

CH6511 Process Equipment Design - I

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Mechanical Design of Chemical Process Equipments Supports for Vessels

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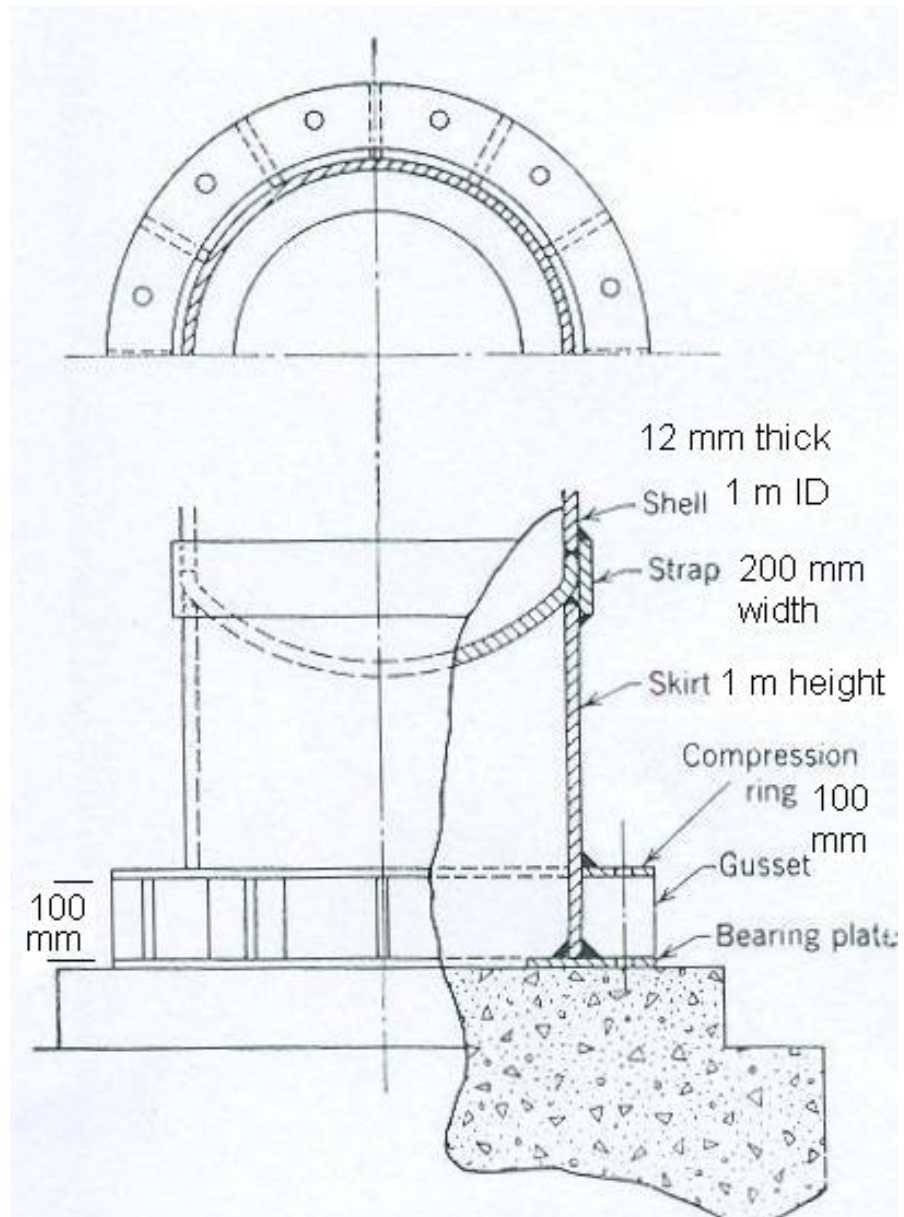


