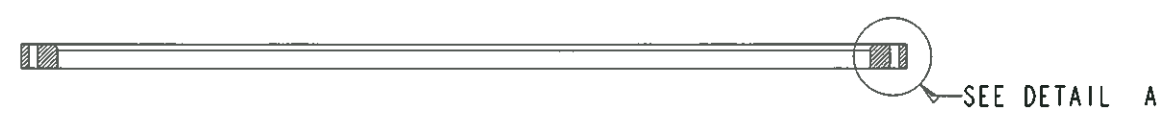


DETAIL A
SCALE 1.000

*MATERIAL
6061*



SECTION A-A

ITEM	DESCRIPTION	MATL	QUANTITY

REF. DWGS.	REV.	DATE	REVISION	BY

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS $X \pm 0.1$ $XX \pm 0.05$
 ANGULAR DIMENSIONS $\pm 1^\circ$
 SURFACE FINISH 32um

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

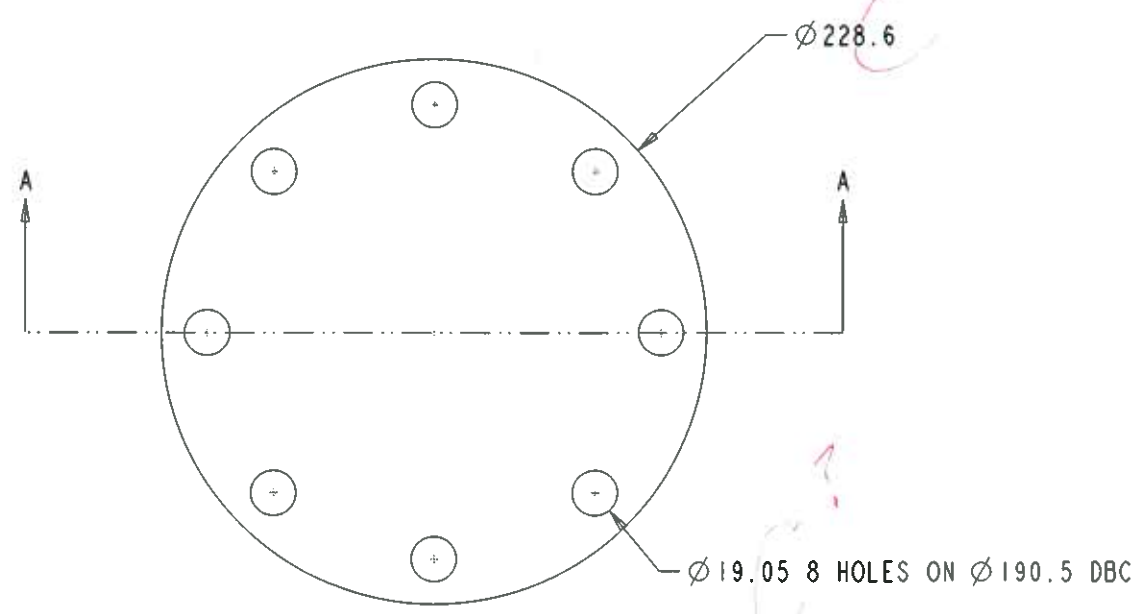
DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED E-MAIL: c.jng@ualberta.ca

APPROVED

CENTER OF PARTICLE PHYSICS

WINDOW CLAMP

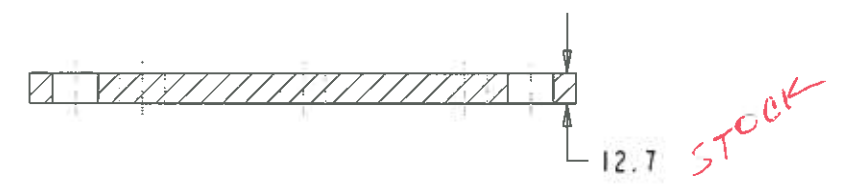
SCALE 0.100 APPROVAL DWG NO. REV.
 DATE JAN 9, 2012 CHIEF ENGR



ITEM	DESCRIPTION	MATL	QUANTY



MATERIAL?



SECTION A-A

REF. DWGS.	REV.	DATE	REVISION	BY
	A	DEC 7	ORIGINAL	
	B	DEC 22	ELIMINATED HOLE IN MIDDLE	

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1'
 SURFACE FINISH 32mm

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
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APPROVED

CENTER OF PARTICLE PHYSICS

GAS PORT PLATE

SCALE 0.500 APPROVAL DWG. NO. REV.
 DATE DEC 22, 2011 CHIEF ENGR. B

e

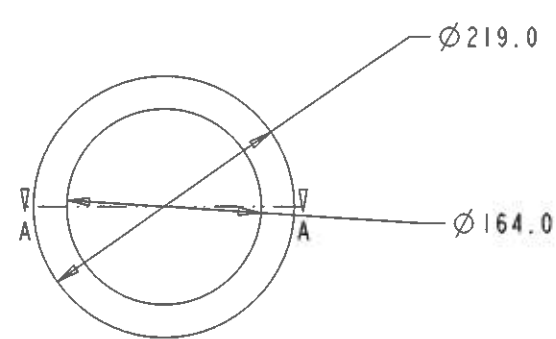
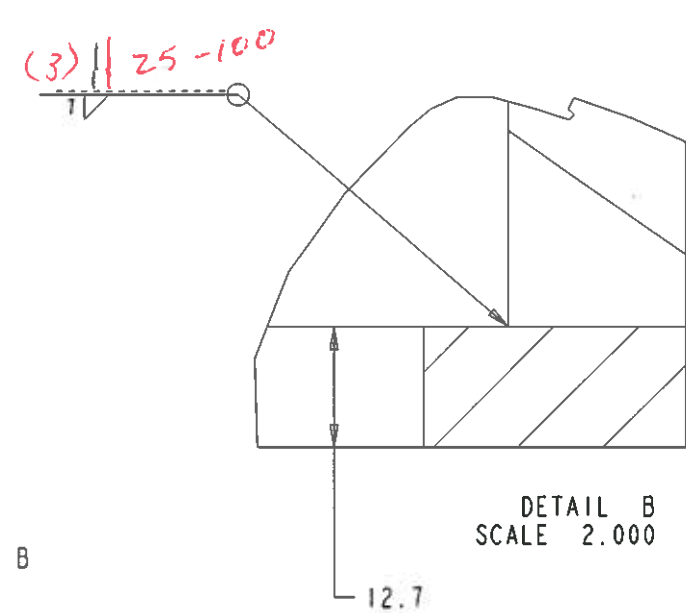
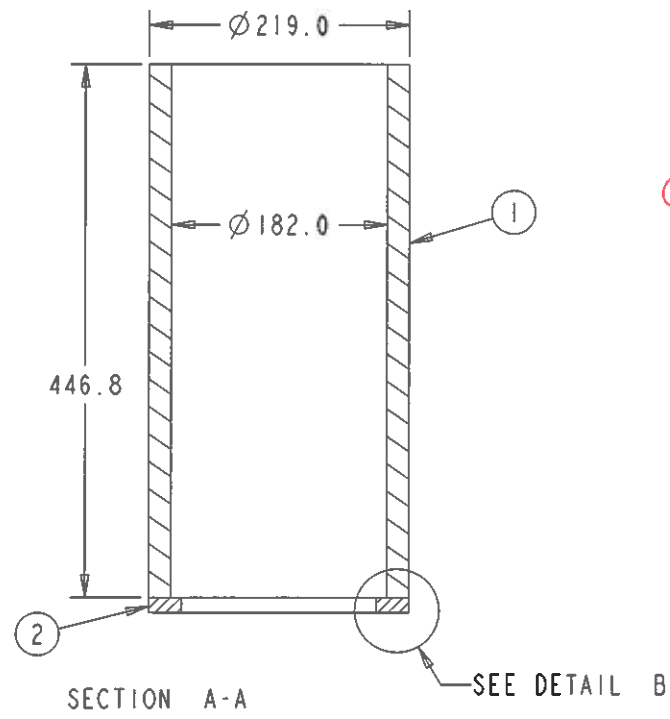
d

c

b

a

ITEM	DESCRIPTION	MATL	QUANTITY
1	Quartz Window Sleeve Pipe	ALUM	1
2	Quartz Window Sleeve Plate	ALUM	1



