



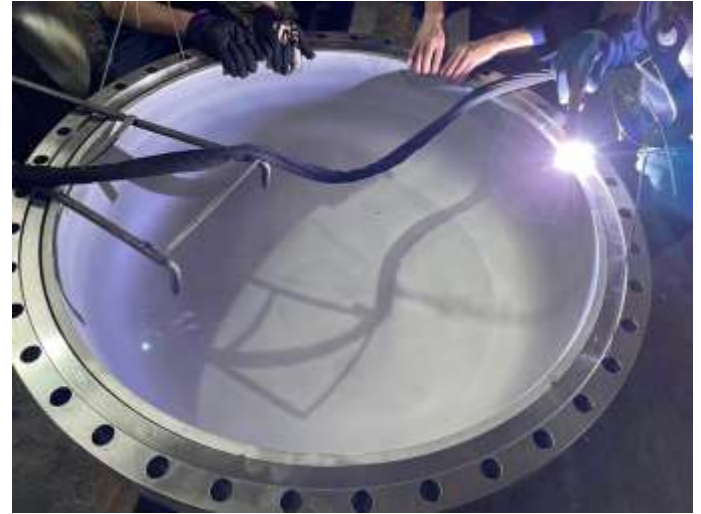
Elliptical head

Elliptical head is a type of pressure vessel head consisting of a curved surface with a shape that resembles an ellipse or a squashed circle.

The elliptical head (or named ellipsoidal head) which is a head consisting of two parts: a rotating ellipsoidal sphere and a cylindrical straight section. Elliptical tank head is fabricated to have a certain shape instead of a particular dish radius or knuckle radius. The dish radius is approximately 90% of the diameter and the knuckle radius is approximately 17% of the diameter. 2:1 elliptical flanged and dished heads are ASME compliant.

Note: Mill test certificates will be issued according to EN10204.3 3.1 or 3.2

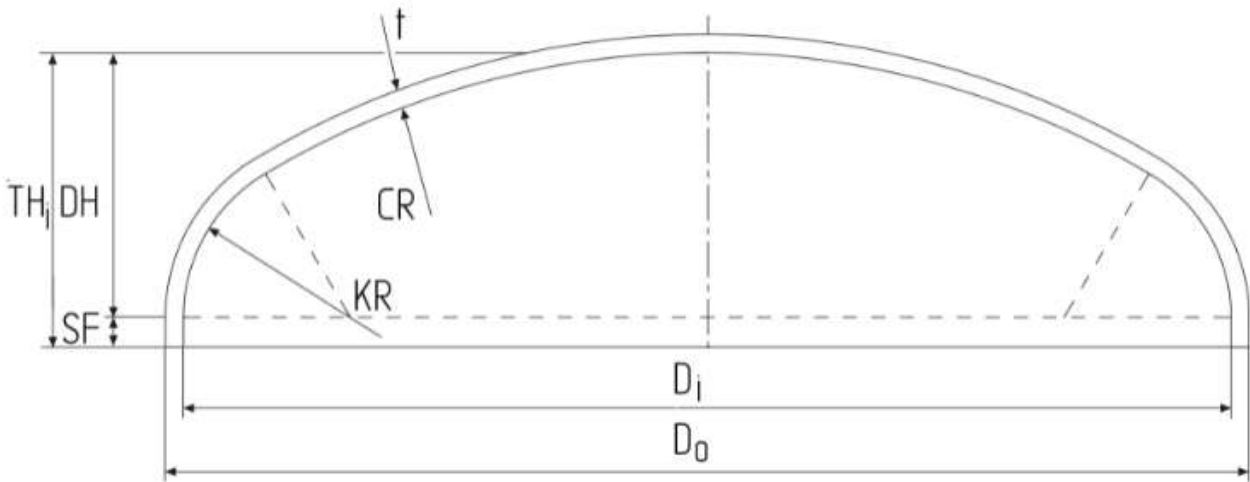




Material

- Carbon steel tank ends/caps, flat dished head: SA516 GR60N,GR70N
- Stainless steel ellipsoidal dished end, elliptical tank head: SA240 304, 316
- Titanium alloy pressure vessel ends: SB256 GR1, GR2, GR5





The shape of this head is more economical, because the height of the head is just a fraction of the diameter. Its radius varies between the major and minor axis; usually the ratio is 2:1.

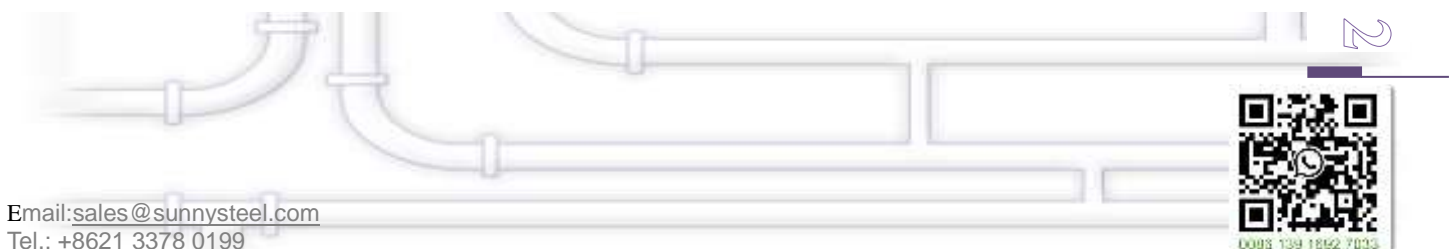
Usage of elliptical head

Elliptical heads are commonly used in the design and construction of tanks and pressure vessels that operate under high pressure conditions. They are typically used at the end of cylindrical vessels where the transition is made from the cylindrical part to the end closure.

Some common applications of elliptical heads include:

- Pressure vessels: Elliptical heads are frequently used as end closures for pressure vessels such as boilers, reactors, and distillation columns. These vessels are used in industries such as oil and gas, chemical processing, and power generation.
- Tanks: Elliptical heads can be used in the construction of storage tanks for liquids or gases such as water, fuel, and natural gas. They provide a smooth transition between the tank body and the tank head.
- Heat exchangers: Elliptical heads can also be used in the construction of heat exchangers such as shell-and-tube heat exchangers, which are used in a wide range of industries including food processing, pharmaceuticals, and HVAC.

Elliptical heads are widely used in various industries where pressure vessels, tanks, or heat exchangers are required to operate at high pressures and temperatures. The specific application, size, material, and thickness of an elliptical head depend on the requirements and design standards of the project.



What should be considered in the selection of the heads?

1. Customer requirements.
2. Requirements of Chemical Process.
3. Conical heads are used for vertical vessels of solid masses to facilitate the flow and discharge of masses. Elliptical head or spherical head for liquid masses.
4. Stirred pressure vessels should determine the shape of the head according to the shape of the slurry leaf and the flow form of the working mass.
5. According to the pressure. For medium and low pressure pressure vessels, ellipsoidal heads are mostly used. For high pressure and ultra-high pressure pressure vessels, spherical heads are mostly used.
6. Determine from the analysis of considering the stress situation. If the stress transition zone of ellipsoidal head is opened with larger openings and the local stress is too large, spherical head can also be considered.

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