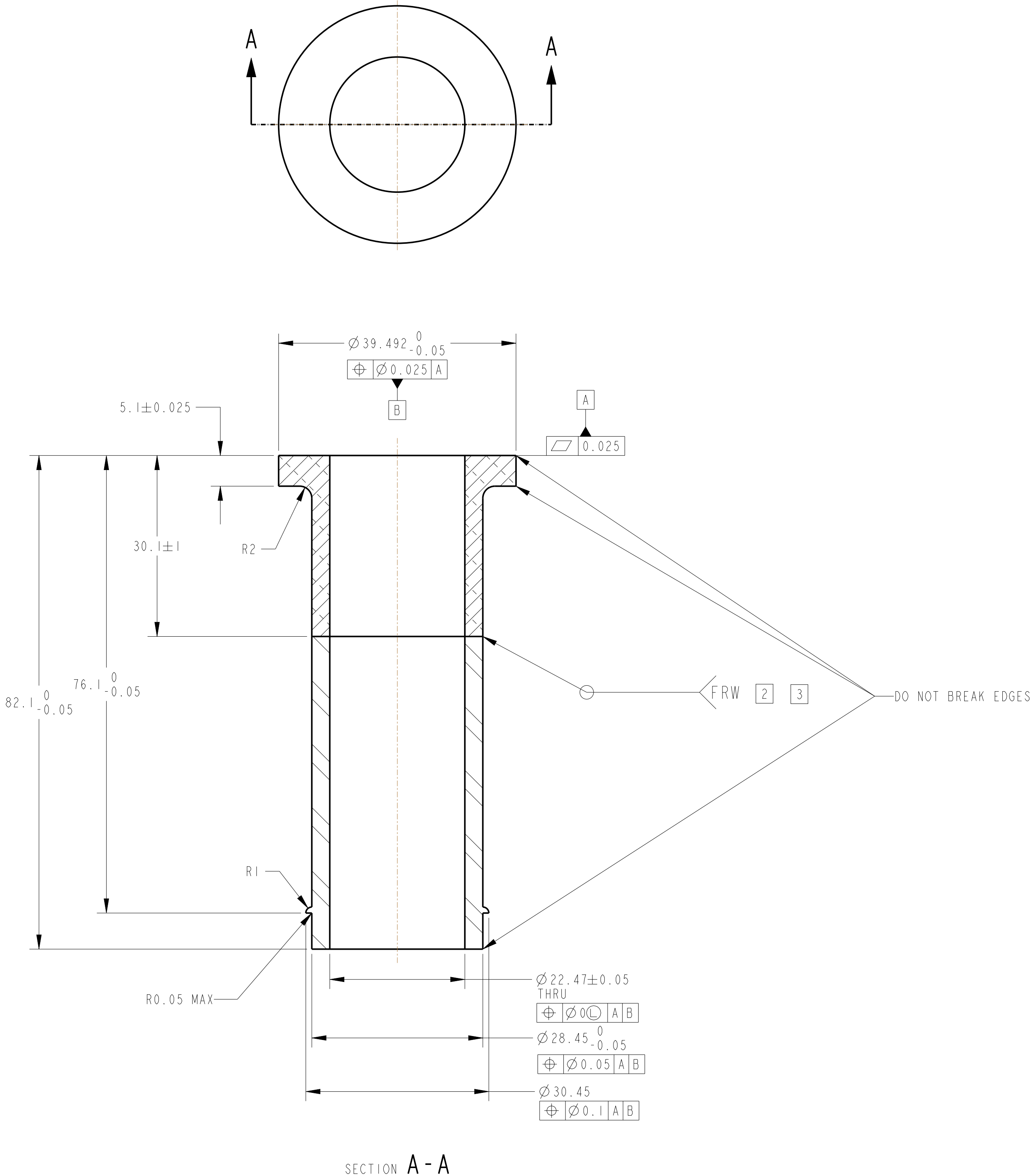
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|-----------------------------|--|---------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                             |  | WIP-NOT APPROVED FOR CONSTRUCTION                                                     |  |                                                                                                                                                                                                                              |  |
|                             |  | AL 6061-T6 (A96061)                                                                   |  | ASTM B247M                                                                                                                                                                                                                   |  |
|                             |  | MATERIAL                                                                              |  | SPECIFICATION                                                                                                                                                                                                                |  |
| GRADE                       |  | UNITS: MILLIMETERS                                                                    |  | <div>OAK RIDGE<br/>National Laboratory</div> <div>HIGH FLUX<br/>ISO TOPE<br/>REACTOR</div> <div>SPALLATION<br/>NEUTRON<br/>SOURCE</div> |  |
| 1-SERIOUS                   |  | DEFAULT TOLERANCES<br>0-6 ±0.1<br>>6-120 ±0.2<br>>120 ±0.5<br>ANGULAR ±0.5°           |  |                                                                                                                                                                                                                              |  |
| FACILITY                    |  | DO NOT BREAK EDGES                                                                    |  | <div>SECOND TARGET STATION<br/>TARGET SYSTEMS<br/>LOWER HYDROGEN VESSEL WELD CAP-WARM</div>                                                                                                                                  |  |
| STS                         |  |                                                                                       |  |                                                                                                                                                                                                                              |  |
| BUILDING                    |  | <div>DRAWING NUMBER</div> <div>0000068859</div> <div>REV<br/>0</div>                  |  |                                                                                                                                                                                                                              |  |
| 8800-ST5 TARGET BUILDING II |  |                                                                                       |  |                                                                                                                                                                                                                              |  |
| MAJOR SYSTEM                |  |                                                                                       |  | <div>SIZE</div> <div>D</div> <div>SCALE</div> <div>2:1</div> <div>WEIGHT</div> <div>0.01 KG</div> <div>SHEET</div> <div>1 of 1</div>                                                                                         |  |
| TARGET SYSTEMS              |  |                                                                                       |  |                                                                                                                                                                                                                              |  |
| SYSTEM                      |  |                                                                                       |  |                                                                                                                                                                                                                              |  |
| MRA                         |  |                                                                                       |  |                                                                                                                                                                                                                              |  |
| SUBSYSTEM                   |  | SURFACE<br>ROUGHNESS: 1.6 Ra U.N.O.                                                   |  |                                                                                                                                                                                                                              |  |
| XXX                         |  | DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4               |  |                                                                                                                                                                                                                              |  |
| SUB-SUBSYSTEM               |  | THIRD<br>ANGLE<br>PROJECTION                                                          |  |                                                                                                                                                                                                                              |  |
| XXX                         |  |  |  |                                                                                                                                                                                                                              |  |

D

C

B

A



|        |                                   |                     |               |     |             |
|--------|-----------------------------------|---------------------|---------------|-----|-------------|
| ----   | AL 6061-T6 (A96061)<br>ASTM B247M | BI-METAL FITTING-AL | 0000065940-02 | I   | 2           |
| ----   | SS 316L (S31603)<br>ASTM A276     | BI-METAL FITTING-SS | 0000065940-01 | I   | I           |
| VENDOR | MATERIAL<br>SPECIFICATION         | DESCRIPTION         | PART NUMBER   | QTY | FIND<br>NO. |

|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000063718         |
|                    |

