

# ROBOTICS

GLOBAL STANDARD COMPONENTS



Assembly

10/01/17

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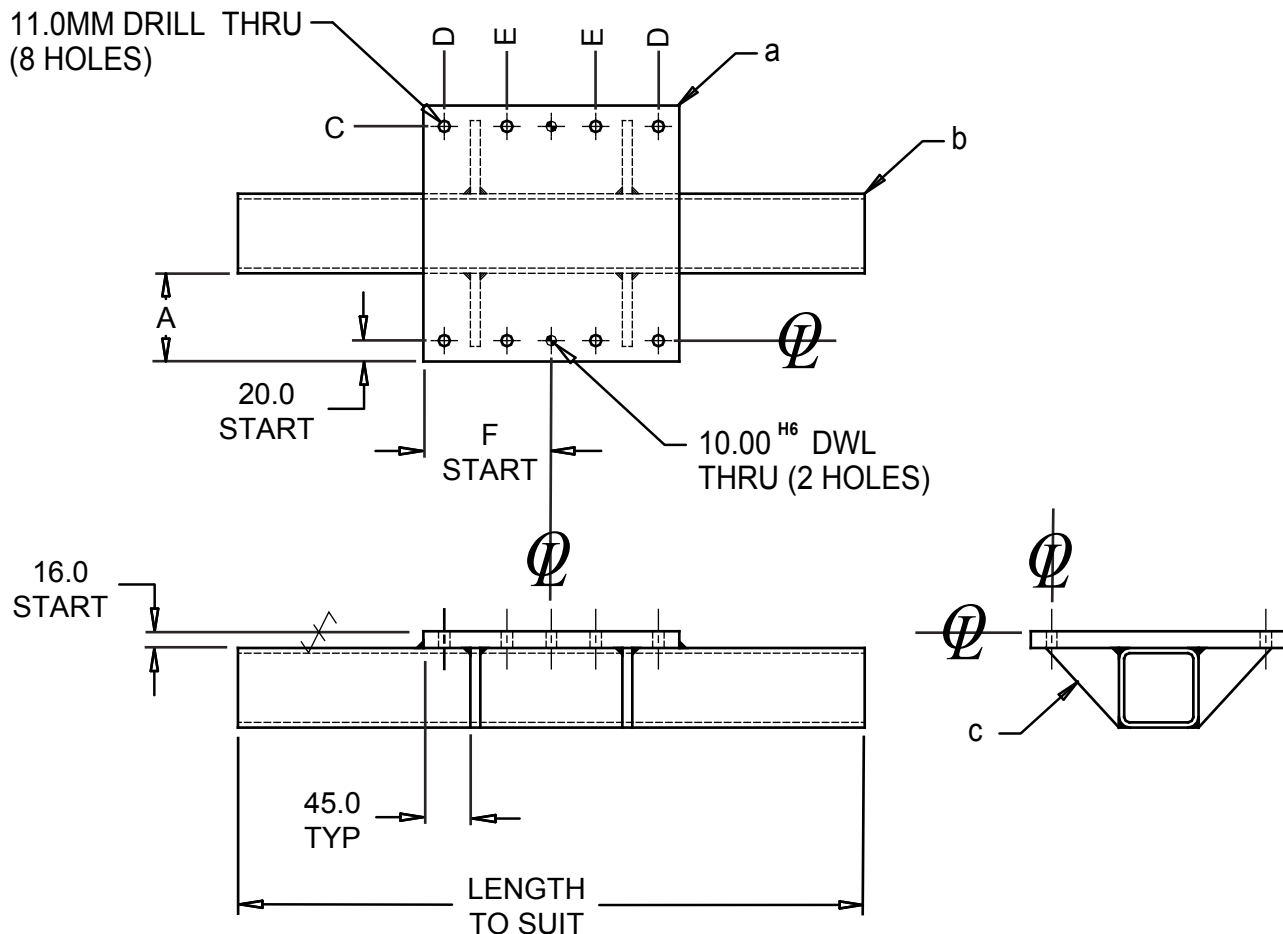
# ROBOTICS

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<a href="#">Y-30</a>	10/01/17	ABF101 - ABF119	FLAT BRACKET 125MM BOLT CIRCLE ON WRIST
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# ROBOTICS

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<a href="#">Y-33</a>	07/01/17	ABT001	ARMOR START BRACKET TOWER

**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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
- $\pm 0.03$  BETWEEN DOWELS IN SAME PLANE
- $\pm 0.13$  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

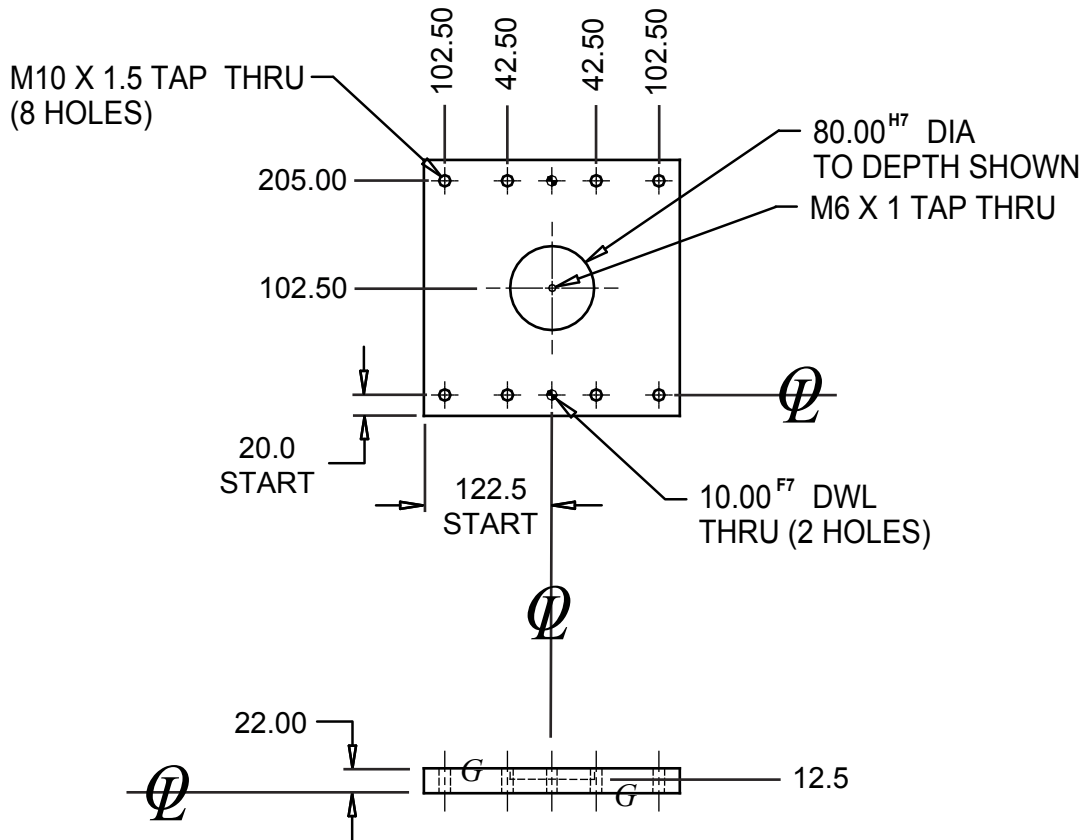
- a 1 - STL PLT ASTM A-36 20 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 75 X 75 X 4 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 10 X 75 X d

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
<b>Bolt Circle (mm)</b>	<b>125</b>	<b>160</b>	<b>200</b>
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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
- $\pm 0.03$  BETWEEN DOWELS IN SAME PLANE
- $\pm 0.13$  TO SCREW HOLES, NON ACCUMULATIVE

INCH

STL PLT ASTM A-36

1 X 245mm X 245mm

WEIGHT

10.0 kg

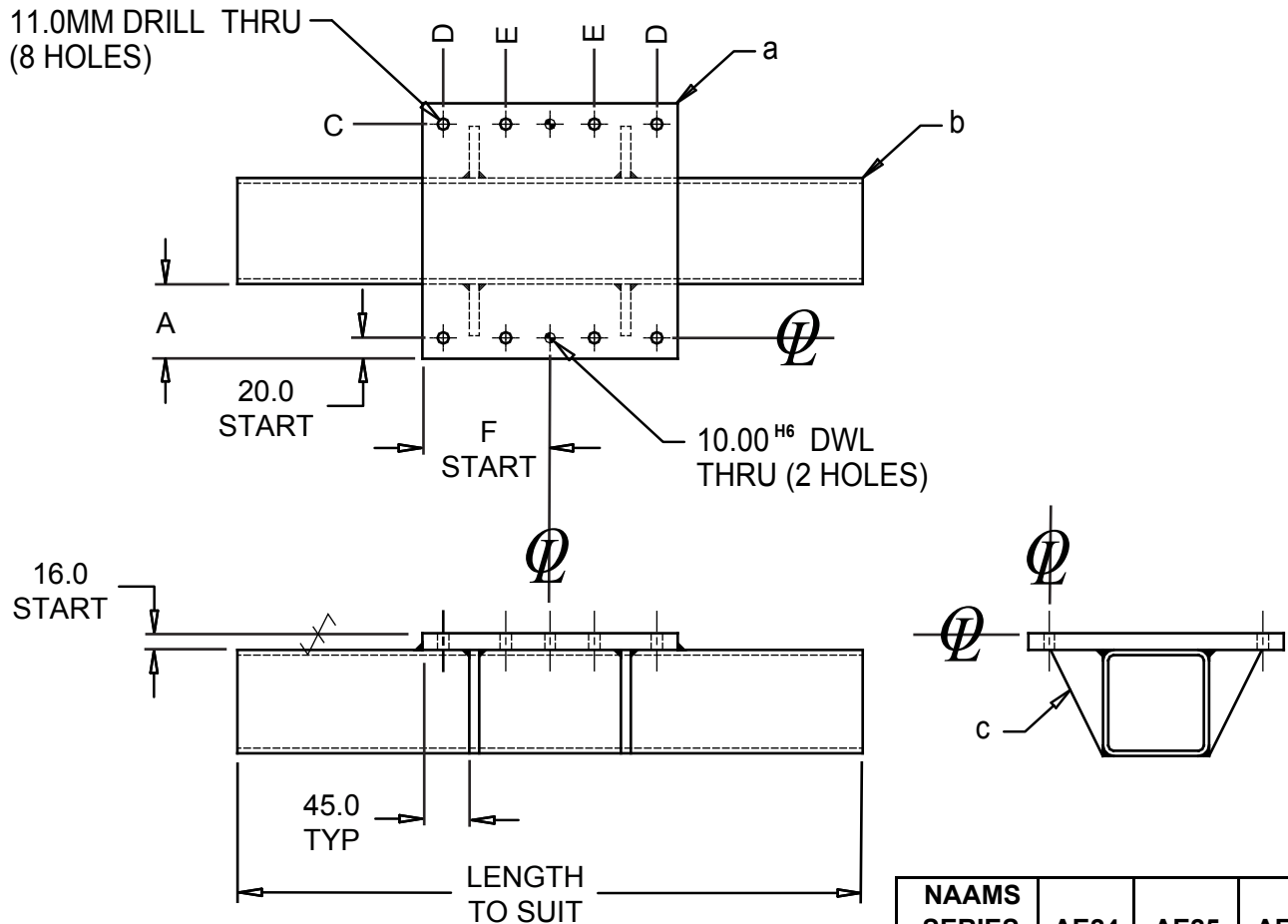
METRIC

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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
- $\pm 0.03$  BETWEEN DOWELS IN SAME PLANE
- $\pm 0.13$  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

