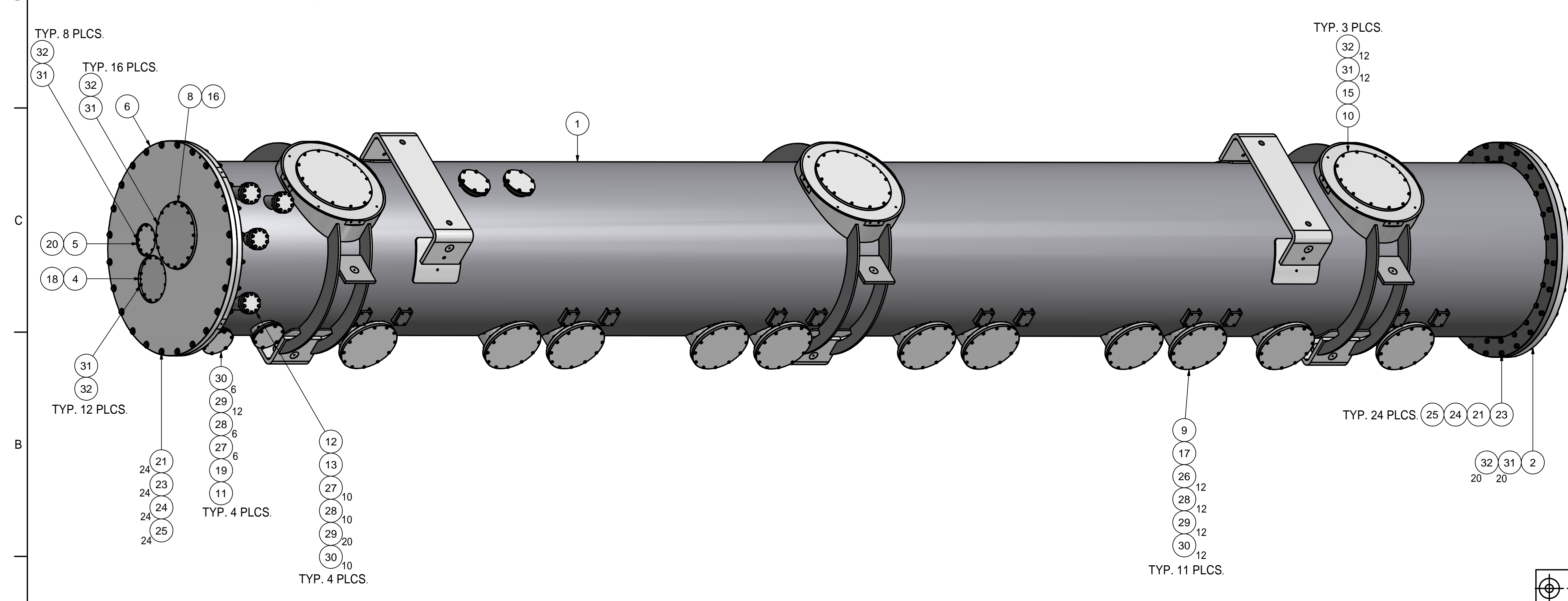
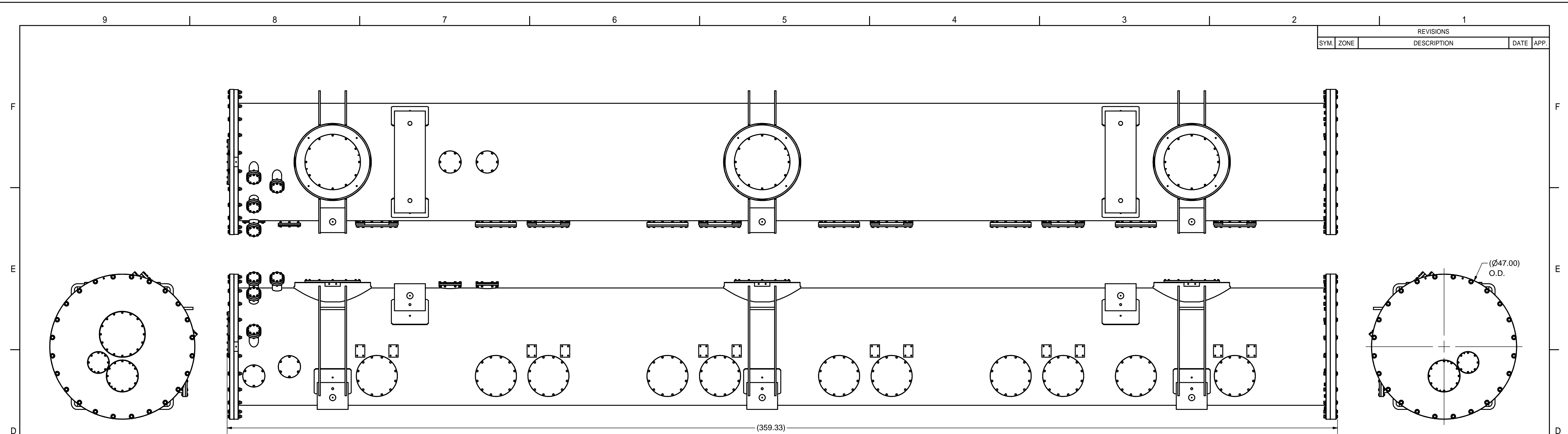


| REVISIONS | | | |
|-----------|------|-------------|-----------|
| SYM. | ZONE | DESCRIPTION | DATE APP. |
| | | | |



| | | | | | | | | |
|----|------------|--|-----|--|--|--|--|--|
| 32 | Purchase | Lock Washer, 1/4 | 92 | | | | | |
| 31 | Purchase | Socket Head Cap Screw, 1/4-28 UNF - 0.75 | 92 | | | | | |
| 30 | Purchase | Lock Washer, 5/16 | 196 | | | | | |
| 29 | Purchase | Flat Washer 5/16 | 260 | | | | | |
| 28 | Purchase | Hex Nut, 5/16 - 24 | 196 | | | | | |
| 27 | Purchase | Hex Cap Screw, 5/16-24 UNF - 1.5 | 64 | | | | | |
| 26 | Purchase | Hex Cap Screw, 5/16-24 UNF - 1.75 | 132 | | | | | |
| 25 | Purchase | Lock Washer, 9/16 | 72 | | | | | |
| 24 | Purchase | Flat Washer, 9/16 | 48 | | | | | |
| 23 | Purchase | Hex Nut, 9/16 - 18 | 48 | | | | | |
| 22 | Purchase | Hex Cap Screw, 9/16-18 UNF - 2.25 | 24 | | | | | |
| 21 | Purchase | Hex Cap Screw, 9/16-18 UNF - 4 | 48 | | | | | |
| 20 | Purchase | 5.25 ID x 3/16 W (#355) O-RING | 2 | | | | | |
| 19 | Purchase | 5.5 ID x 3/16 W (#357) O-RING | 4 | | | | | |
| 18 | Purchase | 8.5 ID x 3/16 W (#371) O-RING | 2 | | | | | |
| 17 | Purchase | 11.0 ID x 3/16 W (#379) O-RING | 11 | | | | | |
| 16 | Purchase | 13.0 ID x 3/16 W (#382) O-RING | 1 | | | | | |
| 15 | Purchase | 16.0 ID x 3/16 W (#385) O-RING | 3 | | | | | |
| 14 | Purchase | 43.5 ID x 1/4 W O-RING | 1 | | | | | |
| 13 | Purchase | CF GASKET, 4 5/8" COPPER | 4 | | | | | |
| 12 | Purchase | CF BLIND FLANGE, REF. # F458000 | 4 | | | | | |
| 11 | SHEET 7 | GATE VALVE PORT BLANK | 4 | | | | | |
| 10 | SHEET 7 | TOP PORT BLANK FLANGE | 3 | | | | | |
| 9 | SHEET 7 | INPUT COUPLER PORT BLANK FLANGE | 11 | | | | | |
| 8 | SHEET 7 | CRYO LINE PORT BLANK FLANGE | 1 | | | | | |
| 5 | SHEET 4 | BEAM LINE BLANK PORT FLANGE | 1 | | | | | |
| 4 | SHEET 4 | WPM BLANK PORT FLANGE | 1 | | | | | |
| 7 | SHEET 6 | BEAM EXIT BLANK END FLANGE | 1 | | | | | |
| 6 | SHEET 5 | BEAM EXIT BLANK SUB ASSEMBLY | 1 | | | | | |
| 5 | SHEET 4 | BEAM LINE BLANK PORT FLANGE | 1 | | | | | |
| 4 | SHEET 4 | WPM BLANK PORT FLANGE | 1 | | | | | |
| 3 | SHEET 3 | BEAM ENTRANCE BLANK END FLANGE | 1 | | | | | |
| 2 | SHEET 2 | BEAM ENTRANCE BLANK SUB ASSEMBLY | 1 | | | | | |
| 1 | REF. DWG # | ERL LINAC CRYOMODULE VACUUM VESSEL | 1 | | | | | |

| ITEM | DWG. NO. | DESCRIPTION | G1 | G2 | G3 | REMARKS | REV. |
|------|----------|-------------|----|----|----|---------|------|
| | | | | | | | |

