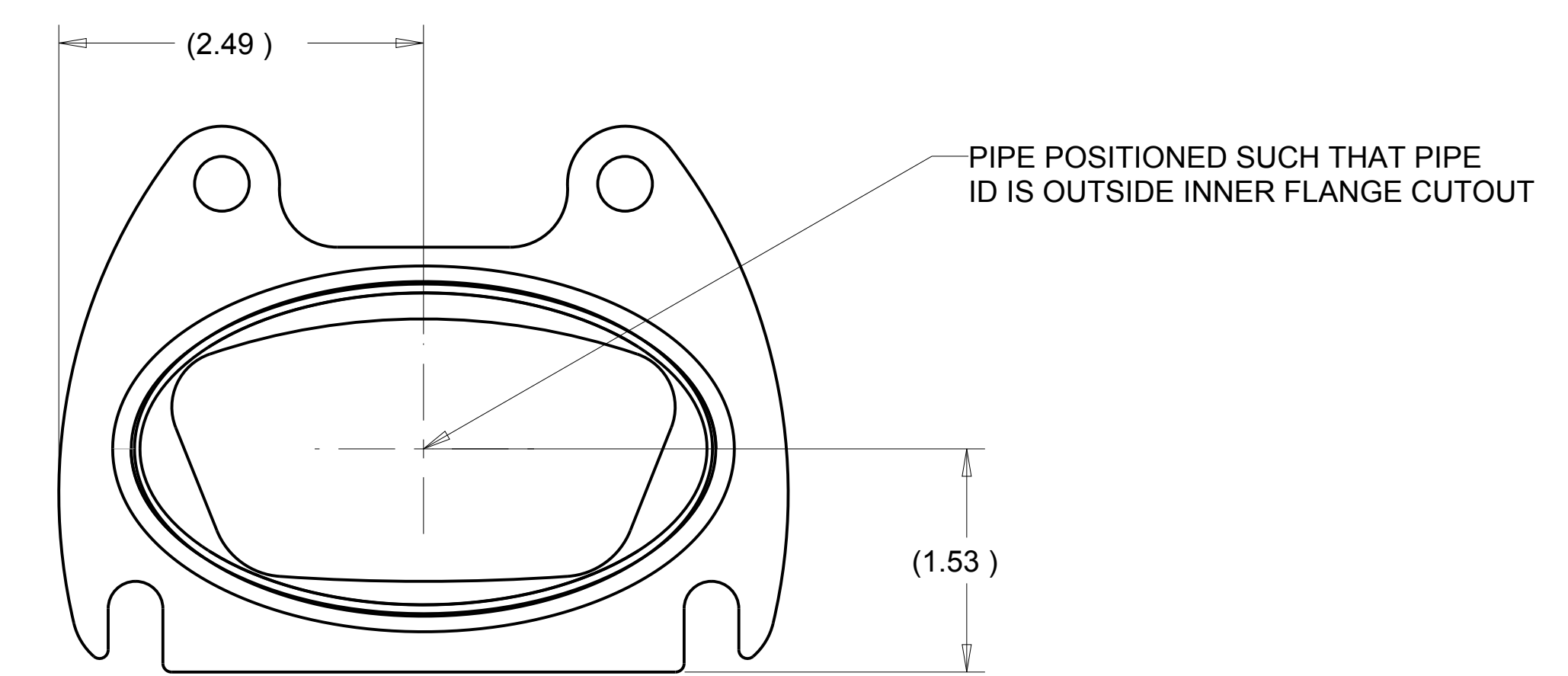
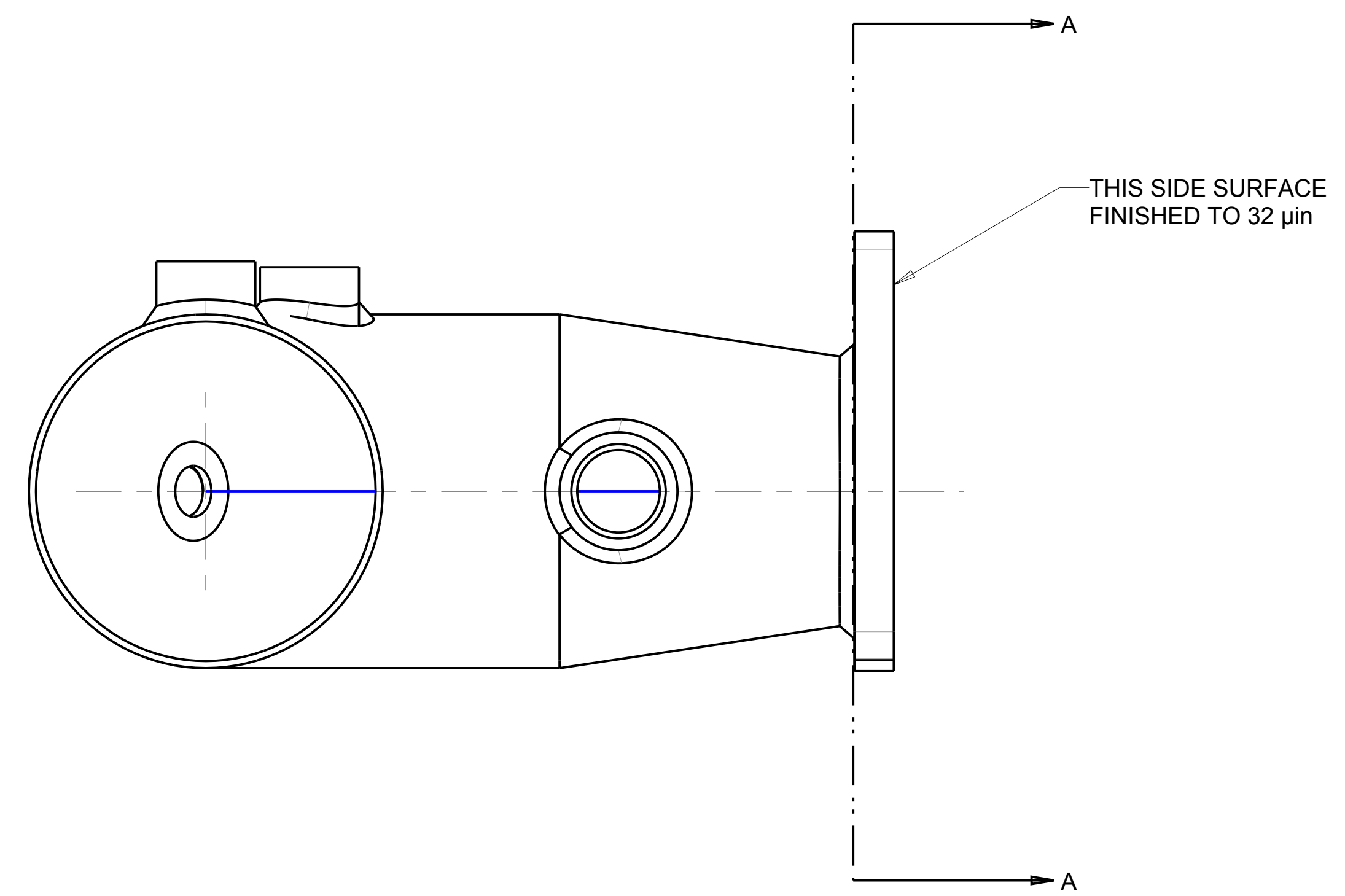
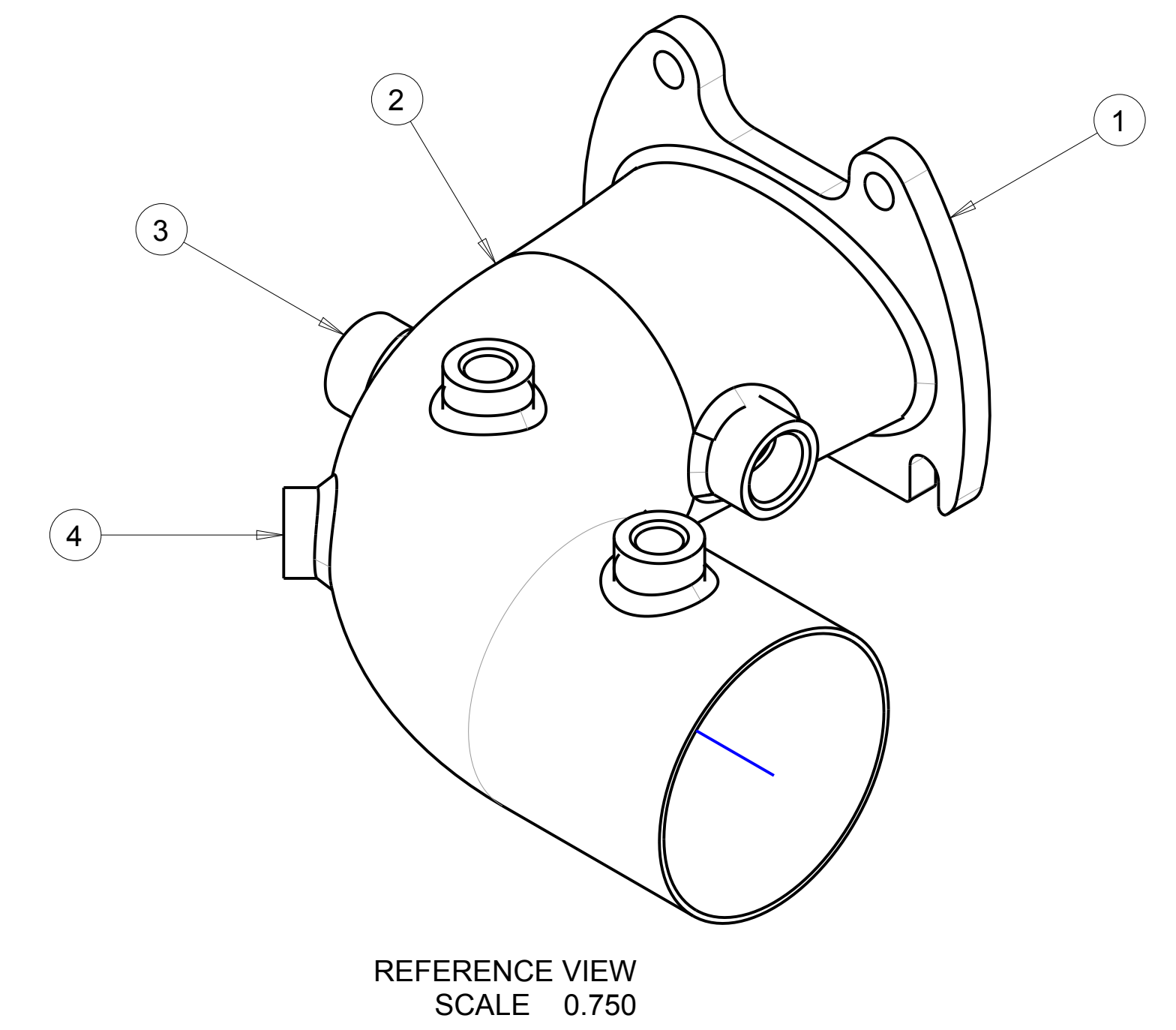
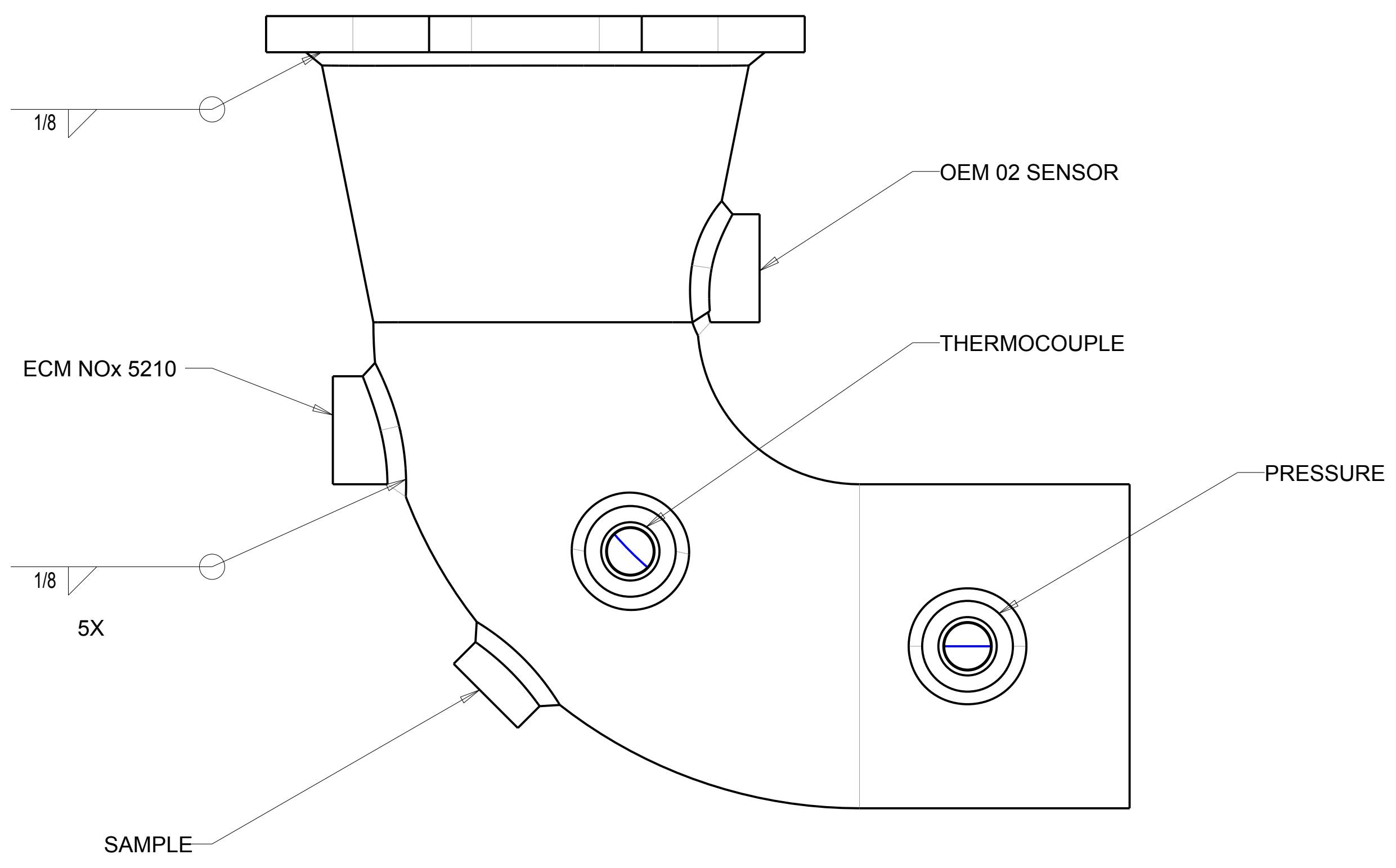


