

1. Scope (Rev 1)

This specification covers minimum wall thickness, seamless and electric-resistance welded, low-alloy steel tubes for pressure containing parts such as economizers or other applications where corrosion resistance is important.

The tubing sizes and thickness usually furnished to this specification are ½” to 5” in outside diameter and 0.035 to 0.5 in, in minimum wall thickness. The grade of the material shall be “Gr 1”.

2. Process

The steel shall be made by the electric furnace, open-hearth, basic oxygen or other primary processes. In general this shall follow clause (5) of A 423 of ASTM standards.

3. Manufacture (Rev 1,3)

- i) Tubes may be made seamless or ERW.
- ii) Tubes made by the seamless process may be hot finished or cold finished.

4. Heat Treatment

All tubes shall be normalized or given such heat treatment as may be necessary to conform to the requirements of this specification.

5. Chemical composition (Rev 1)

The steel shall conform to the requirements as to chemical composition prescribed in Table (1) of A 423 Grade 1. Relevant certificates shall form a part of the final documentation.

6. Heat Analysis

An analysis of each heat of steel shall be made by the steel manufacturer to determine the percentages of the elements specified. In general this shall follow clause (9) of A 423. Relevant certificates shall form a part of the final documentation.

CPCL	Specification for seamless and electric-welded low-alloy steel tubes A 423/ A 423M Gr 1 for APH application	Spec. No.	Rev.	Sht.
19/04/19		CPCL-PIPE-117	3	

7. Product Analysis

An analysis of either one billet, one length of flat rolled stock or one tube shall be made from each heat. The chemical composition thus determined shall conform to the requirements specified. Relevant certificates shall form a part of the final documentation.

8. Tensile requirements

The material shall conform to the requirements as to tensile properties prescribed in Table 2 of A 423. Relevant certificates shall form a part of the final documentation.

9. Hardness Requirements

The tubes shall have a hardness number not exceeding 170 HB or 87 HRB. Relevant certificates shall form a part of the final documentation.

10. Mechanical Tests Required

This shall follow clause (13) of SA 423. Relevant certificates shall form a part of the final documentation.

11. Surface condition (Supplementary requirement) – (Rev 1)

Deleted

12. Inspection (Rev.2)

Vendor shall submit QAP based on this specification and CPCL-TUBE-QAP-01 Rev.0 for approval. Third party Inspection agency, as approved by CPCL, shall witness and certify all the tests. All such reports, in original, shall be forwarded to CPCL in a data folder for review/ approval prior to despatch of the material.

CPCL	Specification for seamless and electric-welded low-alloy steel tubes A 423/ A 423M Gr 1 for APH application	Spec. No.	Rev.	Sht.
19/04/19		CPCL-PIPE-117	3	

The inspector representing CPCL shall have entry at all times while work on the purchased order is being performed, to all parts of the manufacturer's works that concern the manufacture of the material ordered. The vendor shall afford the inspector all reasonable facilities to satisfy him that the material is being furnished in accordance with this specification. All required tests and inspection shall be made at the place of manufacture prior to shipment.

13. Rejection

Should material on receipt at CPCL warehouse be found not to conform to this specification, the material may be rejected, and the supplier notified promptly after receipt of the material.

14. Packing and Forwarding

All tubes are to be adequately packed in wooden crates/ fiber board boxes so that the tubes are separated during transportation and handling and in general follow SA- 700.

15. Vendor's Responsibility

All responsibilities regarding guarantees, workmanship, or compliance with this specification and references rest solely with the vendor and any approval given by the inspector or anybody else acting on behalf of the purchaser does not relieve him of the same.

CPCL	Specification for seamless and electric-welded low-alloy steel tubes A 423/ A 423M Gr 1 for APH application	Spec. No.	Rev.	Sht.
19/04/19		CPCL-PIPE- 117	3	