**RELEASED FOR VENDOR BID.
NOT FOR MANUFACTURE.
T. O'Connell - 1/11/2013**

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

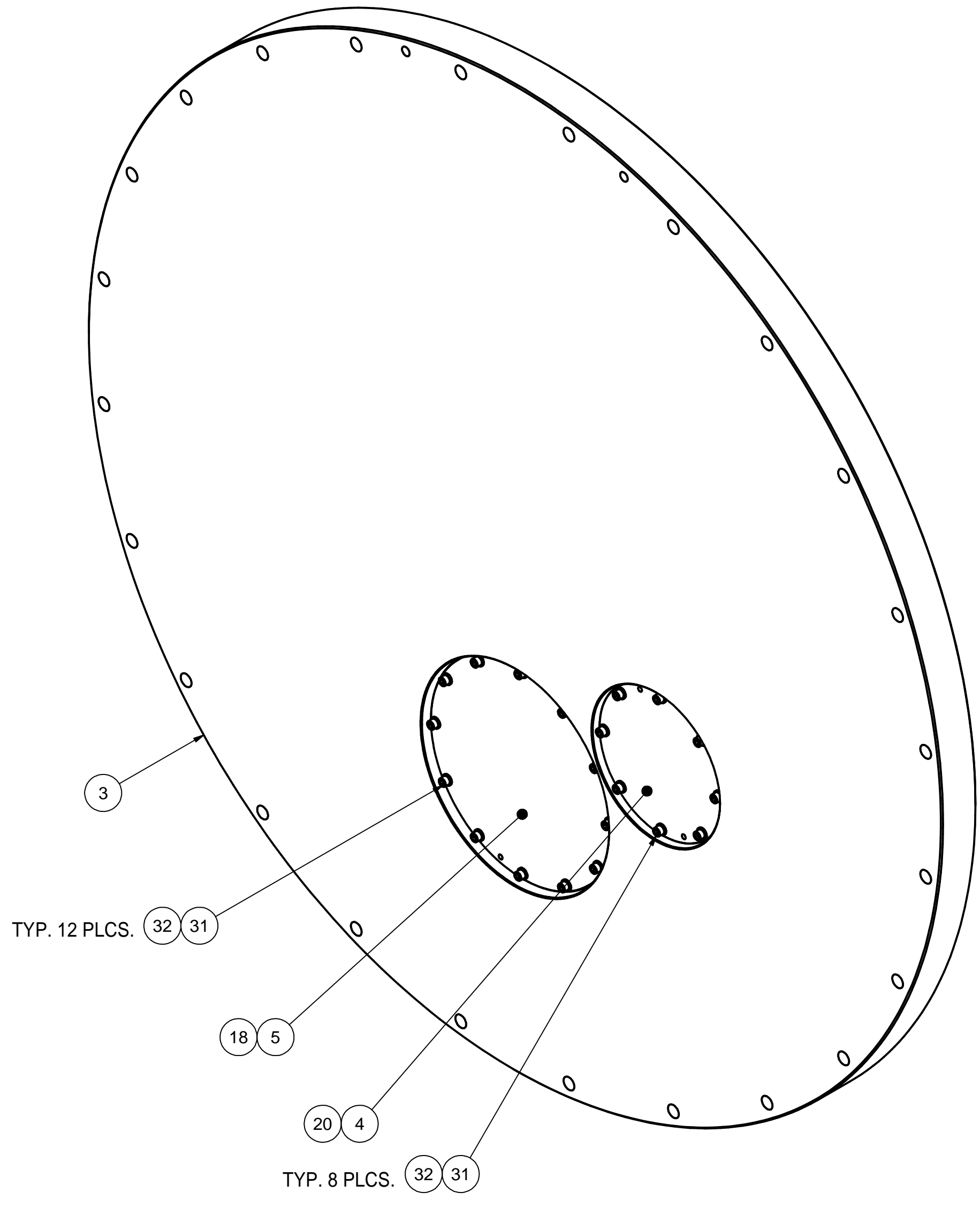
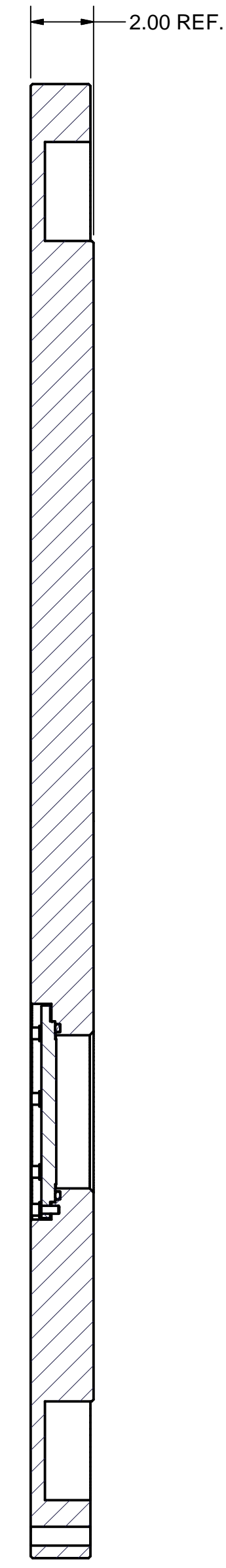
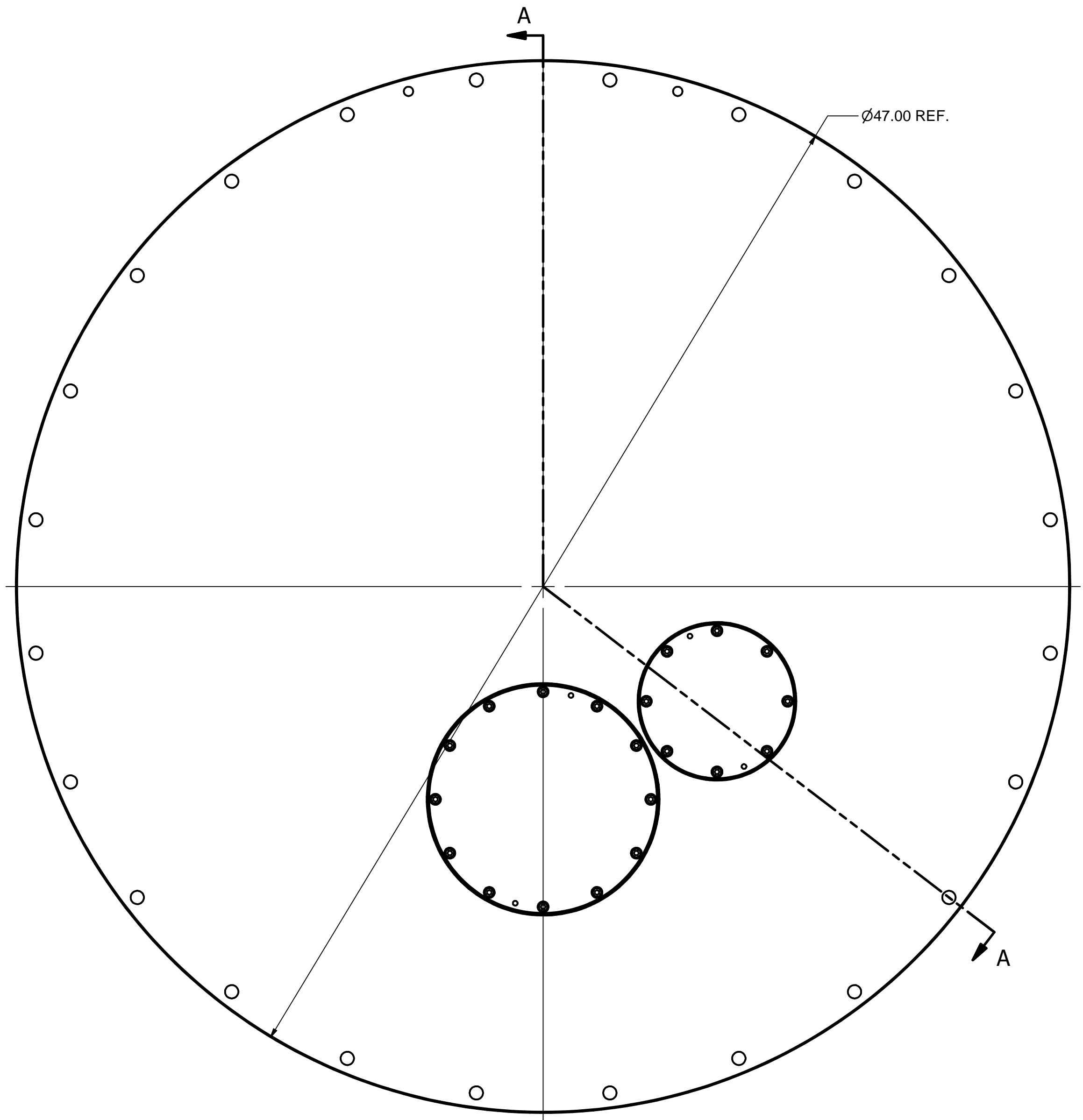
Cornell University
 Laboratory for Elementary-Particle Physics
 Floyd R. Newman Laboratory
 Robert R. Wilson Laboratory
 Ithaca, NY 14853

**ERL LINAC CRYOMODULE
VACUUM VESSEL LEAK CHECK ASSEMBLY**

CHECKED BY: YHMERTIO
 APPROVED BY: TIO

DRAWN BY: Y. HE
 DRAWN FOR: T. O'CONNELL
 DATE: 1/9/2013
 SCALE: **D**
 7103-154
 SH. NO. 1 OF 7

| REVISIONS | | | |
|-----------|------|-------------|-----------|
| SYM. | ZONE | DESCRIPTION | DATE APP. |
| | | | |



SECTION A-A
SCALE 1 / 4

2 BEAM ENTRANCE BLANK SUB ASSEMBLY
 FILE NAME: 7103-154
 SHEET NO.: 2
 DFT. SCALE:
 MATERIAL: VARIES
 QTY: 1 REQ'D
 NOTES:

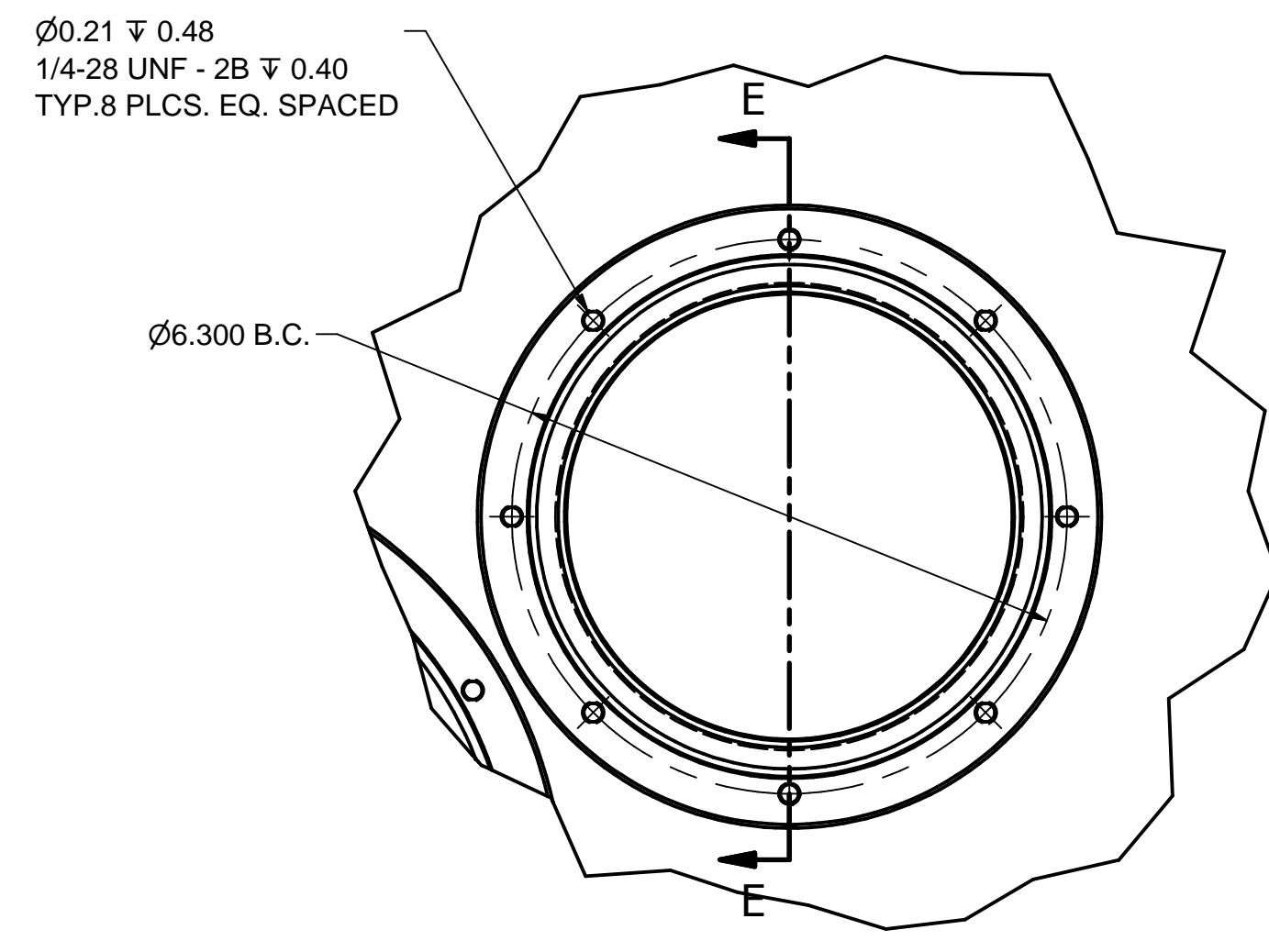
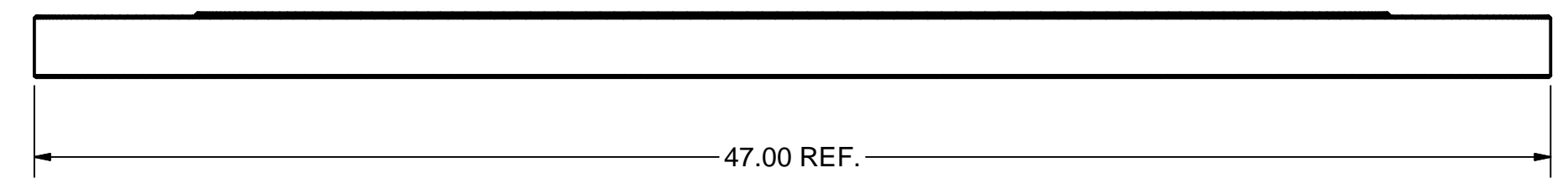
**RELEASED FOR VENDOR BID.
 NOT FOR MANUFACTURE.
 T. O'Connell - 1/11/2013**