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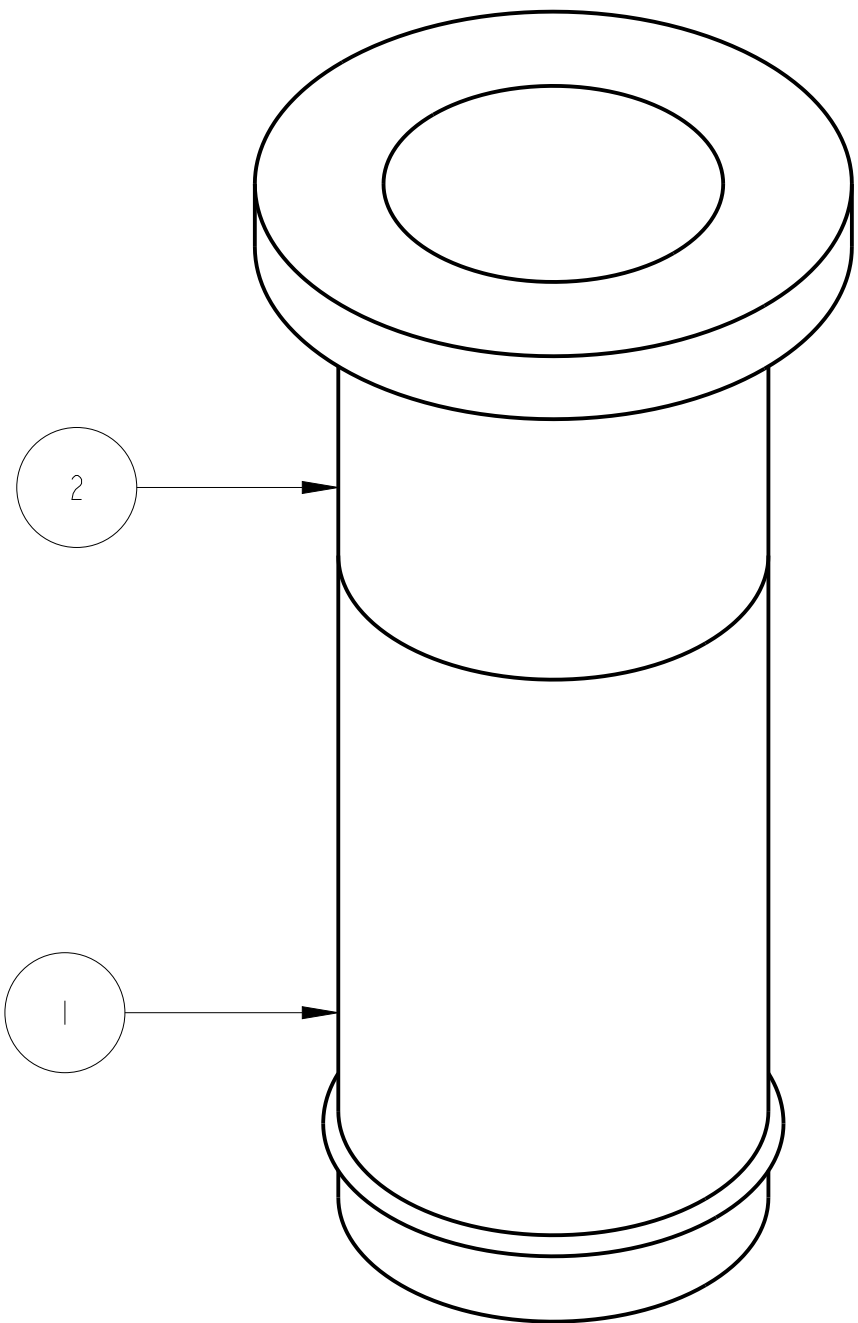
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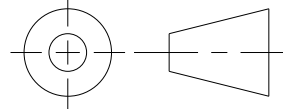
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| REV            | DESCRIPTION OF CHANGE | DATE    |
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|                |                       |         |

NOTES:

- FABRICATE PER EQUIPMENT SPECIFICATION S03040000-EQS10000.
- FRICITION WELD PRIOR TO MACHINING PER MIL-STD-1252.
- HELIUM LEAK TEST FRICTION WELD TO SHOW NO LEAK WITH A BACKGROUND LESS THAN  $1 \times 10^{-8}$  TORR-L/S PER S03040000-EQS10000 AFTER MACHINING.
- NOMINAL PART GEOMETRY IS DEFINED BY THE MODEL.



REFERENCE VIEW

| WIP-NOT APPROVED FOR CONSTRUCTION |                             |                                                                                                              |                                                                                                                                             |          |
|-----------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------|
| GRADE                             | 1-SERIOUS                   | UNITS: MILLIMETERS<br>DEFAULT TOLERANCES<br>0-6 ±0.1<br>≥6-120 ±0.2<br>≥120 ±0.5<br>ANGULAR ±0.5°            |  HIGH FLUX ISOTOPE REACTOR   SPALLATION NEUTRON SOURCE |          |
|                                   |                             |                                                                                                              |                                                                                                                                             |          |
| FACILITY                          | STS                         | BREAK ALL SHARP EDGES EXCEPT AS NOTED: 0.5 MAX                                                               | SECOND TARGET STATION<br>TARGET SYSTEMS<br>MRA BI-METAL FITTING                                                                             |          |
| BUILDING                          | 8800-STG TARGET BUILDING II |                                                                                                              |                                                                                                                                             |          |
| MAJOR SYSTEM                      | TARGET SYSTEMS              | SURFACE ROUGHNESS: 16 Ra UNO.                                                                                | DRAWING NUMBER<br>0000065940                                                                                                                |          |
| SYSTEM                            | MRA                         | DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4                                      |                                                                                                                                             |          |
| SUBSYSTEM                         | XXX                         | THIRD ANGLE PROJECTION  | SHEET<br>1 of 1                                                                                                                             |          |
| SUB-SUBSYSTEM                     | XXX                         |                                                                                                              |                                                                                                                                             |          |
| SIZE                              |                             | SCALE<br>D 2:1                                                                                               | WEIGHT<br>0.13 KG                                                                                                                           | REV<br>0 |

D

C

B

A

|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000062951         |
| 0000062525         |

