

8

0000004343

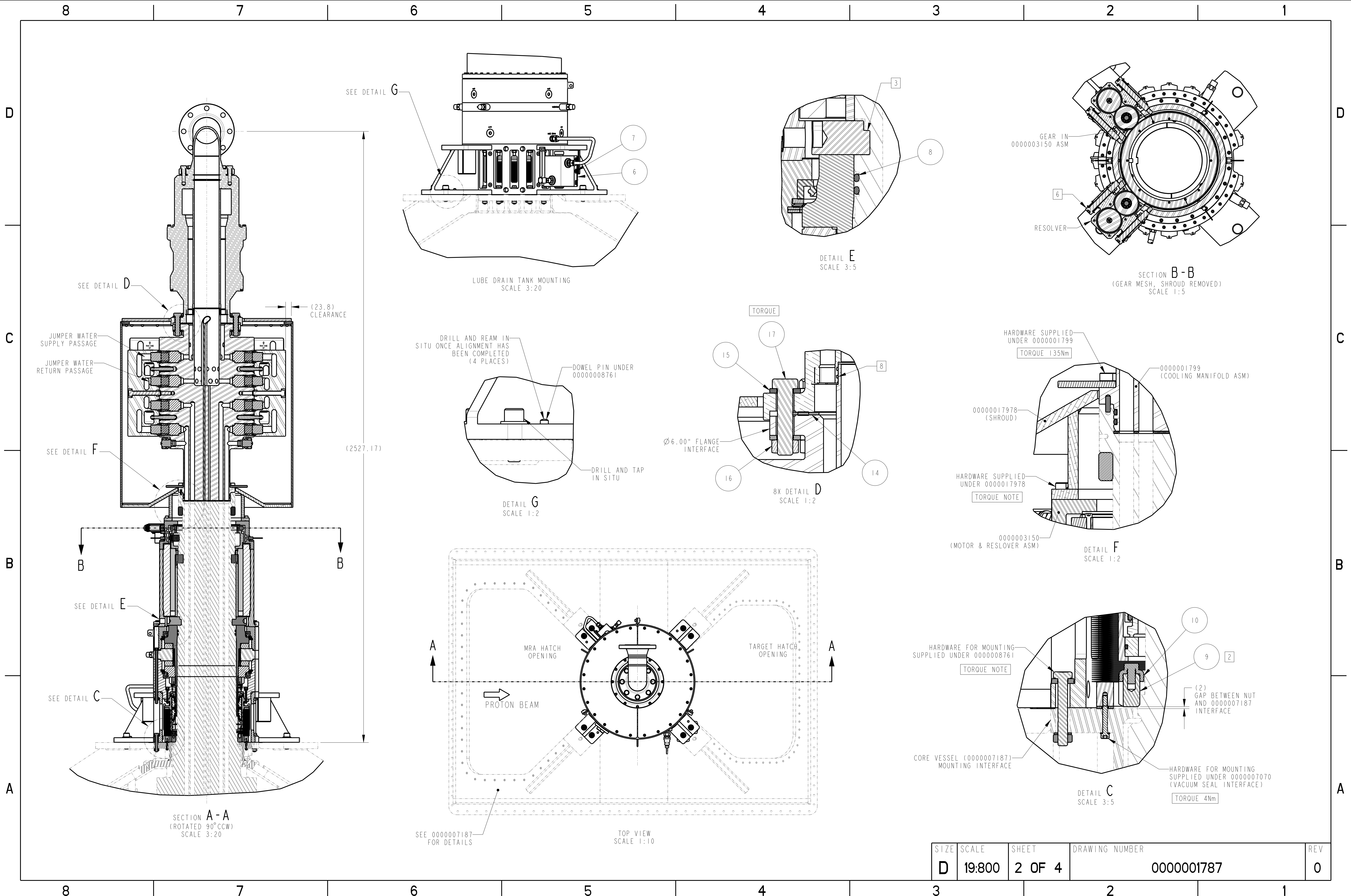
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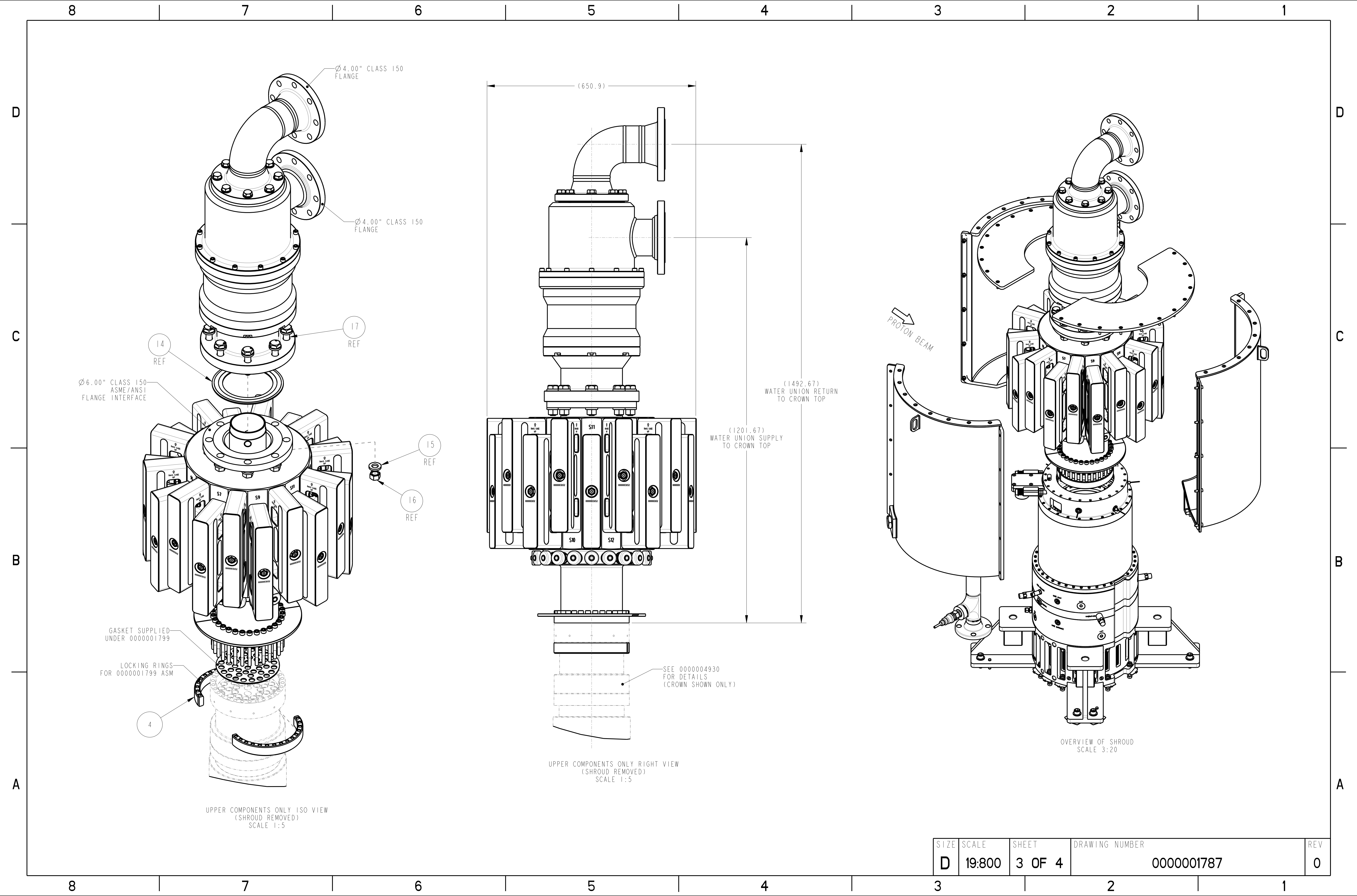
NOTES:

1. VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL.
2. NUT FINAL POSITION TO BE SET DURING FINAL INSTALLATION WITH THE CORE VESSEL LID TO PERMIT CLEARANCE DURING ROTATION, WHILE MINIMIZING VERTICAL DROP OF SHAFT AND CROWN WHEN THE DRIVE ASSEMBLY 0000001787 IS REMOVED FOR MAINTENANCE OR REPLACEMENT.
3. JOIN ASSEMBLY 0000007070 TO CROWN COMPONENT (0000001800) USING COMPONENTS 0000007763 AND 0000083579 AS SHOWN IN ASSEMBLY DRAWING 0000007070.
4. TIGHTEN IN A STANDARD DIAMETRICALLY OPPOSITE, CRISS-CROSS PATTERN.
5. FURNISH LOOSE. FOR INSTALLATION INTO FINAL ASSEMBLY AS ADJUSTMENT FEATURES FOR LEVELING AND ROTATIONAL ALIGNMENT.
6. ADJUST NUTS ON SHOULDER BOLTS TO PROVIDE AN OPTIMAL GEAR MESH BEFORE INSTALLING SHROUD ASSEMBLY 0000017978.
7. LOWER FLANGE AND PIPE OUTSIDE OF THIS SCOPE.
8. ENSURE AN APPROPRIATE FIT BETWEEN WATER UNION SEALS AND MANIFOLD PIPE TO MINIMIZE CROSS-TALK.
9. PRESSURE CHECK COMBINED WATER PASSAGE TO ENSURE A LEAK-TIGHT SYSTEM.
10. JOIN ASSEMBLY 0000003150 TO CROWN COMPONENT (0000001800) USING COMPONENTS 0000084876 AND 0000003151 AS SHOWN IN ASSEMBLY DRAWING 0000003150.

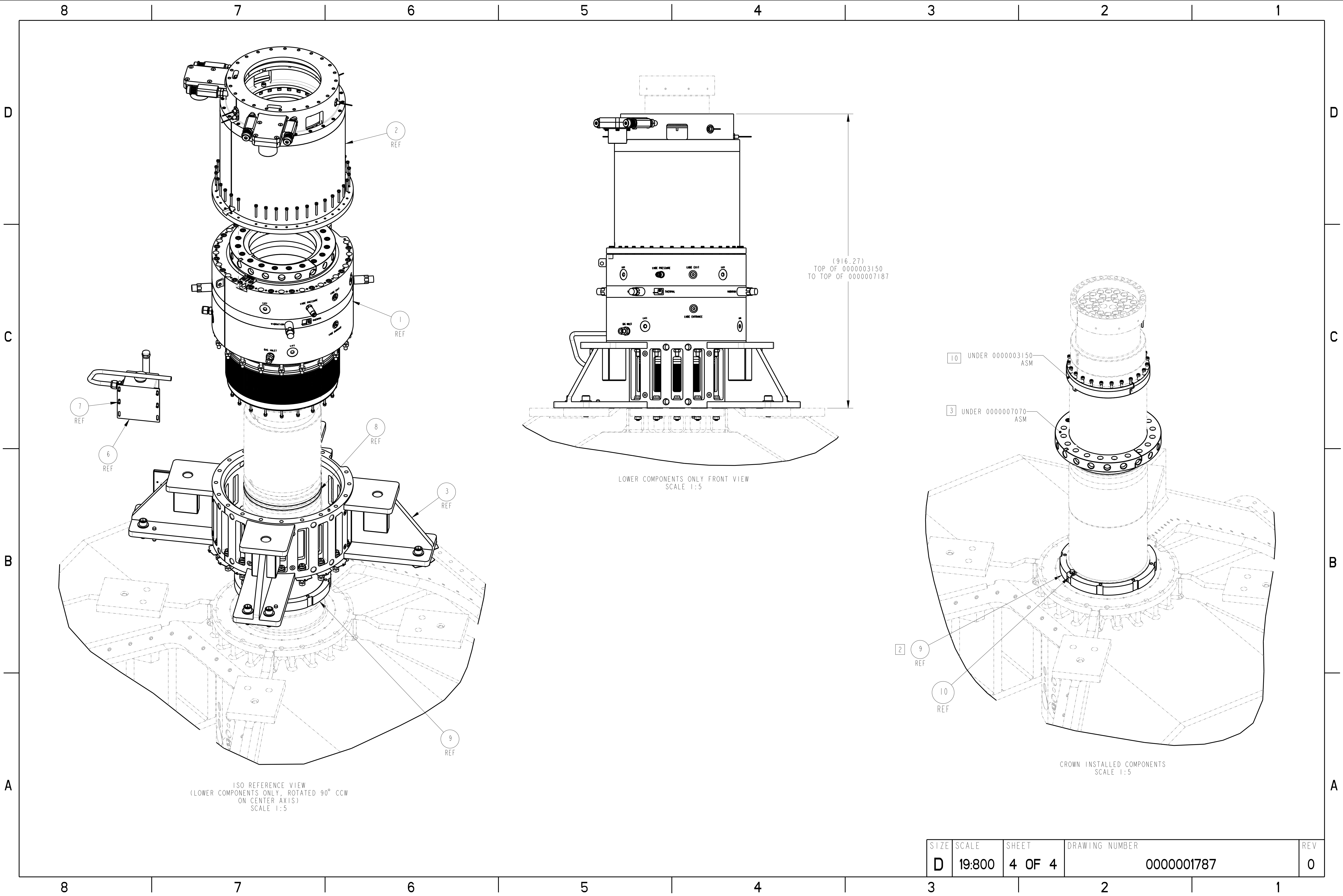
1014

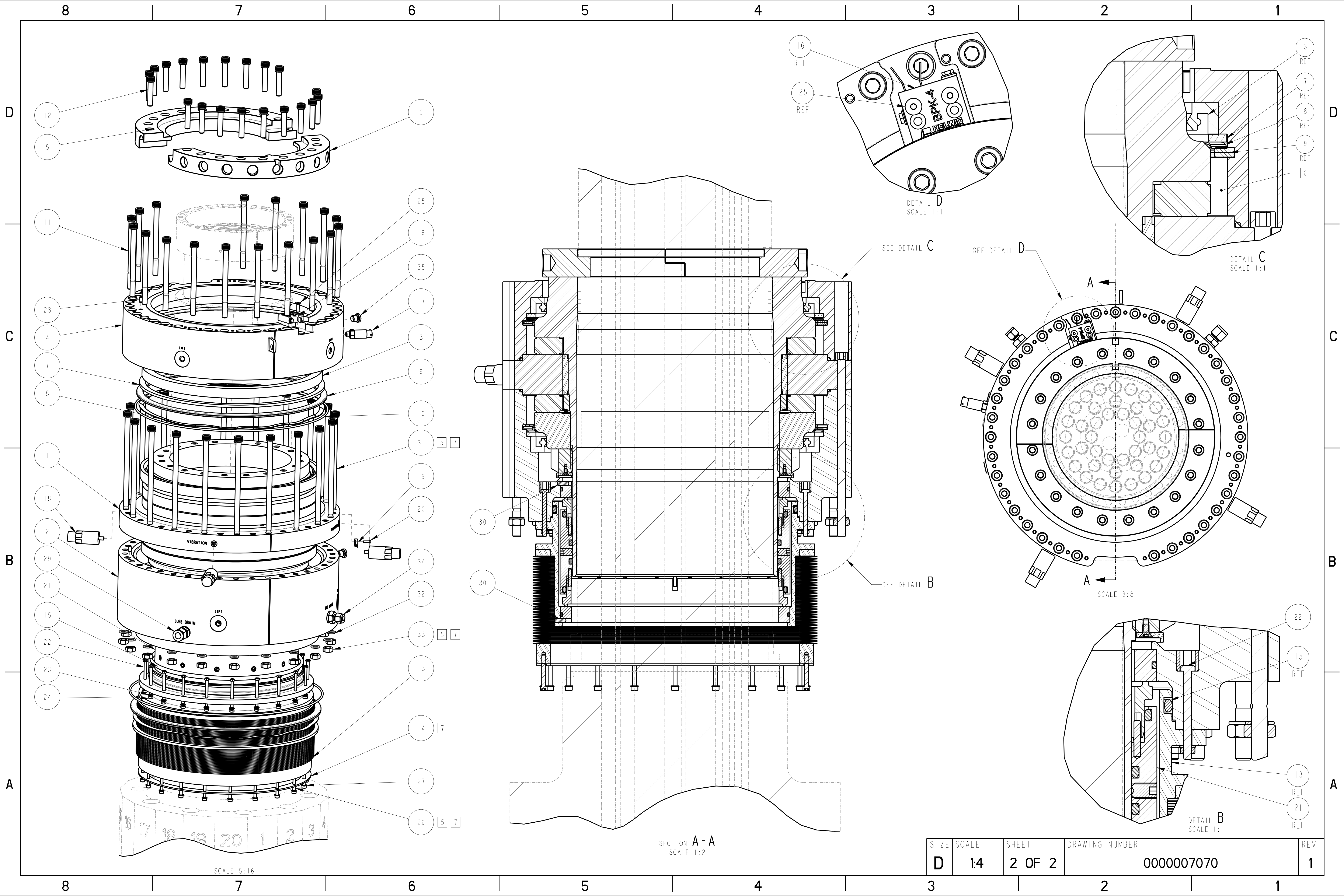


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D	19:800	2 OF 4	0000001787	0

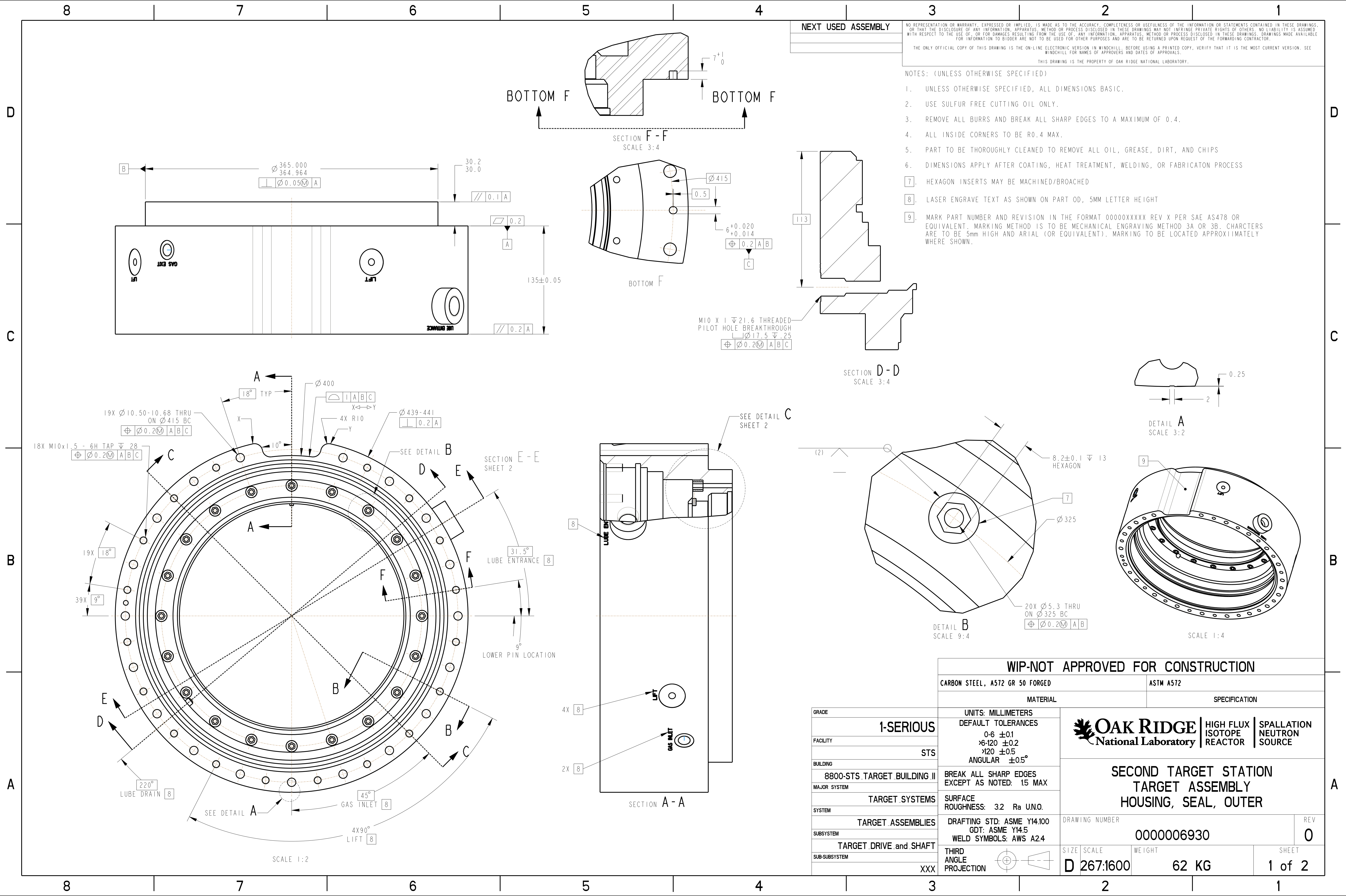


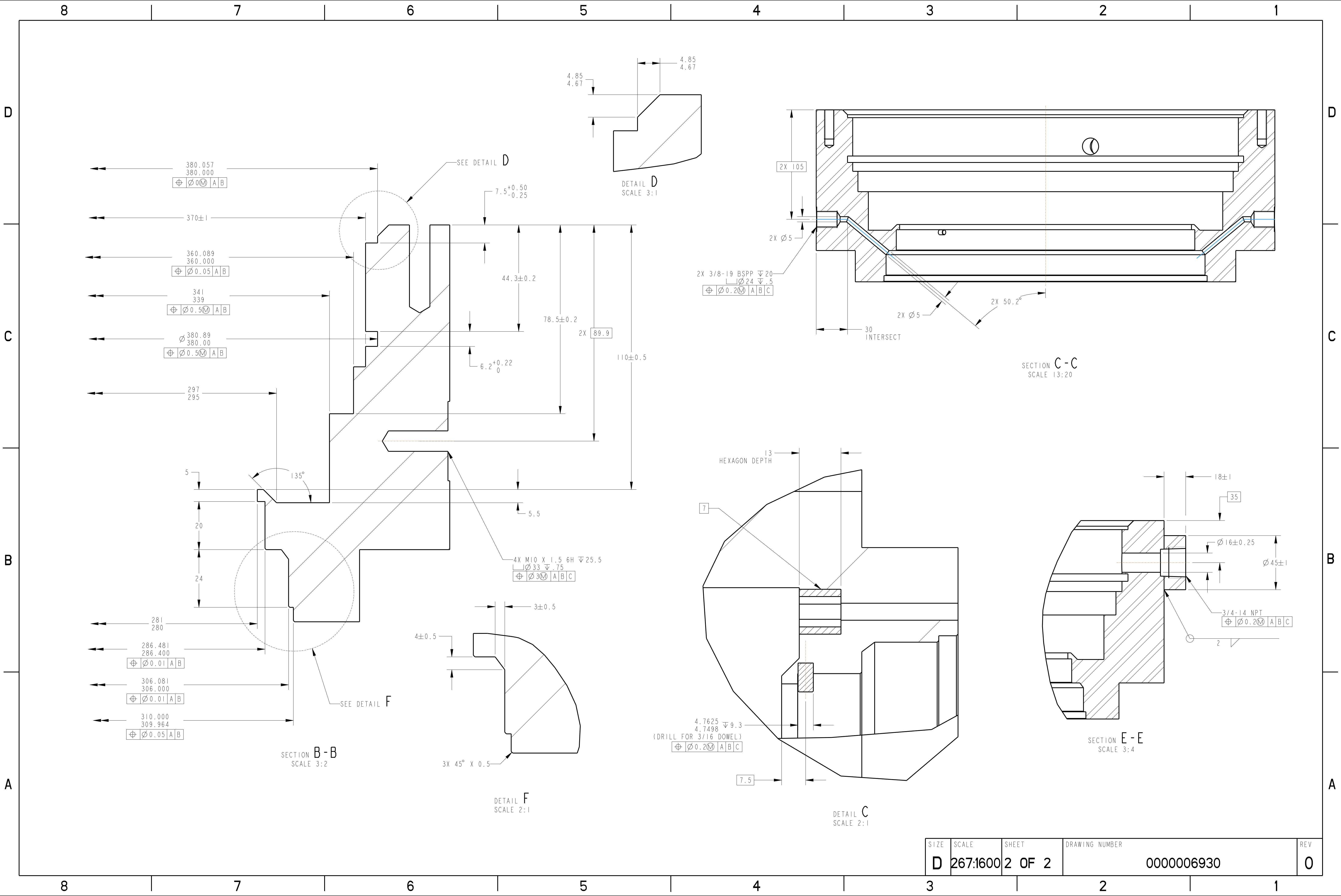
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D	19:800	3 OF 4	0000001787	0





SIZE	SCALE	SHEET	DRAWING NUMBER	REV
D	1:4	2 OF 2	0000007070	1





SIZE	SCALE	SHEET	DRAWING NUMBER	REV
D	267:1600	2 OF 2	0000006930	0

NEXT USED ASSEMBLY

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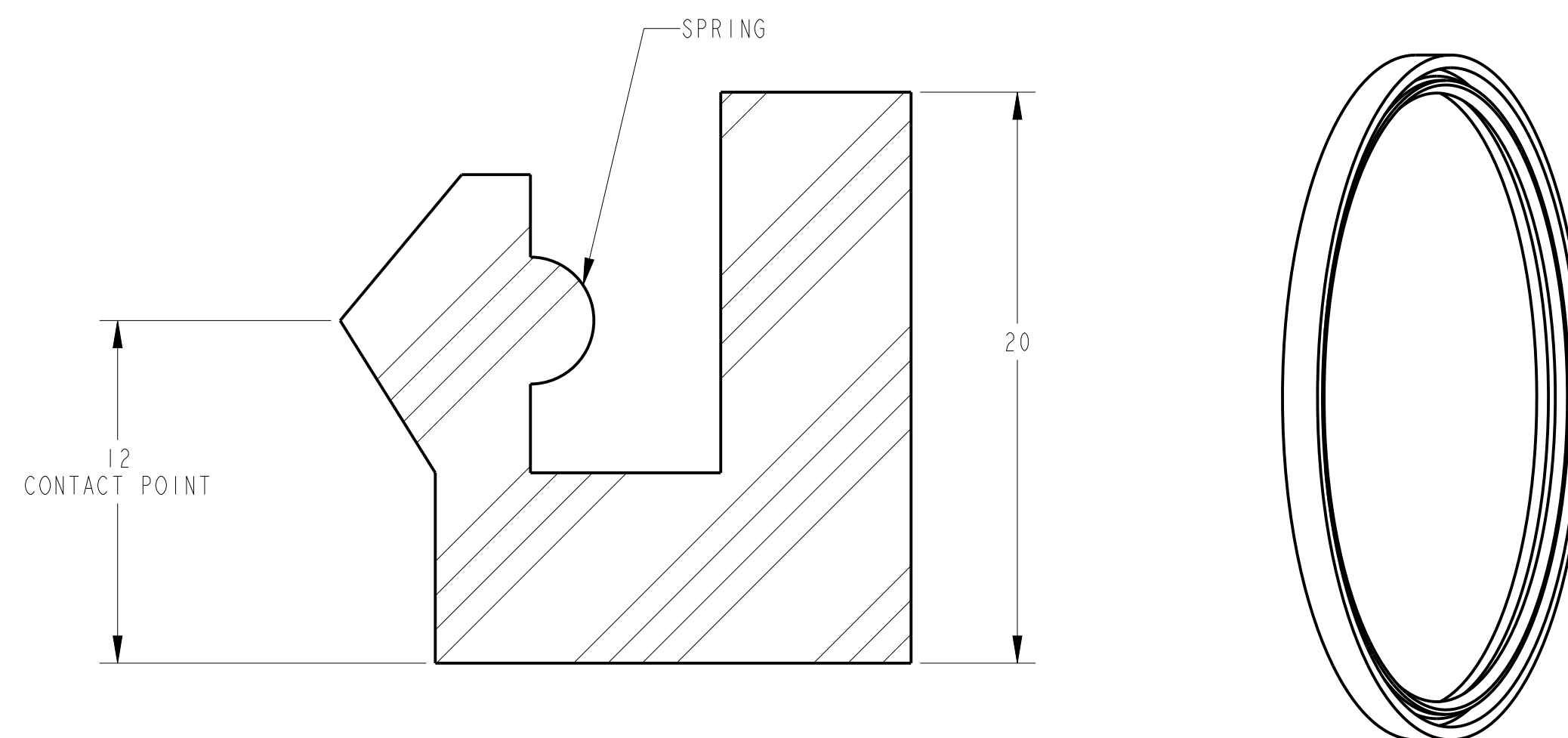
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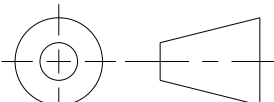
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. SURFACE TEXTURE SYMBOLS IN ACCORDANCE WITH ASME Y14.36M-1996 (R2008).
2. ABBREVIATIONS IN ACCORDANCE WITH ASME Y14.38-2019.
3. PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER SAE AS478 OR EQUIVALENT.

SPECIFICATIONS	
TEMPERATURES	10°C - 75°C
PRESSURE DIFFERENTIAL	<0.05 MPa
SHAFT DIAMETER	320mm
HOUSING DIAMETER	360mm
CONSTRUCTION	METAL REINFORCED, W/ SPRING
SHAFT SPEED	45 REV/MIN
STANDARDS	ISO 6194; DIN 3760
RADIATION RESISTANCE	5.5 < RI < 6
LIFETIME DOSE LIMIT	300kGy (30Mrad) based upon RI=5.6
DUROMETER	75-80 SHORE A



SECTION A - A
SCALE 5:1

WIP-NOT APPROVED FOR CONSTRUCTION					
E70E ETHYLENE PROPYLENE RUBBER (EPDM)			---		
MATERIAL			SPECIFICATION		
UNITS: MILLIMETERS			 OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE		
DEFAULT TOLERANCES					
0-6 ±0.1 ×6-120 ±0.2 ×120 ±0.5 ANGULAR ±0.5°					
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX					
SURFACE ROUGHNESS: 3.2 Ra U.N.O.			LIP SEAL 320MM ID, 360 OD, 20 THK SKF 320x360x20 HMSS RG		
DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4					
THIRD ANGLE PROJECTION			SIZE SCALE		WEIGHT
			D 533:1600		0 KG
					SHEET 1 of 1



OAK RIDGE
National Laboratory

HIGH FLUX
ISOTOPE
REACTOR

SPALLATION
NEUTRON
SOURCE

LIP SEAL
320MM ID, 360 OD, 20 THK
SKF 320x360x20 HMSS RG

THIRD
ANGLE
PROJECTION

SIZE	SCALE
D	533:1600

WEIGHT
0 KG

1 c

of 1

D

C

B

A

2

C

B

A

NEXT USED ASSEMBLY
0000007070

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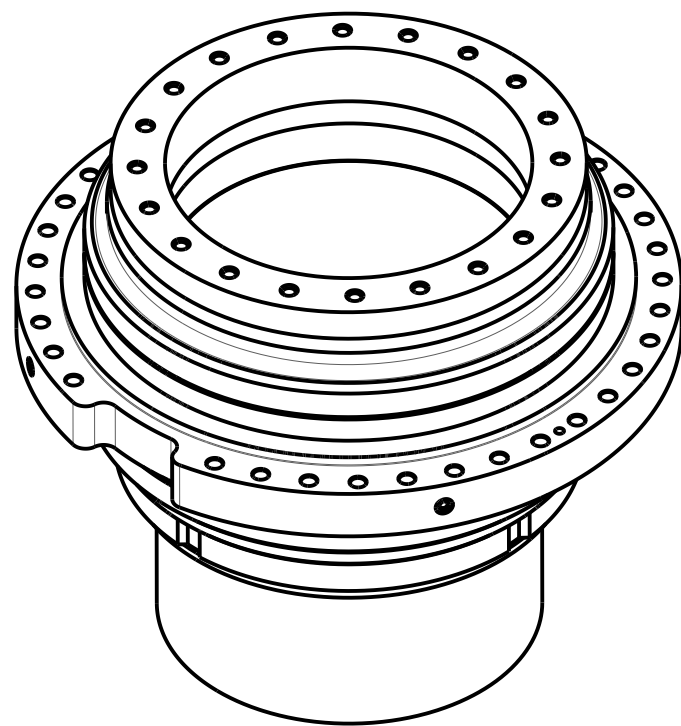
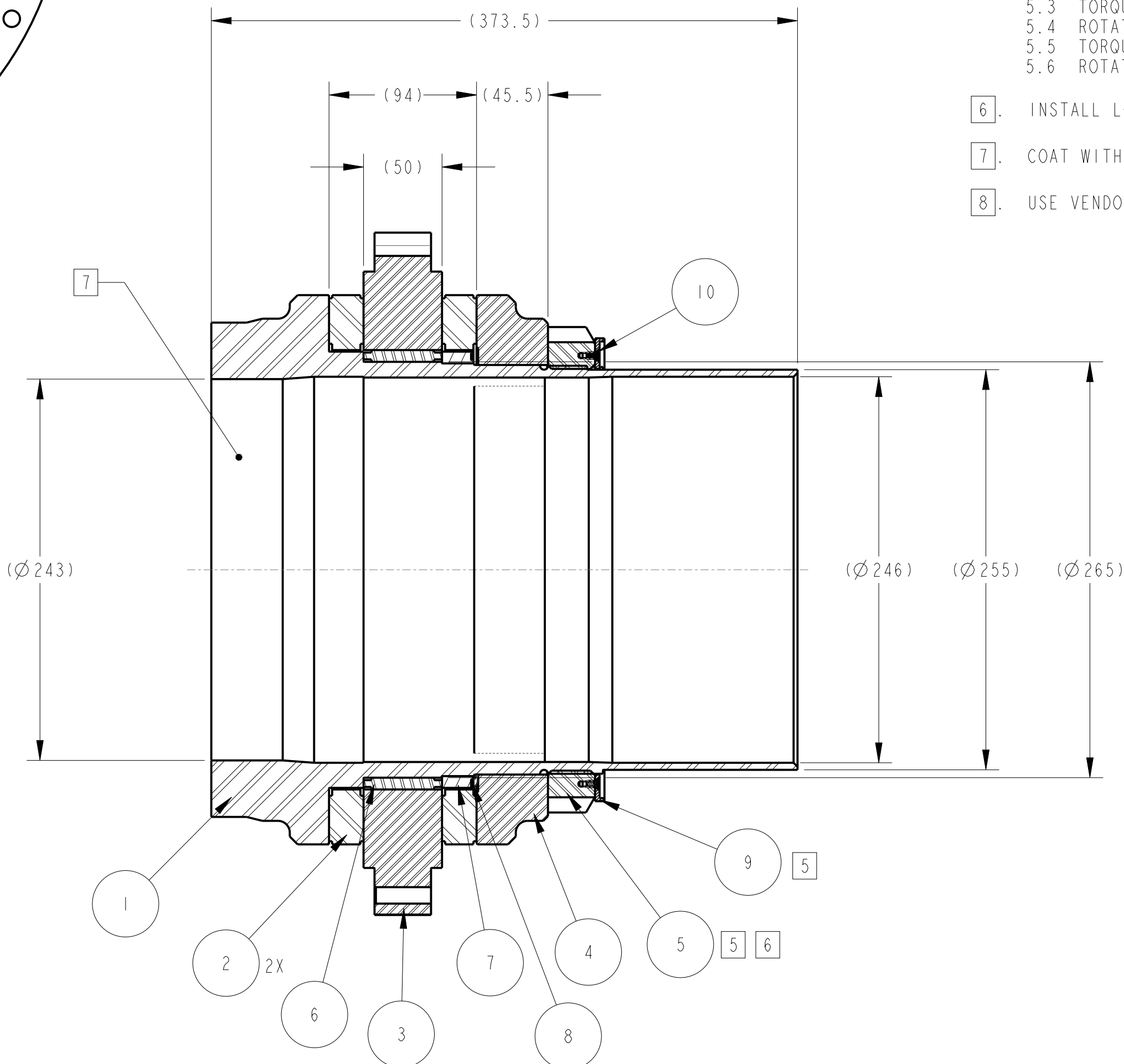
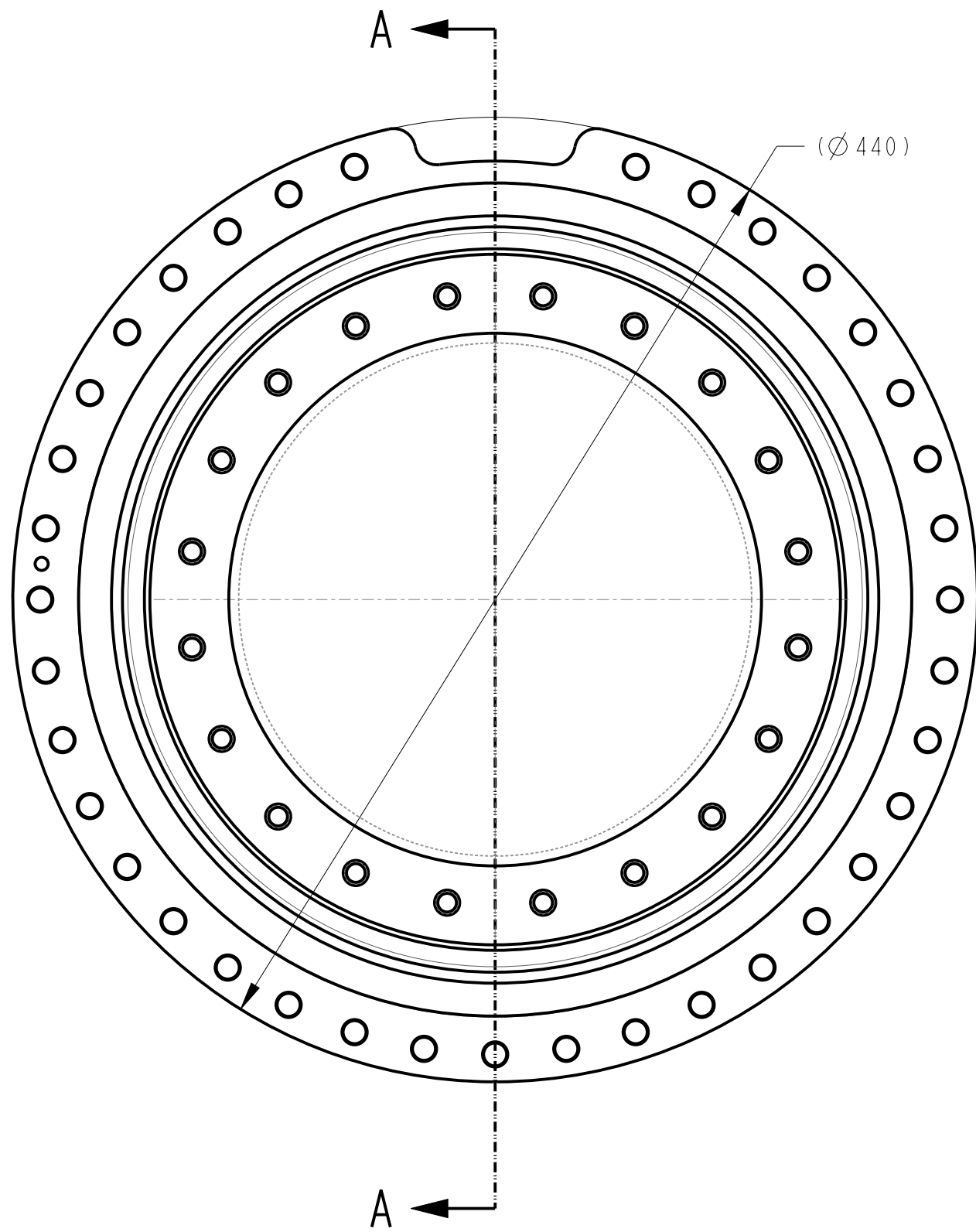
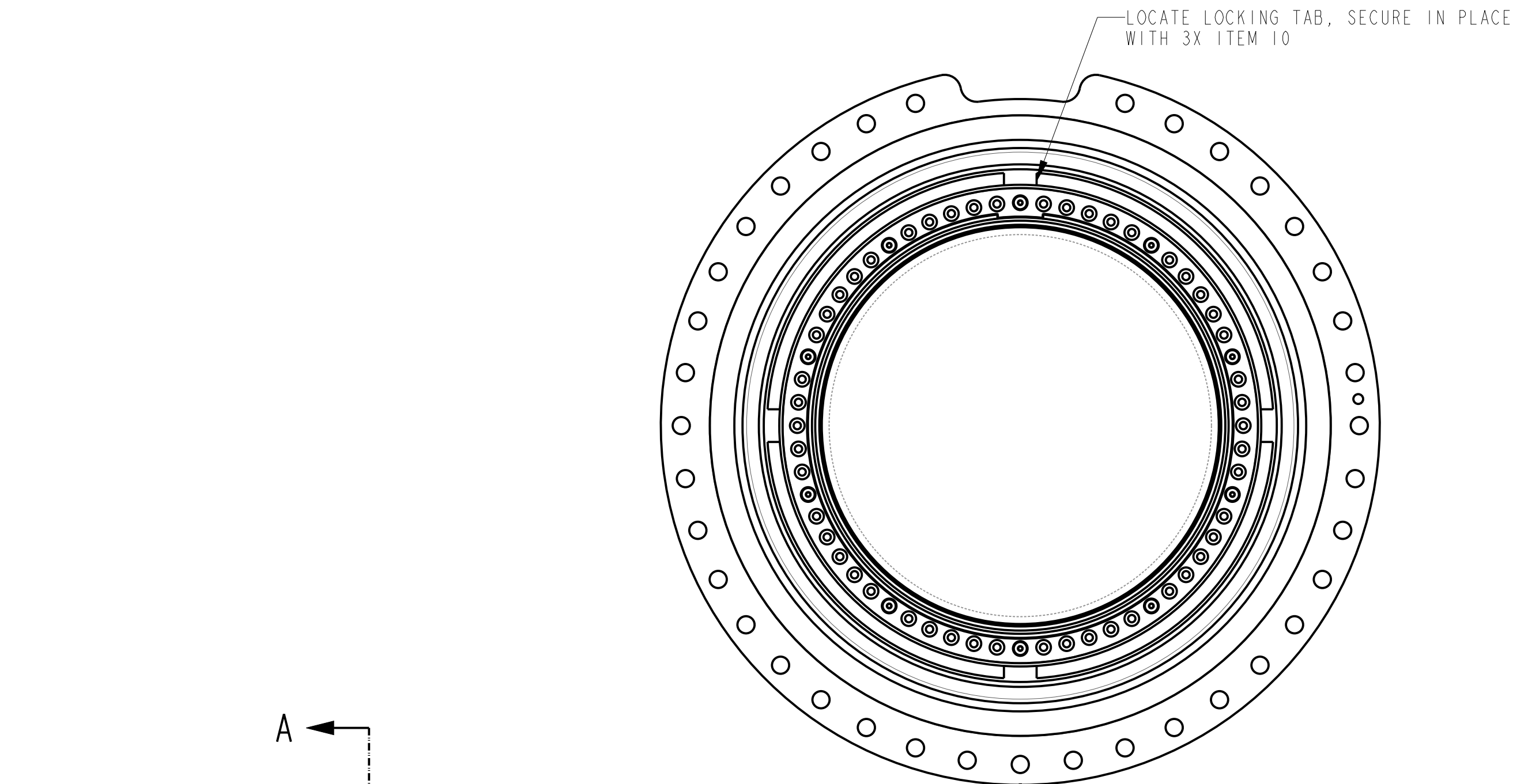
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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0		