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LEPP

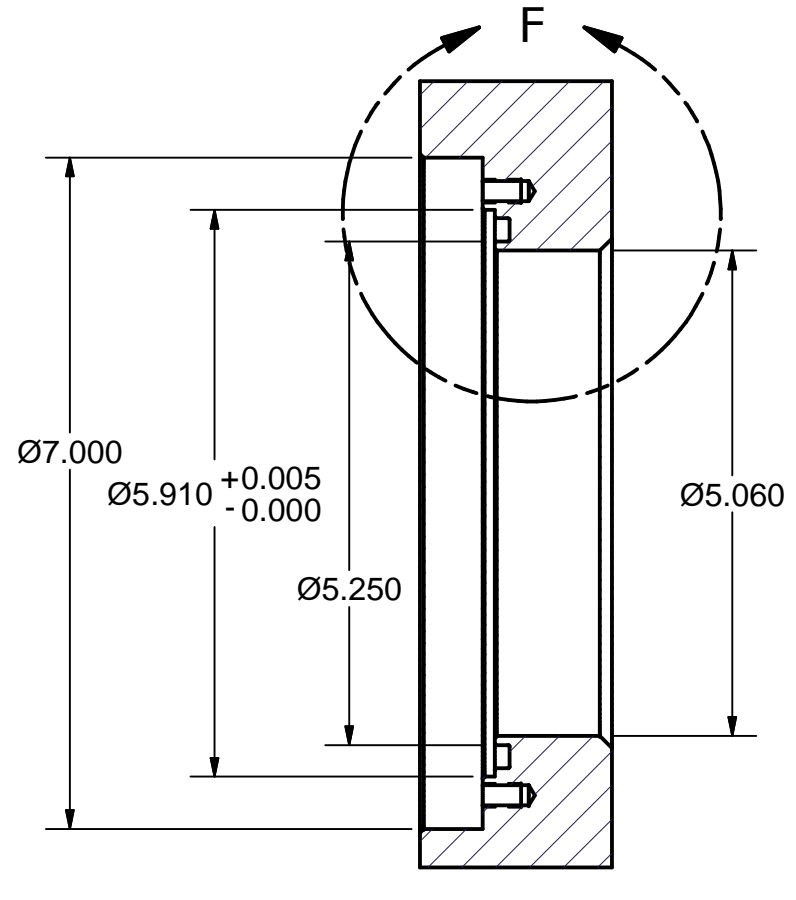
| ITEM | DWG. NO. | DESCRIPTION | G1 | G2 | G3 | REMARKS | REV. |
|------|----------|---|----|----|----|---------|------|
| 32 | Purchase | Lock Washer, 1/4 | 20 | | | | |
| 31 | Purchase | Socket Head Cap Screw, 1/4-28 UNF - 0.625 | 20 | | | | |
| 20 | Purchase | 5.25 ID x 3/16 W (#355) O-RING | 1 | | | | |
| 18 | Purchase | 8.5 ID x 3/16 W (#371) O-RING | 1 | | | | |
| 5 | Sheet 4 | BEAM LINE PORT BLANK FLANGE | 1 | | | | |
| 4 | Sheet 4 | WPM PORT BLANK FLANGE | 1 | | | | |
| 3 | Sheet 3 | BEAM ENTRANCE WALL END FLANGE | 1 | | | | |
| 2 | Sheet 2 | BEAM ENTRANCE BLANK SUB ASSEMBLY | 1 | | | | |

| | | | | | |
|------|---|---|---|--|------------------------------------|
| D | PRINT | PLOT DATE: 1/11/2013 CAD FILE NAME: 7103-154.idw | Cornell University Laboratory for Elementary-Particle Physics Floyd R. Newman Laboratory Robert R. Wilson Laboratory Ithaca, NY 14853 | ERL LINAC CRYOMODULE VACUUM VESSEL LEAK CHECK ASSEMBLY BEAM ENTRANCE BLANK SUB-ASM | SH. NO. 2 OF 7 7103-154 REV. |
| | DISTR. | | | | |
| CR-1 | CHECKED BY: YHMER/TIO APPROVED BY: TIO | DRAWN BY: Y. HE T. O'CONNELL | DATE: 1/9/2013 | SCALE: D | 7103-154 SH. NO. 2 OF 7 |

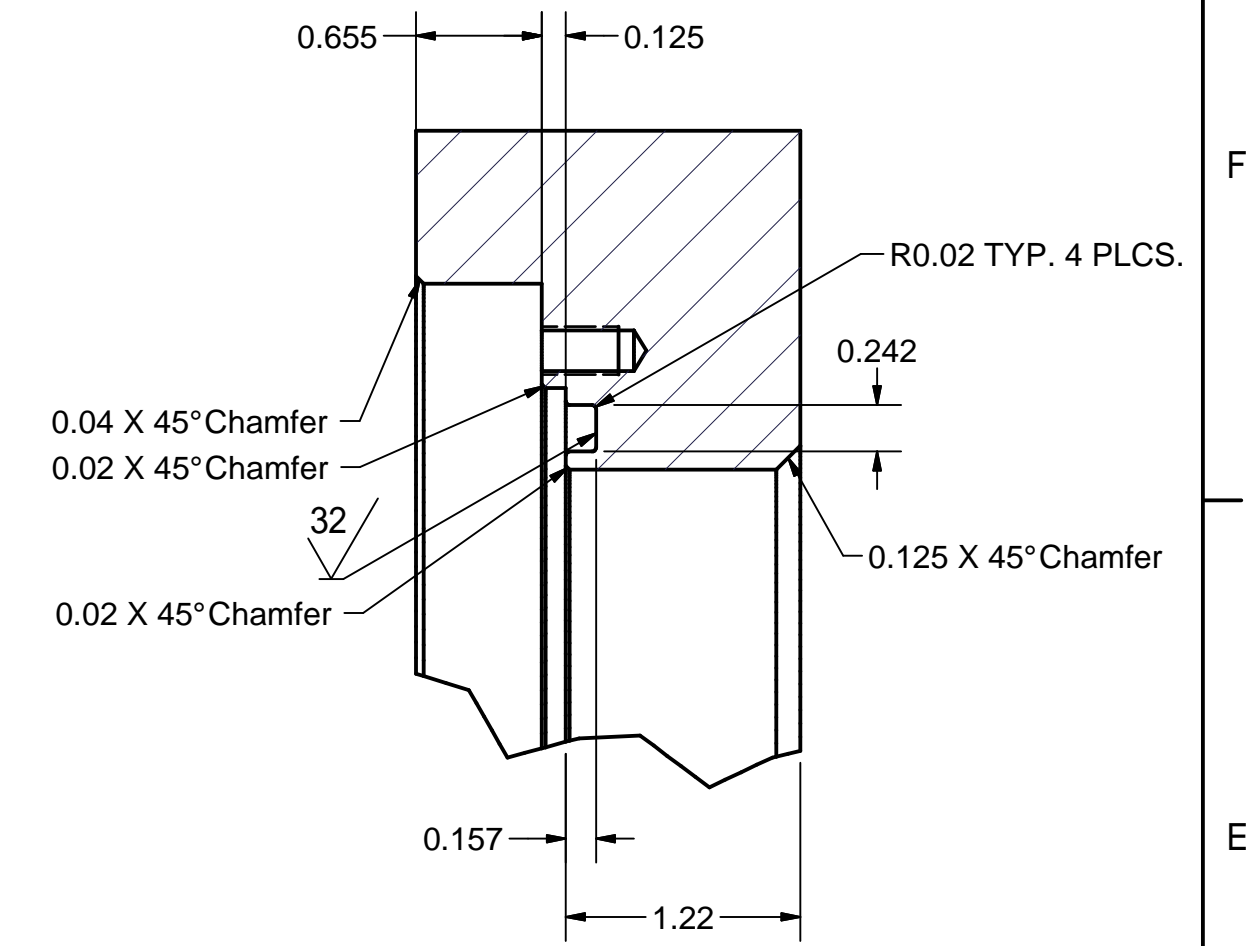
| REVISIONS | | | |
|-----------|------|-------------|-----------|
| SYM. | ZONE | DESCRIPTION | DATE APP. |
| | | | |



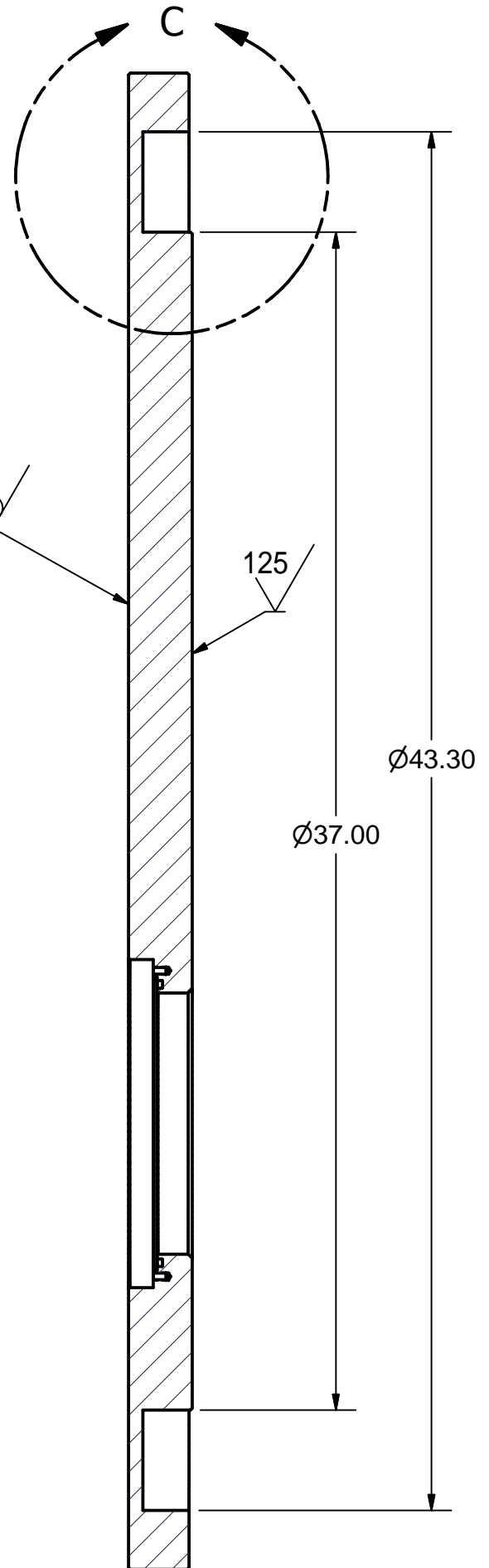
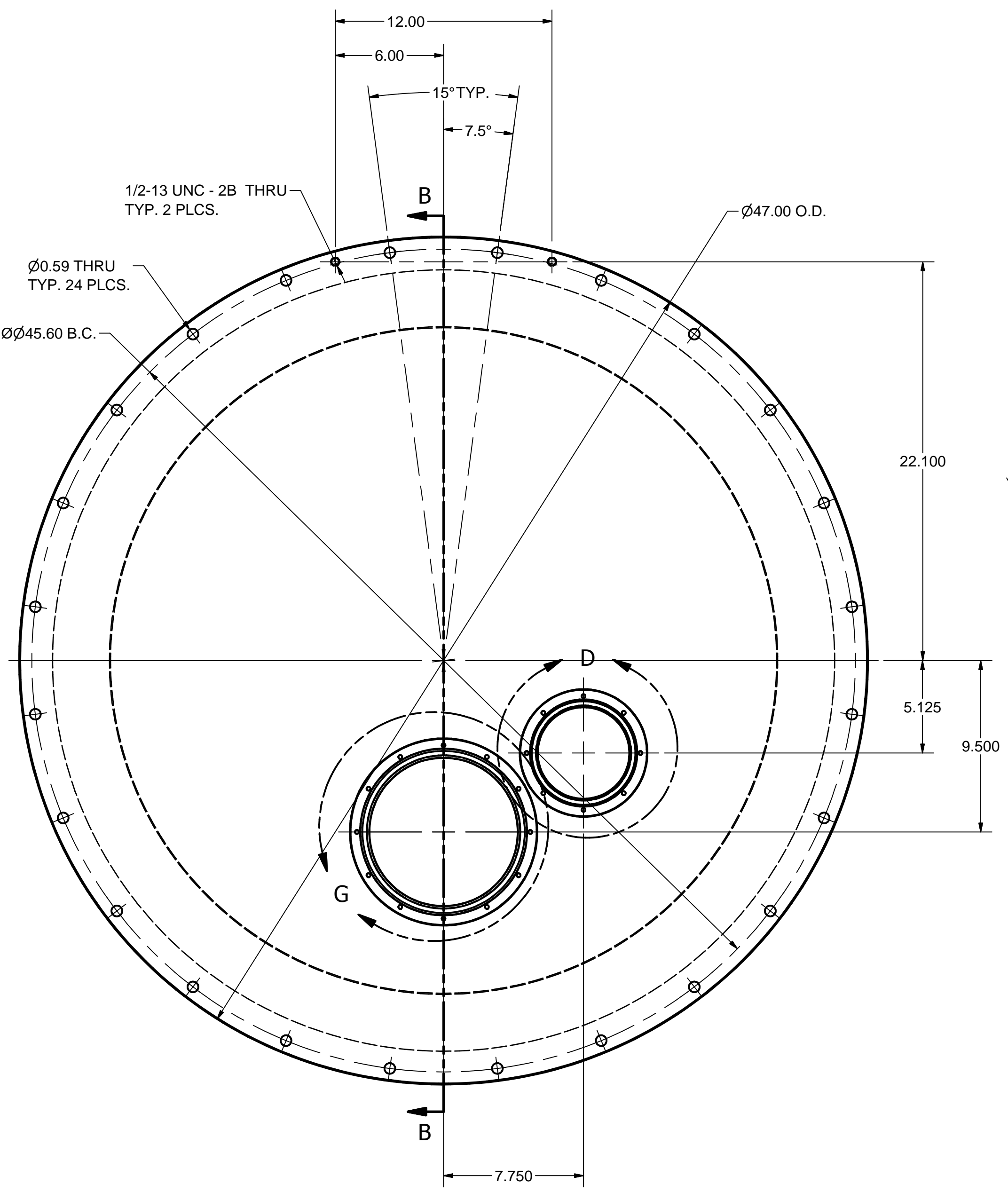
DETAIL D
SCALE 1/2