| REVISIONS | | | | |
|-----------|-----|------|-------------------------|------------|
| REV | SHT | ZONE | DESCRIPTION | DATE |
| A | | | INITIAL RELEASE | 2014-03-25 |
| B | | | COUPLING RELOCATED | 2014-06-13 |
| C | | | ADDED PORT DESCRIPTIONS | 2014-09-25 |



SECTION A-A

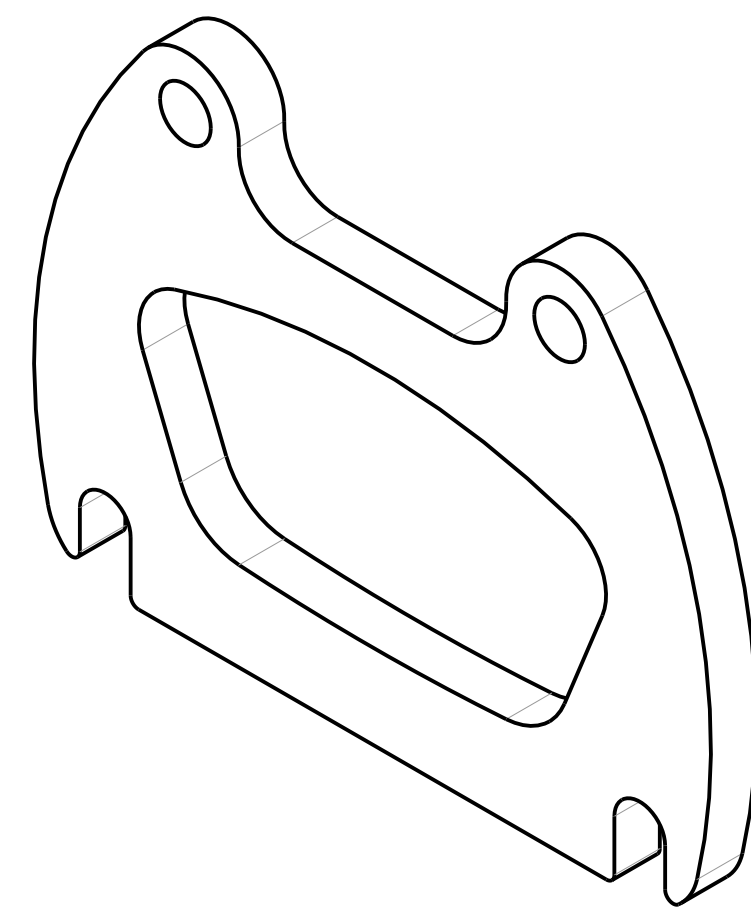
GENERAL NOTES

- 1) DO NOT SCALE THIS DRAWING
- 2) UNLESS OTHERWISE STATED:
 - a. ALL DIMENSIONING AND TOLERANCING IS IN INCHES PER ASME Y14.5-2009
 - b. BREAK ALL SHARP CORNERS AND SHARP EDGES R .010 MAXIMUM
 - c. MACHINED SURFACE FINISHES SHALL BE 125 MICROINCH OR BETTER
 - d. TAP DRILL DEPTHS SHOWN ARE MAXIMUM
 - e. FULL THREAD DEPTHS SHOWN ARE MINIMUM
 - f. CHAMFER ALL TAPED HOLES TO (NOMINAL DIA + 1/16) x 90°