NOTES:

- 1 WILL BE A 8" SCH 140 PIPE WITH ID BORED TO PROPER DIMENSION
- 2 WILL BE MADE FROM AN ALUMINUM PLATE

*TYPE ?
LOOK!*

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1°
 SURFACE FINISH 32um

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED E-MAIL: c.jng@ualberta.ca

APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY

CENTER OF PARTICLE PHYSICS

QUARTZ WINDOW SLEEVE WELDED BEFORE MACHINING

SCALE 0.250 APPROVAL DWG. NO. REV.
 DATE JAN 6. 2012 CHIEF ENGR.

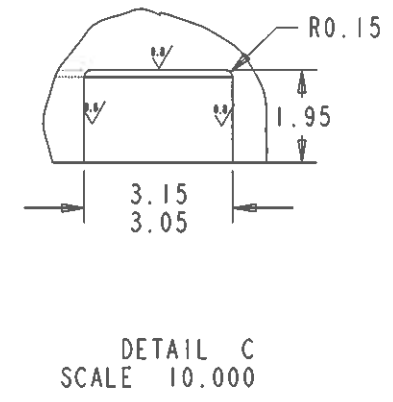
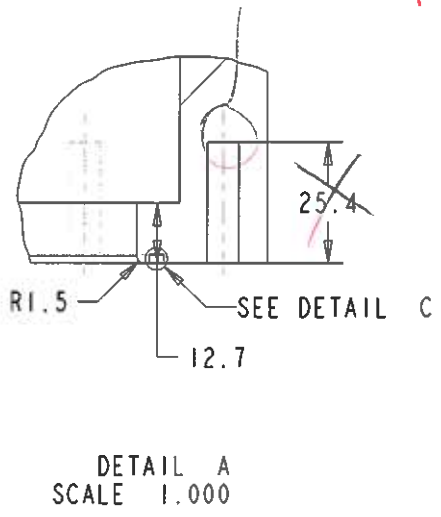
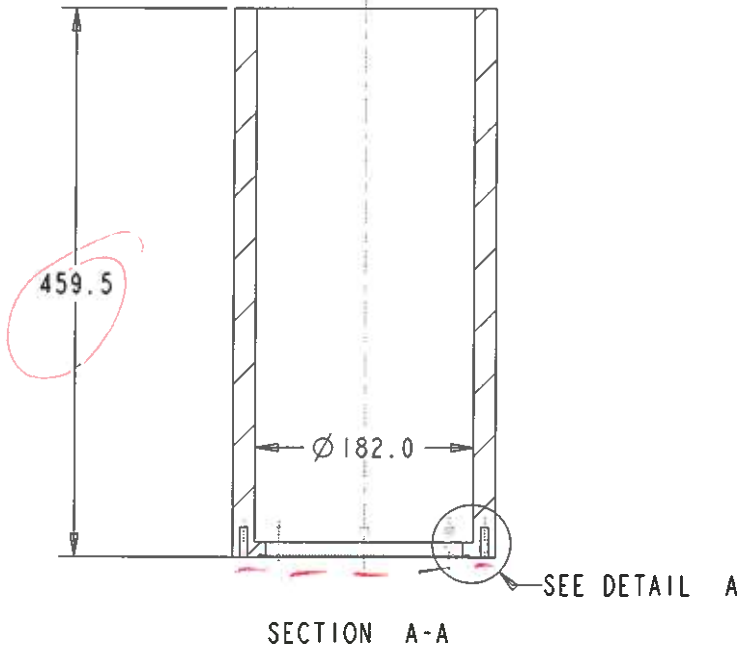
e

d

c

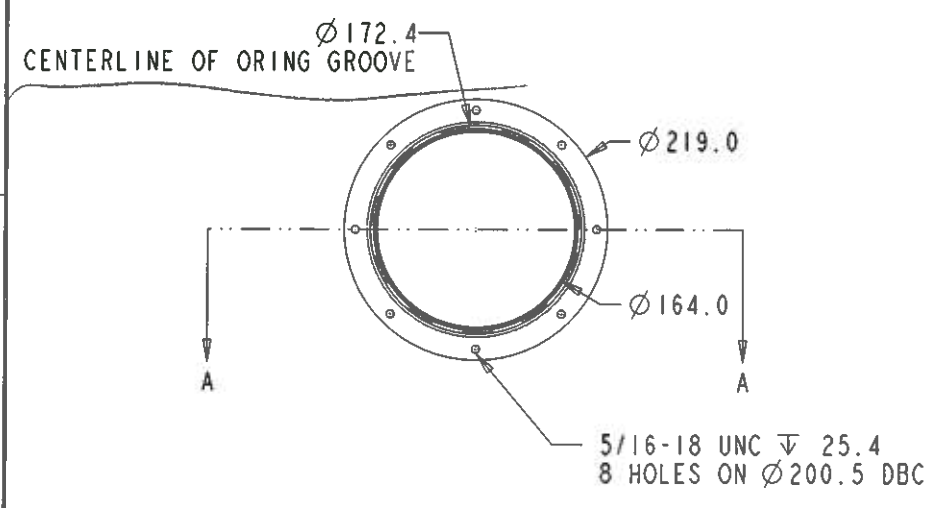
b

a



ITEM	DESCRIPTION	MATL	QUANTITY

- NOTES:
- O-ring Groove for AS568-166 Standard O-ring
 - Sealing surface must be free of burrs and scratches



ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1°
 SURFACE FINISH 32um

UNIVERSITY OF ALBERTA
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DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED E-MAIL: c.jng@ualberta.ca