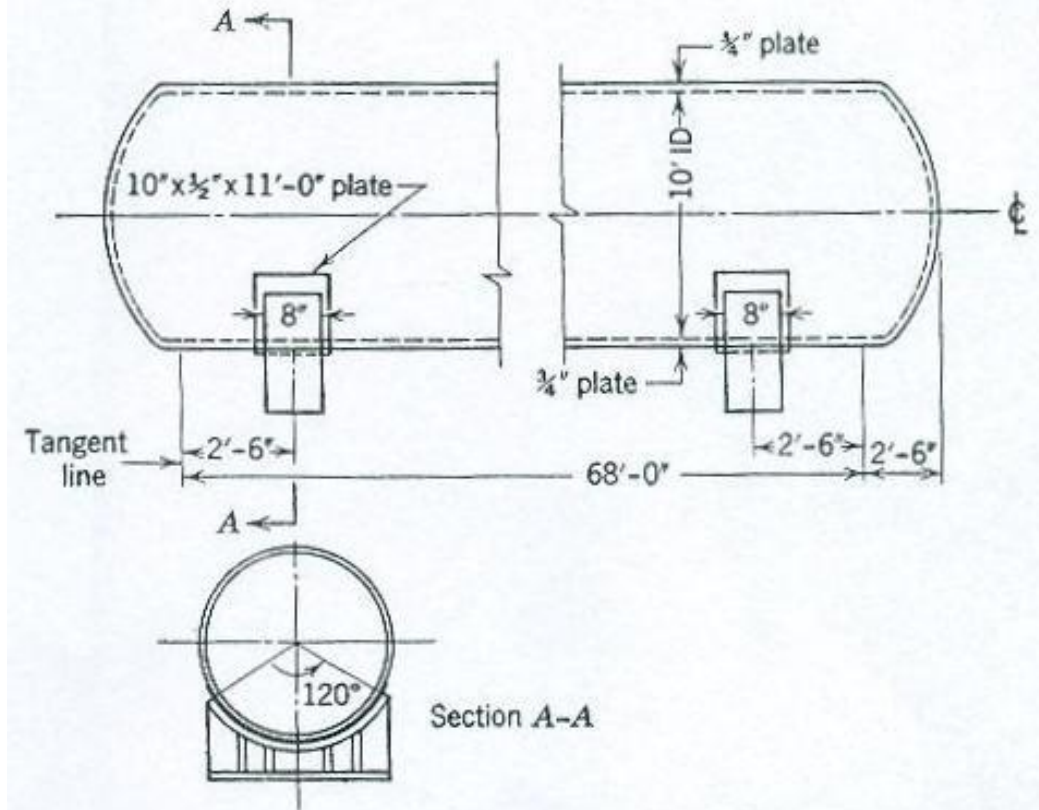
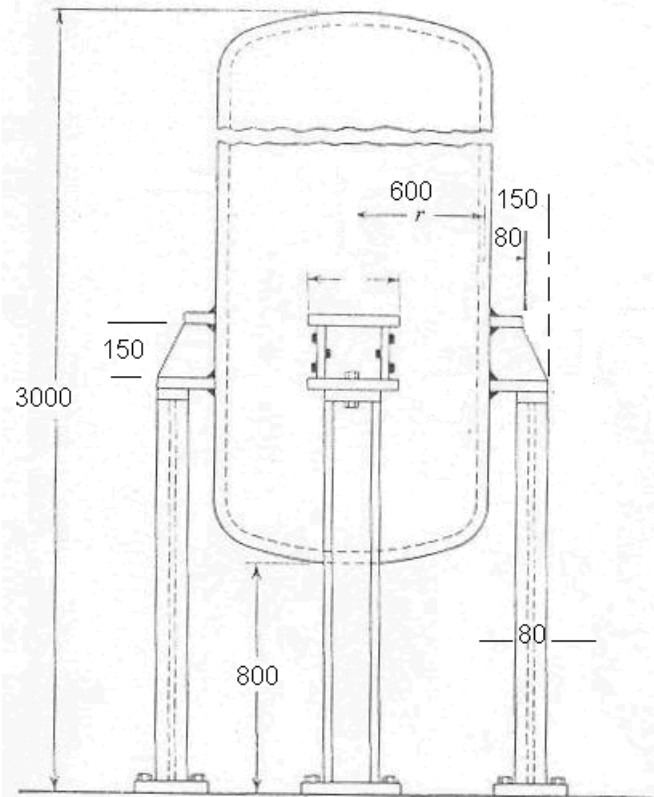
Supports to Process Vessels



