

低壓氣體接駁軟喉的批准
工作守則：氣體應用指南之一



APPROVAL OF FLEXIBLE GAS TUBING
FOR LOW PRESSURE APPLICATIONS
CODE OF PRACTICE GU01



Revision (Issue 2, 2009)
修訂版(第二版, 2009年)



CODE OF PRACTICE GU01

APPROVAL OF

FLEXIBLE GAS TUBING FOR

LOW PRESSURE APPLICATIONS



(Issue 2, 2009)

INDEX

SECTION 1	FOREWORD.....	2
SECTION 2	SCOPE AND TERMINOLOGY	5
2.1	SCOPE.....	5
2.2	REFERENCES	5
2.3	TERMINOLOGY.....	6
SECTION 3	PRE-APPROVAL CONDITIONS.....	10
3.1	DOCUMENTS TO BE SUBMITTED FOR TYPE APPROVAL APPLICATION.....	10
3.2	OTHER REQUIREMENTS.....	14
SECTION 4	POST-APPROVAL CONDITIONS.....	17
4.1	PROVISION OF CERTIFICATE OF COMPLIANCE BY THE MANUFACTURER	17
4.2	INSTALLATION INSTRUCTIONS, MARKING, LABELING AND PACKAGING BY THE MANUFACTURER.....	17
4.3	QUALITY ASSURANCE BY THE IMPORTER OR THE LOCAL MANUFACTURER	18
4.4	NOTIFICATION OF CHANGES BY THE IMPORTER OR LOCAL MANUFACTURER	20
4.5	RECORDS OF IMPORT OR MANUFACTURE AND SUPPLY	21
4.6	AUDIT OF MANUFACTURE OR IMPORT AND SUPPLY BY THE GAS AUTHORITY.....	22
4.7	NON-COMPLIANCE WITH POST-APPROVAL CONDITIONS BY THE IMPORTER OR THE LOCAL MANUFACTURER.....	22
SECTION 5	APPROVED LIST.	22
5.1	APPROVED LIST.....	22
SECTION 6	APPENDICES	23
6.1	APPENDIX 1: FLOW CHART FOR TYPE APPROVAL OF FLEXIBLE GAS TUBING FOR LOW PRESSURE APPLICATIONS.....	25

SECTION 1 Foreword

1.1 This code, which describes the requirements for the approval by the Gas Authority of flexible gas tubing for low pressure applications, has been prepared by the Gas Authority in consultation with importers of flexible gas tubing in Hong Kong. The requirements specified in the code for a flexible gas tubing to gain approval by the Gas Authority are mandatory.

1.2 Approval of flexible gas tubing is a two-tier system consisting of (1) type approval and (2) validation of approval. Type approval of a model of flexible gas tubing will be granted to an applicant in compliance with pre-approval conditions specified in Section 3 of this code to:

(a) Import into; or

(b) manufacture in Hong Kong,

a model of flexible gas tubing for use in Hong Kong.

Having obtained type approval, the importer or local manufacturer shall secure validation of approval in the continuing compliance with post-approval conditions specified in Section 4 of this code.

1.3 This code should not be regarded as exhaustive. It is not intended to relieve persons from undertaking the work of their statutory responsibilities in accordance with the safety legislation.

1.4 This code does not purport to address all of the safety concerns, if any, associated with the safety requirements therein. It is the responsibility of the applicant / importer or local manufacturer to establish appropriate safety, health and environmental practices and determine the applicability of relevant regulatory requirements prior to use.

- 1.5 The approval does not derogate the responsibilities of the importer or the local manufacturer from fully complying with all other current relevant codes of practice, approval requirements, and statutory requirements of other government departments, bodies, etc. under the Laws of Hong Kong.
- 1.6 Approval by the Gas Authority does not imply, or guarantee production quality of shipments of flexible gas tubing for use in Hong Kong. Importer or local manufacturer shall be fully responsible for the quality of flexible gas tubing and must take all reasonable measures to monitor performance of manufacturers and implement any remedial measures arising from product safety and quality concerns (see Section 4.3)
- 1.7 An approved list will be maintained to publicize the approved models of flexible gas tubing for low pressure applications (see Section 5). The Gas Authority will:
- (a) assume no responsibilities for how the information contained in the approved List is used;
 - (b) make no representations, warranties or endorsements whatsoever about the suitability of proprietary products and related services for individual users / applications, safety of products, fitness for purposes, merchantable quality, etc.; and
 - (c) not be liable for any loss or damage or injury to any property or person however arises whether directly or indirectly as a result of referring to or using any information contained in the Approved List.
- 1.8 All gas installation work carried out in Hong Kong shall be in accordance with the Gas Safety Ordinance, Chapter 51,

with particular reference to its subsidiary regulations, as follows:

- (a) Gas Safety (Gas Supply) Regulations;
- (b) Gas Safety (Installation and Use) Regulations;
- (c) Gas Safety (Miscellaneous) Regulations;
- (d) Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations; and
- (e) Gas Safety (Registration of Gas Supply Companies) Regulations.

SECTION 2 **Scope and Terminology**

2.1 **Scope**

2.1.1 An importer or a local manufacturer wishing to import or manufacture respectively for sale or supply of a model of flexible gas tubing for use in Hong Kong shall apply to the Gas Authority for type approval. Attention is drawn to Regulation 3(1) of the Gas Safety (Miscellaneous) Regulations.

2.1.2 The approval conditions in this part of the code apply to the approval of flexible gas tubing for low pressure applications.

2.1.3 The approval conditions specified hereunder are subject to revision as deemed appropriate to keep abreast of up-to-date design technologies, safety and quality standards, etc. pertaining to newer or different types of flexible gas tubing.

2.1.4 Approval of flexible gas tubing consists of a two-tier system, which includes

(a) Type approval subject to continuing compliance with pre-approval conditions (see flow chart in Appendix 1); and

(b) Validation of approval subject to compliance with post-approval conditions,

And the detailed requirements are set out in Sections 3 and 4 of this code respectively.

2.2 **References**

The national / international standards which have been accepted by the Gas Authority is available in EMSD's website for reference.

2.3 Terminology

- “Applicant”** means a person who applies for approval of a model of flexible gas tubing from the Gas Authority with an intention to import into or manufacture in Hong Kong such model to be sold or supplied for use in Hong Kong. Applicant therefore refers to a prospective importer or a prospective local manufacturer registered for business in Hong Kong.
- “Approval”** consisting of type approval and validation of approval, means permission granted by the Gas Authority to an applicant in compliance with pre- and post-approval conditions to:
- (a) Import into; or
 - (b) manufacture in Hong Kong,
- a model of flexible gas tubing for use in Hong Kong.
- “Basic Safety Assessment Certificate”** means a certificate issued by a HOKLAS laboratory in Hong Kong to certify that a flexible gas tubing complies with the basic safety assessment test. The scope and method of test shall be those specified in the Hong Kong Government Laboratory’s test method GL-CG-4 and additional requirements prescribed by the Gas Authority by reference to recognised type-specific product safety standard(s) for

flexible gas tubing made of rubber or other elastomer without internal reinforcement, and requirements prescribed by the Gas authority by reference to recognized type-specific product safety standards for other flexible gas tubing.

“ Flexible Gas Tubing ” means a tubing with an individual length of not more than 2 metres for use in a gas installation which is :-

(a) not rigid; and

(b) used for connecting a gas fitting directly to a supply of gas.

“ Gas Authority ” means the public officer approved under Section 5 of the Gas Safety Ordinance Cap. 51.

“ HOKLAS ” means the Hong Kong Laboratory Accreditation Scheme under the charge of the Commissioner of Innovation and Technology on behalf of the Government of the Hong Kong Special Administrative Region.

“ Importer ” means a person who engages in the business of importation of flexible gas tubing for supply, sale or use in Hong Kong.

“ International / National Safety Standards ” means standards for flexible gas tubing design, construction and safety performance issued or accepted by recognised certification

authorities.

“Logistics Period” means a theoretical time period assessed from the date of production to the date a flexible gas tubing is put into service / use, accommodating idle time such as shelf storage, transportation, stock, sale, installation, etc.

“Low Pressure” means a gas pressure of not more than 7.5 kPa.