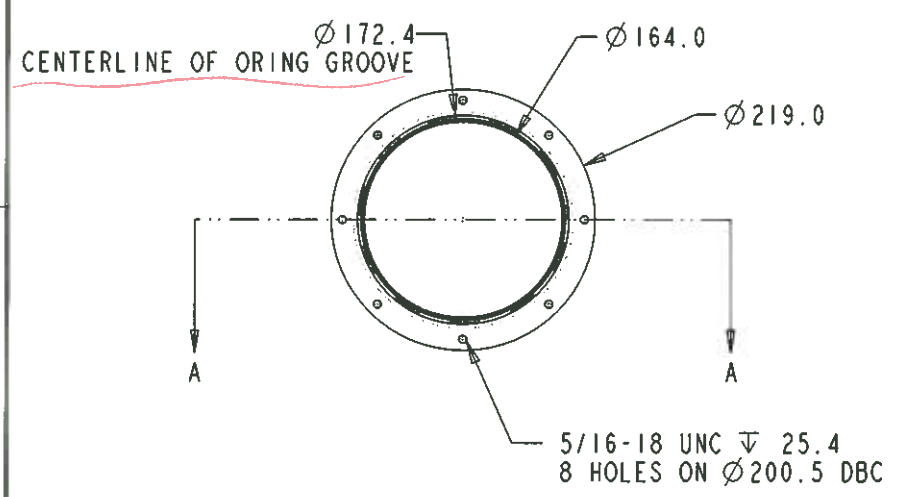
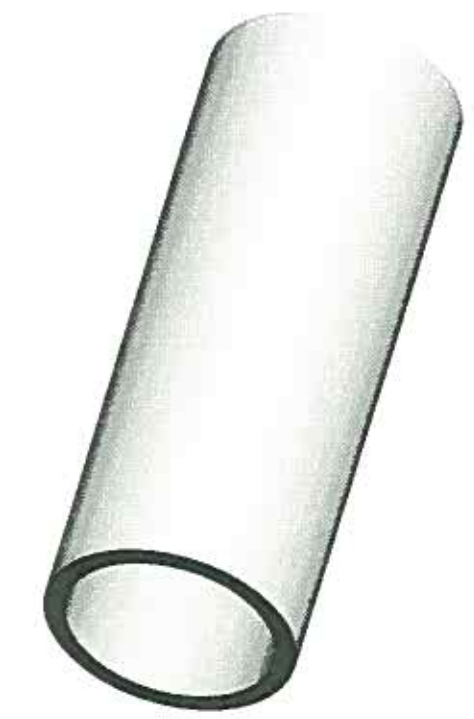
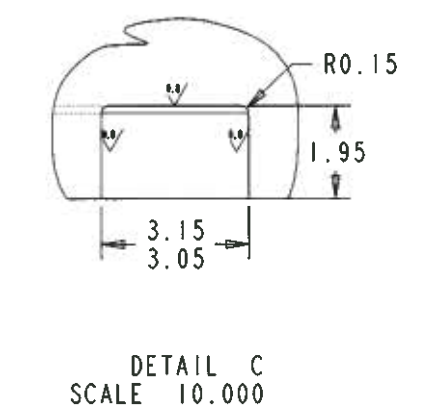
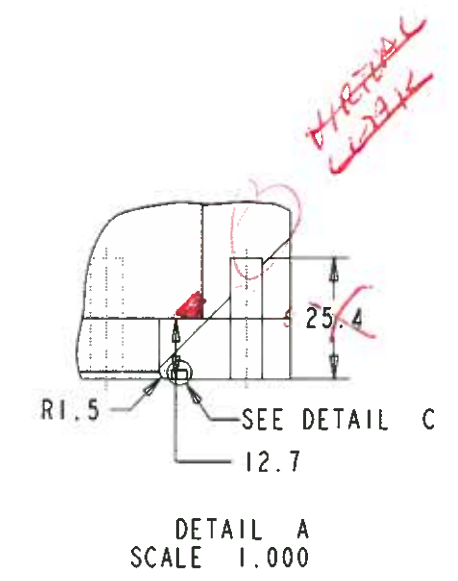
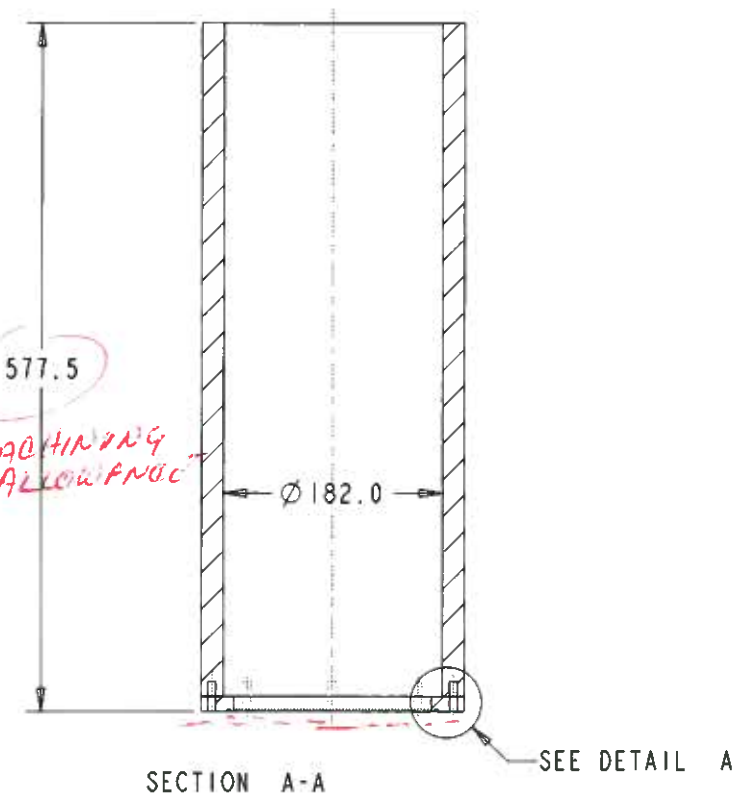
APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY

CENTER OF PARTICLE PHYSICS

QUARTZ WINDOW SLEEVE

SCALE 0.250 APPROVAL DWG. NO. REV.
 DATE Jan 9, 2012 CHIEF ENGR. B



- NOTES:
- O-ring Groove for AS568-166 Standard O-ring
 - Sealing surface must be free of burrs and scratches

JITON

ITEM	DESCRIPTION	MATL	QUANTITY

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1°
 SURFACE FINISH 32µm

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
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APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY

CENTER OF PARTICLE PHYSICS

QUARTZ WINDOW SLEEVE LONG

SCALE 0.250 APPROVAL DWG. NO. REV.
 DATE JAN 9, 2012 CHIEF ENGR. 8

e

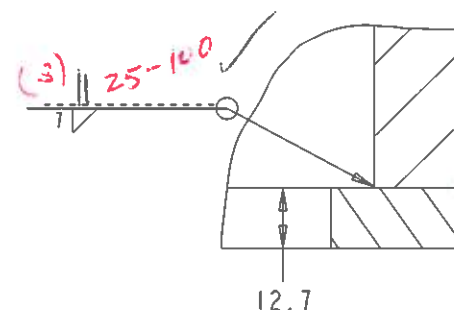
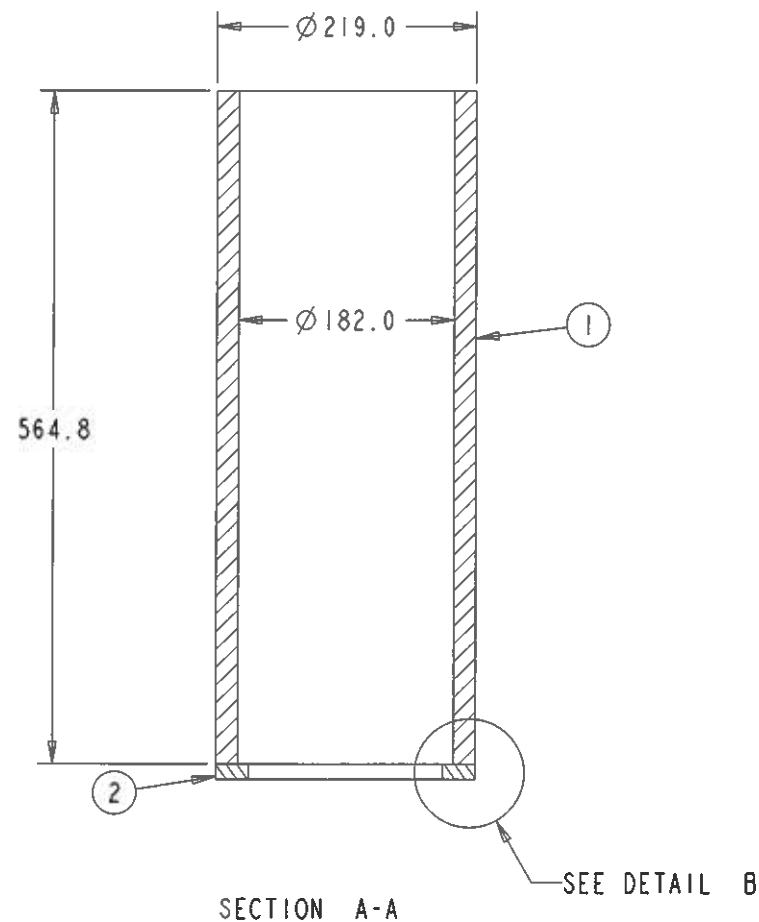
d

