

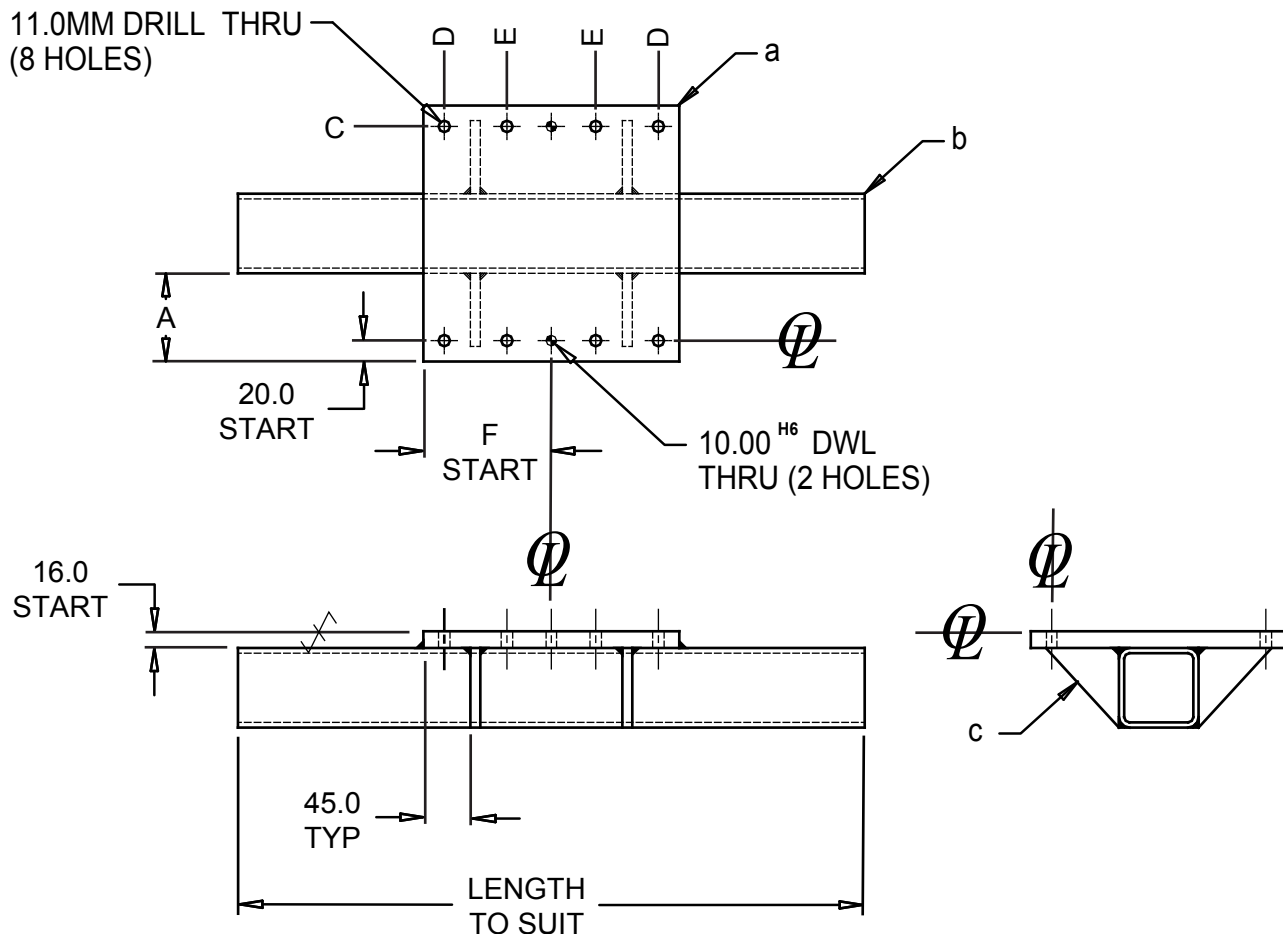
ROBOTICS

| PAGE | DATE | NAAMS CODE | DESCRIPTION |
|-----------------------|----------|-----------------|-----------------------------------------------------------------------------------|
| Y-1 | 09/26/08 | | INDEX |
| Y-1.1 | 09/26/08 | | INDEX |
| Y-2 | 02/06/08 | AE21 - AE23 | END EFFECTOR FRAME CAD STARTER MODELS - ONLY "I" SERIES - 3 X 3 X 3/16 WT |
| Y-3 | 02/06/08 | AEA001 | ROBOT ADAPTER PLATE - AEA001 FOR 125MM BOLT CIRCLE |
| Y-4 | 02/06/08 | AE24 - AE26 | END EFFECTOR FRAME CAD STARTER MODELS - ONLY "I" SERIES - 4 X 4 X 3/16 WT |
| Y-5 | 02/06/08 | AEA002 | ROBOT ADAPTER PLATE - AEA002 FOR 160MM BOLT CIRCLE |
| Y-6 | 02/06/08 | AE27 - AE29 | END EFFECTOR FRAME CAD STARTER MODELS - ONLY "I" SERIES - 6 X 6 X 1/4 WT |
| Y-7 | 02/06/08 | AEA003 | ROBOT ADAPTER PLATE - AEA003 FOR 200MM BOLT CIRCLE |
| Y-8 | 02/06/08 | AE01 - AE05 | END EFFECTOR FRAME CAD STARTER MODELS - ONLY "H" SERIES - 125MM BOLT CIRCLE |
| Y-9 | 02/06/08 | AE06 - AE10 | END EFFECTOR FRAME CAD STARTER MODELS - ONLY "H" SERIES - 160MM BOLT CIRCLE |
| Y-10 | 02/06/08 | AE11 - AE15 | END EFFECTOR FRAME CAD STARTER MODELS - ONLY "H" SERIES - 200MM BOLT CIRCLE |
| Y-11 | 09/26/08 | AEP001 - AEP010 | ROBOT WRIST LOCATING PUCK |
| Y-12 | 02/26/08 | AWB101 - AWB119 | WEDGE BRACKET 160MM BOLT CIRCLE ON WRIST 15 DEGREES |
| Y-13 | 02/19/08 | AWB101 - AWB119 | TABLE |

ROBOTICS

| PAGE | DATE | NAAMS CODE | DESCRIPTION |
|----------------------|----------|-----------------|--------------------------------------------------------|
| Y-14 | 02/26/08 | AWB201 - AWB219 | WEDGE BRACKET 160MM BOLT CIRCLE ON WRIST 30 DEGREES |
| Y-15 | 02/19/08 | AWB201 - AWB219 | TABLE |
| Y-16 | 02/26/08 | AWB301 - AWB319 | WEDGE BRACKET 160MM BOLT CIRCLE ON WRIST 45 DEGREES |
| Y-17 | 02/19/08 | AWB301 - AWB319 | TABLE |
| Y-18 | 02/26/08 | AWB401 - AWB419 | WEDGE BRACKET 200MM BOLT CIRCLE ON WRIST 15 DEGREES |
| Y-19 | 02/19/08 | AWB401 - AWB419 | TABLE |
| Y-20 | 02/26/08 | AWB501 - AWB519 | WEDGE BRACKET 200MM BOLT CIRCLE ON WRIST 30 DEGREES |
| Y-21 | 02/19/08 | AWB501 - AWB519 | TABLE |
| Y-22 | 02/26/08 | AWB601 - AWB617 | WEDGE BRACKET 200MM BOLT CIRCLE ON WRIST 45 DEGREES |
| Y-23 | 02/19/08 | AWB601 - AWB617 | TABLE |
| Y-24 | 02/26/08 | AWB701 - AWB719 | WEDGE BRACKET 125MM BOLT CIRCLE ON WRIST 15 DEGREES |
| Y-25 | 02/19/08 | AWB701 - AWB719 | TABLE |
| Y-26 | 02/26/08 | AWB801 - AWB819 | WEDGE BRACKET 125MM BOLT CIRCLE ON WRIST 30 DEGREES |
| Y-27 | 02/19/08 | AWB801 - AWB819 | TABLE |
| Y-28 | 02/26/08 | AWB901 - AWB919 | WEDGE BRACKET 125MM BOLT CIRCLE ON WRIST 45 DEGREES |
| Y-29 | 02/19/08 | AWB901 - AWB919 | TABLE |
| Y-30 | 09/26/08 | ABF101 - ABF119 | FLAT BRACKET 125MM BOLT CIRCLE ON WRIST |
| Y-31 | 09/26/08 | ABF201 - ABF219 | FLAT BRACKET 160MM BOLT CIRCLE ON WRIST |
| Y-32 | 09/26/08 | ABF302 - ABF319 | FLAT BRACKET 200MM BOLT CIRCLE ON WRIST |

END EFFECTOR FRAME
CAD STARTER MODELS - ONLY
"I" SERIES
3 X 3 X 3/16 WT



NOTES: WELDED END CAPS TO SUIT

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
 IN ACCORDANCE TO AWS D1.1

PAINT SPEC: PER END USER SPECIFICATIONS

STRESS RELIEVE

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN DOWELS IN SAME PLANE
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

INCH

- a 1 - STL PLT ASTM A-36 3/4 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 3 X 3 X 3/16 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 3/8 X 3 X dmm

METRIC

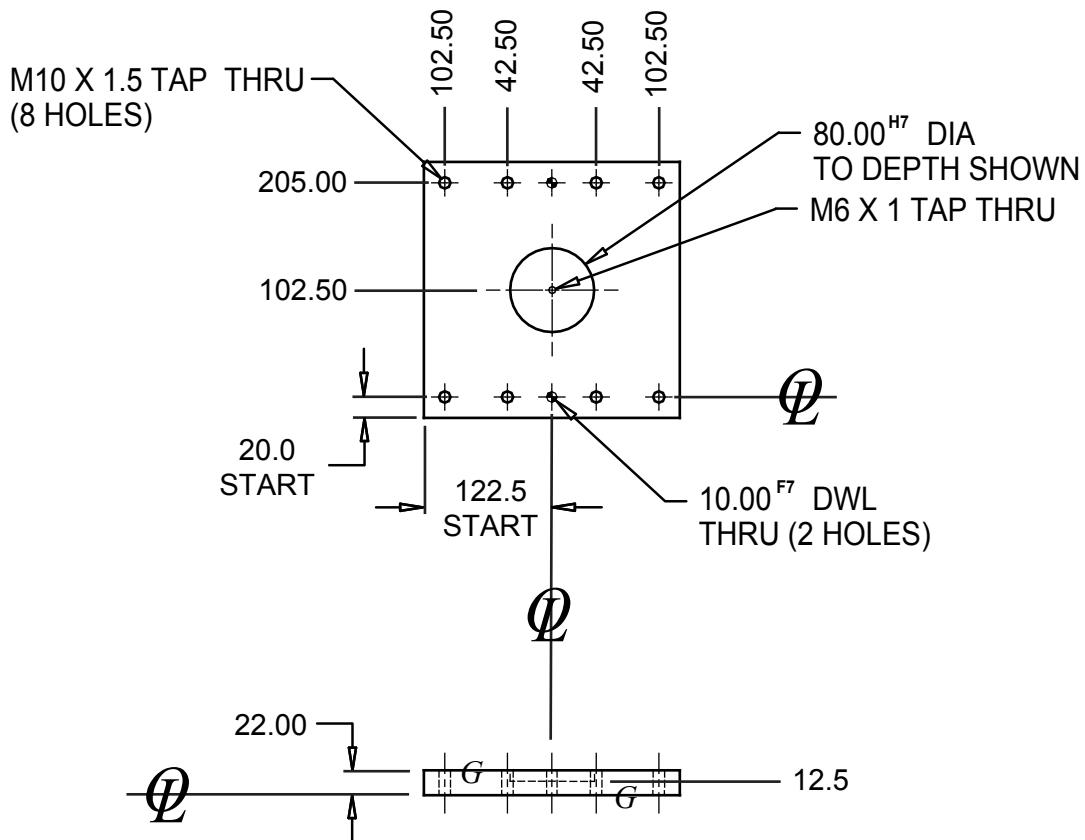
- a 1 - STL PLT ASTM A-36 20 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 75 X 75 X 4 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 10 X 75 X d

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

CAD STARTER MODEL ONLY - DO NOT ORDER AS NAAMS NUMBER - ASSIGN A CUSTOM NUMBER

| NAAMS SERIES | AE21 | AE22 | AE23 |
|-------------------------|------------|------------|------------|
| Bolt Circle (mm) | 125 | 160 | 200 |
| A | 84.5 | 102.0 | 122.0 |
| B | 245.0 | 280.0 | 320.0 |
| C | 205.00 | 240.00 | 280.00 |
| D | 102.50 | 120.00 | 140.00 |
| E | 42.50 | 60.00 | 70.00 |
| F | 122.5 | 140.0 | 160.0 |
| d | 65.0 | 80.0 | 100.0 |

**ROBOT ADAPTER PLATE
AEA001
FOR 125MM BOLT CIRCLE**



NOTES:

PAINT SPEC: PER END USER SPECIFICATIONS

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN DOWELS IN SAME PLANE
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

INCH

STL PLT ASTM A-36

1 X 245mm X 245mm

WEIGHT

10.0 kg

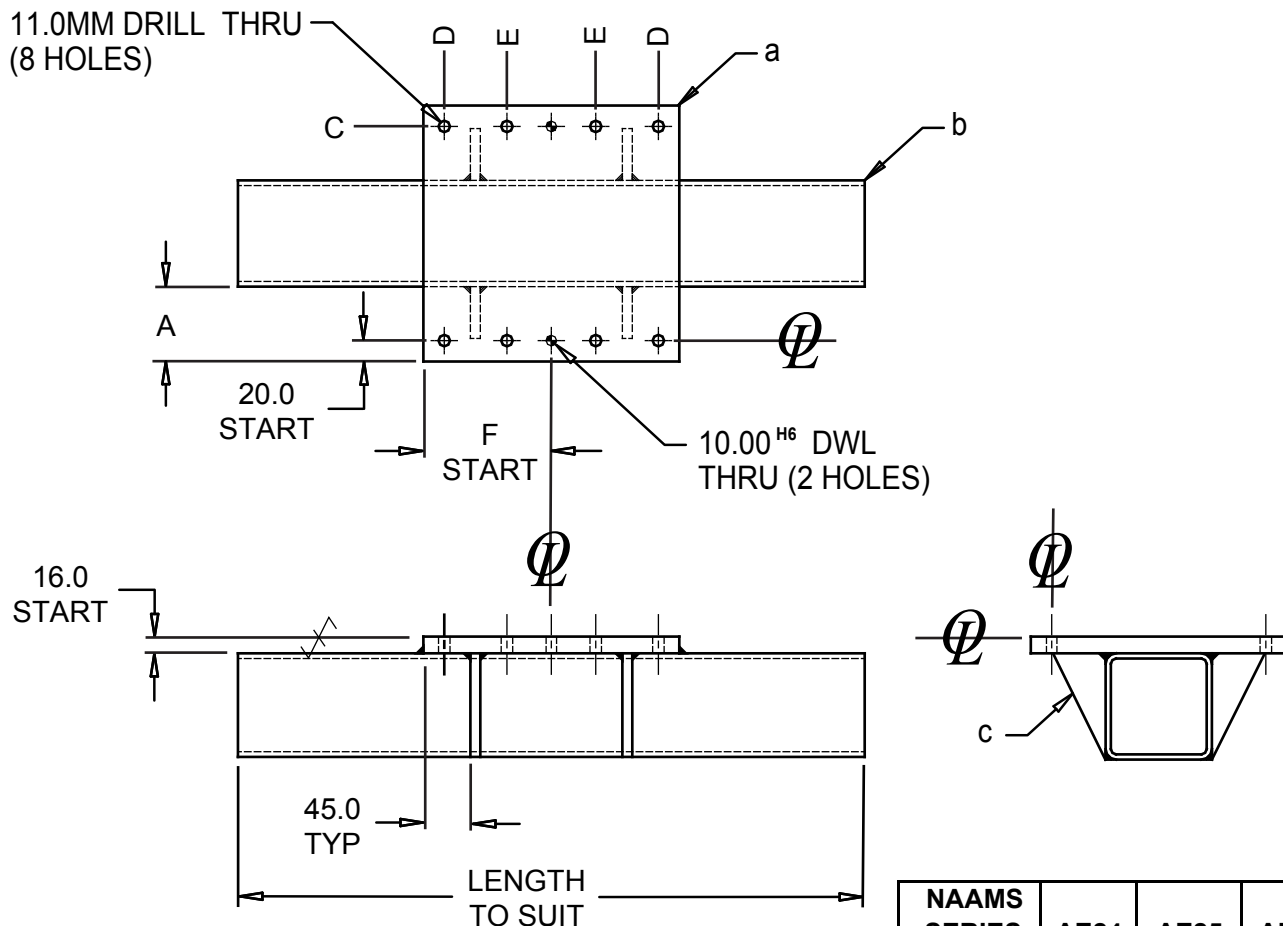
METRIC

STL PLT ASTM A-36

25 X 245 X 245

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

END EFFECTOR FRAME
CAD STARTER MODELS - ONLY
"I" SERIES
4 X 4 X 3/16 WT



NOTES: WELDED END CAPS TO SUIT

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
 IN ACCORDANCE TO AWS D1.1

PAINT SPEC: PER END USER SPECIFICATIONS

STRESS RELIEVE

TOLERANCES:

- 1 PLACE MACHINING ±0.3
- 1 PLACE FABRICATION ±1.5
- 2 PLACE ±0.08 BETWEEN MACHINED SURFACES
- ±0.03 BETWEEN DOWELS IN SAME PLANE
- ±0.13 TO SCREW HOLES, NON ACCUMULATIVE

INCH

- a 1 - STL PLT ASTM A-36 3/4 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 4 X 4 X 3/16 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 3/8 X 4 X dmm

METRIC

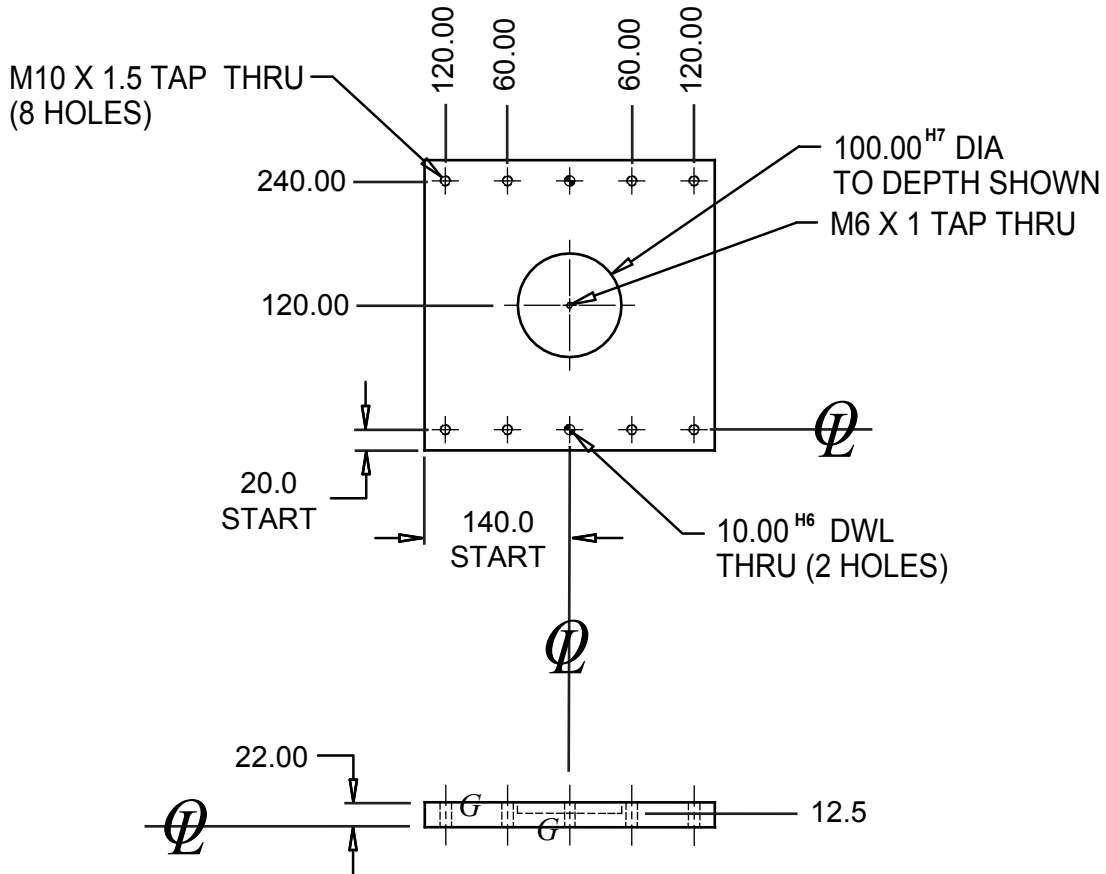
- a 1 - STL PLT ASTM A-36 20 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 100 X 100 X 4 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 10 X 100 X d

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

CAD STARTER MODEL ONLY - DO NOT ORDER AS NAAMS NUMBER - ASSIGN A CUSTOM NUMBER

| NAAMS SERIES | AE24 | AE25 | AE26 |
|-------------------------|------------|------------|------------|
| Bolt Circle (mm) | 125 | 160 | 200 |
| A | 71.5 | 89.0 | 110.0 |
| B | 245.0 | 280.0 | 320.0 |
| C | 205.00 | 240.00 | 280.00 |
| D | 102.50 | 120.00 | 140.00 |
| E | 42.50 | 60.00 | 70.00 |
| F | 122.5 | 140.0 | 160.0 |
| d | 50.0 | 70.0 | 90.0 |

**ROBOT ADAPTER PLATE
AEA002
FOR 160MM BOLT CIRCLE**



NOTES:

PAINT SPEC: PER END USER SPECIFICATIONS

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN DOWELS IN SAME PLANE
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

INCH

STL PLT ASTM A-36 1 X 280mm X 280mm

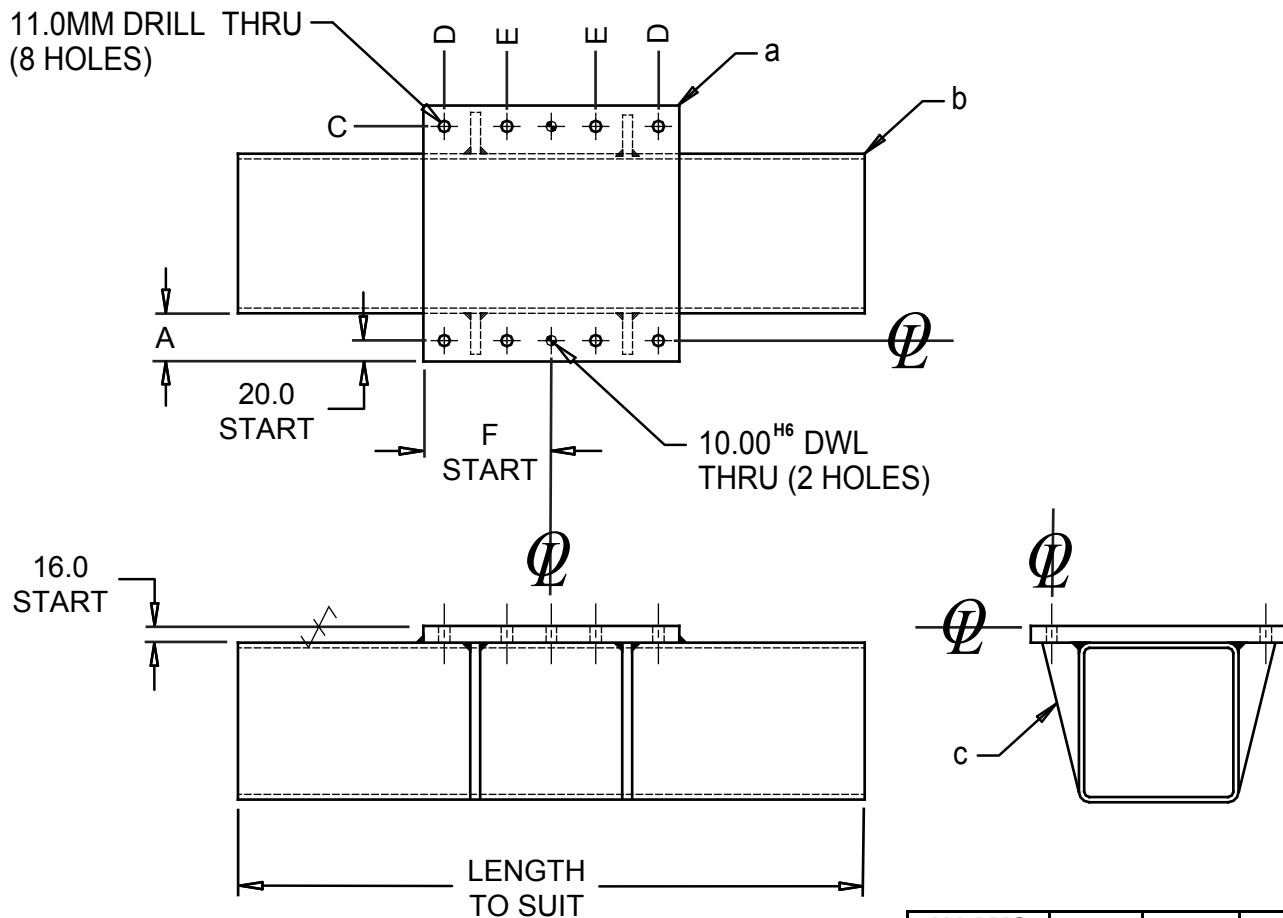
WEIGHT 13.0 kg

METRIC

STL PLT ASTM A-36 25 X 280 X 280

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

END EFFECTOR FRAME
CAD STARTER MODELS - ONLY
"I" SERIES
6 X 6 X 1/4 WT



NOTES: WELDED END CAPS TO SUIT

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
 IN ACCORDANCE TO AWS D1.1

PAINT SPEC: PER END USER SPECIFICATIONS

STRESS RELIEVE

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN DOWELS IN SAME PLANE
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

INCH

- a 1 - STL PLT ASTM A-36 3/4 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 6 X 6 X 1/4 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 3/8 X 6 X dmm

METRIC

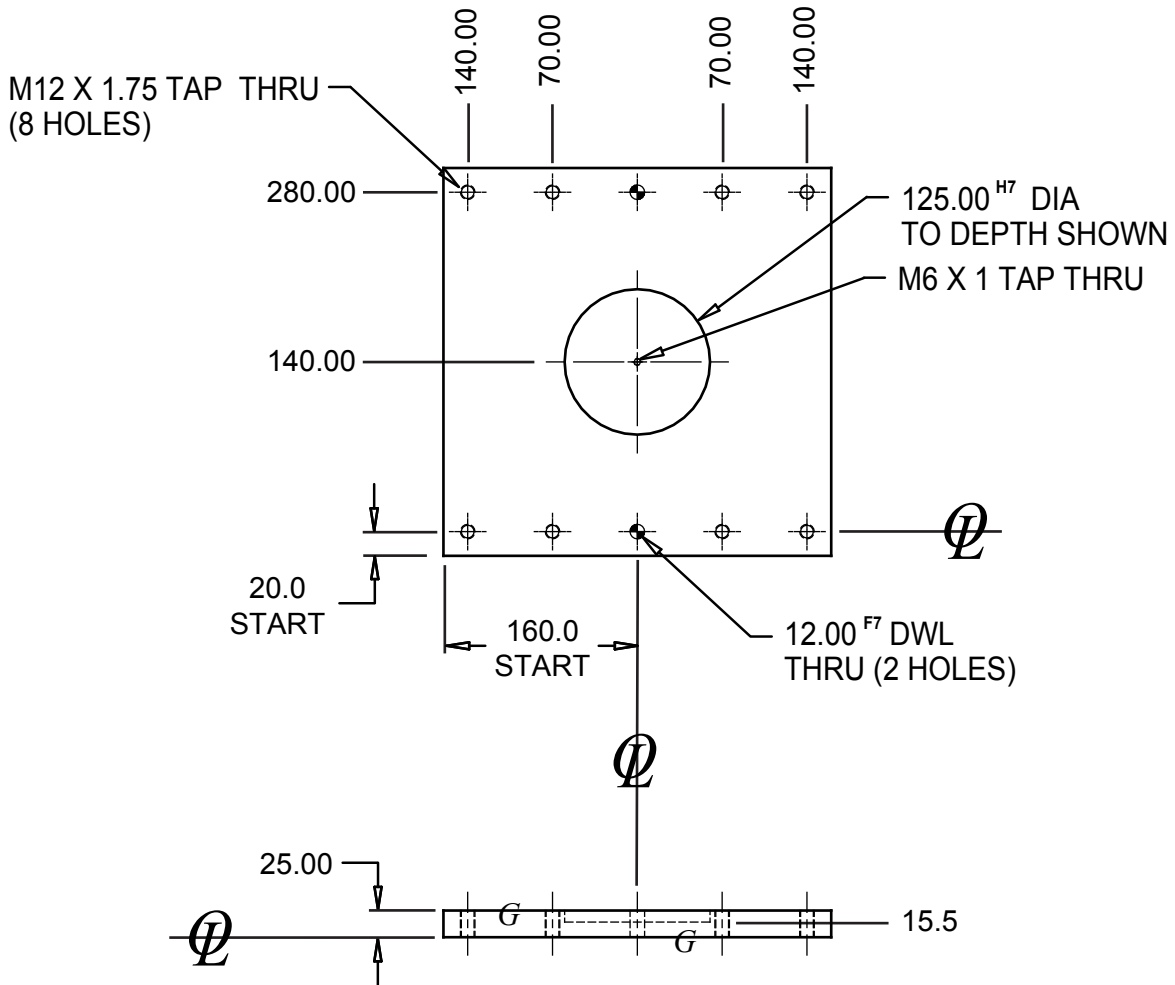
- a 1 - STL PLT ASTM A-36 20 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 160 X 160 X 6 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 10 X 150 X d

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

CAD STARTER MODEL ONLY - DO NOT ORDER AS NAAMS NUMBER - ASSIGN A CUSTOM NUMBER

| NAAMS SERIES | AE27 | AE28 | AE29 |
|-------------------------|------------|------------|------------|
| Bolt Circle (mm) | 125 | 160 | 200 |
| A | 46.5 | 64.0 | 84.0 |
| B | 245.0 | 280.0 | 320.0 |
| C | 205.00 | 240.00 | 280.00 |
| D | 102.50 | 120.00 | 140.00 |
| E | 42.50 | 60.00 | 70.00 |
| F | 122.5 | 140.0 | 160.0 |
| d | N/A | 40.0 | 60.0 |

**ROBOT ADAPTER PLATE
AEA003
FOR 200MM BOLT CIRCLE**



NOTES:

PAINT SPEC: PER END USER SPECIFICATIONS

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN DOWELS IN SAME PLANE
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