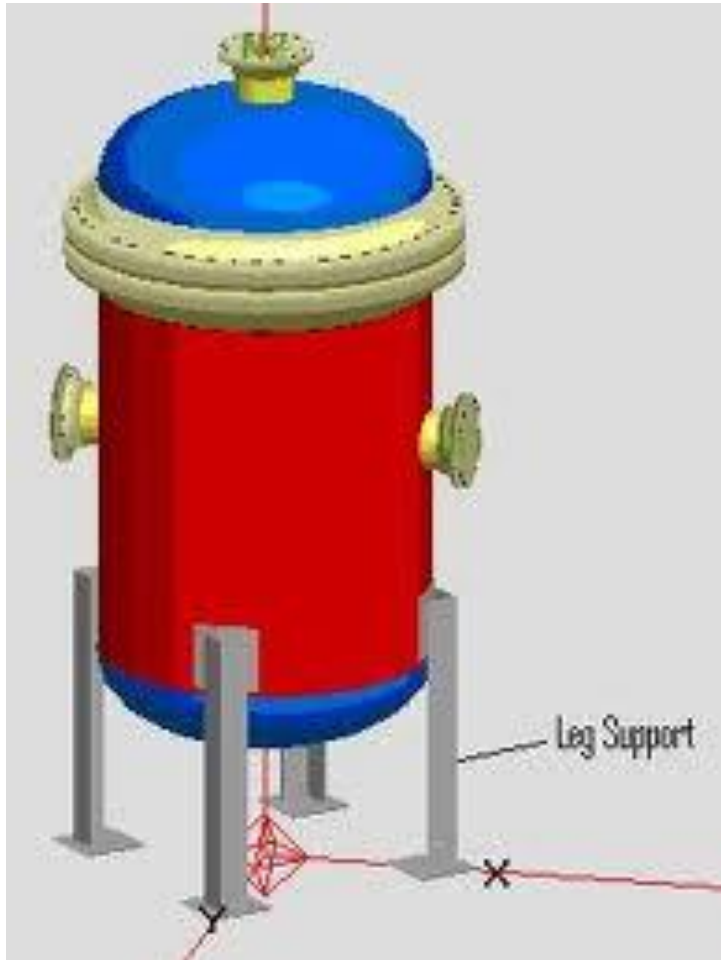
Types of Supports

- Leg support
- Lug support
- Saddle support
- Skirt support





Leg support

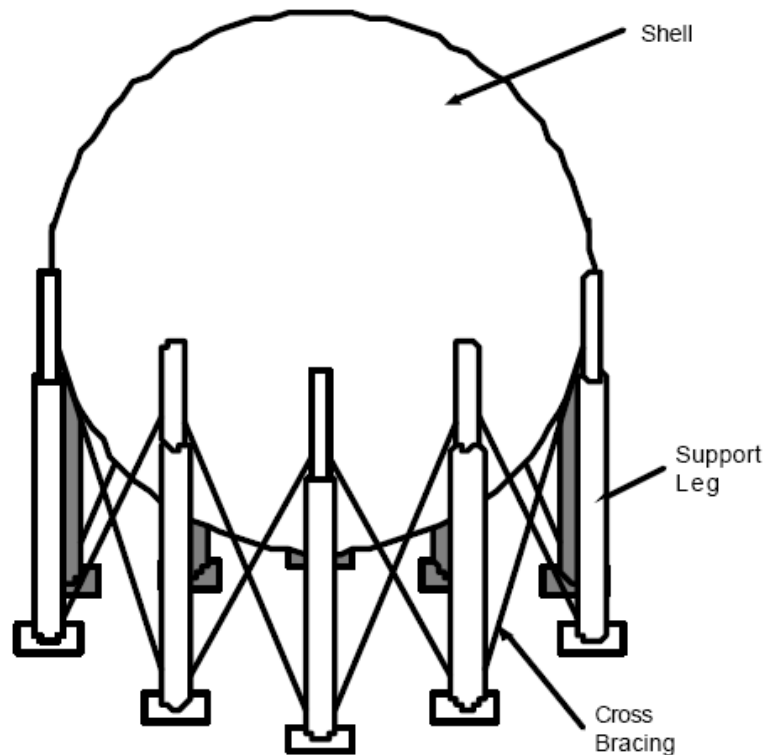


- Small vertical pressure vessel leg at the bottom of the shell.
- Ring reinforcement pad to provide additional reinforcement of local and load distribution, where the local stresses that occur
- The sum of the leg is needed depends on size and weight received vessel.
- Support leg is also commonly used in pressurized spherical storage vessels.









- Spherical storage vessels typically supported on legs.
- Cross-bracing typically used to absorb wind and earthquake loads.

