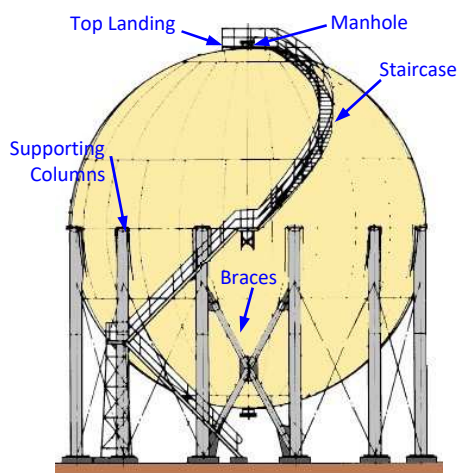


## SPHERICAL STORAGE TANK



Spherical storage tank is widely used in Petrochemical, Chemical and Oil and Gas industries to store various products such as LPG, LNG, NGL, Ammonia, Gasoline, Ethylene, Naphtha and others chemical liquid.

The advantages of spherical storage are

- Less stress concentration and uniform stress distribution under internal pressure resulting in pressurized storage
- Thinner required wall thickness compared to cylindrical shell for holding the same pressure which means more economical
- Smaller surface area compared to a cylindrical tank of the same volume. It means that the quantity of heat transferred from warmer surroundings to the liquid in the sphere, will be less than cylindrical or rectangular storage vessels

**PT. LINTECH DUTA PRATAMA** provide engineering design service, fabrication and repair of spherical tank in accordance with respective codes and standards and customer specifications.

### Scope of Supply

- Design and Detailed Engineering
- Procurement, Fabrication, Testing and Inspection
- Field Installation
- Civil Works
- Electrical and Instruments Works
- Safety equipment such as safety valve, excess flow valve, Internal valve, etc as required

### Technical Specification

- Diameter : 6 to 35 m
- Stairway : From grade to top
- Platform : Landing platform at Top
- Access Ladders : As required
- Manhole : 1 at Top
- Flanged Nozzles : Bottom and as required
- Safety Valve : As required
- Coating : See table

### Design and Codes

The design, material, fabrication, Inspection and testing are according to standard codes such as ASME Section VIII Div.1, ASME Section VIII Div.2, API 650, API 620 and other International Codes

### Material

- Shell
  - Carbon Steel : SA516 Gr.70, SA537 Cl.1 or 2
  - Stainless Steel : SS304, SS316
- Support steel : ASTM, JIS - CS or Low Alloy
- Platforms, Stairway, : CS  
Handrails, Ladders
- Nozzles : CS or same grade as shell

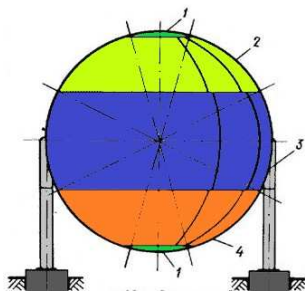


### Surface Preparation and Coating

| Parts                    | Surface Preparation                          | Painting                                            |
|--------------------------|----------------------------------------------|-----------------------------------------------------|
| Shell – CS               |                                              |                                                     |
| Internal Surface         | None                                         | None                                                |
| External Surface         | SSPC-SP10                                    | Alkyd universal primer                              |
| Shell – SS               |                                              |                                                     |
| Internal Surface         | None                                         | None                                                |
| External Surface         |                                              |                                                     |
| Pipes – Large Bore       | Interior : SSPC-SP10<br>Exterior : SSPC-SP10 | Interior : None<br>Exterior: Alkyd universal primer |
| Pipes – Small Bore       | Per mill standard                            | Per mill standard                                   |
| Support Steel            | SSPC-SP10                                    | Alkyd universal primer                              |
| Grating, Stairs, Ladders | None                                         | Hot Dip Galvanized                                  |
| Handrail                 | None                                         | Yellow Paint                                        |

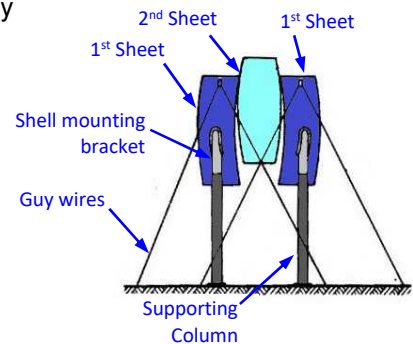
Note: above specifications can be changed based on required specification

### Installation Method



Spherical tank is installed at site with high precision and high quality of weld seams to ensure safe operation and reliable storage. Tanks is constructed from pre-fabricated sheets with desired size. Generally, sphere tank is divided into three zone sheets assembly

1. Cup (Top and Bottom)
2. Upper zone
3. Equatorial belt
4. Lower belt



- Install all supporting columns and braces
- Install a equatorial sheet equipped with mounting bracket to a mounting base of supporting column. Sheet should be fixed by three braces, which also allow to adjust its position
- Insert a sheet (2<sup>nd</sup>) between two columns then connecting them and joint the mounting brackets
- Once equatorial belt is complete, install lower belt and connected to equatorial belt and lower edge of the sheet is supported by uprights till all lower belt sheets complete
- Upper zone to be ground assembled then mounted to top of equatorial belt
- Install cup (upper and lower bowls)



### Application

- Fuel gases storage tanks: LPG, LNG
- Fuel liquid storage tanks: Gasoline, Ethylene, etc
- Chemical storage tanks: Ammonia, Butane, etc
- Others pressurized fluid storage tank