INCH

STL PLT ASTM A-36

1 1/4 X 320mm X 320mm

WEIGHT

19.2 kg

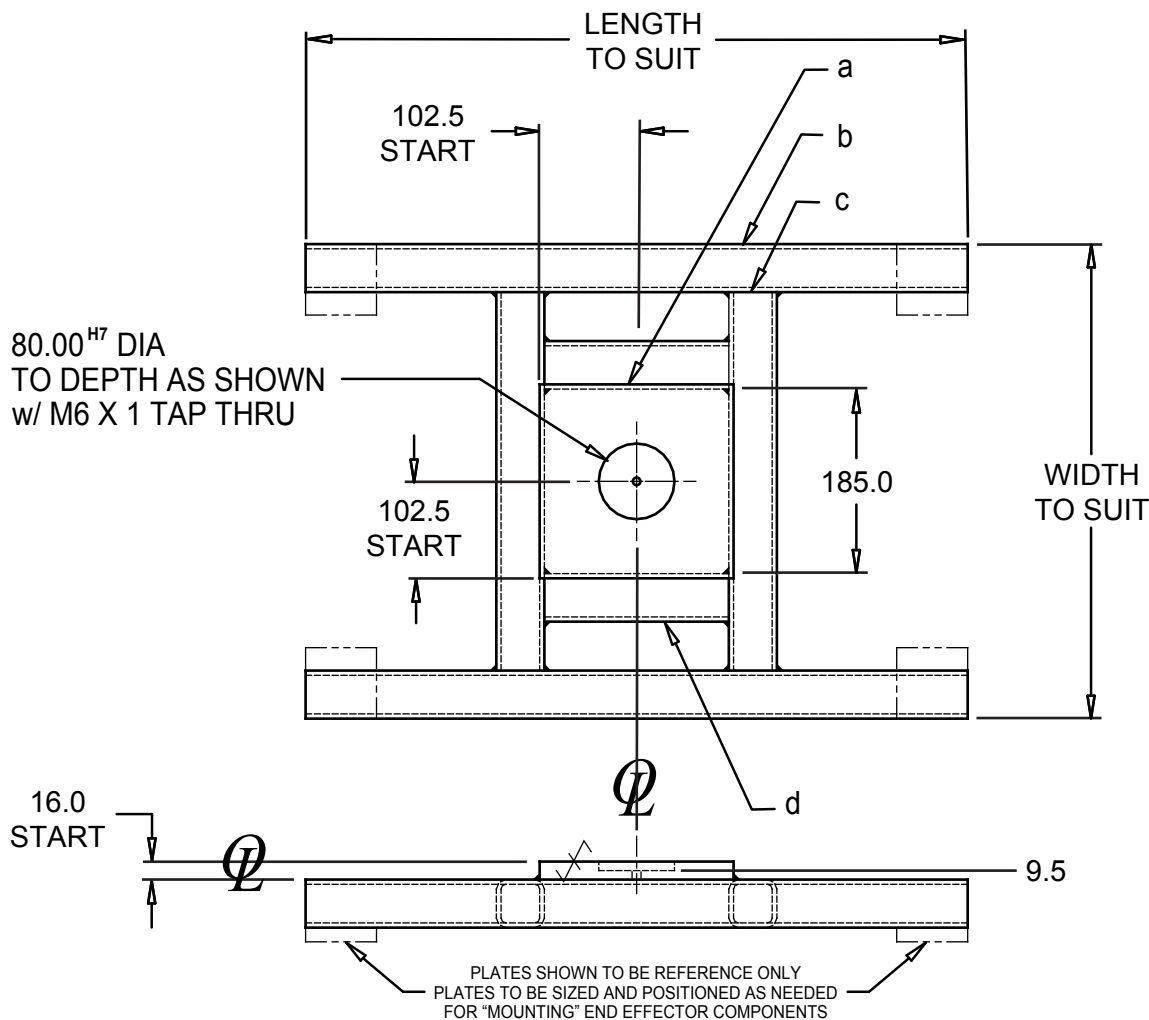
METRIC

STL PLT ASTM A-36

35 X 320 X 320

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

**END EFFECTOR FRAME
CAD STARTER MODELS - ONLY
"H" SERIES
125MM BOLT CIRCLE**



NOTES: WELDED END CAPS TO SUIT

THIS STANDARD IS FOR THE FRAME ONLY
THE "PLATE" OR "PLATES" WILL BE THE DETAIL
AND THE FRAME WILL BE A SUB DETAIL IN THE STOCK LIST

| NAAMS SERIES | TUBE SIZE | |
|--------------|-------------------------|------------------|
| | A (INCH) | B (METRIC) |
| AE01 | 1 1/2 X 1 1/2 X 3/16 WT | 40 X 40 X 4 WT |
| AE02 | 2 X 2 X 3/16 WT | 50 X 50 X 4 WT |
| AE03 | 3 X 2 X 3/16 WT | 75 X 50 X 4 WT |
| AE04 | 3 X 3 X 3/16 WT | 75 X 75 X 4 WT |
| AE05 | 4 X 4 X 3/16 WT | 100 X 100 X 4 WT |

INCH

- a 1 - STL PLT ASTM A-36 3/4 X 205.0mm X 205.0mm
- b 2 - STL TBG ASTM A-500 GRADE B A X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B A X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B A X 185.0mm

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
IN ACCORDANCE TO AWS D1.1

PAINT SPEC: PER END USER SPECIFICATIONS

METRIC

- a 1 - STL PLT ASTM A-36 20.0 X 205.0 X 205.0
- b 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B B X 185.0

STRESS RELIEVE

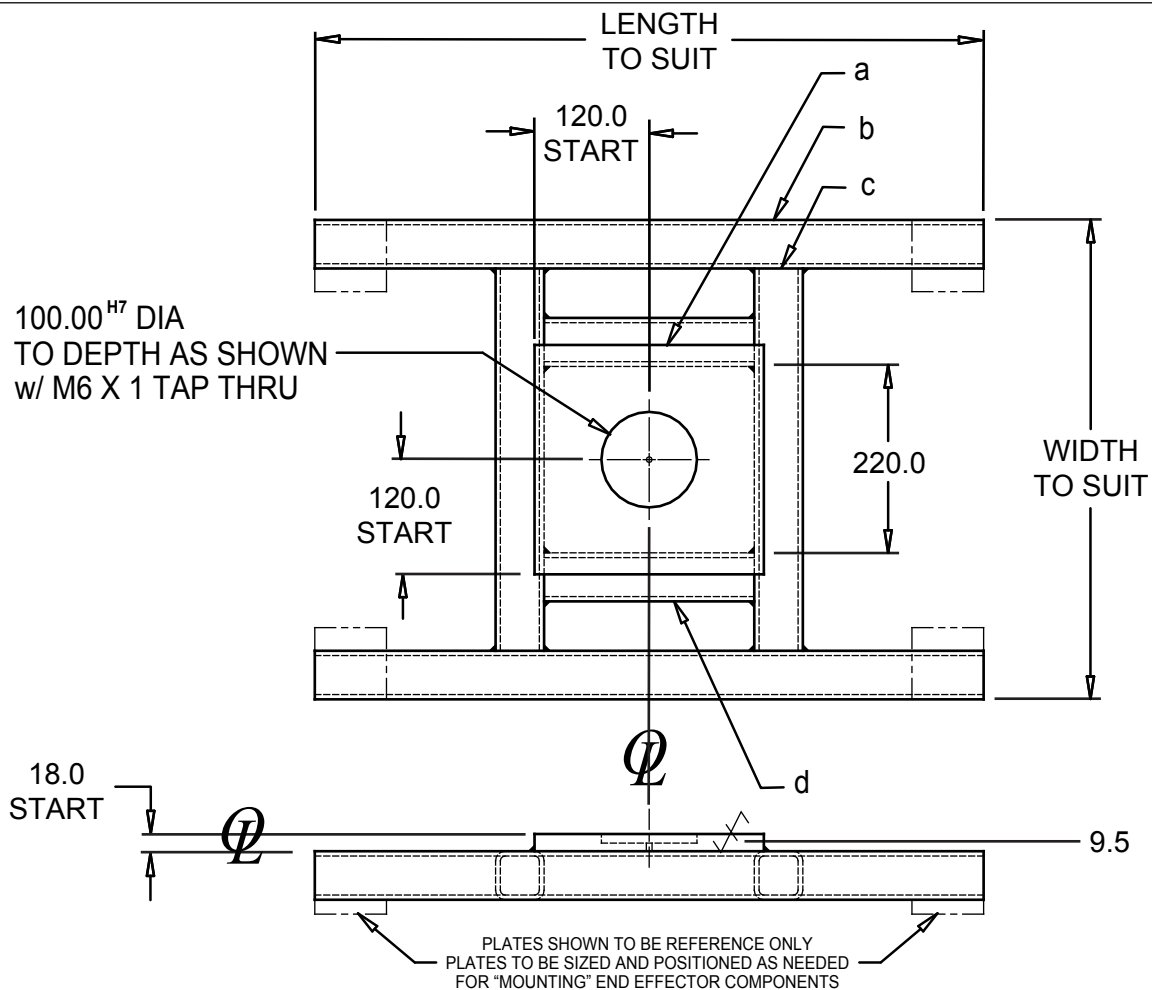
TOLERANCES:

- 1 PLACE MACHINING ±0.3
- 1 PLACE FABRICATION ±1.5
- 2 PLACE ±0.08 BETWEEN MACHINED SURFACES
- ±0.03 BETWEEN DOWELS IN SAME PLANE
- ±0.13 TO SCREW HOLES, NON ACCUMULATIVE

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

CAD STARTER MODEL ONLY - DO NOT ORDER AS NAAMS NUMBER - ASSIGN A CUSTOM NUMBER

**END EFFECTOR FRAME
CAD STARTER MODELS - ONLY
"H" SERIES
160MM BOLT CIRCLE**



NOTES: WELDED END CAPS TO SUIT

THIS STANDARD IS FOR THE FRAME ONLY
THE "PLATE" OR "PLATES" WILL BE THE DETAIL
AND THE FRAME WILL BE A SUB DETAIL IN THE STOCK LIST

| NAAMS SERIES | TUBE SIZE | |
|--------------|-------------------------|------------------|
| | A (INCH) | B (METRIC) |
| AE06 | 1 1/2 X 1 1/2 X 3/16 WT | 40 X 40 X 4 WT |
| AE07 | 2 X 2 X 3/16 WT | 50 X 50 X 4 WT |
| AE08 | 3 X 2 X 3/16 WT | 75 X 50 X 4 WT |
| AE09 | 3 X 3 X 3/16 WT | 75 X 75 X 4 WT |
| AE10 | 4 X 4 X 3/16 WT | 100 X 100 X 4 WT |

INCH

- a 1 - STL PLT ASTM A-36 7/8 X 240.0mm X 240.0mm
- b 2 - STL TBG ASTM A-500 GRADE B A X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B A X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B A X 220.0mm

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
IN ACCORDANCE TO AWS D1.1

PAINT SPEC: PER END USER SPECIFICATIONS

STRESS RELIEVE

METRIC

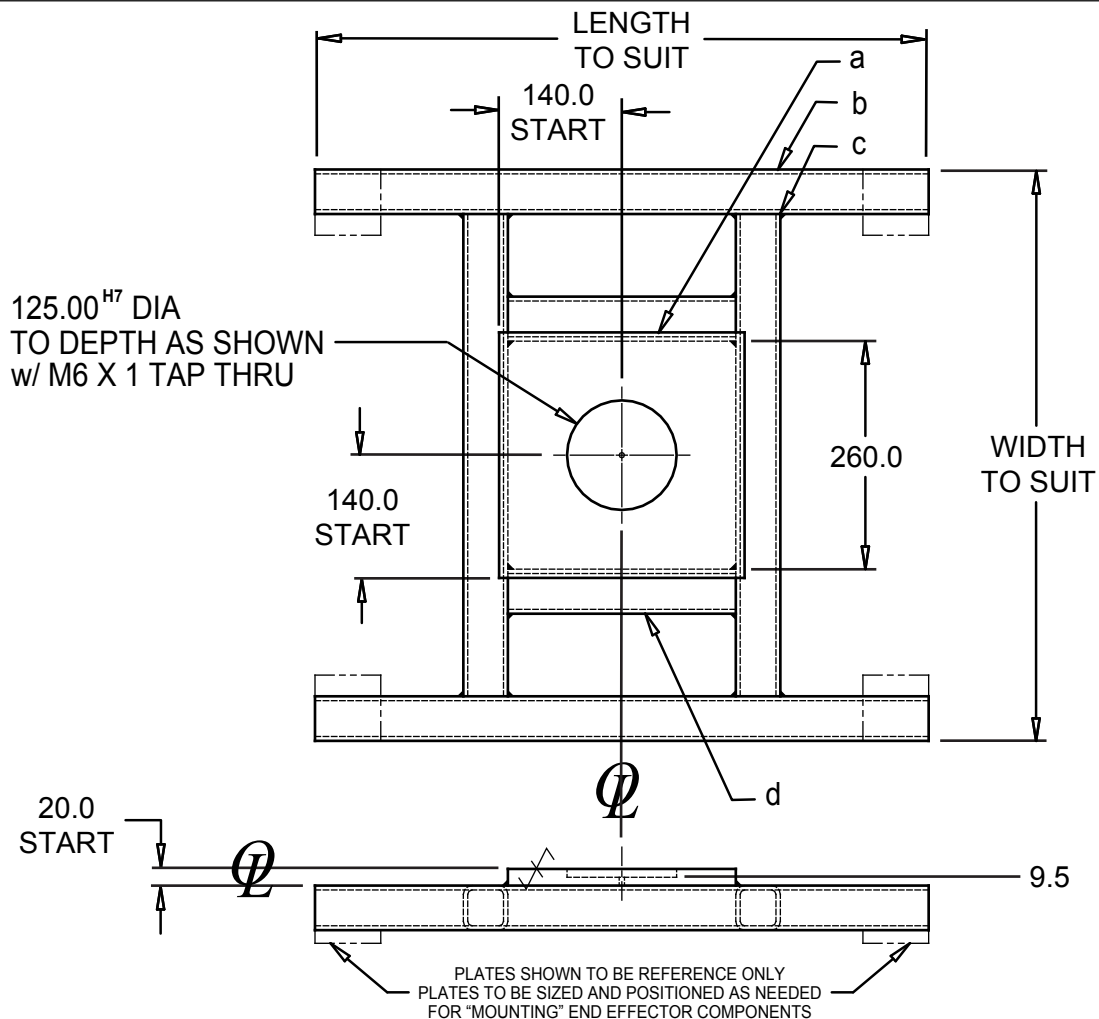
- a 1 - STL PLT ASTM A-36 22.0 X 240.0 X 240.0
- b 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B B X 220.0

TOLERANCES:
1 PLACE MACHINING ±0.3
1 PLACE FABRICATION ±1.5
2 PLACE ±0.08 BETWEEN MACHINED SURFACES
±0.03 BETWEEN DOWELS IN SAME PLANE
±0.13 TO SCREW HOLES, NON ACCUMULATIVE

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

CAD STARTER MODEL ONLY - DO NOT ORDER AS NAAMS NUMBER - ASSIGN A CUSTOM NUMBER

**END EFFECTOR FRAME
CAD STARTER MODELS - ONLY
"H" SERIES
200MM BOLT CIRCLE**



NOTES: WELDED END CAPS TO SUIT

THIS STANDARD IS FOR THE FRAME ONLY
THE "PLATE" OR "PLATES" WILL BE THE DETAIL
AND THE FRAME WILL BE A SUB DETAIL IN THE STOCK LIST

| NAAMS SERIES | TUBE SIZE | |
|--------------|-------------------------|------------------|
| | A (INCH) | B (METRIC) |
| AE11 | 1 1/2 X 1 1/2 X 3/16 WT | 40 X 40 X 4 WT |
| AE12 | 2 X 2 X 3/16 WT | 50 X 50 X 4 WT |
| AE13 | 3 X 2 X 3/16 WT | 75 X 50 X 4 WT |
| AE14 | 3 X 3 X 3/16 WT | 75 X 75 X 4 WT |
| AE15 | 4 X 4 X 3/16 WT | 100 X 100 X 4 WT |

INCH

- a 1 - STL PLT ASTM A-36 1 X 280.0mm X 280.0mm
- b 2 - STL TBG ASTM A-500 GRADE B A X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B A X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B A X 260.0mm

METRIC

- a 1 - STL PLT ASTM A-36 25.0 X 280.0 X 280.0
- b 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B B X 260.0