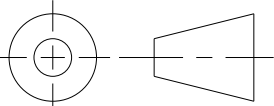
NOTES: UNLESS OTHERWISE SPECIFIED:

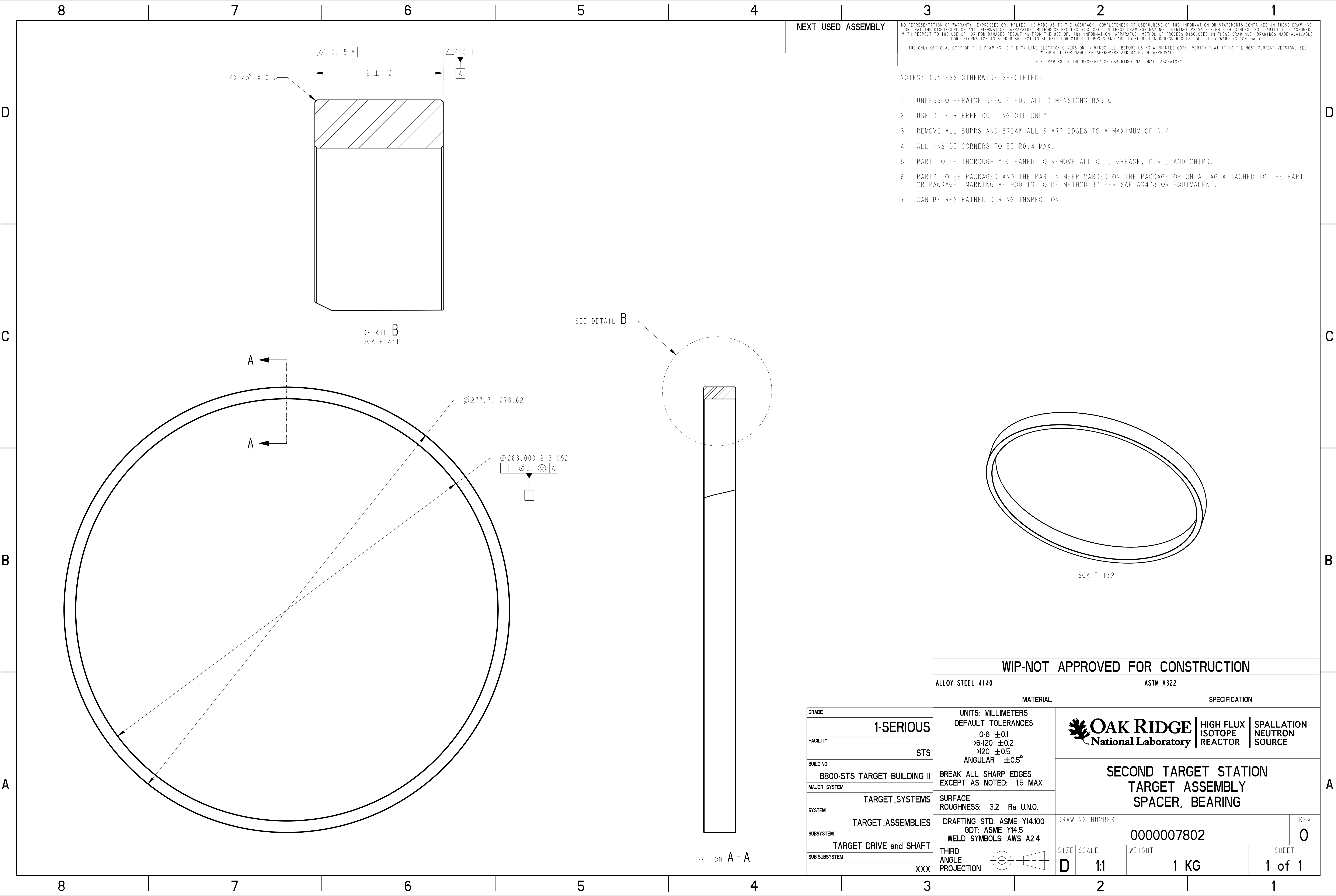
1. VENDOR AND VENDOR SPECIFIC ITEMS SHALL NOT BE SUBSTITUTED WITHOUT WRITTEN PRIOR WRITTEN ENGINEERING APPROVAL.
2. SEE DRAWING 0000007070 FOR LUBRICANT.
3. ASSEMBLY MUST BE CLEAN AND FREE OF DEBRIS PRIOR TO ASSEMBLY.
4. PACK BEARING FULLY WITH SPECIFIED LUBRICANT; HAND PACK.
5. PRELOAD ACCORDING AT ASSEMBLY:
 - 5.1 HAND TIGHTEN NUT INTO CONTACT WITH BEARING.
 - 5.2 ROTATE WITHIN RACES 20X, REAPPLY LUBRICANT.
 - 5.3 TORQUE LOCKNUT TO 25N-m.
 - 5.4 ROTATE ASSEMBLY 20X, PACKING WITH LUBRICANT AS REQ'D.
 - 5.5 TORQUE LOCKNUT TO 50N-m.
 - 5.6 ROTATE ASSEMBLY; ENSURE SMOOTH OPERATION FREE FROM BURRS OR STICKING.
6. INSTALL LOCK RING (ITEM 9), USING 3X FASTENERS (ITEM 10).
7. COAT WITH APIEZON 101 GREASE PRIOR TO USE IN NEXT ASSY.
8. USE VENDOR OF CHOICE. COMPONENT(S) MUST MEET SPECIFICATIONS.



---	SS 18-8 ---	START PART, MILLIMETER	STS-92125A188	10	10
---	SS 316 (S31600) ASTM A240	LOCK RING	0000054562	1	9
SMALLEY		SPRING, WAVE, 277.30D, 267.21D, 8 THK, SMALLEY 19815-00001	19815-00001	1	8
---	AISI 4140 (G41400) ASTM A322	SPACER, BEARING	0000007802	1	7
SKF	ALLOY STEEL 9310 (G93100) ---	NEEDLE BEARING, 280mm OD, 265 ID, 50mm H	265x280x50	1	6
TIMKEN	ALLOY STEEL 9310 (G93100) ASTM A331	LCKNUT, TR260X4, 36THK, SKF HM 52 T	HM52T	1	5
---	STEEL SAE 8620, PER ASTM A108 SEE NOTE: 7	LOWER THRUST BEARING SUPPORT	0000007774	1	4
---	100CrMo7 8240 EN ISO 683-17	CENTRAL THRUST BEARING SUPPORT RACE	0000006943	1	3
SCHAEFFLER	ALLOY STEEL 9310 (G93100) ---	THRUST BEARING, AXIAL SUPPORT	K81156M	2	2
---	100CrMo7 8240 EN ISO 683-17	SLEEVE, CROWN BEARING MOUNTING	0000007639	1	1
VENDOR	MATERIAL SPECIFICATION	DESCRIPTION	PART NUMBER	QTY	FIND NO.

GRADE	1-SERIOUS
FACILITY	
BUILDING	STS
8800-ST5 TARGET BUILDING II	
MAJOR SYSTEM	TARGET SYSTEMS
SUBSYSTEM	TARGET ASSEMBLIES
TARGET DRIVE and SHAFT	
SUB-SUBSYSTEM	XXX

WIP-NOT APPROVED FOR CONSTRUCTION			
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°		 OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		--- --- MAIN BEARING ASSEMBLY	
SURFACE ROUGHNESS: 3.2 Ra U.N.O.		DRAWING NUMBER 0000007069	
DRAFTING STD: ASME Y14.100 GD&T: ASME Y14.5 WELD SYMBOLS: AWS A2.4		REV -	
THIRD ANGLE PROJECTION 	SIZE D	SCALE 1:4	WEIGHT 96 KG
			SHEET 1 of 1



NEXT USED ASSEMBLY

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NOTES: (UNLESS OTHERWISE SPECIFIED)

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2. USE SULFUR FREE CUTTING OIL ONLY.
3. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
4. ALL INSIDE CORNERS TO BE R0.4 MAX.
8. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
6. PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER SAE AS478 OR EQUIVALENT.
7. CAN BE RESTRAINED DURING INSPECTION

SCALE 1:2

WIP-NOT APPROVED FOR CONSTRUCTION

ALLOY STEEL 4140

ASTM A322

MATERIAL

SPECIFICATION

UNITS: MILLIMETERS
DEFAULT TOLERANCES
0-6 ±0.1
≥6-120 ±0.2
≥120 ±0.5
ANGULAR ±0.5°

OAK RIDGE
National Laboratory

HIGH FLUX
ISOTOPE
REACTOR

SPALLATION
NEUTRON
SOURCE

SECOND TARGET STATION
TARGET ASSEMBLY
SPACER, BEARING

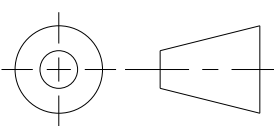
DRAWING NUMBER

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REV

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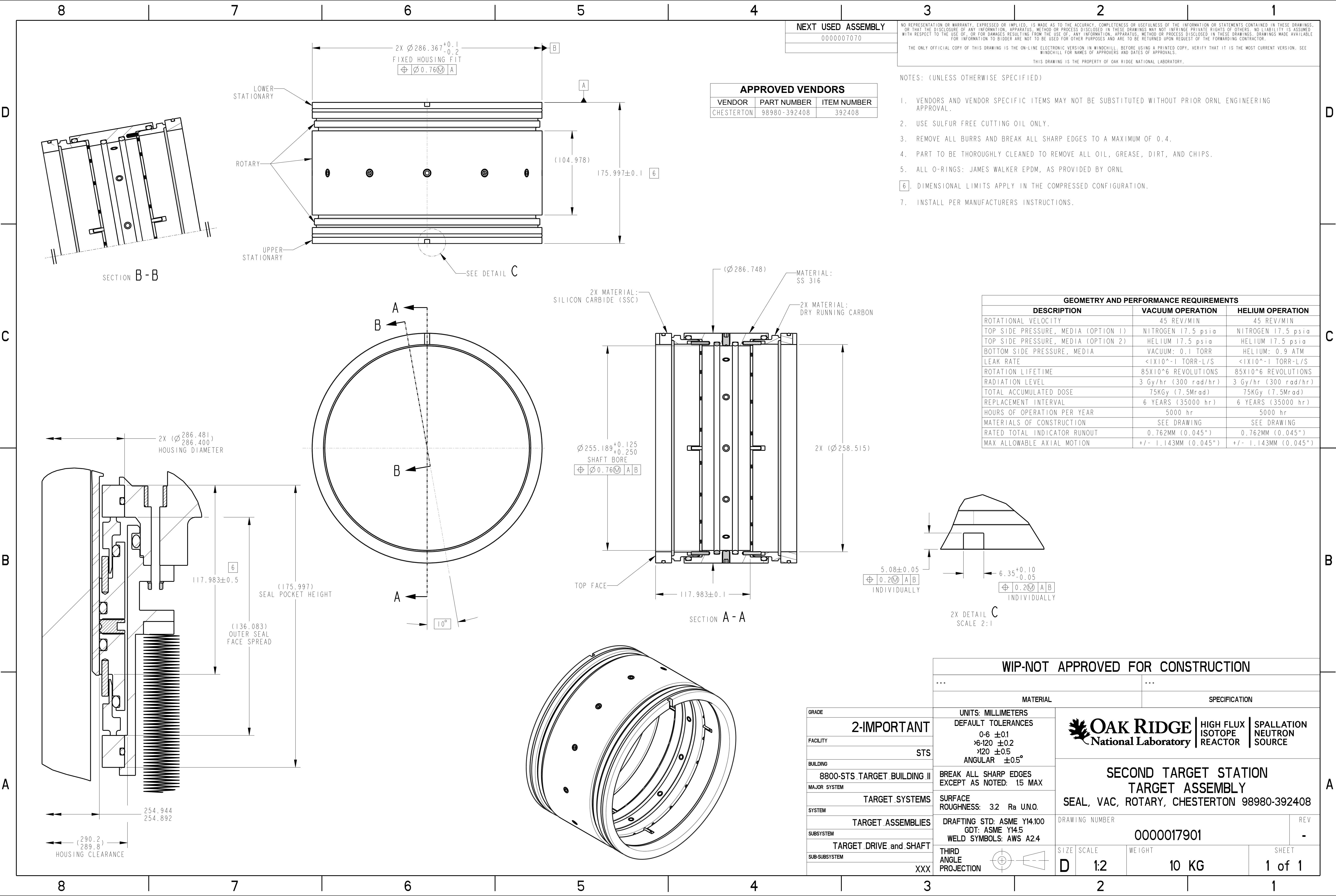
THIRD
ANGLE
PROJECTION



SIZE SCALE
D 1:1

WEIGHT
1 KG

SHEET
1 of 1

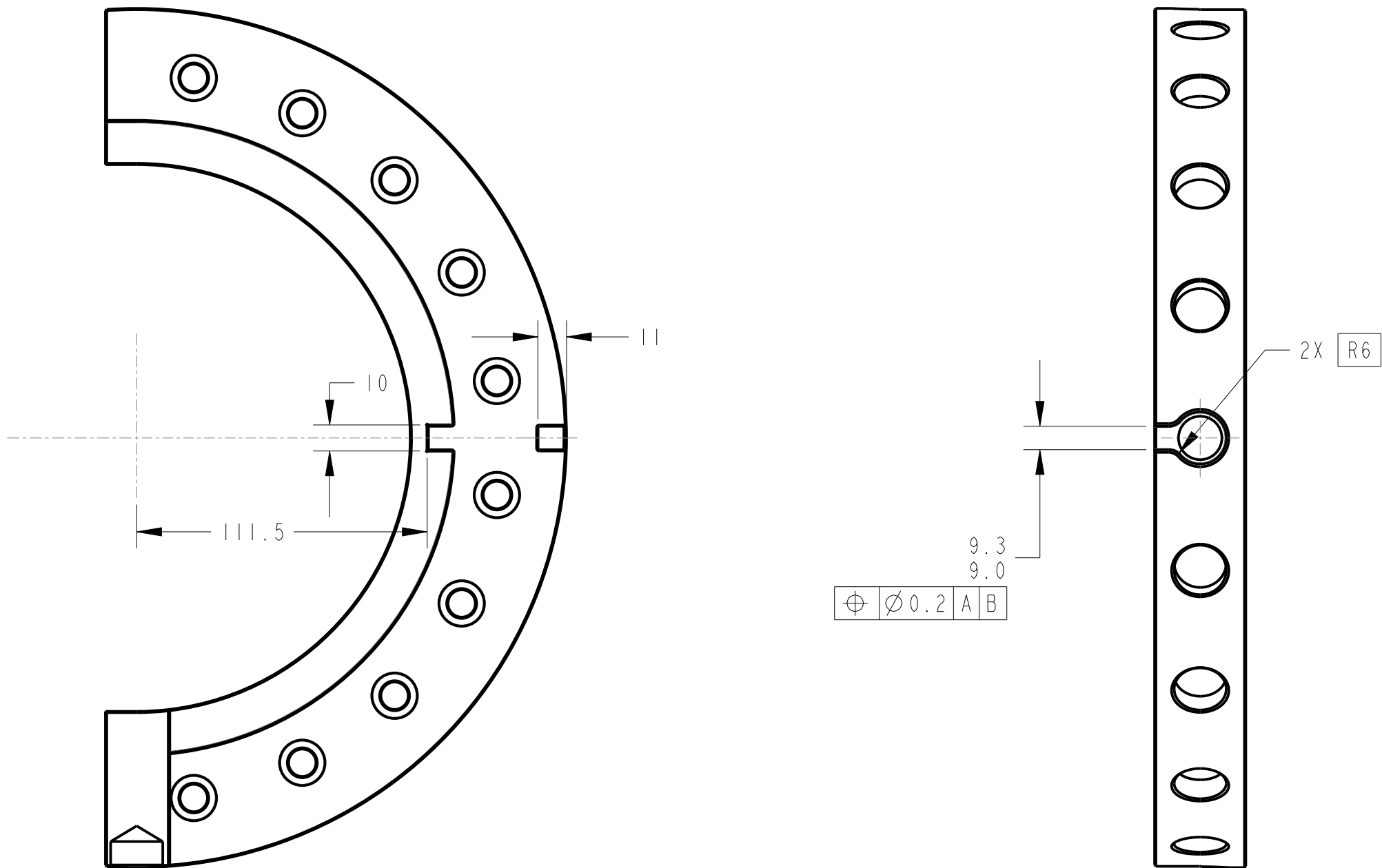


D

C

B

A



NEXT USED ASSEMBLY

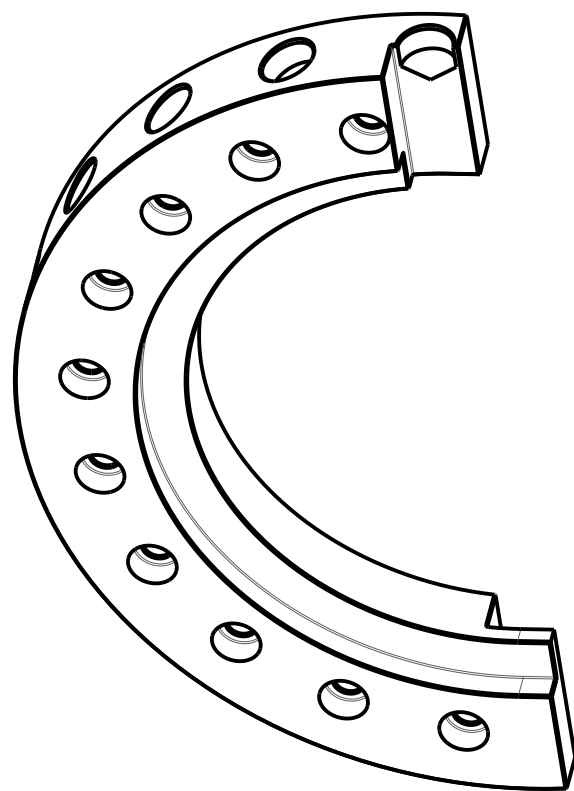
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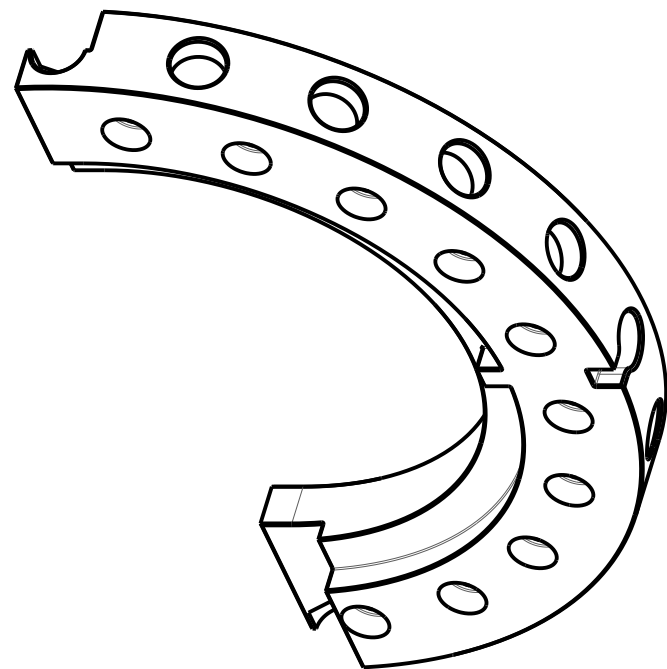
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3. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
4. ALL INSIDE CORNERS TO BE R0.4 MAX.
5. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
6. FINISH: ELECTROLESS NICKEL PER ASTM B733 OR AMS 2404 (DIMENSIONS APPLY AFTER PLATING)
7. MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS478 OR EQUIVALENT. MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARCTERS ARE TO BE 5mm HIGH AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIIMATELY WHERE SHOWN.



0000007763
SCALE 3:8



0000083574
SAME AS 0000007763
EXCEPT AS DIMENSIONED
SCALE 3:8

WIP-NOT APPROVED FOR CONSTRUCTION

ALLOY STEEL 4130 (G41300)

AST A108

MATERIAL

SPECIFICATION

GRADE

1-SERIOUS

FACILITY

STS

BUILDING

8800-STG TARGET BUILDING II

MAJOR SYSTEM

TARGET SYSTEMS

SYSTEM

TARGET ASSEMBLIES

SUBSYSTEM

TARGET DRIVE and SHAFT

SUB-SUBSYSTEM

XXX

UNITS: MILLIMETERS
DEFAULT TOLERANCES

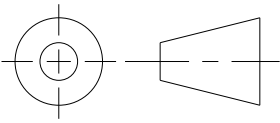
0-6 ±0.1
≥6-120 ±0.2
≥120 ±0.5
ANGULAR ±0.5°

BREAK ALL SHARP EDGES
EXCEPT AS NOTED: 15 MAX

SURFACE
ROUGHNESS: 3.2 Ra U.N.O.

DRAFTING STD: ASME Y14.100
GDT: ASME Y14.5
WELD SYMBOLS: AWS A2.4

THIRD
ANGLE
PROJECTION



OAK RIDGE
National Laboratory

HIGH FLUX
ISOTOPE
REACTOR

SPALLATION
NEUTRON
SOURCE

SECOND TARGET STATION
TARGET ASSEMBLY
RING, VERTICAL LOAD TRANSFER

DRAWING NUMBER

0000083574

REV

0

SIZE SCALE

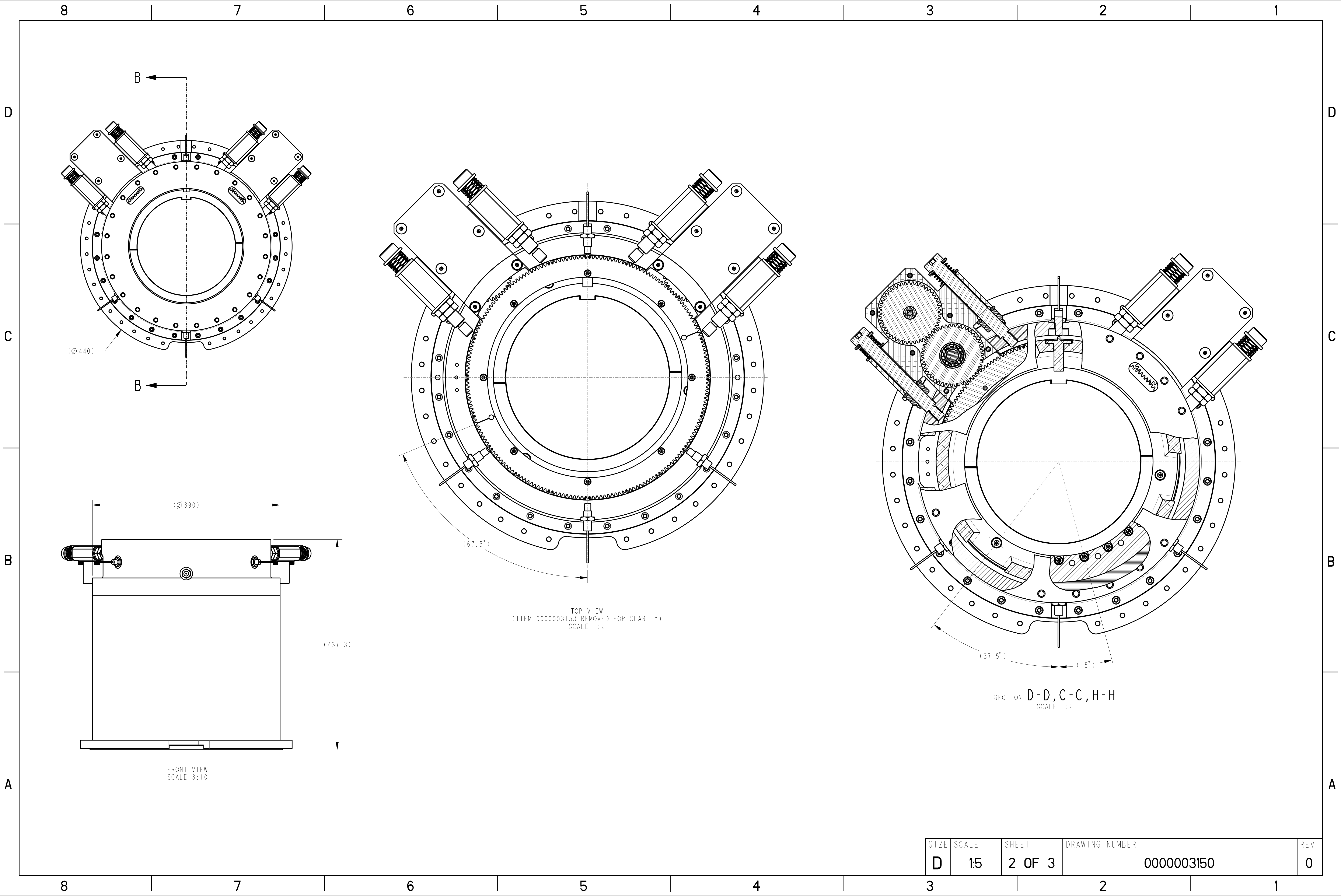
D 1:2

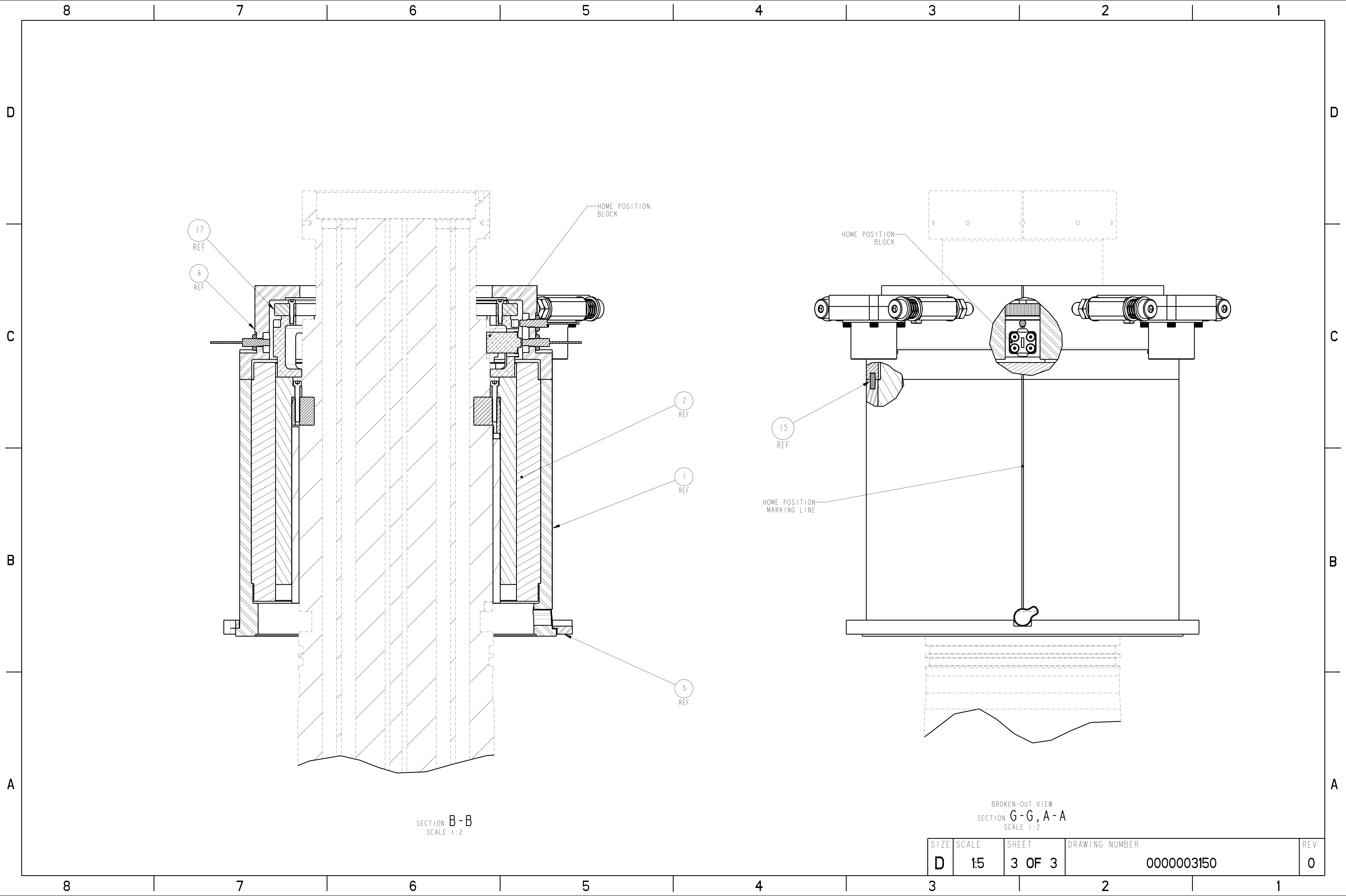
WEIGHT

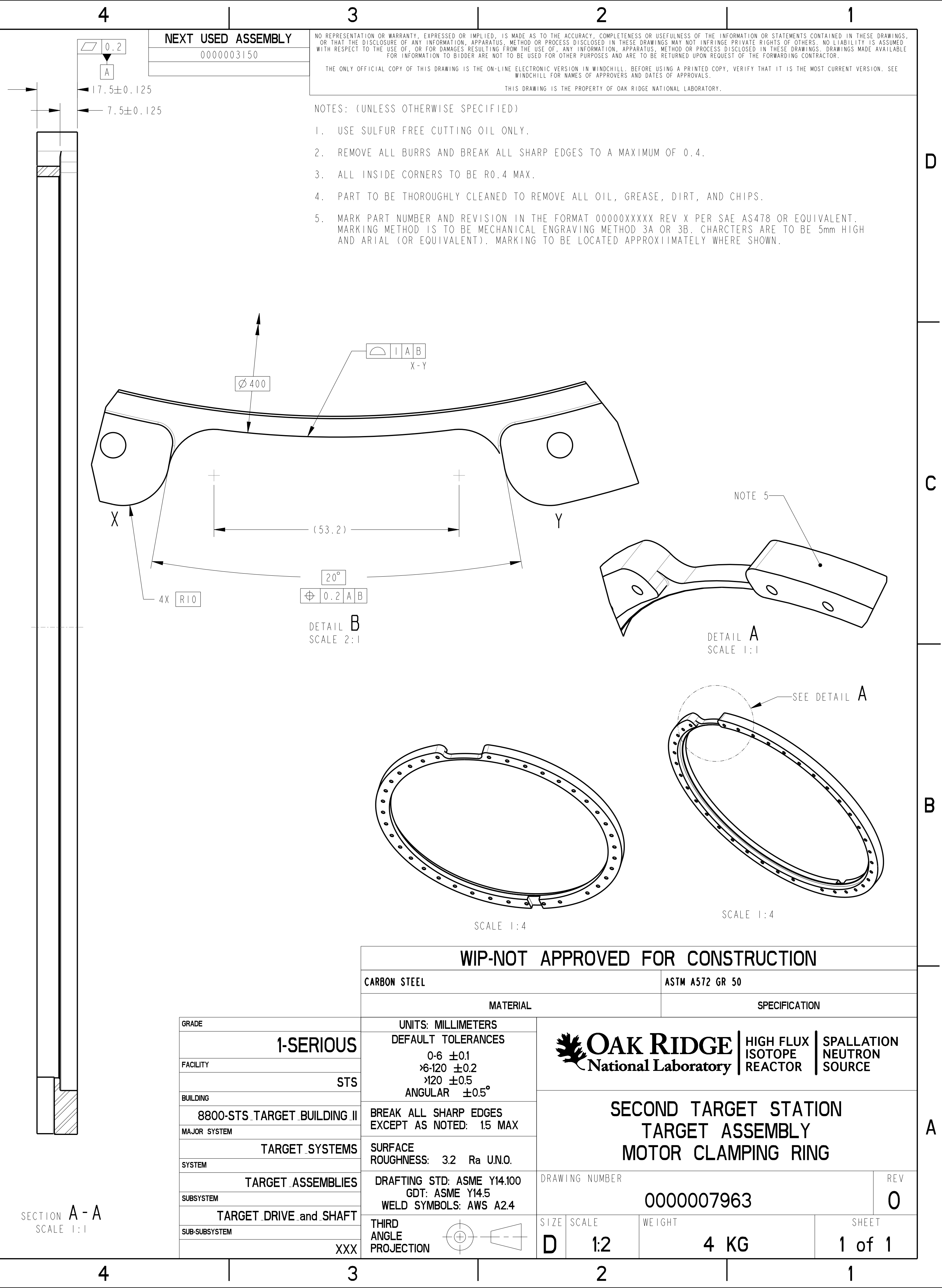
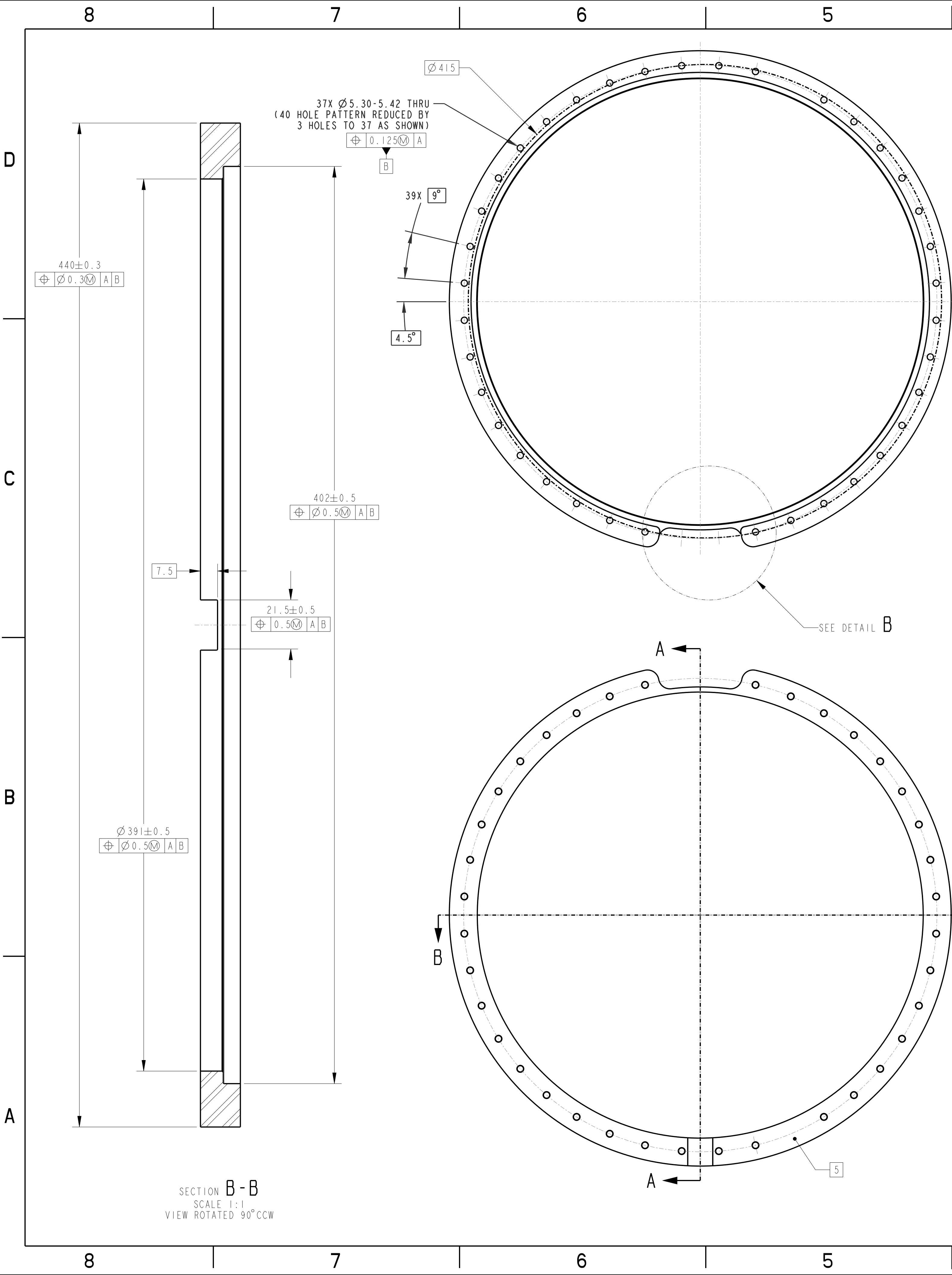
6 KG