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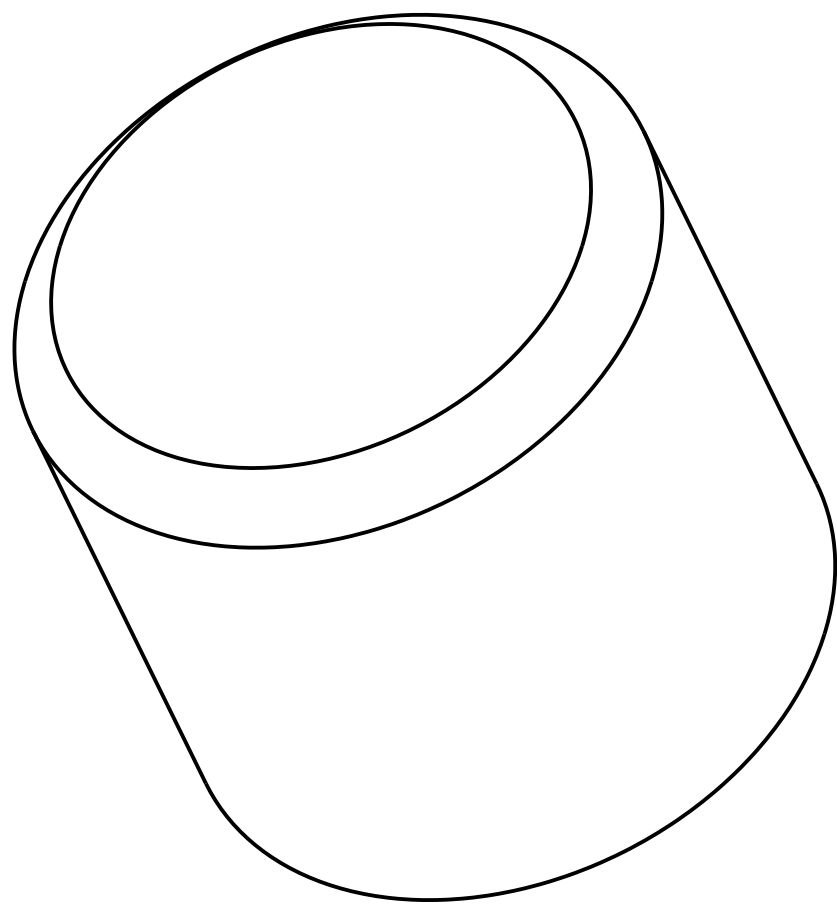
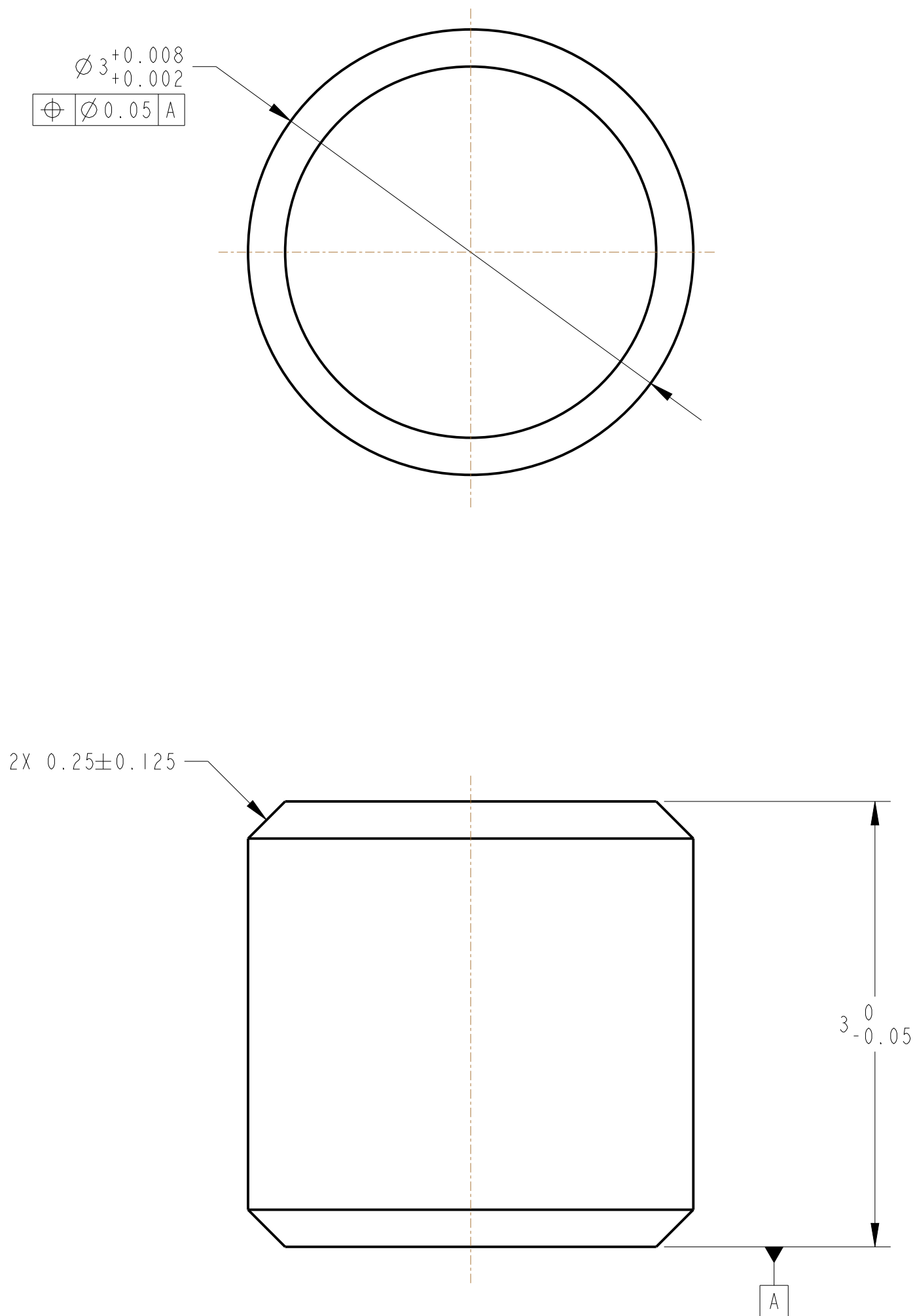
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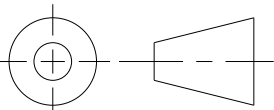
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NOTES:

I. MACHINE AND INSPECT PER S0304000-EQS10000.



REFERENCE VIEW

| WIP-NOT APPROVED FOR CONSTRUCTION                                                                                                                          |  |  |                                                                                                                                                                                                                                                                                                                                      |       |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------|
| TI 15-3-3-3 (R58153)                                                                                                                                       |  |  | AMS 4914                                                                                                                                                                                                                                                                                                                             |       |           |
| MATERIAL                                                                                                                                                   |  |  | SPECIFICATION                                                                                                                                                                                                                                                                                                                        |       |           |
| <div>UNITS: MILLIMETERS</div> <div>DEFAULT TOLERANCES</div> <div>0-6 ±0.1</div> <div>&gt;6-120 ±0.2</div> <div>&gt;120 ±0.5</div> <div>ANGULAR ±0.5°</div> |  |  | <div><div>OAK RIDGE<br/>National Laboratory</div><div>HIGH FLUX<br/>ISOTOPE<br/>REACTOR</div><div>SPALLATION<br/>NEUTRON<br/>SOURCE</div></div> <div>SECOND TARGET STATION</div> <div>TARGET SYSTEMS</div> <div>MODERATOR TITANIUM SPACER</div> |       |           |
| BREAK ALL SHARP EDGES<br>EXCEPT AS NOTED: 0.5 MAX                                                                                                          |  |  |                                                                                                                                                                                                                                                                                                                                      |       |           |
| SURFACE<br>ROUGHNESS: 16 Ra U.N.O.                                                                                                                         |  |  |                                                                                                                                                                                                                                                                                                                                      |       |           |
| DRAWING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4                                                                                     |  |  | DRAWING NUMBER                                                                                                                                                                                                                                                                                                                       |       | REV       |
|                                                                                                                                                            |  |  | 0000062487                                                                                                                                                                                                                                                                                                                           |       | 0         |
| THIRD ANGLE<br>PROJECTION                                                                                                                                  |  |  | SIZE                                                                                                                                                                                                                                                                                                                                 | SCALE | WEIGHT    |
|                                                                       |  |  | D                                                                                                                                                                                                                                                                                                                                    | 30/1  | 0.0001 KG |
|                                                                                                                                                            |  |  | SHEET                                                                                                                                                                                                                                                                                                                                |       |           |
|                                                                                                                                                            |  |  | 1 of 1                                                                                                                                                                                                                                                                                                                               |       |           |

|               |                             |
|---------------|-----------------------------|
| GRADE         | 1-SERIOUS                   |
| FACILITY      |                             |
| BUILDING      | STS                         |
| MAJOR SYSTEM  | 8800-ST5 TARGET BUILDING II |
| SYSTEM        | TARGET SYSTEMS              |
| SUBSYSTEM     | MRA                         |
| SUB-SUBSYSTEM | XXX                         |
|               | XXX                         |