c

b

a

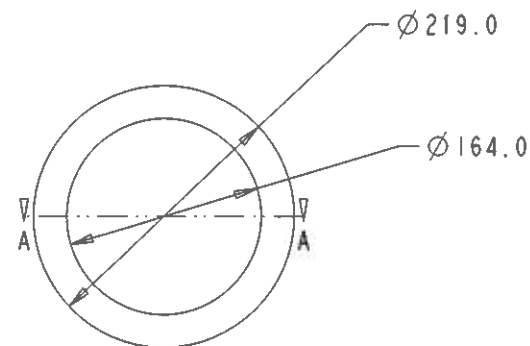
ITEM	DESCRIPTION	MATL	QUANTITY
1	Quartz Window Sleeve Pipe Long	ALUM	1
2	Quartz Window Sleeve Plate	ALUM	1



NOTES:

- 1. 1 WILL BE A 8" SCH 140 PIPE WITH ID BORED TO PROPER DIMENSION
- 2. 2 WILL BE MADE FROM AN ALUMINUM PLATE

TYPE
Level



ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1'
 SURFACE FINISH 32um

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
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 CHECKED EMAIL: c.jng@ualberta.ca

APPROVED
 DATE JAN 6, 2012

REF. DWGS.	REV.	DATE	REVISION	BY

CENTER OF PARTICLE PHYSICS

QUARTZ WINDOW SLEEVE LONG
 WELDED BEFORE MACHINING

SCALE 0.250 APPROVAL DWG. NO. REV.
 DATE JAN 6, 2012 CHIEF ENGR

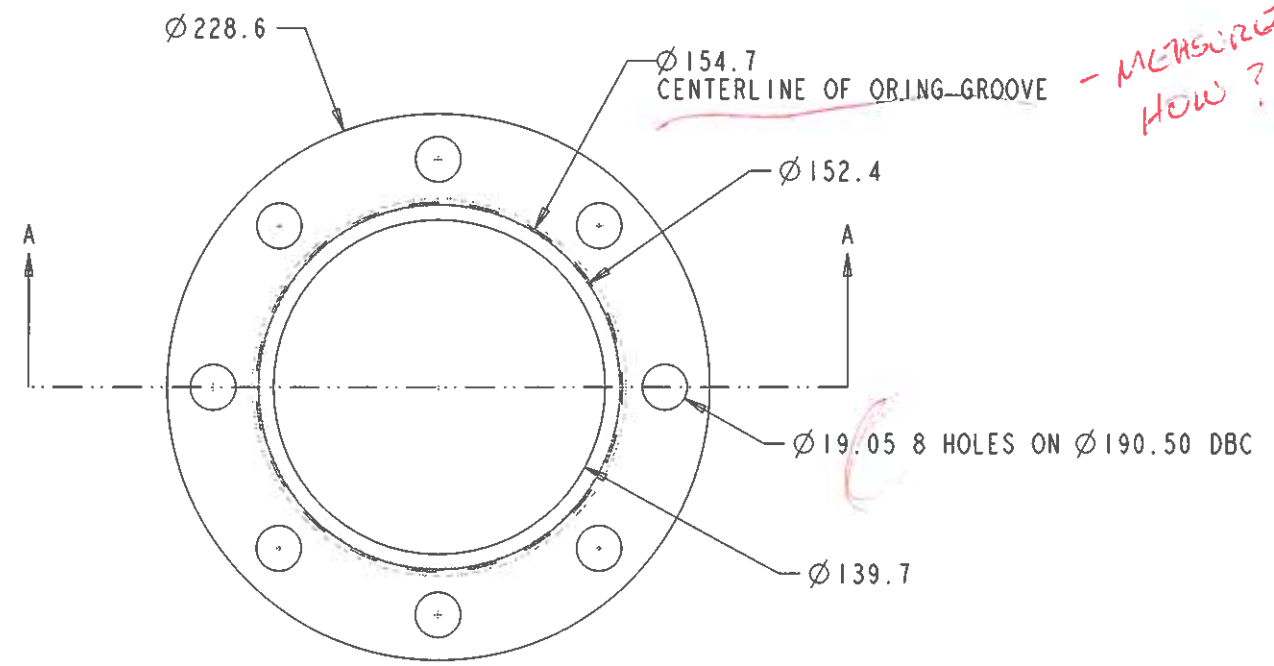
e

d

c

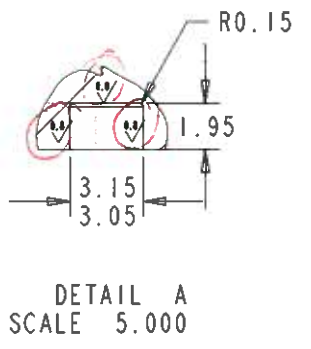
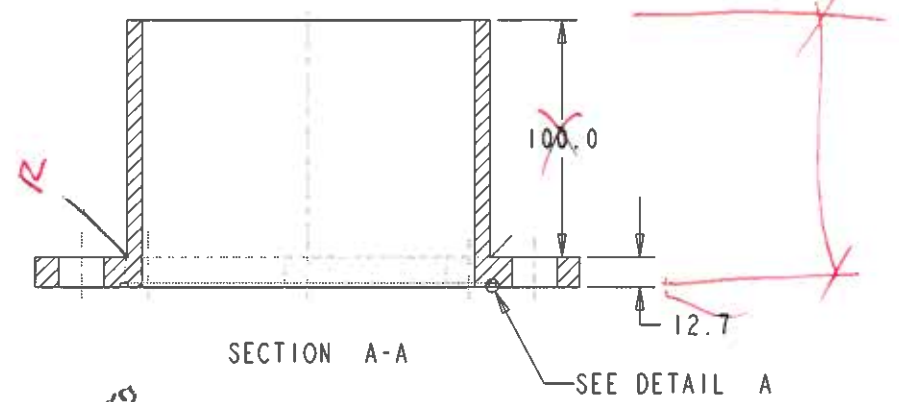
b

a



- MEASURE HOW?

BUY THIS?



MATERIAL? LOW!