SHEET

1 of 1







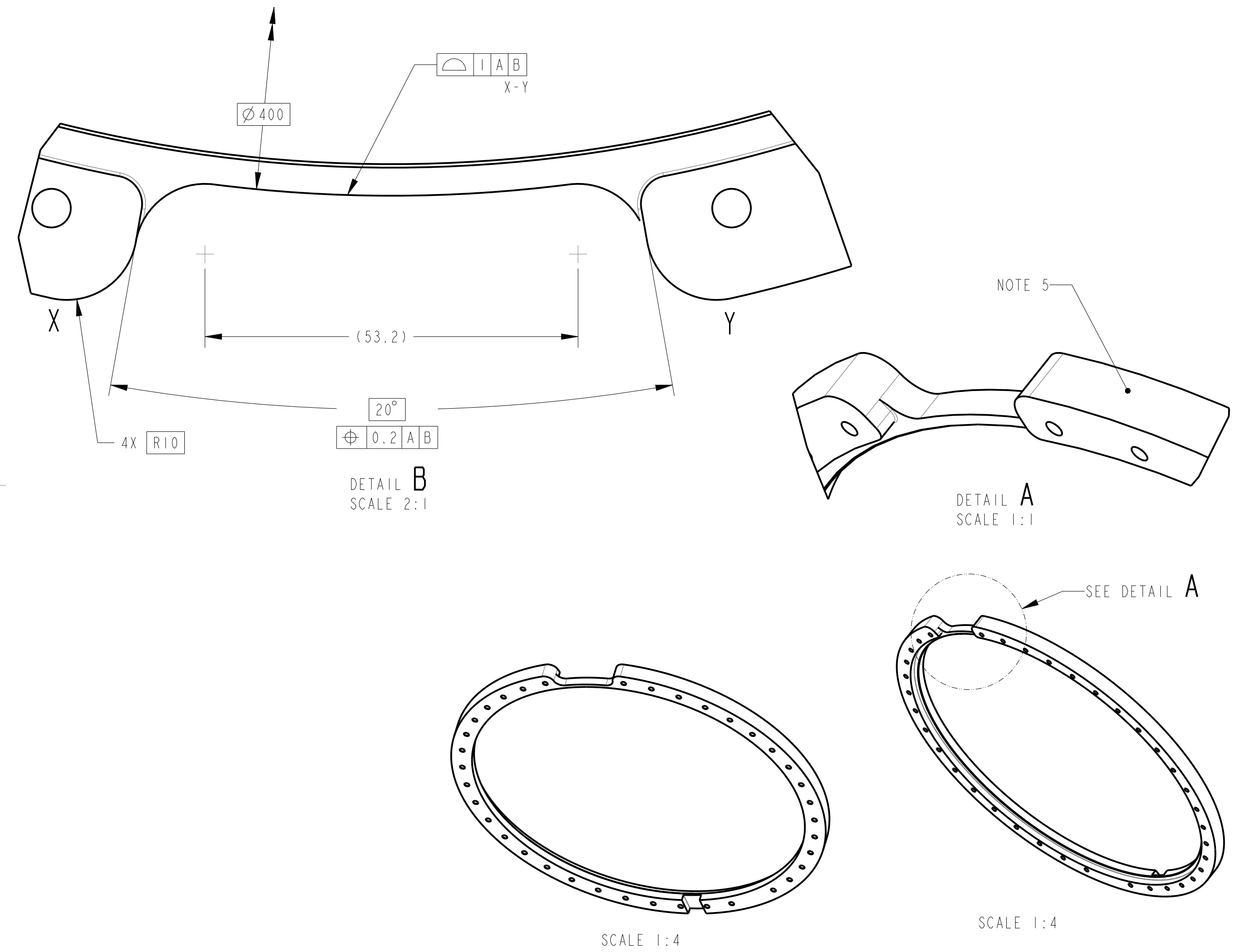
NEXT USED ASSEMBLY
0000003150

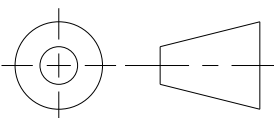
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 2. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
 3. ALL INSIDE CORNERS TO BE R0.4 MAX.
 4. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
 5. MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS478 OR EQUIVALENT. MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARCTERS ARE TO BE 5mm HIGH AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIIMATELY WHERE SHOWN.



		WIP-NOT APPROVED FOR CONSTRUCTION			
		CARBON STEEL		ASTM A572 GR 50	
		MATERIAL		SPECIFICATION	
GRADE		UNITS: MILLIMETERS		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE SECOND TARGET STATION TARGET ASSEMBLY MOTOR CLAMPING RING DRAWING NUMBER0000007963 REV0 SIZESCALEWEIGHTSHEET D1:24 KG1 of 1	
1-SERIOUS		DEFAULT TOLERANCES			
FACILITY		0-6 ±0.1			
		≥6-120 ±0.2			
STS		≥120 ±0.5			
BUILDING		ANGULAR ±0.5°			
8800-ST5 TARGET BUILDING II		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX			
MAJOR SYSTEM					
TARGET SYSTEMS		SURFACE ROUGHNESS: 3.2 Ra U.N.O.			
SYSTEM					
TARGET ASSEMBLIES		DRAFTING STD: ASME Y14.100			
		GDT: ASME Y14.5			
TARGET DRIVE and SHAFT		WELD SYMBOLS: AWS A2.4			
SUB-SUBSYSTEM		THIRD ANGLE PROJECTION			
XXX					

NEXT USED ASSEMBLY

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REVISION BLOCK

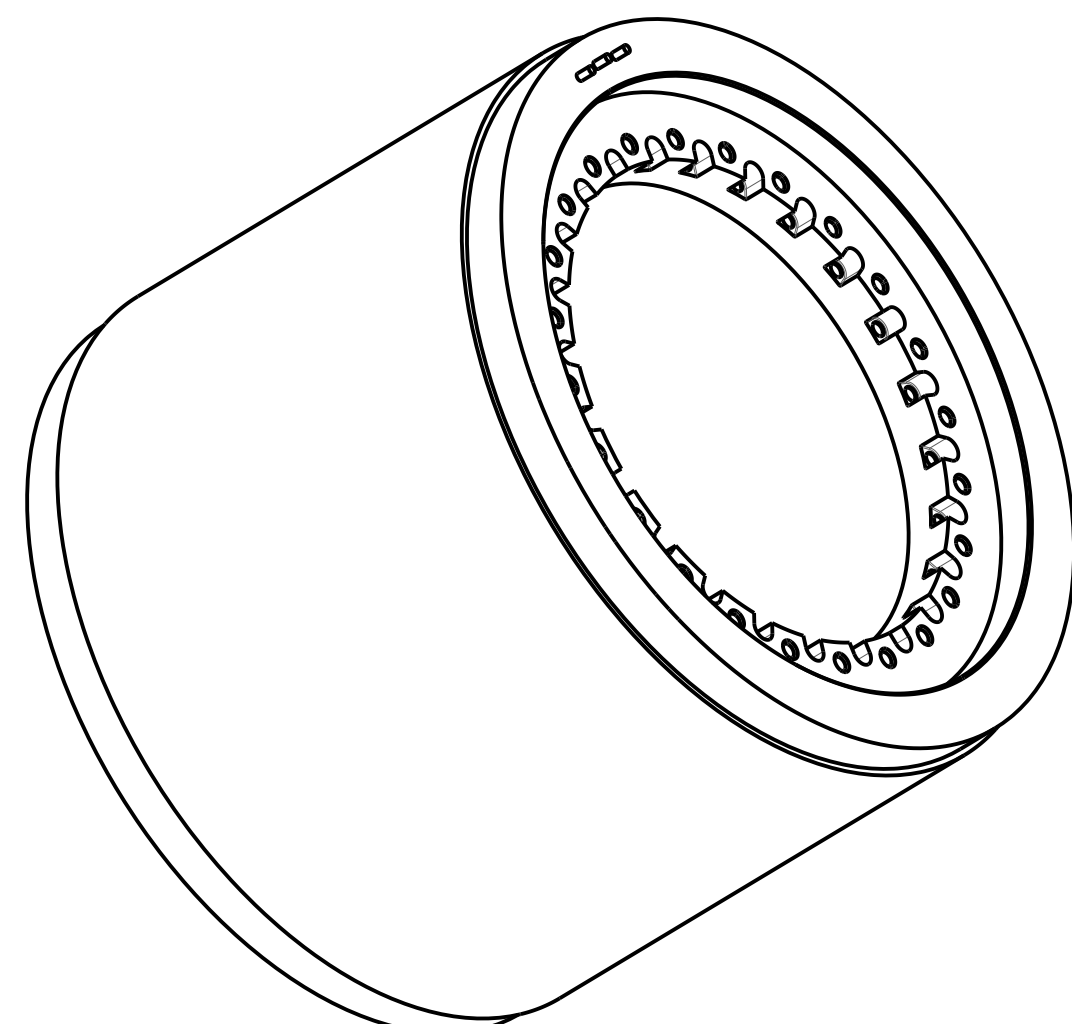
REV	DESCRIPTION OF CHANGE	DATE
0		

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ORNL ENGINEERING APPROVAL.
2. DIMENSIONAL LIMITS APPLY IN THE AS-ASSEMBLED POSITION.
3. INSTALL PER MANUFACTURER'S INSTRUCTIONS, ENSURING PROTECTION OF INTERFACE BETWEEN STATOR AND ROTOR.
4. MARK MODEL NUMBER, SERIAL NUMBER, AND CUSTOM P/N IN APPROXIMATE LOCATION SHOWN.
5. FURNISH WITH MALE TERMINALS AS SHOWN, ORNL TO PROVIDE FEMALE CONNECTORS AND LEAD WIRES.

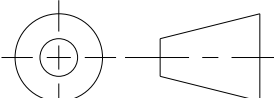
GEOMETRY AND PERFORMANCE REQUIREMENTS

ROTATIONAL VELOCITY	45 REV/MIN
MAX RATED TORQUE	2400 Nm
EXPECTED RADIATION RATING	500 kRad (PHOTON DOSE) 8×10^{12} NEUTRONS/CM ² (FAST NEUTRON FLUENCE)
TEMPERATURE SENSOR	PT1000
STATOR MOUNTING METHOD	SHRINK FIT
ROTOR MOUNTING METHOD	FLANGE WITH C-BORE THRU HOLES
REPLACEMENT INTERVAL	6 YEARS (30000 hr)
HOURS OF OPERATION PER YEAR	5000 hr
MATERIALS OF CONSTRUCTION	PER VENDOR SPECIFICATION

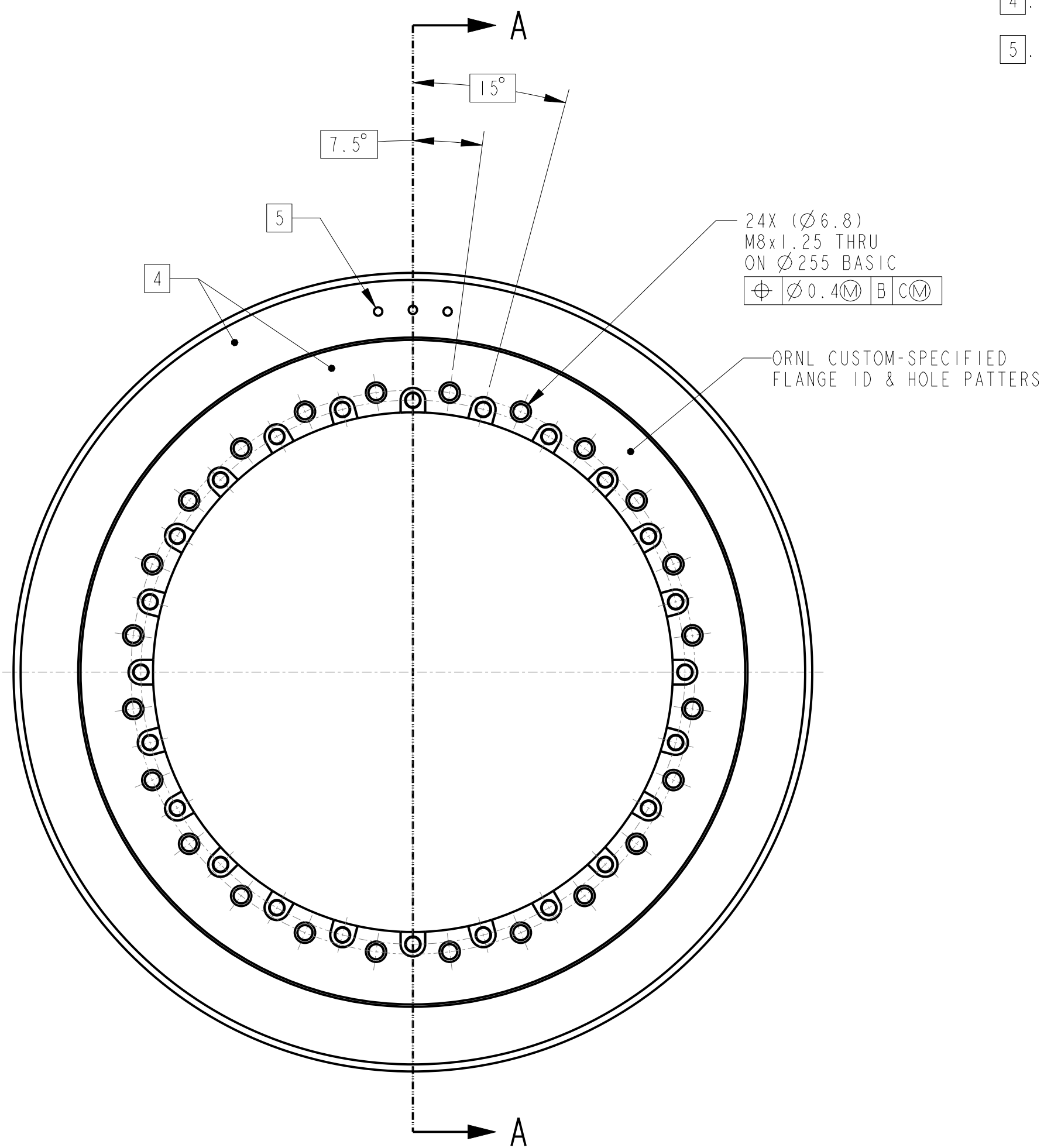
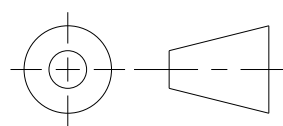


SCALE 3:10

WIP-NOT APPROVED FOR CONSTRUCTION

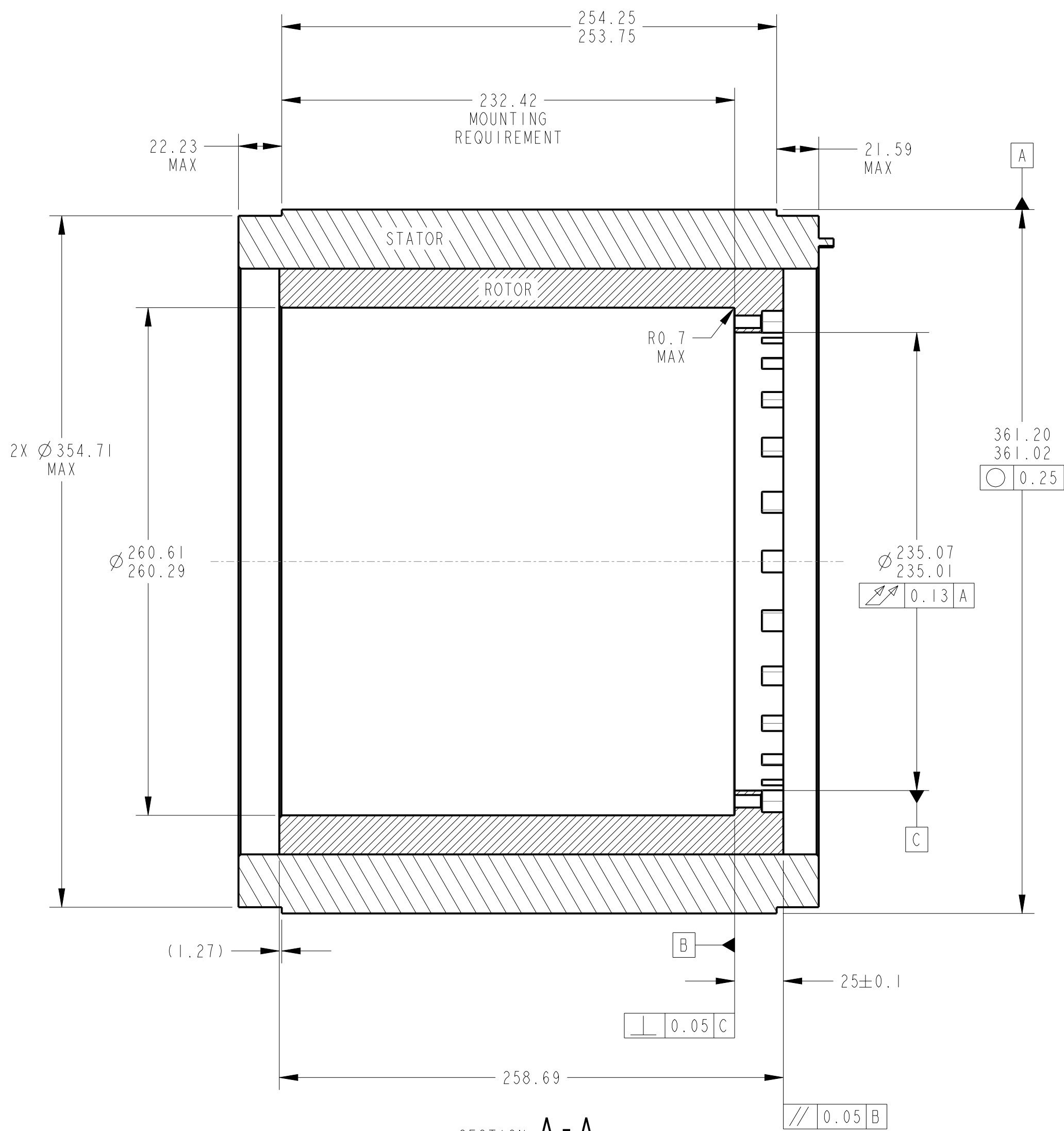
VENDOR SPECIFIED		VENDOR SPECIFIED	
MATERIAL		SPECIFICATION	
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		--- TARGET DRIVE MOTOR MOTOR, OPEN FRAME, RADTOL, KOLLMORGEN KBM-118-04-0	
SURFACE ROUGHNESS: 3.2 Ra UNO.		MOTOR, OPEN FRAME, RADTOL, KOLLMORGEN KBM-118-04-0	
DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4		DRAWING NUMBER 0000003084	REV 0
THIRD ANGLE PROJECTION		SIZE D	SCALE 1:5
		WEIGHT 108 KG	SHEET 1 of 1

GRADE	2-IMPORTANT
FACILITY	
BUILDING	STS
88000-ST5 TARGET BUILDING II	
MAJOR SYSTEM	TARGET SYSTEMS
SYSTEM	TARGET ASSEMBLIES
SUBSYSTEM	TARGET DRIVE and SHAFT
SUB-SUBSYSTEM	XXX



TOP VIEW
SCALE 1:2

SECTION A - A

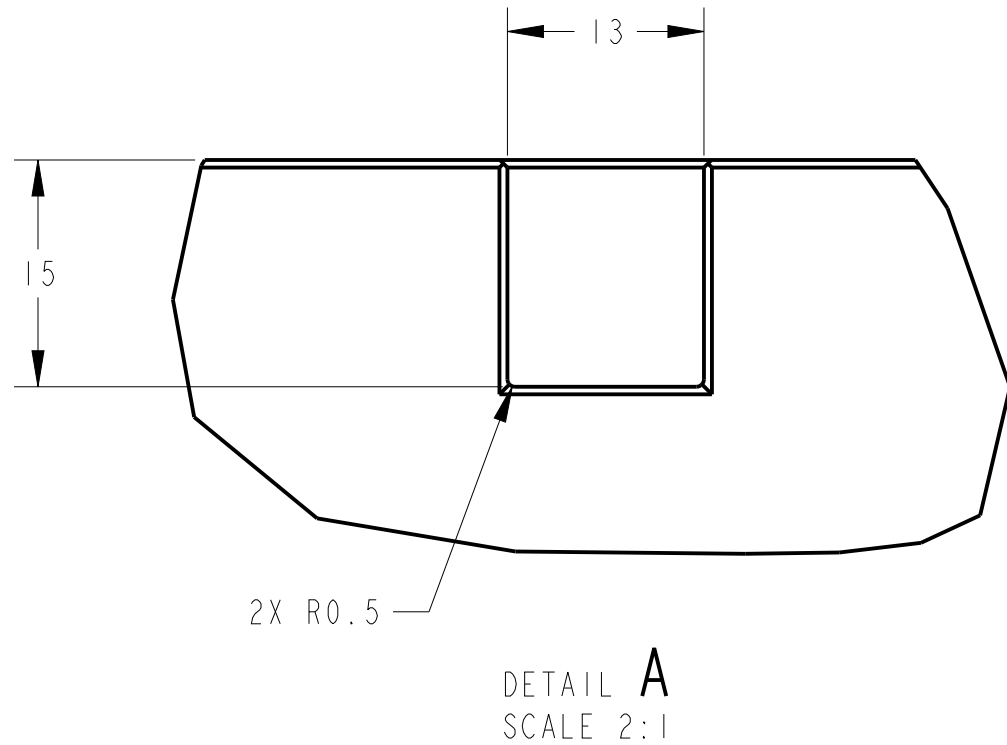
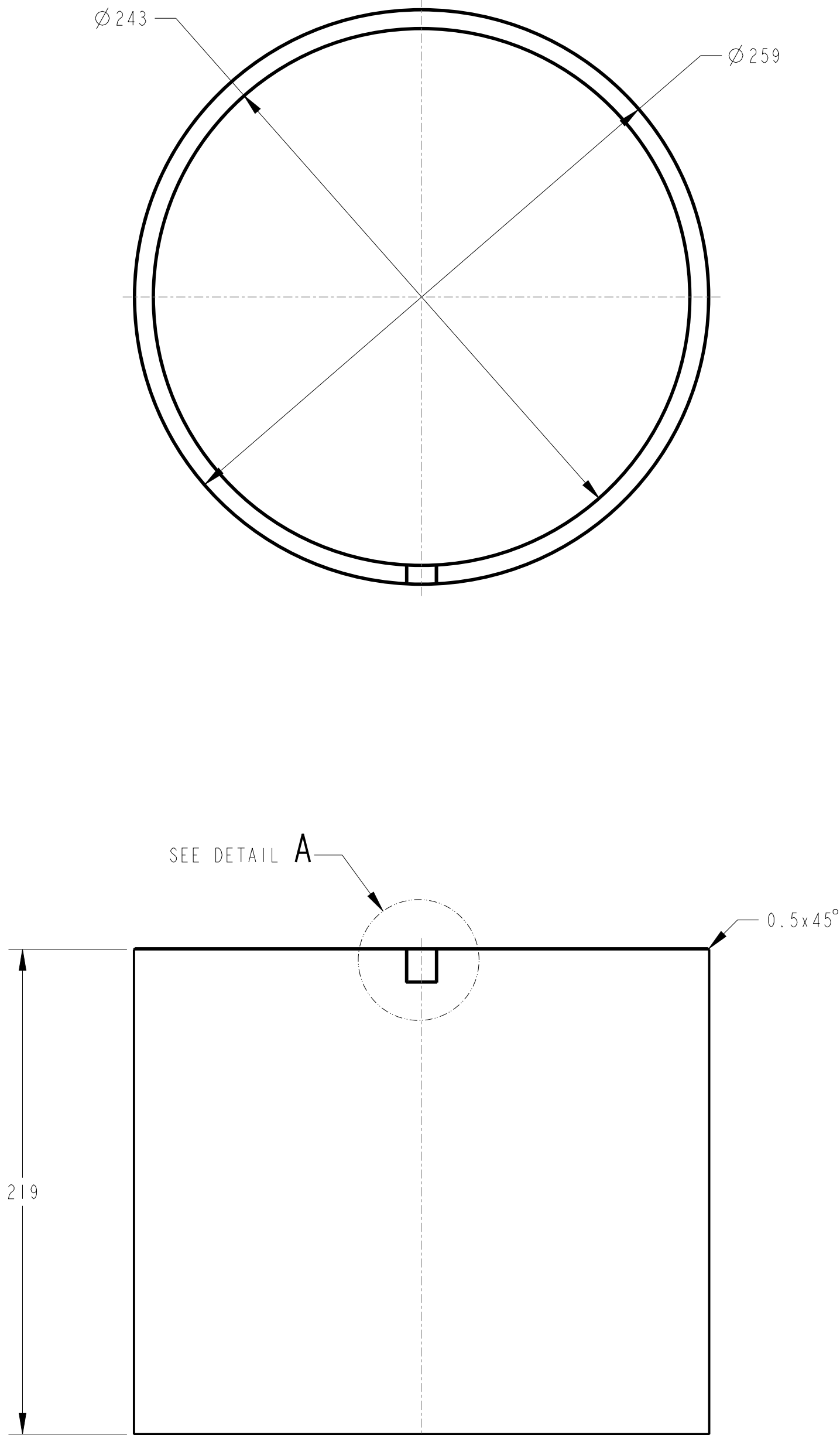


D

C

B

A



NEXT USED ASSEMBLY
0000003150

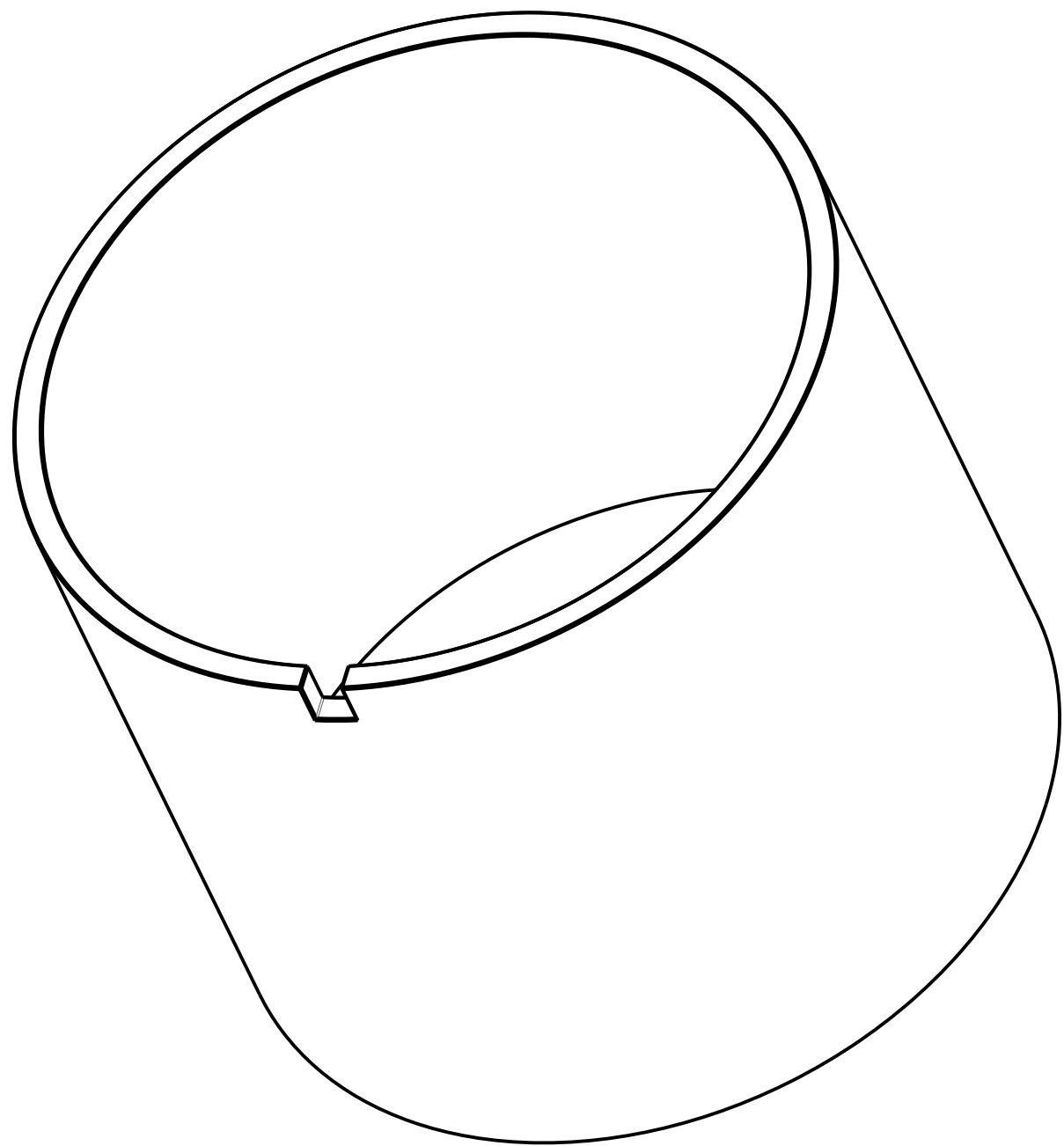
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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	---	

- NOTES:
1. REMOVE ALL BURRS AND BREAK SHARP EDGES TO 0.5 MAX.
 2. THOROUGHLY CLEAN TO REMOVE ALL OIL, GREASE, DIRT AND CHIPS.
 3. USE SULFUR FREE CUTTING OIL ONLY.
 4. PART TO BE THOROUGHLY CLEANED TO REMOVED ALL OIL, GREASE, DIRT AND CHIPS.



D

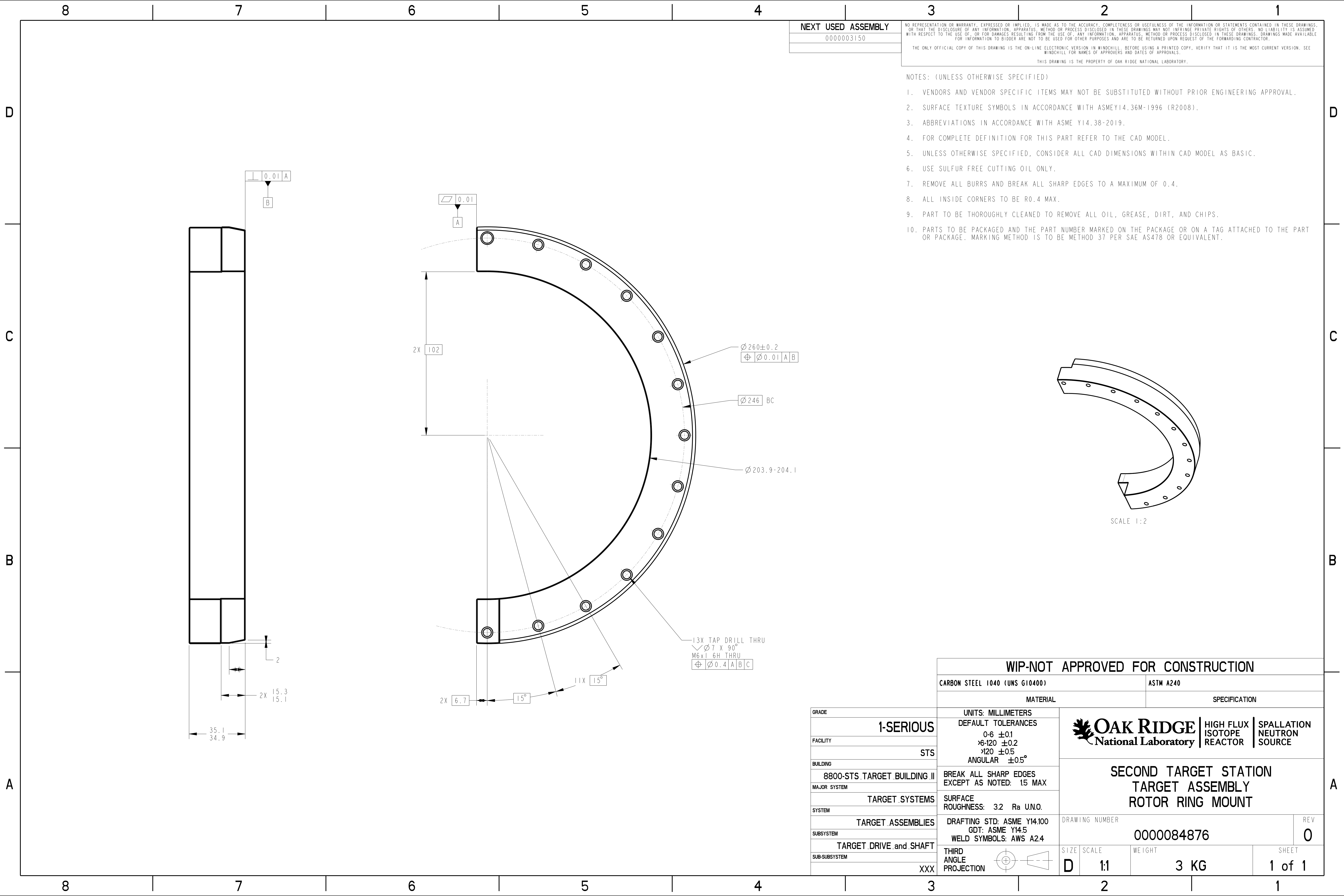
C

B

A

		WIP-NOT APPROVED FOR CONSTRUCTION			
		SS 316 (S31600)		---	
		MATERIAL		SPECIFICATION	
GRADE		UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 ≥6-120 ±0.2 ≥120 ±0.5 ANGULAR ±0.5°		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
1-SERIOUS					
FACILITY		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		---	
STS					
BUILDING		SURFACE ROUGHNESS: 3.2 Ra U.N.O.		---	
8800-ST5.TARGET BUILDING II					
MAJOR SYSTEM		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4		MOTOR SPACER SLEEVE	
TARGET SYSTEMS					
SYSTEM		THIRD ANGLE PROJECTION		DRAWING NUMBER	
TARGET ASSEMBLIES					
SUBSYSTEM		SIZE		SCALE	
TARGET DRIVE and SHAFT					
SUB-SUBSYSTEM		WEIGHT		SHEET	
XXX					
		D		1:2	
				12 KG	
				1 of 1	

GRADE	1-SERIOUS
FACILITY	STS
BUILDING	8800-STG TARGET BUILDING II
MAJOR SYSTEM	TARGET SYSTEMS
SYSTEM	TARGET ASSEMBLIES
SUBSYSTEM	TARGET DRIVE and SHAFT
SUB-SUBSYSTEM	XXX



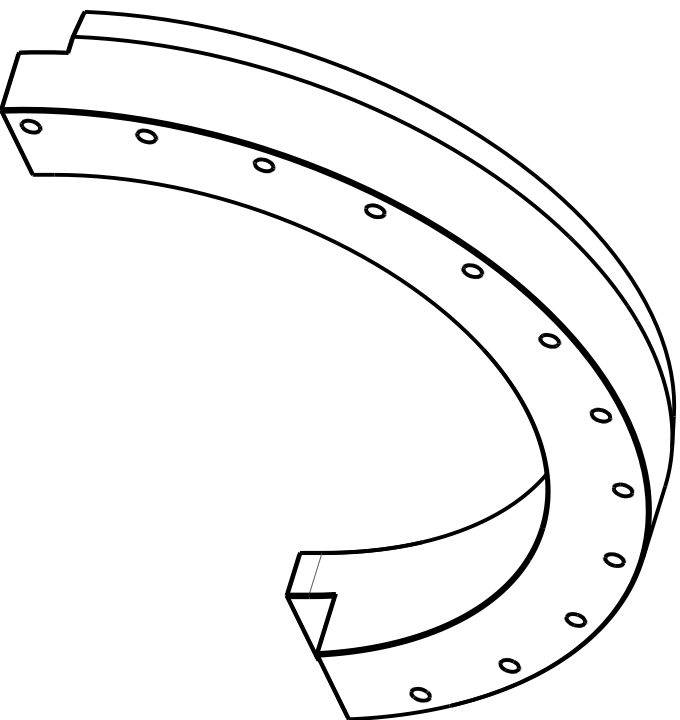
NEXT USED ASSEMBLY
0000003150

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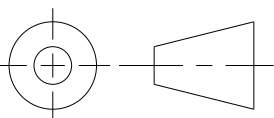
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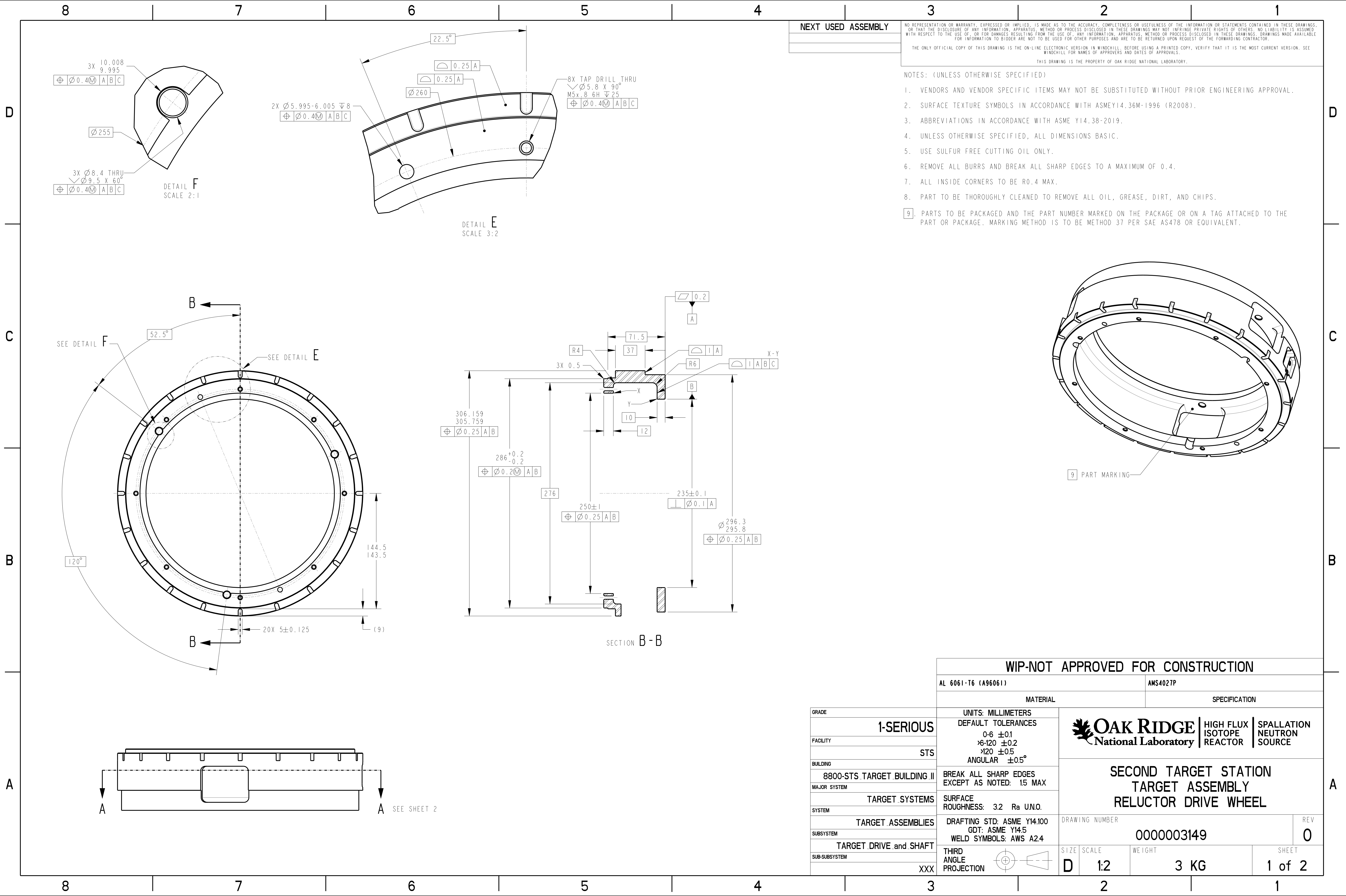
- NOTES: (UNLESS OTHERWISE SPECIFIED)
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 - SURFACE TEXTURE SYMBOLS IN ACCORDANCE WITH ASMEY14.36M-1996 (R2008).
 - ABBREVIATIONS IN ACCORDANCE WITH ASME Y14.38-2019.
 - FOR COMPLETE DEFINITION FOR THIS PART REFER TO THE CAD MODEL.
 - UNLESS OTHERWISE SPECIFIED, CONSIDER ALL CAD DIMENSIONS WITHIN CAD MODEL AS BASIC.
 - USE SULFUR FREE CUTTING OIL ONLY.
 - REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
 - ALL INSIDE CORNERS TO BE R0.4 MAX.
 - PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
 - PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER SAE AS478 OR EQUIVALENT.

