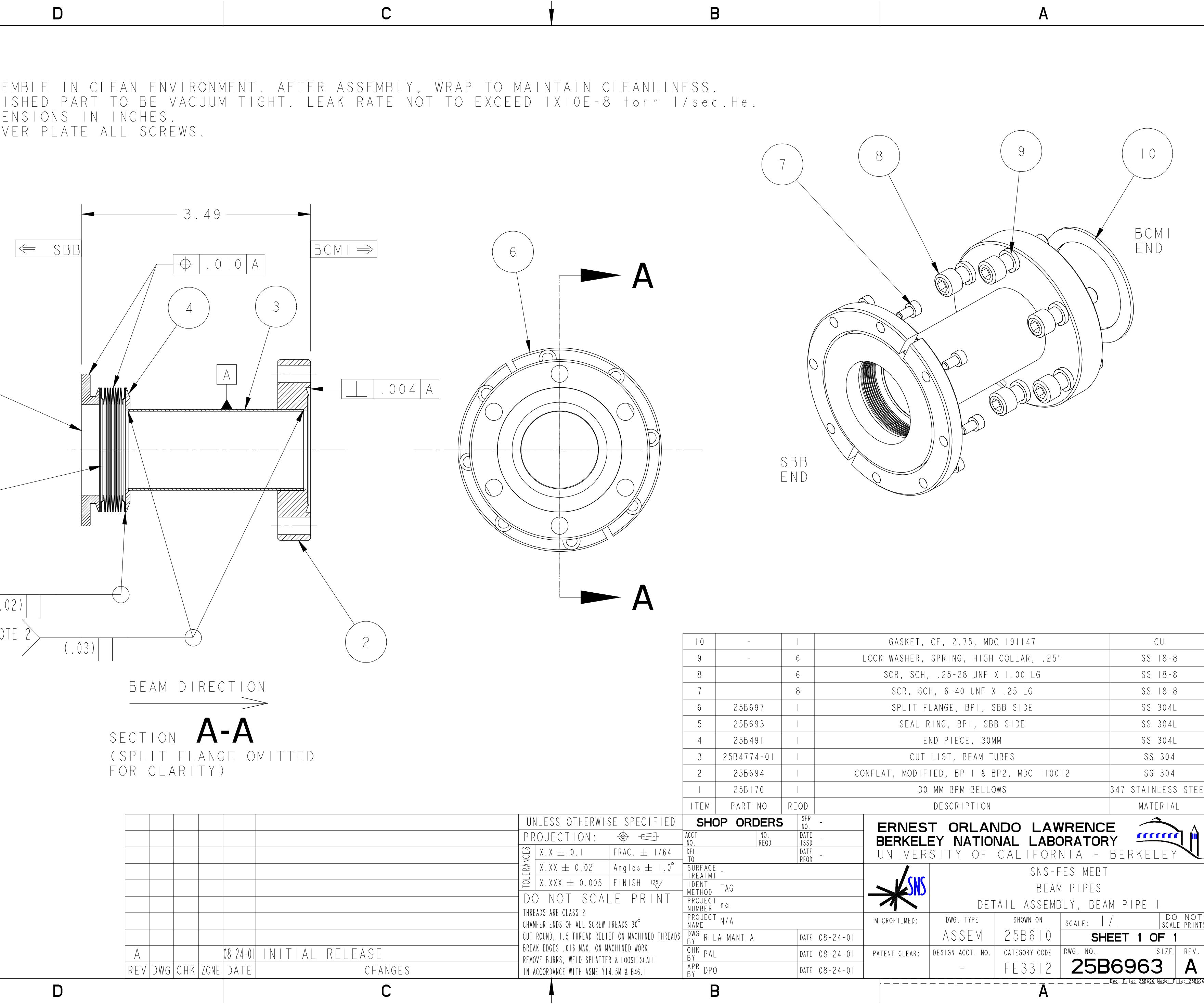


DWG. NO.	TITLE
1	25B108_3_C PROFILE MONITOR BELLows ASSY - 30 MM
2	25B109_3_C PROFILE MONITOR BELLows ASSY - 40 MM
3	25B170_1_B 30 MM BPM BELLows
4	25B172_1_B 40 MM BPM BELLows
5	25B175_3_E 30 MM BPM/BP BELLows SEAL FLANGE
6	25B177_3_D 30 MM BP/ BPM SPLIT FLANGE
7	25B447_3_B 40 MM FLANGE
8	25B449_3_C DETAIL ASSEMBLY, BP3 SPOOL
9	25B476_3_B DETAIL ASSEMBLY, BP4 SPOOL
10	25B477_4_B CUT LIST, BEAM TUBES
11	25B478_1_A SCR, SCH, .25-28 UNF X .61 LG, MODIFIED
12	25B490_3_C DETAIL ASSEMBLY, BEAM PIPE 8
13	25B491_2_B END PIECE, 30MM
14	25B492_3_B FLANGE, BP8, RB4 SIDE
15	25B493_3_B SEAL RING, BP8, BCM2 SIDE
16	24B494_3_B SPLIT FLANGE, BP8, BCM2 SIDE
17	25B496_3_D DETAIL ASSEMBLY, BEAM PIPE 9
18	25B497_3_B FLANGE, BP9, BPM6 SIDE
19	25B498_3_B FLANGE, BP9, RB4 SIDE
20	25B499_3_A BELLows ASSEMBLY, BP7, 40MM
21	25B680_3_A DETAIL ASSEMBLY, BEAM PIPE 7
22	25B681_3_A FLANGE, BP7, A/CHP SIDE
23	25B682_3_A SEAL RING, BP7, RB3 SIDE
24	25B683_3_B SPLIT FLANGE, BP7, RB3 SIDE
25	25B684_3_A DETAIL ASSEMBLY, BEAM PIPE 6
26	25B685_3_A FLANGE, BP6, BPM4 SIDE
27	25B686_3_A FLANGE, BP6, TGT SIDE
28	25B687_3_B DETAIL ASSEMBLY, BEAM PIPE 5
29	25B688_2_B END PIECE, 40MM
30	25B689_3_A FLANGE, BP5, PM3 SIDE
31	25B690_3_A SEAL RING, BP5, BPM3 SIDE
32	25B691_3_A SPLIT FLANGE, BP5, BPM3 SIDE
33	25B692_3_A DETAIL ASSEMBLY, BEAM PIPE 2
34	25B693_3_A SEAL RING, BP1, SBB SIDE
35	25B694_3_A CONFLAT, MODIFIED, BP 1 & BP2, MDC 110012
36	25B696_3_A DETAIL ASSEMBLY, BEAM PIPE 1
37	25B697_3_B SPLIT FLANGE, BP1, SBB SIDE
38	25B700_3_A SEAL RING, BP3, BPM2 SIDE
39	25B701_3_A SPLIT FLANGE, BP3, BPM2 SIDE

Active links shown in blue.

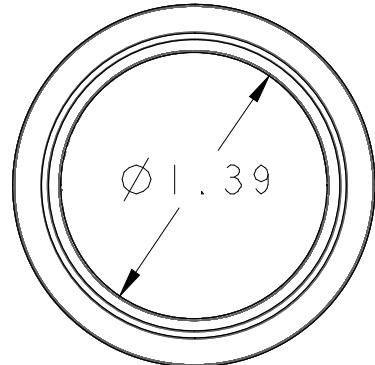
Drawing number format: *serial no_drawing size_revision letter*.

Assembly titles shown in bold face type.

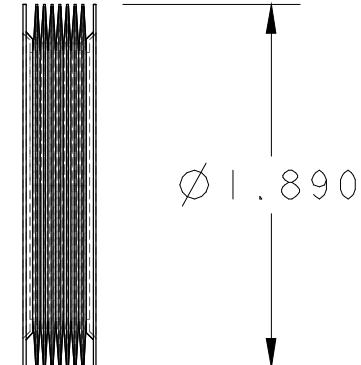


NOTES

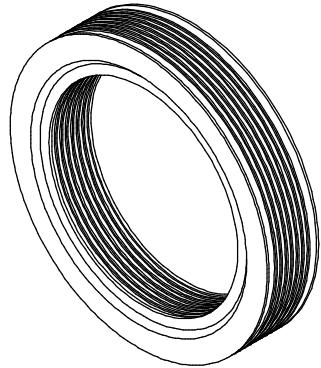
1. STANDARD BELLOWS P/N: 189-139-1/2-B*B* *H= 1.89 in
2. DRAWING FOR PRICING QUOTATION ONLY.



189-139 BELLows
1/2 SEGMENT.



STYLE "B" END
FLANGE, BOTH SIDES



REV	DWG	CHK	DATE	CHANGES			DESCRIPTION		MATERIAL					
UNLESS OTHERWISE SPECIFIED								SHOP ORDERS						
								SER. NO. -	ISSD. -					
PROJECTION:								NOCT. NO. -	REQD. DATE					
TOLERANCES X.X ±0.1 FRAC. ±1/64								REL. TO -	DATE REC'D.					
X.XX ±0.01 Angles ±0.5°								SURFACE TREATMENT						
TOL. X.XXX ±0.005 FINISH 125/								IDENT. TAG						
DO NOT SCALE PRINT								PROJECT NUMBER						
THREADS ARE CLASS 2								PROJECT NAME N/A						
CHAMFER ENDS OF ALL SCREW THREADS 30°								DWG. TYPE			SHOWN ON	SCALE: 1/1	DO NOT SCALE PRINTS	
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS								PART			25B178	SHEET 1 OF 1		
BREAK EDGES .016 MAX. ON MACHINED WORK								PATENT CLEAR:			DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
REMOVE BURRS, MILD SPLATTER & LOOSE SCALE								BY DARYL OSHATZ			XXXX-XX	FE3313	25B1701	B
IN ACCORDANCE WITH ASME Y14.5M & B46.1								APR DARYL OSHATZ			DATE -			

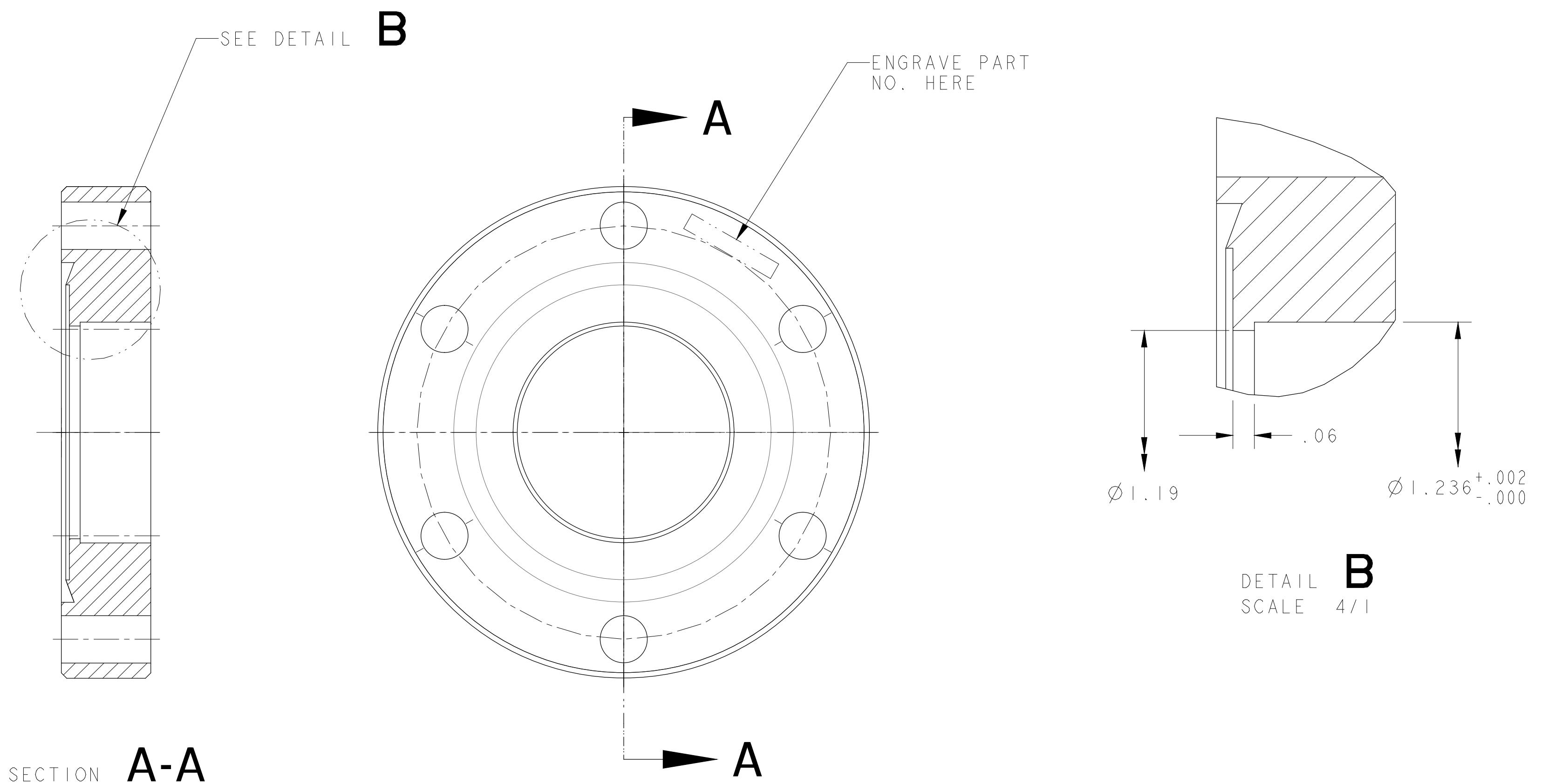
**ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY** UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
MECHANICAL SUBSYSTEMS
30 MM BPM BELLOWS

Dwg. File: BPM_30_BELLOWS Model File: BPM_30_BELLOWS

Rev L - 1/29/2000 J. R. - 09/00

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.

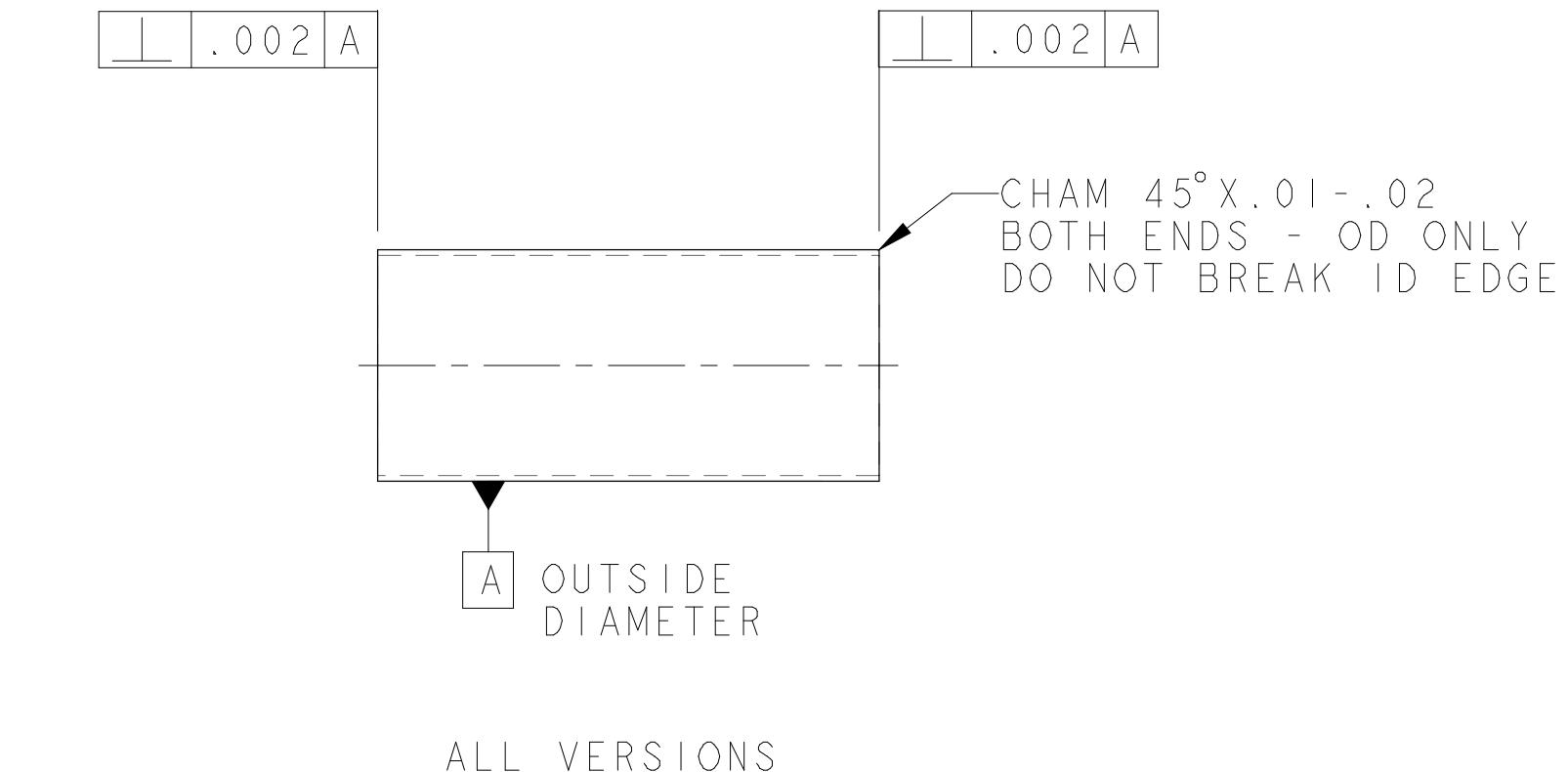
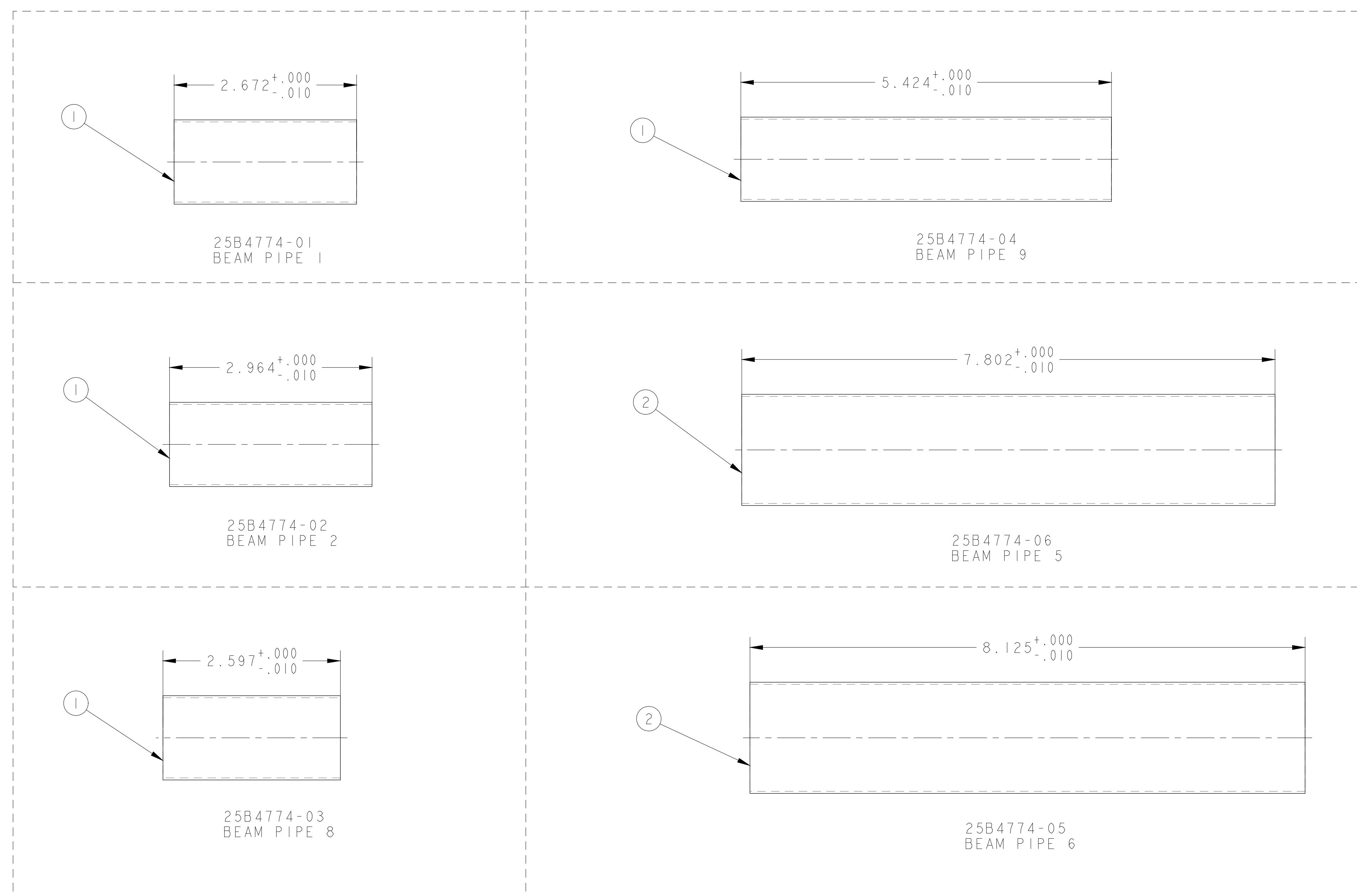


SECTION A-A

UNLESS OTHERWISE SPECIFIED					
PROJECTION:		TOLERANCES		DO NOT SCALE PRINT	
X.X ± 0.1	FRAC. ± 1/64	X.XX ± 0.01	Angles ± 1.0°	THREADS ARE CLASS 2 CHAMFER ENDS OF ALL SCREW TREADS 30° CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES .016 MAX. ON MACHINED WORK REMOVE BURRS, WELD SPLATTER & LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M & B46.1	
A RLMPAL	08-03-01	INITIAL RELEASE			
REV DWG CHK ZONE	DATE	CHANGES			

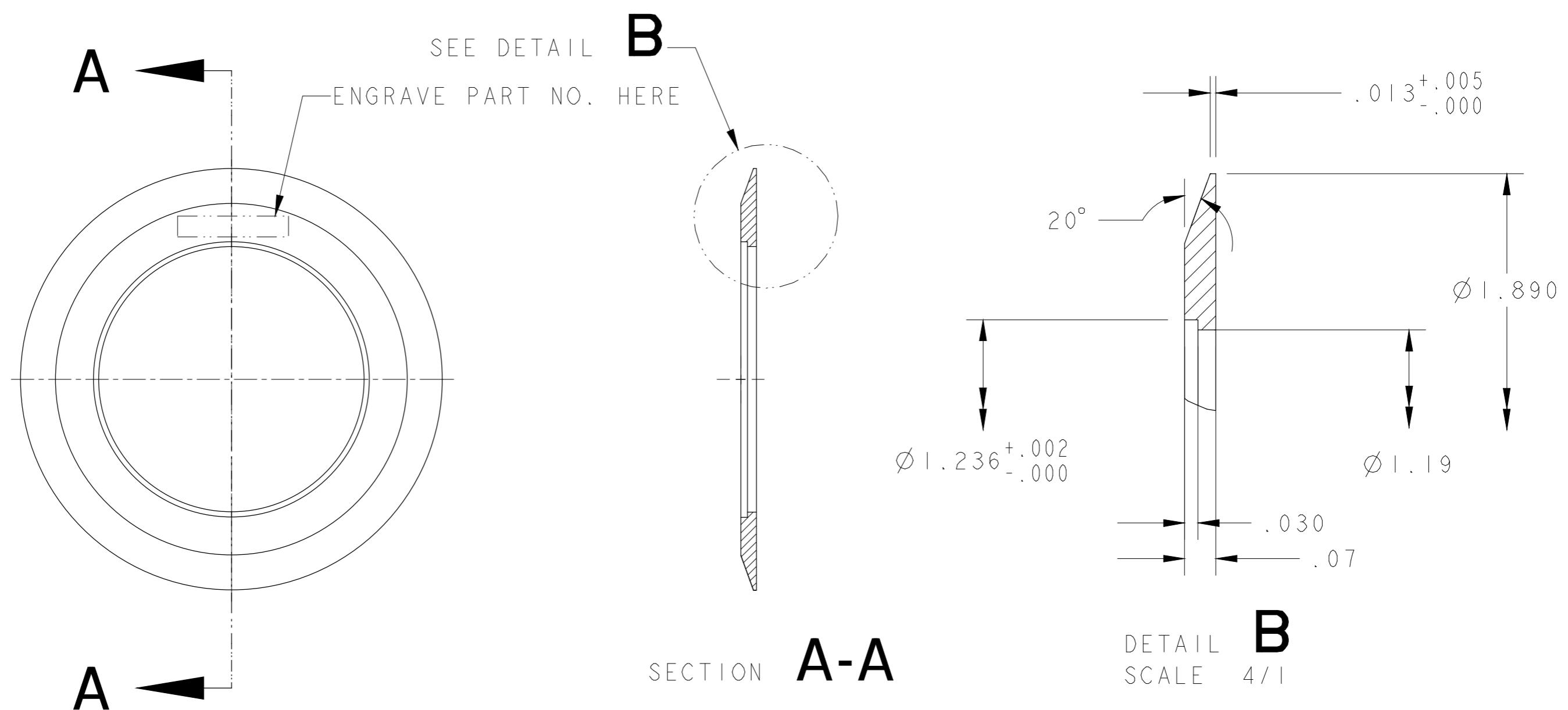
FLANGE, CF, 2-3/4, NR, CL		SS 304		-	
DESCRIPTION		MATERIAL		MAT. LOCATION	
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY	SNS-FES MEBT BEAM PIPES				
SNS	CONFLAT, MODIFIED, BP 1 & BP2, MDC 110012				
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS	
	PART	25B692			
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.
	-	FE3312	25B6943	A	

NOTE (UNLESS OTHERWISE SPECIFIED):
1. DIMENSIONS ARE IN INCHES.



ALL VERSIONS

UNLESS OTHERWISE SPECIFIED	SHOP ORDERS
PROJECTION:	SER. NO. -
ACCT. NO. -	REQD. NO. -
DATE -	ISSUED -
DEL TO -	REQD. DATE -
SURFACE CLEAN	
TREATMT IDENT	
HEAT TREAT. TAG	
ANGLES ± 1.0°	
FINISH	
DO NOT SCALE PRINT	
THREADS ARE CLASS 2	
CHAMFER ENDS OF ALL SCREW TRENDS 30°	
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS	
BREAK EDGES .016 MAX. ON MACHINED WORK	
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE	
IN ACCORDANCE WITH ASME Y14.5M & B46.1	
B	DRAWING CONVERTED TO PROVE
REV. DWG. CHK. ZONE DATE	CHANGES
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY	
SNS-FES MEBT BEAM PIPE COMPONENTS CUT LIST, BEAM TUBES	
MICROFILMED: DWG. TYPE SHOWN ON SCALE: 1 / 1 DO NOT SCALE PRINTS	
PART -	
PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV. SHEET 1 OF 1	
- FEE3312 25B4774 B	



NOTE:

1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.

				UNLESS OTHERWISE SPECIFIED	SHOP ORDERS	SER NO.	ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
				PROJECTION:	ACCT NO.	NO. REQD	DATE ISSD			ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY	
				TOLERANCES: X.X ± 0.1 FRAC. ± 1/64	DEL TO		DATE REQD			UNIVERSITY OF CALIFORNIA - BERKELEY	
				X.XX ± 0.01 Angles ± 1.0°	SURFACE TREATMT					SNS-FES MEBT	
				X.XXX ± 0.005 FINISH	IDENT TAG					BEAM PIPES	
				DO NOT SCALE PRINT	PROJECT NUMBER	n/a				END PIECE, 30MM	
				THREADS ARE CLASS 2	PROJECT NAME	N/A					
				CHAMFER ENDS OF ALL SCREW TREADS 30°	DWG. TYPE						
				CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS	PART						
				BREAK EDGES .016 MAX. ON MACHINED WORK	SHOWN ON						
				REMOVE BURRS, WELD SPLATTER & LOOSE SCALE	SCALE: 2/1						
				IN ACCORDANCE WITH ASME Y14.5M & B46.1	DO NOT SCALE PRINTS						
B	RLM	PAL	08-03-01	MATERIAL CHANGE							
A	RLM	PAL	07-24-01	INITIAL RELEASE							
REV	DWG	CHK	ZONE	DATE							
				CHANGES							

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES
END PIECE, 30MM

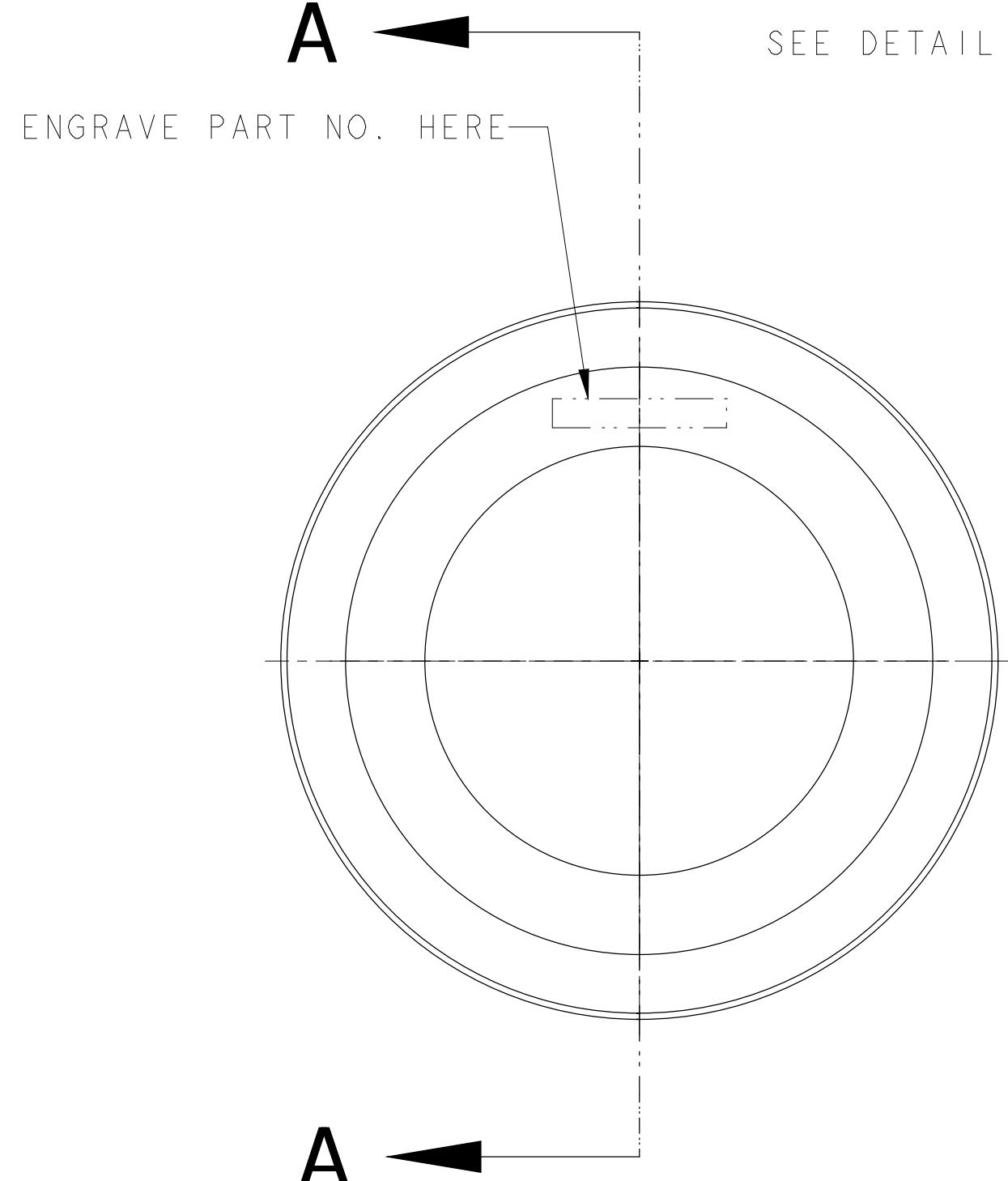
MICROFILMED: DWG. TYPE SHOWN ON SCALE: 2/1 DO NOT SCALE PRINTS

PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV.

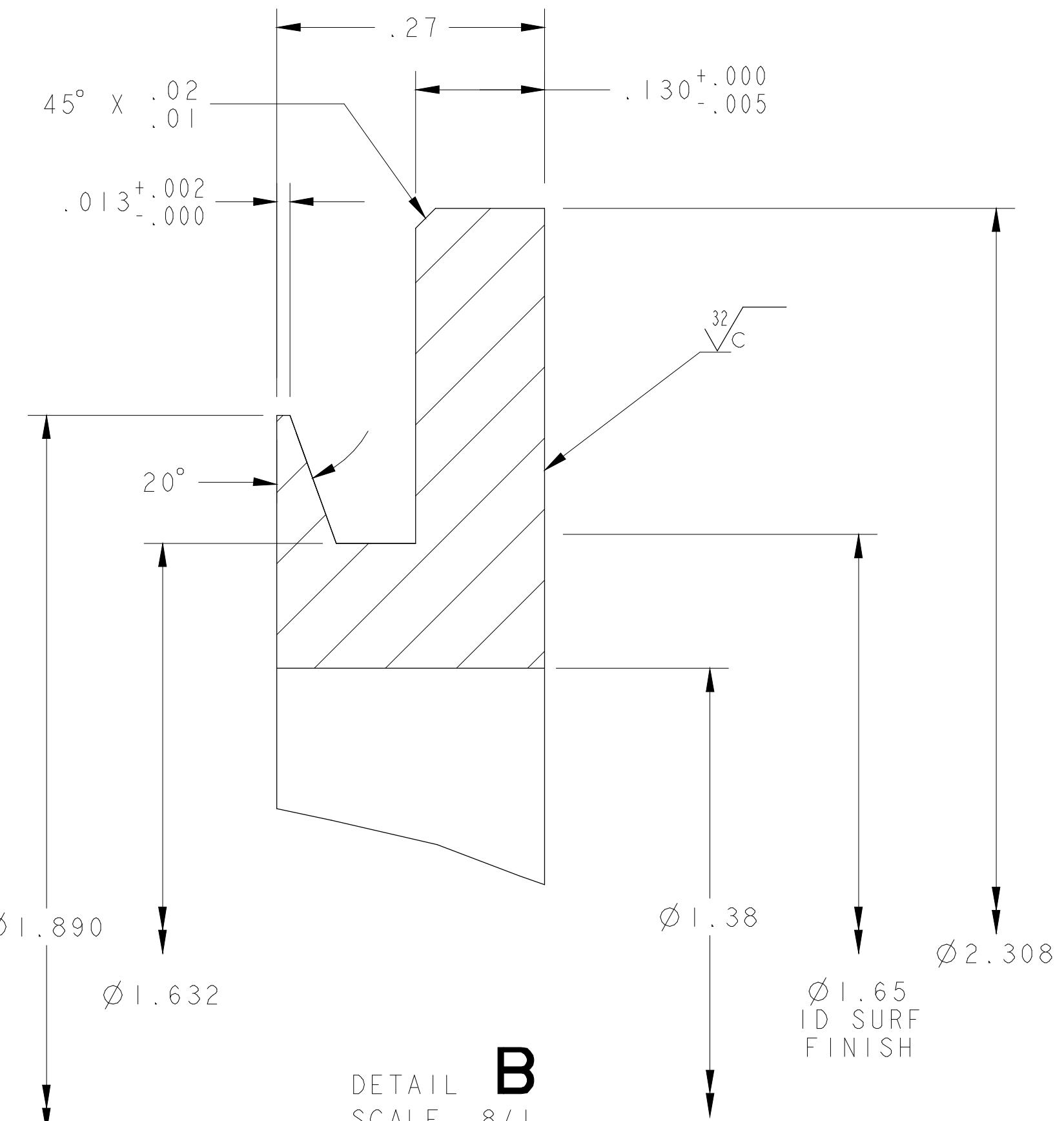
25B4912 B

Dwg. File: 25B491 Model File: 25B491 Rev. 1/29/2000 J. R. 09/01

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



SECTION A-A



DWG. NO. 25B6933 REV. A SHEET 1 OF 1
Dwg. File: 25B6933 Model File: 25B6933 Rev.: 1/29/2009 J. R. Oberholzer

UNLESS OTHERWISE SPECIFIED					
PROJECTION:					
TOLERANCES X.X ± 0.1 FRAC. ± 1/64 X.XX ± 0.01 Angles ± 1.0° X.XXX ± 0.005 FINISH 12/					
DO NOT SCALE PRINT THREADS ARE CLASS 2 CHAMFER ENDS OF ALL SCREW TREADS 30° CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES .016 MAX. ON MACHINED WORK REMOVE BURRS, WELD SPLATTER & LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M & B46.1					
A	RLMPAL	08-03-01	INITIAL RELEASE		
REV	DWG	CHK	ZONE	DATE	CHANGES

DESCRIPTION			SS 304L	
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY	SNS-FES MEBT BEAM PIPES SEAL RING, BPI, SBB SIDE			
MICROFILMED:	DWG. TYPE PART	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS
	25B692			
PATENT CLEAR:	DESIGN ACCT. NO. FEE3312	CATEGORY CODE	DWG. NO. 25B6933	REV. A

D

C

B

A

NOTE:
 1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
 2. FURNISH AS A SET