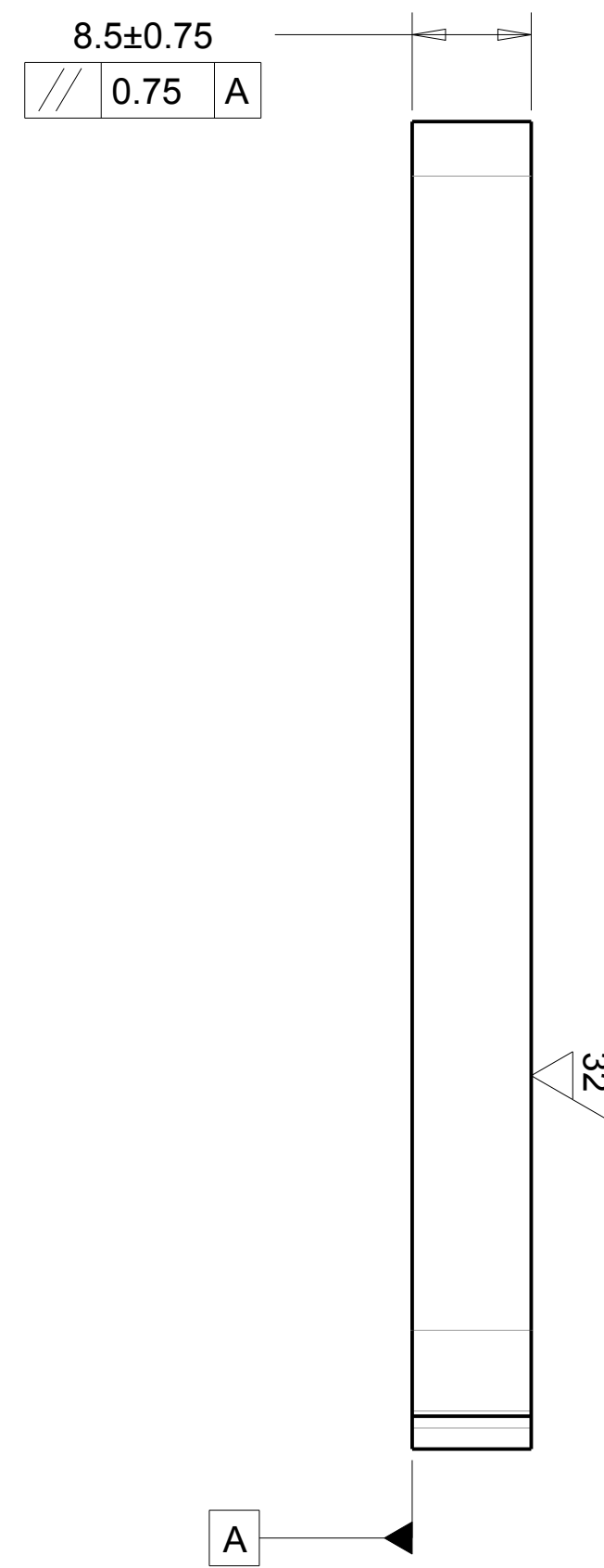
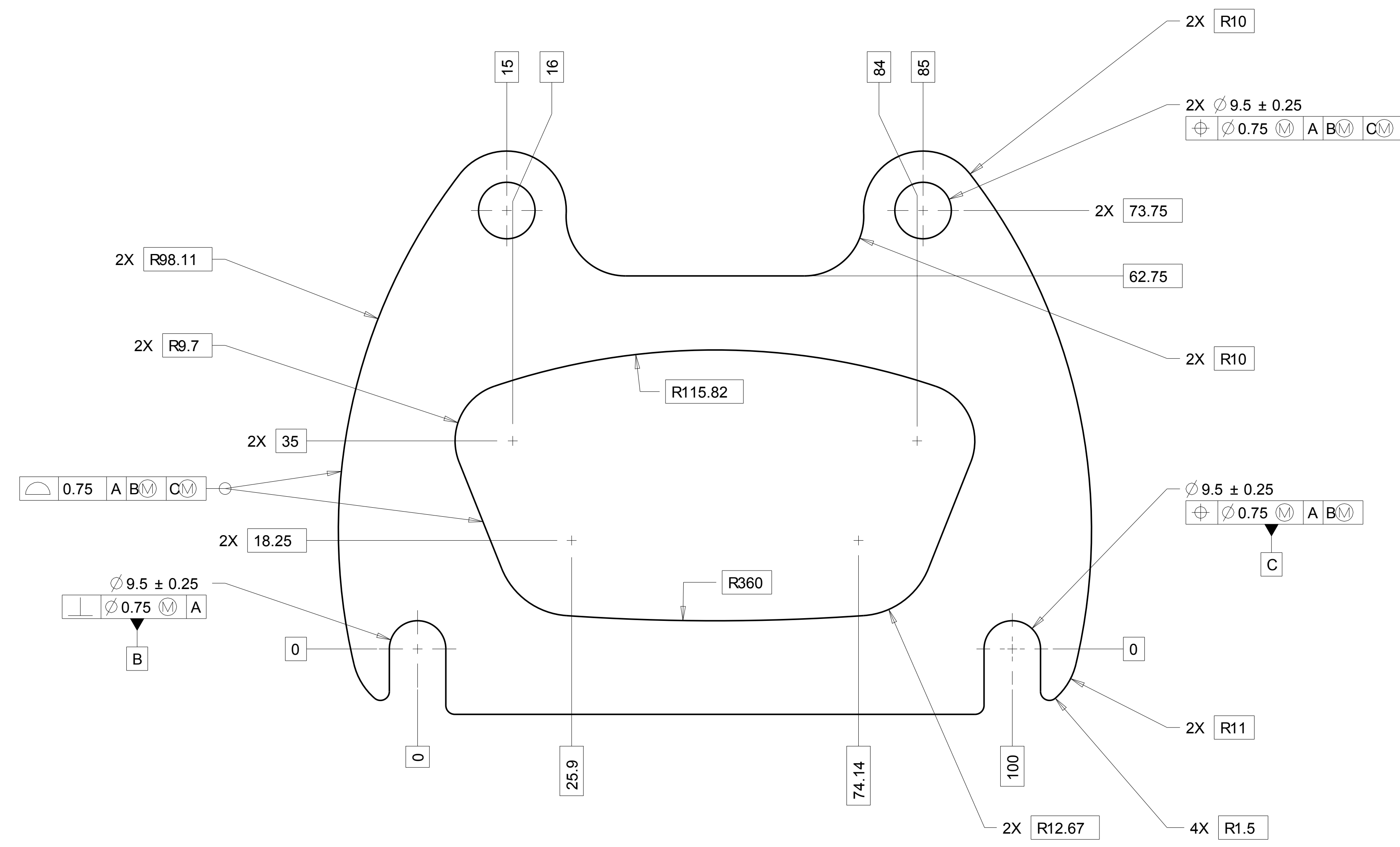
| QTY | CAGE | PART NUMBER | DESCRIPTION | MATERIAL/SPECIFICATION/NOTES | ITEM |
|-----|------|--------------|--------------------|---|------|
| 3 | | | 1/4" HALF COUPLING | 1/4" NPT HALF COUPLING, STAINLESS STEEL | 4 |
| 2 | | | O2 SENSOR BUNG | M18 X 1.5 BUNG, STAINLESS STEEL | 3 |
| 1 | | IIIH-ETP32-B | EXHAUST ELBOW LEFT | | 2 |
| 1 | | IIIH-ETP31-B | EXHAUST FLANGE | | 1 |

| DEFAULT TOLERANCES | | APPROVAL SIGNATURES | | SOUTHWEST RESEARCH INSTITUTE A | |
|--------------------------|------------------|--|------------------------------|--|-------|
| ONE PLACE (X.X) = ± | 0.1 | DATE | | OFFICE of AUTOMOTIVE ENGINEERING | |
| TWO PLACES (X.XX) = ± | 0.01 | DRWN | | 6220 CULEBRA ROAD SAN ANTONIO, TEXAS 78238 | |
| THREE PLACES (X.XXX) = ± | 0.005 | PRD | | EXHAUST TURNDOWN PIPE LEFT | |
| FOUR PLACES (X.XXXX) = ± | 0.0005 | DATE | COMPLETION DATE: 2014-03-25 | REV | |
| ANGLES = ± | 0.5 DEGREE | FILE | MODEL: EXHAUST_ASSEMBLY_LEFT | D | 26401 |
| SURFACE FINISHES ≤ | 125 MICROINCH RA | THIRD ANGLE PROJECTION | | IIIH-ETP30 | |
| | | EXCEPT AS MAY OTHERWISE BE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF SOUTHWEST RESEARCH INSTITUTE, ARE ISSUED IN STRICT CONFIDENCE, AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF ANY APPARATUS SHOWN THEREON WITHOUT PERMISSION | | SCALE 1.000 | |
| | | | | UNIT WEIGHT = LBS | |
| | | | | SHEET 1 OF 1 | |

| REVISIONS | | | | |
|-----------|-----|------|------------------------------|------------|
| REV | SHT | ZONE | DESCRIPTION | DATE |
| A | | | INITIAL RELEASE | 2014-03-25 |
| B | | | MODIFIED THICKNESS DIMENSION | 2014-04-21 |



REFERENCE VIEW
SCALE 1.000



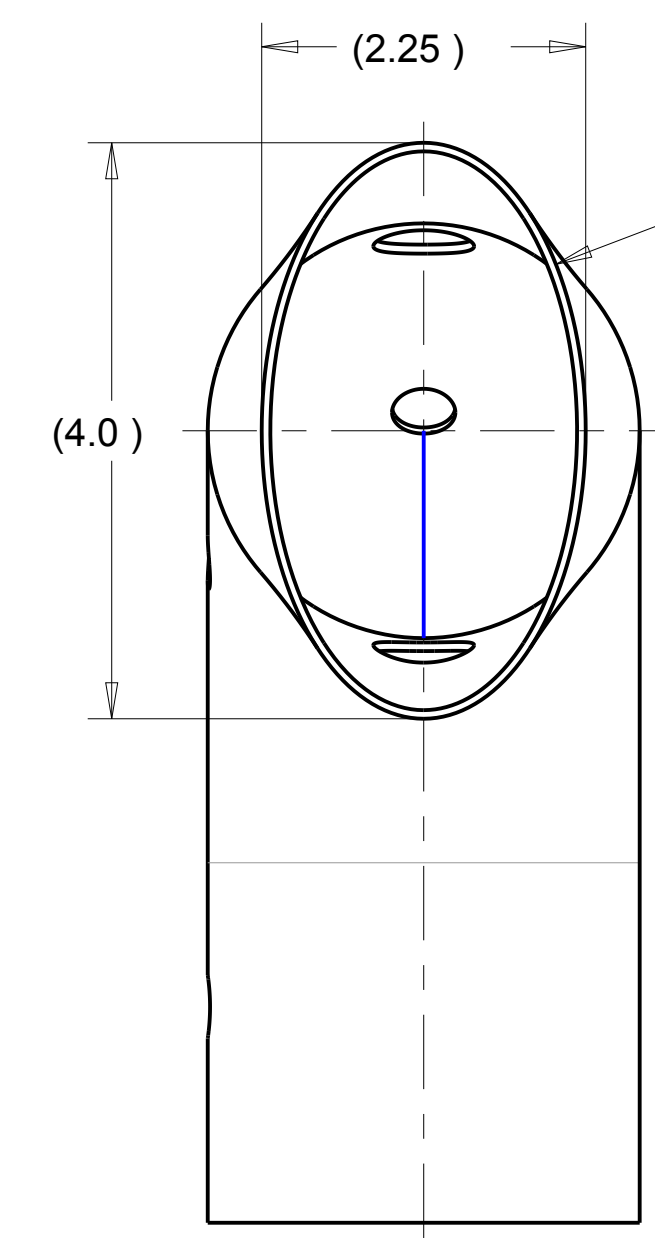
- GENERAL NOTES
- DO NOT SCALE THIS DRAWING
 - UNLESS OTHERWISE STATED:
 - ALL DIMENSIONING AND TOLERANCING IS IN MM PER ASME Y14.5-2009
 - BREAK ALL SHARP CORNERS AND SHARP EDGES R.010 MAXIMUM
 - MACHINED SURFACE FINISHES SHALL BE 125 MICROINCH OR BETTER
 - TAP DRILL DEPTHS SHOWN ARE MAXIMUM
 - FULL THREAD DEPTHS SHOWN ARE MINIMUM
 - CHAMFER ALL TAPED HOLES TO (NOMINAL DIA + 1/16) x 90°

| QTY | CAGE | PART NUMBER | DESCRIPTION | MATERIAL/SPECIFICATION/NOTES | ITEM |
|--------------------------------------|------|-------------------|---|------------------------------|------|
| | | | | T-316/316L STAINLESS STEEL | |
| BILL OF MATERIAL/PARTS LIST | | | | | |
| DEFAULT TOLERANCES | | | APPROVAL SIGNATURES | | |
| ONE PLACE (X.X) = ± 0.50 | | | DRPT | | |
| TWO PLACES (X.XX) = ± 0.25 | | | CWD | | |
| THREE PLACES (X.XXX) = ± 0.10 | | | DSGN | | |
| ANGLES = ± 0.5 DEGREE | | | DATE | | |
| SURFACE FINISHES <= 125 MICROINCH RA | | | COMPLETION DATE: 2014-03-25 | | |
| THIRD ANGLE PROJECTION | | | MODEL: FLANGE_EXHAUST | | |
| | | | <small>EXCEPT AS MAY OTHERWISE BE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF SOUTHWEST RESEARCH INSTITUTE, ARE ISSUED IN STRICT CONFIDENCE, AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF ANY APPARATUS SHOWN THEREON WITHOUT PERMISSION</small> | | |
| D 26401 | | IIIH-ETP31 | | B | |
| SCALE 2.000 | | UNIT WEIGHT = LBS | | SHEET 1 OF 1 | |

