

RISER ANGLE BRACKETS COMPONENTS INDEX

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| E-21 | 07/15/03 | 850-1600 | Tubular Riser |
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| E-25 | 12/02/19 | 100-400 | Riser Angle Bracket - Aluminum |
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| E-28 | 08/01/03 | 100-400 | Maximum Recommended Loads |

RISER ANGLE BRACKETS COMPONENTS INDEX

03/19/21

GLOBAL STANDARD COMPONENTS

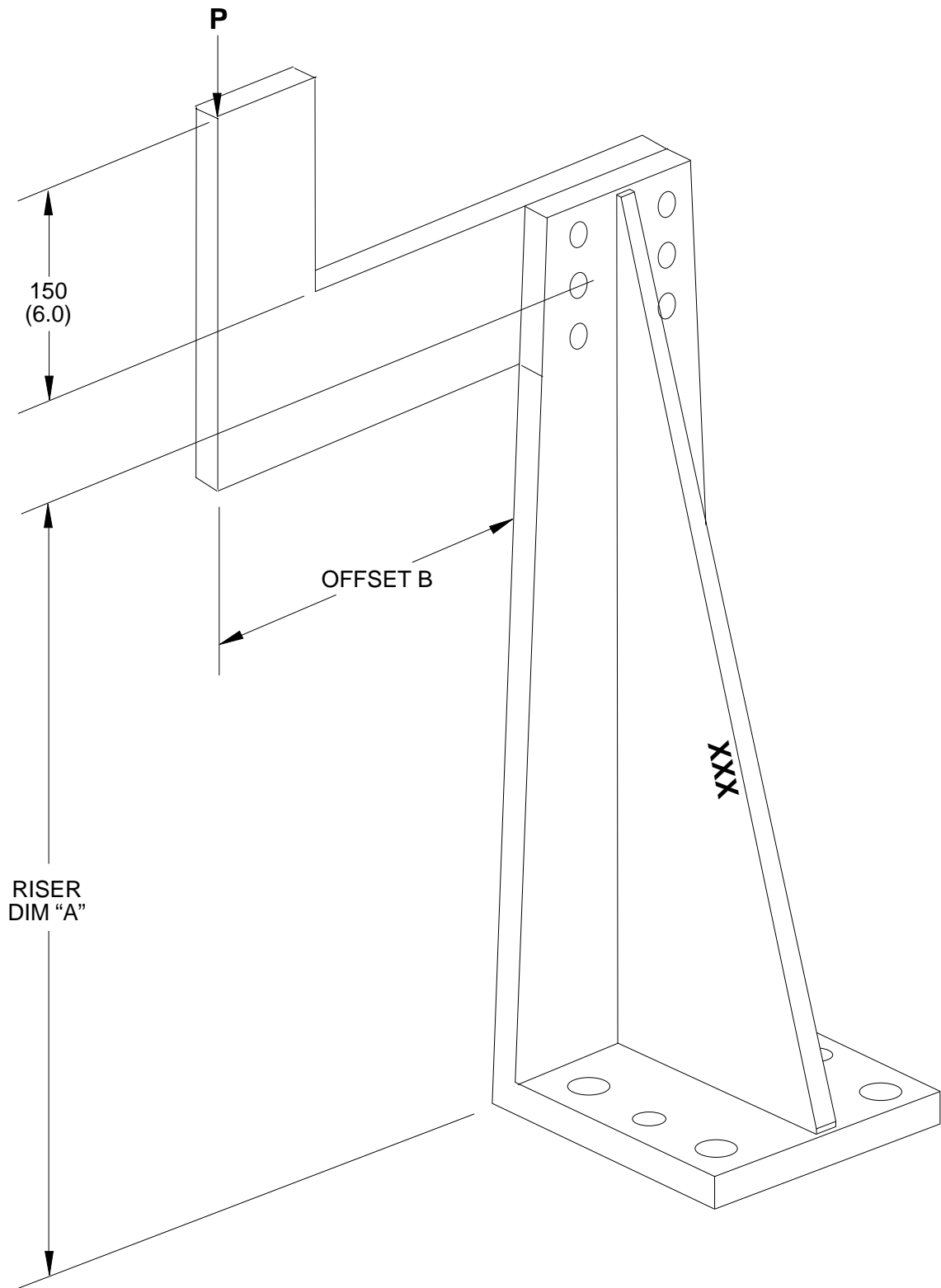


Assembly

03/19/21

| PAGE | DATE | "A" HEIGHT | DESCRIPTION |
|----------------------|-------------|-------------------|-----------------------|
| E-29 | 07/09/07 | 60-600 | Riser for Pass Tables |
| E-30 | 05/08/07 | 60-600 | Riser for Pass Tables |
| E-31 | 03/19/21 | 300-1200mm | Drop Away Leaf Riser |
| E-32 | 03/19/21 | 600-1500mm | Drop Away Leaf Riser |

MAXIMUM RECOMMENDED LOADS



A

SEE TABLE OF RECOMMENDED LOADS ON FOLLOWING PAGE

MAXIMUM RECOMMENDED LOADS

D
C
A

B

MAXIMUM RECOMMENDED LOAD FOR 0.13 mm (0.005 IN) DEFLECTION
 OFFSET VALUES (B) AND POINTS OF APPLICATION OF LOAD P ARE DEFINED IN THE FIGURE ON PAGE E2.
 ALLOWABLE 0.13 mm (0.005 in) DEFLECTIONS ARE MEASURED AT THE POINT OF APPLICATION OF LOAD P, AND DO NOT
 INCLUDE DEFLECTIONS OF THE BLADE.
 MAXIMUM RECOMMENDED LOADS ARE BASED ON STEEL WITH A MODULUS OF ELASTICITY OF 207 GPA (30,000,000 PSI).
 CAST IRON ALLOYS MAY BE USED PROVIDED THEY HAVE A MODULUS OF ELASTICITY OF AT LEAST 165 GPA (24,000,000 PSI).

| Riser | Offset B | | Load P | |
|----------------------------|----------|-----|--------|-----|
| | mm | in. | N | lb |
| ARA450M & E ARA451M & E | 300 | 12 | 747 | 168 |
| | 250 | 10 | 936 | 211 |
| | 200 | 8 | 1,209 | 272 |
| | 150 | 6 | 1,600 | 360 |
| | 100 | 4 | 2,204 | 496 |
| ARA500M & E ARA501M & E | 300 | 12 | 672 | 151 |
| | 250 | 10 | 843 | 190 |
| | 200 | 8 | 1,088 | 245 |
| | 150 | 6 | 1,440 | 324 |
| | 100 | 4 | 1,984 | 446 |
| ARA550M & E ARA551M & E | 300 | 12 | 611 | 137 |
| | 250 | 10 | 766 | 172 |
| | 200 | 8 | 989 | 223 |
| | 150 | 6 | 1,309 | 295 |
| | 100 | 4 | 1,804 | 406 |
| ARA600M & E ARA601M & E | 300 | 12 | 560 | 126 |
| | 250 | 10 | 702 | 158 |
| | 200 | 8 | 907 | 204 |
| | 150 | 6 | 1,200 | 270 |
| | 100 | 4 | 1,653 | 372 |
| ARA650M & E ARA651M & E | 300 | 12 | 521 | 117 |
| | 250 | 10 | 653 | 147 |
| | 200 | 8 | 837 | 188 |
| | 150 | 6 | 1,104 | 249 |
| | 100 | 4 | 1,517 | 341 |
| ARA700M & E ARA701M & E | 300 | 12 | 486 | 109 |
| | 250 | 10 | 606 | 136 |
| | 200 | 8 | 773 | 174 |
| | 150 | 6 | 1,017 | 229 |
| | 100 | 4 | 1,389 | 312 |
| ARA750M & E ARA751M & E | 300 | 12 | 454 | 102 |
| | 250 | 10 | 564 | 127 |
| | 200 | 8 | 716 | 161 |
| | 150 | 6 | 937 | 211 |
| | 100 | 4 | 1,283 | 289 |
| ARA800M & E ARA801M & E | 300 | 12 | 424 | 95 |
| | 250 | 10 | 526 | 118 |
| | 200 | 8 | 666 | 150 |
| | 150 | 6 | 869 | 195 |
| | 100 | 4 | 1,184 | 266 |

SEE DRAWING ON PRECEDING PAGE

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

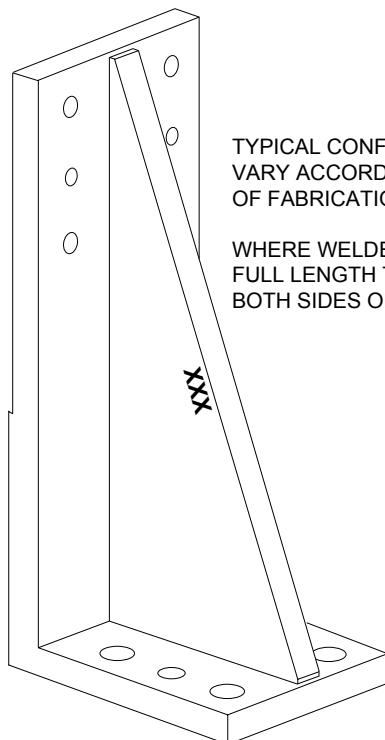
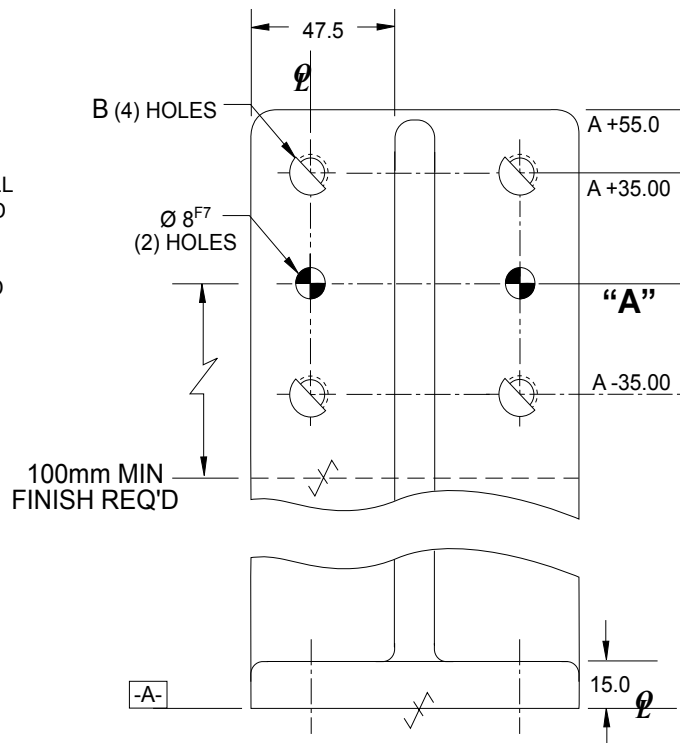
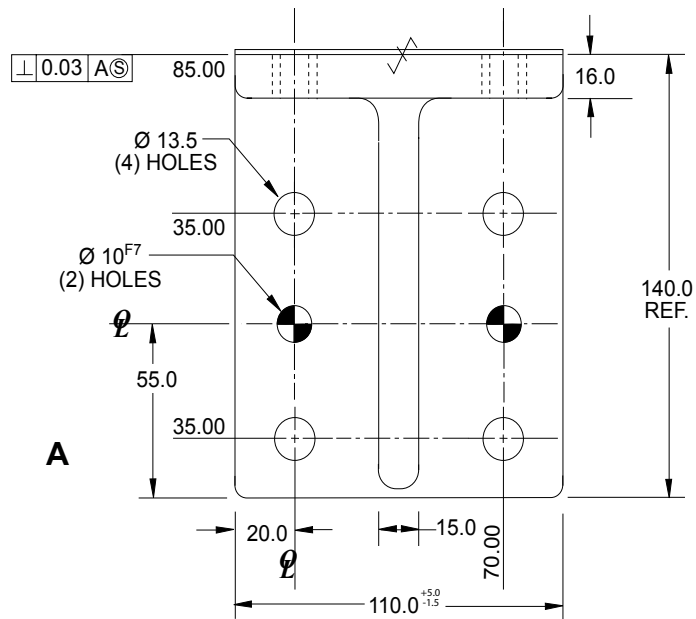
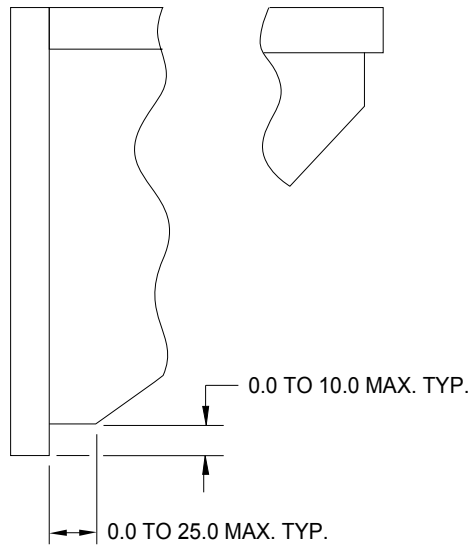
12/02/19

Tolerances:

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

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

MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART



TYPICAL CONFIGURATION. WILL VARY ACCORDING TO METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT

TABULATED INFORMATION ON FOLLOWING PAGE

G

I

C

B

A

D

F

J

H

E

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

09/24/04

| NAMMS CODE | "A" DIM | "B" | WT. kg |
|------------|---------|---------|--------|
| AAB100M | 100.00 | M10x1.5 | 5.44 |
| AAB101M | 100.00 | 11.0 | 5.44 |
| AAB150M | 150.00 | M10x1.5 | 6.35 |
| AAB151M | 150.00 | 11.0 | 6.35 |
| AAB200M | 200.00 | M10x1.5 | 7.71 |
| AAB201M | 200.00 | 11.0 | 7.71 |
| AAB250M | 250.00 | M10x1.5 | 9.07 |
| AAB251M | 250.00 | 11.0 | 9.07 |
| AAB300M | 300.00 | M10x1.5 | 10.43 |
| AAB301M | 300.00 | 11.0 | 10.43 |
| AAB350M | 350.00 | M10x1.5 | 12.24 |
| AAB351M | 350.00 | 11.0 | 12.24 |
| AAB400M | 400.00 | M10x1.5 | 13.61 |
| AAB401M | 400.00 | 11.0 | 13.61 |

A

B

SEE DRAWING ON PRECEDING PAGE

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

12/02/19

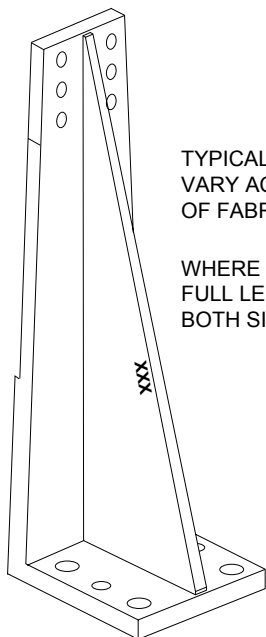
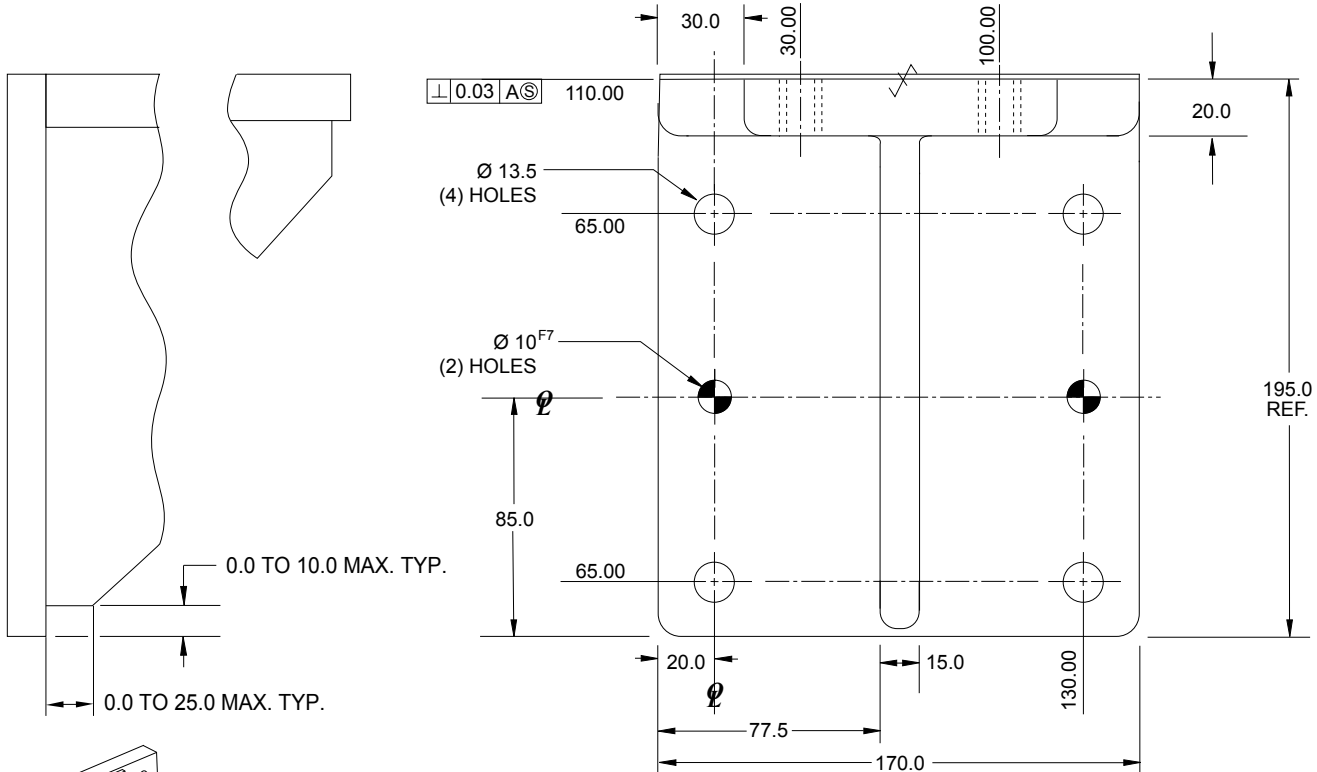
Tolerances:

