

5. SCRIBE, ENGRAVE (A VIBRATORY TOOL MAY BE USED), LASER MARK OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND/OR VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. EXAMPLE: DXXXXXXX-V1, TYPE-XX, S/N XXX

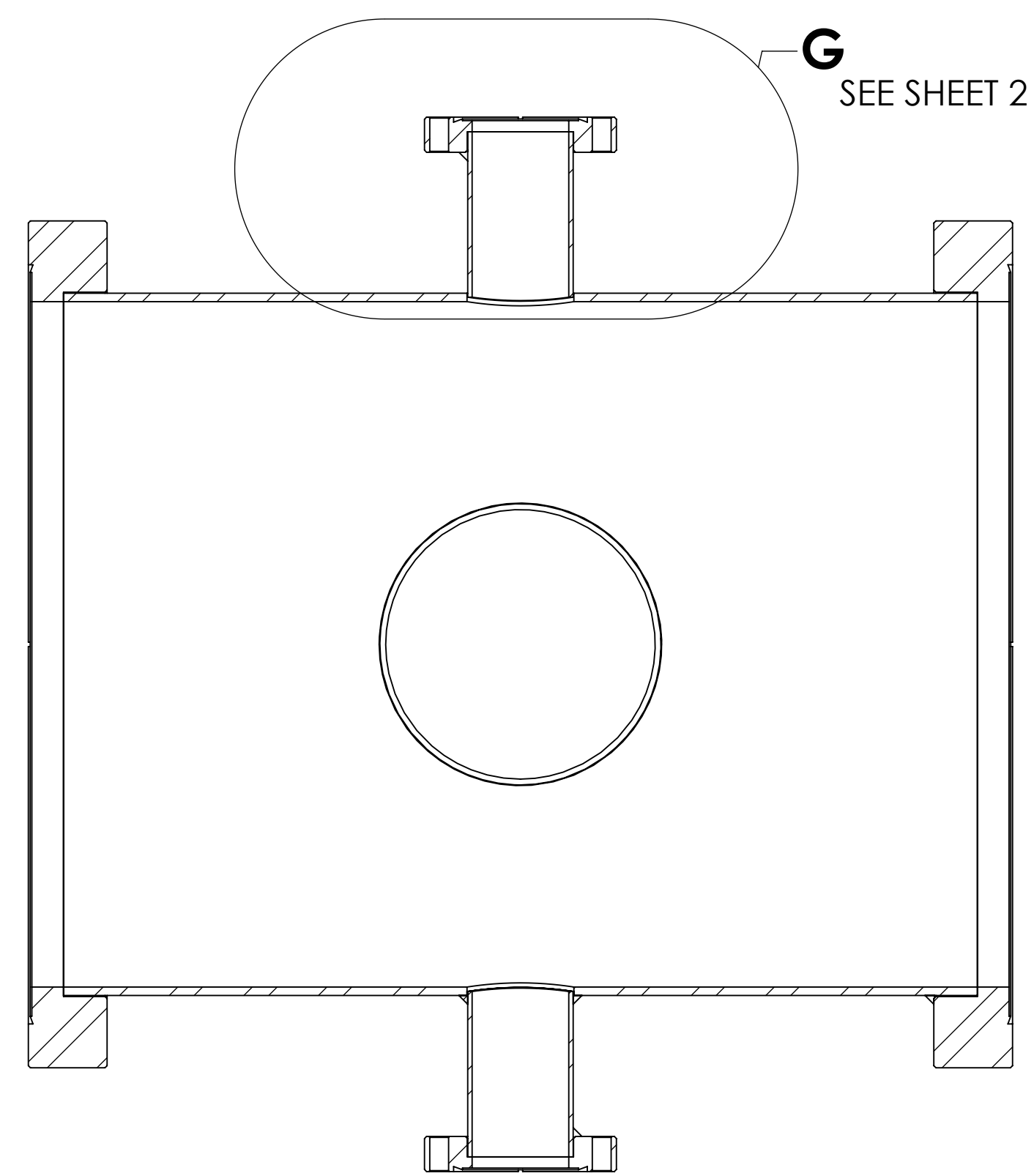
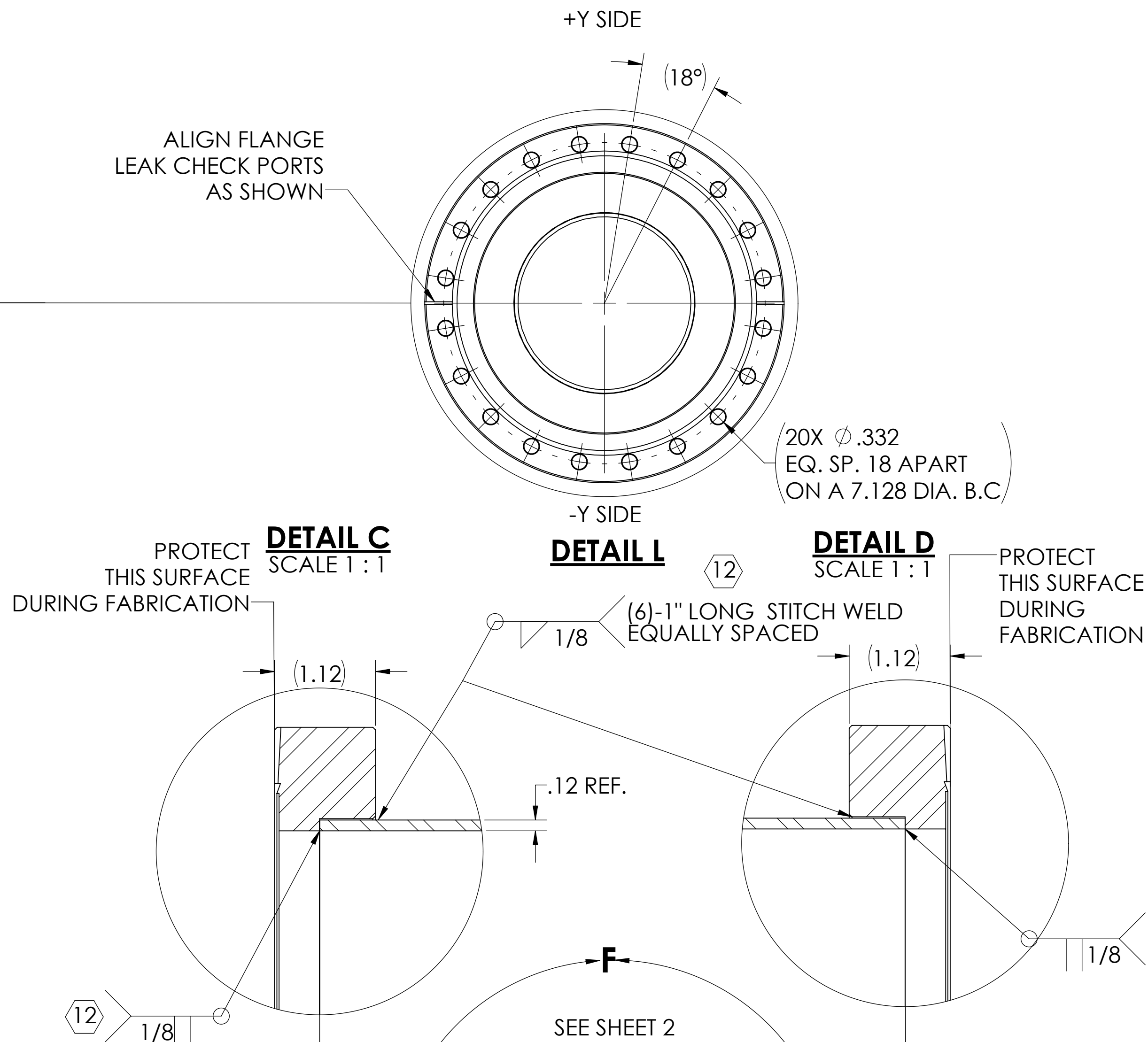