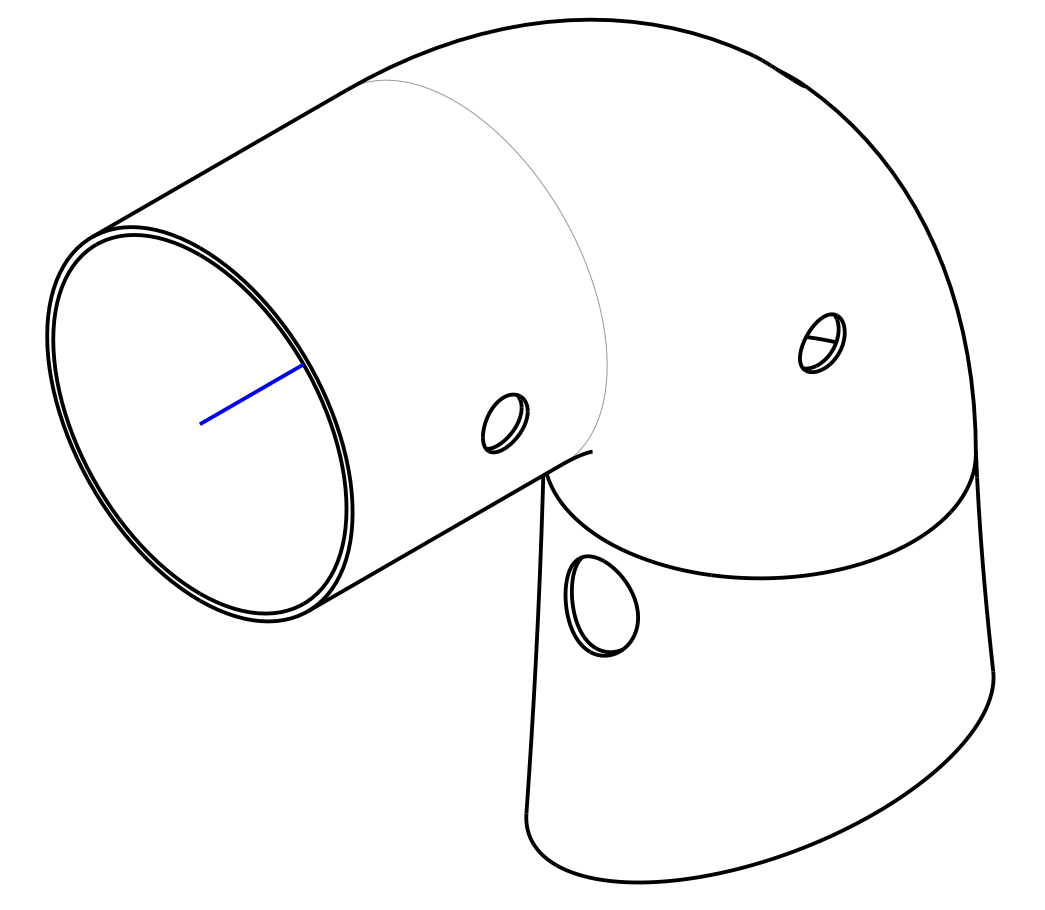


FLANGE, EXHAUST

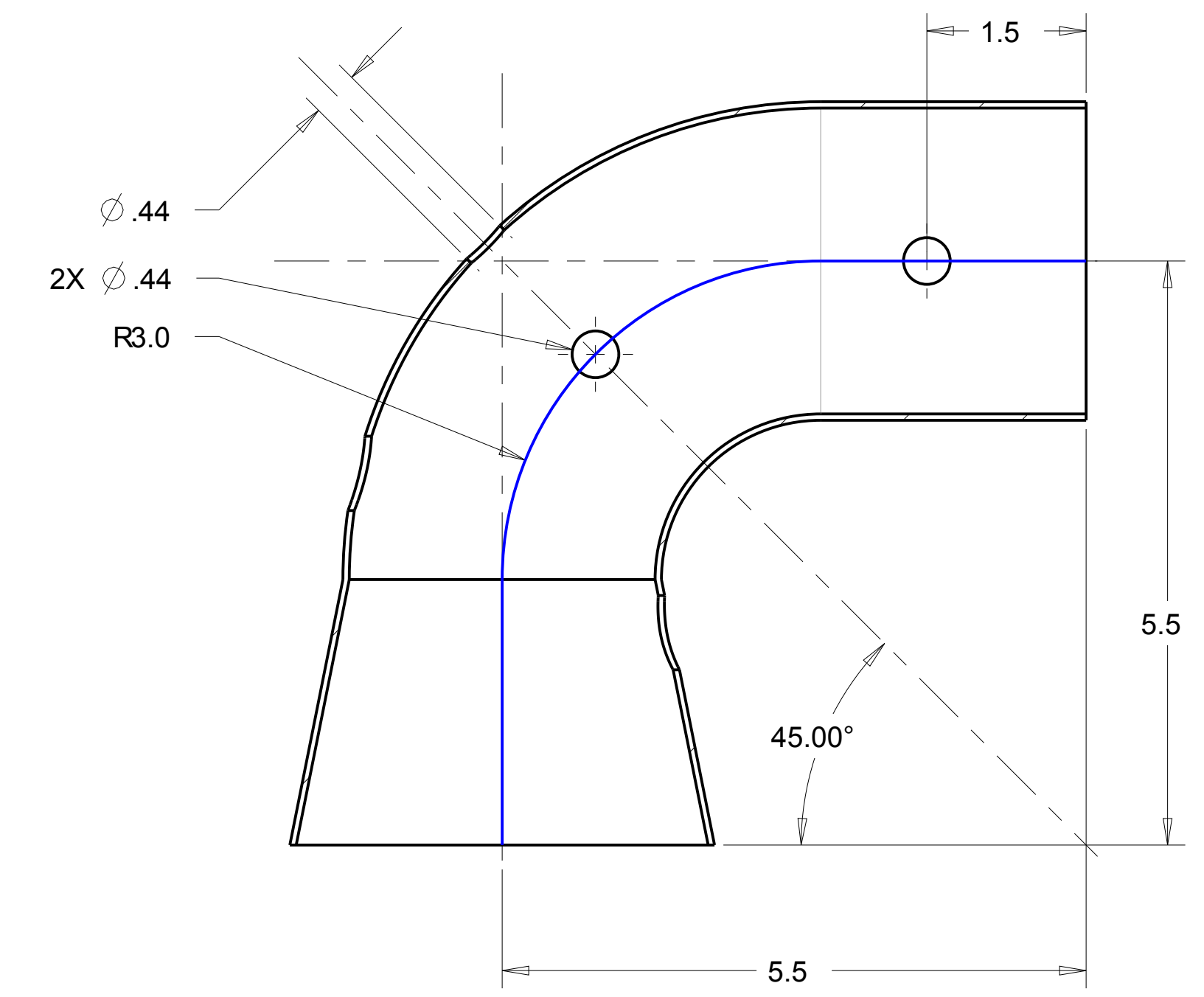
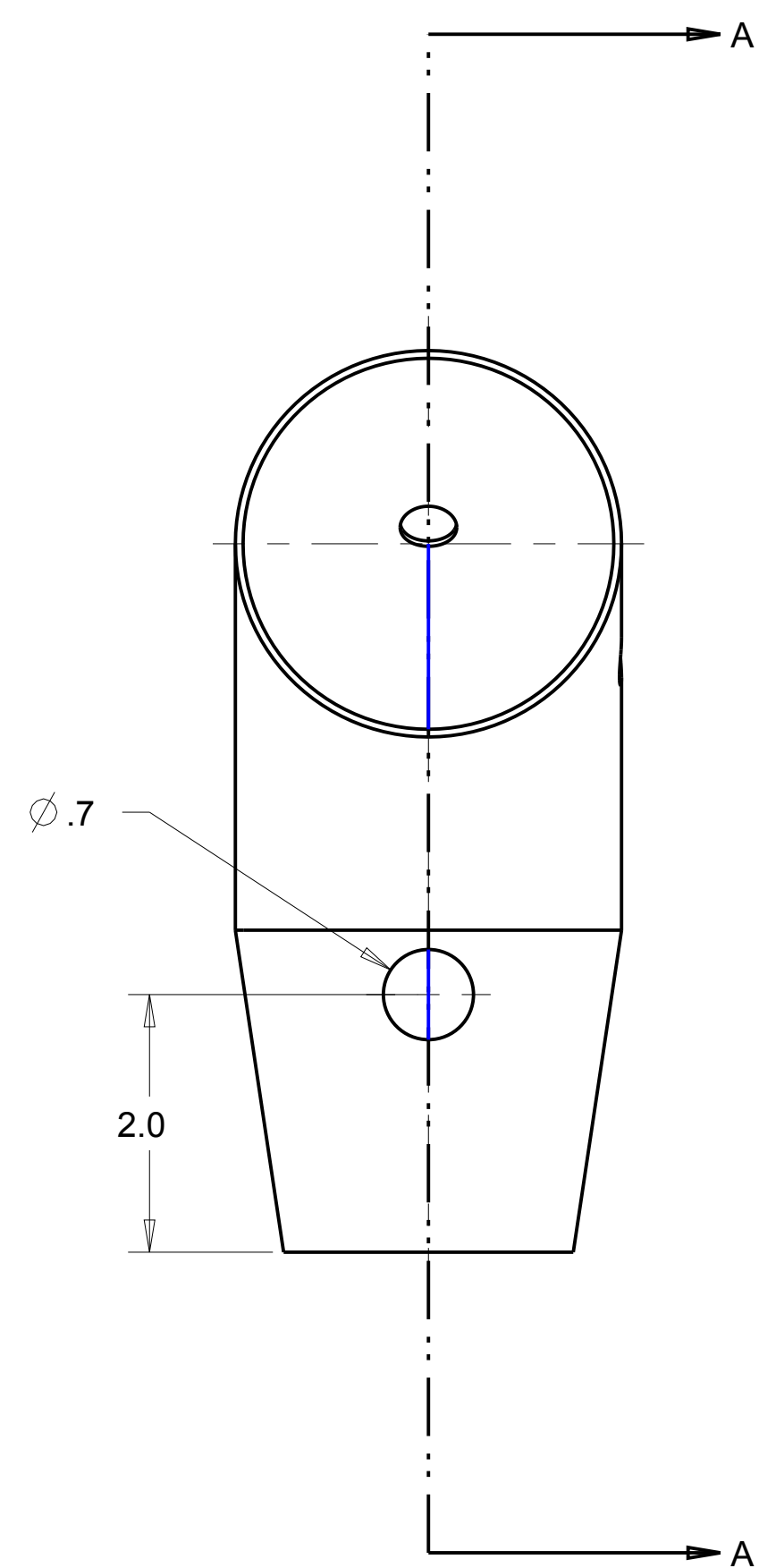
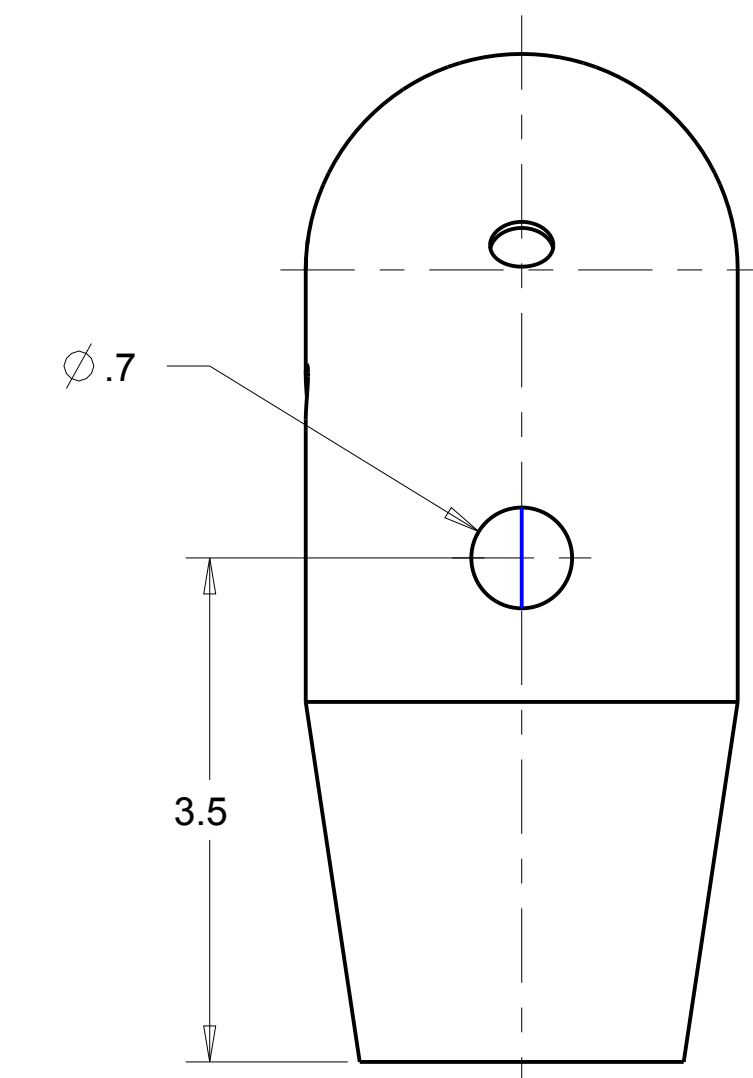
| REVISIONS | | | | |
|-----------|-----|------|-----------------|------------|
| REV | SHT | ZONE | DESCRIPTION | DATE |
| A | | | INITIAL RELEASE | 2014-03-25 |
| B | | | HOLE RELOCATED | 2014-06-13 |