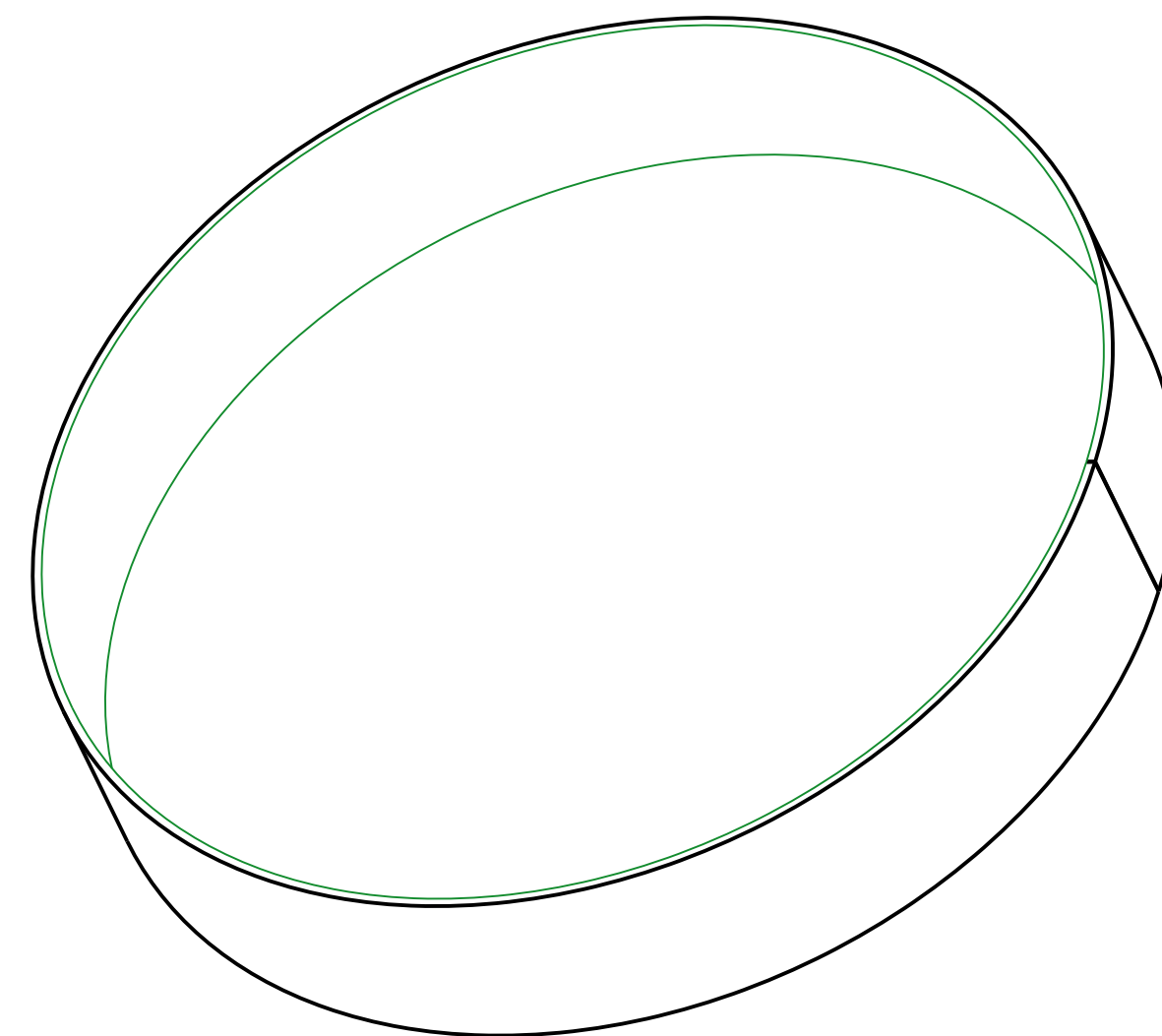
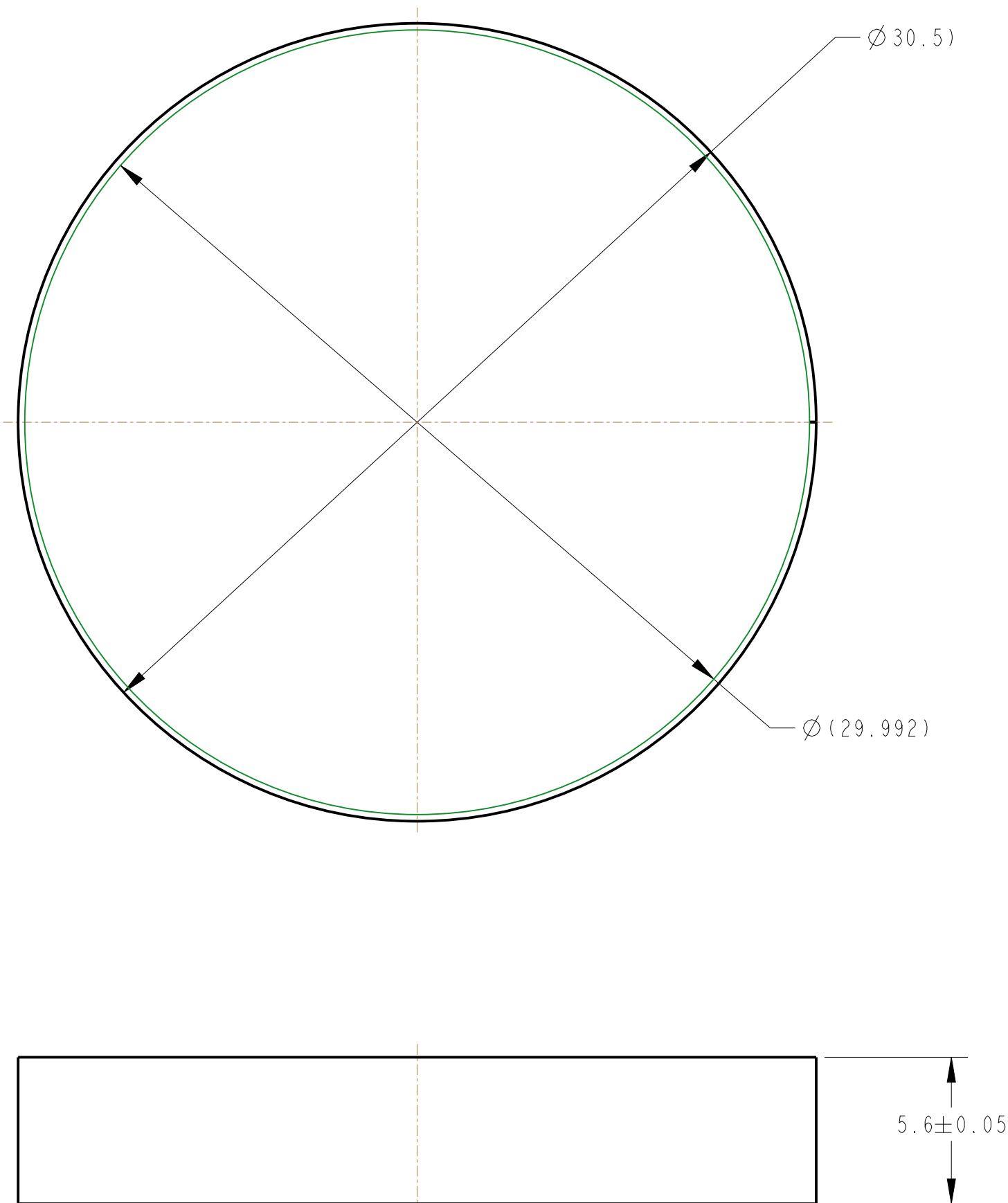
|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000063718         |
|                    |