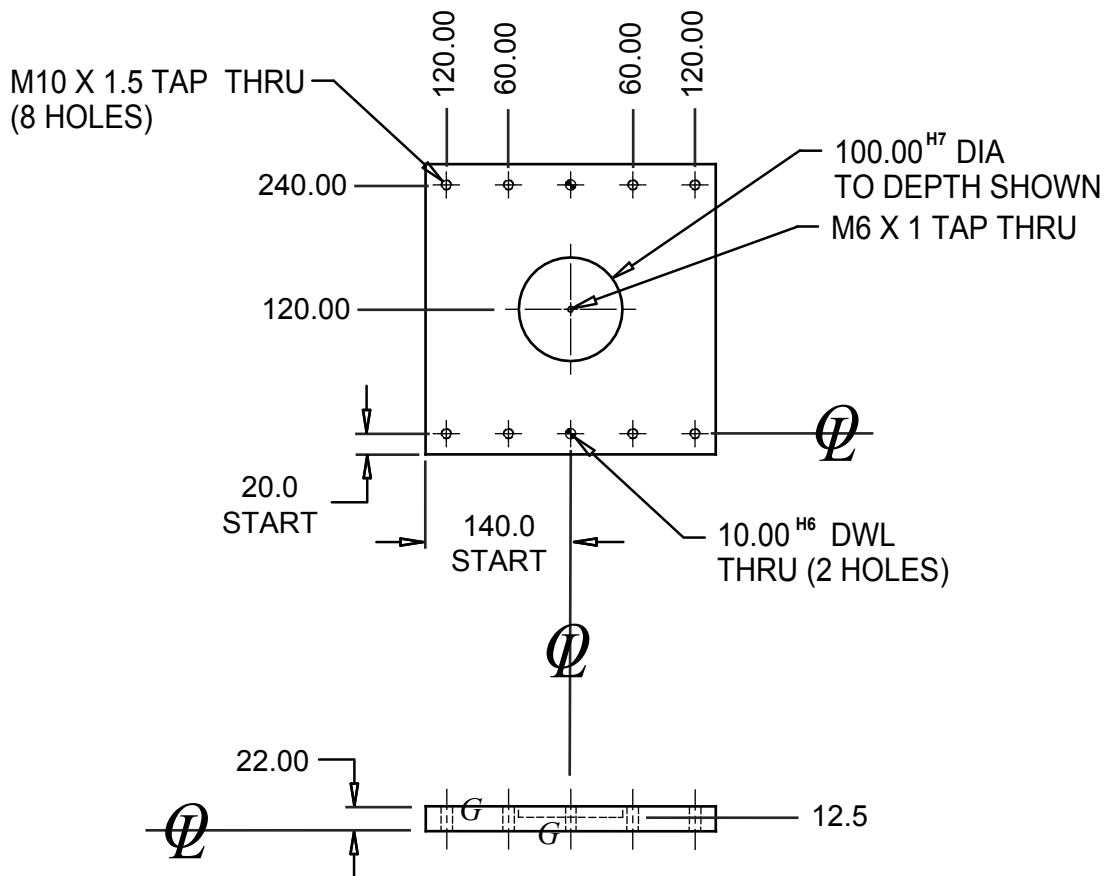
- a 1 - STL PLT ASTM A-36 20 X B X B
- b 1 - STL TBG ASTM A-500 GRADE B 100 X 100 X 4 WT X LENGTH TO SUIT
- c 2 - HRS ASTM A-36 10 X 100 X d

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
<b>Bolt Circle (mm)</b>	<b>125</b>	<b>160</b>	<b>200</b>
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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
- $\pm 0.03$  BETWEEN DOWELS IN SAME PLANE
- $\pm 0.13$  TO SCREW HOLES, NON ACCUMULATIVE

INCH

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

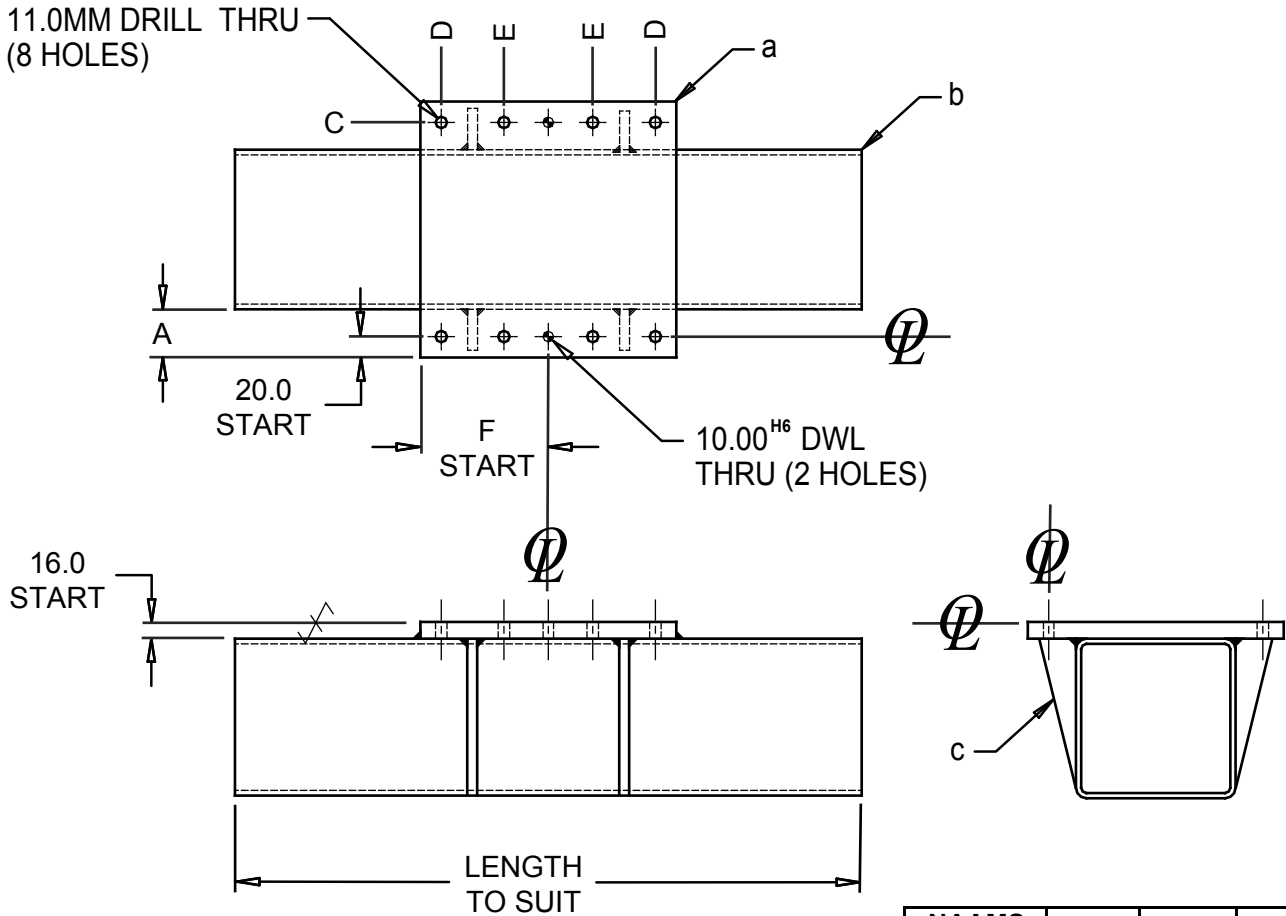
WEIGHT 13.0 kg

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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
- $\pm 0.03$  BETWEEN DOWELS IN SAME PLANE
- $\pm 0.13$  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

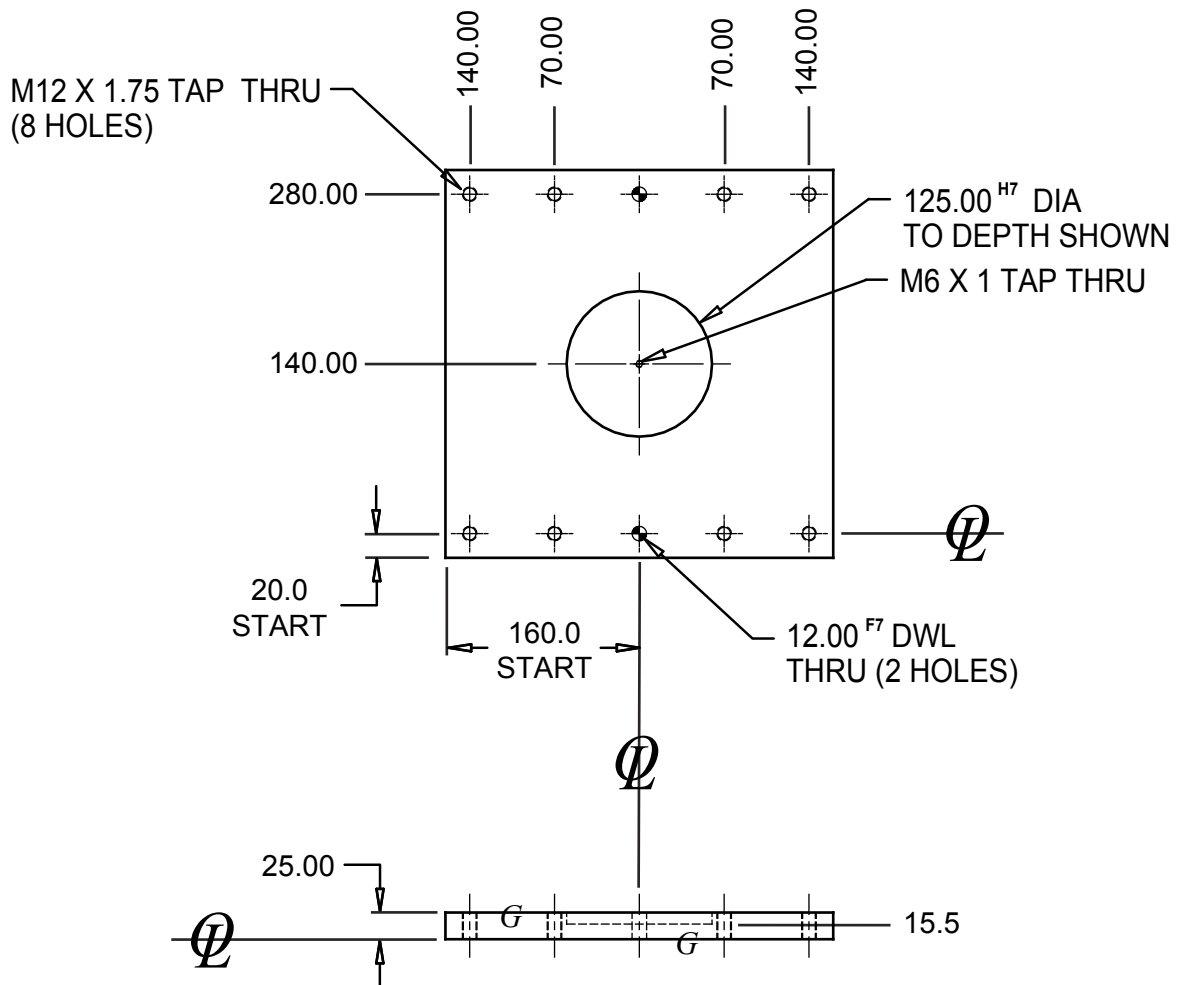
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