NOTE 1:
REFERENCE DIMENSIONS
PROVIDE GUIDANCE FOR ELBOW
SHAPE FOR PROPER FIT TO
EXHAUST FLANGE. FINAL
DIMENSIONS DRIVEN BY ASSEMBLY
DWG IIIH-ETP40.



REFERENCE VIEW
SCALE 0.750



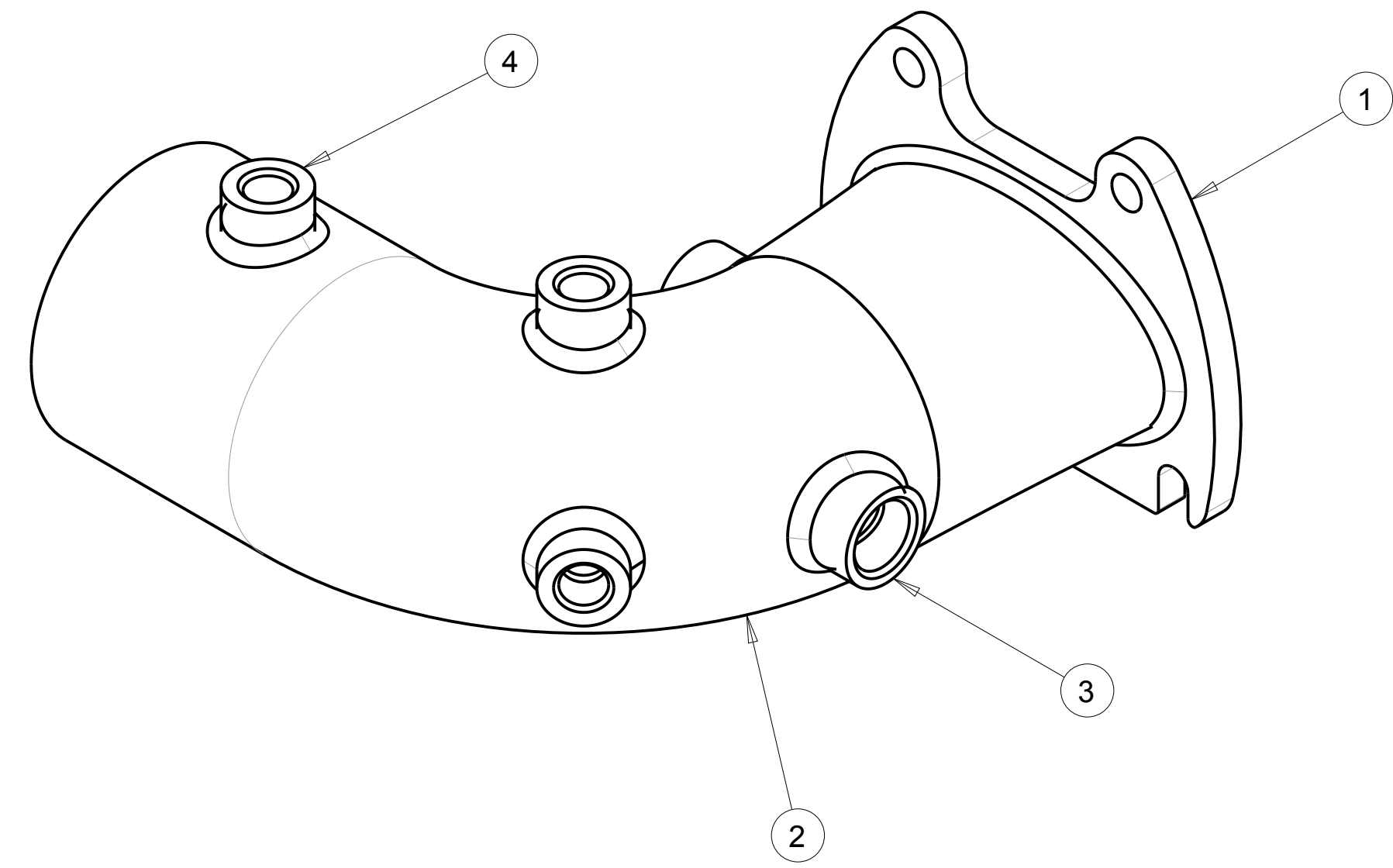
SECTION A-A

GENERAL NOTES

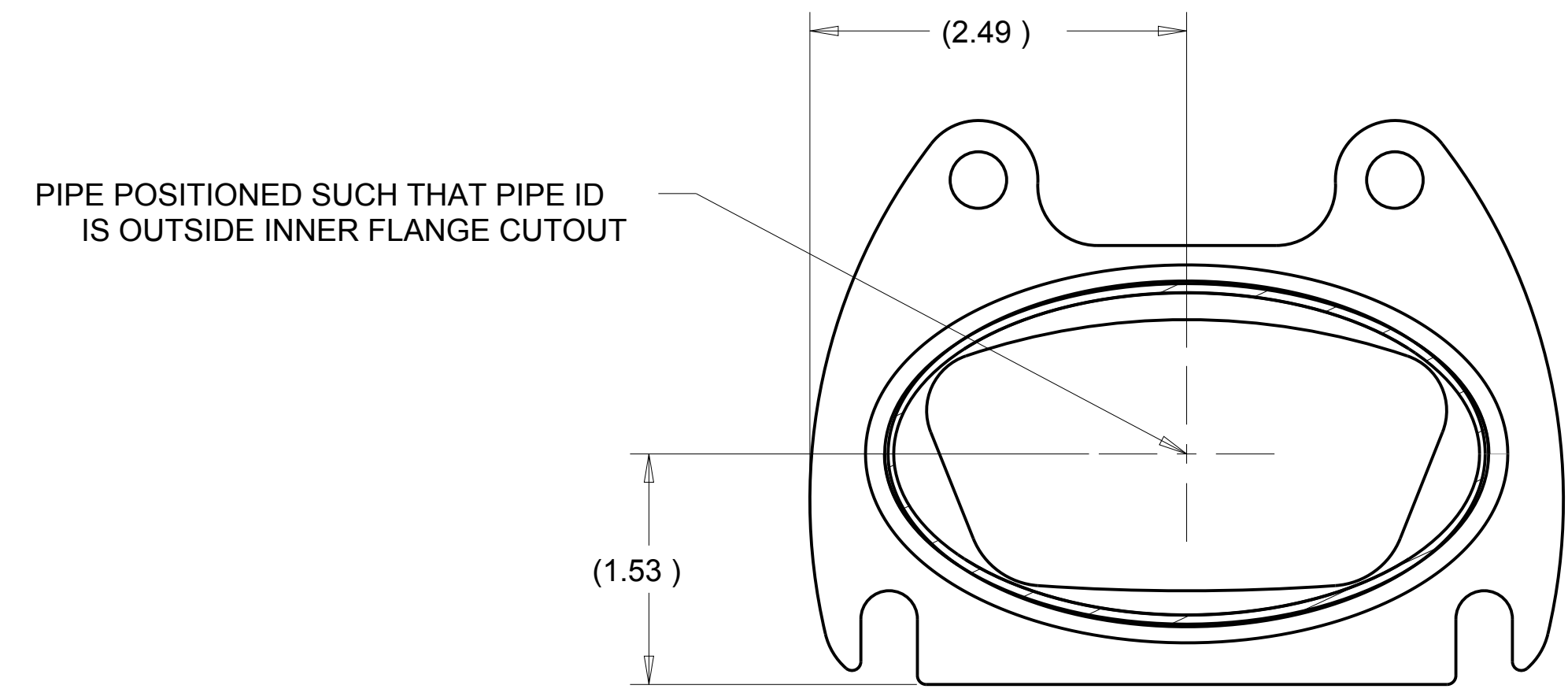
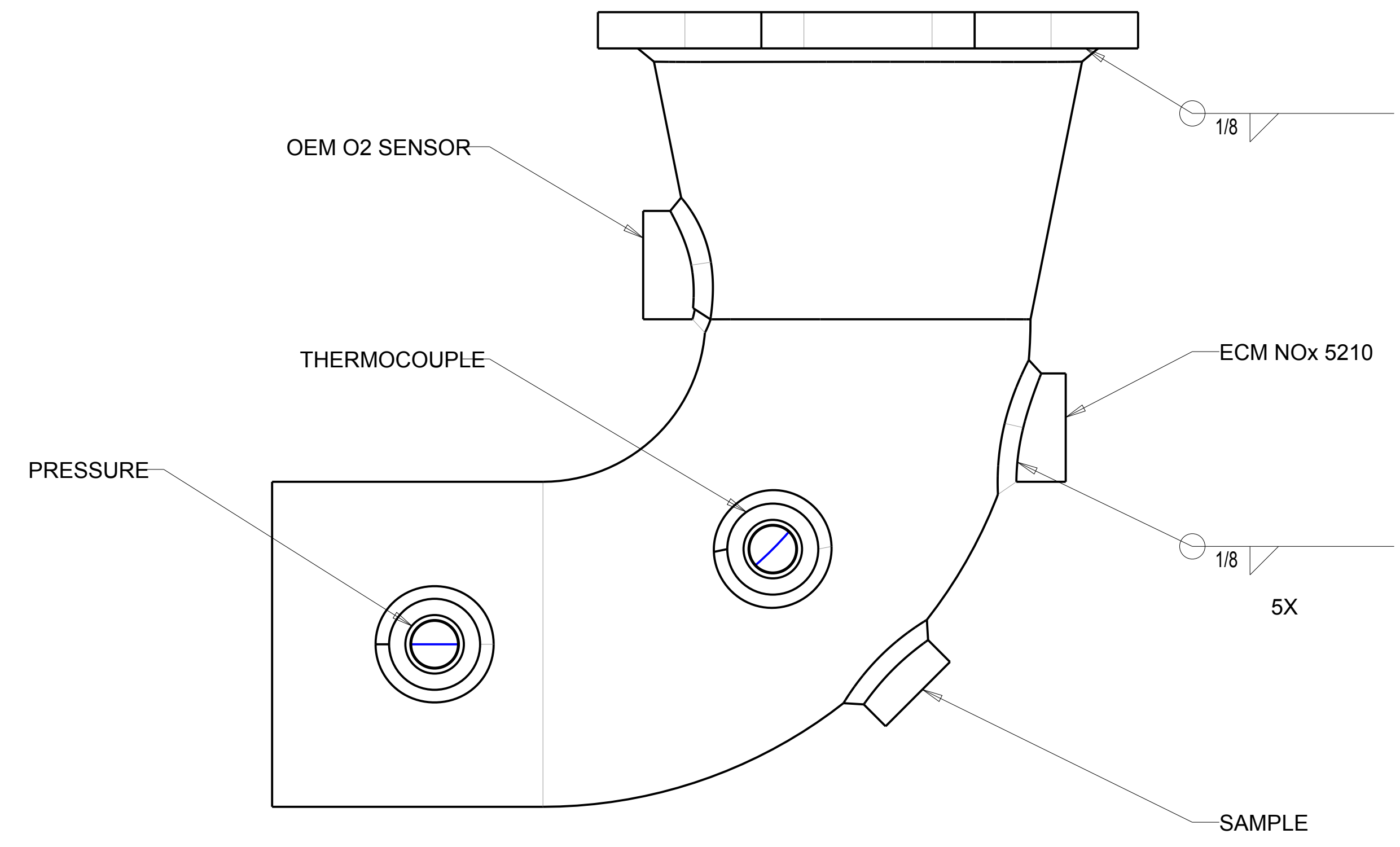
- 1) DO NOT SCALE THIS DRAWING
- 2) UNLESS OTHERWISE STATED:
 - a. ALL DIMENSIONING AND TOLERANCING IS IN INCHES PER ASME Y14.5-2009
 - b. BREAK ALL SHARP CORNERS AND SHARP EDGES R .010 MAXIMUM
 - c. MACHINED SURFACE FINISHES SHALL BE 125 MICROINCH OR BETTER
 - d. TAP DRILL DEPTHS SHOWN ARE MAXIMUM
 - e. FULL THREAD DEPTHS SHOWN ARE MINIMUM
 - f. CHAMFER ALL TAPED HOLES TO (NOMINAL DIA + 1/16) x 90°

| QTY | CAGE | 11P-300S PART NUMBER | SHORT RADIUS ELBOW DESCRIPTION | MANUFACTURER: DYNAFLEX PRODUCTS MATERIAL/SPECIFICATION/NOTES | ITEM |
|-----------------------------|------------------|--|---|---|---------------------|
| BILL OF MATERIAL/PARTS LIST | | | | | |
| DEFAULT TOLERANCES | | | APPROVAL SIGNATURES | | |
| ONE PLACE (X.X) = ± | 0.1 | DFT | | | |
