

ICS 91.140
CCS P47



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 27790-2020

Replacing GB 27790-2011

City gas pressure regulator

城镇燃气调压器

Issued on: November 17, 2020

Implemented on: December 1, 2021

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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1 Scope

GB 27790-2020 is the Chinese national standard on city gas pressure regulator, in the field of construction materials and building. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 17 November 2020 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2021. Classification: ICS 91.140, CCS P47. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the terms and definitions, symbols, classification and marking, structure and materials, requirements, test methods, inspection rules, marking, labeling, instruction manual, packaging, transportation and storage of gas pressure regulators for city gas (hereinafter referred to as pressure regulators). This Standard applies to pressure regulators for regulating outlet pressure with an inlet pressure not exceeding

10.0 MPa, an operating temperature range not exceeding - 20°C~60°C and a lower limit not lower than the gas dew point temperature, and a nominal size not exceeding 400 mm. This Standard does not apply to pressure regulators for bottled liquefied petroleum gas and dimethyl ether.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 150 (all parts), Pressure vessels

GB/T 191, Packaging -- Pictorial marking for handling of goods

GB/T 229, Metallic materials -- Charpy pendulum impact test method

GB/T 528, Rubber, vulcanized or thermoplastic -- Determination of tensile stress- strain properties

GB/T 531.1, Rubber, vulcanized or thermoplastic -- Determination of indentation hardness -- Part

3 Terms and definitions, symbols

3.1 Terms and definitions For the purposes of this document, the following terms and definitions apply.

3.1.1 gas pressure regulator A device that automatically adjusts the gas outlet pressure to stabilize it within a certain pressure range.

3.1.2 series of pressure regulator A general term for voltage regulators of different nominal sizes with similar structures under the same design principle.

3.1.3 direct acting pressure regulator A pressure regulator that uses changes in outlet pressure to directly control the actuator to drive the movement of the regulating element.

3.1.4 indirect acting pressure regulator A pressure regulator that uses changes in outlet pressure, amplified by a controller, to control the driver to drive the regulating element to move.

3.1.5 meter pressure regulator A pressure regulator installed in front of the user's gas meter, with a nominal size not greater than DN25 and a maximum inlet pressure not greater than

0.2 MPa.

3.1.6 integrated monitor When the outlet pressure of the pressure regulator exceeds the

setting range of the working pressure regulator, a pressure regulating unit which is connected in series with the working pressure regulator starts to operate to maintain the outlet pressure of the pressure regulator within the allowable range.

4 Classification and models

4.1 Classification The classification of voltage regulators shall comply with the requirements of Table 2.

4.2 Models

4.2.1 Model compilation The product model compilation shall meet the following requirements.

4.2.2 Examples Examples of voltage regulator models are as follows:

5.2.1 Inlet and outlet connection types

5.2.1.1 The connection between the pressure regulator and the upstream and downstream pipelines shall meet the following requirements.

5.2.1.2 The nominal pressure of the flange shall not be less than the design pressure of the regulator housing and shall be selected from the series of

0.6 MPa,

5.2.2 Other configurations

5.2.2.1 The driving pressure of the indirect acting pressure regulator shall be provided by the inlet gas of the pressure regulator.

5.3.2 Metal materials

5.3.2.1 The metal materials of the voltage regulator parts shall meet the following requirements.

5.3.2.3 The materials of pressure-bearing parts shall meet the following requirements.

5.3.2.4 When the pressure-bearing parts of the voltage regulator are made of carbon steel, high-quality carbon structural steel shall be selected. The chemical composition of carbon steel and low-alloy steel used for welding shall meet the following

5.3.3 Non-metallic materials

5.3.3.1 Diaphragms and other rubber parts shall be made of rubber materials that are resistant to corrosion by the working medium. Diaphragms shall be reinforced with synthetic fibers.