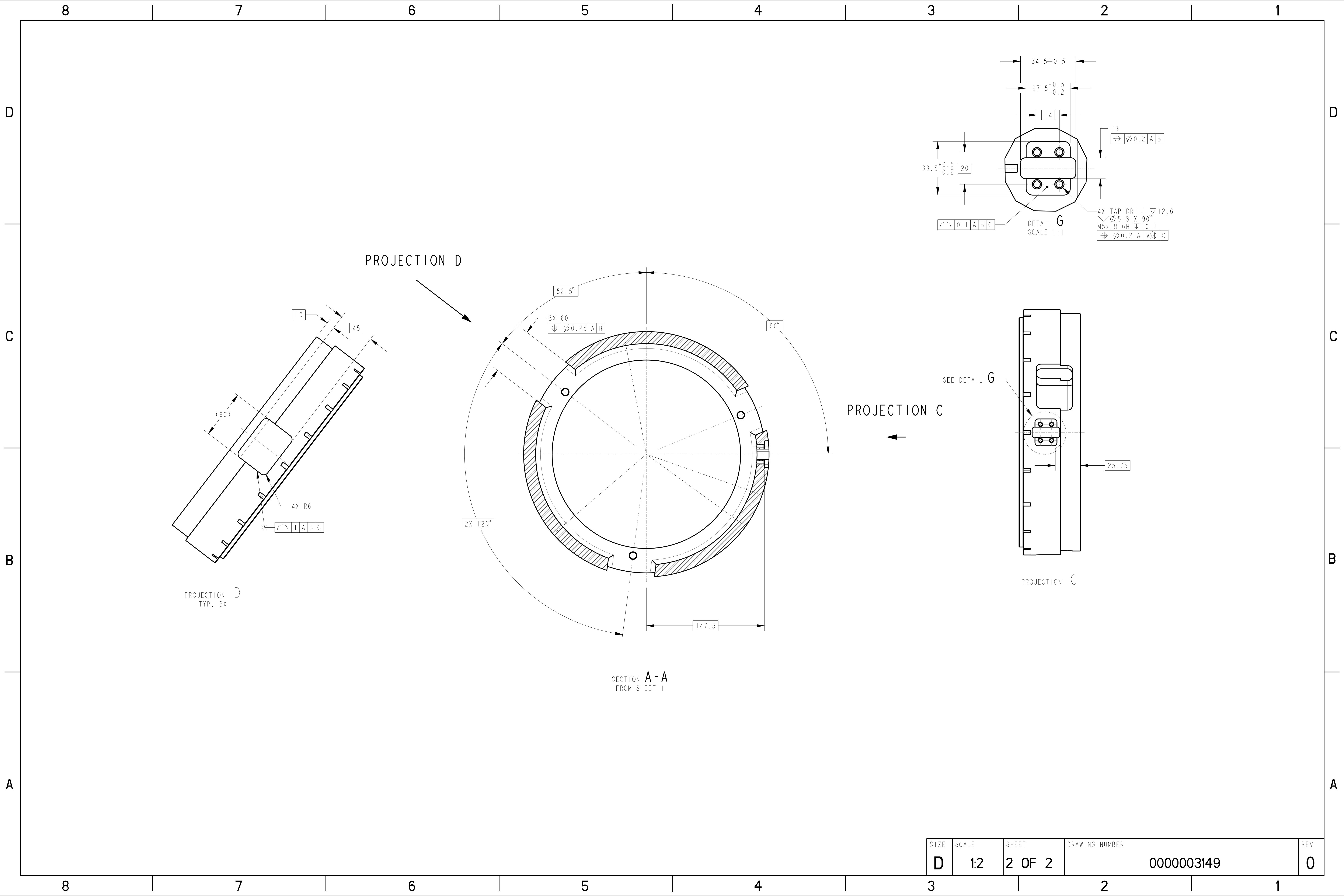


SCALE 1:2

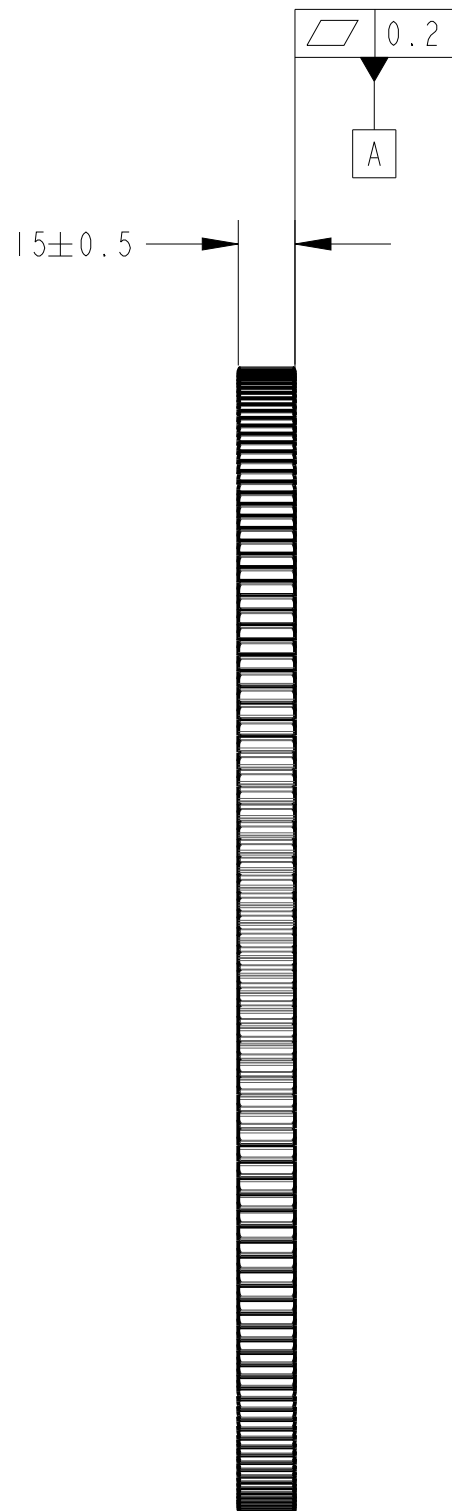
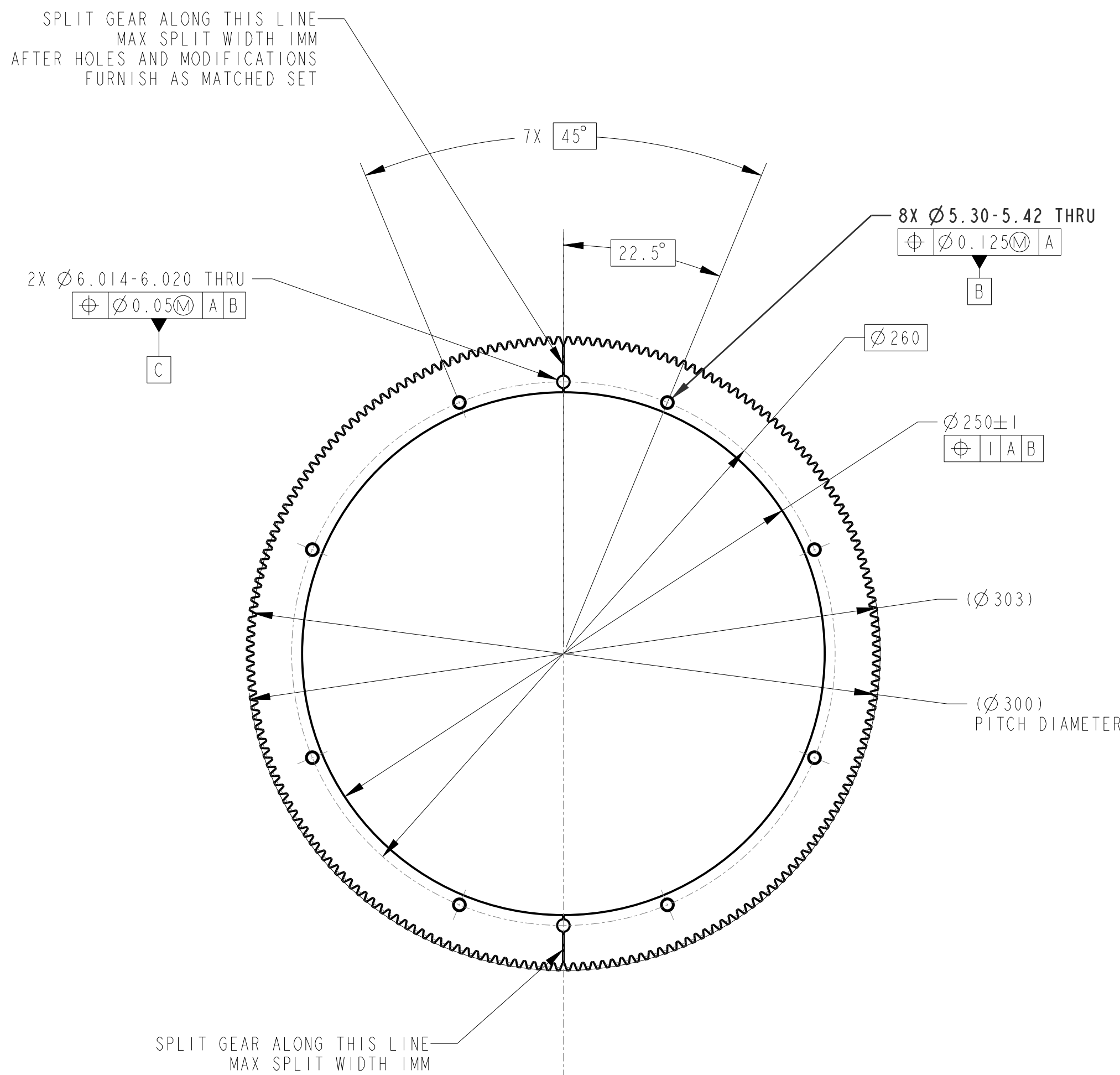
WIP-NOT APPROVED FOR CONSTRUCTION						
CARBON STEEL 1040 (UNS G10400)			ASTM A240			
MATERIAL			SPECIFICATION			
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°			OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE SECOND TARGET STATION TARGET ASSEMBLY ROTOR RING MOUNT			
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX						
SURFACE ROUGHNESS: 3.2 Ra U.N.O.						
DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4						
THIRD ANGLE PROJECTION			SIZE	SCALE	WEIGHT	SHEET
			D	1:1	3 KG	1 of 1

GRADE	1-SERIOUS
FACILITY	STS
BUILDING	8800-STG TARGET BUILDING II
MAJOR SYSTEM	TARGET SYSTEMS
SYSTEM	TARGET ASSEMBLIES
SUBSYSTEM	TARGET DRIVE and SHAFT
SUB-SUBSYSTEM	XXX





SIZE	SCALE	SHEET	DRAWING NUMBER	REV
D	1:2	2 OF 2	0000003149	0



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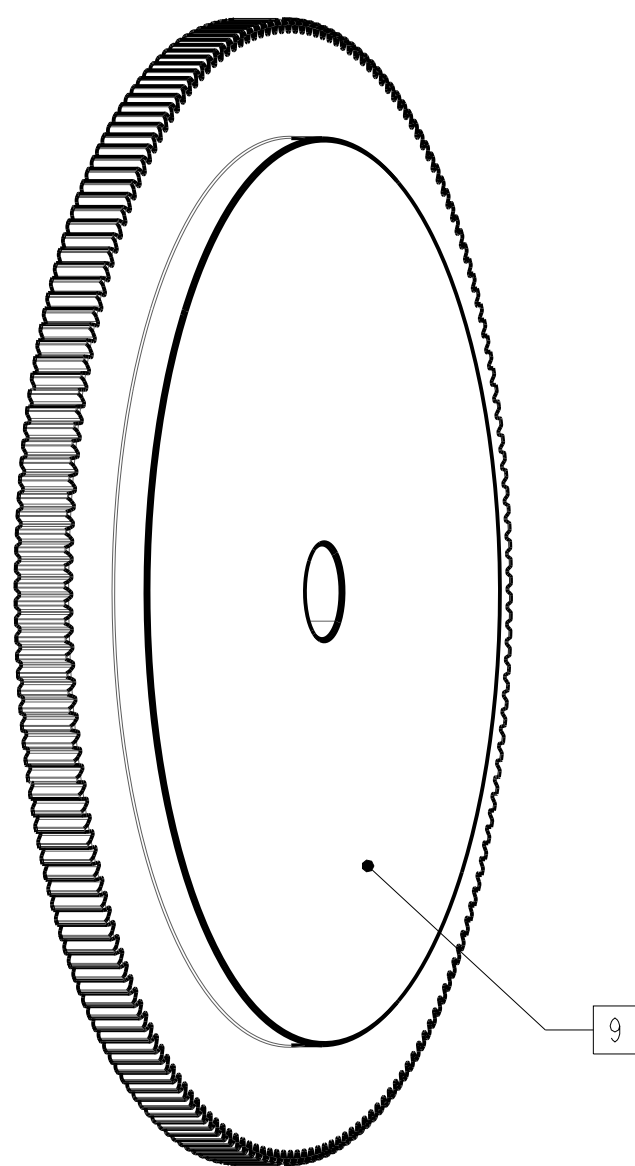
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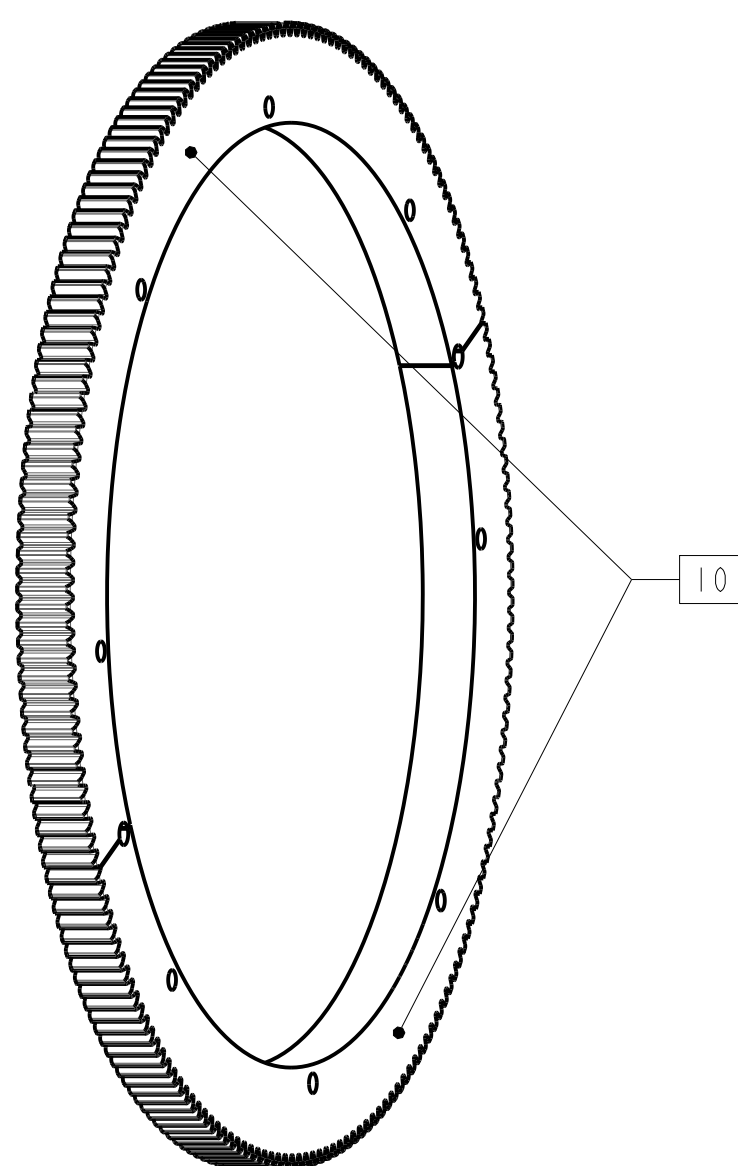
NOTES: (UNLESS OTHERWISE SPECIFIED)

- VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL.
- SURFACE TEXTURE SYMBOLS IN ACCORDANCE WITH ASMEY14.36M-1996 (R2008).
- ABBREVIATIONS IN ACCORDANCE WITH ASME Y14.38-2019.
- UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS BASIC.
- USE SULFUR FREE CUTTING OIL ONLY.
- REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
- ALL INSIDE CORNERS TO BE R0.4 MAX.
- PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.

- MAKE FROM KHK SS1.5-200 (OR SAME)
 - SPUR GEAR
 - MODULE 1.5
 - 200 TOOTH
 - PITCH DIAMETER: 300MM
 - AGMA 10
 - CARBON STEEL
- MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS478 OR EQUIVALENT. MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARCTERS ARE TO BE 5mm HIGH AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIIMATELY WHERE SHOWN.



START PART
AS PURCHASED



FINISHED PART
AS MACHINED & SPLIT

WIP-NOT APPROVED FOR CONSTRUCTION

CARBON STEEL 1045 (G10450) ASTM A830

MATERIAL SPECIFICATION

UNITS: MILLIMETERS
DEFAULT TOLERANCES
0-6 ± 0.1
 $>6-120 \pm 0.2$
 $>120 \pm 0.5$
ANGULAR $\pm 0.5^\circ$

OAK RIDGE
National Laboratory
HIGH FLUX
ISOTOPE
REACTOR
SPALLATION
NEUTRON
SOURCE

BREAK ALL SHARP EDGES
EXCEPT AS NOTED: 15 MAX

SURFACE
ROUGHNESS: 3.2 Ra U.N.O.

DRAFTING STD: ASME Y14.100
GDT: ASME Y14.5
WELD SYMBOLS: AWS A2.4

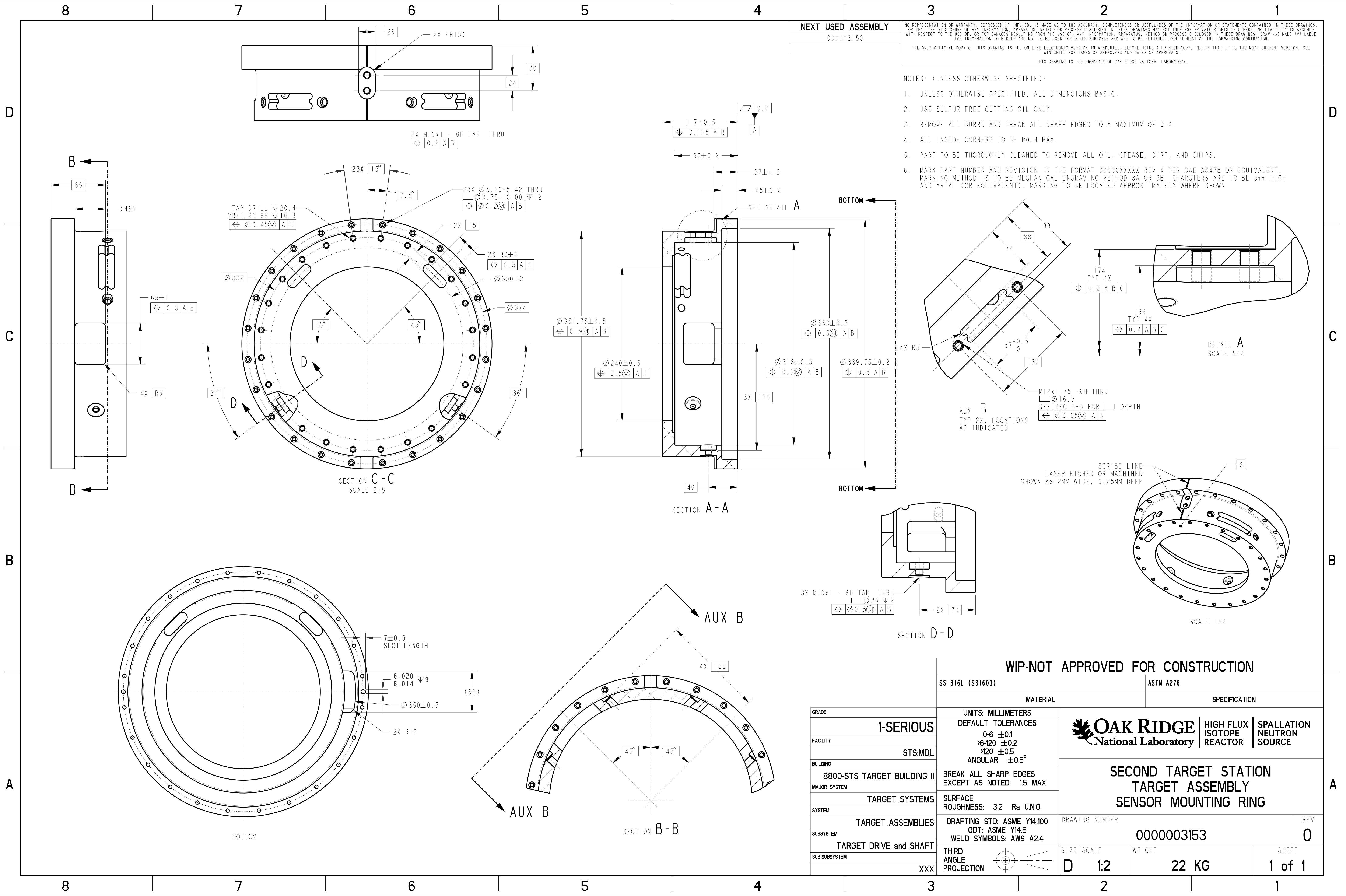
THIRD
ANGLE
PROJECTION

SIZE SCALE WEIGHT SHEET
D 1:2 3 KG 1 of 1

GEAR, SPUR, MOD 1.5, 200 TOOTH, STEEL

DRAWING NUMBER 0000016312 REV 0

GRADE
1-SERIOUS
FACILITY
STS
BUILDING
8800-STG TARGET BUILDING II
MAJOR SYSTEM
TARGET SYSTEMS
SYSTEM
TARGET ASSEMBLIES
SUBSYSTEM
TARGET DRIVE and SHAFT
SUB-SUBSYSTEM
XXX



NEXT USED ASSEMBLY
0000003150

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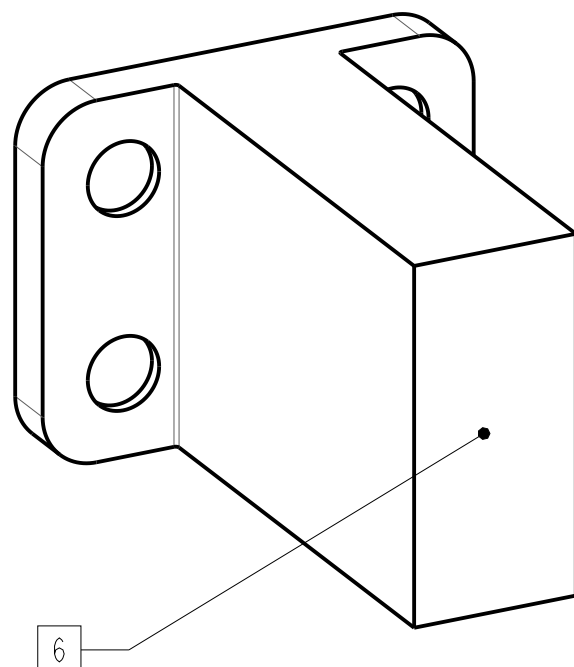
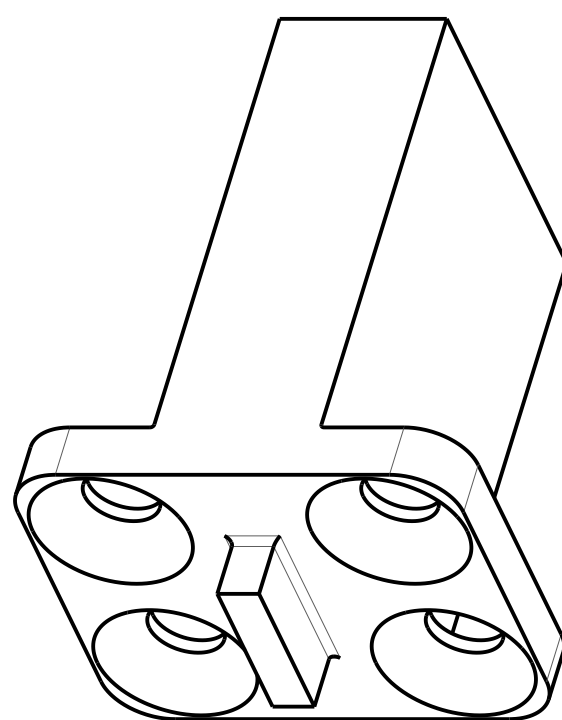
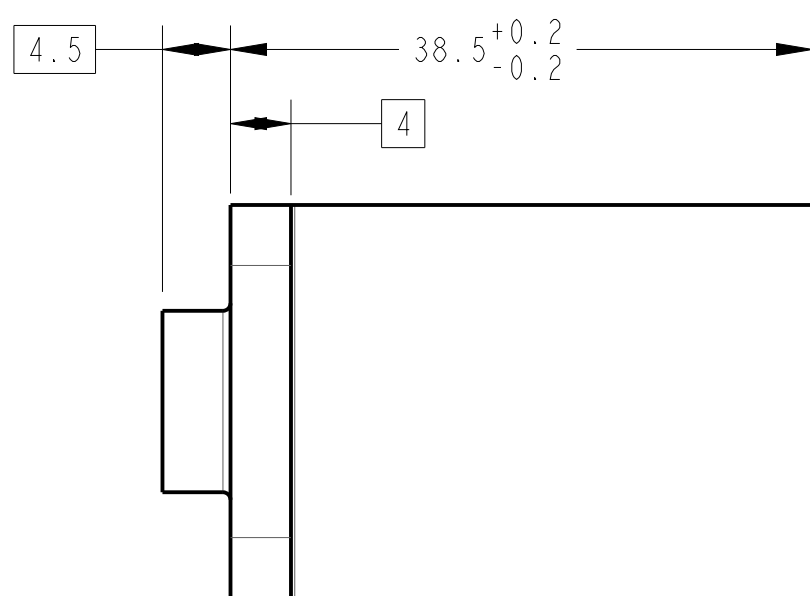
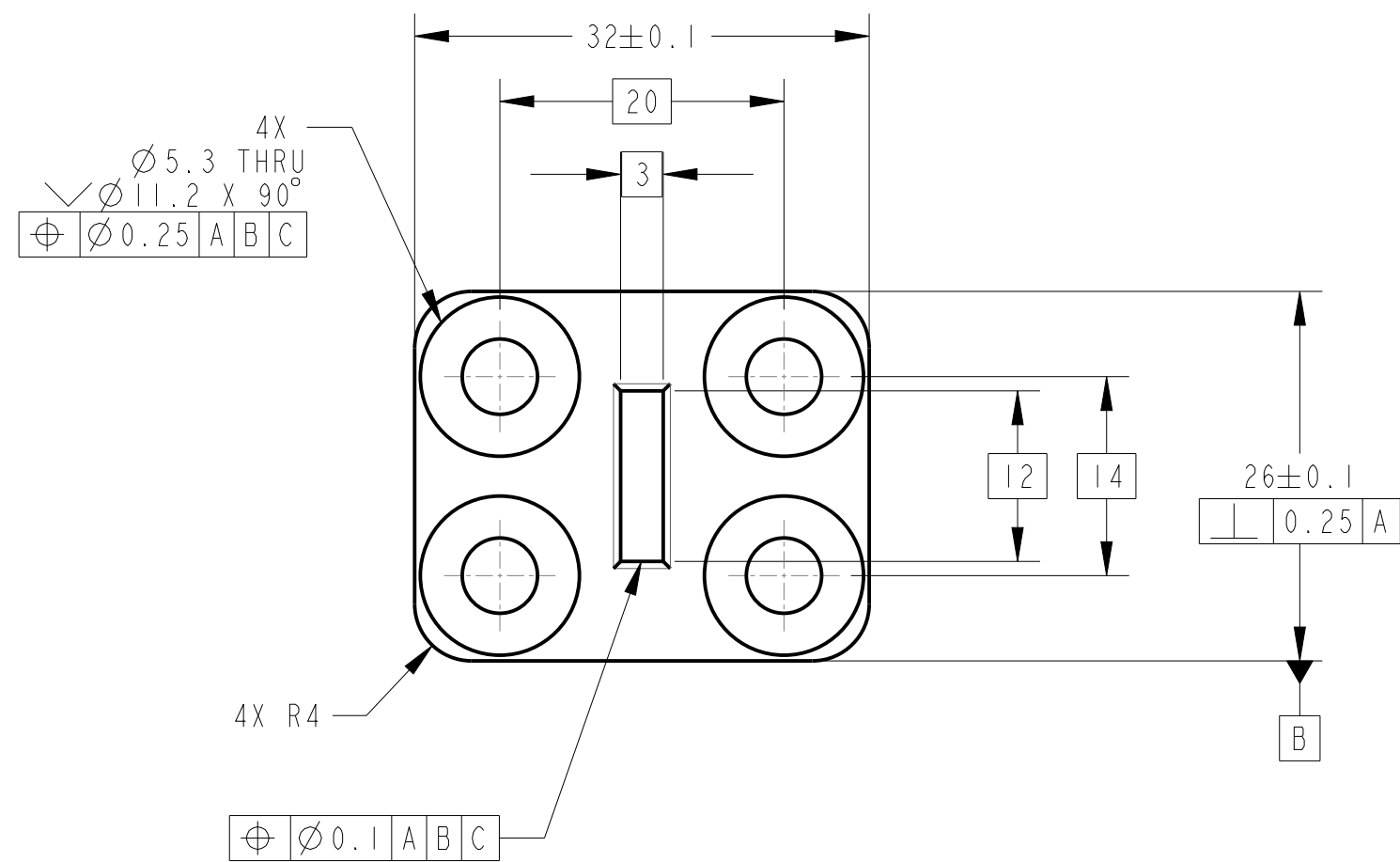
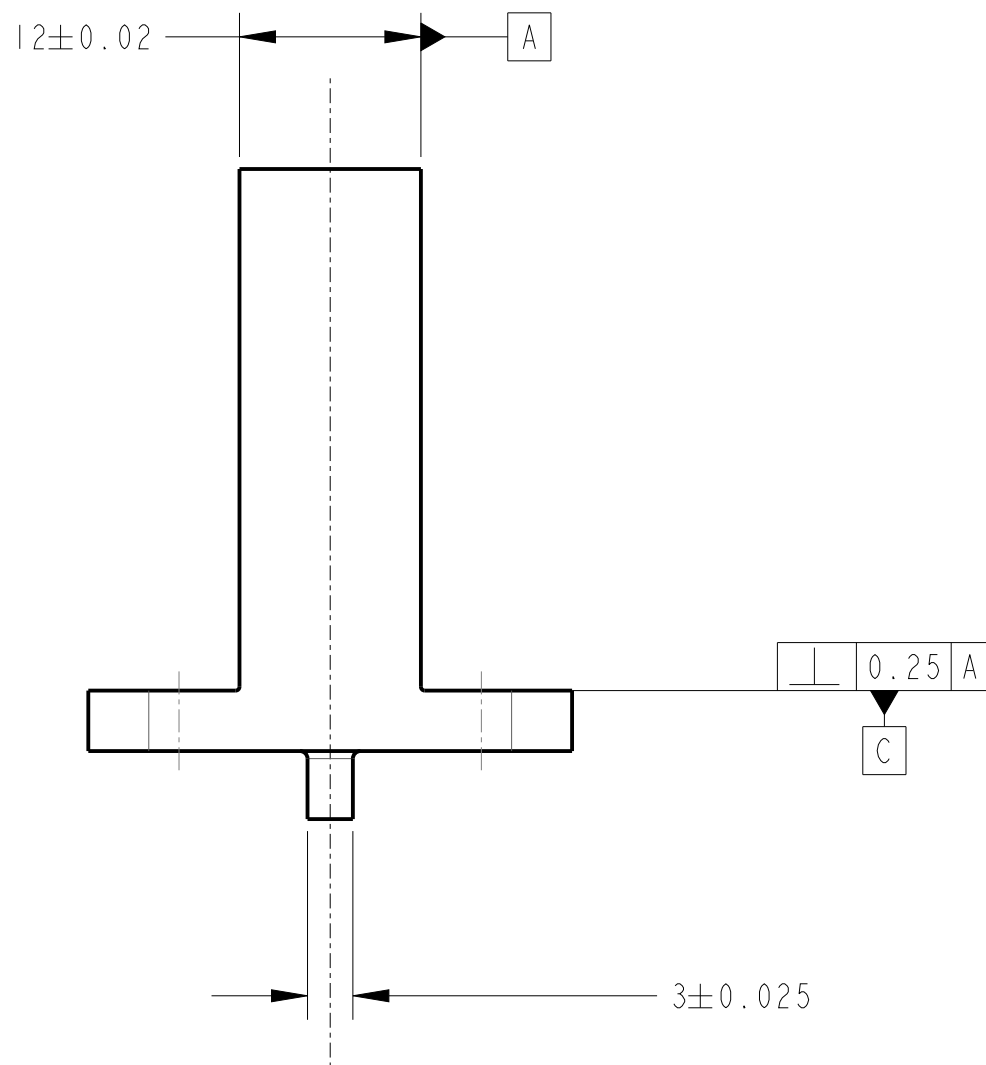
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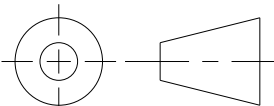
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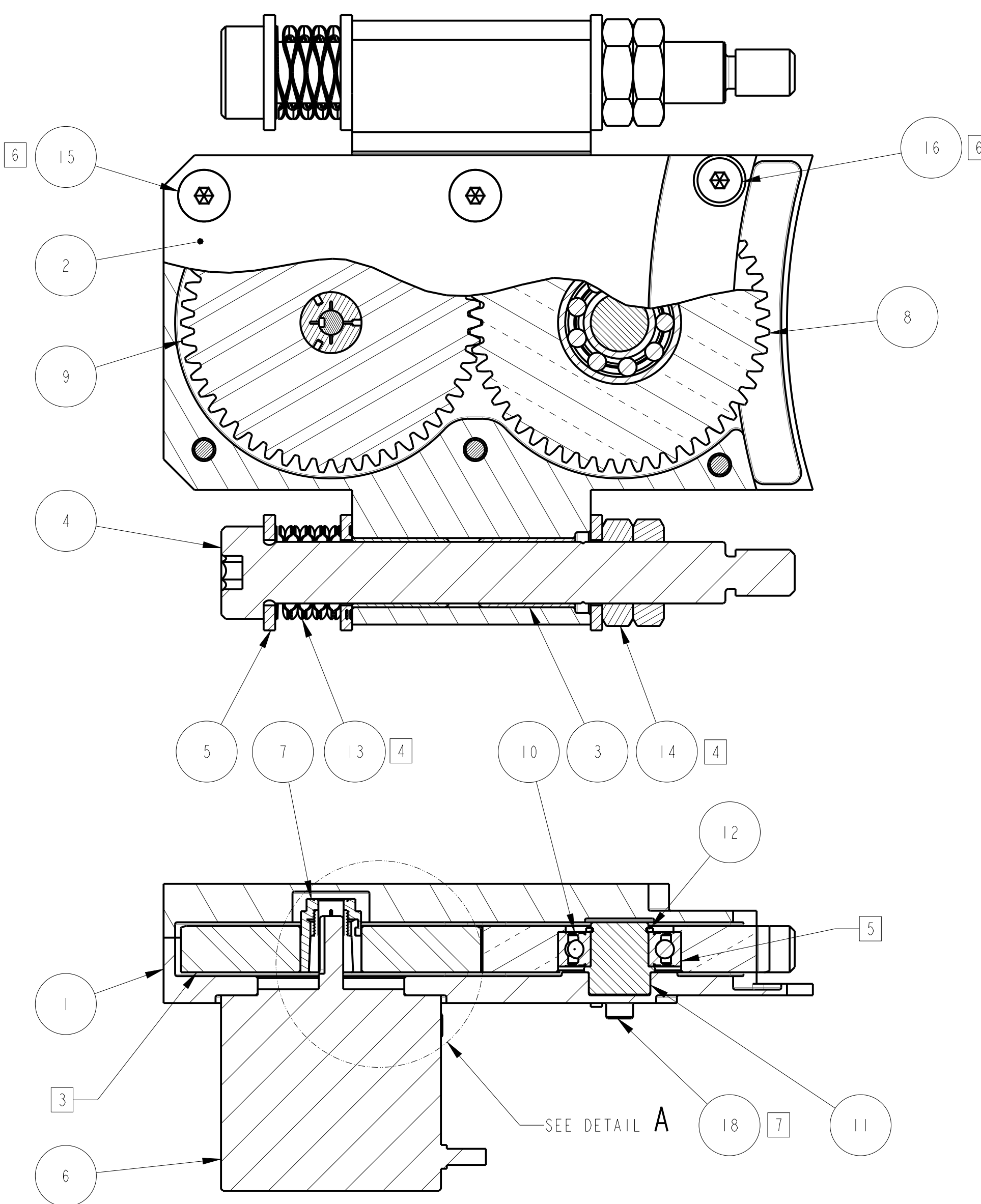
NOTES: (UNLESS OTHERWISE SPECIFIED)