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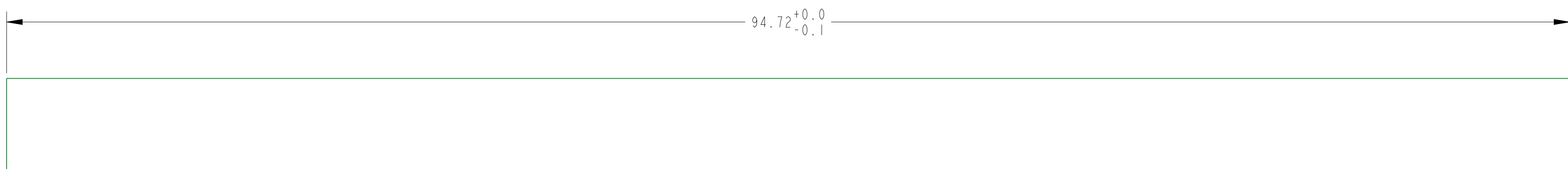
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NOTES:

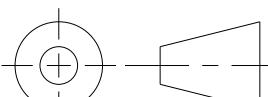
1. MACHINE AND INSPECT PER S0304000-EQS10000.
2. DO NOT BEND PRIOR TO INSTALLATION AT NEXT ASSEMBLY.



SCALE 5:1  
REFERENCE VIEW



REFERENCE VIEW  
FLAT LAYOUT

|                             |           |                                                                                                              |                                                                                                                                             |       |           |        |
|-----------------------------|-----------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------|--------|
| GRADE                       | 1-SERIOUS | UNITS: MILLIMETERS                                                                                           |  HIGH FLUX ISOTOPE REACTOR   SPALLATION NEUTRON SOURCE |       |           |        |
| FACILITY                    |           | DEFAULT TOLERANCES                                                                                           |                                                                                                                                             |       |           |        |
|                             |           | 0-6 ±0.1<br>>6-120 ±0.2<br>>120 ±0.5<br>ANGULAR ±0.5°                                                        |                                                                                                                                             |       |           |        |
| BUILDING                    |           |                                                                                                              |                                                                                                                                             |       |           |        |
| 8800-ST5 TARGET BUILDING II | ST5       | DO NOT BREAK EDGES                                                                                           | SECOND TARGET SYSTEM<br>TARGET SYSTEMS<br>WELD FILLER-38MM FITTING                                                                          |       |           |        |
| MAJOR SYSTEM                |           |                                                                                                              |                                                                                                                                             |       |           |        |
| TARGET SYSTEMS              |           |                                                                                                              |                                                                                                                                             |       |           |        |
| SYSTEM                      |           | SURFACE ROUGHNESS: 16 Ra UN.O.                                                                               |                                                                                                                                             |       |           |        |
|                             | MRA       | DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4                                      | DRAWING NUMBER                                                                                                                              | REV   |           |        |
| SUBSYSTEM                   | XXX       |                                                                                                              | 0000067743                                                                                                                                  | 0     |           |        |
| SUB-SUBSYSTEM               | XXX       | THIRD ANGLE PROJECTION  | SIZE                                                                                                                                        | SCALE | WEIGHT    | SHEET  |
|                             |           |                                                                                                              | D                                                                                                                                           | 5:1   | 0.0004 KG | 1 of 1 |

|                    |
|--------------------|
| NEXT USED ASSEMBLY |
| 0000062951         |
|                    |

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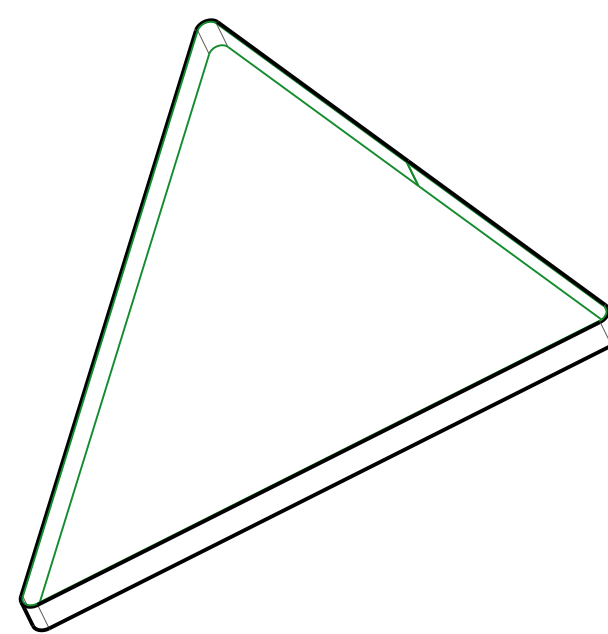
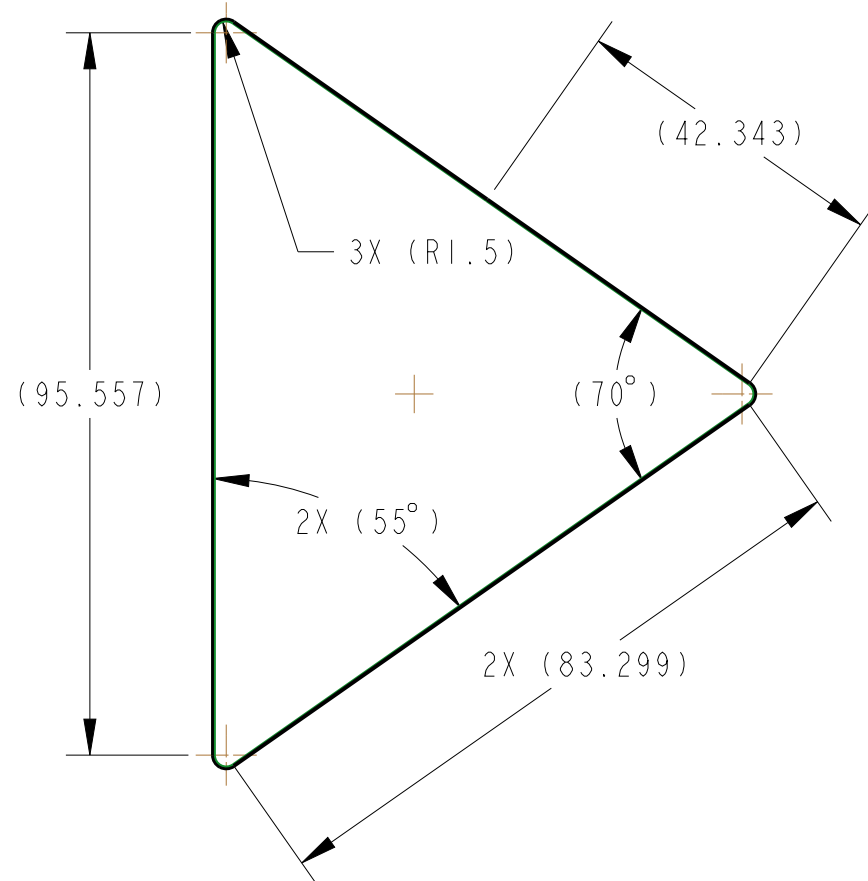
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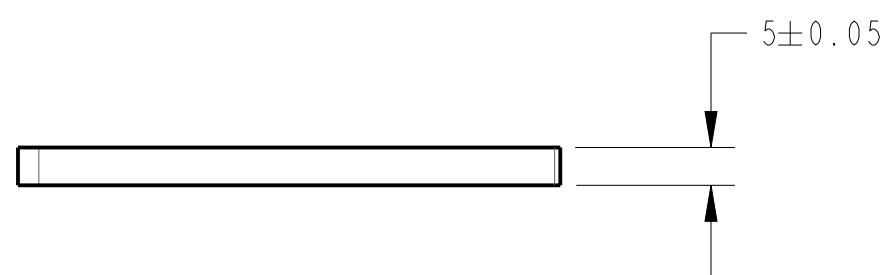
| REVISION BLOCK |                       |         |
|----------------|-----------------------|---------|
| REV            | DESCRIPTION OF CHANGE | DATE    |
| 0              | ORIGINAL ISSUE        | 5/22/26 |
|                |                       |         |