“Manufacturer” means the maker of a flexible gas tubing for use in Hong Kong.

“Recognised Certification Authority (RCA)” means an independent organisation recognised by the Gas Authority which is empowered under law or decree, (e.g. notified body appointed by the Commission of European Communities), to certify that a flexible gas tubing is designed and manufactured in compliance with international or national safety standard(s).

“Registered Trademark” means a trademark registered under Section 47 of the Trade Marks Ordinance, Cap. 559.

“Service life” means a theoretical time period in which a flexible gas tubing can last for service / use in a gas installation

without posing a potential hazard.

“Type Test Certificate” means a certificate issued by a Recognised Certification Authority to certify that a flexible gas tubing complies with relevant international or national safety standard(s).

SECTION 3 Pre-Approval Conditions

3.1 Documents to be Submitted for Type Approval Application

The applicant shall fill in a prescribed application form and submit relevant documents in Chinese or English to confirm that the following requirements for flexible gas tubing are complied with:

3.1.1 Manufacturer's Capabilities and Technical Documentation

The applicant shall provide the manufacturer's company profile, technical information and specifications of a model of flexible gas tubing including catalogue, construction drawing including dimensions such as length, diameter and thickness, detail of connection fitting, details of manufacturing facilities, job references, etc.

3.1.2 Manufacturer' Production Quality System Certification

The manufacturer's production processes shall incorporate a quality system certified to a recognised international or national quality standard (to ISO 9000 or equivalent), by an accredited organisation recognised by the Gas Authority to assure: -

- (a) the quality of components and materials supplied by vendors or sub-contractors which are critical to the safe operation of the products;
- (b) the quality at each stage in production and assembly processes; and
- (c) the quality of products.

Original or certified true copy of certification documents shall be submitted upon application for type approval.

3.1.3 Manufacturer's Vendors' Production Quality System Certification

The manufacturer's works must have rigorous incoming material inspection procedure, otherwise the vendors / sub-contractors supplying materials which are critical to the safe operation of the product (e.g. components made of rubber / thermoplastic materials, fastener for end-connections, etc.) must have a quality system certified to recognised international or national standards (to ISO 9000 or equivalent) by an accredited organisation recognised by the Gas Authority. Original or certified true copy of certification documents shall be submitted upon application for type approval.

3.1.4 Type Test Certification

The flexible gas tubing shall be manufactured in accordance with a recognised international or national safety standard. Original or certified true copy of type test certificate for a model of flexible gas tubing issued by a recognised certification authority (RCA) confirming the following requirements shall be submitted: -

- (a) the model has successfully completed tests in accordance with a recognised international or national product safety standards (for example AS, NF, etc.);
- (b) the model is suitable for particular gas type(s) distributed in Hong Kong; and
- (c) the model is compatible with the standards of gas fittings being used in Hong Kong.

3.1.5 Basic Safety Assessment Certification

- (a) For flexible gas tubing made of rubber or other elastomer without internal reinforcement and with / without external metallic braiding and end fitting

The applicant shall supply the prescribed number of

lengths of a model of flexible gas tubing to a HOKLAS laboratory in Hong Kong with notification to the Gas Authority for carrying out a Basic Safety Assessment Test in accordance with the Hong Kong Government Laboratory's test methods and any additional requirements as prescribed by the Gas Authority by reference to recognised type-specific product safety standard(s). Hong Kong Government Laboratory have issued the following two testing methods on flexible gas tubing:

(1.) Test Method GL-CG-4 "Testing of Flexible Rubber Tubing and Tubing Assembly for Use in LPG & Town gas Low Pressure Installations"

(2.) Test Method GL-CG-5 "Testing of Durable Flexible Rubber Tubing Assembly for Use in LPG & Town gas Low Pressure Installations"

(The latest testing methods could be found and downloaded from EMSD's website). A Basic Safety Assessment Certificate issued by the HOKLAS laboratory shall thus be obtained and submitted to the Gas Authority.