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
IN ACCORDANCE TO AWS D1.1

PAINT SPEC: PER END USER SPECIFICATIONS

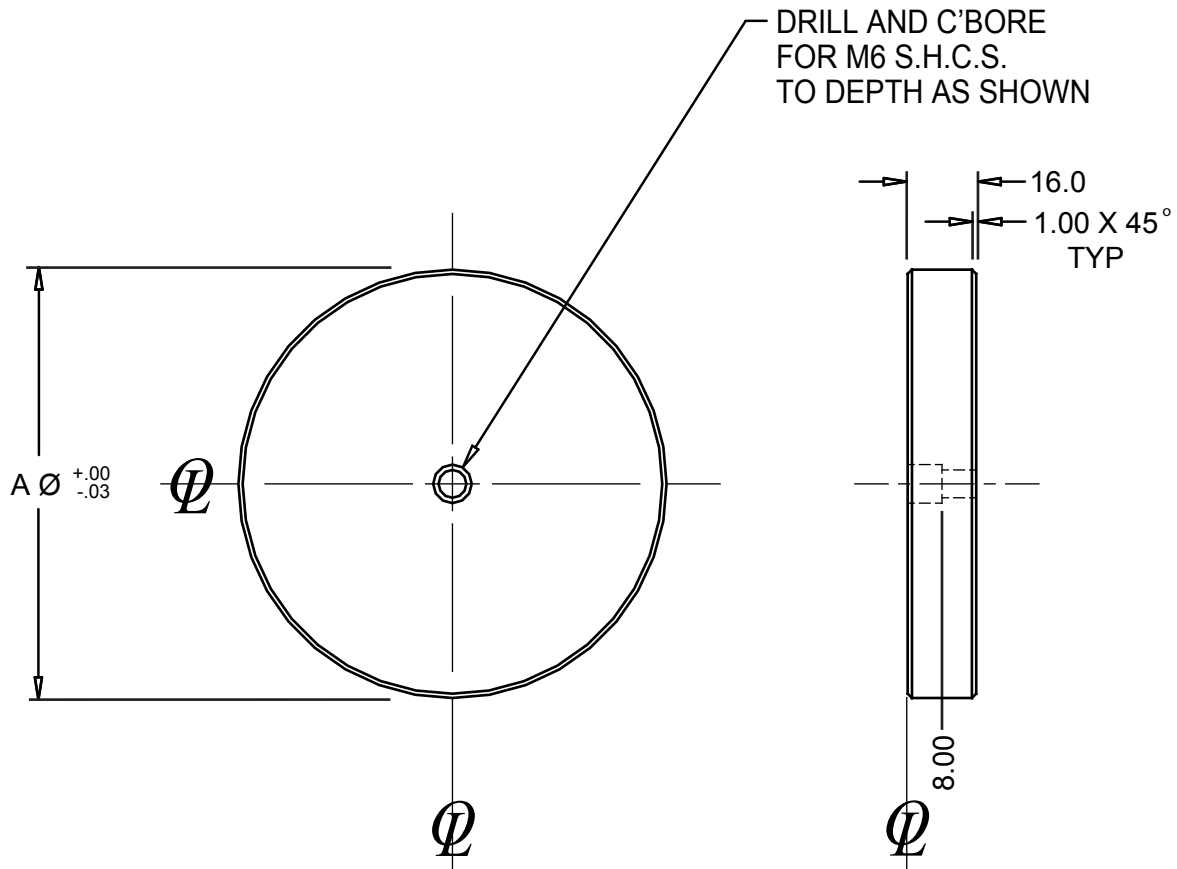
STRESS RELIEVE

TOLERANCES:
1 PLACE MACHINING ±0.3
1 PLACE FABRICATION ±1.5
2 PLACE ±0.08 BETWEEN MACHINED SURFACES
±0.03 BETWEEN DOWELS IN SAME PLANE
±0.13 TO SCREW HOLES, NON ACCUMULATIVE

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

CAD STARTER MODEL ONLY - DO NOT ORDER AS NAAMS NUMBER - ASSIGN A CUSTOM NUMBER

ROBOT WRIST LOCATING PUCK



TOLERANCES UNLESS OTHERWISE SPECIFIED:

- 1 PLACE MACHINING ± 0.3
- 2 PLACE ± 0.08

| NAAMS CODE | A | MATERIAL | Wt (kg) |
|------------|--------|-------------------------|---------|
| AEP001 | 59.96 | Steel – ASTM A-36 | 0.34 |
| AEP002 | 59.96 | POM Engineering Plastic | 0.06 |
| AEP003 | 79.96 | Steel – ASTM A-36 | 0.59 |
| AEP004 | 79.96 | POM Engineering Plastic | 0.11 |
| AEP005 | 99.96 | Steel – ASTM A-36 | 1.18 |
| AEP006 | 99.96 | POM Engineering Plastic | 0.18 |
| AEP007 | 124.96 | Steel – ASTM A-36 | 1.50 |
| AEP008 | 124.96 | POM Engineering Plastic | 0.29 |
| AEP009 | 159.96 | Steel – ASTM A-36 | 2.45 |
| AEP010 | 159.96 | POM Engineering Plastic | 0.48 |

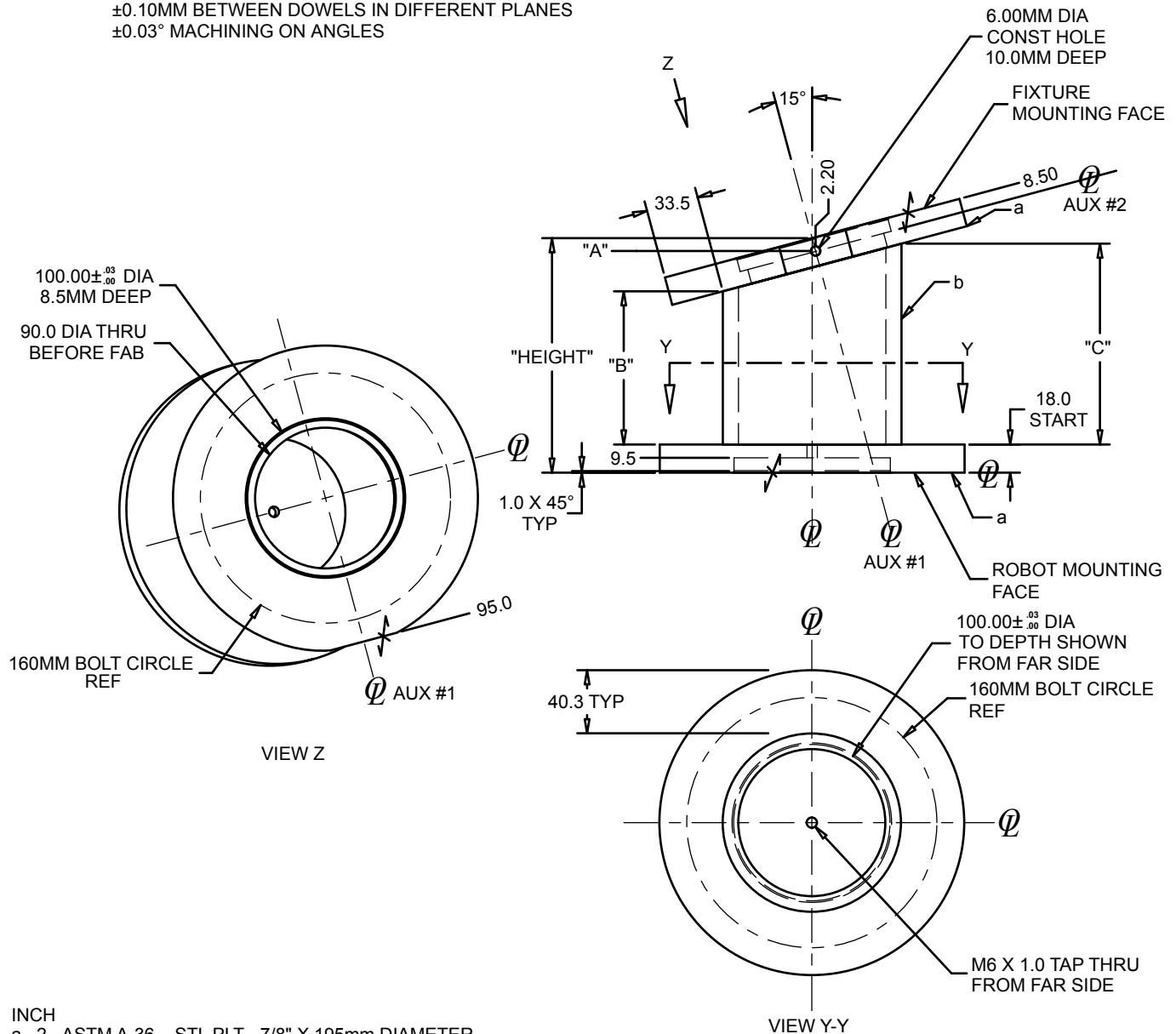
A

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

WEDGE BRACKET 160MM BOLT CIRCLE ON WRIST 15 DEGREES

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



INCH

- a 2 - ASTM A-36 STL PLT - 7/8" X 195mm DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 4 1/2" DIA X 3/8" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 22 X 195 DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 120 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 300kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.09mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
160MM BOLT CIRCLE
ON WRIST
15 DEGREES**

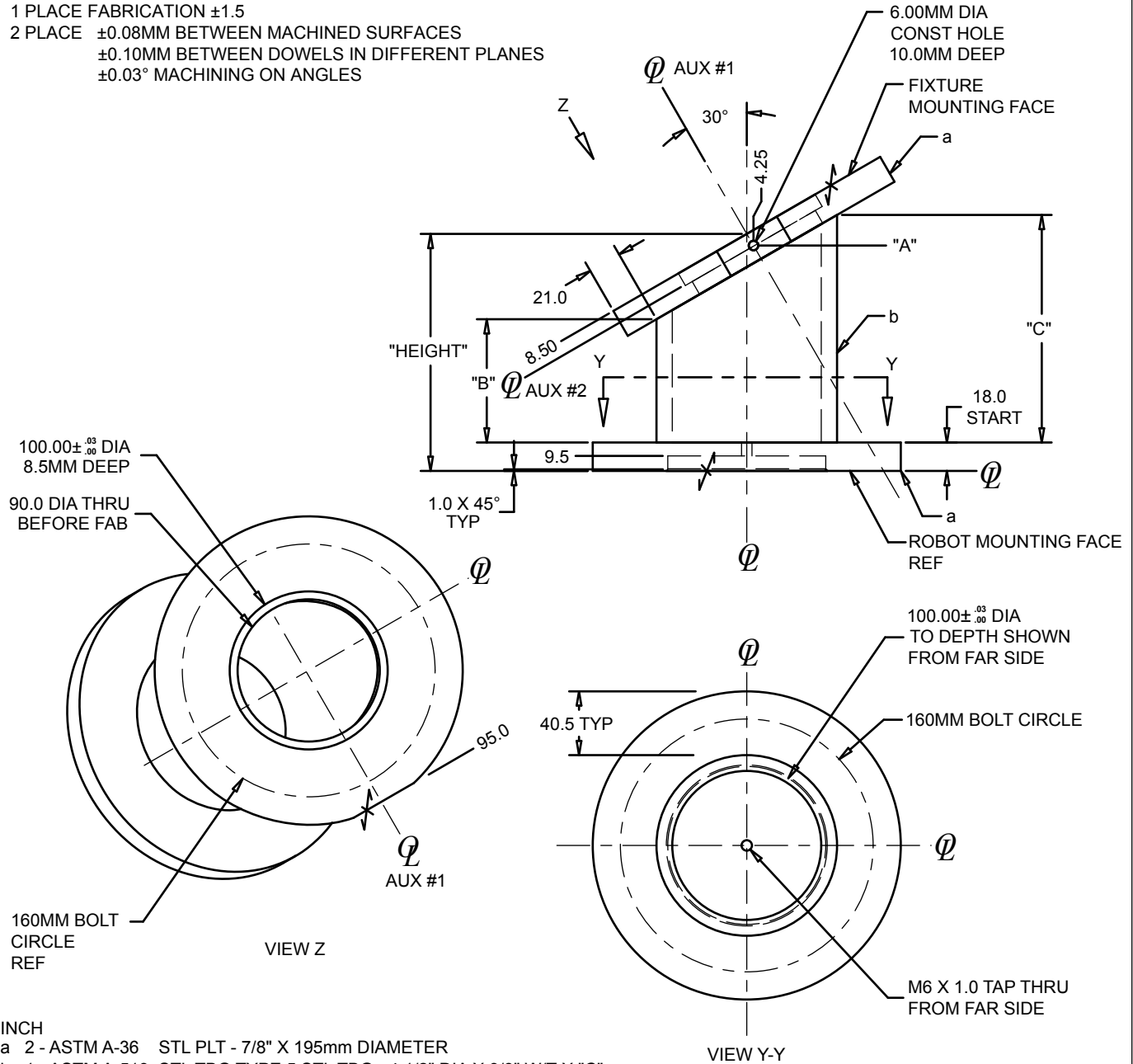
| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB101 | 150 | 141.79 | 98.0 | 128.5 | 9.6 | 9.9 |
| AWB102 | 175 | 166.79 | 123.0 | 153.5 | 10.3 | 10.6 |
| AWB103 | 200 | 191.79 | 148.0 | 178.5 | 10.9 | 11.3 |
| AWB104 | 225 | 216.79 | 173.0 | 203.5 | 11.5 | 12.0 |
| AWB105 | 250 | 241.79 | 198.0 | 228.5 | 12.1 | 12.6 |
| AWB106 | 275 | 266.79 | 223.0 | 253.5 | 12.7 | 13.3 |
| AWB107 | 300 | 291.79 | 248.0 | 278.5 | 13.3 | 14.0 |
| AWB108 | 325 | 316.79 | 273.0 | 303.5 | 14.0 | 14.7 |
| AWB109 | 350 | 341.79 | 298.0 | 328.5 | 14.6 | 15.4 |
| AWB110 | 375 | 366.79 | 323.0 | 353.5 | 15.2 | 16.0 |
| AWB111 | 400 | 391.79 | 348.0 | 378.5 | 15.8 | 16.7 |
| AWB112 | 425 | 416.79 | 373.0 | 403.5 | 16.4 | 17.4 |
| AWB113 | 450 | 441.79 | 398.0 | 428.5 | 17.0 | 18.1 |
| AWB114 | 475 | 466.79 | 423.0 | 453.5 | 17.6 | 18.7 |
| AWB115 | 500 | 491.79 | 448.0 | 478.5 | 18.3 | 19.4 |
| AWB116 | 525 | 516.79 | 473.0 | 503.5 | 18.9 | 20.1 |
| AWB117 | 550 | 541.79 | 498.0 | 528.5 | 19.5 | 20.8 |
| AWB118 | 575 | 566.79 | 523.0 | 553.5 | 20.1 | 21.5 |
| AWB119 | 600 | 591.79 | 548.0 | 578.5 | 20.7 | 22.1 |

A

WEDGE BRACKET 160MM BOLT CIRCLE ON WRIST 30 DEGREES

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



INCH

- a 2 - ASTM A-36 STL PLT - 7/8" X 195mm DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 4 1/2" DIA X 3/8" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 22 X 195 DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 120 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 300kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.09mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE



**WEDGE BRACKET
160MM BOLT CIRCLE
ON WRIST
30 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

02/19/08

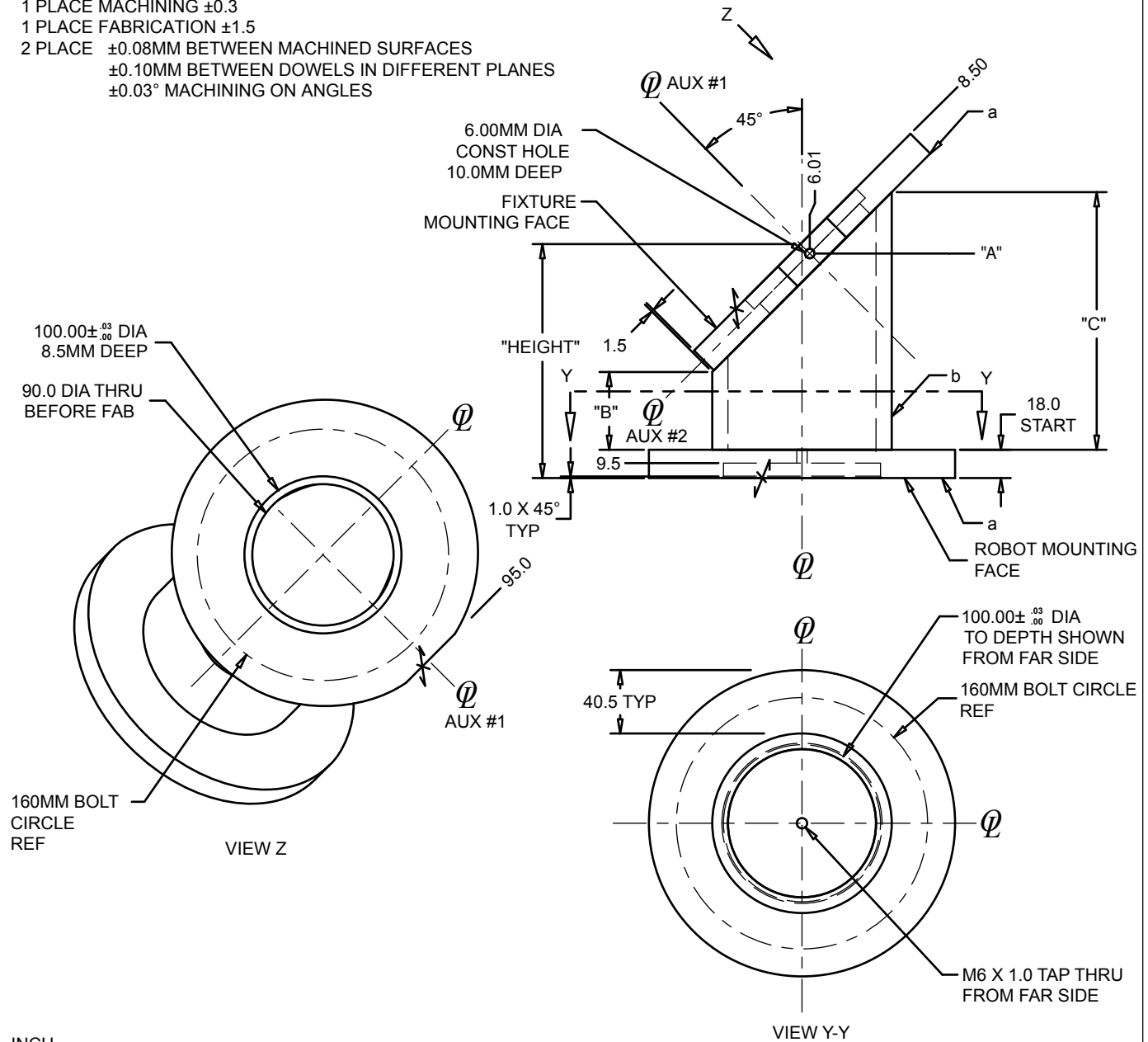
| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB201 | 150 | 142.64 | 78.0 | 144.0 | 9.6 | 9.9 |
| AWB202 | 175 | 167.64 | 103.0 | 169.0 | 10.2 | 10.5 |
| AWB203 | 200 | 192.64 | 128.0 | 194.0 | 10.8 | 11.2 |
| AWB204 | 225 | 217.64 | 153.0 | 219.0 | 11.4 | 11.9 |
| AWB205 | 250 | 242.64 | 178.0 | 244.0 | 12.1 | 12.6 |
| AWB206 | 275 | 267.64 | 203.0 | 269.0 | 12.7 | 13.3 |
| AWB207 | 300 | 292.64 | 228.0 | 294.0 | 13.3 | 13.9 |
| AWB208 | 325 | 317.64 | 253.0 | 319.0 | 13.9 | 14.6 |
| AWB209 | 350 | 342.64 | 278.0 | 344.0 | 14.5 | 15.3 |
| AWB210 | 375 | 367.64 | 303.0 | 369.0 | 15.1 | 16.0 |
| AWB211 | 400 | 392.64 | 328.0 | 394.0 | 15.7 | 16.7 |
| AWB212 | 425 | 417.64 | 353.0 | 419.0 | 16.4 | 17.3 |
| AWB213 | 450 | 442.64 | 378.0 | 444.0 | 17.0 | 18.0 |
| AWB214 | 475 | 467.64 | 403.0 | 469.0 | 17.6 | 18.7 |
| AWB215 | 500 | 492.64 | 428.0 | 494.0 | 18.2 | 19.4 |
| AWB216 | 525 | 517.64 | 453.0 | 519.0 | 18.8 | 20.0 |
| AWB217 | 550 | 542.64 | 478.0 | 544.0 | 19.4 | 20.7 |
| AWB218 | 575 | 567.64 | 503.0 | 569.0 | 20.1 | 21.4 |
| AWB219 | 600 | 592.64 | 528.0 | 594.0 | 20.7 | 22.1 |

A

**WEDGE BRACKET
160MM BOLT CIRCLE
ON WRIST
45 DEGREES**

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



INCH

- a 2 - ASTM A-36 STL PLT - 7/8" X 195mm DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 4 1/2" DIA X 3/8" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 22 X 195 DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 120 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 300kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.09mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
160MM BOLT CIRCLE
ON WRIST
45 DEGREES**

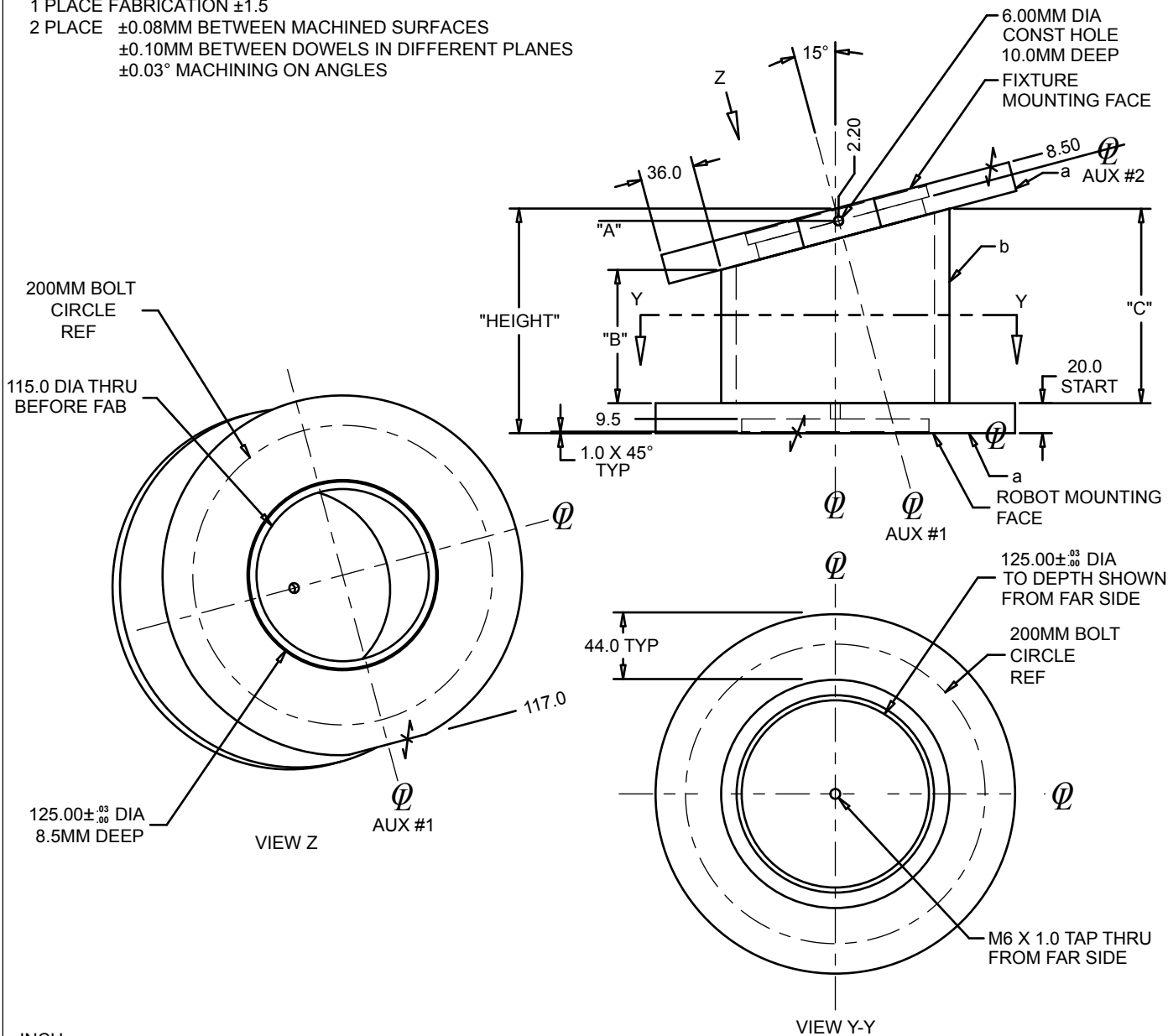
| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB301 | 150 | 143.99 | 49.5 | 164.0 | 9.3 | 9.6 |
| AWB302 | 175 | 168.99 | 74.5 | 189.0 | 9.9 | 10.2 |
| AWB303 | 200 | 193.99 | 99.5 | 214.0 | 10.5 | 10.9 |
| AWB304 | 225 | 218.99 | 124.5 | 239.0 | 11.1 | 11.6 |
| AWB305 | 250 | 243.99 | 149.5 | 264.0 | 11.8 | 12.3 |
| AWB306 | 275 | 268.99 | 174.5 | 289.0 | 12.4 | 12.9 |
| AWB307 | 300 | 293.99 | 199.5 | 314.0 | 13.0 | 13.6 |
| AWB308 | 325 | 318.99 | 224.5 | 339.0 | 13.6 | 14.3 |
| AWB309 | 350 | 343.99 | 249.5 | 364.0 | 14.2 | 15.0 |
| AWB310 | 375 | 368.99 | 274.5 | 389.0 | 14.8 | 15.7 |
| AWB311 | 400 | 393.99 | 299.5 | 414.0 | 15.4 | 16.3 |
| AWB312 | 425 | 418.99 | 324.5 | 439.0 | 16.1 | 17.0 |
| AWB313 | 450 | 443.99 | 349.5 | 464.0 | 16.7 | 17.7 |
| AWB314 | 475 | 468.99 | 374.5 | 489.0 | 17.3 | 18.4 |
| AWB315 | 500 | 493.99 | 399.5 | 514.0 | 17.9 | 19.1 |
| AWB316 | 525 | 518.99 | 424.5 | 539.0 | 18.5 | 19.7 |
| AWB317 | 550 | 543.99 | 449.5 | 564.0 | 19.1 | 20.4 |
| AWB318 | 575 | 568.99 | 474.5 | 589.0 | 19.8 | 21.1 |
| AWB319 | 600 | 593.99 | 499.5 | 614.0 | 20.4 | 21.8 |

A

WEDGE BRACKET 200MM BOLT CIRCLE ON WRIST 15 DEGREES

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



INCH

- a 2 - ASTM A-36 STL PLT - 1" X 240mm DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 6" DIA X 1/2" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 25 X 240 DIAMETER
- b 1 - ASTM A-513 STL TBG TYPE 5 STL TBG - 160 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 500kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.2mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
200MM BOLT CIRCLE
ON WRIST
15 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

02/19/08

| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB401 | 150 | 141.79 | 89.0 | 130.0 | 16.3 | 15.6 |
| AWB402 | 175 | 166.79 | 114.0 | 155.0 | 17.4 | 16.5 |
| AWB403 | 200 | 191.79 | 139.0 | 180.0 | 18.5 | 17.4 |
| AWB404 | 225 | 216.79 | 164.0 | 205.0 | 19.6 | 18.4 |
| AWB405 | 250 | 241.79 | 189.0 | 230.0 | 20.7 | 19.3 |
| AWB406 | 275 | 266.79 | 214.0 | 255.0 | 21.8 | 20.2 |
| AWB407 | 300 | 291.79 | 239.0 | 280.0 | 22.9 | 21.1 |
| AWB408 | 325 | 316.79 | 264.0 | 305.0 | 24.0 | 22.1 |
| AWB409 | 350 | 341.79 | 289.0 | 330.0 | 25.1 | 23.0 |
| AWB410 | 375 | 366.79 | 314.0 | 355.0 | 26.2 | 23.9 |
| AWB411 | 400 | 391.79 | 339.0 | 380.0 | 27.3 | 24.8 |
| AWB412 | 425 | 416.79 | 364.0 | 405.0 | 28.4 | 25.8 |
| AWB413 | 450 | 441.79 | 389.0 | 430.0 | 29.5 | 26.7 |
| AWB414 | 475 | 466.79 | 414.0 | 455.0 | 30.6 | 27.6 |
| AWB415 | 500 | 491.79 | 439.0 | 480.0 | 31.7 | 28.5 |
| AWB416 | 525 | 516.79 | 464.0 | 505.0 | 32.7 | 29.5 |
| AWB417 | 550 | 541.79 | 489.0 | 530.0 | 33.8 | 30.4 |
| AWB418 | 575 | 566.79 | 514.0 | 555.0 | 34.9 | 31.3 |
| AWB419 | 600 | 591.79 | 539.0 | 580.0 | 36.0 | 32.2 |

A

WEDGE BRACKET 200MM BOLT CIRCLE ON WRIST 30 DEGREES

GLOBAL STANDARD COMPONENTS

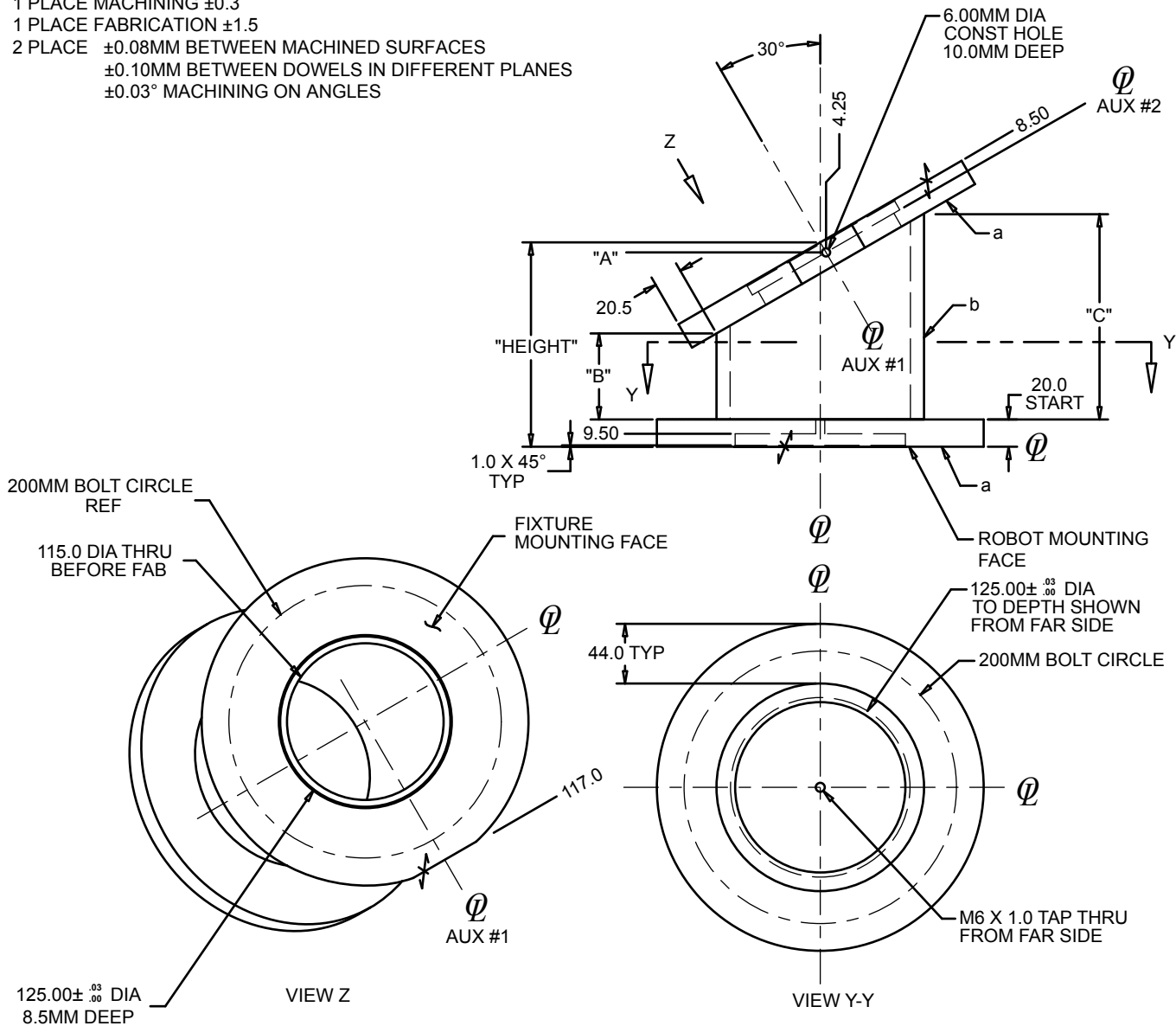


Assembly

02/26/08

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE $\pm 0.08\text{MM}$ BETWEEN MACHINED SURFACES
- $\pm 0.10\text{MM}$ BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