| TWO PLACES (X.XX) = ± | 0.01 | COND | | | |
| THREE PLACES (X.XXX) = ± | 0.005 | DSGN | | | |
| FOUR PLACES (X.XXXX) = ± | 0.0005 | PREC | | | |
| ANGLES = ± | 0.5 DEGREE | DATE | COMPLETION DATE: 2014-03-25 | | |
| SURFACE FINISHES <= | 125 MICROINCH RA | FILE | MODEL: ELBOW_EXHAUST_LEFT | | |
| THIRD ANGLE PROJECTION | | EXCEPT AS MAY OTHERWISE BE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF SOUTHWEST RESEARCH INSTITUTE, ARE ISSUED IN STRICT CONFIDENCE, AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF ANY APPARATUS SHOWN THEREON WITHOUT PERMISSION | | | |
| | | | SOUTHWEST RESEARCH INSTITUTE OFFICE of AUTOMOTIVE ENGINEERING 6220 CULEBRA ROAD SAN ANTONIO, TEXAS 78238 | | ELBOW, LEFT EXHAUST |
| D | 26401 | IIIH-ETP32 | B | SCALE 0.750 UNIT WEIGHT = LBS SHEET 1 OF 1 | |

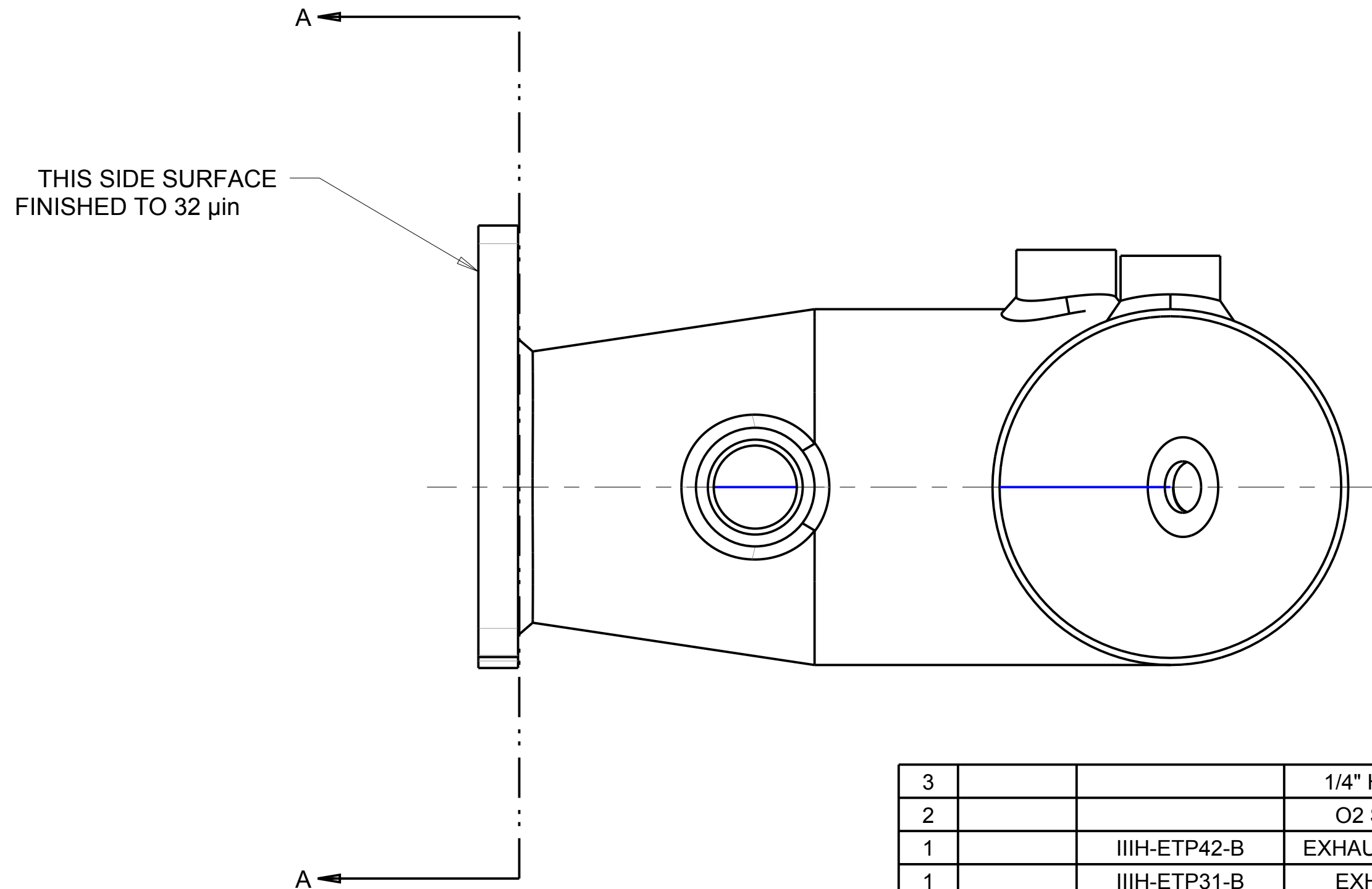
| REVISIONS | | | | |
|-----------|-----|------|-------------------------|------------|
| REV | SHT | ZONE | DESCRIPTION | DATE |
| A | | | INITIAL RELEASE | 2014-03-25 |
| B | | | COUPLING RELOCATED | 2014-06-13 |
| C | | | ADDED PORT DESCRIPTIONS | 2014-09-25 |