*suggestion
break shape corners*

NOTES:

1. O-ring Groove for AS568-163 Standard O-ring
2. ~~Sealing surface must be free of burrs and scratches~~

- VITON

ITEM	DESCRIPTION	MATL	QUANTITY

REF. DWGS.	REV.	DATE	REVISION	BY

ALL DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1°
 SURFACE FINISH 32μm

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

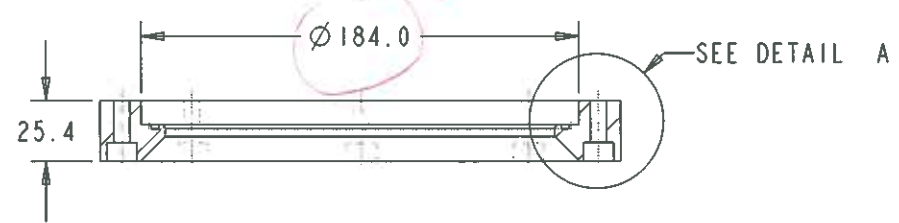
DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED E-MAIL: cjang@ualberta.ca

APPROVED

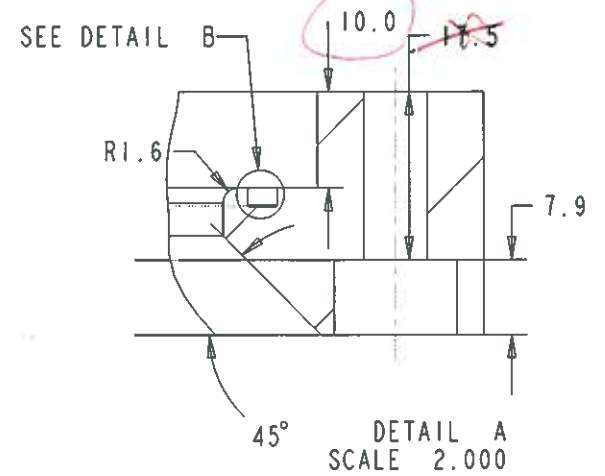
CENTER OF PARTICLE PHYSICS

GAS PORT FLANGE

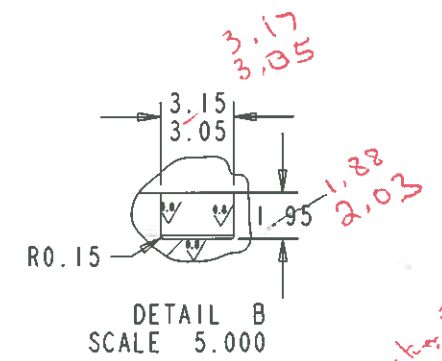
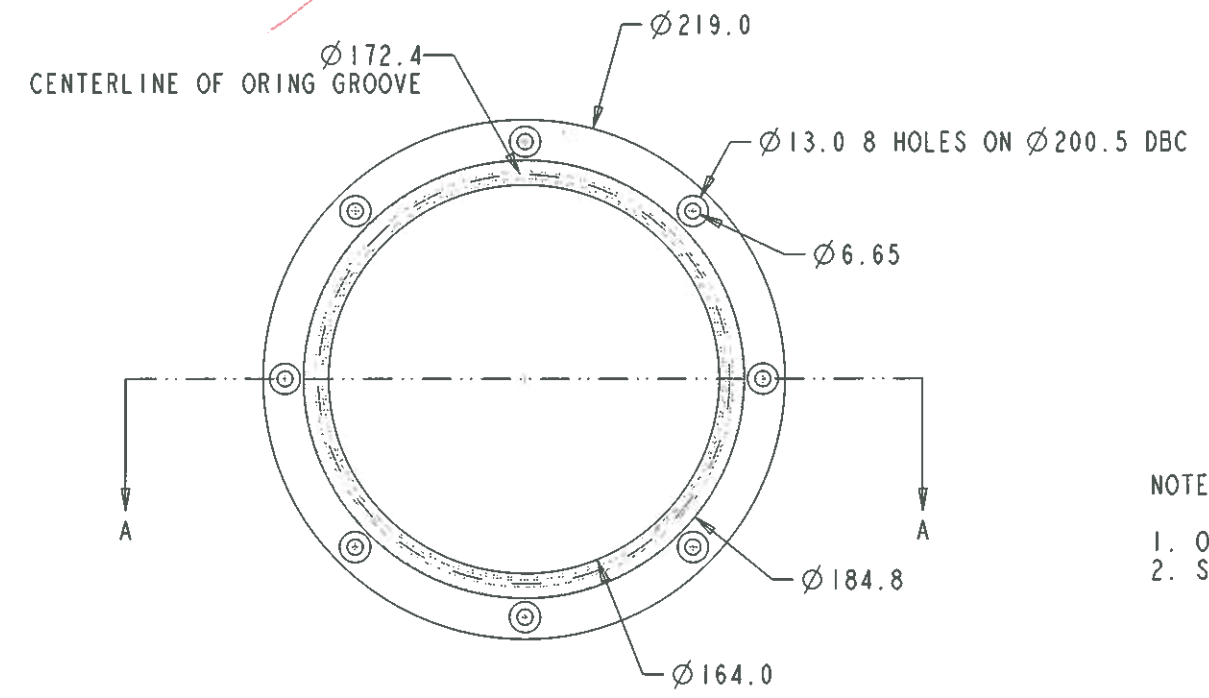
SCALE 0.500 APPROVAL DWG. NO. REV.
 DATE JAN 9, 2012 CHIEF ENGR. B



SECTION A-A



DETAIL A
SCALE 2.000



DETAIL B
SCALE 5.000



NOTES:

- O-ring Groove for AS568-166 Standard O-ring
- Sealing surface must be free of burrs and scratches

ITEM	DESCRIPTION	MATL	QUANTY

REF. DWGS.	REV.	DATE	REVISION	BY

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1'
 SURFACE FINISH 32

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA
 DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED EMAIL: cjang@ualberta.ca
 APPROVED