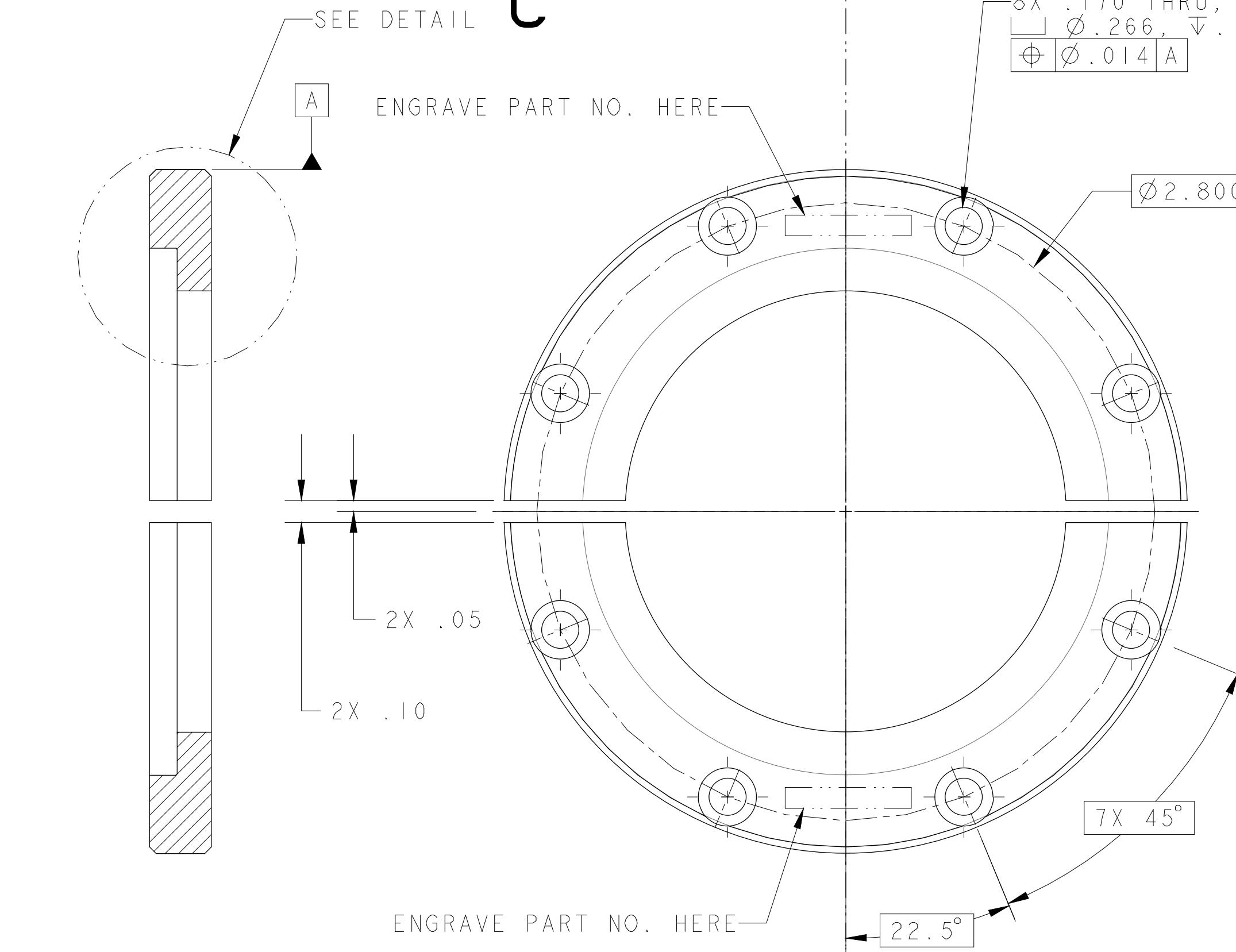
SEE DETAIL C

ENGRAVE PART NO. HERE

A

8X .170 THRU,
 $\phi .266$, $\nabla .160$
 $\phi .014$ A

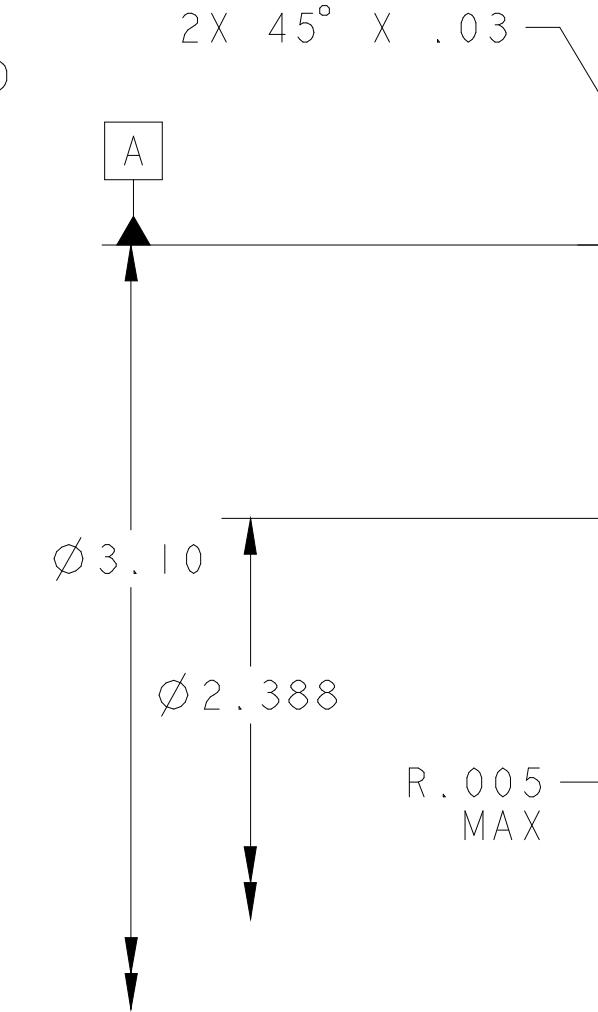
$\phi 2.800$



2X 45° X .03

.28

A



R.005
MAX

DETAIL
SCALE 4/1
C

SECTION

A-A

B	PALPAL	8/20/01	BEVEL BORE ELIMINATED. $\phi 2.388$ WAS $\phi 1.829$. $\phi 2.00$ WAS $\phi 1.562$.
A	RLMPAL	08-03-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE

UNLESS OTHERWISE SPECIFIED
 PROJECTION:
 TOLERANCES: $X.X \pm 0.1$ $X.XX \pm 0.01$ $X.XXX \pm 0.005$ FINISH 125
 DO NOT SCALE PRINT
 THREADS ARE CLASS 2
 CHAMFER ENDS OF ALL SCREW TREADS 30°
 CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
 BREAK EDGES .016 MAX. ON MACHINED WORK
 REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
 IN ACCORDANCE WITH ASME Y14.5M & B46.1

DESCRIPTION			SS 304L	MATERIAL	MAT. LOCATION
SHOP ORDERS	SER. NO.				
ACCT NO.	NO. RECD	DATE ISSD			
DEL TO		DATE RECD			
SURFACE TREATMT					
IDENT TAG					
METHOD TAG					
PROJECT NUMBER	na				
PROJECT NAME	N/A				
DWG BY	R LA MANTIA	DATE 08-03-01			
CHK BY	PAL	DATE 08-03-01			
APR BY	DPO	DATE 08-03-01			
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS	
	PART	25B696			
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.
			FE3312	25B6973	B

ERNEST ORLANDO LAWRENCE
 BERKELEY NATIONAL LABORATORY
 UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
 BEAM PIPES

SPLIT FLANGE, BPI, SBB SIDE

Sheet 1 of 1

D

C

B

A

NOTES

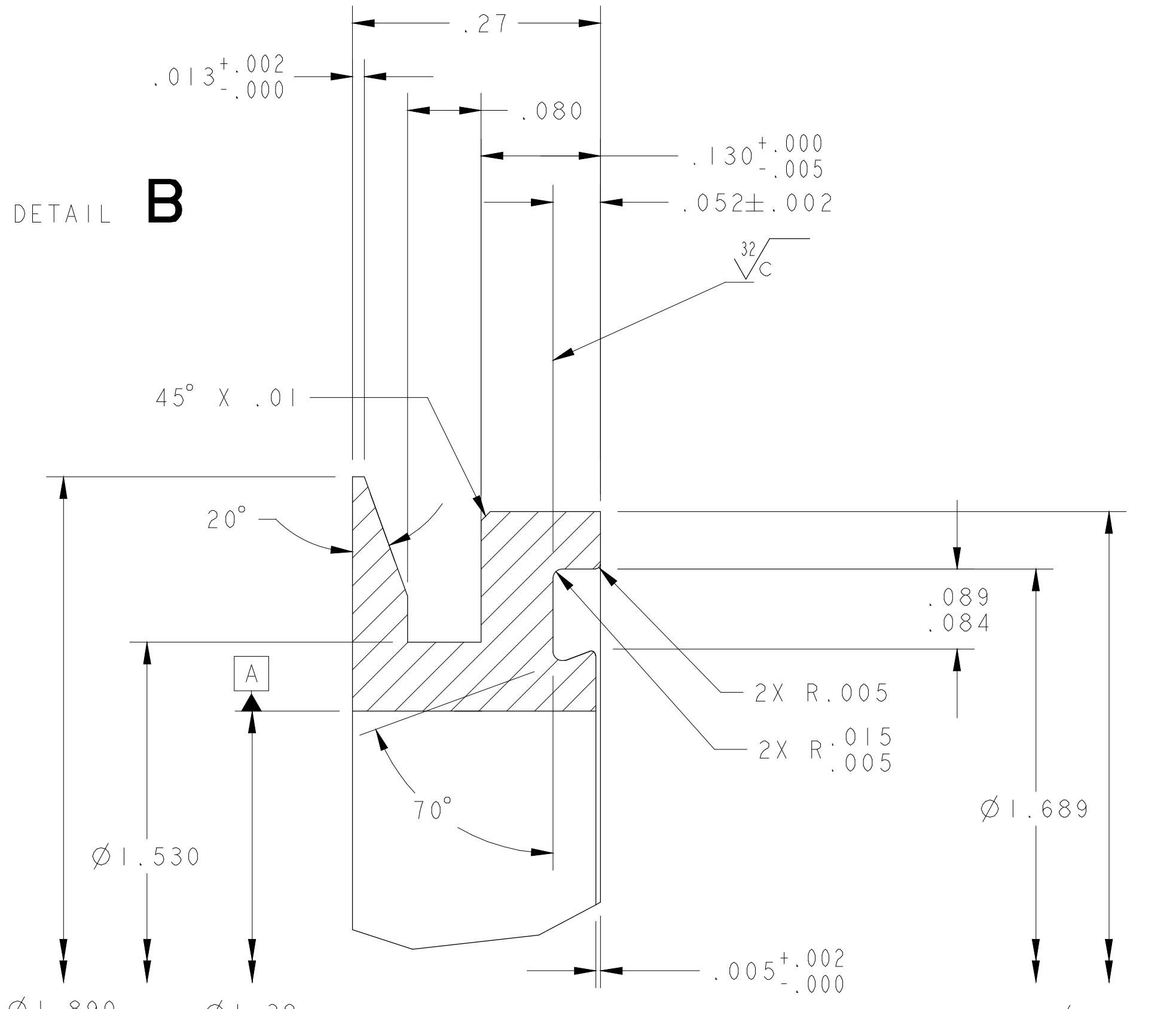
I. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.

ENGRAVE PART NO. HER

 SEE DETAIL

Diagram A shows a circular target with concentric rings and a central crosshair. A horizontal dashed line extends from the center. A small rectangular box is positioned on the upper dashed line. A black arrow points to the right from the top left, and another black arrow points down from the top right.

SECTION A-A



						UNLESS OTHERWISE SPECIFIED
						PROJECTION:  
						TOLERANCES
					X. X ± 0.1	FRAC. ± 1/64
					X. XX ± 0.01	Angles ± 0.5°
					X. XXX ± 0.005	FINISH 125\
E	RLMPAL	8-10-01	REDRAW, CHANGED TITLE TO INCLUDE BEAM PIPES			DO NOT SCALE PRINT
D		11-17-00	MODIFIED DIMENSIONING TO IMPROVE TOLERANCE STACK UP			THREADS ARE CLASS 2
C		3-30-00	UPDATE DRAWING BORDER			CHAMFER ENDS OF ALL SCREW TREADS 30°
C		3-30-00	CHANGE SLOT AND ADD STEP			CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
B		1-27-00	ADD NOTE AND UPDATE TITLEBLOCK			BREAK EDGES .016 MAX. ON MACHINED WORK
REV	DWG	CHK	ZONE	DATE	CHANGES	REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
						IN ACCORDANCE WITH ASME Y14.5M-8461

DESCRIPTION			MATERIAL		MAT. LOCATION	
SHOP ORDERS		SER NO.				
ACCT NO.	NO. REQD	DATE ISSD				
DEL TO		DATE REQD				
SURFACE TREATMT ELECTROPOLISH						
IDENT TAG METHOD						
PROJECT NUMBER na						
PROJECT NAME			MICROFILMED:	DWG. TYPE	SHOWN ON	DO NOT SCALE PRINTS
DWG BY TREVOR GOULDING		DATE 16-DEC-00		PART	-	SCALE: 2 / 1
CHK BY DARYL OSHATZ		DATE	PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	SHEET 1 OF 1
APR BY DARYL OSHATZ		DATE		-	EE3313	SIZE REV.
					25B1753	E

D

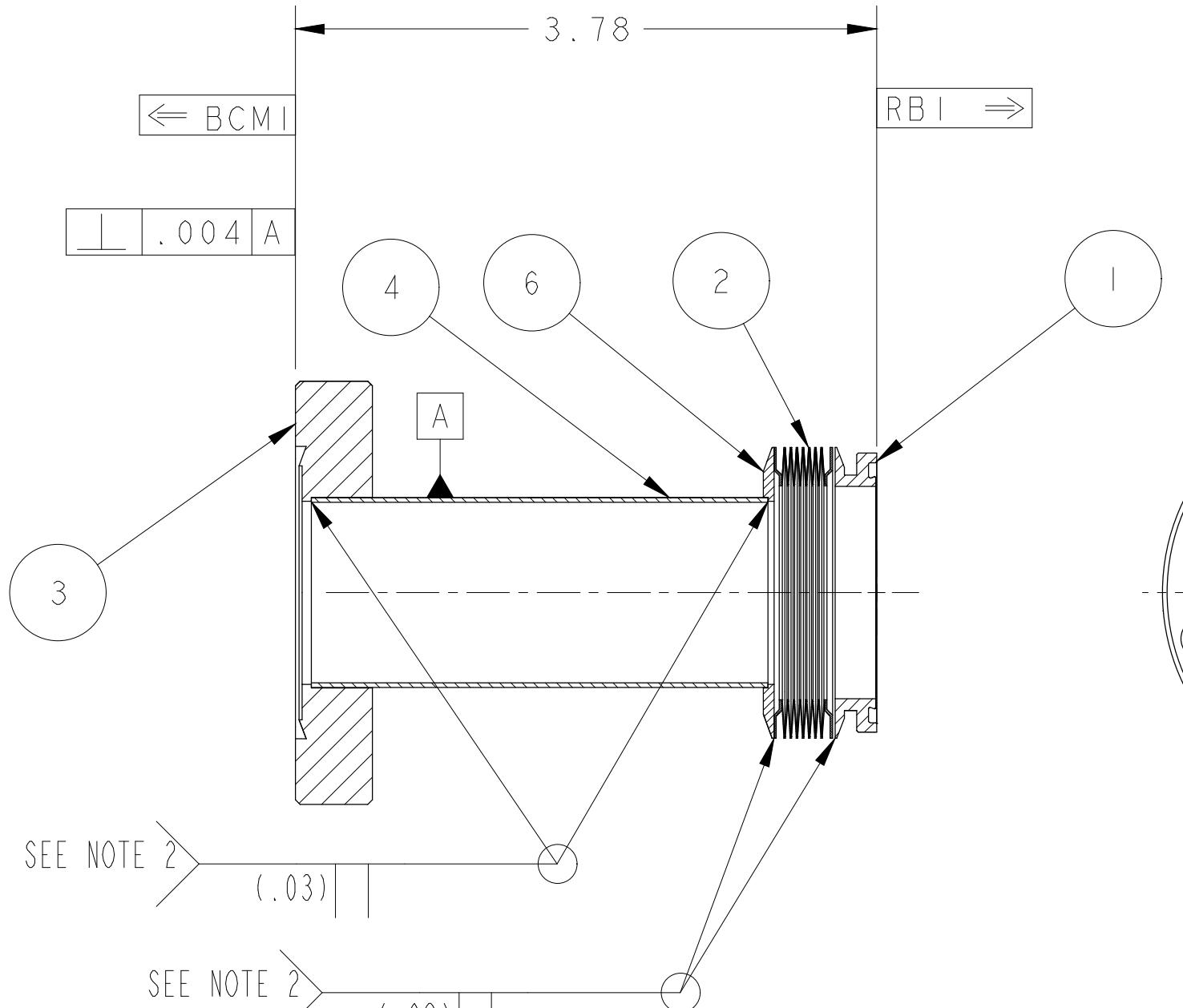
C

B

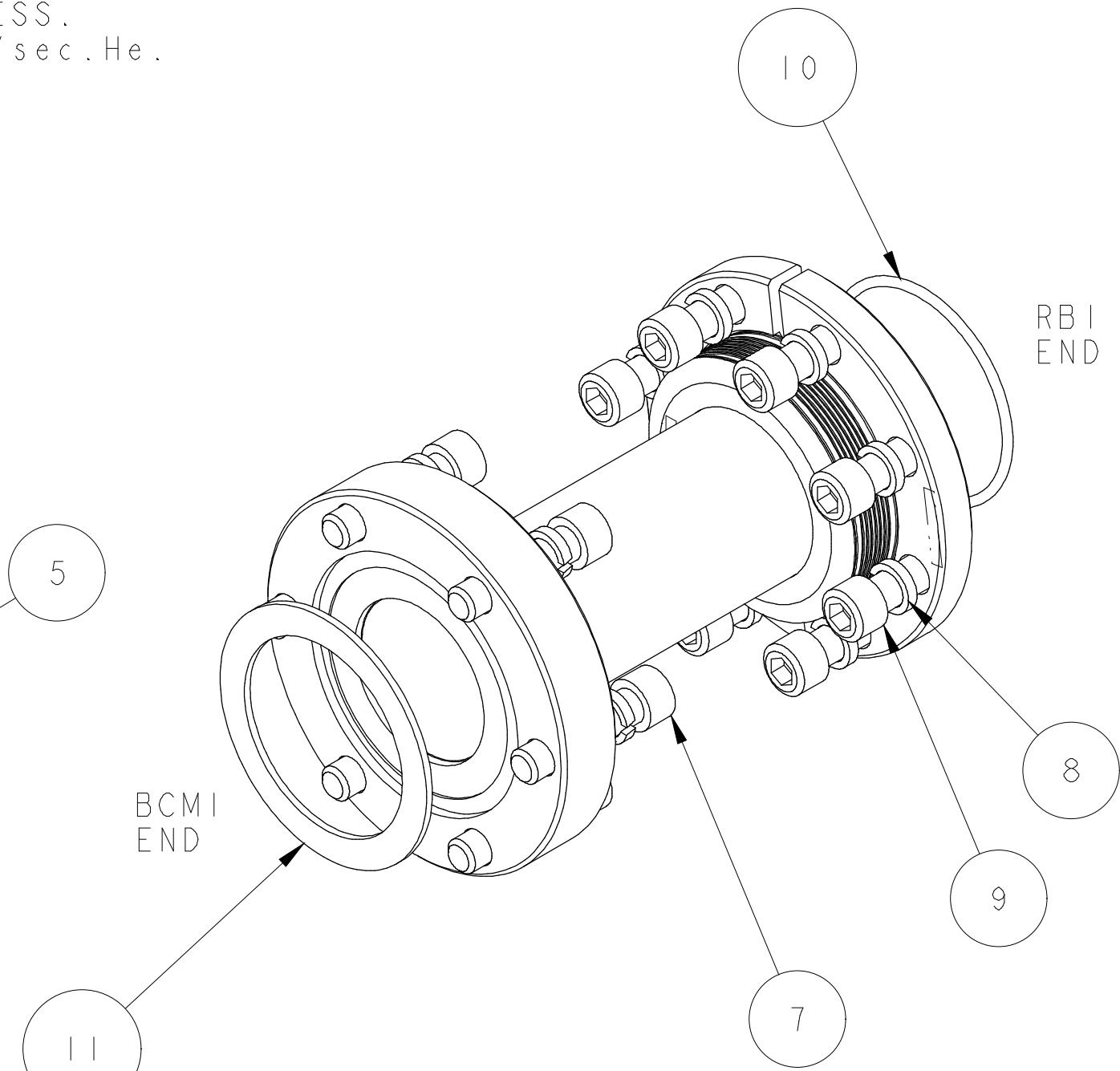
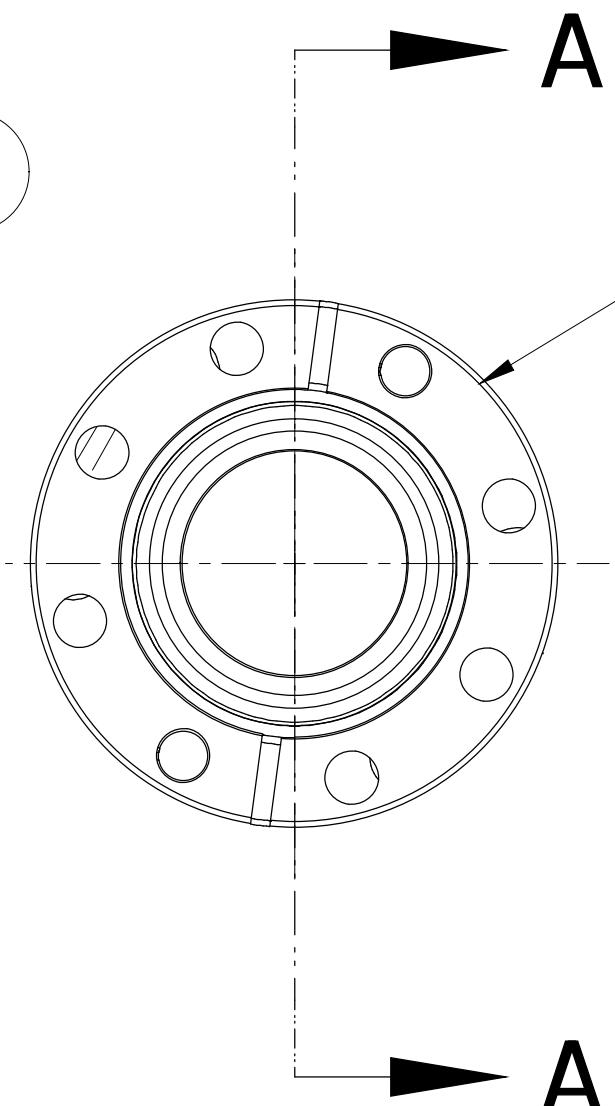
A

NOTE:

1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
3. DIMENSIONS IN INCHES.
4. SILVER PLATE ALL SCREWS.



SECTION A-A

SPLIT FLANGE NOT SHOWN
FOR CLARITY

ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
11	-	1	GASKET, CF, 2.75, MDC 191147	CU
10	-	1	O-RING, 2-029	VITON
9		8	SCR, SCH, .25-28 UNF X .75 LG	SS 18-8
8	-	14	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
7		6	SCR, SCH, .25-28 UNF X 1.00 LG	SS 18-8
6	25B491	1	END PIECE, 30MM	SS 304L
5	25B177	1	30 MM BP/ BPM SPLIT FLANGE	SS 304L
4	25B4774-02	1	CUT LIST, BEAM TUBES	SS 304
3	25B694	1	CONFLAT, MODIFIED, BP 1 & BP2, MDC 110012	SS 304
2	25B170	1	30 MM BPM BELLOWS	347 STAINLESS STEEL
1	25B175	1	30 MM BPM/BP BELLOWS SEAL FLANGE	316 STAINLESS STEEL

UNLESS OTHERWISE SPECIFIED						SHOP ORDERS			SER -
PROJECTION:						ACCT NO.	NO. REQD	DATE ISSD	-
TOLERANCES						DEL TO	DATE	REQD	-
X.XX ± 0.1		FRAC. ± 1/64							
X.XX ± 0.02		Angles ± 1.0°							
X.XXX ± 0.005		FINISH 10%							
DO NOT SCALE PRINT						SURFACE TREATMT			
THREADS ARE CLASS 2						IDENT TAG			
CHAMFER ENDS OF ALL SCREW TREADS 30°						METHOD TAG			
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS						PROJECT NUMBER			
BREAK EDGES .016 MAX. ON MACHINED WORK						NAME N/A			
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE						PROJECT NAME	N/A		
IN ACCORDANCE WITH ASME Y14.5M & B46.1						DWG. BY	R LA MANTIA	DATE	08-24-01
						CHK BY	PAL	DATE	08-24-01
						APR BY	DPO	DATE	08-24-01

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

 SNS-FES MEBT
BEAM PIPES

DETAIL ASSEMBLY, BEAM PIPE 2

DWG. TYPE ASSEM SHOWN ON 25B610 SHEET 1 OF 1

PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV.

FE3312 25B6923 A

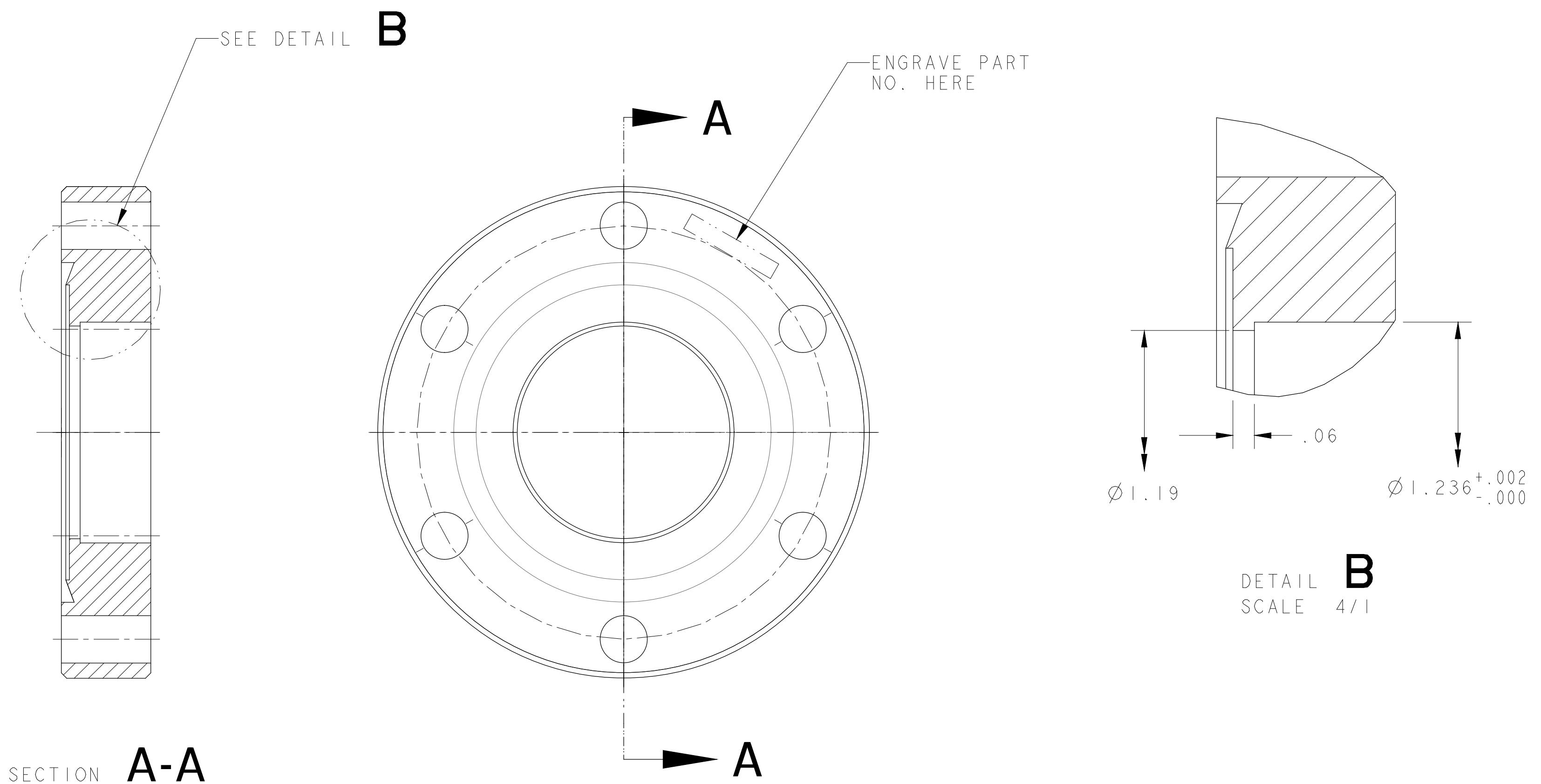
D

C

B

A

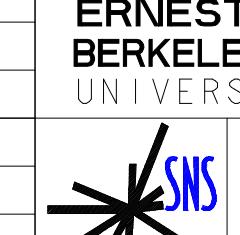
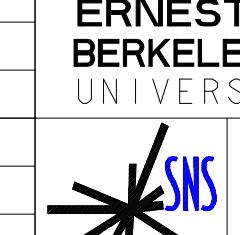
NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



SECTION A-A

				UNLESS OTHERWISE SPECIFIED		SHOP ORDERS		SER. NO.	
				PROJECTION:		ACCT NO.		NO. RECD	DATE ISSD
				TOLERANCES		DEL TO		DATE RECD	
X. X ± 0.1		X. XX ± 0.01	X. XXX ± 0.005	FRAC. ± 1/64	Angles ± 1.0°	FINISH 125/	SURFACE TREATMT		
							IDENT TAG		
							METHOD		
							PROJECT NUMBER		
							NAME N/A		
							PROJECT NAME		
							BY R LA MANTIA	DATE	08-03-01
							CHK BY PAL	DATE	08-03-01
							APR BY DPO	DATE	08-03-01
A	RLMPAL	08-03-01	INITIAL RELEASE						
REV	DWG	CHK	ZONE	DATE					
					CHANGES				

DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

FLANGE, CF, 2-3/4, NR, CL		SS 304	-	
DESCRIPTION		MATERIAL	MAT. LOCATION	
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY				
				
SNS-FES MEBT BEAM PIPES				
CONFLAT, MODIFIED, BP 1 & BP2, MDC 110012				
				
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS
	PART	25B692		
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
			FE3312	25B6943 A

Sheet 1 of 1

Dwg. File: 25B6943 Model File: 25B6943 Rev. J. R. Oberholzer Date: 1/29/2009

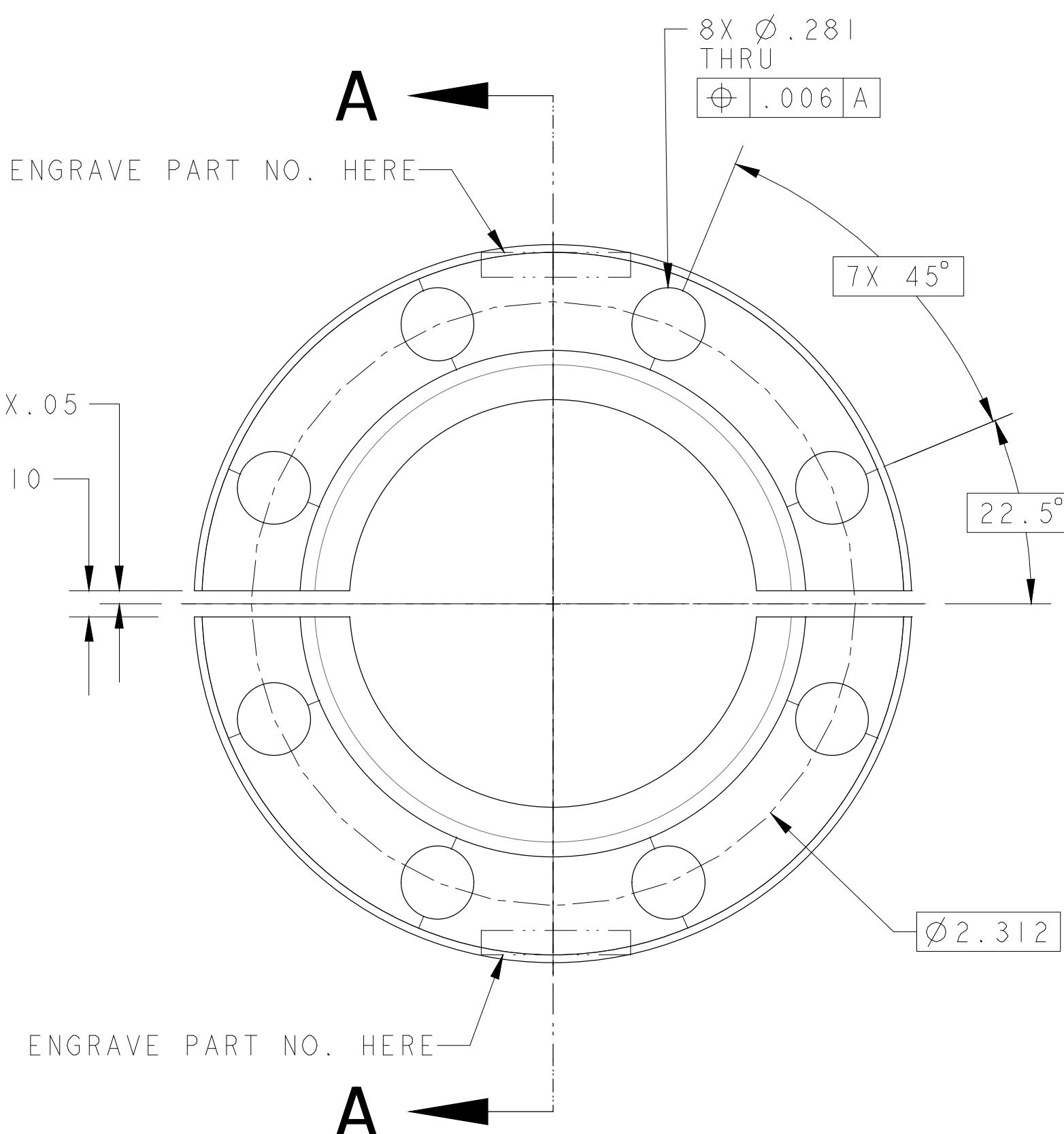
D

C

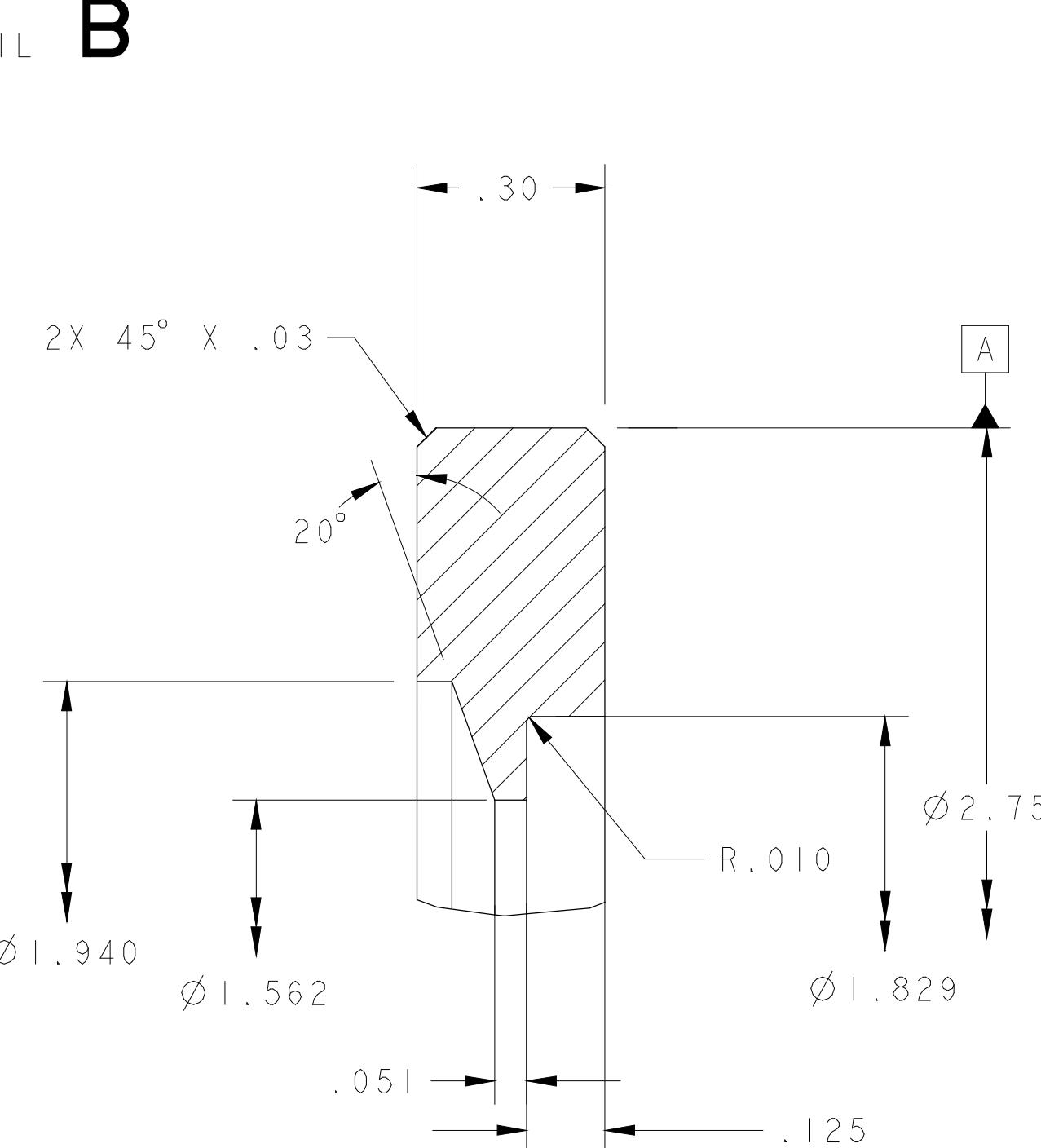
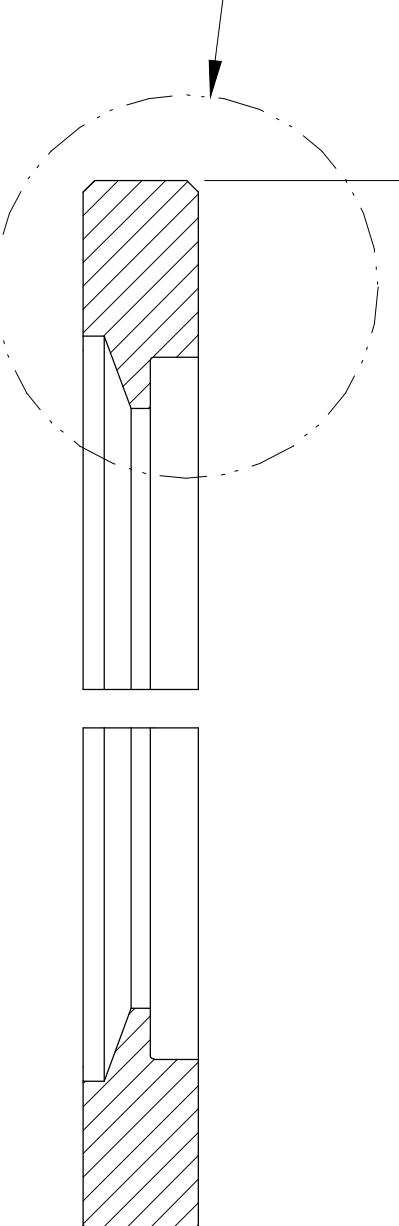
B

A

NOTE:
 1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
 2. FURNISH AS A SET