NOTES: (UNLESS OTHERWISE SPECIFIED)

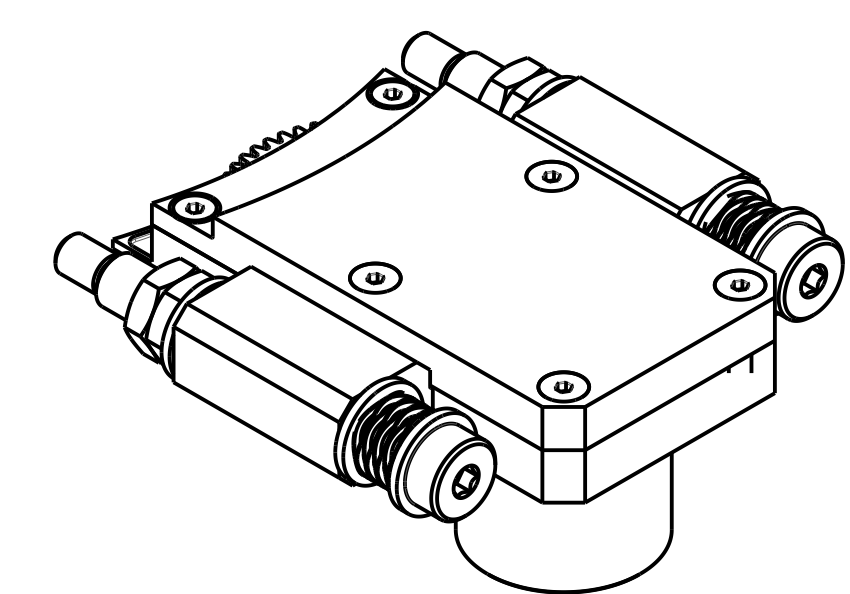
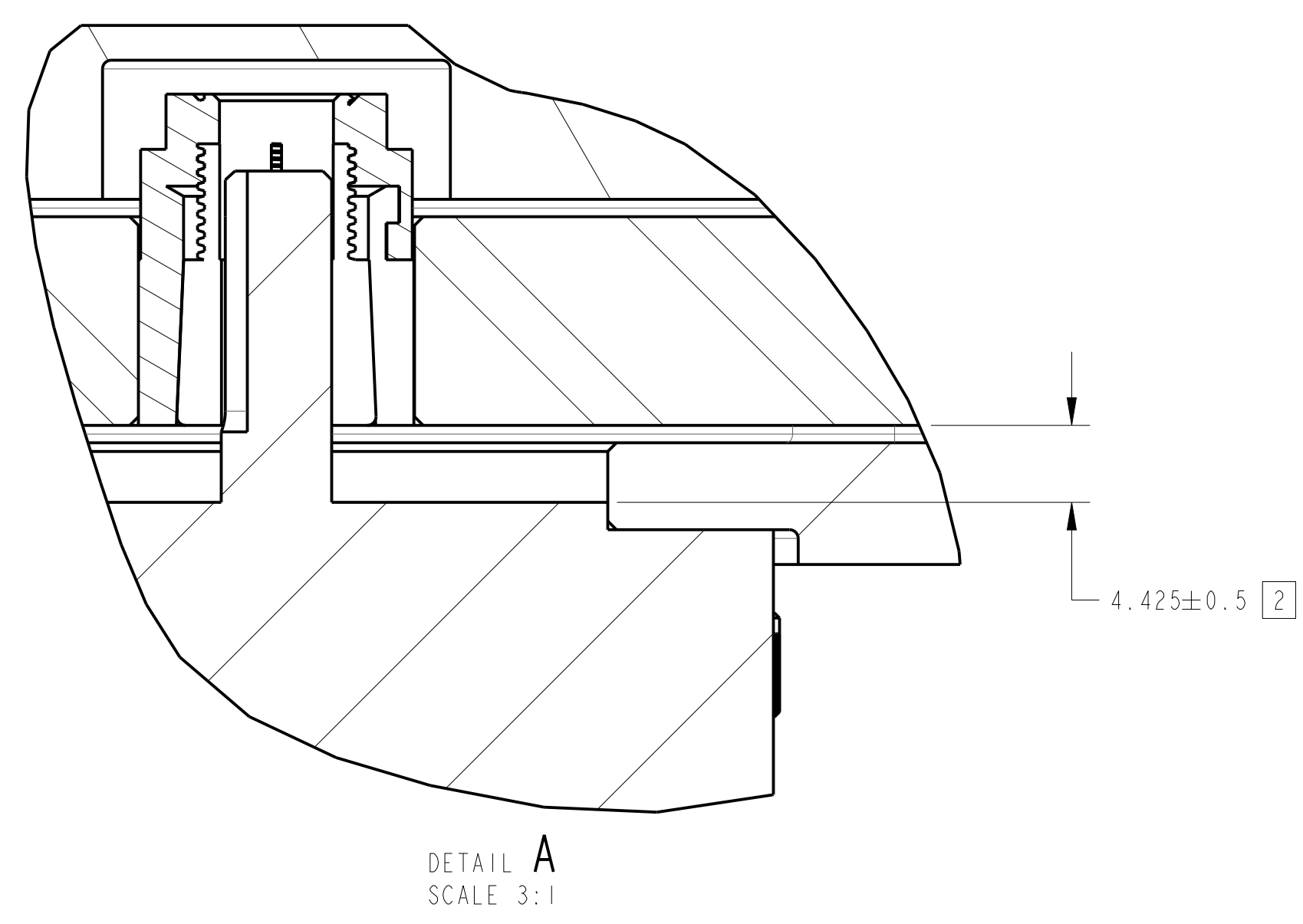
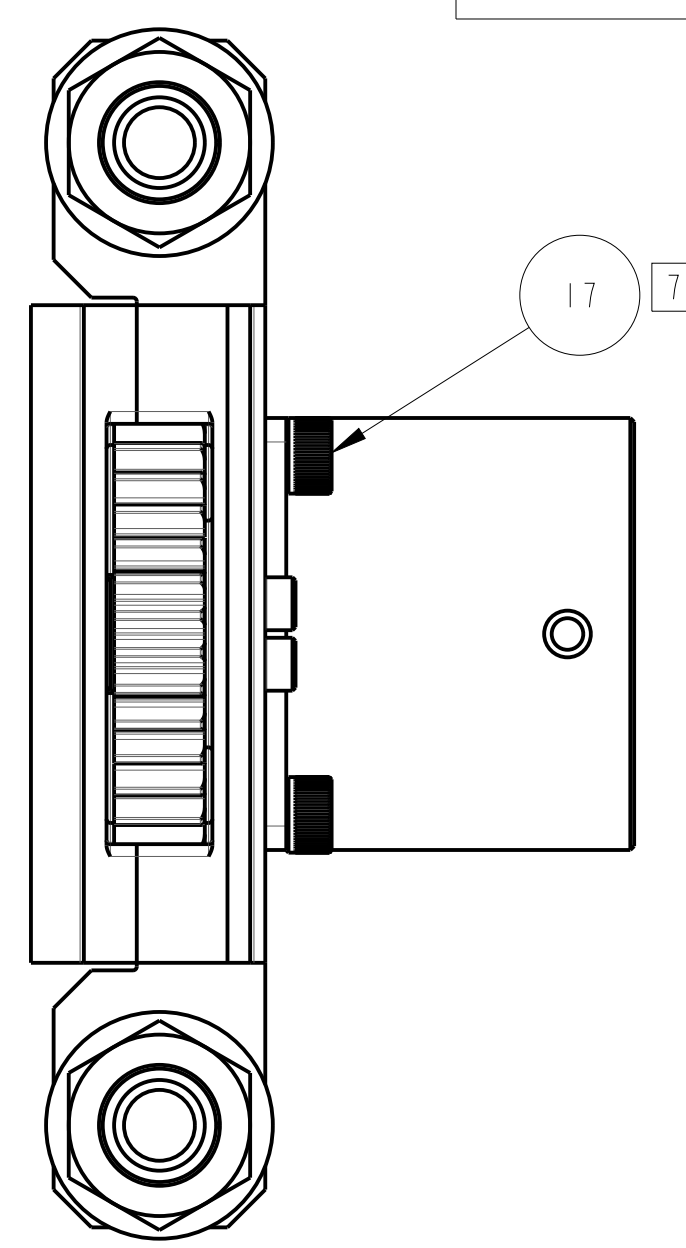
1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS BASIC.
2. USE SULFUR FREE CUTTING OIL ONLY.
3. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
4. ALL INSIDE CORNERS TO BE R0.4 MAX.
5. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
6. MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS478 OR EQUIVALENT. MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARACTERS ARE TO BE 5mm HIGH AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIMATELY WHERE SHOWN.



WIP-NOT APPROVED FOR CONSTRUCTION				
AL 6061 (A96061)			ASTM B209	
MATERIAL			SPECIFICATION	
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°			 OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX				
SURFACE ROUGHNESS: 3.2 Ra U.N.O.				
DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4				
SECOND TARGET STATION TARGET ASSEMBLY HOMING PIN				
DRAWING NUMBER			REV	
0000007109			0	
THIRD ANGLE PROJECTION	SIZE	SCALE	WEIGHT	SHEET
	D	2:1	0.036 KG	1 of 1



MCMaster-CARR WWW.MCMaster.COM	ALLOY STEEL DIN 912	SHCS, M4 X 0.7 X 10 mm LG.	91290A144	2	18
MCMaster-CARR OR EQ ---	ALLOY STEEL ISO 4762	SHCS, M6x1 X 8, BLACK-OXIDE, CLASS 12.9	91290A312	4	17
MCMaster-CARR WWW.MCMaster.COM	ALLOY STEEL AISI 4140	FHSS M6- 1.0 x 22 mm LG	91294A240	2	16
MCMaster-CARR WWW.MCMaster.COM	ALLOY STEEL DIN 7991, ISO 10642	FHCS M6x1.0 X 30, CLASS 10.9, BLACK OXIDE	91294A244	4	15
MCMaster-CARR OR EQ ---	CARBON STEEL 1020 (G10200) ---	NSCD START PART MM	90326A203	4	14
ROTOR CLIP ---	SS 17-7PH ---	SPRING, WAVE, 14.15N.MM, 19MM ID, ROTOR-CLIP	MWR-25SO FF (MWR-25 FF)	2	13
---	DIN 1.4122 SS DIN 471	15MM OD EXTERNAL RETAINING RING	90967A180	1	12
---	CARBON STEEL 1045 (G10450) ASTM A240	SHAFT_GEAR_IDLER.pr1	0000016814	1	11
SKF ---	STEEL AISI 52100 (UNS G52986) ---	BEARING, BALL, 15MM ID, 32MM OD, W/ SEALS	6002-2RSH	1	10
---	CARBON STEEL 1045 (G10450) ASTM A830	GEAR_1.5-50_SS-HARDENED.pr1	0000016788	1	9
---	PEEK ASTM D8033	GEAR, SPUR, 1.5, 50 TOOTH, PEEK	0000016787	1	8
MCMaster-CARR OR EQ ---	CARBON STEEL 1020 (G10200) ---	SCREW CLAMP BUSHING, 1/4" ID, 5/8" OD	5926K12	1	7
EMPIRE MAGNETICS INC. HTTPS:WWW.EMPIREMAGNETICS.COM	---	RESOLVER, NEMA 23, RAD, 10ARC-MIN	EMR 57	1	6
MCMaster-CARR www.mcmaster.com	ALLOY STEEL ---	WASHER; 17 MM ID, 30 MM OD, 3 MM THK, BLACK OXIDE	98687A324	6	5
MCMaster-CARR OR EQ ---	ALLOY STEEL ---	MOD-SHOULDER BOLT, M16 SHLDR, 120LG	92981A517	2	4
IGUS ---	IGLIDE Z	BUSHING, SLEEVE, 16MM ID, 18MM OD, 25 LG	ZSM-1618-25	4	3
---	AL 6061-T6 (A96061) AMS QQ-A-250/11	CARTRIDGE, GEAR, TOP	0000015709	1	2
---	AL 6061-T6 (A96061) AMS-QQ-A-250/11	CARTRIDGE, GEAR, BOTTOM	0000015699	1	1
VENDOR	MATERIAL SPECIFICATION	DESCRIPTION	PART NUMBER	QTY	FIND NO.



NEXT USED ASSEMBLY
0000003150

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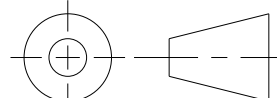
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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	---	

NOTES:

1. VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL.
2. DISTANCE FROM TOP OF RESOVER TO BOTTOM OF SHAFT CLAMP.
3. SPACE GEAR APPROXIMATELY IMM ABOVE THE INTERIOR SURFACE OF THE LOWER HOUSING.
4. SET FINAL NUT POSITION AND SPRING COMPRESSIONG IN ASSEMBLY 0000003150 - MOTOR & RESOLVER ASSEMBLY, TARGET DRIVE.
5. PRESS FIT BEARING INTO PEEK GEAR.
6. TIGHTEN SNUG TIGHT.
7. APPLY RED THREAD LOCKER AND TIGHTEN SNUG TIGHT.

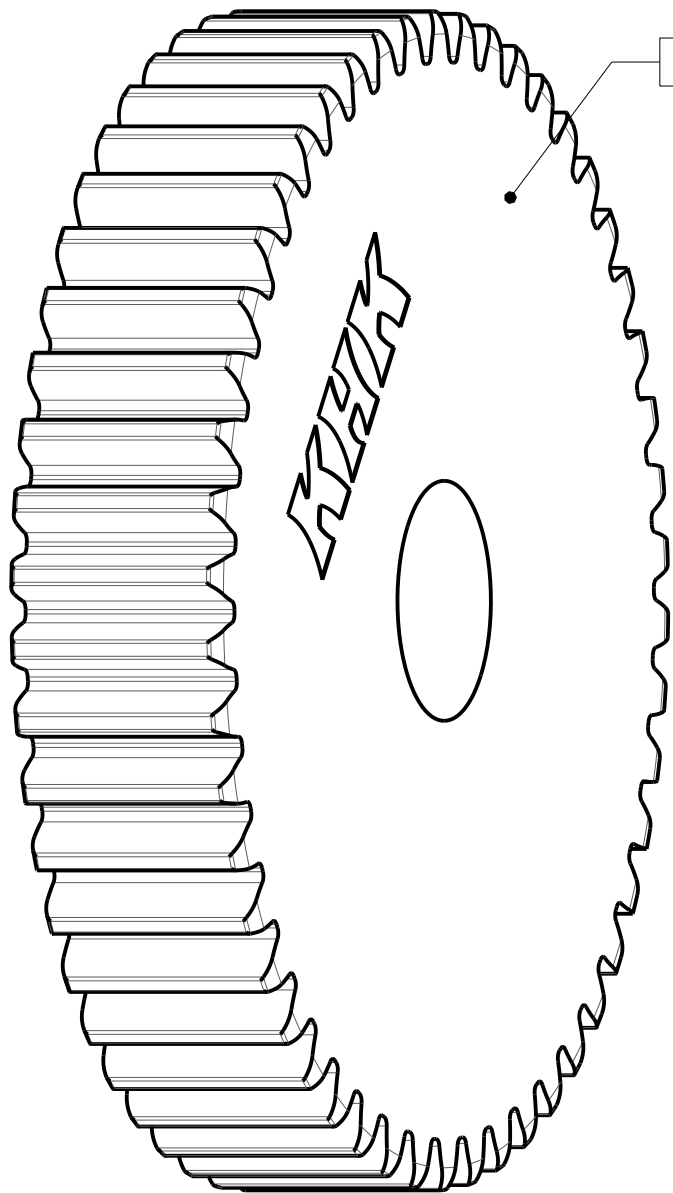
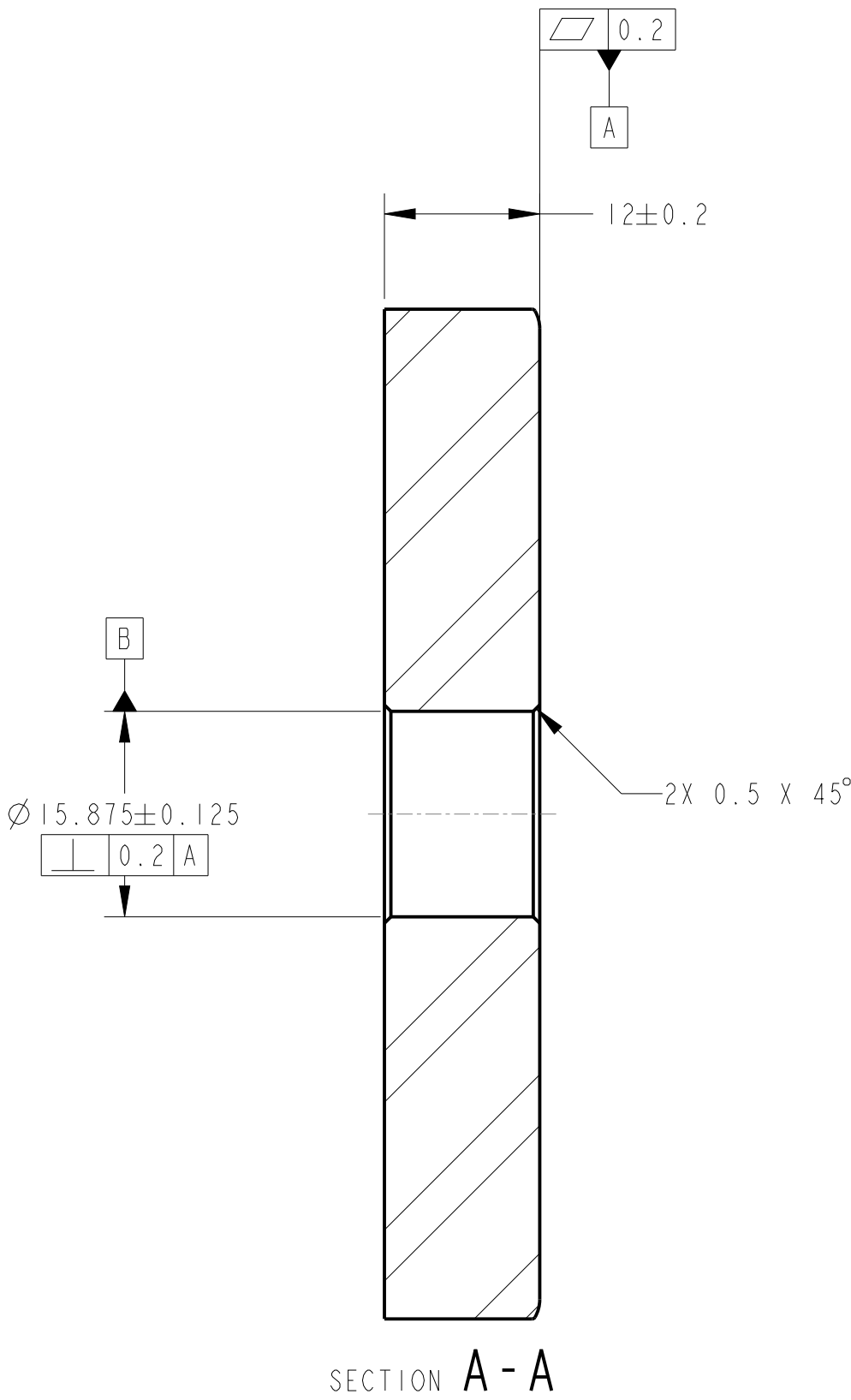
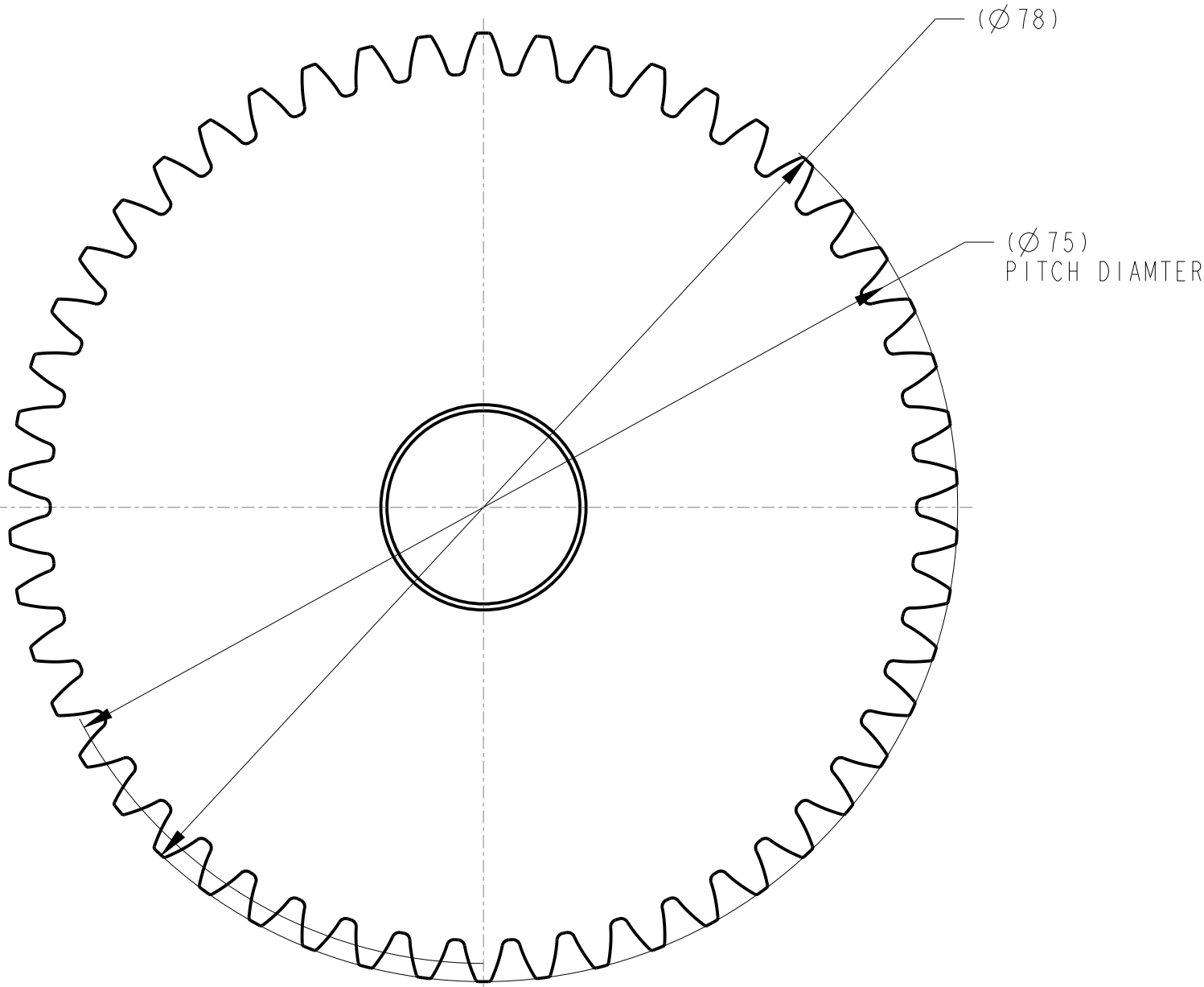
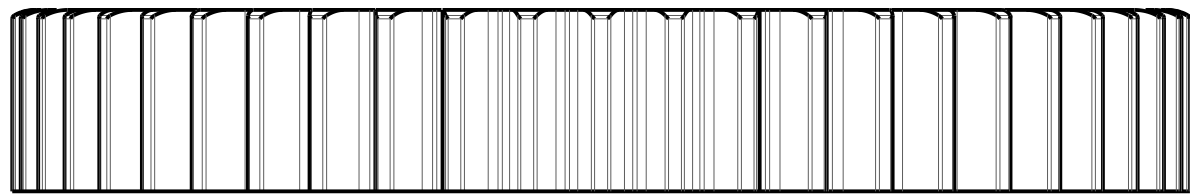
		WIP-NOT APPROVED FOR CONSTRUCTION				
GRADE		UNITS: MILLIMETERS		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE		
1-SERIOUS		DEFAULT TOLERANCES				
FACILITY		0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°		--- --- RESOLVER CARTRIDGE ASM		
STS						
BUILDING						
8800-ST5.TARGET BUILDING.II						
MAJOR SYSTEM		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		--- --- RESOLVER CARTRIDGE ASM		
TARGET SYSTEMS		SURFACE ROUGHNESS: 3.2 Ra U.N.O.				
SYSTEM		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4				
TARGET ASSEMBLIES		THIRD ANGLE PROJECTION				
SUBSYSTEM				DRAWING NUMBER		REV
TARGET DRIVE and SHAFT				0000015836		0
SUB-SUBSYSTEM		SIZE		SCALE	WEIGHT	SHEET
XXX		D		1:2	3 KG	1 of 1

D

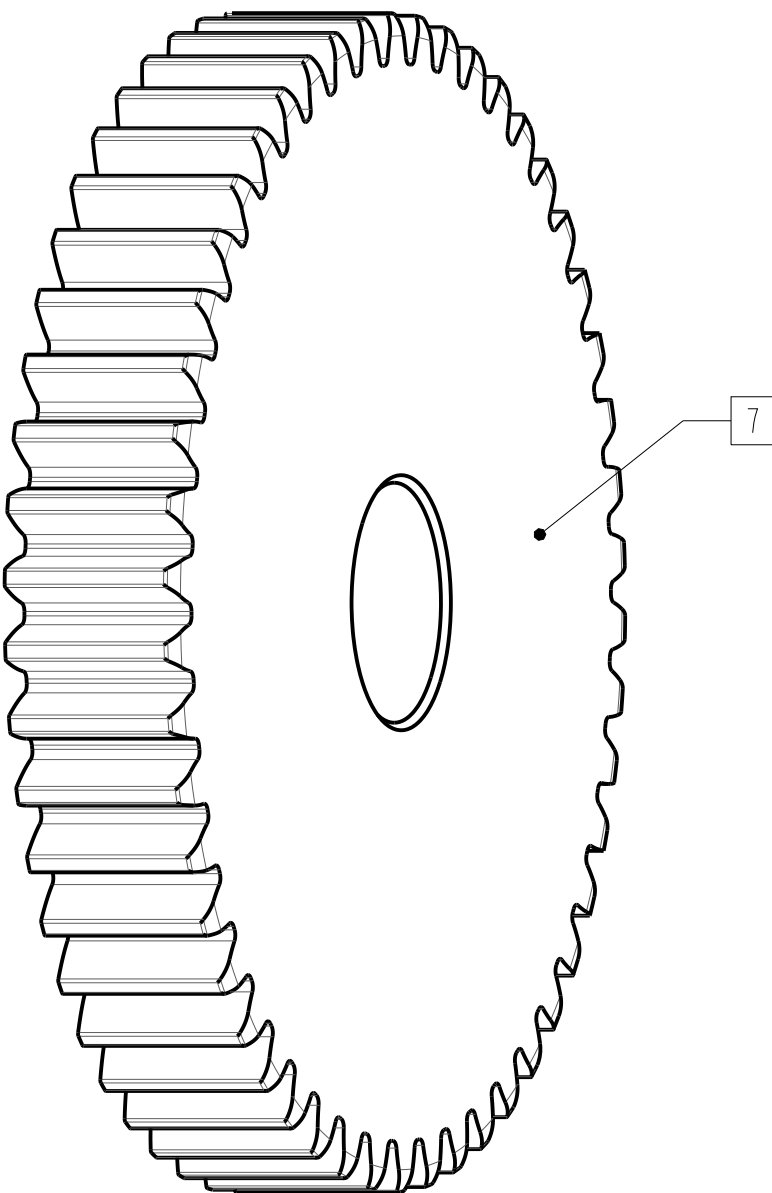
C

B

A



SCALE 2:1



SCALE 2:1

NEXT USED ASSEMBLY
0000015836

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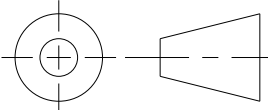
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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	---	

- NOTES: (UNLESS OTHERWISE SPECIFIED)
- UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS BASIC.
 - USE SULFUR FREE CUTTING OIL ONLY.
 - REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
 - ALL INSIDE CORNERS TO BE R0.4 MAX.
 - PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
 - MAKE FROM KHK SSA1.5-50 (OR SAME)
 - SPUR GEAR
 - MODULE 1.5
 - 50 TOOTH
 - PITCH DIAMETER: 75MM
 - AGMA 10
 - CARBON STEEL
 - MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS478 OR EQUIVALENT. MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARCTERS ARE TO BE 5mm HIGH AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIIMATELY WHERE SHOWN.

WIP-NOT APPROVED FOR CONSTRUCTION

CARBON STEEL 1045 (G10450)		ASTM A830	
MATERIAL		SPECIFICATION	
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 ≥6-120 ±0.2 ≥120 ±0.5 ANGULAR ±0.5°		HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX			
SURFACE ROUGHNESS: 3.2 Ra U.N.O.			
DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4		DRAWING NUMBER 0000016788	
THIRD ANGLE PROJECTION		SIZE D	SCALE 1:1
		WEIGHT 0.396 KG	SHEET 1 of 1

GRADE	1-SERIOUS
FACILITY	STS
BUILDING	8800-ST5 TARGET BUILDING II
MAJOR SYSTEM	TARGET SYSTEMS
SYSTEM	TARGET ASSEMBLIES
SUBSYSTEM	TARGET DRIVE and SHAFT
SUB-SUBSYSTEM	XXX

D

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C

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A

A

NEXT USED ASSEMBLY
0000015836

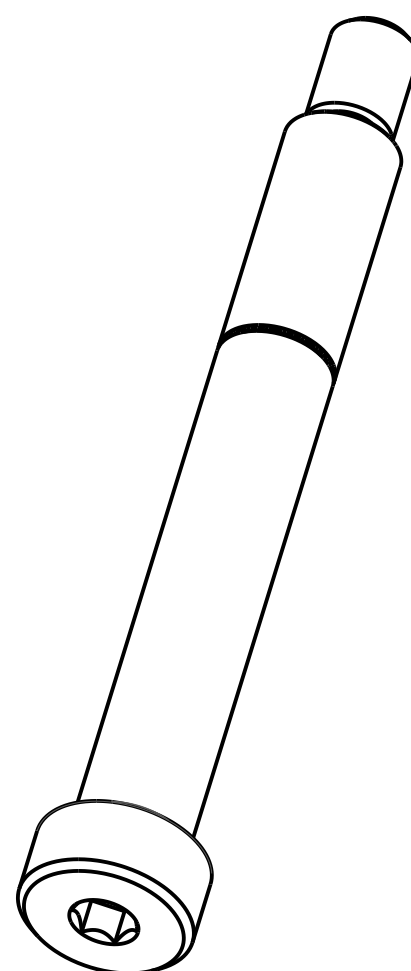
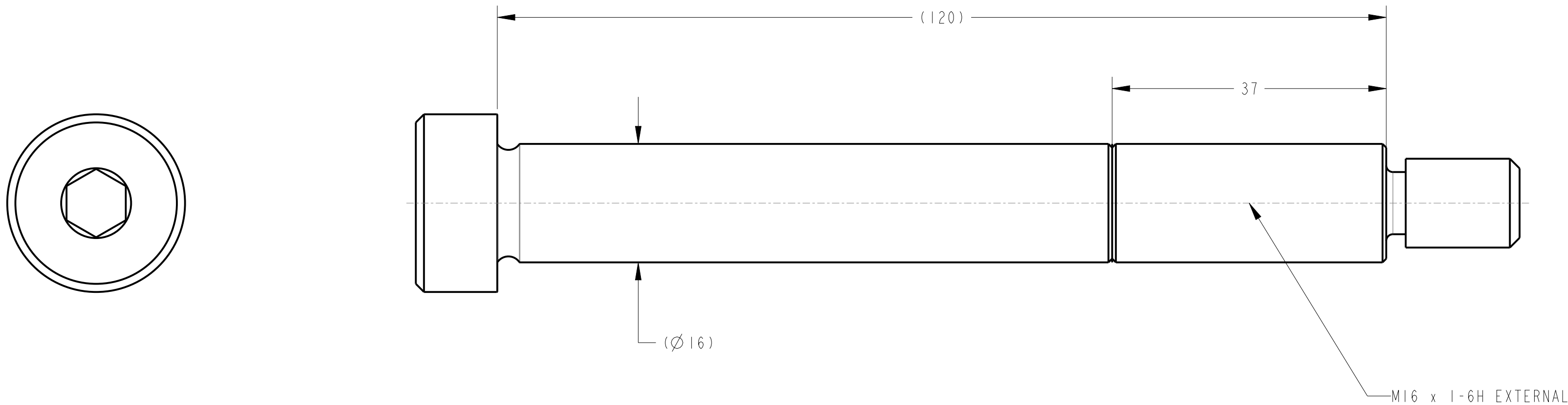
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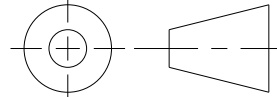
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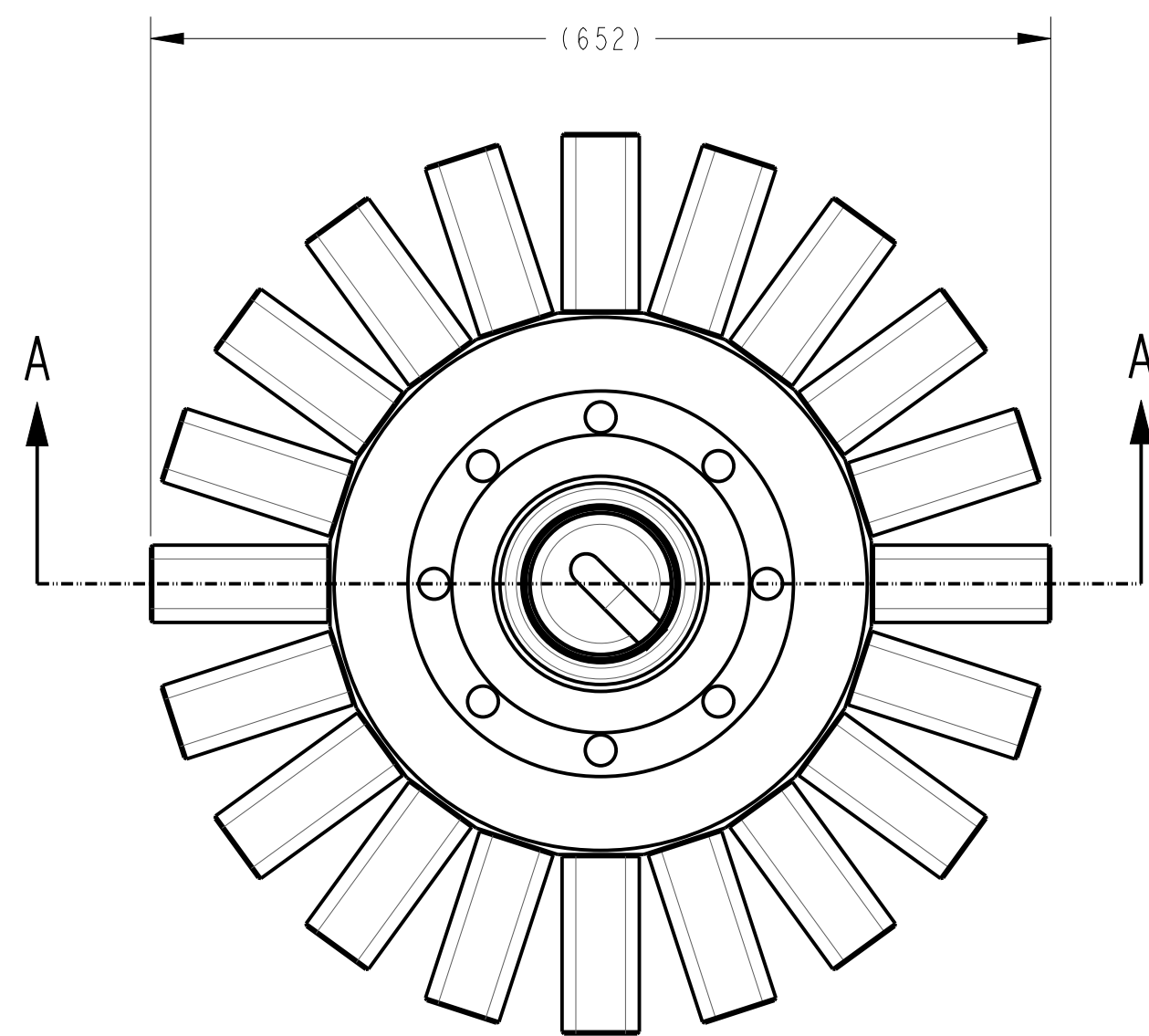
THIS DRAWING IS THE PROPERTY OF OAK RIDGE NATIONAL LABORATORY