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

NAAMS SERIES	AE27	AE28	AE29
<b>Bolt Circle (mm)</b>	<b>125</b>	<b>160</b>	<b>200</b>
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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
- $\pm 0.03$  BETWEEN DOWELS IN SAME PLANE
- $\pm 0.13$  TO SCREW HOLES, NON ACCUMULATIVE

INCH

STL PLT ASTM A-36

1 1/4 X 320mm X 320mm

WEIGHT

19.2 kg

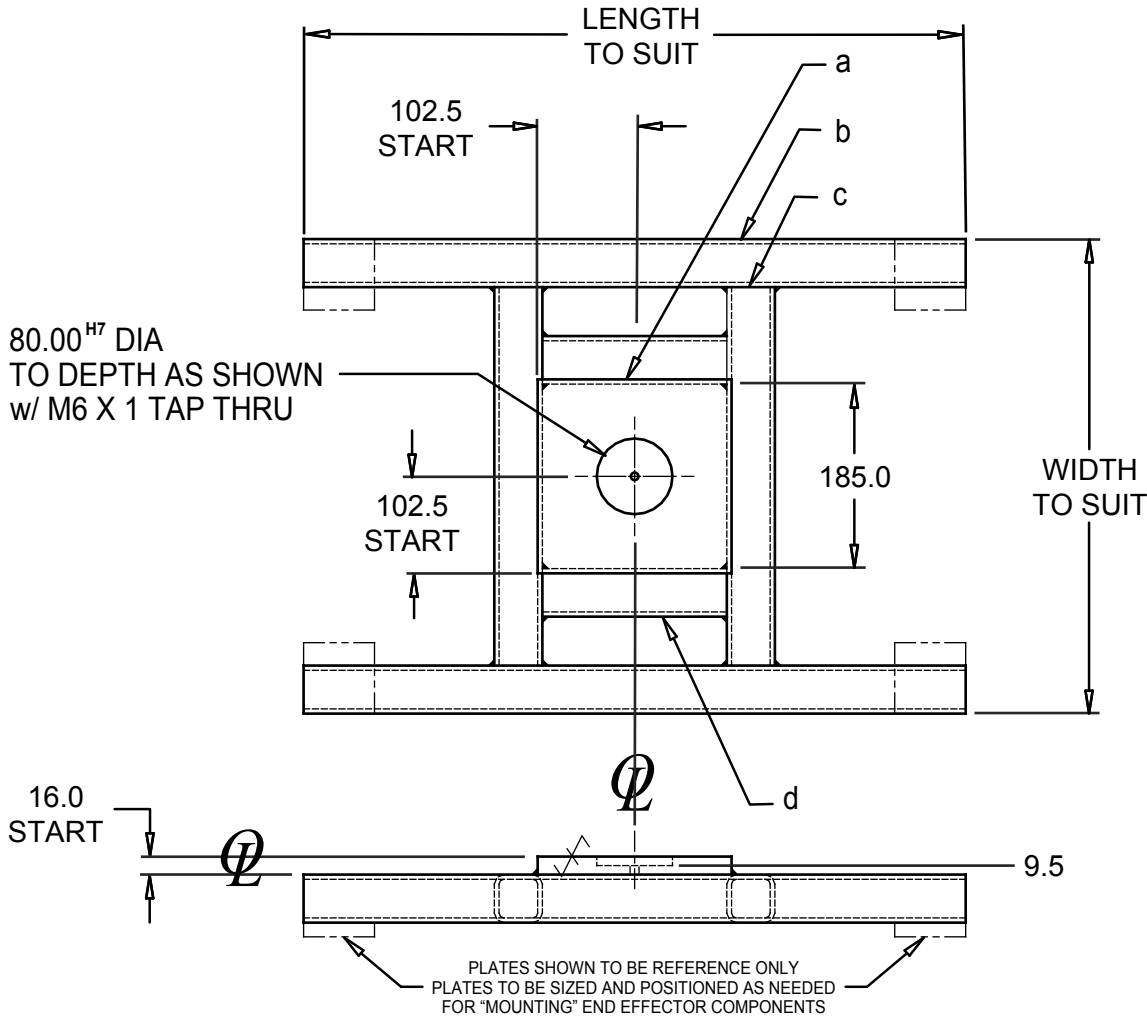
METRIC

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

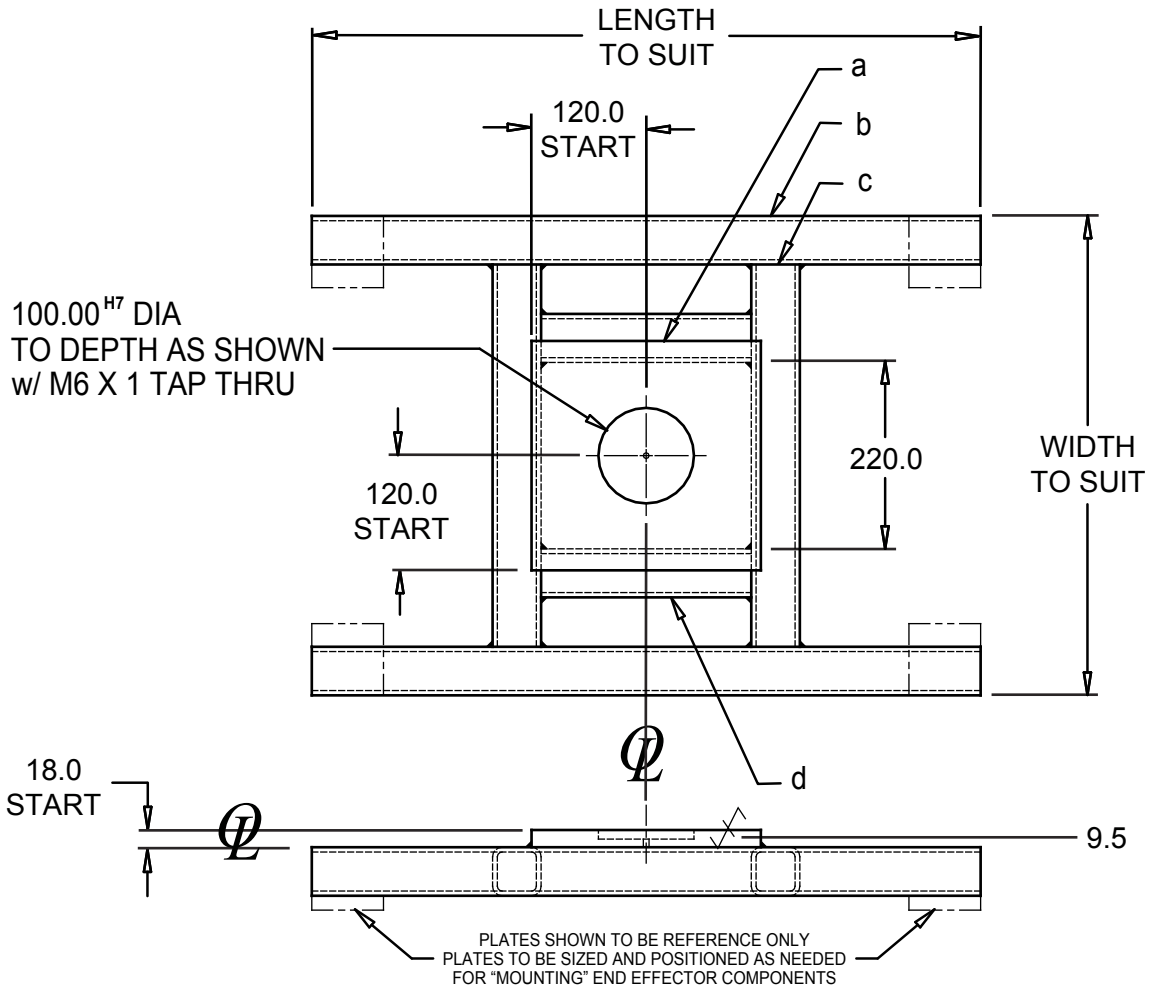
**END EFFECTOR FRAME  
CAD STARTER MODELS - ONLY  
"H" SERIES  
160MM BOLT CIRCLE**