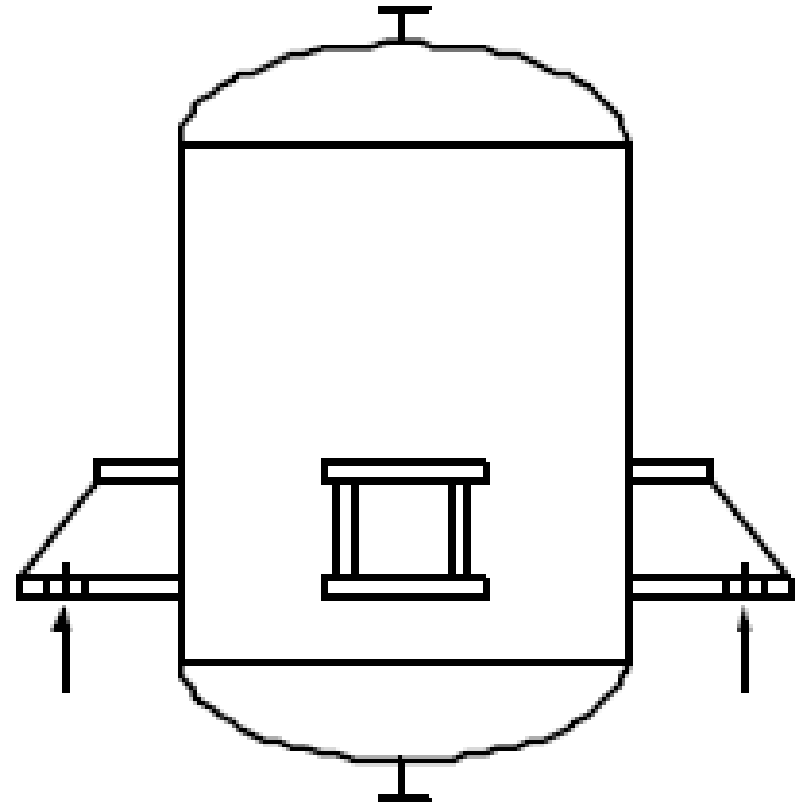


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Lug Support

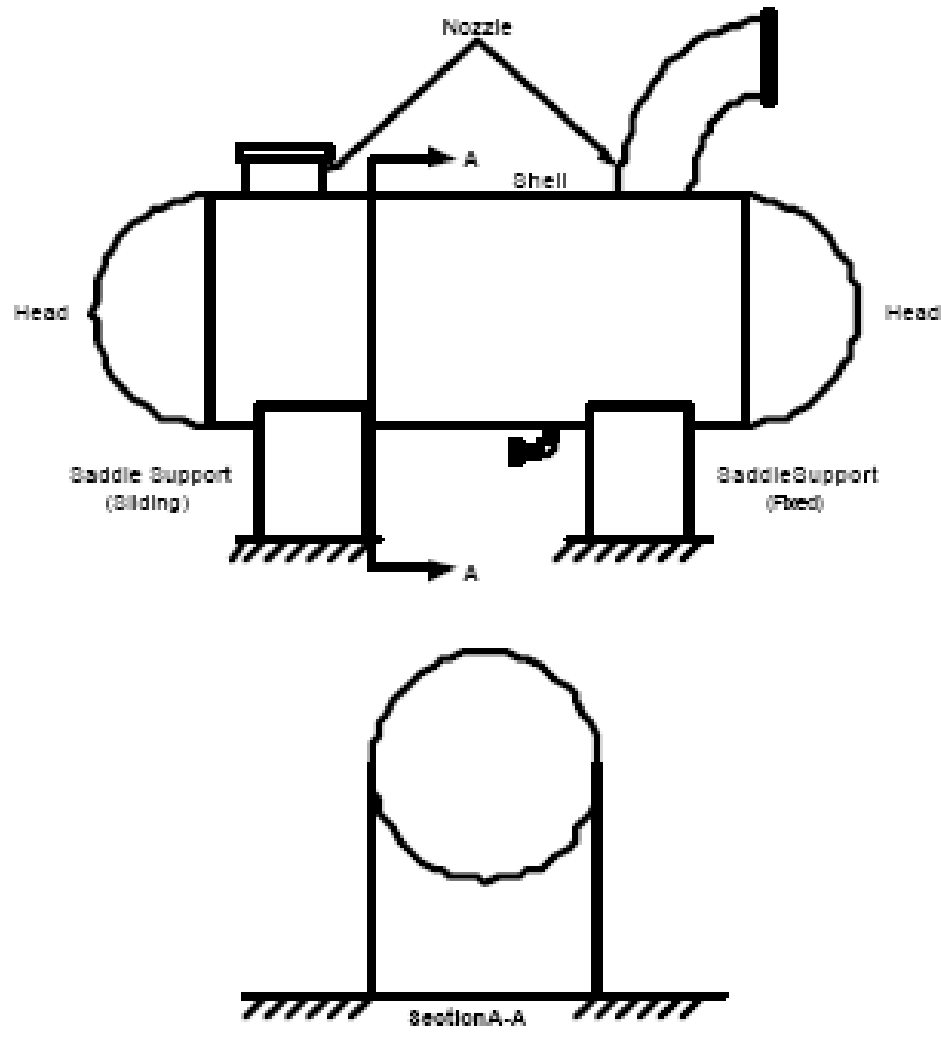
- Vessel size limits for lug supports:
 - 1 – 10 ft diameter
 - 2:1 to 5:1 height/diameter ratio
- Lugs bolted to horizontal structure.
- Bolt holes are often given the gap to provide radial thermal expansion of freedom in the vessel.