NOTES:

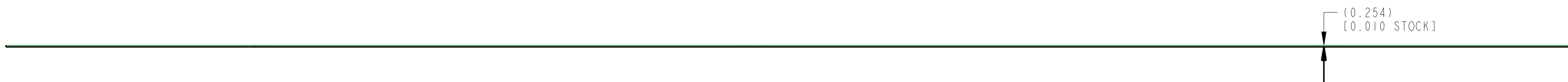
1. MACHINE AND INSPECT PER S0304000-EQS10000.
2. DO NOT BEND PRIOR TO INSTALLATION AT NEXT ASSEMBLY.

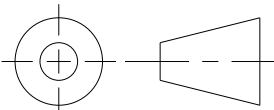


REFERENCE VIEW

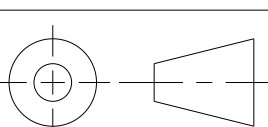


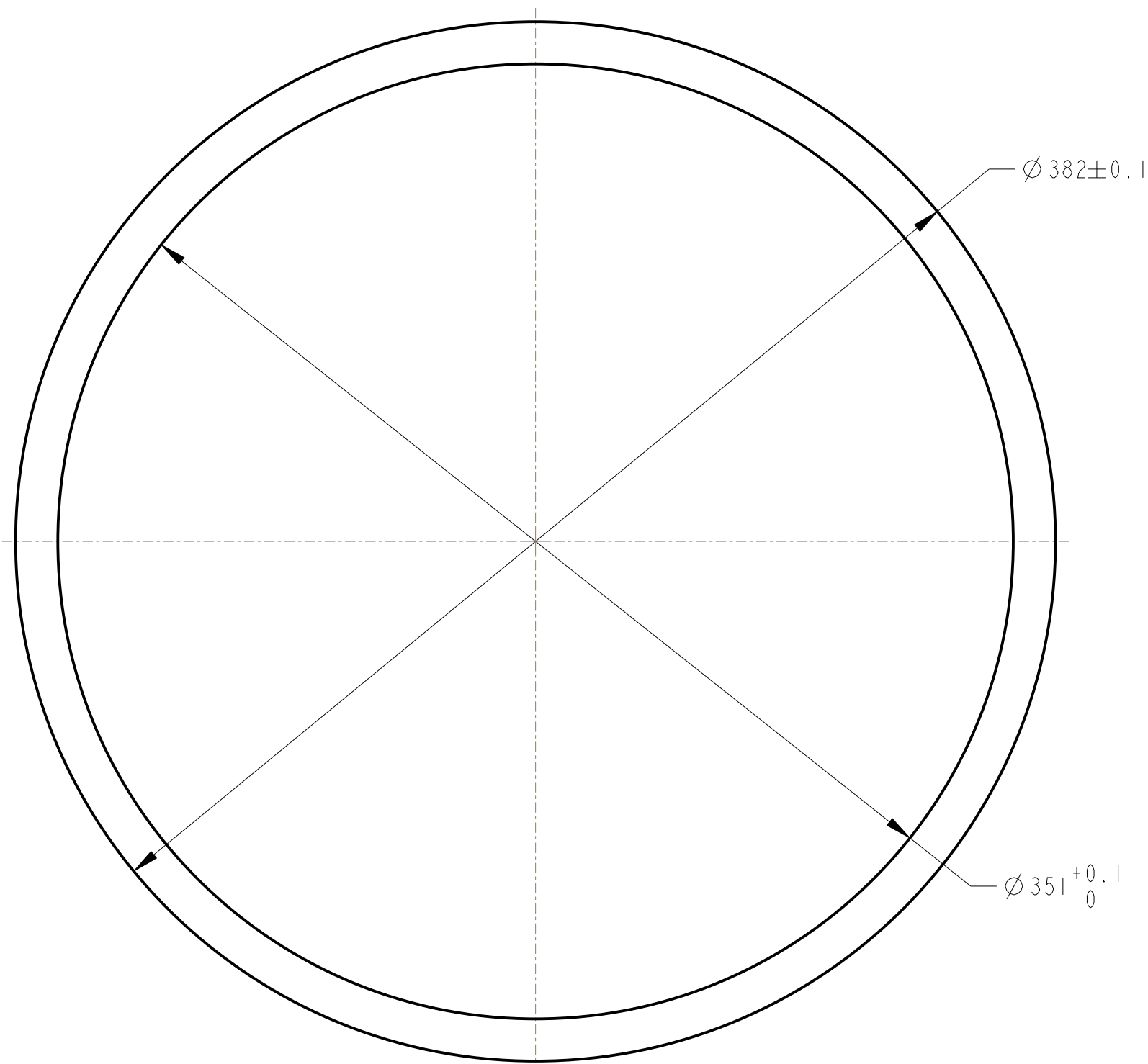
REFERENCE VIEW-FLAT LAYOUT



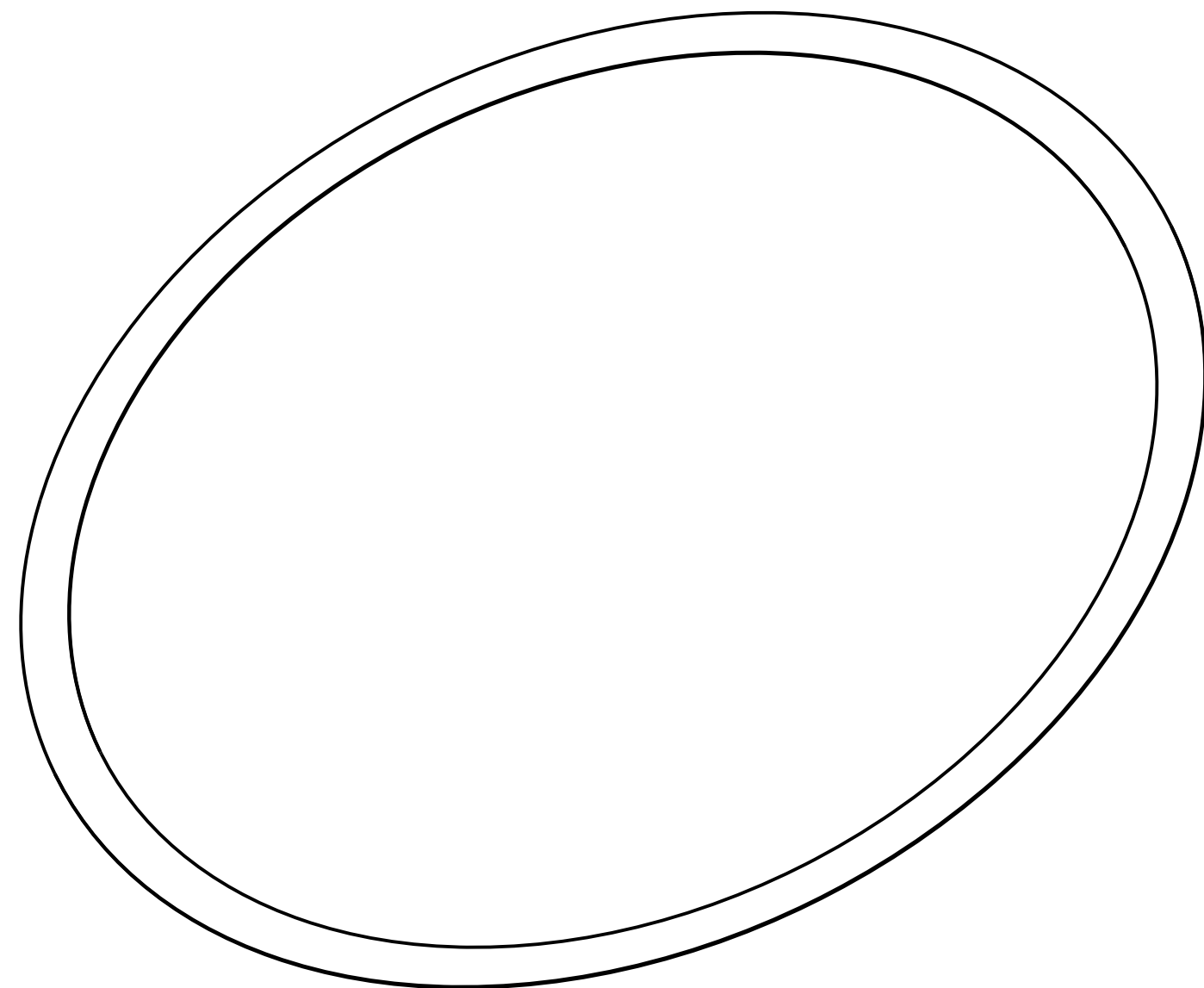
|                                                                                                                                                            |                                                                                       |                                                                                                                                                                                                                                     |       |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|
| WIP-NOT APPROVED FOR CONSTRUCTION                                                                                                                          |                                                                                       |                                                                                                                                                                                                                                     |       |                 |
| AL 4047 (A94047)                                                                                                                                           |                                                                                       | AMS 418SE, ANSI H35.2                                                                                                                                                                                                               |       |                 |
| MATERIAL                                                                                                                                                   |                                                                                       | SPECIFICATION                                                                                                                                                                                                                       |       |                 |
| <div>UNITS: MILLIMETERS</div> <div>DEFAULT TOLERANCES</div> <div>0-6 ±0.1</div> <div>&gt;6-120 ±0.2</div> <div>&gt;120 ±0.5</div> <div>ANGULAR ±0.5°</div> |                                                                                       | <div> <b>OAK RIDGE</b><br/>National Laboratory</div> <div>HIGH FLUX<br/>ISOTOPE<br/>REACTOR</div> <div>SPALLATION<br/>NEUTRON<br/>SOURCE</div> |       |                 |
| DO NOT BREAK EDGES                                                                                                                                         |                                                                                       |                                                                                                                                                                                                                                     |       |                 |
| SURFACE<br>ROUGHNESS: 16 Ra UNO.                                                                                                                           |                                                                                       | SECOND TARGET STATION<br>TARGET SYSTEMS<br>WELD FILLER-LOWER VAC VESSEL INNER                                                                                                                                                       |       |                 |