SEE DETAIL B



DETAIL
SCALE 4/1

B

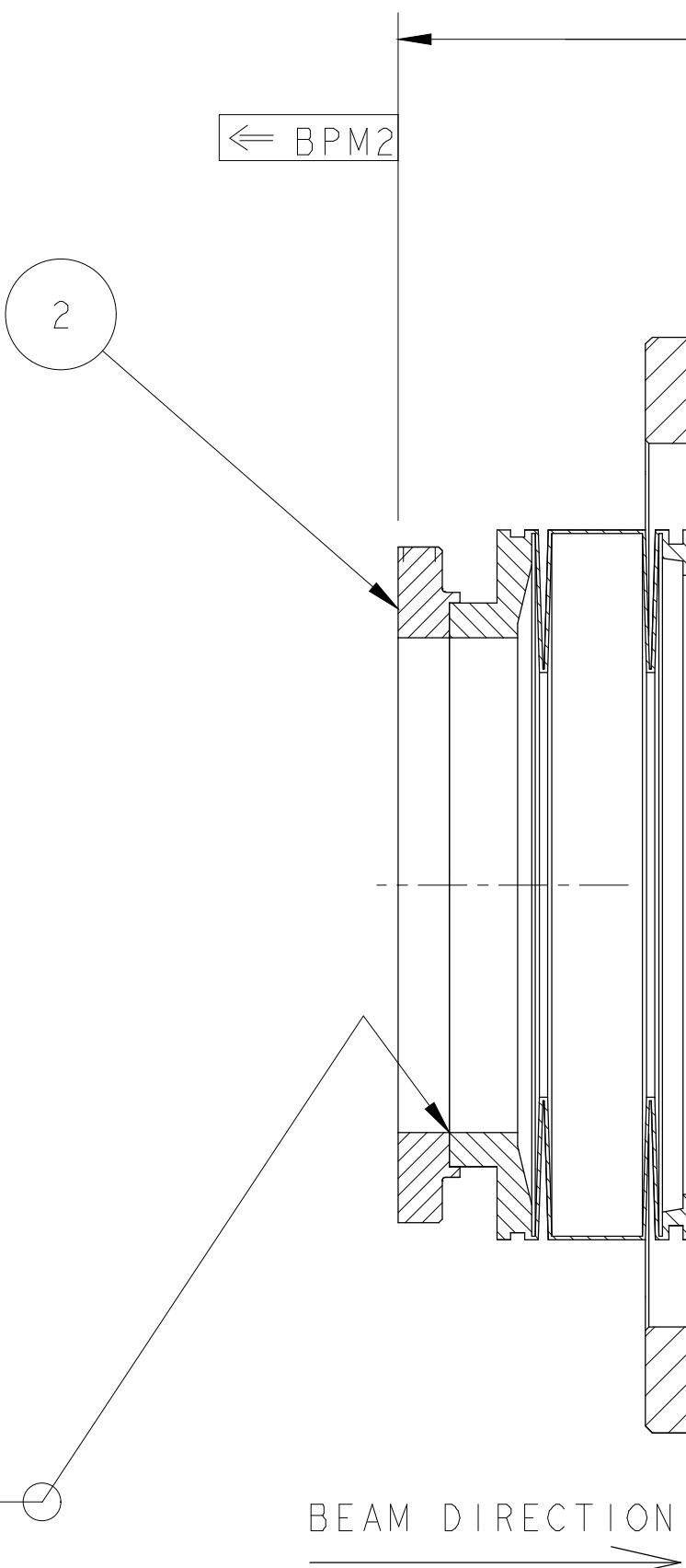
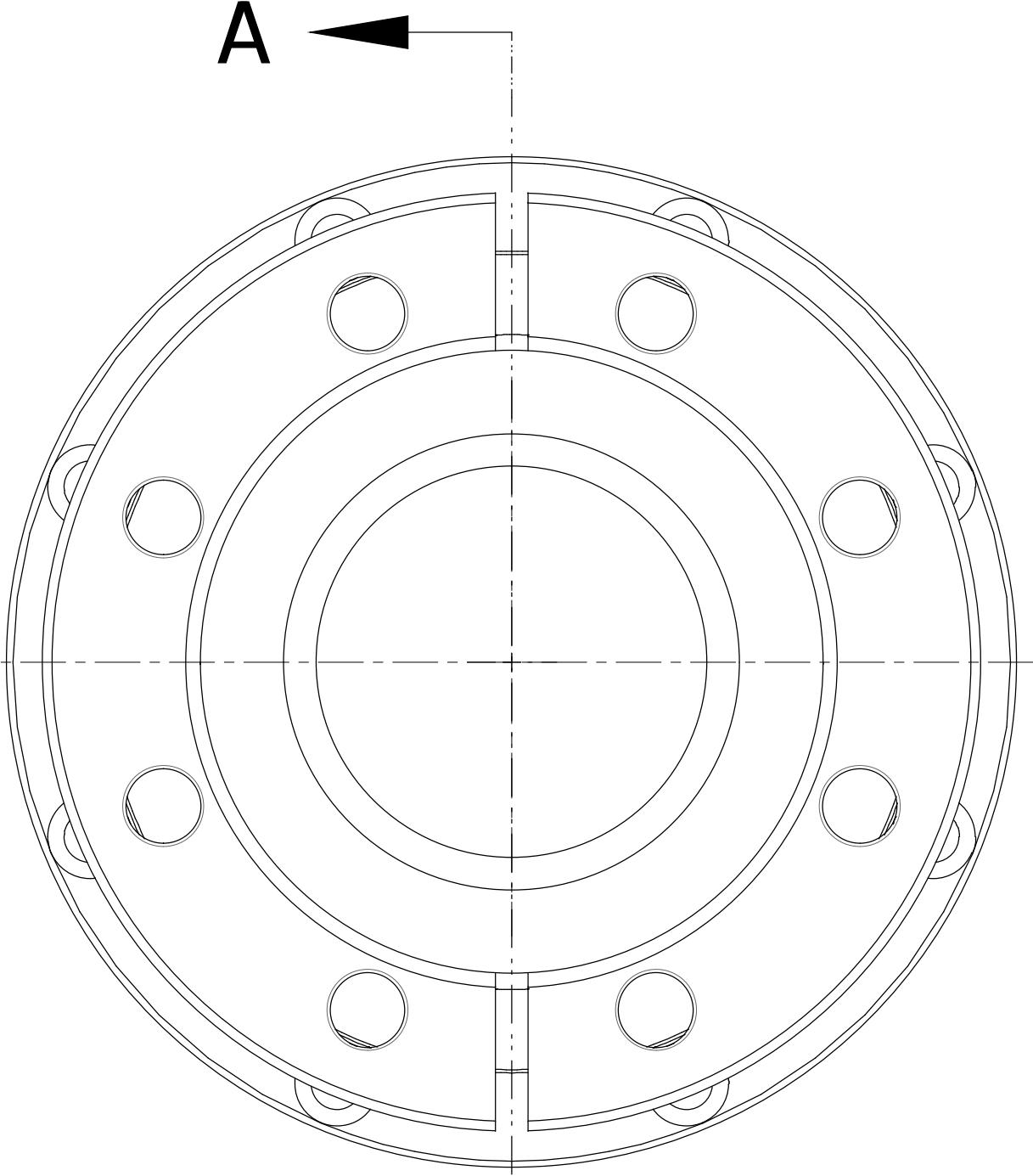
SECTION A-A

D	RLMPAL	08-03-01	REDRAW
C	TG	11-17-00	MODIFIED DIMS AND HOLE TO IMPROVE ASSY MATING
B	TG	01-27-00	ADDED NOTE AND UPDATED TITLEBLOCK
A	TG	12-16-99	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE CHANGES

UNLESS OTHERWISE SPECIFIED
 PROJECTION: X.X ± 0.1 FRAC. ± 1/64 X.XX ± 0.01 Angles ± 1.0° X.XXX ± 0.005 FINISH
 DO NOT SCALE PRINT
 THREADS ARE CLASS 2
 CHAMFER ENDS OF ALL SCREW TRENDS 30°
 CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
 BREAK EDGES .016 MAX. ON MACHINED WORK
 REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
 IN ACCORDANCE WITH ASME Y14.5M & B46.1

DESCRIPTION		SS 304L	MATERIAL	MAT. LOCATION
		ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY	SNS-FES MEBT BEAM PIPES	30 MM BP/ BPM SPLIT FLANGE
SHOP ORDERS	SER - NO.	ACCT NO. REQD	DATE ISSD - REQD	
IDENT TAG	DEL TO		DATE ISSD - REQD	
PROJECT NUMBER	PROJECT NAME	N/A		
NAME	NAME	N/A		
DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS	
PART	25B603			SHEET 1 OF 1
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
	-	FE3312	25B1773	D

NOTE:
 1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
 2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
 3. DIMENSIONS IN INCHES.
 4. SILVER PLATE ALL SCREWS.



SECTION A-A
SPLIT FLANGE OMITTED
FOR CLARITY.

ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
6	-	8	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
5		8	SCR, SCH, 6-40 UNF X .25 LG	SS 18-8
4	25B478	8	SCR, SCH, .25-28 UNF X .61 LG, MODIFIED	SS 18-8
3	25B701	I	SPLIT FLANGE, BP3, BPM2 SIDE	SS 304L
2	25B700	I	SEAL RING, BP3, BPM2 SIDE	SS 304L
1	25B108	I	PROFILE MONITOR BELLOWS ASSY - 30 MM	-

UNLESS OTHERWISE SPECIFIED

PROJECTION:			SER. -
ACCT NO.	NO. REQD	DATE ISSD -	
DEL TO		DATE -	
	REQD		

TOLERANCES

X.XX ± 0.03	Angles ± 1.0°
X.XXX ± 0.010	FINISH $\frac{1}{16}$

DO NOT SCALE PRINT

THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS - FES MEBT
BEAM PIPES
DETAIL ASSEMBLY, BP3 SPOOL

MICROFILMED:
DWG. TYPE SHOWN ON DWG. NO. SIZE REV.
ASSEM 25B610 25B4493 C 1

PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV.
- FE3312 25B4493 C 1

Dwg. No. 25B4493 Rev. Sh. C 1

File: 25B4493 Model File: 25B4493

C	RLMPAL	9/13/01	ADMINISTRATIVE
B	RLMPAL	8/13/01	REDRAWN
A	AZ DO	6/28/01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE

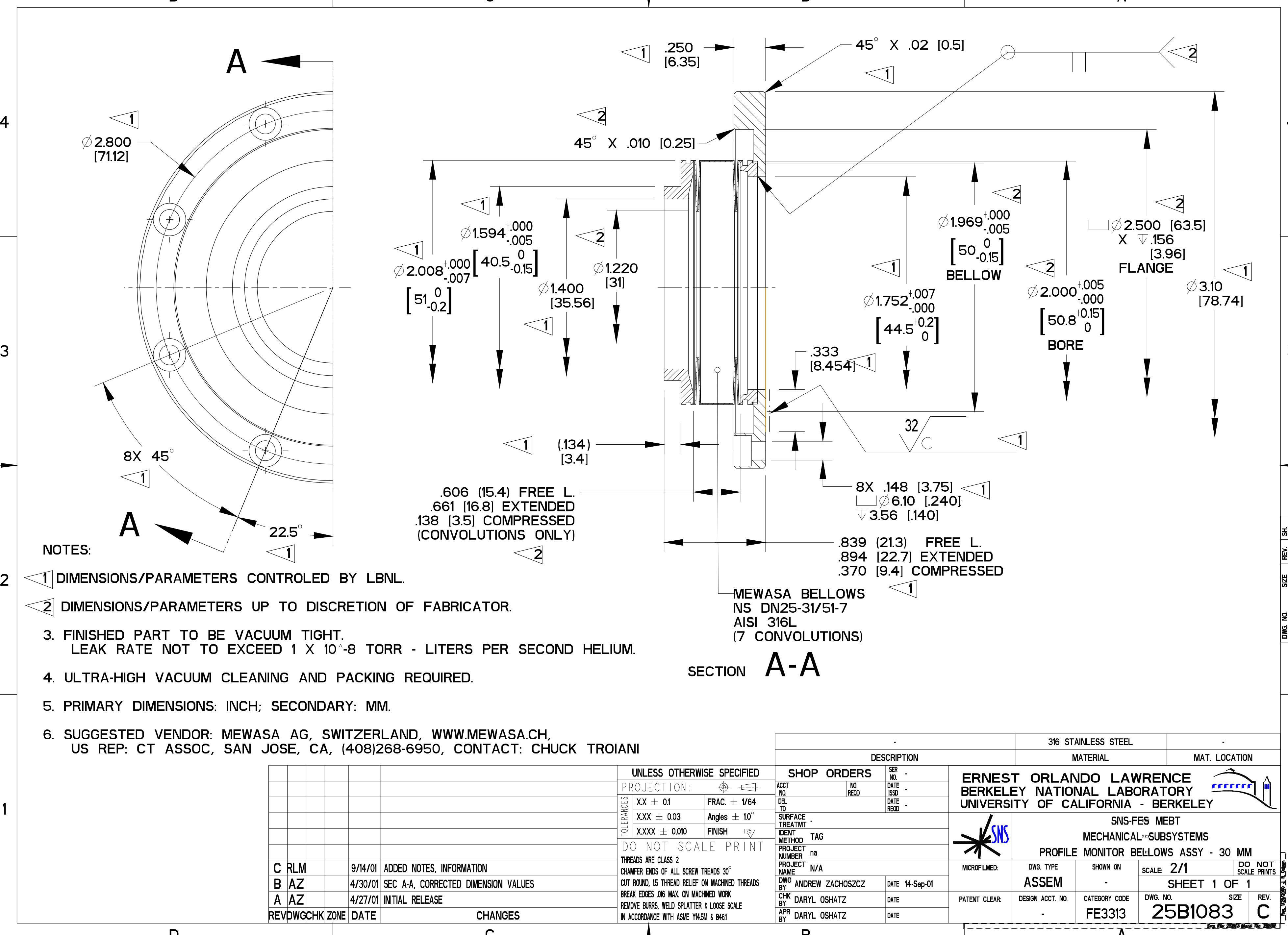
CHANGES

C

B

D

A



NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.

SEE DETAIL

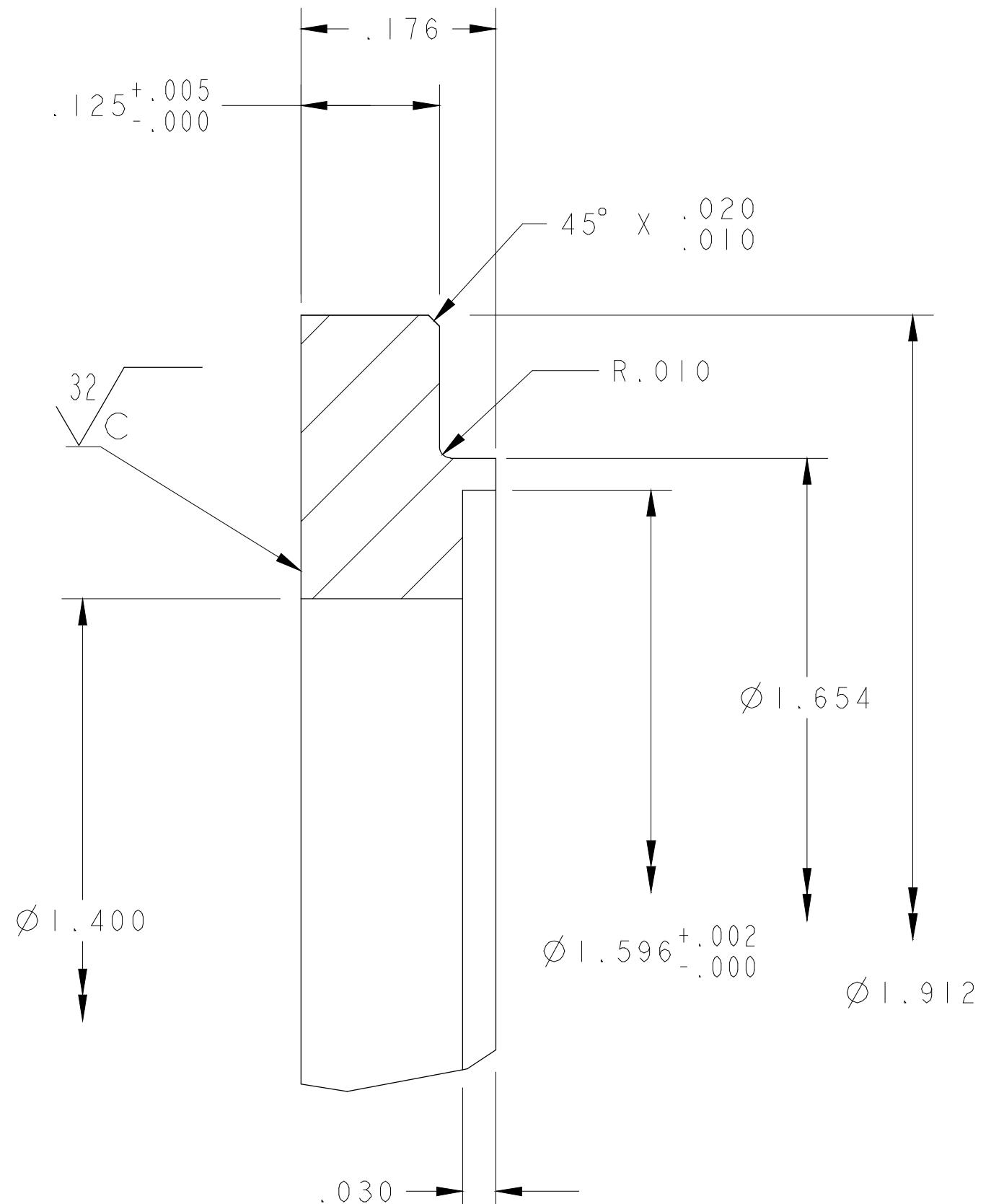
B

ENGRAVE PART NO. HERE

A

SECTION

A-A



DETAIL
SCALE 8/1

UNLESS OTHERWISE SPECIFIED									
PROJECTION:									
TOLERANCES		X.X ± 0.1		FRAC. ± 1/64					
X.XX ± 0.01		Angles ± 1.0°							
X.XXX ± 0.005		FINISH 125							
DO NOT SCALE PRINT									
THREADS ARE CLASS 2									
CHAMFER ENDS OF ALL SCREW TRENDS 30°									
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS									
BREAK EDGES .016 MAX. ON MACHINED WORK									
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE									
IN ACCORDANCE WITH ASME Y14.5M & B46.1									
A	DWG	CHK	ZONE	DATE	INITIAL RELEASE				
REV	DWG	CHK	ZONE	DATE	CHANGES				

DESCRIPTION			SS 304L	MATERIAL	MAT. LOCATION
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY		SNS-FES MEBT BEAM PIPES SEAL RING, BP3, BPM2 SIDE			
SNS					
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS	
	PART	25B698			
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.
			FE3312	25B7003	A

D

C

B

A

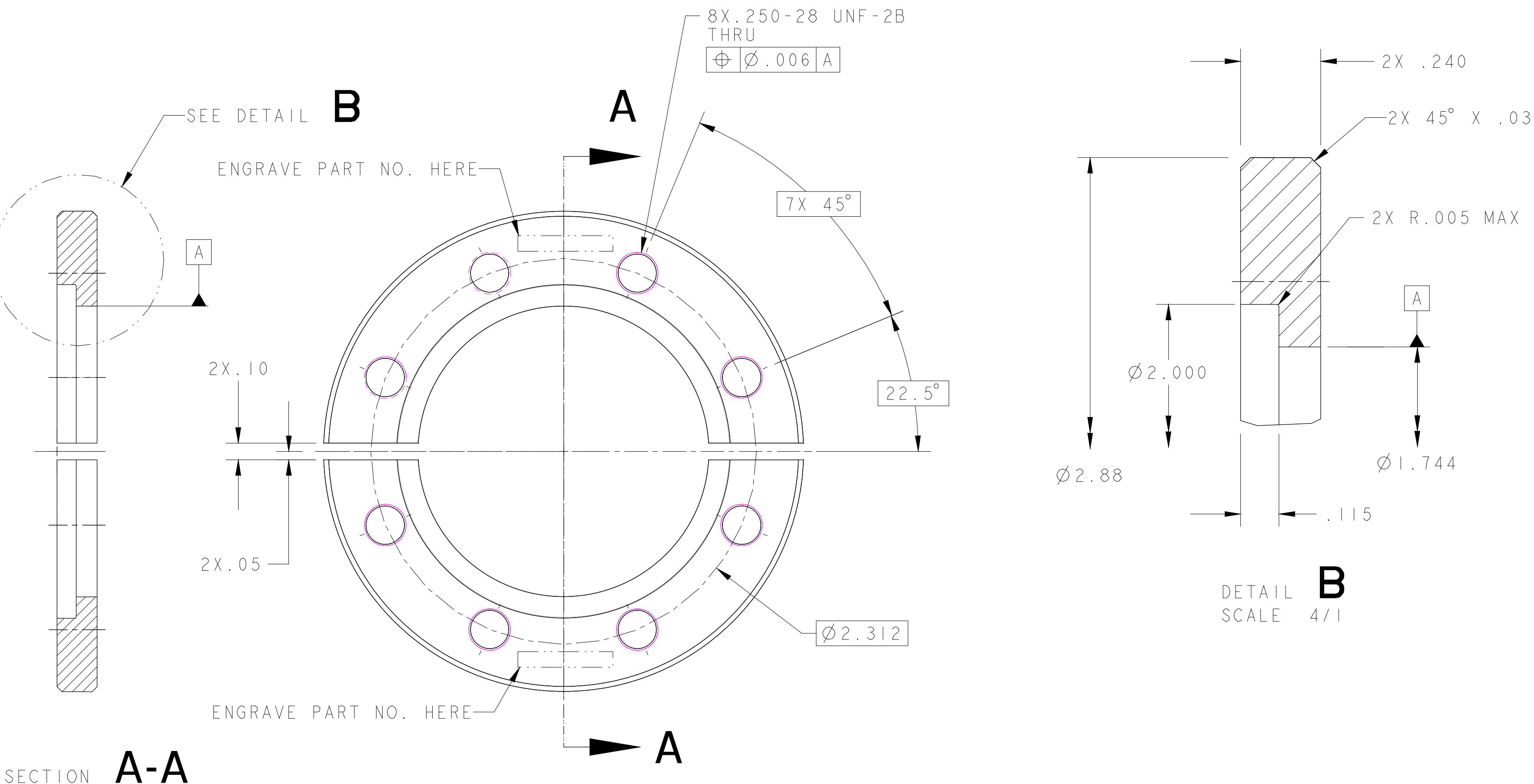
D

C

B

A

NOTE:
 1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
 2. FURNISH AS A SET



SECTION A-A

UNLESS OTHERWISE SPECIFIED

PROJECTION:

TOLERANCES X.X ± 0.1 FRAC. ± 1/64

X.XX ± 0.01 Angles ± 1.0°

X.XXX ± 0.005 FINISH 12/

DO NOT SCALE PRINT

THREADS ARE CLASS 2

CHAMFER ENDS OF ALL SCREW TRENDS 30°

CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS

BREAK EDGES .016 MAX. ON MACHINED WORK

REMOVE BURRS, WELD SPLATTER & LOOSE SCALE

IN ACCORDANCE WITH ASME Y14.5M & B46.1

SHOP ORDERS

SER. NO. -

NO. RECD DATE ISSD -

DEL TO DATE -

REQD

RECD

**ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY**
 UNIVERSITY OF CALIFORNIA - BERKELEY

SS 304L

SIZE REV. SH.

25B7013 A 1

DESCRIPTION MATERIAL MAT. LOCATION

PROJECT NUMBER na

NAME N/A

DWG. TYPE SHOWN ON

PART 25B698 SCALE: 2/1 DO NOT

PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV.

APR DPO BY FE3312 25B7013 A

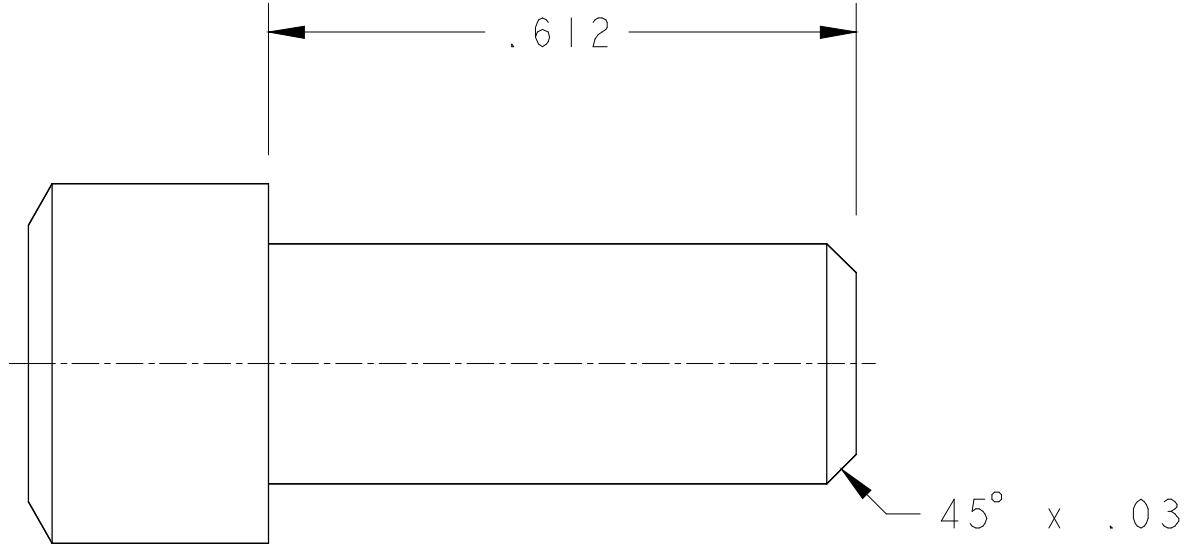
Rev. J. R. Oberly Date: 7-29-2009

A	DWG	CHK	ZONE	DATE	INITIAL RELEASE	REV	DWG	CHK	ZONE	DATE	CHANGES
<i>File: 25B701 Model File: 25B701 Rev. J. R. Oberly Date: 7-29-2009</i>											

ACCT. NO.	NO. RECD	DATE ISSD
DEL TO	DATE -	REQD
SURFACE TREATMT		
IDENT TAG		
METHOD		
PROJECT NUMBER		
PROJECT NAME		
DWG. BY R. LA MANTIA DATE 24-Jul-01		
CHK BY PAL DATE 24-Jul-01		
APR BY DPO DATE 24-Jul-01		
MICROFILMED:	DWG. TYPE	SHOWN ON
	PART	25B698
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE
	-	FE3312
DWG. NO. SIZE REV.		
25B7013 A		

NOTE:

1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
2. SILVER PLATE



REV	DWG	CHK	DATE	CHANGES			DESCRIPTION		MATERIAL	
UNLESS OTHERWISE SPECIFIED									SS 18-8	
PROJECTION:				SHOP ORDERS			SER. NO. -			
TOLERANCES	X. XX ±0.1	FRAC. ±1/64		NOTC NO.	NO. RECD.	DATE ISSD.				
	X. XX ±0.03	Angles ±1.0°		REL TO		DATE REC'D.				
	X. XXX ±0.010	FINISH 125/		SURFACE TREATMT						
DO NOT SCALE PRINT				IDENT. TAG						
THREADS ARE CLASS 2 CHAMFER ENDS OF ALL SCREW THREADS 30° CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES .016 MAX. ON MACHINED WORK REMOVE BURRS, MILD SPLATTER & LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M & B4.1				PROJECT NUMBER						
				PROJECT NAME						
				DWG. BY R LA MANTIA DATE 13-Sep-01						
				CHK PAL DATE 14-Sep-01						
				APR DPO DATE						
MICROFILED:			DWG. TYPE	SHOWN ON	SCALE: 5/1	DO NOT SCALE PRINTS				
			PART	25B449			SHEET 1 OF 1			
			PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.		
				-		FE3312	25B4781	A		

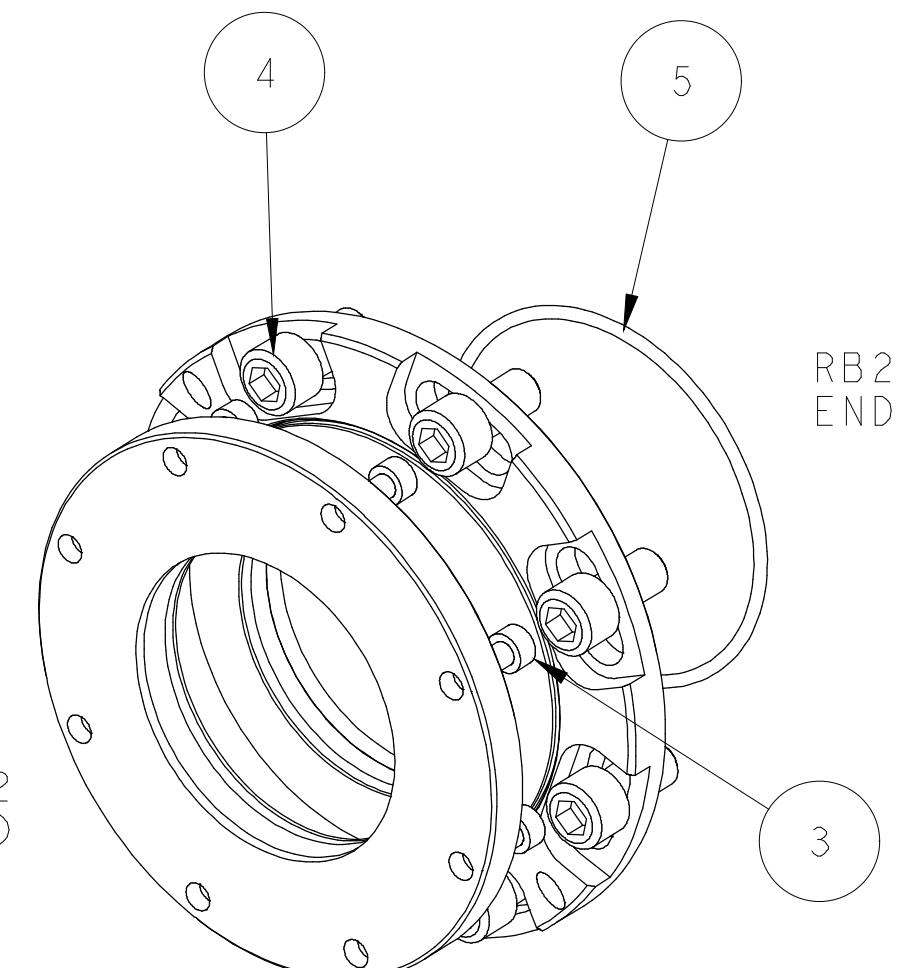
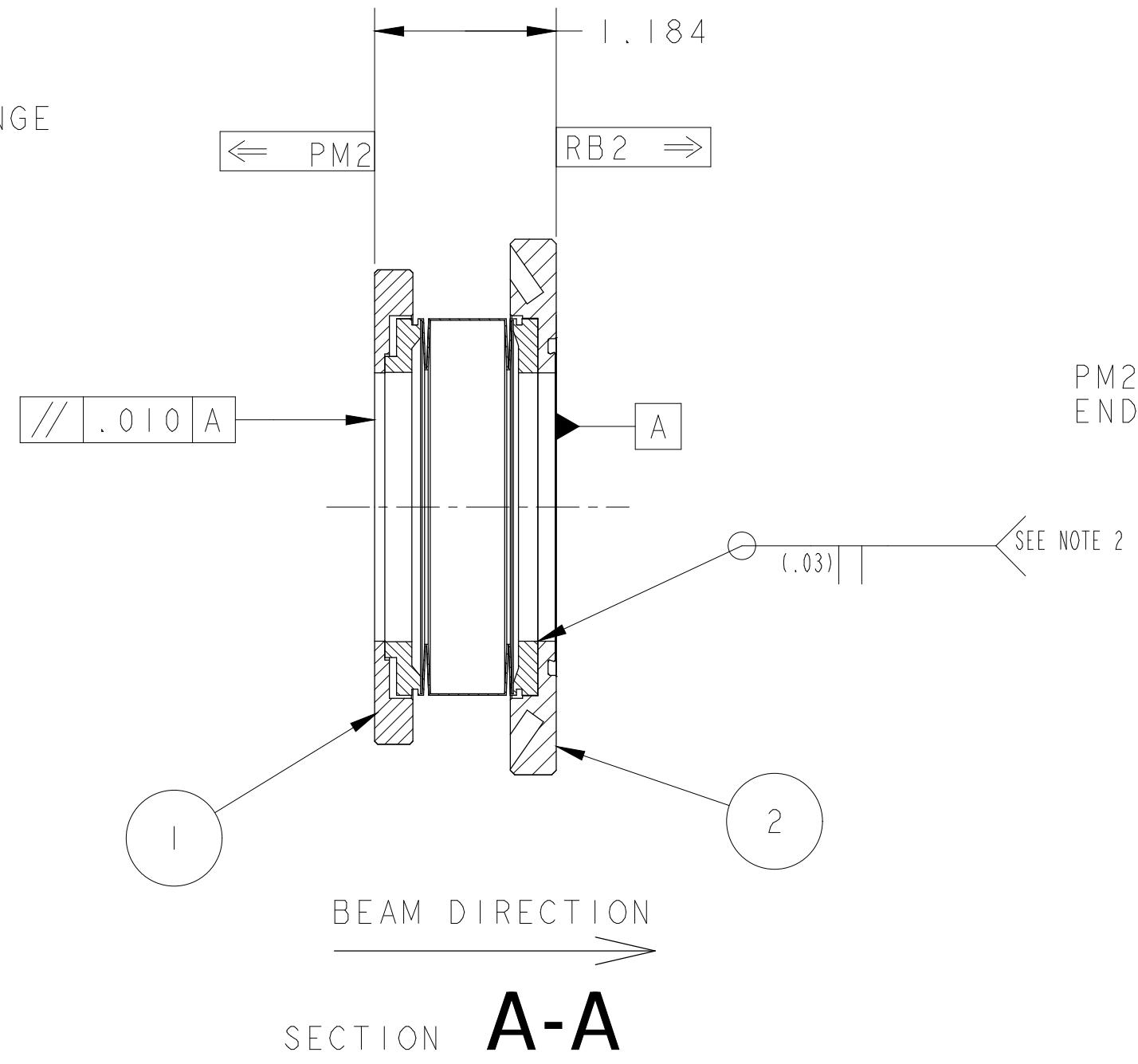
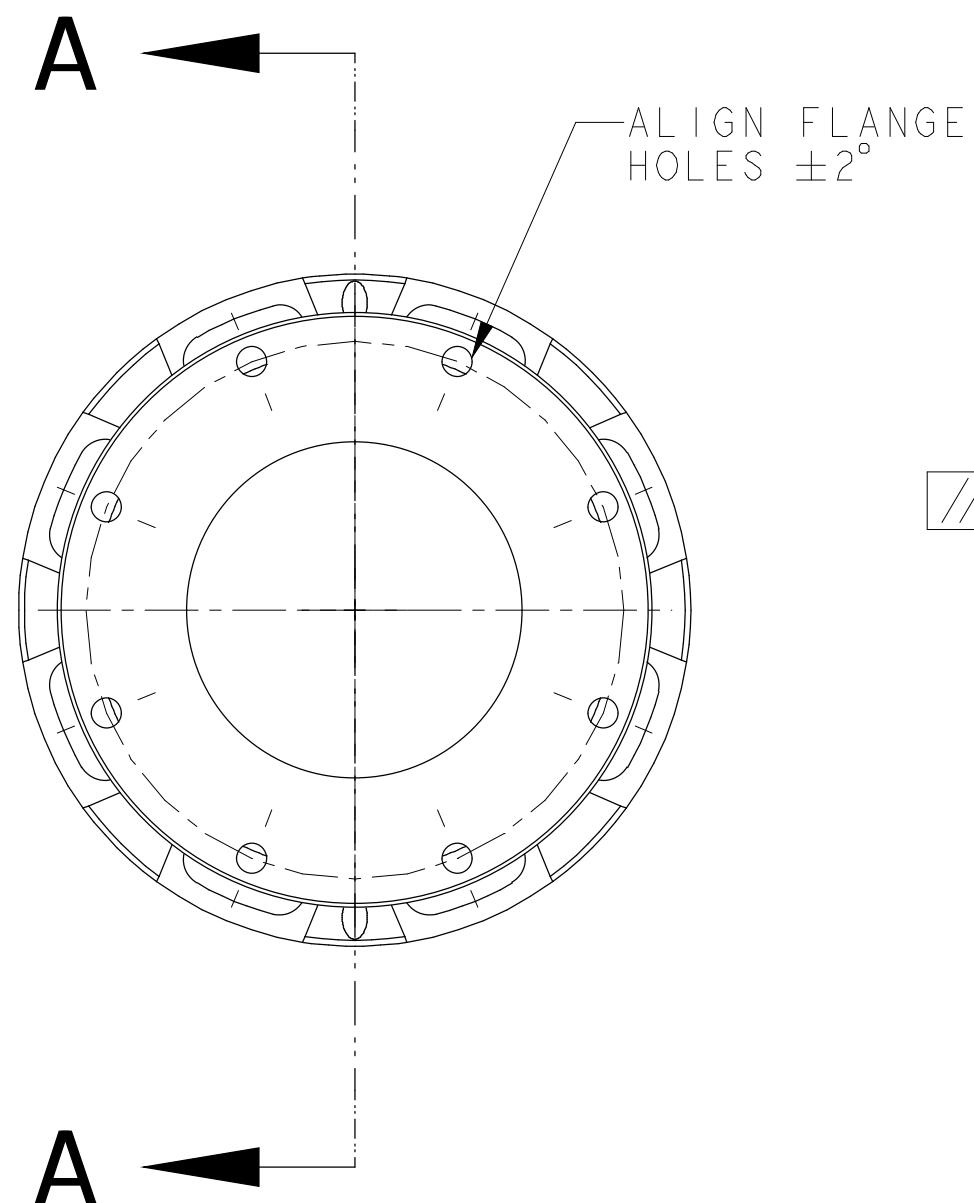
ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES

SCR, SCH, .25-28 UNF X .61 LG, MODIFIED

Dwg. File: 25B478 Model File: 25B478 Rev. L - 1/29/2000 J. R. - 010001

NOTE:
 1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
 2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
 3. DIMENSIONS IN INCHES.
 4. SILVER PLATE ALL SCREWS.