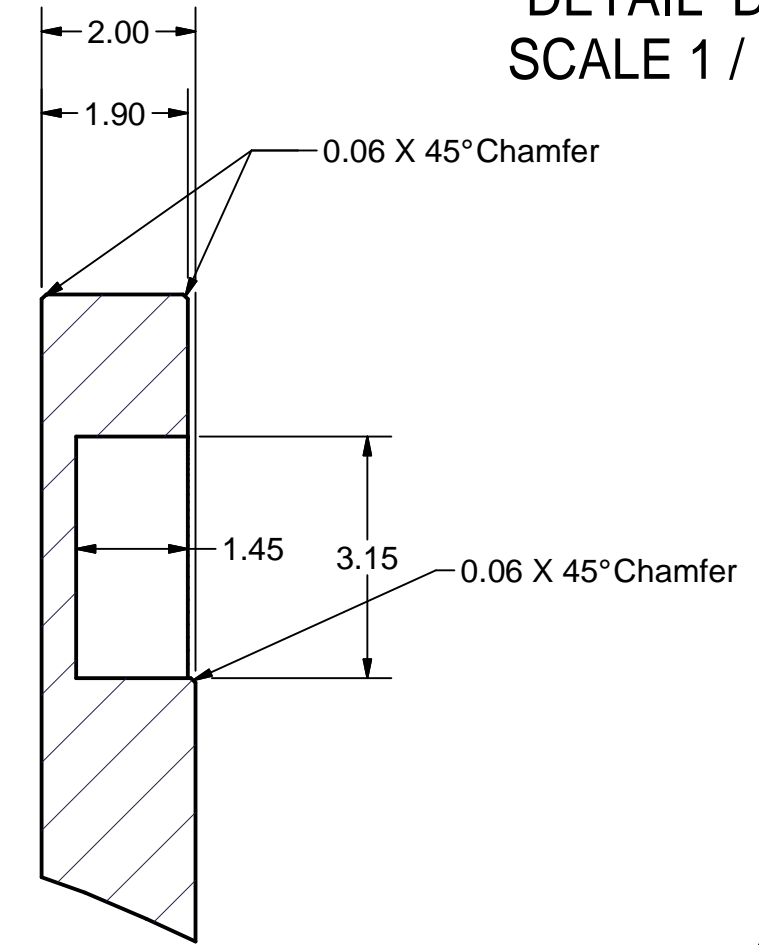
SECTION E-E
SCALE 1/2



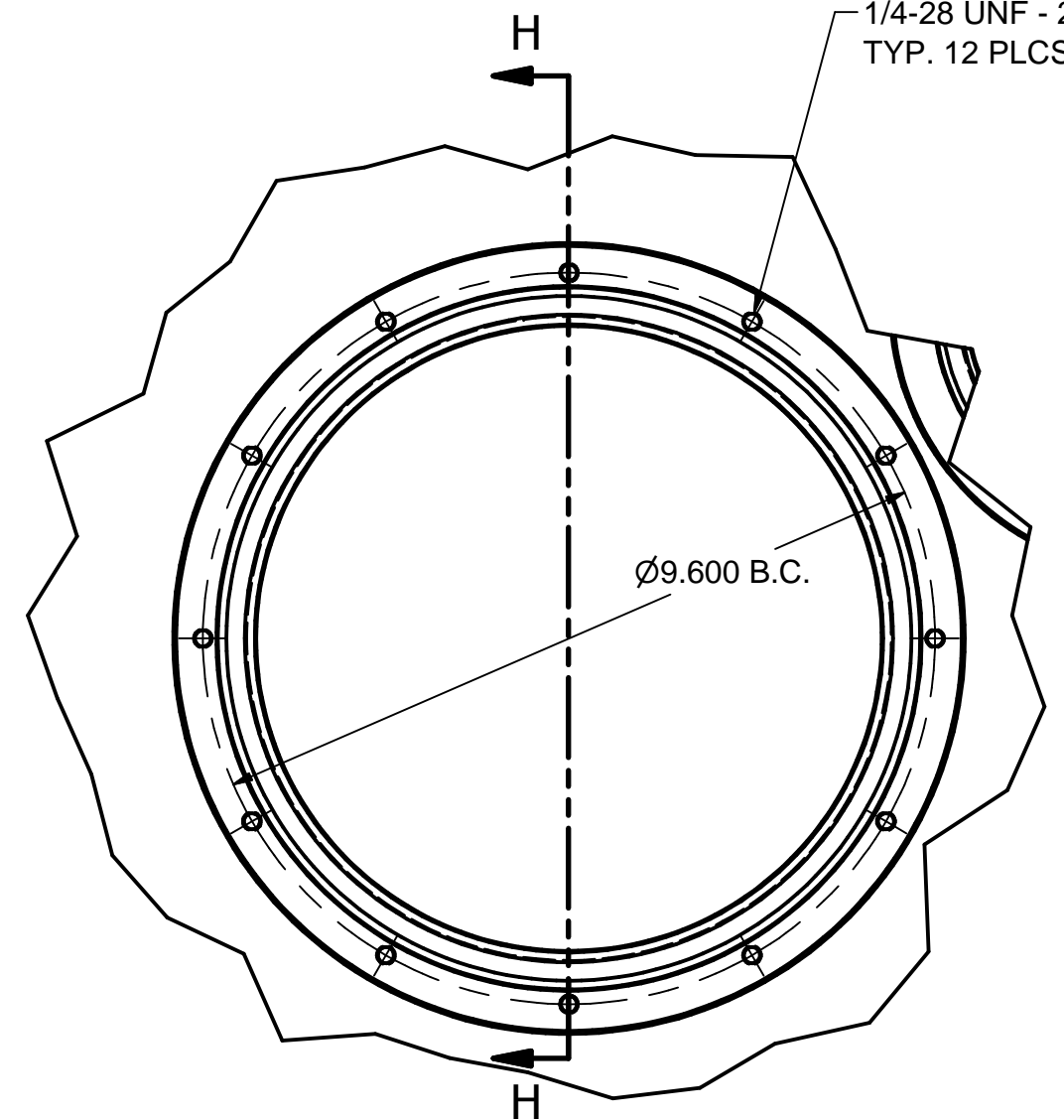
DETAIL F
SCALE 1:1



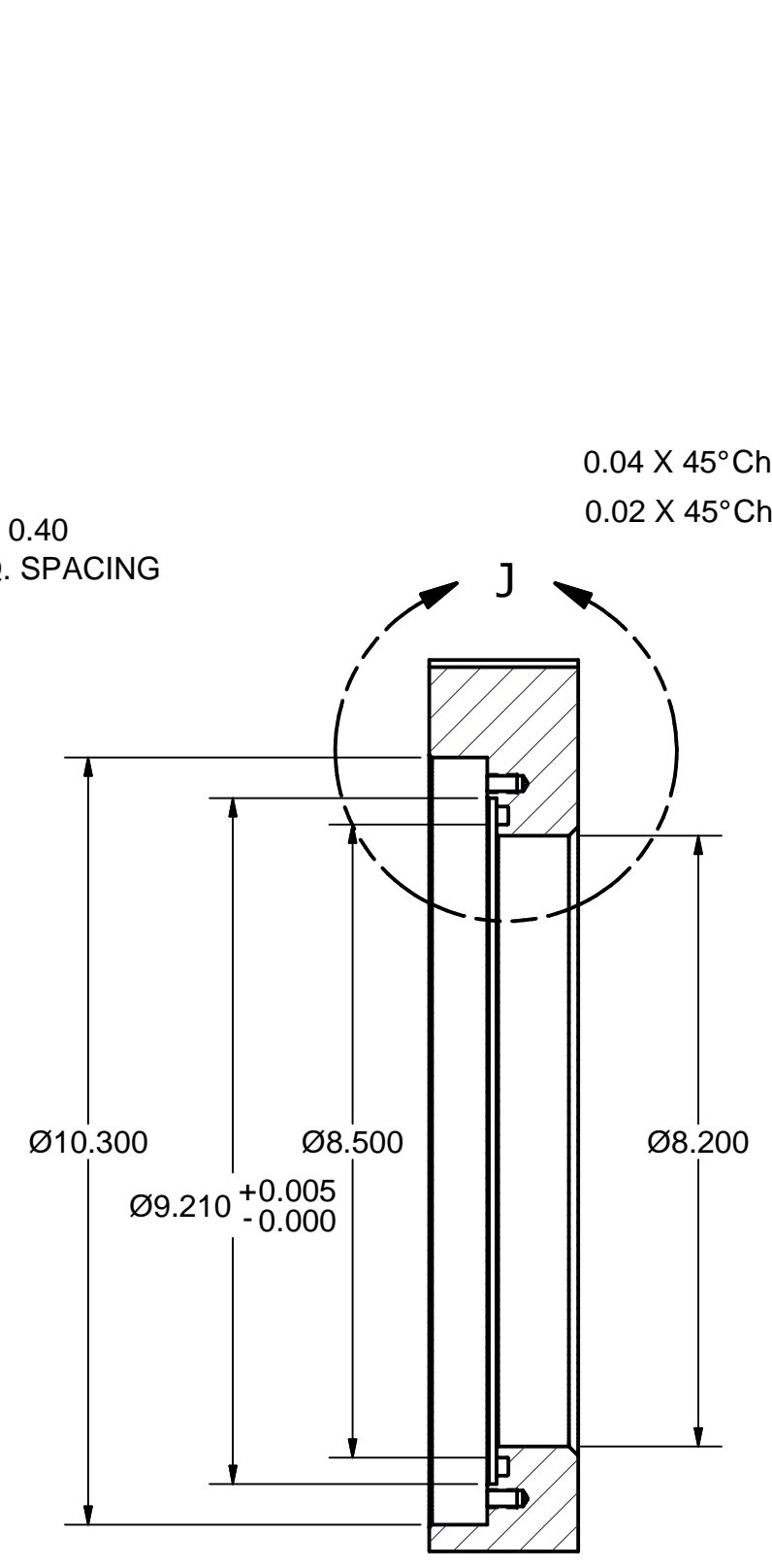
SECTION B-B
SCALE 1/5



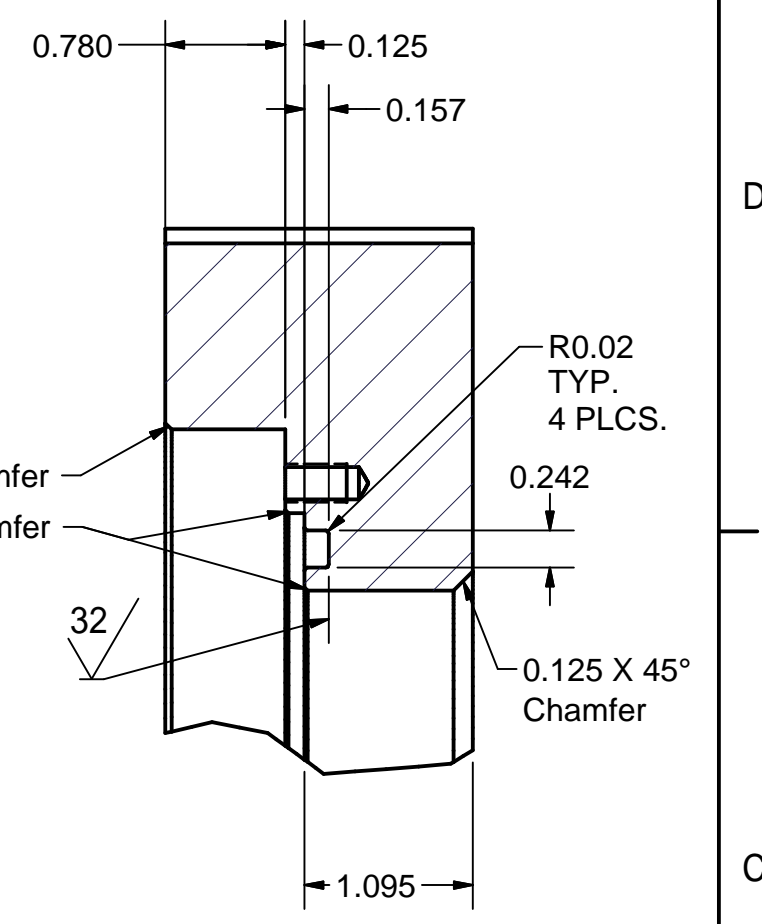
DETAIL C
SCALE 0.40:1



DETAIL G
SCALE 0.40:1



SECTION H-H
SCALE 0.40:1



DETAIL J
SCALE 0.80:1

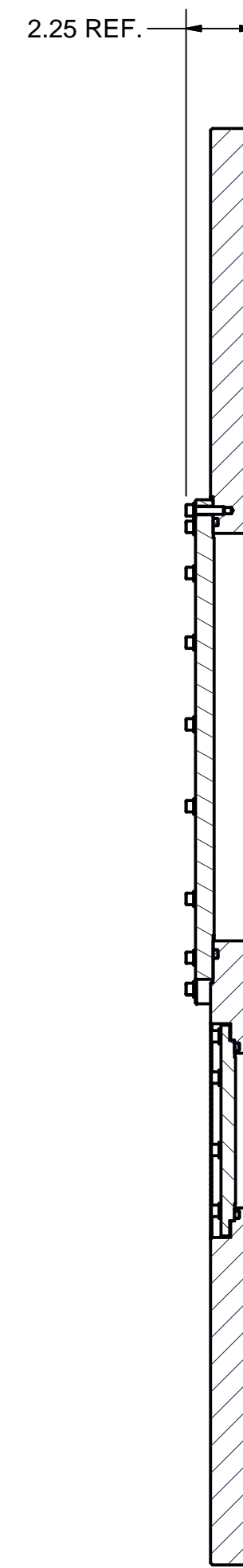
