



## **Code for Facilities, Technology and Inspection for Manufacturing of Leak Alarm and Shut-off Systems for Gases**



## Personnel

### Gas Technical Standards Committee

Chairman	Kwang-Won Lee, Professor of Hoseo University
Vice-Chairman	Seung-Hoon Nam, Principal Researcher of KRISS
Ex Officio Member	Hui-Won Lee, Manager of Energy Safety Department, Ministry of Trade, Industry & Energy Hae-Myeong Yang, Director of Technology and Safety, Korea Gas Safety Corporation
High-Pressure Gas	Seung-Hoon Nam, Principal Researcher of KRISS Beom-Seok Lee, Principal Professor of Kyung Hee University Dong-Myeong Ha, Professor of Semyung University Chang-Gi Kim, Principal Researcher of Korea Institute of Machinery and Materials Hyuk-Myun Kwon, Director General of Occupational Safety & Health Research Institute Su-Dong Byun, CEO of Q-Best
Liquefied Petroleum Gas	Doo-Seon Park, Managing Director of Daesung Industrial Gas Co., Ltd Hyeong-Hwan Ann, Professor of Korea National University of Transportation Byeong-Hak Choei, Professor of Gangneung-Wonju National University Seong-Min Lee, Director of KOGAS Research Institute Yong-Gwon Lee, Vice-President of EG CNE Co.,Ltd Gi-hyeon Jang, Director of Kiturmi Jeong-Sik Chon, Direto of E1 CO., Ltd.



<b>History of Establishment and Revision of KGS Code</b>	
Code Number	KGS AA632 <sup>2020</sup>
Code Title	Code for Facilities, Technology and Inspection for Manufacturing of Leak Alarm and Shut-off Systems for Gases

Date of Establishment/Revision	Description
December 31, 2008	Established (Notification of the Ministry of Knowledge Economy, No. 2008-380)
May 15, 2009	Revised (Notification of the Ministry of Knowledge Economy, No. 2009-193)
September 25, 2009	Revised (Notification of the Ministry of Knowledge Economy, No. 2009-357)
August 19, 2011	Revised (Notification of the Ministry of Knowledge Economy, No. 2011-415)
August 13, 2012	Revised (Notification of the Ministry of Knowledge Economy,, No. 2012-391)
April 3, 2014	Revised (Notification of the Ministry of Trade, Industry & Energy, No. 2014-141)
November 17, 2014	Revised (Notification of the Ministry of Trade, Industry & Energy, No. 2014-589)
December 10, 2015	Revised (Notification of the Ministry of Trade, Industry & Energy, No. 2015-641)
September 29, 2017	Revised (Notification of the Ministry of Trade, Industry & Energy, No. 2017-475)
November 20, 2017	Revised (Notification of the Ministry of Trade, Industry & Energy, No. 2017-542)
December 13, 2018	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2018-607)
November 22, 2019	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2020-168)



## Table of Contents

1. General.....	1
1.1 Scope.....	1
1.2 Validity of Code.....	1
1.3 Reference Codes and Standards .....	1
1.4 Definitions.....	2
1.5 Application of Codes and Standards (currently not used).....	3
1.6 Interim Measures <Newly established on August 19, 2011> .....	3
1.7 Kinds.....	3
2. Manufacturing Installation Standard.....	4
2.1 Manufacturing Facilities.....	4
2.2 Inspection Facilities.....	4
3. Manufacturing Technology Standard.....	5
3.1 Design (currently not used).....	6
3.2 Materials .....	6
3.3 Thickness (currently not used) .....	7
3.4 Construction and Dimensions.....	7
3.5 Fabrication (currently not used) .....	8
3.6 Welding (not applicable).....	8
3.7 Heat treatment (not applicable).....	8
3.8 Performances.....	9
3.9 Marking.....	13
4.1 Kinds of Inspections.....	15
4.2 Object Audit of Process Inspection .....	18
4.3 Inspection Items.....	19
4.4 Inspection Method.....	22
4.5 Other Inspection Standards.....	26
Appendix A General Standard for Operation of Quality Control System for Gas Appliance Manufacturing Plants.....	27
Appendix B Test Method of Leak Alarm and Shut-off Systems for Gases.....	32



# Code for Facilities, Technology and Inspection for Manufacturing of Leak Alarm and Shut-off Systems for Gases

## 1. General

### 1.1 Scope

This Code applies to the facilities, technology and inspection for manufacturing of gas leak alarm and shut-off systems for LP gas or city gas (gas leak alarm systems which detect leaked gas and automatically shut off gas passage, hereinafter referred to as "alarm and shut-off systems") among gas leak automatic shut-off devices in conformity to the Enforcement Regulation of the Safety Control and Business of Liquefied Petroleum Gas Act (hereinafter referred to as "Enforcement Regulation"), Table 3, No.2 and Table 7, No.4, b.<Revised on December 10, 2015>

### 1.2 Validity of Code

**1.2.1** This Code has passed the deliberation and resolution by Gas Technical Standards Committee (Bill No. 2019-9, November 22, 2019) in conformity to the High-pressure Gas Safety Control Act (hereinafter referred to as "High-pressure Act"), Article 33-2 in accordance with the Safety Control and Business of Liquefied Petroleum Gas Act (hereinafter referred to as "the Act"), Article 45, Clause 1, has been approved by the Minister of Trade, Industry & Energy (Notification No. 2020-168 of the Ministry of Trade, Industry & Energy, March 18, 2020), and is valid and effective as the detailed standards in conformity to the Act, Article 45, Clause 1.

**1.2.2** Conformity to this Code is deemed to conform to Table 7 of the Enforcement Regulation in accordance with the Act, Article 45, Clause 4.

### 1.3 Reference Codes and Standards

#### 1.3.1 Inspection standard for new technology products

In case the Minister of Trade, Industry & Energy acknowledges that new manufacturing and inspection methods of alarm and shut-off systems developed through technology development do

not conform to the standards for facilities, technology and inspection in conformity to this Code but do not hinder safety control in accordance with the Enforcement Regulation, Table 7, No. 5-a, such manufacturing and inspection methods of alarm and shut-off systems may be restrictively applicable only to the alarm and shut-off systems. <Revised on September 29, 2017>

### **1.3.2 Manufacturing registration standard for foreign products <Newly established on August, 13, 2012>**

The "foreign manufacturing installation standards and manufacturing technology standards" specified in the Enforcement Regulation, Article 17, proviso of Clause 3 mean the detailed standards specified in the Act, Article 45. <Revised on December 10, 2015>

## **1.4 Definitions**

The terms used in this Code are defined as follows:

**1.4.1** "Regular quality inspection" means the performance inspection performed by taking samples from products manufactured in mass production to check whether the products which are to undergo production stage inspection are the same products manufactured as the products which have undergone design stage inspection.

**1.4.2** "Routine sample inspection" means the inspection performed to check on the basic product performance by taking samples from the same products manufactured in the same production lot for the products to undergo product identification inspection.

**1.4.3** "Occasional quality inspection" means the inspection performed by taking samples without any advance notice from products produced in mass production in order to check whether the products which have undergone production process inspection or comprehensive process inspection are being manufactured in the same way as the products which have undergone design stage inspection.

**1.4.4** "Process identification audit" means the audit conducted to check on the conformity of quality system operation to the manufacturing and self-inspection processes required for manufacturing the products which have undergone design stage inspection.

**1.4.5** "Comprehensive quality control system audit" means the audit conducted to check on the conformity of quality system operation for the whole alarm and shut-off system manufacturing processes such as design, manufacturing and self-inspection.