GLOBAL STANDARD COMPONENTS



Assembly

02/06/08



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**

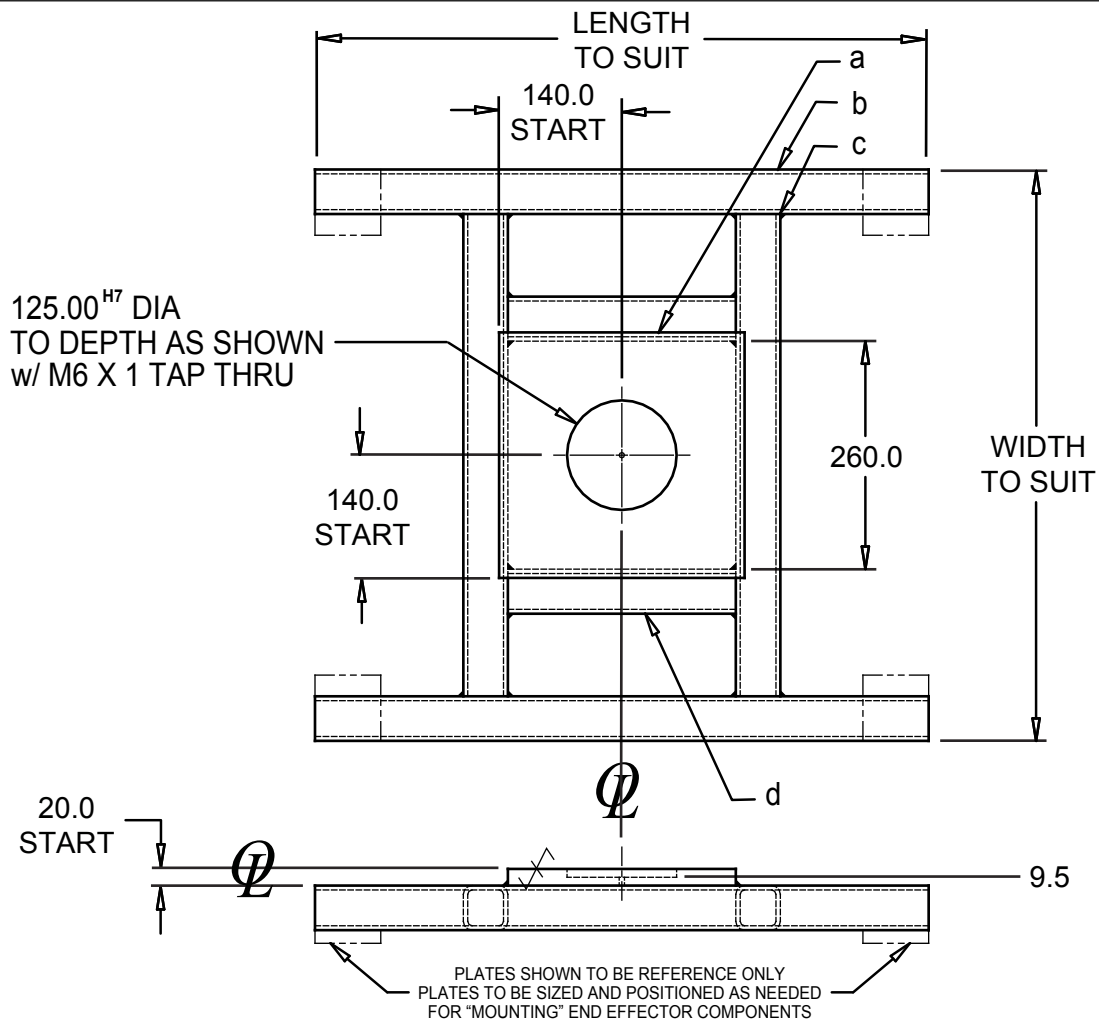
- a 1 - STL PLT ASTM A-36 22.0 X 240.0 X 240.0
- b 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- c 2 - STL TBG ASTM A-500 GRADE B B X LENGTH TO SUIT
- d 2 - STL TBG ASTM A-500 GRADE B B X 220.0

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

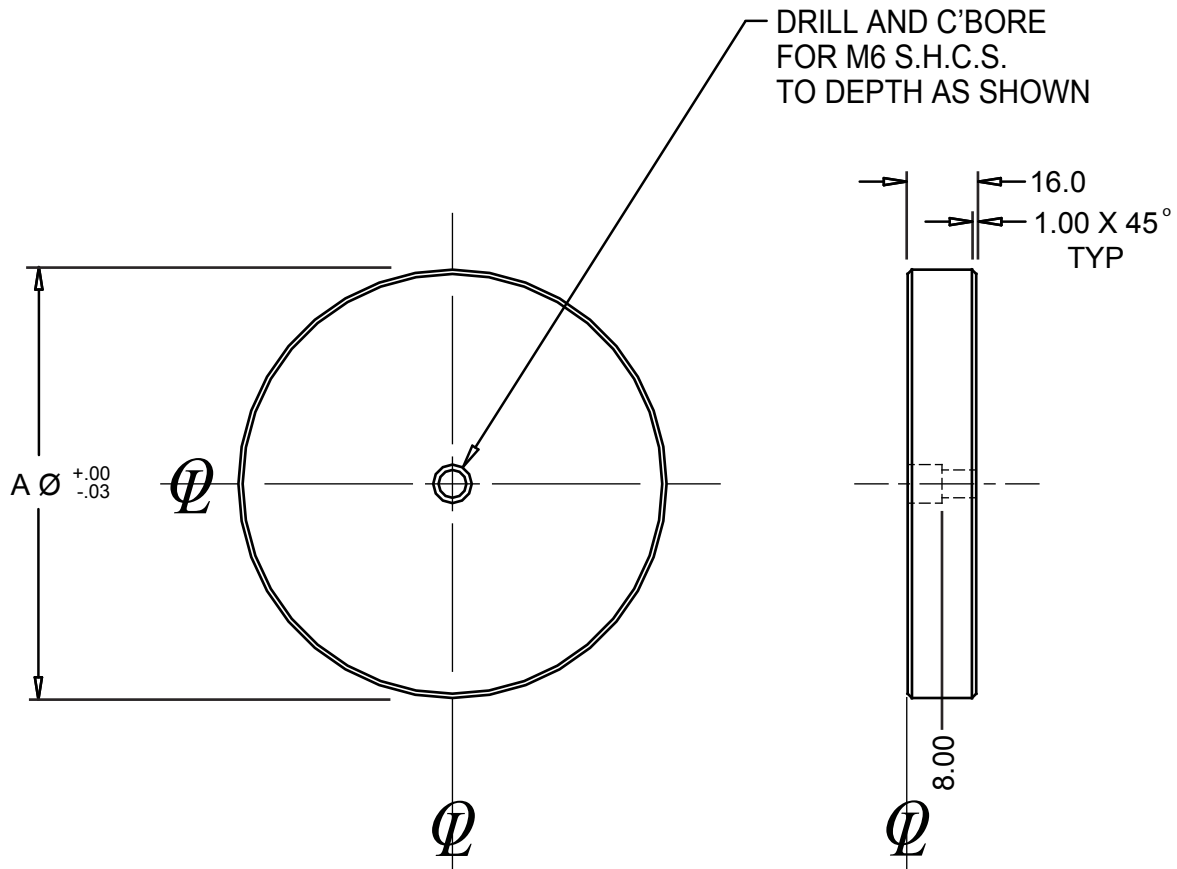
STRESS RELIEVE

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  $\pm 0.3$
- 2 PLACE  $\pm 0.08$

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**

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

GLOBAL STANDARD COMPONENTS

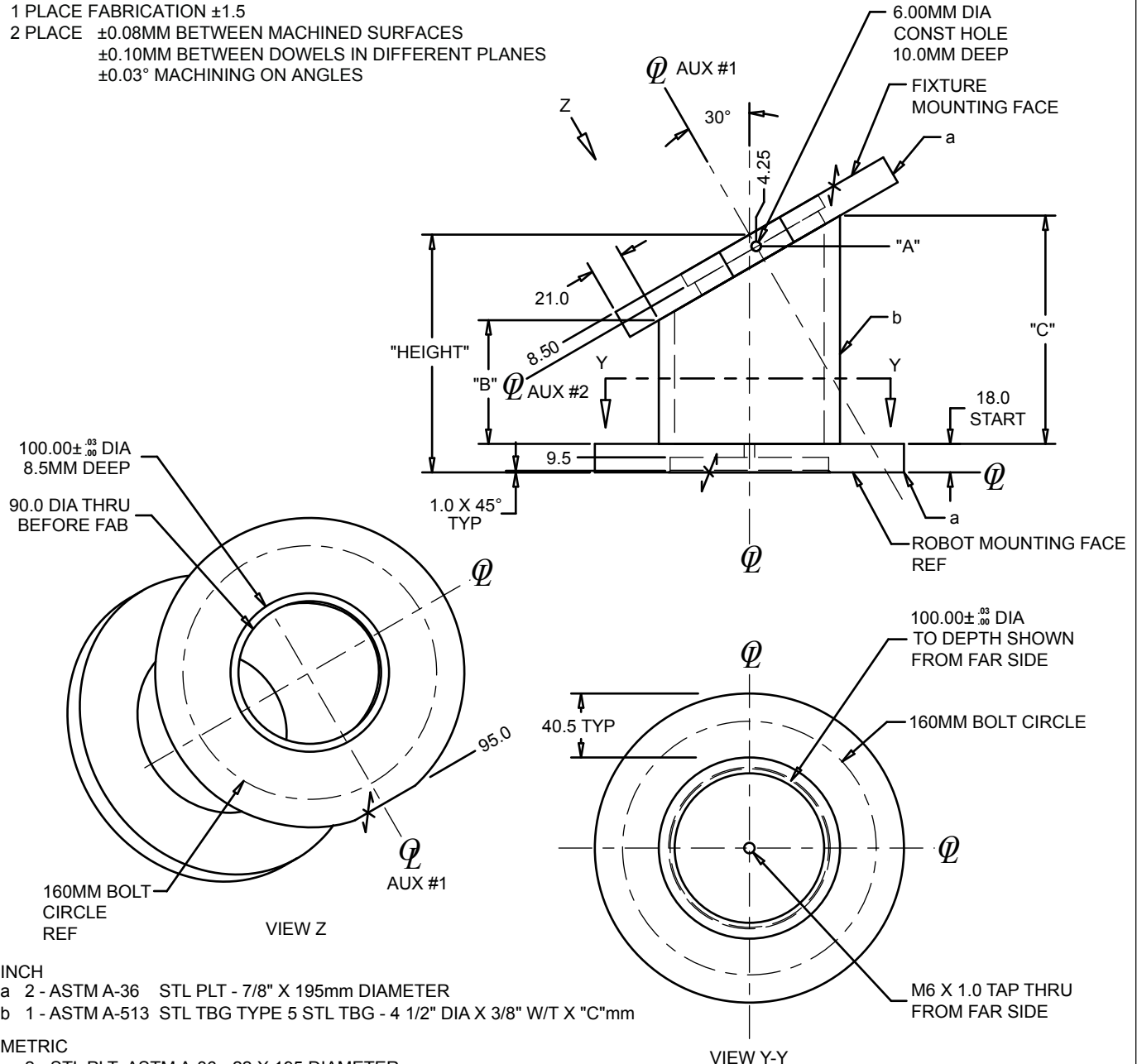


Assembly

10/01/17

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 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