NOTES: (UNLESS OTHERWISE SPECIFIED)

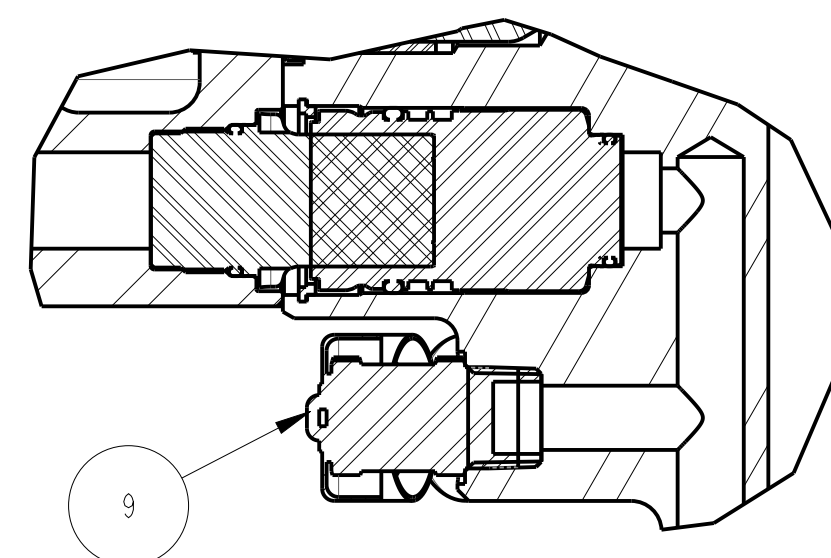
1. VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL
2. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS BASIC.
3. USE SULFUR FREE CUTTING OIL ONLY.
4. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
5. ALL INSIDE CORNERS TO BE R0.4 MAX.
6. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
7. PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER SAE AS478 OR EQUIVALENT.
8. MODIFY MCMaster 92981A517



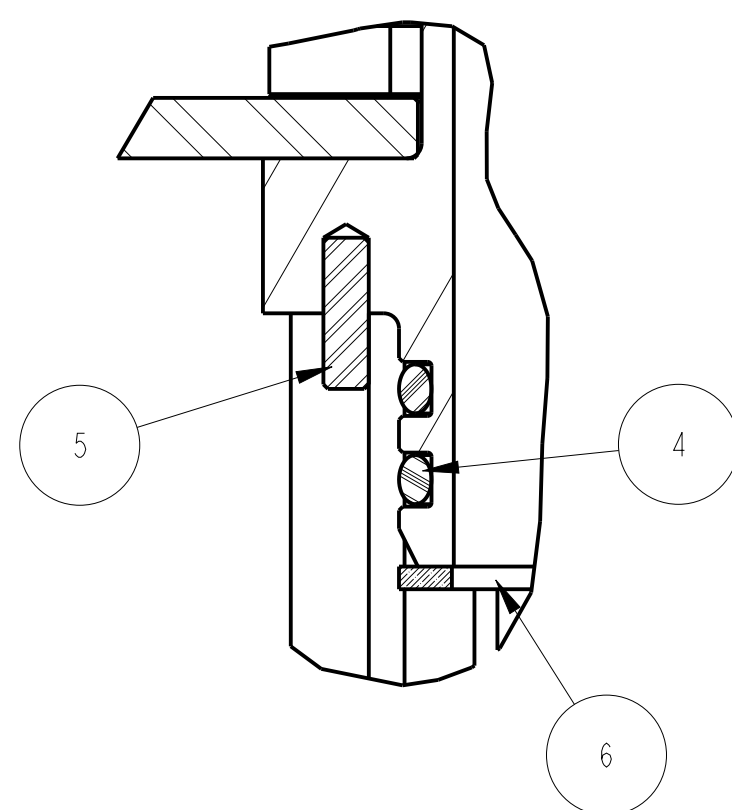
		WIP-NOT APPROVED FOR CONSTRUCTION			
		ALLOY STEEL		---	
		MATERIAL		SPECIFICATION	
GRADE		UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ± 0.1 >6-120 ± 0.2 >120 ± 0.5 ANGULAR $\pm 0.5^\circ$		 OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
1-SERIOUS					
FACILITY		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		--- ---	
STS					
BUILDING		SURFACE ROUGHNESS: 3.2 Ra U.N.O.		MOD_SHOULDER BOLT, M16 SHLDR, 120LG	
8800.STS.TARGET BUILDING II					
MAJOR SYSTEM		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4		DRAWING NUMBER 0000016957	
TARGET SYSTEMS					
SYSTEM		THIRD ANGLE PROJECTION 		SIZE SCALE D 1:1	
TARGET ASSEMBLIES					
SUBSYSTEM		WEIGHT 0.239 KG		SHEET 1 of 1	
TARGET DRIVE and SHAFT					
SUB-SUBSYSTEM					
XXX					



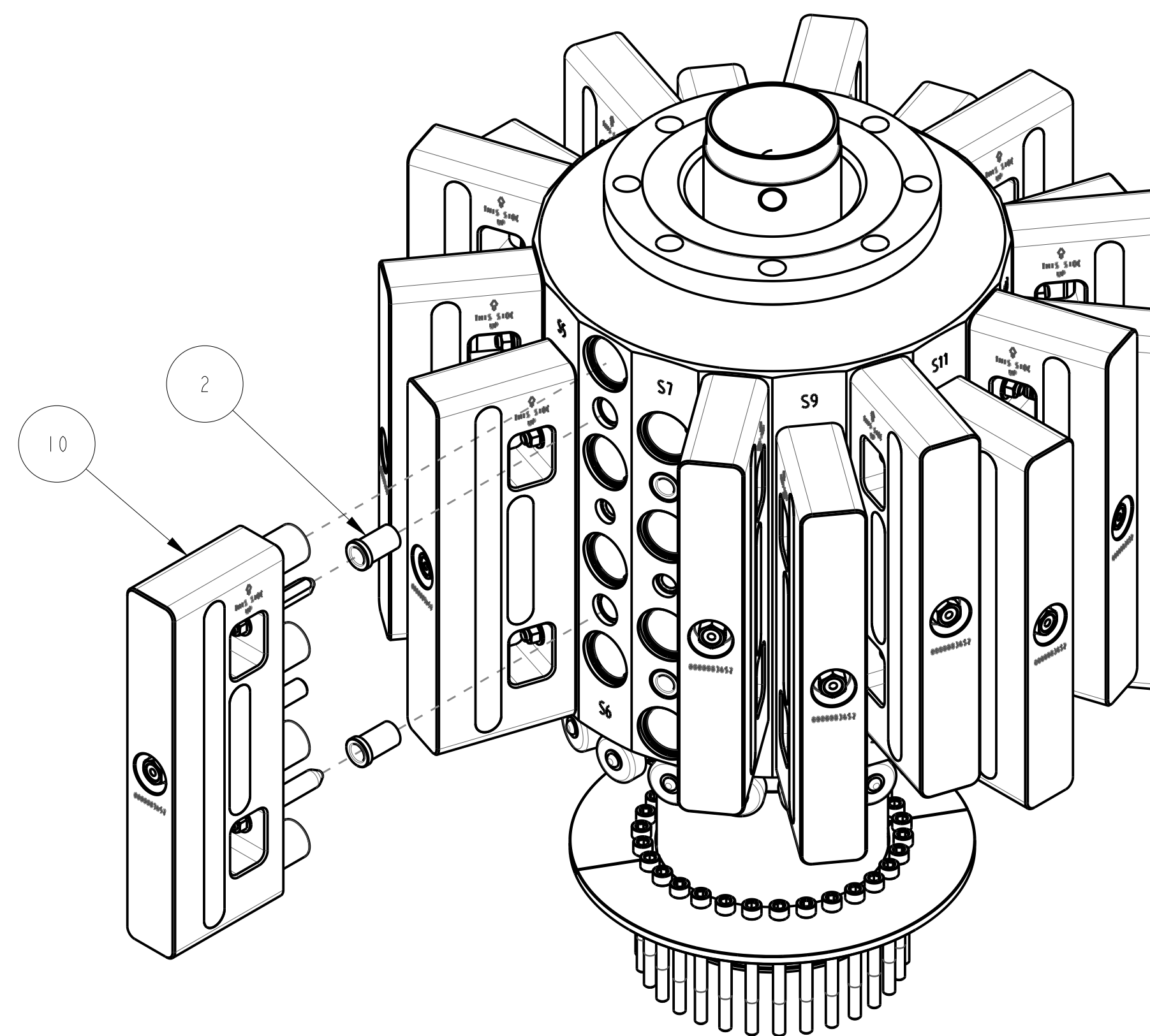
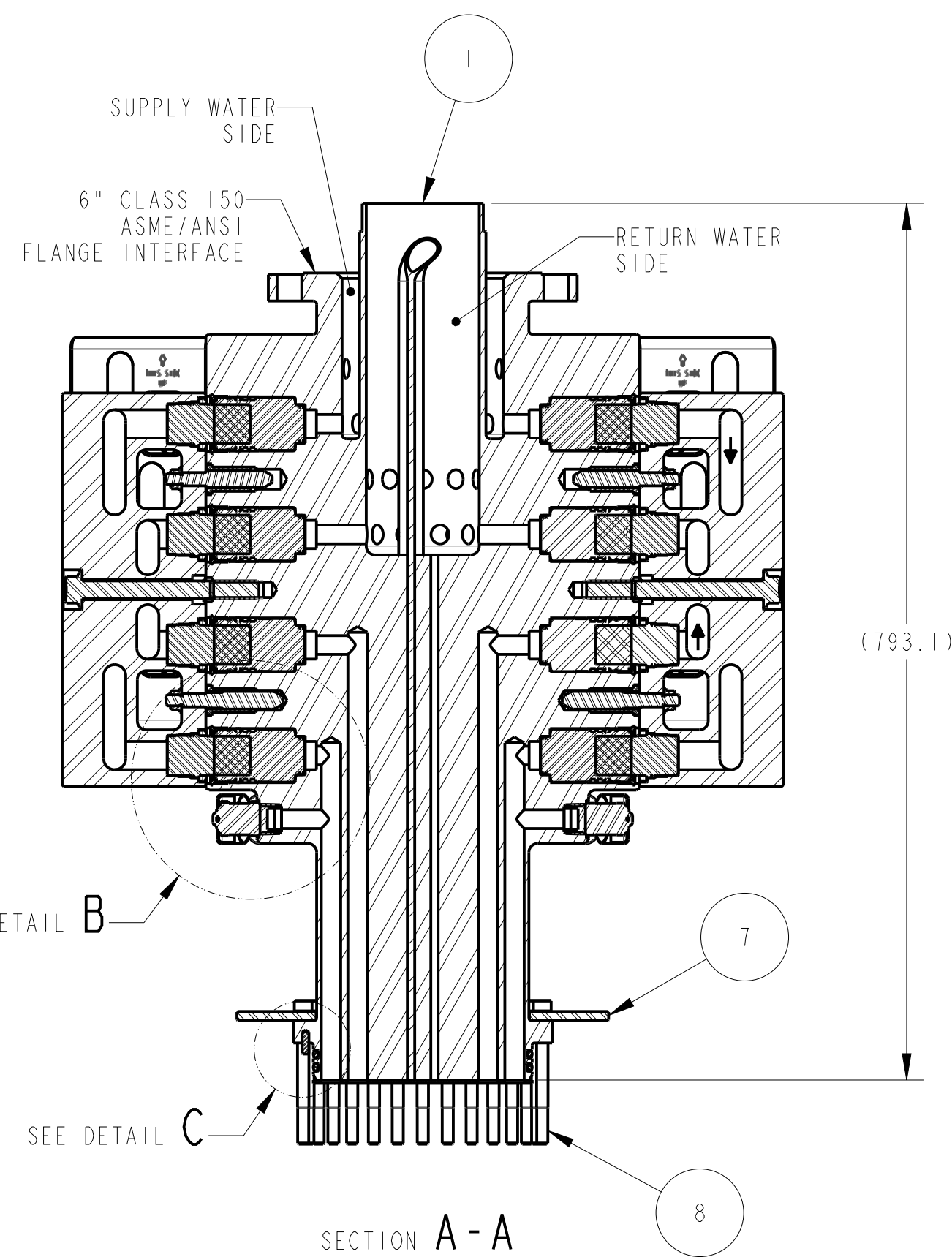
TOP VIEW



DETAIL B
SCALE 1:2



DETAIL C
SCALE 1:1



REFERENCE VIEW
(JUMPER ON FACE S7 REMOVED FOR CLARITY)
SCALE 1:4

NEXT USED ASSEMBLY
0000001787

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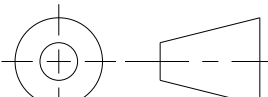
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WINDCHILL FOR NAMES OF APPROVERS AND DATES OF APPROVALS.

REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	BUDGET QUOTES	
1	REDESIGN AND REDRAWN	07/2026

NOTES:

1. VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL.
2. INSTALL SEAL WHEN CONNECTING TO THE CROWN COMPONENT 0000001800 AS SHOWN IN ASSEMBLY 0000001787.
3. PRESSURE CHECK COMBINED WATER PASSAGE TO ENSURE A LEAK-TIGHT SYSTEM.
4. PRESS-FIT FN 002 INTO THE MANIFOLD BODY.

A	---	---	WATER CASSETTE ASM	0000083652	20	10
	---	SS 316 (S31600)	vrvd-750.prt	VRVD-750	20	9
	MCMaster or EO	ALLOY STEEL DIN 912, ISO 4762	SHCS, M10X1.5 X 120, BLACK-OXIDE, CLASS 12.9	91290A129	30	8
	---	INCONEL 718 (N07718) ASTM B209	RUNOFF PROTECTOR SHROUD	0000018043	2	7
	---	GRAPHITE-HLM APX2	CROWN GASKET	0000001801	1	6
	MCMaster-CARR or EO	SS 416 (S41600)	DOWEL PIN, M6, 20LG, 416SS	98380A153	1	5
	JAMES WALKER	E70E ETHYLENE PROPYLENE RUBBER (EPDM)	O-RING,M3X185	0000018045	2	4
	---	SS 316 (S31600)	STAUBLI SPC 20 SOCKET	SPC20-2000_JE	80	3
	---	SS 420 (S42000)	valve_pin_bushing.prt	VALVE_PIN_BUSHING	40	2
	---	---	WATER TRUNK MANIFOLD WELDMENT	0000067567	1	1
VENDOR 		MATERIAL SPECIFICATION	DESCRIPTION	PART NUMBER	QTY	FIND NO.

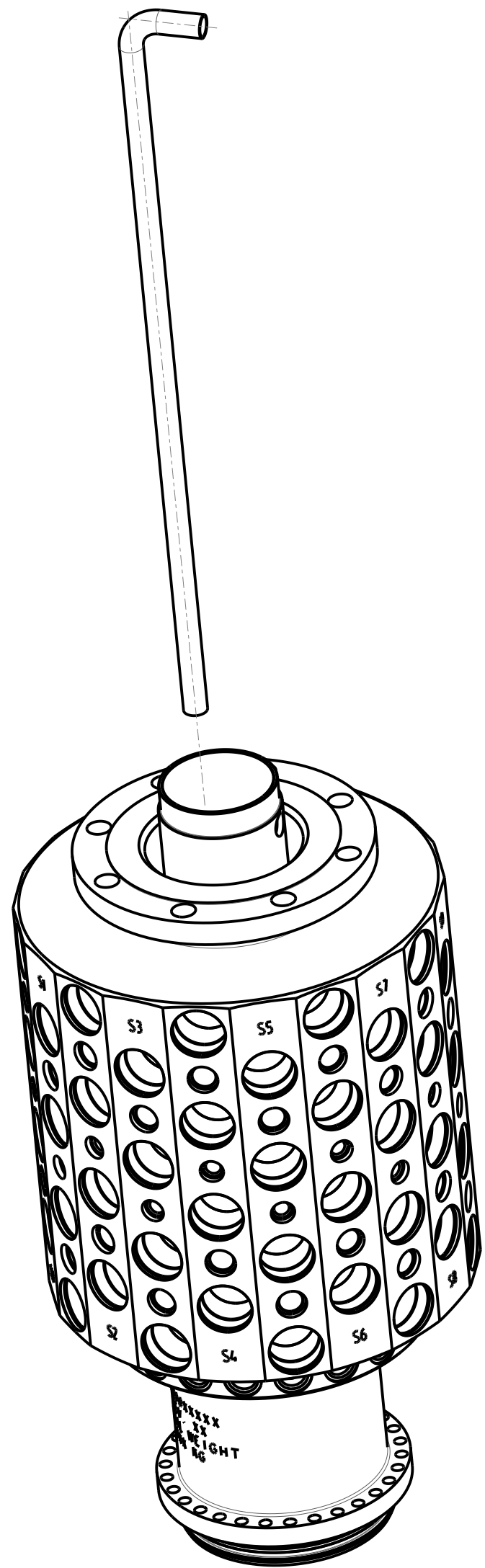
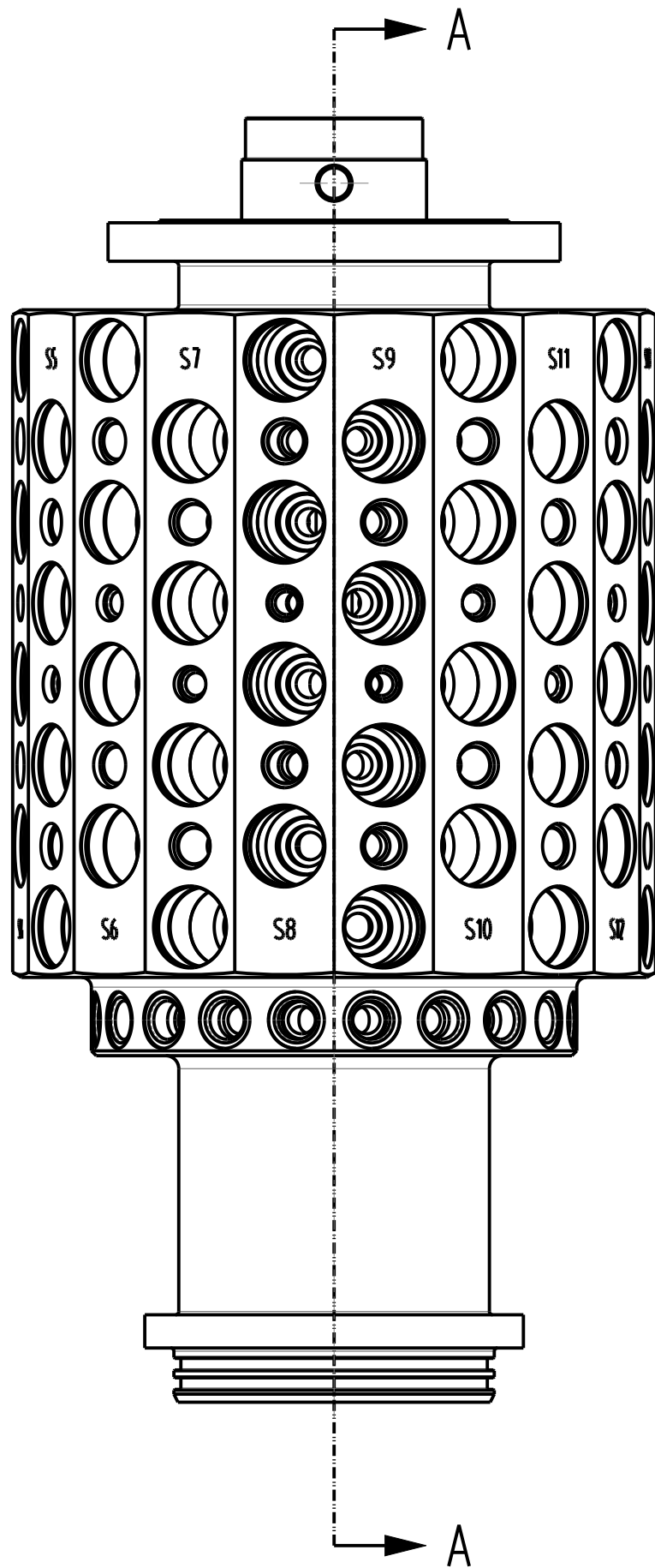
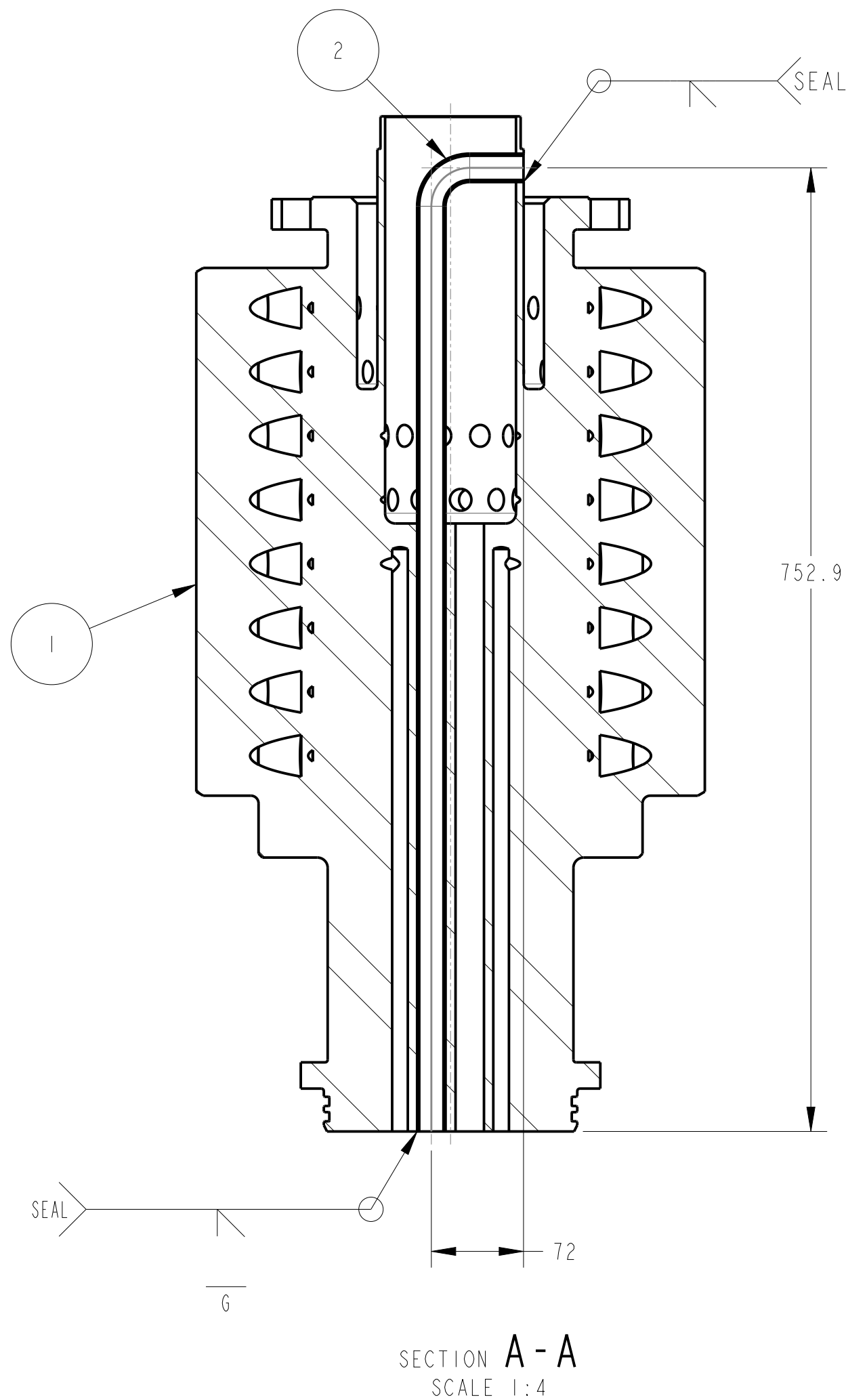
		WIP-NOT APPROVED FOR CONSTRUCTION			
GRADE		UNITS: MILLIMETERS		 HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
1-SERIOUS		DEFAULT TOLERANCES			
FACILITY		0-6 ±0.1		--- --- COOLING MANIFOLD ASSEMBLY	
STS		>6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°			
BUILDING		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX			
8800-ST5 TARGET BUILDING II		MAJOR SYSTEM			
TARGET SYSTEMS		SURFACE ROUGHNESS: 3.2 Ra UNO.		DRAWING NUMBER 0000001799	
TARGET ASSEMBLIES		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4			
SUBSYSTEM		THIRD ANGLE PROJECTION		REV 1	
TARGET DRIVE and SHAFT				SIZE	
SUB-SUBSYSTEM				SCALE	
XXX		PROJECTION		WEIGHT	
				SHEET	
				1 of 1	

D

C

B

A



---	SS 316L (S31603)	TUBE, 7/8" OD, 0.065" WALL	0000067567-01	I	2
---	SS 316L (S31603)	WATER TRUNK MANIFOLD	0000019027	I	I
---	ASTM A240				
VENDOR	MATERIAL SPECIFICATION	DESCRIPTION	PART NUMBER	QTY	FIND NO.

NEXT USED ASSEMBLY
0000001799

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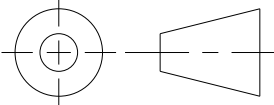
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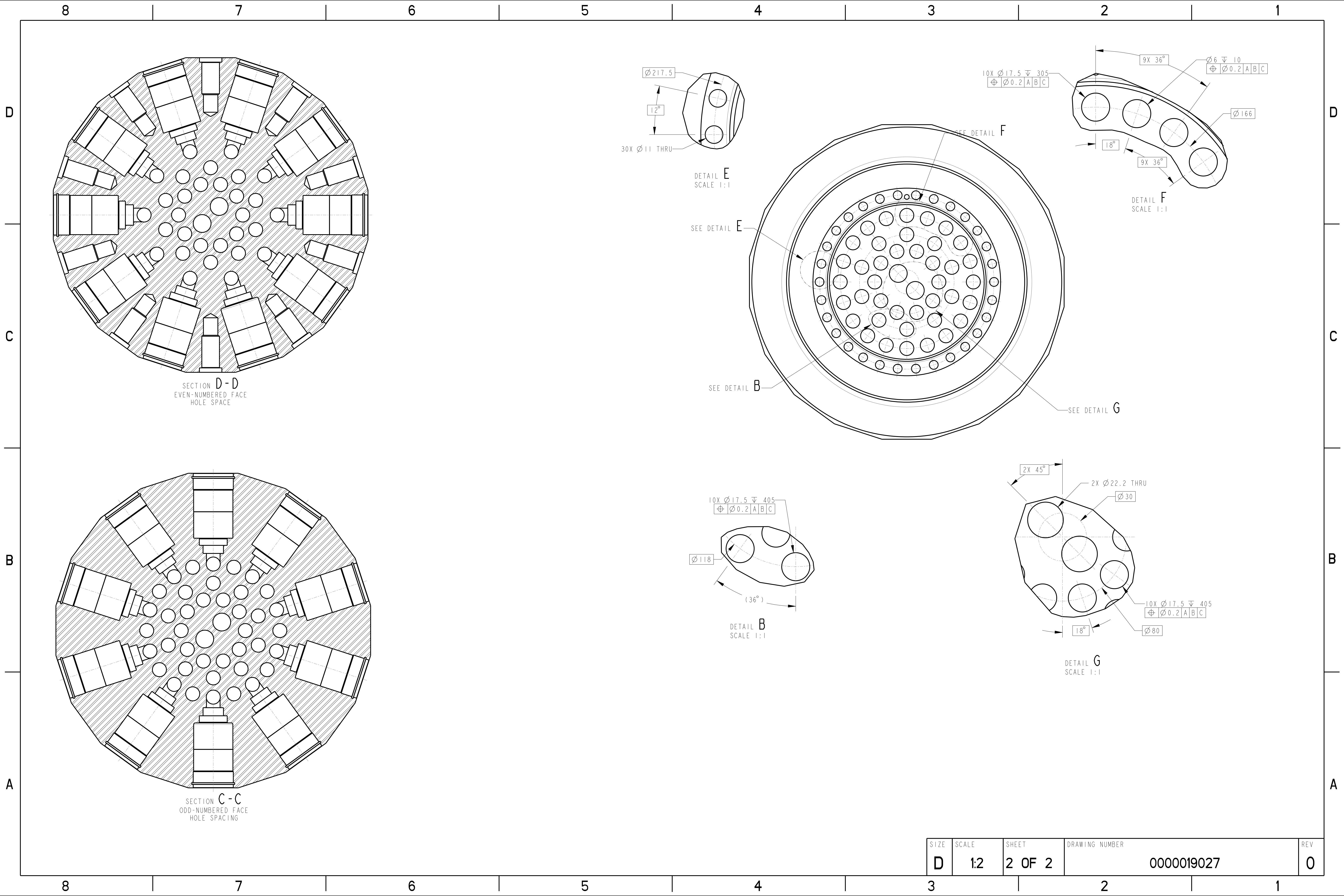
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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	---	

NOTES:

I VENDORS AND VENDOR SPECIFIC ITEMS MAY NOT BE SUBSTITUTED WITHOUT PRIOR ENGINEERING APPROVAL.

WIP-NOT APPROVED FOR CONSTRUCTION				
GRADE	1-SERIOUS	UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 ≥6-120 ±0.2 ≥120 ±0.5 ANGULAR ±0.5°	OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
FACILITY				
STS		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX	---	
BUILDING	8800-STG TARGET BUILDING II	SURFACE ROUGHNESS: 3.2 Ra U.N.O.	---	
MAJOR SYSTEM	TARGET SYSTEMS		WATER TRUNK MANIFOLD WELDMENT	
SYSTEM	TARGET ASSEMBLIES		DRAWING NUMBER	REV
SUBSYSTEM	TARGET DRIVE and SHAFT	DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4	0000067567	0
SUB-SUBSYSTEM	XXX	THIRD ANGLE PROJECTION 	SIZE D	SCALE 1:5
			WEIGHT 327 KG	SHEET 1 of 1



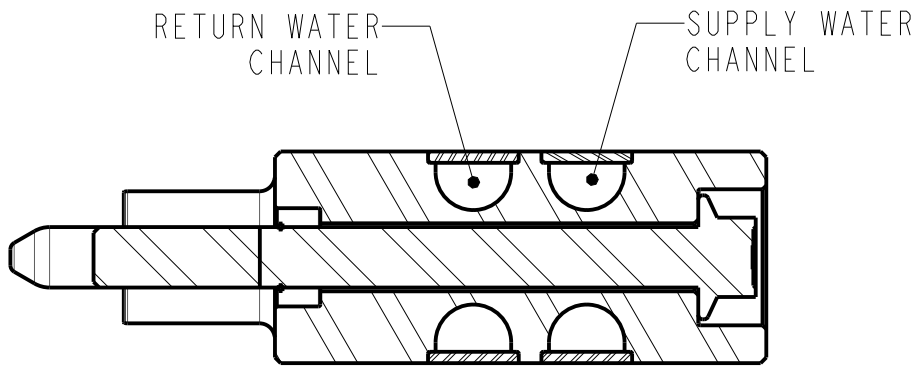
SIZE	SCALE	SHEET	DRAWING NUMBER	REV
D	1:2	2 OF 2	0000019027	0