DWG. NO. SIZE REV. SH. 25B4763 B 1

1

ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
5	-	1	O-RING, 2-033	VITON
4		8	SCR, SCH, .25-28 UNF X .50 LG	SS 18-8
3		8	SCR, SCH, 6-40 UNF X .25 LG	SS 18-8
2	25B447	1	40 MM FLANGE	316L SS PRODEC
1	25B109	1	PROFILE MONITOR BELLows ASSY - 40 MM	-

1

UNLESS OTHERWISE SPECIFIED				
PROJECTION:				SHOP ORDERS SER -
X.XX ± 0.1	FRAC. ± 1/64			ACCT. NO. DATE ISSD -
X.XX ± 0.03	Angles ± 1.0°			DEL. TO DATE -
X.XXX ± 0.010	FINISH 10%			REQD
DO NOT SCALE PRINT				
THREADS ARE CLASS 2				
CHAMFER ENDS OF ALL SCREW TREADS 30°				
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS				
BREAK EDGES .016 MAX. ON MACHINED WORK				
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE				
IN ACCORDANCE WITH ASME Y14.5M & B46.1				
B	RLMPAL	8/24/01	REDRAW	
A	AZ	DO	7/9/01	INITIAL RELEASE
REV	DWG	CHK	ZONE	DATE
				CHANGES

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES
DETAIL ASSEMBLY, BP4 SPOOL



MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 1/1	DO NOT SCALE PRINTS
	ASSEM	25B611		
			SHEET 1 OF 1	

Rev. J. R. Obern

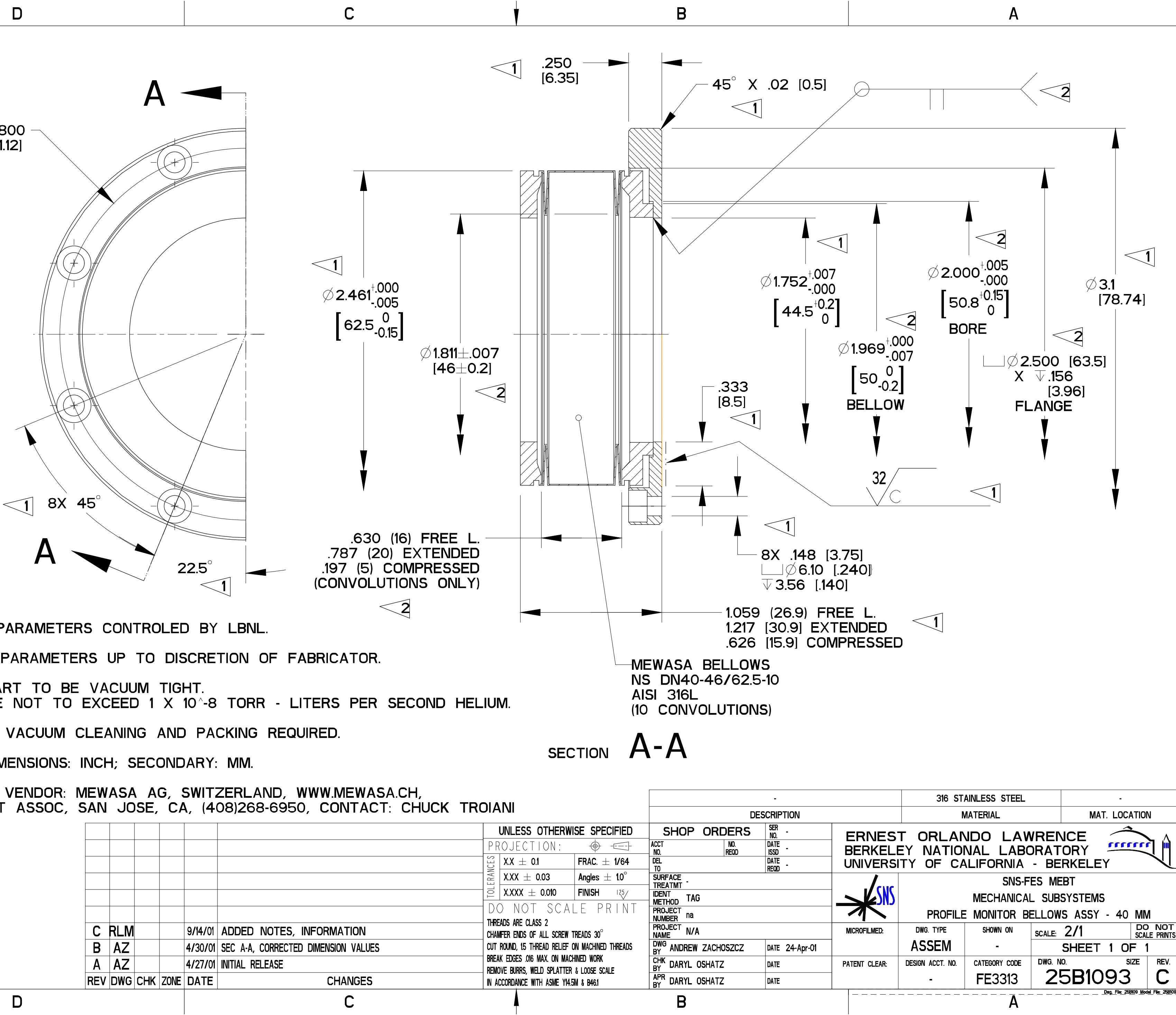
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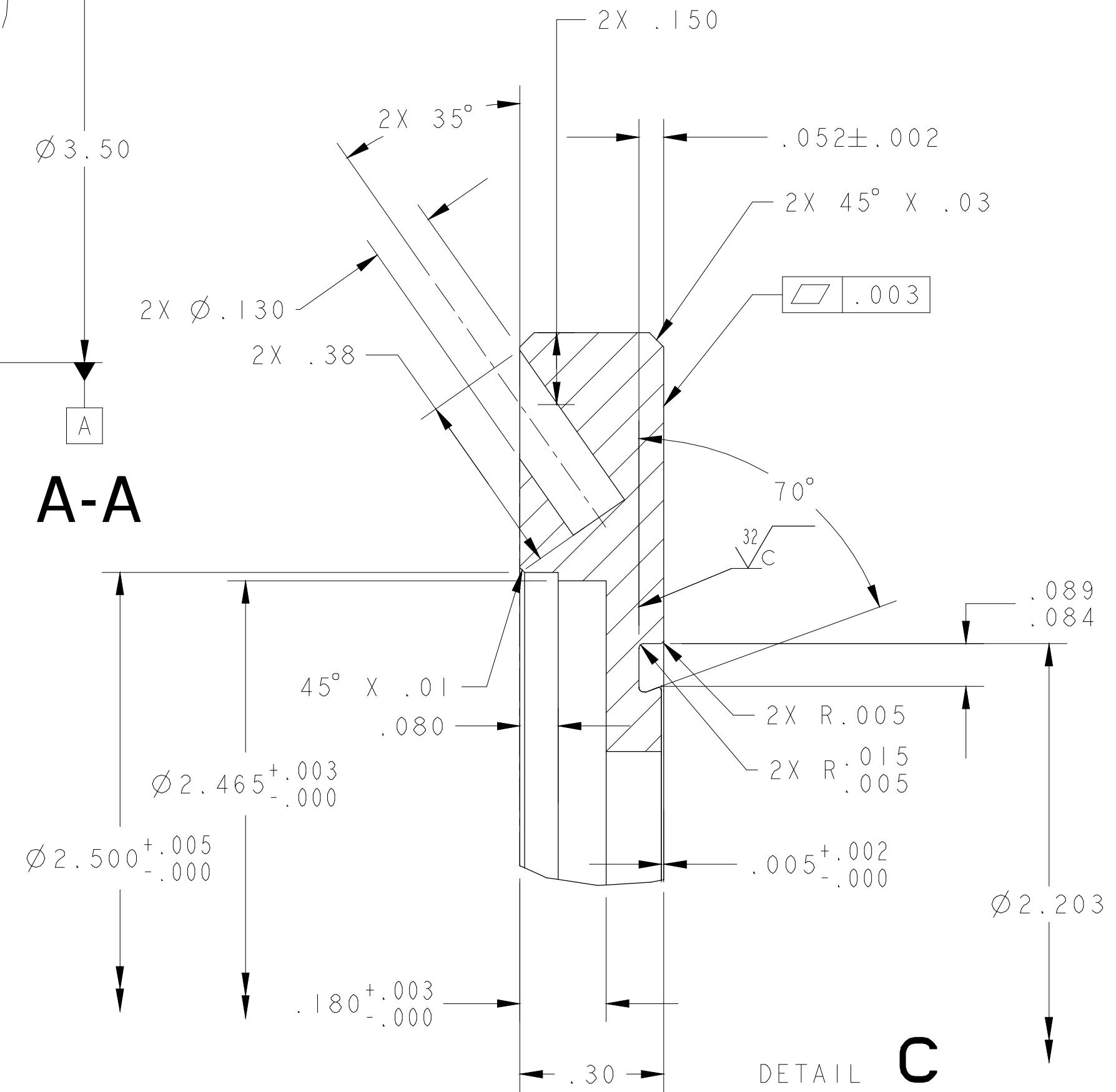
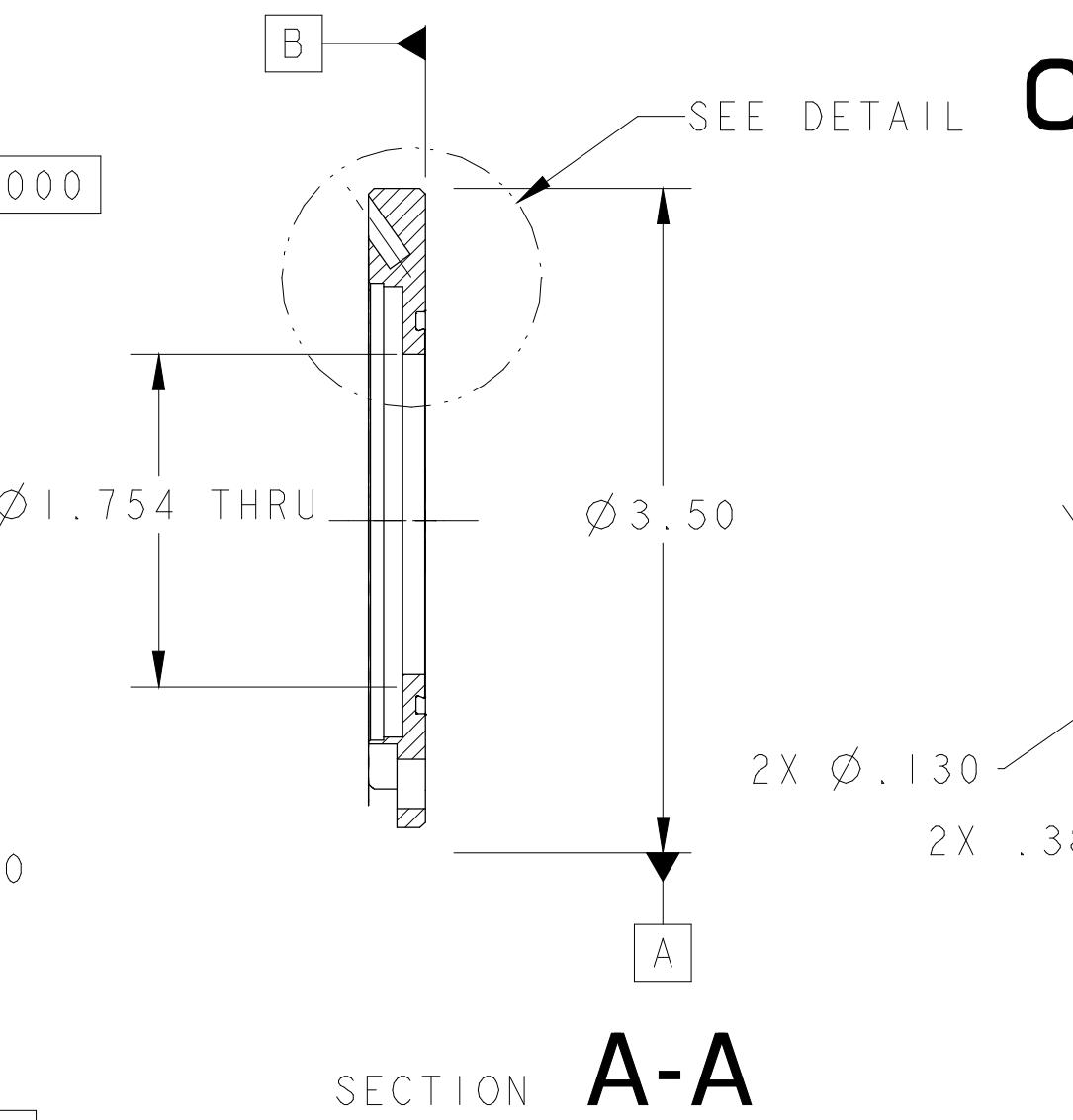
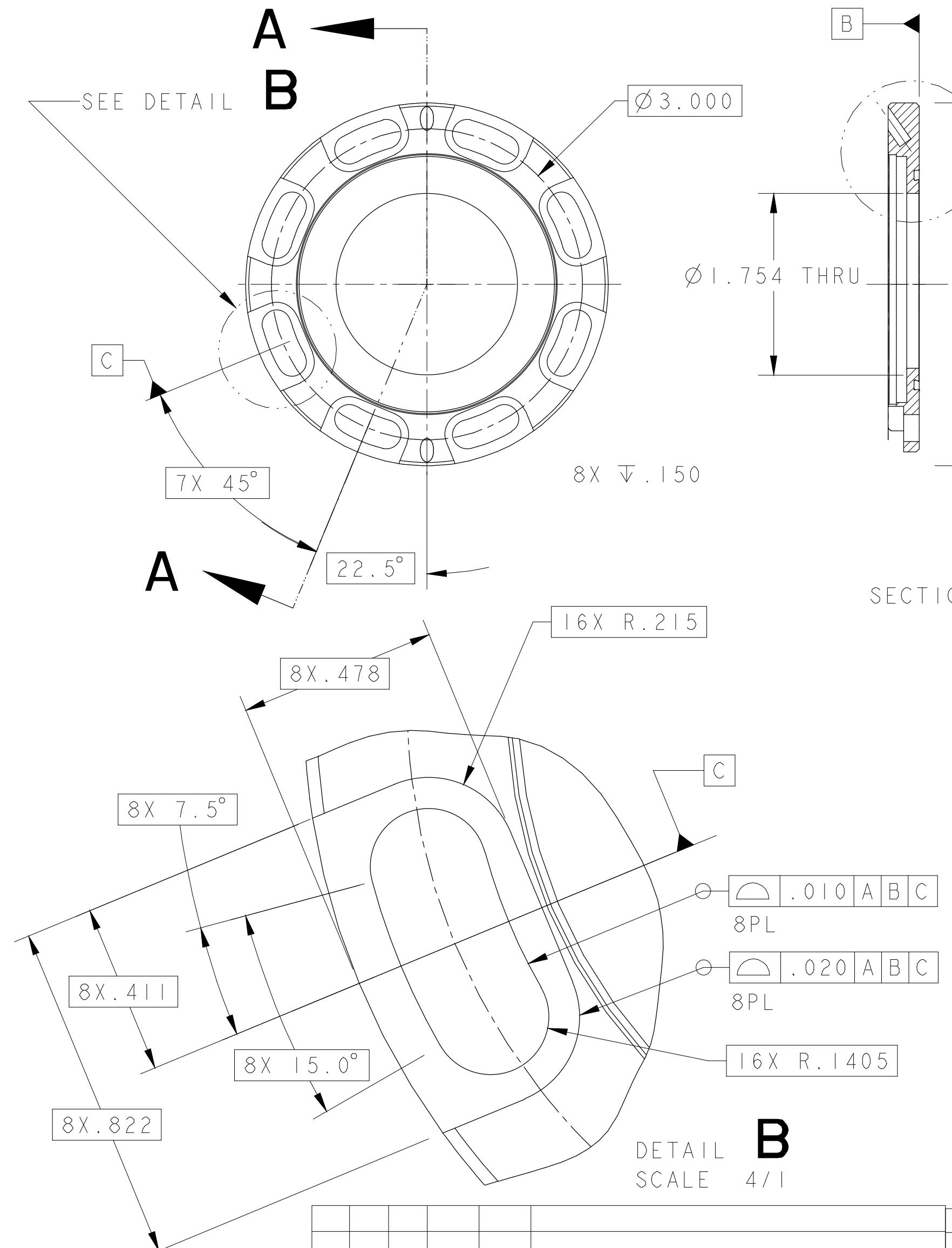
D

C

B

A





B	RLMPAL	A1 B2 D2 C4/A2	8/14/01	OVERALL THICKNESS 2 PLACE DECIMALS REDIMENSION O-RING GROOVE SLOT WIDTH TO R.1405, REDEFINE SLOT BORE, REDIMENSION CHNG THRU Ø TO 1.754, CHANGED BORE √ TO .180
A	AZ	DO	7/01/01	INITIAL RELEASE
REV	DWG	CHK	ZONE	DATE

CHANGES

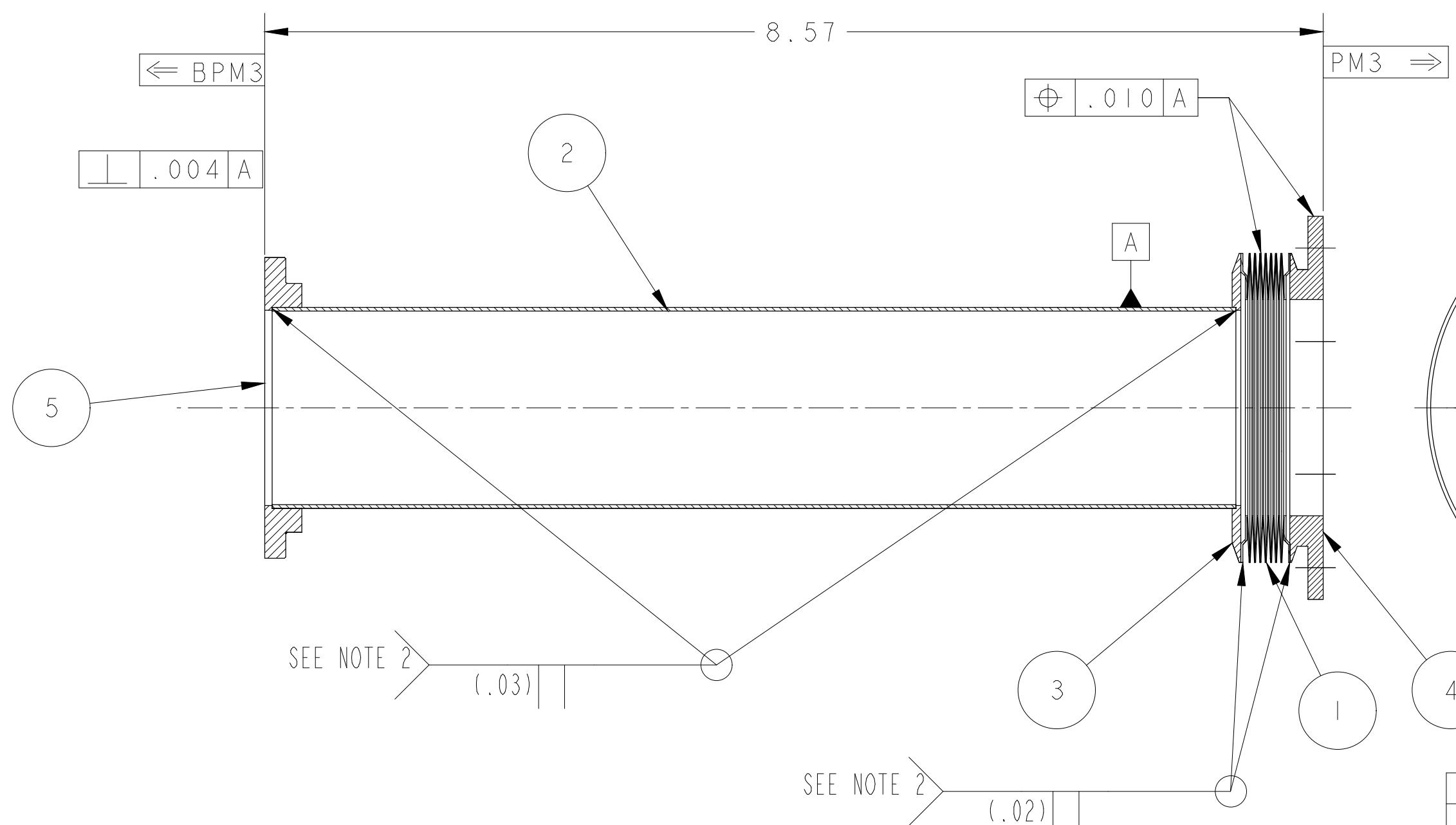
UNLESS OTHERWISE SPECIFIED
PROJECTION: TOLERANCES: X.X ± 0.1, X.XX ± 0.01, X.XXX ± 0.005
FINISH: 12/2
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

5/16" PLATE		316L SS PRODEC		MAT. LOCATION
DESCRIPTION		MATERIAL		
SHOP ORDERS	SER - NO.	ACCT NO.	NO. RECD	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY
FRAC. ± 1/64	DATE ISSD -	DEL TO	DATE RECD	SNS - FES MEBT MECHANICAL SUBSYSTEMS 40 MM FLANGE
X. XX ± 0.01 Angles ± 0.5°				
X. XXX ± 0.005				
FINISH: 12/2				
DO NOT SCALE PRINT				
THREADS ARE CLASS 2				
CHAMFER ENDS OF ALL SCREW TREADS 30°				
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS				
BREAK EDGES .016 MAX. ON MACHINED WORK				
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE				
IN ACCORDANCE WITH ASME Y14.5M & B46.1				
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 1/1	DO NOT SCALE PRINTS
	PART	-		
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
	-	FE3313	25B4473	B

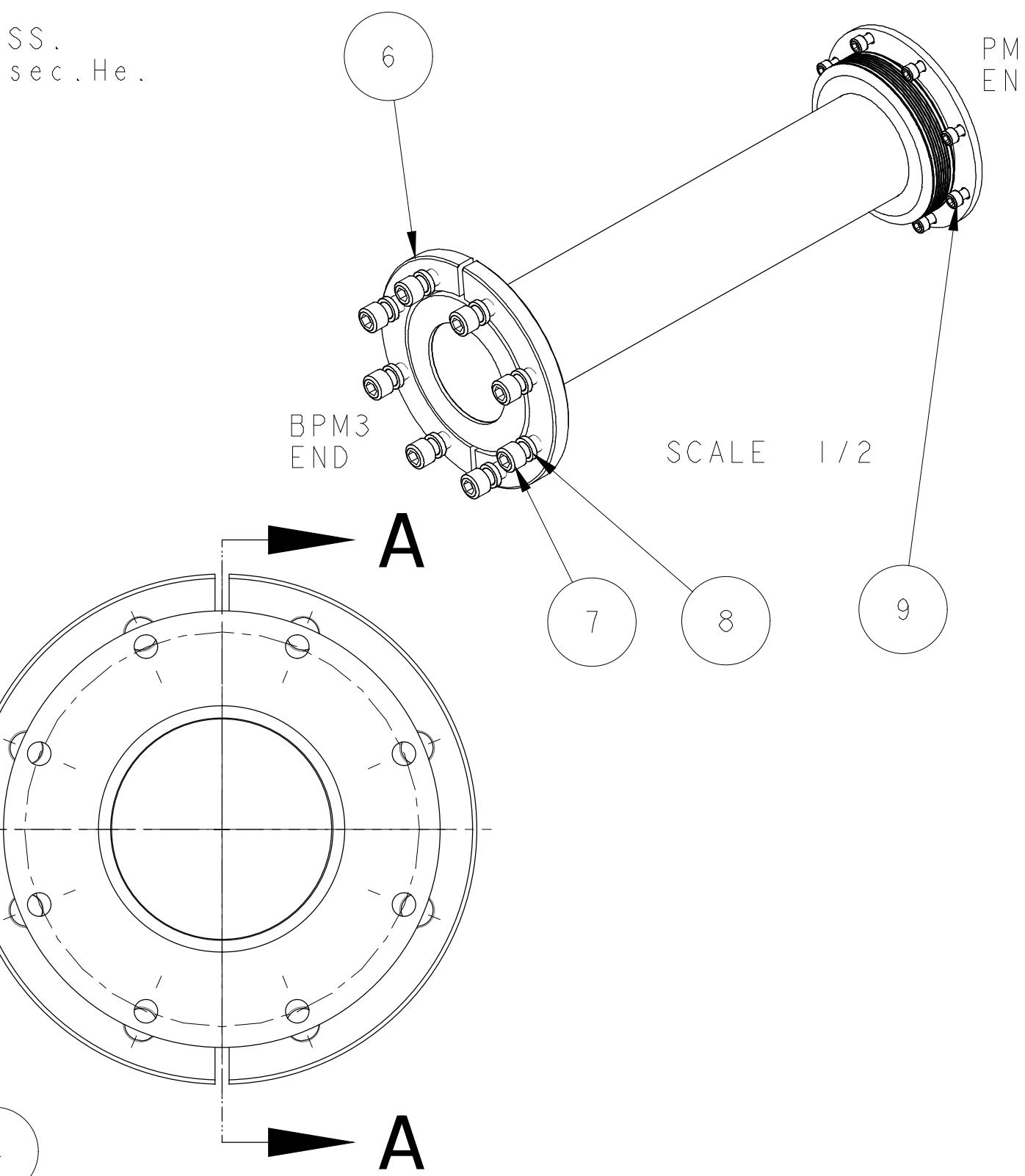
D C B A

NOTE:

1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
3. DIMENSIONS IN INCHES.
4. SILVER PLATE ALL SCREWS.



SECTION A-A
(SPLIT FLANGE OMITTED
FOR CLARITY)



ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
9		8	SCR, SCH, 6-40 UNF X .25 LG	SS 18-8
8	-	8	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
7		8	SCR, SCH, .25-28 UNF X .75 LG	SS 18-8
6	25B691	1	SPLIT FLANGE, BP5, BPM3 SIDE	SS 304L
5	25B690	1	SEAL RING, BP5, BPM3 SIDE	SS 304L
4	25B689	1	FLANGE, BP5, PM3 SIDE	SS 304L
3	25B688	1	END PIECE, 40MM	SS 304L
2	25B4774-06	1	CUT LIST, BEAM TUBES	SS 304
1	25B172	1	40 MM BPM BELLOWS	347 STAINLESS STEEL

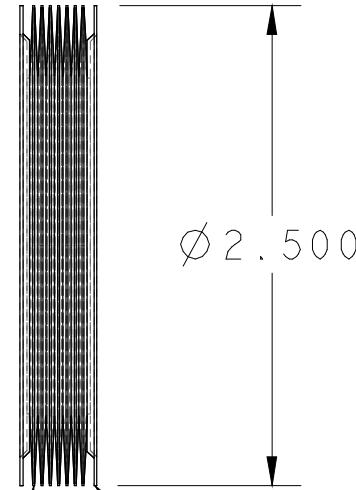
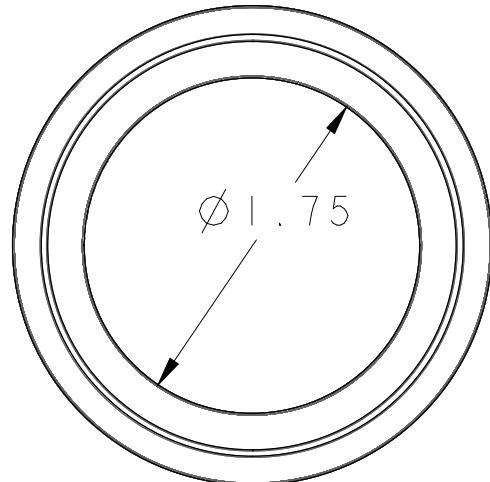
UNLESS OTHERWISE SPECIFIED				
PROJECTION:				SHOP ORDERS
X. X ± 0.1		FRAC. ± 1/64		SER. NO. - ACCT. NO. REQD. DATE ISSD - DEL TO DATE - REQD
X. XX ± 0.02		Angles ± 1.0°		SURFACE TREATMT - IDENT TAG
X. XXX ± 0.005		FINISH 12/2		METHOD TAG PROJECT NUMBER NAME N/A PROJECT NAME N/A
DO NOT SCALE PRINT THREADS ARE CLASS 2 CHAMFER ENDS OF ALL SCREW TREADS 30° CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES .016 MAX. ON MACHINED WORK REMOVE BURRS, WELD SPLATTER & LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M & B46.1				
B	09-21-01	ADMINISTRATIVE	DWG. TYPE ASSEM	SHOWN ON 25B611
A	08-24-01	INITIAL RELEASE	DATE 08-24-01	SCALE: 1/1 DO NOT SCALE PRINTS
REV	DWG	CHK	ZONE	SHEET 1 OF 1
				ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY
				SNS-FES MEBT BEAM PIPES
				DETAIL ASSEMBLY, BEAM PIPE 5
				dwg. file: 25B687 Model file: 25B687

ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
9		8	SCR, SCH, 6-40 UNF X .25 LG	SS 18-8
8	-	8	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
7		8	SCR, SCH, .25-28 UNF X .75 LG	SS 18-8
6	25B691	1	SPLIT FLANGE, BP5, BPM3 SIDE	SS 304L
5	25B690	1	SEAL RING, BP5, BPM3 SIDE	SS 304L
4	25B689	1	FLANGE, BP5, PM3 SIDE	SS 304L
3	25B688	1	END PIECE, 40MM	SS 304L
2	25B4774-06	1	CUT LIST, BEAM TUBES	SS 304
1	25B172	1	40 MM BPM BELLOWS	347 STAINLESS STEEL

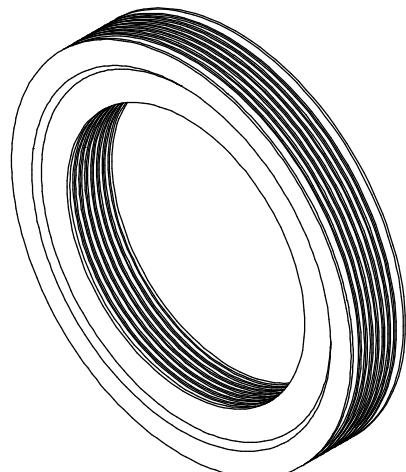
D C B A

NOTES

1. STANDARD BELLOWS P/N: 250-175-1/2-B*B* *H=2.50 in
2. DRAWING FOR PRICING QUOTATION ONLY.

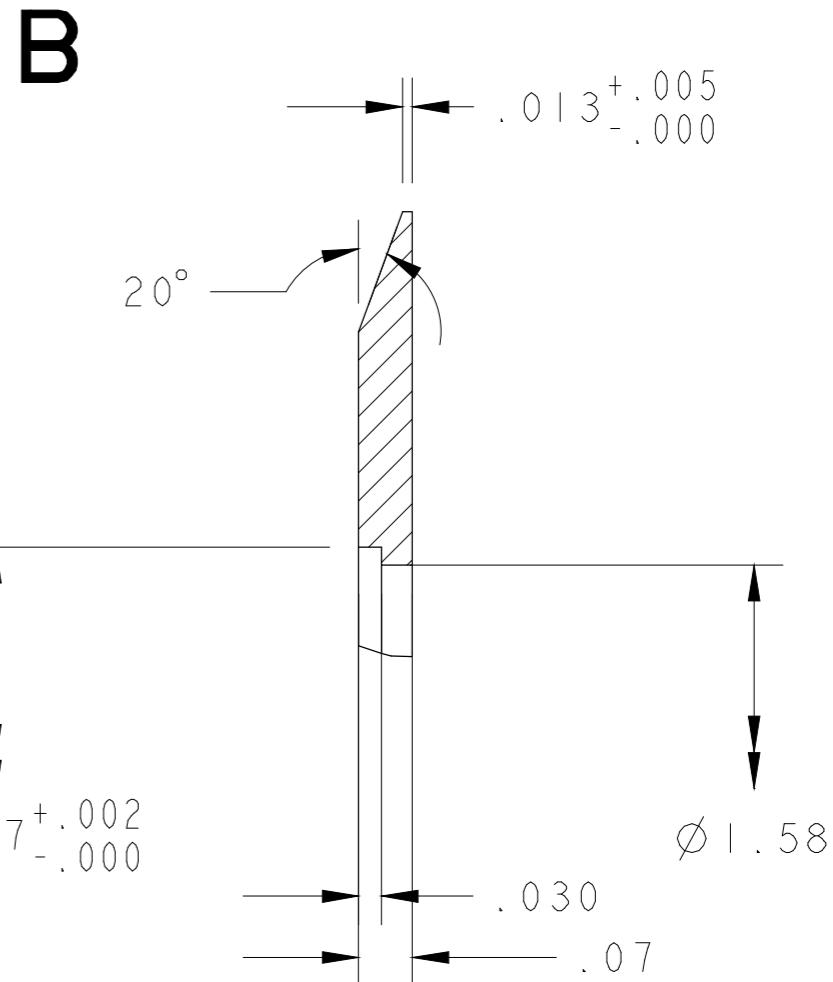
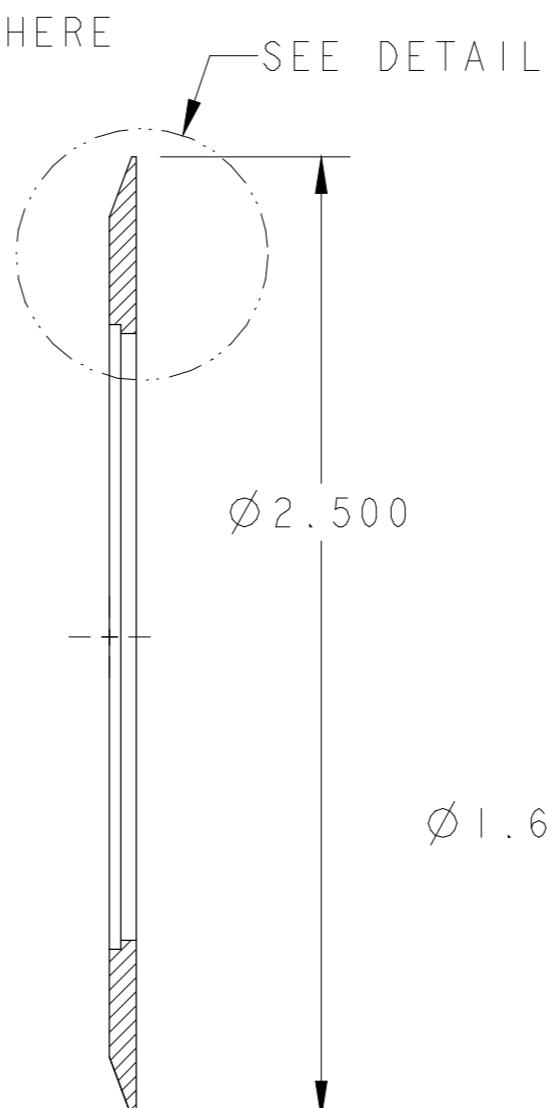
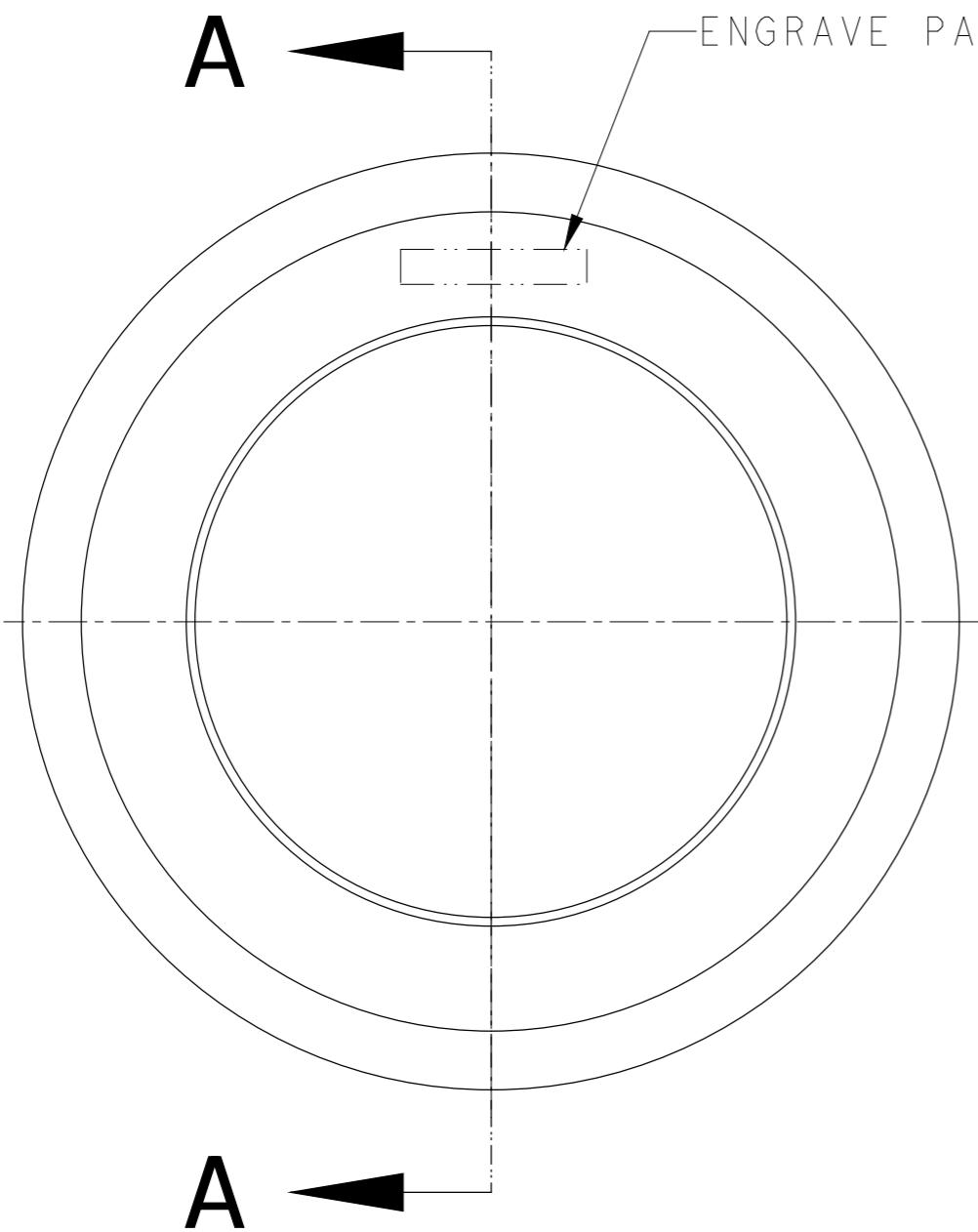


250-175 BELLows
1/2 SEGMENT.



STYLE "B" END
FLANGE, BOTH SIDES

Material	347 STAINLESS STEEL			
Unless Otherwise Noted	Rev	Dwn	Date	Changes
.X±0.1 .XX±0.01 .XXX±0.005 X.X°±0.5				
Break Edges .016 Max on Machined Work				
Remove Burrs, Weld Splatter & Loose Scale				
In Accordance With ASME Y14.5M 1994 & B46.1				
Account Number	Finish	-		
Date Issued	Date Recd	-		
Number Required	Deliver To		Do Not Scale Prints	Drawing Scale
Surface Treatment	Identif Method	-	Patent Clear	1/1
Drawn By TREVOR GOULDING	Date	5-Jan-00	Category FE3313	Code
Check By DARYL OSHATZ	Date	9-Jan-00	Micro-filmed	25B184
			Shown on	Dwg. No.
			Dwg No.	Size
			XXXX-XX	Rev
				25B172 1 B



DETAIL
SCALE 4/1

NOTE:

1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.