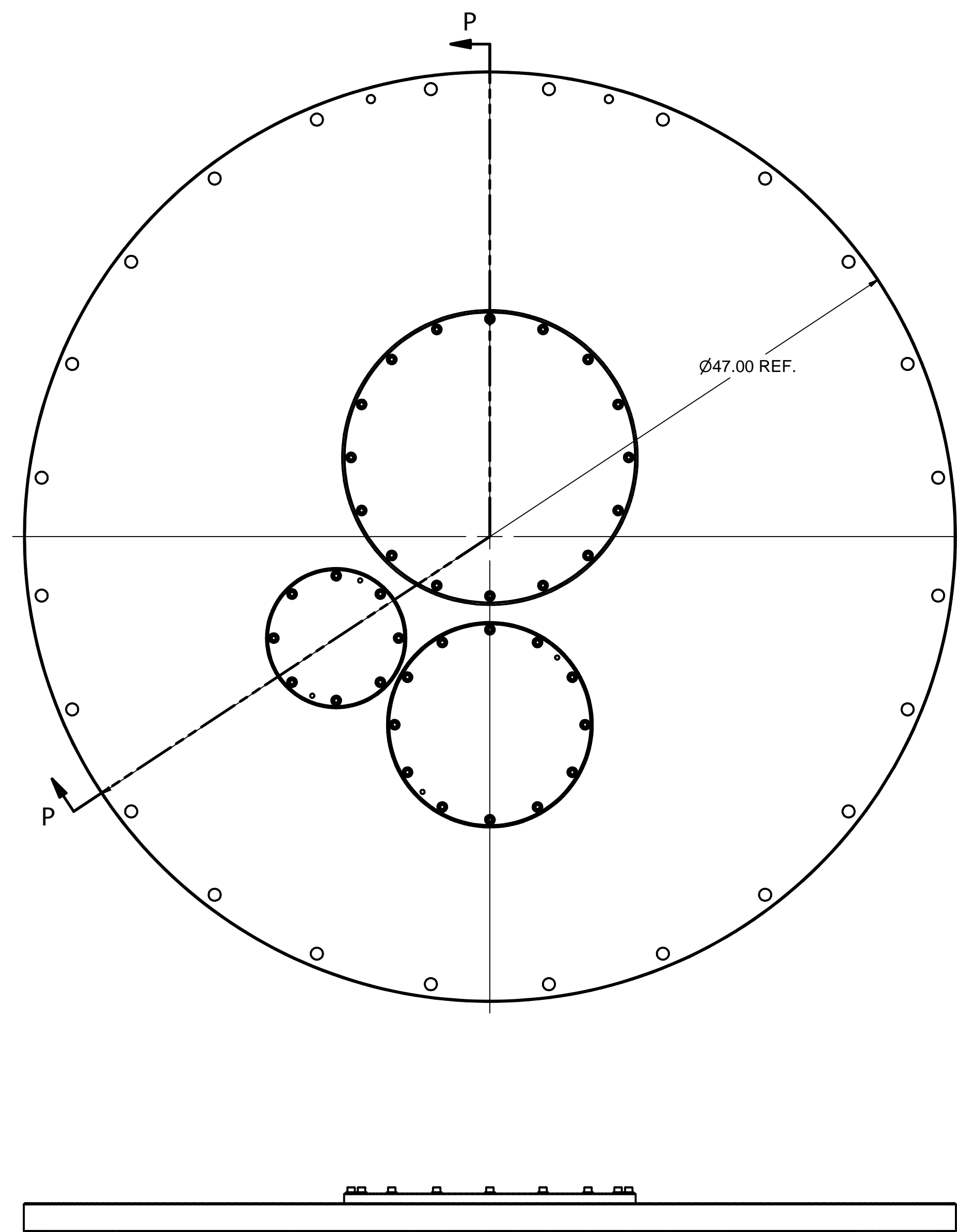
3 BEAM ENTRANCE BLANK END FLANGE
 FILE NAME: 7103-154
 SHEET NO.: 3
 DFT. SCALE: 1:5
 MATERIAL: 316 SS
 QTY: 1 REQ'D
 NOTES:

RELEASED FOR VENDOR BID.
 NOT FOR MANUFACTURE.
 T. O'Connell - 1/11/2013

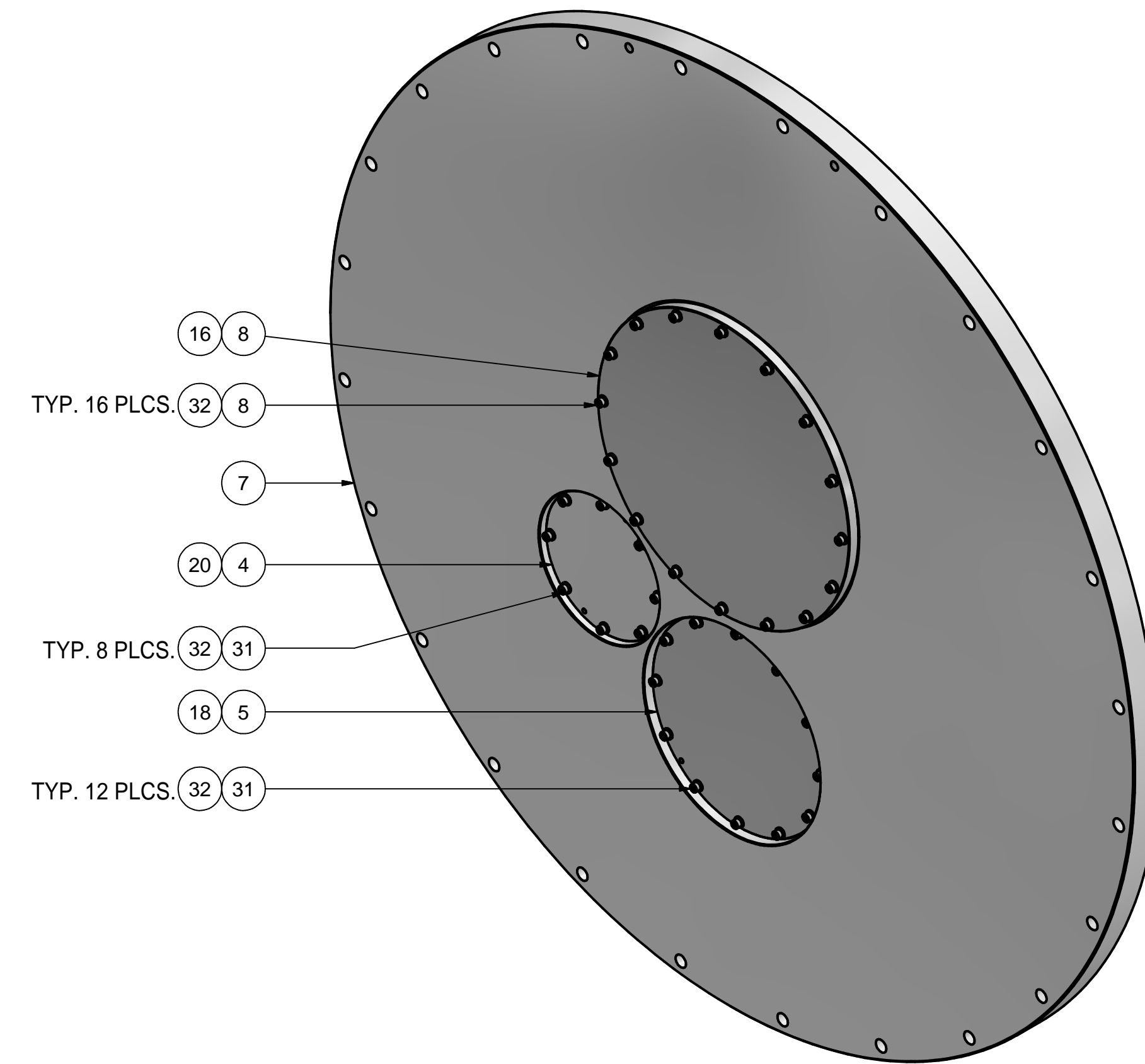
FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LEPP

