



IS 3196 (Part 4): 2001

Welded Low Carbon Steel Cylinders exceeding 5 Litre Water Capacity for Low Pressure Liquefiable Gases – Specification

Part 4: Cylinders for Toxic and Corrosive Gases

This standard deals with welded low carbon steel cylinders intended for storage and transportation of toxic and/or corrosive low pressure liquefiable gases of nominal capacity up to and including 250 litres water capacity. This standard lays down the requirements for the design, materials to be used, manufacture, construction, tests and marking of these cylinders.

These cylinders are critical for safely storing toxic and corrosive gases such as Ammonia (anhydrous) Chlorine and Methyl bromide. These gases contained in cylinders constitute a grave danger if not handled properly due to toxicity and corrosiveness of the contents involved. This standard gives guidance to the manufacturers and users of cylinders for such toxic and corrosive gases.

Consumers expect high quality, durable cylinders that meet safety standards, provide reliable performance and ensure safe handling of toxic and corrosive gases. Key expectations include:

1. **Structural integrity:** The cylinders must withstand internal pressure without deforming or leaking, ensuring that the stored gas remains safely contained.
2. **Material quality:** The use of high quality low carbon steel ensures resistance to corrosion thus maintaining the strength of the cylinders and their durability over time.
3. **Safety features:** Proper installation of the valve, pressure relief mechanisms and testing for leakage and other mechanical failures are crucial to prevent hazards.

This standard IS 3196 (Part 4) addresses these expectations through strict guidelines on :

- **Material specifications:** It prescribes the use of specific grades of low carbon steel to ensure the cylinder's strength, weldability, and corrosion resistance.
- **Design and construction:** The standard details the required design features, such as wall thickness and structural tolerances, ensuring that the cylinders can safely withstand both normal and extreme operating conditions.
- **Testing and Inspection:** It mandates comprehensive testing procedures including hydrostatics test, pneumatic leakage test, hydrostatic stretch, bursting test, acceptance test and visual inspections to verify cylinder integrity before use.

By adhering to IS 3196 (Part 4), manufacturers can ensure the production of gas cylinders that meet the safety and quality expectations of consumers, promoting both reliability and operational safety in the handling of toxic and corrosive gases.