REFERENCE VIEW
SCALE 0.750



SECTION A-A



GENERAL NOTES

- 1) DO NOT SCALE THIS DRAWING
- 2) UNLESS OTHERWISE STATED:
 - a. ALL DIMENSIONING AND TOLERANCING IS IN INCHES PER ASME Y14.5-2009
 - b. BREAK ALL SHARP CORNERS AND SHARP EDGES R .010 MAXIMUM
 - c. MACHINED SURFACE FINISHES SHALL BE 125 MICROINCH OR BETTER
 - d. TAP DRILL DEPTHS SHOWN ARE MAXIMUM
 - e. FULL THREAD DEPTHS SHOWN ARE MINIMUM
 - f. CHAMFER ALL TAPED HOLES TO (NOMINAL DIA + 1/16) x 90°

| QTY | CAGE | PART NUMBER | DESCRIPTION | MATERIAL/SPECIFICATION/NOTES | ITEM |
|-----|------|--------------|---------------------|---|------|
| 3 | | | 1/4" HALF COUPLING | 1/4" NPT HALF COUPLING, STAINLESS STEEL | 4 |
| 2 | | | O2 SENSOR BUNG | M18 X 1.5 BUNG, STAINLESS STEEL | 3 |
| 1 | | IIIH-ETP42-B | EXHAUST ELBOW RIGHT | | 2 |
| 1 | | IIIH-ETP31-B | EXHAUST FLANGE | | 1 |

| DEFAULT TOLERANCES | | APPROVAL SIGNATURES | |
|--------------------------|------------------|---|-------------------------------|
| ONE PLACE (X.X) = ± | 0.1 | DATE | COMPLETION DATE: 2014-03-25 |
| TWO PLACES (X.XX) = ± | 0.01 | CHKD | |
| THREE PLACES (X.XXX) = ± | 0.005 | DSGN | |
| FOUR PLACES (X.XXXX) = ± | 0.0005 | PRJCT | |
| ANGLES = ± | 0.5 DEGREE | FILE | MODEL: EXHAUST_ASSEMBLY_RIGHT |
| SURFACE FINISHES ≤ | 125 MICROINCH RA | EXCEPT AS MAY OTHERWISE BE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF SOUTHWEST RESEARCH INSTITUTE, ARE ISSUED IN STRICT CONFIDENCE, AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF ANY APPARATUS SHOWN THEREON WITHOUT PERMISSION. | |

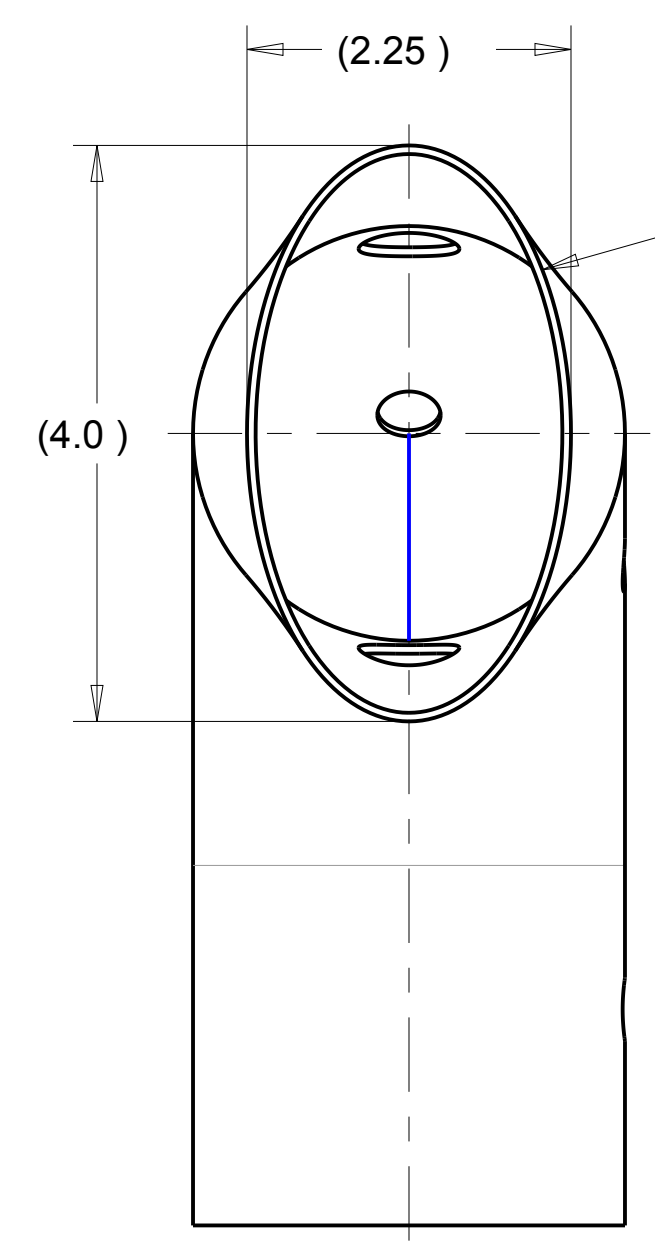
THIRD ANGLE PROJECTION

SOUTHWEST RESEARCH INSTITUTE
OFFICE of AUTOMOTIVE ENGINEERING
6220 CULEBRA ROAD SAN ANTONIO, TEXAS 78238

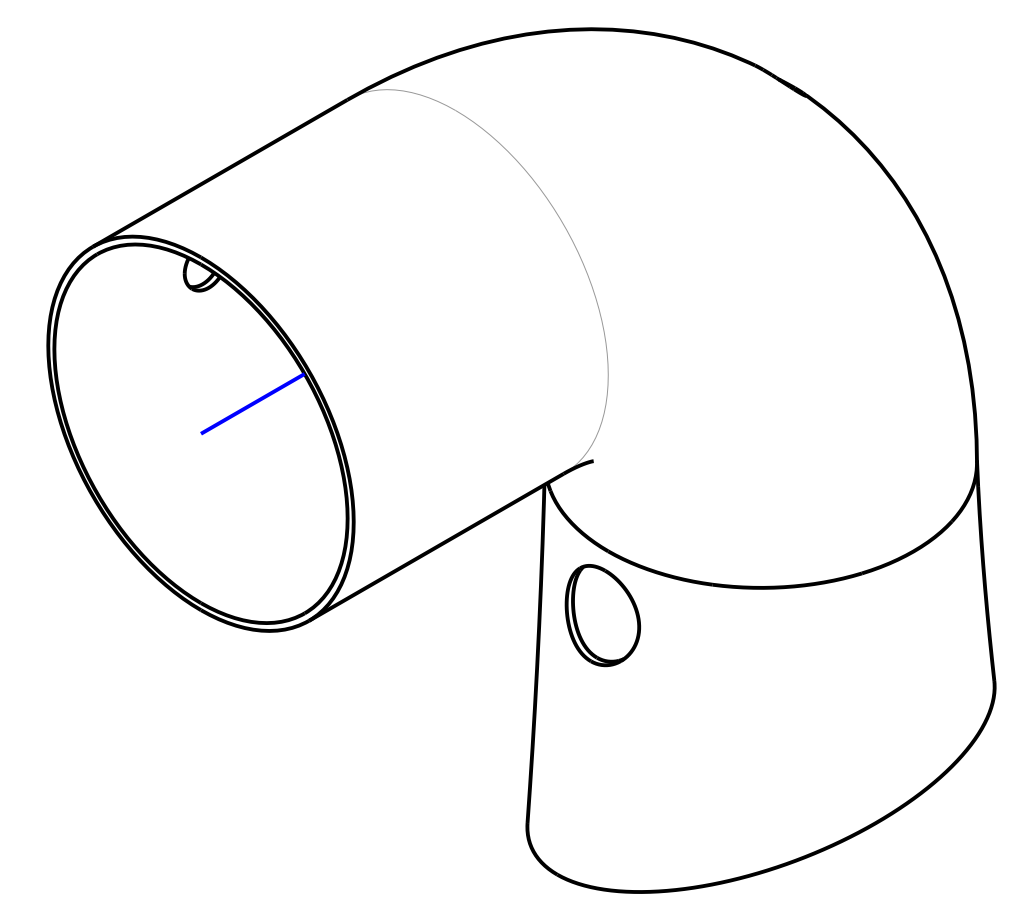
EXHAUST TURNDOWN PIPE RIGHT

| | | | |
|-------------|-------|-------------------|--------------|
| D | 26401 | IIIH-ETP40 | C |
| SCALE 1.000 | | UNIT WEIGHT = LBS | SHEET 1 OF 1 |