| DRAFTING STD: ASME Y14.100<br>GDT: ASME Y14.5<br>WELD SYMBOLS: AWS A2.4                                                                                    |                                                                                       | DRAWING NUMBER                                                                                                                                                                                                                      |       | REV             |
|                                                                                                                                                            |                                                                                       | 0000067839                                                                                                                                                                                                                          |       | 0               |
| THIRD<br>ANGLE<br>PROJECTION                                                                                                                               |  | SIZE                                                                                                                                                                                                                                | SCALE | WEIGHT          |
|                                                                                                                                                            |                                                                                       | D                                                                                                                                                                                                                                   | 1:1   | 0.0009 KG       |
|                                                                                                                                                            |                                                                                       |                                                                                                                                                                                                                                     |       | SHEET<br>1 of 1 |

|                              |                |
|------------------------------|----------------|
| GRADE                        | 1-SERIOUS      |
| FACILITY                     |                |
| BUILDING                     |                |
| 88000-ST5 TARGET BUILDING II |                |
| MAJOR SYSTEM                 | TARGET SYSTEMS |
| SYSTEM                       |                |
| SUBSYSTEM                    |                |
| SUB-SUBSYSTEM                | XXX            |
|                              | XXX            |

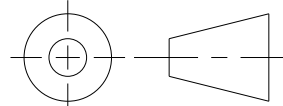
|                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>UNITS: MILLIMETERS</p> <p>DEFAULT TOLERANCES</p> <p>0-6 <math>\pm 0.1</math></p> <p>&gt;6-120 <math>\pm 0.2</math></p> <p>&gt;120 <math>\pm 0.5</math></p> <p>ANGULAR <math>\pm 0.5^\circ</math></p> |
| <p>DO NOT BREAK EDGES</p>                                                                                                                                                                               |
| <p>SURFACE</p> <p>ROUGHNESS: 1.6 Ra UNO.</p>                                                                                                                                                            |
| <p>DRAFTING STD: ASME Y14.100</p> <p>GDT: ASME Y14.5</p> <p>WELD SYMBOLS: AWS A2.4</p>                                                                                                                  |
| <p>THIRD</p> <p>ANGLE</p> <p>PROJECTION</p>                                                                        |


$$-\phi 382 \pm 0.1$$
$$\phi 351^{+0.1}_0$$

(0.508)  
[0.020 STOCK]