				UNLESS OTHERWISE SPECIFIED	SHOP ORDERS	SER NO.	
				PROJECTION:	ACCT NO.	NO. REQD	DATE ISSD
				TOLERANCES X.X ± 0.1 FRAC. ± 1/64	DEL TO		DATE REQD
				X.XX ± 0.01 Angles ± 1.0°			
				X.XXX ± 0.005 FINISH	SURFACE TREATMT		
				DO NOT SCALE PRINT	IDENT TAG		
				THREADS ARE CLASS 2	PROJECT N/A		
				CHAMFER ENDS OF ALL SCREW TREADS 30°	PROJECT NAME N/A		
				CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS	DWG. TYPE	SHOWN ON	DO NOT SCALE PRINTS
B	PAL	DPO	8/9/01	2.500 OD WAS OMITTED	BY R LA MANTIA	DATE 08-03-01	SCALE: 2/1
A	RLMPAL	08-03-01	INITIAL RELEASE		CHK BY PAL	DATE 08-03-01	SHEET 1 OF 1
REV	DWG	CHK	ZONE DATE	CHANGES	APR BY DPO	DATE 08-03-01	SIZE REV.

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY		SNS-FES MEBT BEAM PIPES END PIECE, 40MM
MICROFILMED:	DWG. TYPE	SHOWN ON
	PART	25B687
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE
	-	FE3312
DWG. NO.	SIZE	REV.
25B6882	B	

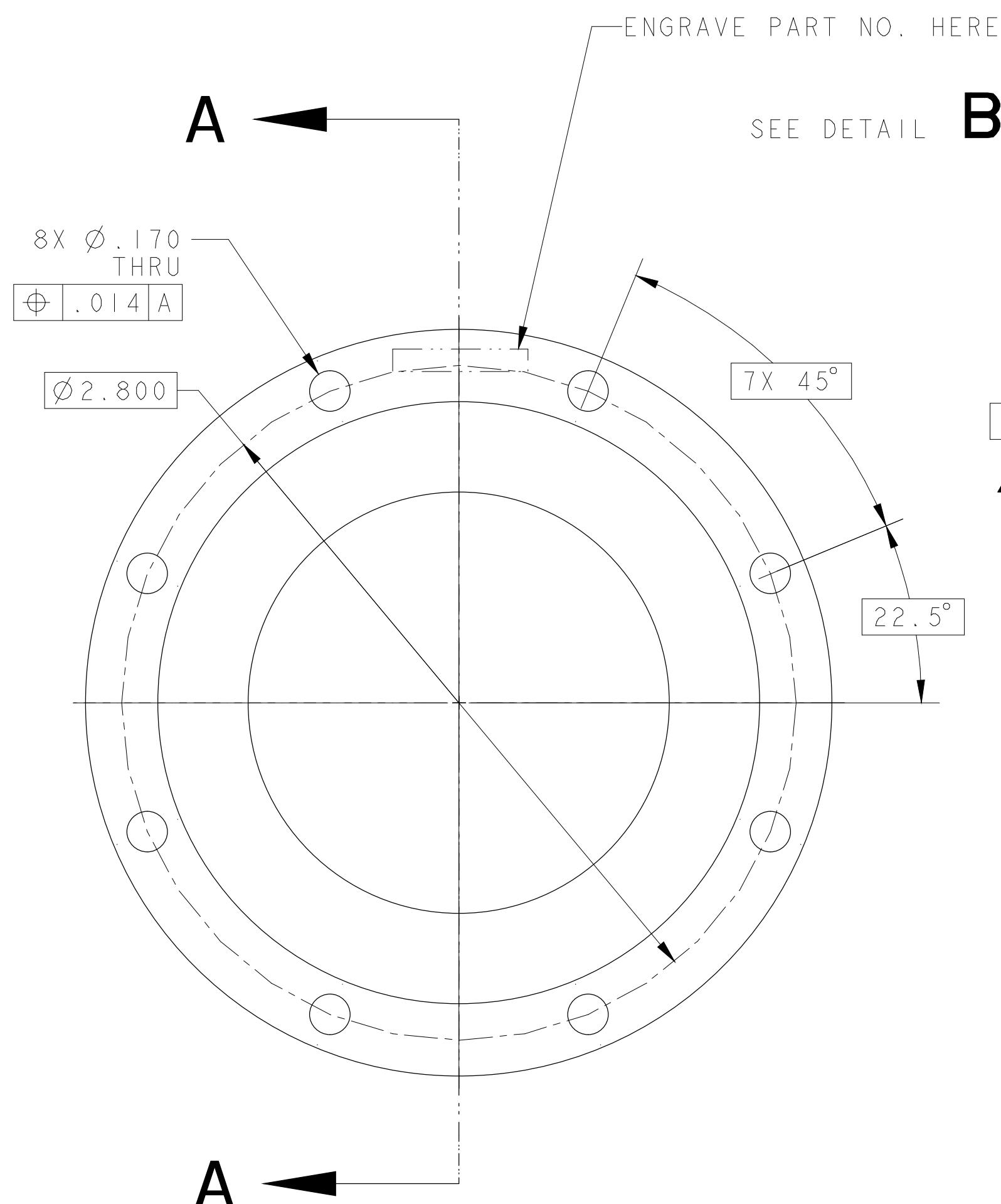
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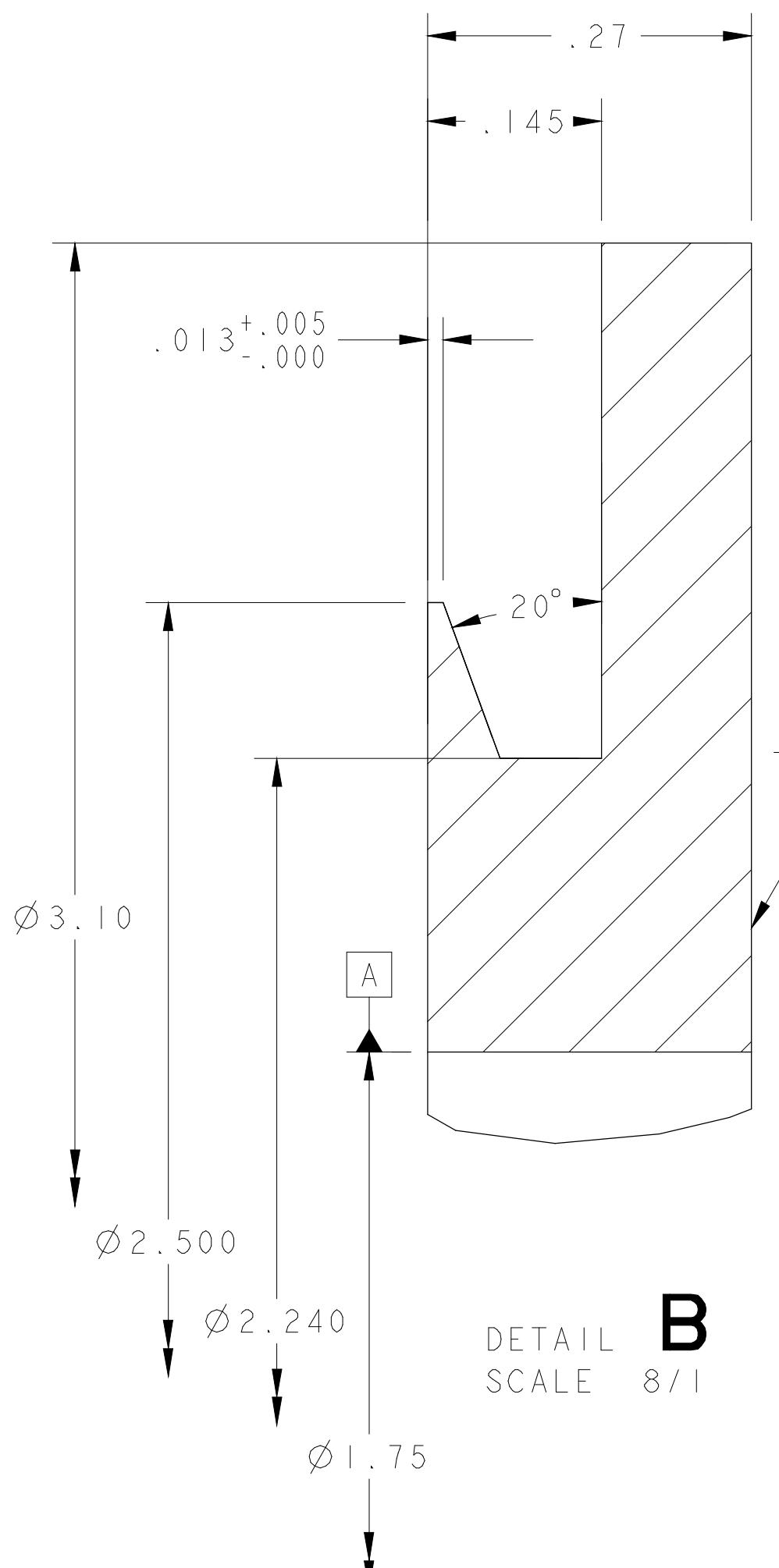
B

A

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



SECTION A-A



					UNLESS OTHERWISE SPECIFIED					
					PROJECTION:					
					TOLERANCES X.X ± 0.1 FRACTION ± 1/64 X.XX ± 0.01 Angles ± 1.0° X.XXX ± 0.005 FINISH 125/					
DO NOT SCALE PRINT										
THREADS ARE CLASS 2										
CHAMFER ENDS OF ALL SCREW TRENDS 30°										
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS										
BREAK EDGES .016 MAX. ON MACHINED WORK										
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE										
IN ACCORDANCE WITH ASME Y14.5M & B46.1										
A	RLMPAL	08-03-01	INITIAL RELEASE							
REV	DWG	CHK	ZONE	DATE	CHANGES					

DESCRIPTION			SS 304L			
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY	SNS-FES MEBT BEAM PIPES FLANGE, BP5, PM3 SIDE					
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS		
	PART	25B687				
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.	
			FE3312			
			25B6893	A		

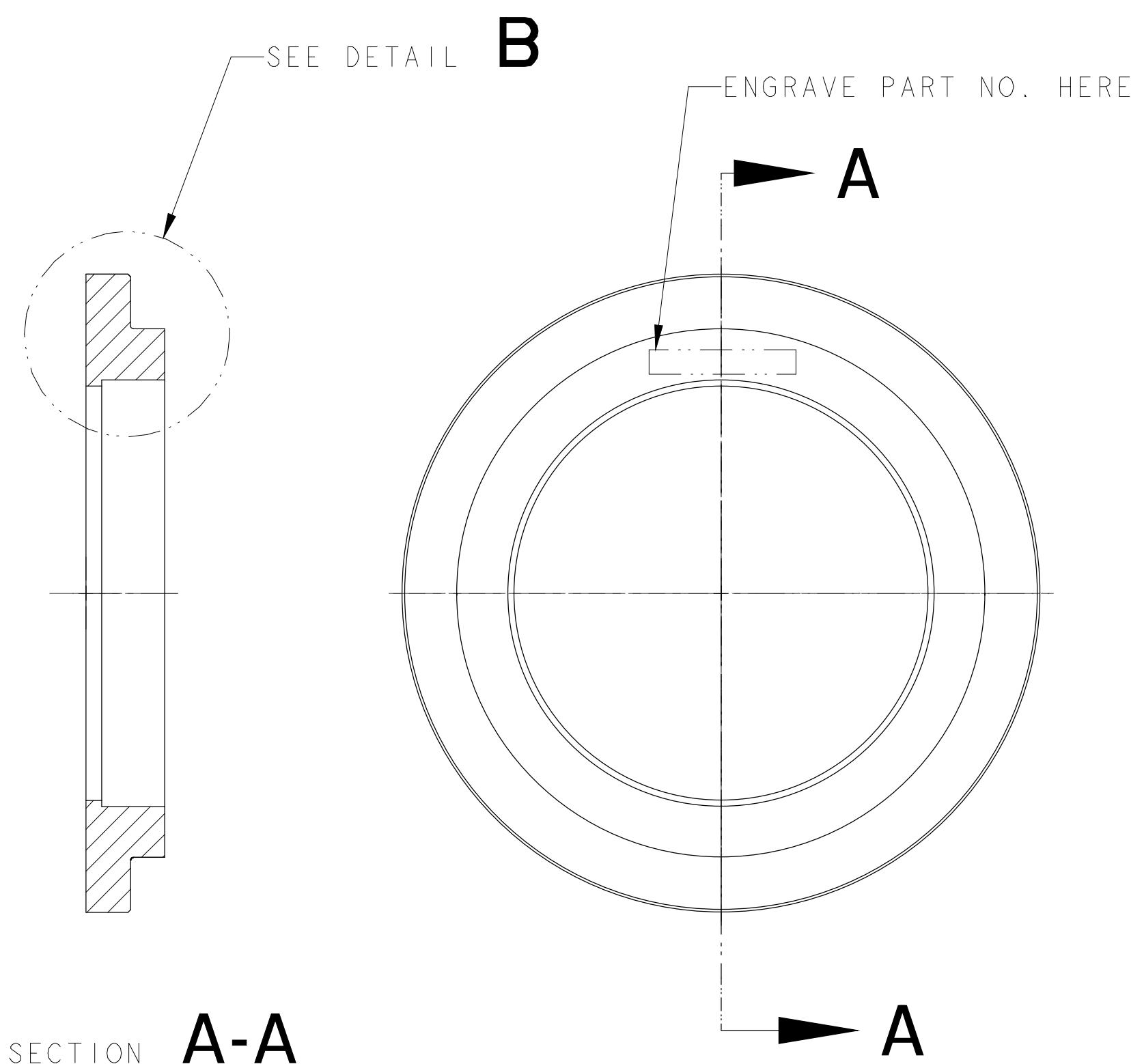
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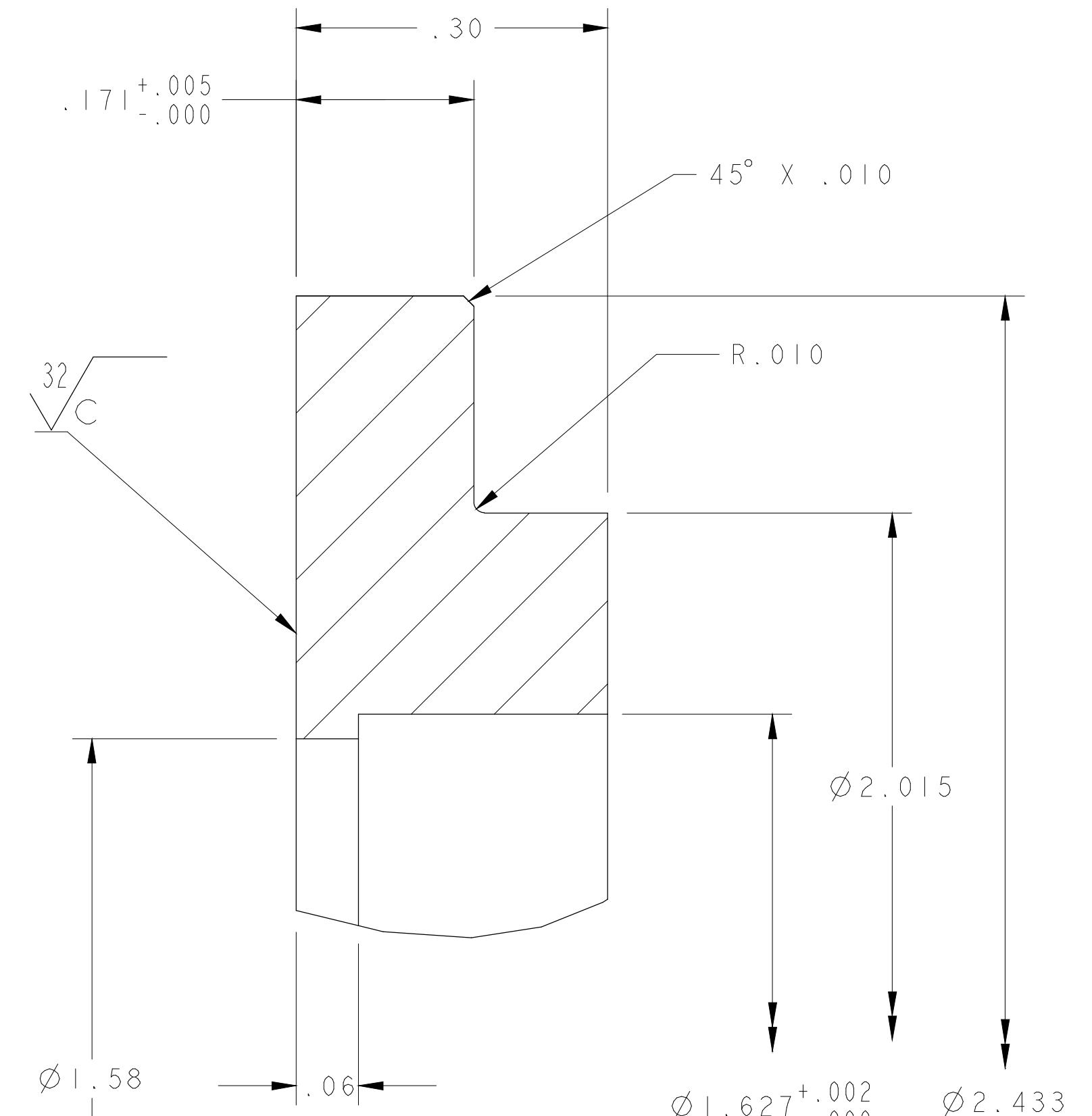
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A

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



SECTION A-A

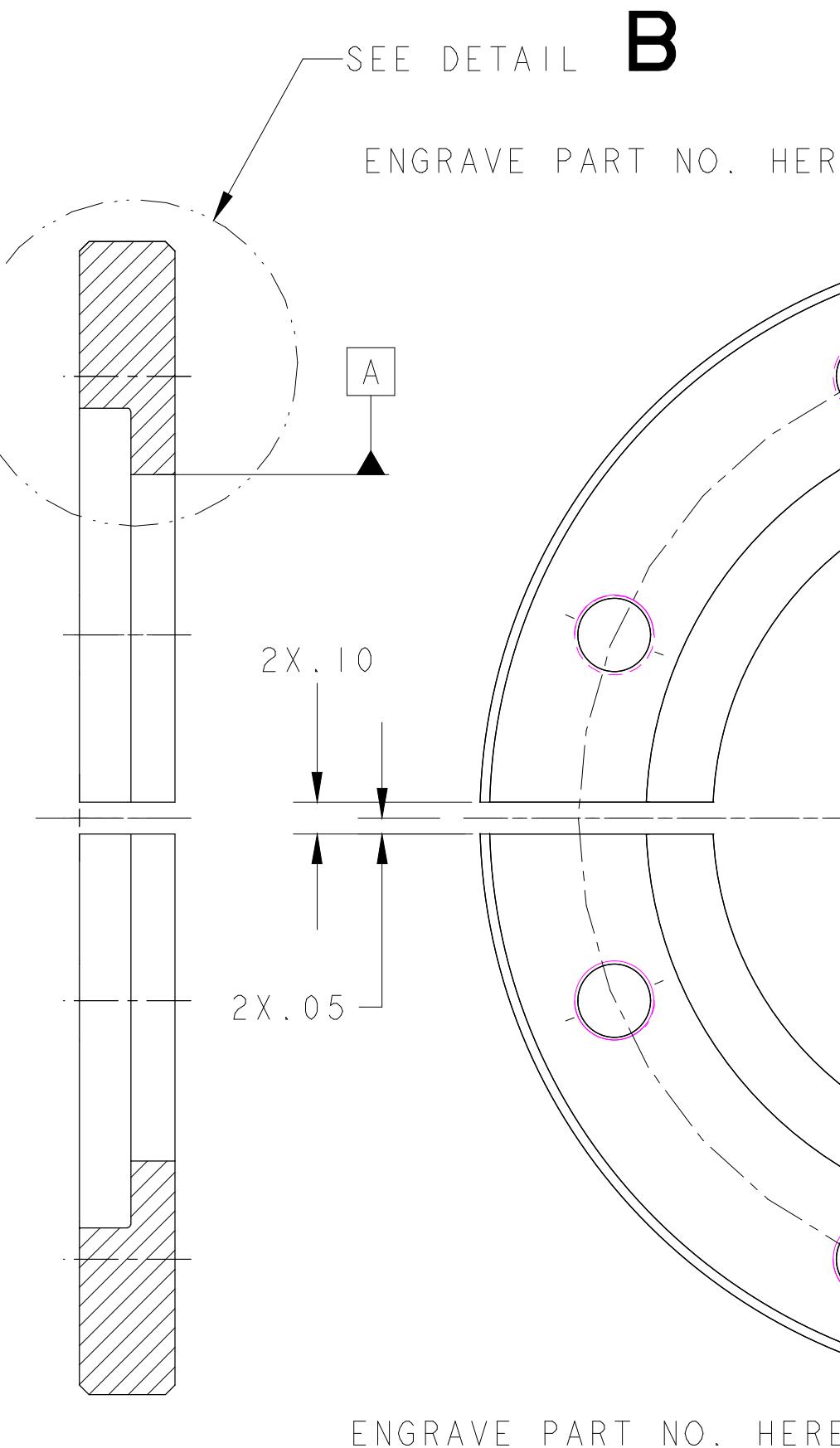


DETAIL B
SCALE 8/1

UNLESS OTHERWISE SPECIFIED			
PROJECTION:			
TOLERANCES		FINISH	
X.X ± 0.1	FRAC. ± 1/64		
X.XX ± 0.01	Angles ± 1.0°		
X.XXX ± 0.005	FINISH 12/		
DO NOT SCALE PRINT			
THREADS ARE CLASS 2			
CHAMFER ENDS OF ALL SCREW TREADS 30°			
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS			
BREAK EDGES .016 MAX. ON MACHINED WORK			
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE			
IN ACCORDANCE WITH ASME Y14.5M & B46.1			
A	RLMPAL	08-03-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE
			CHANGES

DESCRIPTION		MATERIAL	MAT. LOCATION
		SS 304L	
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY	SNS	SNS-FES MEBT BEAM PIPES SEAL RING, BP5, BPM3 SIDE	
PROJECT NUMBER	NAME N/A	MICROFILMED:	DWG. TYPE PART
DATE 08-03-01	DATE 08-03-01	SHOWN ON	SCALE: 2/1
BY R LA MANTIA	BY CHK PAL	PATENT CLEAR:	DO NOT SCALE PRINTS
APR DPO	APR DPO	DESIGN ACCT. NO.	SHEET 1 OF 1
		CATEGORY CODE	DWG. NO. SIZE REV.
		FE3312	25B6903 A

NOTE:
 1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
 2. FURNISH AS A SET



SECTION A-A

A	RLMPAL	7-24-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE

UNLESS OTHERWISE SPECIFIED			
PROJECTION:			ACCT NO.
X. X ± 0.1	FRAC. ± 1/64	NO. REOD	DATE ISSD
X. XX ± 0.01	Angles ± 1.0°	DEL TO	DATE REOD
X. XXX ± 0.005	FINISH 125	SURFACE TREATMT	
DO NOT SCALE PRINT			
THREADS ARE CLASS 2			
CHAMFER ENDS OF ALL SCREW TREADS 30°			
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS			
BREAK EDGES .016 MAX. ON MACHINED WORK			
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE			
IN ACCORDANCE WITH ASME Y14.5M & B46.1			

CHANGES

C

B

A

8X .250-28 UNF-2B
THRU
 $\oplus .006$ A

$\phi 3.000$

7X 45°

22.5°

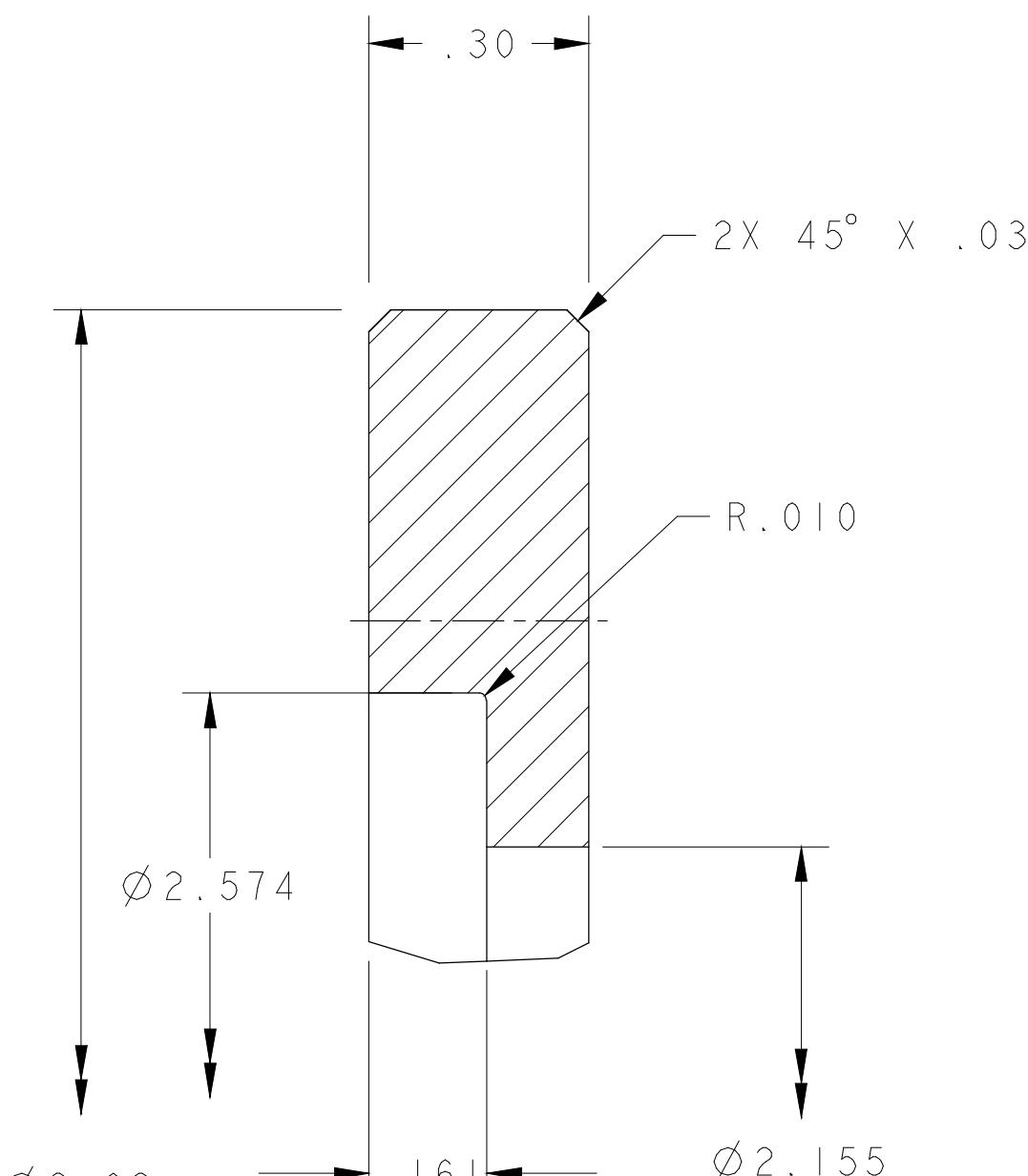
$\phi 3.62$

$\phi 2.574$

.161

$\phi 2.155$

A



DETAIL B
SCALE 4/1

DESCRIPTION		SS 304L	
SHOP ORDERS	SER. NO.		
ACCT NO.	NO. REOD	DATE ISSD	
DEL TO		DATE REOD	
SURFACE TREATMT			
IDENT TAG			
METHOD TAG			
PROJECT NUMBER	na		
PROJECT NAME	N/A		
NAME			
DWG BY	R LA MANTIA	DATE 24-Jul-01	
CHK BY	PAL	DATE 24-Jul-01	
APR BY	DPO	DATE 24-Jul-01	
MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 2/1 DO NOT SCALE PRINTS
	PART	25B687	
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO. SIZE REV.
	-	FE3312	25B6913 A

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES

SPLIT FLANGE, BP5, BPM3 SIDE

SHEET 1 OF 1
DWG. File: 25B691 Model File: 25B691
Rev. J. R. Obern

D

C

B

A

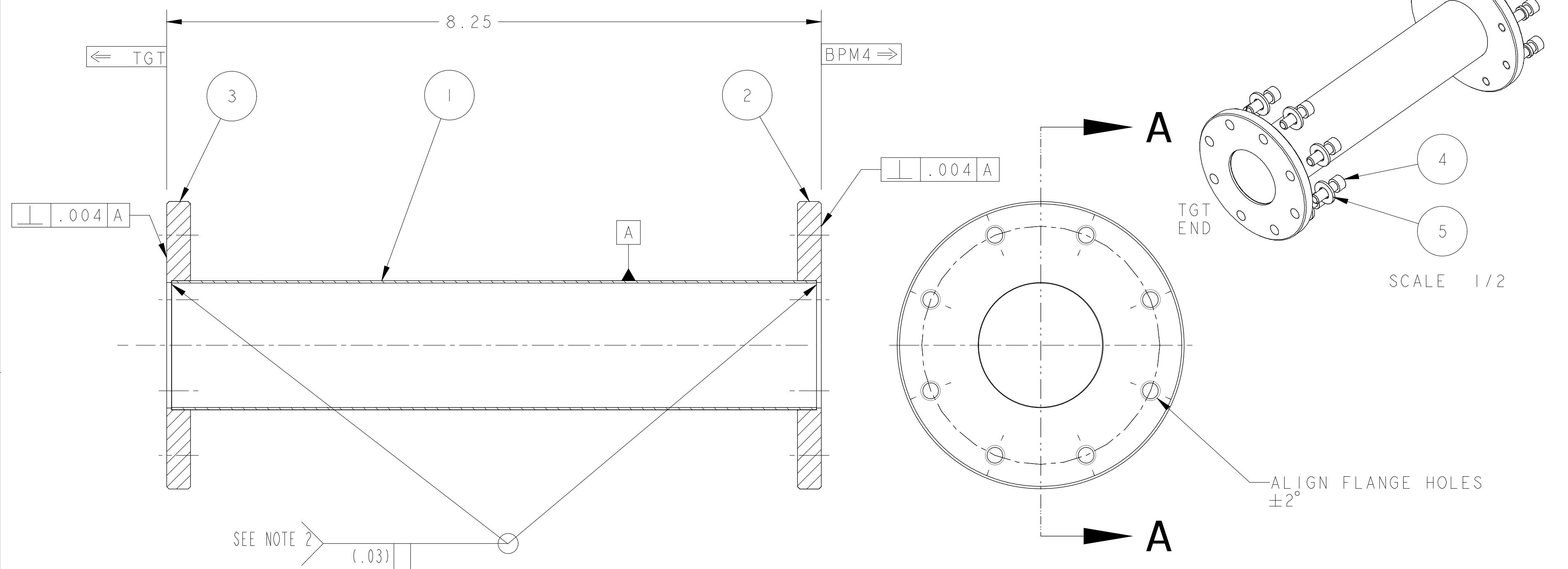
D

C

B

A

NOTE:
 1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
 2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
 3. DIMENSIONS IN INCHES.
 4. SILVER PLATE ALL SCREWS.



ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
7		8	SCR, SCH, .25-28 UNF X .75 LG	SS 18-8
6	-	8	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
5	-	8	WASHER, FLAT, ROUND, .25	SS 18-8
4		8	SCR, SCH, .25-20 UNC X .75 LG	SS 18-8
3	25B686	I	FLANGE, BP6, TGT SIDE	SS 304L
2	25B685	I	FLANGE, BP6, BPM4 SIDE	SS 304L
1	25B4774-05	I	CUT LIST, BEAM TUBES	SS 304

UNLESS OTHERWISE SPECIFIED

PROJECTION:

TOLERANCES: $X.X \pm 0.1$ $X.XX \pm 0.01$ $X.XXX \pm 0.003$ $FRACTION \pm 1/64$ $ANGLES \pm 1.0^\circ$ $FINISH \pm 1/32$

DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES

DETAIL ASSEMBLY, BEAM PIPE 6

SNS

MICROFILMED:

DWG. TYPE ASSEM SHOWN ON 25B611 DO NOT SCALE PRINTS

DATE 08-24-01

PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV.

INITIAL RELEASE

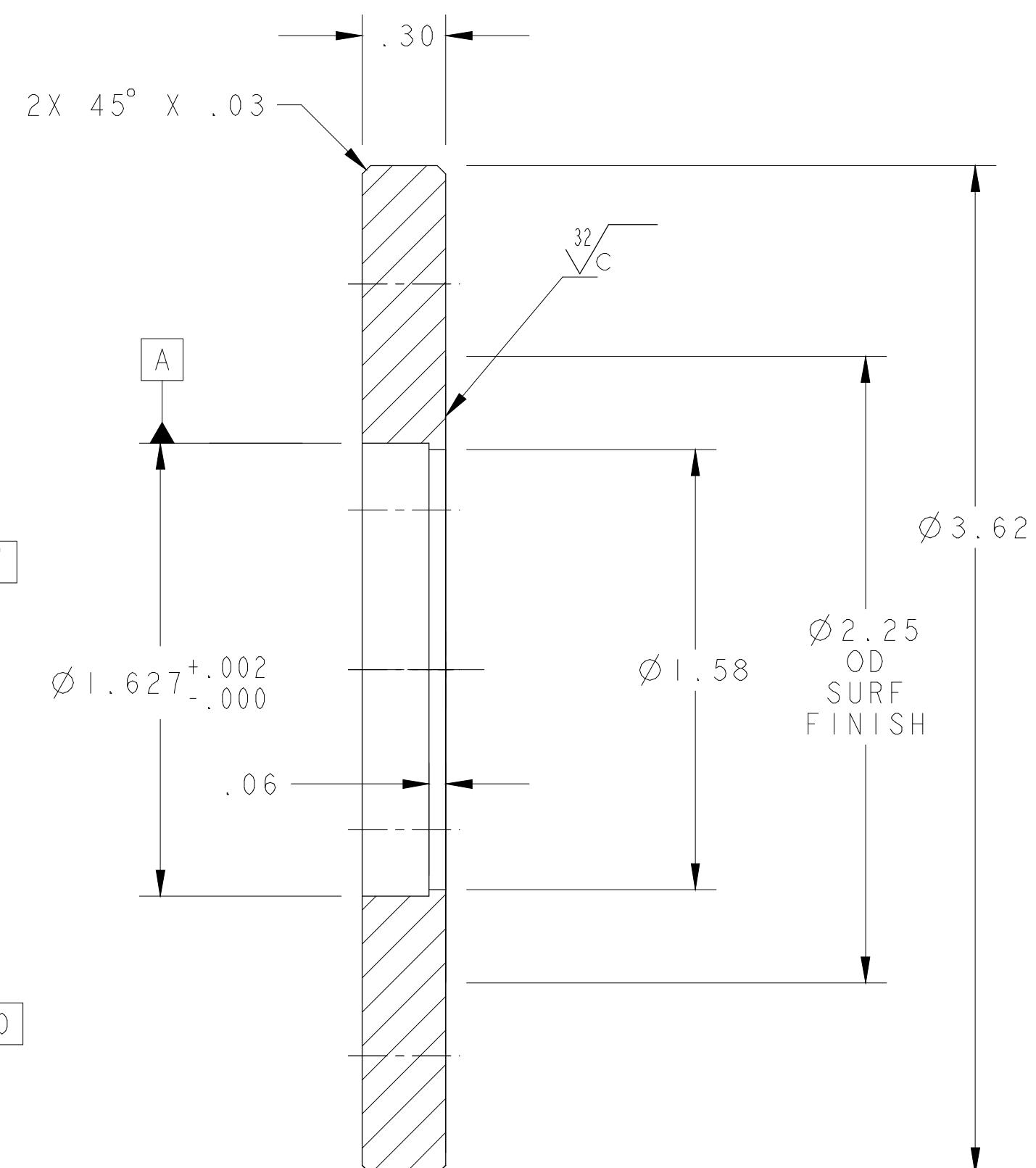
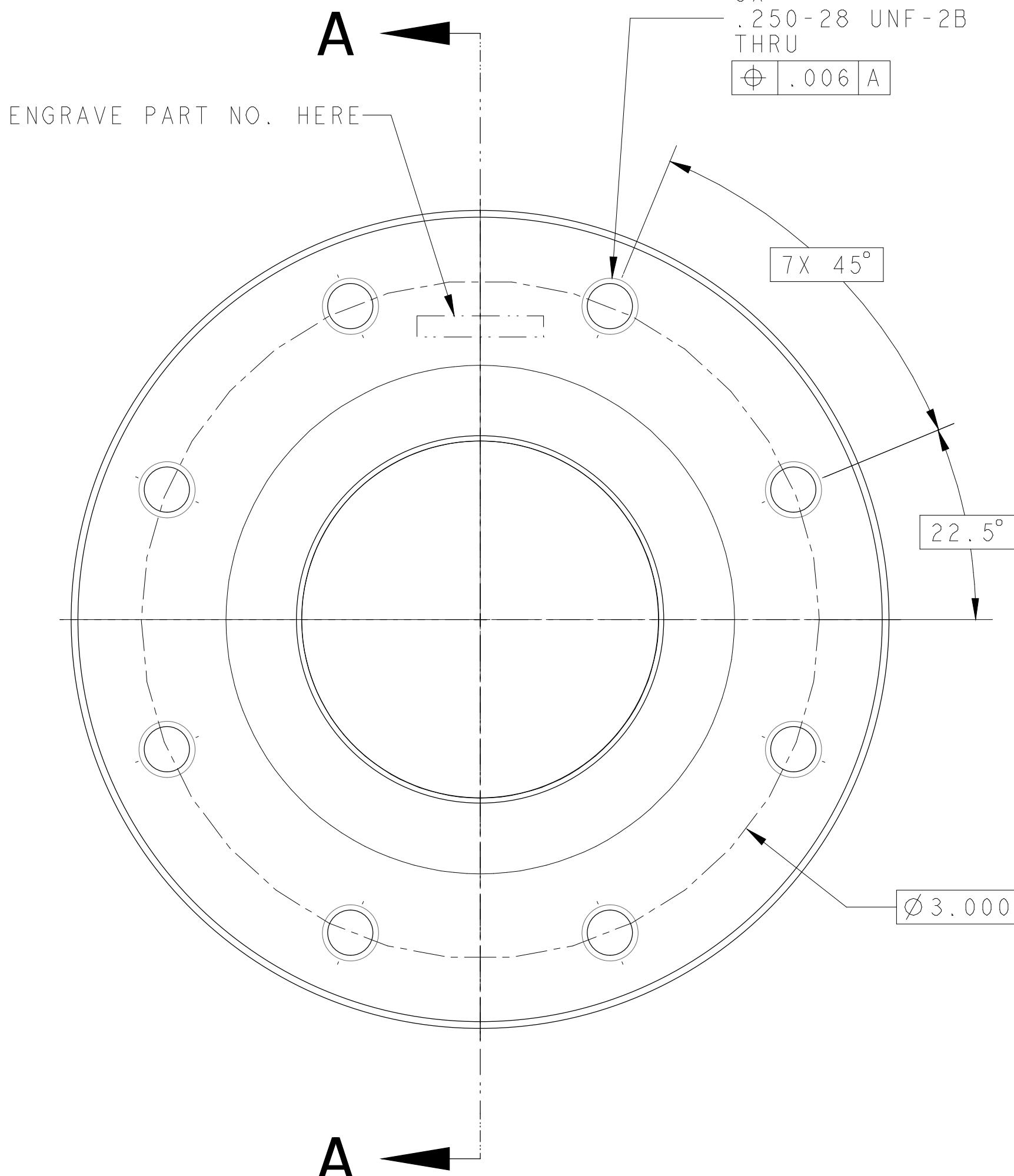
REV DWG CHK ZONE DATE CHANGES