CENTER OF PARTICLE PHYSICS
 QUARTZ HOLDER
 SCALE 0.500 APPROVAL DWG. NO. REV.
 DATE JAN 9, 2011 CHIEF ENGR. B

Part Book
3/32 O-RING
MATERIAL? VITON
MATERIAL? COOL

e

d

c

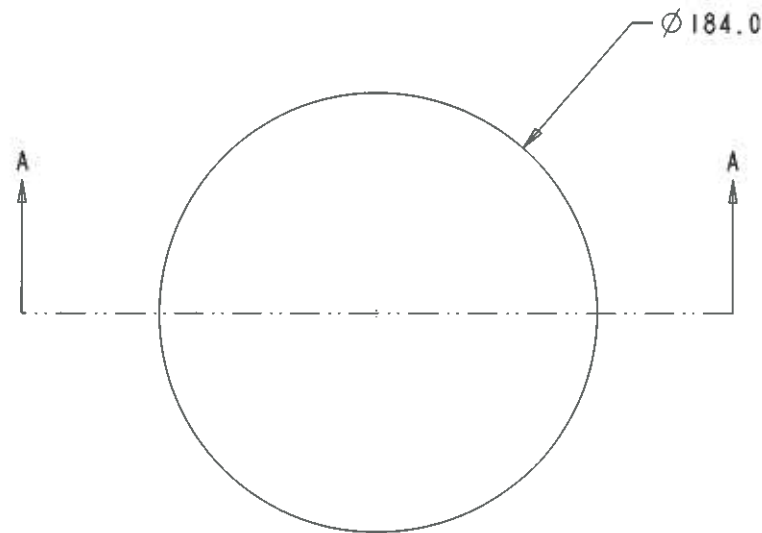
b

a

ITEM	DESCRIPTION	MATL	QUANTITY

3

3

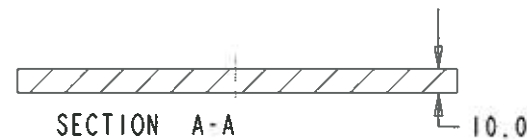


2

2



*MANUFACTURER
TOLERANCE*



1

1

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1°
 SURFACE FINISH 32µm

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED EMAIL: cjang@ualberta.ca

APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY

CENTER OF PARTICLE PHYSICS

QUARTZ WINDOW 1404

SCALE 0.500 APPROVAL DWG. NO. REV.
 DATE DEC 15, 2011 CHIEF ENGR

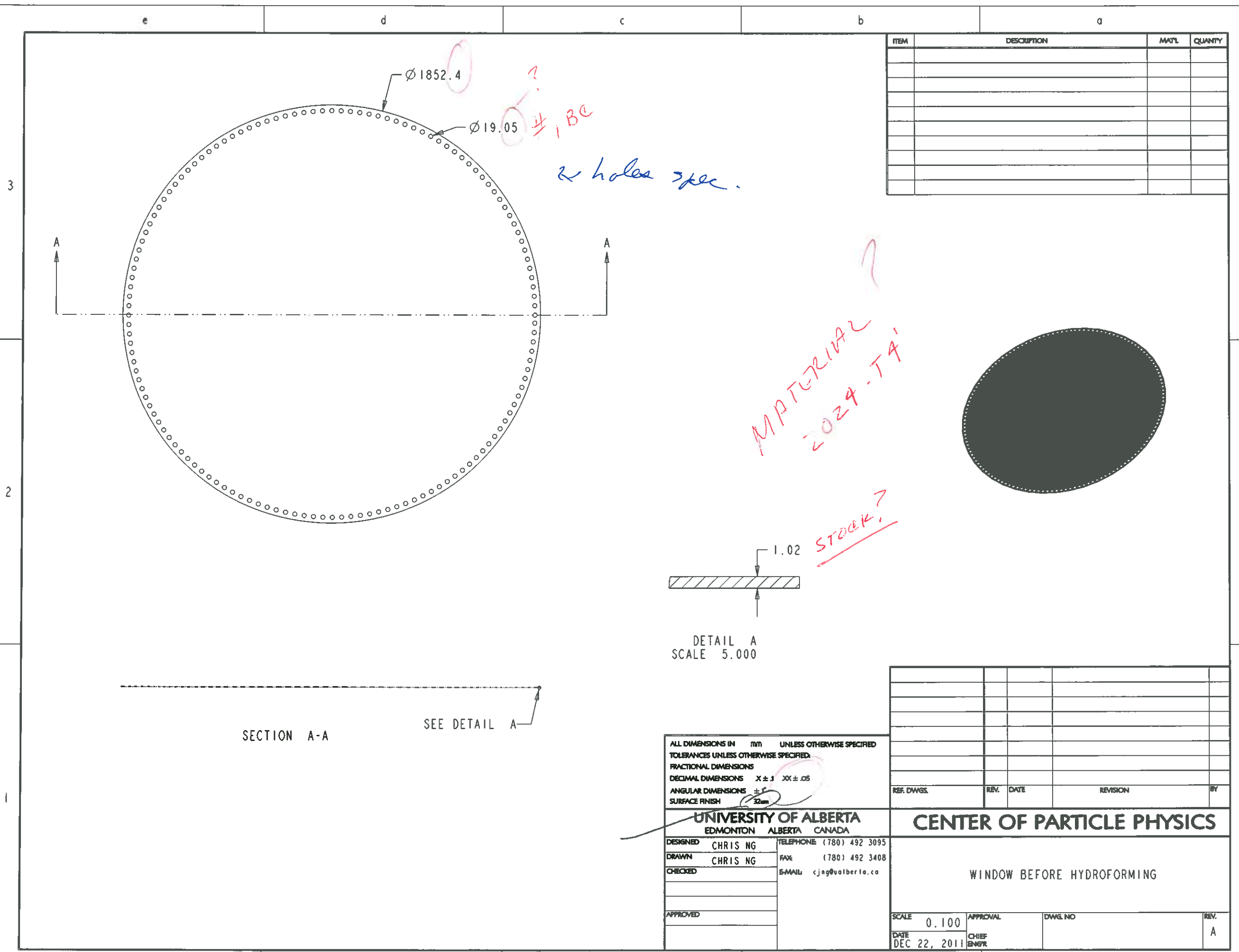
e

d

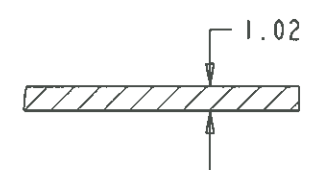
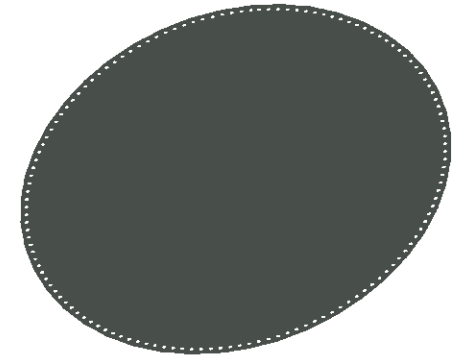
c