B

INCH

- a 2 - ASTM A-36 STL PLT - 1" X 240mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 6" DIA X 1/2" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 25 X 240 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 160 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 500kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.2mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
200MM BOLT CIRCLE
ON WRIST
30 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

02/19/08

| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB501 | 150.0 | 142.64 | 63.0 | 151.0 | 16.2 | 15.5 |
| AWB502 | 175.0 | 167.64 | 88.0 | 176.0 | 17.3 | 16.4 |
| AWB503 | 200.0 | 192.64 | 113.0 | 201.0 | 18.4 | 17.3 |
| AWB504 | 225.0 | 217.64 | 138.0 | 226.0 | 19.5 | 18.3 |
| AWB505 | 250.0 | 242.64 | 163.0 | 251.0 | 20.6 | 19.2 |
| AWB506 | 275.0 | 267.64 | 188.0 | 276.0 | 21.7 | 20.1 |
| AWB507 | 300.0 | 292.64 | 213.0 | 301.0 | 22.8 | 21.0 |
| AWB508 | 325.0 | 317.64 | 238.0 | 326.0 | 23.9 | 22.0 |
| AWB509 | 350.0 | 342.64 | 263.0 | 351.0 | 25.0 | 22.9 |
| AWB510 | 375.0 | 367.64 | 288.0 | 376.0 | 26.1 | 23.8 |
| AWB511 | 400.0 | 392.64 | 313.0 | 401.0 | 27.2 | 24.7 |
| AWB512 | 425.0 | 417.64 | 338.0 | 426.0 | 28.3 | 25.7 |
| AWB513 | 450.0 | 442.64 | 363.0 | 451.0 | 29.4 | 26.6 |
| AWB514 | 475.0 | 467.64 | 388.0 | 476.0 | 30.4 | 27.5 |
| AWB515 | 500.0 | 492.64 | 413.0 | 501.0 | 31.5 | 28.4 |
| AWB516 | 525.0 | 517.64 | 438.0 | 526.0 | 32.6 | 29.4 |
| AWB517 | 550.0 | 542.64 | 463.0 | 551.0 | 33.7 | 30.3 |
| AWB518 | 575.0 | 567.64 | 488.0 | 576.0 | 34.8 | 31.2 |
| AWB519 | 600.0 | 592.64 | 513.0 | 601.0 | 35.9 | 32.1 |

**WEDGE BRACKET
200MM BOLT CIRCLE
ON WRIST
45 DEGREES**

GLOBAL STANDARD COMPONENTS

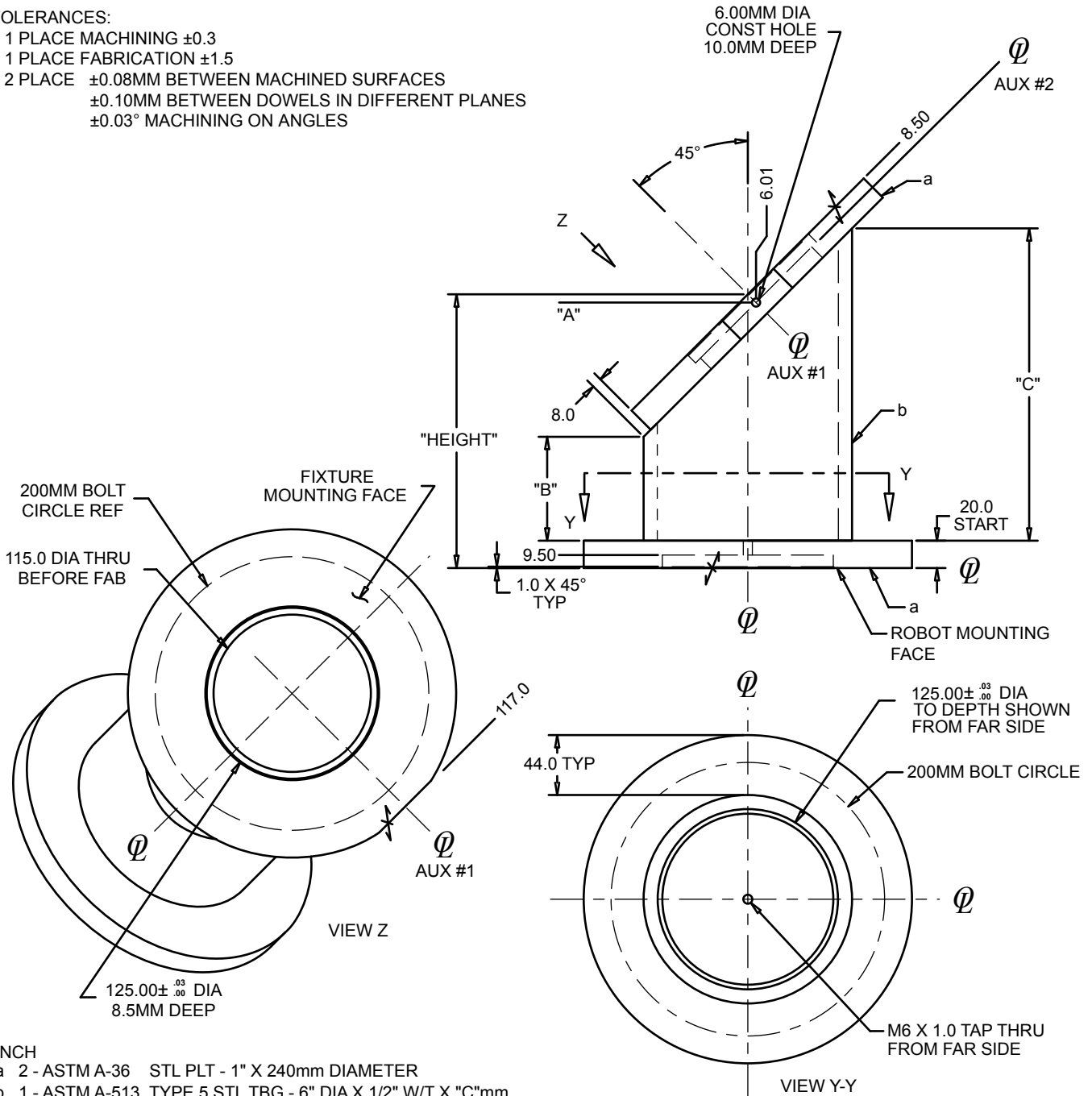


Assembly

02/26/08

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



INCH

- a 2 - ASTM A-36 STL PLT - 1" X 240mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 6" DIA X 1/2" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 25 X 240 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 160 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 500kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.2mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
200MM BOLT CIRCLE
ON WRIST
45 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

02/19/08

| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB601 | 200.0 | 193.99 | 75.5 | 228.0 | 18.2 | 17.2 |
| AWB602 | 225.0 | 218.99 | 100.0 | 253.0 | 19.3 | 18.1 |
| AWB603 | 250.0 | 243.99 | 125.5 | 278.0 | 20.4 | 19.0 |
| AWB604 | 275.0 | 268.99 | 150.0 | 303.0 | 21.5 | 19.9 |
| AWB605 | 300.0 | 293.99 | 175.0 | 328.0 | 22.6 | 20.9 |
| AWB606 | 325.0 | 318.99 | 200.5 | 353.0 | 23.7 | 21.8 |
| AWB607 | 350.0 | 343.99 | 225.0 | 378.0 | 24.7 | 22.7 |
| AWB608 | 375.0 | 368.99 | 250.0 | 403.0 | 25.8 | 23.6 |
| AWB609 | 400.0 | 393.99 | 275.0 | 428.0 | 26.9 | 24.6 |
| AWB610 | 425.0 | 418.99 | 300.0 | 453.0 | 28.0 | 25.5 |
| AWB611 | 450.0 | 443.99 | 325.0 | 478.0 | 29.1 | 26.4 |
| AWB612 | 475.0 | 468.99 | 350.5 | 503.0 | 30.2 | 27.3 |
| AWB613 | 500.0 | 493.99 | 375.0 | 528.0 | 31.3 | 28.3 |
| AWB614 | 525.0 | 518.99 | 400.0 | 553.0 | 32.4 | 29.2 |
| AWB615 | 550.0 | 543.99 | 425.0 | 578.0 | 33.5 | 30.1 |
| AWB616 | 575.0 | 568.99 | 450.5 | 603.0 | 34.6 | 31.0 |
| AWB617 | 600.0 | 593.99 | 475.5 | 628.0 | 35.7 | 32.0 |

WEDGE BRACKET 125MM BOLT CIRCLE ON WRIST 15 DEGREES

GLOBAL STANDARD COMPONENTS

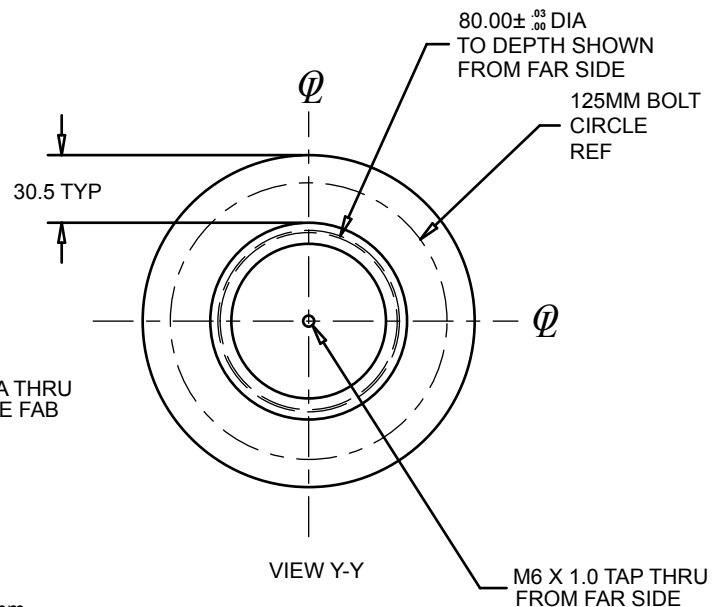
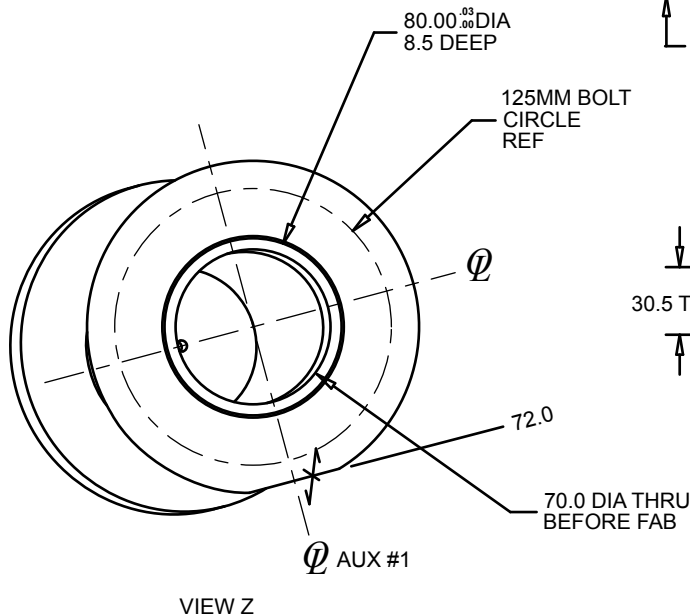
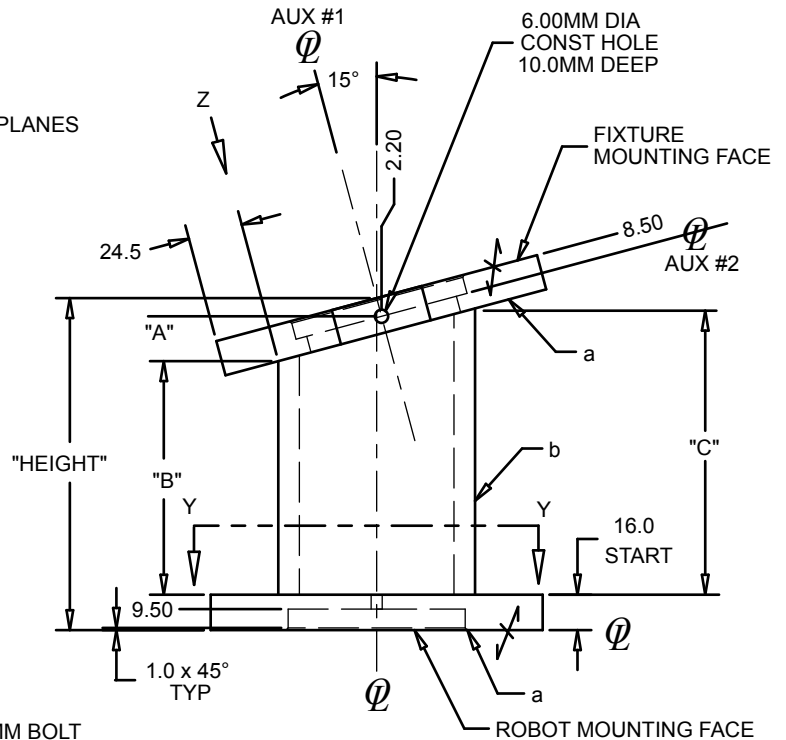


Assembly

02/26/08

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



INCH

- a 2 - ASTM A-36 STL PLT - 3/4" X 150mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 3 1/2" DIA X 3/8" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 20 X 150 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 90 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 165kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.04mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

B

A

**WEDGE BRACKET
125MM BOLT CIRCLE
ON WRIST
15 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

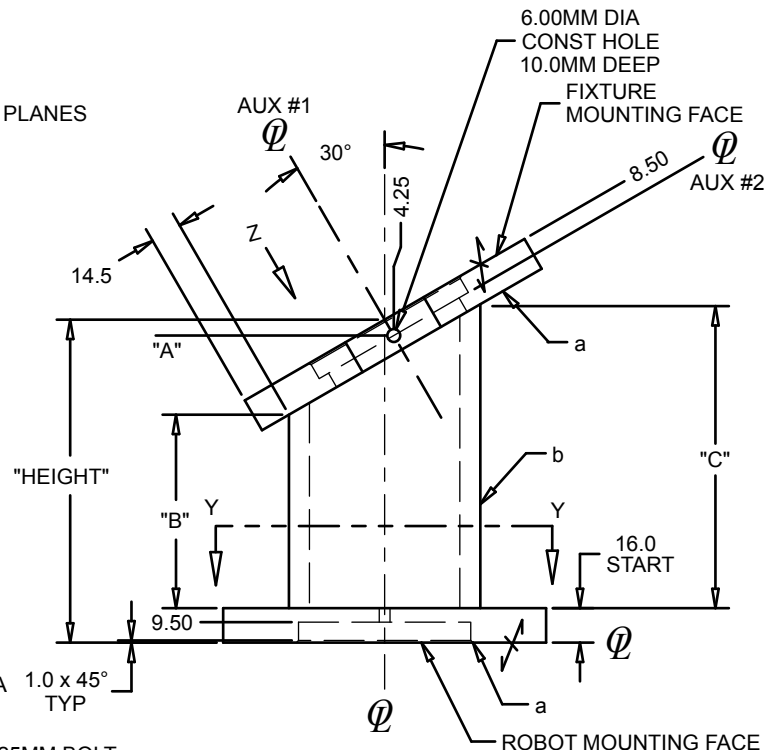
02/19/08

| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB701 | 150.0 | 141.79 | 105.5 | 129.5 | 5.7 | 5.8 |
| AWB702 | 175.0 | 166.79 | 130.5 | 154.5 | 6.2 | 6.3 |
| AWB703 | 200.0 | 191.79 | 155.5 | 179.5 | 6.6 | 6.8 |
| AWB704 | 225.0 | 216.79 | 180.5 | 204.5 | 7.1 | 7.3 |
| AWB705 | 250.0 | 241.79 | 205.5 | 229.5 | 7.6 | 7.8 |
| AWB706 | 275.0 | 266.79 | 230.5 | 254.5 | 8.0 | 8.3 |
| AWB707 | 300.0 | 291.79 | 255.5 | 279.5 | 8.5 | 8.8 |
| AWB708 | 325.0 | 316.79 | 280.5 | 304.5 | 9.0 | 9.3 |
| AWB709 | 350.0 | 341.79 | 305.5 | 329.5 | 9.4 | 9.8 |
| AWB710 | 375.0 | 366.79 | 330.5 | 354.5 | 9.9 | 10.3 |
| AWB711 | 400.0 | 391.79 | 355.5 | 379.5 | 10.4 | 10.8 |
| AWB712 | 425.0 | 416.79 | 380.5 | 404.5 | 10.8 | 11.3 |
| AWB713 | 450.0 | 441.79 | 405.5 | 429.5 | 11.3 | 11.7 |
| AWB714 | 475.0 | 466.79 | 430.5 | 454.5 | 11.8 | 12.2 |
| AWB715 | 500.0 | 491.79 | 455.5 | 479.5 | 12.2 | 12.7 |
| AWB716 | 525.0 | 516.79 | 480.5 | 504.5 | 12.7 | 13.2 |
| AWB717 | 550.0 | 541.79 | 505.5 | 529.5 | 13.2 | 13.7 |
| AWB718 | 575.0 | 566.79 | 530.5 | 554.5 | 13.6 | 14.2 |
| AWB719 | 600.0 | 591.79 | 555.5 | 579.5 | 14.1 | 14.7 |