(b) For other flexible gas tubing

The applicant shall supply the prescribed number of lengths of a model of flexible gas tubing to a HOKLAS laboratory in Hong Kong with notification to the Gas Authority for carrying out a Basic Safety Assessment Test in accordance with the requirements as prescribed by the Gas Authority by reference to recognised type-specific product safety standard(s). A Basic Safety Assessment Certificate issued by the HOKLAS laboratory shall thus be obtained and submitted to the Gas Authority.

3.1.6 Installation instructions

Flexible gas tubing shall be supplied by the manufacturer with installation instructions accepted by the RCA

responsible for issuing the type test certificate. Installation instructions shall be printed in Chinese and, if deemed necessary, in English as well. Diagrams / drawings may include some technical terms in English where such terms are commonly used and applied by registered gas installers. However, all instructions relating to safety of installation must include Chinese version.

3.1.7 Statement by the Manufacturer

The manufacturer shall provide a statement or undertaking on the collaboration between the manufacturer and the applicant, the manufacturer's support to be rendered to the applicant in Hong Kong, the anticipated service life of the flexible gas tubing and declaration of undertaking of compliance with the Gas Authority's requirements as set out in Sections 3 and 4 of this code.

3.1.8 Statement by the Applicant

The applicant shall provide a statement of undertaking confirming that after the granting of type approval, he / she will comply with the post-approval conditions as set out in Section 4 of this code. The applicant shall also demonstrate its capability and standing as a part of the local gas industry and the continuing technical support it will provide to the supply chain. Company organization chart and copy of Business Registration Certificate shall be submitted. When not being a registered gas contractor, the applicant shall demonstrate that he / she has arranged adequate technical support to be provided by a registered gas contractor in providing gas installation work and assistance whenever necessary in dealing with remedial measures and quality assurance as described in Sections 3.1.9 and 4.3 respectively.

3.1.9 Manual of Remedial Measures

The applicant shall compile a "Manual of Remedial Measures" documenting details of organization, contact

person and procedures to take corrective actions promptly and effectively in the event of a product problem / defect involving safety arising after the product has been supplied or installed. Measures such as product recall / recovery actions shall be detailed in the Manual. The applicant shall confirm in the Manual the assumption of all responsibilities and liabilities arising from taking all necessary remedial measures pertaining to the product.

3.2 Other Requirements

3.2.1 Approval Marking and Product Description Labeling of Flexible Gas Tubing

A flexible gas tubing shall be supplied by the manufacturer displaying a legibly, permanently and durably imprinted approval marking of style and size to the satisfaction of the Gas Authority in the format "EMSD APPROVAL GTxxxx" in English and imprinting or affixing a label in the format "機電工程署批准 GTxxxx" in Chinese (where xxxx is a unique code assigned to the approved model of flexible gas tubing by the Gas Authority). The size of marking should be at least 5mm high.

It is also recommended that the flexible gas tubing should be imprinted or labeled in description to indicate essential product, batch information and caution making as follows:

(a) Product information

Imprinting or labeling for the purpose of distinguishing the product including but not limited to:

- manufacturer;
- importer;

- model code; and
- if necessary, registered trademark as determined by the importer or the manufacturer.

(b) Batch information

Imprinting or labeling for the purpose of identifying the batch of product including but not limited to:

- batch code
- expiry date of service life in the format: “EXPIRY 期限: MM/YYYY” (see Notes 1 and 2).

(Note 1: for metal flexible gas tubing, expiry date of service life may not be applicable subject to prior endorsement by the Gas Authority).

(Note 2: The expiry date of service life is computed by the summation of logistics period and service life. The logistics period is to allow for logistical management. It should not exceed a maximum of one year. Its calculation has to be proposed by the applicant and assessed by the Gas Authority. Whilst the service life of a flexible gas tubing shall, where applicable, normally be 3 years, unless otherwise approved by the Gas Authority on a case-by-case basis after fulfillment of additional prescribed conditions by reference to type-specific recognised product safety standard(s), other requirements and local operating criteria.)

(c) Caution Marking

For tubing which would be sold in batch and expected to be cut in piece for use, it is required to have the tubing imprinting or labeling a caution making “勿超逾 2 米” labeling for the purpose of reminding to the users and installers for the length of each piece of tubing not longer than 2

metres(This requirement is not applicable to the tubing assembly of which the length is less than 2 metres before importing Hong Kong.)