**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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**A**



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

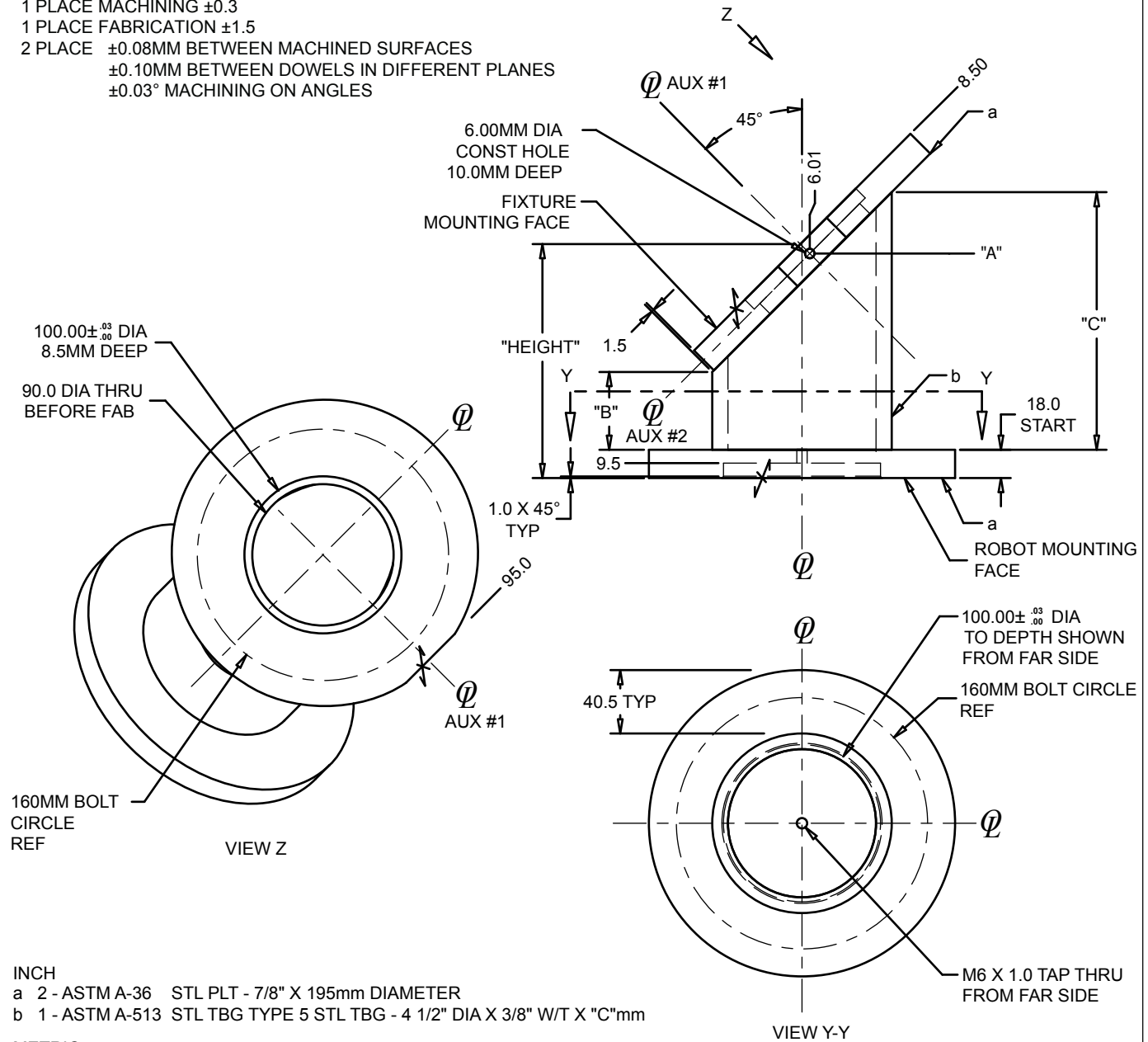
NAAMS CODE	HEIGHT	A	B	C	WEIGHT kg	
					INCH TUBE	METRIC TUBE
AWB201	150	142.64	78.0	144.0	9.6	9.9
AWB202	175	167.64	103.0	169.0	10.2	10.5
AWB203	200	192.64	128.0	194.0	10.8	11.2
AWB204	225	217.64	153.0	219.0	11.4	11.9
AWB205	250	242.64	178.0	244.0	12.1	12.6
AWB206	275	267.64	203.0	269.0	12.7	13.3
AWB207	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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**A**

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

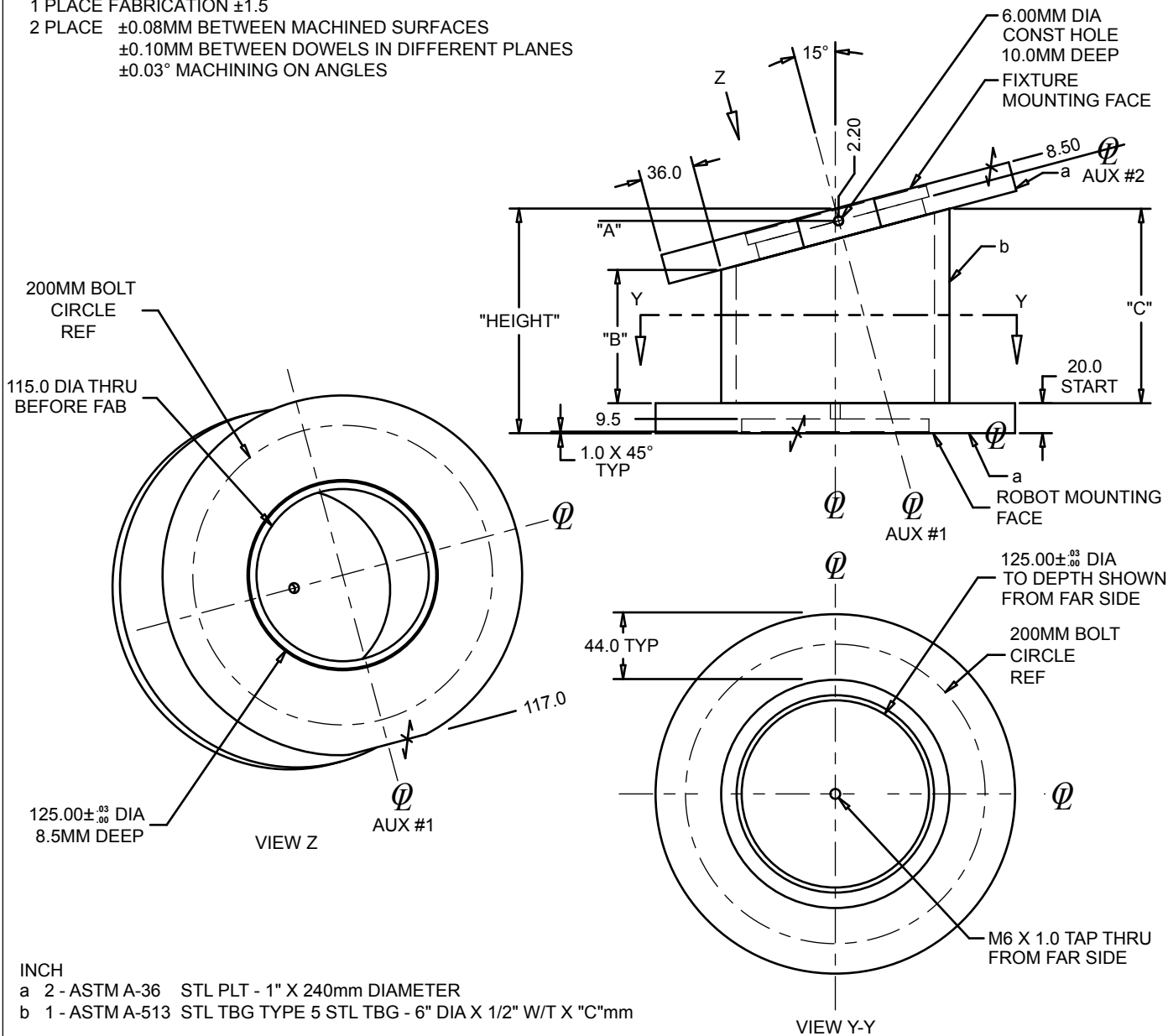
NAAMS CODE	HEIGHT	A	B	C	WEIGHT kg	
					INCH TUBE	METRIC TUBE
AWB301	150	143.99	49.5	164.0	9.3	9.6
AWB302	175	168.99	74.5	189.0	9.9	10.2
AWB303	200	193.99	99.5	214.0	10.5	10.9
AWB304	225	218.99	124.5	239.0	11.1	11.6
AWB305	250	243.99	149.5	264.0	11.8	12.3
AWB306	275	268.99	174.5	289.0	12.4	12.9
AWB307	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  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**A**

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

GLOBAL STANDARD COMPONENTS



Assembly

02/19/08

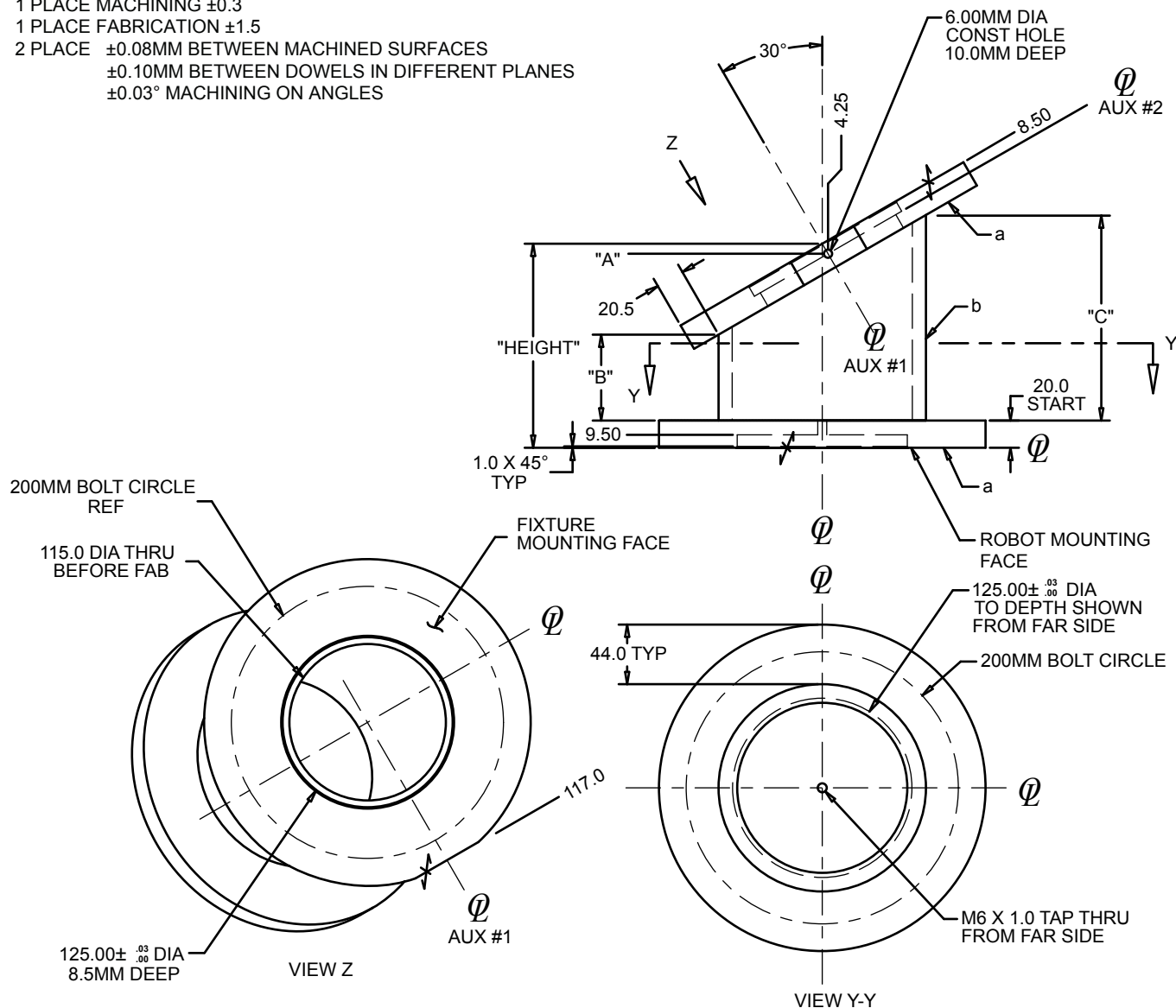
NAAMS CODE	HEIGHT	A	B	C	WEIGHT kg	
					INCH TUBE	METRIC TUBE
AWB401	150	141.79	89.0	130.0	16.3	15.6
AWB402	175	166.79	114.0	155.0	17.4	16.5
AWB403	200	191.79	139.0	180.0	18.5	17.4
AWB404	225	216.79	164.0	205.0	19.6	18.4
AWB405	250	241.79	189.0	230.0	20.7	19.3
AWB406	275	266.79	214.0	255.0	21.8	20.2
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