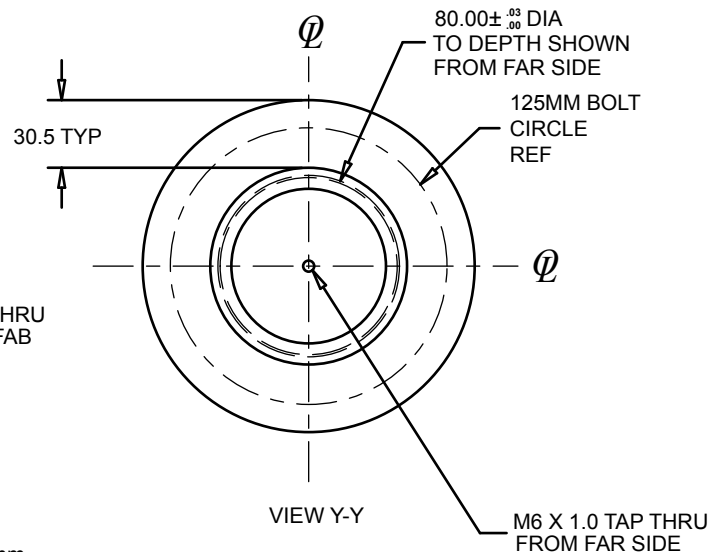
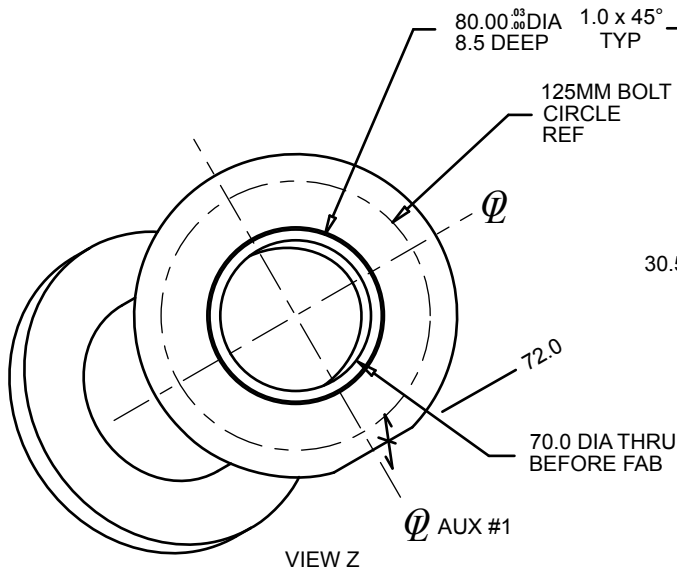
WEDGE BRACKET 125MM BOLT CIRCLE ON WRIST 30 DEGREES

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



B



INCH

- a 2 - ASTM A-36 STL PLT - 3/4" X 150mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 3 1/2" DIA X 3/8" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 20 X 150 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 90 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 165kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.04mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
125MM BOLT CIRCLE
ON WRIST
30 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

02/19/08

| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB801 | 150.0 | 142.64 | 90.0 | 141.0 | 5.7 | 5.8 |
| AWB802 | 175.0 | 167.64 | 115.0 | 166.0 | 6.1 | 6.3 |
| AWB803 | 200.0 | 192.64 | 140.0 | 191.0 | 6.6 | 6.8 |
| AWB804 | 225.0 | 217.64 | 165.0 | 216.0 | 7.1 | 7.3 |
| AWB805 | 250.0 | 242.64 | 190.0 | 241.0 | 7.5 | 7.8 |
| AWB806 | 275.0 | 267.64 | 215.0 | 266.0 | 8.0 | 8.2 |
| AWB807 | 300.0 | 292.64 | 240.0 | 291.0 | 8.5 | 8.7 |
| AWB808 | 325.0 | 317.64 | 265.0 | 316.0 | 8.9 | 9.2 |
| AWB809 | 350.0 | 342.64 | 290.0 | 341.0 | 9.4 | 9.7 |
| AWB810 | 375.0 | 367.64 | 315.0 | 366.0 | 9.9 | 10.2 |
| AWB811 | 400.0 | 392.64 | 340.0 | 391.0 | 10.3 | 10.7 |
| AWB812 | 425.0 | 417.64 | 365.0 | 416.0 | 10.8 | 11.2 |
| AWB813 | 450.0 | 442.64 | 390.0 | 441.0 | 11.2 | 11.7 |
| AWB814 | 475.0 | 467.64 | 415.0 | 466.0 | 11.7 | 12.2 |
| AWB815 | 500.0 | 492.64 | 440.0 | 491.0 | 12.2 | 12.7 |
| AWB816 | 525.0 | 517.64 | 465.0 | 516.0 | 12.6 | 13.2 |
| AWB817 | 550.0 | 542.64 | 490.0 | 541.0 | 13.1 | 13.7 |
| AWB818 | 575.0 | 567.64 | 515.0 | 566.0 | 13.6 | 14.2 |
| AWB819 | 600.0 | 592.64 | 540.0 | 591.0 | 14.0 | 14.7 |

WEDGE BRACKET 125MM BOLT CIRCLE ON WRIST 45 DEGREES

GLOBAL STANDARD COMPONENTS

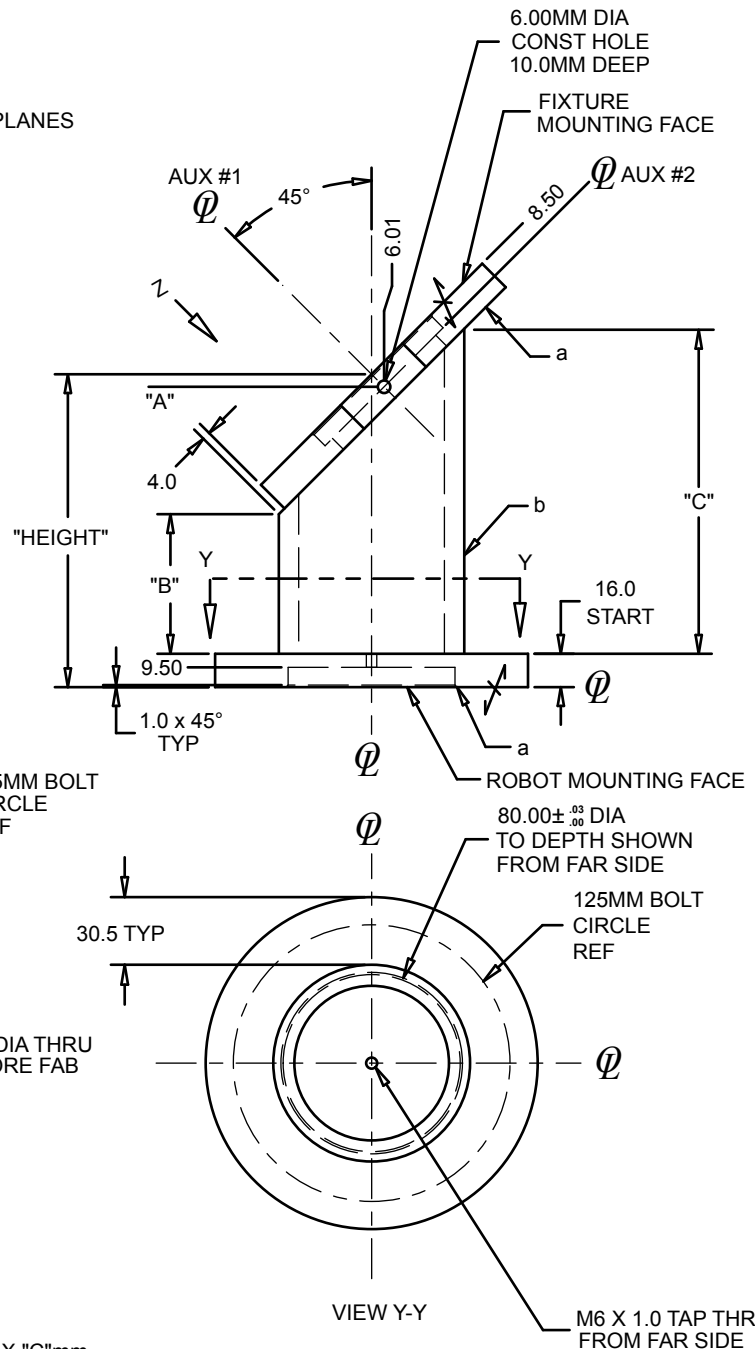


Assembly

02/26/08

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 MM BETWEEN MACHINED SURFACES
- ± 0.10 MM BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



B

INCH

- a 2 - ASTM A-36 STL PLT - 3/4" X 150mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 3 1/2" DIA X 3/8" W/T X "C"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 20 X 150 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 90 DIA X 10 W/T X "C"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

TESTED BY FEA USING A 165kg MASS
MAXIMUM STRESS < 9,000ksi (62MPa)
MAXIMUM DEFLECTION 0.04mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOT-FACED TO ENSURE THE FASTENERS ARE
NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACE

CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED
WELD IN ACCORDANCE TO AWS D1.1

WELD INSIDE AND OUTSIDE TUBE

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

A

**WEDGE BRACKET
125MM BOLT CIRCLE
ON WRIST
45 DEGREES**

GLOBAL STANDARD COMPONENTS



Assembly

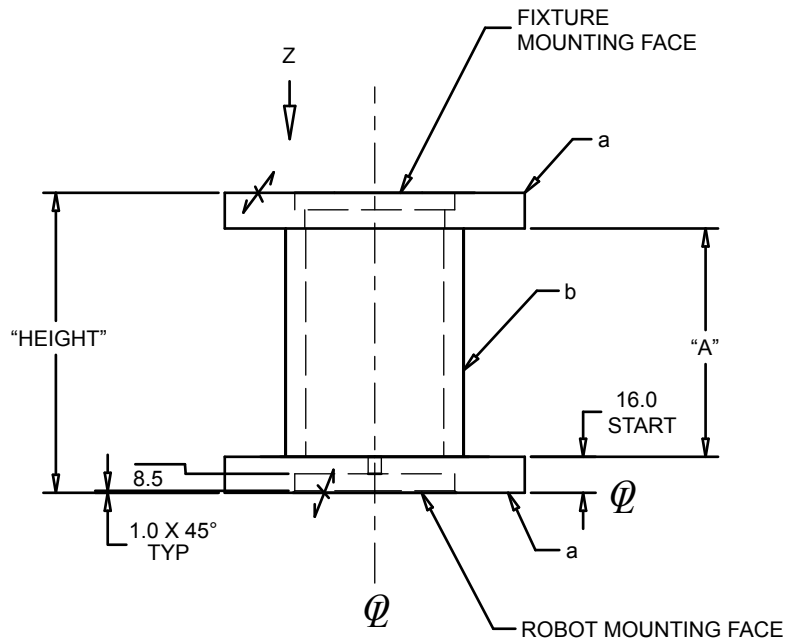
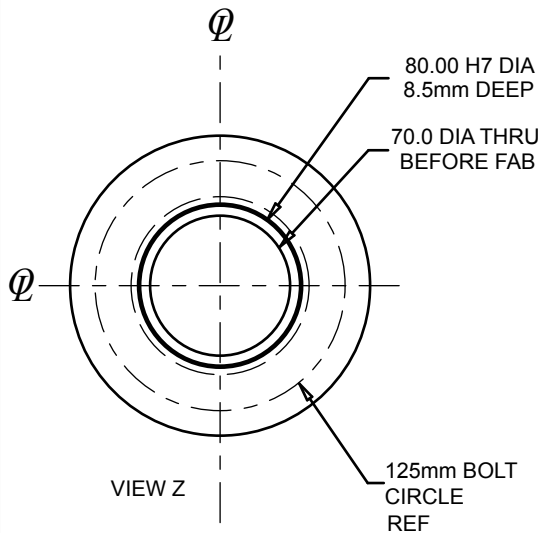
02/19/08

| NAAMS CODE | HEIGHT | A | B | C | WEIGHT kg | |
|---------------|--------|--------|-------|-------|-----------|-------------|
| | | | | | INCH TUBE | METRIC TUBE |
| AWB901 | 150.0 | 143.99 | 67.0 | 156.0 | 5.6 | 5.7 |
| AWB902 | 175.0 | 168.99 | 92.0 | 181.0 | 6.1 | 6.2 |
| AWB903 | 200.0 | 193.99 | 117.0 | 206.0 | 6.5 | 6.7 |
| AWB904 | 225.0 | 218.99 | 142.0 | 231.0 | 7.0 | 7.2 |
| AWB905 | 250.0 | 243.99 | 167.0 | 256.0 | 7.4 | 7.7 |
| AWB906 | 275.0 | 268.99 | 192.0 | 281.0 | 7.9 | 8.2 |
| AWB907 | 300.0 | 293.99 | 217.0 | 306.0 | 8.4 | 8.7 |
| AWB908 | 325.0 | 318.99 | 242.0 | 331.0 | 8.8 | 9.2 |
| AWB909 | 350.0 | 343.99 | 267.0 | 356.0 | 9.3 | 9.7 |
| AWB910 | 375.0 | 368.99 | 292.0 | 381.0 | 9.8 | 10.1 |
| AWB911 | 400.0 | 393.99 | 317.0 | 406.0 | 10.2 | 10.6 |
| AWB912 | 425.0 | 418.99 | 342.0 | 431.0 | 10.7 | 11.1 |
| AWB913 | 450.0 | 443.99 | 367.0 | 456.0 | 11.2 | 11.6 |
| AWB914 | 475.0 | 468.99 | 392.0 | 481.0 | 11.6 | 12.1 |
| AWB915 | 500.0 | 493.99 | 417.0 | 506.0 | 12.1 | 12.6 |
| AWB916 | 525.0 | 518.99 | 442.0 | 531.0 | 12.6 | 13.1 |
| AWB917 | 550.0 | 543.99 | 467.0 | 556.0 | 13.0 | 13.6 |
| AWB918 | 575.0 | 568.99 | 492.0 | 581.0 | 13.5 | 14.1 |
| AWB919 | 600.0 | 593.99 | 517.0 | 606.0 | 14.0 | 14.6 |

