

## Approval & Reception Procedure

### DEE – Departamento de Estruturas e Edifícios

#### Building Water Distribution System – Stainless Steel Pipes and Accessories

Document no. :	ARP/DEE/011
Rev. no. :	A
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### 1 Reference standards

Regulations No. 46/96/M	Regulamento de Águas e de Drenagem de Águas Residuais de Macau (RADARM)
AS/NZS 4020:2005	Testing of products for use in contact with drinking water
BS 6920-1:2014	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. Specification
BS 6362:1990 / ISO 7598:1988	Stainless steel tubes suitable for screwing in accordance with BS 21 'Pipe threads for tubes and fittings where pressure-tight joints are made on the threads'
BS EN 10217-7:2014	Welded steel tubes for pressure purposes. Technical delivery conditions. Stainless steel tubes
BS EN 10312:2002	Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption. Technical delivery conditions
AS 3688:2016	Water supply and gas systems - Metallic fittings and end connectors
ISO 4144:2003	Pipework -- Stainless steel fittings threaded in accordance with ISO 7-1
BS EN 806-4:2010	Specifications for installations inside buildings conveying water for human consumption. Installation
ISO 9453:2014	Soft solder alloys -- Chemical compositions and forms
ISO 17672:2016	Brazing -- Filler metals
BS 7786:2006	Specification for unsintered PTFE tapes for general use
Hong Kong WSD Circular Letter No. 9/2017	New commissioning requirements for new plumbing works
Hong Kong WSD Circular Letter No. 10/2017	New commissioning requirements for plumbing works in occupied buildings/ village houses

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### 2 Approval procedures

All materials (pipes, fittings/accessories, sealing rings, sealing tapes, etc) are required to be approved in advance (if pipe sections are connected by welding, rods and fluxes are also required to be approved), and the following documents should be submitted for the approval:

- Products specification
- Test reports or relevant certification documents
- Method statements

#### 2.1 Product specification

1. Include product dimensions, mechanical properties, water-tightness properties, chemical composition, construction guidelines, etc.
2. Solders should comply with the requirements of lead-free solder alloys in ISO 9453, and ISO 17672, as well as construction guidelines.
3. Unless otherwise specified in the engineering design, the submitted materials should comply with the requirements of the reference specification.

#### 2.2 Test reports or related recognized documents

1. Test reports or certification documents must be issued by third-party organization.
2. The submitted test reports or certification documents should be valid. If the relevant documents have not specified the valid date, it is advisable to submit the documents issued in recent three years.
3. The test contents of test reports include dimensions, mechanical properties, water-tightness properties, and chemical composition analysis.
4. If the pipe sections are connected by welding, the test reports of the selected solder must include the chemical composition analysis. If the project has no specified standard, the analysis results of the relevant reports must be proved to comply with the requirements of BS EN 806-4 (Annex A.4.2 a) and b)).
5. If the installed pipelines are used for drinking water, all materials of the pipelines are required to submit valid certification documents that can be used for drinking water. If the relevant documents have not specified the effective date, it is advisable to submit the documents issued in recent three years.

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### 2.3 Method statements

The method statements should comply with the requirements of RADARM and the designer, and should follow the construction guidelines of the product manufacturers. The contents of the method statements must state the transportation, preservation, installation and cleaning, etc, of the materials. If welding is included in the method statements, the information of solders and the welding methods must be provided.

## 3 Reception procedure

### 3.1 Documents to be submitted

The mill certificates issued by the material manufacturers and the delivery notes issued by the suppliers must be submitted.

### 3.2 Stainless steel materials

ARP/DMC/12 should be followed for reception test of stainless steel materials.

### 3.3 Site tests

1. After installation, water-tightness tests should be performed in accordance with Article 191 of RADARM in all pipe sections.
2. After flushing of the main water supply system, under the permission of the owner, water sampling tests should be performed.
3. If pipelines are connected by welding, the welded joints should be tested which can be followed ARP/DEE/010 item 3.2 point 1.