25B6843 A

D C B A

NOTE:

I. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



A RLMPAL 08-03-01 INITIAL RELEASE

REV DWG CHK ZONE DATE CHANGES

UNLESS OTHERWISE SPECIFIED				SHOP ORDERS			SER -	SS 304L	REV.	SIZE	REV.
PROJECTION: Ø 3.000				ACCT NO.	NO. RECD	DATE ISSD		MATERIAL	SH.		
TOLERANCES				DEL TO		DATE RECD					
X.X ± 0.1				SURFACE TREATMT							
X.XX ± 0.01				IDENT TAG							
X.XXX ± 0.005				METHOD TAG							
FINISH 12/2				PROJECT NUMBER							
DO NOT SCALE PRINT				PROJECT NAME							
THREADS ARE CLASS 2				N/A							
CHAMFER ENDS OF ALL SCREW TRENDS 30°				MICROFILMED:							
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS				DWG. TYPE		SHOWN ON					
BREAK EDGES .016 MAX. ON MACHINED WORK				PART							
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE				25B684							
IN ACCORDANCE WITH ASME Y14.5M & B46.1				PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.				
					-	FE3312	25B6853	A			

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT BEAM PIPES FLANGE, BP6, BPM4 SIDE

SHEET 1 OF 1

SNS	DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS
	PART	25B684		
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
	-	FE3312	25B6853	A

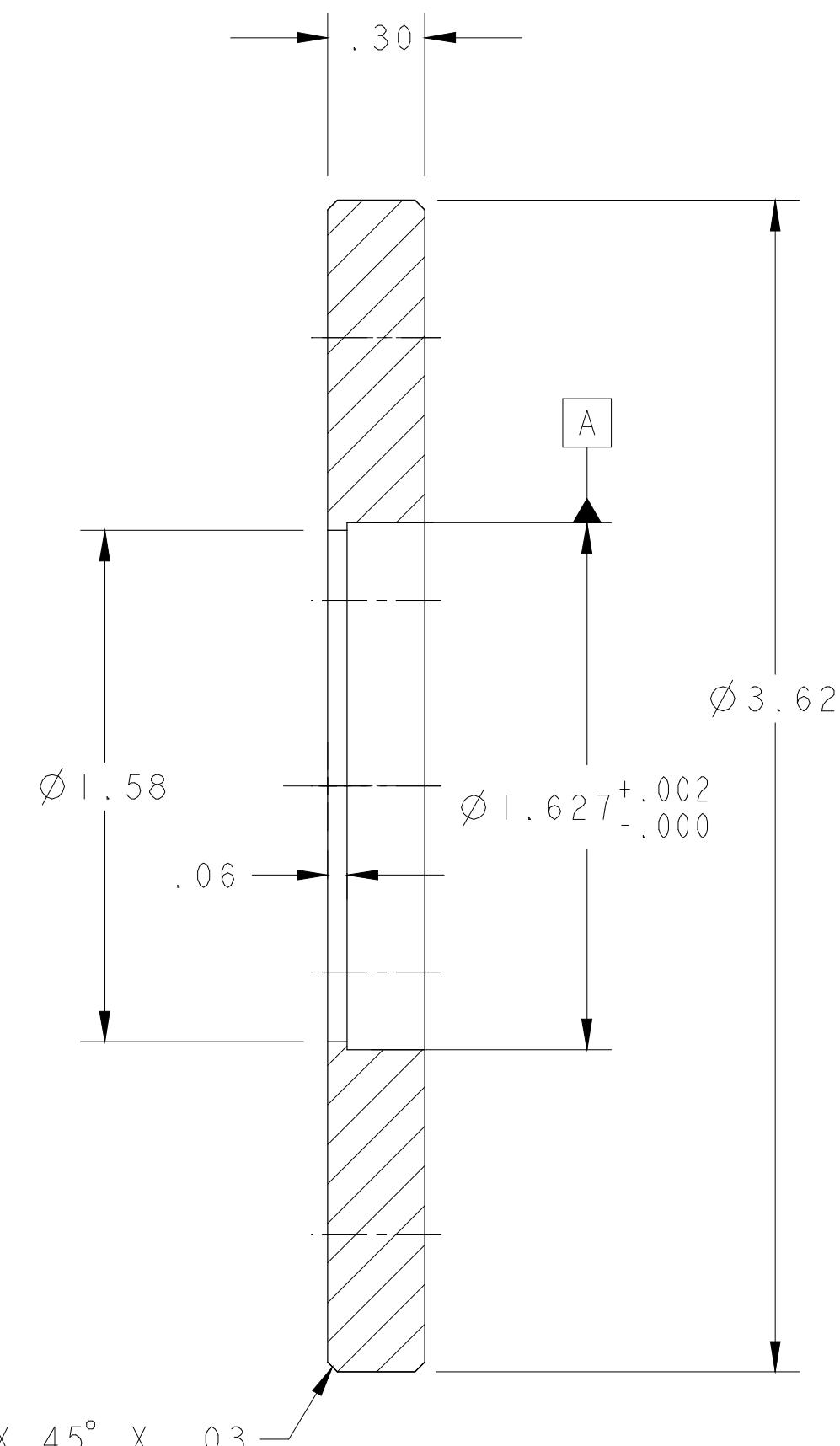
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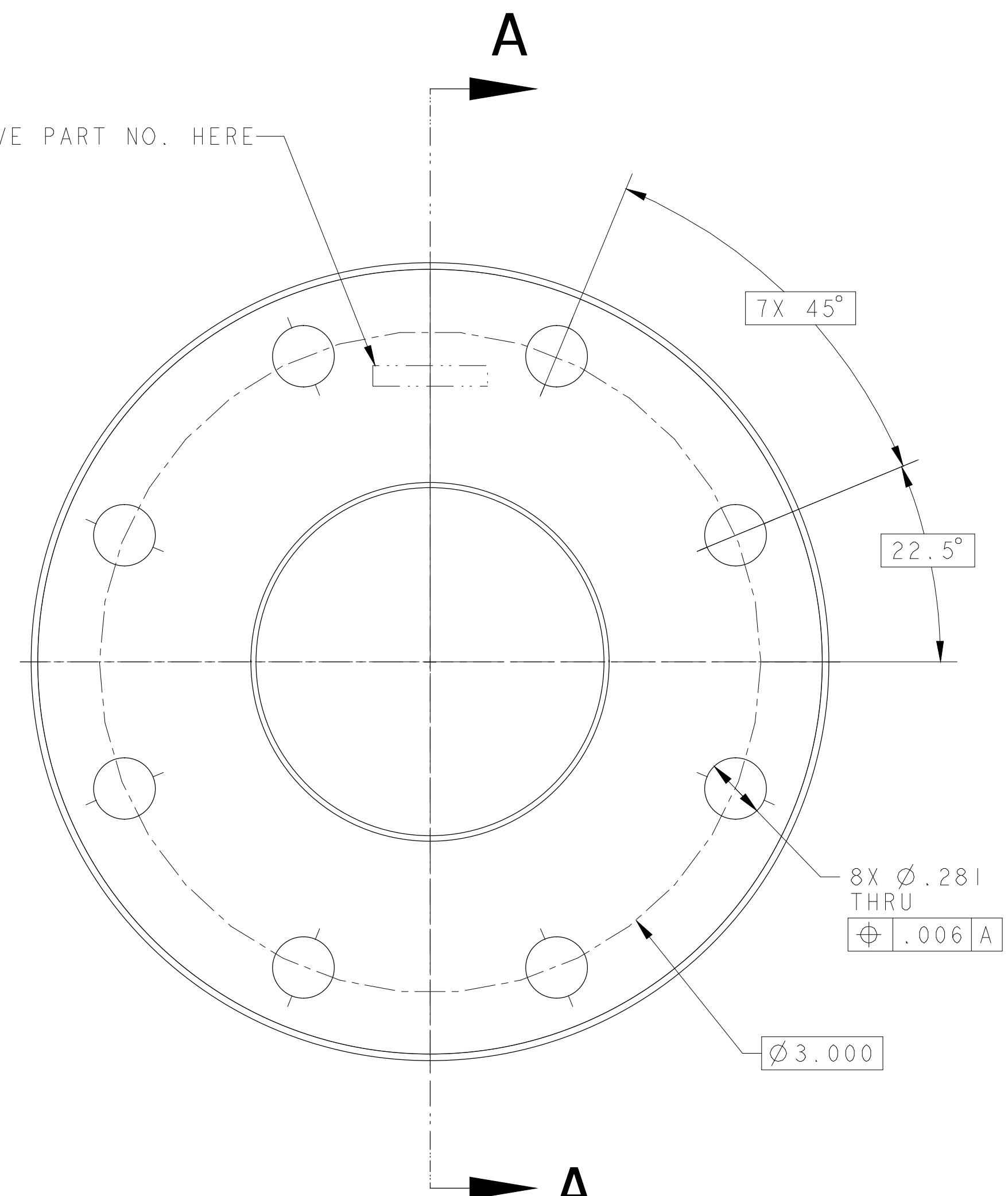
B

A

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



ENGRAVE PART NO. HERE



UNLESS OTHERWISE SPECIFIED					
PROJECTION:					
TOLERANCES X.X ± 0.1 FRAC. ± 1/64 X.XX ± 0.01 Angles ± 1.0° X.XXX ± 0.005 FINISH 125/					
DO NOT SCALE PRINT THREADS ARE CLASS 2 CHAMFER ENDS OF ALL SCREW TREADS 30° CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES .016 MAX. ON MACHINED WORK REMOVE BURRS, WELD SPLATTER & LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M & B46.1					
A	RLMPAL	08-03-01	INITIAL RELEASE		
REV	DWG	CHK	ZONE	DATE	CHANGES

DESCRIPTION			SS 304L	MATERIAL	MAT. LOCATION
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY			SNS-FES MEBT BEAM PIPES FLANGE, BP6, TGT SIDE		
PROJECT NUMBER na					
NAME N/A					
BY R LA MANTIA					
DATE 08-03-01					
CHK PAL					
DATE 08-03-01					
APR DPO					
BY					
DATE 08-03-01					
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.
			FE3312	25B6863	A

D

C

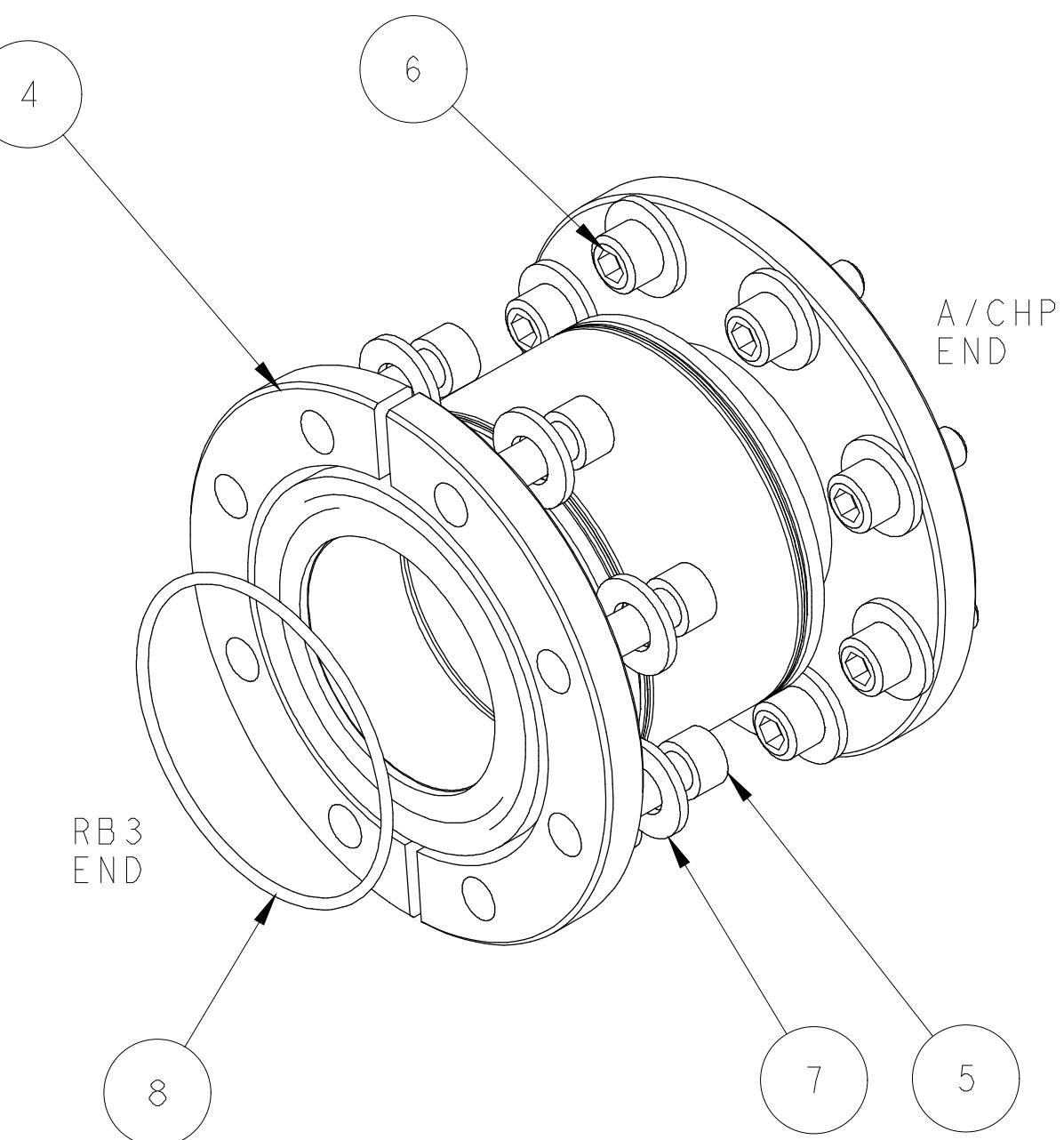
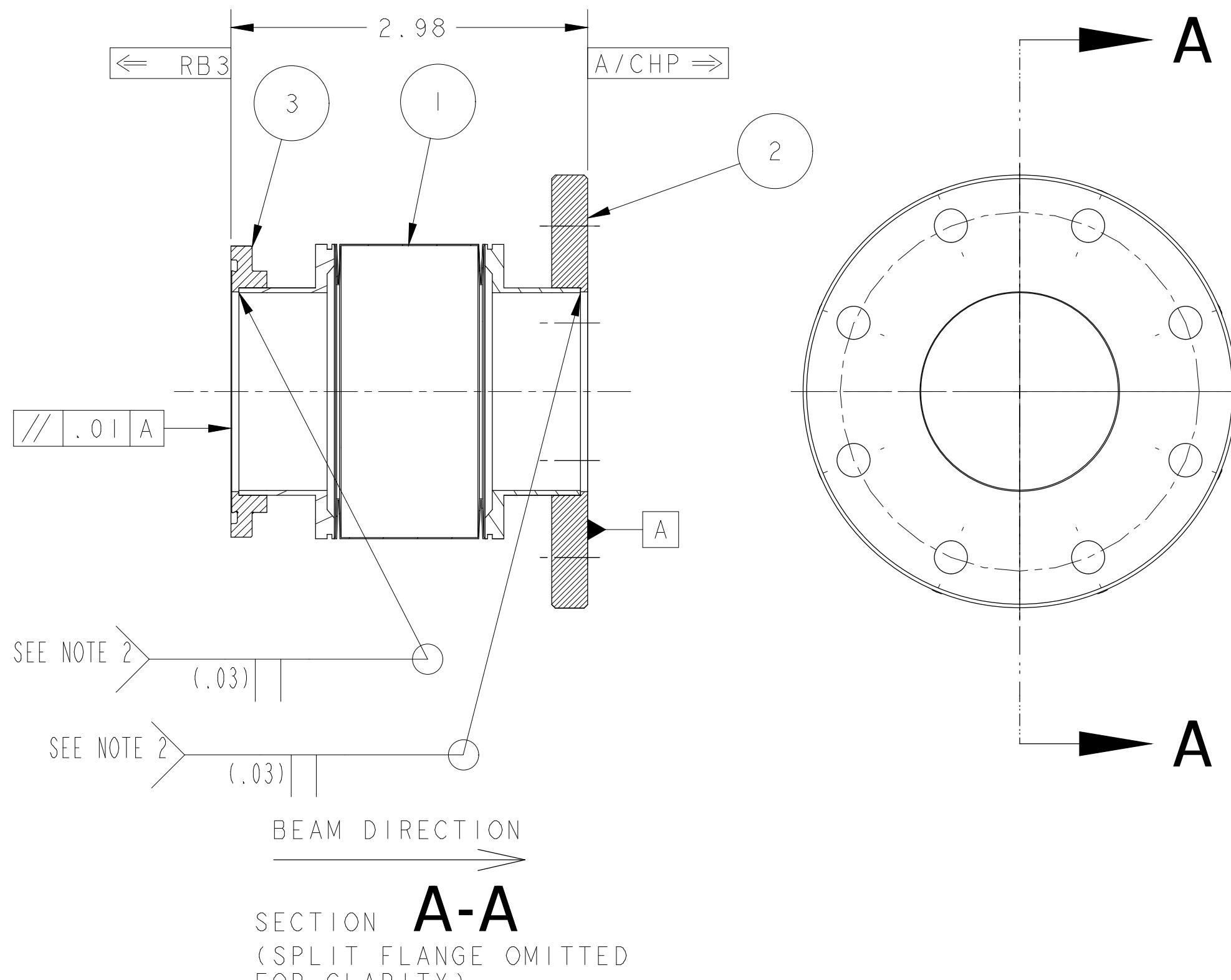
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A

D C B A

NOTE:

1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
3. DIMENSIONS IN INCHES.
4. SILVER PLATE ALL SCREWS.



ITEM			PART NO	REQD	DESCRIPTION	MATERIAL
8	-	1	O-RING, 2-033		VITON	
7	-	16	WASHER, FLAT, ROUND, .25		SS 18-8	
6		8	SCR, SCH, .25-28 UNF X .625 LG		SS 18-8	
5		8	SCR, SCH, .25-28 UNF X .75 LG		SS 18-8	
4	25B683	1	SPLIT FLANGE, BP7, RB3 SIDE		SS 304L	
3	25B682	1	SEAL RING, BP7, RB3 SIDE		SS 304L	
2	25B681	1	FLANGE, BP7, A/CHP SIDE		SS 304L	
1	25B499	1	BELLOWS ASSEMBLY, BP7, 40MM		-	
ITEM			PART NO	REQD	DESCRIPTION	MATERIAL

UNLESS OTHERWISE SPECIFIED
PROJECTION: -
TOLERANCES: X.X ± 0.1 FRAC. ± 1/64
X.XX ± 0.01 Angles ± 1.0°
X.XXX ± 0.005 FINISH 125/
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES
DETAIL ASSEMBLY, BEAM PIPE 7

SNS

MICROFILMED:
DWG. TYPE SHOWN ON
ASSEM 25B611
SCALE: 1/1 DO NOT
PRINTS
SHEET 1 OF 1

INITIAL RELEASE
REV DWG CHK ZONE DATE CHANGES

DWG. NO. 25B6803 REV. A
FILE: 25B6803 Model FILE: 25B6803

D

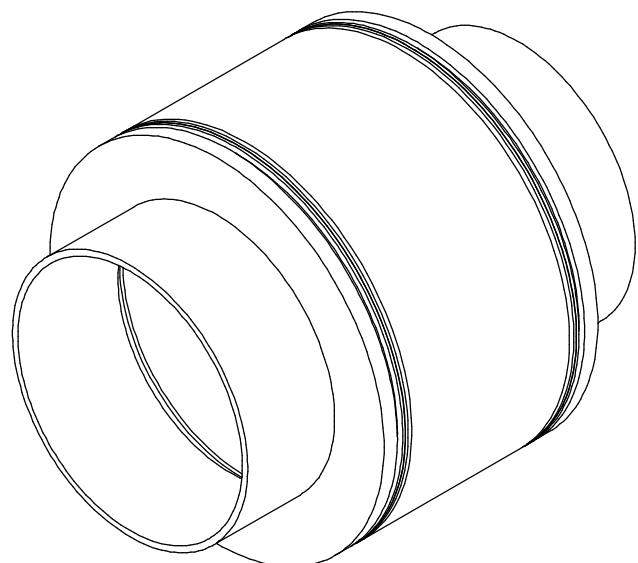
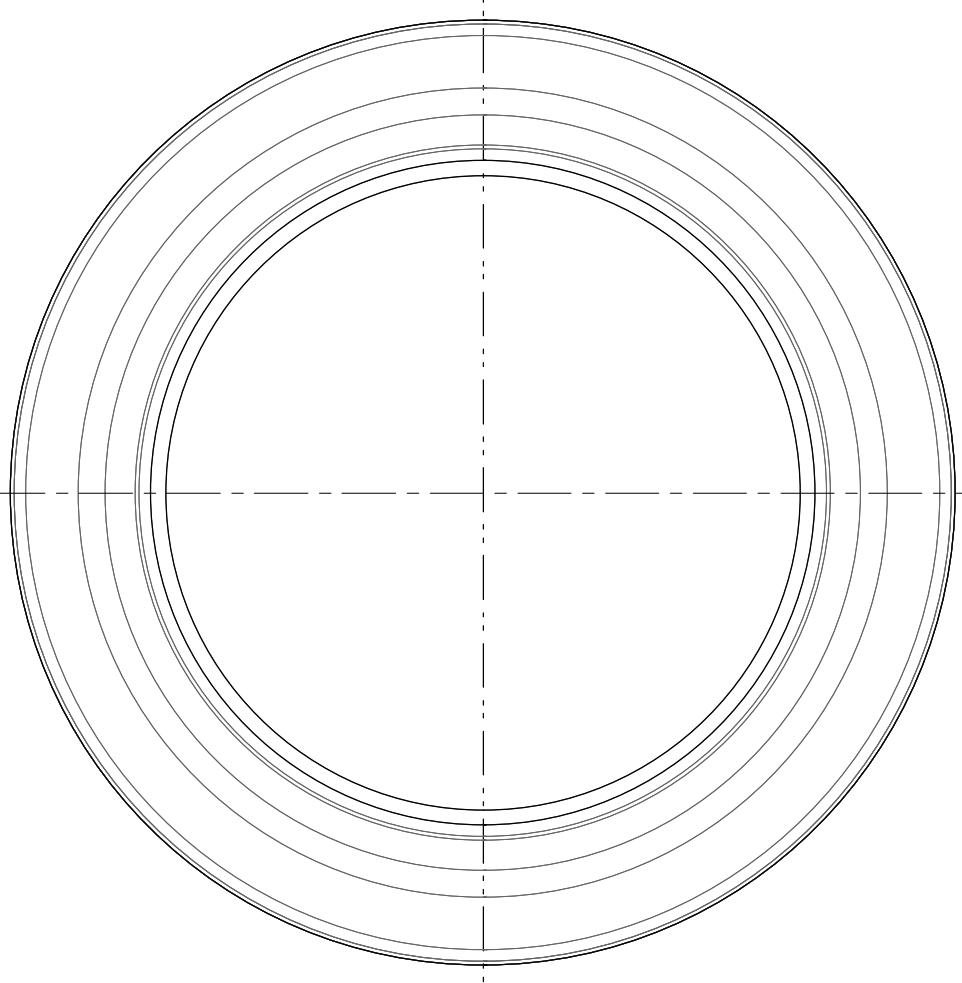
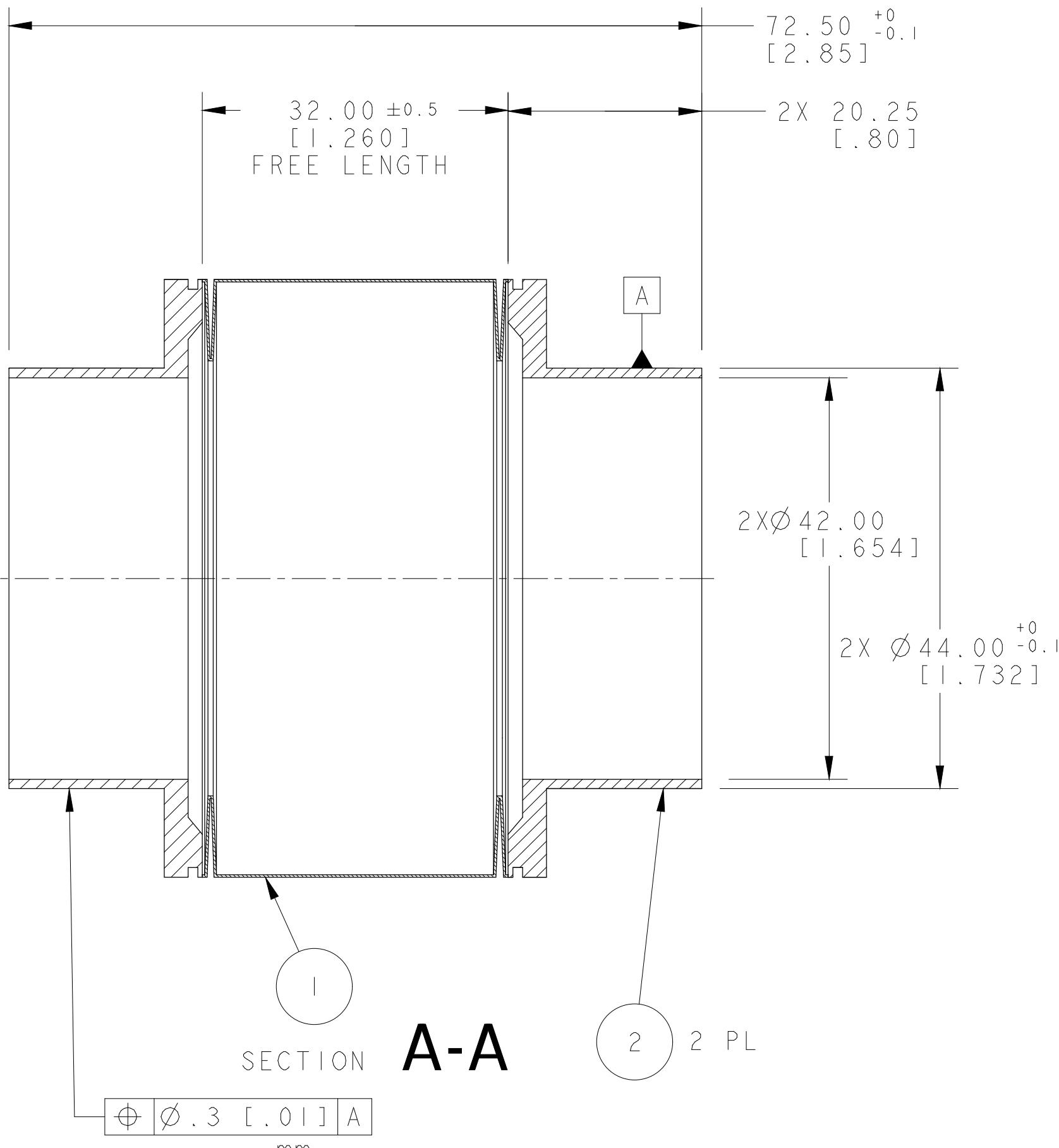
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NOTE:

1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
3. PRIMARY DIMENSIONS: MM; SECONDARY: INCH. TOLERANCES ARE METRIC.
4. SUGGESTED VENDOR: MEWASA AG, SWITZERLAND. WWW.MEWASA.CH
US REP: CT ASSOC., SAN JOSE, CA (408) 268-6950, CONTACT: CHUCK TROIANI.



SCALE 1 / 1

DWG. NO. SIZE REV. SH.
25B4993 A 1
Date: 1/29/2001 J. R. Oberholzer

ITEM	PART NO	REQD	DESCRIPTION		MATERIAL		
2	-	2	END PIECE, TYPE N		316L		
I	-	I	BELLOWS, NS DN40, 46.5/62.5, 20 CNV, 32MM FREE LENGTH		316L		
PROJECT:		ACCT. NO.	SER. NO.	SNS-FES MEBT			
X. X ± 0.3	FRAC. ± 1/64	NO. REQD	DATE ISSD	BEAM PIPES			
X. XX ± 0.01	Angles ± 1.0°	DEL TO	DATE	BELLOWS ASSEMBLY, BP7, 40MM			
X. XXX ± 0.000	FINISH 12/16	REQD	REQD				
DO NOT SCALE PRINT							
THREADS ARE CLASS 2							
CHAMFER ENDS OF ALL SCREW TREADS 30°							
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS							
BREAK EDGES .016 MAX. ON MACHINED WORK							
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE							
IN ACCORDANCE WITH ASME Y14.5M & B46.1							
REV	DWG	CHK	ZONE	DATE	CHANGES		
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY							
SNS-FES MEBT BEAM PIPES BELLOWS ASSEMBLY, BP7, 40MM							
MICROFILMED:		DWG. TYPE	SHOWN ON	SCALE: 2 / 1	DO NOT SCALE PRINTS		
		ASSEM	25B611				
PATENT CLEAR:		DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.		
		-	FE3312	25B4993	A		

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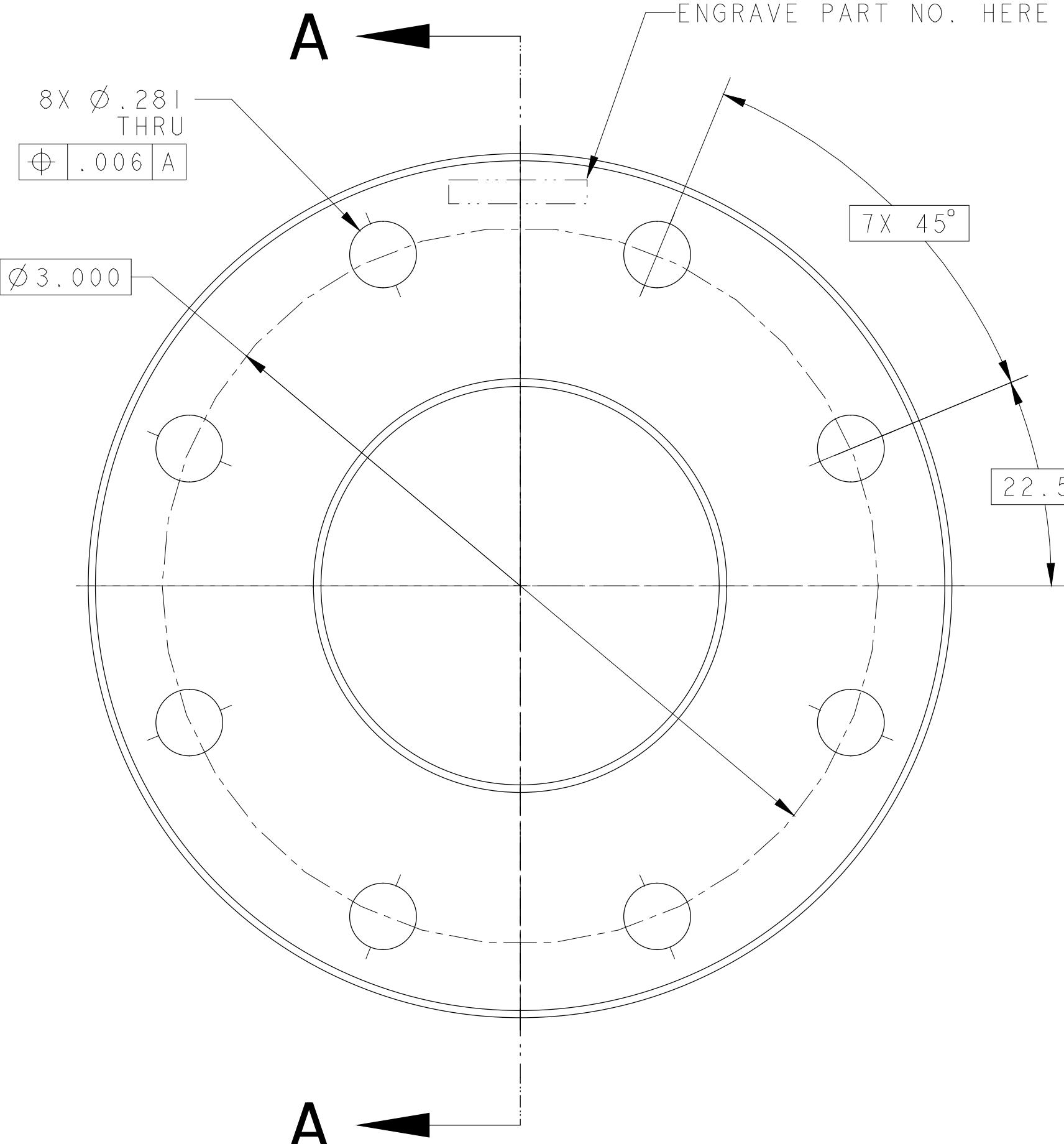
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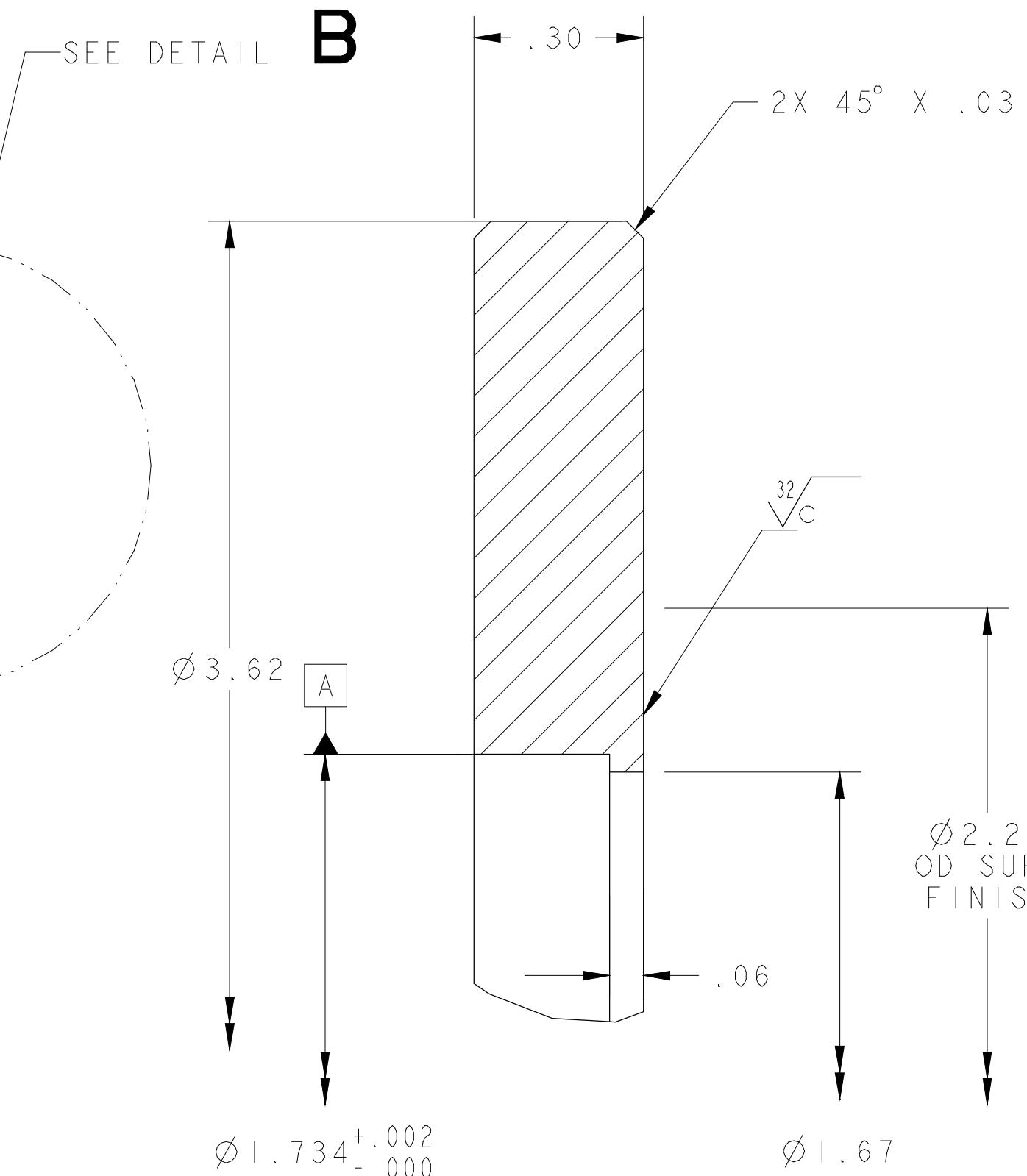
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Dwg. File: 25B4993 Model File: 25B4993 Rev. 1/29/2001 J. R. Oberholzer

NOTE:
I. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



SECTION A-A



DETAIL SCALE 4/1

A	RLMPAL	08-03-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE
CHANGES			
IN ACCORDANCE WITH ASME Y14.5M & B46.1			

DESCRIPTION		SS 304L	MATERIAL	MAT. LOCATION
SHOP ORDERS	SER - NO.			
ACCT NO.	NO. RECD	DATE ISSD		
DEL TO		DATE RECD		
SURFACE TREATMT				
IDENT TAG				
METHOD TAG				
PROJECT NUMBER				
PROJECT NAME	N/A			
DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS	
PART	25B680			
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
		FE3312	25B6813	A