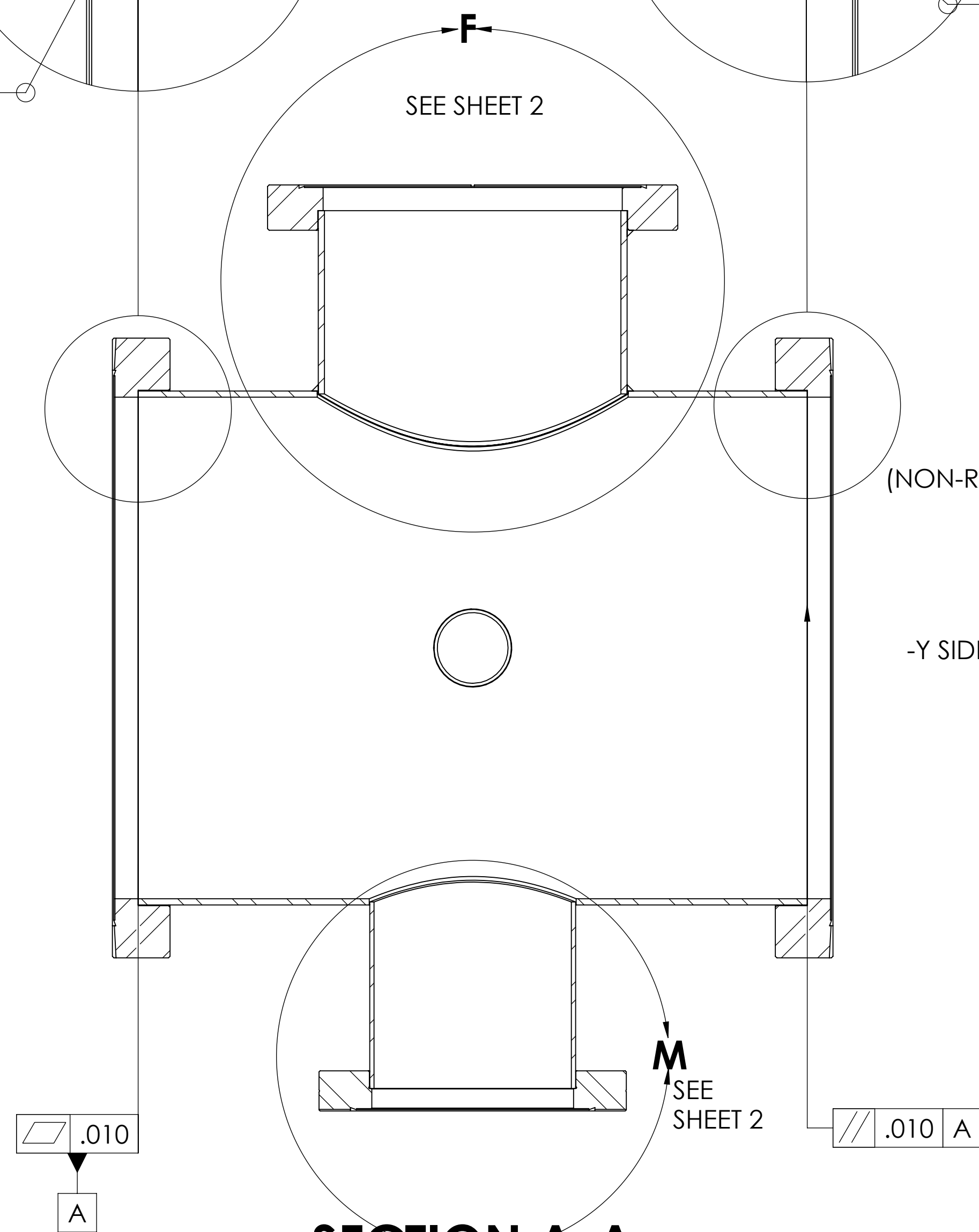
13. CONFLAT FLANGES ARE TO BE PROTECTED WITH RIGID COVERS AT ALL TIMES DURING AND AFTER MANUFACTURING.

