

## INDIAN STANDARDS FOR NATURAL GAS PIPELINE SYSTEM

1. **IS 15663(Part 1):2006** This code covers requirements and recommendations for the design, materials, construction and testing of pipelines made of steel and used in the transportation of natural gas and re-gasified liquid natural gas (RLING).
2. **IS 15663(Part 2):2006** The code covers the minimum requirements for design, installation and testing of pipelines of steel, crossing roads, railways, water courses and other buried services.
3. **IS 15663(Part 3):2006** This code covers requirements for pre-commissioning and commissioning of pipelines.
4. **IS 15654:2006** The standard provides guidelines for the definition, specification, performance analysis, and application of systems used for supervisory control and data acquisition for oil and gas pipe lines.
5. **IS 15655:2006** This standard enlists various types of telecommunication facilities required for smooth and efficient operation and maintenance of oil and gas pipelines.
6. **IS 15667:2006** This standard applies to data-acquisition and trend-monitoring systems for gas turbine installations and associated systems.
7. **IS 15664:2006** This standard specifies procedures and rules for the conduct and reporting of acceptance tests in order to determine and/or verify the power, thermal efficiency and other performance characteristics of gas turbine power plants.
8. **IS 15666(Part 1):2006** This standard covers terms and definitions relevant to the procurement of gas turbine systems.
9. **IS 15666(Part 2):2006** This standard specifies the standard reference conditions and standard ratings for gas turbines.
10. **IS 15666(Part 3):2006** This standard covers the design requirements for the procurement of all applications of gas turbines and gas turbine systems, including gas turbines for combined cycle systems and their auxiliaries, by a purchaser from a packager. It also provides assistance and technical information to be used in the procurement.

- 11. IS 15666(Part 4):2006** This standard provides guidelines for procurement of gas turbines with consideration of the fuel quality and of the environmental performance. Guidance is given to both the packager and purchaser on what information should be provided with regard to the fuel used by a gas turbine, and with regard to the type of information necessary to quantify the expected environmental impact.
- 12. IS 15666(Part 5):2006** This standard specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of packaged gas turbines for use in drilling, production, refining and the transport by pipelines of petroleum and natural gas. It is applicable to the procurement of gas turbines and gas turbine systems, including gas turbines for combined cycle systems, and their auxiliaries by a purchaser from a packager.
- 13. IS 15666(Part 7):2006** This standard specifies the information that needs to be submitted during the proposal and contract stages of a project for the entire scope of supply for which the packager will assume technical and contractual responsibility.
- 14. IS 15666(Part 8):2006** This standard states the principles for systems and procedures to assure the integrity of a packager's product and services.  
It gives guidance on the inspection, testing, installation and commissioning required for the package and packaged equipment. It outlines the responsibilities between the purchaser and packager for inspection, coordination, reporting and recording.
- 15. IS 15666(Part 9):2006** This standard provides a basis for exchange of information about reliability, availability, maintainability and safety between gas turbine manufacturers, users, consultants, regulatory bodies, insurance companies and others. It also describes component life expectancy, repairs and criteria for determining overhaul intervals.
- 16. IS 15665:2006** This standard gives terms and definitions used in the

field of gas turbines and applies to open-cycle gas turbines, closed-cycle, semiclosed-cycle and combined-cycle gas turbines.

17. **IS 15657:2006** This standard specifies requirements for centrifugal pumps, including pumps running in reverse as hydraulic power recovery turbines, for use in petroleum, petrochemical and gas industry process services.
18. **IS 15661:2006** This standard specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of centrifugal compressors for use in the petroleum, chemical and gas service industries.
19. **IS 15659(Part 1):2006** This standard specifies requirements of plant applied external three layer extruded polyethylene and polypropylene based coatings for corrosion protection of welded and seamless steel pipes for pipeline transportation of gas and liquid hydrocarbons in the petroleum and natural gas industries.
20. **IS 15659(Part 2):2006** This standard specifies the requirements for qualification, application, testing and handling of materials for plant application of single layer Fusion Bonded Epoxy (FBE) coatings applied externally for the corrosion protection of bare steel for use in pipeline transportation systems for the petroleum and natural gas industries.
21. **IS 8062:2006** This code deals with general principles and requirements for cathodic protection system for prevention against corrosion of external underground buried surface of metallic high pressure hydrocarbon product pipeline/structure.  
  
This standard is intended to serve as a guide for establishing minimum requirements for control of external corrosion on pipeline/structure system.
22. **IS 15678:2006** This code provides a uniform authentic reference to the pipeline operators which shall help them in taking decisions about selection of appropriate Magnetic Flex Leakage (MFL) tool for inline inspection to assess the health of the pipeline segment in quantifiable terms besides keeping them fully aware as to what best can be expected out of intelligent pigging inspection.

23. IS 15679:2006 This code covers the minimum requirements of materials, equipments and accessories for hot tapping and stopple plugging/line plugging operations of onshore natural gas pipelines. It covers the minimum safety requirements to be maintained during welding, cutting and plug setting, etc, while carrying out the hot tapping and stopple plugging/line plugging operations on pipelines.
24. IS 15672:2006 This standard provides guidance on selection, installation, calibration, performance and operation of Coriols meters for the determination of mass flow, density, volume flow and other related parameters of fluids, synonymous for liquids and gases.
25. IS 15673:2006 This standard specifies the requirements for the construction, methods of pressure tapping, working ranges with normal values of minimum/maximum flow rates and permissible errors for rotary piston meters.
26. IS 15674:2006 This standard covers multipath ultrasonic transit-time flow-meters, used for custody transfer measurement of natural gas for gas temperature between -10° to 55°C.
27. IS 15675:2006 This standard specifies the geometry and method of use (installation and operating conditions) of orifice plates when they are inserted in a conduit running full to determine the flow rate of the fluid flowing in the conduit.
28. IS 15676:2006 This standard specifies the requirements of dimensions, ranges, construction, performance, calibration and output characteristics of turbine meters for gas flow measurement for custody transfer. It also specifies installation conditions, leakage testing and pressure testing and provides recommendations for use, field checks & perturbations of the fluid flowing.
29. IS 15677:2006 This code gives guidance on the specification, design, installation, operation and maintenance of metering systems for high accuracy flow measurement, estimation of uncertainty, secondary instrumentation, gas properties related to metering of natural gas and related safety aspects.  
These guidelines cover five types of meters namely orifice, turbine, ultrasonic, rotary and coriolis.

- 30. IS 15729:2007 This code covers the commissioning, operation and maintenance and safety aspects of natural gas pressure regulating and metering terminal.**