



## IS 15927 (Part 1 to 3) POLYETHYLENE FITTINGS FOR USE WITH POLYETHYLENE PIPES FOR THE SUPPLY OF GASEOUS FUELS — SPECIFICATION

**Polyethylene fittings** for gaseous fuels are essential components in the distribution systems of natural gas and other gaseous fuels. Made from high-density polyethylene (HDPE), these fittings offer excellent resistance to corrosion, chemical degradation, and environmental stress cracking, making them ideal for outdoor and underground applications. The durability and flexibility of polyethylene allow for easier installation, even in challenging terrains, while minimizing the need for expensive materials and labor. Additionally, polyethylene fittings are lightweight, providing a more cost-effective alternative to traditional metal fittings. With proper design and installation, these fittings ensure safe, reliable, and efficient transmission of gaseous fuels, meeting the stringent standards of the gas industry for both residential and industrial applications.

The **IS 15927** standard series provides comprehensive specifications for polyethylene (PE) fittings designed for use with PE pipes in gas supply systems, especially in buried installations. It includes guidelines for both socket fusion and electro fusion fittings, covering nominal diameters from 16 mm to 315 mm with Standard Dimension Ratios (SDR) of 11 and 17.6. Suitable for material grades PE 80 and PE 100, these fittings are designed to operate at pressures up to 7 bars and within a temperature range of  $-5^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ .

**Material and Composition:** The fittings are constructed using high-quality polyethylene compounds. Specific additives, including antioxidants, UV stabilizers, and carbon black, are prescribed to improve durability and resistance to environmental stresses. Compatibility with IS 14885-compliant PE pipes is required.

**Design, Dimensions, and Testing:** The standard specifies dimensions for socket and electro fusion fittings, including wall thickness and fusion compatibility. The fittings must pass rigorous tests, such as hydraulic pressure, thermal stability, melt flow rate, and tensile load tests, to ensure they withstand the stresses of gas transport, both internally and in environmental conditions.

**Performance and Durability:** Extensive performance requirements ensure long-term structural integrity and resistance to factors such as corrosion, pressure, and gas constituent effects. Pressure testing at specified durations ensures that fittings are leak-resistant and durable under continuous use.

To ensure traceability, each fitting is marked with critical information, including size, SDR rating, and batch number. Packaging must prevent damage, often requiring polyethylene bags or similar methods to maintain quality during handling and storage.