14. PACKAGE, HANDLE, AND SHIP IN SUCH A MANNER S TO MAINTAIN SPECIFIED SURFACE FINISHED AND FLATNESS TOLERANCES.

15 CENTER LINES OF ITEMS (2) (10" OD TUBE) AND (3) (FLANGES) ARE TO BE ON THE COMMON CENTER LINE WITHIN  $\pm 1/16"$ .

16. INSPECT INDICATED DIMENSION AND PROVIDE RESULTS IN AN INSPECTION REPORT.

17 FLANGE LEAK PORTS SHALL BE CENTERED AT 12 AND 6 O'CLOCK POSITIONS.

[illegible]

ALIGN FLANGE  
LEAK CHECK PORTS  
AS SHOWN

-Y SIDE

22.5°

+Y SIDE

16X  $\phi .335$   
EQ. SP. 22.5° APART  
ON A 5.128 DIA. B.C.

**DETAIL H**  
SCALE 1 : 1

ALIGN FLANGE  
LEAK CHECK PORTS  
AS SHOWN

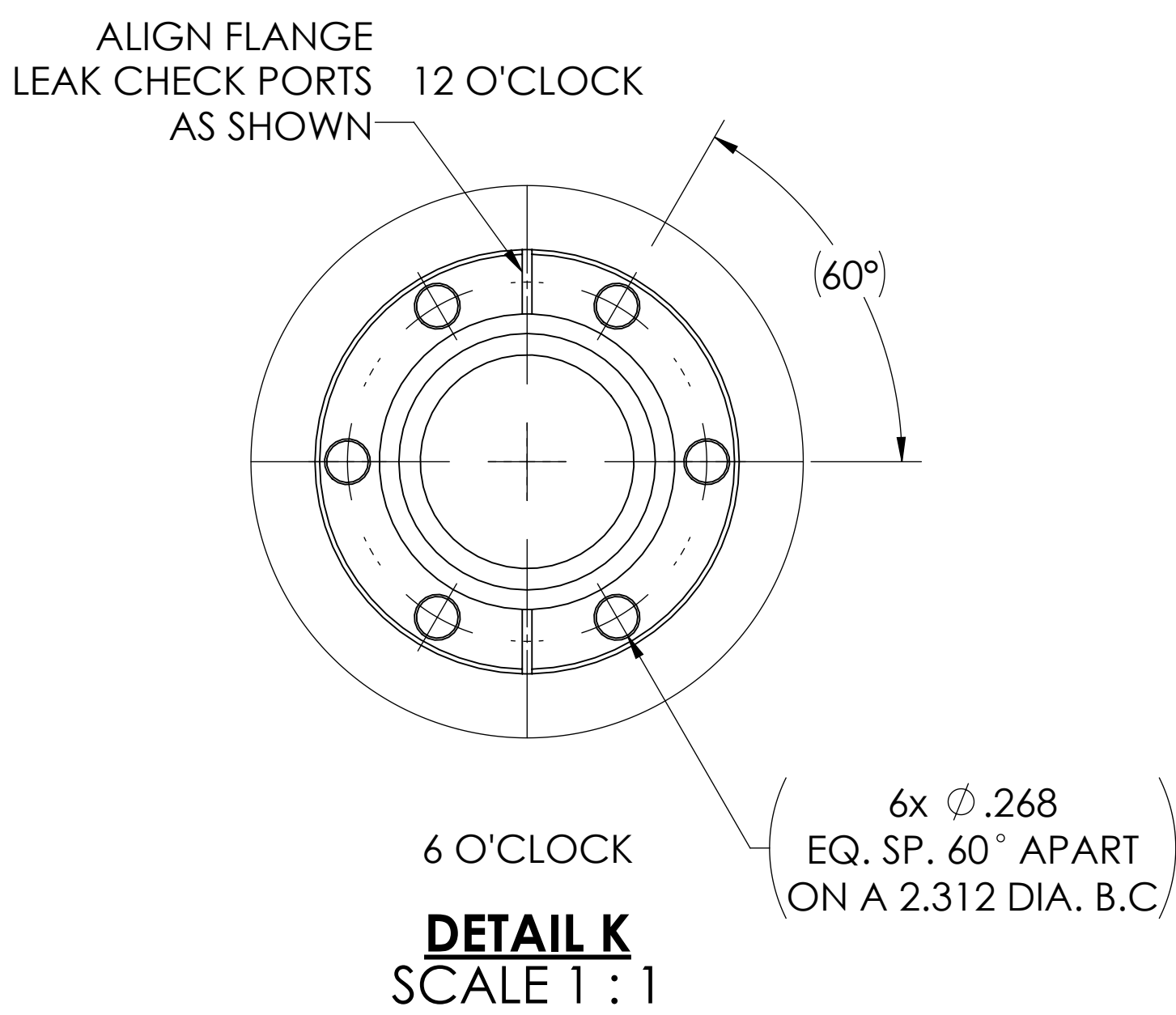
12 O'CLOCK

60°


6 O'CLOCK

6X  $\phi .268$   
EQ. SP. 60° APART  
ON A 2.312 DIA. B.C.