b

a



ITEM	DESCRIPTION	MATL	QUANTITY



DETAIL A
SCALE 5.000

SECTION A-A

SEE DETAIL A

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 5'
 SURFACE FINISH 32um

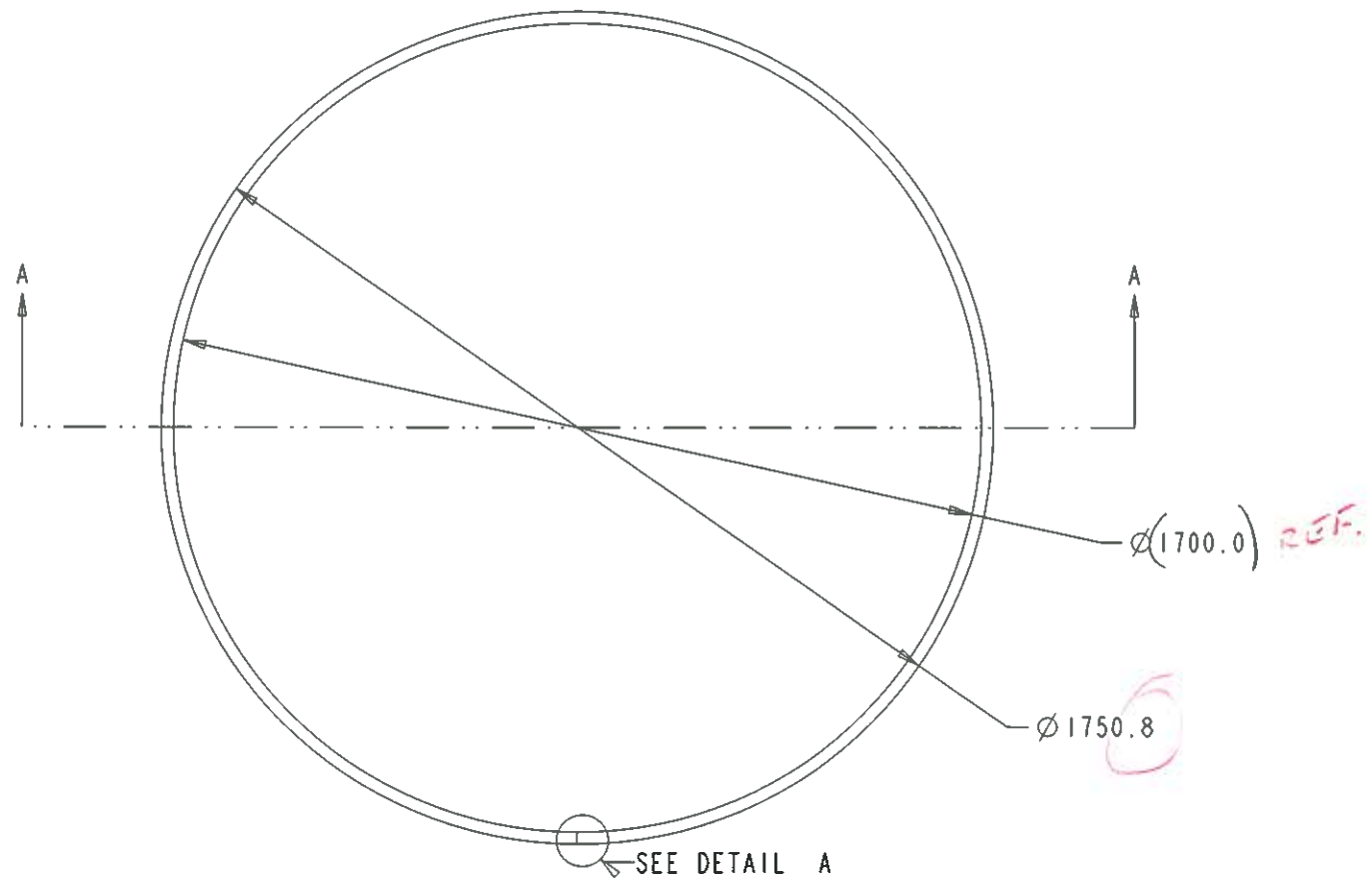
UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA
 DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED E-MAIL: cjang@ualberta.ca
 APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY

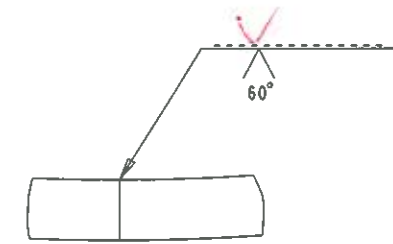
CENTER OF PARTICLE PHYSICS

WINDOW BEFORE HYDROFORMING

SCALE 0.100	APPROVAL	DWG. NO	REV. A
DATE DEC 22, 2011	CHIEF ENGR		



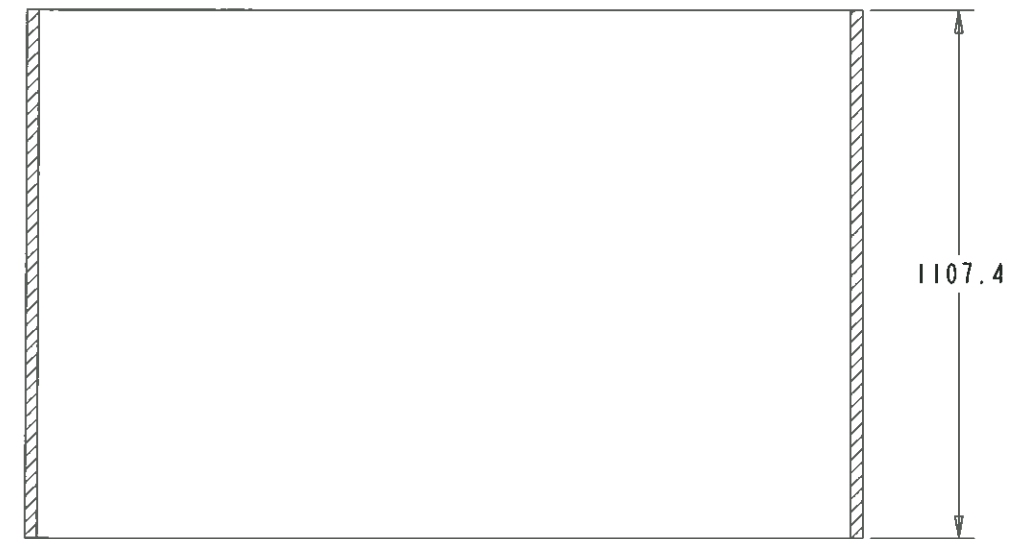
ITEM	DESCRIPTION	MAT'L	QUANTITY



DETAIL A
SCALE 0.500

*6061
TYPES?*

NOTES:
MAKE VESSEL OUT OF ONE 1" SHEET OF ALUMINUM
BEND INTO CYLINDRICAL SHAPE AND ~~SINGLE-V~~ BUTT WELD
Double-V



SECTION A-A

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
TOLERANCES UNLESS OTHERWISE SPECIFIED:
FRACTIONAL DIMENSIONS X ± .1 XX ± .05
DECIMAL DIMENSIONS X ± .1 XX ± .05
ANGULAR DIMENSIONS ± 1
SURFACE FINISH 32mm

UNIVERSITY OF ALBERTA
EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
DRAWN CHRIS NG FAX (780) 492 3408
CHECKED EMAIL: cjag@ualberta.ca