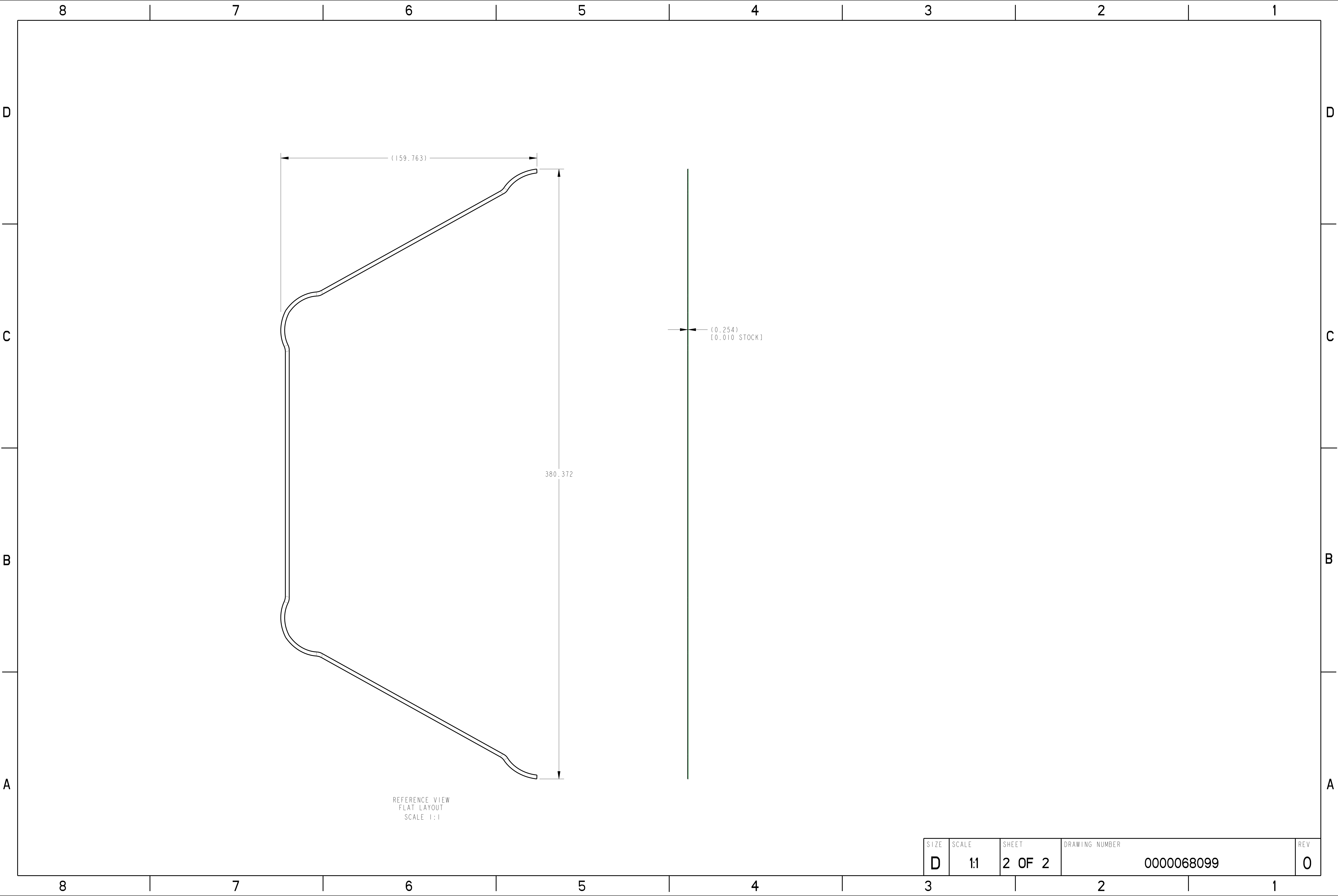


REFERENCE VIEW

|                             |                            |                                                                                       |  |                                                                                                                                                                                                          |       |          |        |
|-----------------------------|----------------------------|---------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|--------|
|                             |                            | WIP-NOT APPROVED FOR CONSTRUCTION                                                     |  |                                                                                                                                                                                                          |       |          |        |
|                             |                            | AL 4047 (A94047)                                                                      |  | AMS 4185E, ANSI H35.2                                                                                                                                                                                    |       |          |        |
|                             |                            | MATERIAL                                                                              |  | SPECIFICATION                                                                                                                                                                                            |       |          |        |
| GRADE                       | 1-SERIOUS                  | UNITS: MILLIMETERS                                                                    |  | <div> <b>OAK RIDGE</b>   HIGH FLUX ISOTOPE REACTOR   SPALLATION NEUTRON SOURCE<br/><b>National Laboratory</b></div> |       |          |        |
| FACILITY                    |                            | DEFAULT TOLERANCES                                                                    |  |                                                                                                                                                                                                          |       |          |        |
|                             |                            | 0-6 ±0.1                                                                              |  |                                                                                                                                                                                                          |       |          |        |
| ST5                         |                            | >6-120 ±0.2                                                                           |  |                                                                                                                                                                                                          |       |          |        |
| BUILDING                    |                            | >120 ±0.5                                                                             |  |                                                                                                                                                                                                          |       |          |        |
| 8800-ST5.TARGET BUILDING II |                            | ANGULAR ±0.5°                                                                         |  | <div>SECOND TARGET STATION<br/>TARGET SYSTEMS<br/>WELD FILLER-REFLECTOR VESSEL CLOSURE</div>                                                                                                             |       |          |        |
| MAJOR SYSTEM                | DO NOT BREAK EDGES         |                                                                                       |  |                                                                                                                                                                                                          |       |          |        |
| TARGET SYSTEMS              | SURFACE                    |                                                                                       |  |                                                                                                                                                                                                          |       |          |        |
| SYSTEM                      | ROUGHNESS: 16 Ra U.N.O.    |                                                                                       |  |                                                                                                                                                                                                          |       |          |        |
| MRA                         | DRAFTING STD: ASME Y14.100 |                                                                                       |  |                                                                                                                                                                                                          |       |          |        |
| SUBSYSTEM                   | XXX                        | GDT: ASME Y14.5                                                                       |  | DRAWING NUMBER                                                                                                                                                                                           |       | REV      |        |
|                             |                            | WELD SYMBOLS: AWS A2.4                                                                |  | 0000067840                                                                                                                                                                                               |       | 0        |        |
| SUB-SUBSYSTEM               |                            | THIRD ANGLE PROJECTION                                                                |  | SIZE                                                                                                                                                                                                     | SCALE | WEIGHT   | SHEET  |
|                             | XXX                        |  |  | D                                                                                                                                                                                                        | 1:2   | 0.024 KG | 1 of 1 |







| SIZE | SCALE | SHEET  | DRAWING NUMBER | REV |
|------|-------|--------|----------------|-----|
| D    | 1:1   | 2 OF 2 | 0000068099     | 0   |