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## Question: A spherical gas tank has an inner radius of $r = 1.5$ m. If it is sub...

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1. A spherical gas tank has an inner radius of  $r = 1.5$  m. If it is subjected to an internal pressure of  $p = 300$  kPa, determine its required thickness if the maximum normal stress is not to exceed 12 MPa.

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## Expert Answer



Anonymous answered this  
265 answers

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Sol:  
Given data,  
 $P = 300 \text{ kPa}$ ,  $r = 1.5 \text{ m}$   
 $\sigma_{\text{allow}} = 12 \text{ MPa}$   
 $\therefore \sigma_{\text{allow}} = \frac{Pr}{2t}$   
 $12 \times 10^6 = \frac{300 \times 10^3 \times 1.5}{2t}$   
 $t = 0.0188 \text{ m} = 18.8 \text{ mm}$  Ans

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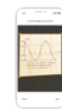
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Q: A spherical gas tank has an inner radius of  $r = 1.5$  m. If it is subjected to an internal pressure of  $p = 300$  kPa, determine its required thickness if the maximum normal stress is not to exceed 12 MPa

A: [See step-by-step answer](#) 100% (2 ratings)

Q: A spherical gas tank has an inner radius of 1.5 m. If it is subjected to an internal pressure of  $p = 300$  kPa. Determine its required thickness if the maximum normal stress is not to exceed 12 MPa.

A: [See answer](#) 100% (3 ratings)

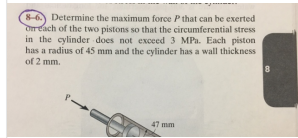
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Two vertical, parallel, clean, glass plates are spaced a distance of 2.3 mm apart. If the plates are placed in water how high will the water

[See answer](#)

Determine the maximum force  $P$  that can be exerted on each of the two



[See answer](#)

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**Q:** The tank of the air compressor is subjected to an internal pressure of 90 psi. If the internal diameter of the tank is 22 in., and the wall thickness is 0.25 in., determine the stress components acting at point A. Draw a volume element of the material at this point and show the results on the element. HELP!!!!!!!!!!!!

**A:** [See step-by-step answer](#) 100% (37 ratings)

**Q:** A pressurized spherical tank is to be made of 0.5-in. thick steel. If it is subjected to an internal pressure of  $P = 200$  psi, determine its outer radius if the maximum normal stress is not to exceed 15 ksi.

**A:** [See step-by-step answer](#) 100% (38 ratings)

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