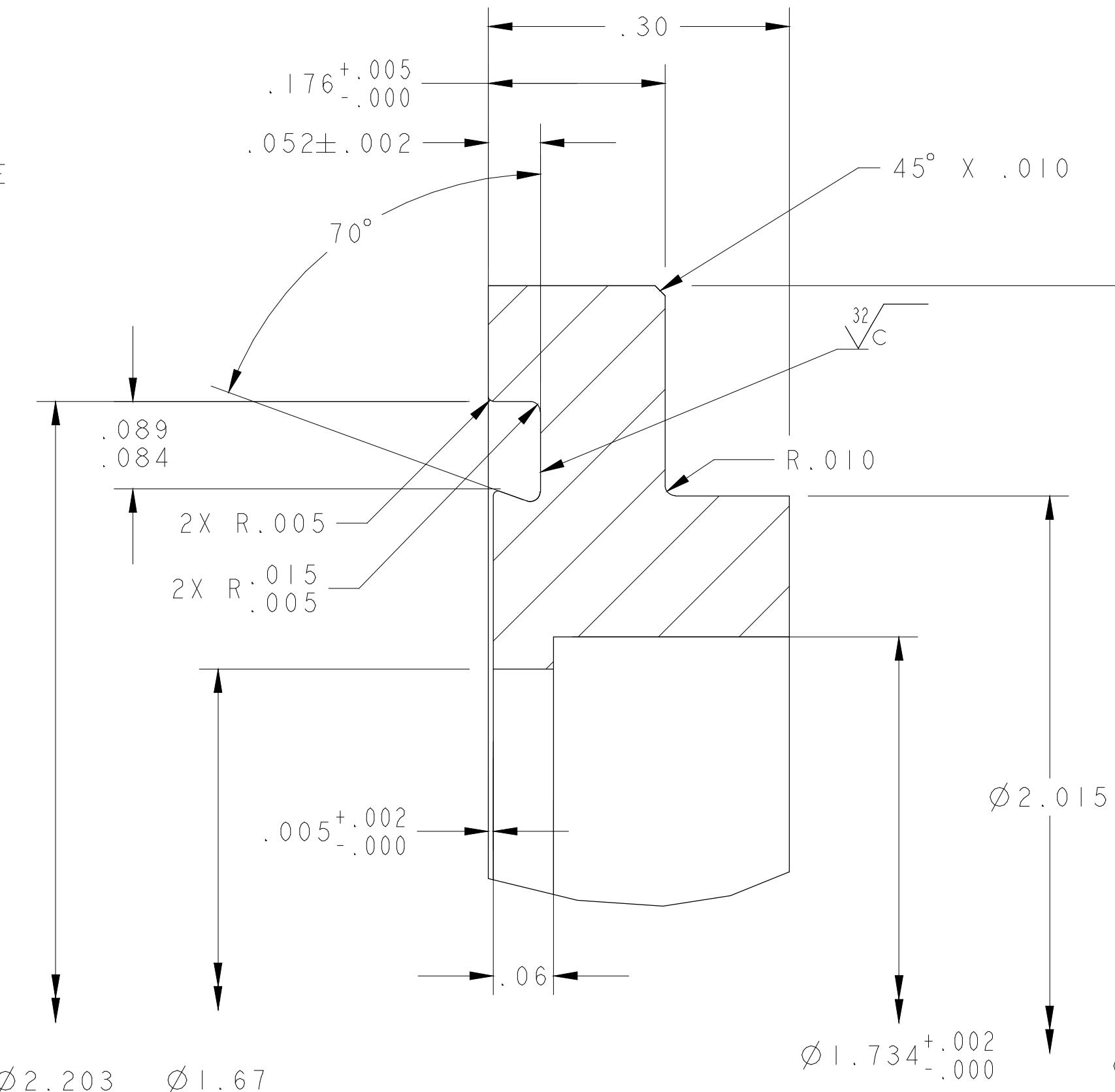
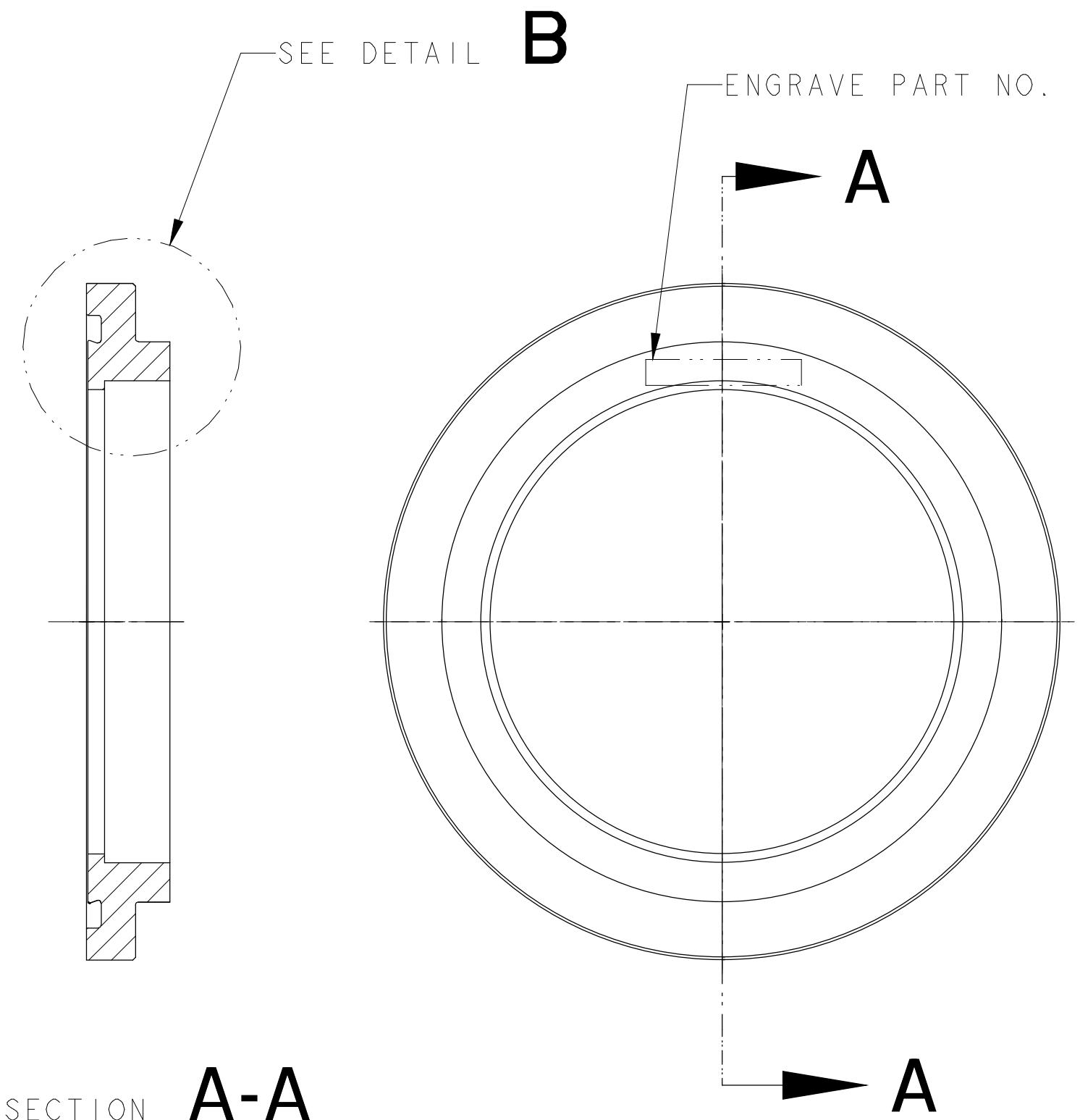
ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES

FLANGE, BP7, A/CHP SIDE

 SNS

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



DWG. NO. 25B6823 REV. A 1

4

3

2

SS 304L

MATERIAL

MAT. LOCATION

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES

SEAL RING, BP7, RB3 SIDE

DO NOT SCALE PRINTS

FILE: 25B6823 Model File: 25B6823

Rev. J. R. Obern

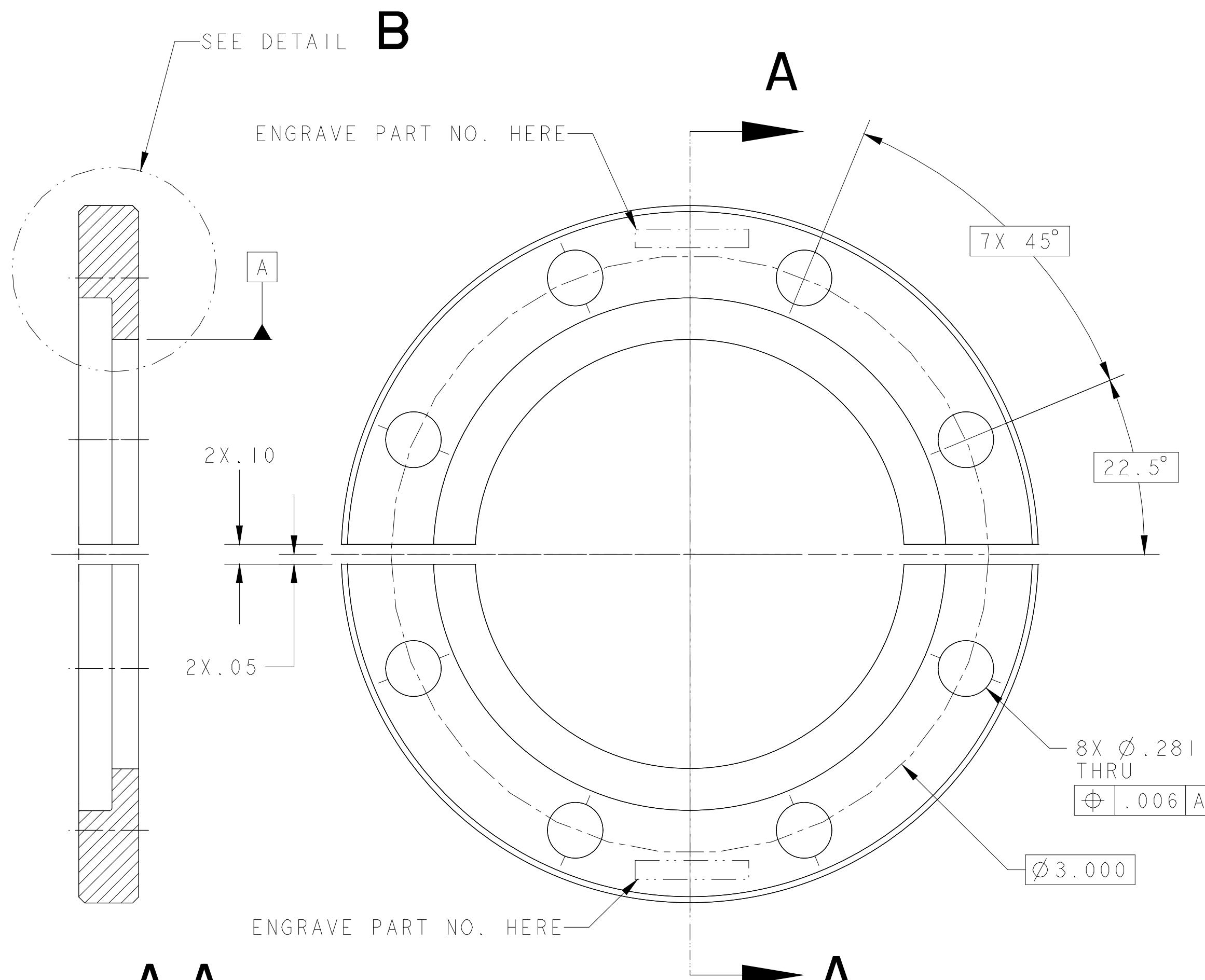
Sheet 1 of 1

Date: 1/29/2009

UNLESS OTHERWISE SPECIFIED									
PROJECTION:									
TOLERANCES									
X.X ± 0.1	FRAC. ± 1/64								
X.XX ± 0.01	Angles ± 1.0°								
X.XXX ± 0.005	FINISH 12/								
DO NOT SCALE PRINT									
THREADS ARE CLASS 2									
CHAMFER ENDS OF ALL SCREW TREADS 30°									
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS									
BREAK EDGES .016 MAX. ON MACHINED WORK									
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE									
IN ACCORDANCE WITH ASME Y14.5M & B46.1									
A	RLMPAL	08-03-01	INITIAL RELEASE						
REV	DWG	CHK	ZONE	DATE	CHANGES				

DESCRIPTION		MATERIAL	MAT. LOCATION
SHOP ORDERS	SER. NO.		
ACCT NO.	NO. RECD	DATE ISSD	
DEL TO		DATE RECD	
SURFACE TREATMT			
IDENT TAG			
METHOD TAG			
PROJECT NUMBER	na		
PROJECT NAME	N/A		
NAME			
DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS
PART	25B680		
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO. SIZE REV.
	-	FE3312	25B6823 A

NOTE:
 1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
 2. FURNISH AS A SET



B	RLMPAL	B3	09-27-01	OD WAS 3.62, NOW 3.50
A	RLMPAL		08-03-01	INITIAL RELEASE
REV	DWG	CHK	ZONE	DATE
				CHANGES

UNLESS OTHERWISE SPECIFIED
 PROJECTION: TOLERANCES: X.X ± 0.1, X.XX ± 0.01, X.XXX ± 0.005, FINISH: 125/
 DO NOT SCALE PRINT
 THREADS ARE CLASS 2
 CHAMFER ENDS OF ALL SCREW TRENDS 30°
 CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
 BREAK EDGES .016 MAX. ON MACHINED WORK
 REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
 IN ACCORDANCE WITH ASME Y14.5M & B46.1

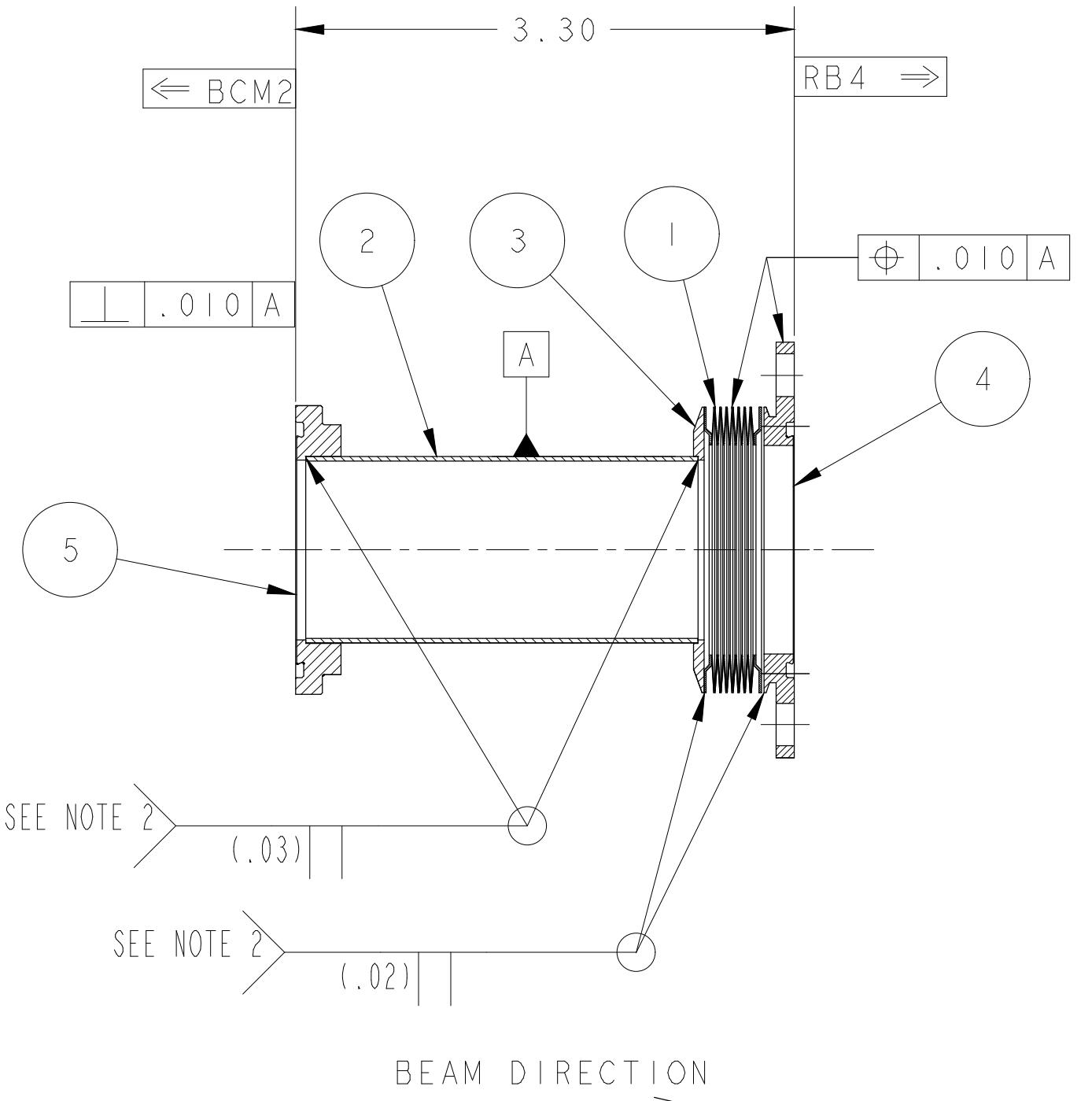
DESCRIPTION		SS 304L	MATERIAL	MAT. LOCATION
SHOP ORDERS	SER - NO.			
ACCT NO.	NO. RECD	DATE ISSD		
DEL TO		DATE RECD		
SURFACE TREATMT				
IDENT TAG				
METHOD TAG				
PROJECT NUMBER	na			
PROJECT NAME	N/A			
DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS	
PART	25B680			
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE REV.
	-	FE3312	25B683	B

ERNEST ORLANDO LAWRENCE
 BERKELEY NATIONAL LABORATORY
 UNIVERSITY OF CALIFORNIA - BERKELEY

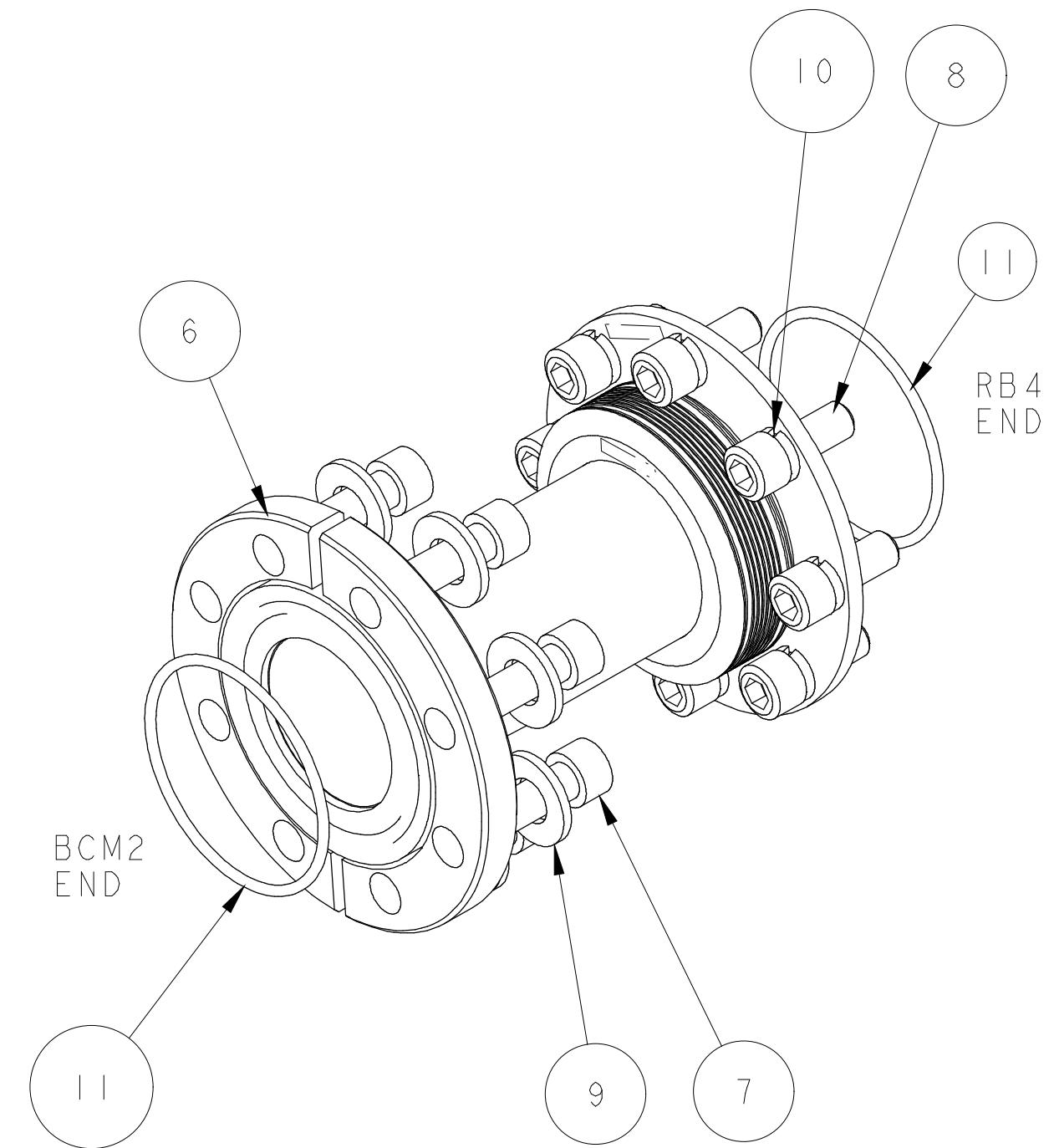
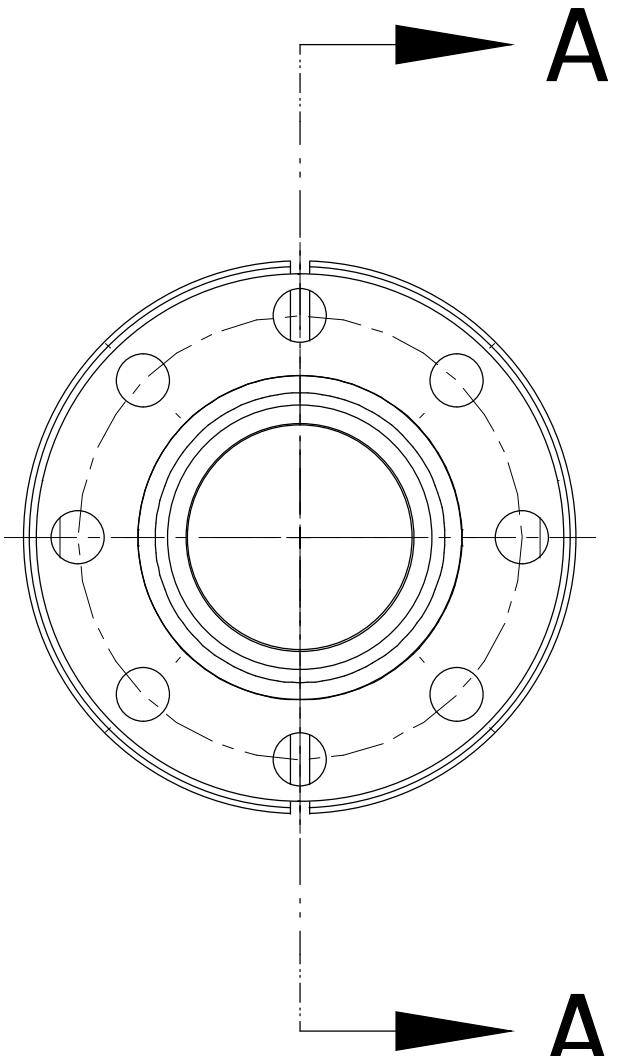
SNS-FES MEBT
 BEAM PIPES
 SPLIT FLANGE, BP7, RB3 SIDE

NOTE:

- ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
- FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
- DIMENSIONS IN INCHES.
- SILVER PLATE ALL SCREWS.



SECTION A-A
(SPLIT FLANGE OMITTED
FOR CLARITY)



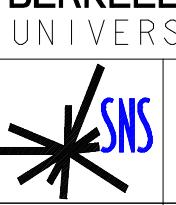
ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
11	-	2	O-RING, 2-029	VITON
10	-	8	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
9	-	8	WASHER, FLAT, ROUND, .25	SS 18-8
8		8	SCR, SCH, .25-28 UNF X .625 LG	SS 18-8
7		8	SCR, SCH, .25-28 UNF X .75 LG	SS 18-8
6	25B494	1	SPLIT FLANGE, BP8, BCM2 SIDE	SS 304L
5	25B493	1	SEAL RING, BP8, BCM2 SIDE	SS 304L
4	25B492	1	FLANGE, BP8, RB4 SIDE	SS 304L
3	25B491	1	END PIECE, 30MM	SS 304L
2	25B4774-03	1	CUT LIST, BEAM TUBES	SS 304
1	25B170	1	30 MM BPM BELLOWS	347 STAINLESS STEEL

REV	RLMPAL	09-13-01	ADDED PURCHASED PARTS
B	RLMPAL	08-22-01	MATERIAL CHANGE
A	RLMPAL	07-24-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE
			CHANGES

UNLESS OTHERWISE SPECIFIED
PROJECTION: \odot \dashv
TOLERANCES: $X.X \pm 0.1$ $X.XX \pm 0.02$ $X.XXX \pm 0.005$
FINISH: $1/16$ $1/32$ $1/64$ $1/128$
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TRENDS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

SHOP ORDERS		SER NO.
ACCT NO.	NO. REQD	DATE ISSD
DEL TO		DATE
		REQD
SURFACE TREATMT		
IDENT TAG		
METHOD TAG		
PROJECT NUMBER		
NAME N/A		
PROJECT NAME		
DWG BY R LA MANTIA		DATE 24-Jul-01
CHK BY PAL		DATE 24-Jul-01
APR BY DPO		DATE 24-Jul-01
MICROFILMED:	DWG. TYPE	SHOWN ON
ASSEM	25B612	SCALE: 1/1 DO NOT SCALE PRINTS
		SHEET 1 OF 1

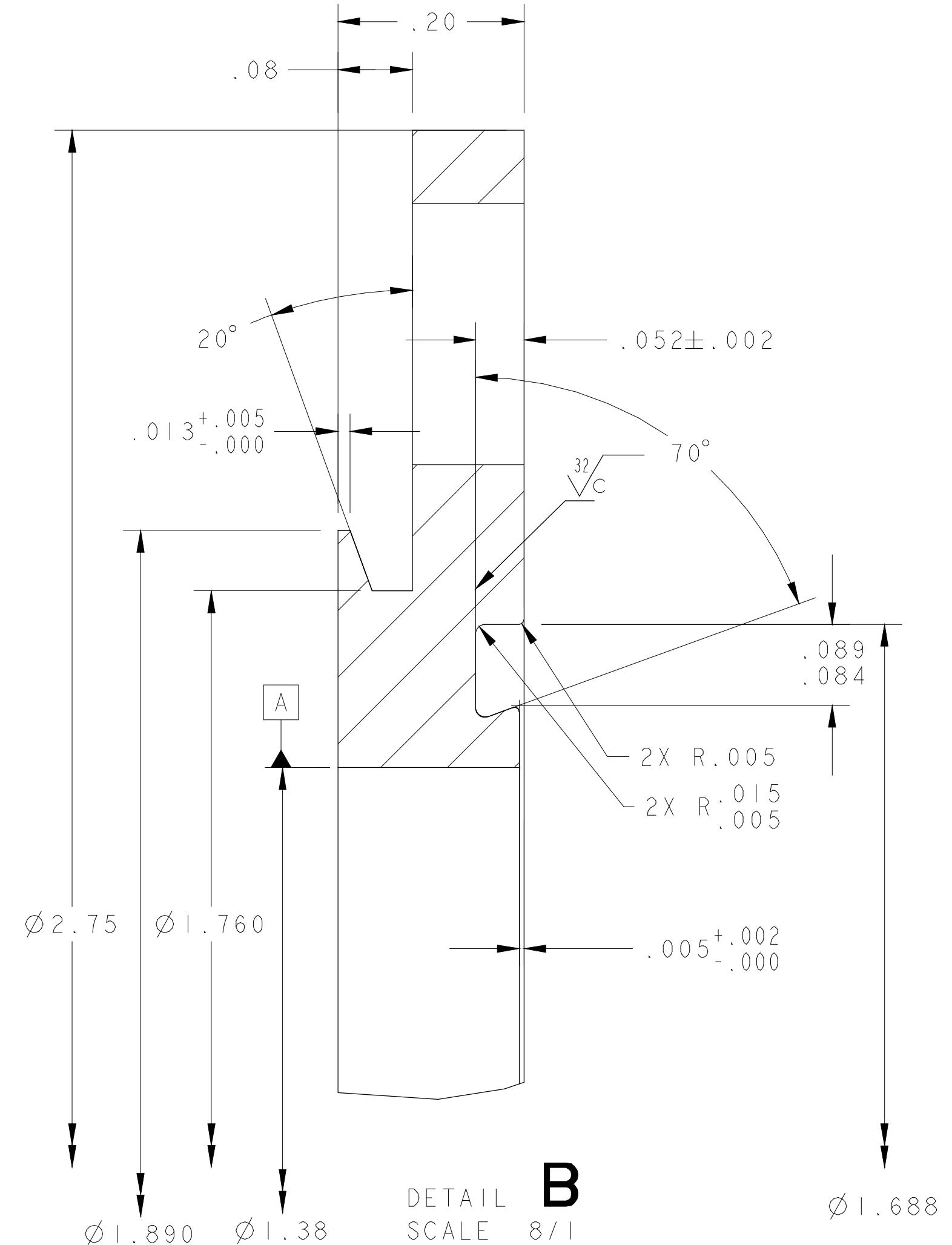
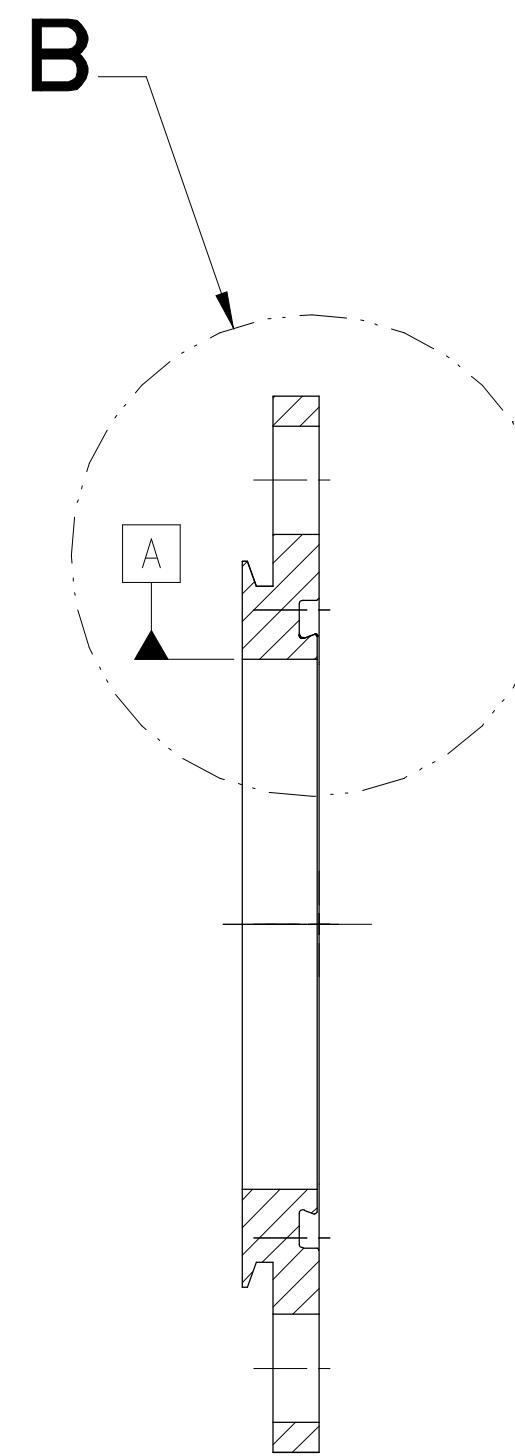
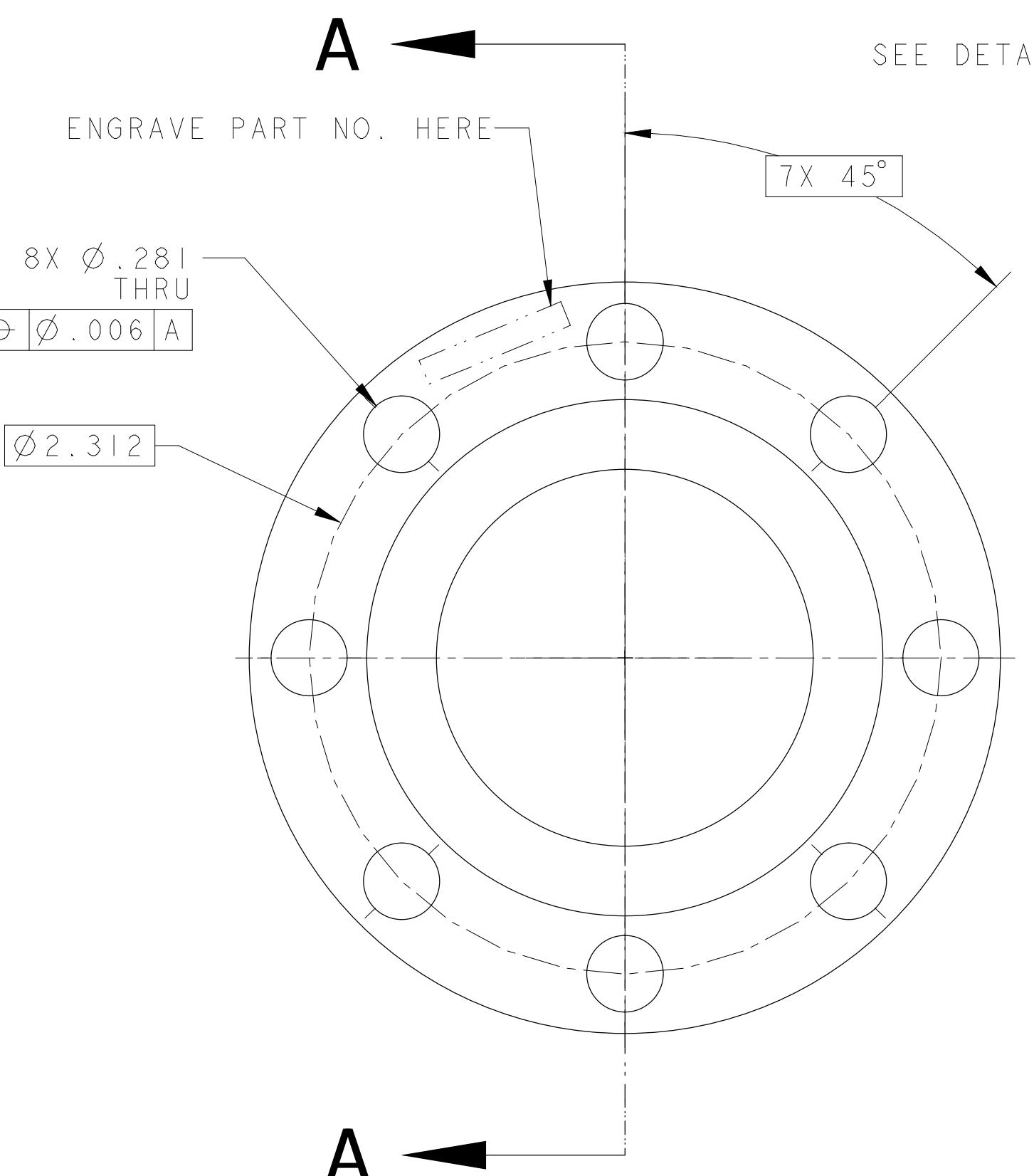
ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

 SNS-FES MEBT
BEAM PIPES
DETAIL ASSEMBLY, BEAM PIPE 8

Rev. J. B. Oberholzer
Date: 1/29/2009

PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE	REV.
			FE3312	25B4903	C

NOTE:
I. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



B	RLMPAL	08-03-01	MATERIAL CHANGE, TITLE "RB4 SIDE" WAS "BCM SIDE" .281 HOLE TOL. .006 WAS .014
A	RLMPAL	7-24-01	INITIAL RELEASE
REV	DWG	CHK	ZONE
			DATE
			CHANGES

DESCRIPTION		MATERIAL		MAT. LOCATION	
UNLESS OTHERWISE SPECIFIED		SS 304L			
PROJECTION:		SHOP ORDERS	SER -		
X.XX ± 0.1	FRAC. ± 1/64	ACCT NO.	NO. RECD	DATE ISSD	
X.XX ± 0.01	Angles ± 1.0°	DEL TO		DATE	
X.XXX ± 0.005	FINISH 12/			RECD	
DO NOT SCALE PRINT		SURFACE TREATMT IDENT TAG METHOD TAG PROJECT NUMBER PROJECT NAME N/A			
THREADS ARE CLASS 2		DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS		PART		25B490	
BREAK EDGES .016 MAX. ON MACHINED WORK		PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO. SIZE REV.
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE					25B4923 B
IN ACCORDANCE WITH ASME Y14.5M & B46.1					
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY					
SNS-FES MEBT BEAM PIPES FLANGE, BP8, RB4 SIDE					