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

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

MAXIMUM RECOMMENDED LOADS ON PAGE E-2

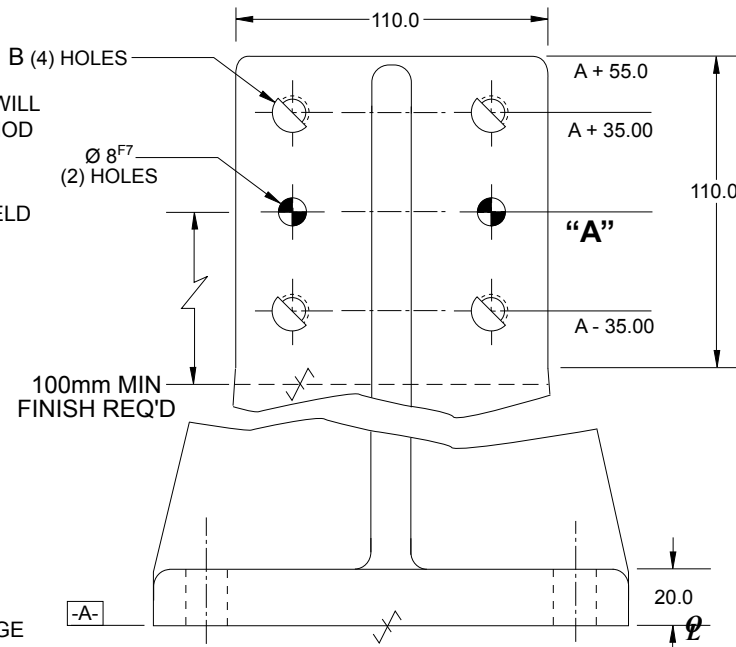
MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART



TYPICAL CONFIGURATION. WILL VARY ACCORDING TO METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT

XXX



TABULATED INFORMATION ON FOLLOWING PAGE

G

F

D

C

B

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E

A

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

09/24/04

| NAMMS CODE | "A" DIM | "B" | WT. kg |
|------------|---------|---------|--------|
| ARA100M | 100.00 | M10x1.5 | 9.2 |
| ARA101M | 100.00 | 11.0 | 9.2 |
| ARA150M | 150.00 | M10x1.5 | 11.2 |
| ARA151M | 150.00 | 11.0 | 11.2 |
| ARA200M | 200.00 | M10x1.5 | 13.1 |
| ARA201M | 200.00 | 11.0 | 13.1 |
| ARA250M | 250.00 | M10x1.5 | 14.9 |
| ARA251M | 250.00 | 11.0 | 14.9 |
| ARA300M | 300.00 | M10x1.5 | 16.1 |
| ARA301M | 300.00 | 11.0 | 16.1 |
| ARA350M | 350.00 | M10x1.5 | 18.4 |
| ARA351M | 350.00 | 11.0 | 18.4 |
| ARA400M | 400.00 | M10x1.5 | 19.6 |
| ARA401M | 400.00 | 11.0 | 19.6 |
| ARA450M | 450.00 | M10x1.5 | 24.5 |
| ARA451M | 450.00 | 11.0 | 24.5 |
| ARA500M | 500.00 | M10x1.5 | 28.1 |
| ARA501M | 500.00 | 11.0 | 28.1 |
| ARA550M | 550.00 | M10x1.5 | 29.5 |
| ARA551M | 550.00 | 11.0 | 29.5 |
| ARA600M | 600.00 | M10x1.5 | 31.7 |
| ARA601M | 600.00 | 11.0 | 31.7 |
| ARA650M | 650.00 | M10x1.5 | 34.5 |
| ARA651M | 650.00 | 11.0 | 34.5 |
| ARA700M | 700.00 | M10x1.5 | 37.2 |
| ARA701M | 700.00 | 11.0 | 37.2 |
| ARA750M | 750.00 | M10x1.5 | 39.0 |
| ARA751M | 750.00 | 11.0 | 39.0 |
| ARA800M | 800.00 | M10x1.5 | 44.4 |
| ARA801M | 800.00 | 11.0 | 44.4 |

A

B

C

SEE DRAWING ON PRECEDING PAGE

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



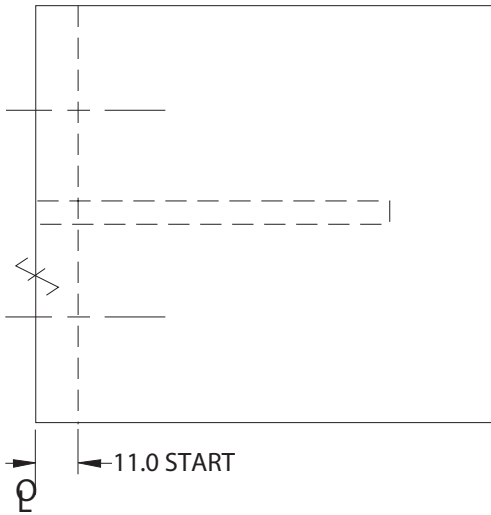
Assembly

08/13/07

Tolerances:

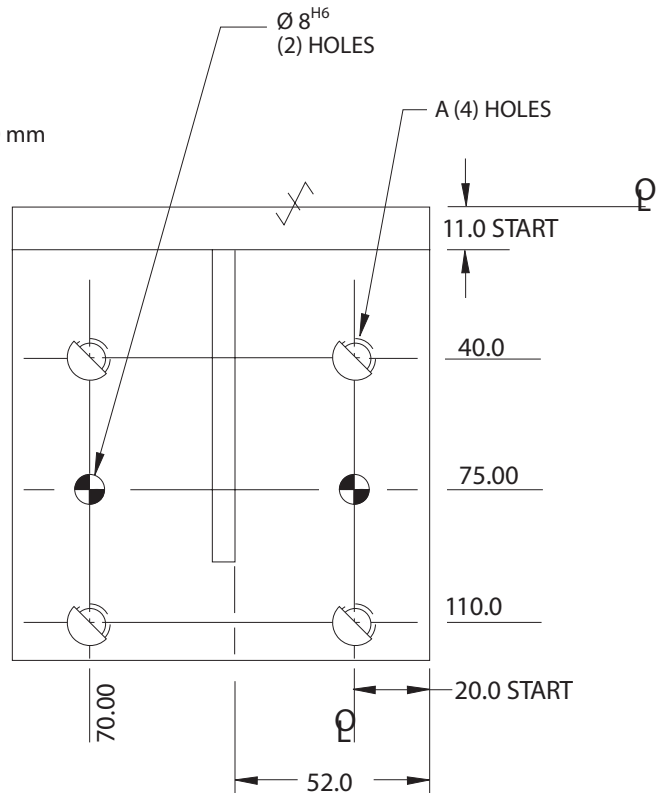
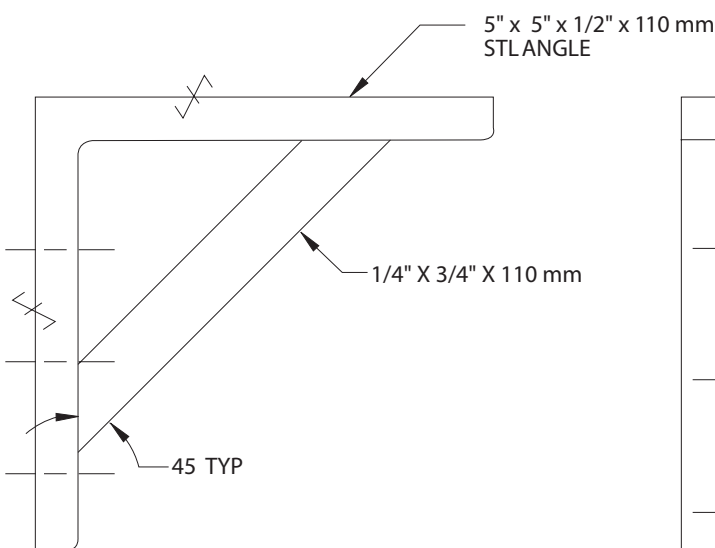
- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN SINGLE DOWEL AND A HEEL SURFACE
- ± 0.03 BETWEEN DOWELS IN THE SAME PLANE
- ± 0.10 BETWEEN DOWELS IN DIFFERENT PLANES
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

✓ SURFACES TO BE FLAT, PARALLEL & PERPENDICULAR TO WITHIN 0.015 T.I.R.
 NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.



| NAMMS CODE | "A" DIM | WT. kg |
|------------|-----------|--------|
| AHB001M | 11.0 | 2.5 |
| AHB002M | M10 x 1.5 | 2.5 |

MATERIAL: STEEL ASTM A-36
 SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART



C

D

F

A

E

B

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS

TM **NAAMS**



Assembly

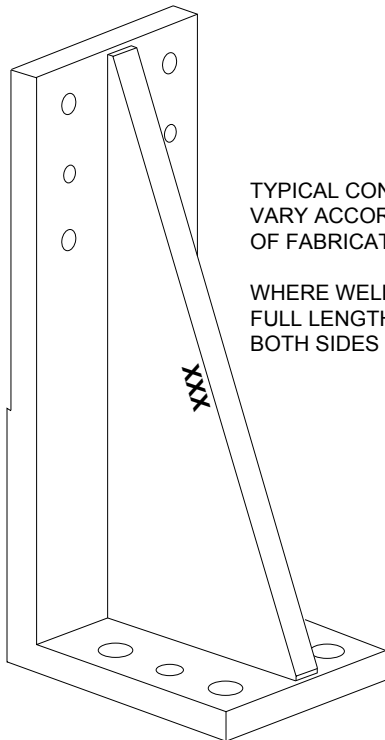
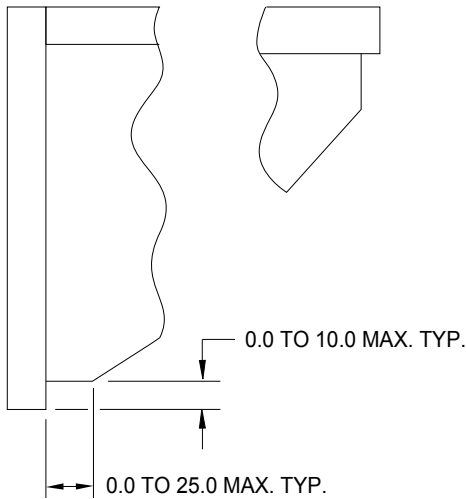
12/02/19

Tolerances:

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- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN SINGLE DOWEL AND A HEEL SURFACE
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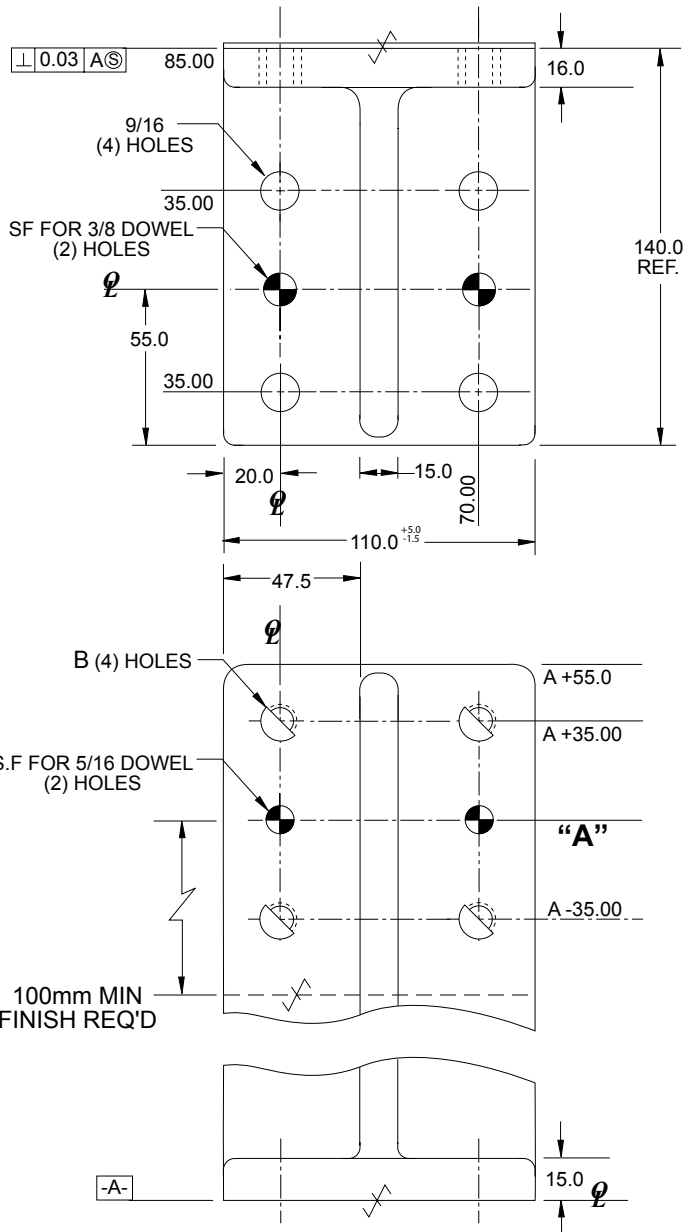
NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.
IDENTIFY WITH NAAMS CODE NUMBER AS SHOWN **XXX**.

MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART



TYPICAL CONFIGURATION. WILL VARY ACCORDING TO METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT



E
H
C
B
A
D
G
I
F

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

12/02/19

| NAAMS CODE | "A" DIM | B | WT. kg |
|---------------|---------|------------|--------|
| AAB100E | 100.00 | 3/8-16 tap | 5.44 |
| AAB101E | 100.00 | 13/32 | 5.44 |
| AAB150E | 150.00 | 3/8-16 tap | 6.35 |
| AAB151E | 150.00 | 13/32 | 6.35 |
| AAB200E | 200.00 | 3/8-16 tap | 7.71 |
| AAB201E | 200.00 | 13/32 | 7.71 |
| AAB250E | 250.00 | 3/8-16 tap | 9.07 |
| AAB251E | 250.00 | 13/32 | 9.07 |
| AAB300E | 300.00 | 3/8-16 tap | 10.43 |
| AAB301E | 300.00 | 13/32 | 10.43 |
| AAB350E | 350.00 | 3/8-16 tap | 12.24 |
| AAB351E | 350.00 | 13/32 | 12.24 |
| AAB400E | 400.00 | 3/8-16 tap | 13.61 |
| AAB401E | 400.00 | 13/32 | 13.61 |

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

12/02/19

D

Tolerances:

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

MAXIMUM RECOMMENDED LOADS ON PAGE E-2

MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.
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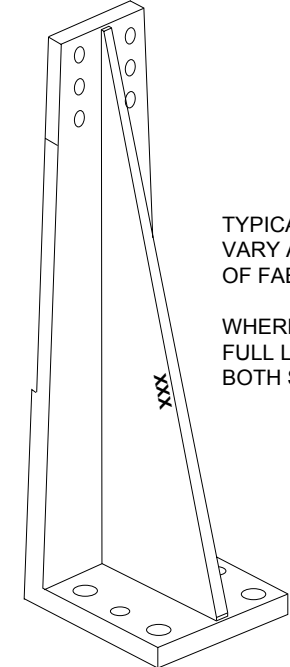
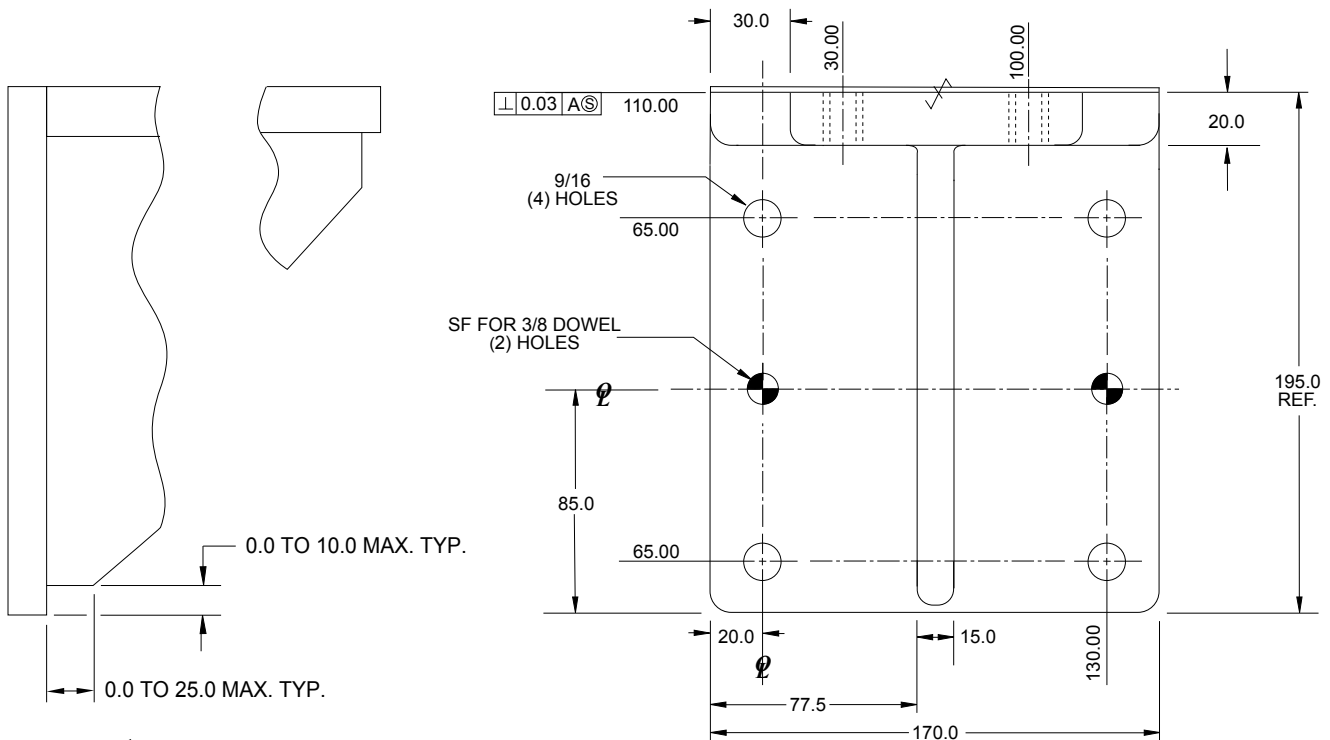
G

H

E

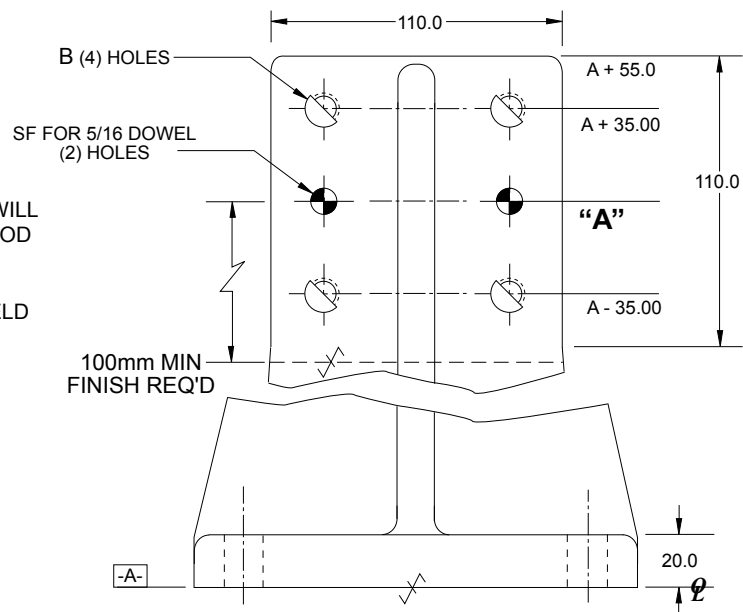
C

B



TYPICAL CONFIGURATION. WILL VARY ACCORDING TO METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT



I

F

A

C

TABULATED INFORMATION ON FOLLOWING PAGE

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

09/24/04

| NAMMS CODE | "A" DIM | "B" | WT. kg |
|------------|---------|------------|--------|
| ARA450E | 450.00 | 3/8-16 tap | 24.5 |
| ARA451E | 450.00 | 13/32 | 24.5 |
| ARA500E | 500.00 | 3/8-16 tap | 28.1 |
| ARA501E | 500.00 | 13/32 | 28.1 |
| ARA550E | 550.00 | 3/8-16 tap | 29.5 |
| ARA551E | 550.00 | 13/32 | 29.5 |
| ARA600E | 600.00 | 3/8-16 tap | 31.7 |
| ARA601E | 600.00 | 13/32 | 31.7 |
| ARA650E | 650.00 | 3/8-16 tap | 34.5 |
| ARA651E | 650.00 | 13/32 | 34.5 |
| ARA700E | 700.00 | 3/8-16 tap | 37.2 |
| ARA701E | 700.00 | 13/32 | 37.2 |
| ARA750E | 750.00 | 3/8-16 tap | 39.0 |
| ARA751E | 750.00 | 13/32 | 39.0 |
| ARA800E | 800.00 | 3/8-16 tap | 44.4 |
| ARA801E | 800.00 | 13/32 | 44.4 |

A

B

C

SEE DRAWING ON PRECEDING PAGE

RISER ANGLE BRACKET

GLOBAL STANDARD COMPONENTS



Assembly

08/13/07

Tolerances:

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

MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

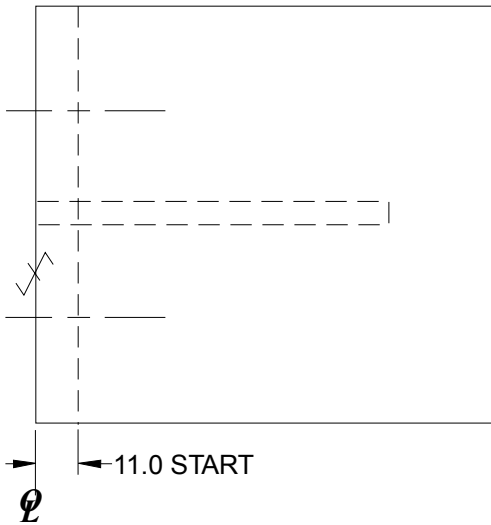
✓ SURFACES TO BE FLAT, PARALLEL & PERPENDICULAR TO WITHIN 0.015 T.I.R.
NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.

D
F

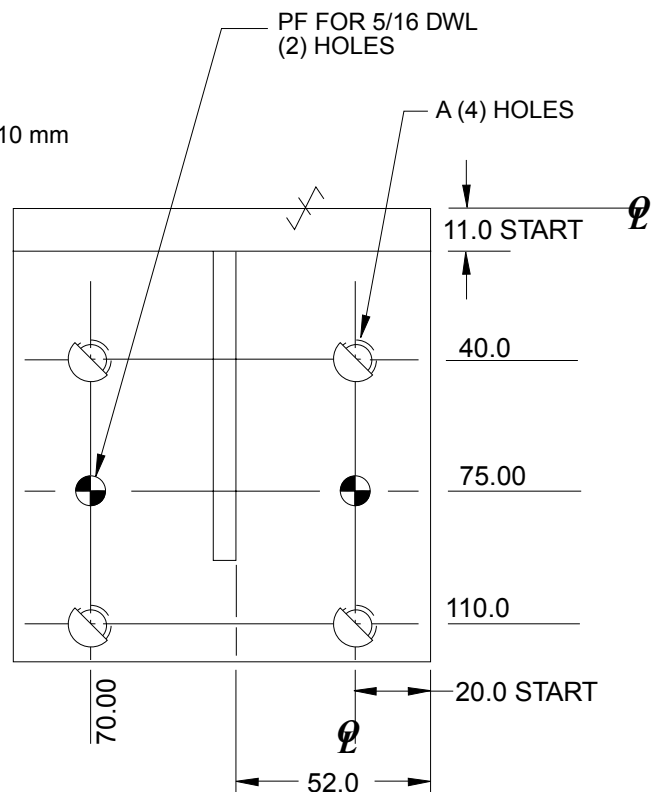
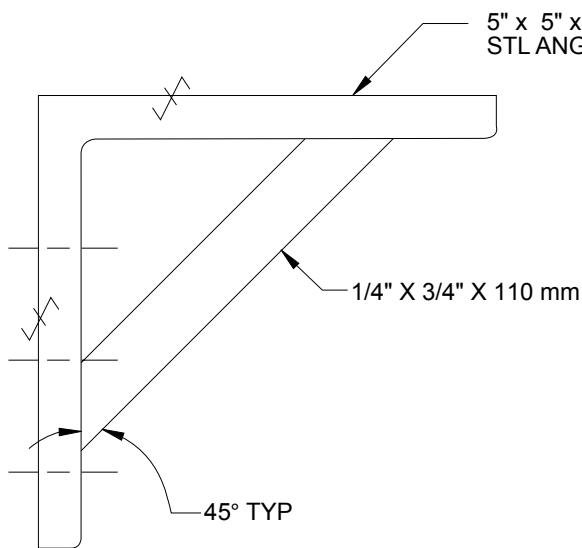
E

C

A



| NAAMS CODE | "A" DIM | WT. kg |
|------------|------------|--------|
| AHB001E | 13/32 | 2.5 |
| AHB002E | 3/8-16 TAP | 2.5 |



B

STACK RISER

GLOBAL STANDARD COMPONENTS



Assembly

12/02/19

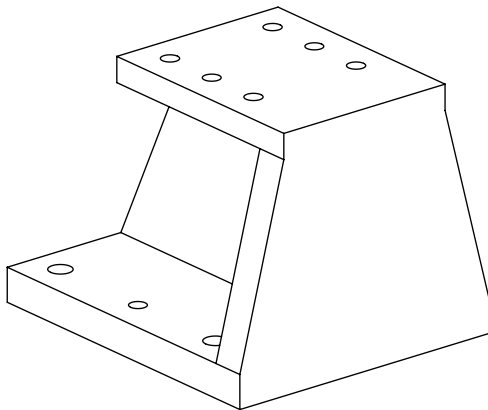
Tolerances:

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- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
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- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

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

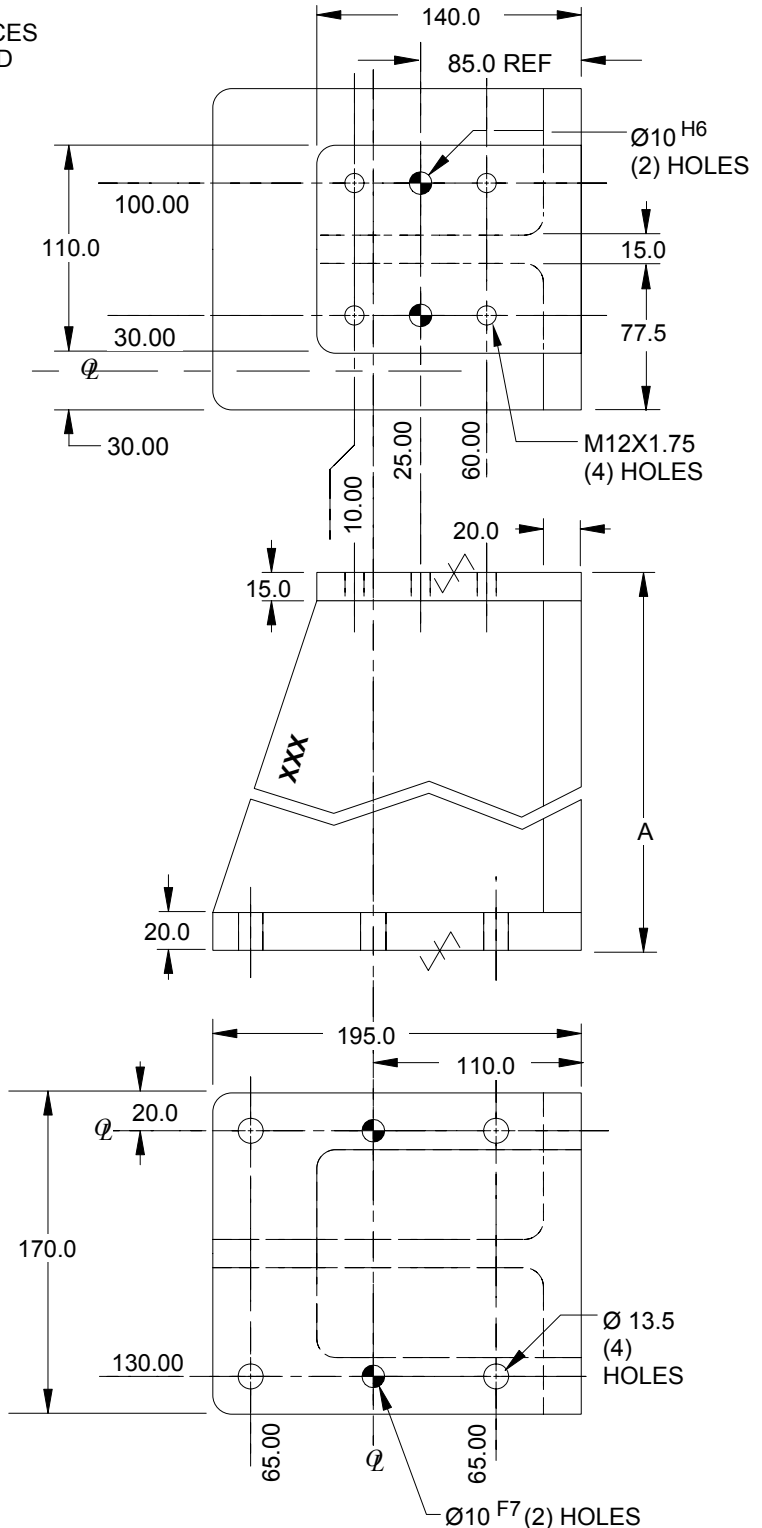
TYPICAL CONFIGURATION WILL VARY ACCORDING TO DESIGN AND METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT



| PART NO. | A |
|----------|-----|
| ASR115 | 150 |
| ASR120 | 200 |
| ASR125 | 250 |
| ASR130 | 300 |
| ASR135 | 350 |
| ASR140 | 400 |
| ASR145 | 450 |
| ASR150 | 500 |

MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART



E
F
A
B
H
C
D
G

STACK RISER

GLOBAL STANDARD COMPONENTS



Assembly

12/02/19

Tolerances:

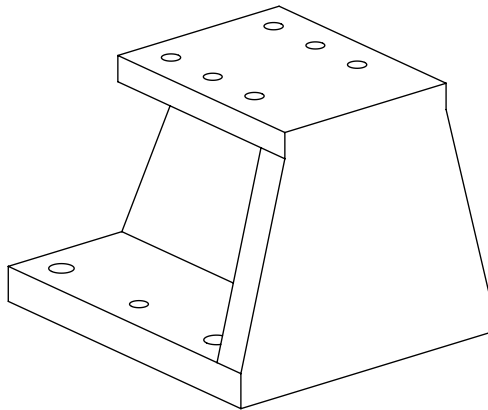
- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.08 BETWEEN MACHINED SURFACES
- ± 0.03 BETWEEN SINGLEDOWEL AND A HEEL SURFACE
- ± 0.03 BETWEEN DOWELS IN THE SAME PLANE
- ± 0.10 BETWEEN DOWELS IN DIFFERENT PLANES
- ± 0.13 TO SCREW HOLES, NON ACCUMULATIVE