| ITEM | DWG. NO. | DESCRIPTION | G1 | G2 | G3 | REMARKS | REV. |
|-----------------------|---|---|----------------|----------|----------|---|------|
| | | | QUANTITY | | | | |
| PRINT DISTR. | PLOT DATE: 1/11/2013 CAD FILE NAME: 7103-154.idw | | | | | | |
| CR-1 | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: 0 ± 0.2 .00 ± 0.010 .000 ± 0.005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES | Cornell University Laboratory for Elementary-Particle Physics | | | | Floyd R. Newman Laboratory Robert R. Wilson Laboratory Ithaca, NY 14853 | |
| | | ERL LINAC CRYOMODULE VACUUM VESSEL LEAK CHECK ASSEMBLY BEAM ENTRANCE BLANK END FLANGE | | | | | |
| CHECKED BY: YHMER/TIO | DRAWN BY: Y. HE | DRAWN FOR: T. O'CONNELL | DATE: 1/9/2013 | SCALE: D | 7103-154 | REV. SH. NO. 3 OF 7 | |

| REVISIONS | | | |
|-----------|------|-------------|-----------|
| SYM. | ZONE | DESCRIPTION | DATE APP. |
| | | | |



SECTION P-P
SCALE 1/5



6 BEAM EXIT BLANK SUB ASSEMBLY

FILE NAME: 7103-154
SHEET NO.: 5
DFT. SCALE: 1:5
MATERIAL: VARIES
QTY: 1 REQ'D
NOTES:

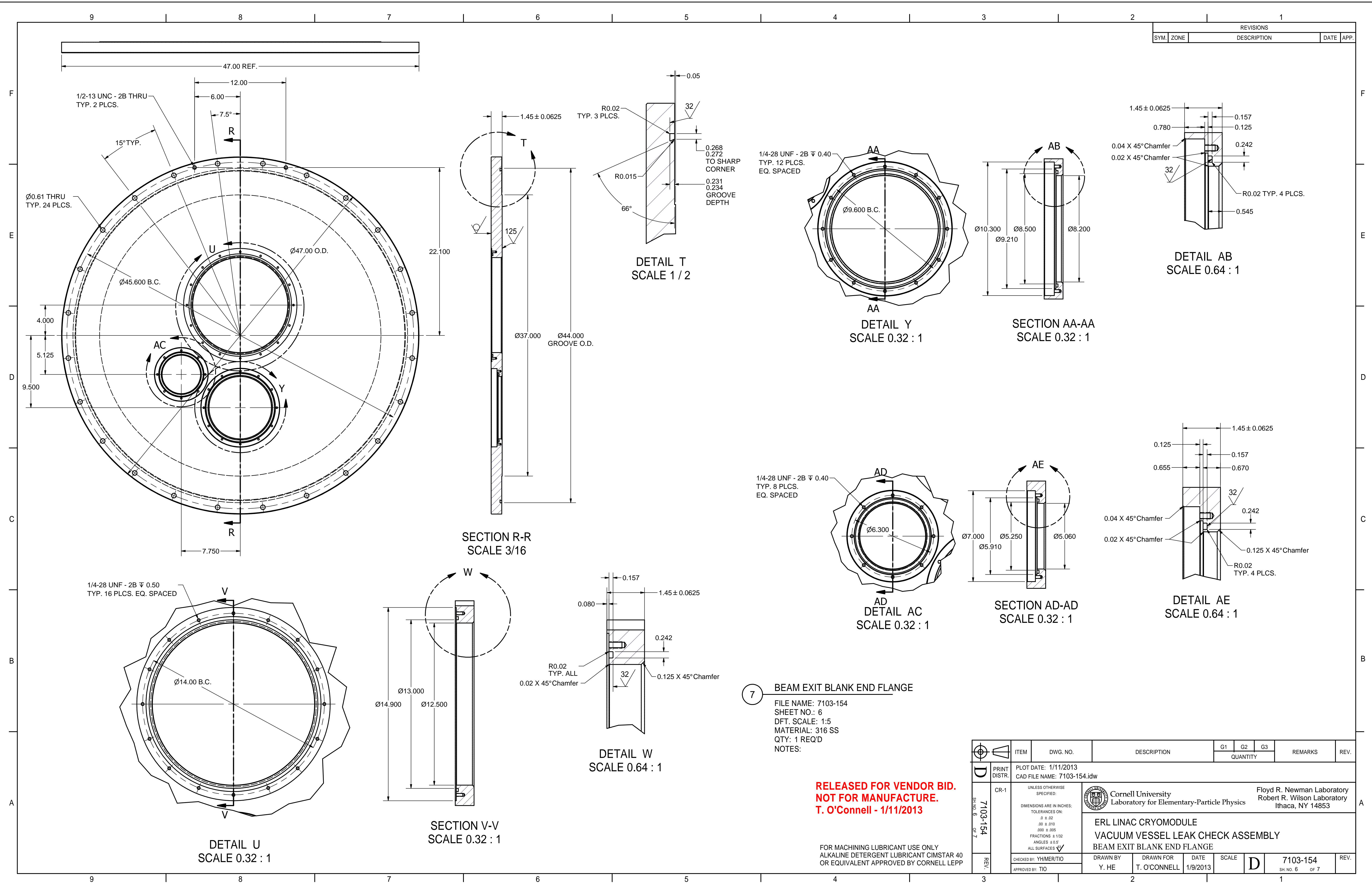
**RELEASED FOR VENDOR BID.
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FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

| ITEM | DWG. NO. | DESCRIPTION | G1 | G2 | G3 | REMARKS | REV. |
|------|----------|---|----|----|----|---------|------|
| 32 | Purchase | Lock Washer, 1/4 | 36 | | | | |
| 31 | Purchase | Socket Head Cap Screw, 1/4-28 UNF - 0.625 | 36 | | | | |
| 20 | Purchase | 5.25 ID x 3/16 W (#355) O-RING | 1 | | | | |
| 18 | Purchase | 8.5 ID x 3/16 W (#371) O-RING | 1 | | | | |
| 16 | Purchase | 13.85 ID x 3/16 W (#382) O-RING | 1 | | | | |
| 5 | Sheet 4 | BEAM LINE PORT BLANK FLANGE | 1 | | | | |
| 4 | Sheet 4 | WPM PORT BLANK | 1 | | | | |
| 8 | Sheet 7 | CRYO LINE PORT BLANK FLANGE | 1 | | | | |
| 7 | Sheet 6 | BEAM EXIT BLANK END FLANGE | 1 | | | | |
| 6 | Sheet 5 | BEAM EXIT BLANK SUB ASSEMBLY | 1 | | | | |

| | | | | | | | | |
|---|--------|---|---|--|-------|---|----------|------|
| D | PRINT | PLOT DATE: 1/11/2013 CAD FILE NAME: 7103-154.idw | Cornell University Laboratory for Elementary-Particle Physics Floyd R. Newman Laboratory Robert R. Wilson Laboratory Ithaca, NY 14853 | ERL LINAC CRYOMODULE VACUUM VESSEL LEAK CHECK ASSEMBLY BEAM EXIT BLANK SUB-ASM | SCALE | D | 7103-154 | REV. |
| | DISTR. | | | | | | | |

| REVISIONS | | | |
|-----------|------|-------------|-----------|
| SYM. | ZONE | DESCRIPTION | DATE APP. |
| | | | |



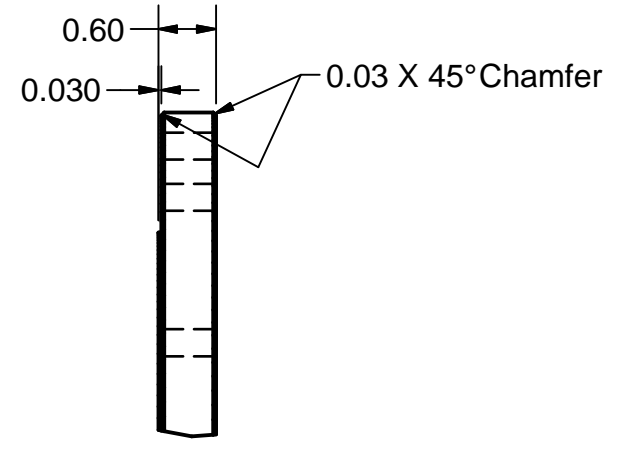
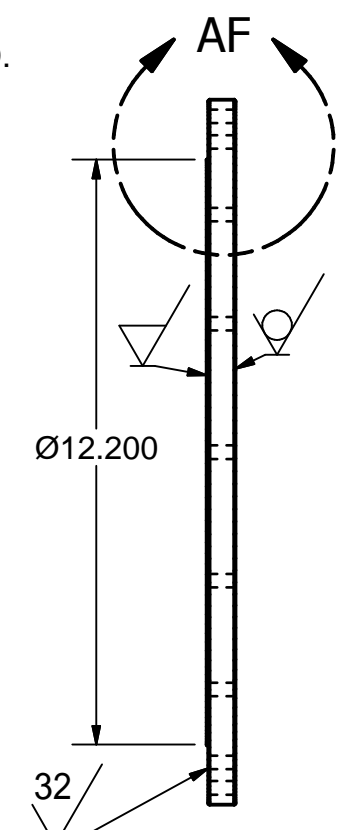
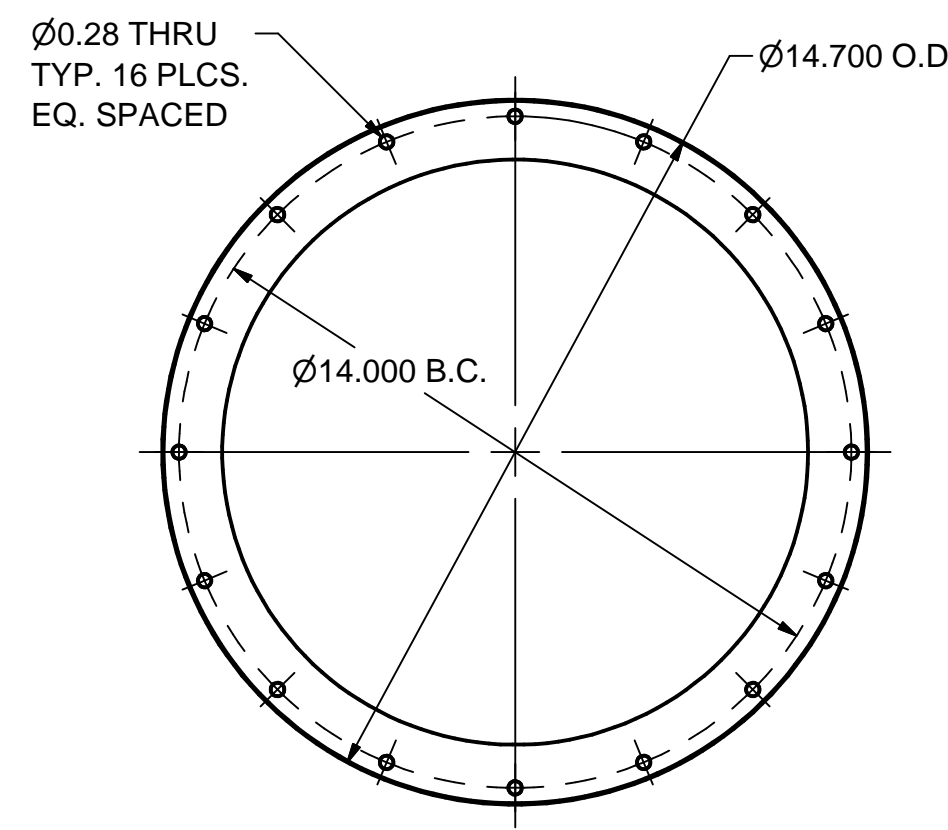
7 BEAM EXIT BLANK END FLANGE
 FILE NAME: 7103-154
 SHEET NO.: 6
 DFT. SCALE: 1:5
 MATERIAL: 316 SS
 QTY: 1 REQD
 NOTES:

**RELEASED FOR VENDOR BID.
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 OR EQUIVALENT APPROVED BY CORNELL LEPP

| ITEM | DWG. NO. | DESCRIPTION | G1 | G2 | G3 | REMARKS | REV. |
|---|--|---|----------|----------|---------------------|---------|------|
| | | | QUANTITY | | | | |
| PRINT DISTR. | 7103-154 | PLOT DATE: 1/11/2013 CAD FILE NAME: 7103-154.idw | | | | | |
| CR-1 | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES ✓ | Cornell University Laboratory for Elementary-Particle Physics Floyd R. Newman Laboratory Robert R. Wilson Laboratory Ithaca, NY 14853 | | | | | |
| | | ERL LINAC CRYOMODULE VACUUM VESSEL LEAK CHECK ASSEMBLY BEAM EXIT BLANK END FLANGE | | | | | |
| CHECKED BY: YHMER/TIO APPROVED BY: TIO | DRAWN BY: Y. HE DRAWN FOR: T. O'CONNELL | DATE: 1/9/2013 | SCALE: D | 7103-154 | REV. SH. NO. 6 OF 7 | | |

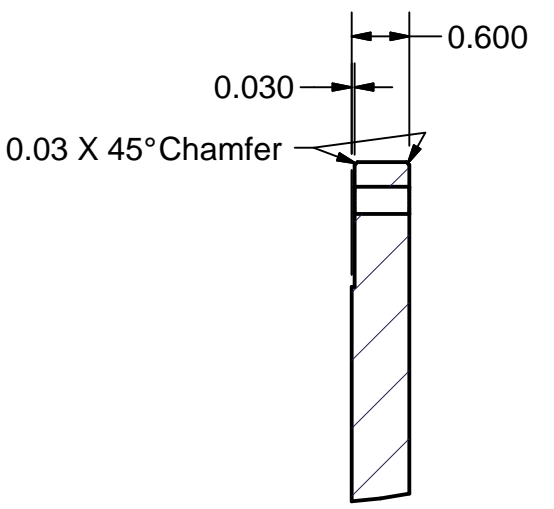
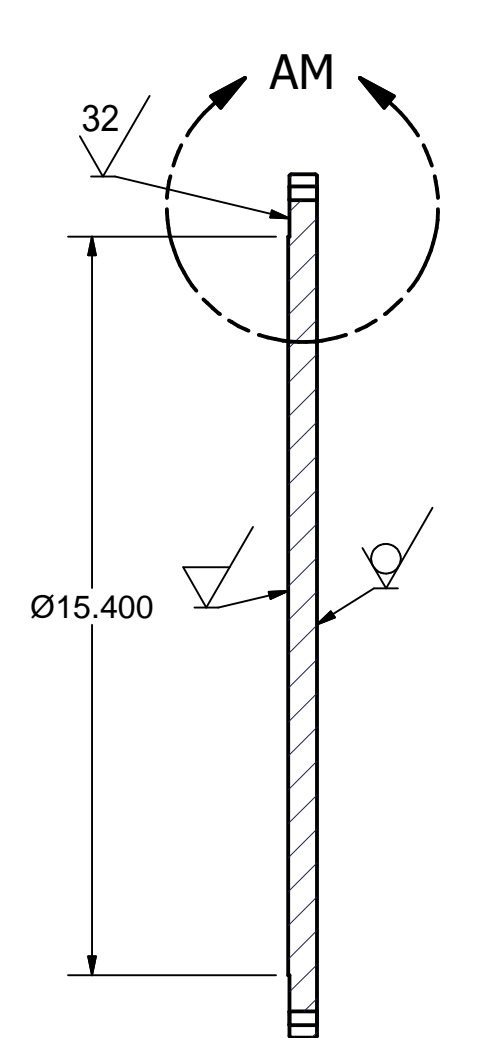
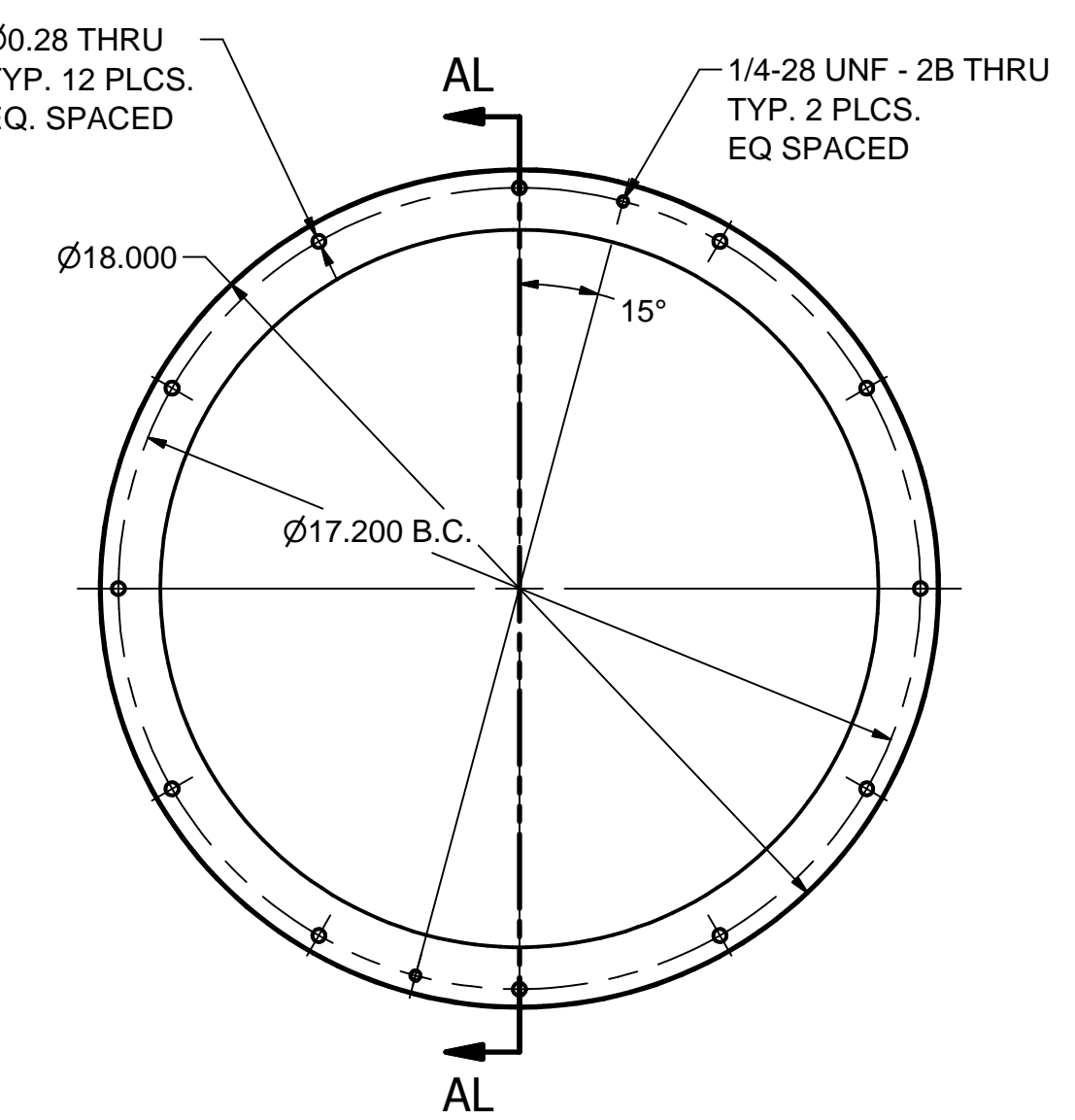
| REVISIONS | | | |
|-----------|------|-------------|-----------|
| SYM. | ZONE | DESCRIPTION | DATE APP. |
| | | | |



DETAIL AF
SCALE 1/2

8 CRYO LINE PORT BLANK FLANGE

FILE NAME: 7103-154
SHEET NO.: 7
DFT. SCALE: 1:4
MATERIAL: 316 SS
QTY: 1 REQ'D
NOTES:

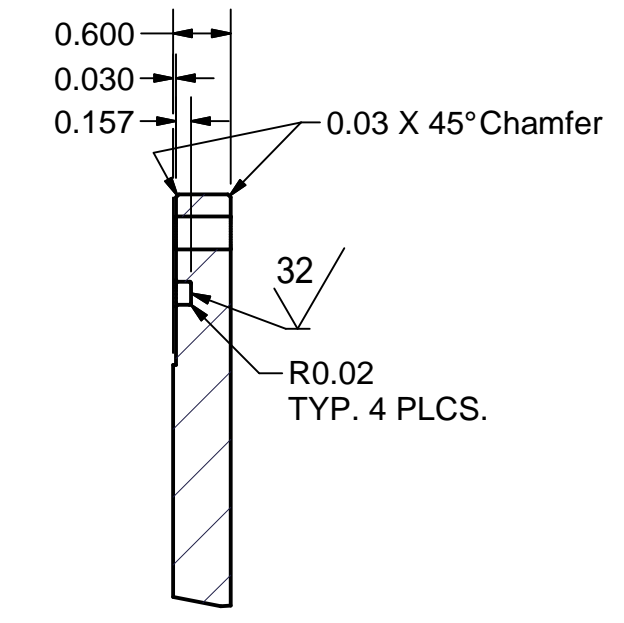
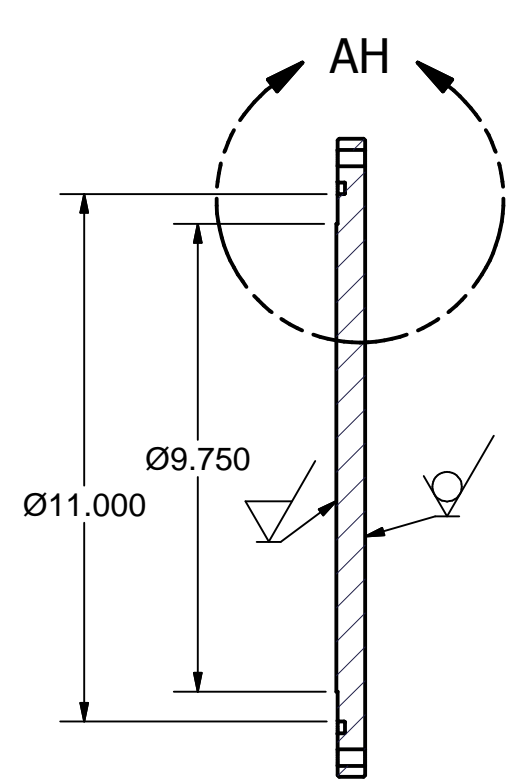
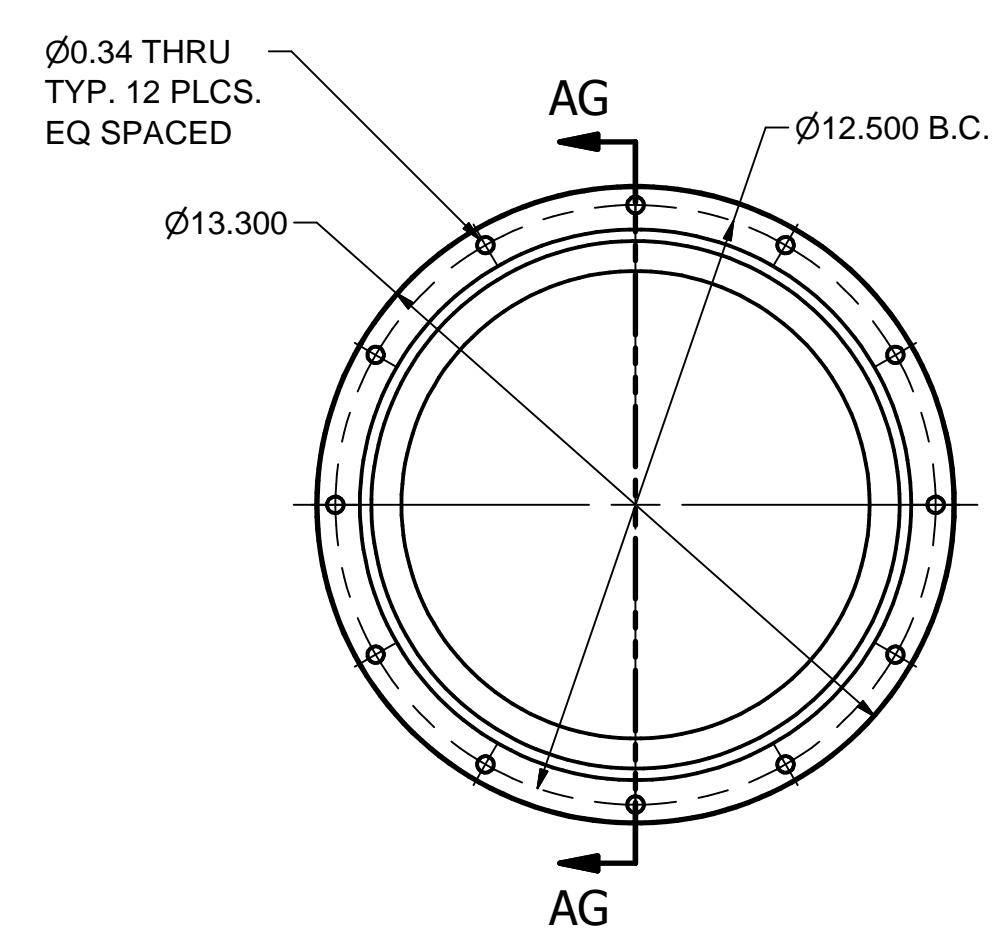