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**C**

**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

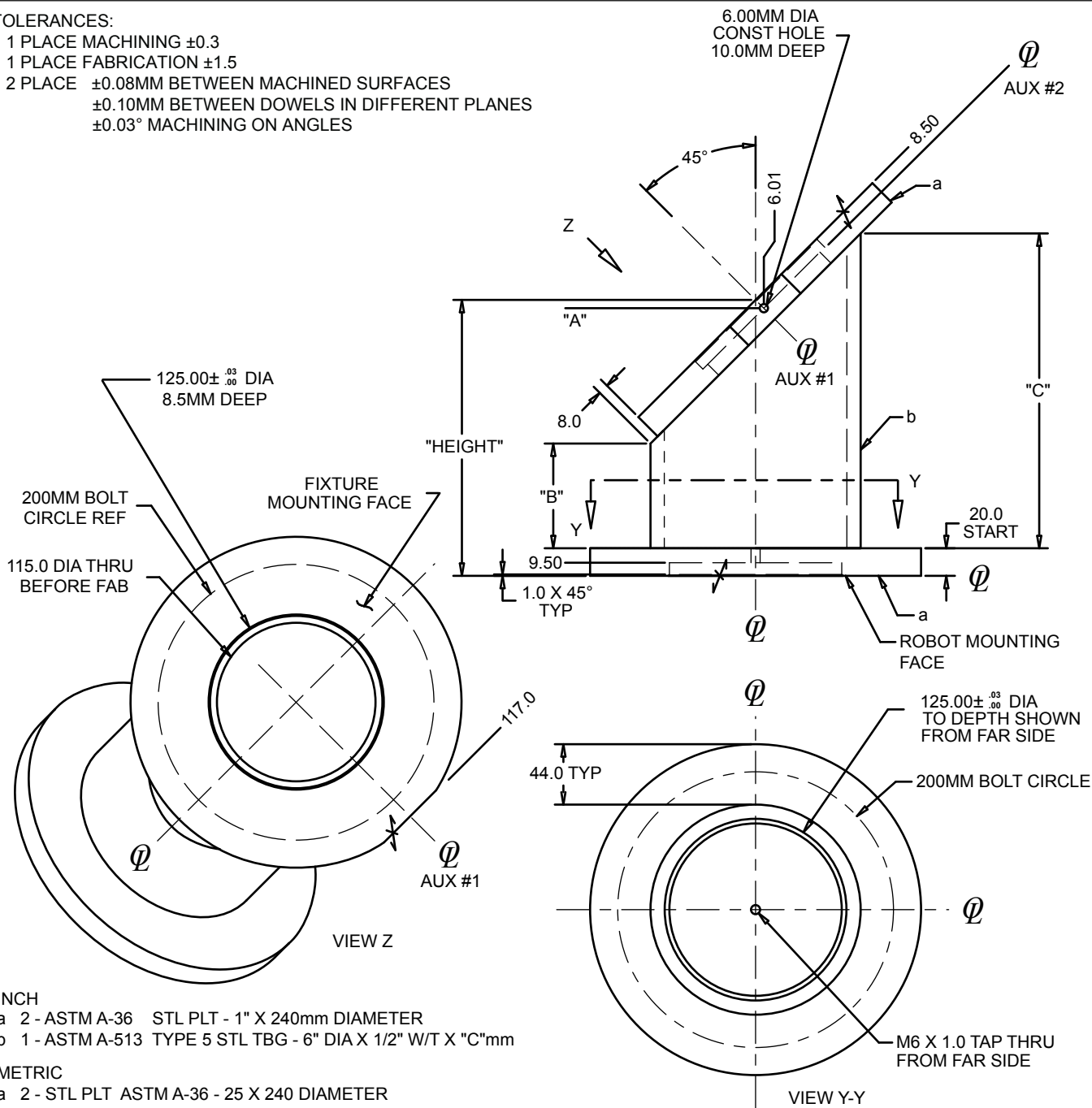


Assembly

10/01/17

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**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

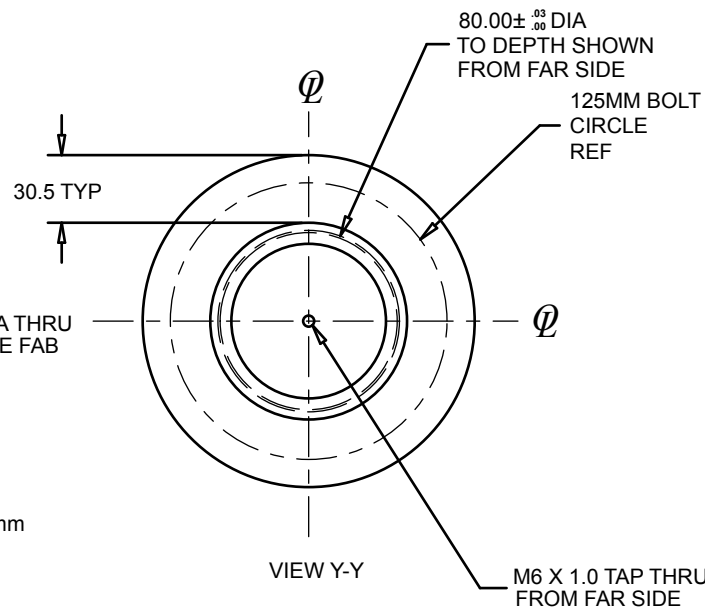
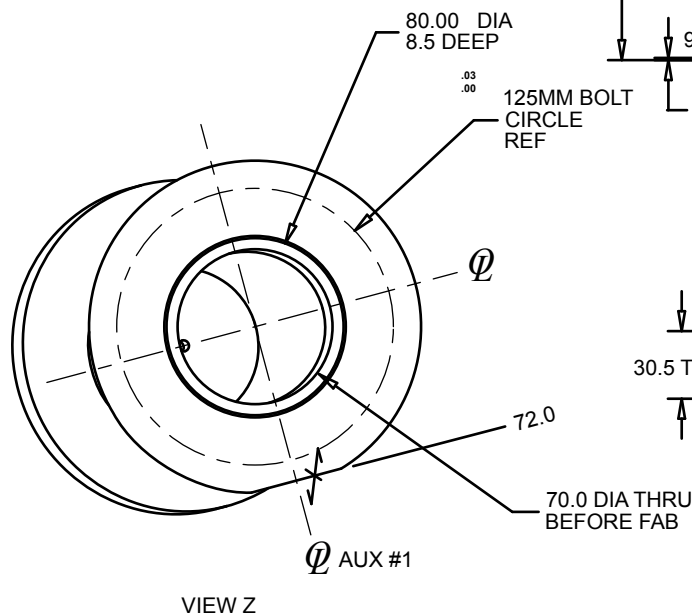
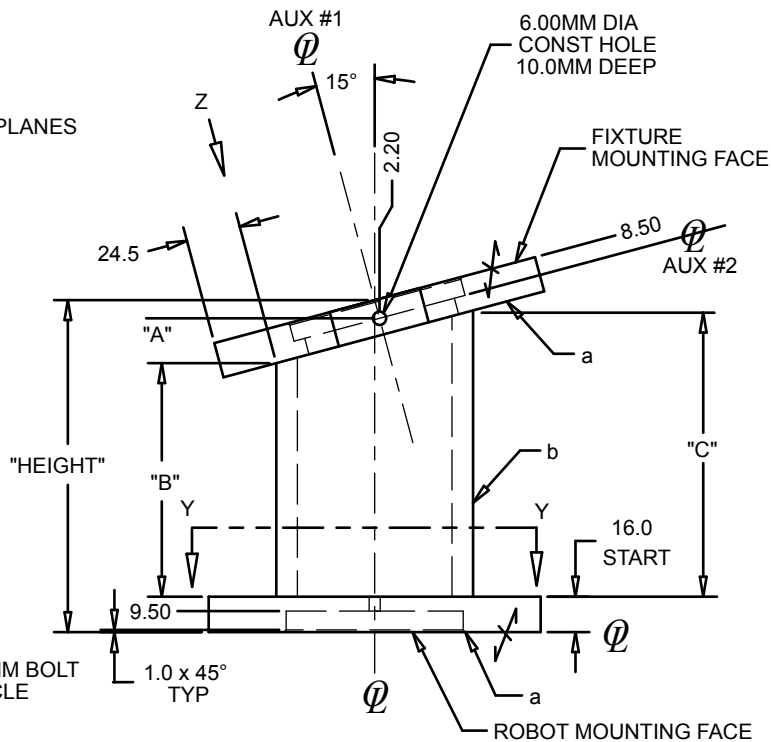