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

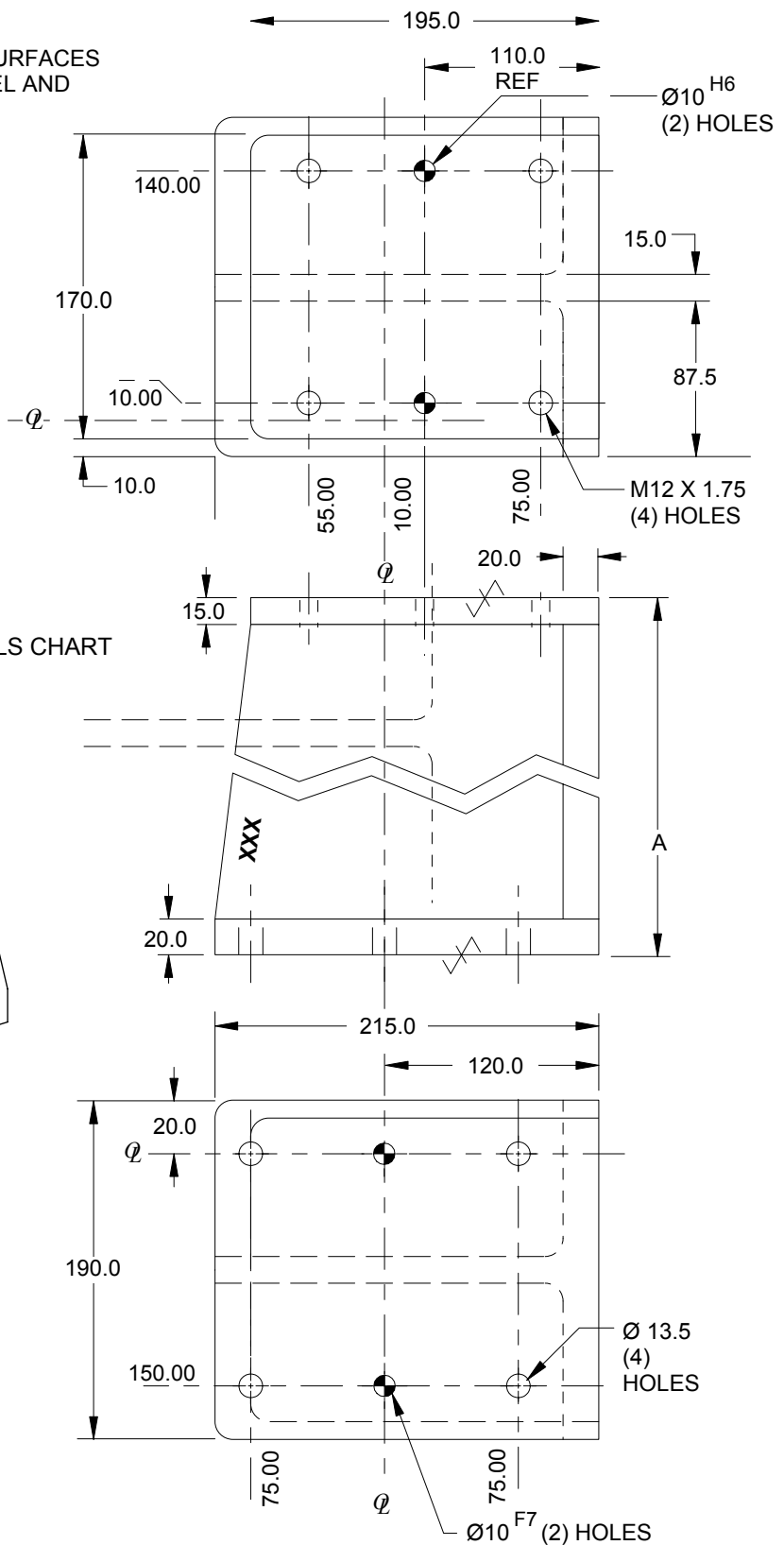
TYPICAL CONFIGURATION WILL VARY ACCORDING TO DESIGN AND METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT

MATERIAL: STEEL ASTM A-36
SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

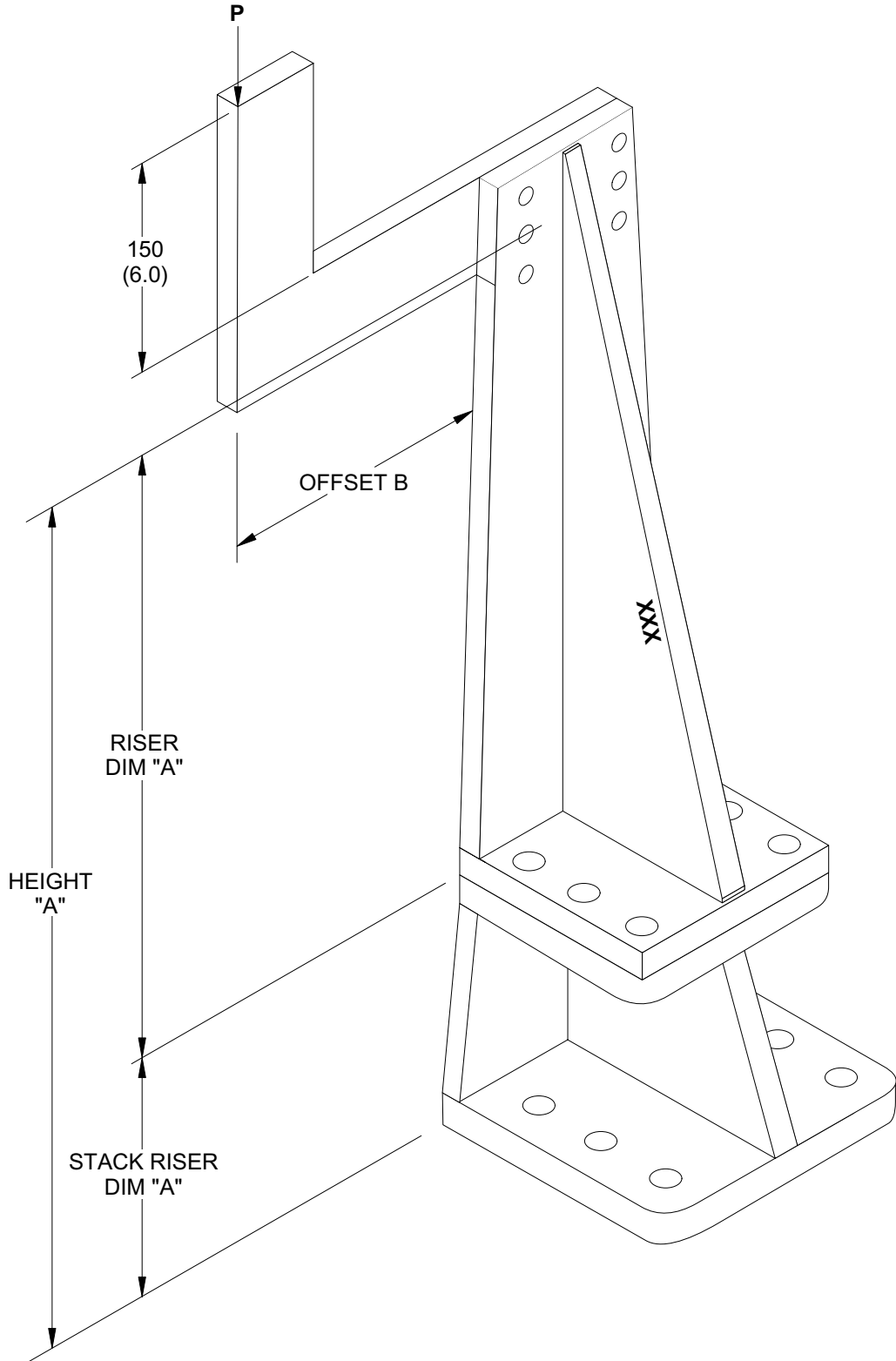


| PART NO. | A |
|----------|-----|
| ASR 240 | 400 |
| ASR 280 | 800 |



D
B
A
H
C
F
G

MAXIMUM RECOMMENDED LOADS



SEE TABLE OF RECOMMENDED LOADS ON FOLLOWING PAGE

MAXIMUM RECOMMENDED LOADS

MAXIMUM RECOMMENDED LOAD FOR 0.13 mm (0.005 IN) DEFLECTION
 OFFSET VALUES (B) AND POINTS OF APPLICATION OF LOAD P ARE DEFINED IN THE FIGURE ON PRECEDING PAGE.
 ALLOWABLE 0.13 mm (0.005 in) DEFLECTIONS ARE MEASURED AT THE POINT OF APPLICATION OF LOAD P, AND DO NOT
 INCLUDE DEFLECTIONS OF THE BLADE.
 MAXIMUM RECOMMENDED LOADS ARE BASED ON STEEL WITH A MODULUS OF ELASTICITY OF 207 GPa (30,000,000 PSI).
 CAST IRON ALLOYS MAY BE USED PROVIDED THEY HAVE A MODULUS OF ELASTICITY OF AT LEAST 165 GPa (24,000,000 PSI).

B
A

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|-------|-----|
| | | | N | lb |
| ASR115 & AAB151 | 300 | 300 | 844 | 190 |
| | | 250 | 1,099 | 247 |
| | | 200 | 1,475 | 332 |
| | | 150 | 2,053 | 462 |
| | | 100 | 2,962 | 666 |
| ASR115 & AAB201 | 350 | 300 | 698 | 157 |
| | | 250 | 904 | 203 |
| | | 200 | 1,206 | 271 |
| | | 150 | 1,662 | 374 |
| | | 100 | 2,362 | 531 |
| ASR115 & AAB251 | 400 | 300 | 591 | 133 |
| | | 250 | 762 | 171 |
| | | 200 | 1,010 | 227 |
| | | 150 | 1,378 | 310 |
| | | 100 | 1,927 | 434 |
| ASR115 & AAB301 | 450 | 300 | 507 | 114 |
| | | 250 | 651 | 147 |
| | | 200 | 859 | 193 |
| | | 150 | 1,164 | 262 |
| | | 100 | 1,613 | 363 |
| ASR115 & AAB351 | 500 | 300 | 436 | 98 |
| | | 250 | 560 | 126 |
| | | 200 | 738 | 166 |
| | | 150 | 1,000 | 225 |
| | | 100 | 1,384 | 312 |
| ASR115 & AAB401 | 550 | 300 | 378 | 85 |
| | | 250 | 484 | 109 |
| | | 200 | 635 | 143 |
| | | 150 | 853 | 192 |
| | | 100 | 1,169 | 263 |
| ASR120 & AAB151 | 350 | 300 | 773 | 174 |
| | | 250 | 1,001 | 225 |
| | | 200 | 1,334 | 300 |
| | | 150 | 1,836 | 413 |
| | | 100 | 2,601 | 585 |
| ASR120 & AAB201 | 400 | 300 | 649 | 146 |
| | | 250 | 838 | 189 |
| | | 200 | 1,113 | 250 |
| | | 150 | 1,524 | 343 |
| | | 100 | 2,145 | 483 |
| ASR120 & AAB251 | 450 | 300 | 551 | 124 |
| | | 250 | 708 | 159 |
| | | 200 | 934 | 210 |
| | | 150 | 1,267 | 285 |
| | | 100 | 1,755 | 395 |
| ASR120 & AAB301 | 500 | 300 | 476 | 107 |
| | | 250 | 611 | 137 |
| | | 200 | 805 | 181 |
| | | 150 | 1,089 | 245 |
| | | 100 | 1,505 | 339 |

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|-------|-----|
| | | | N | lb |
| ASR120 & AAB351 | 550 | 300 | 409 | 92 |
| | | 250 | 525 | 118 |
| | | 200 | 691 | 155 |
| | | 150 | 933 | 210 |
| | | 100 | 1,287 | 290 |
| ASR120 & AAB401 | 600 | 300 | 356 | 80 |
| | | 250 | 456 | 103 |
| | | 200 | 600 | 135 |
| | | 150 | 809 | 182 |
| | | 100 | 1,113 | 250 |
| ASR125 & AAB151 | 400 | 300 | 711 | 160 |
| | | 250 | 920 | 207 |
| | | 200 | 1,227 | 276 |
| | | 150 | 1,689 | 380 |
| | | 100 | 2,394 | 539 |
| ASR125 & AAB201 | 450 | 300 | 600 | 135 |
| | | 250 | 773 | 174 |
| | | 200 | 1,024 | 230 |
| | | 150 | 1,396 | 314 |
| | | 100 | 1,949 | 439 |
| ASR125 & AAB251 | 500 | 300 | 516 | 116 |
| | | 250 | 661 | 149 |
| | | 200 | 870 | 196 |
| | | 150 | 1,173 | 264 |
| | | 100 | 1,615 | 363 |
| ASR125 & AAB301 | 550 | 300 | 444 | 100 |
| | | 250 | 570 | 128 |
| | | 200 | 750 | 169 |
| | | 150 | 1,013 | 228 |
| | | 100 | 1,396 | 314 |
| ASR125 & AAB351 | 600 | 300 | 382 | 86 |
| | | 250 | 491 | 110 |
| | | 200 | 647 | 146 |
| | | 150 | 876 | 197 |
| | | 100 | 1,210 | 272 |
| ASR125 & AAB401 | 650 | 300 | 338 | 76 |
| | | 250 | 432 | 97 |
| | | 200 | 566 | 127 |
| | | 150 | 760 | 171 |
| | | 100 | 1,038 | 234 |
| ASR130 & AAB151 | 450 | 300 | 658 | 148 |
| | | 250 | 849 | 191 |
| | | 200 | 1,127 | 254 |
| | | 150 | 1,542 | 347 |
| | | 100 | 2,166 | 487 |
| ASR130 & AAB201 | 500 | 300 | 560 | 126 |
| | | 250 | 720 | 162 |
| | | 200 | 952 | 214 |
| | | 150 | 1,293 | 291 |
| | | 100 | 1,798 | 405 |

SEE DRAWING ON PRECEDING PAGE

TABLE OF RECOMMENDED LOADS CONTINUED ON FOLLOWING PAGE

MAXIMUM RECOMMENDED LOADS

MAXIMUM RECOMMENDED LOAD FOR 0.13 mm (0.005 IN) DEFLECTION

OFFSET VALUES (B) AND POINTS OF APPLICATION OF LOAD P ARE DEFINED IN THE FIGURE ON PAGE E-12.

ALLOWABLE 0.13 mm (0.005 in) DEFLECTIONS ARE MEASURED AT THE POINT OF APPLICATION OF LOAD P, AND DO NOT INCLUDE DEFLECTIONS OF THE BLADE.

MAXIMUM RECOMMENDED LOADS ARE BASED ON STEEL WITH A MODULUS OF ELASTICITY OF 207 GPa (30,000,000 PSI). CAST IRON ALLOYS MAY BE USED PROVIDED THEY HAVE A MODULUS OF ELASTICITY OF AT LEAST 165 GPa (24,000,000 PSI).