DETAIL AM
SCALE 1/2

SECTION AL-AL
SCALE 1/4

10 TOP PORT BLANK FLANGE

FILE NAME: 7103-154
SHEET NO.: 7
DFT. SCALE: 1:4
MATERIAL: 316 SS
QTY: 3 REQ'D
NOTES:

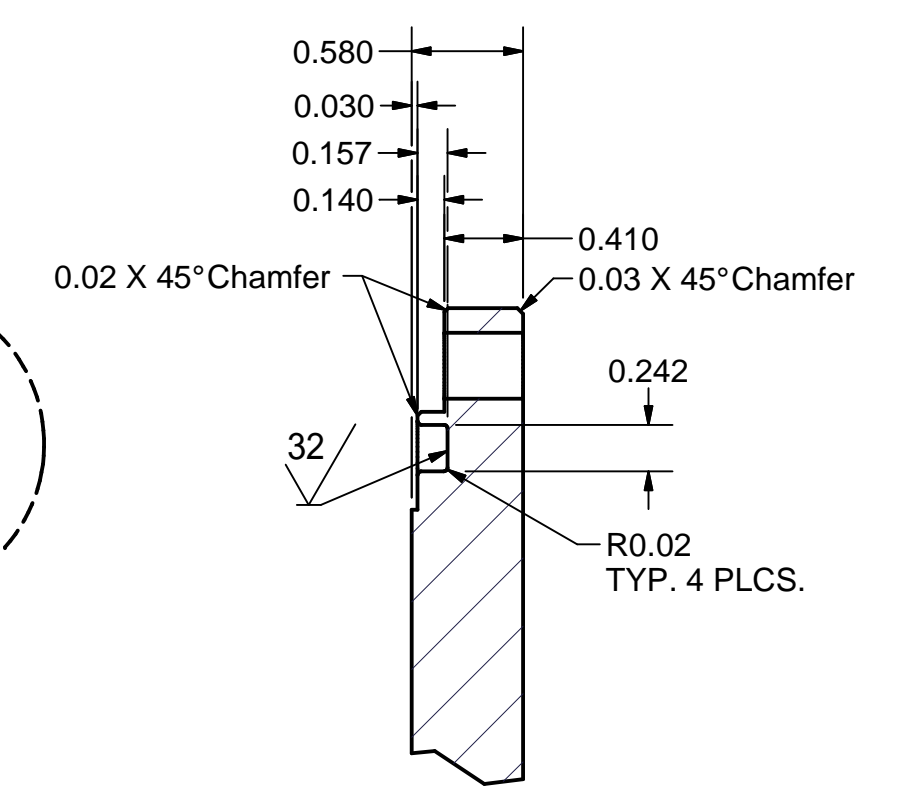
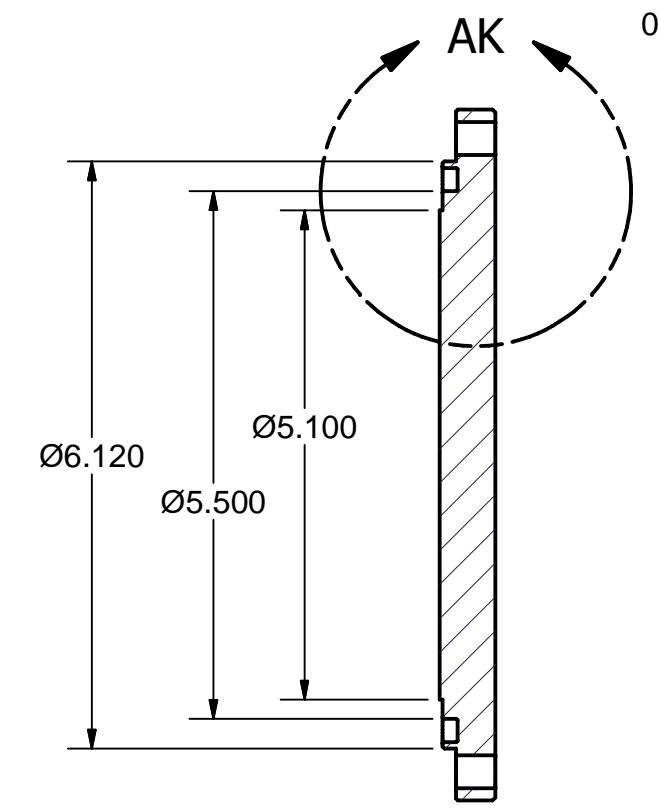
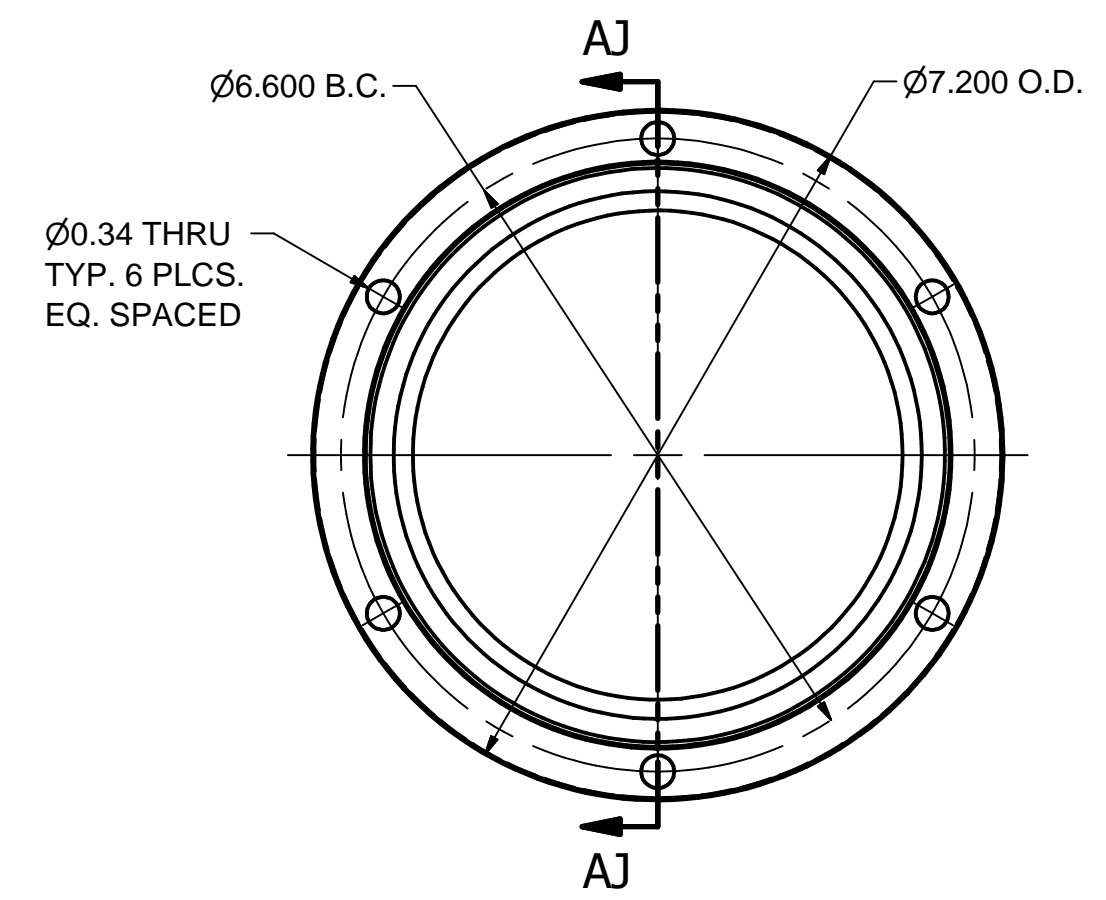


DETAIL AH
SCALE 1/2

SECTION AG-AG
SCALE 1/4

9 INPUT COUPLER PORT BLANK FLANGE

FILE NAME: 7103-154
SHEET NO.: 7
DFT. SCALE: 1:4
MATERIAL: 316 SS
QTY: 11 REQ'D
NOTES:



DETAIL AK
SCALE 1:1

SECTION AJ-AJ
SCALE 1/2

11 GATE VALVE PORT BLANK FLANGE

FILE NAME: 7103-154
SHEET NO.: 7
DFT. SCALE: 1:2
MATERIAL: 316 SS
QTY: 4 REQ'D
NOTES:

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T. O'Connell - 1/11/2013

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OR EQUIVALENT APPROVED BY CORNELL LEPP

| REV. | ITEM | DWG. NO. | DESCRIPTION | G1 | G2 | G3 | REMARKS | REV. |
|------|------|----------|-------------|----------|----|----|---------|------|
| | | | | QUANTITY | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | | | |
|------------------------------|---|---|---|
| PRINT DISTR. | PLOT DATE: 1/11/2013 CAD FILE NAME: 7103-154.idw | Cornell University Laboratory for Elementary-Particle Physics Floyd R. Newman Laboratory Robert R. Wilson Laboratory Ithaca, NY 14853 | ERL LINAC CRYOMODULE VACUUM VESSEL LEAK CHECK ASSEMBLY BEAM EXIT BLANK END MISC FLANGES |
| 7103-154 SHEET NO. 7 OF 7 | DIMENSIONS ARE IN INCHES: TOLERANCES ON: 0 ± 0.02 .00 ± 0.010 .000 ± 0.005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES ✓ | | |
| CHECKED BY: YHMER/TIO | DRAWN BY: Y. HE | DATE: 1/9/2013 | SCALE: D |
| APPROVED BY: TIO | DRAWN FOR: T. O'CONNELL | DATE: 1/9/2013 | 7103-154 SH. NO. 7 OF 7 |