Assembly

10/01/17

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**C**

**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

GLOBAL STANDARD COMPONENTS

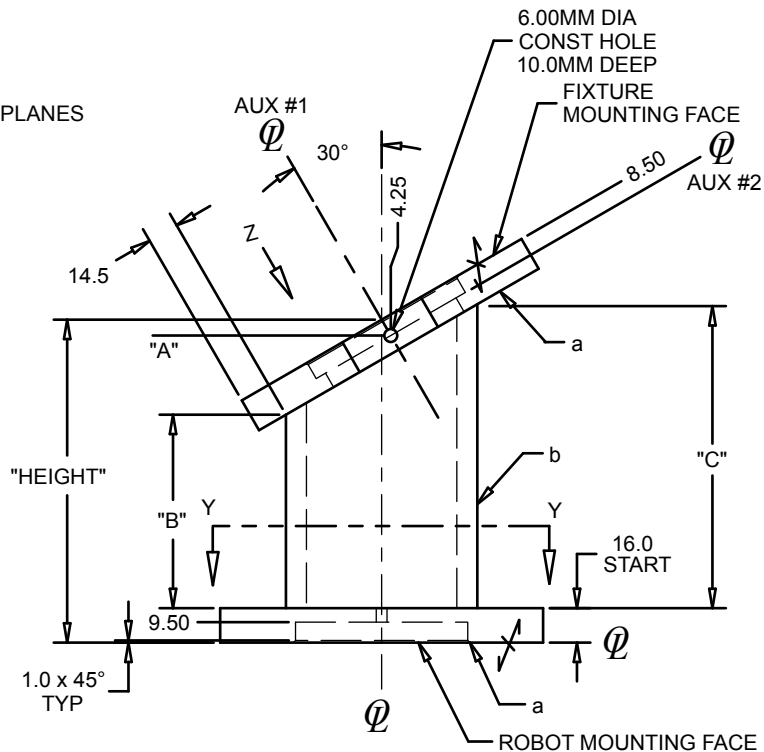


Assembly

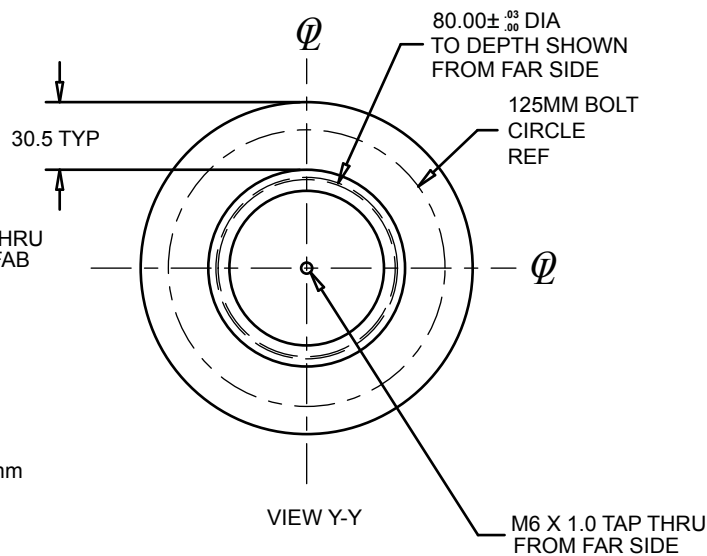
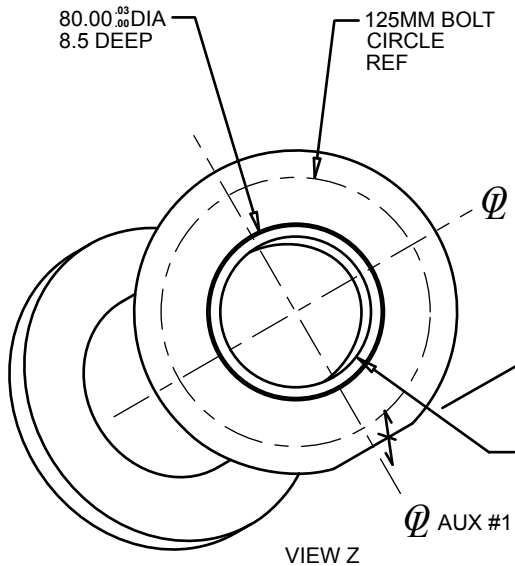
10/01/17

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**C**

**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

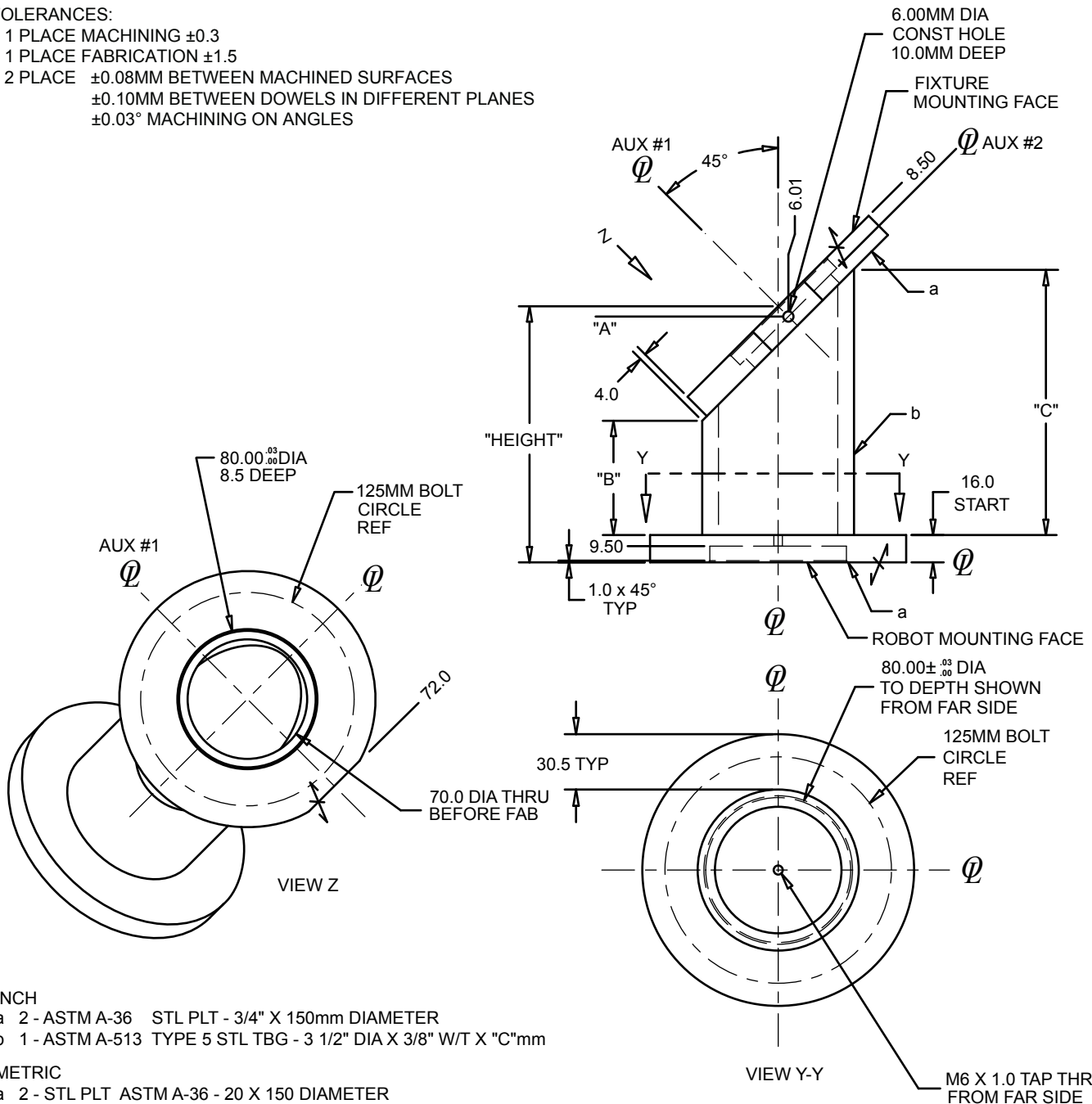


Assembly

10/01/17

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$ MM BETWEEN MACHINED SURFACES
- $\pm 0.10$ 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

PAINT SPEC: PER CUSTOMER SPECIFICATIONS

STRESS RELIEVE

**B**

**C**

**A**

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

GLOBAL STANDARD COMPONENTS



Assembly

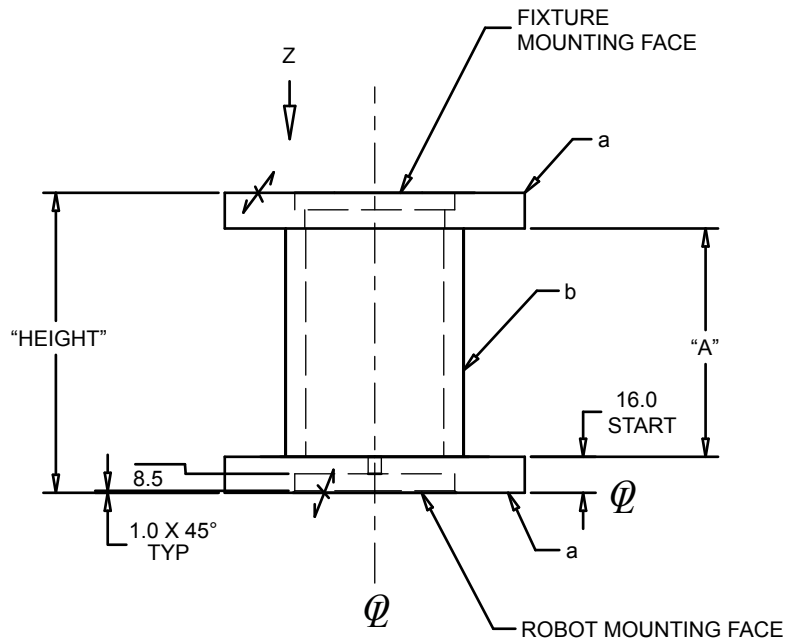
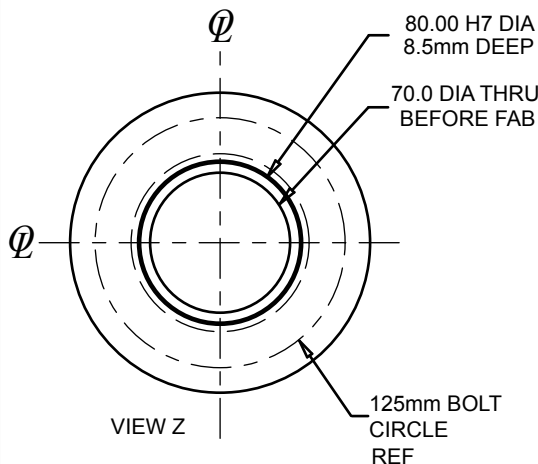
02/19/08

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

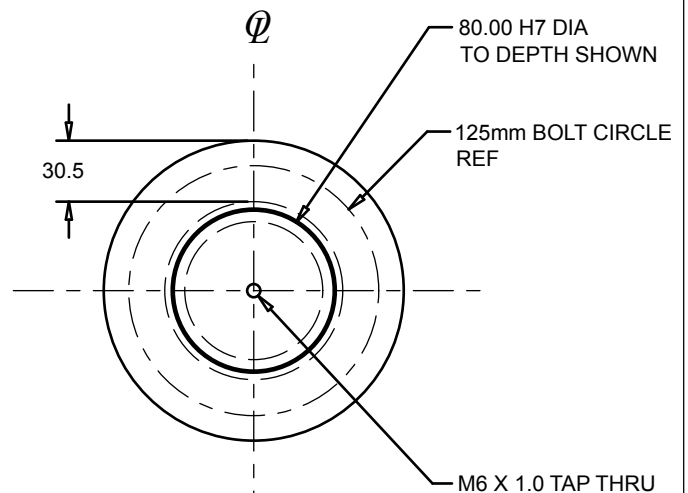
# FLAT BRACKET 125MM BOLT CIRCLE ON WRIST

