

PURCHASE SPECIFICATION

DUCTILE IRON PIPES FOR WATER PRESSURE APPLICATION

This specification covers ductile iron pipes for pressure application in water supply.

Pipes without flanges may be used with pipelines up to and including PN 35. Pipes with flanges may be used up to the maximum pressure rating of the flange, generally PN 16.

SPECIFICATION

- a) Ductile Iron Cement Lined (DICL) spigot-socket pipes shall comply with BS EN 545:2010 - *Ductile iron pipes, fittings, accessories and their joints for water pipelines. Requirements and test methods.*
- b) Pipes shall be cement mortar lined to BS EN 545 and/or ISO 2531:2009.
- c) A seal coating, complying with BS EN 545:2010 and/or ISO 2531:2009 shall be specified for all cement mortar lined pipes of size DN 300 and less.
- d) Pipes shall be externally coated with bituminous or synthetic resin coating to BS EN 545
- e) Elastomeric joint seals shall be EPDM complying with EN 681-1:1996 - *Elastomeric seals - Material requirements for pipe joint seals used in water and drainage applications Part 1: Vulcanized rubber*
- f) Pipes, joint seals, flange gaskets and jointing lubricant which are in contact with drinking water shall comply with BS 6920:2014 *Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.*
- g) All buried pipe will be installed with plastic sleeving in accordance with ISO 8180:2006 *Ductile iron pipelines -- Polyethylene sleeving for site application*
- h) All buried bolted joints will be wrapped with petroleum based wrapping system.
- i) Pressure Classification – PN 35 (minimum working 3500kPa or 35 bar) for socket and spigot pipe. FLANGE CLASS for flanged pipe.
- j) Flanges shall comply with BS EN 1092-2:1997 *Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated. Cast iron flanges.* Other standards such as AS/NZS 4087 PN16 Figure B5 or AS 2129 Table D or E are also acceptable.
- k) Flange gaskets shall have certificates of compliance to BS EN 1514-1:1997 *Flanges and their joints. Dimensions of gaskets for PN-designated flanges. Non-metallic flat gaskets with or without inserts*
- l) All products shall be marked in accordance with relevant Standard's requirements.
- m) This purchase specification takes precedence, but where this specification is silent on a matter then the order of priority for reference shall be the relevant Standard against which that product is manufactured, and then the relevant Water Authority Project Specification.

PURCHASE SPECIFICATION PVC PIPES FOR WATER PRESSURE APPLICATION.

Nylon Tube Good wear ability, smooth surface, low resistance, anti-rustiness and anti-scaling Flexible, easily to be blended into all kinds of shapes, easy to install high chemical and hydrolysis resistance, stable dimension, little penetration, can be used more than ten years. High and low temperature resistance (-40°C -120°C), can transfer compressed air, water, oil, chemical liquid and so on.

SPECIFICATIONS

- a) Plastics piping systems for industrial applications EN ISO 15493 - - Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) - Specifications for components and the system - Metric series
- b) Modified PVC (PVC-M) AS/NZS 4765 - pipes for pressure applications requirements for pipes, integral joints and post-formed bends of PVC-M for the conveyance of water and wastewater under pressure.
- c) Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with plastic pressure pipes. Such as BS EN ISO 13844 - Test method for leak tightness under negative pressure, angular deflection and deformation.
- d) Agricultural irrigation equipment Control heads International Standard specifies requirements for the components and method of installation of pressurized irrigation system control heads, referred to hereinafter as irrigation control heads published Nov. 2010- BS ISO 11738.
- e) Plastics piping systems for soil and waste discharge (low and high temperature) inside buildings - Polypropylene (PP)- AS ISO 7671:2003.
- f) Solar water heaters, elastomeric materials for absorbers, connecting pipes and fittings, method of assessment Measurement of free surface flow must be installed.
- g) Water quality - evaluation of the 'ready', 'ultimate' aerobic biodegradability of organic compounds in an aqueous medium - methods ISO 7827: 2010(R2016) by analysis of dissolved organic carbon.
- h) Water microbiology Water quality - Enumeration of Escherichia coli and coli-form bacteria - Membrane filtration method for waters with low bacterial background flora AS 4276.22:2019 (ISO 9308-1:2014/Amd 1:2016, MOD)
- i) BS EN ISO 8199 - water quality - general requirements and guidance for microbiological examinations by culture.
- j) Water quality - detection and enumeration of legionella - part 2: BS ISO 11731-2 - direct membrane filtration method for waters with low bacterial counts
- k) BS ISO 6068-2.84(2003) water quality - determination of trace elements using atomic absorption spectrometry with graphite furnace
- l) DIN ISO 20179 E: 2007 water quality - determination of micro-cystins - method using solid phase extraction (spe) and high performance liquid chromatography (hplc) with ultraviolet (uv) detection.
- m) Water quality - determination of selected easily volatile organic compounds in water - method using gas chromatography and mass spectrometry by static headspace technique (hs-gc-ms) BS ISO 20595.
- n) Water quality - determination of parathion, parathion-methyl and some other organ phosphorus compounds BS ISO 6068-2.67(1999) in water by dichloromethane extraction and gas chromatographic analysis.
- o) 15. Water quality - determination of selected active pharmaceutical ingredients, transformation products and other organic substances in water and treated waste water - method using high performance liquid chromatography and mass spectrometric detection BS ISO 21676 (hplc-ms/ms or - hrms) after direct injection
- p) High levels of failure associated with poor fracture toughness and inexperience of handling PVC-U pipes on site led to product development BS 3505: 1968, and the introduction of blue metric PVC-U pipes.

- q) PVC-U pipes and fittings for water supply, drainage and sewerage under pressure should now be purchased to the relevant part of BS EN 1452.
- r) Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure. Un-plasticized poly (vinyl chloride). BS EN ISO 1452 (PVC-U).
- s) Part 3: Fittings specifies the characteristics of fittings made from PVC-U for solvent cementing and use with elastomeric ring seals. Fittings can be made by injection moulding or fabricated from pipe.
- t) Part 4: Valves specifies the characteristics of valves or valve bodies made from PVC-U for solvent cementing, elastomeric ring seal joints and flanged joints.
- u) Specification for blue un-plasticized PVC pressure pipes, integral pipes and Post-formed bends WIS 04-31-06 for cold potable water (underground use).
- v) Specification for un-plasticized PVC pressure fittings and assemblies for cold potable water (underground use) WIS 04-31-07.