D

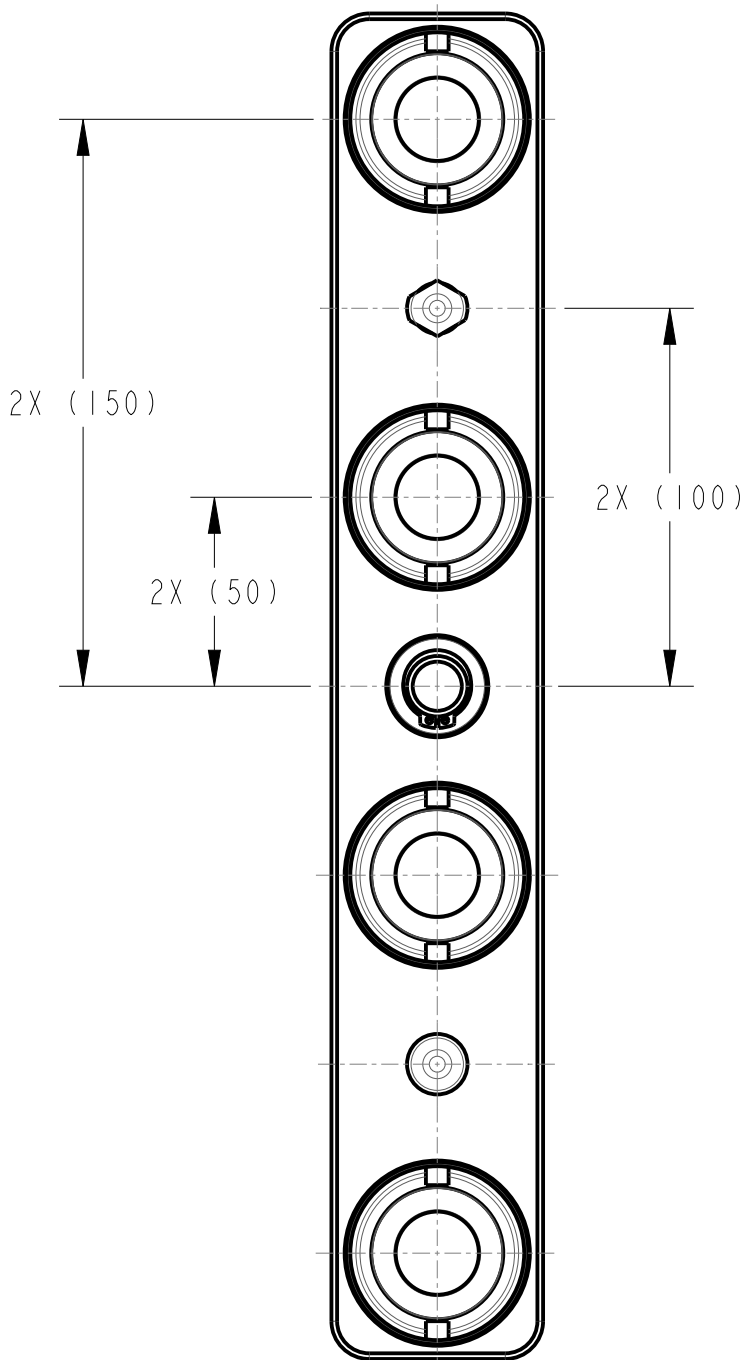
C

B

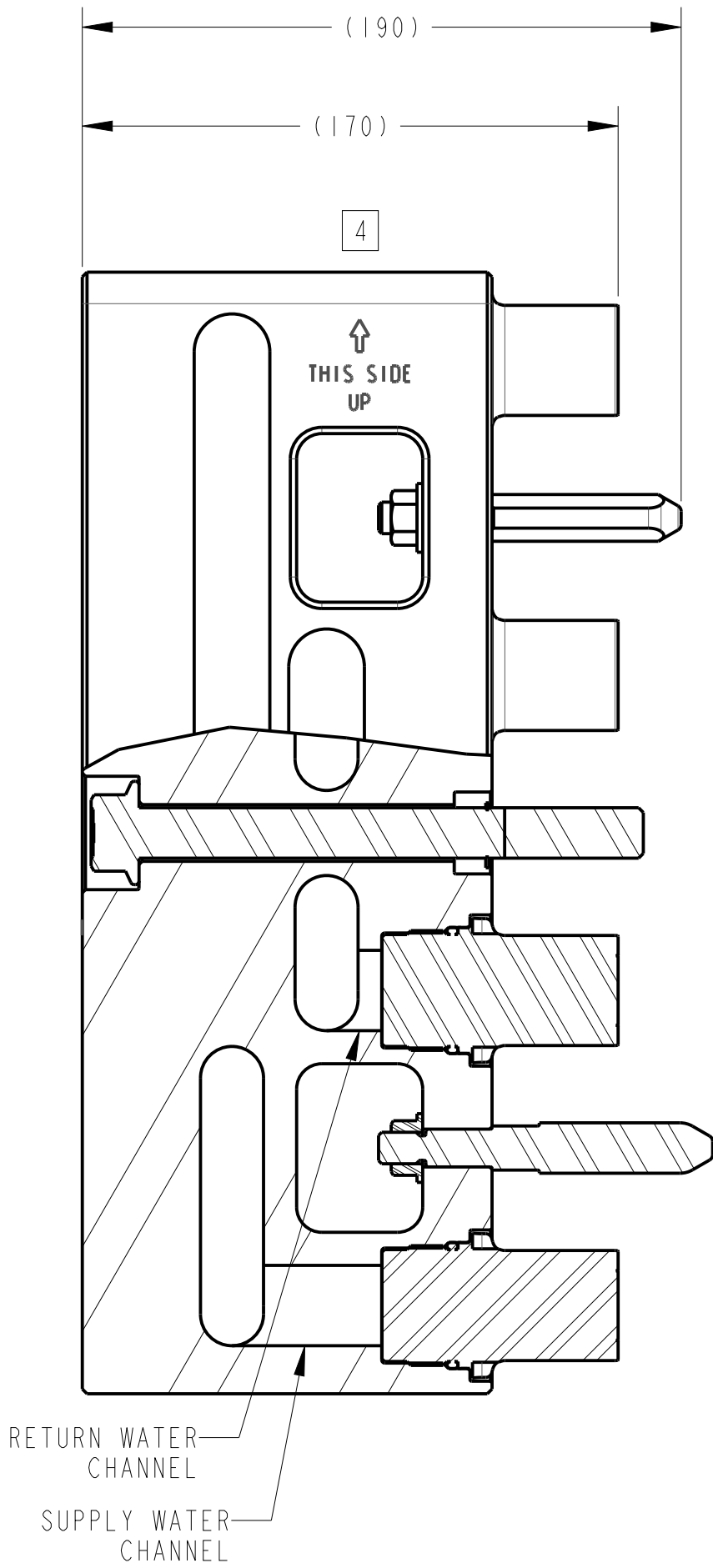
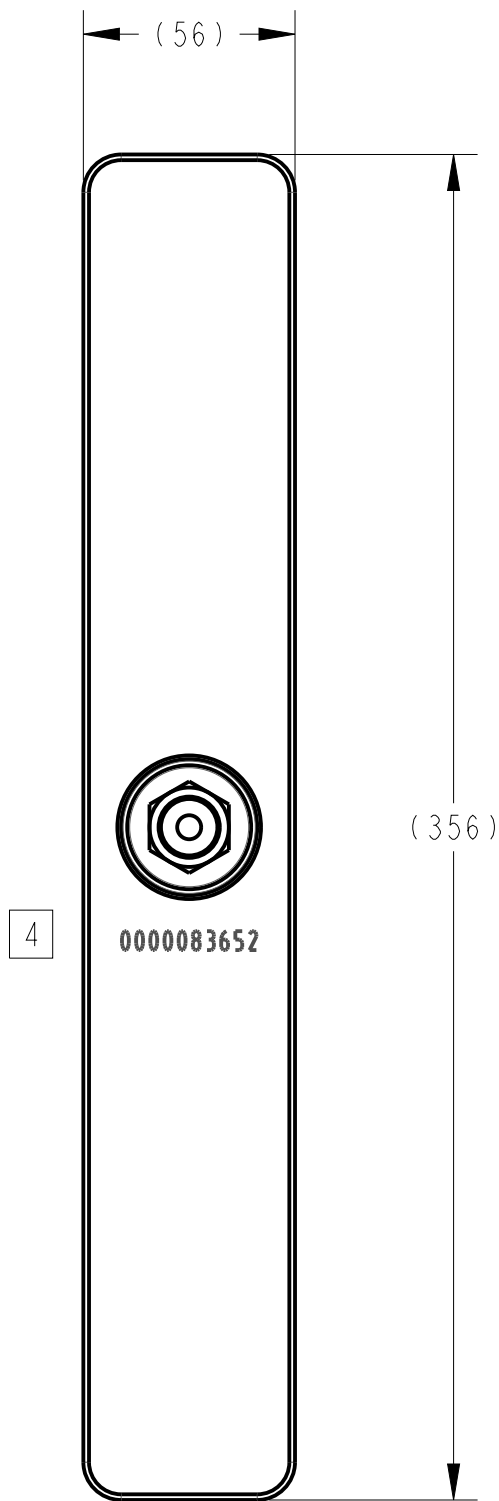
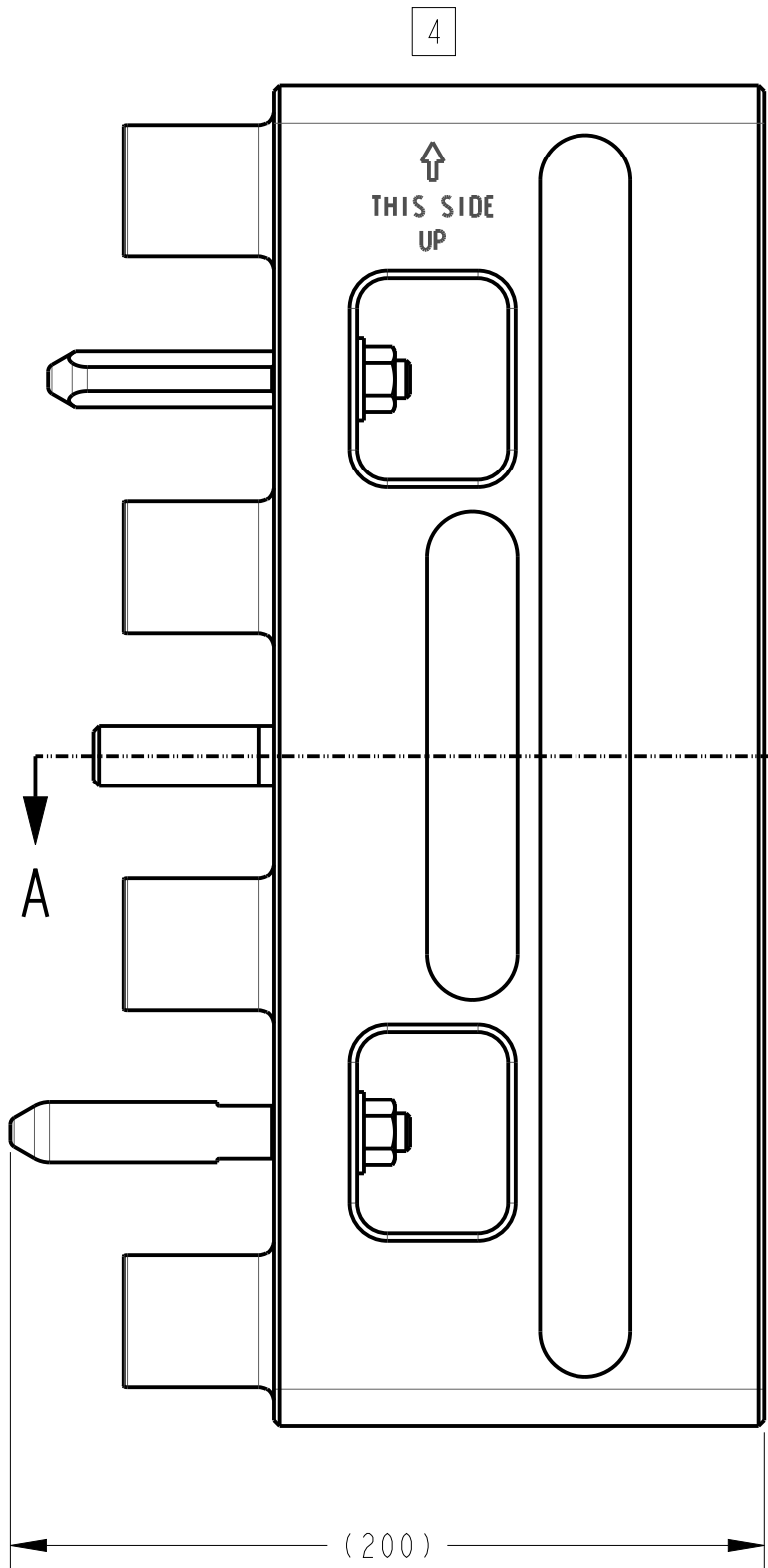
A



SECTION A - A



FRONT VIEW



SECTION B - B

NEXT USED ASSEMBLY
0000001799

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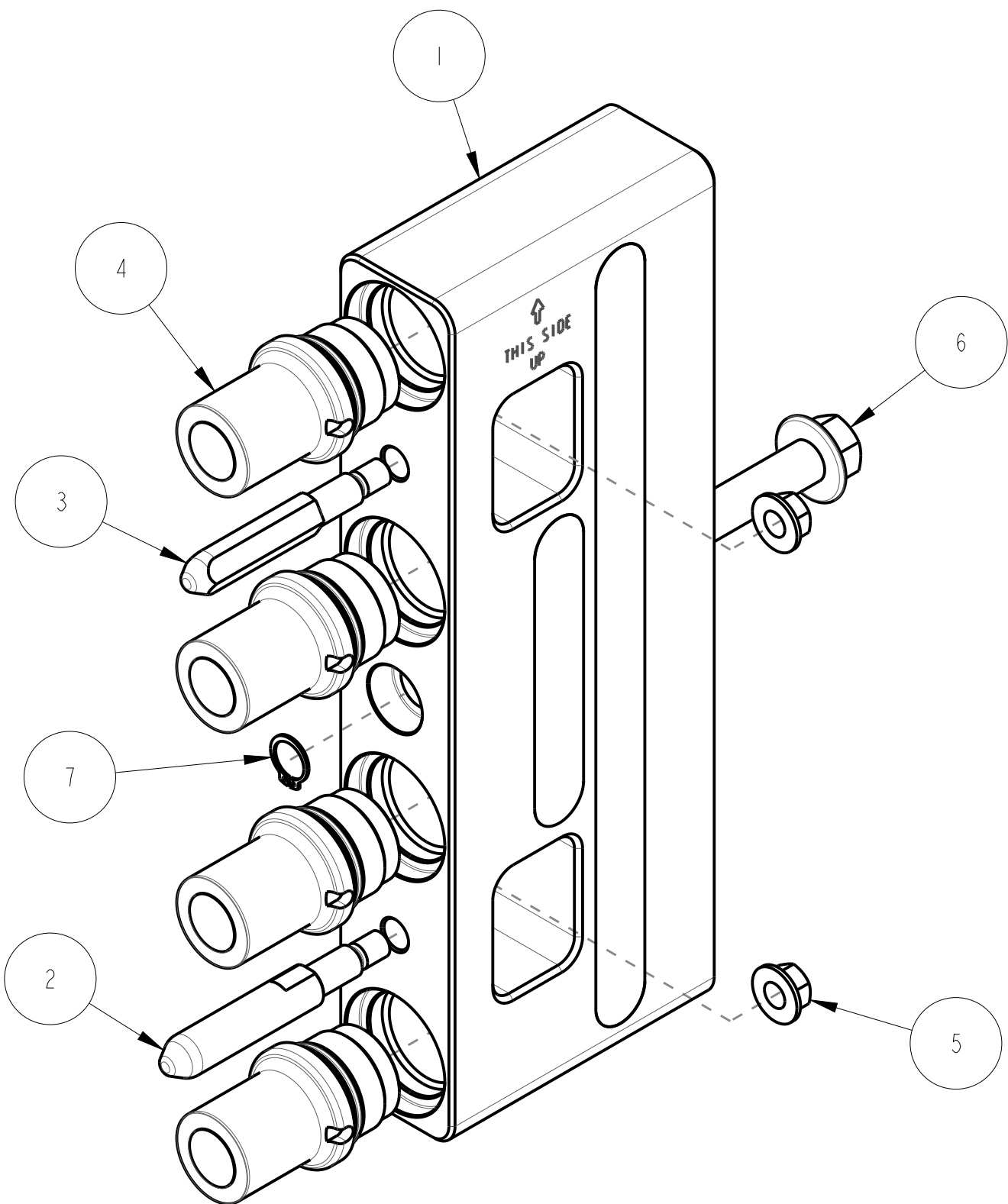
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REVISION BLOCK

REV	DESCRIPTION OF CHANGE	DATE
0	---	

NOTES:

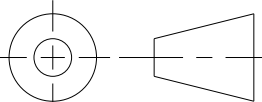
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- PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER ASE AS478 OR EQUIVALENT.
- TORQUE LIMIT FOR THREADED FASTENERS SHALL BE IN ACCORDANCE WITH PROJECT APPROVED SPECIFICATION NUMBER AND ASSOCIATED ENGINEERING ANALYSIS.
- LINES AND SYMBOL SHALL BE MARKED APPROXIMATELY AS SHOWN PER SAE AS478 METHOD 15B2 (LASER, ENGRAVE, INTERMEDIATE). THE LINES SHALL BE 5MM THICK, THE SYMBOL LINES SHALL BE 1MM THICK.

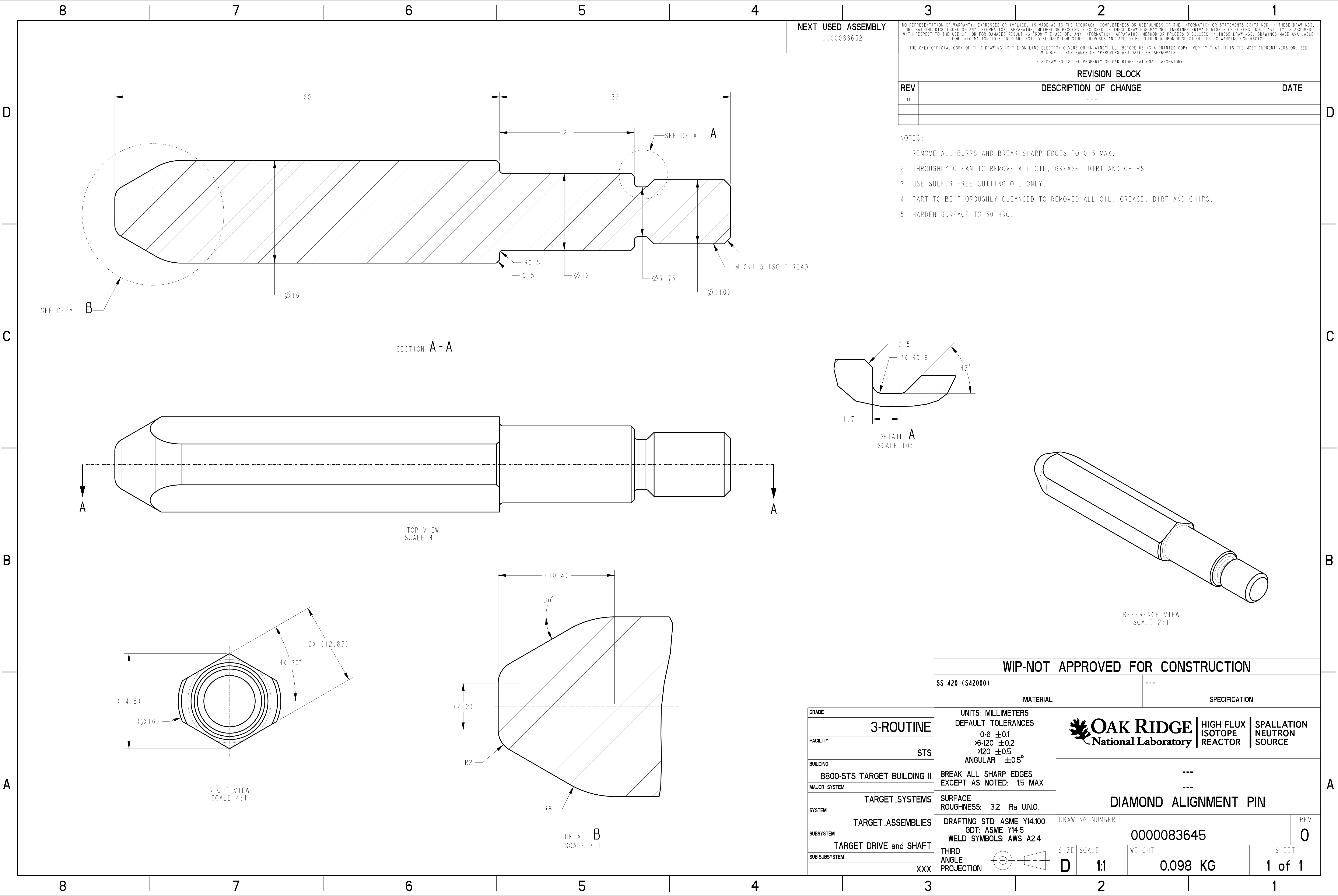


EXPLODED REFERENCE VIEW

MCMaster CARR WWW.MCMaster.COM	ALLOY STEEL ---	EXTERNAL RETAINING CLIP, 16MM OD, ZINC PLATED	90154A390	I	7
SMART BOLTS WWW.SMARTBOLTS.COM	ALLOY STEEL ---	HEX FLANGE BOLT, M16x2 X 160MM, GRADE 8.8	TBD	I	6
MCMaster CARR WWW.MCMaster.COM	SS 18-8 DIN 6923, ISO 4161	FLANGE NUT, M10x1.5MM, 18-8	93033A103	2	5
STAUBLI WWW.STAUBLI.COM	SS 303 (S30300) ---	DRY BREAK QUICK RELEASE COUPLING, PLUG, 20MM BORE	SPC 20.5438/1A/MD/JE	4	4
---	SS 420 (S42000) ---	DIAMOND ALIGNMENT PIN	0000083645	I	3
---	SS 420 (S42000) ---	ROUND ALIGNMENT PIN	0000083641	I	2
---	---	WATER CASSETTE WELDMENT	0000083646	I	1
VENDOR I	MATERIAL SPECIFICATION	DESCRIPTION	PART NUMBER	QTY	FIND NO.

WIP-NOT APPROVED FOR CONSTRUCTION

GRADE		UNITS: MILLIMETERS		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
1-SERIOUS		DEFAULT TOLERANCES			
FACILITY		0-6 ±0.1 ≥6-120 ±0.2 ≥120 ±0.5 ANGULAR ±0.5°			
STS					
BUILDING		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		---	
8800-ST5 TARGET BUILDING II				---	
MAJOR SYSTEM				WATER CASSETTE ASM	
TARGET SYSTEMS		SURFACE ROUGHNESS: 3.2 Ra U.N.O.			
SYSTEM					
TARGET ASSEMBLIES		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4		DRAWING NUMBER	
SUBSYSTEM				0000083652	
TARGET DRIVE and SHAFT				REV	
SUB-SUBSYSTEM		THIRD ANGLE PROJECTION		0	
XXX				SIZE	
				SCALE	
				WEIGHT	
				17 KG	
				SHEET	
				1 of 1	



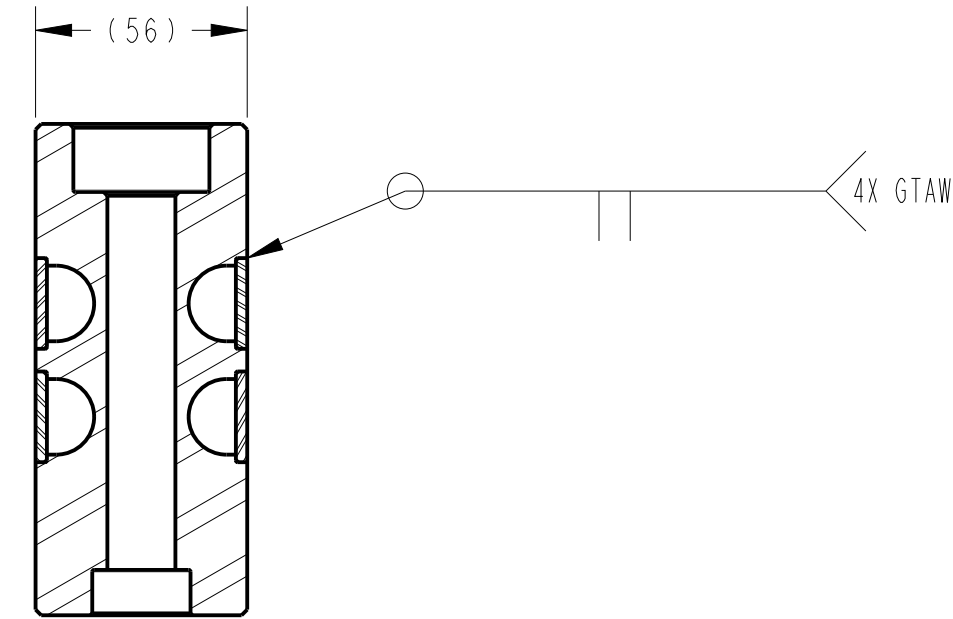
D

C

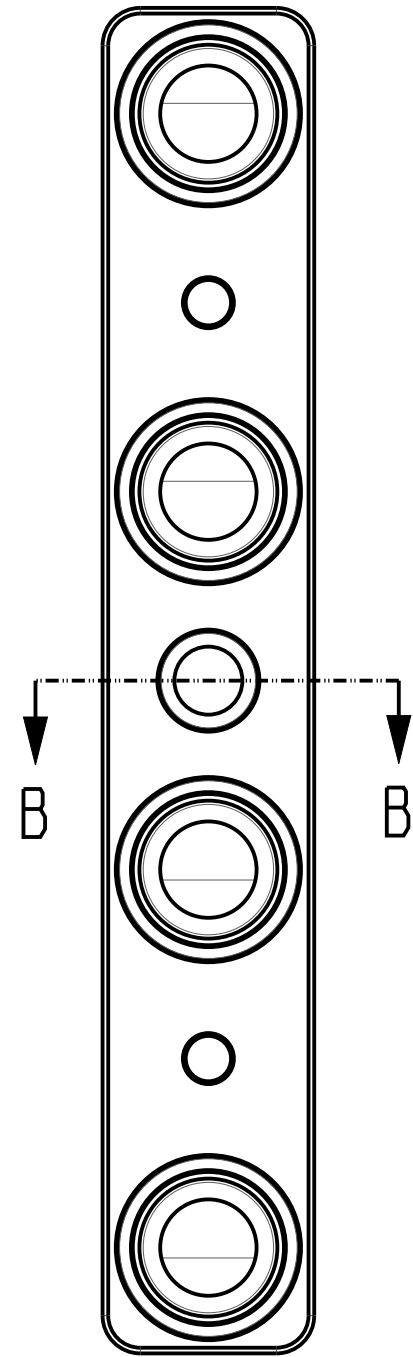
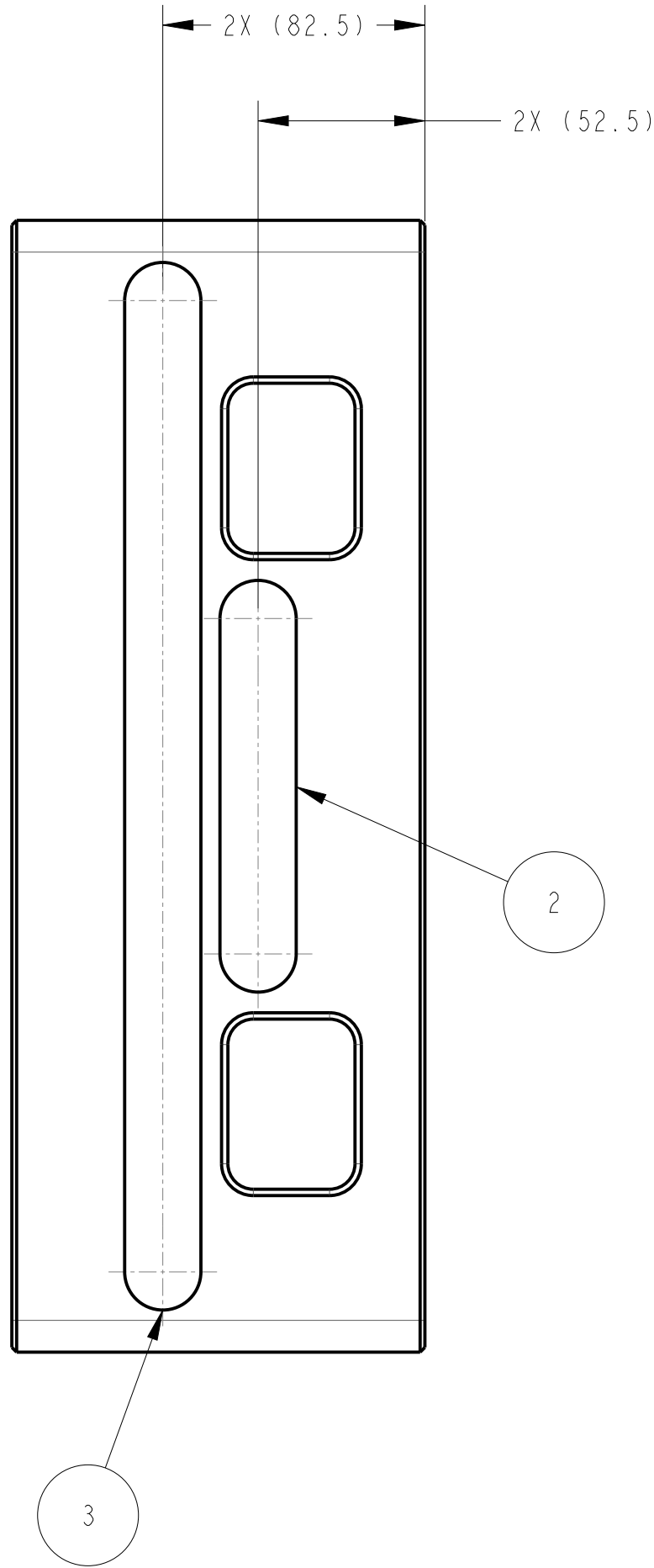
B

A

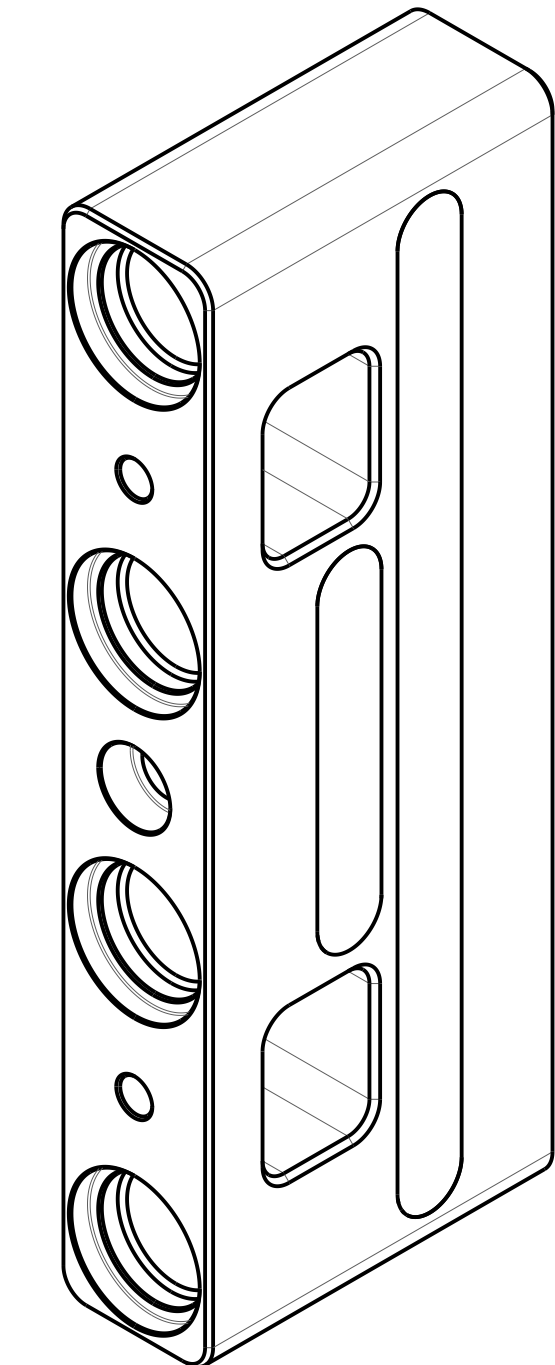
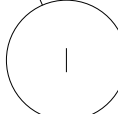
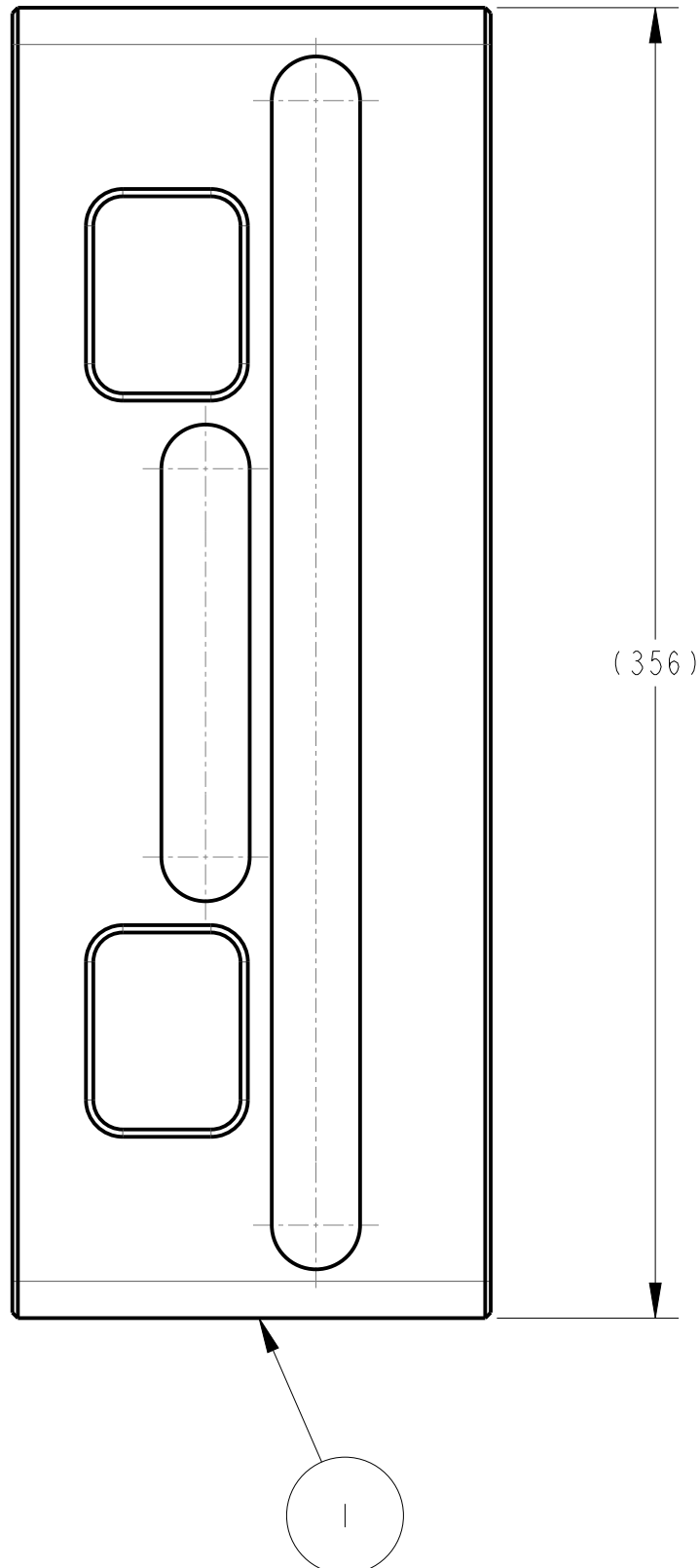
---	SS 316L (S31603)	SUPPLY WATER COVER	0000083646-02	2	3
---	SS 316L (S31603)	RETURN WATER COVER	0000083646-01	2	2
---	SS 316L (S31603)	WATER CASSETTE	0000083648	I	I
VENDOR I	MATERIAL SPECIFICATION	DESCRIPTION	PART NUMBER	QTY	FIND NO.



SECTION B-B



FRONT VIEW



ISO REFERENCE VIEW

NEXT USED ASSEMBLY
0000083652

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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	---	

NOTES:

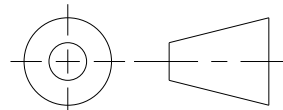
- PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER ASE AS478 OR EQUIVALENT.
- HYDROSTATIC LEAK TEST PER ASTM E1003-13: TEST AT 6 BAR FOR A MINIMUM OF TEN MINUTES. VISUAL LEAK CHECK FOR LEAKS WHILE AT TEST PRESSURE. NO LEAKS ARE ACCEPTABLE.
- FABRICATE USING PROCEDURES, WELDERS, AND INSPECTORS QUALIFIED PER AWS D1.6, STRUCTURAL WELDING CODE - STAINLESS STEEL. ALL WELDING PERSONNEL SHALL BE QUALIFIED IN ACCORDANCE WITH AWS D1.6 OR ASME SECTION IX. INTERPRET WELDING AND NONDESTRUCTIVE EXAMINATION SYMBOLS PER ANSI/AWS A2.4.

D

C

B

A

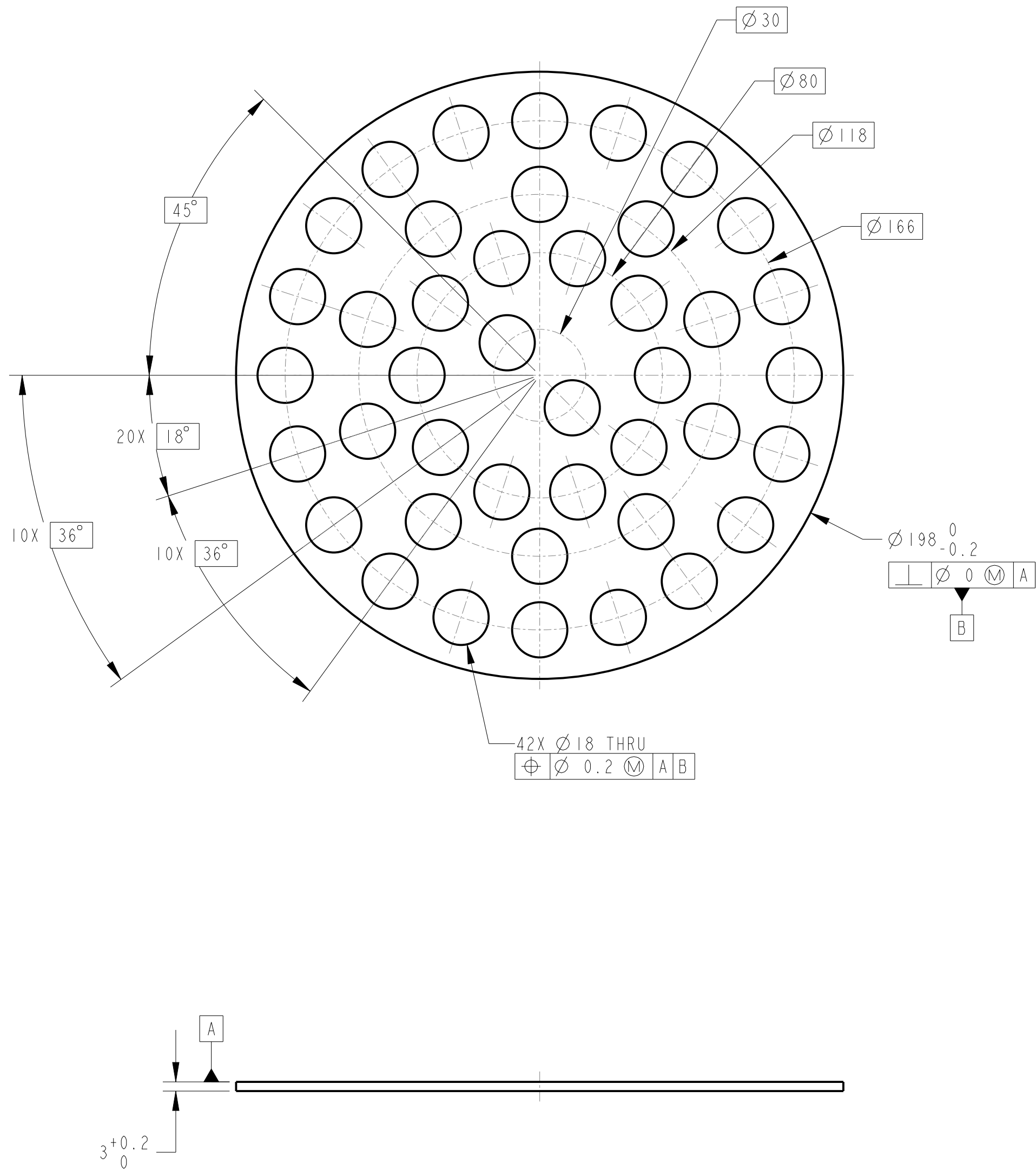
WIP-NOT APPROVED FOR CONSTRUCTION							
GRADE		UNITS: MILLIMETERS		HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE			
3-ROUTINE		DEFAULT TOLERANCES					
FACILITY		0-6 ±0.1 ≥6-120 ±0.2 ≥120 ±0.5 ANGULAR ±0.5°					
STS							
BUILDING		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX		--- --- WATER CASSETTE WELDMENT			
8800-STG TARGET BUILDING II							
MAJOR SYSTEM							
TARGET SYSTEMS		SURFACE ROUGHNESS: 3.2 Ra UNO.					
SYSTEM							
TARGET ASSEMBLIES		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4		DRAWING NUMBER 0000083646	REV 0		
SUBSYSTEM							
TARGET DRIVE and SHAFT		THIRD ANGLE PROJECTION		SIZE	SCALE	WEIGHT	SHEET
SUB-SUBSYSTEM				D	1:2	14 KG	1 of 1
XXX							

D

C

B

A



NEXT USED ASSEMBLY

0000001799

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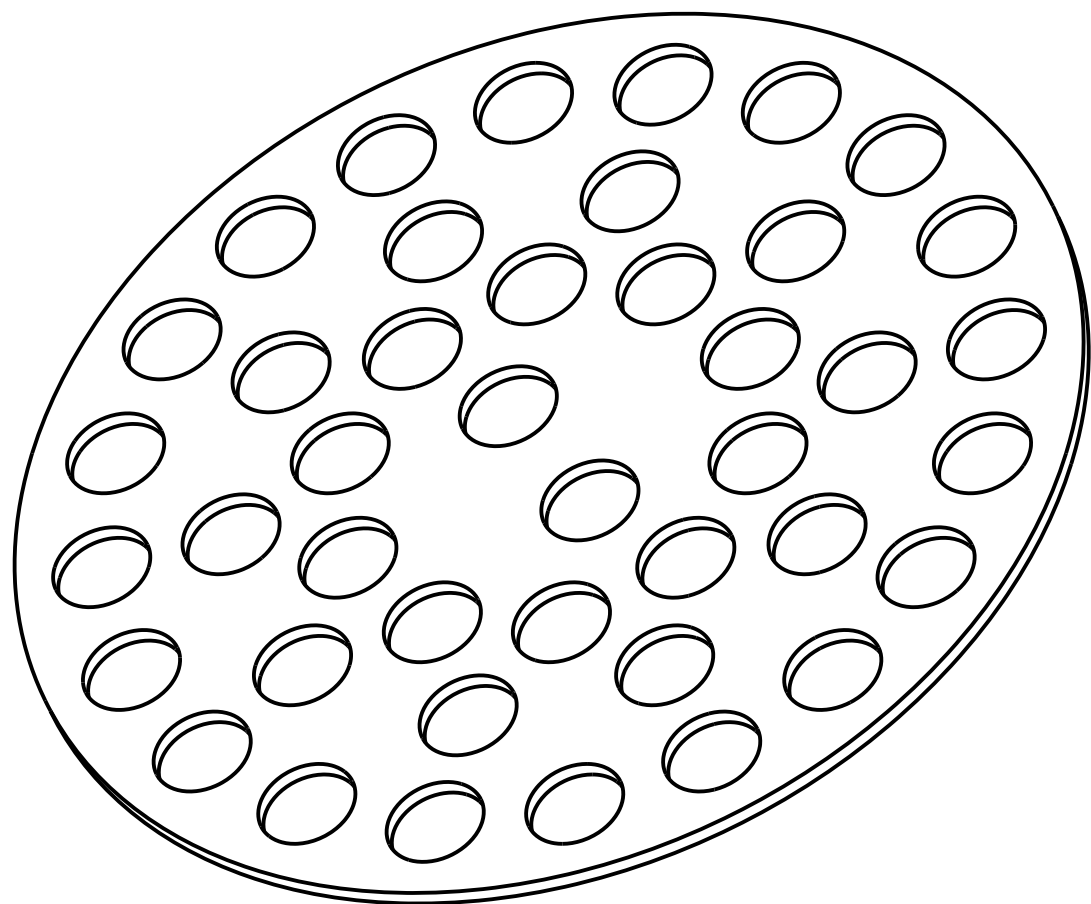
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REVISION BLOCK

REV	DESCRIPTION OF CHANGE	DATE
0	---	

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. INTERPERET DRAWING IN ACCORDANCE WITH ORNL DOCUMENT S01020000-PC002.
2. SURFACE TEXTURE SYMBOLS IN ACCORDANCE WITH ASMEY14.36M-1996 (R2008).
3. ABBREVIATIONS IN ACCORDANCE WITH ASME Y14.38-2019.
4. UNLESS OTHERWISE SPECIFIED, CONSIDER ALL CAD DIMENSIONS WITHIN CAD MODEL AS BASIC.
5. USE SULFUR FREE CUTTING OIL ONLY.
6. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
7. ALL INSIDE CORNERS TO BE R0.4 MAX.
8. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
9. PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER SAE AS478 OR EQUIVALENT.
10. PART MAY BE FABRICATED FROM SIGRAFLEX V3001IW3.