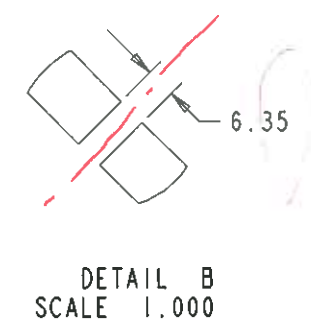
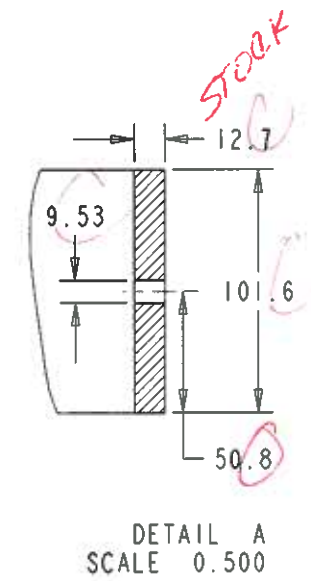
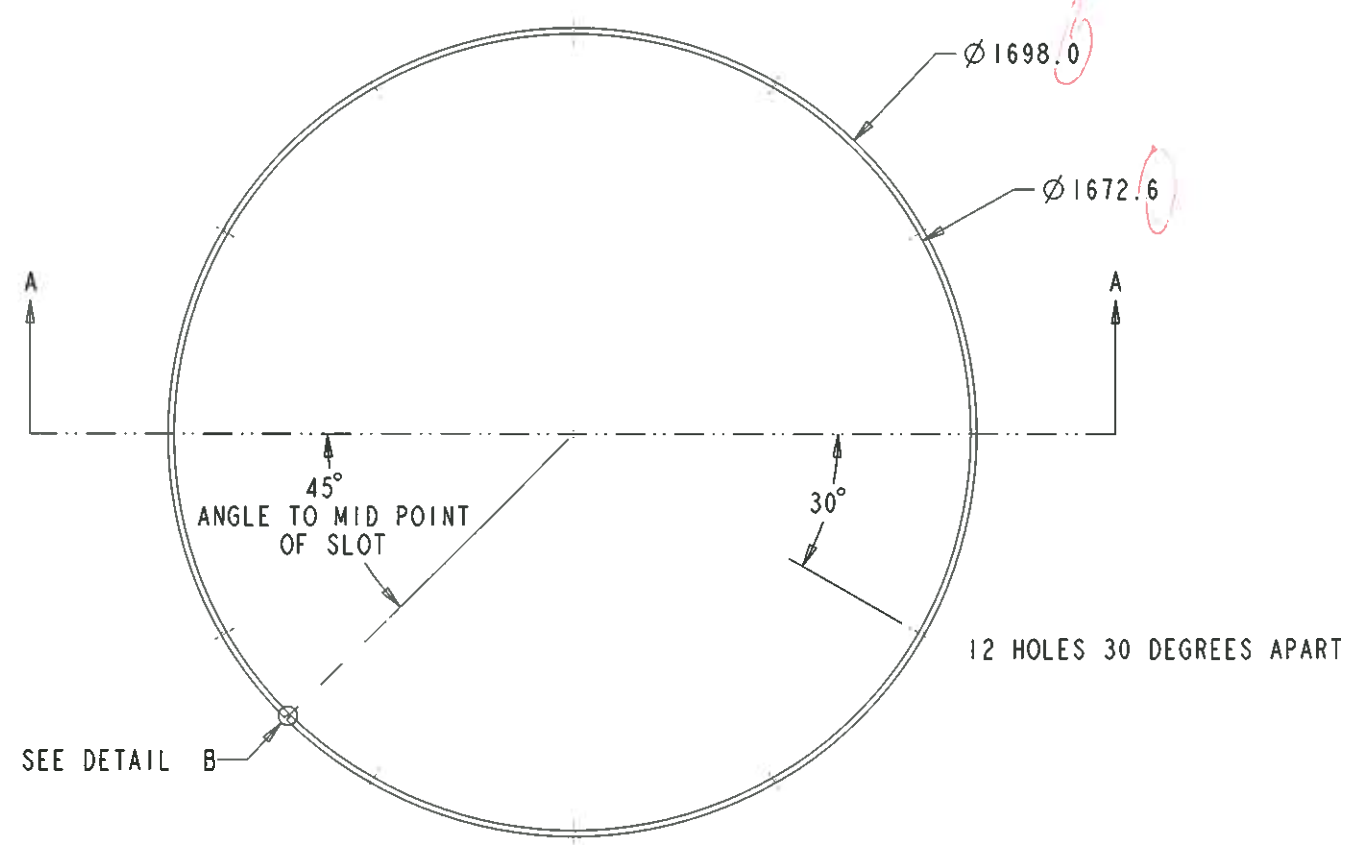
APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY

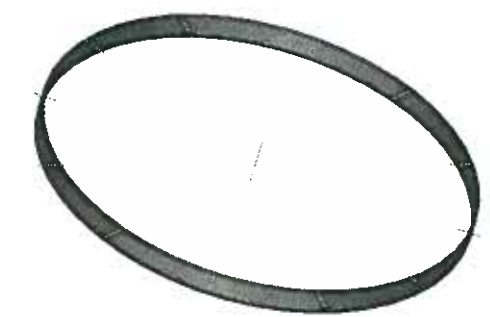
CENTER OF PARTICLE PHYSICS

MAIN VESSEL WELD

SCALE 0.100	APPROVAL	DWG. NO	REV.
DATE JAN 9, 2012	CHIEF ENGR		A



ITEM	DESCRIPTION	MATL	QUANTITY



MATERIAL? 6061

How DOES THIS WORK?

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS ± 0.25
 DECIMAL DIMENSIONS X ± 0.10 X ± 0.05
 ANGULAR DIMENSIONS ± 1°
 SURFACE FINISH 32 Ra

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED E-MAIL: cjag@ualberta.ca

APPROVED

REF. DWGS.	REV.	DATE	REVISION	BY
	A	DEC 15	ORIGINAL	
	B	DEC 22	ADDED HOLES, SLOT	

CENTER OF PARTICLE PHYSICS

SUPPORT RING

SCALE 0.100 APPROVAL DWG. NO. REV. B
 DATE DEC 22, 2011 CHIEF ENGR.

e

d

c

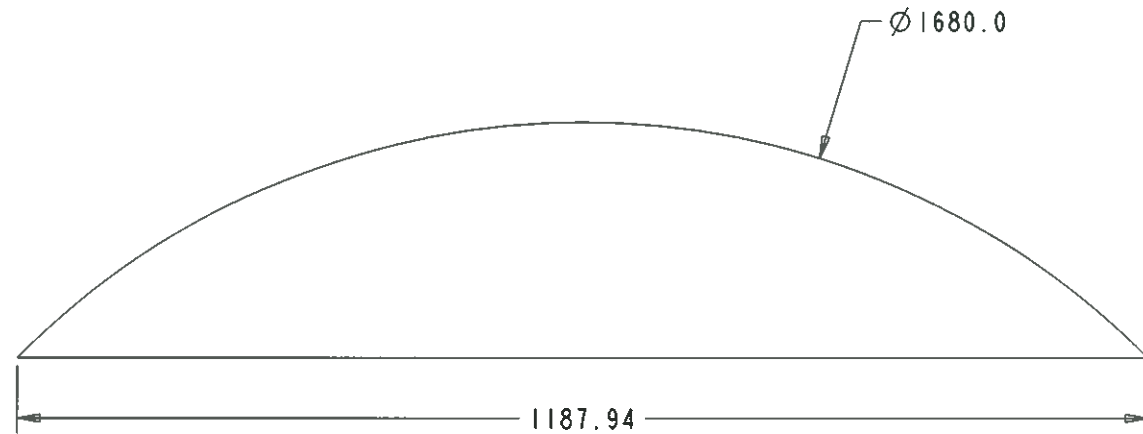
b

a

ITEM	DESCRIPTION	MATL	QUANTITY

3

3



2

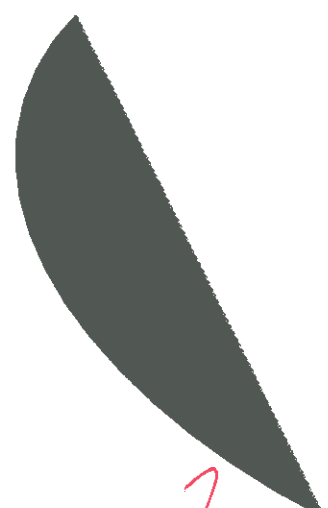
2



How does this work?

STOCK?

MATERIAL? 6061



ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONAL DIMENSIONS
 DECIMAL DIMENSIONS X ± .1 XX ± .05
 ANGULAR DIMENSIONS ± 1'
 SURFACE FINISH 32um

UNIVERSITY OF ALBERTA
 EDMONTON ALBERTA CANADA

DESIGNED CHRIS NG TELEPHONE (780) 492 3095
 DRAWN CHRIS NG FAX (780) 492 3408
 CHECKED EMAIL: c.jag@ualberta.ca

APPROVED
 DATE DEC 7, 2011

REF. DWGS.	REV.	DATE	REVISION	BY

CENTER OF PARTICLE PHYSICS

SUPPORT DISK

SCALE 0.200 APPROVAL DWG. NO. REV.
 DATE DEC 7, 2011 CHIEF ENGR.

e

d

c

b

a