**DETAIL J**  
SCALE 1 : 1

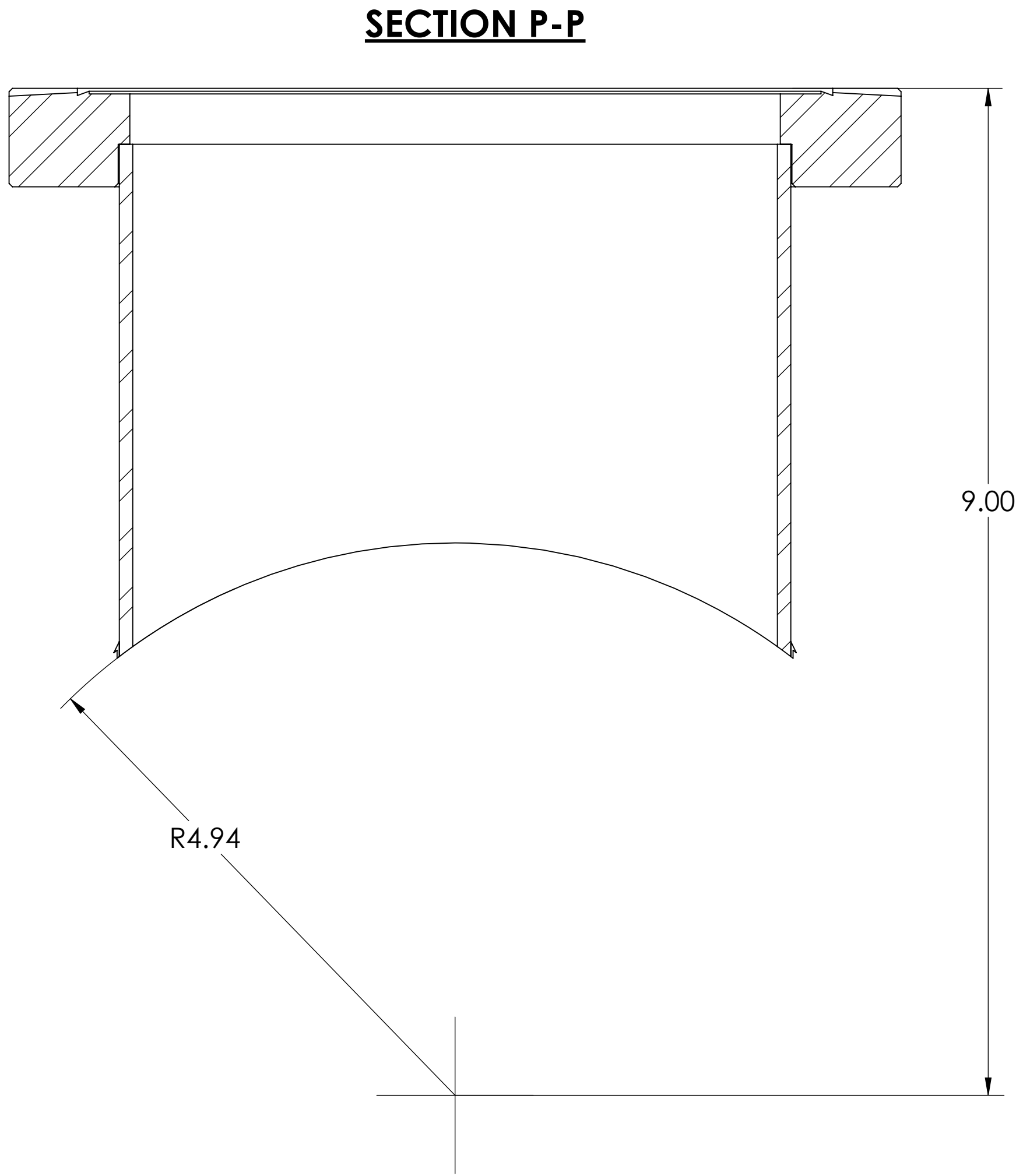