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

WELD INSIDE AND OUTSIDE TUBE

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

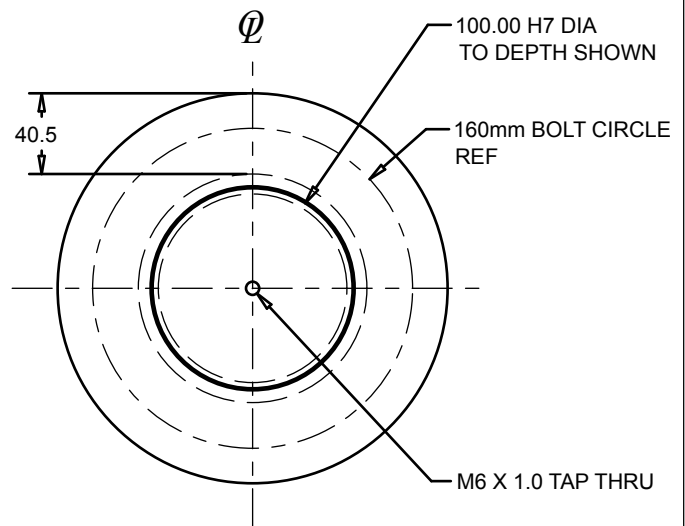
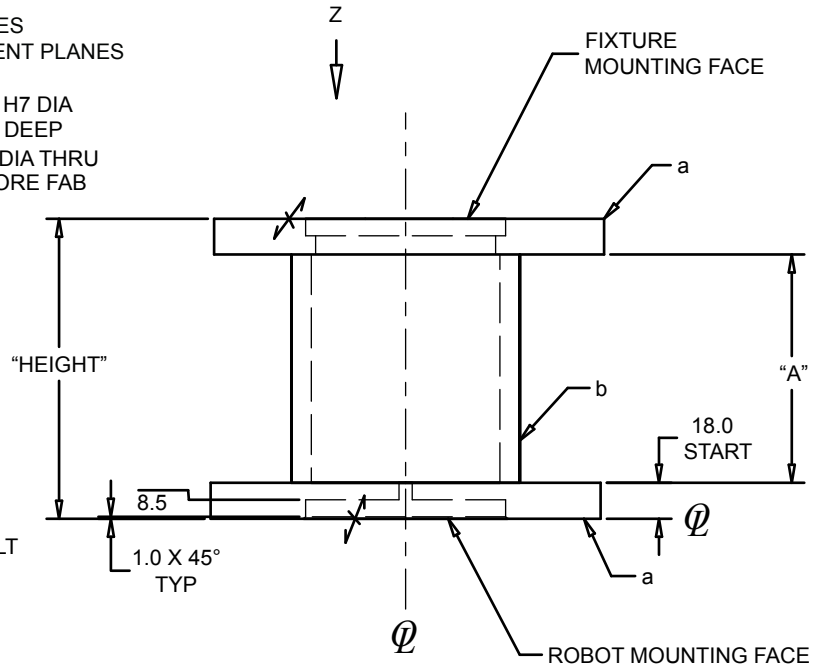
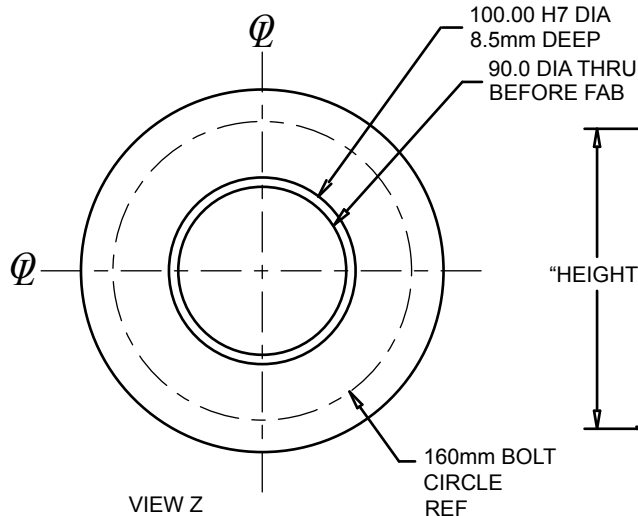
**A**



# FLAT BRACKET 160MM BOLT CIRCLE ON WRIST

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 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



**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"

TUBING TO BE WELDED TO TOP AND BOTTOM PLATES ON THE INSIDE AND OUTSIDE. WELD THE I.D. OF THE TUBING TO THE UPPER PLATE PRIOR TO WELDING ON THE BOTTOM PLATE.

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

WELD INSIDE AND OUTSIDE TUBE

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

**A**

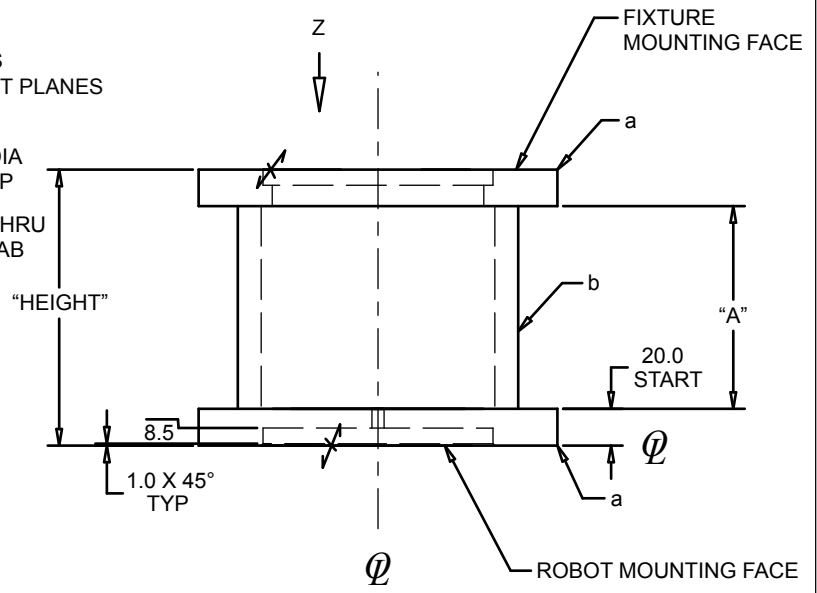
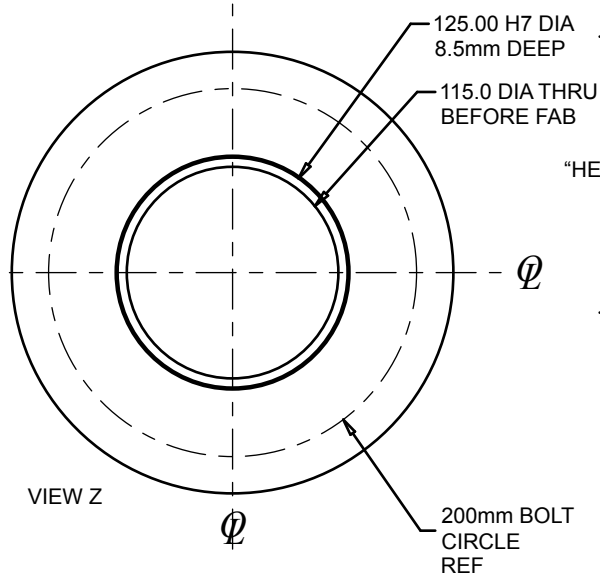
**FLAT BRACKET  
160MM BOLT CIRCLE  
ON WRIST**

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

# FLAT BRACKET 200MM BOLT CIRCLE ON WRIST

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 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



**FLAT BRACKET  
200MM BOLT CIRCLE  
ON WRIST**

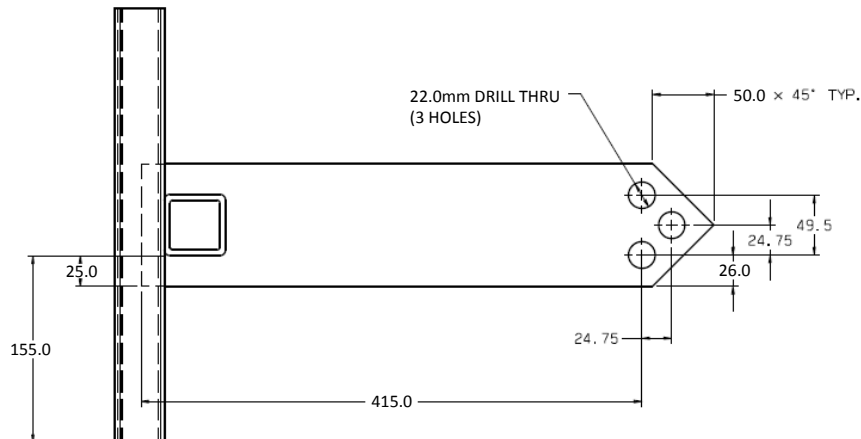
NAAMS CODE	HEIGHT	A	WEIGHT (kg)
AFB302	175.0	135.0	16.0
AFB303	200.0	160.0	17.2
AFB304	225.0	185.0	18.3
AFB305	250.0	210.0	19.5
AFB306	275.0	235.0	20.6
AFB307	300.0	260.0	21.8
AFB308	325.0	285.0	22.9
AFB309	350.0	310.0	24.1
AFB310	375.0	335.0	25.2
AFB311	400.0	360.0	26.4
AFB312	425.0	385.0	27.5
AFB313	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

# ARMOR START BRACKET TOWER – ABT001

**TOLERANCES:**

- 1 PLACE MACHINING  $\pm 0.3$
- 1 PLACE FABRICATION  $\pm 1.5$
- 2 PLACE  $\pm 0.08$  BETWEEN MACHINED SURFACES
  - $\pm 0.03$  BETWEEN SINGLE DOWEL AND A HEEL SURFACE
  - $\pm 0.03$  BETWEEN DOWELS IN THE SAME PLANE
  - $\pm 0.10$  BETWEEN DOWELS IN DIFFERENT PLANES
  - $\pm 0.13$  TO SCREW HOLES, NON ACCUMULATIVE

**NOTES:** ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.  
 WELDED CONSTRUCTION  
 IDENTIFY WITH NAAMS CODE NUMBER AS SHOWN **XXX**



**METRIC STOCK**

- a) 2 REQ'D. – ABT001 STRUT CHANNEL - 360MM LG.
- b) 1 REQ'D. – ASTM A-500 GRADE B STL. TUBING – 50MM X 50MM X 3MM W/T X 380MM
- c) 1 REQ'D. – ASTM-A36 - 12MM X 100MM X 475MM LG.

**INCH STOCK**

- a) 2 REQ'D. – ACT001 STRUT CHANNEL - 360MM LG.
- b) 1 REQ'D. – ASTM A-500 GRADE B STL. TUBING – 2" X 2" X 3/16" W/T X 380MM LG.
- c) 1 REQ'D. – ASTM-A36 - 1/2" X 4" X 475MM LG.

PAINT: SAFETY BLACK

