

§ 178.348-2 Material and thickness of material.

(a) The type and thickness of material for DOT 412 specification cargo tanks must conform to §178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in §178.320(a). The following Tables I and II identify the “Specified Minimum Thickness” values to be employed in that determination.

Table I—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

| Volume capacity (gallons per inch) | 10 or less | | | | Over 10 to 14 | | | | Over 14 to 18 | | | 18 and over | | |
|--|-----------------|-------------------|-------------------|-------------|-----------------|-------------------|-------------------|-------------|-----------------|-------------------|-------------------|-----------------|-------------------|-------------------|
| | | | | | | | | | | | | | | |
| Lading density at 60 °F in pounds per gallon | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs | Over 16 lbs | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs | Over 16 lbs | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs |
| Thickness (inch), steel | .100 | .129 | .157 | .187 | .129 | .157 | .187 | .250 | .157 | .250 | .250 | .157 | .250 | .312 |
| Thickness (inch), aluminum | .144 | .187 | .227 | .270 | .187 | .227 | .270 | .360 | .227 | .360 | .360 | .227 | .360 | .450 |

Table II—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

| Volume capacity in gallons per inch | 10 or less | | | | Over 10 to 14 | | | | Over 14 to 18 | | | 18 and over | | |
|--|-----------------|-------------------|-------------------|-------------|-----------------|-------------------|-------------------|-------------|-----------------|-------------------|-------------------|-----------------|-------------------|-------------------|
| | | | | | | | | | | | | | | |
| Lading density at 60 °F in pounds per gallon | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs | Over 16 lbs | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs | Over 16 lbs | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs | 10 lbs and less | Over 10 to 13 lbs | Over 13 to 16 lbs |
| Thickness (steel): | | | | | | | | | | | | | | |
| Distances between heads (and bulkheads baffles and ring stiffeners when used as tank reinforcement): | | | | | | | | | | | | | | |
| 36 in. or less | .100 | .129 | .157 | .187 | .100 | .129 | .157 | .187 | .100 | .129 | .157 | .129 | .157 | .187 |
| Over 36 in. to 54 inches | .100 | .129 | .157 | .187 | .100 | .129 | .157 | .187 | .129 | .157 | .187 | .157 | .250 | .250 |
| Over 54 in. to 60 inches | .100 | .129 | .157 | .187 | .129 | .157 | .187 | .250 | .157 | .250 | .250 | .187 | .250 | .312 |
| Thickness (aluminum): | | | | | | | | | | | | | | |

Distances between heads (and bulkheads baffles and ring stiffeners when used as tank reinforcement):

| | | | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 36 in. or less | .144 | .187 | .227 | .270 | .144 | .187 | .227 | .270 | .144 | .187 | .227 | .187 | .227 | .270 |
| Over 36 in. to 54 inches | .144 | .187 | .227 | .270 | .144 | .187 | .227 | .270 | .187 | .227 | .270 | .157 | .360 | .360 |
| Over 54 in. to 60 inches | .144 | .187 | .227 | .270 | .187 | .227 | .270 | .360 | .227 | .360 | .360 | .270 | .360 | .450 |

(b) [Reserved]

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