B
A

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|-------|-----|
| | | | N | lb |
| ASR130 & AAB251 | 550 | 300 | 480 | 108 |
| | | 250 | 616 | 139 |
| | | 200 | 810 | 182 |
| | | 150 | 1,093 | 246 |
| | | 100 | 1,506 | 339 |
| ASR130 & AAB301 | 600 | 300 | 413 | 93 |
| | | 250 | 531 | 119 |
| | | 200 | 700 | 157 |
| | | 150 | 947 | 213 |
| | | 100 | 1,308 | 294 |
| ASR130 & AAB351 | 650 | 300 | 360 | 81 |
| | | 250 | 461 | 104 |
| | | 200 | 607 | 136 |
| | | 150 | 818 | 184 |
| | | 100 | 1,124 | 253 |
| ASR130 & AAB401 | 700 | 300 | 316 | 71 |
| | | 250 | 404 | 91 |
| | | 200 | 531 | 120 |
| | | 150 | 716 | 161 |
| | | 100 | 982 | 221 |
| ASR135 & AAB151 | 500 | 300 | 609 | 137 |
| | | 250 | 783 | 176 |
| | | 200 | 1,034 | 233 |
| | | 150 | 1,404 | 316 |
| | | 100 | 1,951 | 439 |
| ASR135 & AAB201 | 550 | 300 | 516 | 116 |
| | | 250 | 663 | 149 |
| | | 200 | 877 | 197 |
| | | 150 | 1,191 | 268 |
| | | 100 | 1,656 | 373 |
| ASR135 & AAB251 | 600 | 300 | 449 | 101 |
| | | 250 | 575 | 129 |
| | | 200 | 756 | 170 |
| | | 150 | 1,018 | 229 |
| | | 100 | 1,397 | 314 |
| ASR135 & AAB301 | 650 | 300 | 391 | 88 |
| | | 250 | 500 | 113 |
| | | 200 | 656 | 148 |
| | | 150 | 880 | 198 |
| | | 100 | 1,202 | 270 |
| ASR135 & AAB351 | 700 | 300 | 342 | 77 |
| | | 250 | 438 | 98 |
| | | 200 | 573 | 129 |
| | | 150 | 769 | 173 |
| | | 100 | 1,049 | 236 |
| ASR135 & AAB401 | 750 | 300 | 298 | 67 |
| | | 250 | 382 | 86 |
| | | 200 | 501 | 113 |
| | | 150 | 676 | 152 |
| | | 100 | 928 | 209 |

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|-------|-----|
| | | | N | lb |
| ASR140 & AAB151 | 550 | 300 | 560 | 126 |
| | | 250 | 720 | 162 |
| | | 200 | 952 | 214 |
| | | 150 | 1,293 | 291 |
| | | 100 | 1,798 | 405 |
| ASR140 & AAB201 | 600 | 300 | 480 | 108 |
| | | 250 | 617 | 139 |
| | | 200 | 815 | 183 |
| | | 150 | 1,107 | 249 |
| | | 100 | 1,537 | 346 |
| ASR140 & AAB251 | 650 | 300 | 418 | 94 |
| | | 250 | 535 | 120 |
| | | 200 | 701 | 158 |
| | | 150 | 942 | 212 |
| | | 100 | 1,289 | 290 |
| ASR140 & AAB301 | 700 | 300 | 364 | 82 |
| | | 250 | 466 | 105 |
| | | 200 | 612 | 138 |
| | | 150 | 822 | 185 |
| | | 100 | 1,125 | 253 |
| ASR140 & AAB351 | 750 | 300 | 316 | 71 |
| | | 250 | 405 | 91 |
| | | 200 | 533 | 120 |
| | | 150 | 720 | 162 |
| | | 100 | 993 | 223 |
| ASR140 & AAB401 | 800 | 300 | 280 | 63 |
| | | 250 | 359 | 81 |
| | | 200 | 472 | 106 |
| | | 150 | 636 | 143 |
| | | 100 | 873 | 196 |
| ASR145 & AAB151 | 600 | 300 | 520 | 117 |
| | | 250 | 667 | 150 |
| | | 200 | 878 | 198 |
| | | 150 | 1,187 | 267 |
| | | 100 | 1,636 | 368 |
| ASR145 & AAB201 | 650 | 300 | 449 | 101 |
| | | 250 | 577 | 130 |
| | | 200 | 763 | 172 |
| | | 150 | 1,036 | 233 |
| | | 100 | 1,438 | 324 |
| ASR145 & AAB251 | 700 | 300 | 387 | 87 |
| | | 250 | 496 | 112 |
| | | 200 | 652 | 147 |
| | | 150 | 880 | 198 |
| | | 100 | 1,211 | 273 |
| ASR145 & AAB301 | 750 | 300 | 342 | 77 |
| | | 250 | 438 | 98 |
| | | 200 | 573 | 129 |
| | | 150 | 769 | 173 |
| | | 100 | 1,049 | 236 |

TABLE OF RECOMMENDED LOADS CONTINUED ON FOLLOWING PAGE

MAXIMUM RECOMMENDED LOADS

MAXIMUM RECOMMENDED LOAD FOR 0.13 mm (0.005 IN) DEFLECTION
 OFFSET VALUES (B) AND POINTS OF APPLICATION OF LOAD P ARE DEFINED IN THE FIGURE ON PAGE E-12.
 ALLOWABLE 0.13 mm (0.005 in) DEFLECTIONS ARE MEASURED AT THE POINT OF APPLICATION OF LOAD P, AND DO NOT
 INCLUDE DEFLECTIONS OF THE BLADE.
 MAXIMUM RECOMMENDED LOADS ARE BASED ON STEEL WITH A MODULUS OF ELASTICITY OF 207 GPa (30,000,000 PSI).
 CAST IRON ALLOYS MAY BE USED PROVIDED THEY HAVE A MODULUS OF ELASTICITY OF AT LEAST 165 GPa (24,000,000 PSI).

B
A

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|-------|-----|
| | | | N | lb |
| ASR145 & AAB351 | 800 | 300 | 298 | 67 |
| | | 250 | 382 | 86 |
| | | 200 | 501 | 113 |
| | | 150 | 676 | 152 |
| | | 100 | 928 | 209 |
| ASR145 & AAB401 | 850 | 300 | 267 | 60 |
| | | 250 | 341 | 77 |
| | | 200 | 447 | 101 |
| | | 150 | 600 | 135 |
| | | 100 | 820 | 184 |
| ASR150 & AAB151 | 650 | 300 | 480 | 108 |
| | | 250 | 616 | 139 |
| | | 200 | 812 | 183 |
| | | 150 | 1,098 | 247 |
| | | 100 | 1,516 | 341 |
| ASR150 & AAB201 | 700 | 300 | 418 | 94 |
| | | 250 | 535 | 120 |
| | | 200 | 701 | 158 |
| | | 150 | 942 | 212 |
| | | 100 | 1,289 | 290 |
| ASR150 & AAB251 | 750 | 300 | 364 | 82 |
| | | 250 | 466 | 105 |
| | | 200 | 612 | 138 |
| | | 150 | 822 | 185 |
| | | 100 | 1,125 | 253 |
| ASR150 & AAB301 | 800 | 300 | 316 | 71 |
| | | 250 | 405 | 91 |
| | | 200 | 533 | 120 |
| | | 150 | 720 | 162 |
| | | 100 | 993 | 223 |
| ASR150 & AAB351 | 850 | 300 | 284 | 64 |
| | | 250 | 363 | 82 |
| | | 200 | 475 | 107 |
| | | 150 | 636 | 143 |
| | | 100 | 864 | 194 |
| ASR150 & AAB401 | 900 | 300 | 249 | 56 |
| | | 250 | 319 | 72 |
| | | 200 | 419 | 94 |
| | | 150 | 564 | 127 |
| | | 100 | 775 | 174 |
| ASR240 & ARA451 | 850 | 300 | 564 | 127 |
| | | 250 | 718 | 161 |
| | | 200 | 932 | 210 |
| | | 150 | 1,236 | 278 |
| | | 100 | 1,658 | 373 |
| ASR240 & ARA501 | 900 | 300 | 520 | 117 |
| | | 250 | 660 | 149 |
| | | 200 | 857 | 193 |
| | | 150 | 1,133 | 255 |
| | | 100 | 1,517 | 341 |

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|-------|-----|
| | | | N | lb |
| ASR240 & ARA551 | 950 | 300 | 476 | 107 |
| | | 250 | 604 | 136 |
| | | 200 | 783 | 176 |
| | | 150 | 1,036 | 233 |
| | | 100 | 1,385 | 312 |
| ASR240 & ARA601 | 1000 | 300 | 440 | 99 |
| | | 250 | 558 | 125 |
| | | 200 | 722 | 162 |
| | | 150 | 951 | 214 |
| | | 100 | 1,266 | 285 |
| ASR240 & ARA651 | 1050 | 300 | 404 | 91 |
| | | 250 | 513 | 115 |
| | | 200 | 664 | 149 |
| | | 150 | 876 | 197 |
| | | 100 | 1,167 | 263 |
| ASR240 & ARA701 | 1100 | 300 | 373 | 84 |
| | | 250 | 473 | 107 |
| | | 200 | 613 | 138 |
| | | 150 | 809 | 182 |
| | | 100 | 1,079 | 243 |
| ASR240 & ARA751 | 1150 | 300 | 347 | 78 |
| | | 250 | 439 | 99 |
| | | 200 | 567 | 128 |
| | | 150 | 747 | 168 |
| | | 100 | 992 | 223 |
| ASR240 & ARA801 | 1200 | 300 | 320 | 72 |
| | | 250 | 406 | 91 |
| | | 200 | 525 | 118 |
| | | 150 | 693 | 156 |
| | | 100 | 924 | 208 |
| ASR280 & ARA451 | 1250 | 300 | 387 | 87 |
| | | 250 | 488 | 110 |
| | | 200 | 627 | 141 |
| | | 150 | 818 | 184 |
| | | 100 | 1,074 | 242 |
| ASR280 & ARA501 | 1300 | 300 | 360 | 81 |
| | | 250 | 454 | 102 |
| | | 200 | 585 | 132 |
| | | 150 | 764 | 172 |
| | | 100 | 1,007 | 227 |
| ASR280 & ARA551 | 1350 | 300 | 333 | 75 |
| | | 250 | 421 | 95 |
| | | 200 | 543 | 122 |
| | | 150 | 711 | 160 |
| | | 100 | 939 | 211 |
| ASR280 & ARA601 | 1400 | 300 | 311 | 70 |
| | | 250 | 392 | 88 |
| | | 200 | 504 | 113 |
| | | 150 | 658 | 148 |
| | | 100 | 864 | 194 |

TABLE OF RECOMMENDED LOADS CONTINUED ON FOLLOWING PAGE

MAXIMUM RECOMMENDED LOADS

MAXIMUM RECOMMENDED LOAD FOR 0.13 mm (0.005 IN) DEFLECTION
 OFFSET VALUES (B) AND POINTS OF APPLICATION OF LOAD P ARE DEFINED IN THE FIGURE ON PAGE E-12.
 ALLOWABLE 0.13 mm (0.005 in) DEFLECTIONS ARE MEASURED AT THE POINT OF APPLICATION OF LOAD P, AND DO NOT
 INCLUDE DEFLECTIONS OF THE BLADE.
 MAXIMUM RECOMMENDED LOADS ARE BASED ON STEEL WITH A MODULUS OF ELASTICITY OF 207 GPA (30,000,000 PSI).
 CAST IRON ALLOYS MAY BE USED PROVIDED THEY HAVE A MODULUS OF ELASTICITY OF AT LEAST 165 GPA (24,000,000 PSI).

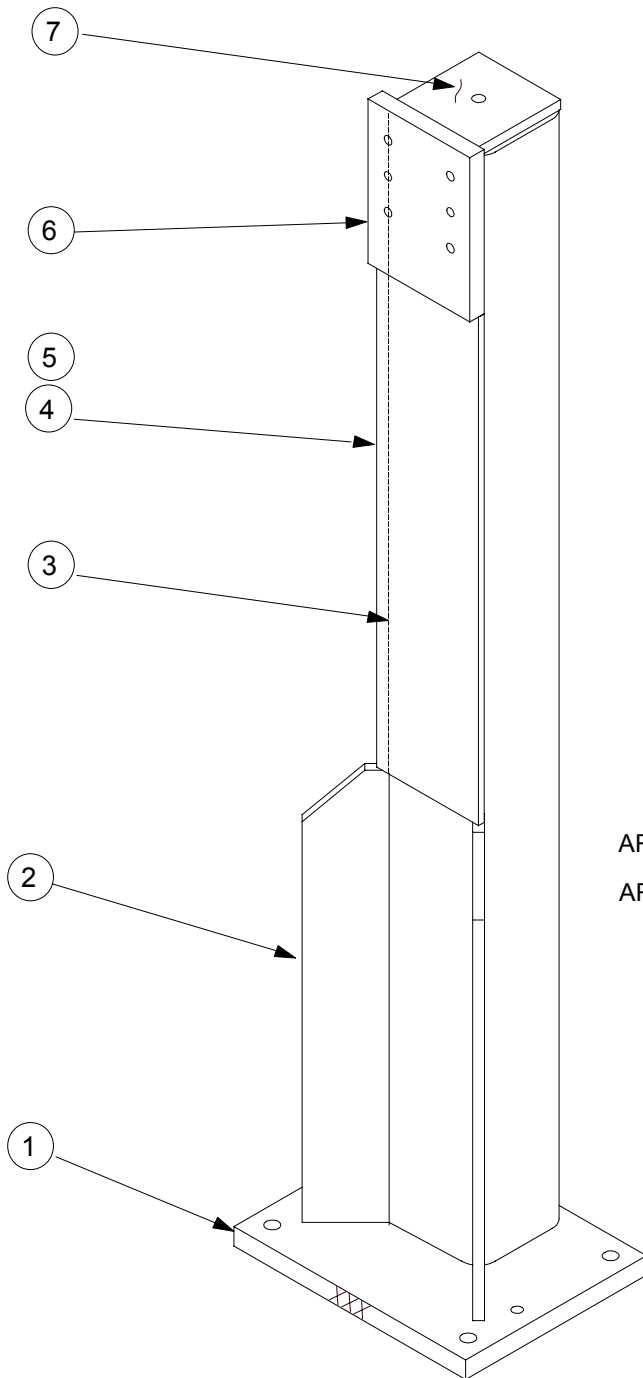
B
A

| Riser Combination | Height A | Offset B | Load | |
|-------------------|-------------|-------------|------|-----|
| | | | N | lb |
| ASR280 & ARA651 | 1450 | 300 | 289 | 65 |
| | | 250 | 364 | 82 |
| | | 200 | 467 | 105 |
| | | 150 | 609 | 137 |
| | | 100 | 798 | 180 |
| ASR280 & ARA701 | 1500 | 300 | 271 | 61 |
| | | 250 | 342 | 77 |
| | | 200 | 439 | 99 |
| | | 150 | 573 | 129 |
| | | 100 | 753 | 169 |
| ASR280 & ARA751 | 1550 | 300 | 249 | 56 |
| | | 250 | 314 | 71 |
| | | 200 | 404 | 91 |
| | | 150 | 529 | 119 |
| | | 100 | 697 | 157 |
| ASR280 & ARA801 | 1600 | 300 | 231 | 52 |
| | | 250 | 293 | 66 |
| | | 200 | 380 | 86 |
| | | 150 | 502 | 113 |
| | | 100 | 671 | 151 |

TABLE OF RECOMMENDED LOADS CONTINUED FROM PREVIOUS PAGE

TUBULAR RISER CONSTRUCTION

1 PLACE FABRICATION
 TOLERANCES ± 1.5



| NAMMS CODE | "B" | "C" |
|---------------------|--------|-------|
| ARB085M AND ARB085E | 880.0 | 440.0 |
| ARB090M AND ARB090E | 930.0 | 465.0 |
| ARB095M AND ARB095E | 980.0 | 490.0 |
| ARB100M AND ARB100E | 1030.0 | 515.0 |
| ARB105M AND ARB105E | 1080.0 | 540.0 |
| ARB110M AND ARB110E | 1130.0 | 565.0 |
| ARB115M AND ARB115E | 1180.0 | 590.0 |
| ARB120M AND ARB120E | 1230.0 | 615.0 |
| ARB125M AND ARB125E | 1280.0 | 640.0 |
| ARB130M AND ARB130E | 1330.0 | 665.0 |
| ARB135M AND ARB135E | 1380.0 | 690.0 |
| ARB140M AND ARB140E | 1430.0 | 715.0 |
| ARB145M AND ARB145E | 1480.0 | 740.0 |
| ARB150M AND ARB150E | 1530.0 | 765.0 |
| ARB155M AND ARB155E | 1580.0 | 790.0 |
| ARB160M AND ARB160E | 1630.0 | 815.0 |

RISER BRACKET
 WELDED CONST. ~ STRESS RELIEVE

- ① 1-STEEL ASTM A-36 ~ 7/8" x 8" x 260.0mm LG.
- ② 2-STEEL ASTM A-36 ~ 3/8" x 3" x "C" LG.
- ③ 1-STEEL TUBING ~ 4" x 4" x 3/8 W/T x "B" LG.
 ASTM A500 GRADE B
- ARB155 ④ 1-STEEL ASTM A-36 ~ 1/4" x 4 1/2" x 645.0mm LG.
- ARB160 ⑤ 1-STEEL ASTM A-36 ~ 1/4" x 4 1/2" x 670.0mm LG.
- ⑥ 1-STEEL ASTM A-36 ~ 3/4" x 4 1/2" x 160.0mm LG.
- ⑦ 1-STEEL ASTM A-36 ~ 3/8" x 3 5/8" x 97.0mm LG.