D

C

B

A

WIP-NOT APPROVED FOR CONSTRUCTION

GRAPHITE-HLM	APX2
MATERIAL	SPECIFICATION

GRADE	1-SERIOUS
FACILITY	STS
BUILDING	8800-ST5 TARGET BUILDING II
MAJOR SYSTEM	TARGET SYSTEMS
SYSTEM	TARGET ASSEMBLIES
SUBSYSTEM	TARGET DRIVE and SHAFT
SUB-SUBSYSTEM	XXX

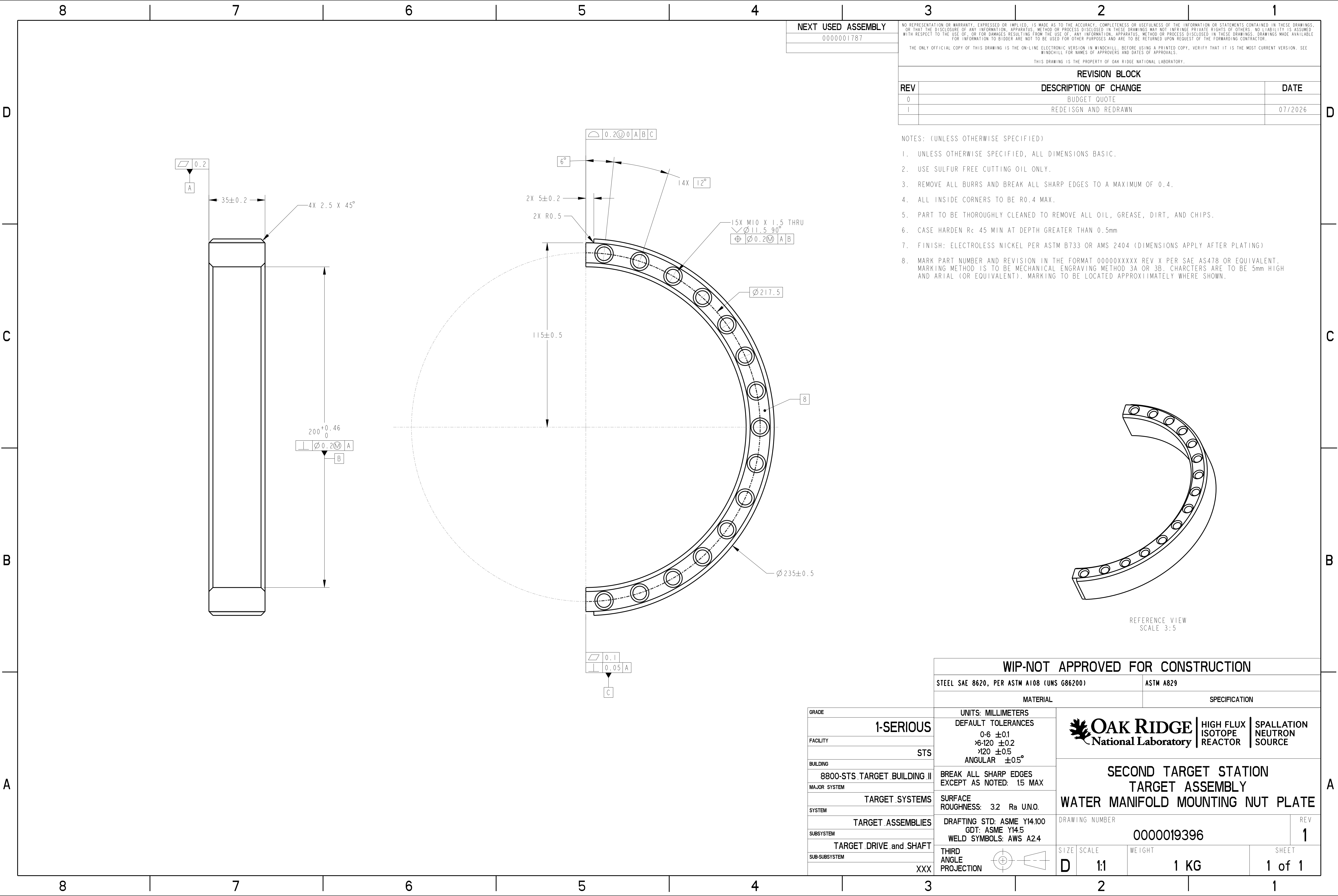
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 ≥6-120 ±0.2 ≥120 ±0.5 ANGULAR ±0.5°	BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX	SURFACE ROUGHNESS: 3.2 Ra U.N.O.	DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4	THIRD ANGLE PROJECTION
---	--	-------------------------------------	---	------------------------------



SECOND TARGET STATION
TARGET ASSEMBLY
CROWN GASKET

DRAWING NUMBER	0000001801	REV	0
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SIZE	SCALE	WEIGHT	SHEET
D	3:4	0.108 KG	1 of 1



NEXT USED ASSEMBLY
0000001787

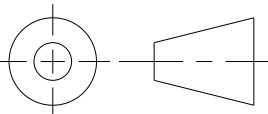
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REVISION BLOCK		
REV	DESCRIPTION OF CHANGE	DATE
0	BUDGET QUOTE	
I	REDEISGN AND REDRAWN	07/2026

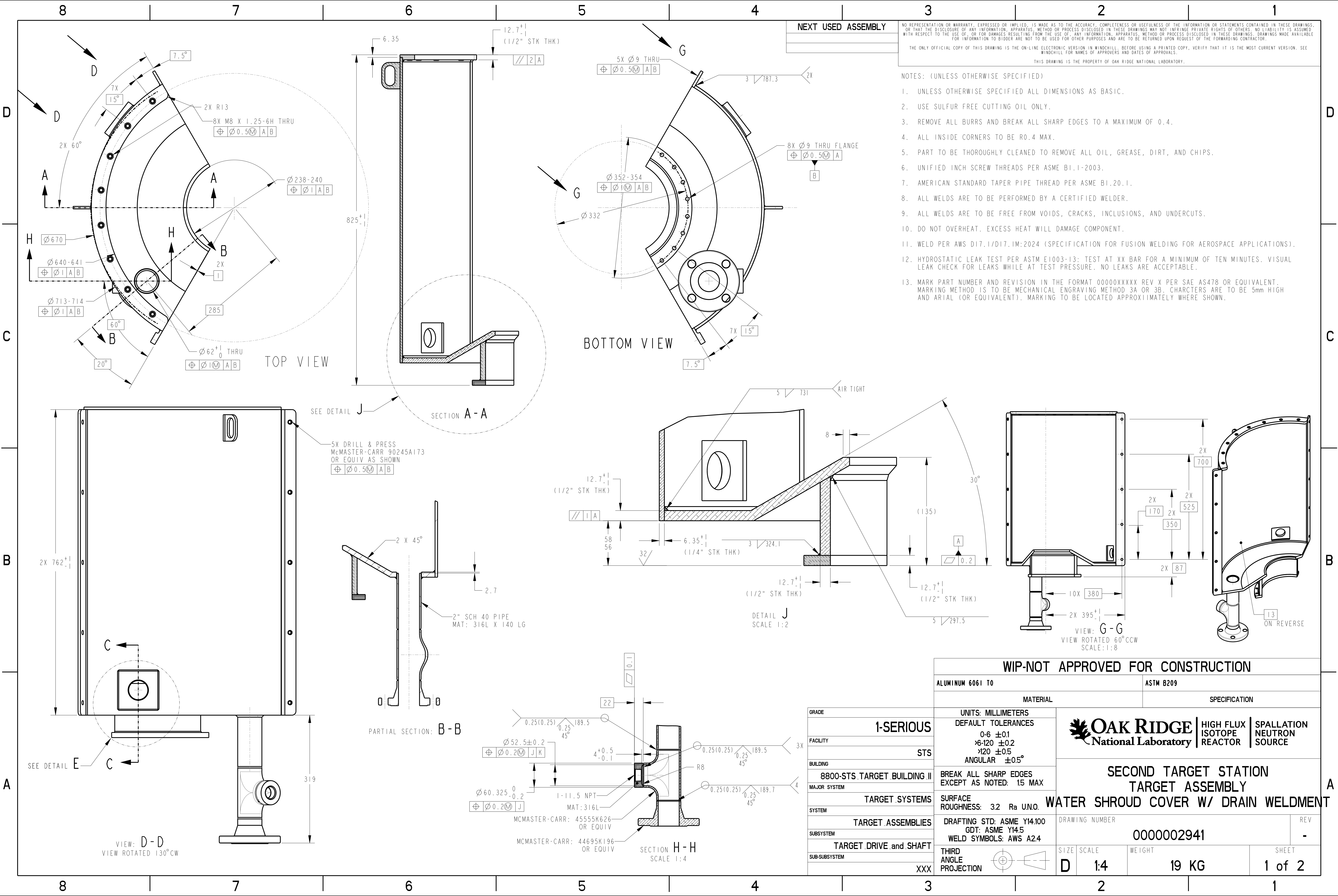
- NOTES: (UNLESS OTHERWISE SPECIFIED)
- UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS BASIC.
 - USE SULFUR FREE CUTTING OIL ONLY.
 - REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
 - ALL INSIDE CORNERS TO BE R0.4 MAX.
 - PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
 - CASE HARDEN Rc 45 MIN AT DEPTH GREATER THAN 0.5mm
 - FINISH: ELECTROLESS NICKEL PER ASTM B733 OR AMS 2404 (DIMENSIONS APPLY AFTER PLATING)
 - MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS478 OR EQUIVALENT. MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARCTERS ARE TO BE 5mm HIGH AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIMATELY WHERE SHOWN.

WIP-NOT APPROVED FOR CONSTRUCTION			
STEEL SAE 8620, PER ASTM A108 (UNS G86200)		ASTM A829	
MATERIAL		SPECIFICATION	
UNITS: MILLIMETERS DEFAULT TOLERANCES 0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX			
SURFACE ROUGHNESS: 3.2 Ra UNO.		SECOND TARGET STATION TARGET ASSEMBLY WATER MANIFOLD MOUNTING NUT PLATE	
DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4			
THIRD ANGLE PROJECTION 		DRAWING NUMBER	REV
		0000019396	1
SIZE	SCALE	WEIGHT	SHEET
D	1:1	1 KG	1 of 1

GRADE	1-SERIOUS
FACILITY	STS
BUILDING	8800-STG TARGET BUILDING II
MAJOR SYSTEM	TARGET SYSTEMS
SYSTEM	TARGET ASSEMBLIES
SUBSYSTEM	TARGET DRIVE and SHAFT
SUB-SUBSYSTEM	XXX

4

A



D

C

B

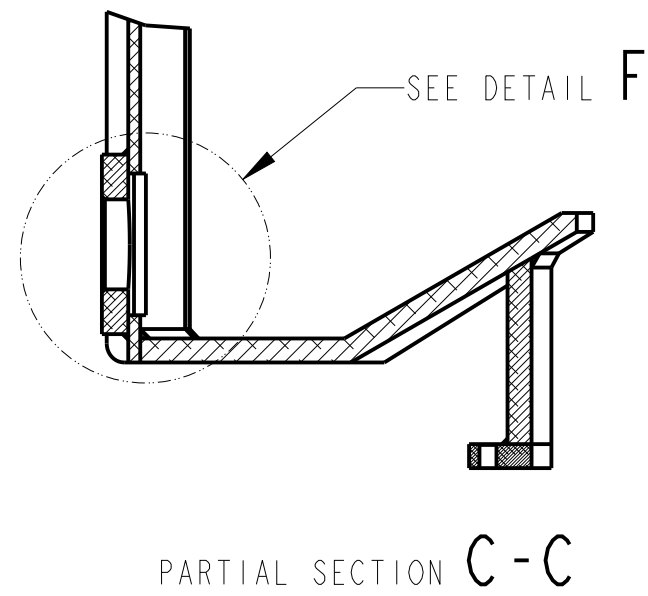
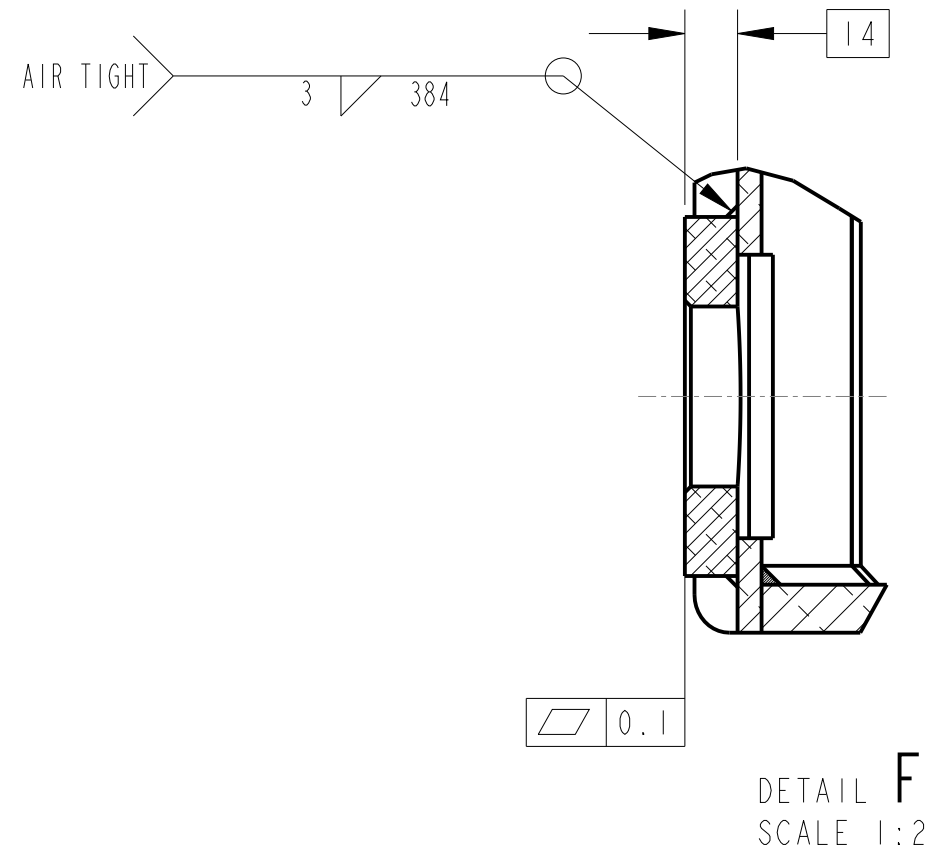
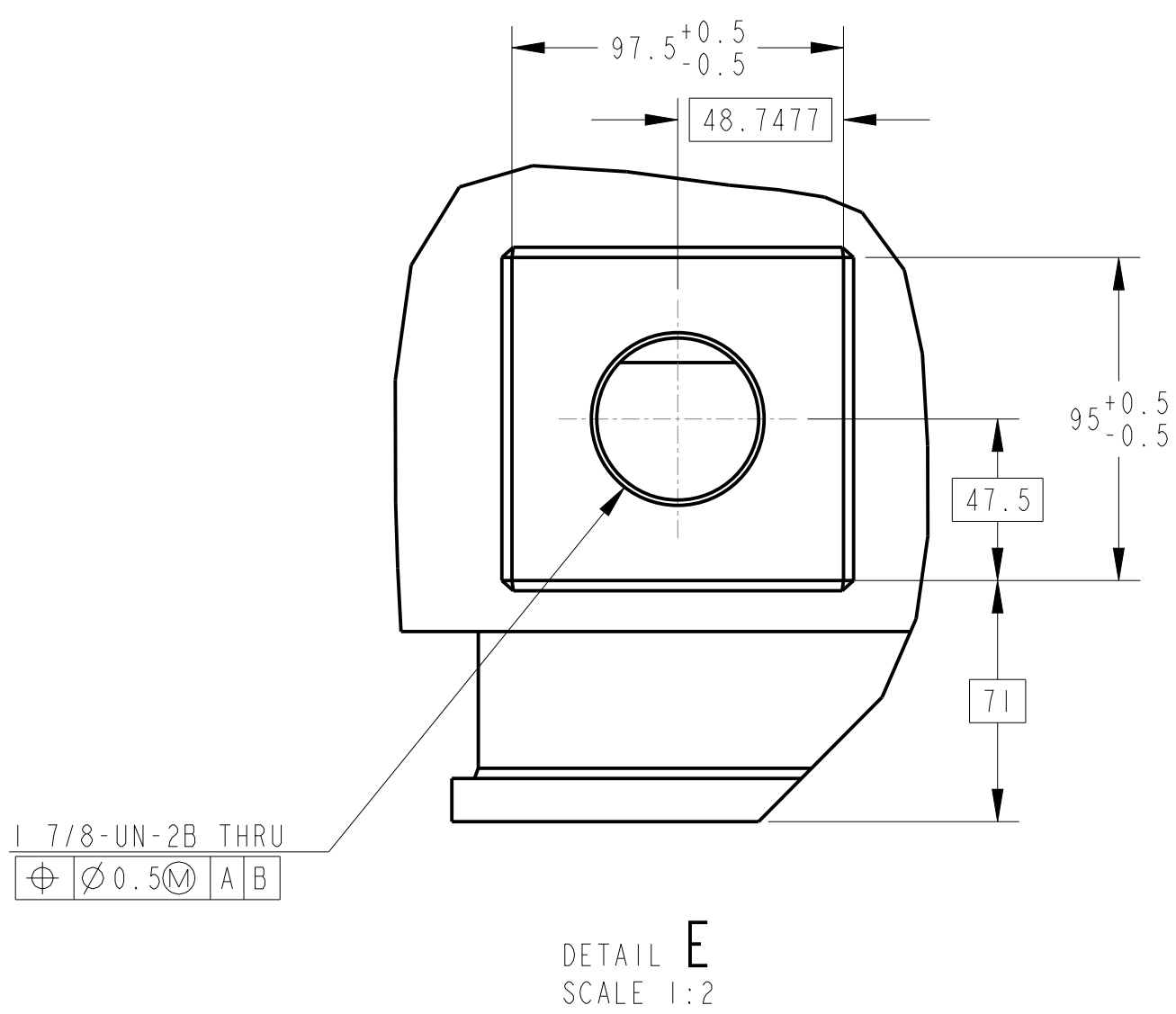
A

D

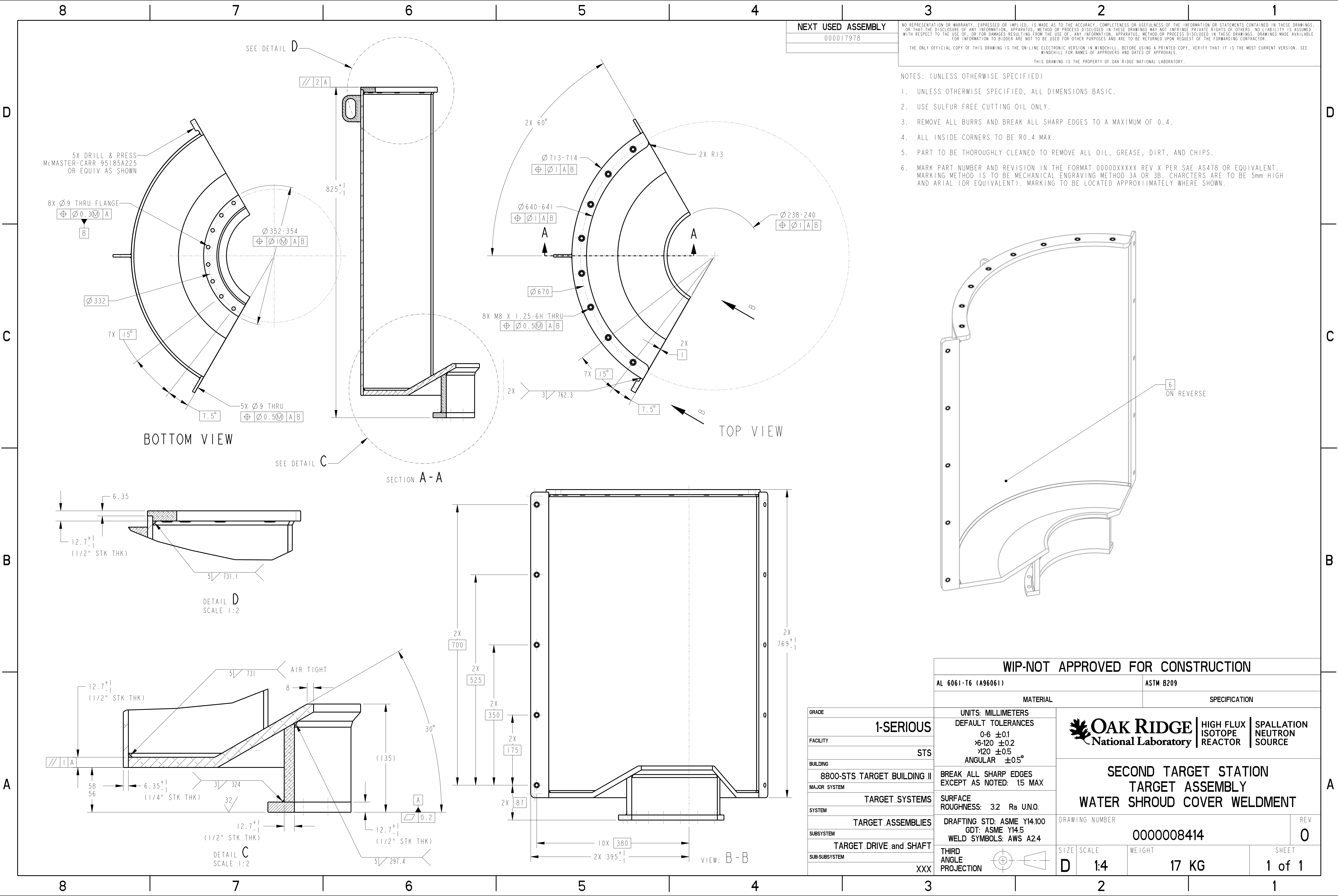
C

B

A



SIZE	SCALE	SHEET	DRAWING NUMBER	REV
D	1:4	2 OF 2	0000002941	-



NEXT USED ASSEMBLY
0000017978

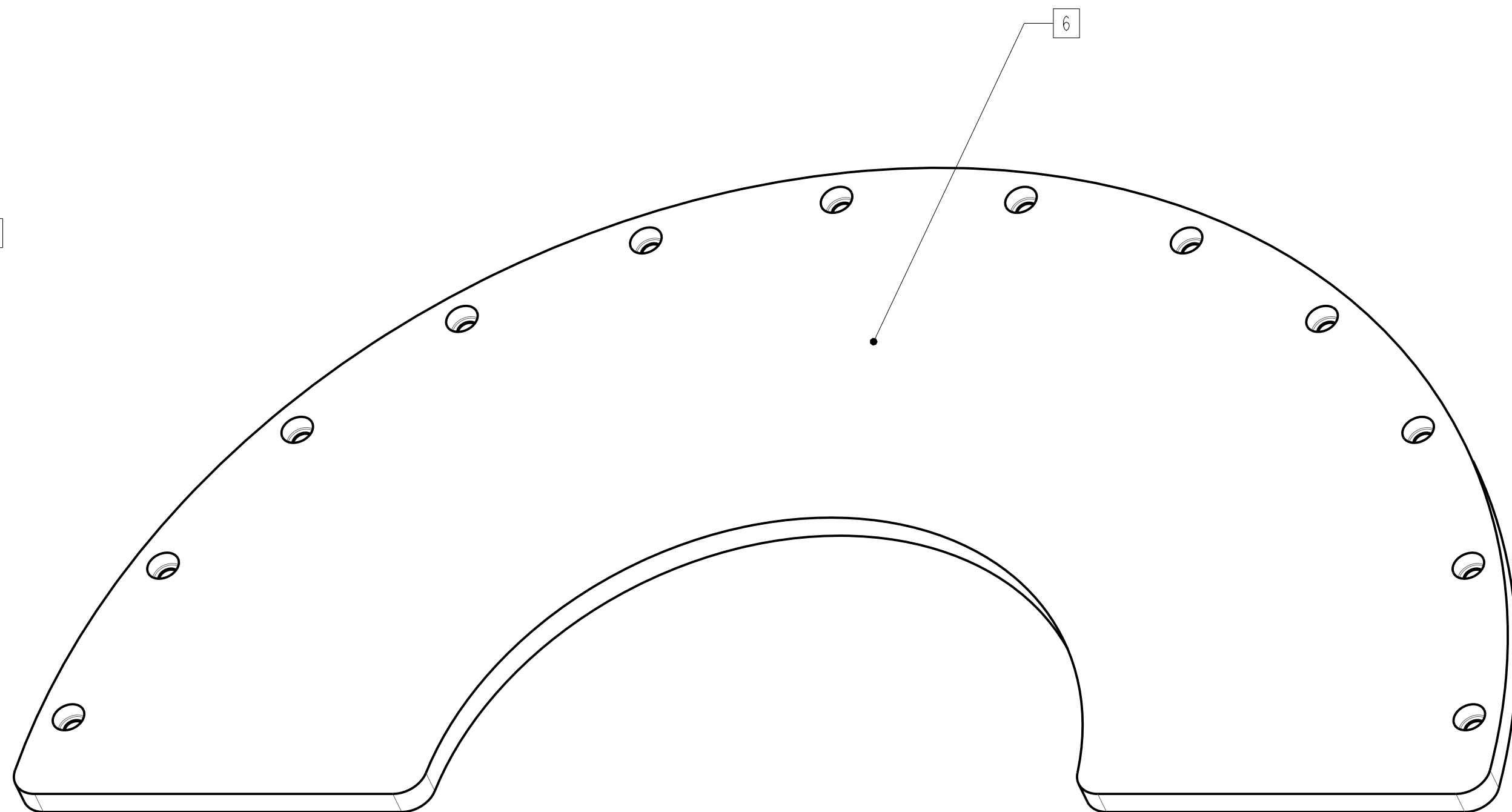
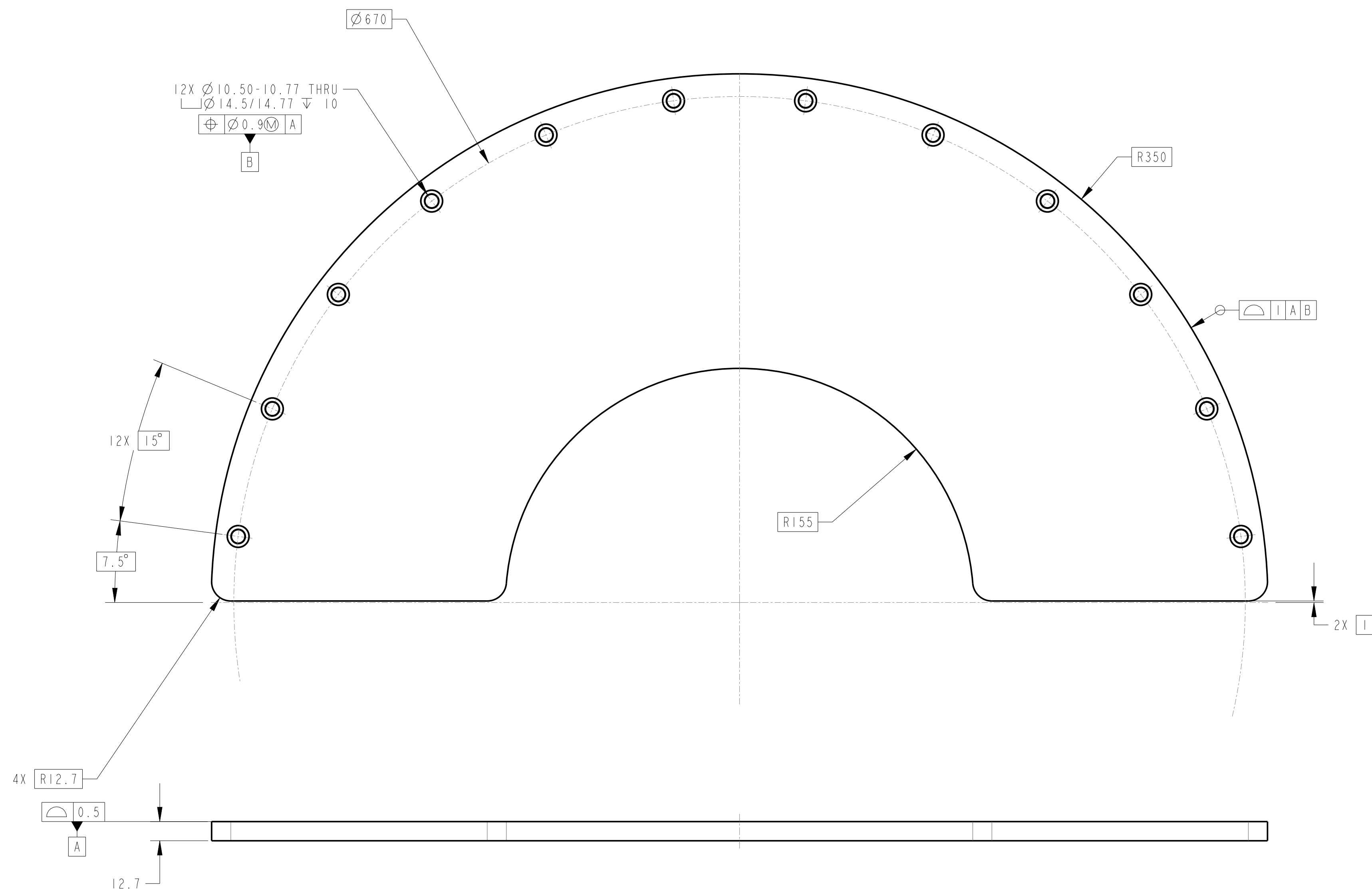
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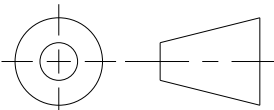
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NOTES: (UNLESS OTHERWISE SPECIFIED)

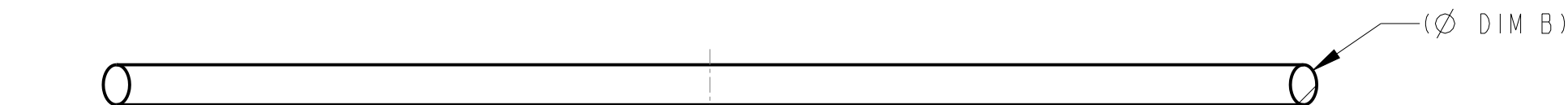
1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS BASIC.
2. USE SULFUR FREE CUTTING OIL ONLY.
3. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES TO A MAXIMUM OF 0.4.
4. ALL INSIDE CORNERS TO BE R0.4 MAX.
5. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
6. MARK PART NUMBER AND REVISION IN THE FORMAT 00000XXXXX REV X PER SAE AS41
MARKING METHOD IS TO BE MECHANICAL ENGRAVING METHOD 3A OR 3B. CHARACTERS A
AND ARIAL (OR EQUIVALENT). MARKING TO BE LOCATED APPROXIMATELY WHERE SHOWN



		WIP-NOT APPROVED FOR CONSTRUCTION			
		AL 6061-T6 (A96061)		AMS 00-A-250/11	
		MATERIAL		SPECIFICATION	
GRADE		UNITS: MILLIMETERS		OAK RIDGE National Laboratory HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE SECOND TARGET STATION TARGET ASSEMBLY SHROUD COVER PLATE	
1-SERIOUS		DEFAULT TOLERANCES			
FACILITY		0-6 ±0.1 >6-120 ±0.2 >120 ±0.5 ANGULAR ±0.5°			
STS					
BUILDING					
8800-ST5 TARGET BUILDING II		BREAK ALL SHARP EDGES EXCEPT AS NOTED: 15 MAX			
MAJOR SYSTEM					
TARGET SYSTEMS		SURFACE ROUGHNESS: 3.2 Ra U.N.O.			
SYSTEM					
TARGET ASSEMBLIES		DRAFTING STD: ASME Y14.100 GDT: ASME Y14.5 WELD SYMBOLS: AWS A2.4			
SUBSYSTEM		0000007717			REV
TARGET DRIVE and SHAFT					-
SUB-SUBSYSTEM		THIRD ANGLE PROJECTION		SIZE	SCALE
XXX				WEIGHT	SHEET
		D		1:2	5 KG
					1 of 1

4

A



SECTION A - A

ORNL #	"DIM A"	"DIM B"	SPEC-SIZE
0000018045	185mm	5.30mm	ISO 3601-D1850
0000017605	230mm	7.0mm	ISO 3601-E2300
0000017890	290mm	7.0mm	ISO 3601-E2900
0000019112	266.07mm	5.33mm	AS568-378
0000019113	278.77	5.33	AS568-379
0000019114	278.99	3.53	AS568-276
0000017877	380.59mm	3.53mm	AS568-281

NEXT USED ASSEMBLY

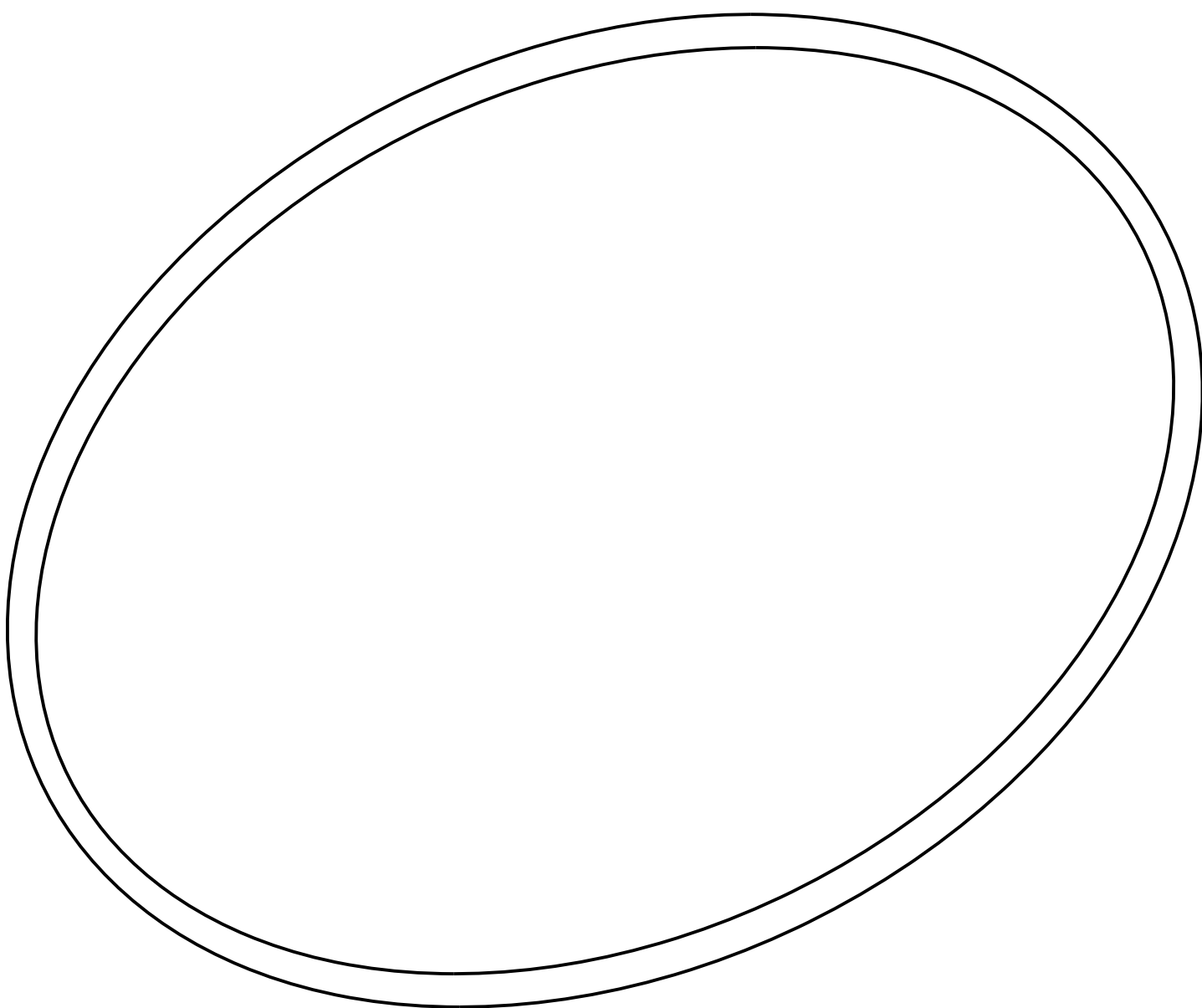
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[illegible]

NOTES: (UNLESS OTHERWISE SPECIFIED)

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2. SURFACE TEXTURE SYMBOLS IN ACCORDANCE WITH ASMEY14.36M-1996 (R2008).
3. ABBREVIATIONS IN ACCORDANCE WITH ASME Y14.38-2019.
4. FOR COMPLETE DEFINITION FOR THIS PART REFER TO THE CAD MODEL.
5. UNLESS OTHERWISE SPECIFIED, CONSIDER ALL CAD DIMENSIONS WITHIN CAD MODEL AS BASIC.
6. PART TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT, AND CHIPS.
7. PARTS TO BE PACKAGED AND THE PART NUMBER MARKED ON THE PACKAGE OR ON A TAG ATTACHED TO THE PART OR PACKAGE. MARKING METHOD IS TO BE METHOD 37 PER SAE AS478 OR EQUIVALENT.
8. MATERIAL REQUIREMENTS:
 - A. RADIATION RESISTANCE: $5.5 < RI < 6$.
 - B. LIFETIME DOSE LIMIT: 300kGy (30 Mrad) BASED ON RI = 5.6.
 - C. DUROMETER: 75-80 SHORE A.



	E70E ETHYLENE PROPYLENE RUBBER (EPDM)		---	
	MATERIAL		SPECIFICATION	
	UNITS: MILLIMETERS		 HIGH FLUX ISOTOPE REACTOR SPALLATION NEUTRON SOURCE	
	DEFAULT TOLERANCES			
	0-6 ±0.1			