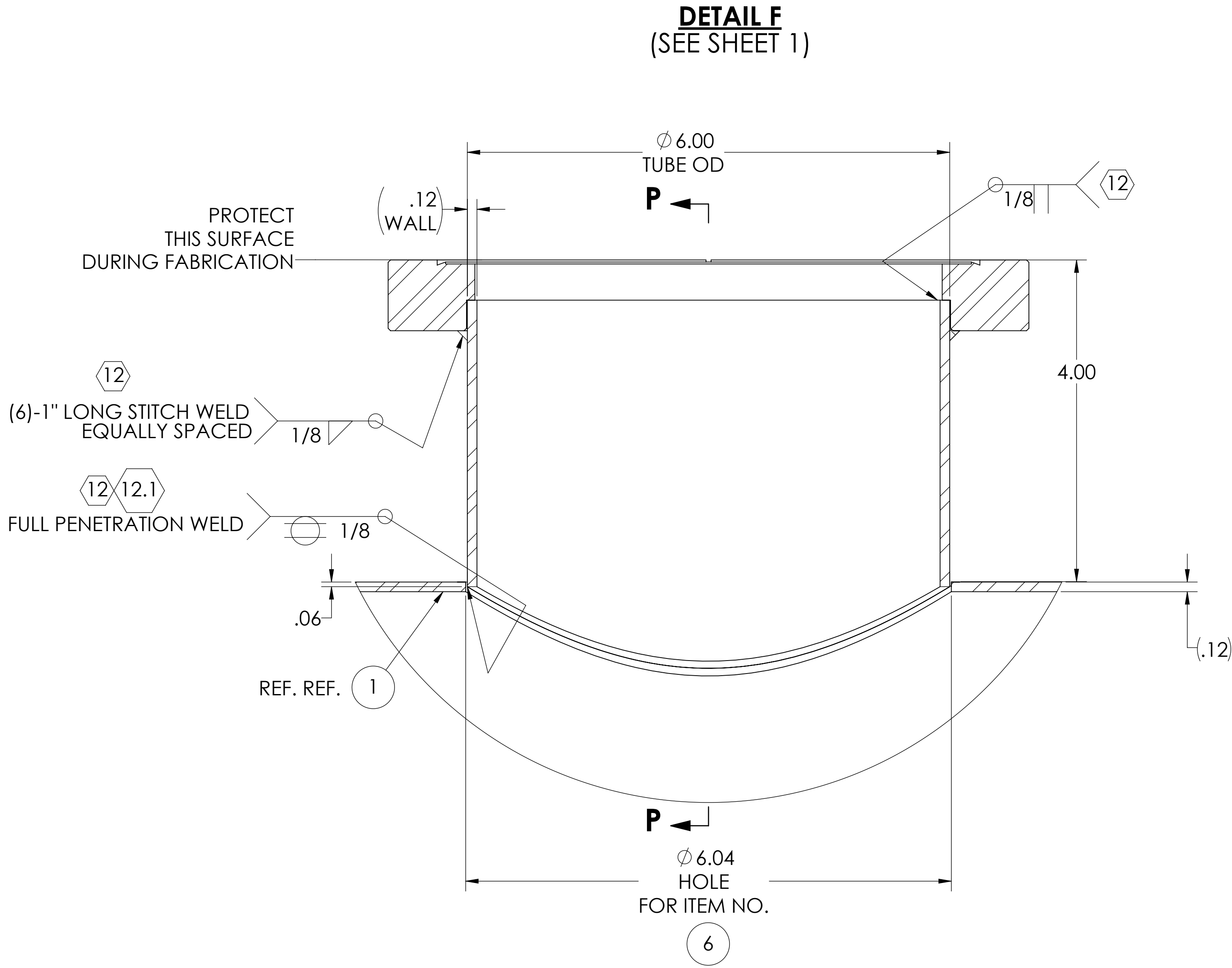