Saddle Support

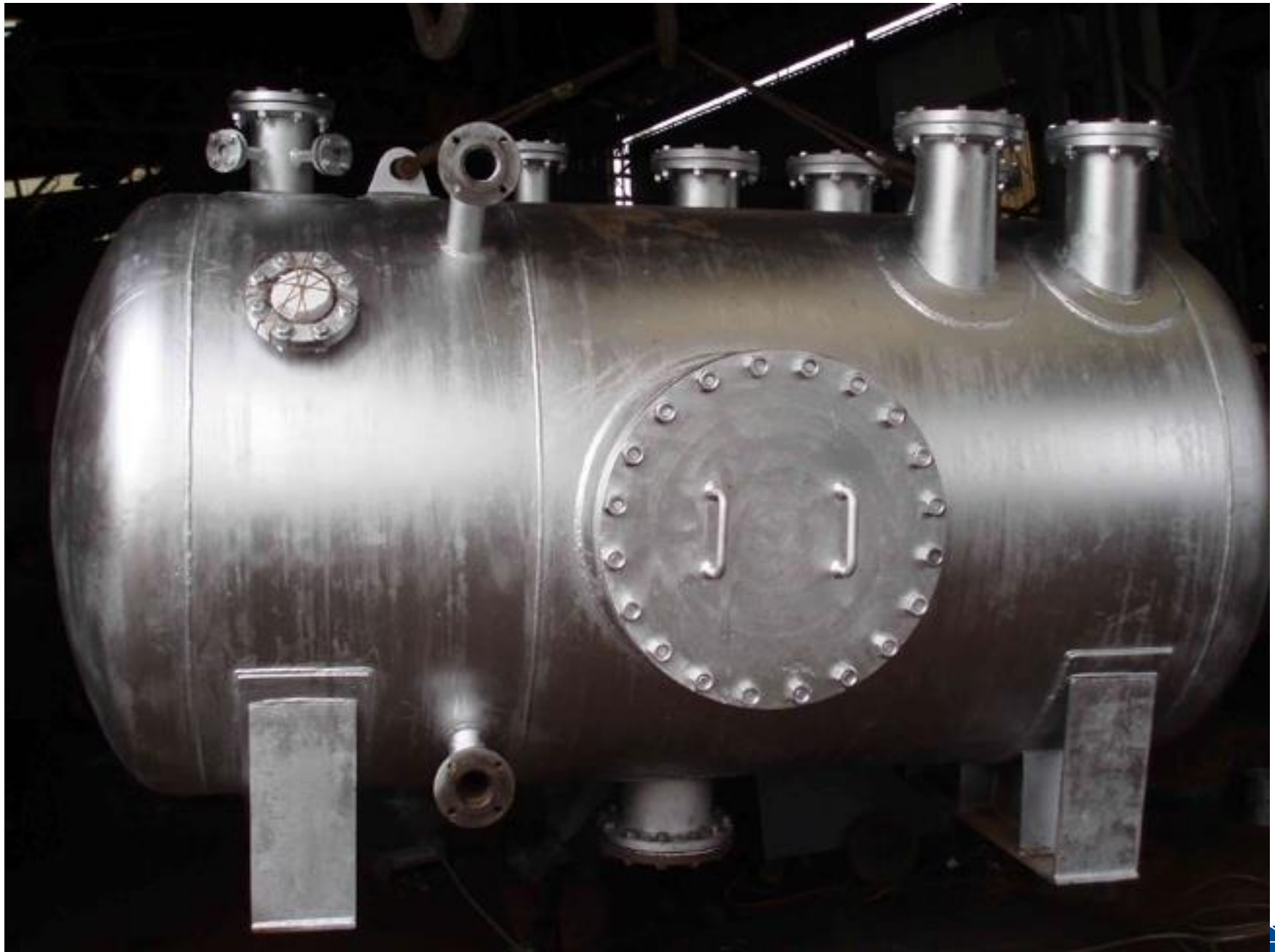


Saddle Support

- Saddle supports used for horizontal drums.
 - Spreads load over shell.
 - One support fixed, other slides.

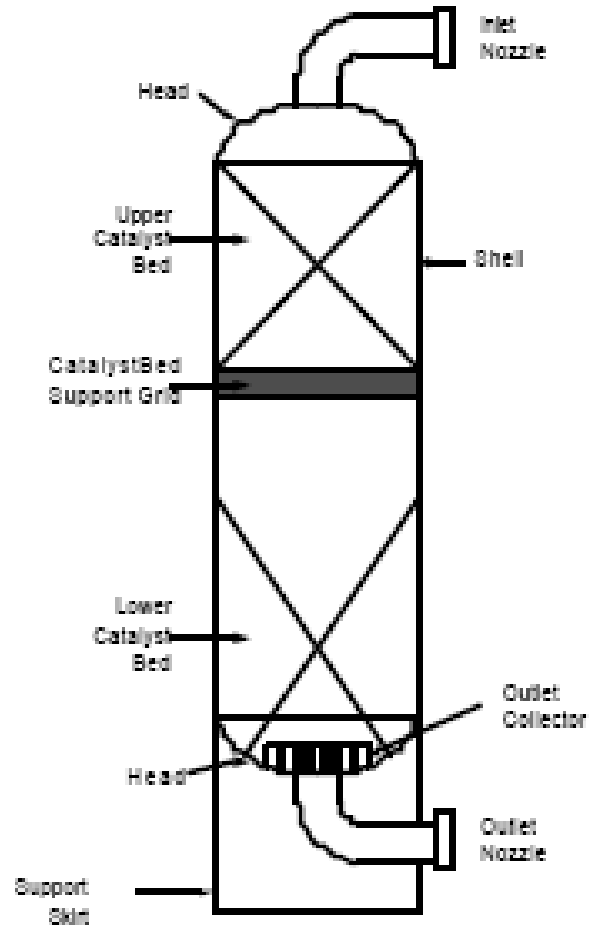