MATERIAL: STEEL ASTM A-36
 SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

NOTES: ALL DIMENSIONS ARE METRIC
 UNLESS OTHERWISE NOTED
 IDENTIFY WITH NAAMS CODE
 NUMBER AS SHOWN XXX

A

B

TUBULAR RISER

ARB085M THRU ARB160M

GLOBAL STANDARD COMPONENTS



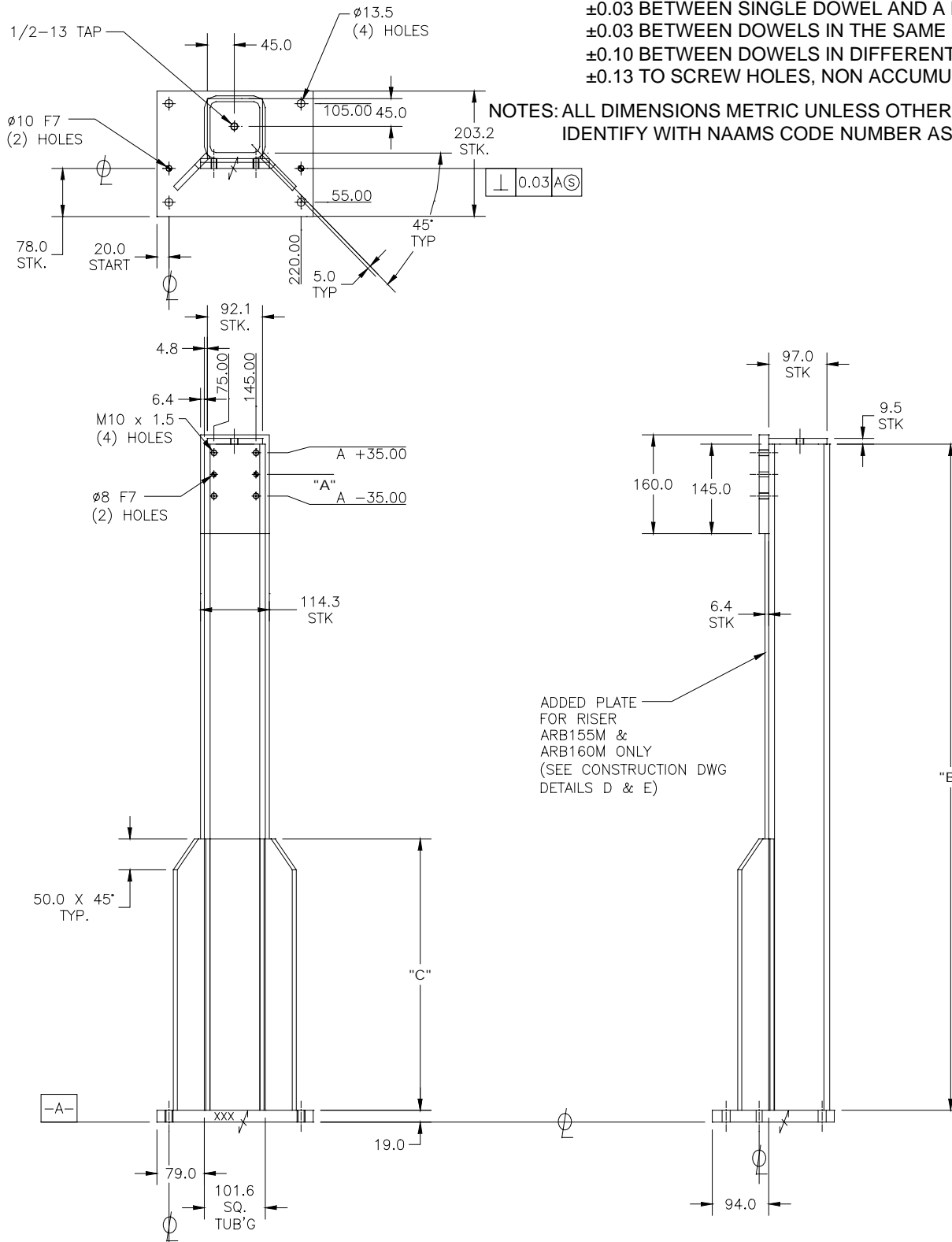
Assembly

07/15/03

Tolerances:

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

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



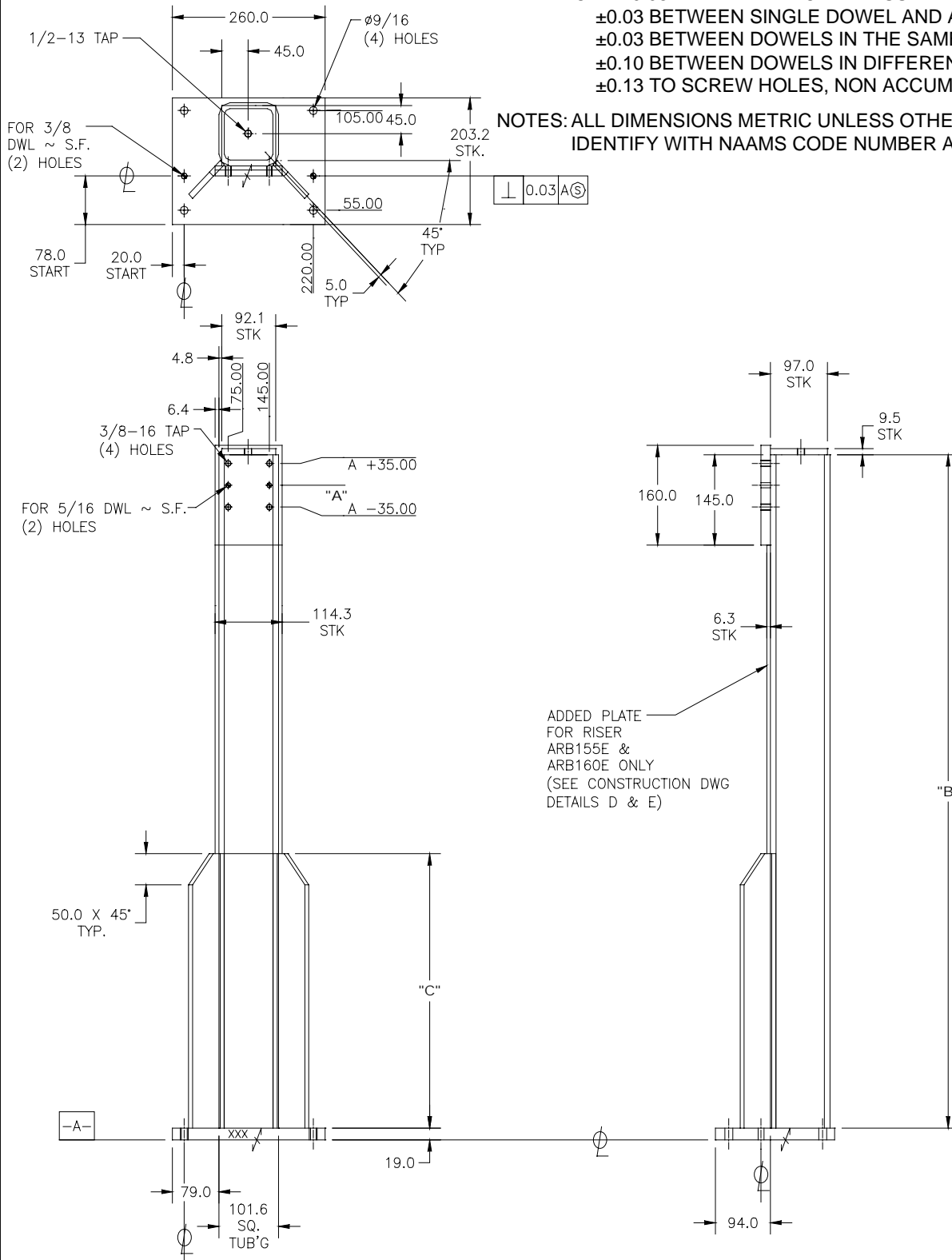
TUBULAR RISER

ARB085E THRU ARB160E

Tolerances:

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

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



TUBULAR RISER ARB085M THRU ARB160M & ARB085E THRU ARB160E

| NAMMS CODE | "A" DIM | "B" | "C" | WT. kg |
|---------------------|---------|--------|-------|--------|
| ARB085M AND ARB085E | 850.00 | 880.0 | 440.0 | 43.1 |
| ARB090M AND ARB090E | 900.00 | 930.0 | 465.0 | 44.9 |
| ARB095M AND ARB095E | 950.00 | 980.0 | 490.0 | 46.7 |
| ARB100M AND ARB100E | 1000.00 | 1030.0 | 515.0 | 48.5 |
| ARB105M AND ARB105E | 1050.00 | 1080.0 | 540.0 | 50.3 |
| ARB110M AND ARB110E | 1100.00 | 1130.0 | 565.0 | 52.2 |
| ARB115M AND ARB115E | 1150.00 | 1180.0 | 590.0 | 54.0 |
| ARB120M AND ARB120E | 1200.00 | 1230.0 | 615.0 | 55.8 |
| ARB125M AND ARB125E | 1250.00 | 1280.0 | 640.0 | 57.6 |
| ARB130M AND ARB130E | 1300.00 | 1330.0 | 665.0 | 59.4 |
| ARB135M AND ARB135E | 1350.00 | 1380.0 | 690.0 | 61.2 |
| ARB140M AND ARB140E | 1400.00 | 1430.0 | 715.0 | 63.0 |
| ARB145M AND ARB145E | 1450.00 | 1480.0 | 740.0 | 64.9 |
| ARB150M AND ARB150E | 1500.00 | 1530.0 | 765.0 | 66.7 |
| ARB155M AND ARB155E | 1550.00 | 1580.0 | 790.0 | 72.6 |
| ARB160M AND ARB160E | 1600.00 | 1630.0 | 815.0 | 74.4 |

A

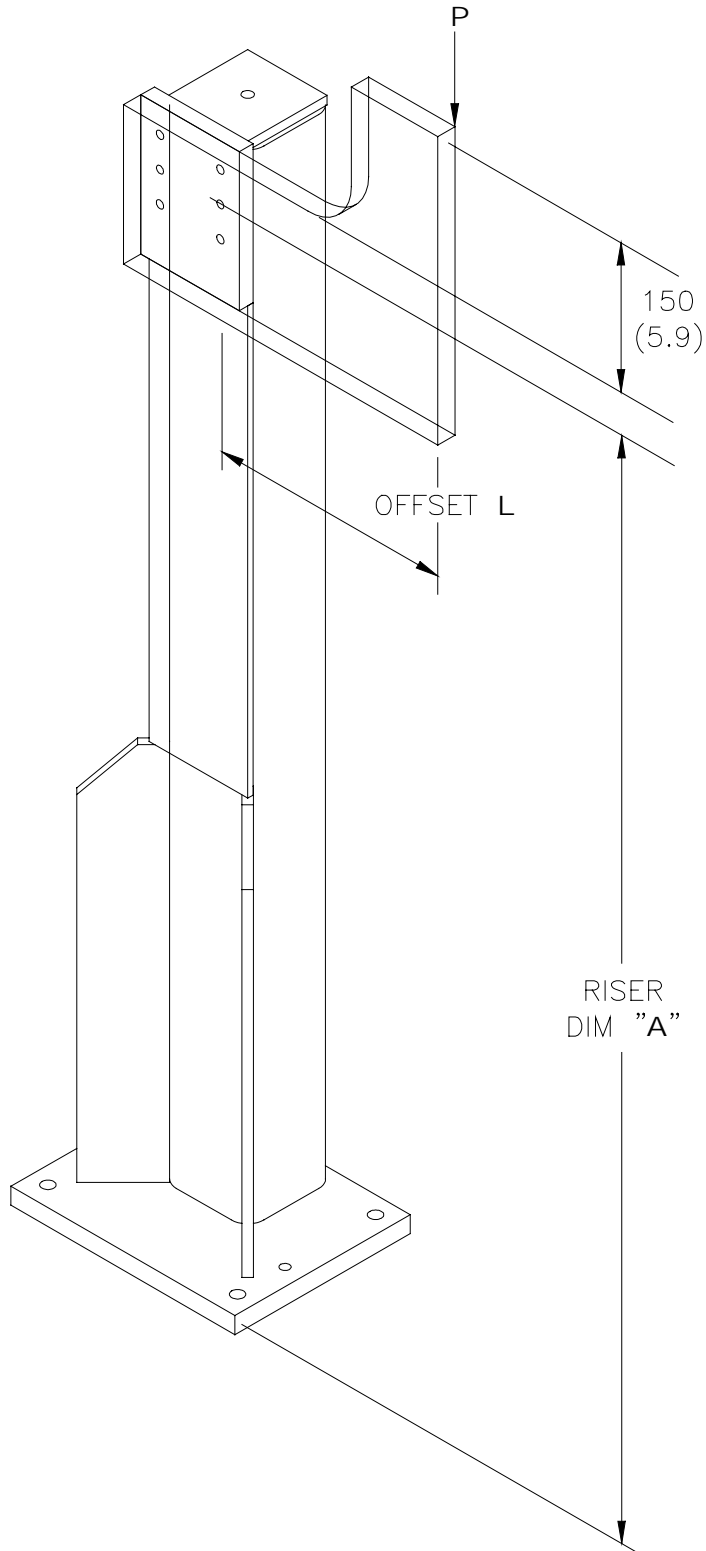
TUBULAR RISER MAXIMUM RECOMMENDED LOADS

GLOBAL STANDARD COMPONENTS



Assembly

07/15/03



TUBULAR RISER MAXIMUM RECOMMENDED LOADS

GLOBAL STANDARD COMPONENTS



Assembly

10/06/03

| NAAMS CODE | OFFSET L | | LOAD P | |
|---------------------------|----------|-----|--------|-----|
| | mm | In. | N | lb |
| ARB085M and ARB085E | 300 | 12 | 853 | 192 |
| | 250 | 10 | 1032 | 232 |
| | 200 | 8 | 1288 | 290 |
| | 150 | 6 | 1621 | 365 |
| | 100 | 4 | 2184 | 492 |
| ARB090M and ARB090E | 300 | 12 | 835 | 188 |
| | 250 | 10 | 993 | 223 |
| | 200 | 8 | 1218 | 274 |
| | 150 | 6 | 1510 | 340 |
| | 100 | 4 | 2005 | 451 |
| ARB095M and ARB095E | 300 | 12 | 786 | 177 |
| | 250 | 10 | 930 | 209 |
| | 200 | 8 | 1136 | 256 |
| | 150 | 6 | 1404 | 316 |
| | 100 | 4 | 1857 | 418 |
| ARB100M and ARB100E | 300 | 12 | 711 | 160 |
| | 250 | 10 | 851 | 191 |
| | 200 | 8 | 1050 | 236 |
| | 150 | 6 | 1310 | 295 |
| | 100 | 4 | 1749 | 394 |
| ARB105M and ARB105E | 300 | 12 | 702 | 158 |
| | 250 | 10 | 823 | 185 |
| | 200 | 8 | 997 | 224 |
| | 150 | 6 | 1222 | 275 |
| | 100 | 4 | 1603 | 361 |
| ARB110M and ARB110E | 300 | 12 | 666 | 150 |
| | 250 | 10 | 778 | 175 |
| | 200 | 8 | 938 | 211 |
| | 150 | 6 | 1146 | 258 |
| | 100 | 4 | 1498 | 337 |
| ARB115M and ARB115E | 300 | 12 | 631 | 142 |
| | 250 | 10 | 736 | 165 |
| | 200 | 8 | 885 | 199 |
| | 150 | 6 | 1079 | 243 |
| | 100 | 4 | 1408 | 317 |
| ARB120M and ARB120E | 300 | 12 | 600 | 135 |
| | 250 | 10 | 696 | 157 |
| | 200 | 8 | 834 | 188 |
| | 150 | 6 | 1013 | 228 |
| | 100 | 4 | 1316 | 296 |

| NAAMS CODE | OFFSET L | | LOAD P | |
|---------------------------|----------|-----|--------|-----|
| | mm | In. | N | lb |
| ARB125M and ARB125E | 300 | 12 | 564 | 127 |
| | 250 | 10 | 655 | 147 |
| | 200 | 8 | 786 | 177 |
| | 150 | 6 | 955 | 215 |
| | 100 | 4 | 1242 | 279 |
| ARB130M and ARB130E | 300 | 12 | 542 | 122 |
| | 250 | 10 | 626 | 141 |
| | 200 | 8 | 746 | 168 |
| | 150 | 6 | 902 | 203 |
| | 100 | 4 | 1166 | 262 |
| ARB135M and ARB135E | 300 | 12 | 515 | 116 |
| | 250 | 10 | 595 | 134 |
| | 200 | 8 | 667 | 150 |
| | 150 | 6 | 852 | 192 |
| | 100 | 4 | 1100 | 248 |
| ARB140M and ARB140E | 300 | 12 | 493 | 111 |
| | 250 | 10 | 565 | 127 |
| | 200 | 8 | 667 | 150 |
| | 150 | 6 | 800 | 180 |
| | 100 | 4 | 1025 | 231 |
| ARB145M and ARB145E | 300 | 12 | 471 | 106 |
| | 250 | 10 | 539 | 121 |
| | 200 | 8 | 637 | 143 |
| | 150 | 6 | 764 | 172 |
| | 100 | 4 | 979 | 220 |
| ARB150M and ARB150E | 300 | 12 | 453 | 102 |
| | 250 | 10 | 517 | 116 |
| | 200 | 8 | 609 | 137 |
| | 150 | 6 | 729 | 164 |
| | 100 | 4 | 931 | 210 |
| ARB155M and ARB155E | 300 | 12 | 475 | 107 |
| | 250 | 10 | 540 | 122 |
| | 200 | 8 | 634 | 143 |
| | 150 | 6 | 755 | 170 |
| | 100 | 4 | 960 | 216 |
| ARB160M and ARB160E | 300 | 12 | 458 | 103 |
| | 250 | 10 | 521 | 117 |
| | 200 | 8 | 612 | 138 |
| | 150 | 6 | 729 | 164 |
| | 100 | 4 | 928 | 209 |