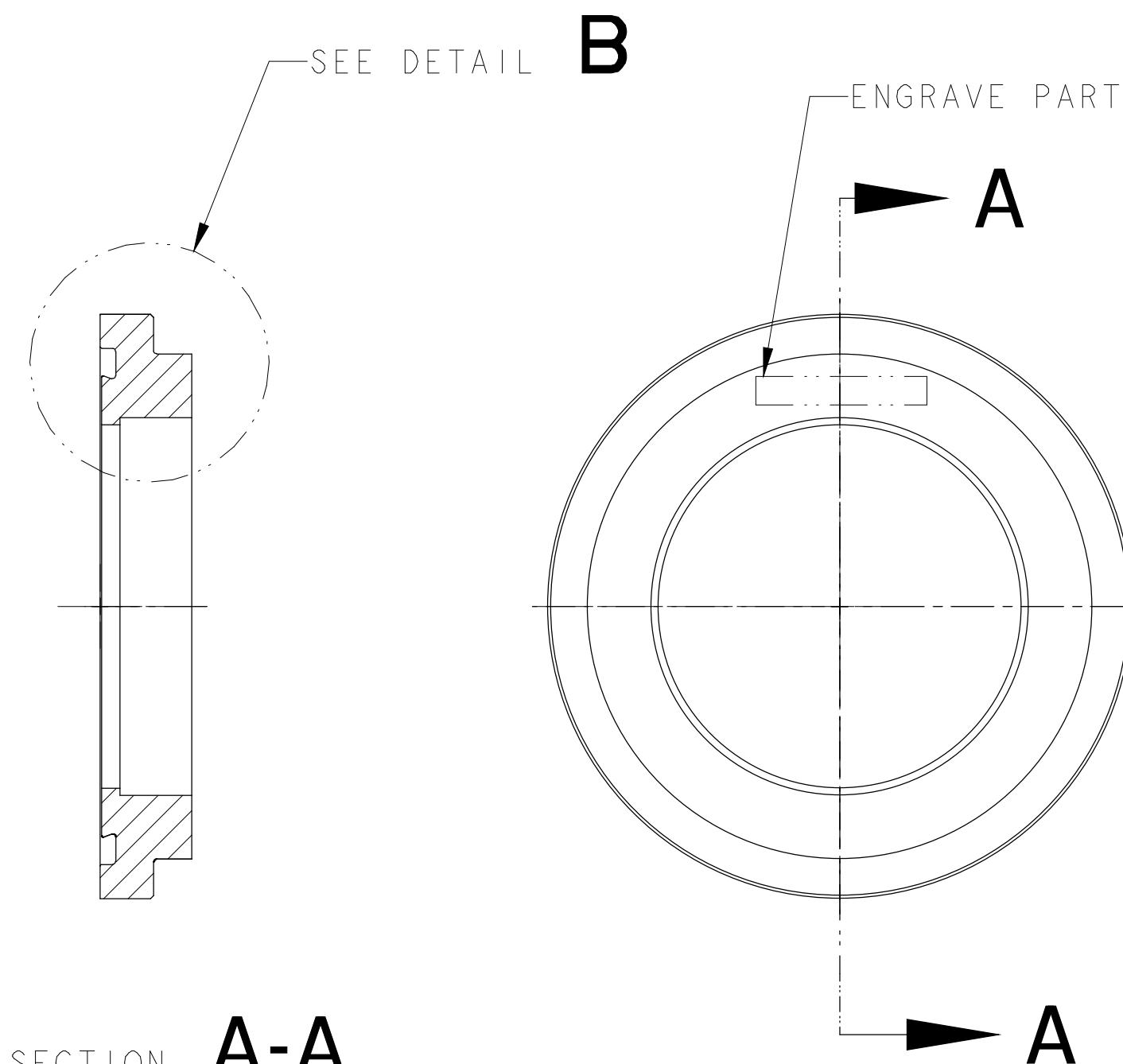
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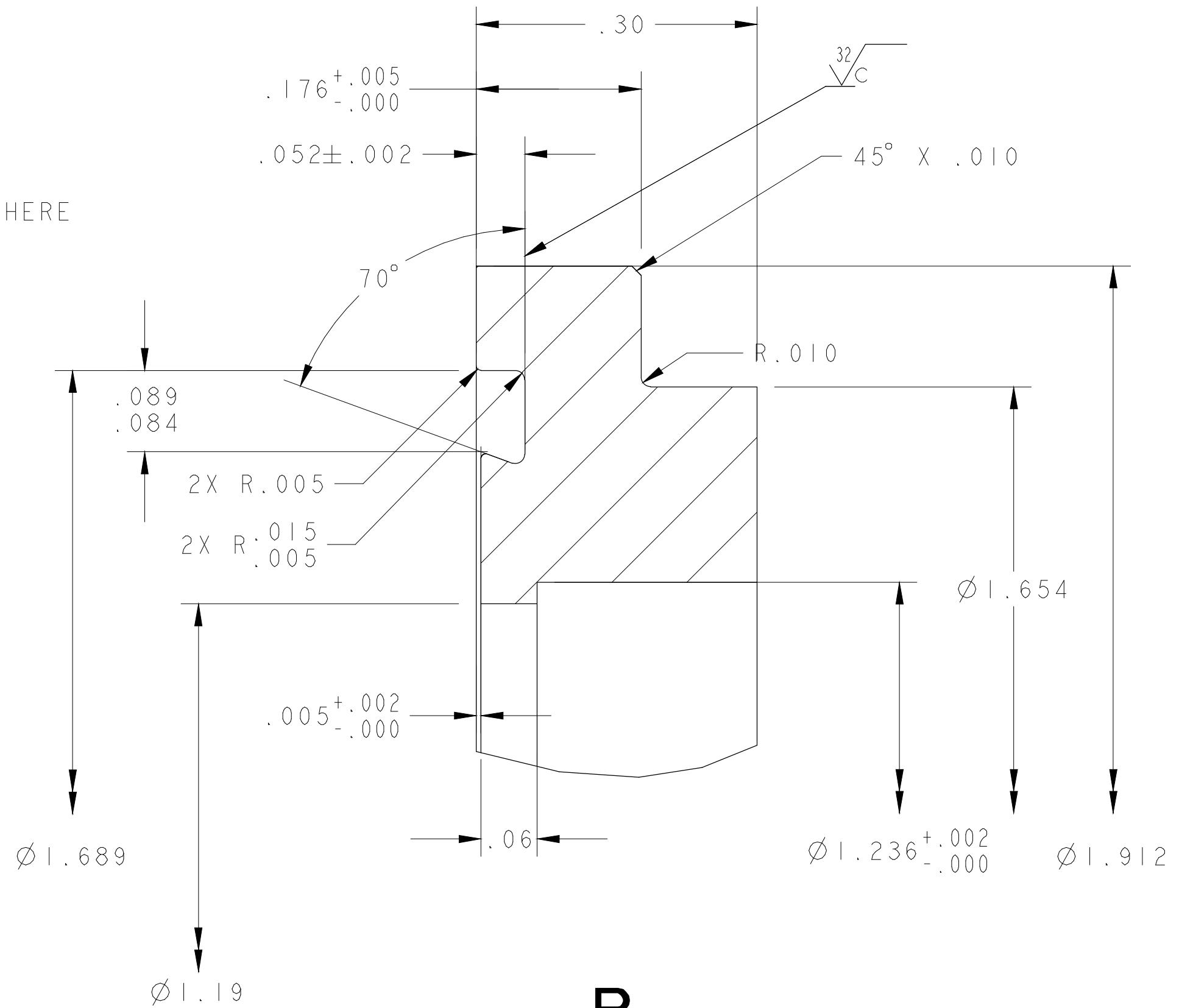
B

A

NOTE:
1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



SECTION A-A



B	RLMPAL	08-03-01	MATERIAL CHANGE, TITLE "BCM2 SIDE" WAS "RB4 SIDE"
A	RLMPAL	7-24-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE

CHANGES

UNLESS OTHERWISE SPECIFIED
PROJECTION: X.X ± 0.1 FRAC. ± 1/64
X.XX ± 0.01 Angles ± 1.0°
X.XXX ± 0.005 FINISH 12/2
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

DESCRIPTION		SS 304L	
SHOP ORDERS	SER. NO.	MATERIAL	MAT. LOCATION
ACCT NO.	NO. RECD	DATE ISSD	
DEL TO		DATE RECD	
SURFACE TREATMT			
IDENT TAG			
METHOD TAG			
PROJECT NUMBER	na		
PROJECT NAME	N/A		
DWG. TYPE	SHOWN ON	SCALE: 2/1	DO NOT SCALE PRINTS
PART	25B490		
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO. SIZE REV.
			FE3312 25B4933 B

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES
SEAL RING, BP8, BCM2 SIDE

SNS

D

C

B

A

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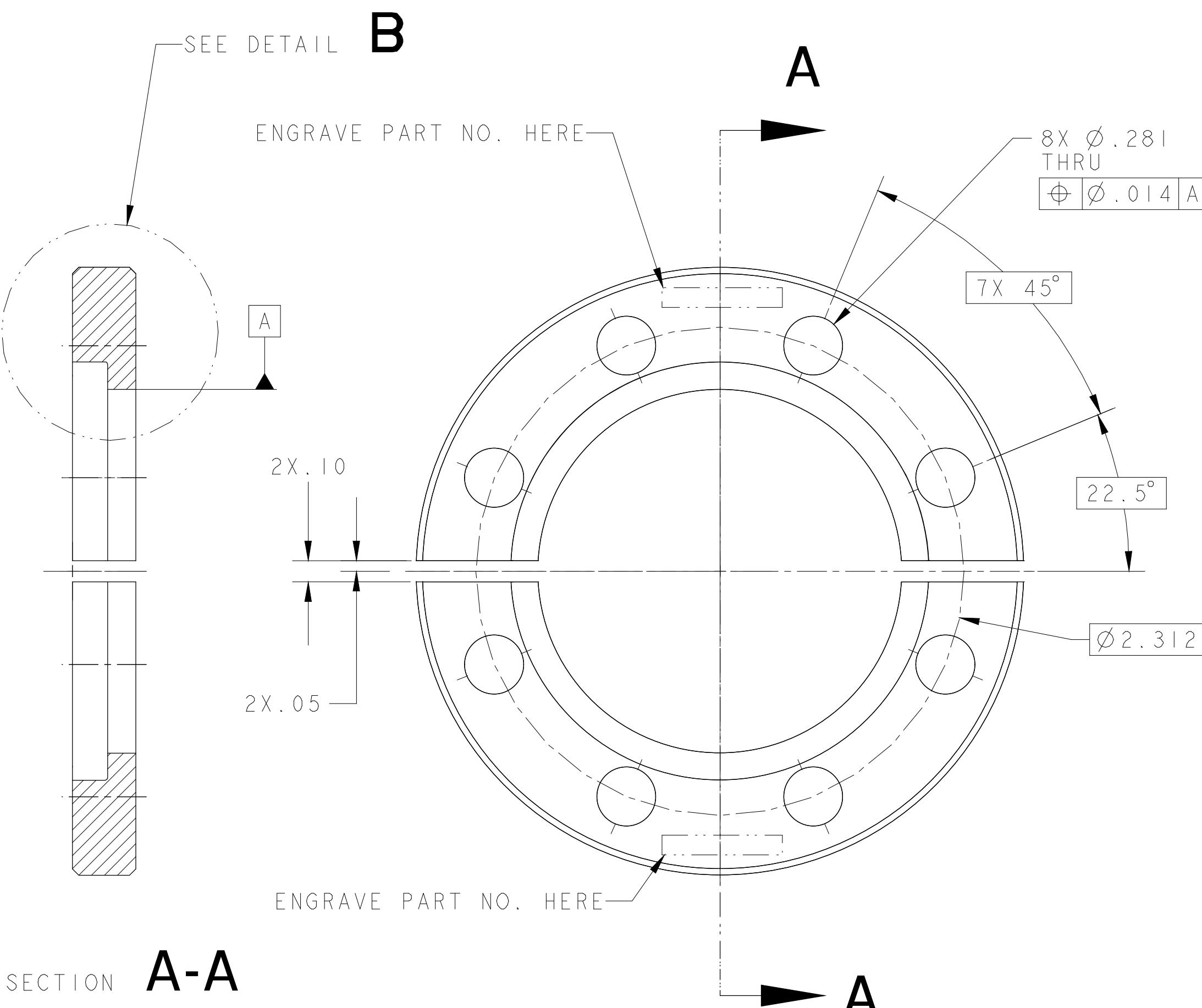
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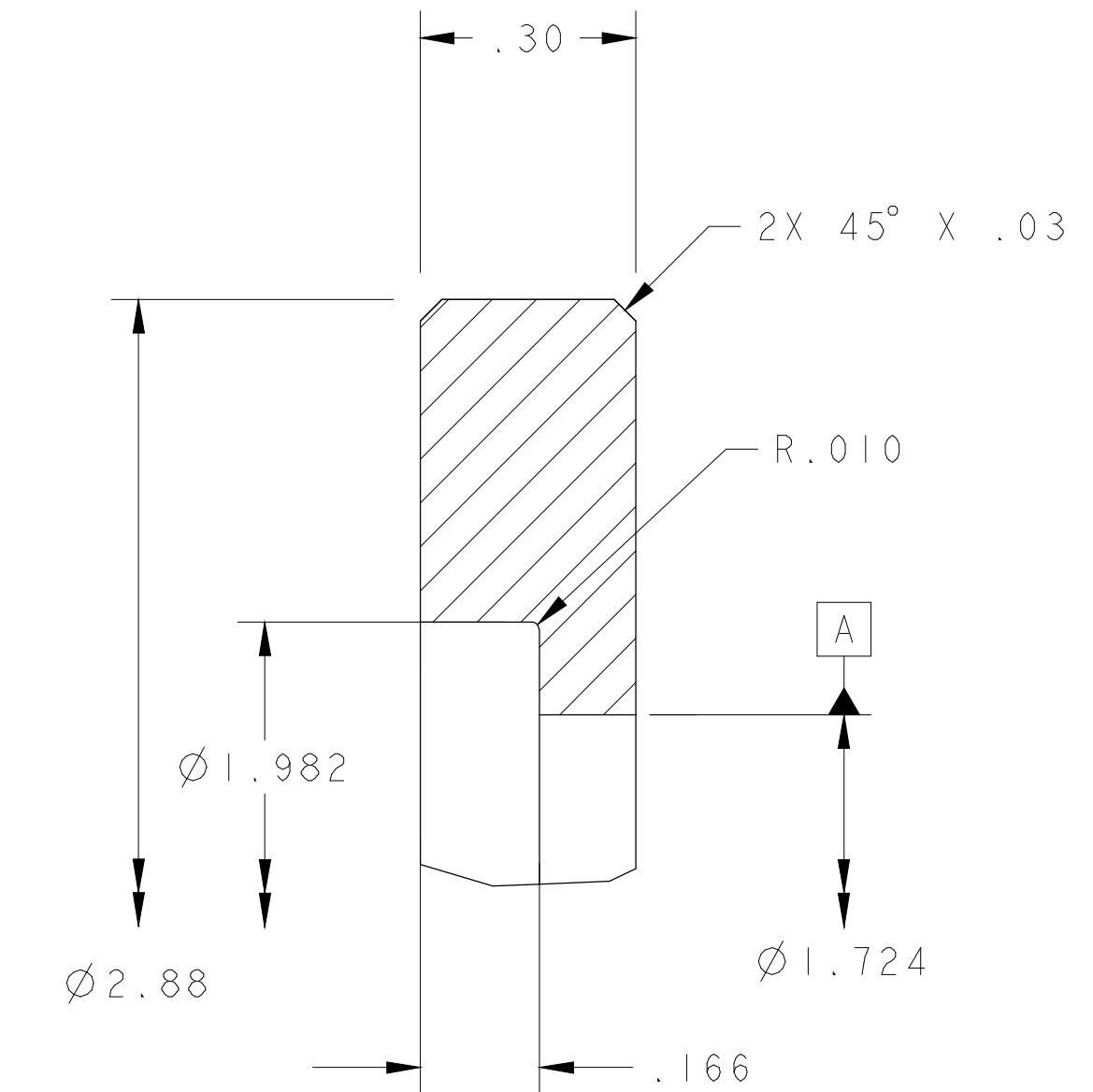
B

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NOTE:
 1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.
 2. FURNISH AS A SET



SECTION A-A



DETAIL
SCALE 4/1

B	RLMPAL	08-03-01	MATERIAL CHANGE TITLE "BCM2 SIDE" WAS "RB4 SIDE"
A	RLMPAL	7-24-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE

CHANGES
IN ACCORDANCE WITH ASME Y14.5M & B46.1

DESCRIPTION		SS 304L	REV.	SIZE	REV.	SH.
PROJECT:		ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY				
TOLERANCES		SURFACE TREATMT IDENT TAG METHOD TAG PROJECT NUMBER NAME N/A				
PROJECTION: X.X ± 0.1 FRAC. ± 1/64 X.XX ± 0.01 Angles ± 1.0° X.XXX ± 0.005 FINISH 12/		PROJECT NUMBER NAME N/A				
DO NOT SCALE PRINT THREADS ARE CLASS 2 CHAMFER ENDS OF ALL SCREW TREADS 30° CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS BREAK EDGES .016 MAX. ON MACHINED WORK REMOVE BURRS, WELD SPLATTER & LOOSE SCALE		MICROFILMED:	DWG. TYPE PART	SHOWN ON 25B490	SCALE: 2/1 DWG. NO. SHEET 1 OF 1	DO NOT SCALE PRINTS
REV DWG CHK ZONE DATE		PATENT CLEAR:	DESIGN ACCT. NO. -	CATEGORY CODE FE3312	DWG. NO. 25B4943	SIZE B

D

C

B

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D

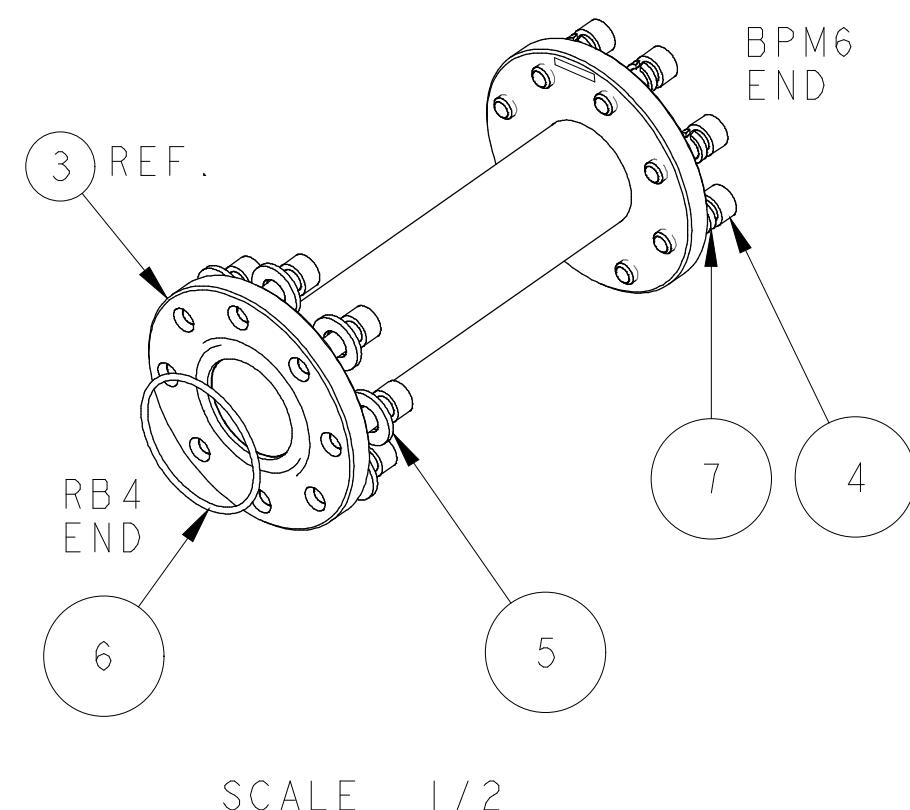
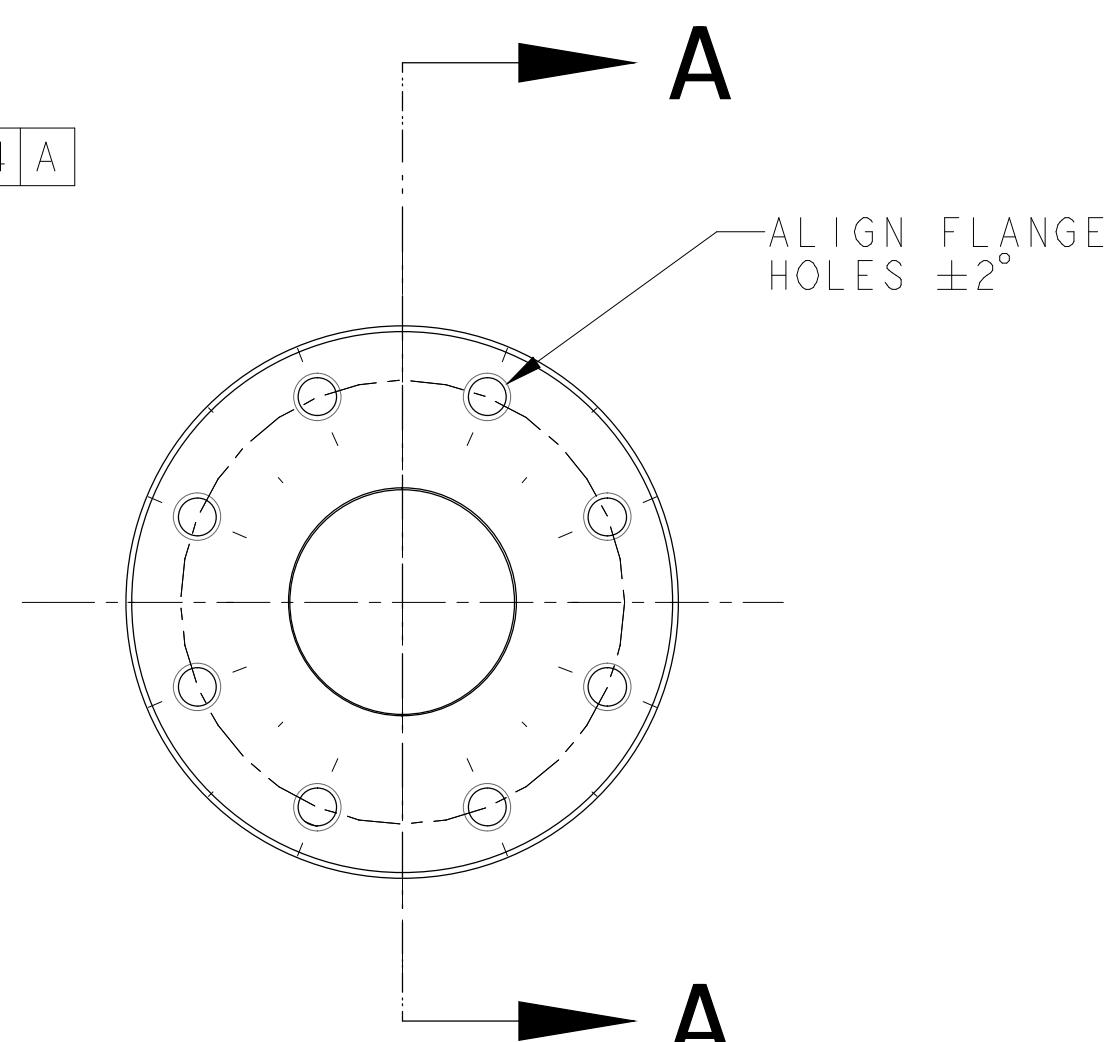
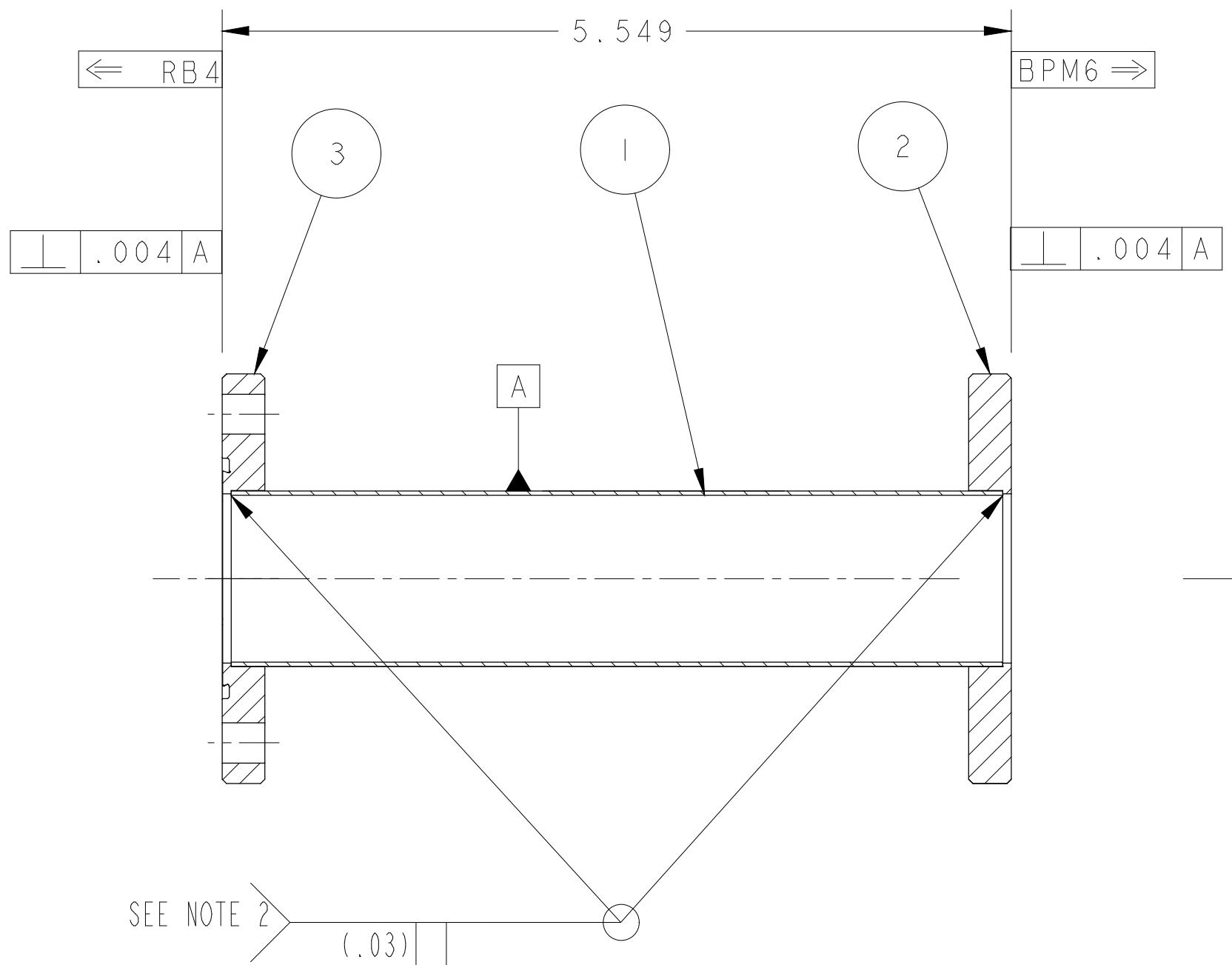
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B

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NOTE:

1. ASSEMBLE IN CLEAN ENVIRONMENT. AFTER ASSEMBLY, WRAP TO MAINTAIN CLEANLINESS.
2. FINISHED PART TO BE VACUUM TIGHT. LEAK RATE NOT TO EXCEED 1×10^{-8} torr l/sec. He.
3. DIMENSIONS IN INCHES.
4. SILVER PLATE ALL SCREWS.

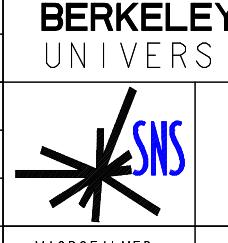


ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
7	-	8	LOCK WASHER, SPRING, HIGH COLLAR, .25"	SS 18-8
6	-	1	O-RING, 2-029	VITON
5	-	8	WASHER, FLAT, ROUND, .25	SS 18-8
4		16	SCR, SCH, .25-28 UNF X .75 LG	SS 18-8
3	25B498	1	FLANGE, BP9, RB4 SIDE	SS 304L
2	25B497	1	FLANGE, BP9, BPM6 SIDE	SS 304L
1	25B4774-04	1	CUT LIST, BEAM TUBES	SS 304

REV	DWG	CHK	ZONE	DATE	CHANGES
D	RLMPAL	09-21-01			ADMINISTRATIVE
C	RLMPAL	09-13-01			ADDED PURCHASED PARTS
B	RLMPAL	08-22-01			MATERIAL CHANGE
A	RLMPAL	7-24-01			INITIAL RELEASE
REV	DWG	CHK	ZONE	DATE	CHANGES

UNLESS OTHERWISE SPECIFIED
PROJECTION: -
TOLERANCES: $X.X \pm 0.1$ $X.XX \pm 0.01$ $X.XXX \pm 0.003$ $FRAC. \pm 1/64$ $Angles \pm 1.0^\circ$ $FINISH \frac{1}{16}$
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE
IN ACCORDANCE WITH ASME Y14.5M & B46.1

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

SNS-FES MEBT
BEAM PIPES
DETAIL ASSEMBLY, BEAM PIPE 9

DWG. TYPE: ASSEM SHOWN ON: 25B612 DO NOT SCALE PRINTS: 1/1 SHEET 1 OF 1
PROJECT NUMBER: na PROJECT NAME: N/A DATE: 24-Jul-01
BY: R LA MANTIA BY: CHK PAL DATE: 24-Jul-01
BY: APR DPO DATE: 24-Jul-01
PATENT CLEAR: DESIGN ACCT. NO. CATEGORY CODE DWG. NO. SIZE REV.
- FE3312 25B4963 D

D

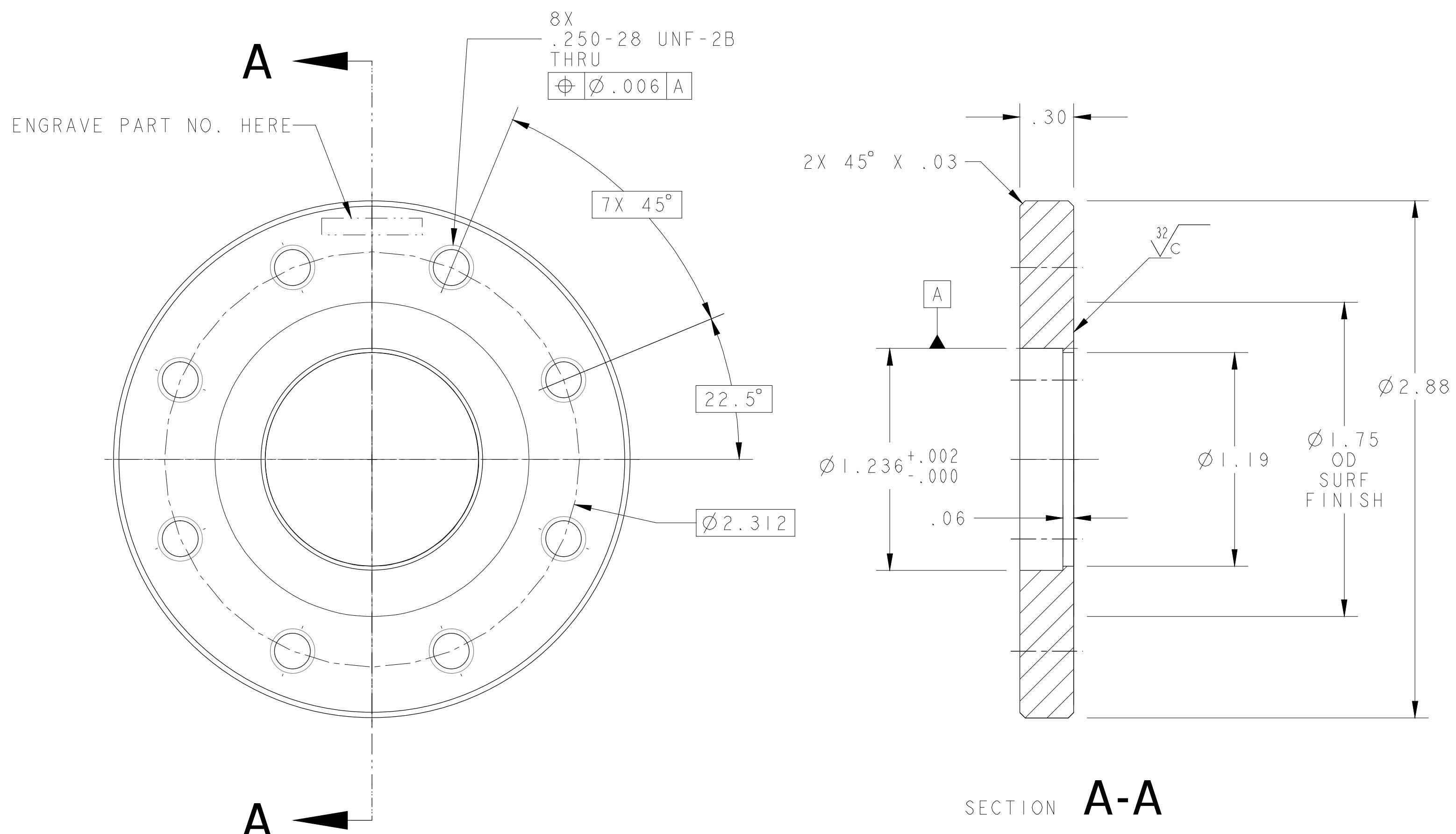
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B

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NOTE:

1. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



A	RLMPAL	08-03-01	MATERIAL CHANGE, .250-28HOLE TOL .006 WAS .014
A	RLMPAL	7-24-01	INITIAL RELEASE
REV	DWG	CHK	ZONE DATE

CHANGES

UNLESS OTHERWISE SPECIFIED		SHOP ORDERS	SER - NO.	SS 304L	REV.
PROJECTION:		ACCT NO.	NO. RECD	DATE ISSD	-
TOLERANCES X.X ± 0.1 X.XX ± 0.01 X.XXX ± 0.005		DEL TO		DATE RECD	-
FRAC. ± 1/64 Angles ± 1.0°		SURFACE TREATMT		ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY	
FINISH 12/2		IDENT TAG		UNIVERSITY OF CALIFORNIA - BERKELEY	
DO NOT SCALE PRINT		METHOD TAG		SNS-FES MEBT	
THREADS ARE CLASS 2		PROJECT NUMBER		BEAM PIPES	
CHAMFER ENDS OF ALL SCREW TREADS 30°		NAME N/A		FLANGE, BP9, BPM6 SIDE	
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS		DWG. TYPE			
BREAK EDGES .016 MAX. ON MACHINED WORK		PART			
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE		SHOWN ON			
IN ACCORDANCE WITH ASME Y14.5M & B46.1		25B496			
APR DPO		SCALE: 2/1		DO NOT SCALE PRINTS	
BY		SHEET 1 OF 1			
CHK PAL		PATENT CLEAR:		DESIGN ACCT. NO.	
DATE 24-Jul-01		CATEGORY CODE		DWG. NO.	
APR DPO		FE3312		SIZE	
BY		REV.		25B4973	

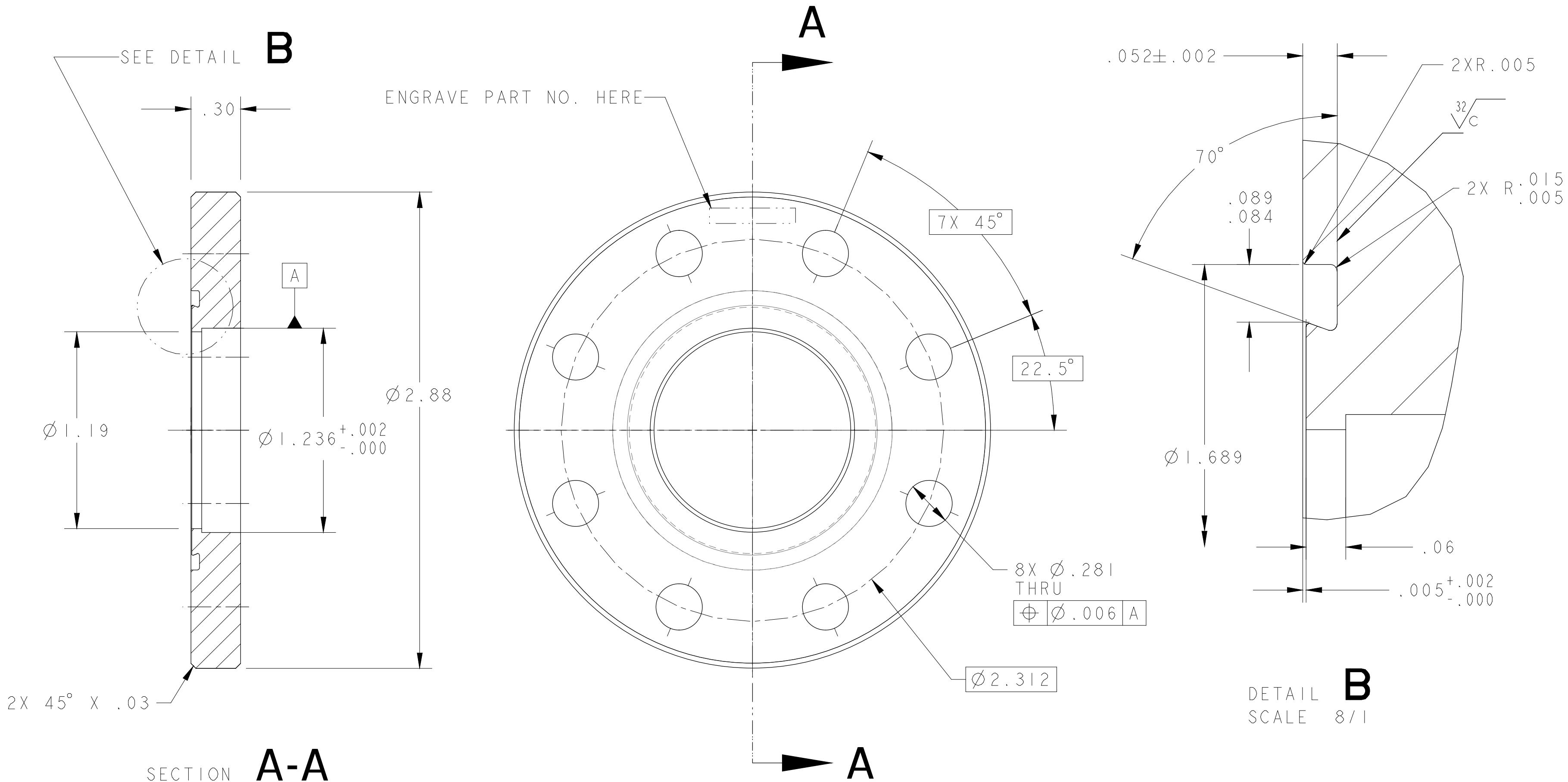
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B

A

NOTE :
I. ULTRA-HIGH VACUUM CLEANING & PACKAGING REQUIRED.



B	RLMPAL	8-03-01	MATERIAL CHANGE, .281 HOLE TOL .006 WAS .014	
A	RLMPAL	7-24-01	INITIAL RELEASE	
REV	DWG	CHK	ZONE	DATE
				CHANGES

UNLESS OTHERWISE SPECIFIED		DESCRIPTION		MATERIAL		MAT. LOCATION		
PROJECTION:		SHOP ORDERS		SER NO.				
TOLERANCES	X.X ± 0.1	FRAC. ± 1/64	ACCT NO.	NO. REQD	DATE ISSD	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA - BERKELEY 		
	X.XX ± 0.01	Angles ± 1.0°	DEL TO		DATE REQD			
	X.XXX ± 0.005	FINISH	SURFACE TREATMT					
	DO NOT SCALE PRINT		IDENT METHOD TAG					
THREADS ARE CLASS 2		PROJECT NUMBER na			SNS	SNS-FES MEBT BEAM PIPES		
CHAMFER ENDS OF ALL SCREW TREADS 30°		PROJECT NAME N/A				MICROFILMED:	DWG. TYPE PART	SHOWN ON 25B496
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS		DWG BY R LA MANTIA		DATE 24-Jul-01	PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE FE3312	SHEET 1 OF 1
BREAK EDGES .016 MAX. ON MACHINED WORK		CHK BY PAL		DATE 24-Jul-01		-	DWG. NO. 25B4983	SIZE B REV. B
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE		APR BY DPO		DATE 24-Jul-01				
IN ACCORDANCE WITH ASME Y14.5M & B4.1								