The proposed details of the approval marking, the product description labeling and caution marking shall be provided to the Gas Authority when the application for approval is submitted.

3.2.2 Samples of Flexible Gas Tubing

The applicant shall provide to the Gas Authority prescribed number of samples of a model of flexible gas tubing complete with sample marking and labeling for evaluation with a view to obtaining type approval.

SECTION 4 Post-Approval Conditions

Upon obtaining type approval and thereafter to secure validation of approval for on-going import or local manufacture of the model of flexible gas tubing, the importer or local manufacturer shall continue to comply with all post-approval conditions specified in this Section and undertake to submit a half-yearly report to the Gas Authority advising on stock records of manufacture, import and supply of the flexible gas tubing

4.1 Provision of Certificate of Compliance by the Manufacturer

4.1.1 Each batch of tubing manufactured shall be accompanied by a certificate of compliance prepared by the manufacturer. This shall confirm: -

(a) that the batch of tubing has been manufactured under a production quality system certified to a recognised international or national standard (see Sections 3.1.2 and 3.1.3) and in compliance with the original international or national product safety standard (see Section 3.1.4) and other requirements (see Sections 3.1.5, 3.2.1 and 4.3); and

(b) the location of manufacture as depicted in the type test certificate issued by the RCA and / or otherwise stated by the manufacturer prior to type approval.

The importer or local manufacturer shall keep full records of certificates of compliance for inspection at the request of the Gas Authority.

4.2 Installation Instructions, Marking, Labeling and Packaging by the Manufacturer

4.2.1 Flexible gas tubing shall be supplied with installation instructions, marking and labeling as detailed in

Sections 3.1.6 and 3.2.1 respectively.

- 4.2.2 Flexible gas tubing shall be supplied by the manufacturer in packaging that affords maximum protection. Tubing in prescribed quantities shall be packed in containers displaying outer descriptions printed in Chinese and / or English.

4.3 Quality Assurance by the Importer or Local Manufacturer

- 4.3.1 The importer or local manufacturer is required to satisfy himself / herself with the continued quality of approved tubing marketed in Hong Kong. Where the occurrence of substantiated complaint or incident indicates that a batch of flexible gas tubing fails to comply with safety or quality requirements or poses a potential safety hazard to the public, the existing and forthcoming distribution, supply or sale of the model of flexible gas tubing for use in Hong Kong must be suspended immediately. The case must be reported to the Gas Authority for investigation without delay. Depending on the severity, it may result in suspension or withdrawal of type approval, cessation of supply or sale and / or initiation of product recall pending appropriate recovery actions for correction of any variance in design or production. The actions documented in the "Manual of Remedial Measures" shall be implemented by the importer or local manufacturer and, if necessary, in conjunction with the registered gas contractor referred to in Section 3.1.9, after consultation with the Gas Authority, in a prompt and effective manner. Attention is drawn to compliance with Regulations 3(2) and (3) of the Gas Safety (Miscellaneous) Regulations.

- 4.3.2 (a) For flexible gas tubing made of rubber or other elastomer material

The importer or local manufacturer shall arrange a HOKLAS Laboratory in Hong Kong to undertake sampling and testing of a sample lot of each model of flexible gas tubing taken from every batch of imported or manufactured flexible gas tubing for quality assurance. The lot size shall be determined in

accordance with the requirements of the current edition of ISO 2859-1 "Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection". The scope and method of test shall be identical to the basic safety assessment test detailed in Section 3.1.5 of this code. The Gas Authority shall be notified in advance in writing of the arrangement of the test, may witness the test, and shall receive a copy of the test report. Only after the importer or local manufacturer has received a test certificate from the HOKLAS laboratory indicating compliance with the requirements of the basic safety assessment test as detailed in Section 3.1.5 of this code can the importer or local manufacturer be permitted to distribute or supply the batch of tubing for use in Hong Kong. If the sample from the batch fails the test, the batch must be retained pending an inquiry conducted by the Gas Authority with the importer or the local manufacturer. The Gas Authority may request the Recognised Certification Authority to investigate, require stepped up actions such as tightened inspection plan for future batches or other measures such as suspension of import or manufacture to be implemented in accordance with ISO 2859-1. Multiple occurrence of failure of the batch sample tests will result in suspension of approval, pending the Gas Authority's satisfaction that problems leading to the failure have been rectified, or withdrawal of approval by the Gas Authority.