A

RISER ANGLE BRACKET-ALUMINUM

GLOBAL STANDARD COMPONENTS



Assembly

12/02/19

Tolerances:

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

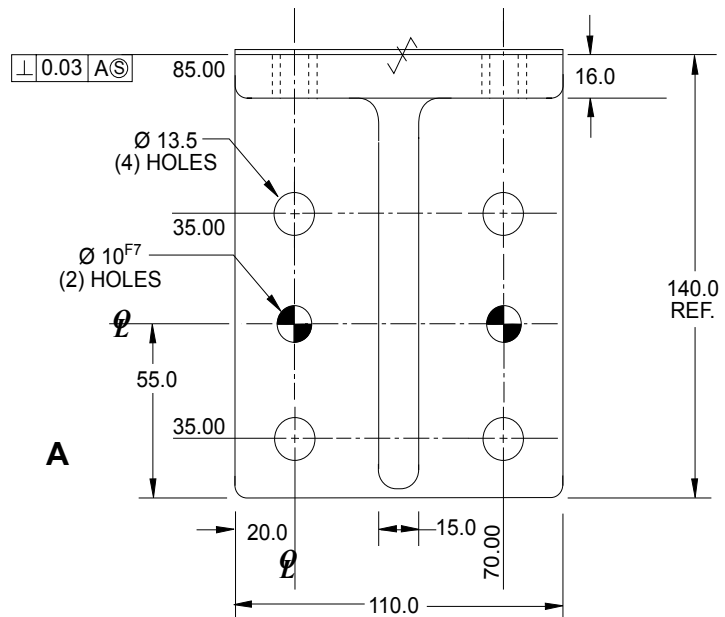
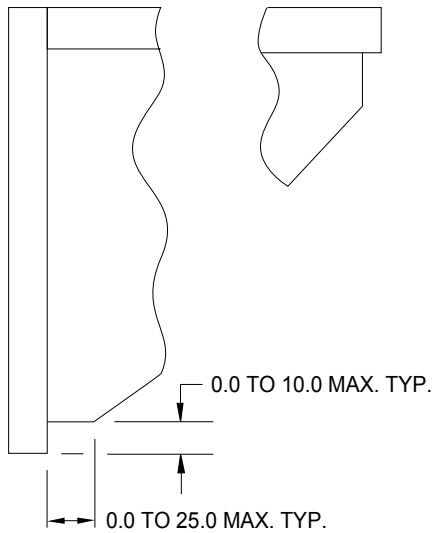
NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.
IDENTIFY WITH NAAMS CODE NUMBER AS SHOWN **XXX**.

MATERIAL:

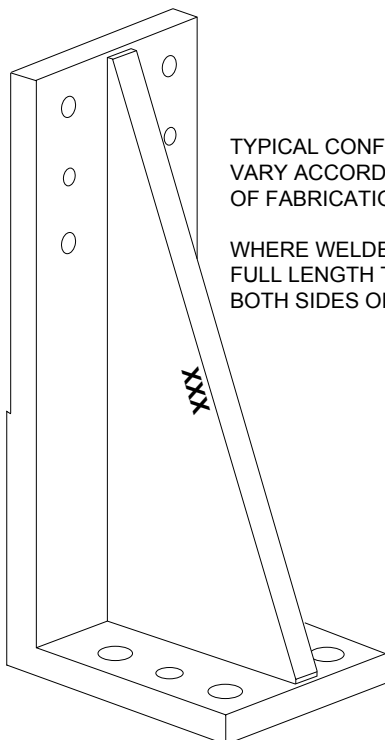
ASTM 713 CAST ALUMINUM

SEE PAGE B-1.1 FOR GLOBAL MATERIALS CHART

A

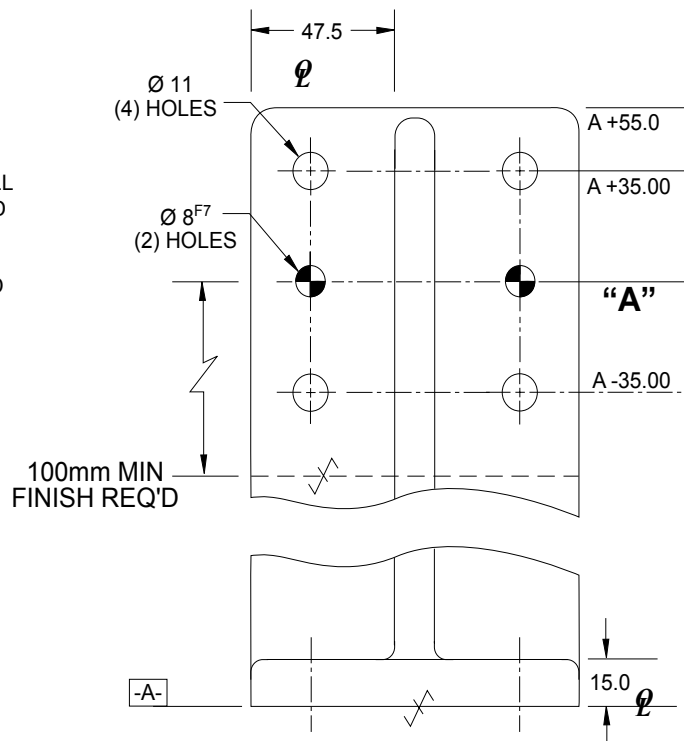


B



TYPICAL CONFIGURATION. WILL VARY ACCORDING TO METHOD OF FABRICATION

WHERE WELDED, FILLET WELD FULL LENGTH TO AWS D1.1 BOTH SIDES OF JOINT



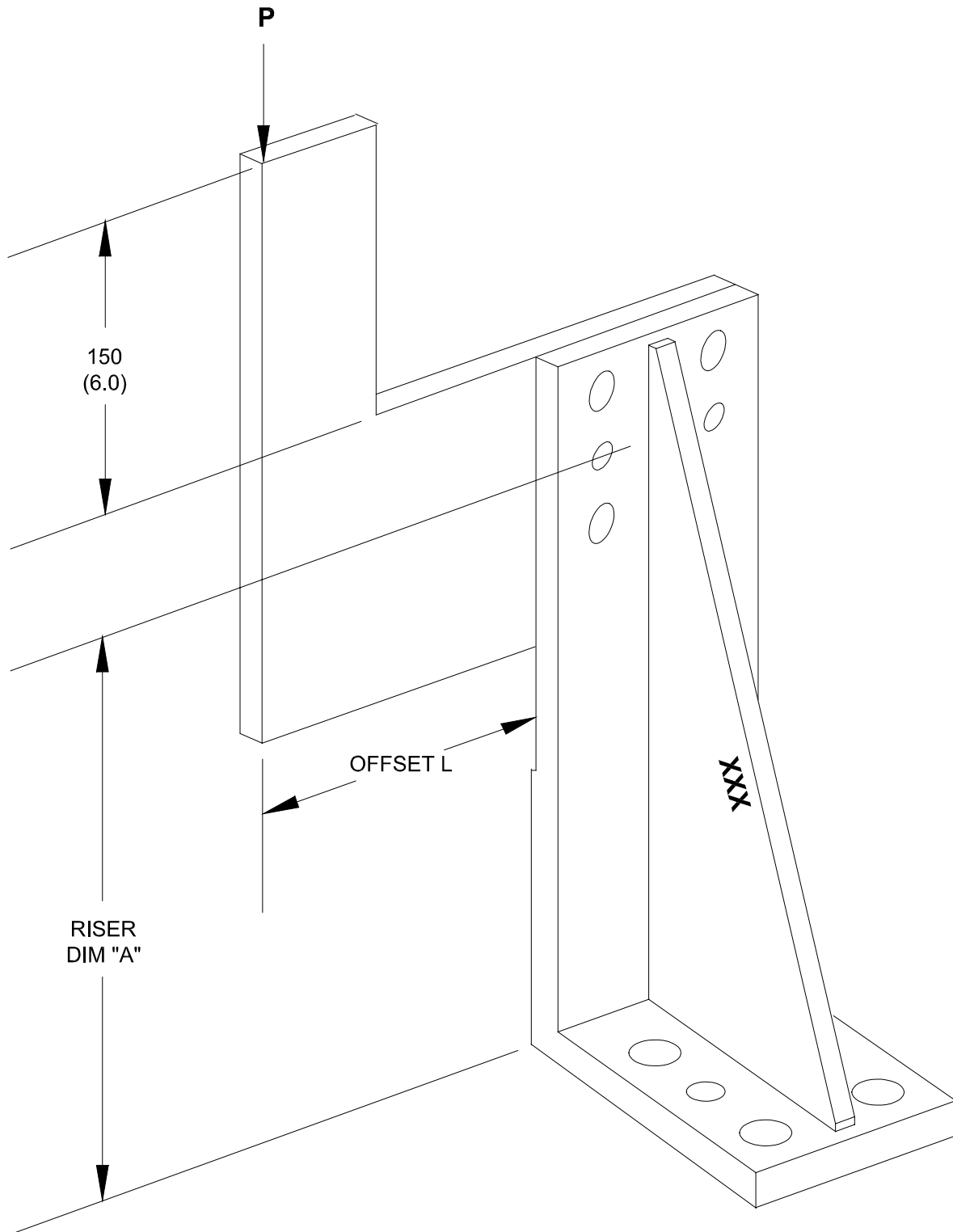
TABULATED INFORMATION ON FOLLOWING PAGE

RISER ANGLE BRACKET-ALUMINUM

| NAAMS CODE | "A" DIM | WEIGHT | |
|---------------|---------|--------|------|
| | | kg | lb |
| AAB101A | 100.00 | 1.82 | 4.00 |
| AAB151A | 150.00 | 2.25 | 4.96 |
| AAB201A | 200.00 | 2.72 | 6.01 |
| AAB251A | 250.00 | 3.11 | 6.85 |
| AAB301A | 300.00 | 3.54 | 7.80 |
| AAB351A | 350.00 | 3.96 | 8.74 |
| AAB401A | 400.00 | 4.36 | 9.61 |

SEE DRAWING ON PRECEDING PAGE

MAXIMUM RECOMMENDED LOADS



SEE TABLE OF RECOMMENDED LOADS ON FOLLOWING PAGE

MAXIMUM RECOMMENDED LOADS

MAXIMUM RECOMMENDED LOAD FOR 0.13 mm (0.005 in.) DEFLECTION

OFFSET VALUES (L) AND POINTS OF APPLICATION OF LOAD P ARE DEFINED IN THE FIGURE ON THE PRECEDING PAGE.

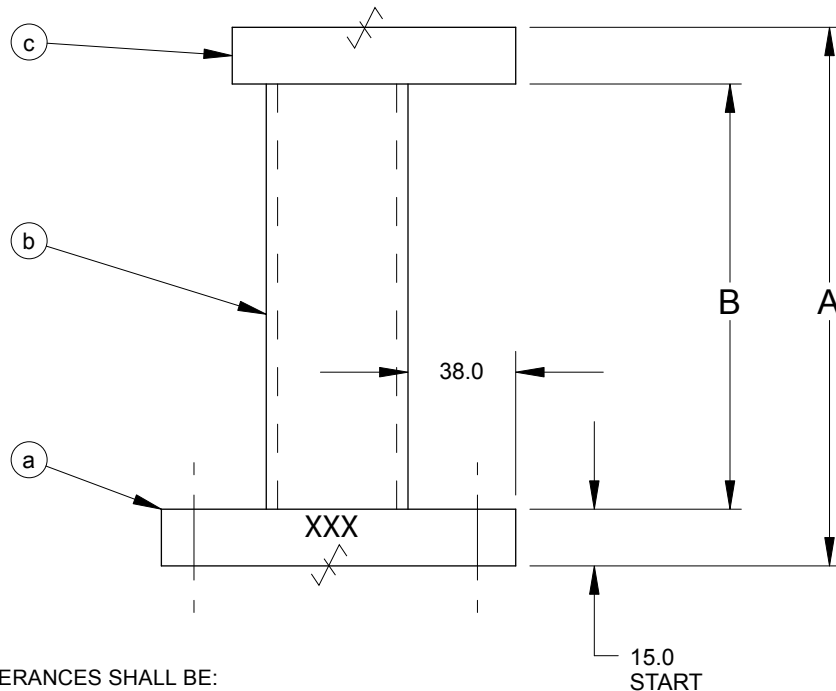
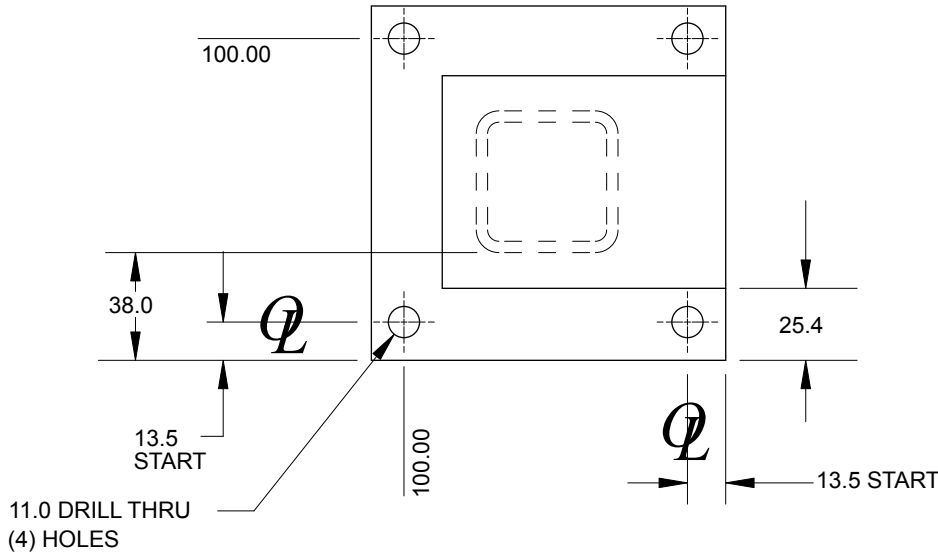
ALLOWABLE 0.13 mm (0.005 in.) DEFLECTIONS ARE MEASURED AT THE POINT OF APPLICATION OF LOAD P, AND DO NOT INCLUDE DEFLECTIONS OF THE BLADE.