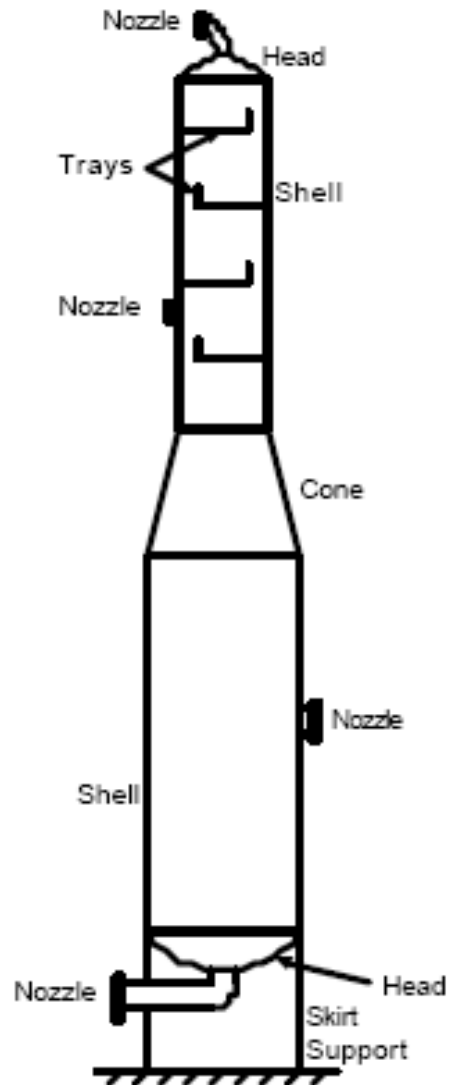








Skirt Support









Skirt Support

- Skirt supports typically used for tall vertical vessels
- Designed for weight, wind, earthquake. Pressure not a factor.