|                 |                    |                                                   |                 |             |
|-----------------|--------------------|---------------------------------------------------|-----------------|-------------|
| 6               | BY VENDOR          | HALF NIPPLE, 6" OD, TUBE X .12 WALL X 8" CF       | AISI 304        | -           |
| 5               | BY VENDOR          | HALF NIPPLE, 4" OD, TUBE X .083 WALL X 6" CF      | AISI 304        | -           |
| 4               | BY VENDOR          | HALF NIPPLE, 1.5" OD, TUBE X .065 WALL X 2.75" CF | AISI 304        | -           |
| 3               | BY VENDOR          | CF FLANGE, 12" OD X 10" ID                        | AISI 304        | -           |
| 2               | BY VENDOR          | TUBE, 10" OD, X .12 WALL                          | AISI 304        | -           |
| 1               | D1900485           | A+, VE, FC Tube, 6-WAY CROSS                      | AISI 304        | -           |
| <b>ITEM NO.</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                                | <b>MATERIAL</b> | <b>QTY.</b> |
| PARTS LIST      |                    |                                                   |                 |             |

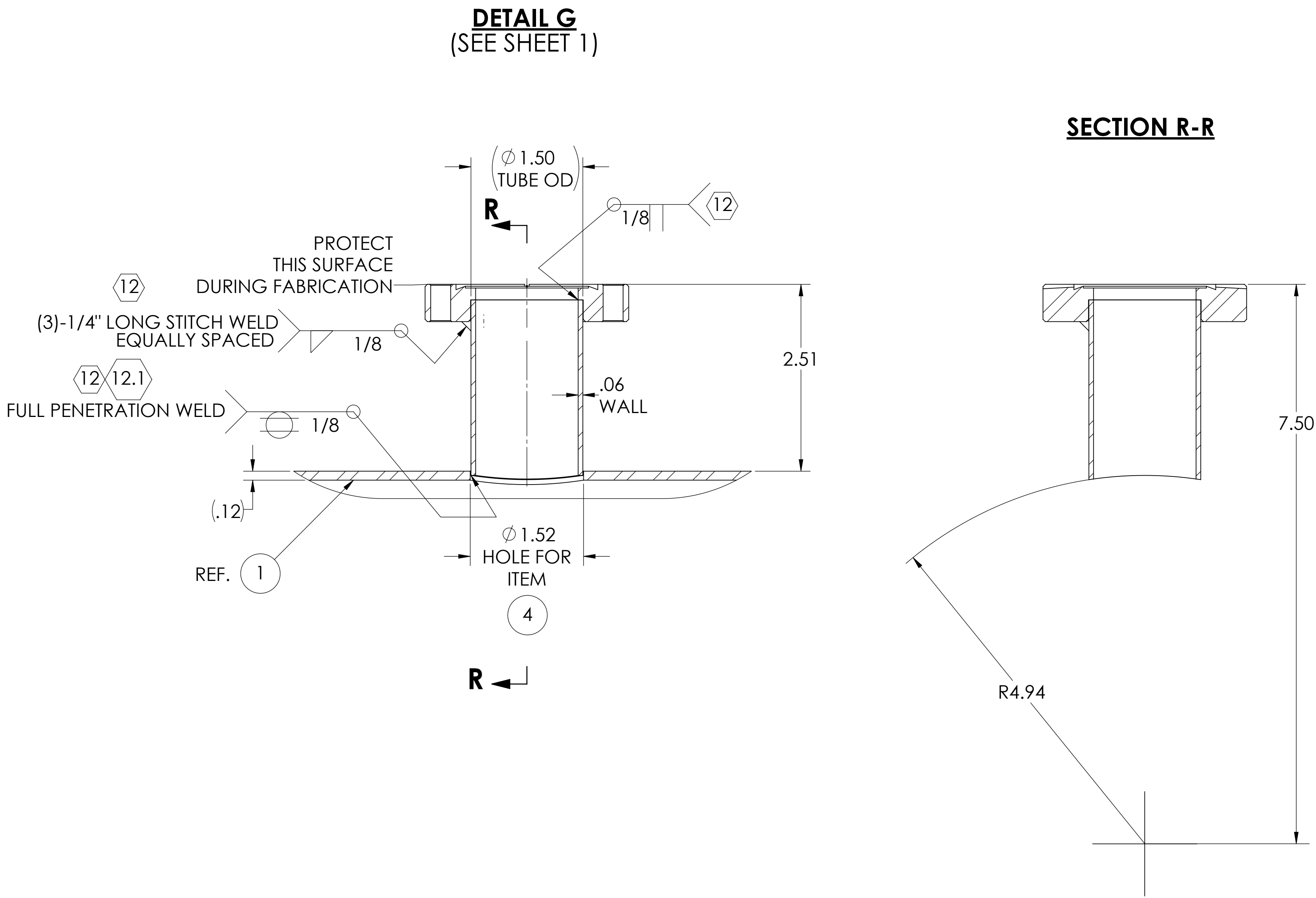
|                                                                                                                   |            |                                           |             |         |            |                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------|-------------|---------|------------|---------------------------------------------------------------------------------------------------|
| <div><div>LIGO</div><div>CALIFORNIA INSTITUTE OF TECHNOLOGY<br/>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</div></div> |            | PART NAME<br>A+, VE, FC Tube, 6-WAY CROSS |             |         |            |                                                                                                   |
| SYSTEM                                                                                                            | SUB-SYSTEM | DESIGNER                                  | 13 NOV 2019 | SIZE    | DWG. NO.   | REV.                                                                                              |
| A+                                                                                                                | VE         | DRAFTER                                   | 16 NOV 2019 | E       | D1900485   | v7                                                                                                |
| NEXT ASSY                                                                                                         |            | CHECKER                                   | SEE DCC     | SEE DCC |            |                                                                                                   |
| D1800238, D1800241                                                                                                |            | APPROVAL                                  | SEE DCC     | SEE DCC | SCALE: NTS | PROJECTION:  |
|                                                                                                                   |            |                                           |             |         |            | SHEET 1 OF 2                                                                                      |

NOZZLE DATA AND PORT WELDMENT DETAILS:

NOZZLE, TYPE 1



NOZZLE, TYPE 3



NOZZLE, TYPE 2