MAXIMUM RECOMMENDED LOADS ARE BASED ON ALUMINUM WITH A MODULUS OF ELASTICITY OF 73 GPa (10,600,000 psi).

| Riser | Offset L | | Load P | |
|---------|----------|-----|--------|-----|
| | mm | in. | N | lb |
| AAB101A | 300 | 12 | 640 | 144 |
| | 250 | 10 | 835 | 188 |
| | 200 | 8 | 1,135 | 255 |
| | 150 | 6 | 1,667 | 375 |
| | 100 | 4 | 2,714 | 611 |
| AAB151A | 300 | 12 | 542 | 122 |
| | 250 | 10 | 703 | 158 |
| | 200 | 8 | 955 | 215 |
| | 150 | 6 | 1,387 | 312 |
| | 100 | 4 | 2,248 | 506 |
| AAB201A | 300 | 12 | 476 | 107 |
| | 250 | 10 | 614 | 138 |
| | 200 | 8 | 827 | 186 |
| | 150 | 6 | 1,204 | 271 |
| | 100 | 4 | 1,948 | 438 |
| AAB251A | 300 | 12 | 427 | 96 |
| | 250 | 10 | 549 | 124 |
| | 200 | 8 | 737 | 166 |
| | 150 | 6 | 1,071 | 241 |
| | 100 | 4 | 1,728 | 389 |
| AAB301A | 300 | 12 | 387 | 87 |
| | 250 | 10 | 497 | 112 |
| | 200 | 8 | 665 | 150 |
| | 150 | 6 | 964 | 217 |
| | 100 | 4 | 1,554 | 350 |
| AAB351A | 300 | 12 | 356 | 80 |
| | 250 | 10 | 455 | 102 |
| | 200 | 8 | 604 | 136 |
| | 150 | 6 | 880 | 198 |
| | 100 | 4 | 1,415 | 318 |
| AAB401A | 300 | 12 | 329 | 74 |
| | 250 | 10 | 417 | 94 |
| | 200 | 8 | 552 | 124 |
| | 150 | 6 | 791 | 178 |
| | 100 | 4 | 1,263 | 284 |

SEE DRAWING ON PRECEDING PAGE

RISER FOR PASS TABLES



EXCEPT AS NOTED TOLERANCES SHALL BE:

- 1 PLACE MACHINING ± 0.3
- 1 PLACE FABRICATION ± 1.5
- 2 PLACE ± 0.03 GENERAL
- ± 0.03 BETWEEN DOWELS
- ± 0.13 TO SCREW HOLES

NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.
 WELDED CONSTRUCTION - STRESS RELIEVE
 VENT TO SUIT
 IDENTIFY WITH NAAMS CODE NUMBER
 AS SHOWN XXX

INCH STOCK

- a 1 - HRS ASTM A-36 3/4" X 5" X 5"
- b 1 - STL TBG ASTM A-36 2" X 2" X 3/16" WT X B
- c 1 - HRS ASTM A-36 3/4" X 3" X 4"

METRIC STOCK

- a 1 - HRS ASTM A-36 20MM X 125MM X 125MM
- b 1 - HRS ASTM A-36 50MM X 50MM X 4 WT X B
- c 1 - HRS ASTM A-36 20MM X 75MM X 100MM

A
B

RISER FOR PASS TABLES

| NAAMS CODE | A OVERALL HEIGHT | B TUBE HEIGHT |
|------------|------------------|---------------|
| ART060 | 60.0 | 30.0 |
| ART070 | 70.0 | 40.0 |
| ART080 | 80.0 | 50.0 |
| ART090 | 90.0 | 60.0 |
| ART100 | 100.0 | 70.0 |
| ART110 | 110.0 | 80.0 |
| ART120 | 120.0 | 90.0 |
| ART130 | 130.0 | 100.0 |
| ART140 | 140.0 | 110.0 |
| ART150 | 150.0 | 120.0 |
| ART160 | 160.0 | 130.0 |
| ART170 | 170.0 | 140.0 |
| ART180 | 180.0 | 150.0 |
| ART190 | 190.0 | 160.0 |
| ART200 | 200.0 | 170.0 |
| ART210 | 210.0 | 180.0 |
| ART220 | 220.0 | 190.0 |
| ART230 | 230.0 | 200.0 |
| ART240 | 240.0 | 210.0 |
| ART250 | 250.0 | 220.0 |
| ART260 | 260.0 | 230.0 |
| ART270 | 270.0 | 240.0 |
| ART280 | 280.0 | 250.0 |
| ART290 | 290.0 | 260.0 |
| ART300 | 300.0 | 270.0 |
| ART310 | 310.0 | 280.0 |
| ART320 | 320.0 | 290.0 |
| ART330 | 330.0 | 300.0 |

| NAAMS CODE | A OVERALL HEIGHT | B TUBE HEIGHT |
|------------|------------------|---------------|
| ART340 | 340.0 | 310.0 |
| ART350 | 350.0 | 320.0 |
| ART360 | 360.0 | 330.0 |
| ART370 | 370.0 | 340.0 |
| ART380 | 380.0 | 350.0 |
| ART390 | 390.0 | 360.0 |
| ART400 | 400.0 | 370.0 |
| ART410 | 410.0 | 380.0 |
| ART420 | 420.0 | 390.0 |
| ART430 | 430.0 | 400.0 |
| ART440 | 440.0 | 410.0 |
| ART450 | 450.0 | 420.0 |
| ART460 | 460.0 | 430.0 |
| ART470 | 470.0 | 440.0 |
| ART480 | 480.0 | 450.0 |
| ART490 | 490.0 | 460.0 |
| ART500 | 500.0 | 470.0 |
| ART510 | 510.0 | 480.0 |
| ART520 | 520.0 | 490.0 |
| ART530 | 530.0 | 500.0 |
| ART540 | 540.0 | 510.0 |
| ART550 | 550.0 | 520.0 |
| ART560 | 560.0 | 530.0 |
| ART570 | 570.0 | 540.0 |
| ART580 | 580.0 | 550.0 |
| ART590 | 590.0 | 560.0 |
| ART600 | 600.0 | 570.0 |

DROP AWAY LEAF RISER

(TOP MOUNT MACHINE BASE MOUNTING)

Assembly

03/19/21

TOLERANCES:

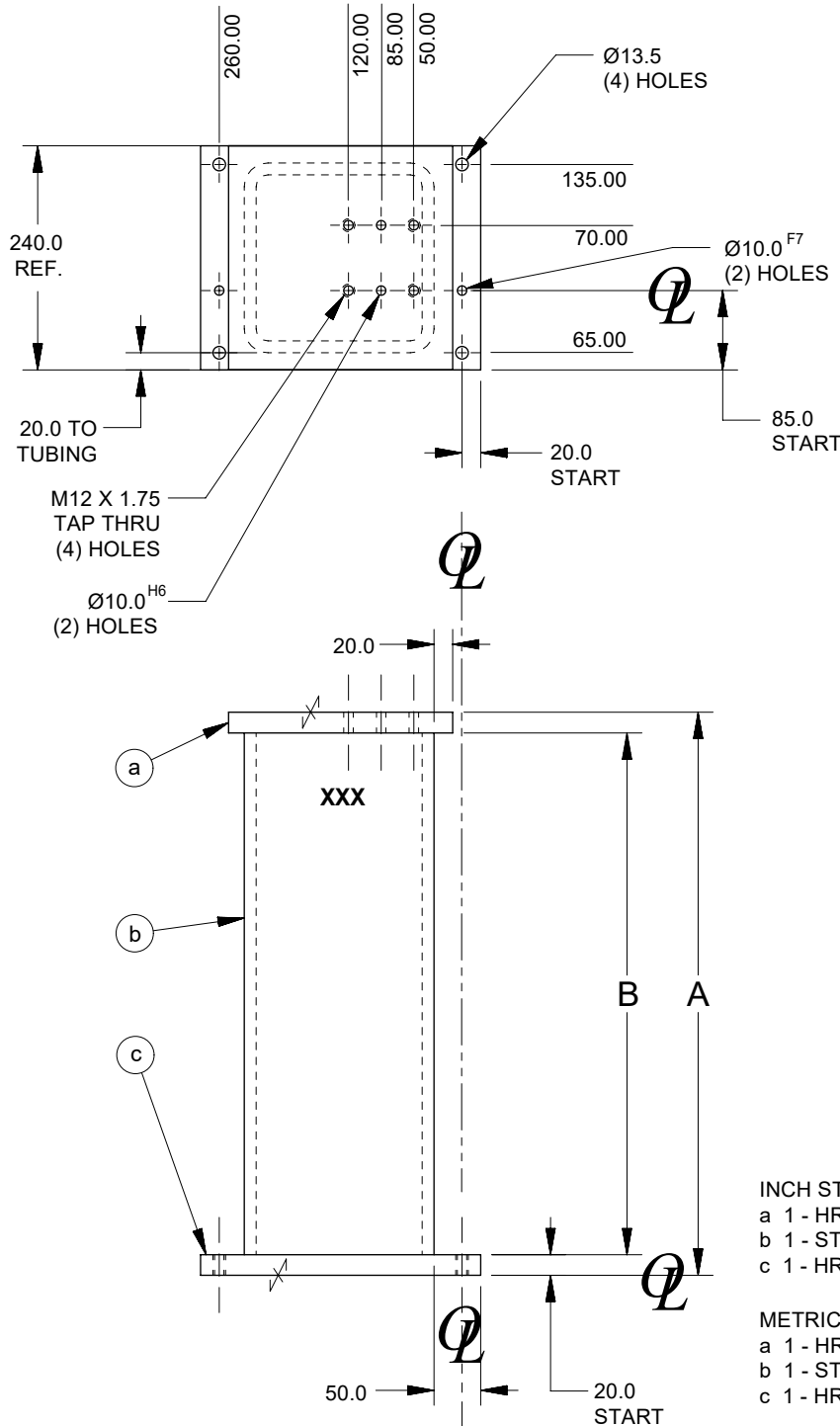
- 1 PLACE MACHINING ±0.3
- 1 PLACE FABRICATION ±1.5
- 2 PLACE ±0.08 BETWEEN MACHINED SURFACES
 - ±0.03 BETWEEN SINGLE DOWEL AND A HEEL SURFACE
 - ±0.03 BETWEEN DOWELS IN THE SAME PLANE
 - ±0.10 BETWEEN DOWELS IN DIFFERENT PLANES
 - ±0.13 TO SCREW HOLES, NON ACCUMULATIVE

NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.
WELDED CONSTRUCTION - STRESS RELIEVE VENT TO SUIT
IDENTIFY WITH NAAMS CODE NUMBER AS SHOWN **XXX**

| NAAMS CODE | "A" OVERALL DIMENSION | "B" TUBE HEIGHT |
|------------|-----------------------|-----------------|
| ARH300 | 300.0 | 255.0 |
| ARH450 | 450.0 | 405.0 |
| ARH600 | 600.0 | 555.0 |
| ARH750 | 750.0 | 705.0 |
| ARH900 | 900.0 | 855.0 |
| ARH105 | 1050.0 | 1005.0 |
| ARH120 | 1200.0 | 1155.0 |

SEE PAGES N-26.2 THRU N-26.4
FOR MOUNTING OPTIONS

A



INCH STOCK

- a 1 - HRS ASTM A-36 1" X 9 1/2" X 9 1/2"
- b 1 - STL TBG ASTM A-36 8" X 8" X 1/2" X B
- c 1 - HRS ASTM A-36 1" X 9 1/2" X 12"

METRIC STOCK

- a 1 - HRS ASTM A-36 25MM X 240MM X 240MM
- b 1 - STL TBG ASTM A-36 200MM X 200MM X 13MM X B
- c 1 - HRS ASTM A-36 25MM X 240MM X 300MM

DROP AWAY LEAF RISER

(SIDE MOUNT MACHINE BASE MOUNTING)

Assembly

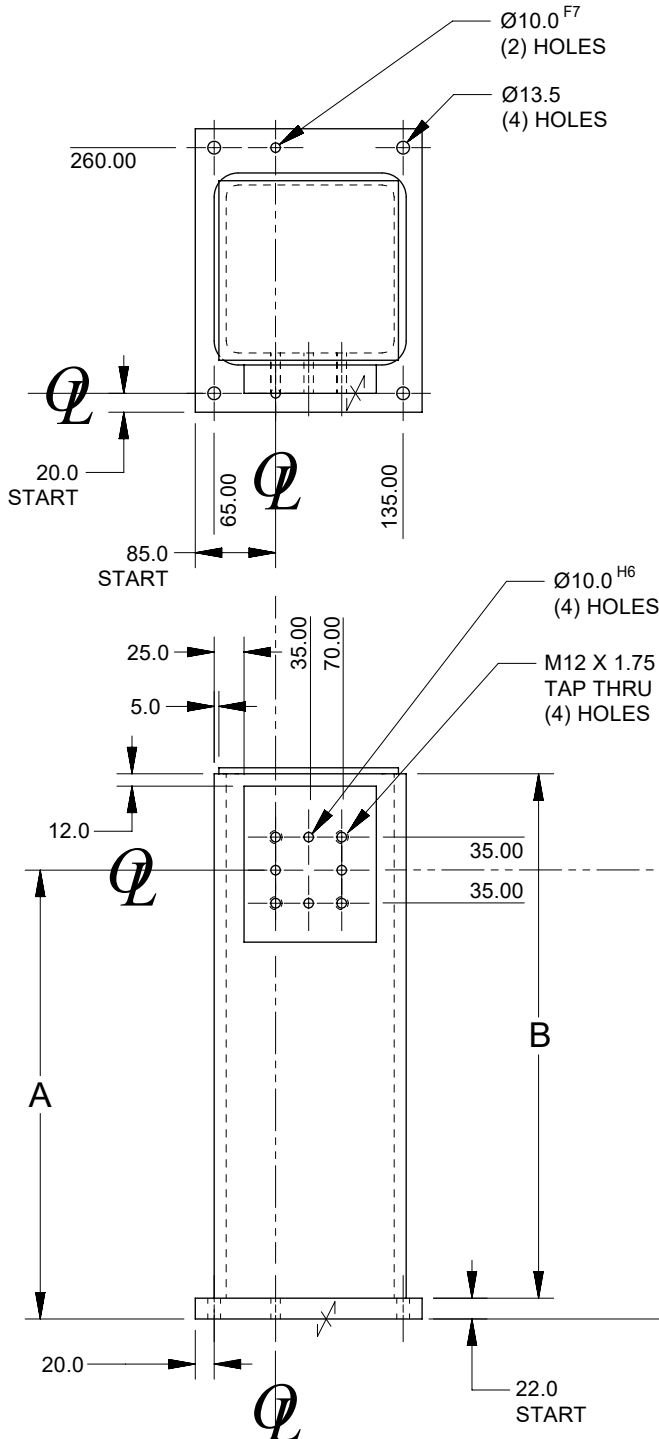
03/19/21

TOLERANCES:

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

NOTES: ALL DIMENSIONS METRIC UNLESS OTHERWISE NOTED.
 WELDED CONSTRUCTION - STRESS RELIEVE VENT TO SUIT
 IDENTIFY WITH NAAMS CODE NUMBER AS SHOWN **XXX**

| NAAMS CODE | "A" DOWEL DIMENSION | "B" TUBE HEIGHT |
|------------|---------------------|-----------------|
| ARV600 | 600.0 | 665.0 |
| ARV750 | 750.0 | 815.0 |
| ARV900 | 900.0 | 965.0 |
| ARV105 | 1050.0 | 1115.0 |
| ARV120 | 1200.0 | 1265.0 |
| ARV135 | 1350.0 | 1415.0 |
| ARV150 | 1500.0 | 1565.0 |



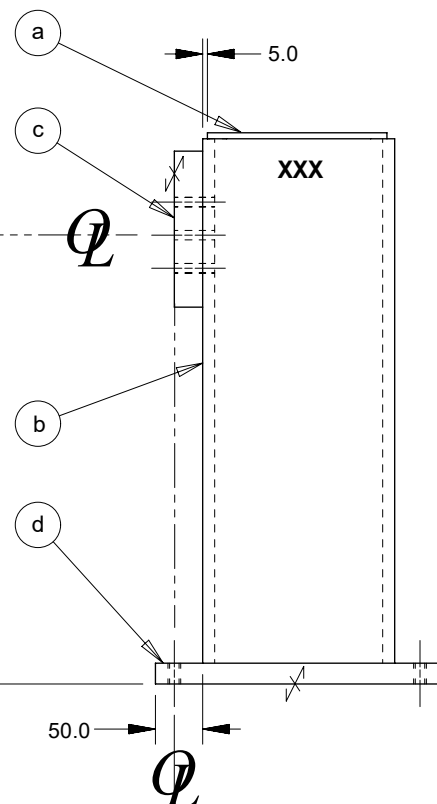
INCH STOCK

- a 1 - HRS ASTM A-36 1/4" X 7 1/2" X 7 1/2"
- b 1 - STL TBG ASTM A-36 8" X 8" X 1/2" X B
- c 1 - HRS ASTM A-36 1 3/8" X 6" X 6"
- d 1 - HRS ASTM A-36 1" X 9 1/2" X 12"

METRIC STOCK

- a 1 - HRS ASTM A-36 6MM X 190MM X 190MM
- b 1 - STL TBG ASTM A-36 200MM X 200MM X 13MM X B
- c 1 - HRS ASTM A-36 35MM X 150MM X 150MM
- d 1 - HRS ASTM A-36 25MM X 240MM X 300MM

SEE PAGES N-26.2 THRU N-26.4 FOR MOUNTING OPTIONS



A