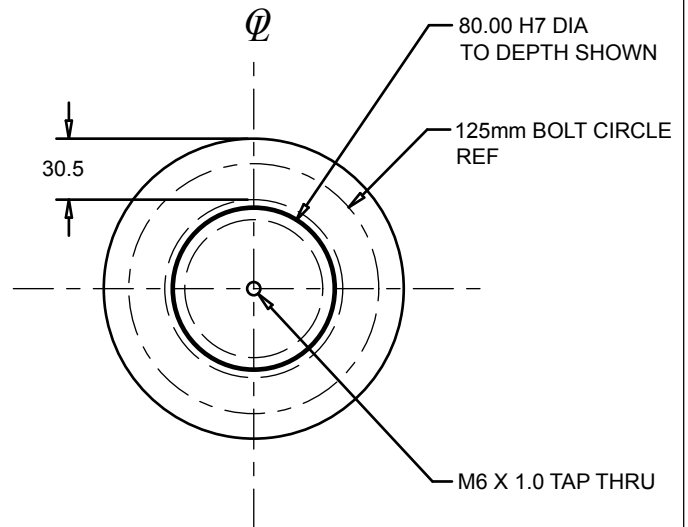
FLAT BRACKET 125MM BOLT CIRCLE ON WRIST

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE $\pm 0.08\text{mm}$ BETWEEN MACHINED SURFACES
- $\pm 0.10\text{mm}$ BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



| NAAMS CODE | HEIGHT | A | WEIGHT (kg) |
|------------|--------|-------|-------------|
| AFB101 | 150.0 | 118.0 | 5.6 |
| AFB102 | 175.0 | 143.0 | 6.1 |
| AFB103 | 200.0 | 168.0 | 6.5 |
| AFB104 | 225.0 | 193.0 | 7.0 |
| AFB105 | 250.0 | 218.0 | 7.4 |
| AFB106 | 275.0 | 243.0 | 7.9 |
| AFB107 | 300.0 | 268.0 | 8.3 |
| AFB108 | 325.0 | 293.0 | 8.8 |
| AFB109 | 350.0 | 318.0 | 9.3 |
| AFB110 | 375.0 | 343.0 | 9.7 |
| AFB111 | 400.0 | 368.0 | 10.2 |
| AFB112 | 425.0 | 393.0 | 10.6 |
| AFB113 | 450.0 | 418.0 | 11.1 |
| AFB114 | 475.0 | 443.0 | 11.5 |
| AFB115 | 500.0 | 468.0 | 12.0 |
| AFB116 | 525.0 | 493.0 | 12.4 |
| AFB117 | 550.0 | 518.0 | 12.9 |
| AFB118 | 575.0 | 543.0 | 13.4 |
| AFB119 | 600.0 | 568.0 | 13.8 |



INCH

- a 2 - ASTM A-36 STL PLT - 3/4" X 150mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 3 1/2" DIA X 3/8" W/T X "A"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 20 X 150 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 90 DIA X 10 W/T X "A"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

MODELED IN FEA USING A 165kg MASS
MAXIMUM STRESS < 9,000psi (62MPa)
MAXIMUM DEFLECTION 0.04mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

CONTINUOUS WELD AROUND OUTSIDE OF TUBE
IN ACCORDANCE TO AWS D1.1

STRESS RELIEVE

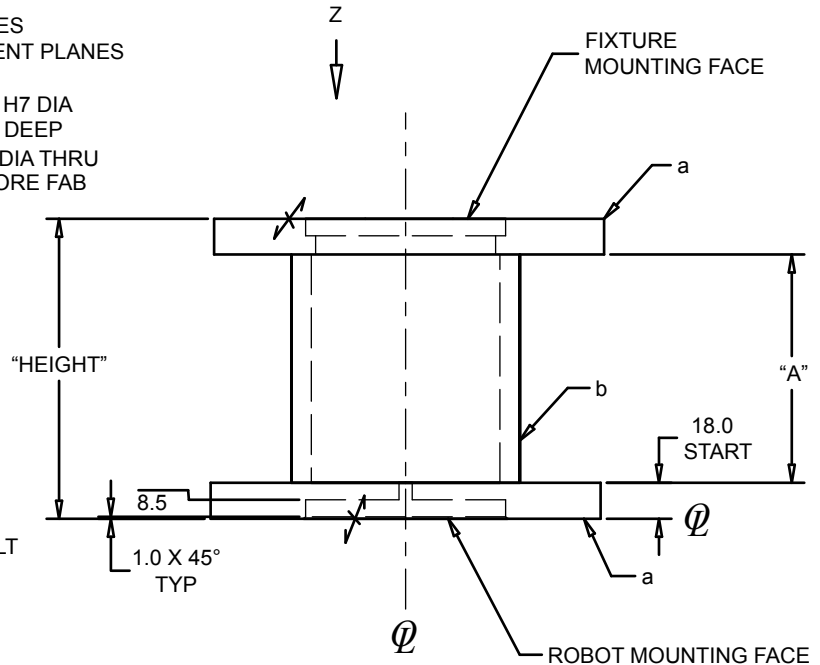
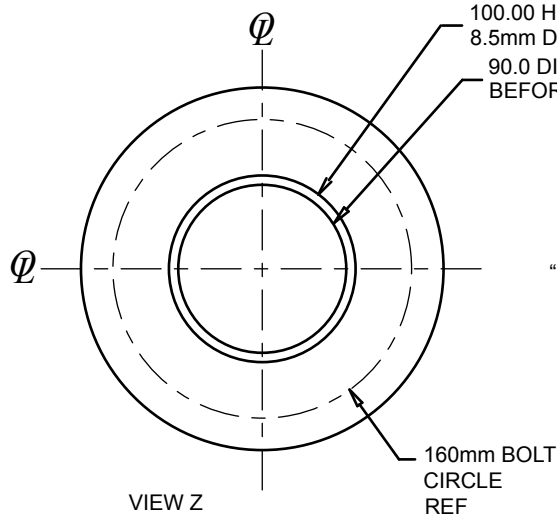
MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOTFACED TO ENSURE THE FASTENERS
ARE NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACES

PAINT PER USER SPECIFICATIONS

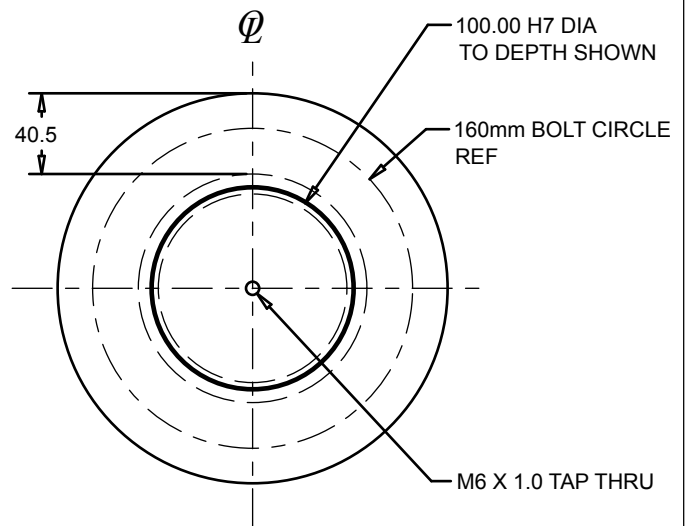
FLAT BRACKET 160MM BOLT CIRCLE ON WRIST

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE $\pm 0.08\text{mm}$ BETWEEN MACHINED SURFACES
- $\pm 0.10\text{mm}$ BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



| NAAMS CODE | HEIGHT | A | WEIGHT (kg) |
|------------|--------|-------|-------------|
| AFB201 | 150.0 | 114.0 | 9.4 |
| AFB202 | 175.0 | 139.0 | 10.0 |
| AFB203 | 200.0 | 164.0 | 10.6 |
| AFB204 | 225.0 | 189.0 | 11.2 |
| AFB205 | 250.0 | 214.0 | 11.9 |
| AFB206 | 275.0 | 239.0 | 12.5 |
| AFB207 | 300.0 | 264.0 | 13.1 |
| AFB208 | 325.0 | 289.0 | 13.7 |
| AFB209 | 350.0 | 314.0 | 14.3 |
| AFB210 | 375.0 | 339.0 | 14.9 |
| AFB211 | 400.0 | 364.0 | 15.5 |
| AFB212 | 425.0 | 389.0 | 16.1 |
| AFB213 | 450.0 | 414.0 | 16.8 |
| AFB214 | 475.0 | 439.0 | 17.4 |
| AFB215 | 500.0 | 464.0 | 18.0 |
| AFB216 | 525.0 | 489.0 | 18.6 |
| AFB217 | 550.0 | 514.0 | 19.2 |
| AFB218 | 575.0 | 539.0 | 19.8 |
| AFB219 | 600.0 | 564.0 | 20.4 |



INCH

- a 2 - ASTM A-36 STL PLT - 7/8" X 195mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 4 1/2" DIA X 3/8" W/T X "A"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 22 X 195 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 120 DIA X 10 W/T X "A"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

MODELED IN FEA USING A 300kg MASS
MAXIMUM STRESS < 9,000psi (62MPa)
MAXIMUM DEFLECTION 0.09mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

CONTINUOUS WELD AROUND OUTSIDE OF TUBE
IN ACCORDANCE TO AWS D1.1

STRESS RELIEVE

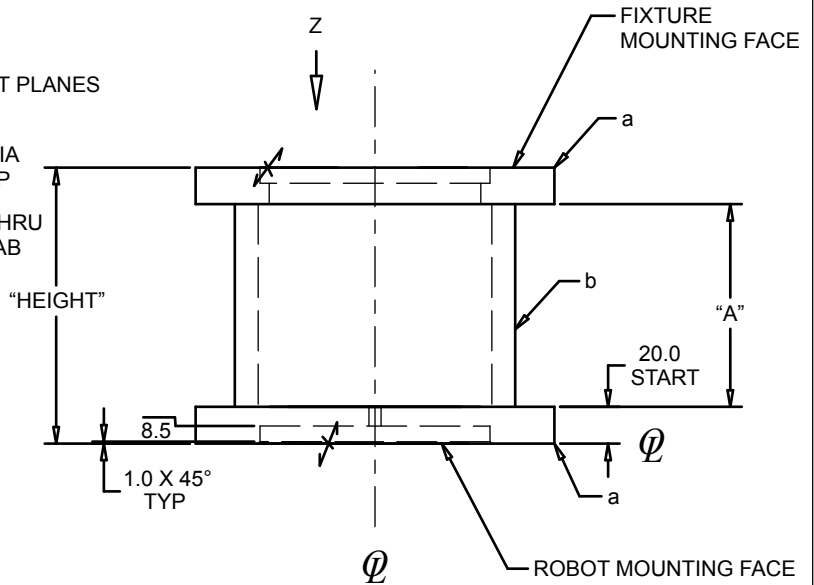
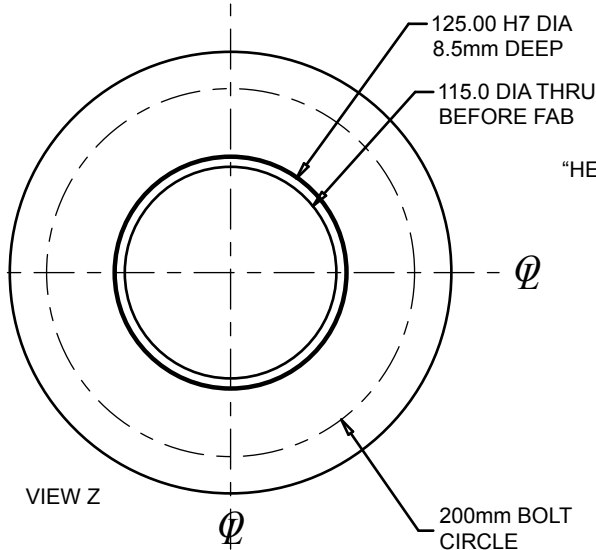
MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOTFACED TO ENSURE THE FASTENERS
ARE NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACES

PAINT PER USER SPECIFICATIONS

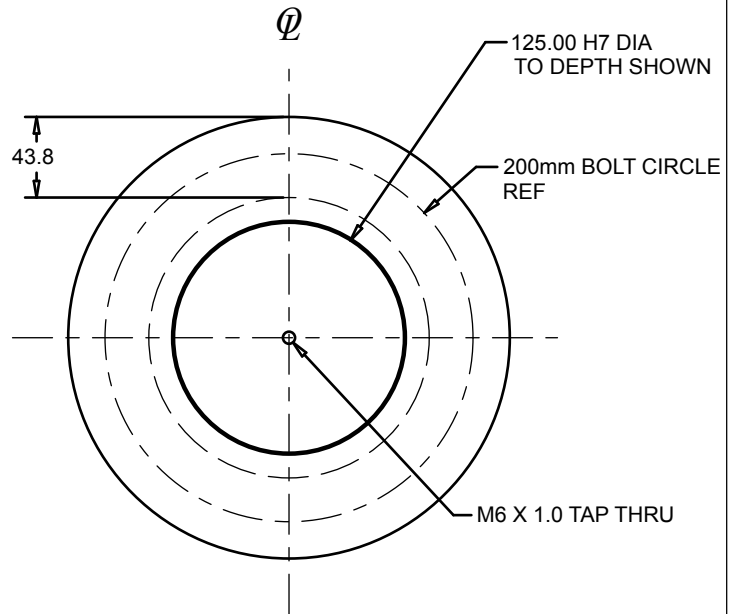
FLAT BRACKET 200MM BOLT CIRCLE ON WRIST

TOLERANCES:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE $\pm 0.08\text{mm}$ BETWEEN MACHINED SURFACES
- $\pm 0.10\text{mm}$ BETWEEN DOWELS IN DIFFERENT PLANES
- $\pm 0.03^\circ$ MACHINING ON ANGLES



| NAAMS CODE | HEIGHT | A | WEIGHT (kg) |
|------------|--------|-------|-------------|
| AFB302 | 175.0 | 135.0 | 16.0 |
| AFB303 | 200.0 | 160.0 | 17.2 |
| AFB304 | 225.0 | 185.0 | 18.3 |
| AFB305 | 250.0 | 210.0 | 19.5 |
| AFB306 | 275.0 | 235.0 | 20.6 |
| AFB307 | 300.0 | 260.0 | 21.8 |
| AFB308 | 325.0 | 285.0 | 22.9 |
| AFB309 | 350.0 | 310.0 | 24.1 |
| AFB310 | 375.0 | 335.0 | 25.2 |
| AFB311 | 400.0 | 360.0 | 26.4 |
| AFB312 | 425.0 | 385.0 | 27.5 |
| AFB313 | 450.0 | 410.0 | 28.7 |
| AFB314 | 475.0 | 435.0 | 29.8 |
| AFB315 | 500.0 | 460.0 | 31.0 |
| AFB316 | 525.0 | 485.0 | 32.1 |
| AFB317 | 550.0 | 510.0 | 33.3 |
| AFB318 | 575.0 | 535.0 | 34.5 |
| AFB319 | 600.0 | 560.0 | 35.6 |



INCH

- a 2 - ASTM A-36 STL PLT - 1" X 240mm DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 6" DIA X 1/2" W/T X "A"mm

METRIC

- a 2 - STL PLT ASTM A-36 - 25 X 240 DIAMETER
- b 1 - ASTM A-513 TYPE 5 STL TBG - 160 DIA X 10 W/T X "A"

THIS STANDARD IS FOR BRACKET ONLY
THE HOLE PATTERN FOR THE ROBOT AND ATTACHING
FIXTURE IS TO BE ADDED ON A DETAIL SHEET

MODELED IN FEA USING A 500kg MASS
MAXIMUM STRESS < 9,000psi (62MPa)
MAXIMUM DEFLECTION 0.20mm

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES:

CONTINUOUS WELD AROUND OUTSIDE OF TUBE
IN ACCORDANCE TO AWS D1.1

STRESS RELIEVE

MOUNTING HOLE PATTERN SHALL BE DRILLED AND
BACK-SPOTFACED TO ENSURE THE FASTENERS
ARE NOT SUBJECT TO AN OFFSET LOAD ON
UNMACHINED SURFACES

PAINT PER USER SPECIFICATIONS