(b) For metal flexible gas tubing

At least once per year commencing from the date of type approval, the importer or local manufacturer shall arrange a HOKLAS Laboratory in Hong Kong to undertake sampling and testing of a sample lot of each model of flexible gas tubing taken from a concurrent batch of flexible gas tubing being imported or manufactured for quality assurance. The lot size shall be determined in accordance with the

requirements of the current edition of ISO 2859-1 "Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection". The scope and method of test shall be identical to the basic safety assessment test as detailed in Section 3.1.5 of this code. The Gas Authority shall be notified in advance in writing of the arrangement of the test, may witness the test, and shall receive a copy of the test report. If the sample from the batch fails the test, an inquiry will be conducted by the Gas Authority with the importer or the local manufacturer. The Gas Authority may request the Recognised Certification Authority to investigate and initiate actions in the "Manual of Remedial Measures". The approval of flexible gas tubing will be suspended, pending the Gas Authority's satisfaction that problems leading to the failure have been rectified.

4.4 Notification of Changes by the Importer or Local Manufacturer

4.4.1 It is the sole responsibility of the importer or local manufacturer to ensure validity of all relevant certification documents in order to sustain the continuation of approval of the flexible gas tubing. The manufacturer shall promptly report to the RCA and the importer, and the importer or local manufacturer shall, in turn, within 14 days report to the Gas Authority any change in particulars of the flexible gas tubing pertaining to Section 3.1 above. In case there are critical changes such as invalidation of quality system or type test certification, change in location of manufacture, etc., the approval shall automatically be revoked at the same time. In this connection, the importer or local manufacturer shall submit valid certification document(s) to the Gas Authority in order to secure further approval or re-approval as the case may be. All stock of product imported or locally manufactured shall be withheld for supply in Hong Kong pending completion of inquiry by the Gas Authority, and subject to the outcome of inquiry,

re-approval of the model of flexible gas tubing in accordance with Section 3 of this code may be required by the Gas Authority.

4.5 Records of Import or Manufacture and Supply

4.5.1 Records of import or manufacture and supply shall be made available by the importer or local manufacturer for inspection by the Gas Authority for a period covering at least the last two years at any time. A summary of the relevant records shall be submitted to the Gas Authority at half-yearly intervals. In addition, the Gas Authority may request the importer or local manufacturer to produce a summary record on an ad hoc basis should circumstances warrant.

4.6 Audit of Manufacture or Import and Supply by the Gas Authority

4.6.1 The Gas Authority may conduct scheduled or unscheduled audit at the premises of the importer or the manufacturer to monitor compliance with the code of practice and regulations at any time. It is the duty of the importer or the local manufacturer to co-operate and facilitate the smooth conduction of the audits.

4.7 Non-Compliance with Post-Approval Conditions by the Importer or Local Manufacturer

4.7.1 The Gas Authority may institute proceedings for the prosecution of an offence or conduct disciplinary actions such as warning, reprimand, suspension of approval or withdrawal of approval against an importer or local manufacturer who fails to comply with the post-approval conditions specified in this Section of the code as the case may be.

SECTION 5 Approved List

- 5.1 Approved models of flexible gas tubing for low pressure applications will be entered into an approved list available for inspection at the office of the Gas Authority and at the EMSD web site. Models of flexible gas tubing which has been suspended or withdrawn will be listed separately.

SECTION 6 Appendices

- 6.1 **Appendix 1:** Flow Chart for Type Approval of Flexible Gas Tubing for Low Pressure Applications Pursuant to Regulations 3 of the Gas Safety (Miscellaneous) Regulations, Gas Safety Ordinance (Cap. 51)

Flow Chart for Type Approval of Flexible Gas Tubing for Low Pressure Applications Pursuant to Regulations 3 of the Gas Safety (Miscellaneous) Regulations Gas Safety Ordinance (Cap. 51)