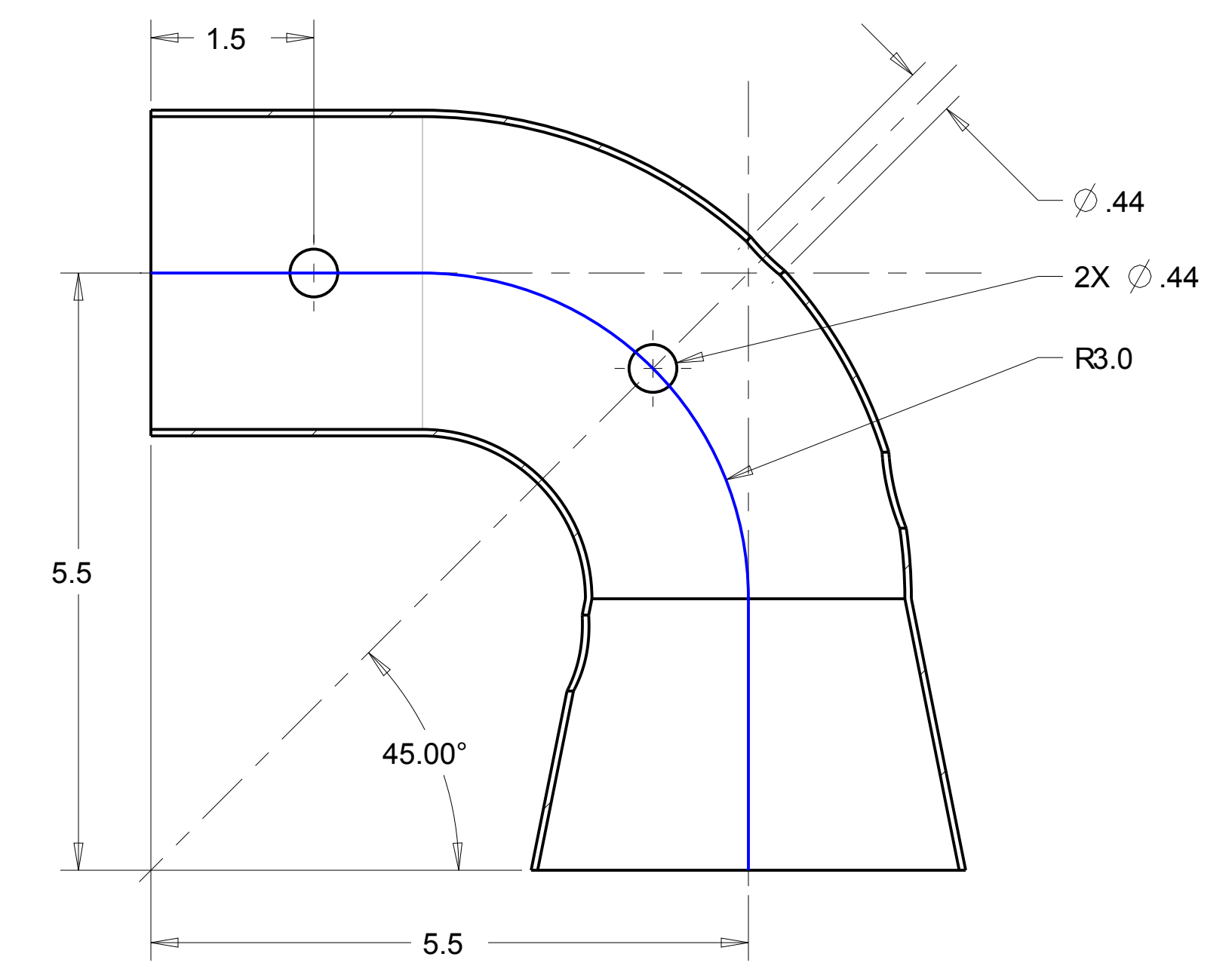
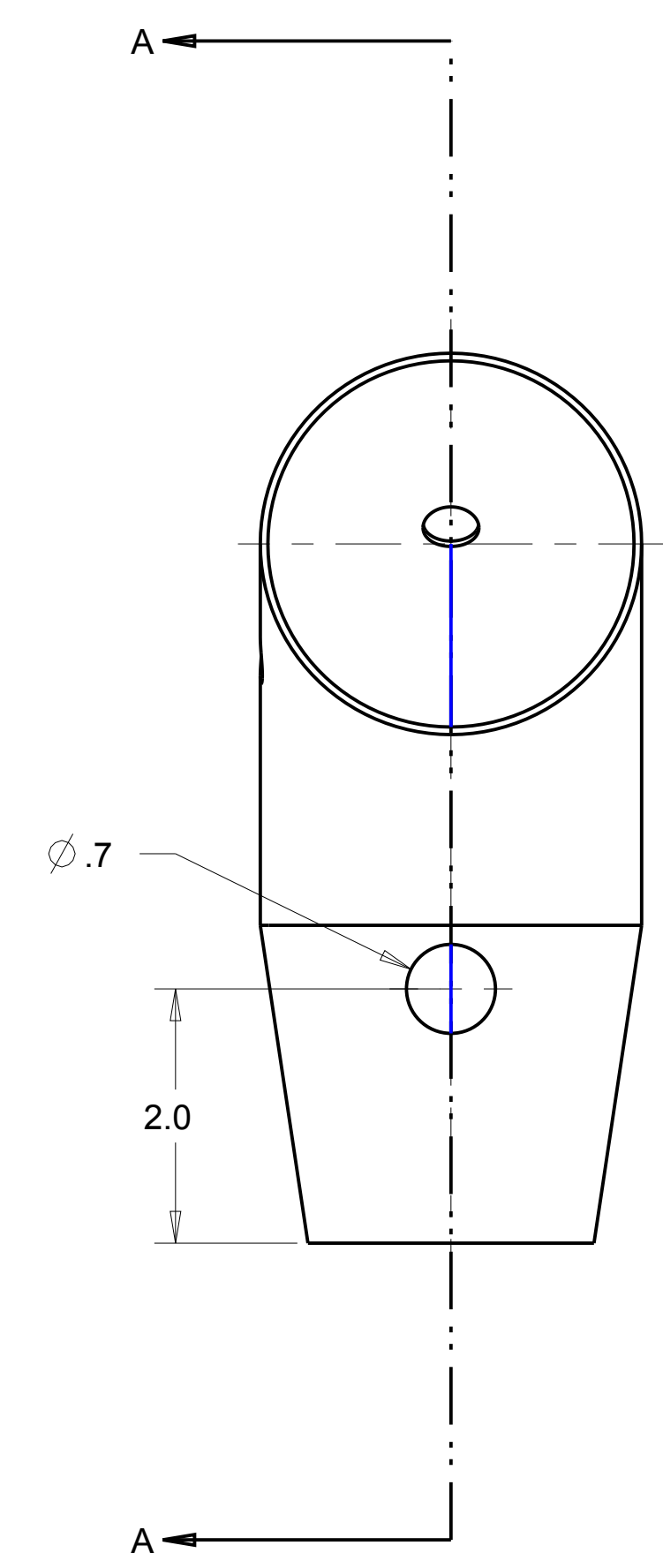
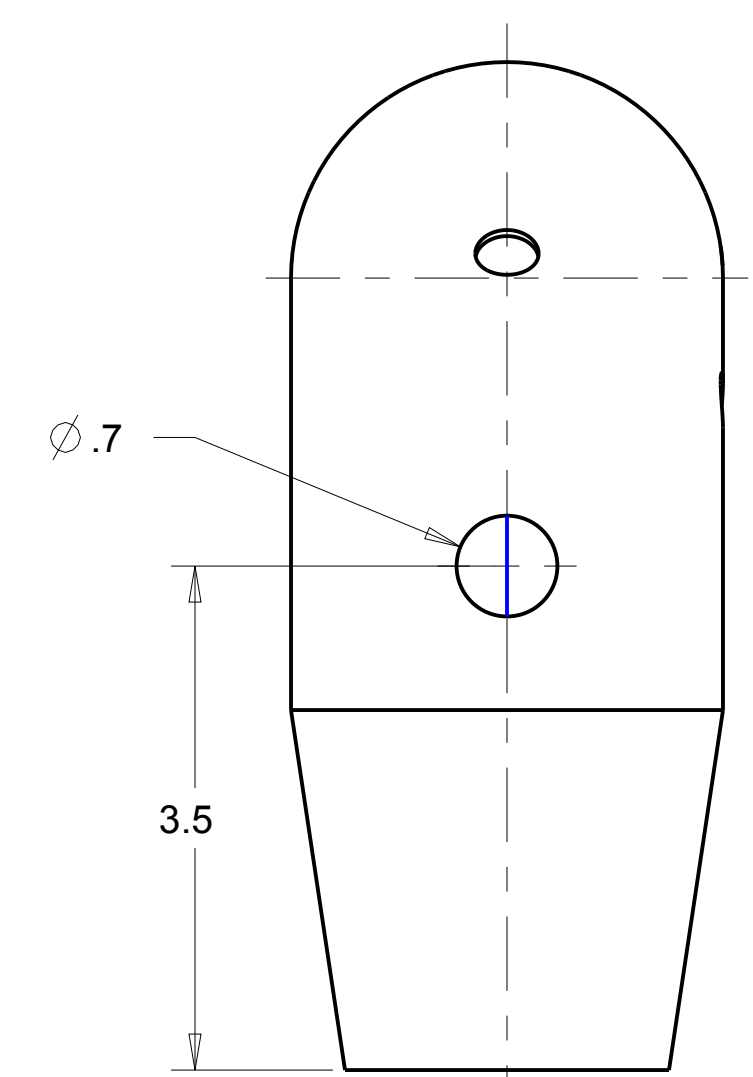
| REVISIONS | | | | |
|-----------|-----|------|-----------------|------------|
| REV | SHT | ZONE | DESCRIPTION | DATE |
| A | | | INITIAL RELEASE | 2014-03-25 |
| B | | | HOLE RELOCATED | 2014-06-13 |



NOTE 1:
REFERENCE DIMENSIONS
PROVIDE GUIDANCE FOR ELBOW
SHAPE FOR PROPER FIT TO
EXHAUST FLANGE. FINAL
DIMENSIONS DRIVEN BY ASSEMBLY
DWG IIIH-ETP40.



REFERENCE VIEW
SCALE 0.750



SECTION A-A

GENERAL NOTES

- 1) DO NOT SCALE THIS DRAWING
- 2) UNLESS OTHERWISE STATED:
 - a. ALL DIMENSIONING AND TOLERANCING IS IN INCHES PER ASME Y14.5-2009
 - b. BREAK ALL SHARP CORNERS AND SHARP EDGES R .010 MAXIMUM
 - c. MACHINED SURFACE FINISHES SHALL BE 125 MICROINCH OR BETTER
 - d. TAP DRILL DEPTHS SHOWN ARE MAXIMUM
 - e. FULL THREAD DEPTHS SHOWN ARE MINIMUM
 - f. CHAMFER ALL TAPED HOLES TO (NOMINAL DIA + 1/16) x 90°

| QTY | CAGE | 11P-300S PART NUMBER | SHORT RADIUS ELBOW DESCRIPTION | MANUFACTURER: DYNAFLEX PRODUCTS MATERIAL/SPECIFICATION/NOTES | ITEM |
|-----------------------------|------------------|-------------------------|--|---|------|
| BILL OF MATERIAL/PARTS LIST | | | | | |
| DEFAULT TOLERANCES | | | APPROVAL SIGNATURES | | |
| ONE PLACE (X.X) = ± | 0.1 | DFT | | | |
| TWO PLACES (X.XX) = ± | 0.01 | COND | | | |
| THREE PLACES (X.XXX) = ± | 0.005 | DSGN | | | |
| FOUR PLACES (X.XXXX) = ± | 0.0005 | PRECJ | | | |
| ANGLES = ± | 0.5 DEGREE | DATE | COMPLETION DATE: 2014-03-25 | | |
| SURFACE FINISHES ≤ | 125 MICROINCH RA | FILE | MODEL: ELBOW_EXHAUST_RIGHT | | |
| THIRD ANGLE PROJECTION | | | EXCEPT AS MAY OTHERWISE BE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF SOUTHWEST RESEARCH INSTITUTE, ARE ISSUED IN STRICT CONFIDENCE, AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF ANY APPARATUS SHOWN THEREON WITHOUT PERMISSION | | |
| D | | 26401 | IIIH-ETP42 | | B |
| SCALE 0.750 | | UNIT WEIGHT = LBS | | SHEET 1 OF 1 | |

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6220 CULEBRA ROAD SAN ANTONIO, TEXAS 78238

ELBOW, RIGHT EXHAUST